

FCC SAR Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2315-1, XT2315-4, XT2315-5
FCC ID : IHDT56AL2
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.



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Table of Contents

1. Statement of Compliance 4
2. Administration Data 6
3. Guidance Applied 6
4. Equipment Under Test (EUT) Information 7
4.1 General Information 7
4.2 General LTE SAR Test and Reporting Considerations 10
4.3 General 5G NR SAR Test and Reporting Considerations 14
5. Smart Transmit feature for RF Exposure compliance 18
6. Proximity Sensor Triggering Test 21
7. RF Exposure Limits 23
7.1 Uncontrolled Environment 23
7.2 Controlled Environment 23
8. Specific Absorption Rate (SAR) 24
8.1 Introduction 24
8.2 SAR Definition 24
9. System Description and Setup 25
9.1 E-Field Probe 26
9.2 Data Acquisition Electronics (DAE) 26
9.3 Phantom 27
9.4 Device Holder 28
10. Measurement Procedures 29
10.1 Spatial Peak SAR Evaluation 29
10.2 Power Reference Measurement 30
10.3 Area Scan 30
10.4 Zoom Scan 31
10.5 Volume Scan Procedures 31
10.6 Power Drift Monitoring 31
11. Test Equipment List 32
12. System Verification 33
12.1 Tissue Simulating Liquids 33
12.2 Tissue Verification 33
12.3 System Performance Check Results 35
13. RF Exposure Positions 38
13.1 Ear and handset reference point 38
13.2 Definition of the cheek position 39
13.3 Definition of the tilt position 40
13.4 Body Worn Accessory 41
13.5 Product Specific 10g SAR Exposure 42
13.6 Wireless Router 42
14. Conducted RF Output Power (Unit: dBm) 43
15. Antenna Location 62
16. SAR Test Results 63
16.1 Head SAR 66
16.2 Hotspot SAR 79
16.3 Body Worn Accessory SAR 98
16.4 Product specific 10g SAR 110
16.5 Repeated SAR Measurement 119
16.6 TDD LTE Linearity Data Analysis 120
17. Simultaneous Transmission Analysis 122
17.1 5G NR + LTE + WLAN + BT Sim-Tx analysis 123
17.2 Sub6 Antenna Groups 124
17.3 Head Exposure Conditions 125
17.4 Hotspot Exposure Conditions 127
17.5 Body-Worn Accessory Exposure Conditions 130
17.6 Product specific 10g SAR Exposure Conditions 133
17.7 SPLSR Evaluation and Analysis 135
17.8 Maximum Report SAR And SAR Peak Locations 147
18. Supplemental tuner tests results 152
18.1 Supplemental Tuner Head & Body SAR Results 152
19. Uncertainty Assessment 153
20. References 154
Appendix A. Plots of System Performance Check
Appendix B. Plots of High SAR Measurement

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2315-1, XT2315-4, XT2315-5**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	<0.10	0.36	0.36	1.58
		GSM1900	<0.10	1.11	1.11	
	WCDMA	WCDMA V	0.59	1.01	1.01	
		WCDMA IV	0.59	1.08	1.08	
		WCDMA II	0.63	1.08	1.06	
	LTE	LTE Band 71	0.58	0.70	0.70	
		LTE Band 12/17	0.54	0.76	0.76	
		LTE Band 13	0.54	0.85	0.85	
		LTE Band 14	0.60	1.09	1.09	
		LTE Band 26/5	0.62	1.02	1.02	
		LTE Band 66/4	0.59	1.12	1.12	
		LTE Band 25/2	0.52	1.19	1.19	
		LTE Band 30	0.58	1.15	1.15	
		LTE Band 7	0.57	1.02	1.02	
		LTE Band 41/38	0.60	1.12	1.12	
	LTE Band 48	0.48	1.08	1.08		
	5G NR	FR1 n71	0.58	0.51	0.51	
		FR1 n12	0.63	0.54	0.54	
		FR1 n13	0.23	0.61	0.61	
		FR1 n14	0.61	0.65	0.65	
		FR1 n26/5	0.63	0.65	0.65	
		FR1 n70	0.60	1.19	1.07	
		FR1 n66	0.59	1.19	1.19	
		FR1 n25/2	0.56	1.15	1.15	
		FR1 n30	0.62	1.07	1.07	
		FR1 n7	0.64	1.18	1.10	
FR1 n41/38		0.64	1.08	1.08		
FR1 n48		0.69	0.96	0.96		
FR1 n77/78		0.58	1.10	1.10		
DTS	WLAN	2.4GHz WLAN	1.03	0.44	1.18	1.58
NII		5GHz WLAN	1.19	0.42	1.18	1.58
DSS	Bluetooth	2.4GHz Bluetooth	0.34	<0.10	0.25	1.58



Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	GSM	GSM1900	2.46	3.90
	WCDMA	WCDMA IV	2.70	
		WCDMA II	2.40	
	LTE	LTE Band 66/4	2.51	
		LTE Band 25/2	2.41	
		LTE Band 30	1.96	
		LTE Band 7	2.02	
		LTE Band 41/38	2.12	
		LTE Band 48	1.67	
		5G NR	FR1 n70	
	FR1 n66		2.78	
	FR1 n25/2		2.64	
	FR1 n30		1.60	
	FR1 n7		1.92	
	FR1 n41/38		2.02	
FR1 n48	1.97			
FR1 n77/78	1.93			
DTS	WLAN	2.4GHz WLAN	2.91	3.90
NII		5GHz WLAN	2.99	3.90
Date of Testing:			2022/12/10 ~ 2023/1/13	

Remark:

- This device supports LTE B2 / B4 / B5 / B17 / B38 and B25 / B66 / B26 / B12 / B41. Since the supported frequency span for LTE B2 / B4 / B5 / B17 / B38 falls completely within the supports frequency span for LTE B25 / B66 / B26 / B12 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B25 / B66 / B26 / B12 / B41.
- This device supports 5G NR n78/n38/n5/n2 and n77/n41/n26/n25. Since the supported frequency span for 5G NR n78/n38/n5/n2 falls completely within the supports frequency span for n77/n41/n26/n25, both 5G NR bands have the same target power, and both 5G NR bands share the same transmission path; therefore, SAR was only assessed for n77/n41/n26/n25.

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.

Table with Testing Laboratory details including Test Firm, Test Site Location, and Test Site No. with sub-columns for Sporton Site No., FCC Designation No., and FCC Test Firm Registration No.

Table with Applicant details including Company Name and Address.

Table with Manufacturer details including Company Name and Address.

3. Guidance Applied

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

- List of standards including FCC 47 CFR Part 2 (2.1093), ANSI/IEEE C95.1-1992, IEEE 1528-2013, and various FCC KDB SAR measurement and reporting standards.



4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2315-1, XT2315-4, XT2315-5
FCC ID	IHDT56AL2
IMEI Code	Sample 1: IMEI 1 : 359709930025450 IMEI 2 : 359709930025468 Sample 2: 354348930009092
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 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n13 : 777 MHz ~ 787 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n70 : 1695 MHz ~ 1710 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps



	HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ac VHT20/VHT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC: ASK
HW Version	DVT2
SW Version	T1TGN33.33
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
3. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
5. For dual SIM card mobile has single SIM slots + eSIM (electronic SIM) and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active).
6. There are two different types of EUT. They are single SIM card mobile and dual SIM card mobile (Single SIM card slot + eSIM). The others are the same including circuit design, PCB board, structure and all components. After pre-scan two types of EUT, we found test result of the sample that dual SIM was the worst, so we chose dual SIM card mobile to perform all tests.
7. The three model name XT2315-1, XT2315-4, XT2315-5 are the same product except model name different for market segment.
8. There are two samples. The difference between them could be referred to the XT2315-1, XT2315-4, XT2315-5_Operational Description of Product Equality Declaration which is exhibited separately. According to the difference, we choose sample 1 for full testing and sample 2 for worst case verification.
9. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
10. For WLAN/BT when transmit simultaneous with WWAN, power reduction will be activated to head. For WLAN/BT when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn and Handheld.
11. This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, these techniques are employed in the WCDMA, LTE and 5G NR modes. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner and supplemental data for additional information can be referred to section 18 and appendix F.
12. This device supports HPUE for LTE Band 41 with class 2 level, HPUE power has been measured separately. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR.
13. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
14. 5G NR n41/n77 supports HPUE, HPUE power and SAR testing performed separately.
15. 5G NR n41/n77 HUPE with higher power, 5G NR n41/n77 HUPE SAR can represent power class 3 level SAR.
16. 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.
17. 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.
18. 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.
19. 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.
 20. This device supports 5G NR FR1 bands as following table, including NSA mode and SA mode. NSA and SA mode performed SAR separately.
 21. This device has NFC function and the NFC SAR report will be separately submitted.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n2	FDD	15	5, 10, 15, 20
	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 40
	n12	FDD	15	5, 10, 15
	n25	FDD	15	5, 10, 15, 20
	n30	FDD	15	5, 10
	n66	FDD	15	5, 10, 15, 20, 30, 40
	n71	FDD	15	5, 10, 15, 20
	n41	TDD	30	20, 30, 40, 50, 60, 70, 80, 90, 100
	n77	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100
n78	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100	
SA	n2	FDD	15	5, 10, 15, 20
	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 40
	n12	FDD	15	5, 10, 15
	n13	FDD	15	5, 10
	n14	FDD	15	5, 10
	n25	FDD	15	5, 10, 15, 20
	n26	FDD	15	5, 10, 15, 20
	n30	FDD	15	5, 10
	n66	FDD	15	5, 10, 15, 20, 30, 40
	n70	FDD	15	5, 10, 15
	n71	FDD	15	5, 10, 15, 20
	n38	TDD	30	10, 15, 20, 30, 40
	n41	TDD	30	20, 30, 40, 50, 60, 70, 80, 90, 100
	n48	TDD	30	10, 20, 30, 40
n77	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100	
n78	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100	



4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																															
FCC ID	IHDT56AL2																																																														
Equipment Name	Mobile Cellular 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 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 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 14: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 25: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 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	<p align="center">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</p> <table border="1"> <thead> <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> </thead> <tbody> <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" style="text-align: center;">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table>	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
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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 14.																																																														
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 14.																																																														
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		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	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		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		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	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				Bandwidth 15 MHz				Bandwidth 20 MHz
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #
L	23205		779.5		23230		782		23230		782		23230
M	23230		782		23230		782		23230		782		23230
H	23255		784.5		23230		782		23230		782		23230
LTE Band 14													
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz
	Channel #		Channel #		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #
L	23305		790.5		23330		793		23330		793		23330
M	23330		793		23330		793		23330		793		23330
H	23355		795.5		23330		793		23330		793		23330
LTE Band 17													
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #
L	23755		706.5		23780		709		23780		709		23780
M	23790		710		23790		710		23790		710		23790
H	23825		713.5		23800		711		23800		711		23800
LTE Band 25													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860	
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905	
LTE Band 26													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 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	26790	824.5	
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	26940	838.5	



LTE Band 30																
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz			
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	27685		2307.5		27710		2310		27710		2310					
M	27710		2310													
H	27735		2312.5													
LTE Band 38																
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 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	37825	2577.5	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	38175	2612.5	38150	2610				
LTE Band 41																
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 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	39725	2503.5	39750	2506				
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5	40173	2548.3	40185	2549.5				
M	40620	2593	40620	2593	40620	2593	40620	2593	40620	2593	40620	2593				
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5	41068	2637.8	41055	2636.5				
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680	41515	2682.5	41490	2680				
LTE Band 66																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720				
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745				
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770				
LTE Band 71																
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		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	133147	665.5	133172	668	133197	670.5	133222	673	133197	670.5	133222	673				
M	133247	675.5	133272	678	133297	680.5	133322	683	133297	680.5	133322	683				
H	133447	695.5	133422	693	133397	690.5	133372	688	133397	690.5	133372	688				
LTE Band 48																
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 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	55265	3552.5	55290	3555	55315	3557.5	55340	3560	55315	3557.5	55340	3560				
LM	55810	3607	55815	3607.5	55820	3608	55830	3609	55820	3608	55830	3609				
MH	56170	3643	56165	3642.5	56160	3642	56150	3641	56160	3642	56150	3641				
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690	56665	3692.5	56640	3690				



<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 2	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 25	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 4	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 66	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 12	Yes	Yes	Yes	Yes		
LTE Band 17			Yes	Yes		
LTE Band 5	Yes	Yes	Yes	Yes		
LTE Band 26	Yes	Yes	Yes	Yes	Yes	
LTE Band 38			Yes	Yes	Yes	Yes
LTE Band 41			Yes	Yes	Yes	Yes

2) LTE Bands tune up:

Band	Antenna	Head DSI 2	Body Worn DSI 3	Sensor Off DSI4	Extremely DSI 6	Hotspot on DSI 7	Default Tune-up Limit
LTE Band 2	0	24	18.3	24	22.3	17.8	24
LTE Band 25	0	24	18.3	24	22.3	17.8	24
LTE Band 4	0	24	17.7	24	23.2	17.2	24
LTE Band 66	0	24	17.7	24	23.2	17.2	24
LTE Band 12	0	24	24	24	24	24	24
LTE Band 17	0	24	24	24	24	24	24
LTE Band 5	0	24	24	24	24	24	24
LTE Band 26	0	24	24	24	24	24	24
LTE Band 38	7	24	24	24	24	24	24
LTE Band 41(pc3)	7	24	24	24	24	24	24
LTE Band 41(pc2)	7	27	25.7	27	26.5	25.7	27

Band	Antenna	Head DSI 2	Body Worn DSI 3	Sensor Off DSI4	Extremely DSI 6	Hotspot on DSI 7	Default Tune-up Limit
LTE Band 2	1	17.5	19.5	24	20	18.5	24
LTE Band 25	1	17.5	19.5	24	20	18.5	24
LTE Band 4	1	15.8	18.3	24	19.8	17.8	24
LTE Band 66	1	15.8	18.3	24	19.8	17.8	24
LTE Band 12	1	23.5	24	24	24	24	24
LTE Band 17	1	23.5	24	24	24	24	24
LTE Band 5	1	22	24	24	24	24	24
LTE Band 26	1	22	24	24	24	24	24
LTE Band 38	1	18.8	21.3	24.0	20.8	18.8	24.0
LTE Band 41(pc3)	1	18.8	21.3	24.5	20.8	18.8	24.5
LTE Band 41(pc2)	1	20.4	22.9	27	22.4	20.4	27



4.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n13 : 777 MHz ~ 787 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n70 : 1695 MHz ~ 1710 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 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 4.1 5GNR FR1 bands table.
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n2	LTE B5/7/12/13/14/30/66/71
LTE Anchor Bands for n5	LTE B2/7/30/48/66
LTE Anchor Bands for n7	LTE B2/5/12/66
LTE Anchor Bands for n12	LTE B2/66
LTE Anchor Bands for n25	LTE B12/26/66
LTE Anchor Bands for n30	LTE B2/5/12/14/66
LTE Anchor Bands for n41	LTE B2/4/12/25/26/66
LTE Anchor Bands for n66	LTE B2/5/7/12/13/14/30/48/71
LTE Anchor Bands for n71	LTE B2/7/48/66
LTE Anchor Bands for n77	LTE B2/5/7/12/13/14/25/66
LTE Anchor Bands for n78	LTE B2/4/5/7/12/13/25/66/71

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band														
NR Band 2														
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860						
M	376000	1880	376000	1880	376000	1880	376000	1880						
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900						
NR Band 5														
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	165300	826.5	165800	829	166300	831.5	166800	834						
M	167300	836.5	167300	836.5	167300	836.5	167300	836.5						
H	169300	846.5	168800	844	168300	841.5	167800	839						
NR Band 7														
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	504000	2520
M	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560	511500	2557.5	511000	2555	510000	2550

NR Band 12						
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	140300	701.5	140800	704	141300	706.5
M	141500	707.5	141500	707.5	141500	707.5
H	142700	713.5	142200	711	141700	708.5



NR Band 13				
	Bandwidth 5MHz		Bandwidth 10MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	155900	779.5	156400	782
M	156400	782		
H	156900	784.5		

NR Band 14				
	Bandwidth 5MHz		Bandwidth 10MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	158100	790.5	158600	793
M	158600	793		
H	159100	795.5		

NR Band 25								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860
M	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5
H	382500	1912.5	382000	1910	381500	1907.5	381000	1905

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

NR Band 30				
	Bandwidth 5MHz		Bandwidth 10MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	461500	2307.5	462000	2310
M	462000	2310		
H	462500	2312.5		

NR Band 66												
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720	345000	1725	346000	1730
M	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770	353000	1765	352000	1760

NR Band 70						
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	339500	1697.5	340000	1700	340500	1702.5
M	340500	1702.5	340500	1702.5		
H	341500	1707.5	341000	1705		

NR Band 71								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	133100	665.5	133600	668	134100	670.5	134600	673
M	136100	680.5	136100	680.5	136100	680.5	136100	680.5
H	139100	695.5	138600	693	138100	690.5	137600	688



NR Band 38										
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	515000	2575	515500	2577.5	516000	2580	517000	2585	518000	2590
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595
H	523000	2615	522500	2612.5	522000	2610	521000	2605	520000	2600

NR Band 41																		
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	501204	2506.02	502200	2511	503202	2516.01	504204	2521.02	505200	2526	506202	2531.01	507204	2536.02	508200	2541	509202	2546.01
M	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99
H	535998	2679.99	534996	2674.98	534000	2670	532998	2664.99	531996	2659.98	531000	2655	529998	2649.99	528996	2644.98	528000	2640

NR Band 48								
	Bandwidth 10MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	637000	3555	637334	3560.01	637668	3565.02	638000	3570
M	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99
H	646332	3694.98	646000	3690	645666	3684.99	645332	3679.98

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

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

For <3450 MHz ~ 3550 MHz >

NR Band 77																						
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630334	3455.01	630500	3457.5	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98
H	636332	3544.98	636166	3542.49	636000	3540	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634332	3514.98	634000	3510	633666	3504.99		

NR Band 78																						
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630334	3455.01	630500	3457.5	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98
H	636332	3544.98	636166	3542.49	636000	3540	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634332	3514.98	634000	3510	633666	3504.99		

