

FCC SAR Test Report

APPLICANT : Xiaomi Communications Co., Ltd.
EQUIPMENT : Mobile Phone
BRAND NAME : Xiaomi
MODEL NAME : XIG07
FCC ID : 2AFZZPNFAR
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.



Approved by: Si Zhang

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



Table of Contents

1. Statement of Compliance	4
2. Administration Data	6
3. Data Reuse Approach	6
3.1 Introduction Section.....	6
3.2 Model Difference Information	6
3.3 Reference Detail Section.....	7
4. Guidance Applied	7
5. Equipment Under Test (EUT) Information	8
5.1 General Information.....	8
5.2 General LTE SAR Test and Reporting Considerations	10
5.3 General 5G NR SAR Test and Reporting Considerations	13
6. TA-SAR feature for RF Exposure compliance	14
7. Proximity Sensor Triggering Test.....	17
8. RF Exposure Limits.....	19
8.1 Uncontrolled Environment	19
8.2 Controlled Environment.....	19
9. Specific Absorption Rate (SAR)	20
9.1 Introduction	20
9.2 SAR Definition	20
10. System Description and Setup.....	21
10.1 E-Field Probe	22
10.2 Data Acquisition Electronics (DAE)	22
10.3 Phantom.....	23
10.4 Device Holder.....	24
11. Measurement Procedures.....	25
11.1 Spatial Peak SAR Evaluation	25
11.2 Power Reference Measurement.....	26
11.3 Area Scan.....	26
11.4 Zoom Scan	27
11.5 Volume Scan Procedures	27
11.6 Power Drift Monitoring	27
12. Test Equipment List	28
13. System Verification	29
13.1 Tissue Simulating Liquids.....	29
13.2 Tissue Verification	29
13.3 System Performance Check Results.....	31
14. RF Exposure Positions	33
14.1 Ear and handset reference point	33
14.2 Definition of the cheek position	34
14.3 Definition of the tilt position	35
14.4 Body Worn Accessory	36
14.5 Product Specific 10g SAR Exposure.....	37
14.6 Wireless Router	37
15. Conducted RF Output Power (Unit: dBm).....	38
16. Antenna Location	51
17. SAR Test Results	52
17.1 Head SAR	55
17.2 Hotspot SAR	62
17.3 Body Worn Accessory SAR.....	68
17.4 Product specific 10g SAR.....	73
17.5 Repeated SAR Measurement	77
18. Simultaneous Transmission Analysis	78
18.1 5G NR + LTE + WLAN + BT Sim-Tx analysis.....	79
18.2 Head Exposure Conditions.....	80
18.3 Hotspot Exposure Conditions.....	82
18.4 Body-Worn Accessory Exposure Conditions	85
18.5 Product specific 10g SAR Exposure Conditions.....	86
19. Uncertainty Assessment.....	88
20. References.....	89
Appendix A. Plots of System Performance Check	
Appendix B. Plots of High SAR Measurement	
Appendix C. DASY Calibration Certificate	
Appendix D. Test Setup Photos	



Appendix E. Conducted RF Output Power Table

Appendix F. LTE Carrier Aggregation Conducted RF Output Power Table

Appendix G. Power reduction mechanism verification

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA442515-03	Rev. 01	Initial issue of report.	Aug. 27, 2024



1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Xiaomi Communications Co., Ltd., Mobile Phone, XIG07**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Highest Simultaneous Transmission
			1g SAR (W/kg)			1g SAR (W/kg)
Licensed	GSM	GSM850	0.94	0.65	0.55	1.59
		GSM1900	1.09	0.59	0.22	
	WCDMA	WCDMA II	0.98	0.60	0.40	
		WCDMA IV	1.07	0.52	0.66	
		WCDMA V	1.03	0.80	0.66	
		LTE	LTE Band 12/17	1.08	0.93	
	LTE Band 13		1.05	0.87	0.70	
	LTE Band 26/5		1.08	0.63	0.48	
	LTE Band 4		0.94	0.63	0.80	
	LTE Band 2		1.08	0.68	0.39	
	LTE Band 7		0.97	0.58	0.88	
	LTE Band 38		0.87	0.48	0.57	
	LTE Band 41		0.92	0.42	0.51	
	LTE Band 42		1.00	0.87	0.93	
	5G NR		FR1 n41	1.08	0.75	
FR1 n77		1.06	0.98	1.01		
FR1 n78		1.08	1.03	1.06		
DTS	WLAN	2.4GHz WLAN	1.08	0.75	0.41	1.59
NII		5GHz WLAN	1.09	0.66	0.52	1.59
DSS	Bluetooth	2.4GHz Bluetooth	0.50	0.17	<0.10	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	GSM	GSM850	1.41			3.86
	WCDMA	WCDMA IV	2.49			
		WCDMA V	1.14			
	LTE	LTE Band 13	1.83			
		LTE Band 26/5	2.19			
		LTE Band 4	2.17			
		LTE Band 2	1.84			
		LTE Band 7	2.48			
		LTE Band 38	1.42			
		LTE Band 41	1.52			
		LTE Band 42	2.54			
	5G NR	FR1 n41	2.51			
		FR1 n77	2.56			
		FR1 n78	2.50			
NII	WLAN	5GHz WLAN	2.59			3.86
Date of Testing:			2024/7/13 ~ 2024/8/5			

Remark:

1. This device supports LTE B5 / B17 and B26 / B12. Since the supported frequency span for LTE B5 / B17 falls completely within the supports frequency span for LTE B26 / B12, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B26 / B12.
2. This device supports 5GNR n5 and n26. Since the supported frequency span for 5GNR n5 falls completely within the supports frequency span for n26, both 5GNR bands have the same target power, and both 5GNR bands share the same transmission path; therefore, SAR was only assessed for n26.

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	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer	
Company Name	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

3. Data Reuse Approach

3.1 Introduction Section

This application re-uses data collected on a similar device, FCC ID: 2AFZZPNFAG (reference model) and FCC ID: 2AFZZPNFAR (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 max SAR summary was always choose 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: 2AFZZPNFAR

3.2 Model Difference Information

The **main** difference between FCC ID: 2AFZZPNFAG and FCC ID: 2AFZZPNFAR is as below:

- Removed LTE Band 32/48/66, and 5G NR n2/n5/n7/n8/n12/n20/n26/n66/n38/n48.
- 5GNR n77/78 changed from Power class 2 to Power class 3.

Other differences and all the details of similarity and difference can be found in the confidential documents (XIG07_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(Ant5)	2AFZZPNFAG	Original Grant	FA442515	2AFZZPNFAR	Spot check
		GSM	GSM1900(Ant4)				2AFZZPNFAR	Full Test
		WCDMA	B5/2(Ant5)/4(Ant4)	2AFZZPNFAG	Original Grant	FA442515	2AFZZPNFAR	Spot check
		WCDMA	B2(Ant4)/4(Ant5)				2AFZZPNFAR	Full Test
		LTE	B2/4/5/7/12/13/17/26/38/41/42	2AFZZPNFAG	Original Grant	FA442515	2AFZZPNFAR	Spot check
		LTE	B4(Ant5)/38(Ant5)				2AFZZPNFAR	Full Test
		5G NR FR1	n41/n77/n78				2AFZZPNFAR	Full Test
	DTS	BLE/ WiFi	2400~2483.5	2AFZZPNFAG	Original Grant	FA442515	2AFZZPNFAR	Spot check
	NII	Wi-Fi	5150 ~ 5250 5250 ~ 5350 5470 ~ 5725 5725 ~ 5850	2AFZZPNFAG	Original Grant	FA442515	2AFZZPNFAR	Spot check
			5925 ~ 6425 6425 ~ 6525 6525 ~ 6875 6875 ~ 7125					
	6XD	Wi-Fi					2AFZZPNFAR	Full Test
	DXX	NFC	13.56				2AFZZPNFAR	Full Test
	DSS	Bluetooth	2400~2483.5	2AFZZPNFAG	Original Grant	FA442515	2AFZZPNFAR	Spot check

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
- 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 Phone
Brand Name	Xiaomi
Model Name	XIG07
FCC ID	2AFZZPNFAR
IMEI Code	IMEI1: 861065070004685 IMEI2: 861065070004693
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 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
Mode	GSM/GPRS/EGPRS/DTM RMC/AMR 12.2Kbps HSDPA/HSUPA DC-HSDPA HSPA+(16QAM uplink is 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 802.11ax HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/VHT160 WLAN 5GHz 802.11ax HE20/HE40/HE80/HE160 WLAN 6GHz 802.11a/ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC: ASK
HW Version	1351N12A
SW Version	Xiaomi HyperOS 1.0
GSM / (E)GPRS Transfer mode	Class A – EUT can support Packet Switched and Circuit Switched Network simultaneously.

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). WLAN6GHz has no hotspot function.
4. The 2.4GHz/5GHz/6GHz WLAN can transmit in SISO/MIMO antenna mode.
5. This device supports DTM operation up to multi-slot class 11, and support GRPS/EGRPS mode up to multi-slot class 12.
6. This device supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active).
7. The device implements proximity sensor/receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the MediaTek TA-SAR 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. The maximum power that this device transmits in the field is limited among the 3 power tables (At-Head, Body-worn&Extremity, Hotspot). Default power with WLAN is available only in the conducted setup.
8. For WLAN/BT when transmit simultaneously with each other, or when transmit simultaneously with WWAN/BT, the device power will be reduced power at head, body-worn, hotspot and extremity conditions.
9. For 5G NR bands test, using FTM (Factory Test Mode) with default 100% duty cycle transmission to perform SAR testing.
10. The device support DBS (Dual Band Simultaneous) function, when the device WLAN 2.4GHz and WLAN 5GHz or WLAN 6GHz transmit at the same time for simultaneous transmission compliance.
11. There are two samples, the difference between them is memory capacity: sample 1 is 12+512G capacity, sample 2 is 12+256G capacity. According to the differences, sample 1 was chosen to perform full test.
12. This device has NFC function and the NFC SAR report will be separately submitted.
13. SAR and Power density test report for WLAN 6GHz U-NII-5/6/7/8 will be separately submitted. About co-located SAR with WWAN/Bluetooth always chose higher SAR of WLAN5GHz U-NII-1/2A/2C/3 and WLAN 6GHz U-NII-5/6/7/8.
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)
SA	n41	TDD	30	20, 30, 50
	n77	TDD	30	20, 30, 40, 50, 60, 80, 90, 100
	n78	TDD	30	20, 30, 40, 50, 60, 80, 90, 100
NSA	n77	TDD	30	20, 30, 40, 50, 60, 80, 90, 100
	n78	TDD	30	20, 30, 40, 50, 60, 80, 90, 100

5.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																																													
FCC ID	2AFZZPNFAR																																																																												
Equipment Name	Mobile Phone																																																																												
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550 MHz																																																																												
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz																																																																												
uplink modulations used	QPSK / 16QAM / 64QAM / 256QAM																																																																												
LTE Voice / Data requirements	Voice and Data																																																																												
LTE Release Version	R15, Cat18																																																																												
CA Support	Supported, Uplink and Downlink																																																																												
LTE MPR permanently built-in by design	<table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</th></tr><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>							Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3								Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3																																																																													
Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)																																																																						
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz																																																																							
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1																																																																						
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1																																																																						
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2																																																																						
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2																																																																						
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3																																																																						
256 QAM	≥ 1						≤ 5																																																																						
LTE A-MPR	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)																																																																												
Spectrum plots for RB configuration	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.																																																																												
Power reduction applied to satisfy SAR compliance	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.																																																																												
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 15.																																																																												
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for intra-band and inter-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.																																																																												



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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	20407	824.7	20415	825.5	20425	826.5	20450	829	20450	829	20450	829		
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5		
H	20643	848.3	20635	847.5	20625	846.5	20600	844	20600	844	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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510	20850	2510	20850	2510		
M	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535		
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560	21350	2560	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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	23017	699.7	23025	700.5	23035	701.5	23060	704	23060	704	23060	704		
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5		
H	23173	715.3	23165	714.5	23155	713.5	23130	711	23130	711	23130	711		
LTE Band 13														
	Bandwidth 5 MHz				Bandwidth 10 MHz									
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)							
L	23205		779.5		23230		782							
M	23230		782											
H	23255		784.5											
LTE Band 17														
	Bandwidth 5 MHz				Bandwidth 10 MHz									
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)							
L	23755		706.5		23780		709							
M	23790		710		23790		710							
H	23825		713.5		23800		711							
LTE Band 26														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5	26765	821.5		
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5		
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5	26965	841.5		
LTE Band 38														
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580	37850	2580	37850	2580		
M	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595		
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610	38150	2610	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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506	39750	2506	39750	2506		
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5	40185	2549.5	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 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 BW**

Band	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz
LTE Band 5	Yes	Yes	Yes	Yes		
LTE Band 26	Yes	Yes	Yes	Yes	Yes	
LTE Band 12	Yes	Yes	Yes	Yes		
LTE Band 17			Yes	Yes		

2) LTE Bands tune up:

Band	Ant	Full Tune-up Limit	ECI 1 Tune-up Limit	ECI 3 Tune-up Limit	ECI 4 Tune-up Limit	ECI 5 Tune-up Limit
LTE Band 5	Ant.0	25.7	25.7	25.7	25.7	25.7
LTE Band 26	Ant.0	25.7	25.7	25.7	25.7	25.7
LTE Band 12	Ant.0	25.5	25.5	25.5	25.5	25.5
LTE Band 17	Ant.0	25.5	25.5	25.5	25.5	25.5

Band	Ant	Full Tune-up Limit	ECI 1 Tune-up Limit	ECI 3 Tune-up Limit	ECI 4 Tune-up Limit	ECI 5 Tune-up Limit
LTE Band 5	Ant.1	25.5	21.5	23	25.5	21.5
LTE Band 26	Ant.1	25.5	22	23.5	25.5	22
LTE Band 12	Ant.1	25.5	24.5	25.5	25.5	24.5
LTE Band 17	Ant.1	25.5	24	25.5	25.5	24

5.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz
Channel Bandwidth	The detail please refers to section 5.1 5G NR FR1 bands table.
SCS	FDD/TDD: SCS15KHz/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 n77	LTE B41
LTE Anchor Bands for n78	LTE B7

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band						
NR Band 41 SCS30KHz						
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 50MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	501204	2506.02	502200	2511	504204	2521.02
M	518598	2592.99	518598	2592.99	518598	2592.99
H	535998	2679.99	534996	2674.98	532998	2664.99

NR Band 77 SCS30KHz																
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		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)
L	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840.00	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	664666	3969.99	664332	3964.98	664000	3960	663666	3954.99	663332	3949.98	662666	3939.99	662332	3934.98	662000	3930

NR Band 78 SCS30KHz																
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		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)
L	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750.00	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	652666	3789.99	652332	3784.98	652000	3780	651666	3774.99	651332	3769.98	650666	3759.99	650332	3754.98		

For <3450 MHz ~ 3550 MHz >

NR Band 77 SCS30KHz																
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		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)
L	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632668	3490.02	633000	3495		
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98
H	636000	3540	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634000	3510	633666	3504.99		

NR Band 78 SCS30KHz																
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		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)
L	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632668	3490.02	633000	3495		
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98
H	636000	3540	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634000	3510	633666	3504.99		

6. TA-SAR feature for RF Exposure compliance

WWAN bands are all enabled with MediaTek TA-SAR feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time.

Note that WLAN operations are not enabled with TA-SAR feature.

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

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

The P_{limit} values correspond to SAR_{design_target}. The power will be fixed at the static reduce power level at different exposure conditions for RF exposure compliance. For the GSM (TDD) P_{limit} power levels in the table correspond to the burst average power levels which don't account for TX duty cycle.

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 TA-SAR algorithm. SAR char will be entered via the MediaTek's NV suggestion to enable the TA-SAR 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 ECI

<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 TA-SAR to control and manage RF exposure for $f < 6\text{GHz}$.



The TA-SAR 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.

TA-SAR 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.

<Plimit for supported technologies and bands >

Band	Antenna	Head ECI1	Extremity ECI3	Body Worn ECI4	Hotspot ECI5	Pmax	Total Uncertainty dB (k=2)
GSM850	Ant 0	29.9	24.0	30.8	27.5	24.0	1.0
GSM850	Ant 1	20.0	23.0	25.9	20.0	23.0	1.5
GSM1900	Ant 4	20.5	21.0	29.0	20.5	21.0	1.0
GSM1900	Ant 5	19.0	20.5	27.2	19.0	20.5	1.5
WCDMA II	Ant 4	19.5	23.0	27.9	19.5	24.0	1.0
WCDMA II	Ant 5	19.0	22.5	22.5	19.0	23.5	1.5
WCDMA IV	Ant 4	18.5	22.5	25.8	18.5	24.0	1.0
WCDMA IV	Ant 5	19.5	23.0	23.0	19.5	23.5	1.5
WCDMA V	Ant 0	29.1	24.0	30.0	27.9	24.0	1.0
WCDMA V	Ant 1	20.0	22.0	24.9	20.0	23.0	1.5
LTE Band 12	Ant 0	30.6	24.5	29.7	27.1	24.5	1.0
LTE Band 12	Ant 1	23.0	24.0	27.1	23.0	24.0	1.5
LTE Band 17	Ant 0	30.6	24.5	29.7	27.1	24.5	1.0
LTE Band 17	Ant 1	22.5	24.0	27.1	22.5	24.0	1.5
LTE Band 13	Ant 0	31.5	25.0	30.4	27.4	25.0	0.7
LTE Band 13	Ant 1	20.5	24.0	25.6	20.5	24.0	1.5
LTE Band 5	Ant 0	30.1	25.0	29.6	27.0	25.0	0.7
LTE Band 5	Ant 1	20.0	21.5	27.3	20.0	24.0	1.5
LTE Band 26	Ant 0	30.1	25.0	29.6	27.0	25.0	0.7
LTE Band 26_Other PA	Ant 0	31.4	24.0	29.5	26.9	24.0	1.0
LTE Band 26	Ant 1	20.5	22.0	27.3	20.5	24.0	1.5
LTE Band 26_Other PA	Ant 1	20.0	22.5	27.8	20.0	23.5	1.5
LTE Band 4	Ant 4	19.5	23.5	26.0	19.5	25.0	0.7
LTE Band 4	Ant 2	33.0	23.5	29.8	22.5	23.5	1.5
LTE Band 4	Ant 5	19.7	22.7	22.7	19.7	24.2	1.5
LTE Band 4	Ant 3	17.0	19.5	28.2	17.0	24.0	1.5
LTE Band 2	Ant 4	20.0	22.5	28.2	20.0	24.0	1.0
LTE Band 2	Ant 2	33.2	21.5	28.2	21.0	22.5	1.5
LTE Band 2	Ant 5	18.5	22.0	22.0	18.5	23.5	1.5
LTE Band 2	Ant 3	18.5	19.0	28.1	18.5	23.0	1.5
LTE Band 7	Ant 4	19.0	20.5	25.6	19.0	25.0	0.7
LTE Band 7_Other PA	Ant 4	16.0	17.5	24.6	16.0	22.0	1.5
LTE Band 7	Ant 2	31.9	20.5	28.6	20.5	23.5	1.5
LTE Band 7_Other PA	Ant 2	30.4	20.0	28.9	20.0	23.0	1.5
LTE Band 7	Ant 5	19.7	21.2	21.2	19.7	24.2	1.5
LTE Band 7_Other PA	Ant 5	19.5	21.0	21.0	19.5	24.0	1.0
LTE Band 7	Ant 3	17.0	17.5	26.3	17.0	24.0	1.5
LTE Band 7_Other PA	Ant 3	16.0	16.5	30.0	16.0	23.0	1.5
LTE Band 38	Ant 4	18.0	19.5	27.3	18.0	23.0	0.7
LTE Band 38	Ant 2	32.9	20.0	28.2	20.0	21.0	1.5
LTE Band 38	Ant 5	19.2	19.7	19.7	19.2	22.2	1.5
LTE Band 38	Ant 3	16.5	16.5	24.9	16.5	21.5	1.5
LTE Band 41	Ant 4	18.0	19.5	26.9	18.0	23.0	0.7
LTE Band 41_Other PA	Ant 4	13.0	14.5	23.4	13.0	19.5	1.5
LTE Band 41	Ant 2	32.2	21.0	26.6	21.0	21.5	1.5
LTE Band 41_Other PA	Ant 2	21.1	21.0	26.3	24.6	21.0	1.5
LTE Band 41	Ant 5	18.7	19.7	19.7	18.7	22.2	1.5

LTE Band 41_Other PA	Ant 5	17.0	18.0	18.0	17.0	22.0	1.0
LTE Band 41	Ant 3	17.0	17.0	25.5	17.0	22.0	1.5
LTE Band 41_Other PA	Ant 3	14.5	14.5	25.1	14.5	21.0	1.5
LTE Band 42	Ant 6	16.0	18.0	27.2	16.0	23.0	0.7
LTE Band 42	Ant 8	17.5	19.0	26.8	17.5	20.5	1.5
LTE Band 42	Ant 7	15.0	16.5	16.5	15.0	21.5	1.5
LTE Band 42	Ant 9	32.2	14.0	19.0	14.0	19.5	1.5
FR1 n41	Ant 4	19.0	19.0	24.8	19.0	25.0	0.7
FR1 n41	Ant 2	29.3	21.5	27.2	21.5	23.5	1.5
FR1 n41	Ant 5	21.2	21.2	21.2	21.2	24.2	1.5
FR1 n41	Ant 3	18.0	19.0	23.1	18.0	23.5	1.5
Part27O FR1 n77	Ant 6	17.0	20.0	26.8	17.0	25.0	0.7
Part27Q FR1 n77	Ant 6	17.0	20.0	25.0	17.0	25.0	0.7
Part27O FR1 n77	Ant 8	17.0	20.0	22.3	17.0	22.0	1.5
Part27Q FR1 n77	Ant 8	17.0	20.0	25.5	17.0	22.0	1.5
Part27O FR1 n77	Ant 7	16.5	17.5	17.5	16.5	23.0	1.5
Part27Q FR1 n77	Ant 7	16.5	17.5	17.5	16.5	23.0	1.5
Part27O FR1 n77	Ant 9	23.7	16.0	19.5	15.5	21.0	1.5
Part27Q FR1 n77	Ant 9	23.7	16.0	19.5	15.5	21.0	1.5
Part27O FR1 n78	Ant 6	17.0	20.0	27.0	17.0	25.0	0.7
Part27Q FR1 n78	Ant 6	17.0	20.0	25.3	17.0	25.0	0.7
Part27O FR1 n78	Ant 8	16.0	17.0	23.4	16.0	23.0	1.5
Part27Q FR1 n78	Ant 8	16.0	17.0	24.8	16.0	23.0	1.5
Part27O FR1 n78	Ant 7	15.0	16.0	16.0	15.0	23.5	1.5
Part27Q FR1 n78	Ant 7	15.0	16.0	16.0	15.0	23.5	1.5
Part27O FR1 n78	Ant 9	24.0	13.0	18.0	13.0	22.5	1.5
Part27Q FR1 n78	Ant 9	24.0	13.0	18.0	13.0	22.5	1.5

Note: 1) * P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to P_{max} + Total uncertainty.

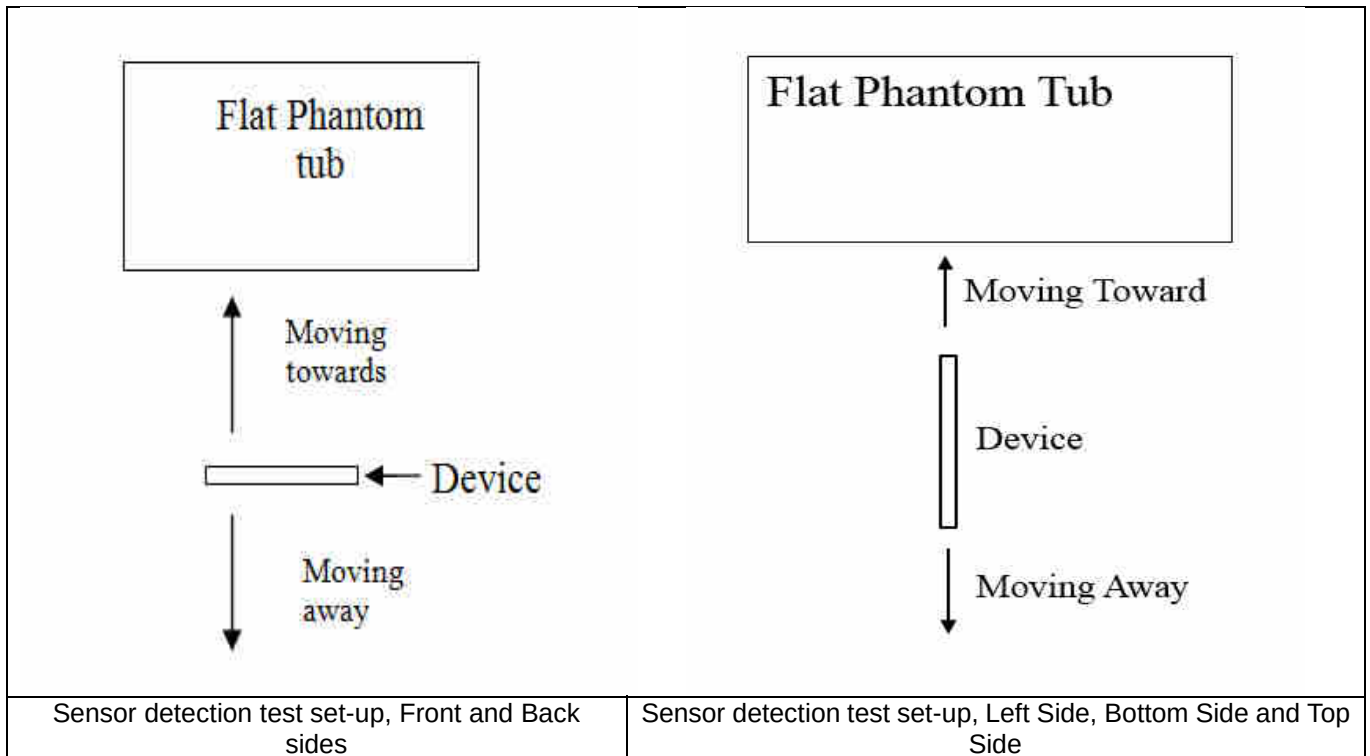
2) All P_{limit} power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).