<For NR Overlap Bands Description>

1) NR Bands BW

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NR	n2	FDD	15	5, 10, 15, 20
	n25	FDD	15	5, 10, 15, 20
	n5	FDD	15	5, 10, 15, 20
	n26	FDD	15	5, 10, 15, 20
	n38	TDD	30	10, 15, 20, 30, 40
	n41	TDD	30	20, 30, 40, 50, 60, 70, 80, 90, 100
	n77	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100
	n78	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100

2) NR Bands Tune up:

Band	Antenna	Head DSI2	Body Worn DSI3	Sensor Off DSI4	Extremely DSI6	Hotspot on DSI7	Default
n2	0	24	20	24	23.5	17.5	24
n25	0	24	20	24	23.5	17.5	24
n2	1	15	20	24	19.5	18.5	24
n25	1	15	20	24	19.5	18.5	24
n5	0	24	24	24	24	24	24
n26	0	24	24	24	24	24	24
n5	1	22	24	24	24	24	24
n26	1	22	24	24	24	24	24
n38(PC3)	7	24.0	22.5	24.0	22.0	22.5	24.0
n41(PC3)	7	23.5	22.5	24.0	22.0	22.5	24.0
n41(PC2)	7	23.5	22.5	27.0	22.0	22.5	27.0
n38(PC3)	1	20.5	21.5	24.0	24.0	19.5	24.0
n41(PC3)	1	20.5	21.5	22.5	22.5	19.5	22.5
n41(PC2)	1	20.5	21.5	25.5	24.0	19.5	25.5
n78(PC3)	2	14.0	16.5	24.0	15.0	14	24.0
n77(PC3)	2	14.0	16.5	24.0	15.0	14	24.0
n77(PC2)	2	14.0	16.5	27.0	15.0	14	27.0
n78(PC3)	5	18.0	20.0	24.0	23.0	20	24.0
n77(PC3)	5	18.0	20.0	24.0	23.0	20	24.0
n77(PC2)	5	18.0	20.0	25.0	23.0	20	25.0
n78(PC3)	8	16.5	13.0	17.0	17.0	13	24.0
n77(PC3)	8	16.5	13.0	17.0	17.0	13	24.0
n77(PC2)	8	16.5	13.0	17.0	17.0	13	25.0
n78(PC3)	10	24.0	11.0	13.5	13.5	11	24.0
n77(PC3)	10	24.0	11.0	13.5	13.5	11	24.0
n77(PC2)	10	25.5	11.0	13.5	13.5	11	25.5

5. Smart Transmit feature for RF Exposure compliance

The 2nd generation of Smart Transmit (GEN2) operates based on pre-defined sub6 antenna groups (AG). This Device is enabled with the Qualcomm® Smart Transmit Gen2 feature. The RF exposure limit is defined based on time-averaged RF exposure. The product implements Qualcomm Smart Transmit feature which controls the instantaneous transmitting power for WWAN transmitter to ensure the product in compliance with RF exposure limit over a defined time window, for SAR (transmit frequency ≤ 6GHz). To control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement.

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

This report describes the procedures for the SAR char generation, and the parameters obtained from SAR characterization (referred to as SAR char, respectively) will be used as input for Smart Transmit. SAR char will be entered via the Embedded File System (EFS) to enable the Smart Transmit GEN2 Feature.

<Terminologies in this report>

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

<SAR Characterization>

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

Antenna Group:

Antenna Group 0 (AG0)	ANT1 & ANT2 & ANT5 & ANT6 & ANT8 & ANT9 & ANT10
Antenna Group 1 (AG1)	ANT0 & ANT7

<SAR design target and uncertainty>

Item	Uncertainty dB (k=2)
Total uncertainty	1.5

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

$$SAR_{design_target} < SAR_{regulatory_limit} \times 10^{\frac{-total\ uncertainty}{10}}$$



The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target, below the predefined time-averaged power limit, for each characterized technology and band.

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

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

Band	Antenna	Head	Body Worn	Sensor Off	Extremity	Hotspot	Pmax*
		DSI2	DSI3	DSI4	DSI6	DSI7	
GSM850	ANT 0	29.6	30.4	24.2	24.2	30.4	24.2
GSM1900	ANT 0	24.9	17.2	21.7	21.7	16.7	21.7
WCDMA V	ANT 0	27.9	29.2	23.0	23.0	29.2	23.0
WCDMA V	ANT 1	20.7	25.0	23.0	23.0	25.0	23.0
WCDMA IV	ANT 0	28.5	16.8	23.0	21.3	15.8	23.0
WCDMA IV	ANT 1	14.5	17.5	23.0	18.5	16.5	23.0
WCDMA II	ANT 0	29.0	17.3	23.0	21.3	16.3	23.0
WCDMA II	ANT 1	16.0	19.0	23.0	19.5	17.5	23.0
LTE Band 71	ANT 0	28.4	28.9	23.0	23.0	28.9	23.0
LTE Band 71	ANT 1	22.5	25.9	23.0	23.0	25.9	23.0
LTE Band 12/17	ANT 0	27.8	28.1	23.0	23.0	28.1	23.0
LTE Band 12/17	ANT 1	22.5	25.5	23.0	23.0	25.5	23.0
LTE Band 13	ANT 0	27.6	29.3	23.0	23.0	29.3	23.0
LTE Band 13	ANT 1	21.1	25.1	23.0	23.0	25.1	23.0
LTE Band 14	ANT 0	27.9	29.8	23.0	23.0	29.8	23.0
LTE Band 14	ANT 1	21.7	23.0	23.0	23.0	23.0	23.0
LTE Band 26/5	ANT 0	26.6	28.2	23.0	23.0	28.2	23.0
LTE Band 26/5	ANT 1	21.0	23.0	23.0	23.0	23.0	23.0
LTE Band 66/4	ANT 0	28.7	16.7	23.0	22.2	16.2	23.0
LTE Band 66/4	ANT 1	14.8	17.3	23.0	18.8	16.8	23.0
LTE Band 25/2	ANT 0	28.2	17.3	23.0	21.3	16.8	23.0
LTE Band 25/2	ANT 1	16.5	18.5	23.0	19.0	17.5	23.0
LTE Band 30	ANT 7	24.6	23.0	23.0	23.0	23.7	23.0
LTE Band 30	ANT 1	17.9	19.4	23.0	21.9	16.9	23.0
LTE Band 30	ANT 6	23.5	18.5	23.5	17.5	17.5	23.5
LTE Band 30	ANT 9	23.0	24.7	23.0	23.0	21.5	23.0
LTE Band 7	ANT 7	25.5	22.0	23.0	22.0	22.0	23.0
LTE Band 7	ANT 1	17.1	19.1	23.0	18.6	16.1	23.0
LTE Band 38/41(PC3)**	ANT 7	25.0	21.1	22.4	21.9	21.1	21.0
LTE Band 41(PC2)**	ANT 7	25.0	21.1	22.4	21.9	21.1	22.4
LTE Band 38(PC3)**	ANT 1	15.8	18.3	22.4	17.8	15.8	21.0
LTE Band 41(PC3)**	ANT 1	15.8	18.3	22.4	17.8	15.8	21.5
LTE Band 41(PC2)**	ANT 1	15.8	18.3	22.4	17.8	15.8	22.4
LTE Band 41(PC3)**	ANT 6	23.5	18.6	22.4	20.1	18.6	21.0
LTE Band 41(PC2)**	ANT 6	23.5	18.6	22.4	20.1	18.6	22.4
LTE Band 41(PC3)**	ANT 9	19.5	19.0	21.4	21.4	17.6	20.0
LTE Band 41(PC2)**	ANT 9	19.5	19.0	21.4	21.4	17.6	21.4
LTE Band 48	ANT 2	13.8	16.7	21.0	14.2	12.7	21.0
LTE Band 48	ANT 5	25.8	20.5	21.0	22.5	20.5	21.0
LTE Band 48	ANT 8	16.2	10.7	15.7	15.7	10.7	21.0
LTE Band 48	ANT 10	29.6	11.5	12.5	12.5	11.5	21.0
n71	ANT 0	28.8	29.8	23.0	23.0	29.8	23.0
n71	ANT 1	22.0	26.3	23.0	23.0	26.3	23.0
n26/5	ANT 0	29.3	30.8	23.0	23.0	30.8	23.0
n26/5	ANT 1	21.0	25.3	23.0	23.0	25.3	23.0
n12	ANT 0	27.8	25.9	23.0	23.0	25.9	23.0
n12	ANT 1	22.0	26.4	23.0	23.0	26.4	23.0



n13	ANT 0	29.5	25.4	23.0	23.0	25.4	23.0
n13	ANT 1	24.1	31.3	23.0	23.0	31.3	23.0
n14	ANT 0	28.2	25.6	23.0	23.0	25.6	23.0
n14	ANT 1	21.5	25.3	23.0	23.0	25.3	23.0
n66	ANT 0	29.0	18.5	23.0	22.0	17.5	23.0
n66	ANT 1	16.0	18.5	23.0	18.5	18.0	23.0
n70	ANT 0	28.0	18.0	23.0	22.0	17.5	23.0
n70	ANT 1	16.0	19.0	23.0	18.5	18.0	23.0
n25/2	ANT 0	28.9	19.0	23.0	22.5	16.5	23.0
n25/2	ANT 1	14.0	19.0	23.0	18.5	17.5	23.0
n30	ANT 7	27.1	23.7	23.0	23.0	23.0	23.0
n30	ANT 1	18.5	20.0	23.0	22.0	19.0	23.0
n7	ANT 7	23.5	22.0	23.0	23.0	22.0	23.0
n7	ANT 1	19.0	20.0	23.0	22.0	17.5	23.0
n38	ANT 7	23.0	21.5	23.0	21.0	21.5	23.0
n41(PC3)	ANT 7	22.5	21.5	26.0	21.0	21.5	23.0
n41(PC2)	ANT 7	22.5	21.5	26.0	21.0	21.5	26.0
n38	ANT 1	19.5	20.5	23.0	23.0	18.5	23.0
n41(PC3)	ANT 1	19.5	20.5	24.5	23.0	18.5	21.5
n41(PC2)	ANT 1	19.5	20.5	24.5	23.0	18.5	24.5
n41(PC3)	ANT 6	24.5	17.5	24.5	18.5	17.5	21.5
n41(PC2)	ANT 6	24.5	17.5	24.5	18.5	17.5	24.5
n41(PC3)	ANT 9	18.5	19.0	19.0	19.0	16.5	20.5
n41(PC2)	ANT 9	18.5	19.0	19.0	19.0	16.5	23.5
n48	ANT 2	12.0	16.0	23.0	14.5	12.0	23.0
n48	ANT 5	16.5	18.0	22.0	21.0	18.0	22.0
n48	ANT 8	16.5	13.5	16.5	16.5	13.5	22.0
n48	ANT 10	30.9	11.0	13.5	13.5	11.0	22.0
n77/78(PC3)	ANT 2	13.0	15.5	26.0	14.0	13.0	23.0
n77(PC2)	ANT 2	13.0	15.5	26.0	14.0	13.0	26.0
n77/78(PC3)	ANT 5	17.0	19.0	24.0	22.0	19.0	23.0
n77(PC2)	ANT 5	17.0	19.0	24.0	22.0	19.0	24.0
n77/78(PC3)	ANT 8	15.5	12.0	16.0	16.0	12.0	23.0
n77(PC2)	ANT 8	15.5	12.0	16.0	16.0	12.0	24.0
n77/78(PC3)	ANT 10	32.4	10.0	12.5	12.5	10.0	23.0
n77(PC2)	ANT 10	32.4	10.0	12.5	12.5	10.0	24.5

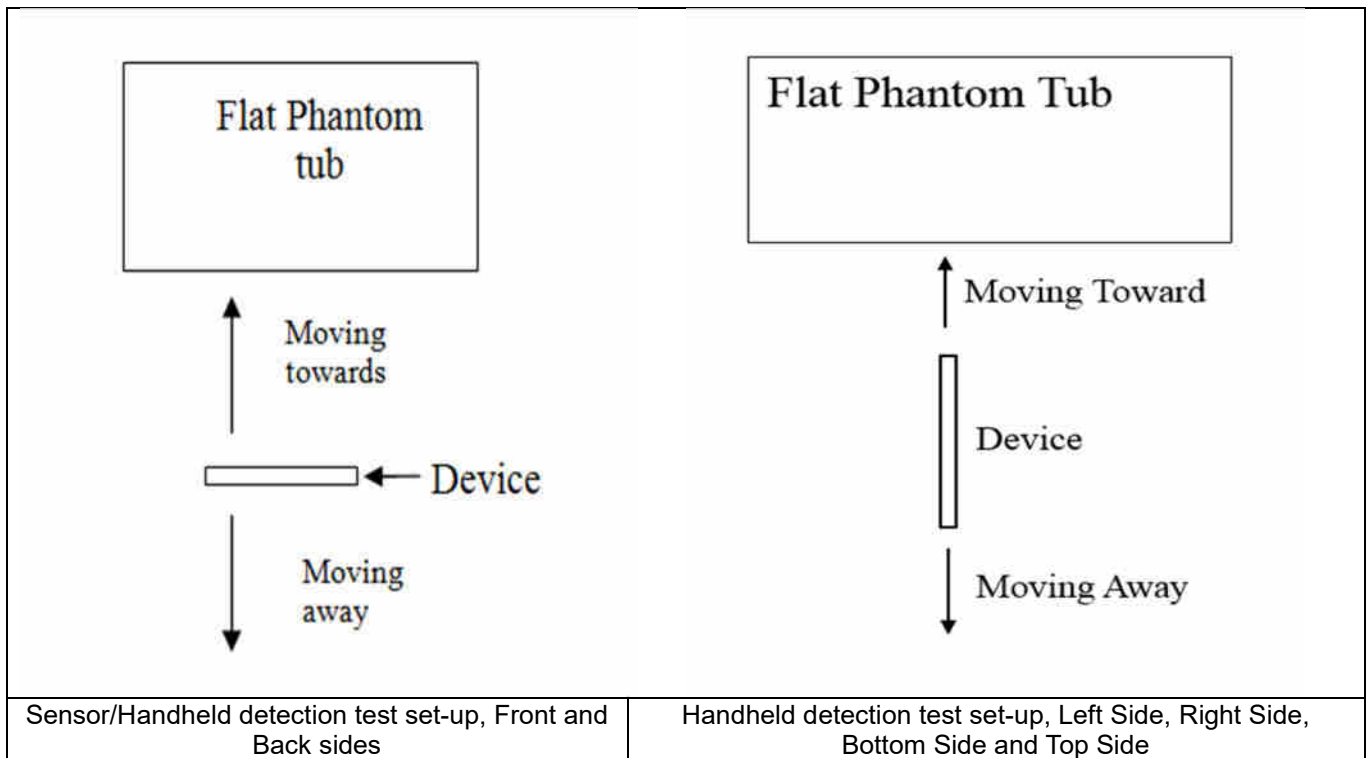
Note:

- 1) *P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to P_{max} + 1.0 dB device 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} + 1.0 dB device uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.

6. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

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



<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	15	17	22	25

<Handheld for ANT0>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	12	16	18	20	16	19

<Handheld for ANT 1>

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	12	14	17	18	8	12	18	23

<Handheld for ANT 7>

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	15	22	20	20	15	16	17	24

<Handheld for ANT 2&6>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Left Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	12	10	17	13	19

<Handheld for ANT 3&5>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Right Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	12	20	14	21	15	20	13	20

7. RF Exposure Limits

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

8. Specific Absorption Rate (SAR)

8.1 Introduction

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

8.2 SAR Definition

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

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

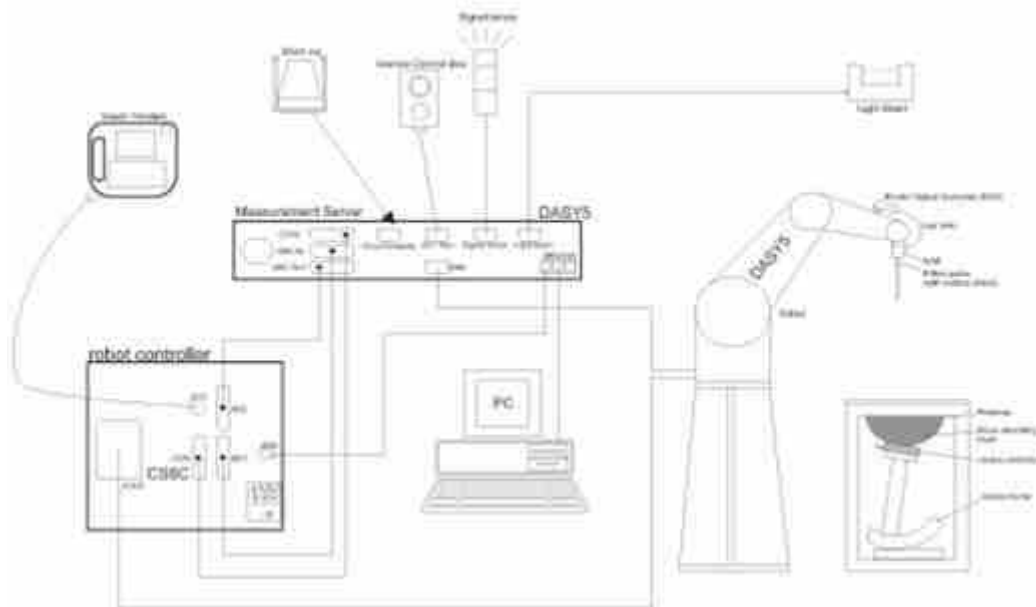
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

9. System Description and Setup

The DASY5 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 Win10 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

9.1 E-Field Probe

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

<EX3DV4 Probe>

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

9.2 Data Acquisition Electronics (DAE)

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


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



Photo of DAE

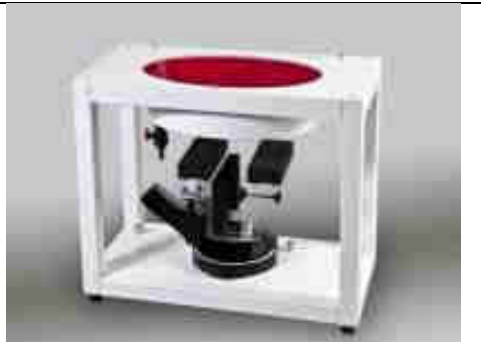
9.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

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

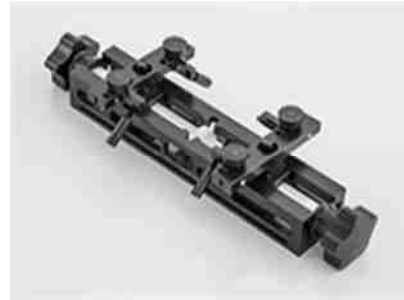
9.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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



Mounting Device for Laptops

10. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

10.1 Spatial Peak SAR Evaluation

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

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

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

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

10.2 Power Reference Measurement

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

10.3 Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ 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: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm $2 - 3$ GHz: ≤ 12 mm	$3 - 4$ GHz: ≤ 12 mm $4 - 6$ GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

10.4 Zoom Scan

Zoom scans are used 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: Δx_{Zoom} , Δy_{Zoom}		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{Zoom}(1)$: between 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
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <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.				

10.5 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.

10.6 Power Drift Monitoring

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



11. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	Dec. 15, 2021	Dec. 14, 2024
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 17, 2021	Dec. 16, 2024
SPEAG	1750MHz System Validation Kit	D1750V2	1137	Oct. 19, 2021	Oct. 18, 2024
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Dec. 20, 2021	Dec. 19, 2024
SPEAG	2300MHz System Validation Kit	D2300V2	1056	Oct. 20, 2021	Oct. 19, 2024
SPEAG	2450MHz System Validation Kit	D2450V2	924	Sep. 02, 2020	Aug. 31, 2023
SPEAG	2600MHz System Validation Kit	D2600V2	1070	Dec. 20, 2021	Dec. 19, 2024
SPEAG	3500MHz System Validation Kit	D3500V2	1076	May 09, 2022	May 08, 2023
SPEAG	3700MHz System Validation Kit	D3700V2	1037	May 09, 2022	May 08, 2023
SPEAG	3900MHz System Validation Kit	D3900V2	1048	May 14, 2020	May 12, 2023
SPEAG	5GHz System Validation Kit	D5GHzV2	1341	Dec. 13, 2021	Dec. 12, 2024
SPEAG	Data Acquisition Electronics	DAE4	1386	Jun. 30, 2022	Jun. 29, 2023
SPEAG	Data Acquisition Electronics	DAE4	1437	Nov. 23, 2022	Nov. 22, 2023
SPEAG	Dosimetric E-Field Probe	EX3DV4	7641	Apr. 11, 2022	Apr. 10, 2023
SPEAG	Dosimetric E-Field Probe	EX3DV4	3819	May 30, 2022	May 29, 2023
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1500	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P41 AA	2035	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300653	Jul. 07, 2022	Jul. 06, 2023
Anritsu	Radio communication analyzer	MT8821C	6262314715	Jun. 27, 2022	Jun. 26, 2023
Anritsu	Radio communication analyzer	MT8821C	6272278319	Jun. 27, 2022	Jun. 26, 2023
Keysight	Network Analyzer	E5071C	MY46523671	Oct. 17, 2022	Oct. 16, 2023
Speag	Dielectric Assessment KIT	DAK-3.5	1071	Jan. 24, 2022	Jan. 23, 2023
Anritsu	Signal Generator	MG3710A	6201502524	Oct. 04, 2022	Oct. 03, 2023
Anritsu	Power Sensor	MA2411B	1306099	Oct. 17, 2022	Oct. 16, 2023
Anritsu	Power Meter	ML2495A	1349001	Oct. 17, 2022	Oct. 16, 2023
R&S	Power Sensor	NRP50S	101254	Apr. 07, 2022	Apr. 06, 2023
R&S	CBT BLUETOOTH TESTER	CBT	100963	Dec. 28, 2021	Dec. 27, 2022
R&S	Spectrum Analyzer	FSP7	100818	Jul. 07, 2022	Jul. 06, 2023
TES	Hygrometer	1310	200505600	Jul. 12, 2022	Jul. 11, 2023
Anymetre	Thermo-Hygrometer	JR593	2018100802	Oct. 19, 2022	Oct. 18, 2023
Anymetre	Thermo-Hygrometer	JR593	2020062101	Jul. 12, 2022	Jul. 11, 2023
SPEAG	Device Holder	N/A	N/A	N/A	N/A
AR	Amplifier	5S1G4	0333096	Note 1	
Mini-Circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Weinschel	Attenuator 1	3M-10	N/A	Note 1	

Note:

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

12. System Verification

12.1 Tissue Simulating Liquids

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



Fig 11.1 Photo of Liquid Height for Head SAR

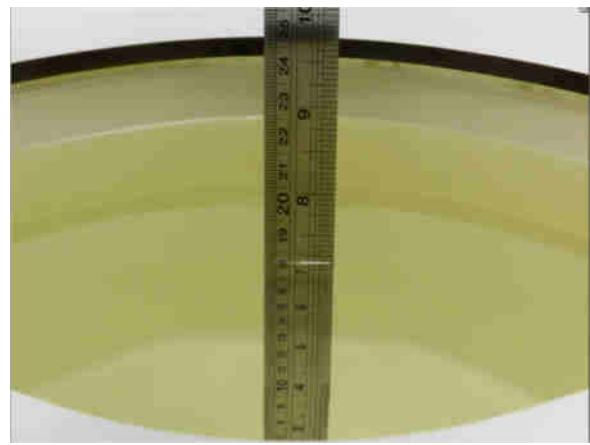


Fig 11.2 Photo of Liquid Height for Body SAR

12.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (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	22.2	0.878	40.673	0.89	41.90	-1.35	-2.93	±5	2022/12/10
750	Head	22.6	0.914	40.835	0.89	41.90	2.70	-2.54	±5	2022/12/11
750	Head	22.9	0.886	41.532	0.89	41.90	-0.45	-0.88	±5	2022/12/17
835	Head	22.2	0.897	41.605	0.90	41.50	-0.33	0.25	±5	2022/12/12
835	Head	22.4	0.944	40.539	0.90	41.50	4.89	-2.32	±5	2022/12/13
835	Head	22.1	0.920	42.227	0.90	41.50	2.22	1.75	±5	2022/12/19
1750	Head	22.4	1.380	41.322	1.37	40.10	0.73	3.05	±5	2022/12/14
1750	Head	22.3	1.366	38.750	1.37	40.10	-0.29	-3.37	±5	2022/12/15
1750	Head	22.8	1.378	41.340	1.37	40.10	0.58	3.09	±5	2022/12/21
1900	Head	22.2	1.418	40.789	1.40	40.00	1.29	1.97	±5	2022/12/16
1900	Head	22.7	1.403	40.676	1.40	40.00	0.21	1.69	±5	2022/12/19
1900	Head	22.1	1.451	39.099	1.40	40.00	3.64	-2.25	±5	2022/12/23
2300	Head	22.3	1.656	38.854	1.67	39.50	-0.84	-1.64	±5	2022/12/18
2300	Head	22.5	1.706	39.905	1.67	39.50	2.16	1.03	±5	2022/12/20
2300	Head	22.3	1.609	39.064	1.67	39.50	-3.65	-1.10	±5	2022/12/25
2450	Head	22.3	1.856	37.685	1.80	39.20	3.11	-3.86	±5	2022/12/20
2450	Head	22.7	1.801	38.451	1.80	39.20	0.06	-1.91	±5	2022/12/23
2450	Head	22.5	1.809	39.716	1.80	39.20	0.50	1.32	±5	2022/12/27
2600	Head	22.7	2.054	38.328	1.96	39.00	4.80	-1.72	±5	2022/12/22
2600	Head	22.5	1.894	40.240	1.96	39.00	-3.37	3.18	±5	2022/12/26
2600	Head	22.7	1.941	37.736	1.96	39.00	-0.97	-3.24	±5	2022/12/29
3500	Head	22.9	2.892	36.795	2.91	37.90	-0.62	-2.92	±5	2022/12/24
3500	Head	22.5	2.947	36.761	2.91	37.90	1.27	-3.01	±5	2022/12/31
3500	Head	22.3	2.886	38.247	2.91	37.90	-0.82	0.92	±5	2023/1/5
3700	Head	22.7	3.139	36.215	3.12	37.70	0.61	-3.94	±5	2022/12/26
3700	Head	22.7	3.039	36.561	3.12	37.70	-2.60	-3.02	±5	2023/1/2
3700	Head	22.5	3.038	38.003	3.12	37.70	-2.63	0.80	±5	2023/1/7
3900	Head	22.6	3.196	36.353	3.33	37.51	-4.02	-3.08	±5	2022/12/28
3900	Head	22.8	3.248	37.958	3.33	37.51	-2.46	1.19	±5	2023/1/4
3900	Head	22.6	3.200	37.794	3.33	37.51	-3.90	0.76	±5	2023/1/9
5250	Head	22.8	4.581	37.173	4.71	35.95	-2.74	3.40	±5	2022/12/30
5250	Head	22.3	4.757	36.931	4.71	35.95	1.00	2.73	±5	2023/1/6
5250	Head	22.4	4.564	35.647	4.71	35.95	-3.10	-0.84	±5	2023/1/11
5600	Head	22.9	4.920	36.695	5.07	35.50	-2.96	3.37	±5	2023/1/1
5600	Head	22.1	5.199	36.179	5.07	35.50	2.54	1.91	±5	2023/1/8
5600	Head	22.3	4.947	35.038	5.07	35.50	-2.43	-1.30	±5	2023/1/12
5750	Head	22.2	5.062	36.455	5.22	35.35	-3.03	3.13	±5	2023/1/3
5750	Head	22.4	5.374	35.896	5.22	35.35	2.95	1.54	±5	2023/1/10
5750	Head	22.6	5.100	34.768	5.22	35.35	-2.30	-1.65	±5	2023/1/13



12.3 System Performance Check Results

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

<1g SAR>

Table with 11 columns: 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 (%). Rows contain test data from 2022/12/10 to 2023/1/13.



<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 (%)
2022/12/10	750	Head	250	1099	7641	1386	1.460	5.650	5.84	3.36
2022/12/11	750	Head	250	1099	3819	1437	1.480	5.650	5.92	4.78
2022/12/17	750	Head	250	1099	7641	1386	1.470	5.650	5.88	4.07
2022/12/12	835	Head	250	4d162	7641	1386	1.560	6.260	6.24	-0.32
2022/12/13	835	Head	250	4d162	3819	1437	1.700	6.260	6.8	8.63
2022/12/19	835	Head	250	4d162	7641	1386	1.600	6.260	6.4	2.24
2022/12/14	1750	Head	250	1137	7641	1386	4.850	19.200	19.4	1.04
2022/12/15	1750	Head	250	1137	3819	1437	5.040	19.200	20.16	5.00
2022/12/21	1750	Head	250	1137	7641	1386	4.820	19.200	19.28	0.42
2022/12/16	1900	Head	250	5d182	7641	1386	5.160	20.200	20.64	2.18
2022/12/19	1900	Head	250	5d182	3819	1437	5.460	20.200	21.84	8.12
2022/12/23	1900	Head	250	5d182	7641	1386	5.070	20.200	20.28	0.40
2022/12/18	2300	Head	250	1056	3819	1437	5.780	22.800	23.12	1.40
2022/12/20	2300	Head	250	1056	3819	1437	6.060	22.800	24.24	6.32
2022/12/25	2300	Head	250	1056	3819	1437	5.580	22.800	22.32	-2.11
2022/12/20	2450	Head	250	924	3819	1437	6.100	24.000	24.4	1.67
2022/12/23	2450	Head	250	924	3819	1437	5.870	24.000	23.48	-2.17
2022/12/27	2450	Head	250	924	3819	1437	5.870	24.000	23.48	-2.17
2022/12/22	2600	Head	250	1070	3819	1437	6.200	24.600	24.8	0.81
2022/12/26	2600	Head	250	1070	3819	1437	5.880	24.600	23.52	-4.39
2022/12/29	2600	Head	250	1070	3819	1437	5.790	24.600	23.16	-5.85
2022/12/24	3500	Head	100	1076	3819	1437	2.490	25.500	24.9	-2.35
2022/12/31	3500	Head	100	1076	3819	1437	2.420	25.500	24.2	-5.10
2023/1/5	3500	Head	100	1076	3819	1437	2.500	25.500	25	-1.96
2022/12/26	3700	Head	100	1037	3819	1437	2.530	24.600	25.3	2.85
2023/1/2	3700	Head	100	1037	3819	1437	2.420	24.600	24.2	-1.63
2023/1/7	3700	Head	100	1037	3819	1437	2.370	24.600	23.7	-3.66
2022/12/28	3900	Head	100	1048	3819	1437	2.530	24.400	25.3	3.69
2023/1/4	3900	Head	100	1048	3819	1437	2.330	24.400	23.3	-4.51
2023/1/9	3900	Head	100	1048	3819	1437	2.470	24.400	24.7	1.23
2022/12/30	5250	Head	100	1341	3819	1437	2.270	23.100	22.7	-1.73
2023/1/6	5250	Head	100	1341	3819	1437	2.260	23.100	22.6	-2.16
2023/1/11	5250	Head	100	1341	3819	1437	2.390	23.100	23.9	3.46
2023/1/1	5600	Head	100	1341	3819	1437	2.410	24.000	24.1	0.42
2023/1/8	5600	Head	100	1341	3819	1437	2.280	24.000	22.8	-5.00
2023/1/12	5600	Head	100	1341	3819	1437	2.550	24.000	25.5	6.25
2023/1/3	5750	Head	100	1341	3819	1437	2.240	22.700	22.4	-1.32
2023/1/10	5750	Head	100	1341	3819	1437	2.210	22.700	22.1	-2.64
2023/1/13	5750	Head	100	1341	3819	1437	2.360	22.700	23.6	3.96

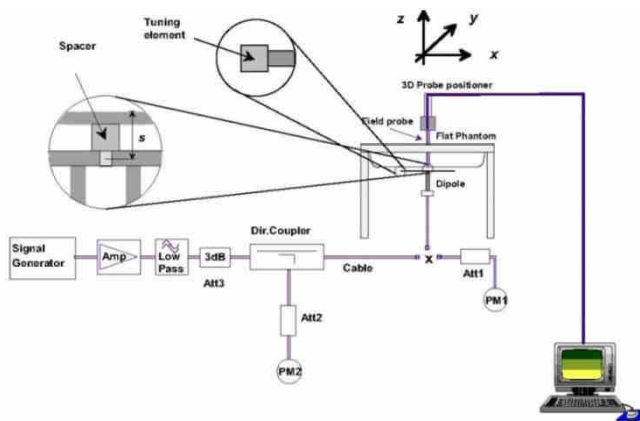


Fig 11.3.1 System Performance Check Setup



Fig 11.3.2 Setup Photo

13. RF Exposure Positions

13.1 Ear and handset reference point

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

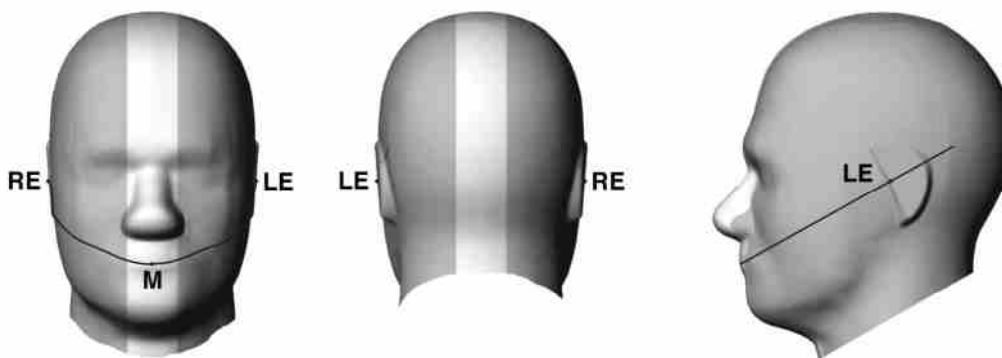


Fig 12.1.1 Front, back, and side views of SAM twin phantom

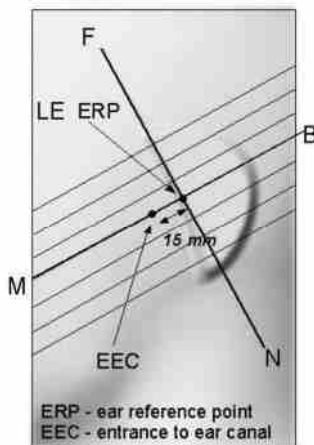


Fig 12.1.2 Close-up side view of phantom showing the ear region.