3) The max allowed output power is the P_{limit} + Total uncertainty, and if P_{limit} is higher than P_{max} , the device output power will be P_{max} 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 (3980MHz) and lowest (850MHz) 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 or finger or hand at the front or back or bottom or left or top side of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
3. The sensors can use to detect the proximity of the user's body or handheld states at the front or back or bottom or left or top side of the device use a detection threshold distance. When front/back/ left /top/bottom sides of body or handheld condition is detected reduced power will be active. The trigger distance shown in the sections below.
4. 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 for Ant 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	16	16	16	16	16	16	16	16

< Sensor for Ant 1/3/4/6/8/9>

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	6	6	6	6	6	6	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:

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

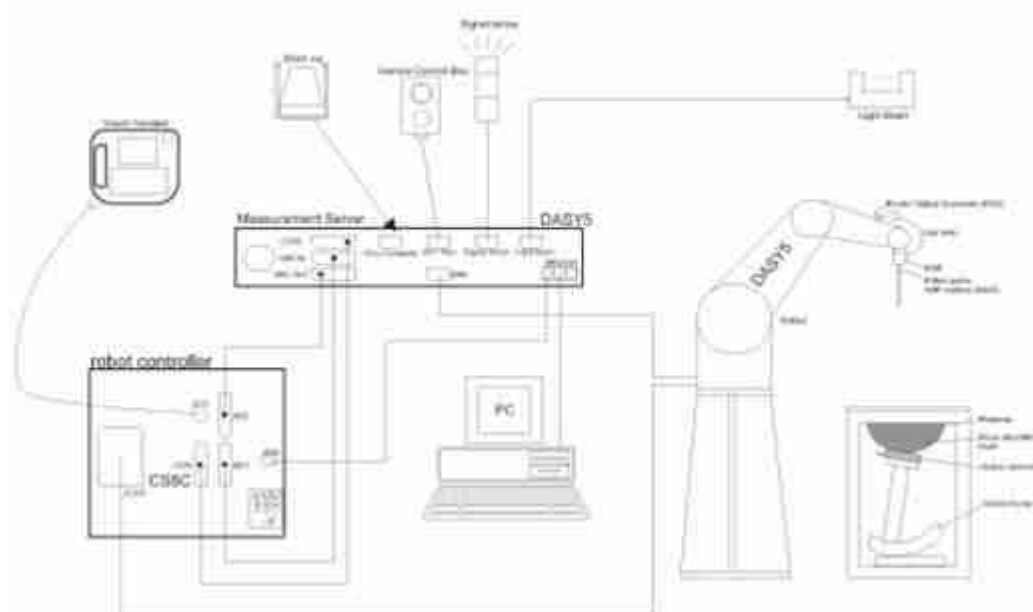
SAR is expressed in units of Watts per kilogram (W/kg)

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

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 WinXP or Win7 and the DASY 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	4 MHz – 10 GHz Linearity: ± 0.2 dB (30 MHz – 10 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/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 from 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 dB) 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	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$	≤ 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 $\leq$ 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 to 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 whose 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: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			≤ 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: $\Delta z_{\text{Zoom}}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$	
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 <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> 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 to 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	1076	May 09, 2022	May 07, 2025
SPEAG	3700MHz System Validation Kit	D3700V2	1037	May 09, 2022	May 07, 2025
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	Data Acquisition Electronics	DAE4	1437	Mar. 14, 2024	Mar. 13, 2025
SPEAG	Data Acquisition Electronics	DAE4	1210	Jan. 15, 2024	Jan. 14, 2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	7641	Jun. 03, 2024	Jun. 02, 2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	7577	Dec. 13, 2023	Dec. 12, 2024
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1670	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1795	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201341952	Dec. 28, 2023	Dec. 27, 2024
Anritsu	Radio communication analyzer	MT8821C	6272416837	Apr. 08, 2024	Apr. 07, 2025
Anritsu	Radio communication analyzer	MT8821C	6272416846	Apr. 08, 2024	Apr. 07, 2025
Anritsu	Radio communication analyzer	MT8821C	6272416863	Apr. 08, 2024	Apr. 07, 2025
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 Sensor	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	Power Sensor	NRP50S	101254	Apr. 08, 2024	Apr. 07, 2025
R&S	Power Sensor	NRP8S	109228	Apr. 08, 2024	Apr. 07, 2025
R&S	CBT BLUETOOTH TESTER	CBT	100963	Dec. 28, 2023	Dec. 27, 2024
R&S	Spectrum Analyzer	FSP7	100818	Jul. 04, 2024	Jul. 03, 2025
TES	Hygrometer	1310	200505600	Jul. 05, 2024	Jul. 04, 2025
Anymetre	Thermo-Hygrometer	JR593	2015030903	Jan. 02, 2024	Jan. 01, 2025
Anymetre	Thermo-Hygrometer	JR593	2015102801	Jan. 02, 2024	Jan. 01, 2025
Anymetre	Thermo-Hygrometer	JR593	2018100802	Oct. 19, 2023	Oct. 18, 2024
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:

- 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.
- 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.
- 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 (ϵ_r)
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. (°C)	Conductivity (σ)	Permittivity (ε _r)	Conductivity Target (σ)	Permittivity Target (ε _r)	Delta (σ) (%)	Delta (ε _r) (%)	Limit (%)	Date
750	Head	22.6	0.921	43.500	0.89	41.90	3.48	3.82	±5	2024/7/13
750	Head	22.3	0.911	42.575	0.89	41.90	2.36	1.61	±5	2024/7/26
835	Head	22.5	0.930	42.551	0.90	41.50	3.33	2.53	±5	2024/7/14
835	Head	22.2	0.934	41.450	0.90	41.50	3.78	-0.12	±5	2024/7/27
1750	Head	22.5	1.356	41.225	1.37	40.10	-1.02	2.81	±5	2024/7/17
1750	Head	22.4	1.351	39.859	1.37	40.10	-1.39	-0.60	±5	2024/7/28
1900	Head	22.7	1.433	39.615	1.40	40.00	2.36	-0.96	±5	2024/7/16
1900	Head	22.3	1.436	38.697	1.40	40.00	2.57	-3.26	±5	2024/7/29
2450	Head	22.4	1.788	37.863	1.80	39.20	-0.67	-3.41	±5	2024/7/17
2450	Head	22.4	1.775	39.491	1.80	39.20	-1.39	0.74	±5	2024/7/30
2600	Head	22.6	1.899	37.661	1.96	39.00	-3.11	-3.43	±5	2024/7/18
2600	Head	22.1	1.934	40.142	1.96	39.00	-1.33	2.93	±5	2024/7/31
3500	Head	22.4	2.895	36.655	2.91	37.90	-0.52	-3.28	±5	2024/7/19
3500	Head	22.3	2.849	37.130	2.91	37.90	-2.10	-2.03	±5	2024/7/25
3700	Head	22.4	3.051	36.395	3.12	37.70	-2.21	-3.46	±5	2024/7/20
3700	Head	22.1	3.003	36.874	3.12	37.70	-3.75	-2.19	±5	2024/7/24
3900	Head	22.6	3.195	36.180	3.33	37.51	-4.05	-3.55	±5	2024/7/21
3900	Head	22.4	3.256	36.643	3.33	37.51	-2.22	-2.31	±5	2024/7/23
5250	Head	22.5	4.547	37.235	4.71	35.95	-3.46	3.57	±5	2024/7/22
5250	Head	22.1	4.554	37.437	4.71	35.95	-3.31	4.14	±5	2024/8/5
5600	Head	22.7	4.922	36.071	5.07	35.50	-2.92	1.61	±5	2024/7/23
5600	Head	22.3	4.912	36.972	5.07	35.50	-3.12	4.15	±5	2024/7/24
5750	Head	22.3	5.035	34.831	5.22	35.35	-3.54	-1.47	±5	2024/7/24
5750	Head	22.2	5.068	36.740	5.22	35.35	-2.91	3.93	±5	2024/7/28



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 (%)
2024/7/13	750	Head	250	1099	7641	1437	2.150	8.540	8.6	0.70
2024/7/26	750	Head	250	1099	7577	1210	2.150	8.540	8.6	0.70
2024/7/14	835	Head	250	4d162	7641	1437	2.330	9.640	9.32	-3.32
2024/7/27	835	Head	250	4d162	7577	1210	2.300	9.640	9.2	-4.56
2024/7/17	1750	Head	250	1137	7641	1437	9.330	36.500	37.32	2.25
2024/7/28	1750	Head	250	1137	7577	1210	9.170	36.500	36.68	0.49
2024/7/16	1900	Head	250	5d182	7641	1437	9.800	39.600	39.2	-1.01
2024/7/29	1900	Head	250	5d182	7577	1210	9.560	39.600	38.24	-3.43
2024/7/17	2450	Head	250	924	7641	1437	13.100	52.300	52.4	0.19
2024/7/30	2450	Head	250	924	7577	1210	13.100	52.300	52.4	0.19
2024/7/18	2600	Head	250	1070	7641	1437	14.400	56.200	57.6	2.49
2024/7/31	2600	Head	250	1070	7577	1210	14.900	56.200	59.6	6.05
2024/7/19	3500	Head	100	1076	7641	1437	6.780	66.200	67.8	2.42
2024/7/25	3500	Head	100	1076	7577	1210	6.560	66.200	65.6	-0.91
2024/7/20	3700	Head	100	1037	7641	1437	6.970	66.700	69.7	4.50
2024/7/24	3700	Head	100	1037	7577	1210	6.590	66.700	65.9	-1.20
2024/7/21	3900	Head	100	1022	7641	1437	6.740	66.400	67.4	1.51
2024/7/23	3900	Head	100	1022	7577	1210	6.620	66.400	66.2	-0.30
2024/7/22	5250	Head	100	1341	7641	1437	8.170	80.700	81.7	1.24
2024/8/5	5250	Head	100	1341	7577	1210	8.160	80.700	81.6	1.12
2024/7/23	5600	Head	100	1341	7641	1437	8.510	84.500	85.1	0.71
2024/7/24	5600	Head	100	1341	7577	1210	8.410	84.500	84.1	-0.47
2024/7/24	5750	Head	100	1341	7641	1437	8.310	80.600	83.1	3.10
2024/7/28	5750	Head	100	1341	7577	1210	8.030	80.600	80.3	-0.37

<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 (%)
2024/7/13	750	Head	250	1099	7641	1437	1.350	5.650	5.4	-4.42
2024/7/26	750	Head	250	1099	7577	1210	1.450	5.650	5.8	2.65
2024/7/14	835	Head	250	4d162	7641	1437	1.490	6.260	5.96	-4.79
2024/7/27	835	Head	250	4d162	7577	1210	1.530	6.260	6.12	-2.24
2024/7/17	1750	Head	250	1137	7641	1437	4.860	19.200	19.44	1.25
2024/7/28	1750	Head	250	1137	7577	1210	4.790	19.200	19.16	-0.21
2024/7/16	1900	Head	250	5d182	7641	1437	5.010	20.200	20.04	-0.79
2024/7/29	1900	Head	250	5d182	7577	1210	4.820	20.200	19.28	-4.55
2024/7/17	2450	Head	250	924	7641	1437	6.220	24.500	24.88	1.55
2024/7/30	2450	Head	250	924	7577	1210	6.110	24.500	24.44	-0.24
2024/7/18	2600	Head	250	1070	7641	1437	6.230	24.600	24.92	1.30
2024/7/31	2600	Head	250	1070	7577	1210	6.410	24.600	25.64	4.23
2024/7/19	3500	Head	100	1076	7641	1437	2.650	25.500	26.5	3.92
2024/7/25	3500	Head	100	1076	7577	1210	2.510	25.500	25.1	-1.57
2024/7/20	3700	Head	100	1037	7641	1437	2.540	24.600	25.4	3.25
2024/7/24	3700	Head	100	1037	7577	1210	2.470	24.600	24.7	0.41
2024/7/21	3900	Head	100	1022	7641	1437	2.390	23.700	23.9	0.84
2024/7/23	3900	Head	100	1022	7577	1210	2.310	23.700	23.1	-2.53
2024/7/22	5250	Head	100	1341	7641	1437	2.350	23.100	23.5	1.73
2024/8/5	5250	Head	100	1341	7577	1210	2.330	23.100	23.3	0.87
2024/7/23	5600	Head	100	1341	7641	1437	2.470	24.000	24.7	2.92
2024/7/24	5600	Head	100	1341	7577	1210	2.450	24.000	24.5	2.08
2024/7/24	5750	Head	100	1341	7641	1437	2.370	22.700	23.7	4.41
2024/7/28	5750	Head	100	1341	7577	1210	2.290	22.700	22.9	0.88

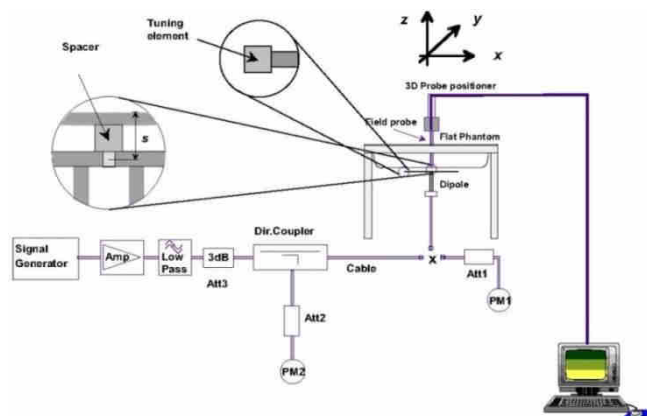


Fig 11.3.1 System Performance Check Setup



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.

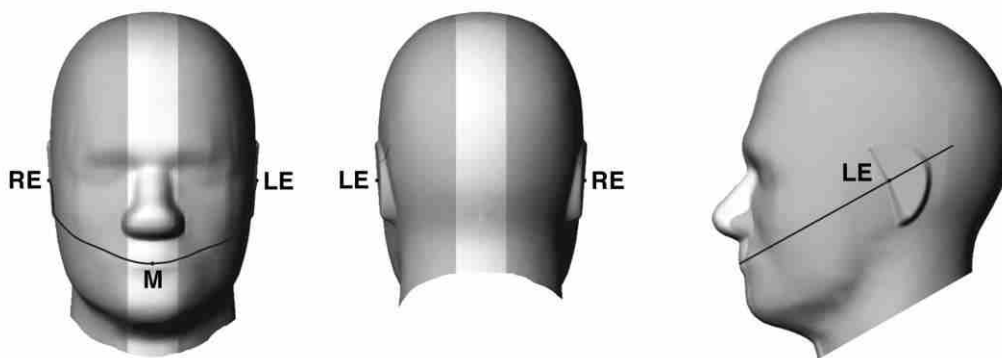


Fig 12.1.1 Front, back, and side views of SAM twin phantom

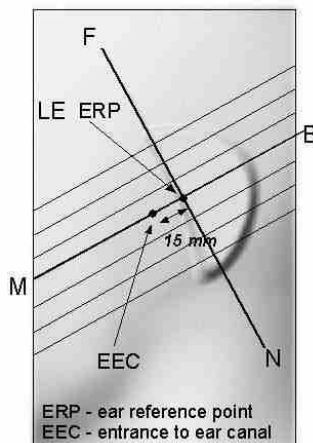


Fig 12.1.2 Close-up side view of phantom showing the ear region.

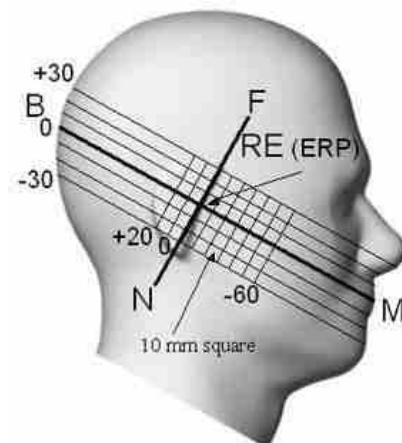


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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 w_t 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 w_b 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.

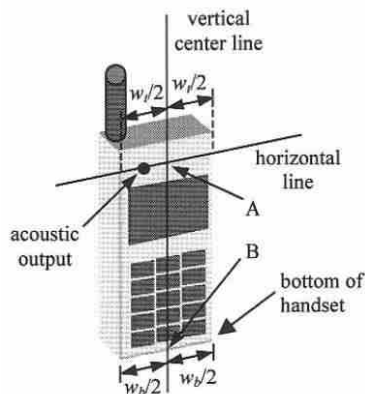


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case"

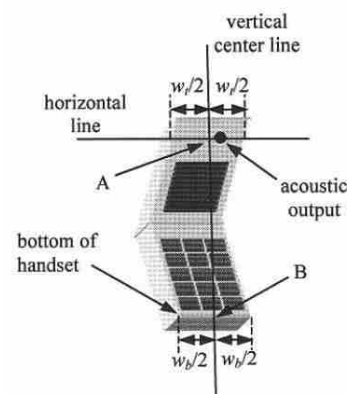


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

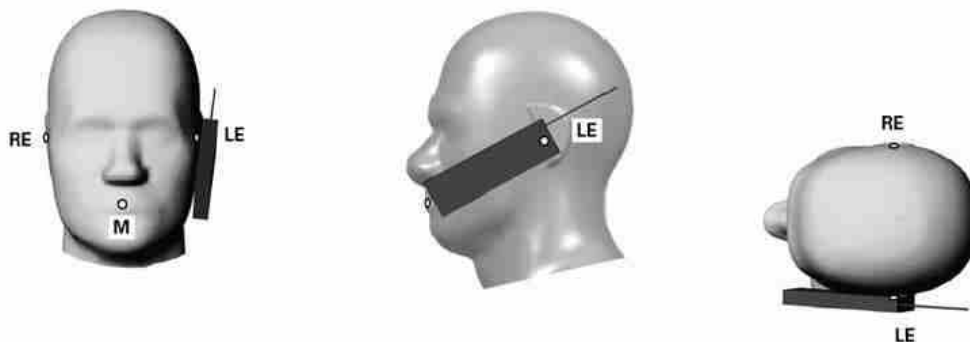


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

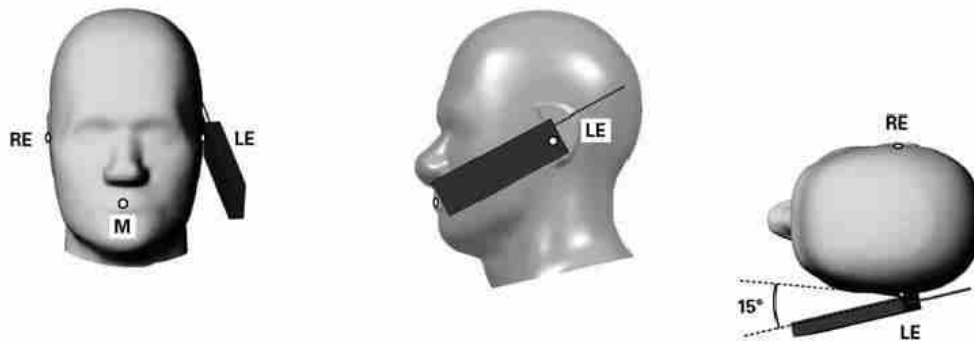


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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 $> 1.2 \text{ W/kg}$, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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.

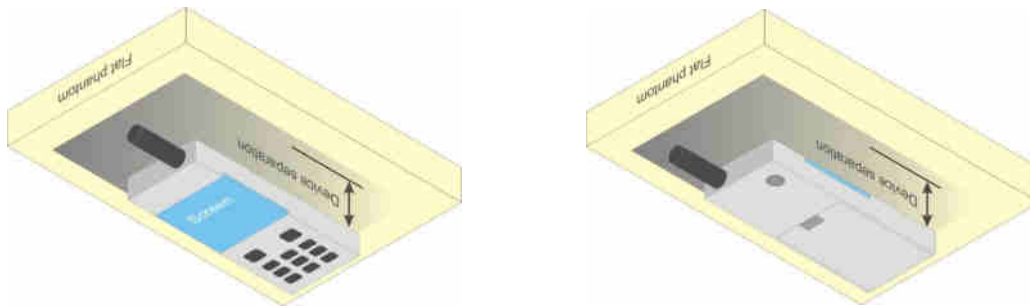


Fig 12.4 Body Worn Position

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 ($L \times W \geq 9$ 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 from 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.

<GSM Conducted Power>

1. For DTM multi-slot class mode, the device was linked with base station simulator (Agilent E5515C) and transmit maximum power on maximum number of TX slots, i.e. one CS timeslot, and additional PS timeslots (1 for DTM class 5 and 9, 2 for DTM class 11) in one TDMA frame.
2. Agilent E5515C was used to setup the device operated under DTM mode for power measurement and SAR testing. For conducted power, the power of the burst for voice and the power of the bursts for data was reported separately in the table below, and the frame-average power is derived below to determine SAR testing.
$$DTM \text{ frame average power (dBm)} = 10 \cdot \log [\sum (\text{power of each slot, in mW}) / 8]$$
3. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
4. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE / DTM modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
5. Other configurations of GSM / GPRS / EDGE / DTM are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For HSPA+ devices supporting 16 QAM in the uplink, power measurements procedure is according to the configurations in Table C.11.1.4 of 3GPP TS 34.121-1.
4. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5
Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$. Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases. Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.							

Setup Configuration

HSUPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{EC}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CDI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CDI} = 5/15$ with $\beta_{HS} = 5/15 * \beta_c$.

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

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

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

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

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

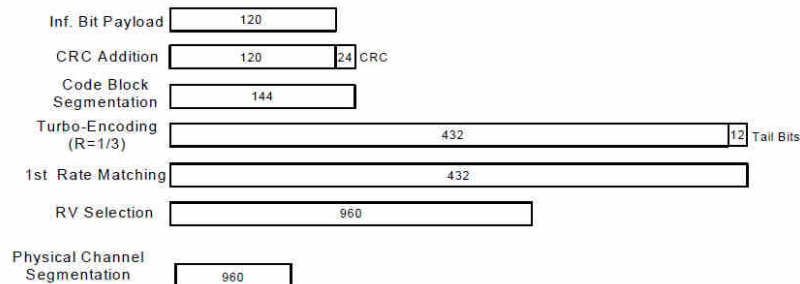


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)
Setup Configuration

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

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

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

Sub-test	β_c (Note 3)	β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

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

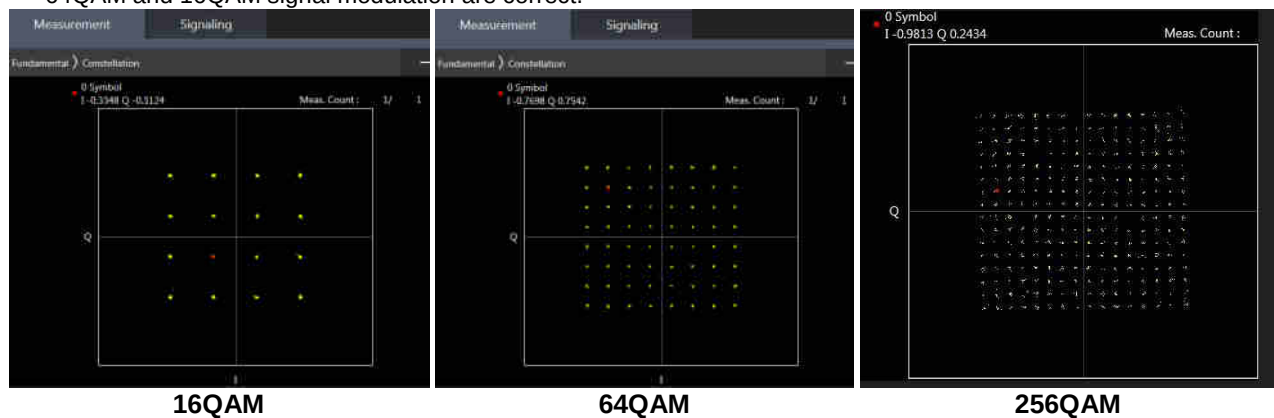
Setup Configuration
<WCDMA Conducted Power>
General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA / HSPA+ to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA / HSPA+) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+.

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B5 / B17 SAR test was covered by B26 / B12; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to May 2017 TCB workshop, for 16QAM and 64QAM, 256QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 256QAM, 64QAM and 16QAM signal modulation are correct.



<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.

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

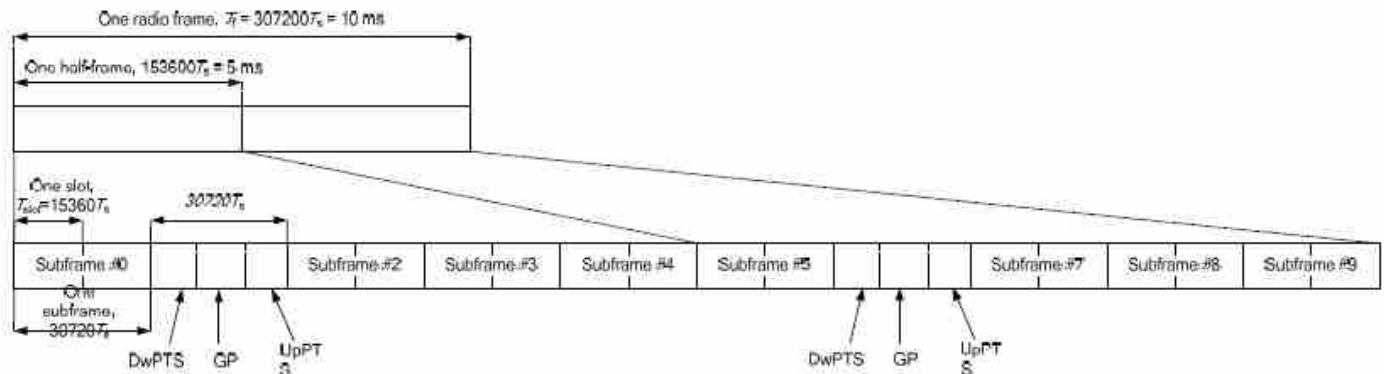


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
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:

- Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.167)/5 = 63.3\%$
- for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.143)/5 = 62.9\%$
- 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. All permutations exist. No restrictions on Pcell & Scell combinations.
4. 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_41C	41C	3CC-2	1	CA_41A-42C	41A-42C		1	CA_41C-42C	41C,42C	
2	CA_41A-42A	41A,42A		2	CA_41C-42A	41C-42A					
3	CA_42C	42C	3CC-1	3	CA_41D	41D					

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.

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

LTE 4x4 MIMO (Downlink)

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

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

4X4 MIMO	Band
	LTE Band 41/42

LTE Carrier Aggregation Conducted Power (Uplink)

Intra Band Uplink CA	
CA_41C	Ant 4
	Ant 2
	Ant 5
	Ant 3
CA_42C	Ant 4
	Ant 2
	Ant 5
	Ant 3

<Intra-band>
General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B41/42 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 with 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 n77/n78 is NSA mode, and 5G NR n41/n77/n78 is SA mode.
2. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-s 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
3. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
4. For 5G NR, the simultaneous transmission analysis is used standalone SAR at total power level to show compliance.
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. 5G NR NSA mode, the power level is the same as 5G NR SA mode, so 5G NR 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. 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	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0 ²
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
CP-OFDM	256 QAM	≤ 4.5		
	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>

EN-DC combinations	NR TX	LTE TX
DC_41A_n77A	Ant 6	Ant 4/2/5/3
	Ant 8	
	Ant 7	
	Ant 9	
DC_7A_n78A	Ant 6	Ant 4/2/5/3
	Ant 8	
	Ant 7	
	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:
$$d_{dB} = |VdB - RdB| \leq 3 \text{ dB} \quad (1)$$
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 BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - e. For TDD LTE SAR measurement of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = Measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
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:
 - $\leq 0.8 \text{ W/kg}$ or 2.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\leq 100 \text{ MHz}$
 - $\leq 0.6 \text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - $\leq 0.4 \text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200 \text{ MHz}$
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is $\geq 0.8 \text{ W/kg}$. 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 proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the MediaTek TA-SAR 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. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension $> 15.0 \text{ cm}$ or an overall diagonal dimension $> 16.0 \text{ cm}$, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR $> 1.2 \text{ W/kg}$, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power (for handheld on state, the maximum full power means reduced power), including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
 - a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g

- SAR is higher than 1.2W/kg of GSM850, WCDMA Band V/IV, LTE Band 2/4/5/7/13/26/38/41/42, 5GNR n41/n77/n78, WLAN5.8GHz, therefore product specific 10g SAR is necessary.
- b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
 - c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
6. 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).
 7. LTE B26/5 at Ant0/1 and LTE B7/41 at ant2/4/3/5 support different PAs for some antennas. And some LTE bands support Other PA only under ENDC & UL CA. Some LTE 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 another PA verified the worst case.
 8. For determination of the scaling factor for report SAR of MIMO mode, if the hot spots are separated the scaling factors are individually determined from each transmit chain. If the hot spots are not spatially separated, the scaling factor is determined from the worst number of each transmit chain.
 9. SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hotspot SAR.
 10. For Phablet devices, when hotspot mode is not supported, Product specific 10-g SAR is required for all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE / DTM modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
2. Other configurations of GSM / GPRS / EDGE / DTM are considered as secondary modes. Both primary and secondary modes must be in the same frequency band. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

WCDMA Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA / HSPA+ to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA / HSPA+) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+ .

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is > not $\frac{1}{2}$ 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 $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth

is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.

6. For LTE B4 / B5 /B12 / B17 /B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B5 / B17 SAR test was covered by B26 / B12; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is $\leq$ 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 $\frac{1}{2}$ 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 $\frac{1}{2}$ 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 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.