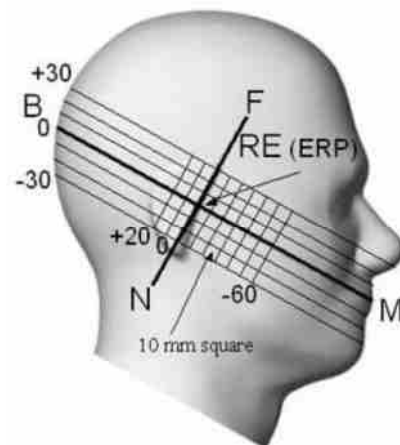


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

13.2 Definition of the cheek position

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

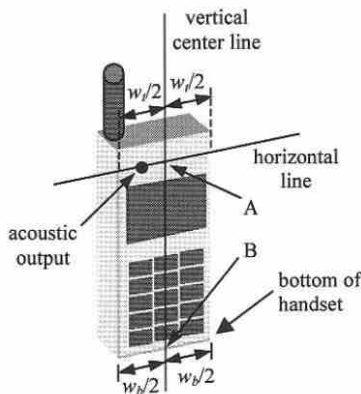


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

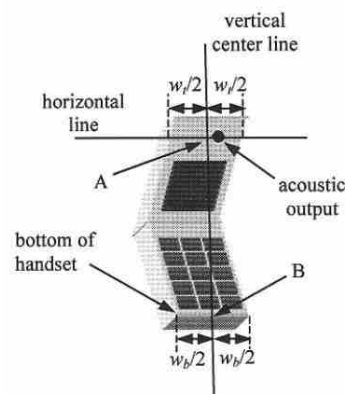


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

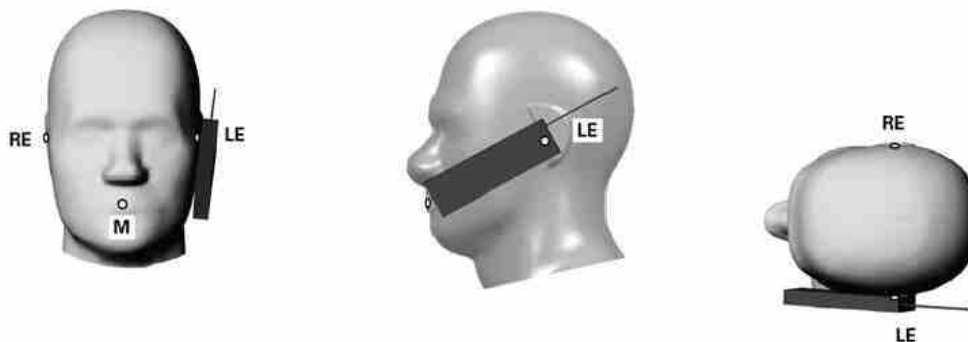


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

13.3 Definition of the tilt position

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

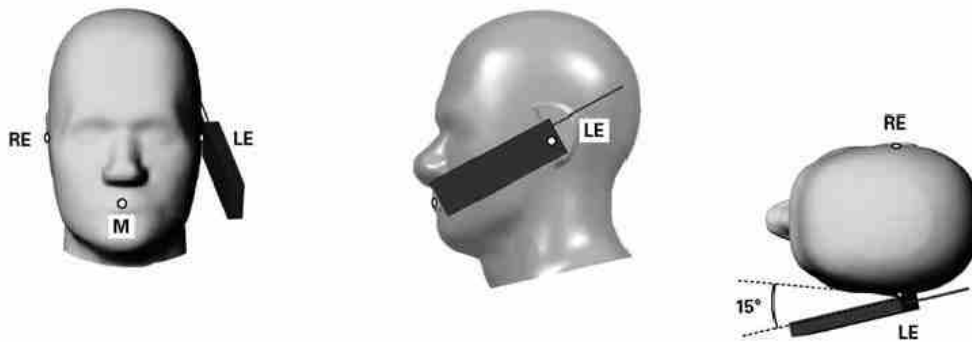


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

13.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 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.

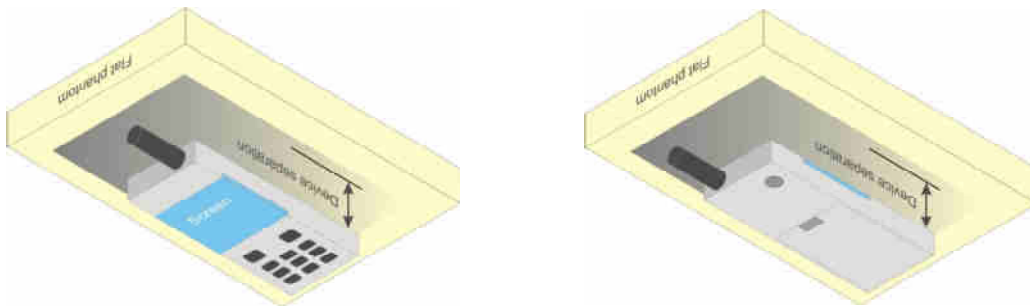


Fig 12.4 Body Worn Position

13.5 Product Specific 10g SAR Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, that 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.

13.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets ($L \times W \geq 9$ 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.

14. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ 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 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_o/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 $\beta_o/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. 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_o/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:

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

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

Sub-test	β_c	β_d	β_{sf} (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	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_{IP})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

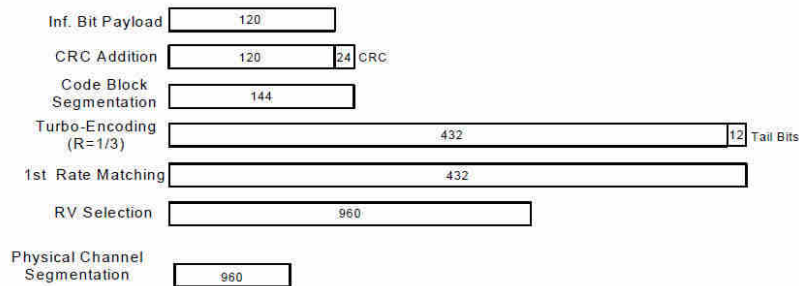


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK) Setup Configuration



<WCDMA Conducted Power>

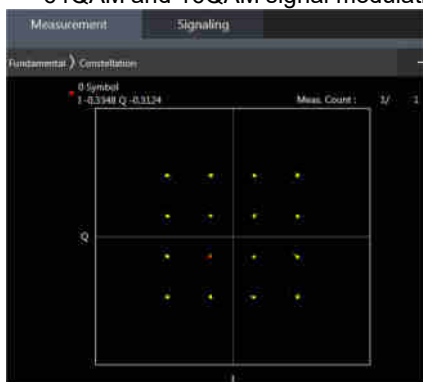
General Note:

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

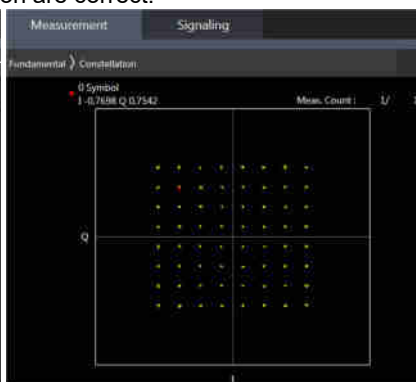
<LTE Conducted Power>

General Note:

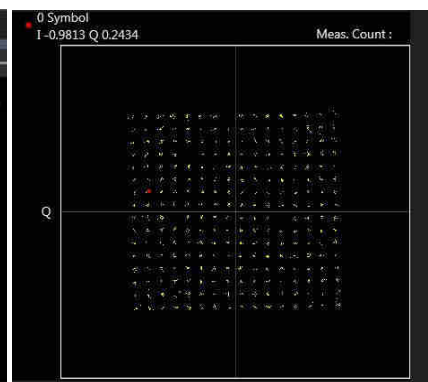
1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM/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 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B2 / B4 / B5 / B17 / B38 SAR test was covered by B25 / B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is \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.



16QAM



64QAM



256QAM

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

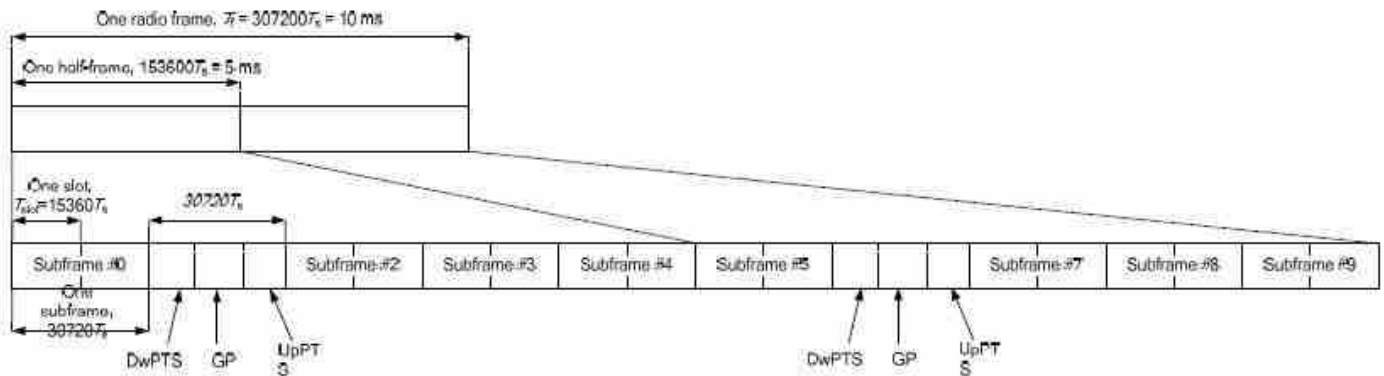


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	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 · Ts	2192 · Ts	2560 · Ts	7680 · Ts	2192 · Ts	2560 · Ts
1	19760 · Ts			20480 · Ts		
2	21952 · Ts			23040 · Ts		
3	24144 · Ts			25600 · Ts		
4	26336 · Ts	4384 · Ts	5120 · Ts	7680 · Ts	4384 · Ts	5120 · Ts
5	6592 · Ts			20480 · Ts		
6	19760 · Ts			23040 · Ts		
7	21952 · Ts			12800 · Ts		
8	24144 · Ts			-		
9	13168 · Ts	-	-	-	-	

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

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

The highest duty factor is resulted from:

For LTE TDD Power class 2

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

For LTE TDD Power class 3

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

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

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



<LTE Carrier Aggregation>

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.
3. 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_12A-30A	30A	3CC-1	1	CA_12A-30A-66A	30A-66A	4CC-1	1	CA_12A-30A-66A-66A	66A, 30A	
2	CA_12A-66A	66A	3CC-2	2	CA_12A-66A-66A	66A-66A	4CC-1	2	CA_12B-66A-66A	66A	
3	CA_12B		3CC-4	3	CA_12A-66C	66C	4CC-12	3	CA_13A-48A-48C	48A	
4	CA_13A-48A	48A	3CC-5	4	CA_12B-66A	66A	4CC-2	4	CA_13A-48A-66B	48A	
5	CA_13A-66A	66A	3CC-6	5	CA_13A-48A-48A	48A-48A		5	CA_13A-48A-66C	48A	
6	CA_14A-30A	30A	3CC-11	6	CA_13A-48A-66A	48A-66A		6	CA_13A-48C-66A	66A	
7	CA_14A-66A	66A	3CC-12	7	CA_13A-48C	48C	4CC-6	7	CA_13A-48D		
8	CA_25A-25A	25A-25A	3CC-14	8	CA_13A-66A-66A	66A-66A	4CC-15	8	CA_13A-66A-66B	66A	
9	CA_25A-26A	25A	3CC-14	9	CA_13A-66B	66B	4CC-8	9	CA_14A-66A-66A-66A	66A	
10	CA_25A-41A	25A-41A		10	CA_13A-66C	66C	4CC-5	10	CA_25A-41D	25A	
11	CA_25A-66A	25A-66A	3CC-15	11	CA_14A-30A-66A	30A-66A		11	CA_2A-12A-66A-66A	66A, 2A	
12	CA_26A-41A	41A		12	CA_14A-66A-66A	66A-66A	4CC-9	12	CA_2A-12A-66C	2A	
13	CA_2A-12A	2A	3CC-18	14	CA_25A-25A-26A	25A-25A		13	CA_2A-12B-66A	66A, 2A	
14	CA_2A-13A	2A	3CC-21	15	CA_25A-25A-66A	25A-66A, 25A-25A	4CC-86	14	CA_2A-13A-48C	2A	
15	CA_2A-14A	2A	3CC-23	16	CA_25A-41C	41C		15	CA_2A-13A-66A-66A	66A, 2A	
16	CA_2A-2A	2A-2A	3CC-25	17	CA_26A-41C	41C		16	CA_2A-13A-66B	2A	
17	CA_2A-30A	2A-30A	3CC-28	18	CA_2A-12A-30A	2A-30A		17	CA_2A-13A-66C	2A	
18	CA_2A-48A	2A-48A	3CC-35	19	CA_2A-12A-66A	2A-66A	4CC-18	18	CA_2A-2A-12A-66A	66A, 2A	
19	CA_2A-4A	2A-4A	3CC-29	20	CA_2A-12B	2A	4CC-19	19	CA_2A-2A-12B	2A	
20	CA_2A-5A	2A	3CC-30	21	CA_2A-13A-48A	2A-48A		20	CA_2A-2A-13A-66A	66A, 2A	
21	CA_2A-66A	2A-66A	3CC-31	22	CA_2A-13A-66A	2A-66A	4CC-15	21	CA_2A-2A-14A-30A	30A, 2A	
22	CA_2A-71A	2A	3CC-32	23	CA_2A-14A-30A	2A-30A	4CC-21	22	CA_2A-2A-4A-12A	4A, 2A	
23	CA_2A-7A	2A-7A	3CC-33	24	CA_2A-14A-66A	2A-66A		23	CA_2A-2A-4A-4A	4A, 2A	
24	CA_2C	2C	3CC-60	25	CA_2A-2A-12A	2A-2A	4CC-18	24	CA_2A-2A-4A-5A	4A, 2A	
25	CA_30A-66A	30A-66A	3CC-11	26	CA_2A-2A-13A	2A-2A	4CC-20	25	CA_2A-2A-4A-71A	4A, 2A	
26	CA_41A-41A	41A-41A		27	CA_2A-2A-14A	2A-2A	4CC-21	26	CA_2A-2A-5A-66A	66A, 2A	
27	CA_41C	41C	3CC-62	28	CA_2A-2A-30A	2A-30A, 2A-2A	4CC-21	27	CA_2A-2A-5B	2A	
28	CA_48A-48A	48A-48A	3CC-35	29	CA_2A-2A-4A	2A-4A, 2A-2A	4CC-23	28	CA_2A-2A-66A-66A	66A, 2A	
29	CA_48A-66A	48A-66A	3CC-36	30	CA_2A-2A-5A	2A-2A	4CC-24	29	CA_2A-2A-66A-71A	66A, 2A	
30	CA_48A-71A	48A	3CC-65	31	CA_2A-2A-66A	2A-66A, 2A-2A	4CC-26	30	CA_2A-2A-66B	2A	
31	CA_48C	48C	3CC-37	32	CA_2A-2A-71A	2A-2A	4CC-29	31	CA_2A-2A-66C	2A	
32	CA_4A-12A	4A	3CC-38	33	CA_2A-2A-7A	2A-7A, 2A-2A	4CC-32	32	CA_2A-2A-7A-66A	7A, 66A, 2A	
33	CA_4A-13A	4A	3CC-39	34	CA_2A-30A-66A	30A-66A, 2A-66A, 2A-30A		33	CA_2A-48A-48C	48A, 2A	
34	CA_4A-17A	4A-17A		35	CA_2A-48A-48A	48A-48A, 2A-48A		34	CA_2A-48A-66A-66A	66A, 48A, 2A	
35	CA_4A-30A	4A-30A	3CC-40	36	CA_2A-48A-66A	48A-66A, 2A-66A, 2A-48A	4CC-34	35	CA_2A-48C-66A	66A, 2A	
36	CA_4A-48A	4A-48A		37	CA_2A-48C	48C	4CC-33	36	CA_2A-48D	2A	
37	CA_4A-4A	4A-4A	3CC-41	38	CA_2A-4A-12A	2A-4A	4CC-38	37	CA_2A-4A-12B	4A, 2A	
38	CA_4A-5A	4A	3CC-42	39	CA_2A-4A-13A	2A-4A		38	CA_2A-4A-4A-12A	4A, 2A	
39	CA_4A-71A	4A	3CC-43	40	CA_2A-4A-30A	4A-30A, 2A-4A, 2A-30A		39	CA_2A-4A-4A-5A	4A, 2A	
40	CA_4A-7A	4A-7A	3CC-44	41	CA_2A-4A-4A	4A-4A, 2A-4A	4CC-38	40	CA_2A-4A-5B	4A, 2A	
41	CA_5A-30A	30A	3CC-45	42	CA_2A-4A-5A	2A-4A	4CC-39	41	CA_2A-4A-7A-7A	7A, 4A, 2A	
42	CA_5A-48A	48A	3CC-46	43	CA_2A-4A-71A	2A-4A	4CC-25	42	CA_2A-4A-7C	4A, 2A	
43	CA_5A-5A		3CC-88	44	CA_2A-4A-7A	4A-7A, 2A-7A, 2A-4A	4CC-41	43	CA_2A-5A-48C	2A	
44	CA_5A-66A	66A	3CC-47	45	CA_2A-5A-30A	2A-30A		44	CA_2A-5A-66A-66A	66A, 2A	