ECI status description:

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

This WWAN bands enabled with MediaTek TA-SAR feature which located at chapter 5. 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	ECI	Trigger conditions
Head SAR	ECI1	Earpiece On
Hotspot Mode SAR	ECI5	Hotspot On
Body worn/ Extremity Mode SAR	ECI4	Sensor Off/ receiver off
Body worn/ Extremity Mode SAR	ECI3	Sensor On



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)	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 dB
750MHz																						
	1st	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 1	23095	707.5	24.51	25.50	1.256	-	-	-0.08	0.184	0.231	0.22
	2nd	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 1	23095	707.5	24.45	25.50	1.274	-	-	0.05	0.191	0.243	
	1st	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 1	23095	707.5	23.10	24.50	1.380	-	-	-0.16	0.629	0.868	0.96
01	2nd	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 1	23095	707.5	23.36	24.50	1.300	-	-	0.09	0.833	1.083	
	1st	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 1	23230	782	25.09	25.70	1.151	-	-	-0.08	0.136	0.157	1.52
	2nd	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 1	23230	782	24.01	25.70	1.476	-	-	0.13	0.151	0.223	
	1st	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 1	23230	782	20.93	22.00	1.279	-	-	0.06	0.669	0.856	0.87
02	2nd	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 1	23230	782	20.88	22.00	1.294	-	-	0.09	0.809	1.047	
835MHz																						
	1st	GSM850	-	-	-	-	GPRS(4 Tx slots)	Left Cheek	0mm	Ant 0	ECI 1	189	836.4	26.76	28.00	1.330	-	-	0.03	0.212	0.282	0.40
	2nd	GSM850	-	-	-	-	GPRS(4 Tx slots)	Left Cheek	0mm	Ant 0	ECI 1	189	836.4	26.62	28.00	1.374	-	-	0.08	0.187	0.257	
	1st	GSM850	-	-	-	-	GPRS(4 Tx slots)	Left Cheek	0mm	Ant 1	ECI 1	189	836.4	23.48	24.50	1.265	-	-	-0.12	0.563	0.712	1.22
03	2nd	GSM850	-	-	-	-	GPRS(4 Tx slots)	Left Cheek	0mm	Ant 1	ECI 1	189	836.4	23.15	24.50	1.365	-	-	0.07	0.691	0.943	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	ECI 1	4182	836.4	23.95	25.00	1.274	-	-	0.11	0.278	0.354	0.60
	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	ECI 1	4182	836.4	23.83	25.00	1.309	-	-	-0.06	0.235	0.308	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	ECI 1	4233	846.6	20.08	21.50	1.387	-	-	0.02	0.619	0.858	0.80
04	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	ECI 1	4233	846.6	20.07	21.50	1.390	-	-	0.07	0.742	1.031	
	1st	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 1	26865	831.5	25.05	25.70	1.161	-	-	-0.01	0.311	0.361	0.65
	2nd	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 1	26865	831.5	24.80	25.70	1.230	-	-	0.05	0.253	0.311	
	1st	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 1	26865	831.5	20.78	22.00	1.324	-	-	0.12	0.711	0.942	0.59
05	2nd	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 1	26865	831.5	20.48	22.00	1.419	-	-	0.03	0.760	1.078	
1750MHz																						
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	ECI 1	1513	1752.6	18.64	19.50	1.219	-	-	-0.01	0.862	1.051	0.07
06	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	ECI 1	1513	1752.6	18.48	19.50	1.265	-	-	-0.04	0.845	1.069	
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 5	ECI 1	1413	1732.6	19.80	21.50	1.479	-	-	-0.06	0.273	0.404	
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 5	ECI 1	1413	1732.6	19.80	21.50	1.479	-	-	0.08	0.076	0.112	
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	ECI 1	1413	1732.6	19.80	21.50	1.479	-	-	0.18	0.421	0.623	
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 5	ECI 1	1413	1732.6	19.80	21.50	1.479	-	-	-0.02	0.095	0.141	
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	ECI 1	1312	1712.4	19.75	21.50	1.496	-	-	0.11	0.306	0.458	
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	ECI 1	1513	1752.6	19.77	21.50	1.489	-	-	0.11	0.584	0.870	
	1st	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 1	20175	1732.5	18.52	19.20	1.169	-	-	0.04	0.779	0.911	0.15
07	2nd	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 1	20175	1732.5	18.58	19.20	1.153	-	-	0.13	0.817	0.942	
	1st	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	ECI 1	20175	1732.5	24.08	25.00	1.236	-	-	-0.16	0.167	0.206	2.65
	2nd	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	ECI 1	20175	1732.5	24.01	25.00	1.256	-	-	-0.03	0.089	0.112	
	2nd	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	ECI 1	20175	1732.5	20.22	21.70	1.406	-	-	-0.04	0.259	0.364	
	2nd	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	ECI 1	20175	1732.5	20.22	21.70	1.406	-	-	0.08	0.064	0.090	
	2nd	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	20175	1732.5	20.22	21.70	1.406	-	-	0.07	0.397	0.558	
	2nd	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 1	20175	1732.5	20.22	21.70	1.406	-	-	0.04	0.089	0.125	
	2nd	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	ECI 1	20175	1732.5	20.20	21.70	1.413	-	-	-0.03	0.265	0.374	
	2nd	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	ECI 1	20175	1732.5	20.20	21.70	1.413	-	-	-0.01	0.070	0.099	
	2nd	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	ECI 1	20175	1732.5	20.20	21.70	1.413	-	-	0.15	0.412	0.582	
	2nd	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	ECI 1	20175	1732.5	20.20	21.70	1.413	-	-	-0.01	0.097	0.137	
	1st	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	ECI 1	20175	1732.5	17.00	18.50	1.413	-	-	-0.01	0.320	0.452	0.59
	2nd	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	ECI 1	20175	1732.5	17.05	18.50	1.396	-	-	-0.17	0.283	0.395	
1900MHz																						
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Right Cheek	0mm	Ant 4	ECI 1	661	1880	23.45	24.50	1.274	-	-	0.02	0.690	0.879	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Right Tilted	0mm	Ant 4	ECI 1	661	1880	23.45	24.50	1.274	-	-	0.03	0.621	0.791	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Left Cheek	0mm	Ant 4	ECI 1	661	1880	23.45	24.50	1.274	-	-	-0.1	0.393	0.500	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Left Tilted	0mm	Ant 4	ECI 1	661	1880	23.45	24.50	1.274	-	-	0.05	0.472	0.601	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Right Cheek	0mm	Ant 4	ECI 1	512	1850.2	23.33	24.50	1.309	-	-	0	0.705	0.923	



FCC SAR Test Report

Report No. : FA442515-03

08	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Right Cheek	0mm	Ant 4	ECI 1	810	1909.8	23.42	24.50	1.282	-	-	-0.04	0.850	1.090	
	2nd	GSM1900	-	-	-	-	DTM Multi-slot class 9	Right Cheek	0mm	Ant 4	ECI 1	661	1880	20.70	21.48	1.197	-	-	0.05	0.733	0.877	
	1st	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Left Cheek	0mm	Ant 5	ECI 1	661	1880	22.63	23.50	1.222	-	-	0.15	0.703	0.859	1.01
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Left Cheek	0mm	Ant 5	ECI 1	661	1880	22.60	23.50	1.230	-	-	0.02	0.882	1.085	
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	ECI 1	9400	1880	19.50	21.00	1.413	-	-	-0.06	0.644	0.910	
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 4	ECI 1	9400	1880	19.50	21.00	1.413	-	-	-0.11	0.564	0.797	
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 4	ECI 1	9400	1880	19.50	21.00	1.413	-	-	-0.01	0.339	0.479	
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 4	ECI 1	9400	1880	19.50	21.00	1.413	-	-	0.02	0.401	0.566	
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	ECI 1	9262	1852.4	19.46	21.00	1.426	-	-	0.02	0.652	0.929	
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	ECI 1	9538	1907.6	19.48	21.00	1.419	-	-	0.13	0.595	0.844	
	1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	ECI 1	9262	1852.4	19.15	20.50	1.365	-	-	0.19	0.689	0.940	0.16
09	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	ECI 1	9262	1852.4	19.55	20.50	1.245	-	-	0.17	0.784	0.976	
	1st	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 1	18700	1860	20.06	21.00	1.242	-	-	-0.13	0.779	0.967	0.48
10	2nd	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 1	18700	1860	20.57	21.00	1.104	-	-	-0.15	0.979	1.081	
	1st	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	ECI 1	18900	1880	22.88	24.00	1.294	-	-	-0.16	0.072	0.093	0.34
	2nd	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	ECI 1	18900	1880	22.86	24.00	1.300	-	-	0.01	0.066	0.086	
	1st	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	18900	1880	18.70	20.00	1.349	-	-	0.18	0.717	0.967	0.36
	2nd	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	18900	1880	18.85	20.00	1.303	-	-	-0.15	0.683	0.890	
	1st	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	ECI 1	18900	1880	18.85	20.00	1.303	-	-	-0.04	0.641	0.835	0.83
	2nd	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	ECI 1	18900	1880	18.79	20.00	1.321	-	-	0.19	0.765	1.011	
2600MHz																						
	1st	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 1	21350	2560	19.01	19.70	1.172	-	-	0.01	0.828	0.971	0.09
11	2nd	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 1	21350	2560	19.03	19.70	1.167	-	-	0.14	0.815	0.951	
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 1	21350	2560	15.77	17.50	1.489	-	-	0.04	0.625	0.931	
	1st	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	ECI 1	21100	2535	23.95	25.00	1.274	-	-	0.17	0.163	0.208	1.60
	2nd	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	ECI 1	21100	2535	23.95	25.00	1.274	-	-	-0.16	0.113	0.144	
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	ECI 1	21100	2535	22.68	24.50	1.521	-	-	0.09	0.091	0.138	
	1st	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	21350	2560	20.12	21.20	1.282	-	-	-0.19	0.698	0.895	1.21
	2nd	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	21350	2560	20.41	21.20	1.199	-	-	-0.13	0.565	0.678	
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	21350	2560	19.09	20.50	1.384	-	-	0.02	0.466	0.645	
	1st	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	ECI 1	21100	2535	17.33	18.50	1.309	-	-	-0.12	0.485	0.635	1.43
	2nd	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	ECI 1	21100	2535	17.36	18.50	1.300	-	-	-0.02	0.679	0.883	
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	ECI 1	21100	2535	16.86	17.50	1.159	-	-	0.05	0.649	0.752	
	1st	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 1	38000	2595	20.00	20.70	1.175	62.9	1.006	-0.07	0.739	0.873	0.84
12	2nd	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 1	38000	2595	20.03	20.70	1.167	62.9	1.006	0.05	0.613	0.720	
	1st	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	ECI 1	38000	2595	23.55	24.50	1.245	62.9	1.006	-0.17	0.082	0.103	2.00
	2nd	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	ECI 1	38000	2595	23.53	24.50	1.250	62.9	1.006	0.18	0.052	0.065	
	2nd	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	ECI 1	38000	2595	21.78	22.20	1.102	62.9	1.006	0.09	0.414	0.459	
	2nd	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	ECI 1	38000	2595	21.78	22.20	1.102	62.9	1.006	0.02	0.094	0.104	
	2nd	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	38000	2595	21.78	22.20	1.102	62.9	1.006	-0.07	0.432	0.479	
	2nd	LTE Band 38	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 1	38000	2595	21.78	22.20	1.102	62.9	1.006	-0.09	0.140	0.155	
	2nd	LTE Band 38	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	ECI 1	38000	2595	21.75	22.20	1.109	62.9	1.006	-0.19	0.428	0.478	
	2nd	LTE Band 38	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	ECI 1	38000	2595	21.75	22.20	1.109	62.9	1.006	0.19	0.096	0.107	
	2nd	LTE Band 38	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	ECI 1	38000	2595	21.75	22.20	1.109	62.9	1.006	0.18	0.430	0.480	
	2nd	LTE Band 38	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	ECI 1	38000	2595	21.75	22.20	1.109	62.9	1.006	-0.1	0.136	0.152	
	1st	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	ECI 1	38000	2595	19.01	20.00	1.256	62.9	1.006	0.15	0.531	0.671	0.01
	2nd	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	ECI 1	38000	2595	19.05	20.00	1.245	62.9	1.006	-0.07	0.535	0.670	
	1st	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 1	41055	2636.5	19.91	20.70	1.199	62.9	1.006	-0.09	0.758	0.915	1.13
13	2nd	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 1	41055	2636.5	19.95	20.70	1.189	62.9	1.006	0.01	0.590	0.705	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 1	41055+2636.5+40857	2616.7	19.90	20.70	1.202	62.9	1.006	0.02	0.511	0.618	
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 1	41055	2636.5	16.53	18.00	1.403	62.9	1.006	0.08	0.358	0.505	
	1st	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	ECI 1	40185	2549.5	23.98	25.00	1.265	62.9	1.006	0.13	0.124	0.158	2.59
	2nd	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	ECI 1	40185	2549.5	23.97	25.00	1.268	62.9	1.006	-0.08	0.068	0.087	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	ECI 1	40185+2549.5+39987	2529.7	23.88	25.00	1.294	62.9	1.006	0.06	0.053	0.069	
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	ECI 1	40185	2549.5	22.40	24.00	1.445	62.9	1.006	-0.02	0.051	0.074	



FCC SAR Test Report

Report No. : FA442515-03

1st	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	40620	2593	21.76	22.20	1.107	62.9	1.006	0.05	0.680	0.757	1.38
2nd	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	40620	2593	21.36	22.20	1.213	62.9	1.006	0.16	0.451	0.551	
2nd	LTE Band 41C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	40620+ 40422	2593+ 2573.2	21.27	22.20	1.239	62.9	1.006	0.12	0.425	0.530	
2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 1	40620	2593	20.24	21.50	1.337	62.9	1.006	0.03	0.405	0.545	
1st	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	ECI 1	40185	2549.5	19.30	20.50	1.318	62.9	1.006	-0.09	0.637	0.845	0.94
2nd	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	ECI 1	40185	2549.5	19.36	20.50	1.300	62.9	1.006	0.06	0.521	0.681	
2nd	LTE Band 41C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	ECI 1	40185+ 39987	2549.5+ 2529.7	19.28	20.50	1.324	62.9	1.006	0.02	0.506	0.674	
2nd	LTE Band 41_Other PA	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	ECI 1	40185	2549.5	18.53	19.50	1.250	62.9	1.006	0.01	0.500	0.629	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 4	ECI 1	518598	2592.99	18.68	19.70	1.265	-	-	-0.1	0.739	0.935	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 4	ECI 1	518598	2592.99	18.68	19.70	1.265	-	-	-0.13	0.775	0.980	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 4	ECI 1	518598	2592.99	18.68	19.70	1.265	-	-	0.01	0.354	0.448	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 4	ECI 1	518598	2592.99	18.68	19.70	1.265	-	-	-0.09	0.401	0.507	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Cheek	0mm	Ant 4	ECI 1	518598	2592.99	18.67	19.70	1.268	-	-	-0.04	0.700	0.887	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Tilted	0mm	Ant 4	ECI 1	518598	2592.99	18.67	19.70	1.268	-	-	-0.17	0.775	0.982	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Cheek	0mm	Ant 4	ECI 1	518598	2592.99	18.67	19.70	1.268	-	-	-0.09	0.350	0.444	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Tilted	0mm	Ant 4	ECI 1	518598	2592.99	18.67	19.70	1.268	-	-	-0.05	0.436	0.553	
2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Right Cheek	0mm	Ant 4	ECI 1	518598	2592.99	18.65	19.70	1.274	-	-	-0.1	0.704	0.897	
2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Right Tilted	0mm	Ant 4	ECI 1	518598	2592.99	18.65	19.70	1.274	-	-	-0.16	0.697	0.888	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 2	ECI 1	518598	2592.99	23.55	25.00	1.396	-	-	0.15	0.168	0.235	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 2	ECI 1	518598	2592.99	23.55	25.00	1.396	-	-	-0.14	0.061	0.085	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 2	ECI 1	518598	2592.99	23.55	25.00	1.396	-	-	0.04	0.111	0.155	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 2	ECI 1	518598	2592.99	23.55	25.00	1.396	-	-	0.04	0.097	0.135	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Cheek	0mm	Ant 2	ECI 1	518598	2592.99	23.54	25.00	1.400	-	-	0.02	0.188	0.263	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Tilted	0mm	Ant 2	ECI 1	518598	2592.99	23.54	25.00	1.400	-	-	0.11	0.056	0.078	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Cheek	0mm	Ant 2	ECI 1	518598	2592.99	23.54	25.00	1.400	-	-	0.16	0.103	0.144	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Tilted	0mm	Ant 2	ECI 1	518598	2592.99	23.54	25.00	1.400	-	-	-0.11	0.091	0.127	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	ECI 1	518598	2592.99	22.00	22.70	1.175	-	-	-0.12	0.740	0.869	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	ECI 1	518598	2592.99	22.00	22.70	1.175	-	-	0.01	0.173	0.203	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	ECI 1	518598	2592.99	22.00	22.70	1.175	-	-	-0.15	0.793	0.932	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	ECI 1	518598	2592.99	22.00	22.70	1.175	-	-	-0.05	0.255	0.300	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Cheek	0mm	Ant 5	ECI 1	518598	2592.99	21.99	22.70	1.178	-	-	-0.15	0.760	0.895	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Tilted	0mm	Ant 5	ECI 1	518598	2592.99	21.99	22.70	1.178	-	-	-0.04	0.160	0.188	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Cheek	0mm	Ant 5	ECI 1	518598	2592.99	21.99	22.70	1.178	-	-	-0.01	0.800	0.942	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Tilted	0mm	Ant 5	ECI 1	518598	2592.99	21.99	22.70	1.178	-	-	0.03	0.260	0.306	
2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Right Cheek	0mm	Ant 5	ECI 1	518598	2592.99	21.98	22.70	1.180	-	-	-0.13	0.770	0.909	
14 2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Left Cheek	0mm	Ant 5	ECI 1	518598	2592.99	21.98	22.70	1.180	-	-	0.07	0.915	1.080	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 3	ECI 1	518598	2592.99	18.15	19.50	1.365	-	-	-0.02	0.782	1.067	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 3	ECI 1	518598	2592.99	18.15	19.50	1.365	-	-	-0.06	0.149	0.203	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 3	ECI 1	518598	2592.99	18.15	19.50	1.365	-	-	0.14	0.202	0.276	
2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 3	ECI 1	518598	2592.99	18.15	19.50	1.365	-	-	-0.01	0.066	0.090	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Cheek	0mm	Ant 3	ECI 1	518598	2592.99	18.13	19.50	1.371	-	-	0.14	0.700	0.960	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Tilted	0mm	Ant 3	ECI 1	518598	2592.99	18.13	19.50	1.371	-	-	-0.16	0.190	0.260	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Cheek	0mm	Ant 3	ECI 1	518598	2592.99	18.13	19.50	1.371	-	-	0.1	0.192	0.263	
2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Tilted	0mm	Ant 3	ECI 1	518598	2592.99	18.13	19.50	1.371	-	-	-0.1	0.083	0.114	
2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Right Cheek	0mm	Ant 3	ECI 1	518598	2592.99	18.11	19.50	1.377	-	-	0.07	0.652	0.898	
3000MHz																					
1st	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	ECI 1	42590	3500	18.10	18.70	1.148	62.9	1.006	-0.14	0.564	0.651	1.22
2nd	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	ECI 1	42590	3500	18.33	18.70	1.089	62.9	1.006	-0.17	0.448	0.491	
2nd	LTE Band 42C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	ECI 1	42590+ 42392	3500+ 3480.2	18.28	18.70	1.102	62.9	1.006	-0.06	0.432	0.479	
1st	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 8	ECI 1	42190	3460	19.38	21.00	1.452	62.9	1.006	-0.06	0.683	0.998	1.06
15 2nd	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 8	ECI 1	42190	3460	19.48	21.00	1.419	62.9	1.006	0.07	0.547	0.781	
2nd	LTE Band 42C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 8	ECI 1	42190+ 42388	3460+ 3479.8	19.41	21.00	1.442	62.9	1.006	0.02	0.524	0.760	
1st	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	ECI 1	42990	3540	17.29	18.50	1.321	62.9	1.006	-0.19	0.528	0.702	0.82
2nd	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	ECI 1	42990	3540	17.41	18.50	1.285	62.9	1.006	-0.09	0.449	0.581	
2nd	LTE Band 42C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	ECI 1	42990+ 42792	3540+ 3520.2	17.28	18.50	1.324	62.9	1.006	-0.04	0.418	0.557	



FCC SAR Test Report

Report No. : FA442515-03

	1st	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 9	ECI 1	42590	3500	21.85	23.00	1.303	62.9	1.006	0.12	0.065	0.085	1.97
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 9	ECI 1	42590	3500	21.85	23.00	1.303	62.9	1.006	0.15	0.041	0.054	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 9	ECI 1	42590+ 42392	3500+ 3480.2	21.77	23.00	1.327	62.9	1.006	0.09	0.032	0.043	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	ECI 1	633332	3499.98	17.10	17.70	1.148	-	-	0.13	0.433	0.497	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	ECI 1	633332	3499.98	17.10	17.70	1.148	-	-	-0.13	0.580	0.666	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	ECI 1	633332	3499.98	17.10	17.70	1.148	-	-	-0.07	0.619	0.711	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	633332	3499.98	17.10	17.70	1.148	-	-	0.02	0.744	0.854	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	ECI 1	633332	3499.98	17.08	17.70	1.153	-	-	-0.14	0.490	0.565	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	ECI 1	633332	3499.98	17.08	17.70	1.153	-	-	-0.16	0.613	0.707	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	ECI 1	633332	3499.98	17.08	17.70	1.153	-	-	0.07	0.642	0.741	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	633332	3499.98	17.08	17.70	1.153	-	-	-0.18	0.903	1.042	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	633332	3499.98	17.05	17.70	1.161	-	-	-0.12	0.875	1.016	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	ECI 1	656000	3840	16.76	17.70	1.242	-	-	-0.04	0.356	0.442	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	ECI 1	656000	3840	16.76	17.70	1.242	-	-	0.13	0.476	0.591	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	ECI 1	656000	3840	16.76	17.70	1.242	-	-	0.07	0.474	0.589	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	656000	3840	16.76	17.70	1.242	-	-	0.1	0.578	0.718	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	ECI 1	656000	3840	16.75	17.70	1.245	-	-	-0.08	0.338	0.421	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	ECI 1	656000	3840	16.75	17.70	1.245	-	-	0.03	0.465	0.579	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	ECI 1	656000	3840	16.75	17.70	1.245	-	-	0.08	0.452	0.563	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	656000	3840	16.75	17.70	1.245	-	-	0.18	0.574	0.714	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	656000	3840	16.73	17.70	1.250	-	-	0.13	0.551	0.689	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	633332	3499.98	17.20	18.50	1.349	-	-	-0.02	0.711	0.959	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	633332	3499.98	17.20	18.50	1.349	-	-	0.13	0.523	0.706	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 8	ECI 1	633332	3499.98	17.20	18.50	1.349	-	-	0.14	0.347	0.468	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 8	ECI 1	633332	3499.98	17.20	18.50	1.349	-	-	0.02	0.329	0.444	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	633332	3499.98	17.18	18.50	1.355	-	-	0.16	0.735	0.996	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	633332	3499.98	17.18	18.50	1.355	-	-	0.01	0.521	0.706	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 8	ECI 1	633332	3499.98	17.18	18.50	1.355	-	-	-0.18	0.337	0.457	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 8	ECI 1	633332	3499.98	17.18	18.50	1.355	-	-	-0.14	0.331	0.449	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	633332	3499.98	17.16	18.50	1.361	-	-	-0.12	0.713	0.971	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	633332	3499.98	17.16	18.50	1.361	-	-	-0.15	0.517	0.704	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	656000	3840	17.06	18.50	1.393	-	-	0	0.612	0.853	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	656000	3840	17.06	18.50	1.393	-	-	-0.11	0.512	0.713	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 8	ECI 1	656000	3840	17.06	18.50	1.393	-	-	-0.17	0.270	0.376	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 8	ECI 1	656000	3840	17.06	18.50	1.393	-	-	0.12	0.299	0.417	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	656000	3840	17.03	18.50	1.403	-	-	0.17	0.581	0.815	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	656000	3840	17.03	18.50	1.403	-	-	-0.17	0.518	0.727	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 8	ECI 1	656000	3840	17.03	18.50	1.403	-	-	0.06	0.258	0.362	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 8	ECI 1	656000	3840	17.03	18.50	1.403	-	-	-0.06	0.288	0.404	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	656000	3840	17.01	18.50	1.409	-	-	0.16	0.565	0.796	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	656000	3840	17.01	18.50	1.409	-	-	0.17	0.518	0.730	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	ECI 1	633332	3499.98	16.98	18.00	1.265	-	-	0.03	0.278	0.352	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	ECI 1	633332	3499.98	16.98	18.00	1.265	-	-	0.18	0.249	0.315	
16	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	633332	3499.98	16.98	18.00	1.265	-	-	-0.11	0.839	1.061	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	ECI 1	633332	3499.98	16.98	18.00	1.265	-	-	-0.1	0.486	0.615	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	ECI 1	633332	3499.98	16.96	18.00	1.271	-	-	-0.04	0.279	0.354	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	ECI 1	633332	3499.98	16.96	18.00	1.271	-	-	-0.14	0.277	0.352	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	633332	3499.98	16.96	18.00	1.271	-	-	0.01	0.798	1.014	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	ECI 1	633332	3499.98	16.96	18.00	1.271	-	-	0.05	0.505	0.642	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	633332	3499.98	16.95	18.00	1.274	-	-	0.19	0.782	0.996	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	ECI 1	656000	3840	16.91	18.00	1.285	-	-	-0.12	0.207	0.266	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	ECI 1	656000	3840	16.91	18.00	1.285	-	-	0.16	0.187	0.240	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	656000	3840	16.91	18.00	1.285	-	-	0.12	0.734	0.943	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	ECI 1	656000	3840	16.91	18.00	1.285	-	-	-0.07	0.429	0.551	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	ECI 1	656000	3840	16.89	18.00	1.291	-	-	0.13	0.169	0.218	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	ECI 1	656000	3840	16.89	18.00	1.291	-	-	0.15	0.147	0.190	



FCC SAR Test Report

Report No. : FA442515-03

2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	656000	3840	16.89	18.00	1.291	-	-	-0.18	0.642	0.829	
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	ECI 1	656000	3840	16.89	18.00	1.291	-	-	-0.15	0.365	0.471	
2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	656000	3840	16.87	18.00	1.297	-	-	0.17	0.612	0.794	
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 9	ECI 1	633332	3499.98	21.50	22.50	1.259	-	-	-0.02	0.074	0.093	
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 9	ECI 1	633332	3499.98	21.50	22.50	1.259	-	-	-0.18	0.059	0.074	
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 9	ECI 1	633332	3499.98	21.50	22.50	1.259	-	-	0.02	0.039	0.049	
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 9	ECI 1	633332	3499.98	21.50	22.50	1.259	-	-	0.1	0.022	0.028	
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 9	ECI 1	633332	3499.98	21.41	22.50	1.285	-	-	0.18	0.069	0.089	
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 9	ECI 1	633332	3499.98	21.41	22.50	1.285	-	-	-0.03	0.059	0.076	
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 9	ECI 1	633332	3499.98	21.41	22.50	1.285	-	-	0.05	0.035	0.045	
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 9	ECI 1	633332	3499.98	21.41	22.50	1.285	-	-	-0.12	0.021	0.027	
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 9	ECI 1	656000	3840	21.26	22.50	1.330	-	-	0.07	0.354	0.471	
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 9	ECI 1	656000	3840	21.26	22.50	1.330	-	-	0.11	0.175	0.233	
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 9	ECI 1	656000	3840	21.26	22.50	1.330	-	-	-0.13	0.171	0.228	
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 9	ECI 1	656000	3840	21.26	22.50	1.330	-	-	0.05	0.097	0.129	
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 9	ECI 1	656000	3840	21.18	22.50	1.355	-	-	0.03	0.388	0.526	
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 9	ECI 1	656000	3840	21.18	22.50	1.355	-	-	-0.14	0.156	0.211	
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 9	ECI 1	656000	3840	21.18	22.50	1.355	-	-	0.11	0.162	0.220	
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 9	ECI 1	656000	3840	21.18	22.50	1.355	-	-	0.1	0.087	0.118	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	ECI 1	633332	3499.98	16.78	17.70	1.236	-	-	-0.14	0.313	0.387	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	ECI 1	633332	3499.98	16.78	17.70	1.236	-	-	0.18	0.306	0.378	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	ECI 1	633332	3499.98	16.78	17.70	1.236	-	-	-0.18	0.438	0.541	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	633332	3499.98	16.78	17.70	1.236	-	-	0.19	0.521	0.644	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	ECI 1	633332	3499.98	16.76	17.70	1.242	-	-	-0.18	0.318	0.395	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	ECI 1	633332	3499.98	16.76	17.70	1.242	-	-	-0.11	0.423	0.525	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	ECI 1	633332	3499.98	16.76	17.70	1.242	-	-	-0.05	0.438	0.544	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	633332	3499.98	16.76	17.70	1.242	-	-	0.05	0.544	0.675	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	633332	3499.98	16.75	17.70	1.245	-	-	0.02	0.537	0.668	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	ECI 1	650000	3750	16.78	17.70	1.236	-	-	0.12	0.289	0.357	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	ECI 1	650000	3750	16.78	17.70	1.236	-	-	0.09	0.364	0.450	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	ECI 1	650000	3750	16.78	17.70	1.236	-	-	-0.11	0.360	0.445	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	650000	3750	16.78	17.70	1.236	-	-	-0.03	0.461	0.570	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	ECI 1	650000	3750	16.76	17.70	1.242	-	-	-0.18	0.265	0.329	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	ECI 1	650000	3750	16.76	17.70	1.242	-	-	0.01	0.361	0.448	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	ECI 1	650000	3750	16.76	17.70	1.242	-	-	0.12	0.354	0.440	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	650000	3750	16.76	17.70	1.242	-	-	0.16	0.445	0.553	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	633332	3499.98	15.88	17.50	1.452	-	-	0.06	0.658	0.955	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	633332	3499.98	15.88	17.50	1.452	-	-	0.12	0.678	0.985	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 8	ECI 1	633332	3499.98	15.88	17.50	1.452	-	-	0.17	0.321	0.466	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 8	ECI 1	633332	3499.98	15.88	17.50	1.452	-	-	0.06	0.310	0.450	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	633332	3499.98	15.86	17.50	1.459	-	-	-0.03	0.694	1.012	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	633332	3499.98	15.86	17.50	1.459	-	-	0.06	0.690	1.007	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 8	ECI 1	633332	3499.98	15.86	17.50	1.459	-	-	0.1	0.329	0.480	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 8	ECI 1	633332	3499.98	15.86	17.50	1.459	-	-	-0.19	0.321	0.468	
17 2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	633332	3499.98	15.85	17.50	1.462	-	-	-0.05	0.737	1.078	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	633332	3499.98	15.85	17.50	1.462	-	-	0.18	0.685	1.002	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	650000	3750	15.90	17.50	1.445	-	-	0.16	0.690	0.997	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	650000	3750	15.90	17.50	1.445	-	-	0.15	0.734	1.061	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 8	ECI 1	650000	3750	15.90	17.50	1.445	-	-	-0.02	0.372	0.538	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 8	ECI 1	650000	3750	15.90	17.50	1.445	-	-	0.1	0.402	0.581	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	650000	3750	15.88	17.50	1.452	-	-	-0.07	0.691	1.003	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	650000	3750	15.88	17.50	1.452	-	-	0.06	0.740	1.075	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 8	ECI 1	650000	3750	15.88	17.50	1.452	-	-	0.09	0.375	0.545	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 8	ECI 1	650000	3750	15.88	17.50	1.452	-	-	-0.13	0.417	0.606	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 8	ECI 1	650000	3750	15.87	17.50	1.455	-	-	-0.08	0.687	1.000	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Right Tilted	0mm	Ant 8	ECI 1	650000	3750	15.87	17.50	1.455	-	-	-0.14	0.714	1.039	



FCC SAR Test Report

Report No. : FA442515-03

2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	ECI 1	633332	3499.98	15.28	16.50	1.324	-	-	0.02	0.189	0.250	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	ECI 1	633332	3499.98	15.28	16.50	1.324	-	-	0.09	0.158	0.209	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	633332	3499.98	15.28	16.50	1.324	-	-	-0.04	0.696	0.922	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	ECI 1	633332	3499.98	15.28	16.50	1.324	-	-	0.03	0.341	0.452	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	ECI 1	633332	3499.98	15.26	16.50	1.330	-	-	0.02	0.212	0.282	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	ECI 1	633332	3499.98	15.26	16.50	1.330	-	-	0.03	0.164	0.218	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	633332	3499.98	15.26	16.50	1.330	-	-	0.19	0.778	1.035	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	ECI 1	633332	3499.98	15.26	16.50	1.330	-	-	-0.04	0.353	0.470	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	633332	3499.98	15.25	16.50	1.334	-	-	-0.08	0.692	0.923	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	ECI 1	650000	3750	15.15	16.50	1.365	-	-	-0.08	0.213	0.291	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	ECI 1	650000	3750	15.15	16.50	1.365	-	-	0.09	0.146	0.199	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	650000	3750	15.15	16.50	1.365	-	-	-0.15	0.679	0.927	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	ECI 1	650000	3750	15.15	16.50	1.365	-	-	0.09	0.379	0.517	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	ECI 1	650000	3750	15.13	16.50	1.371	-	-	0.1	0.166	0.228	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	ECI 1	650000	3750	15.13	16.50	1.371	-	-	0.15	0.170	0.233	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	650000	3750	15.13	16.50	1.371	-	-	-0.1	0.619	0.849	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	ECI 1	650000	3750	15.13	16.50	1.371	-	-	0.04	0.351	0.481	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Left Cheek	0mm	Ant 7	ECI 1	650000	3750	15.11	16.50	1.377	-	-	-0.19	0.626	0.862	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 9	ECI 1	633332	3499.98	22.95	24.00	1.274	-	-	-0.17	0.109	0.139	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 9	ECI 1	633332	3499.98	22.95	24.00	1.274	-	-	0.15	0.080	0.102	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 9	ECI 1	633332	3499.98	22.95	24.00	1.274	-	-	0.06	0.069	0.088	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 9	ECI 1	633332	3499.98	22.95	24.00	1.274	-	-	0.05	0.041	0.052	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 9	ECI 1	633332	3499.98	22.86	24.00	1.300	-	-	0.19	0.130	0.169	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 9	ECI 1	633332	3499.98	22.86	24.00	1.300	-	-	-0.07	0.109	0.142	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 9	ECI 1	633332	3499.98	22.86	24.00	1.300	-	-	0.17	0.065	0.085	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 9	ECI 1	633332	3499.98	22.86	24.00	1.300	-	-	0.11	0.064	0.083	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 9	ECI 1	650000	3750	23.05	24.00	1.245	-	-	0.09	0.462	0.575	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 9	ECI 1	650000	3750	23.05	24.00	1.245	-	-	-0.06	0.209	0.260	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 9	ECI 1	650000	3750	23.05	24.00	1.245	-	-	0.09	0.204	0.254	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 9	ECI 1	650000	3750	23.05	24.00	1.245	-	-	-0.09	0.116	0.144	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 9	ECI 1	650000	3750	23.02	24.00	1.253	-	-	0.11	0.562	0.704	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 9	ECI 1	650000	3750	23.02	24.00	1.253	-	-	0.04	0.270	0.338	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 9	ECI 1	650000	3750	23.02	24.00	1.253	-	-	-0.04	0.239	0.300	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 9	ECI 1	650000	3750	23.02	24.00	1.253	-	-	-0.17	0.135	0.169	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 9	ECI 1	650000	3750	21.78	23.00	1.324	-	-	0.01	0.541	0.716	



Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	Deviation dB
2450MHz																		
	1st	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+7(7)	Standalone	6	2437	17.00	18.50	1.413	99.48	1.005	0.06	0.756	1.073	0.03
18	2nd	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+7(7)	Standalone	6	2437	17.01	18.50	1.409	99.48	1.005	-0.08	0.763	1.081	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 16+7(7)	Non-DBS	6	2437	12.85	14.50	1.462	99.48	1.005	0.06	0.095	0.140	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 16+7(7)	Non-DBS	6	2437	12.85	14.50	1.462	99.48	1.005	-0.13	0.117	0.172	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+7(7)	Non-DBS	6	2437	12.85	14.50	1.462	99.48	1.005	0.08	0.306	0.450	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 16+7(7)	Non-DBS	6	2437	12.85	14.50	1.462	99.48	1.005	0.01	0.133	0.195	
	1st	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+7(7)	DBS	6	2437	10.86	12.50	1.459	99.48	1.005	0.04	0.163	0.239	0.07
	2nd	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+7(7)	DBS	6	2437	10.79	12.50	1.483	99.48	1.005	0.16	0.163	0.243	
	1st	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 7	Standalone	6	2437	17.00	18.50	1.413	99.48	1.005	0.13	0.692	0.982	0.41
	2nd	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 7	Standalone	6	2437	17.36	18.50	1.300	99.48	1.005	-0.19	0.825	1.078	
	1st	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 7	Non-DBS	6	2437	13.25	14.50	1.334	99.48	1.005	0.1	0.261	0.350	0.04
	2nd	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 7	Non-DBS	6	2437	13.20	14.50	1.349	99.48	1.005	0.04	0.256	0.347	
	1st	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 16	Standalone	39	2441	15.18	16.00	1.208	76.83	1.302	0.17	0.315	0.495	0.58
19	2nd	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 16	Standalone	39	2441	15.11	16.00	1.227	76.83	1.302	0.15	0.271	0.433	
	1st	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 16	Non-DBS&DBS	39	2441	11.82	12.50	1.169	76.83	1.302	0.04	0.102	0.155	0.70
	2nd	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 16	Non-DBS&DBS	39	2441	11.73	12.50	1.194	76.83	1.302	0.1	0.085	0.132	
5000MHz																		
	1st	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6+17(6)	Standalone	58	5290	14.54	15.50	1.248	88.14	1.135	0.18	0.764	1.082	0.04
20	2nd	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6+17(6)	Standalone	58	5290	14.66	15.50	1.214	88.14	1.135	0.13	0.779	1.073	
	1st	WLAN5.3GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 6+17(17)	Non-DBS	50	5250	9.84	10.50	1.164	94.38	1.060	0.18	0.244	0.301	1.23
	2nd	WLAN5.3GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 6+17(17)	Non-DBS	50	5250	9.74	10.50	1.191	94.38	1.060	0.1	0.180	0.227	
	1st	WLAN5.3GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 6+17(17)	DBS	50	5250	8.39	9.00	1.150	94.38	1.060	0.18	0.189	0.230	1.94
	2nd	WLAN5.3GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 6+17(17)	DBS	50	5250	8.31	9.00	1.172	94.38	1.060	0.15	0.118	0.147	
	1st	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	Standalone	122	5610	13.87	15.00	1.297	88.14	1.135	0.1	0.735	1.082	0.04
21	2nd	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	Standalone	122	5610	14.21	15.00	1.199	88.14	1.135	-0.13	0.801	1.091	
	1st	WLAN5.5GHz	802.11ac-VHT160 MCS0	Left Tilted	0mm	Ant 6+17(6)	Non-DBS	114	5570	9.14	10.50	1.367	94.38	1.060	-0.07	0.276	0.400	2.29
	2nd	WLAN5.5GHz	802.11ac-VHT160 MCS0	Left Tilted	0mm	Ant 6+17(6)	Non-DBS	114	5570	9.07	10.50	1.389	94.38	1.060	0.06	0.160	0.236	
	1st	WLAN5.5GHz	802.11ac-VHT160 MCS0	Left Tilted	0mm	Ant 6+17(6)	DBS	114	5570	7.66	9.00	1.361	94.38	1.060	-0.06	0.196	0.283	2.93
	2nd	WLAN5.5GHz	802.11ac-VHT160 MCS0	Left Tilted	0mm	Ant 6+17(6)	DBS	114	5570	7.58	9.00	1.386	94.38	1.060	0.1	0.098	0.144	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	Standalone	155	5775	14.60	15.50	1.232	88.14	1.135	-0.06	0.774	1.082	0.29
22	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	Standalone	155	5775	14.52	15.50	1.254	88.14	1.135	0.04	0.710	1.011	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	Non-DBS	155	5775	9.25	10.50	1.334	88.14	1.135	-0.06	0.270	0.409	2.02
	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	Non-DBS	155	5775	9.17	10.50	1.358	88.14	1.135	-0.19	0.167	0.257	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	DBS	155	5775	7.70	9.00	1.349	88.14	1.135	-0.04	0.201	0.308	1.68
	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	DBS	155	5775	7.63	9.00	1.371	88.14	1.135	0.07	0.134	0.209	



17.2 Hotspot SAR

Plot No.	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)	Reported 1g SAR (W/kg)	Deviation dB
750MHz																						
	1st	LTE Band 12	10M	QPSK	1	0	-	Left Side	10mm	Ant 0	ECI 5	23095	707.5	24.51	25.50	1.256	-	-	0.12	0.298	0.374	1.66
	2nd	LTE Band 12	10M	QPSK	1	0	-	Left Side	10mm	Ant 0	ECI 5	23095	707.5	24.45	25.50	1.274	-	-	-0.09	0.430	0.548	
	1st	LTE Band 12	10M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECI 5	23095	707.5	23.10	24.50	1.380	-	-	-0.04	0.675	0.932	0.02
23	2nd	LTE Band 12	10M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECI 5	23095	707.5	22.86	24.50	1.459	-	-	0.09	0.636	0.928	
	1st	LTE Band 13	10M	QPSK	1	0	-	Back	10mm	Ant 0	ECI 5	23230	782	25.09	25.70	1.151	-	-	0.13	0.400	0.460	0.96
	2nd	LTE Band 13	10M	QPSK	1	0	-	Back	10mm	Ant 0	ECI 5	23230	782	24.01	25.70	1.476	-	-	-0.04	0.389	0.574	
	1st	LTE Band 13	10M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECI 5	23230	782	20.93	22.00	1.279	-	-	0.14	0.680	0.870	0.66
24	2nd	LTE Band 13	10M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECI 5	23230	782	20.68	22.00	1.355	-	-	-0.17	0.551	0.747	
835MHz																						
	1st	GSM850	-	-	-	-	GPRS(4 Tx slots)	Back	10mm	Ant 0	ECI 5	189	836.4	26.76	28.00	1.330	-	-	-0.13	0.182	0.242	2.65
	2nd	GSM850	-	-	-	-	GPRS(4 Tx slots)	Back	10mm	Ant 0	ECI 5	189	836.4	26.62	28.00	1.374	-	-	0.1	0.324	0.445	
	1st	GSM850	-	-	-	-	GPRS(4 Tx slots)	Left Side	10mm	Ant 1	ECI 5	189	836.4	23.48	24.50	1.265	-	-	-0.06	0.478	0.605	0.29
25	2nd	GSM850	-	-	-	-	GPRS(4 Tx slots)	Left Side	10mm	Ant 1	ECI 5	189	836.4	23.15	24.50	1.365	-	-	-0.01	0.474	0.647	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	ECI 5	4182	836.4	23.95	25.00	1.274	-	-	0.18	0.164	0.209	2.84
	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	ECI 5	4182	836.4	23.83	25.00	1.309	-	-	-0.05	0.307	0.402	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 1	ECI 5	4182	836.4	20.20	21.50	1.349	-	-	-0.07	0.589	0.795	0.78
26	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 1	ECI 5	4182	836.4	20.07	21.50	1.390	-	-	0.03	0.478	0.664	
	1st	LTE Band 26	15M	QPSK	1	0	-	Back	10mm	Ant 0	ECI 5	26865	831.5	25.05	25.70	1.161	-	-	0.06	0.530	0.616	0.09
27	2nd	LTE Band 26	15M	QPSK	1	0	-	Back	10mm	Ant 0	ECI 5	26865	831.5	24.80	25.70	1.230	-	-	-0.01	0.511	0.629	
	1st	LTE Band 26	15M	QPSK	36	0	-	Left Side	10mm	Ant 1	ECI 5	26865	831.5	20.75	22.00	1.334	-	-	0	0.410	0.547	0.22
	2nd	LTE Band 26	15M	QPSK	36	0	-	Left Side	10mm	Ant 1	ECI 5	26865	831.5	20.46	22.00	1.426	-	-	-0.07	0.404	0.576	
1750MHz																						
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 4	ECI 5	1413	1732.6	18.68	19.50	1.208	-	-	0.19	0.429	0.518	1.33
28	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 4	ECI 5	1413	1732.6	18.48	19.50	1.265	-	-	-0.04	0.301	0.381	
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 5	ECI 5	1413	1732.6	19.80	21.50	1.479	-	-	-0.11	0.099	0.146	
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 5	ECI 5	1413	1732.6	19.80	21.50	1.479	-	-	0.11	0.183	0.271	
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 5	ECI 5	1413	1732.6	19.80	21.50	1.479	-	-	-0.17	0.240	0.355	
	1st	LTE Band 4	20M	QPSK	50	0	-	Top Side	10mm	Ant 4	ECI 5	20175	1732.5	18.48	19.20	1.180	-	-	-0.17	0.374	0.441	0.97
	2nd	LTE Band 4	20M	QPSK	50	0	-	Top Side	10mm	Ant 4	ECI 5	20175	1732.5	18.56	19.20	1.159	-	-	-0.06	0.305	0.353	
	1st	LTE Band 4	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	ECI 5	20175	1732.5	22.98	24.00	1.265	-	-	0.01	0.501	0.634	1.07
29	2nd	LTE Band 4	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	ECI 5	20175	1732.5	23.00	24.00	1.259	-	-	-0.07	0.393	0.495	
	2nd	LTE Band 4	20M	QPSK	1	0	-	Front	10mm	Ant 5	ECI 5	20175	1732.5	20.22	21.70	1.406	-	-	0.12	0.094	0.132	
	2nd	LTE Band 4	20M	QPSK	1	0	-	Back	10mm	Ant 5	ECI 5	20175	1732.5	20.22	21.70	1.406	-	-	0.19	0.161	0.226	
	2nd	LTE Band 4	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	20175	1732.5	20.22	21.70	1.406	-	-	-0.16	0.204	0.287	
	2nd	LTE Band 4	20M	QPSK	50	0	-	Front	10mm	Ant 5	ECI 5	20175	1732.5	20.20	21.70	1.413	-	-	-0.18	0.103	0.145	
	2nd	LTE Band 4	20M	QPSK	50	0	-	Back	10mm	Ant 5	ECI 5	20175	1732.5	20.20	21.70	1.413	-	-	-0.11	0.186	0.263	
	2nd	LTE Band 4	20M	QPSK	50	0	-	Right Side	10mm	Ant 5	ECI 5	20175	1732.5	20.20	21.70	1.413	-	-	0.07	0.222	0.314	
	2nd	LTE Band 4	20M	QPSK	50	0	-	Right Side	10mm	Ant 5	ECI 5	20175	1732.5	20.20	21.70	1.413	-	-	0.08	0.125	0.177	
	1st	LTE Band 4	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	ECI 5	20175	1732.5	17.00	18.50	1.413	-	-	0.04	0.166	0.235	0.79
	2nd	LTE Band 4	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	ECI 5	20175	1732.5	17.03	18.50	1.403	-	-	0.13	0.201	0.282	
1900MHz																						
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Front	10mm	Ant 4	ECI 5	661	1880	23.45	25.00	1.429	-	-	-0.04	0.154	0.220	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Back	10mm	Ant 4	ECI 5	661	1880	23.45	25.00	1.429	-	-	-0.15	0.218	0.311	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Left Side	10mm	Ant 4	ECI 5	661	1880	23.45	25.00	1.429	-	-	0.18	0.146	0.209	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Top Side	10mm	Ant 4	ECI 5	661	1880	23.45	25.00	1.429	-	-	0.1	0.303	0.433	
	2nd	GSM1900	-	-	-	-	DTM Multi-slot class 9	Top Side	10mm	Ant 4	ECI 5	661	1880	20.70	21.48	1.197	-	-	0.17	0.262	0.314	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Front	10mm	Ant 5	ECI 5	661	1880	22.60	23.50	1.230	-	-	0.03	0.213	0.262	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Back	10mm	Ant 5	ECI 5	661	1880	22.60	23.50	1.230	-	-	0.06	0.315	0.388	
30	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Right Side	10mm	Ant 5	ECI 5	661	1880	22.60	23.50	1.230	-	-	-0.03	0.480	0.591	
	2nd	GSM1900	-	-	-	-	DTM Multi-slot class 9	Right Side	10mm	Ant 5	ECI 5	661	1880	19.52	20.48	1.247	-	-	0.01	0.410	0.511	



FCC SAR Test Report

Report No. : FA442515-03

2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 4	ECI 5	9400	1880	19.50	21.00	1.413	-	-	-0.19	0.122	0.172	
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 4	ECI 5	9400	1880	19.50	21.00	1.413	-	-	0.04	0.237	0.335	
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 4	ECI 5	9400	1880	19.50	21.00	1.413	-	-	0.17	0.117	0.165	
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 4	ECI 5	9400	1880	19.50	21.00	1.413	-	-	-0.15	0.317	0.448	
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 5	ECI 5	9400	1880	19.55	20.50	1.245	-	-	-0.08	0.217	0.270	
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 5	ECI 5	9400	1880	19.55	20.50	1.245	-	-	0.17	0.306	0.381	
31 2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 5	ECI 5	9400	1880	19.55	20.50	1.245	-	-	-0.03	0.481	0.599	
1st	LTE Band 2	20M	QPSK	1	0	-	Top Side	10mm	Ant 4	ECI 5	18900	1880	20.10	21.00	1.230	-	-	0.19	0.364	0.448	0.78
2nd	LTE Band 2	20M	QPSK	1	0	-	Top Side	10mm	Ant 4	ECI 5	18900	1880	20.07	21.00	1.239	-	-	-0.06	0.302	0.374	
2nd	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 2	ECI 5	18900	1880	21.45	23.00	1.429	-	-	-0.12	0.156	0.223	
2nd	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 2	ECI 5	18900	1880	21.45	23.00	1.429	-	-	0.11	0.277	0.396	
2nd	LTE Band 2	20M	QPSK	1	0	-	Right Side	10mm	Ant 2	ECI 5	18900	1880	21.45	23.00	1.429	-	-	-0.12	0.101	0.144	
2nd	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	ECI 5	18900	1880	21.45	23.00	1.429	-	-	-0.07	0.352	0.503	
2nd	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 2	ECI 5	18900	1880	21.43	23.00	1.435	-	-	0.16	0.168	0.241	
2nd	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 2	ECI 5	18900	1880	21.43	23.00	1.435	-	-	0.12	0.276	0.396	
2nd	LTE Band 2	20M	QPSK	50	0	-	Right Side	10mm	Ant 2	ECI 5	18900	1880	21.43	23.00	1.435	-	-	0.15	0.110	0.158	
2nd	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	ECI 5	18900	1880	21.43	23.00	1.435	-	-	-0.02	0.359	0.515	
1st	LTE Band 2	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	18900	1880	18.66	20.00	1.361	-	-	0.05	0.466	0.634	0.33
32 2nd	LTE Band 2	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	18900	1880	18.85	20.00	1.303	-	-	0.11	0.525	0.684	
1st	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	ECI 5	18900	1880	18.90	20.00	1.288	-	-	0.03	0.279	0.359	0.58
2nd	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	ECI 5	18900	1880	18.78	20.00	1.324	-	-	-0.1	0.237	0.314	
2600MHz																					
1st	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 5	21100	2535	19.08	19.70	1.153	-	-	-0.01	0.501	0.578	0.94
2nd	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 5	21100	2535	19.03	19.70	1.167	-	-	-0.07	0.399	0.466	
2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 5	21100	2535	16.03	17.50	1.403	-	-	0.05	0.211	0.296	
1st	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 2	ECI 5	21100	2535	20.90	22.00	1.288	-	-	-0.01	0.427	0.550	2.78
2nd	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 2	ECI 5	21100	2535	21.01	22.00	1.256	-	-	0.12	0.231	0.290	
2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Back	10mm	Ant 2	ECI 5	21100	2535	19.82	21.50	1.472	-	-	0.09	0.192	0.283	
1st	LTE Band 7	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	21100	2535	20.25	21.20	1.245	-	-	0.15	0.352	0.438	0.51
33 2nd	LTE Band 7	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	21100	2535	20.41	21.20	1.199	-	-	-0.06	0.411	0.493	
2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	21100	2535	19.23	20.50	1.340	-	-	0.04	0.366	0.490	
1st	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 3	ECI 5	21100	2535	17.20	18.50	1.349	-	-	0.05	0.224	0.302	1.09
2nd	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 3	ECI 5	21100	2535	17.36	18.50	1.300	-	-	-0.14	0.181	0.235	
2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Back	10mm	Ant 3	ECI 5	21100	2535	16.86	17.50	1.159	-	-	-0.06	0.177	0.205	
1st	LTE Band 38	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 5	38000	2595	20.00	20.70	1.175	62.9	1.006	0.1	0.401	0.474	1.08
2nd	LTE Band 38	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 5	38000	2595	20.03	20.70	1.167	62.9	1.006	0.02	0.315	0.370	
2nd	LTE Band 38	20M	QPSK	1	0	-	Front	10mm	Ant 2	ECI 5	38000	2595	22.79	23.50	1.178	62.9	1.006	0.07	0.142	0.168	
2nd	LTE Band 38	20M	QPSK	1	0	-	Back	10mm	Ant 2	ECI 5	38000	2595	22.79	23.50	1.178	62.9	1.006	0.12	0.214	0.254	
2nd	LTE Band 38	20M	QPSK	1	0	-	Right Side	10mm	Ant 2	ECI 5	38000	2595	22.79	23.50	1.178	62.9	1.006	0.04	0.150	0.178	
2nd	LTE Band 38	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	ECI 5	38000	2595	22.79	23.50	1.178	62.9	1.006	0.07	0.176	0.209	
2nd	LTE Band 38	20M	QPSK	50	0	-	Front	10mm	Ant 2	ECI 5	38000	2595	22.49	23.50	1.262	62.9	1.006	0.11	0.158	0.201	
2nd	LTE Band 38	20M	QPSK	50	0	-	Back	10mm	Ant 2	ECI 5	38000	2595	22.49	23.50	1.262	62.9	1.006	-0.07	0.229	0.291	
2nd	LTE Band 38	20M	QPSK	50	0	-	Right Side	10mm	Ant 2	ECI 5	38000	2595	22.49	23.50	1.262	62.9	1.006	-0.02	0.147	0.187	
2nd	LTE Band 38	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	ECI 5	38000	2595	22.49	23.50	1.262	62.9	1.006	0.08	0.177	0.225	
2nd	LTE Band 38	20M	QPSK	1	0	-	Front	10mm	Ant 5	ECI 5	38000	2595	21.95	22.70	1.189	62.9	1.006	0.03	0.143	0.171	
2nd	LTE Band 38	20M	QPSK	1	0	-	Back	10mm	Ant 5	ECI 5	38000	2595	21.95	22.70	1.189	62.9	1.006	-0.06	0.253	0.302	
2nd	LTE Band 38	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	38000	2595	21.95	22.70	1.189	62.9	1.006	-0.19	0.279	0.334	
2nd	LTE Band 38	20M	QPSK	50	0	-	Front	10mm	Ant 5	ECI 5	38000	2595	21.87	22.70	1.211	62.9	1.006	-0.16	0.154	0.188	
2nd	LTE Band 38	20M	QPSK	50	0	-	Back	10mm	Ant 5	ECI 5	38000	2595	21.87	22.70	1.211	62.9	1.006	-0.14	0.246	0.300	
2nd	LTE Band 38	20M	QPSK	50	0	-	Right Side	10mm	Ant 5	ECI 5	38000	2595	21.87	22.70	1.211	62.9	1.006	0.18	0.283	0.345	
1st	LTE Band 38	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	ECI 5	38000	2595	19.01	20.00	1.256	62.9	1.006	-0.08	0.381	0.481	0.65
34 2nd	LTE Band 38	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	ECI 5	38000	2595	19.05	20.00	1.245	62.9	1.006	-0.11	0.331	0.414	
1st	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 5	40185	2549.5	20.15	20.70	1.135	62.9	1.006	0.05	0.291	0.332	1.28
2nd	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 5	40185	2549.5	20.23	20.70	1.114	62.9	1.006	0.05	0.220	0.247	
2nd	LTE Band 41C	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 5	40185+2549.5+39987	2529.7	20.15	20.70	1.135	62.9	1.006	0.02	0.214	0.244	
2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 5	40185	2549.5	16.86	18.00	1.300	62.9	1.006	0.03	0.161	0.211	