FCC SAR Test Report

Report No. : FA2N2910

45	CA_5A-7A	7A	3CC-48	46	CA_2A-5A-48A	2A-48A		45	CA_2A-5A-66B	2A	
46	CA_5B		3CC-49	47	CA_2A-5A-66A	2A-66A	4CC-44	46	CA_2A-5A-66C	2A	
47	CA_66A-66A	66A-66A	3CC-50	48	CA_2A-5A-7A	2A-7A	4CC-47	47	CA_2A-5A-7A-7A	7A, 2A	
48	CA_66A-71A	66A	3CC-51	49	CA_2A-5B	2A	4CC-48	48	CA_2A-5B-66A	66A, 2A	
49	CA_66B	66B	3CC-52	50	CA_2A-66A-66A	66A-66A, 2A-66A	4CC-49	49	CA_2A-66A-66A-66A	66A, 2A	
50	CA_66C	66C	3CC-53	51	CA_2A-66A-71A	2A-66A	4CC-50	50	CA_2A-66A-66A-71A	66A, 2A	
51	CA_7A-12A	7A	3CC-54	52	CA_2A-66B	66B	4CC-51	51	CA_2A-66A-66B	66A, 2A	
52	CA_7A-13A	7A	3CC-55	53	CA_2A-66C	66C	4CC-52	52	CA_2A-66C-71A	2A	
53	CA_7A-25A	7A-25A	3CC-104	54	CA_2A-7A-12A	2A-7A		53	CA_2A-7A-66A-66A	7A, 66A, 2A	
54	CA_7A-66A	7A-66A	3CC-56	55	CA_2A-7A-13A	2A-7A		54	CA_2A-7A-7A-13A	7A, 2A	
55	CA_7A-7A	7A-7A	3CC-57	56	CA_2A-7A-66A	7A-66A, 2A-7A, 2A-66A	4CC-55	55	CA_2A-7A-7A-66A	7A, 66A, 2A	
56	CA_7B	7B		57	CA_2A-7A-7A	7A-7A, 2A-7A	4CC-55	56	CA_2A-7C-13A	2A	
57	CA_7C	7C	3CC-58	58	CA_2A-7C	7C	4CC-56	57	CA_2A-7C-66A	66A, 2A	
				59	CA_2C-12A	2C		58	CA_2C-66A-66A	66A	
				60	CA_2C-66A	2C	4CC-58	59	CA_48A-48A-66A-66A	66A, 48A	
				61	CA_30A-66A-66A	66A-66A, 30A-66A	4CC-73	60	CA_48A-48A-66B	48A	
				62	CA_41A-41C	41C		61	CA_48A-48A-66C	48A	
				63	CA_41D		4CC-10	62	CA_48A-48C-66A	66A, 48A	
				64	CA_48A-48A-66A	48A-66A, 48A-48A	4CC-59	63	CA_48A-48D	48A	
				65	CA_48A-48A-71A	48A-48A		64	CA_48C-48C		
				66	CA_48A-48C	48C	4CC-62	65	CA_48C-66A-66A	66A	
				67	CA_48A-66A-66A	66A-66A, 48A-66A	4CC-59	66	CA_48C-66B		
				68	CA_48A-66B	66B	4CC-60	67	CA_48C-66C		
				69	CA_48A-66C	66C	4CC-61	68	CA_48D-66A	66A	
				70	CA_48C-66A	48C	4CC-65	69	CA_48E		
				71	CA_48C-71A	48C		70	CA_4A-48D	4A	
				72	CA_48D		4CC-68	71	CA_4A-4A-12B	4A	
				73	CA_4A-12A-30A	4A-30A		72	CA_4A-4A-5B	4A	
				74	CA_4A-12B	4A	4CC-71	73	CA_5A-30A-66A-66A	66A, 30A	
				75	CA_4A-48C	48C		74	CA_5A-48A-66A-66A	66A, 48A	
				76	CA_4A-4A-12A	4A-4A	4CC-38	75	CA_5A-48C-66A	66A	
				77	CA_4A-4A-13A	4A-4A		76	CA_5A-48D		
				78	CA_4A-4A-5A	4A-4A	4CC-39	77	CA_5A-5A-66A-66A	66A	
				79	CA_4A-4A-71A	4A-4A		78	CA_5A-5A-66B		
				80	CA_4A-5A-30A	4A-30A		79	CA_5A-5A-66C		
				81	CA_4A-5B	4A	4CC-72	80	CA_5A-7A-66A-66A	7A, 66A	
				82	CA_4A-7A-12A	4A-7A		81	CA_5A-7A-7A-66A	7A, 66A	
				83	CA_4A-7A-7A	7A-7A, 4A-7A	4CC-41	82	CA_5A-7C-66A	66A	
				84	CA_4A-7C	7C	4CC-42	83	CA_5B-66A-66A	66A	
				85	CA_5A-30A-66A	30A-66A	4CC-73	84	CA_5B-66B		
				86	CA_5A-48A-66A	48A-66A	4CC-74	85	CA_5B-66C		
				87	CA_5A-48C	48C	4CC-75	86	CA_7A-25A-25A-66A	7A, 66A, 25A	
				88	CA_5A-5A-66A	66A	4CC-77	87	CA_7A-7A-13A-66A	7A, 66A	
				89	CA_5A-66A-66A	66A-66A	4CC-77	88	CA_7A-7A-25A-25A	7A, 25A	
				90	CA_5A-66B	66B	4CC-78	89	CA_7A-7A-25A-66A	7A, 66A, 25A	
				91	CA_5A-66C	66C	4CC-79	90	CA_7A-7A-66A-66A	7A, 66A	
				92	CA_5A-7A-66A	7A-66A	4CC-80	91	CA_7C-13A-66A	66A	
				93	CA_5A-7A-7A	7A-7A	4CC-81	92	CA_7C-66A-66A	66A	
				94	CA_5A-7C	7C	4CC-82				
				95	CA_5B-30A	30A					
				96	CA_5B-66A	66A	4CC-83				
				97	CA_66A-66A-66A	66A-66A	4CC-9				
				98	CA_66A-66A-71A	66A-66A	4CC-50				
				99	CA_66A-66B	66B	4CC-8				
				100	CA_66A-66C	66C					
				101	CA_66C-71A	66C	4CC-29				



				102	CA_7A-12A-66A	7A-66A					
				103	CA_7A-13A-66A	7A-66A	4CC-87				
				104	CA_7A-25A-25A	7A-25A, 25A-25A	4CC-88				
				105	CA_7A-25A-66A	7A-66A, 7A-25A, 25A-66A	4CC-89				
				106	CA_7A-66A-66A	7A-66A, 66A-66A	4CC-90				
				107	CA_7A-7A-13A	7A-7A	4CC-87				
				108	CA_7A-7A-25A	7A-7A, 7A-25A	4CC-89				
				109	CA_7A-7A-66A	7A-7A, 7A-66A	4CC-90				
				110	CA_7C-13A	7C	4CC-91				
				111	CA_7C-66A	7C	4CC-92				

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 2/4/7/25/30/41/48/66 only. Uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

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

4X4 MIMO	Band
	LTE Band 2/4/7/25/30/41/48/66

LTE Carrier Aggregation Conducted Power (Uplink)

LTE Uplink CA	2CC Uplink Carrier Aggregation
Intra-band	
CA_5B	Ant 0
CA_7C	Ant 7
CA_66B	Ant 0
CA_66C	Ant 0
CA_41C	Ant 7
CA_48C	Ant 2

<Intra-band>

General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B5/7/66/41/48 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.
- v. LTE CA_66B test was covered by CA_66C; therefore, SAR was only assessed for CA_66C.



<Inter-band uplink carrier aggregation consideration>

Inter-band CA	Antenna Tx	Antenna Tx
CA_12A-30A	Ant 1+Ant 7	Ant 0+Ant 1
CA_12A-66A	Ant 1+Ant 0	Ant 0+Ant 1
CA_13A-66A	Ant 1+Ant 0	Ant 0+Ant 1
CA_14A-30A	Ant 1+Ant 7	Ant 0+Ant 1
CA_14A-66A	Ant 1+Ant 0	Ant 0+Ant 1
CA_2A-12A	Ant 0+Ant 1	Ant 1+Ant 0
CA_2A-13A	Ant 0+Ant 1	Ant 1+Ant 0
CA_2A-14A	Ant 0+Ant 1	Ant 1+Ant 0
CA_2A-30A	Ant 1+Ant 7	Ant 0+Ant 1
CA_2A-4A	Ant 0+Ant 1	Ant 1+Ant 0
CA_2A-5A	Ant 0+Ant 1	Ant 1+Ant 0
CA_2A-66A	Ant 0+Ant 1	Ant 1+Ant 0
CA_2A-7A	Ant 1+Ant 7	Ant 0+Ant 1
CA_4A-12A	Ant 0+Ant 1	Ant 1+Ant 0
CA_4A-13A	Ant 0+Ant 1	Ant 1+Ant 0
CA_4A-5A	Ant 0+Ant 1	Ant 1+Ant 0
CA_4A-7A	Ant 1+Ant 7	Ant 0+Ant 1
CA_5A-30A	Ant 1+Ant 7	Ant 0+Ant 1
CA_5A-66A	Ant 1+Ant 0	Ant 0+Ant 1
CA_5A-7A	Ant 1+Ant 7	Ant 0+Ant 1

General Note:

1. The single carrier of inter band CA uplink power level is the same as Non-CA standalone LTE power level.
2. The product implements Qualcomm Smart Transmit feature which controls the instantaneous transmitting power for WWAN transmitter to ensure the product in compliance with FCC RF exposure limit over a defined time window, for SAR (transmit frequency ≤ 6GHz). To control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement.
3. For LTE inter-band CA mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure between two LTE bands. Smart Transmit algorithm controls the total RF exposure base on LTE inter CA bands to not exceed FCC limit. In Part 1 Report, simultaneous transmission compliance was evaluated with other Radios (WLAN or BT) using standalone LTE SAR mode.

5G NR Output Power (Unit: dBm)

General Note:

1. 5G NR n2/n5/n7/n12/n25/n30/n66/n71/n41/n77/n78 is NSA mode.
2. 5G NR n2/n5/n7/n12/n13/n14/n25/n26/n30/n66/n70/n71/n38/n41/n48/n77/n78 is SA mode.
3. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-s QPSK and the reported SAR for the DFT-s QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
 - b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, for 16QAM/64QAM/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM/64QAM/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.
 - c. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel
 - d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
 - e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested
 - f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK /16QAM/64QAM/256QAM SAR testing are not required.
 - g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
4. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
5. 5G NR n41/n77 supports HPUE, HPUE power and SAR testing performed separately.
6. 5G NR n41/n77 HUPE with higher power, 5G NR n41/n77 HUPE SAR can represent power class 3 level SAR.
7. 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.
8. 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.
9. 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.
10. 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		



ENDC	Antenna Tx		Antenna Tx	
	LTE TX	NR TX	LTE TX	NR TX
DC_12A_n2A	ANT1	ANT0	ANT0	ANT1
DC_13A_n2A	ANT1	ANT0	ANT0	ANT1
DC_14A_n2A	ANT1	ANT0	ANT0	ANT1
DC_30A_n2A	ANT7	ANT1	ANT1	ANT0
DC_5A_n2A	ANT1	ANT0	ANT0	ANT1
DC_66A_n2A	ANT1	ANT0	ANT0	ANT1
DC_71A_n2A	ANT1	ANT0	ANT0	ANT1
DC_7A_n2A	ANT1	ANT0	ANT7	ANT1
DC_2A_n5A	ANT0	ANT1	ANT1	ANT0
DC_30A_n5A	ANT7	ANT1	ANT1	ANT0
DC_48A_n5A	ANT2	ANT0	ANT5/8/10	ANT1
DC_66A_n5A	ANT0	ANT1	ANT1	ANT0
DC_7A_n5A	ANT7	ANT1	ANT1	ANT0
DC_12A_n7A	ANT1	ANT7	ANT0	ANT1
DC_2A_n7A	ANT1	ANT7	ANT0	ANT1
DC_5A_n7A	ANT1	ANT7	ANT0	ANT1
DC_66A_n7A	ANT1	ANT7	ANT0	ANT1
DC_2A_n12A	ANT0	ANT1	ANT1	ANT0
DC_66A_n12A	ANT0	ANT1	ANT1	ANT0
DC_12A_n25A	ANT1	ANT0	ANT0	ANT1
DC_26A_n25A	ANT1	ANT0	ANT0	ANT1
DC_66A_n25A	ANT1	ANT0	ANT0	ANT1
DC_12A_n30A	ANT1	ANT7	ANT0	ANT1
DC_14A_n30A	ANT1	ANT7	ANT0	ANT1
DC_2A_n30A	ANT1	ANT7	ANT0	ANT1
DC_5A_n30A	ANT1	ANT7	ANT0	ANT1
DC_66A_n30A	ANT1	ANT7	ANT0	ANT1
DC_12A_n41A	ANT1	ANT7/9/6	ANT0	ANT1/9/6
DC_25A_n41A	ANT1	ANT7	ANT0	ANT1
DC_26A_n41A	ANT1	ANT7/9/6	ANT0	ANT1/9/6
DC_2A_n41A	ANT1	ANT7	ANT0	ANT1
DC_4A_n41A	ANT1	ANT7	ANT0	ANT1
DC_66A_n41A	ANT1	ANT7	ANT0	ANT1
DC_12A_n66A	ANT1	ANT0	ANT0	ANT1
DC_13A_n66A	ANT1	ANT0	ANT0	ANT1
DC_14A_n66A	ANT1	ANT0	ANT0	ANT1
DC_2A_n66A	ANT1	ANT0	ANT0	ANT1
DC_30A_n66A	ANT7	ANT1	ANT1	ANT0
DC_48A_n66A	ANT2	ANT0	ANT5/8/10	ANT1
DC_5A_n66A	ANT1	ANT0	ANT0	ANT1
DC_71A_n66A	ANT1	ANT0	ANT0	ANT1
DC_7A_n66A	ANT1	ANT0	ANT7	ANT1
DC_2A_n71A	ANT0	ANT1	ANT1	ANT0
DC_48A_n71A	ANT2	ANT0	ANT5/8/10	ANT1
DC_66A_n71A	ANT0	ANT1	ANT1	ANT0
DC_7A_n71A	ANT7	ANT1	ANT1	ANT0
DC_12A_n77A	ANT0	ANT2	ANT1	ANT5/8/10
DC_13A_n77A	ANT0	ANT2	ANT1	ANT5/8/10
DC_14A_n77A	ANT0	ANT2	ANT1	ANT5/8/10
DC_25A_n77A	ANT0	ANT2	ANT0	ANT5/8/10
DC_2A_n77A	ANT0	ANT2	ANT0	ANT5/8/10
DC_5A_n77A	ANT0	ANT2	ANT0	ANT5/8/10
DC_66A_n77A	ANT0	ANT2	ANT0	ANT5/8/10



DC_7A_n77A	ANT7	ANT2	ANT7	ANT5/8/10
DC_12A_n78A	ANT0	ANT2	ANT0	ANT5/8/10
DC_13A_n78A	ANT0	ANT2	ANT0	ANT5/8/10
DC_25A_n78A	ANT0	ANT2	ANT0	ANT5/8/10
DC_2A_n78A	ANT0	ANT2	ANT0	ANT5/8/10
DC_4A_n78A	ANT0	ANT2	ANT0	ANT5/8/10
DC_5A_n78A	ANT0	ANT2	ANT0	ANT5/8/10
DC_66A_n78A	ANT0	ANT2	ANT0	ANT5/8/10
DC_71A_n78A	ANT0	ANT2	ANT0	ANT5/8/10
DC_7A_n78A	ANT7	ANT2	ANT7	ANT5/8/10

<WLAN Conducted Power>

General Note:

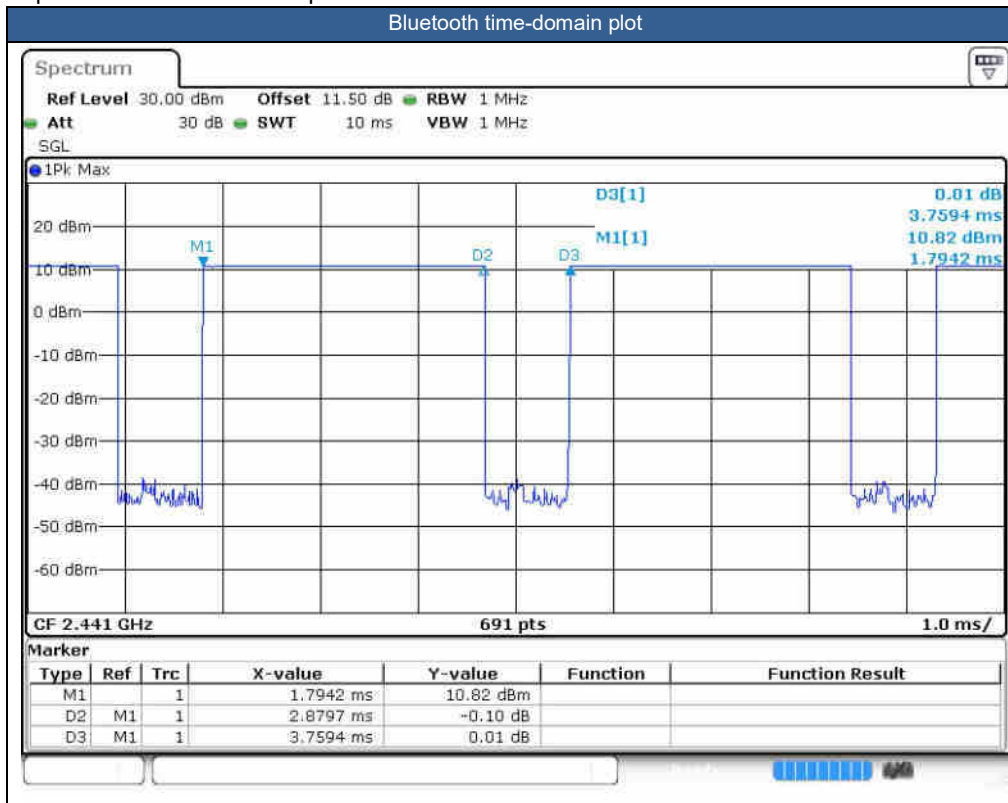
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
 - a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
 - b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
 - c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.



<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle are 76.6% as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation





15. Antenna Location

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

16. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of BT/WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - e. For TDD LTE SAR measurement of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = Measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
 - f. For TDD LTE SAR measurement of power class 2, the duty cycle 1:2.33 (42.9 %) was used perform testing and considering the theoretical duty cycle of 43.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 42.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $43.3\%/42.9\% = 1.009$ is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8 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 the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
5. For WLAN/BT when transmit simultaneous with WWAN, power reduction will be activated to head. For WLAN/BT when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn and Handheld.
6. There are two samples. The difference between them could be referred to the XT2315-1, XT2315-4, XT2315-5_Operational Description of Product Equality Declaration which is exhibited separately. According to the difference, we choose sample 1 for full testing and sample 2 for worst case verification.
7. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
8. 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.
9. 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.
10. 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.
11. 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.
12. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
 - a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM1900, WCDMA Band II/IV, LTE Band 2/4/7/25/30/38/41/48/66, 5G NR n2/n7/n25/n30/n66 /n70/n41/n48/n77/n78, WLAN2.4/5.2/5.8GHz, therefore product specific 10g SAR is necessary.
 - b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.



- c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
13. The following table “n/a” in the result means the SAR cube is too small to be found.