FCC SAR Test Report

Report No. : FA442515-03

	2nd	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 2	ECI 5	40185	2549.5	23.54	24.50	1.247	62.9	1.006	-0.07	0.185	0.232	
35	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 2	ECI 5	40185	2549.5	23.54	24.50	1.247	62.9	1.006	-0.05	0.272	0.341	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Back	10mm	Ant 2	ECI 5	40185+39987	2549.5+2529.7	23.46	24.50	1.271	62.9	1.006	0.04	0.261	0.334	
	2nd	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 2	ECI 5	40185	2549.5	23.54	24.50	1.247	62.9	1.006	-0.04	0.177	0.222	
	2nd	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	ECI 5	40185	2549.5	23.54	24.50	1.247	62.9	1.006	-0.09	0.194	0.243	
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Back	10mm	Ant 2	ECI 5	40185	2549.5	22.07	23.50	1.390	62.9	1.006	0.19	0.206	0.288	
	2nd	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 2	ECI 5	40185	2549.5	22.82	24.00	1.312	62.9	1.006	0.19	0.168	0.222	
	2nd	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 2	ECI 5	40185	2549.5	22.82	24.00	1.312	62.9	1.006	0.17	0.240	0.317	
	2nd	LTE Band 41	20M	QPSK	50	0	-	Right Side	10mm	Ant 2	ECI 5	40185	2549.5	22.82	24.00	1.312	62.9	1.006	0.09	0.158	0.209	
	2nd	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	ECI 5	40185	2549.5	22.82	24.00	1.312	62.9	1.006	-0.19	0.181	0.239	
	2nd	LTE Band 41	20M	QPSK	100	0	-	Back	10mm	Ant 2	ECI 5	40185	2549.5	22.81	24.00	1.315	62.9	1.006	-0.11	0.245	0.324	
	1st	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	40185	2549.5	21.78	22.20	1.102	62.9	1.006	-0.01	0.260	0.288	0.38
	2nd	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	40185	2549.5	21.38	22.20	1.208	62.9	1.006	0.06	0.217	0.264	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	40185+39987	2549.5+2529.7	21.33	22.20	1.222	62.9	1.006	0.04	0.209	0.257	
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	ECI 5	40185	2549.5	20.40	21.50	1.288	62.9	1.006	0.08	0.186	0.241	1.69
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 3	ECI 5	40185	2549.5	19.33	20.50	1.309	62.9	1.006	-0.06	0.317	0.418	
	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 3	ECI 5	40185	2549.5	19.36	20.50	1.300	62.9	1.006	-0.04	0.216	0.283	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Back	10mm	Ant 3	ECI 5	40185+39987	2549.5+2529.7	19.31	20.50	1.315	62.9	1.006	0.01	0.211	0.279	
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Back	10mm	Ant 3	ECI 5	40185	2549.5	18.65	19.50	1.216	62.9	1.006	0.04	0.164	0.201	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Front	10mm	Ant 4	ECI 5	518598	2592.99	18.68	19.70	1.265	-	-	-0.14	0.179	0.226	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	10mm	Ant 4	ECI 5	518598	2592.99	18.68	19.70	1.265	-	-	0.12	0.315	0.398	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 4	ECI 5	518598	2592.99	18.68	19.70	1.265	-	-	-0.16	0.032	0.040	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 4	ECI 5	518598	2592.99	18.68	19.70	1.265	-	-	0.15	0.326	0.412	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Front	10mm	Ant 4	ECI 5	518598	2592.99	18.67	19.70	1.268	-	-	-0.09	0.155	0.196	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	10mm	Ant 4	ECI 5	518598	2592.99	18.67	19.70	1.268	-	-	-0.11	0.320	0.406	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Side	10mm	Ant 4	ECI 5	518598	2592.99	18.67	19.70	1.268	-	-	0.01	0.030	0.038	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Top Side	10mm	Ant 4	ECI 5	518598	2592.99	18.67	19.70	1.268	-	-	0.1	0.311	0.394	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Front	10mm	Ant 2	ECI 5	518598	2592.99	21.56	23.00	1.393	-	-	0.16	0.219	0.305	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	10mm	Ant 2	ECI 5	518598	2592.99	21.56	23.00	1.393	-	-	-0.09	0.344	0.479	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 2	ECI 5	518598	2592.99	21.56	23.00	1.393	-	-	-0.11	0.197	0.274	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 2	ECI 5	518598	2592.99	21.56	23.00	1.393	-	-	-0.1	0.270	0.376	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Front	10mm	Ant 2	ECI 5	518598	2592.99	21.53	23.00	1.403	-	-	0.1	0.224	0.314	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	10mm	Ant 2	ECI 5	518598	2592.99	21.53	23.00	1.403	-	-	0.13	0.383	0.537	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Side	10mm	Ant 2	ECI 5	518598	2592.99	21.53	23.00	1.403	-	-	-0.03	0.219	0.307	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Bottom Side	10mm	Ant 2	ECI 5	518598	2592.99	21.53	23.00	1.403	-	-	-0.11	0.280	0.393	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Front	10mm	Ant 5	ECI 5	518598	2592.99	22.00	22.70	1.175	-	-	-0.13	0.333	0.391	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	10mm	Ant 5	ECI 5	518598	2592.99	22.00	22.70	1.175	-	-	-0.19	0.544	0.639	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 5	ECI 5	518598	2592.99	22.00	22.70	1.175	-	-	0.14	0.598	0.703	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Front	10mm	Ant 5	ECI 5	518598	2592.99	21.99	22.70	1.178	-	-	0.1	0.303	0.357	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	10mm	Ant 5	ECI 5	518598	2592.99	21.99	22.70	1.178	-	-	-0.06	0.559	0.658	
36	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Right Side	10mm	Ant 5	ECI 5	518598	2592.99	21.99	22.70	1.178	-	-	-0.15	0.635	0.748	
	2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Right Side	10mm	Ant 5	ECI 5	518598	2592.99	21.98	22.70	1.180	-	-	-0.11	0.633	0.747	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Front	10mm	Ant 3	ECI 5	518598	2592.99	18.15	19.50	1.365	-	-	0.1	0.169	0.231	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	10mm	Ant 3	ECI 5	518598	2592.99	18.15	19.50	1.365	-	-	-0.09	0.425	0.580	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 3	ECI 5	518598	2592.99	18.15	19.50	1.365	-	-	-0.19	0.424	0.579	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 3	ECI 5	518598	2592.99	18.15	19.50	1.365	-	-	0.07	0.046	0.063	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Front	10mm	Ant 3	ECI 5	518598	2592.99	18.13	19.50	1.371	-	-	0.17	0.165	0.226	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	10mm	Ant 3	ECI 5	518598	2592.99	18.13	19.50	1.371	-	-	0.04	0.514	0.705	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Side	10mm	Ant 3	ECI 5	518598	2592.99	18.13	19.50	1.371	-	-	-0.09	0.500	0.685	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Top Side	10mm	Ant 3	ECI 5	518598	2592.99	18.13	19.50	1.371	-	-	-0.1	0.050	0.069	
3000MHz																						
	1st	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 6	ECI 5	42590	3500	18.10	18.70	1.148	62.9	1.006	-0.16	0.405	0.468	2.76
	2nd	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 6	ECI 5	42590	3500	18.33	18.70	1.089	62.9	1.006	0.13	0.226	0.248	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Top Side	10mm	Ant 6	ECI 5	42590+42392	3500+3480.2	18.28	18.70	1.102	62.9	1.006	0.09	0.208	0.230	
	1st	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 8	ECI 5	42590	3500	19.40	21.00	1.445	62.9	1.006	0.07	0.225	0.327	1.01



FCC SAR Test Report

Report No. : FA442515-03

	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 8	ECI 5	42590	3500	19.51	21.00	1.409	62.9	1.006	-0.18	0.183	0.259	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Back	10mm	Ant 8	ECI 5	42590+42392	3500+3480.2	19.44	21.00	1.432	62.9	1.006	-0.15	0.179	0.258	
	1st	LTE Band 42	20M	QPSK	1	0	-	Right Side	10mm	Ant 7	ECI 5	42590	3500	17.40	18.50	1.288	62.9	1.006	-0.19	0.221	0.286	
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	10mm	Ant 7	ECI 5	42590	3500	17.53	18.50	1.250	62.9	1.006	-0.02	0.226	0.284	0.03
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Right Side	10mm	Ant 7	ECI 5	42590+42392	3500+3480.2	17.35	18.50	1.303	62.9	1.006	0.03	0.214	0.281	
	1st	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 9	ECI 5	42590	3500	16.06	17.50	1.393	62.9	1.006	-0.18	0.621	0.870	
37	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 9	ECI 5	42590	3500	16.36	17.50	1.300	62.9	1.006	0.16	0.411	0.538	2.09
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Back	10mm	Ant 9	ECI 5	42590+42392	3500+3480.2	16.29	17.50	1.321	62.9	1.006	0.12	0.402	0.534	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 6	ECI 5	6333323	3499.98	17.10	17.70	1.148	-	-	0.06	0.145	0.166	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 6	ECI 5	6333323	3499.98	17.10	17.70	1.148	-	-	-0.17	0.279	0.320	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 6	ECI 5	6333323	3499.98	17.10	17.70	1.148	-	-	0.06	0.071	0.082	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 6	ECI 5	6333323	3499.98	17.10	17.70	1.148	-	-	-0.05	0.405	0.465	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 6	ECI 5	6333323	3499.98	17.08	17.70	1.153	-	-	-0.13	0.167	0.193	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 6	ECI 5	6333323	3499.98	17.08	17.70	1.153	-	-	0.17	0.300	0.346	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 6	ECI 5	6333323	3499.98	17.08	17.70	1.153	-	-	-0.02	0.077	0.089	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 6	ECI 5	6333323	3499.98	17.08	17.70	1.153	-	-	0.15	0.510	0.588	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 6	ECI 5	6560000	3840	16.76	17.70	1.242	-	-	0.03	0.143	0.178	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 6	ECI 5	6560000	3840	16.76	17.70	1.242	-	-	0.12	0.205	0.255	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 6	ECI 5	6560000	3840	16.76	17.70	1.242	-	-	-0.01	0.045	0.056	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 6	ECI 5	6560000	3840	16.76	17.70	1.242	-	-	-0.19	0.394	0.489	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 6	ECI 5	6560000	3840	16.75	17.70	1.245	-	-	0.01	0.124	0.154	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 6	ECI 5	6560000	3840	16.75	17.70	1.245	-	-	0.06	0.197	0.245	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 6	ECI 5	6560000	3840	16.75	17.70	1.245	-	-	-0.16	0.043	0.054	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 6	ECI 5	6560000	3840	16.75	17.70	1.245	-	-	-0.03	0.374	0.465	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 8	ECI 5	6333323	3499.98	17.20	18.50	1.349	-	-	-0.09	0.283	0.382	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 8	ECI 5	6333323	3499.98	17.20	18.50	1.349	-	-	-0.17	0.332	0.448	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 8	ECI 5	6333323	3499.98	17.20	18.50	1.349	-	-	-0.02	0.325	0.438	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 8	ECI 5	6333323	3499.98	17.20	18.50	1.349	-	-	-0.16	0.274	0.370	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 8	ECI 5	6333323	3499.98	17.18	18.50	1.355	-	-	0.19	0.272	0.369	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 8	ECI 5	6333323	3499.98	17.18	18.50	1.355	-	-	0.15	0.311	0.421	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 8	ECI 5	6333323	3499.98	17.18	18.50	1.355	-	-	0.1	0.295	0.400	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 8	ECI 5	6333323	3499.98	17.18	18.50	1.355	-	-	-0.03	0.289	0.392	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 8	ECI 5	6560000	3840	17.06	18.50	1.393	-	-	0.05	0.192	0.267	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 8	ECI 5	6560000	3840	17.06	18.50	1.393	-	-	-0.08	0.464	0.646	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 8	ECI 5	6560000	3840	17.06	18.50	1.393	-	-	0.01	0.166	0.231	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 8	ECI 5	6560000	3840	17.06	18.50	1.393	-	-	0.19	0.311	0.433	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 8	ECI 5	6560000	3840	17.03	18.50	1.403	-	-	0.04	0.182	0.255	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 8	ECI 5	6560000	3840	17.03	18.50	1.403	-	-	-0.07	0.450	0.631	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 8	ECI 5	6560000	3840	17.03	18.50	1.403	-	-	-0.13	0.160	0.224	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 8	ECI 5	6560000	3840	17.03	18.50	1.403	-	-	-0.15	0.272	0.382	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	10mm	Ant 8	ECI 5	6560000	3840	17.01	18.50	1.409	-	-	-0.18	0.442	0.623	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 7	ECI 5	6333323	3499.98	16.98	18.00	1.265	-	-	-0.11	0.255	0.323	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 7	ECI 5	6333323	3499.98	16.98	18.00	1.265	-	-	0.03	0.278	0.352	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 7	ECI 5	6333323	3499.98	16.98	18.00	1.265	-	-	0.1	0.462	0.584	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 7	ECI 5	6333323	3499.98	16.98	18.00	1.265	-	-	-0.05	0.050	0.063	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 7	ECI 5	6333323	3499.98	16.96	18.00	1.271	-	-	-0.05	0.261	0.332	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 7	ECI 5	6333323	3499.98	16.96	18.00	1.271	-	-	0.16	0.260	0.330	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 7	ECI 5	6333323	3499.98	16.96	18.00	1.271	-	-	0.04	0.589	0.748	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 7	ECI 5	6333323	3499.98	16.96	18.00	1.271	-	-	-0.15	0.053	0.067	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 7	ECI 5	6560000	3840	16.91	18.00	1.285	-	-	0.14	0.206	0.265	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 7	ECI 5	6560000	3840	16.91	18.00	1.285	-	-	-0.04	0.230	0.296	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 7	ECI 5	6560000	3840	16.91	18.00	1.285	-	-	0.09	0.466	0.599	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 7	ECI 5	6560000	3840	16.91	18.00	1.285	-	-	-0.13	0.037	0.048	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 7	ECI 5	6560000	3840	16.89	18.00	1.291	-	-	0.09	0.177	0.229	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 7	ECI 5	6560000	3840	16.89	18.00	1.291	-	-	0.15	0.216	0.279	



FCC SAR Test Report

Report No. : FA442515-03

	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 7	ECI 5	656000	3840	16.89	18.00	1.291	-	-	-0.04	0.405	0.523	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 7	ECI 5	656000	3840	16.89	18.00	1.291	-	-	-0.05	0.035	0.045	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 9	ECI 5	633332	3499.98	16.02	17.00	1.253	-	-	-0.13	0.033	0.041	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 9	ECI 5	633332	3499.98	16.02	17.00	1.253	-	-	0.15	0.710	0.890	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 9	ECI 5	633332	3499.98	16.02	17.00	1.253	-	-	0.19	0.112	0.140	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 9	ECI 5	633332	3499.98	16.02	17.00	1.253	-	-	0.05	0.026	0.033	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 9	ECI 5	633332	3499.98	16.00	17.00	1.259	-	-	-0.01	0.036	0.045	
38	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 9	ECI 5	633332	3499.98	16.00	17.00	1.259	-	-	-0.04	0.779	0.981	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 9	ECI 5	633332	3499.98	16.00	17.00	1.259	-	-	0.15	0.104	0.131	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 9	ECI 5	633332	3499.98	16.00	17.00	1.259	-	-	-0.12	0.025	0.031	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	10mm	Ant 9	ECI 5	633332	3499.98	15.99	17.00	1.262	-	-	0.11	0.720	0.909	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 9	ECI 5	656000	3840	15.76	17.00	1.330	-	-	0.03	0.038	0.051	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 9	ECI 5	656000	3840	15.76	17.00	1.330	-	-	0.03	0.484	0.644	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 9	ECI 5	656000	3840	15.76	17.00	1.330	-	-	-0.07	0.163	0.217	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 9	ECI 5	656000	3840	15.76	17.00	1.330	-	-	-0.02	0.028	0.037	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 9	ECI 5	656000	3840	15.75	17.00	1.334	-	-	-0.12	0.034	0.045	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 9	ECI 5	656000	3840	15.75	17.00	1.334	-	-	-0.09	0.388	0.517	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 9	ECI 5	656000	3840	15.75	17.00	1.334	-	-	0.05	0.145	0.193	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 9	ECI 5	656000	3840	15.75	17.00	1.334	-	-	0.06	0.025	0.033	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	10mm	Ant 9	ECI 5	656000	3840	15.73	17.00	1.340	-	-	-0.05	0.386	0.517	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 6	ECI 5	633332	3499.98	16.78	17.70	1.236	-	-	0.08	0.112	0.138	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 6	ECI 5	633332	3499.98	16.78	17.70	1.236	-	-	0.12	0.198	0.245	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 6	ECI 5	633332	3499.98	16.78	17.70	1.236	-	-	0.14	0.056	0.069	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 6	ECI 5	633332	3499.98	16.78	17.70	1.236	-	-	-0.08	0.282	0.349	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 6	ECI 5	633332	3499.98	16.76	17.70	1.242	-	-	-0.07	0.135	0.168	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 6	ECI 5	633332	3499.98	16.76	17.70	1.242	-	-	-0.16	0.215	0.267	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 6	ECI 5	633332	3499.98	16.76	17.70	1.242	-	-	0.06	0.060	0.074	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 6	ECI 5	633332	3499.98	16.76	17.70	1.242	-	-	-0.09	0.347	0.431	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 6	ECI 5	650000	3750	16.78	17.70	1.236	-	-	0.13	0.106	0.131	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 6	ECI 5	650000	3750	16.78	17.70	1.236	-	-	0.12	0.168	0.208	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 6	ECI 5	650000	3750	16.78	17.70	1.236	-	-	-0.11	0.077	0.095	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 6	ECI 5	650000	3750	16.78	17.70	1.236	-	-	-0.1	0.325	0.402	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 6	ECI 5	650000	3750	16.76	17.70	1.242	-	-	-0.15	0.113	0.140	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 6	ECI 5	650000	3750	16.76	17.70	1.242	-	-	0.08	0.161	0.200	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 6	ECI 5	650000	3750	16.76	17.70	1.242	-	-	0.11	0.069	0.086	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 6	ECI 5	650000	3750	16.76	17.70	1.242	-	-	0.08	0.313	0.389	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 8	ECI 5	633332	3499.98	15.88	17.50	1.452	-	-	0.13	0.245	0.356	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 8	ECI 5	633332	3499.98	15.88	17.50	1.452	-	-	-0.16	0.287	0.417	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 8	ECI 5	633332	3499.98	15.88	17.50	1.452	-	-	-0.04	0.277	0.402	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 8	ECI 5	633332	3499.98	15.88	17.50	1.452	-	-	0.16	0.237	0.344	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 8	ECI 5	633332	3499.98	15.86	17.50	1.459	-	-	-0.12	0.250	0.365	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 8	ECI 5	633332	3499.98	15.86	17.50	1.459	-	-	-0.01	0.285	0.416	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 8	ECI 5	633332	3499.98	15.86	17.50	1.459	-	-	0.03	0.273	0.398	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 8	ECI 5	633332	3499.98	15.86	17.50	1.459	-	-	0.1	0.255	0.372	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 8	ECI 5	650000	3750	15.90	17.50	1.445	-	-	0.16	0.209	0.302	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 8	ECI 5	650000	3750	15.90	17.50	1.445	-	-	-0.19	0.309	0.447	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 8	ECI 5	650000	3750	15.90	17.50	1.445	-	-	-0.17	0.167	0.241	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 8	ECI 5	650000	3750	15.90	17.50	1.445	-	-	0.18	0.260	0.376	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 8	ECI 5	650000	3750	15.88	17.50	1.452	-	-	0.17	0.203	0.295	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 8	ECI 5	650000	3750	15.88	17.50	1.452	-	-	-0.18	0.417	0.606	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 8	ECI 5	650000	3750	15.88	17.50	1.452	-	-	0.18	0.179	0.260	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 8	ECI 5	650000	3750	15.88	17.50	1.452	-	-	0.18	0.284	0.412	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 7	ECI 5	633332	3499.98	15.28	16.50	1.324	-	-	0.02	0.173	0.229	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 7	ECI 5	633332	3499.98	15.28	16.50	1.324	-	-	0.11	0.193	0.256	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 7	ECI 5	633332	3499.98	15.28	16.50	1.324	-	-	-0.18	0.376	0.498	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 7	ECI 5	633332	3499.98	15.28	16.50	1.324	-	-	0.04	0.056	0.074	



FCC SAR Test Report

Report No. : FA442515-03

2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 7	ECI 5	633332	3499.98	15.26	16.50	1.330	-	-	-0.16	0.182	0.242	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 7	ECI 5	633332	3499.98	15.26	16.50	1.330	-	-	0.04	0.179	0.238	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 7	ECI 5	633332	3499.98	15.26	16.50	1.330	-	-	0.06	0.421	0.560	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 7	ECI 5	633332	3499.98	15.26	16.50	1.330	-	-	0.07	0.060	0.080	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 7	ECI 5	650000	3750	15.15	16.50	1.365	-	-	0.19	0.213	0.291	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 7	ECI 5	650000	3750	15.15	16.50	1.365	-	-	-0.06	0.226	0.308	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 7	ECI 5	650000	3750	15.15	16.50	1.365	-	-	0.1	0.441	0.602	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 7	ECI 5	650000	3750	15.15	16.50	1.365	-	-	-0.19	0.510	0.696	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 7	ECI 5	650000	3750	15.13	16.50	1.371	-	-	0.05	0.198	0.271	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 7	ECI 5	650000	3750	15.13	16.50	1.371	-	-	-0.18	0.209	0.287	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 7	ECI 5	650000	3750	15.13	16.50	1.371	-	-	0.12	0.396	0.543	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 7	ECI 5	650000	3750	15.13	16.50	1.371	-	-	0.16	0.047	0.064	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 9	ECI 5	633332	3499.98	13.48	14.50	1.265	-	-	0.04	0.033	0.000	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 9	ECI 5	633332	3499.98	13.48	14.50	1.265	-	-	0.16	0.689	0.871	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 9	ECI 5	633332	3499.98	13.48	14.50	1.265	-	-	0.15	0.101	0.128	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 9	ECI 5	633332	3499.98	13.48	14.50	1.265	-	-	0.01	0.025	0.032	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 9	ECI 5	633332	3499.98	13.47	14.50	1.268	-	-	-0.12	0.038	0.048	
39 2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 9	ECI 5	633332	3499.98	13.47	14.50	1.268	-	-	0.18	0.811	1.028	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 9	ECI 5	633332	3499.98	13.47	14.50	1.268	-	-	0.19	0.105	0.133	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 9	ECI 5	633332	3499.98	13.47	14.50	1.268	-	-	-0.08	0.027	0.034	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Back	10mm	Ant 9	ECI 5	633332	3499.98	13.45	14.50	1.274	-	-	-0.01	0.761	0.969	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 9	ECI 5	650000	3750	13.57	14.50	1.239	-	-	-0.12	0.035	0.043	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 9	ECI 5	650000	3750	13.57	14.50	1.239	-	-	-0.01	0.557	0.690	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 9	ECI 5	650000	3750	13.57	14.50	1.239	-	-	0.11	0.155	0.192	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 9	ECI 5	650000	3750	13.57	14.50	1.239	-	-	-0.04	0.026	0.032	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 9	ECI 5	650000	3750	13.55	14.50	1.245	-	-	-0.18	0.032	0.040	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 9	ECI 5	650000	3750	13.55	14.50	1.245	-	-	0.12	0.534	0.665	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 9	ECI 5	650000	3750	13.55	14.50	1.245	-	-	0.07	0.166	0.207	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 9	ECI 5	650000	3750	13.55	14.50	1.245	-	-	0.01	0.025	0.031	

Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	Deviation dB
2450MHz																		
	2nd	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 16+7(7)	Non-DBS	6	2437	18.66	20.00	1.361	99.48	1.005	0.05	0.213	0.291	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 16+7(7)	Non-DBS	6	2437	18.66	20.00	1.361	99.48	1.005	-0.12	0.333	0.456	
40	2nd	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 16+7(7)	Non-DBS	6	2437	18.66	20.00	1.361	99.48	1.005	0.03	0.539	0.737	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 16+7(7)	Non-DBS	6	2437	18.66	20.00	1.361	99.48	1.005	-0.07	0.202	0.276	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 16+7(7)	DBS	6	2437	15.40	17.00	1.445	99.48	1.005	0.06	0.111	0.161	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 16+7(7)	DBS	6	2437	15.40	17.00	1.445	99.48	1.005	0.03	0.169	0.246	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 16+7(7)	DBS	6	2437	15.40	17.00	1.445	99.48	1.005	-0.11	0.295	0.429	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 16+7(7)	DBS	6	2437	15.40	17.00	1.445	99.48	1.005	0.05	0.118	0.171	
	1st	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 7	Non-DBS&DBS	6	2437	18.35	20.00	1.462	99.48	1.005	-0.13	0.509	0.748	0.37
	2nd	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 7	Non-DBS&DBS	6	2437	18.30	20.00	1.479	99.48	1.005	0.16	0.462	0.687	
	1st	Bluetooth	DH5 1Mbps	Top Side	10mm	Ant 16	Non-DBS&DBS	39	2441	15.18	16.00	1.208	76.83	1.302	-0.13	0.110	0.173	0.80
41	2nd	Bluetooth	DH5 1Mbps	Top Side	10mm	Ant 16	Non-DBS&DBS	39	2441	15.11	16.00	1.227	76.83	1.302	-0.17	0.090	0.144	
5000MHz																		
	1st	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 16+7(7)	Non-DBS	38	5190	15.63	16.50	1.223	94.08	1.063	-0.09	0.509	0.662	1.81
42	2nd	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 16+7(7)	Non-DBS	38	5190	15.57	16.50	1.240	94.08	1.063	0.04	0.331	0.436	
	1st	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 16+7(7)	DBS	38	5190	14.77	15.50	1.184	94.08	1.063	-0.09	0.380	0.478	0.93
	2nd	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 16+7(7)	DBS	38	5190	14.53	15.50	1.252	94.08	1.063	-0.17	0.290	0.386	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 6+17(6)	Non-DBS	155	5775	13.81	15.00	1.315	88.14	1.135	-0.18	0.436	0.651	0.66
43	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 6+17(6)	Non-DBS	155	5775	13.76	15.00	1.330	88.14	1.135	0.08	0.370	0.559	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 6+17(6)	DBS	155	5775	12.25	13.50	1.334	88.14	1.135	-0.18	0.342	0.518	1.63
	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 6+17(6)	DBS	155	5775	12.15	13.50	1.365	88.14	1.135	0.1	0.230	0.356	