GSM Note:

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

WCDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ 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 $> \text{not } \frac{1}{2}$ 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 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B2 / B4 / B5 / B17 / B38 SAR test was covered by B25 / B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is \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 n5 /n7/n12/n26/n41/n66/n71/n38/n41/n77 the maximum bandwidth does not support three non-overlapping channels, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WLAN/Bluetooth Note:

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

DSI status description:

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

This WWAN bands enabled with Qualcomm Smart Transmit feature which located at chapter 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	DSI
Head SAR	DSI 2
Body worn SAR	DSI 3
Hotspot SAR	DSI 7
Extremity(Handheld) SAR	DSI 6
Sensor off SAR	DSI 4



16.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750 MHz																					
01	LTE Band 71	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	133297	680.5	1	22.84	23.50	1.164	-	-	-0.12	0.497	0.579
	LTE Band 71	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	133297	680.5	1	22.84	23.50	1.164	-	-	0.1	0.485	0.565
	LTE Band 71	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	133297	680.5	1	22.84	23.50	1.164	-	-	0.02	0.272	0.317
	LTE Band 71	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	133297	680.5	1	22.84	23.50	1.164	-	-	-0.12	0.253	0.295
	LTE Band 71	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI2	133297	680.5	1	22.76	23.50	1.186	-	-	0.05	0.485	0.575
	LTE Band 71	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI2	133297	680.5	1	22.76	23.50	1.186	-	-	0.14	0.461	0.547
	LTE Band 71	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI2	133297	680.5	1	22.76	23.50	1.186	-	-	-0.13	0.267	0.317
	LTE Band 71	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI2	133297	680.5	1	22.76	23.50	1.186	-	-	0.03	0.245	0.291
	LTE Band 71	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	133297	680.5	1	23.12	24.00	1.225	-	-	0.04	0.072	0.088
	LTE Band 71	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI2	133297	680.5	1	23.12	24.00	1.225	-	-	0.02	0.010	0.012
	LTE Band 71	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	133297	680.5	1	23.12	24.00	1.225	-	-	0.03	0.069	0.084
	LTE Band 71	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI2	133297	680.5	1	23.12	24.00	1.225	-	-	0.06	0.009	0.011
	LTE Band 71	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI2	133297	680.5	1	23.05	24.00	1.245	-	-	0.12	0.063	0.078
	LTE Band 71	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI2	133297	680.5	1	23.05	24.00	1.245	-	-	-0.11	0.009	0.011
	LTE Band 71	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI2	133297	680.5	1	23.05	24.00	1.245	-	-	-0.02	0.054	0.067
	LTE Band 71	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI2	133297	680.5	1	23.05	24.00	1.245	-	-	-0.14	0.008	0.010
02	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	23095	707.5	1	23.00	23.50	1.122	-	-	-0.04	0.477	0.535
	LTE Band 12	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	23095	707.5	1	23.00	23.50	1.122	-	-	-0.06	0.445	0.499
	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	23095	707.5	1	23.00	23.50	1.122	-	-	0.06	0.290	0.325
	LTE Band 12	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	23095	707.5	1	23.00	23.50	1.122	-	-	-0.09	0.251	0.282
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	DSI2	23095	707.5	1	22.94	23.50	1.138	-	-	0.06	0.453	0.515
	LTE Band 12	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	DSI2	23095	707.5	1	22.94	23.50	1.138	-	-	0.03	0.410	0.466
	LTE Band 12	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	DSI2	23095	707.5	1	22.94	23.50	1.138	-	-	-0.13	0.254	0.289
	LTE Band 12	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	DSI2	23095	707.5	1	22.94	23.50	1.138	-	-	0.03	0.215	0.245
	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	23095	707.5	1	22.95	24.00	1.274	-	-	0.12	0.077	0.098
	LTE Band 12	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI2	23095	707.5	1	22.95	24.00	1.274	-	-	0.1	0.010	0.012
	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	23095	707.5	1	22.95	24.00	1.274	-	-	-0.11	0.069	0.088
	LTE Band 12	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI2	23095	707.5	1	22.95	24.00	1.274	-	-	-0.03	0.009	0.011
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	DSI2	23095	707.5	1	22.91	24.00	1.285	-	-	-0.04	0.068	0.087
	LTE Band 12	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	DSI2	23095	707.5	1	22.91	24.00	1.285	-	-	0.07	0.008	0.011
	LTE Band 12	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	DSI2	23095	707.5	1	22.91	24.00	1.285	-	-	-0.12	0.057	0.073
	LTE Band 12	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	DSI2	23095	707.5	1	22.91	24.00	1.285	-	-	0.04	0.007	0.010
03	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	23230	782	1	20.96	22.10	1.300	-	-	0.01	0.416	0.541
	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	23230	782	1	20.96	22.10	1.300	-	-	0.16	0.371	0.482
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	23230	782	1	20.96	22.10	1.300	-	-	0.08	0.320	0.416
	LTE Band 13	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	23230	782	1	20.96	22.10	1.300	-	-	-0.06	0.263	0.342
	LTE Band 13	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	DSI2	23230	782	1	20.87	22.10	1.327	-	-	-0.07	0.389	0.516
	LTE Band 13	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	DSI2	23230	782	1	20.87	22.10	1.327	-	-	-0.1	0.350	0.465
	LTE Band 13	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	DSI2	23230	782	1	20.87	22.10	1.327	-	-	0.01	0.321	0.426
	LTE Band 13	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	DSI2	23230	782	1	20.87	22.10	1.327	-	-	0.07	0.267	0.354
	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	23230	782	1	22.81	24.00	1.315	-	-	-0.01	0.075	0.099
	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI2	23230	782	1	22.81	24.00	1.315	-	-	0.14	0.010	0.013
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	23230	782	1	22.81	24.00	1.315	-	-	0.14	0.065	0.085
	LTE Band 13	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI2	23230	782	1	22.81	24.00	1.315	-	-	0.03	0.009	0.012
	LTE Band 13	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	DSI2	23230	782	1	22.76	24.00	1.330	-	-	0.09	0.061	0.081
	LTE Band 13	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	DSI2	23230	782	1	22.76	24.00	1.330	-	-	-0.1	0.009	0.013
	LTE Band 13	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	DSI2	23230	782	1	22.76	24.00	1.330	-	-	-0.04	0.050	0.067
	LTE Band 13	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	DSI2	23230	782	1	22.76	24.00	1.330	-	-	-0.08	0.008	0.011
04	LTE Band 14	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	23330	793	1	21.70	22.70	1.259	-	-	0.08	0.475	0.598
	LTE Band 14	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	23330	793	1	21.70	22.70	1.259	-	-	0.16	0.454	0.572



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 14	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	23330	793	1	21.70	22.70	1.259	-	-	0.1	0.329	0.414
	LTE Band 14	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	23330	793	1	21.70	22.70	1.259	-	-	-0.13	0.283	0.356
	LTE Band 14	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	DSI2	23330	793	1	21.69	22.70	1.262	-	-	0.08	0.464	0.585
	LTE Band 14	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	DSI2	23330	793	1	21.69	22.70	1.262	-	-	-0.14	0.452	0.570
	LTE Band 14	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	DSI2	23330	793	1	21.69	22.70	1.262	-	-	-0.08	0.303	0.382
	LTE Band 14	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	DSI2	23330	793	1	21.69	22.70	1.262	-	-	0.13	0.270	0.341
	LTE Band 14	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	23330	793	1	22.77	24.00	1.327	-	-	-0.06	0.068	0.090
	LTE Band 14	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI2	23330	793	1	22.77	24.00	1.327	-	-	0.04	0.010	0.014
	LTE Band 14	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	23330	793	1	22.77	24.00	1.327	-	-	0.11	0.060	0.080
	LTE Band 14	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI2	23330	793	1	22.77	24.00	1.327	-	-	0.01	0.009	0.013
	LTE Band 14	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	DSI2	23330	793	1	22.75	24.00	1.334	-	-	0.01	0.060	0.080
	LTE Band 14	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	DSI2	23330	793	1	22.75	24.00	1.334	-	-	-0.08	0.009	0.013
	LTE Band 14	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	DSI2	23330	793	1	22.75	24.00	1.334	-	-	-0.11	0.053	0.071
	LTE Band 14	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	DSI2	23330	793	1	22.75	24.00	1.334	-	-	-0.06	0.008	0.011
05	FR1 n71	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	136100	680.5	1	22.20	23.00	1.202	-	-	0.18	0.481	0.578
	FR1 n71	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	136100	680.5	1	22.20	23.00	1.202	-	-	-0.12	0.408	0.491
	FR1 n71	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	136100	680.5	1	22.20	23.00	1.202	-	-	-0.13	0.222	0.267
	FR1 n71	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	136100	680.5	1	22.20	23.00	1.202	-	-	0.01	0.211	0.254
	FR1 n71	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 1	DSI2	136100	680.5	1	22.15	23.00	1.216	-	-	0.04	0.470	0.572
	FR1 n71	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 1	DSI2	136100	680.5	1	22.15	23.00	1.216	-	-	-0.1	0.391	0.476
	FR1 n71	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 1	DSI2	136100	680.5	1	22.15	23.00	1.216	-	-	0.09	0.216	0.263
	FR1 n71	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 1	DSI2	136100	680.5	1	22.15	23.00	1.216	-	-	-0.13	0.205	0.249
	FR1 n71	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI2	136100	680.5	1	23.02	24.00	1.253	-	-	0.02	0.062	0.078
	FR1 n71	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI2	136100	680.5	1	23.02	24.00	1.253	-	-	-0.18	0.009	0.012
	FR1 n71	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	136100	680.5	1	23.02	24.00	1.253	-	-	0.04	0.043	0.054
	FR1 n71	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI2	136100	680.5	1	23.02	24.00	1.253	-	-	0.06	0.008	0.011
	FR1 n71	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 0	DSI2	136100	680.5	1	22.91	24.00	1.285	-	-	0.01	0.058	0.075
	FR1 n71	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 0	DSI2	136100	680.5	1	22.91	24.00	1.285	-	-	0.15	0.008	0.011
	FR1 n71	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 0	DSI2	136100	680.5	1	22.91	24.00	1.285	-	-	-0.14	0.040	0.051
	FR1 n71	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 0	DSI2	136100	680.5	1	22.91	24.00	1.285	-	-	-0.08	0.007	0.009
06	FR1 n12	15M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	141500	707.5	1	22.36	23.00	1.159	-	-	0.01	0.545	0.632
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	141500	707.5	1	22.36	23.00	1.159	-	-	-0.09	0.523	0.606
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	141500	707.5	1	22.36	23.00	1.159	-	-	0.03	0.332	0.385
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	141500	707.5	1	22.36	23.00	1.159	-	-	-0.01	0.304	0.352
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Cheek	0mm	Ant 1	DSI2	141500	707.5	1	22.32	23.00	1.169	-	-	-0.02	0.520	0.608
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Tilted	0mm	Ant 1	DSI2	141500	707.5	1	22.32	23.00	1.169	-	-	-0.08	0.504	0.589
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Cheek	0mm	Ant 1	DSI2	141500	707.5	1	22.32	23.00	1.169	-	-	-0.14	0.291	0.340
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Tilted	0mm	Ant 1	DSI2	141500	707.5	1	22.32	23.00	1.169	-	-	0.02	0.266	0.311
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI2	141500	707.5	1	22.83	24.00	1.309	-	-	0.04	0.072	0.094
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI2	141500	707.5	1	22.83	24.00	1.309	-	-	0.01	0.019	0.025
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	141500	707.5	1	22.83	24.00	1.309	-	-	-0.04	0.053	0.069
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI2	141500	707.5	1	22.83	24.00	1.309	-	-	0.09	0.018	0.024
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Cheek	0mm	Ant 0	DSI2	141500	707.5	1	22.76	24.00	1.330	-	-	0.06	0.068	0.090
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Tilted	0mm	Ant 0	DSI2	141500	707.5	1	22.76	24.00	1.330	-	-	-0.02	0.018	0.024
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Cheek	0mm	Ant 0	DSI2	141500	707.5	1	22.76	24.00	1.330	-	-	0.07	0.050	0.067
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Tilted	0mm	Ant 0	DSI2	141500	707.5	1	22.76	24.00	1.330	-	-	0.03	0.017	0.022
07	FR1 n13	10M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	156400	782	1	23.02	24.00	1.253	-	-	0.05	0.183	0.229
	FR1 n13	10M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	156400	782	1	23.02	24.00	1.253	-	-	0.02	0.170	0.213
	FR1 n13	10M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	156400	782	1	23.02	24.00	1.253	-	-	0.16	0.122	0.153
	FR1 n13	10M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	156400	782	1	23.02	24.00	1.253	-	-	0.12	0.106	0.133
	FR1 n13	10M	QPSK	25	14	DFT-15	Right Cheek	0mm	Ant 1	DSI2	156400	782	1	22.64	24.00	1.368	-	-	0.05	0.165	0.226
	FR1 n13	10M	QPSK	25	14	DFT-15	Right Tilted	0mm	Ant 1	DSI2	156400	782	1	22.64	24.00	1.368	-	-	0.03	0.155	0.212
	FR1 n13	10M	QPSK	25	14	DFT-15	Left Cheek	0mm	Ant 1	DSI2	156400	782	1	22.64	24.00	1.368	-	-	0.07	0.105	0.144
	FR1 n13	10M	QPSK	25	14	DFT-15	Left Tilted	0mm	Ant 1	DSI2	156400	782	1	22.64	24.00	1.368	-	-	-0.16	0.090	0.123
	FR1 n13	10M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI2	156400	782	1	22.82	24.00	1.312	-	-	0.04	0.064	0.084
	FR1 n13	10M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI2	156400	782	1	22.82	24.00	1.312	-	-	-0.11	0.011	0.015



FCC SAR Test Report

Report No. : FA2N2910

	FR1 n13	10M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	156400	782	1	22.82	24.00	1.312	-	-	-0.08	0.045	0.059
	FR1 n13	10M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI2	156400	782	1	22.82	24.00	1.312	-	-	0.14	0.010	0.014
	FR1 n13	10M	QPSK	25	14	DFT-15	Right Cheek	0mm	Ant 0	DSI2	156400	782	1	22.57	24.00	1.390	-	-	0.03	0.060	0.083
	FR1 n13	10M	QPSK	25	14	DFT-15	Right Tilted	0mm	Ant 0	DSI2	156400	782	1	22.57	24.00	1.390	-	-	-0.16	0.010	0.014
	FR1 n13	10M	QPSK	25	14	DFT-15	Left Cheek	0mm	Ant 0	DSI2	156400	782	1	22.57	24.00	1.390	-	-	-0.01	0.042	0.058
	FR1 n13	10M	QPSK	25	14	DFT-15	Left Tilted	0mm	Ant 0	DSI2	156400	782	1	22.57	24.00	1.390	-	-	0.04	0.009	0.012
08	FR1 n14	10M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	158600	793	1	21.69	22.50	1.205	-	-	0.11	0.508	0.612
	FR1 n14	10M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	158600	793	1	21.69	22.50	1.205	-	-	0.06	0.470	0.566
	FR1 n14	10M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	158600	793	1	21.69	22.50	1.205	-	-	-0.07	0.321	0.387
	FR1 n14	10M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	158600	793	1	21.69	22.50	1.205	-	-	0.07	0.289	0.348
	FR1 n14	10M	QPSK	25	14	DFT-15	Right Cheek	0mm	Ant 1	DSI2	158600	793	1	21.56	22.50	1.242	-	-	0.07	0.488	0.606
	FR1 n14	10M	QPSK	25	14	DFT-15	Right Tilted	0mm	Ant 1	DSI2	158600	793	1	21.56	22.50	1.242	-	-	0.09	0.450	0.559
	FR1 n14	10M	QPSK	25	14	DFT-15	Left Cheek	0mm	Ant 1	DSI2	158600	793	1	21.56	22.50	1.242	-	-	0.14	0.313	0.389
	FR1 n14	10M	QPSK	25	14	DFT-15	Left Tilted	0mm	Ant 1	DSI2	158600	793	1	21.56	22.50	1.242	-	-	0.14	0.278	0.345
	FR1 n14	10M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI2	158600	793	1	22.76	24.00	1.330	-	-	0.02	0.068	0.090
	FR1 n14	10M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI2	158600	793	1	22.76	24.00	1.330	-	-	-0.14	0.015	0.020
	FR1 n14	10M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	158600	793	1	22.76	24.00	1.330	-	-	0.04	0.049	0.065
	FR1 n14	10M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI2	158600	793	1	22.76	24.00	1.330	-	-	0.16	0.014	0.019
	FR1 n14	10M	QPSK	25	14	DFT-15	Right Cheek	0mm	Ant 0	DSI2	158600	793	1	22.63	24.00	1.371	-	-	-0.04	0.064	0.087
	FR1 n14	10M	QPSK	25	14	DFT-15	Right Tilted	0mm	Ant 0	DSI2	158600	793	1	22.63	24.00	1.371	-	-	0.01	0.014	0.019
	FR1 n14	10M	QPSK	25	14	DFT-15	Left Cheek	0mm	Ant 0	DSI2	158600	793	1	22.63	24.00	1.371	-	-	-0.05	0.046	0.062
	FR1 n14	10M	QPSK	25	14	DFT-15	Left Tilted	0mm	Ant 0	DSI2	158600	793	1	22.63	24.00	1.371	-	-	0.016	0.012	0.017
835 MHz																					
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 0	DSI2	251	848.8	1	28.99	29.50	1.125	-	-	-0.07	0.040	0.045
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Tilted	0mm	Ant 0	DSI2	251	848.8	1	28.99	29.50	1.125	-	-	0.05	0.009	0.010
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant 0	DSI2	251	848.8	1	28.99	29.50	1.125	-	-	0.04	0.012	0.013
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Tilted	0mm	Ant 0	DSI2	251	848.8	1	28.99	29.50	1.125	-	-	-0.06	0.002	0.003
09	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 0	DSI2	128	824.2	1	28.61	29.50	1.227	-	-	0.07	0.047	0.057
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 0	DSI2	189	836.4	1	28.51	29.50	1.256	-	-	0.05	0.042	0.053
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSI2	4182	836.4	1	21.14	21.70	1.138	-	-	0.07	0.464	0.528
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	4182	836.4	1	21.14	21.70	1.138	-	-	0.03	0.418	0.476
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DSI2	4182	836.4	1	21.14	21.70	1.138	-	-	0.1	0.333	0.379
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	DSI2	4182	836.4	1	21.14	21.70	1.138	-	-	-0.02	0.281	0.320
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSI2	4132	826.4	1	20.85	21.70	1.216	-	-	0.12	0.421	0.512
10	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSI2	4233	846.6	1	20.97	21.70	1.183	-	-	-0.14	0.499	0.590
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI2	4182	836.4	1	23.08	24.00	1.236	-	-	0.1	0.062	0.077
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSI2	4182	836.4	1	23.08	24.00	1.236	-	-	0.05	0.010	0.012
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI2	4182	836.4	1	23.08	24.00	1.236	-	-	0.06	0.052	0.064
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSI2	4182	836.4	1	23.08	24.00	1.236	-	-	-0.11	0.010	0.012
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI2	4132	826.4	1	23.05	24.00	1.245	-	-	0.02	0.079	0.098
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI2	4233	846.6	1	22.91	24.00	1.285	-	-	0.04	0.056	0.072
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	26865	831.5	1	21.07	22.00	1.239	-	-	-0.13	0.464	0.575
	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	26865	831.5	1	21.07	22.00	1.239	-	-	-0.09	0.445	0.551
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	26865	831.5	1	21.07	22.00	1.239	-	-	0.15	0.335	0.415
	LTE Band 26	15M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	26865	831.5	1	21.07	22.00	1.239	-	-	-0.11	0.284	0.352
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	26765	821.5	1	21.05	22.00	1.245	-	-	0.14	0.396	0.493
11	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	26965	841.5	1	21.05	22.00	1.245	-	-	0.05	0.496	0.617
	LTE Band 26	15M	QPSK	36	0	-	Right Cheek	0mm	Ant 1	DSI2	26865	831.5	1	20.98	22.00	1.265	-	-	0.03	0.428	0.541
	LTE Band 26	15M	QPSK	36	0	-	Right Tilted	0mm	Ant 1	DSI2	26865	831.5	1	20.98	22.00	1.265	-	-	0.07	0.420	0.531
	LTE Band 26	15M	QPSK	36	0	-	Left Cheek	0mm	Ant 1	DSI2	26865	831.5	1	20.98	22.00	1.265	-	-	0.1	0.313	0.396
	LTE Band 26	15M	QPSK	36	0	-	Left Tilted	0mm	Ant 1	DSI2	26865	831.5	1	20.98	22.00	1.265	-	-	0.09	0.269	0.340
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	26865	831.5	1	23.06	24.00	1.242	-	-	0.09	0.089	0.111
	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI2	26865	831.5	1	23.06	24.00	1.242	-	-	0.12	0.046	0.057
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	26865	831.5	1	23.06	24.00	1.242	-	-	0.09	0.072	0.089
	LTE Band 26	15M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI2	26865	831.5	1	23.06	24.00	1.242	-	-	-0.03	0.045	0.056
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	26765	821.5	1	22.95	24.00	1.274	-	-	0.12	0.100	0.127