17.3 Body Worn Accessory SAR

Plot No.	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)	Reported 1g SAR (W/kg)	Deviation dB
750MHz																						
	1st	LTE Band 12	10M	QPSK	1	0	-	Back	15mm	Ant 0	ECI 4	23095	707.5	24.51	25.50	1.256	-	-	0.04	0.229	0.288	0.21
	2nd	LTE Band 12	10M	QPSK	1	0	-	Back	15mm	Ant 0	ECI 4	23095	707.5	24.45	25.50	1.274	-	-	0.01	0.237	0.302	
	1st	LTE Band 12	10M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 4	23095	707.5	23.94	25.50	1.432	-	-	-0.13	0.267	0.382	1.11
44	2nd	LTE Band 12	10M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 4	23095	707.5	23.85	25.50	1.462	-	-	0.1	0.337	0.493	
	1st	LTE Band 13	10M	QPSK	1	0	-	Back	15mm	Ant 0	ECI 4	23230	782	25.09	25.70	1.151	-	-	0.03	0.206	0.237	0.85
	2nd	LTE Band 13	10M	QPSK	1	0	-	Back	15mm	Ant 0	ECI 4	23230	782	24.01	25.70	1.476	-	-	0.06	0.195	0.288	
	1st	LTE Band 13	10M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 4	23230	782	24.38	25.50	1.294	-	-	-0.05	0.420	0.544	1.07
45	2nd	LTE Band 13	10M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 4	23230	782	23.52	25.50	1.578	-	-	0.02	0.441	0.696	
835MHz																						
	1st	GSM850	-	-	-	-	GPRS(4 Tx slots)	Back	15mm	Ant 0	ECI 4	189	836.4	26.76	28.00	1.330	-	-	0.04	0.176	0.234	0.53
	2nd	GSM850	-	-	-	-	GPRS(4 Tx slots)	Back	15mm	Ant 0	ECI 4	189	836.4	26.62	28.00	1.374	-	-	0.07	0.151	0.207	
	1st	GSM850	-	-	-	-	GPRS(4 Tx slots)	Back	15mm	Ant 1	ECI 4	189	836.4	26.24	27.50	1.337	-	-	0.09	0.409	0.547	0.30
46	2nd	GSM850	-	-	-	-	GPRS(4 Tx slots)	Back	15mm	Ant 1	ECI 4	189	836.4	26.13	27.50	1.371	-	-	0.18	0.373	0.511	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	ECI 4	4182	836.4	23.95	25.00	1.274	-	-	-0.12	0.261	0.332	1.21
	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	ECI 4	4182	836.4	23.83	25.00	1.309	-	-	-0.03	0.192	0.251	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 1	ECI 4	4182	836.4	23.10	24.50	1.380	-	-	0.15	0.479	0.661	0.05
47	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 1	ECI 4	4182	836.4	23.05	24.50	1.396	-	-	-0.08	0.468	0.654	
	1st	LTE Band 26	15M	QPSK	1	0	-	Back	15mm	Ant 0	ECI 4	26865	831.5	25.05	25.70	1.161	-	-	-0.1	0.349	0.405	0.67
	2nd	LTE Band 26	15M	QPSK	1	0	-	Back	15mm	Ant 0	ECI 4	26865	831.5	24.80	25.70	1.230	-	-	0.01	0.282	0.347	
	1st	LTE Band 26	15M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 4	26865	831.5	24.20	25.50	1.349	-	-	0.1	0.353	0.476	0.09
48	2nd	LTE Band 26	15M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 4	26865	831.5	24.00	25.50	1.413	-	-	-0.03	0.330	0.466	
1750MHz																						
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 4	ECI 4	1413	1732.6	23.98	25.00	1.265	-	-	0.14	0.512	0.648	0.06
49	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 4	ECI 4	1413	1732.6	23.85	25.00	1.303	-	-	-0.04	0.504	0.657	
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 5	ECI 4	1413	1732.6	23.12	24.50	1.374	-	-	0.18	0.167	0.229	0.15
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 5	ECI 4	1413	1732.6	23.20	24.50	1.349	-	-	0.07	0.176	0.237	
	1st	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	20175	1732.5	25.15	25.70	1.135	-	-	0.1	0.691	0.784	0.09
50	2nd	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	20175	1732.5	25.06	25.70	1.159	-	-	-0.12	0.691	0.801	
	1st	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	20175	1732.5	24.08	25.00	1.236	-	-	0.01	0.280	0.346	1.70
	2nd	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	20175	1732.5	24.01	25.00	1.256	-	-	0.13	0.186	0.234	
	1st	LTE Band 4	20M	QPSK	50	0	-	Back	15mm	Ant 5	ECI 4	20175	1732.5	22.98	24.20	1.324	-	-	0.11	0.246	0.326	2.44
	2nd	LTE Band 4	20M	QPSK	50	0	-	Back	15mm	Ant 5	ECI 4	20175	1732.5	23.20	24.20	1.259	-	-	0.03	0.148	0.186	
	1st	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	20175	1732.5	24.09	25.50	1.384	-	-	0.05	0.272	0.376	0.08
	2nd	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	20175	1732.5	24.06	25.50	1.393	-	-	0.15	0.275	0.383	
1900MHz																						
	1st	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Back	15mm	Ant 4	ECI 4	661	1880	24.32	25.00	1.169	-	-	0.15	0.114	0.133	0.72
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Back	15mm	Ant 4	ECI 4	661	1880	23.88	25.00	1.294	-	-	-0.09	0.121	0.157	
	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Front	15mm	Ant 5	ECI 4	661	1880	24.08	25.00	1.236	-	-	0.05	0.109	0.135	
51	2nd	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Back	15mm	Ant 5	ECI 4	661	1880	24.08	25.00	1.236	-	-	0.11	0.175	0.216	
	2nd	GSM1900	-	-	-	-	DTM Multi-slot class 9	Back	15mm	Ant 5	ECI 4	661	1880	21.13	21.98	1.216	-	-	0.02	0.147	0.179	
	1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 4	ECI 4	9400	1880	24.06	25.00	1.242	-	-	-0.05	0.250	0.310	1.14
52	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 4	ECI 4	9400	1880	23.67	25.00	1.358	-	-	-0.15	0.297	0.403	
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 5	ECI 4	9400	1880	22.95	24.00	1.274	-	-	0.02	0.193	0.246	
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 5	ECI 4	9400	1880	22.95	24.00	1.274	-	-	0.08	0.269	0.343	
	1st	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	18900	1880	24.15	25.00	1.216	-	-	0.16	0.306	0.372	0.12
	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	18900	1880	24.08	25.00	1.236	-	-	-0.01	0.309	0.382	
	1st	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	18900	1880	22.88	24.00	1.294	-	-	-0.14	0.178	0.230	0.66
	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	18900	1880	22.86	24.00	1.300	-	-	-0.12	0.206	0.268	
	1st	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	18900	1880	22.15	23.50	1.365	-	-	-0.15	0.250	0.341	0.53
53	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	18900	1880	22.33	23.50	1.309	-	-	0.17	0.294	0.385	



FCC SAR Test Report

Report No. : FA442515-03

	1st	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	18900	1880	23.27	24.50	1.327	-	-	0.12	0.224	0.297	0.17
	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	18900	1880	23.25	24.50	1.334	-	-	-0.09	0.232	0.309	
2600MHz																						
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	21350	2560	25.16	25.70	1.132	-	-	-0.08	0.781	0.884	0.07
54	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	21350	2560	25.02	25.70	1.169	-	-	0.11	0.743	0.869	
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	21350	2560	21.84	23.50	1.466	-	-	0.03	0.332	0.487	0.16
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	21100	2535	23.95	25.00	1.274	-	-	0.17	0.233	0.297	
	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	21100	2535	23.95	25.00	1.274	-	-	-0.07	0.242	0.308	0.96
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	21100	2535	22.68	24.50	1.521	-	-	0.02	0.187	0.284	
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	21100	2535	21.67	22.70	1.268	-	-	-0.19	0.282	0.357	1.63
	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	21100	2535	21.81	22.70	1.227	-	-	-0.01	0.233	0.286	
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	21100	2535	20.68	22.00	1.355	-	-	0.12	0.207	0.281	1.84
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	21100	2535	24.38	25.50	1.294	-	-	-0.19	0.315	0.408	
	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	21100	2535	24.35	25.50	1.303	-	-	-0.14	0.456	0.594	0.39
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	21100	2535	23.90	24.50	1.148	-	-	-0.06	0.422	0.485	
	1st	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	38000	2595	25.05	25.70	1.161	62.9	1.006	0.03	0.486	0.568	2.60
55	2nd	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	38000	2595	25.02	25.70	1.169	62.9	1.006	0.19	0.316	0.372	
	1st	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	38000	2595	23.55	24.50	1.245	62.9	1.006	0.19	0.168	0.210	1.64
	2nd	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	38000	2595	23.53	24.50	1.250	62.9	1.006	-0.02	0.153	0.192	
	1st	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	38000	2595	22.71	23.20	1.119	62.9	1.006	-0.02	0.317	0.357	0.90
	2nd	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	38000	2595	22.31	23.20	1.227	62.9	1.006	0.02	0.159	0.196	
	1st	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	38000	2595	24.05	25.00	1.245	62.9	1.006	0.14	0.414	0.518	0.33
	2nd	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	38000	2595	24.03	25.00	1.250	62.9	1.006	-0.18	0.282	0.355	
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	40185	2549.5	25.25	25.70	1.109	62.9	1.006	0.18	0.455	0.508	0.31
56	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	40185	2549.5	25.22	25.70	1.117	62.9	1.006	-0.17	0.368	0.413	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	40185+2549.5+39987	2529.7	25.15	25.70	1.135	62.9	1.006	0.06	0.344	0.393	0.73
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 4	40185	2549.5	21.73	23.00	1.340	62.9	1.006	0.04	0.257	0.346	
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	40185	2549.5	23.98	25.00	1.265	62.9	1.006	-0.04	0.230	0.293	0.33
	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	40185	2549.5	23.97	25.00	1.268	62.9	1.006	-0.07	0.248	0.316	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	40185+2549.5+39987	2529.7	23.88	25.00	1.294	62.9	1.006	-0.02	0.231	0.301	0.31
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Back	15mm	Ant 2	ECI 4	40185	2549.5	22.40	24.00	1.445	62.9	1.006	0.01	0.209	0.304	
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	40185	2549.5	22.80	23.20	1.096	62.9	1.006	-0.18	0.259	0.286	0.73
	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	40185	2549.5	22.38	23.20	1.208	62.9	1.006	0.08	0.219	0.266	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	40185+2549.5+39987	2529.7	22.31	23.20	1.227	62.9	1.006	0.04	0.206	0.254	0.73
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 4	40185	2549.5	21.41	22.50	1.285	62.9	1.006	0.08	0.164	0.212	
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	40185	2549.5	24.38	25.50	1.294	62.9	1.006	-0.15	0.360	0.469	0.73
	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	40185	2549.5	24.35	25.50	1.303	62.9	1.006	0.14	0.302	0.396	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	40185+2549.5+39987	2529.7	24.27	25.50	1.327	62.9	1.006	0.09	0.289	0.386	0.73
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Back	15mm	Ant 3	ECI 4	40185	2549.5	23.55	24.50	1.245	62.9	1.006	0.07	0.149	0.187	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Front	15mm	Ant 4	ECI 4	518598	2592.99	24.65	25.70	1.274	-	-	0.17	0.396	0.504	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	15mm	Ant 4	ECI 4	518598	2592.99	24.65	25.70	1.274	-	-	-0.16	0.687	0.875	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Front	15mm	Ant 4	ECI 4	518598	2592.99	24.59	25.70	1.291	-	-	-0.13	0.354	0.457	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	15mm	Ant 4	ECI 4	518598	2592.99	24.59	25.70	1.291	-	-	-0.18	0.816	1.054	
	2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Back	15mm	Ant 4	ECI 4	518598	2592.99	23.57	24.70	1.297	-	-	0.13	0.531	0.689	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Front	15mm	Ant 2	ECI 4	518598	2592.99	23.55	25.00	1.396	-	-	-0.05	0.182	0.254	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	15mm	Ant 2	ECI 4	518598	2592.99	23.55	25.00	1.396	-	-	-0.03	0.300	0.419	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Front	15mm	Ant 2	ECI 4	518598	2592.99	23.54	25.00	1.400	-	-	-0.18	0.195	0.273	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	15mm	Ant 2	ECI 4	518598	2592.99	23.54	25.00	1.400	-	-	0.04	0.303	0.424	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Front	15mm	Ant 5	ECI 4	518598	2592.99	22.00	22.70	1.175	-	-	-0.03	0.176	0.207	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	15mm	Ant 5	ECI 4	518598	2592.99	22.00	22.70	1.175	-	-	-0.12	0.293	0.344	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Front	15mm	Ant 5	ECI 4	518598	2592.99	21.99	22.70	1.178	-	-	-0.16	0.183	0.216	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	15mm	Ant 5	ECI 4	518598	2592.99	21.99	22.70	1.178	-	-	-0.14	0.306	0.360	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Front	15mm	Ant 3	ECI 4	518598	2592.99	23.83	25.00	1.309	-	-	-0.1	0.282	0.369	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	15mm	Ant 3	ECI 4	518598	2592.99	23.83	25.00	1.309	-	-	0.03	0.776	1.016	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Front	15mm	Ant 3	ECI 4	518598	2592.99	23.71	25.00	1.346	-	-	-0.04	0.328	0.441	



FCC SAR Test Report

Report No. : FA442515-03

57	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	15mm	Ant 3	ECI 4	518598	2592.99	23.71	25.00	1.346	-	-	0.09	0.808	1.087	
	2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Back	15mm	Ant 3	ECI 4	518598	2592.99	22.71	24.00	1.346	-	-	-0.01	0.689	0.927	
3000MHz																						
	1st	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 6	ECI 4	42590	3500	25.35	25.70	1.084	62.9	1.006	0.16	0.412	0.449	0.67
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 6	ECI 4	42590	3500	25.31	25.70	1.094	62.9	1.006	0.07	0.350	0.385	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Back	15mm	Ant 6	ECI 4	42590+42392	3500+3480.2	25.25	25.70	1.109	62.9	1.006	0.05	0.342	0.382	
	1st	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 8	ECI 4	42590	3500	22.50	24.00	1.413	62.9	1.006	-0.11	0.178	0.253	0.23
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 8	ECI 4	42590	3500	22.48	24.00	1.419	62.9	1.006	0.04	0.168	0.240	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Back	15mm	Ant 8	ECI 4	42590+42392	3500+3480.2	22.39	24.00	1.449	62.9	1.006	0.02	0.155	0.226	
	1st	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 7	ECI 4	42590	3500	18.90	20.00	1.288	62.9	1.006	0	0.230	0.298	2.70
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 7	ECI 4	42590	3500	19.05	20.00	1.245	62.9	1.006	-0.04	0.128	0.160	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Back	15mm	Ant 7	ECI 4	42590+42392	3500+3480.2	18.97	20.00	1.268	62.9	1.006	0.03	0.119	0.152	
	1st	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 9	ECI 4	42990	3540	21.58	22.50	1.236	62.9	1.006	-0.02	0.751	0.934	0.58
58	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 9	ECI 4	42990	3540	21.10	22.50	1.380	62.9	1.006	-0.19	0.588	0.817	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Back	15mm	Ant 9	ECI 4	42990+42792	3540+3520.2	21.03	22.50	1.403	62.9	1.006	-0.08	0.548	0.773	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 6	ECI 4	633332	3499.98	24.77	25.70	1.239	-	-	-0.16	0.322	0.399	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 6	ECI 4	633332	3499.98	24.77	25.70	1.239	-	-	-0.17	0.658	0.815	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 6	ECI 4	633332	3499.98	24.67	25.70	1.268	-	-	0.11	0.370	0.469	
59	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 6	ECI 4	633332	3499.98	24.67	25.70	1.268	-	-	0.03	0.795	1.008	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	15mm	Ant 6	ECI 4	633332	3499.98	23.55	24.70	1.303	-	-	0.1	0.556	0.725	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 6	ECI 4	656000	3840	24.76	25.70	1.242	-	-	0.01	0.372	0.462	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 6	ECI 4	656000	3840	24.76	25.70	1.242	-	-	0.19	0.499	0.620	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 6	ECI 4	656000	3840	24.70	25.70	1.259	-	-	-0.15	0.357	0.449	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 6	ECI 4	656000	3840	24.70	25.70	1.259	-	-	-0.12	0.508	0.640	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 8	ECI 4	633332	3499.98	22.17	23.50	1.358	-	-	-0.06	0.345	0.469	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 8	ECI 4	633332	3499.98	22.17	23.50	1.358	-	-	0.03	0.327	0.444	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 8	ECI 4	633332	3499.98	22.05	23.50	1.396	-	-	0.07	0.340	0.475	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 8	ECI 4	633332	3499.98	22.05	23.50	1.396	-	-	-0.19	0.305	0.426	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 8	ECI 4	656000	3840	22.05	23.50	1.396	-	-	-0.02	0.243	0.339	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 8	ECI 4	656000	3840	22.05	23.50	1.396	-	-	-0.19	0.628	0.877	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 8	ECI 4	656000	3840	21.92	23.50	1.439	-	-	-0.13	0.233	0.335	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 8	ECI 4	656000	3840	21.92	23.50	1.439	-	-	0.19	0.575	0.827	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	15mm	Ant 8	ECI 4	656000	3840	20.72	22.50	1.507	-	-	-0.19	0.578	0.871	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 7	ECI 4	633332	3499.98	17.98	19.00	1.265	-	-	0.13	0.186	0.235	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 7	ECI 4	633332	3499.98	17.98	19.00	1.265	-	-	0.03	0.200	0.253	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 7	ECI 4	633332	3499.98	17.96	19.00	1.271	-	-	0.01	0.192	0.244	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 7	ECI 4	633332	3499.98	17.96	19.00	1.271	-	-	-0.07	0.180	0.229	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 7	ECI 4	656000	3840	17.90	19.00	1.288	-	-	0.16	0.165	0.213	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 7	ECI 4	656000	3840	17.90	19.00	1.288	-	-	-0.09	0.186	0.240	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 7	ECI 4	656000	3840	17.76	19.00	1.330	-	-	-0.15	0.156	0.208	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 7	ECI 4	656000	3840	17.76	19.00	1.330	-	-	-0.08	0.168	0.224	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 9	ECI 4	633332	3499.98	20.01	21.00	1.256	-	-	0.07	0.051	0.064	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 9	ECI 4	633332	3499.98	20.01	21.00	1.256	-	-	0.12	0.631	0.793	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 9	ECI 4	633332	3499.98	19.99	21.00	1.262	-	-	0.13	0.055	0.069	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 9	ECI 4	633332	3499.98	19.99	21.00	1.262	-	-	-0.16	0.759	0.958	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	15mm	Ant 9	ECI 4	633332	3499.98	19.97	21.00	1.268	-	-	0.19	0.706	0.895	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 9	ECI 4	656000	3840	19.76	21.00	1.330	-	-	-0.19	0.037	0.049	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 9	ECI 4	656000	3840	19.76	21.00	1.330	-	-	-0.14	0.504	0.671	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 9	ECI 4	656000	3840	19.73	21.00	1.340	-	-	-0.01	0.031	0.042	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 9	ECI 4	656000	3840	19.73	21.00	1.340	-	-	0.19	0.409	0.548	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	15mm	Ant 9	ECI 4	656000	3840	19.71	21.00	1.346	-	-	-0.1	0.390	0.525	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 6	ECI 4	633332	3499.98	24.75	25.70	1.245	-	-	0.09	0.411	0.511	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 6	ECI 4	633332	3499.98	24.75	25.70	1.245	-	-	0.03	0.674	0.839	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 6	ECI 4	633332	3499.98	24.74	25.70	1.247	-	-	-0.16	0.397	0.495	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 6	ECI 4	633332	3499.98	24.74	25.70	1.247	-	-	0.13	0.749	0.934	



FCC SAR Test Report

Report No. : FA442515-03

	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Back	15mm	Ant 6	ECI 4	633332	3499.98	23.58	24.70	1.294	-	-	-0.09	0.558	0.722	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 6	ECI 4	650000	3750	24.75	25.70	1.245	-	-	-0.05	0.345	0.429	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 6	ECI 4	650000	3750	24.75	25.70	1.245	-	-	0.04	0.502	0.625	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 6	ECI 4	650000	3750	24.62	25.70	1.282	-	-	-0.13	0.377	0.483	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 6	ECI 4	650000	3750	24.62	25.70	1.282	-	-	0.03	0.462	0.592	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 8	ECI 4	633332	3499.98	22.98	24.50	1.419	-	-	0.15	0.439	0.623	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 8	ECI 4	633332	3499.98	22.98	24.50	1.419	-	-	0.1	0.432	0.613	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 8	ECI 4	633332	3499.98	22.95	24.50	1.429	-	-	0.05	0.465	0.664	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 8	ECI 4	633332	3499.98	22.95	24.50	1.429	-	-	-0.02	0.434	0.620	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 8	ECI 4	650000	3750	23.04	24.50	1.400	-	-	0.07	0.423	0.592	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 8	ECI 4	650000	3750	23.04	24.50	1.400	-	-	-0.04	0.498	0.697	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 8	ECI 4	650000	3750	22.98	24.50	1.419	-	-	-0.16	0.377	0.535	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 8	ECI 4	650000	3750	22.98	24.50	1.419	-	-	0.13	0.642	0.911	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Back	15mm	Ant 8	ECI 4	650000	3750	21.74	23.50	1.500	-	-	0.11	0.579	0.868	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 7	ECI 4	633332	3499.98	16.38	17.50	1.294	-	-	-0.18	0.152	0.197	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 7	ECI 4	633332	3499.98	16.38	17.50	1.294	-	-	-0.09	0.152	0.197	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 7	ECI 4	633332	3499.98	16.36	17.50	1.300	-	-	0.19	0.148	0.192	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 7	ECI 4	633332	3499.98	16.36	17.50	1.300	-	-	-0.07	0.137	0.178	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 7	ECI 4	650000	3750	16.25	17.50	1.334	-	-	-0.07	0.167	0.223	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 7	ECI 4	650000	3750	16.25	17.50	1.334	-	-	0.08	0.205	0.273	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 7	ECI 4	650000	3750	16.23	17.50	1.340	-	-	-0.01	0.162	0.217	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 7	ECI 4	650000	3750	16.23	17.50	1.340	-	-	-0.15	0.191	0.256	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 9	ECI 4	633332	3499.98	18.48	19.50	1.265	-	-	-0.02	0.061	0.077	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 9	ECI 4	633332	3499.98	18.48	19.50	1.265	-	-	-0.15	0.642	0.812	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 9	ECI 4	633332	3499.98	18.46	19.50	1.271	-	-	0.15	0.058	0.074	
60	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 9	ECI 4	633332	3499.98	18.46	19.50	1.271	-	-	0.11	0.833	1.058	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Back	15mm	Ant 9	ECI 4	633332	3499.98	18.43	19.50	1.279	-	-	0.05	0.689	0.881	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 9	ECI 4	650000	3750	18.58	19.50	1.236	-	-	-0.02	0.055	0.068	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 9	ECI 4	650000	3750	18.58	19.50	1.236	-	-	0.03	0.671	0.829	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 9	ECI 4	650000	3750	18.56	19.50	1.242	-	-	0.04	0.051	0.063	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 9	ECI 4	650000	3750	18.56	19.50	1.242	-	-	0.04	0.669	0.831	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Back	15mm	Ant 9	ECI 4	650000	3750	18.53	19.50	1.250	-	-	-0.08	0.653	0.816	



Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	Deviation dB
2450MHz																		
61	1st	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 16+7(7)	Standalone	6	2437	19.36	21.00	1.459	99.48	1.005	-0.15	0.213	0.312	1.15
	2nd	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 16+7(7)	Standalone	6	2437	19.26	21.00	1.493	99.48	1.005	0.17	0.271	0.407	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 16+7(7)	DBS	6	2437	18.27	20.00	1.489	99.48	1.005	0.05	0.101	0.151	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 16+7(7)	DBS	6	2437	18.27	20.00	1.489	99.48	1.005	-0.11	0.171	0.256	
	1st	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 7	Standalone	6	2437	19.36	21.00	1.459	99.48	1.005	0.04	0.154	0.226	1.21
	2nd	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 7	Standalone	6	2437	19.27	21.00	1.489	99.48	1.005	0.06	0.114	0.171	
62	1st	Bluetooth	DH5 1Mbps	Back	15mm	Ant 16	Non-DBS&DBS	39	2441	15.18	16.00	1.208	76.83	1.302	0.16	0.054	0.085	1.30
	2nd	Bluetooth	DH5 1Mbps	Back	15mm	Ant 16	Non-DBS&DBS	39	2441	15.11	16.00	1.227	76.83	1.302	-0.16	0.039	0.063	
5000MHz																		
63	1st	WLAN5.2GHz	802.11a 6Mbps	Back	15mm	Ant 6+17(17)	Standalone	48	5240	17.63	18.50	1.221	97.65	1.024	-0.09	0.262	0.328	0.22
	2nd	WLAN5.2GHz	802.11a 6Mbps	Back	15mm	Ant 6+17(17)	Standalone	48	5240	17.53	18.50	1.249	97.65	1.024	0.01	0.244	0.312	
	1st	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 6+17(6)	Non-DBS&DBS	58	5290	13.21	14.00	1.200	88.14	1.135	-0.15	0.104	0.142	0.19
	2nd	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 6+17(6)	Non-DBS&DBS	58	5290	13.13	14.00	1.222	88.14	1.135	-0.06	0.098	0.136	
64	1st	WLAN5.5GHz	802.11ax-HE80 MCS0	Back	15mm	Ant 6+17	Standalone	122	5610	20.64	21.50	1.219	86.78	1.152	-0.17	0.285	0.400	0.13
	2nd	WLAN5.5GHz	802.11ax-HE80 MCS0	Back	15mm	Ant 6+17	Standalone	122	5610	20.79	21.50	1.178	86.78	1.152	-0.03	0.304	0.412	
	1st	WLAN5.5GHz	802.11ac-VHT160 MCS0	Back	15mm	Ant 6+17(6)	Non-DBS&DBS	114	5570	12.04	13.50	1.399	94.38	1.060	0.04	0.093	0.138	2.53
	2nd	WLAN5.5GHz	802.11ac-VHT160 MCS0	Back	15mm	Ant 6+17(6)	Non-DBS&DBS	114	5570	11.96	13.50	1.425	94.38	1.060	-0.18	0.051	0.077	
65	1st	WLAN5.8GHz	802.11a 6Mbps	Back	15mm	Ant 6+17(6)	Standalone	149	5745	17.84	19.00	1.305	97.65	1.024	0.07	0.391	0.523	0.42
	2nd	WLAN5.8GHz	802.11a 6Mbps	Back	15mm	Ant 6+17(6)	Standalone	149	5745	17.88	19.00	1.293	97.65	1.024	0.03	0.359	0.475	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 6+17(6)	Non-DBS&DBS	155	5775	14.20	15.50	1.349	88.14	1.135	-0.1	0.153	0.234	2.83
	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 6+17(6)	Non-DBS&DBS	155	5775	14.52	15.50	1.254	88.14	1.135	0.15	0.086	0.122	



17.4 Product specific 10g SAR

Plot No.	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)	Reported 10g SAR (W/kg)	Deviation dB
750MHz																						
	1st	LTE Band 13	10M	QPSK	1	0	-	Left Side	0mm	Ant 1	ECI 4	23230	782	24.38	25.50	1.294	-	-	0.14	1.300	1.682	0.37
66	2nd	LTE Band 13	10M	QPSK	1	0	-	Left Side	0mm	Ant 1	ECI 4	23230	782	23.52	25.50	1.578	-	-	-0.1	1.160	1.830	
835MHz																						
	1st	GSM850	-	-	-	-	GPRS(4 Tx slots)	Left Side	0mm	Ant 1	ECI 4	189	836.4	26.24	27.50	1.337	-	-	-0.08	0.945	1.263	0.48
67	2nd	GSM850	-	-	-	-	GPRS(4 Tx slots)	Left Side	0mm	Ant 1	ECI 4	189	836.4	26.13	27.50	1.371	-	-	-0.08	1.030	1.412	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	0mm	Ant 1	ECI 3	4182	836.4	22.23	23.50	1.340	-	-	-0.09	0.785	1.052	0.34
68	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	0mm	Ant 1	ECI 3	4182	836.4	22.06	23.50	1.393	-	-	-0.1	0.816	1.137	
	1st	LTE Band 26	15M	QPSK	1	0	-	Left Side	0mm	Ant 1	ECI 3	26865	831.5	23.20	24.50	1.349	-	-	0.14	1.620	2.185	0.55
69	2nd	LTE Band 26	15M	QPSK	1	0	-	Left Side	0mm	Ant 1	ECI 3	26865	831.5	22.18	23.50	1.355	-	-	-0.18	1.420	1.924	
	2nd	LTE Band 26	15M	QPSK	36	0	-	Left Side	0mm	Ant 1	ECI 3	26865	831.5	22.15	23.50	1.365	-	-	0.05	1.350	1.842	
1750MHz																						
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 4	ECI 3	1513	1752.6	22.54	23.50	1.247	-	-	0.05	1.940	2.420	0.12
70	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 4	ECI 3	1513	1752.6	22.46	23.50	1.271	-	-	-0.07	1.960	2.490	
	1st	LTE Band 4	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 3	20175	1732.5	22.64	23.20	1.138	-	-	0.15	1.910	2.173	0.08
71	2nd	LTE Band 4	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 3	20175	1732.5	22.56	23.20	1.159	-	-	0.11	1.840	2.132	
1900MHz																						
	1st	LTE Band 2	20M	QPSK	1	0	-	Right Side	0mm	Ant 5	ECI 4	18900	1880	22.15	23.50	1.365	-	-	-0.08	1.350	1.842	0.99
72	2nd	LTE Band 2	20M	QPSK	1	0	-	Right Side	0mm	Ant 5	ECI 4	18900	1880	22.33	23.50	1.309	-	-	-0.17	1.120	1.466	
2600MHz																						
	1st	LTE Band 7	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 3	21100	2535	20.70	21.20	1.122	-	-	-0.06	1.940	2.177	0.57
73	2nd	LTE Band 7	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 3	21100	2535	20.43	21.20	1.194	-	-	-0.1	2.080	2.483	
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 3	21100	2535	17.49	19.00	1.416	-	-	0.01	1.370	1.940	
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 3	ECI 4	21100	2535	24.38	25.50	1.294	-	-	-0.12	1.460	1.890	0.41
	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 3	ECI 4	21100	2535	24.35	25.50	1.303	-	-	0.06	1.320	1.720	
	2nd	LTE Band 7_Other PA	20M	QPSK	1	0	-	Back	5mm	Ant 3	ECI 4	21100	2535	23.90	24.50	1.148	-	-	-0.01	1.220	1.401	
	1st	LTE Band 38	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 3	38000	2595	21.50	22.20	1.175	62.9	1.006	-0.06	1.200	1.418	0.45
74	2nd	LTE Band 38	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 3	38000	2595	21.53	22.20	1.167	62.9	1.006	0.19	1.090	1.279	
	1st	LTE Band 38	20M	QPSK	1	0	-	Left Side	0mm	Ant 3	ECI 3	38000	2595	19.01	20.00	1.256	62.9	1.006	-0.04	0.880	1.112	1.97
	2nd	LTE Band 38	20M	QPSK	1	0	-	Left Side	0mm	Ant 3	ECI 3	38000	2595	19.05	20.00	1.245	62.9	1.006	0.16	0.564	0.706	
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 3	ECI 3	40185	2549.5	19.33	20.50	1.309	62.9	1.006	-0.19	1.150	1.515	0.18
75	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 3	ECI 3	40185	2549.5	19.36	20.50	1.300	62.9	1.006	-0.11	1.110	1.452	
	2nd	LTE Band 41C	20M	QPSK	1	0	-	Back	0mm	Ant 3	ECI 3	40185+39987	2549.5+2529.7	19.30	20.50	1.318	62.9	1.006	-0.07	1.080	1.432	
	2nd	LTE Band 41_Other PA	20M	QPSK	1	0	-	Back	0mm	Ant 3	ECI 3	40185	2549.5	18.65	19.50	1.216	62.9	1.006	0.02	1.040	1.272	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	0mm	Ant 4	ECI 3	518598	2592.99	18.68	19.70	1.265	-	-	-0.14	1.150	1.454	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Top Side	0mm	Ant 4	ECI 3	518598	2592.99	18.68	19.70	1.265	-	-	-0.14	1.250	1.581	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	5mm	Ant 4	ECI 4	518598	2592.99	24.65	25.70	1.274	-	-	-0.1	1.900	2.420	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 4	ECI 4	518598	2592.99	24.65	25.70	1.274	-	-	-0.19	1.240	1.579	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	0mm	Ant 4	ECI 3	518598	2592.99	18.67	19.70	1.268	-	-	0.09	1.130	1.432	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Top Side	0mm	Ant 4	ECI 3	518598	2592.99	18.67	19.70	1.268	-	-	0.1	1.280	1.623	
	2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Top Side	0mm	Ant 4	ECI 3	518598	2592.99	18.65	19.70	1.274	-	-	-0.19	1.320	1.681	
76	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	0mm	Ant 3	ECI 3	518598	2592.99	19.15	20.50	1.365	-	-	-0.19	1.840	2.511	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 3	ECI 3	518598	2592.99	19.15	20.50	1.365	-	-	0.01	1.240	1.692	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Back	5mm	Ant 3	ECI 4	518598	2592.99	23.83	25.00	1.309	-	-	0.18	1.780	2.330	
	2nd	FR1 n41	50M	QPSK	1	1	DFT-30	Left Side	5mm	Ant 3	ECI 4	518598	2592.99	23.83	25.00	1.309	-	-	-0.13	1.490	1.951	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	0mm	Ant 3	ECI 3	518598	2592.99	19.13	20.50	1.371	-	-	0.17	1.740	2.385	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Side	0mm	Ant 3	ECI 3	518598	2592.99	19.13	20.50	1.371	-	-	-0.14	1.340	1.837	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Back	5mm	Ant 3	ECI 4	518598	2592.99	23.71	25.00	1.346	-	-	0.07	1.780	2.396	
	2nd	FR1 n41	50M	QPSK	64	35	DFT-30	Left Side	5mm	Ant 3	ECI 4	518598	2592.99	23.71	25.00	1.346	-	-	-0.19	1.740	2.342	
	2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Back	0mm	Ant 3	ECI 3	518598	2592.99	19.11	20.50	1.377	-	-	-0.17	1.740	2.396	
	2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Back	5mm	Ant 3	ECI 4	518598	2592.99	22.71	24.00	1.346	-	-	0.07	1.720	2.315	



3000MHz																						
	1st	LTE Band 42	20M	QPSK	1	0	-	Top Side	0mm	Ant 6	ECI 3	42590	3500	20.14	20.70	1.138	62.9	1.006	-0.16	1.400	1.602	1.51
	2nd	LTE Band 42	20M	QPSK	1	0	-	Top Side	0mm	Ant 6	ECI 3	42590	3500	20.32	20.70	1.091	62.9	1.006	-0.12	1.030	1.131	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Top Side	0mm	Ant 6	ECI 3	42590+ 42392	3500+ 3480.2	20.27	20.70	1.104	62.9	1.006	0.06	1.010	1.122	
	1st	LTE Band 42	20M	QPSK	1	0	-	Back	0mm	Ant 9	ECI 3	42590	3500	16.06	17.50	1.393	62.9	1.006	-0.06	0.924	1.295	1.06
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	0mm	Ant 9	ECI 3	42590	3500	16.36	17.50	1.300	62.9	1.006	-0.06	0.775	1.014	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Back	0mm	Ant 9	ECI 3	42590+ 42392	3500+ 3480.2	16.29	17.50	1.321	62.9	1.006	0.02	0.742	0.986	
	1st	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 9	ECI 4	42590	3500	21.85	23.00	1.303	62.9	1.006	0.13	1.940	2.543	1.88
77	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 9	ECI 4	42590	3500	21.36	22.50	1.300	62.9	1.006	0.03	1.260	1.648	
	2nd	LTE Band 42C	20M	QPSK	1	0	-	Back	5mm	Ant 9	ECI 4	42590+ 42392	3500+ 3480.2	21.31	22.50	1.315	62.9	1.006	0.01	1.130	1.495	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 6	ECI 3	633332	3499.98	19.78	20.70	1.236	-	-	0.11	0.815	1.007	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	0mm	Ant 6	ECI 3	633332	3499.98	19.78	20.70	1.236	-	-	-0.01	1.910	2.361	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 6	ECI 4	633332	3499.98	24.77	25.70	1.239	-	-	-0.04	1.470	1.821	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 6	ECI 4	633332	3499.98	24.77	25.70	1.239	-	-	-0.15	1.790	2.217	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 6	ECI 3	633332	3499.98	19.76	20.70	1.242	-	-	0.04	0.871	1.081	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 6	ECI 3	633332	3499.98	19.76	20.70	1.242	-	-	0.01	1.960	2.434	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 6	ECI 4	633332	3499.98	24.67	25.70	1.268	-	-	0.1	1.620	2.054	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	5mm	Ant 6	ECI 4	633332	3499.98	24.67	25.70	1.268	-	-	0.18	1.820	2.307	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Top Side	0mm	Ant 6	ECI 3	633332	3499.98	19.75	20.70	1.245	-	-	-0.02	1.870	2.327	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 6	ECI 4	633332	3499.98	23.55	24.70	1.303	-	-	0.05	1.540	2.007	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Top Side	5mm	Ant 6	ECI 4	633332	3499.98	23.55	24.70	1.303	-	-	0.11	1.710	2.228	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	0mm	Ant 6	ECI 3	656000	3840	19.77	20.70	1.239	-	-	-0.08	2.010	2.490	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 6	ECI 4	656000	3840	24.76	25.70	1.242	-	-	-0.06	1.810	2.247	
78	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 6	ECI 3	656000	3840	19.76	20.70	1.242	-	-	-0.01	2.060	2.558	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	5mm	Ant 6	ECI 4	656000	3840	24.70	25.70	1.259	-	-	0.19	1.780	2.241	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Top Side	0mm	Ant 6	ECI 3	656000	3840	19.73	20.70	1.250	-	-	-0.04	1.940	2.426	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Top Side	5mm	Ant 6	ECI 4	656000	3840	23.51	24.70	1.315	-	-	0.12	1.710	2.249	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 8	ECI 3	656000	3840	20.03	21.50	1.403	-	-	0.12	1.400	1.964	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 8	ECI 4	656000	3840	22.05	23.50	1.396	-	-	0.04	1.110	1.550	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 8	ECI 3	656000	3840	19.92	21.50	1.439	-	-	-0.1	1.350	1.942	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 8	ECI 4	656000	3840	21.92	23.50	1.439	-	-	-0.19	1.100	1.583	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	0mm	Ant 8	ECI 3	656000	3840	19.72	21.50	1.507	-	-	-0.02	1.320	1.989	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 8	ECI 4	656000	3840	20.72	22.50	1.507	-	-	-0.15	1.050	1.582	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 7	ECI 4	633332	3499.98	17.98	19.00	1.265	-	-	-0.07	0.847	1.071	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	0mm	Ant 7	ECI 4	633332	3499.98	17.98	19.00	1.265	-	-	-0.05	1.940	2.454	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 7	ECI 4	633332	3499.98	17.96	19.00	1.271	-	-	-0.01	0.887	1.127	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	0mm	Ant 7	ECI 4	633332	3499.98	17.96	19.00	1.271	-	-	-0.04	1.980	2.516	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Side	0mm	Ant 7	ECI 4	633332	3499.98	17.93	19.00	1.279	-	-	-0.02	1.880	2.405	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 7	ECI 4	656000	3840	17.90	19.00	1.288	-	-	0.17	0.733	0.944	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	0mm	Ant 7	ECI 4	656000	3840	17.90	19.00	1.288	-	-	-0.11	1.720	2.216	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 7	ECI 4	656000	3840	17.76	19.00	1.330	-	-	0.11	0.652	0.867	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	0mm	Ant 7	ECI 4	656000	3840	17.76	19.00	1.330	-	-	-0.05	1.570	2.089	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Side	0mm	Ant 7	ECI 4	656000	3840	17.72	19.00	1.343	-	-	-0.13	1.660	2.229	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 9	ECI 3	633332	3499.98	16.52	17.50	1.253	-	-	0.16	1.290	1.617	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 9	ECI 4	633332	3499.98	20.01	21.00	1.256	-	-	-0.15	1.760	2.211	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 9	ECI 3	633332	3499.98	16.50	17.50	1.259	-	-	-0.01	1.340	1.687	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 9	ECI 4	633332	3499.98	19.99	21.00	1.262	-	-	-0.07	1.760	2.221	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 9	ECI 4	633332	3499.98	19.97	21.00	1.268	-	-	-0.08	1.830	2.320	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 9	ECI 4	633332	3499.98	19.97	21.00	1.268	-	-	-0.03	1.850	2.345	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 9	ECI 3	656000	3840	16.26	17.50	1.330	-	-	-0.08	0.941	1.252	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 9	ECI 4	656000	3840	19.76	21.00	1.330	-	-	0.05	1.180	1.570	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 9	ECI 3	656000	3840	16.25	17.50	1.334	-	-	0.03	0.878	1.171	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 6	ECI 3	633332	3499.98	19.78	20.70	1.236	-	-	0.13	0.673	0.832	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	0mm	Ant 6	ECI 3	633332	3499.98	19.78	20.70	1.236	-	-	0.08	1.950	2.410	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 6	ECI 4	633332	3499.98	24.75	25.70	1.245	-	-	0.02	1.420	1.767	



FCC SAR Test Report

Report No. : FA442515-03

	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 6	ECI 4	633332	3499.98	24.75	25.70	1.245	-	-	0.17	1.890	2.352	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 6	ECI 3	633332	3499.98	19.76	20.70	1.242	-	-	-0.15	0.726	0.901	
79	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 6	ECI 3	633332	3499.98	19.76	20.70	1.242	-	-	-0.02	2.010	2.496	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 6	ECI 4	633332	3499.98	24.74	25.70	1.247	-	-	0.15	1.540	1.921	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	5mm	Ant 6	ECI 4	633332	3499.98	24.74	25.70	1.247	-	-	0.01	1.980	2.470	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Top Side	0mm	Ant 6	ECI 3	633332	3499.98	19.73	20.70	1.250	-	-	0.06	1.810	2.263	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 6	ECI 4	633332	3499.98	23.58	24.70	1.294	-	-	0.12	1.450	1.877	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Top Side	5mm	Ant 6	ECI 4	633332	3499.98	23.58	24.70	1.294	-	-	0.04	1.720	2.226	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 6	ECI 3	650000	3750	19.78	20.70	1.236	-	-	-0.15	0.605	0.748	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	0mm	Ant 6	ECI 3	650000	3750	19.78	20.70	1.236	-	-	0.19	1.980	2.447	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 6	ECI 4	650000	3750	24.75	25.70	1.245	-	-	0.11	1.180	1.469	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 6	ECI 4	650000	3750	24.75	25.70	1.245	-	-	0.02	1.930	2.402	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 6	ECI 3	650000	3750	19.75	20.70	1.245	-	-	-0.13	0.600	0.747	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 6	ECI 3	650000	3750	19.75	20.70	1.245	-	-	0.05	1.907	2.373	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 6	ECI 4	650000	3750	24.62	25.70	1.282	-	-	0.01	1.070	1.372	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	5mm	Ant 6	ECI 4	650000	3750	24.62	25.70	1.282	-	-	0.12	1.830	2.347	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Top Side	0mm	Ant 6	ECI 3	650000	3750	19.73	20.70	1.250	-	-	0.13	1.840	2.300	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Top Side	5mm	Ant 6	ECI 4	650000	3750	23.49	24.70	1.321	-	-	0.16	1.670	2.207	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	0mm	Ant 8	ECI 3	633332	3499.98	16.98	18.50	1.419	-	-	0.07	0.818	1.161	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 8	ECI 3	633332	3499.98	16.98	18.50	1.419	-	-	0.08	1.176	1.669	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 8	ECI 3	633332	3499.98	16.98	18.50	1.419	-	-	0.17	1.573	2.232	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	0mm	Ant 8	ECI 3	633332	3499.98	16.98	18.50	1.419	-	-	-0.15	1.056	1.499	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 8	ECI 4	633332	3499.98	22.98	24.50	1.419	-	-	0.14	0.766	1.087	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 8	ECI 4	633332	3499.98	22.98	24.50	1.419	-	-	-0.01	1.060	1.504	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	5mm	Ant 8	ECI 4	633332	3499.98	22.98	24.50	1.419	-	-	0.18	1.020	1.447	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 8	ECI 4	633332	3499.98	22.98	24.50	1.419	-	-	-0.16	0.805	1.142	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	0mm	Ant 8	ECI 3	633332	3499.98	16.96	18.50	1.426	-	-	0.1	0.842	1.200	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 8	ECI 3	633332	3499.98	16.96	18.50	1.426	-	-	0.16	1.199	1.709	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	0mm	Ant 8	ECI 3	633332	3499.98	16.96	18.50	1.426	-	-	-0.04	1.605	2.288	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 8	ECI 3	633332	3499.98	16.96	18.50	1.426	-	-	-0.09	1.215	1.732	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Left Side	0mm	Ant 8	ECI 3	633332	3499.98	16.93	18.50	1.435	-	-	-0.04	1.515	2.175	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	0mm	Ant 8	ECI 3	650000	3750	17.05	18.50	1.396	-	-	0.16	0.701	0.979	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 8	ECI 3	650000	3750	17.05	18.50	1.396	-	-	0.02	1.152	1.609	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 8	ECI 3	650000	3750	17.05	18.50	1.396	-	-	-0.11	1.334	1.863	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	0mm	Ant 8	ECI 3	650000	3750	17.05	18.50	1.396	-	-	0.06	1.612	2.251	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 8	ECI 4	650000	3750	23.04	24.50	1.400	-	-	-0.02	0.633	0.886	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 8	ECI 4	650000	3750	23.04	24.50	1.400	-	-	-0.1	1.050	1.470	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	5mm	Ant 8	ECI 4	650000	3750	23.04	24.50	1.400	-	-	0.05	0.624	0.873	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 8	ECI 4	650000	3750	23.04	24.50	1.400	-	-	-0.11	0.816	1.142	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	0mm	Ant 8	ECI 3	650000	3750	17.03	18.50	1.403	-	-	-0.08	0.761	1.068	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 8	ECI 3	650000	3750	17.03	18.50	1.403	-	-	-0.05	1.295	1.817	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	0mm	Ant 8	ECI 3	650000	3750	17.03	18.50	1.403	-	-	-0.01	1.422	1.995	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 8	ECI 3	650000	3750	17.03	18.50	1.403	-	-	0.02	1.636	2.295	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 8	ECI 4	650000	3750	22.98	24.50	1.419	-	-	0.17	0.634	0.900	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 8	ECI 4	650000	3750	22.98	24.50	1.419	-	-	0	1.300	1.845	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	5mm	Ant 8	ECI 4	650000	3750	22.98	24.50	1.419	-	-	0.12	0.662	0.939	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	5mm	Ant 8	ECI 4	650000	3750	22.98	24.50	1.419	-	-	0.14	0.939	1.332	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Top Side	0mm	Ant 8	ECI 3	650000	3750	17.01	18.50	1.409	-	-	0.04	1.582	2.229	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	0mm	Ant 7	ECI 4	633332	3499.98	16.38	17.50	1.294	-	-	-0.01	1.030	1.333	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 7	ECI 4	633332	3499.98	16.38	17.50	1.294	-	-	0.13	0.632	0.818	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	0mm	Ant 7	ECI 4	633332	3499.98	16.38	17.50	1.294	-	-	-0.04	1.690	2.187	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	0mm	Ant 7	ECI 4	633332	3499.98	16.36	17.50	1.300	-	-	0.11	1.100	1.430	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 7	ECI 4	633332	3499.98	16.36	17.50	1.300	-	-	-0.17	0.679	0.883	
	2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	0mm	Ant 7	ECI 4	633332	3499.98	16.36	17.50	1.300	-	-	0.12	1.700	2.210	
	2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Right Side	0mm	Ant 7	ECI 4	633332	3499.98	16.33	17.50	1.309	-	-	-0.02	1.570	2.055	
	2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Front	0mm	Ant 7	ECI 4	650000	3750	16.25	17.50	1.334	-	-	0.19	0.991	1.322	



FCC SAR Test Report

Report No. : FA442515-03

2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 7	ECI 4	650000	3750	16.25	17.50	1.334	-	-	0.15	0.759	1.012	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	0mm	Ant 7	ECI 4	650000	3750	16.25	17.50	1.334	-	-	-0.16	1.670	2.227	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Front	0mm	Ant 7	ECI 4	650000	3750	16.23	17.50	1.340	-	-	0.09	0.915	1.226	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 7	ECI 4	650000	3750	16.23	17.50	1.340	-	-	0.04	0.704	0.943	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	0mm	Ant 7	ECI 4	650000	3750	16.23	17.50	1.340	-	-	0.14	1.570	2.103	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Right Side	0mm	Ant 7	ECI 4	650000	3750	16.21	17.50	1.346	-	-	-0.16	1.560	2.100	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 9	ECI 3	633332	3499.98	13.48	14.50	1.265	-	-	-0.16	1.440	1.821	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 9	ECI 4	633332	3499.98	18.48	19.50	1.265	-	-	-0.06	1.860	2.352	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 9	ECI 3	633332	3499.98	13.47	14.50	1.268	-	-	-0.06	1.490	1.889	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 9	ECI 4	633332	3499.98	18.46	19.50	1.271	-	-	0.18	1.800	2.287	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Back	0mm	Ant 9	ECI 3	633332	3499.98	13.45	14.50	1.274	-	-	-0.14	1.420	1.808	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 9	ECI 4	633332	3499.98	18.43	19.50	1.279	-	-	-0.04	1.810	2.316	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 9	ECI 3	650000	3750	13.57	14.50	1.239	-	-	-0.09	1.080	1.338	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 9	ECI 3	650000	3750	13.57	14.50	1.239	-	-	-0.18	0.622	0.771	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 9	ECI 4	650000	3750	18.58	19.50	1.236	-	-	-0.11	1.730	2.138	
2nd	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	5mm	Ant 9	ECI 4	650000	3750	18.58	19.50	1.236	-	-	0.05	0.368	0.455	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 9	ECI 3	650000	3750	13.55	14.50	1.245	-	-	0.03	1.050	1.307	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	0mm	Ant 9	ECI 3	650000	3750	13.55	14.50	1.245	-	-	-0.05	0.749	0.932	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 9	ECI 4	650000	3750	18.56	19.50	1.242	-	-	0.07	1.700	2.111	
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	5mm	Ant 9	ECI 4	650000	3750	18.56	19.50	1.242	-	-	0.19	0.428	0.531	
2nd	FR1 n78	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 9	ECI 4	650000	3750	18.53	19.50	1.250	-	-	0.03	1.650	2.063	

Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	Deviation dB
5000MHz																		
	1st	WLAN5.3GHz	802.11ax-HE40 MCS0	Top Side	0mm	Ant 6+17(17)	Standalone	54	5270	17.17	18.00	1.210	92.48	1.081	-0.17	1.790	2.342	0.46
80	2nd	WLAN5.3GHz	802.11ax-HE40 MCS0	Top Side	0mm	Ant 6+17(17)	Standalone	54	5270	17.09	18.00	1.233	92.48	1.081	0.12	1.580	2.105	
	1st	WLAN5.3GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 6+17(6)	Non-DBS	58	5290	13.21	14.00	1.200	88.14	1.135	-0.03	0.948	1.291	1.93
	2nd	WLAN5.3GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 6+17(6)	Non-DBS	58	5290	13.13	14.00	1.222	88.14	1.135	0.05	0.597	0.828	
	1st	WLAN5.5GHz	802.11ax-HE80 MCS0	Top Side	0mm	Ant 6+17	Standalone	122	5610	20.64	21.50	1.219	86.78	1.152	-0.12	1.840	2.585	0.06
81	2nd	WLAN5.5GHz	802.11ax-HE80 MCS0	Top Side	0mm	Ant 6+17	Standalone	122	5610	20.79	21.50	1.178	86.78	1.152	0.17	1.880	2.551	
	1st	WLAN5.5GHz	802.11ac-VHT160 MCS0	Top Side	0mm	Ant 6+17(6)	Non-DBS	114	5570	12.04	13.50	1.399	94.38	1.060	-0.12	0.880	1.305	0.56
	2nd	WLAN5.5GHz	802.11ac-VHT160 MCS0	Top Side	0mm	Ant 6+17(6)	Non-DBS	114	5570	11.96	13.50	1.425	94.38	1.060	-0.01	0.760	1.148	
	1st	WLAN5.8GHz	802.11a 6Mbps	Top Side	0mm	Ant 6+17(6)	Standalone	157	5785	17.85	19.00	1.302	97.65	1.024	-0.05	1.930	2.574	0.45
82	2nd	WLAN5.8GHz	802.11a 6Mbps	Top Side	0mm	Ant 6+17(6)	Standalone	157	5785	17.75	19.00	1.333	97.65	1.024	-0.01	1.700	2.320	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 6+17(6)	Non-DBS	155	5775	14.20	15.50	1.349	88.14	1.135	0.14	0.833	1.276	0.79
	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 6+17(6)	Non-DBS	155	5775	14.52	15.50	1.254	88.14	1.135	-0.1	0.748	1.065	

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 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 1	23095	707.5	23.36	24.50	1.300	-	-	0.09	0.833	1	1.083
2nd	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 1	23095	707.5	23.36	24.50	1.300	-	-	0.02	0.821	1.015	1.067
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	ECI 1	1513	1752.6	18.48	19.50	1.265	-	-	-0.04	0.845	1	1.069
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	ECI 1	1513	1752.6	18.48	19.50	1.265	-	-	-0.02	0.833	1.014	1.054
1st	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 1	18700	1860	20.57	21.00	1.104	-	-	-0.15	0.979	1	1.081
2nd	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 1	18700	1860	20.57	21.00	1.104	-	-	-0.11	0.963	1.017	1.063
1st	FR1 n41	50M	QPSK	128	0	DFT-30	Left Cheek	0mm	Ant 5	ECI 1	518598	2592.99	21.98	22.70	1.180	-	-	0.07	0.915	1	1.080
2nd	FR1 n41	50M	QPSK	128	0	DFT-30	Left Cheek	0mm	Ant 5	ECI 1	518598	2592.99	21.98	22.70	1.180	-	-	0.05	0.911	1.004	1.075
1st	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	633332	3499.98	17.08	17.70	1.153	-	-	-0.18	0.903	1	1.042
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	ECI 1	633332	3499.98	17.08	17.70	1.153	-	-	-0.16	0.891	1.013	1.028
1st	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0mm	Ant 7	Standalone	6	2437	17.36	18.50	1.300	99.48	1.005	-0.19	0.825	1	1.078
2nd	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0mm	Ant 7	Standalone	6	2437	17.36	18.50	1.300	99.48	1.005	-0.13	0.811	1.017	1.060
1st	WLAN5.5GHz	-	-	-	-	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	Standalone	122	5610	14.21	15.00	1.199	88.14	1.135	-0.13	0.801	1	1.091
2nd	WLAN5.5GHz	-	-	-	-	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6+17(6)	Standalone	122	5610	14.21	15.00	1.199	88.14	1.135	-0.17	0.783	1.023	1.066

<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	LTE Band 7	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 3	21100	2535	20.43	21.20	1.194	-	-	-0.1	2.080	1	2.483
2nd	LTE Band 7	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 3	21100	2535	20.43	21.20	1.194	-	-	-0.05	1.960	1.061	2.340
1st	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 6	ECI 3	656000	3840	19.76	20.70	1.242	-	-	-0.01	2.060	1	2.558
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 6	ECI 3	656000	3840	19.76	20.70	1.242	-	-	-0.03	1.950	1.056	2.421
1st	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 6	ECI 3	633332	3499.98	19.76	20.70	1.242	-	-	-0.02	2.010	1	2.496
2nd	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	0mm	Ant 6	ECI 3	633332	3499.98	19.76	20.70	1.242	-	-	-0.04	1.970	1.020	2.446