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 5B	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	20450+20476	829+831.6	1	22.96	24.00	1.271	-	-	0.12	0.083	0.105
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	26965	841.5	1	22.92	24.00	1.282	-	-	-0.12	0.066	0.085
	LTE Band 26	15M	QPSK	36	0	-	Right Cheek	0mm	Ant 0	DSI2	26865	831.5	1	23.01	24.00	1.256	-	-	0.12	0.070	0.088
	LTE Band 26	15M	QPSK	36	0	-	Right Tilted	0mm	Ant 0	DSI2	26865	831.5	1	23.01	24.00	1.256	-	-	0.02	0.037	0.046
	LTE Band 26	15M	QPSK	36	0	-	Left Cheek	0mm	Ant 0	DSI2	26865	831.5	1	23.01	24.00	1.256	-	-	-0.09	0.056	0.070
	LTE Band 26	15M	QPSK	36	0	-	Left Tilted	0mm	Ant 0	DSI2	26865	831.5	1	23.01	24.00	1.256	-	-	0.03	0.031	0.039
12	FR1 n26	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	166300	831.5	1	21.19	22.00	1.205	-	-	0.03	0.526	0.634
	FR1 n26	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	166300	831.5	2	21.19	22.00	1.205	-	-	0.02	0.493	0.594
	FR1 n26	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	166300	831.5	1	21.19	22.00	1.205	-	-	-0.06	0.508	0.612
	FR1 n26	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	166300	831.5	1	21.19	22.00	1.205	-	-	-0.03	0.355	0.428
	FR1 n26	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	166300	831.5	1	21.19	22.00	1.205	-	-	0.03	0.326	0.393
	FR1 n26	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 1	DSI2	166300	831.5	1	21.15	22.00	1.216	-	-	0.07	0.516	0.628
	FR1 n26	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 1	DSI2	166300	831.5	1	21.15	22.00	1.216	-	-	0.08	0.482	0.586
	FR1 n26	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 1	DSI2	166300	831.5	1	21.15	22.00	1.216	-	-	-0.13	0.336	0.409
	FR1 n26	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 1	DSI2	166300	831.5	1	21.15	22.00	1.216	-	-	-0.08	0.310	0.377
	FR1 n26	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI2	166300	831.5	1	23.19	24.00	1.205	-	-	-0.15	0.046	0.055
	FR1 n26	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI2	166300	831.5	1	23.19	24.00	1.205	-	-	0.03	0.015	0.018
	FR1 n26	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	166300	831.5	1	23.19	24.00	1.205	-	-	0.08	0.023	0.028
	FR1 n26	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI2	166300	831.5	1	23.19	24.00	1.205	-	-	-0.11	0.014	0.017
	FR1 n26	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 0	DSI2	166300	831.5	1	23.10	24.00	1.230	-	-	-0.11	0.031	0.038
	FR1 n26	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 0	DSI2	166300	831.5	1	23.10	24.00	1.230	-	-	0.06	0.014	0.017
	FR1 n26	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 0	DSI2	166300	831.5	1	23.10	24.00	1.230	-	-	-0.14	0.022	0.027
	FR1 n26	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 0	DSI2	166300	831.5	1	23.10	24.00	1.230	-	-	0.07	0.014	0.017
1750 MHz																					
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSI2	1413	1732.6	1	14.69	15.50	1.205	-	-	0.12	0.318	0.383
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	1413	1732.6	1	14.69	15.50	1.205	-	-	-0.05	0.402	0.484
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DSI2	1413	1732.6	1	14.69	15.50	1.205	-	-	0.05	0.237	0.286
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	DSI2	1413	1732.6	1	14.69	15.50	1.205	-	-	-0.03	0.292	0.352
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	1312	1712.4	1	14.14	15.50	1.368	-	-	-0.03	0.357	0.488
13	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	1513	1752.6	1	14.28	15.50	1.324	-	-	0.01	0.443	0.587
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI2	1413	1732.6	1	23.82	24.00	1.042	-	-	0.07	0.062	0.065
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSI2	1413	1732.6	1	23.82	24.00	1.042	-	-	0.11	0.012	0.013
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI2	1413	1732.6	1	23.82	24.00	1.042	-	-	-0.03	0.059	0.061
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSI2	1413	1732.6	1	23.82	24.00	1.042	-	-	-0.04	0.014	0.014
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI2	1312	1712.4	1	23.27	24.00	1.183	-	-	0.09	0.066	0.078
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI2	1513	1752.6	1	23.67	24.00	1.079	-	-	0.06	0.090	0.097
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	132322	1745	1	14.68	15.80	1.294	-	-	0.04	0.304	0.393
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	132322	1745	1	14.68	15.80	1.294	-	-	0.05	0.336	0.435
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	132322	1745	1	14.68	15.80	1.294	-	-	0.06	0.279	0.361
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	132322	1745	1	14.68	15.80	1.294	-	-	-0.02	0.280	0.362
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	132072	1720	1	14.61	15.80	1.315	-	-	0.1	0.308	0.405
14	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	132572	1770	1	14.39	15.80	1.384	-	-	0.1	0.429	0.594
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI2	132322	1745	1	14.65	15.80	1.303	-	-	0.15	0.243	0.317
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI2	132322	1745	1	14.65	15.80	1.303	-	-	-0.01	0.281	0.366
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI2	132322	1745	1	14.65	15.80	1.303	-	-	0.03	0.223	0.291
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI2	132322	1745	1	14.65	15.80	1.303	-	-	0.16	0.224	0.292
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	132322	1745	1	23.70	24.00	1.072	-	-	-0.06	0.069	0.074
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI2	132322	1745	1	23.70	24.00	1.072	-	-	-0.05	0.045	0.048
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	132322	1745	1	23.70	24.00	1.072	-	-	0.01	0.057	0.061
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI2	132322	1745	1	23.70	24.00	1.072	-	-	0.12	0.046	0.049
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	132072	1720	1	23.52	24.00	1.117	-	-	0.13	0.070	0.078
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	132572	1770	1	23.66	24.00	1.081	-	-	0.13	0.103	0.111
	LTE Band 66C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	132572+132374	1770+1750.2	1	23.46	24.00	1.132	-	-	0.05	0.089	0.101
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI2	132322	1745	1	23.66	24.00	1.081	-	-	0.13	0.054	0.058
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI2	132322	1745	1	23.66	24.00	1.081	-	-	0.02	0.010	0.011



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI2	132322	1745	1	23.66	24.00	1.081	-	-	0.16	0.046	0.050
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI2	132322	1745	1	23.66	24.00	1.081	-	-	0.03	0.009	0.009
15	FR1 n70	15M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	340500	1702.5	1	15.98	17.00	1.265	-	-	0.05	0.336	0.425
	FR1 n70	15M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	340500	1702.5	1	15.98	17.00	1.265	-	-	0.12	0.472	0.597
	FR1 n70	15M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	340500	1702.5	1	15.98	17.00	1.265	-	-	0.07	0.222	0.281
	FR1 n70	15M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	340500	1702.5	1	15.98	17.00	1.265	-	-	0.02	0.292	0.369
	FR1 n70	15M	QPSK	36	22	DFT-15	Right Cheek	0mm	Ant 1	DSI2	340500	1702.5	1	15.88	17.00	1.294	-	-	-0.05	0.317	0.410
	FR1 n70	15M	QPSK	36	22	DFT-15	Right Tilted	0mm	Ant 1	DSI2	340500	1702.5	1	15.88	17.00	1.294	-	-	0.07	0.426	0.551
	FR1 n70	15M	QPSK	36	22	DFT-15	Left Cheek	0mm	Ant 1	DSI2	340500	1702.5	1	15.88	17.00	1.294	-	-	0.01	0.205	0.265
	FR1 n70	15M	QPSK	36	22	DFT-15	Left Tilted	0mm	Ant 1	DSI2	340500	1702.5	1	15.88	17.00	1.294	-	-	0.1	0.280	0.362
	FR1 n70	15M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI2	340500	1702.5	1	23.52	24.00	1.117	-	-	-0.06	0.066	0.074
	FR1 n70	15M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI2	340500	1702.5	1	23.52	24.00	1.117	-	-	0.06	0.015	0.017
	FR1 n70	15M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	340500	1702.5	1	23.52	24.00	1.117	-	-	-0.12	0.058	0.065
	FR1 n70	15M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI2	340500	1702.5	1	23.52	24.00	1.117	-	-	0.01	0.011	0.013
	FR1 n70	15M	QPSK	36	22	DFT-15	Right Cheek	0mm	Ant 0	DSI2	340500	1702.5	1	23.33	24.00	1.167	-	-	0.04	0.061	0.071
	FR1 n70	15M	QPSK	36	22	DFT-15	Right Tilted	0mm	Ant 0	DSI2	340500	1702.5	1	23.33	24.00	1.167	-	-	-0.02	0.014	0.017
FR1 n70	15M	QPSK	36	22	DFT-15	Left Cheek	0mm	Ant 0	DSI2	340500	1702.5	1	23.33	24.00	1.167	-	-	0.01	0.053	0.062	
FR1 n70	15M	QPSK	36	22	DFT-15	Left Tilted	0mm	Ant 0	DSI2	340500	1702.5	1	23.33	24.00	1.167	-	-	0.03	0.011	0.013	
16	FR1 n66	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	349000	1745	1	15.95	17.00	1.274	-	-	0.06	0.302	0.385
	FR1 n66	40M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	349000	1745	1	15.95	17.00	1.274	-	-	0.12	0.462	0.588
	FR1 n66	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	349000	1745	1	15.95	17.00	1.274	-	-	0.11	0.198	0.252
	FR1 n66	40M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	349000	1745	1	15.95	17.00	1.274	-	-	-0.16	0.267	0.340
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 1	DSI2	349000	1745	1	15.86	17.00	1.300	-	-	-0.03	0.307	0.399
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 1	DSI2	349000	1745	1	15.86	17.00	1.300	-	-	0.14	0.359	0.467
	FR1 n66	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 1	DSI2	349000	1745	1	15.86	17.00	1.300	-	-	0.13	0.197	0.256
	FR1 n66	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 1	DSI2	349000	1745	1	15.86	17.00	1.300	-	-	0.07	0.265	0.345
	FR1 n66	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI2	349000	1745	1	23.54	24.00	1.112	-	-	0.15	0.053	0.059
	FR1 n66	40M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI2	349000	1745	1	23.54	24.00	1.112	-	-	-0.01	0.044	0.049
	FR1 n66	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	349000	1745	1	23.54	24.00	1.112	-	-	0.13	0.049	0.054
	FR1 n66	40M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI2	349000	1745	1	23.54	24.00	1.112	-	-	0.05	0.025	0.028
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 0	DSI2	349000	1745	1	23.42	24.00	1.143	-	-	-0.03	0.047	0.054
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 0	DSI2	349000	1745	1	23.42	24.00	1.143	-	-	0.07	0.040	0.046
FR1 n66	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 0	DSI2	349000	1745	1	23.42	24.00	1.143	-	-	-0.16	0.043	0.049	
FR1 n66	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 0	DSI2	349000	1745	1	23.42	24.00	1.143	-	-	-0.04	0.021	0.024	
1900 MHz																					
17	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 0	DSI2	661	1880	1	25.32	27.00	1.472	-	-	0.05	0.010	0.015
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Tilted	0mm	Ant 0	DSI2	661	1880	1	25.32	27.00	1.472	-	-	-0.11	0.003	0.004
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant 0	DSI2	661	1880	1	25.32	27.00	1.472	-	-	0.13	0.024	0.035
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Tilted	0mm	Ant 0	DSI2	661	1880	1	25.32	27.00	1.472	-	-	-0.04	0.009	0.013
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant 0	DSI2	512	1850.2	1	25.11	27.00	1.545	-	-	0.06	0.018	0.028
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant 0	DSI2	810	1909.8	1	25.31	27.00	1.476	-	-	-0.12	0.022	0.032
18	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSI2	9400	1880	1	16.21	17.00	1.199	-	-	0.06	0.283	0.339
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	9400	1880	1	16.21	17.00	1.199	-	-	-0.02	0.421	0.505
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DSI2	9400	1880	1	16.21	17.00	1.199	-	-	-0.02	0.253	0.303
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	DSI2	9400	1880	1	16.21	17.00	1.199	-	-	-0.14	0.301	0.361
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	9262	1852.4	1	15.98	17.00	1.265	-	-	-0.11	0.398	0.503
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	9538	1907.6	1	15.79	17.00	1.321	-	-	0.05	0.477	0.630
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	9538	1907.6	2	15.79	17.00	1.321	-	-	0.05	0.403	0.532
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI2	9400	1880	1	23.64	24.00	1.086	-	-	0.12	0.054	0.059
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSI2	9400	1880	1	23.64	24.00	1.086	-	-	0.02	0.010	0.011
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI2	9400	1880	1	23.64	24.00	1.086	-	-	0.1	0.079	0.086
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSI2	9400	1880	1	23.64	24.00	1.086	-	-	-0.11	0.014	0.015
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI2	9262	1852.4	1	23.27	24.00	1.183	-	-	0.06	0.072	0.085
WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI2	9538	1907.6	1	23.41	24.00	1.146	-	-	0.01	0.059	0.068	
LTE Band 25	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	26340	1880	1	16.38	17.50	1.294	-	-	-0.08	0.247	0.320	
LTE Band 25	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	26340	1880	1	16.38	17.50	1.294	-	-	-0.09	0.289	0.374	