General Note:

- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8\text{W/kg}$.
- Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR $< 1.45\text{W/kg}$, only one repeated measurement is required.
- 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.
- The ratio is the difference in percentage between original and repeated *measured SAR*.
- All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

18. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	WWAN + WLAN 2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN 5GHz	Yes	Yes	Yes	Yes
3.	WWAN + WLAN 6GHz	Yes	Yes		Yes
4.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
5.	WWAN + WLAN 2.4GHz + Bluetooth	Yes	Yes	Yes	Yes
6.	WWAN + WLAN 5GHz + Bluetooth	Yes	Yes	Yes	Yes
7.	WWAN + WLAN 6GHz + Bluetooth	Yes	Yes		Yes
8.	WWAN + WLAN 2.4GHz + WLAN 5GHz	Yes	Yes	Yes	Yes
9.	WWAN + WLAN 2.4GHz + WLAN 6GHz	Yes	Yes		Yes
10.	WWAN + WLAN 2.4GHz + NFC				Yes
11.	WWAN + WLAN 5GHz/6GHz + NFC				Yes
12.	WWAN + Bluetooth + NFC				Yes
13.	WWAN + WLAN 5GHz/6GHz + Bluetooth + NFC				Yes
14.	WWAN + WLAN 2.4GHz + Bluetooth + NFC				Yes
15.	WWAN + WLAN 2.4GHz + WLAN 5GHz/6GHz				Yes

General Note:

- This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5GNR (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
- WWAN above includes 5G NR bands and EN-DC combination.
- WLAN2.4GHz/WLAN5GHz/6GHz MIMO SAR can represent SISO SAR to do co-located SAR analysis.
- EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- For EN-DC mode, MediaTek TA-SAR algorithm in WWAN adds directly the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR. TA-SAR algorithm controls the total RF exposure from both 4G and 5G NR to not exceed SAR exposure limit. Therefore, simultaneous transmission compliance between 4G+5G NR operation is demonstrated in the Part 2 Report during algorithm validation. In this Report, simultaneous transmission compliance was evaluated individually with other Radios (WLAN or BT) using one of 4G or 5G NR.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- 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). WLAN 6GHz has no hotspot function.
- According to the EUT characteristic, WLAN2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously; WLAN2.4GHz ANT7 and Bluetooth ANT16 can transmit simultaneously.
- According to the EUT characteristic, WLAN5GHz/6GHz and Bluetooth can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz/6GHz and WLAN 2.4GHz can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz/6GHz + WLAN 2.4GHz + Bluetooth cannot transmit simultaneously.
- The worst case 5 GHz/6GHz WLAN SAR for each configuration was used for SAR summation.
- NFC can transmit simultaneously with other Radios in extremity exposure condition.
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- When stand-alone SAR is not required for a transmitter or antenna, its SAR is considered zero in the SAR summing process to assess Multi-band transmission SAR compliance.
- For standalone WWAN, always choose the highest SAR among all WWAN bands within the selected antenna for each exposure position to perform simultaneous transmission analysis with WLAN/BT. This is the worst co-located analysis and can represent each band.
- 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.
- The maximum SAR summation is calculated based on the same configuration and test position.
- 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.
- 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.
21. 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 5G NR + LTE + WLAN + BT Sim-Tx analysis

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

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

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

$$\begin{aligned} x \cdot A + y \cdot B + m &\leq 1 \\ x + y + g &\leq 1 \\ g + m &\leq 1 \end{aligned}$$

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

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

$$x \cdot A + y \cdot B + m \leq 1.0 \quad (1)$$

$$x \cdot A + y \cdot B \leq x \cdot \max(A, B) + (g-x) \cdot \max(A, B) \leq \max(A, B)$$

$$x \cdot A + (g-x) \cdot B + m \leq \max(A, B) + m \leq 1.0 \quad (2)$$

If $A + m \leq 1.0$ and $B + m \leq 1.0$ can be proven, then " $x \cdot A + y \cdot B + m \leq 1.0$ ". Therefore simultaneous transmission analysis for 5G NR + LTE + WLAN + BT can be performed in two steps

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

Else, if $A + m > 1.0$ and/or $B + m > 1.0$, then the followings need to hold true for compliance:

- i. A and m are decoupled based on the SPLSR criteria, and
- ii. $y \cdot B + m \leq 1.0$, and
- iii. $x \cdot A + y \cdot B \leq 1.0$

Note iii. is covered in Part 2 report; i. and ii. should be addressed in Part 2 report.

Conclusion:

1. The Spot check results from chapter 17.1 to 17.4, showed that Deviation of the SAR results did not exceed 3dB, SAR data reuse is justified.
2. For the verified maximum SAR from chapter 17.1 to 17.4, when the SAR test results were less than reference model SAR results (Sporton SAR report no.: FA442515), there is no need to consider co-located SAR for reference model report had been performed conservatively. For the SAR results were higher than reference model SAR results and full tested bands, they were evaluated to do simultaneous transmission analysis with WLAN/BT. WLAN/BT SAR Chose higher SAR between reference model SAR results and variant model SAR results for each exposure position to perform co-located SAR analysis.

18.2 Head Exposure Conditions

WWAN Band	Exposure Position	1	4	5	8	17	1+8+17	1+4+17	1+5
		WWAN	WLAN2.4GHz Ant 7	WLAN2.4GHz Ant 16+7	WLAN5/6GHz Ant 6+17	Bluetooth Ant 16	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Ant 0	Right Cheek	0.273	0.071	0.237	0.307	0.097	0.68	0.44	0.51
	Right Tilted	0.188	0.101	0.296	0.326	0.108	0.62	0.40	0.48
	Left Cheek	0.400	0.350	0.450	0.347	0.155	0.90	0.91	0.85
	Left Tilted	0.258	0.147	0.322	0.409	0.139	0.81	0.54	0.58
Ant 1	Right Cheek	0.684	0.071	0.237	0.307	0.097	1.09	0.85	0.92
	Right Tilted	0.143	0.101	0.296	0.326	0.108	0.58	0.35	0.44
	Left Cheek	1.083	0.350	0.450	0.347	0.155	1.59	1.59	1.53
	Left Tilted	0.168	0.147	0.322	0.409	0.139	0.72	0.45	0.49
Ant 4	Right Cheek	1.090	0.071	0.237	0.307	0.097	1.49	1.26	1.33
	Right Tilted	0.982	0.101	0.296	0.326	0.108	1.42	1.19	1.28
	Left Cheek	0.647	0.350	0.450	0.347	0.155	1.15	1.15	1.10
	Left Tilted	0.719	0.147	0.322	0.409	0.139	1.27	1.01	1.04
Ant 2	Right Cheek	0.315	0.071	0.237	0.307	0.097	0.72	0.48	0.55
	Right Tilted	0.125	0.101	0.296	0.326	0.108	0.56	0.33	0.42
	Left Cheek	0.206	0.350	0.450	0.347	0.155	0.71	0.71	0.66
	Left Tilted	0.186	0.147	0.322	0.409	0.139	0.73	0.47	0.51
Ant 5	Right Cheek	0.909	0.071	0.237	0.307	0.097	1.31	1.08	1.15
	Right Tilted	0.203	0.101	0.296	0.326	0.108	0.64	0.41	0.50
	Left Cheek	1.085	0.350	0.450	0.347	0.155	1.59	1.59	1.54
	Left Tilted	0.307	0.147	0.322	0.409	0.139	0.86	0.59	0.63
Ant 3	Right Cheek	1.090	0.071	0.237	0.307	0.097	1.49	1.26	1.33
	Right Tilted	0.269	0.101	0.296	0.326	0.108	0.70	0.48	0.57
	Left Cheek	0.314	0.350	0.450	0.347	0.155	0.82	0.82	0.76
	Left Tilted	0.114	0.147	0.322	0.409	0.139	0.66	0.40	0.44
Ant 6	Right Cheek	0.580	0.071	0.237	0.307	0.097	0.98	0.75	0.82
	Right Tilted	0.890	0.101	0.296	0.326	0.108	1.32	1.10	1.19
	Left Cheek	0.816	0.350	0.450	0.347	0.155	1.32	1.32	1.27
	Left Tilted	1.042	0.147	0.322	0.409	0.139	1.59	1.33	1.36
Ant 8	Right Cheek	1.091	0.071	0.237	0.307	0.097	1.50	1.26	1.33
	Right Tilted	1.075	0.101	0.296	0.326	0.108	1.51	1.28	1.37
	Left Cheek	0.545	0.350	0.450	0.347	0.155	1.05	1.05	1.00
	Left Tilted	0.606	0.147	0.322	0.409	0.139	1.15	0.89	0.93
Ant 7	Right Cheek	0.354	0.071	0.237	0.307	0.097	0.76	0.52	0.59
	Right Tilted	0.352	0.101	0.296	0.326	0.108	0.79	0.56	0.65
	Left Cheek	1.082	0.350	0.450	0.347	0.155	1.58	1.59	1.53
	Left Tilted	0.642	0.147	0.322	0.409	0.139	1.19	0.93	0.96
Ant 9	Right Cheek	0.815	0.071	0.237	0.307	0.097	1.22	0.98	1.05
	Right Tilted	0.426	0.101	0.296	0.326	0.108	0.86	0.64	0.72
	Left Cheek	0.387	0.350	0.450	0.347	0.155	0.89	0.89	0.84
	Left Tilted	0.228	0.147	0.322	0.409	0.139	0.78	0.51	0.55



Exposure Position	4	8	17	8+17	4+17
	WLAN2.4GHz Ant 7	WLAN5/6GHz Ant 6+17	Bluetooth Ant 16	Summed	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Right Cheek	0.135	0.744	0.420	1.16	0.56
Right Tilted	0.237	0.959	0.420	1.38	0.66
Left Cheek	0.982	1.082	0.495	1.58	1.48
Left Tilted	0.388	1.091	0.447	1.54	0.84

WWAN Band	Exposure Position	1	5	8	1+5+8
		WWAN	WLAN2.4GHz Ant 16+7	WLAN5/6GHz Ant 6+17	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Ant 0	Right Cheek	0.273	0.120	0.202	0.60
	Right Tilted	0.188	0.151	0.250	0.59
	Left Cheek	0.400	0.243	0.263	0.91
	Left Tilted	0.258	0.164	0.308	0.73
Ant 1	Right Cheek	0.684	0.120	0.202	1.01
	Right Tilted	0.143	0.151	0.250	0.54
	Left Cheek	1.083	0.243	0.263	1.59
	Left Tilted	0.168	0.164	0.308	0.64
Ant 4	Right Cheek	1.090	0.120	0.202	1.41
	Right Tilted	0.982	0.151	0.250	1.38
	Left Cheek	0.647	0.243	0.263	1.15
	Left Tilted	0.719	0.164	0.308	1.19
Ant 2	Right Cheek	0.315	0.120	0.202	0.64
	Right Tilted	0.125	0.151	0.250	0.53
	Left Cheek	0.206	0.243	0.263	0.71
	Left Tilted	0.186	0.164	0.308	0.66
Ant 5	Right Cheek	0.909	0.120	0.202	1.23
	Right Tilted	0.203	0.151	0.250	0.60
	Left Cheek	1.085	0.243	0.263	1.59
	Left Tilted	0.307	0.164	0.308	0.78
Ant 3	Right Cheek	1.090	0.120	0.202	1.41
	Right Tilted	0.269	0.151	0.250	0.67
	Left Cheek	0.314	0.243	0.263	0.82
	Left Tilted	0.114	0.164	0.308	0.59
Ant 6	Right Cheek	0.580	0.120	0.202	0.90
	Right Tilted	0.890	0.151	0.250	1.29
	Left Cheek	0.816	0.243	0.263	1.32
	Left Tilted	1.042	0.164	0.308	1.51
Ant 8	Right Cheek	1.078	0.120	0.202	1.40
	Right Tilted	1.075	0.151	0.250	1.48
	Left Cheek	0.545	0.243	0.263	1.05
	Left Tilted	0.606	0.164	0.308	1.08
Ant 7	Right Cheek	0.354	0.120	0.202	0.68
	Right Tilted	0.352	0.151	0.250	0.75
	Left Cheek	1.082	0.243	0.263	1.59
	Left Tilted	0.642	0.164	0.308	1.11
Ant 9	Right Cheek	0.815	0.120	0.202	1.14
	Right Tilted	0.426	0.151	0.250	0.83
	Left Cheek	0.387	0.243	0.263	0.89
	Left Tilted	0.228	0.164	0.308	0.70



Exposure Position	5	8	5+8
	WLAN2.4GHz Ant 16+7	WLAN5/6GHz Ant 6+17	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Right Cheek	0.120	0.202	0.32
Right Tilted	0.151	0.250	0.40
Left Cheek	0.273	0.263	0.54
Left Tilted	0.164	0.308	0.47

18.3 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	4	5	8	17	1+8+17	1+4+17	1+5
		WWAN	WLAN2.4GHz Ant 7	WLAN2.4GHz Ant 16+7	WLAN5GHz Ant 6+17	Bluetooth Ant 16	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Ant 0	Front	0.379	0.300	0.350	0.457	0.104	0.94	0.78	0.73
	Back	0.629	0.353	0.494	0.354	0.160	1.14	1.14	1.12
	Left side	0.548					0.55	0.55	0.55
	Right side		0.748	0.737	0.536	0.014	0.55	0.76	0.74
	Top side		0.123	0.418	0.662	0.173	0.84	0.30	0.42
	Bottom side	0.297					0.30	0.30	0.30
Ant 1	Front	0.557	0.300	0.350	0.457	0.104	1.12	0.96	0.91
	Back	0.698	0.353	0.494	0.354	0.160	1.21	1.21	1.19
	Left side	0.937					0.94	0.94	0.94
	Right side		0.748	0.737	0.536	0.014	0.55	0.76	0.74
	Top side		0.123	0.418	0.662	0.173	0.84	0.30	0.42
	Bottom side						0.00	0.00	0.00
Ant 4	Front	0.295	0.300	0.350	0.457	0.104	0.86	0.70	0.65
	Back	0.578	0.353	0.494	0.354	0.160	1.09	1.09	1.07
	Left side	0.262					0.26	0.26	0.26
	Right side		0.748	0.737	0.536	0.014	0.55	0.76	0.74
	Top side	0.568	0.123	0.418	0.662	0.173	1.40	0.86	0.99
	Bottom side						0.00	0.00	0.00
Ant 2	Front	0.568	0.300	0.350	0.457	0.104	1.13	0.97	0.92
	Back	0.783	0.353	0.494	0.354	0.160	1.30	1.30	1.28
	Left side						0.00	0.00	0.00
	Right side	0.373	0.748	0.737	0.536	0.014	0.92	1.14	1.11
	Top side		0.123	0.418	0.662	0.173	0.84	0.30	0.42
	Bottom side	1.062					1.06	1.06	1.06
Ant 5	Front	0.391	0.300	0.350	0.457	0.104	0.95	0.80	0.74
	Back	0.658	0.353	0.494	0.354	0.160	1.17	1.17	1.15
	Left side						0.00	0.00	0.00
	Right side	0.748	0.748	0.737	0.536	0.014	1.30	1.51	1.49
	Top side		0.123	0.418	0.662	0.173	0.84	0.30	0.42
	Bottom side						0.00	0.00	0.00
Ant 3	Front	0.231	0.300	0.350	0.457	0.104	0.79	0.64	0.58
	Back	0.705	0.353	0.494	0.354	0.160	1.22	1.22	1.20
	Left side	0.685					0.69	0.69	0.69
	Right side		0.748	0.737	0.536	0.014	0.55	0.76	0.74
	Top side	0.069	0.123	0.418	0.662	0.173	0.90	0.37	0.49
	Bottom side						0.00	0.00	0.00
Ant 6	Front	0.215	0.300	0.350	0.457	0.104	0.78	0.62	0.57
	Back	0.534	0.353	0.494	0.354	0.160	1.05	1.05	1.03
	Left side						0.00	0.00	0.00
	Right side	0.095	0.748	0.737	0.536	0.014	0.65	0.86	0.83
	Top side	0.747	0.123	0.418	0.662	0.173	1.58	1.04	1.17
	Bottom side								



FCC SAR Test Report

Report No. : FA442515-03

	Bottom side						0.00	0.00	0.00
Ant 8	Front	0.382	0.300	0.350	0.457	0.104	0.94	0.79	0.73
	Back	0.646	0.353	0.494	0.354	0.160	1.16	1.16	1.14
	Left side	0.438					0.44	0.44	0.44
	Right side		0.748	0.737	0.536	0.014	0.55	0.76	0.74
	Top side	0.433	0.123	0.418	0.662	0.173	1.27	0.73	0.85
	Bottom side						0.00	0.00	0.00
Ant 7	Front	0.332	0.300	0.350	0.457	0.104	0.89	0.74	0.68
	Back	0.352	0.353	0.494	0.354	0.160	0.87	0.87	0.85
	Left side						0.00	0.00	0.00
	Right side	0.748	0.748	0.737	0.536	0.014	1.30	1.51	1.49
	Top side	0.696	0.123	0.418	0.662	0.173	1.53	0.99	1.11
	Bottom side						0.00	0.00	0.00
Ant 9	Front	0.090	0.300	0.350	0.457	0.104	0.65	0.49	0.44
	Back	1.079	0.353	0.494	0.354	0.160	1.59	1.59	1.57
	Left side	0.234					0.23	0.23	0.23
	Right side		0.748	0.737	0.536	0.014	0.55	0.76	0.74
	Top side	0.037	0.123	0.418	0.662	0.173	0.87	0.33	0.46
	Bottom side						0.00	0.00	0.00

WWAN Band	Exposure Position	1	5	8	1+5+8
		WWAN	WLAN2.4GHz Ant 16+7	WLAN5GHz Ant 6+17	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Ant 0	Front	0.379	0.203	0.378	0.96
	Back	0.629	0.251	0.262	1.14
	Left side	0.548			0.55
	Right side		0.429	0.412	0.84
	Top side		0.224	0.518	0.74
	Bottom side	0.297			0.30
Ant 1	Front	0.557	0.203	0.378	1.14
	Back	0.698	0.251	0.262	1.21
	Left side	0.937			0.94
	Right side		0.429	0.412	0.84
	Top side		0.224	0.518	0.74
	Bottom side				0.00
Ant 4	Front	0.295	0.203	0.378	0.88
	Back	0.578	0.251	0.262	1.09
	Left side	0.262			0.26
	Right side		0.429	0.412	0.84
	Top side	0.568	0.224	0.518	1.31
	Bottom side				0.00
Ant 2	Front	0.568	0.203	0.378	1.15
	Back	0.783	0.251	0.262	1.30
	Left side				0.00
	Right side	0.373	0.429	0.412	1.21
	Top side		0.224	0.518	0.74
	Bottom side	1.062			1.06
Ant 5	Front	0.391	0.203	0.378	0.97
	Back	0.658	0.251	0.262	1.17
	Left side				0.00
	Right side	0.748	0.429	0.412	1.59
	Top side		0.224	0.518	0.74
	Bottom side				0.00
Ant 3	Front	0.231	0.203	0.378	0.81
	Back	0.705	0.251	0.262	1.22
	Left side	0.685			0.69



FCC SAR Test Report

Report No. : FA442515-03

	Right side		0.429	0.412	0.84
	Top side	0.069	0.224	0.518	0.81
	Bottom side				0.00
Ant 6	Front	0.215	0.203	0.378	0.80
	Back	0.534	0.251	0.262	1.05
	Left side				0.00
	Right side	0.095	0.429	0.412	0.94
	Top side	0.747	0.224	0.518	1.49
	Bottom side				0.00
Ant 8	Front	0.382	0.203	0.378	0.96
	Back	0.646	0.251	0.262	1.16
	Left side	0.438			0.44
	Right side		0.429	0.412	0.84
	Top side	0.433	0.224	0.518	1.18
	Bottom side				0.00
Ant 7	Front	0.332	0.203	0.378	0.91
	Back	0.352	0.251	0.262	0.87
	Left side				0.00
	Right side	0.748	0.429	0.412	1.59
	Top side	0.696	0.224	0.518	1.44
	Bottom side				0.00
Ant 9	Front	0.090	0.203	0.378	0.67
	Back	1.079	0.251	0.262	1.59
	Left side	0.234			0.23
	Right side		0.429	0.412	0.84
	Top side	0.037	0.224	0.518	0.78
	Bottom side				0.00

Exposure Position	4	5	8	17	8+17	4+17	5+8
	WLAN2.4GHz Ant 7 1g SAR (W/kg)	WLAN2.4GHz Ant 16+7 1g SAR (W/kg)	WLAN5GHz Ant 6+17 1g SAR (W/kg)	Bluetooth Ant 16 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
Front	0.300	0.350	0.457	0.104	0.56	0.40	0.81
Back	0.353	0.494	0.354	0.160	0.51	0.51	0.85
Left side					0.00	0.00	0.00
Right side	0.748	0.737	0.536	0.014	0.55	0.76	1.27
Top side	0.123	0.418	0.662	0.173	0.84	0.30	1.08
Bottom side					0.00	0.00	0.00

**18.4 Body-Worn Accessory Exposure Conditions**

WWAN Band	Exposure Position	1	4	5	8	17	1+8+17	1+4+17	1+5
		WWAN	WLAN2.4GHz Ant 7	WLAN2.4GHz Ant 16+7	WLAN5/6GHz Ant 6+17	Bluetooth Ant 16	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Ant 0	Front	0.280	0.182	0.207	0.179	0.017	0.48	0.48	0.49
	Back	0.405	0.226	0.407	0.234	0.085	0.72	0.72	0.81
Ant 1	Front	0.556	0.182	0.207	0.179	0.017	0.75	0.76	0.76
	Back	0.877	0.226	0.407	0.234	0.085	1.20	1.19	1.28
Ant 4	Front	0.590	0.182	0.207	0.179	0.017	0.79	0.79	0.80
	Back	1.054	0.226	0.407	0.234	0.085	1.37	1.37	1.46
Ant 2	Front	0.345	0.182	0.207	0.179	0.017	0.54	0.54	0.55
	Back	0.548	0.226	0.407	0.234	0.085	0.87	0.86	0.96
Ant 5	Front	0.263	0.182	0.207	0.179	0.017	0.46	0.46	0.47
	Back	0.385	0.226	0.407	0.234	0.085	0.70	0.70	0.79
Ant 3	Front	0.441	0.182	0.207	0.179	0.017	0.64	0.64	0.65
	Back	1.087	0.226	0.407	0.234	0.085	1.41	1.40	1.49
Ant 6	Front	0.511	0.182	0.207	0.179	0.017	0.71	0.71	0.72
	Back	1.008	0.226	0.407	0.234	0.085	1.33	1.32	1.42
Ant 8	Front	0.664	0.182	0.207	0.179	0.017	0.86	0.86	0.87
	Back	0.911	0.226	0.407	0.234	0.085	1.23	1.22	1.32
Ant 7	Front	0.245	0.182	0.207	0.179	0.017	0.44	0.44	0.45
	Back	0.298	0.226	0.407	0.234	0.085	0.62	0.61	0.71
Ant 9	Front	0.077	0.182	0.207	0.179	0.017	0.27	0.28	0.28
	Back	1.058	0.226	0.407	0.234	0.085	1.38	1.37	1.47

WWAN Band	Exposure Position	1	5	8	1+5+8
		WWAN	WLAN2.4GHz Ant 16+7	WLAN5/6GHz Ant 6+17	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Ant 0	Front	0.280	0.151	0.179	0.61
	Back	0.405	0.256	0.234	0.90
Ant 1	Front	0.556	0.151	0.179	0.89
	Back	0.877	0.256	0.234	1.37
Ant 4	Front	0.590	0.151	0.179	0.92
	Back	1.054	0.256	0.234	1.54
Ant 2	Front	0.345	0.151	0.179	0.68
	Back	0.548	0.256	0.234	1.04
Ant 5	Front	0.263	0.151	0.179	0.59
	Back	0.385	0.256	0.234	0.88
Ant 3	Front	0.441	0.151	0.179	0.77
	Back	1.087	0.256	0.234	1.58
Ant 6	Front	0.511	0.151	0.179	0.84
	Back	1.008	0.256	0.234	1.50
Ant 8	Front	0.664	0.151	0.179	0.99
	Back	0.911	0.256	0.234	1.40
Ant 7	Front	0.245	0.151	0.179	0.58
	Back	0.298	0.256	0.234	0.79
Ant 9	Front	0.077	0.151	0.179	0.41
	Back	1.058	0.256	0.234	1.55

Exposure Position	4	5	8	17	8+17	4+17	5+8
	WLAN2.4GHz Ant 7	WLAN2.4GHz Ant 16+7	WLAN5/6GHz Ant 6+17	Bluetooth Ant 16	Summed	Summed	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Front	0.182	0.207	0.302	0.017	0.32	0.20	0.51
Back	0.226	0.407	0.523	0.085	0.61	0.31	0.93

**18.5 Product specific 10g SAR Exposure Conditions****Remark:**

1. For 2.4GHz/Bluetooth Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg.

WWAN Band	Exposure Position	1	8	9	1+8+9
		WWAN	WLAN5/6GHz Ant 6+17	NFC	Summed
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
Ant 0	Front		1.010		1.01
	Back		0.642	0.006	0.65
	Left side				0.00
	Right side		1.242		1.24
	Top side		1.305		1.31
	Bottom side				0.00
Ant 1	Front		1.010		1.01
	Back		0.642	0.006	0.65
	Left side	2.185			2.19
	Right side		1.242		1.24
	Top side		1.305		1.31
	Bottom side				0.00
Ant 4	Front	1.358	1.010		2.37
	Back	1.953	0.642	0.006	2.60
	Left side				0.00
	Right side		1.242		1.24
	Top side	2.490	1.305		3.80
	Bottom side				0.00
Ant 2	Front		1.010		1.01
	Back		0.642	0.006	0.65
	Left side				0.00
	Right side		1.242		1.24
	Top side		1.305		1.31
	Bottom side				0.00
Ant 5	Front		1.010		1.01
	Back	1.733	0.642	0.006	2.38
	Left side				0.00
	Right side	2.125	1.242		3.37
	Top side		1.305		1.31
	Bottom side				0.00
Ant 3	Front		1.010		1.01
	Back	2.511	0.642	0.006	3.16
	Left side	1.983			1.98
	Right side		1.242		1.24
	Top side		1.305		1.31
	Bottom side				0.00
Ant 6	Front		1.010		1.01
	Back	1.081	0.642	0.006	1.73
	Left side				0.00
	Right side		1.242		1.24
	Top side	2.558	1.305		3.86
	Bottom side				0.00
Ant 8	Front	1.200	1.010		2.21
	Back	1.989	0.642	0.006	2.64
	Left side	2.288			2.29
	Right side		1.242		1.24
	Top side	2.349	1.305		3.65
	Bottom side				0.00



FCC SAR Test Report

Report No. : FA442515-03

Ant 7	Front	1.430	1.010		2.44
	Back	1.127	0.642	0.006	1.78
	Left side				0.00
	Right side	2.516	1.242		3.76
	Top side		1.305		1.31
	Bottom side				0.00
Ant 9	Front		1.010		1.01
	Back	2.554	0.642	0.006	3.20
	Left side	0.932			0.93
	Right side		1.242		1.24
	Top side		1.305		1.31
	Bottom side				0.00

Test Engineer : Hank Huang, Kevin Xu, David Dai, Bin He

19. Uncertainty Assessment

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

20. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [6] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.
- [7] FCC KDB 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
- [8] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [9] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [10] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [11] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [12] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [13] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [14] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [15] FCC KDB 484596 D01 v02r03, "Test Reductions Via Data Referencing", Mar. 2024

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