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 25	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	26340	1880	1	16.38	17.50	1.294	-	-	0.11	0.173	0.224
	LTE Band 25	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	26340	1880	1	16.38	17.50	1.294	-	-	0.09	0.221	0.286
19	LTE Band 25	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	26140	1860	1	16.35	17.50	1.303	-	-	0.04	0.397	0.517
	LTE Band 25	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	26590	1905	1	16.30	17.50	1.318	-	-	0.16	0.324	0.427
	LTE Band 25	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI2	26340	1880	1	16.31	17.50	1.315	-	-	0.07	0.230	0.303
	LTE Band 25	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI2	26340	1880	1	16.31	17.50	1.315	-	-	-0.14	0.260	0.342
	LTE Band 25	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI2	26340	1880	1	16.31	17.50	1.315	-	-	-0.13	0.161	0.212
	LTE Band 25	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI2	26340	1880	1	16.31	17.50	1.315	-	-	0.13	0.202	0.266
	LTE Band 25	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	26340	1880	1	23.61	24.00	1.094	-	-	0.01	0.063	0.069
	LTE Band 25	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI2	26340	1880	1	23.61	24.00	1.094	-	-	0.13	0.067	0.073
	LTE Band 25	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	26340	1880	1	23.61	24.00	1.094	-	-	0.1	0.093	0.102
	LTE Band 25	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI2	26340	1880	1	23.61	24.00	1.094	-	-	0.1	0.072	0.079
	LTE Band 25	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	26140	1860	1	23.21	24.00	1.199	-	-	-0.03	0.084	0.101
	LTE Band 25	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	26590	1905	1	23.35	24.00	1.161	-	-	0.05	0.075	0.087
	LTE Band 25	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI2	26340	1880	1	23.60	24.00	1.096	-	-	0.04	0.049	0.054
	LTE Band 25	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI2	26340	1880	1	23.60	24.00	1.096	-	-	-0.11	0.053	0.058
	LTE Band 25	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI2	26340	1880	1	23.60	24.00	1.096	-	-	-0.08	0.074	0.081
	LTE Band 25	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI2	26340	1880	1	23.60	24.00	1.096	-	-	0.12	0.056	0.061
	FR1 n25	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	376500	1882.5	1	13.98	15.00	1.265	-	-	0.01	0.243	0.307
	FR1 n25	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	376500	1882.5	1	13.98	15.00	1.265	-	-	0.1	0.362	0.458
	FR1 n25	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	376500	1882.5	1	13.98	15.00	1.265	-	-	-0.05	0.128	0.162
	FR1 n25	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	376500	1882.5	1	13.98	15.00	1.265	-	-	-0.05	0.172	0.218
	FR1 n25	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	372000	1860	1	13.96	15.00	1.271	-	-	0.02	0.338	0.429
20	FR1 n25	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	381000	1905	1	13.87	15.00	1.297	-	-	-0.15	0.429	0.556
	FR1 n25	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 1	DSI2	376500	1882.5	1	13.90	15.00	1.288	-	-	0.04	0.230	0.296
	FR1 n25	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 1	DSI2	376500	1882.5	1	13.90	15.00	1.288	-	-	-0.15	0.339	0.437
	FR1 n25	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 1	DSI2	376500	1882.5	1	13.90	15.00	1.288	-	-	0.12	0.117	0.151
	FR1 n25	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 1	DSI2	376500	1882.5	1	13.90	15.00	1.288	-	-	0.01	0.160	0.206
	FR1 n25	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI2	376500	1882.5	1	23.51	24.00	1.119	-	-	0.01	0.031	0.035
	FR1 n25	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI2	376500	1882.5	1	23.51	24.00	1.119	-	-	-0.11	0.035	0.039
	FR1 n25	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	376500	1882.5	1	23.51	24.00	1.119	-	-	-0.02	0.041	0.046
	FR1 n25	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI2	376500	1882.5	1	23.51	24.00	1.119	-	-	0.12	0.033	0.037
	FR1 n25	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	372000	1860	1	23.15	24.00	1.216	-	-	0.04	0.048	0.058
	FR1 n25	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	381000	1905	1	23.39	24.00	1.151	-	-	0.14	0.052	0.060
	FR1 n25	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 0	DSI2	376500	1882.5	1	23.49	24.00	1.125	-	-	0.04	0.024	0.027
	FR1 n25	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 0	DSI2	376500	1882.5	1	23.49	24.00	1.125	-	-	0.03	0.028	0.032
	FR1 n25	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 0	DSI2	376500	1882.5	1	23.49	24.00	1.125	-	-	0.08	0.034	0.038
	FR1 n25	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 0	DSI2	376500	1882.5	1	23.49	24.00	1.125	-	-	-0.13	0.026	0.029
2300 MHz																					
	LTE Band 30	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	27710	2310	1	17.76	18.90	1.300	-	-	-0.16	0.305	0.397
21	LTE Band 30	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	27710	2310	1	17.76	18.90	1.300	-	-	-0.12	0.442	0.575
	LTE Band 30	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	27710	2310	1	17.76	18.90	1.300	-	-	-0.06	0.151	0.196
	LTE Band 30	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	27710	2310	1	17.76	18.90	1.300	-	-	-0.15	0.194	0.252
	LTE Band 30	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	DSI2	27710	2310	1	17.55	18.90	1.365	-	-	0.02	0.272	0.371
	LTE Band 30	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	DSI2	27710	2310	1	17.55	18.90	1.365	-	-	0.1	0.410	0.559
	LTE Band 30	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	DSI2	27710	2310	1	17.55	18.90	1.365	-	-	0.13	0.145	0.198
	LTE Band 30	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	DSI2	27710	2310	1	17.55	18.90	1.365	-	-	0.11	0.189	0.258
	LTE Band 30	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 7	DSI2	27710	2310	1	23.07	24.00	1.239	-	-	0.02	0.121	0.150
	LTE Band 30	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 7	DSI2	27710	2310	1	23.07	24.00	1.239	-	-	0.05	0.093	0.115
	LTE Band 30	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	27710	2310	1	23.07	24.00	1.239	-	-	-0.11	0.169	0.209
	LTE Band 30	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 7	DSI2	27710	2310	1	23.07	24.00	1.239	-	-	-0.13	0.072	0.089
	LTE Band 30	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 7	DSI2	27710	2310	1	22.95	24.00	1.274	-	-	-0.14	0.095	0.121
	LTE Band 30	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 7	DSI2	27710	2310	1	22.95	24.00	1.274	-	-	-0.16	0.075	0.096
	LTE Band 30	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 7	DSI2	27710	2310	1	22.95	24.00	1.274	-	-	-0.13	0.129	0.164
	LTE Band 30	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 7	DSI2	27710	2310	1	22.95	24.00	1.274	-	-	0.03	0.060	0.076
	LTE Band 30	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 6	DSI2	27710	2310	1	24.10	24.50	1.096	-	-	0.1	0.184	0.202



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 30	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 6	DSI2	27710	2310	1	24.10	24.50	1.096	-	-	-0.1	0.134	0.147
	LTE Band 30	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	DSI2	27710	2310	1	24.10	24.50	1.096	-	-	-0.09	0.111	0.122
	LTE Band 30	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 6	DSI2	27710	2310	1	24.10	24.50	1.096	-	-	0.07	0.089	0.098
	LTE Band 30	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 6	DSI2	27710	2310	1	22.95	24.00	1.274	-	-	-0.12	0.143	0.182
	LTE Band 30	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 6	DSI2	27710	2310	1	22.95	24.00	1.274	-	-	0.1	0.120	0.153
	LTE Band 30	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 6	DSI2	27710	2310	1	22.95	24.00	1.274	-	-	-0.12	0.094	0.120
	LTE Band 30	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 6	DSI2	27710	2310	1	22.95	24.00	1.274	-	-	0.02	0.082	0.104
	LTE Band 30	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 9	DSI2	27710	2310	1	23.29	24.00	1.178	-	-	0.03	0.221	0.260
	LTE Band 30	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 9	DSI2	27710	2310	1	23.29	24.00	1.178	-	-	0.01	0.044	0.052
	LTE Band 30	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 9	DSI2	27710	2310	1	23.29	24.00	1.178	-	-	0.03	0.265	0.312
	LTE Band 30	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 9	DSI2	27710	2310	1	23.29	24.00	1.178	-	-	-0.04	0.068	0.080
	LTE Band 30	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 9	DSI2	27710	2310	1	22.29	23.00	1.178	-	-	0.07	0.176	0.207
	LTE Band 30	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 9	DSI2	27710	2310	1	22.29	23.00	1.178	-	-	0.02	0.035	0.041
	LTE Band 30	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 9	DSI2	27710	2310	1	22.29	23.00	1.178	-	-	0.02	0.210	0.247
	LTE Band 30	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 9	DSI2	27710	2310	1	22.29	23.00	1.178	-	-	-0.11	0.054	0.064
	FR1 n30	10M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	462000	2310	1	18.10	19.50	1.380	-	-	0.05	0.259	0.358
22	FR1 n30	10M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	462000	2310	1	18.10	19.50	1.380	-	-	-0.07	0.449	0.620
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	462000	2310	1	18.10	19.50	1.380	-	-	0.15	0.158	0.218
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	462000	2310	1	18.10	19.50	1.380	-	-	0.15	0.218	0.301
	FR1 n30	10M	QPSK	25	14	DFT-15	Right Cheek	0mm	Ant 1	DSI2	462000	2310	1	18.02	19.50	1.406	-	-	-0.15	0.238	0.335
	FR1 n30	10M	QPSK	25	14	DFT-15	Right Tilted	0mm	Ant 1	DSI2	462000	2310	1	18.02	19.50	1.406	-	-	-0.08	0.416	0.585
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Cheek	0mm	Ant 1	DSI2	462000	2310	1	18.02	19.50	1.406	-	-	0.13	0.145	0.204
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Tilted	0mm	Ant 1	DSI2	462000	2310	1	18.02	19.50	1.406	-	-	0.14	0.202	0.284
	FR1 n30	10M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 7	DSI2	462000	2310	1	22.83	24.00	1.309	-	-	-0.09	0.071	0.093
	FR1 n30	10M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 7	DSI2	462000	2310	1	22.83	24.00	1.309	-	-	-0.06	0.067	0.088
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 7	DSI2	462000	2310	1	22.83	24.00	1.309	-	-	-0.15	0.116	0.152
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 7	DSI2	462000	2310	1	22.83	24.00	1.309	-	-	-0.12	0.041	0.054
	FR1 n30	10M	QPSK	25	14	DFT-15	Right Cheek	0mm	Ant 7	DSI2	462000	2310	1	22.76	24.00	1.330	-	-	0.08	0.069	0.092
	FR1 n30	10M	QPSK	25	14	DFT-15	Right Tilted	0mm	Ant 7	DSI2	462000	2310	1	22.76	24.00	1.330	-	-	0.11	0.060	0.080
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Cheek	0mm	Ant 7	DSI2	462000	2310	1	22.76	24.00	1.330	-	-	0.1	0.106	0.141
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Tilted	0mm	Ant 7	DSI2	462000	2310	1	22.76	24.00	1.330	-	-	-0.12	0.034	0.045
2600 MHz																					
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	21100	2535	1	17.20	18.10	1.230	-	-	-0.04	0.240	0.295
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	21100	2535	1	17.20	18.10	1.230	-	-	-0.1	0.302	0.372
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	21100	2535	1	17.20	18.10	1.230	-	-	0.06	0.141	0.173
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	21100	2535	1	17.20	18.10	1.230	-	-	0.04	0.182	0.224
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	20850	2510	1	17.10	18.10	1.259	-	-	-0.11	0.367	0.462
23	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	21350	2560	1	17.18	18.10	1.236	-	-	0.07	0.458	0.566
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI2	21100	2535	1	17.18	18.10	1.236	-	-	0.1	0.228	0.282
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI2	21100	2535	1	17.18	18.10	1.236	-	-	0.16	0.290	0.358
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI2	21100	2535	1	17.18	18.10	1.236	-	-	-0.06	0.125	0.154
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI2	21100	2535	1	17.18	18.10	1.236	-	-	0.02	0.180	0.222
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 7	DSI2	21100	2535	1	22.63	24.00	1.371	-	-	0.15	0.184	0.252
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 7	DSI2	21100	2535	1	22.63	24.00	1.371	-	-	-0.07	0.191	0.262
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	21100	2535	1	22.63	24.00	1.371	-	-	-0.14	0.338	0.463
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 7	DSI2	21100	2535	1	22.63	24.00	1.371	-	-	-0.11	0.105	0.144
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	20850	2510	1	22.55	24.00	1.396	-	-	-0.15	0.281	0.392
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	21350	2560	1	22.60	24.00	1.380	-	-	0.13	0.338	0.467
	LTE Band 7C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	21350+21152	2560+2540.2	1	22.51	24.00	1.409	-	-	0.13	0.247	0.348
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 7	DSI2	21100	2535	1	22.61	24.00	1.377	-	-	0.03	0.153	0.211
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 7	DSI2	21100	2535	1	22.61	24.00	1.377	-	-	0.1	0.156	0.215
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 7	DSI2	21100	2535	1	22.61	24.00	1.377	-	-	-0.11	0.288	0.397
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 7	DSI2	21100	2535	1	22.61	24.00	1.377	-	-	0.08	0.085	0.117
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	40620	2593	1	18.13	18.80	1.167	62.9	1.006	-0.1	0.298	0.350
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	40620	2593	1	18.13	18.80	1.167	62.9	1.006	-0.14	0.355	0.417
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI2	40620	2593	1	18.13	18.80	1.167	62.9	1.006	0.1	0.154	0.181



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI2	40620	2593	1	18.13	18.80	1.167	62.9	1.006	0.13	0.195	0.229
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	39750	2506	1	18.04	18.80	1.191	62.9	1.006	-0.05	0.348	0.417
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	40185	2549.5	1	18.06	18.80	1.186	62.9	1.006	0.1	0.364	0.434
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	41055	2636.5	1	18.00	18.80	1.202	62.9	1.006	0.01	0.371	0.449
24	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	41490	2680	1	18.08	18.80	1.180	62.9	1.006	-0.14	0.507	0.602
	LTE Band 41_HPUE	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	41490	2680	1	19.90	20.40	1.122	42.9	1.009	0.16	0.484	0.548
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI2	40620	2593	1	18.00	18.80	1.202	62.9	1.006	-0.14	0.277	0.335
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI2	40620	2593	1	18.00	18.80	1.202	62.9	1.006	0.04	0.325	0.393
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI2	40620	2593	1	18.00	18.80	1.202	62.9	1.006	0.06	0.140	0.169
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI2	40620	2593	1	18.00	18.80	1.202	62.9	1.006	-0.12	0.188	0.227
	LTE Band 41	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 1	DSI2	40620	2593	1	17.94	18.80	1.219	62.9	1.006	0.16	0.323	0.396
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 7	DSI2	40620	2593	1	23.69	24.00	1.074	62.9	1.006	-0.03	0.120	0.130
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 7	DSI2	40620	2593	1	23.69	24.00	1.074	62.9	1.006	0.09	0.110	0.119
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	40620	2593	1	23.69	24.00	1.074	62.9	1.006	0.09	0.201	0.217
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 7	DSI2	40620	2593	1	23.69	24.00	1.074	62.9	1.006	0.09	0.103	0.111
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	39750	2506	1	23.54	24.00	1.112	62.9	1.006	0.16	0.190	0.212
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	40185	2549.5	1	23.60	24.00	1.096	62.9	1.006	-0.14	0.204	0.225
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	41055	2636.5	1	23.54	24.00	1.112	62.9	1.006	0.07	0.210	0.235
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	41490	2680	1	23.52	24.00	1.117	62.9	1.006	-0.15	0.243	0.273
	LTE Band 41C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	41490+41292	2680+2660.2	1	23.48	24.00	1.127	62.9	1.006	-0.15	0.166	0.188
	LTE Band 41_HPUE	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	41490	2680	1	25.73	27.00	1.340	42.9	1.009	-0.07	0.272	0.368
	LTE Band 41C_HPUE	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI2	41490+41292	2680+2660.2	1	25.80	27.00	1.318	42.9	1.009	-0.07	0.183	0.243
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 7	DSI2	40620	2593	1	22.66	23.00	1.081	62.9	1.006	0.1	0.097	0.106
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 7	DSI2	40620	2593	1	22.66	23.00	1.081	62.9	1.006	0.01	0.085	0.092
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 7	DSI2	40620	2593	1	22.66	23.00	1.081	62.9	1.006	0.12	0.166	0.181
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 7	DSI2	40620	2593	1	22.66	23.00	1.081	62.9	1.006	0.03	0.047	0.051
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 6	DSI2	40620	2593	1	22.90	24.00	1.288	62.9	1.006	-0.12	0.202	0.262
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 6	DSI2	40620	2593	1	22.90	24.00	1.288	62.9	1.006	0.15	0.083	0.108
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	DSI2	40620	2593	1	22.90	24.00	1.288	62.9	1.006	0.13	0.128	0.166
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 6	DSI2	40620	2593	1	22.90	24.00	1.288	62.9	1.006	0.1	0.081	0.105
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 6	DSI2	39750	2506	1	22.85	24.00	1.303	62.9	1.006	-0.16	0.170	0.223
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 6	DSI2	40185	2549.5	1	22.79	24.00	1.321	62.9	1.006	0.13	0.207	0.275
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 6	DSI2	41055	2636.5	1	22.83	24.00	1.309	62.9	1.006	0.01	0.169	0.223
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 6	DSI2	41490	2680	1	22.82	24.00	1.312	62.9	1.006	-0.12	0.231	0.305
	LTE Band 41_HPUE	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 6	DSI2	41490	2680	1	25.57	27.00	1.390	42.9	1.009	-0.15	0.306	0.429
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 6	DSI2	40620	2593	1	21.90	23.00	1.288	62.9	1.006	-0.15	0.160	0.207
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 6	DSI2	40620	2593	1	21.90	23.00	1.288	62.9	1.006	0.05	0.066	0.086
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 6	DSI2	40620	2593	1	21.90	23.00	1.288	62.9	1.006	0.09	0.102	0.132
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 6	DSI2	40620	2593	1	21.90	23.00	1.288	62.9	1.006	0.05	0.064	0.083
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 9	DSI2	40620	2593	1	21.49	22.50	1.262	62.9	1.006	0.01	0.083	0.105
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 9	DSI2	40620	2593	1	21.49	22.50	1.262	62.9	1.006	-0.01	0.010	0.013
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 9	DSI2	40620	2593	1	21.49	22.50	1.262	62.9	1.006	-0.07	0.211	0.268
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 9	DSI2	40620	2593	1	21.49	22.50	1.262	62.9	1.006	0.16	0.060	0.076
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 9	DSI2	39750	2506	1	21.46	22.50	1.271	62.9	1.006	-0.05	0.201	0.257
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 9	DSI2	40185	2549.5	1	21.44	22.50	1.276	62.9	1.006	0.02	0.183	0.235
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 9	DSI2	41055	2636.5	1	21.48	22.50	1.265	62.9	1.006	0.07	0.215	0.274
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 9	DSI2	41490	2680	1	21.43	22.50	1.279	62.9	1.006	-0.14	0.300	0.386
	LTE Band 41_HPUE	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 9	DSI2	41490	2680	1	22.82	24.10	1.343	42.9	1.009	-0.15	0.308	0.417
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 9	DSI2	40620	2593	1	21.06	22.00	1.242	62.9	1.006	0.15	0.074	0.092
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 9	DSI2	40620	2593	1	21.06	22.00	1.242	62.9	1.006	0.05	0.009	0.011
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 9	DSI2	40620	2593	1	21.06	22.00	1.242	62.9	1.006	0.16	0.188	0.235
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 9	DSI2	40620	2593	1	21.06	22.00	1.242	62.9	1.006	0.11	0.053	0.066
	FR1 n7	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	507000	2535	1	18.98	20.00	1.265	-	-	0.11	0.301	0.381
25	FR1 n7	40M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	507000	2535	1	18.98	20.00	1.265	-	-	-0.12	0.508	0.642
	FR1 n7	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	507000	2535	1	18.98	20.00	1.265	-	-	0.1	0.170	0.215
	FR1 n7	40M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	507000	2535	1	18.98	20.00	1.265	-	-	-0.13	0.235	0.297



FCC SAR Test Report

Report No. : FA2N2910

	FR1 n7	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 1	DSI2	507000	2535	1	18.87	20.00	1.297	-	-	-0.13	0.284	0.368
	FR1 n7	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 1	DSI2	507000	2535	1	18.87	20.00	1.297	-	-	0.09	0.478	0.620
	FR1 n7	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 1	DSI2	507000	2535	1	18.87	20.00	1.297	-	-	0.08	0.163	0.211
	FR1 n7	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 1	DSI2	507000	2535	1	18.87	20.00	1.297	-	-	0.1	0.227	0.294
	FR1 n7	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 7	DSI2	507000	2535	1	23.23	24.00	1.194	-	-	0.05	0.159	0.190
	FR1 n7	40M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 7	DSI2	507000	2535	1	23.23	24.00	1.194	-	-	0.12	0.153	0.183
	FR1 n7	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 7	DSI2	507000	2535	1	23.23	24.00	1.194	-	-	0.13	0.293	0.350
	FR1 n7	40M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 7	DSI2	507000	2535	1	23.23	24.00	1.194	-	-	0.03	0.092	0.110
	FR1 n7	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 7	DSI2	507000	2535	1	22.96	24.00	1.271	-	-	0.12	0.145	0.184
	FR1 n7	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 7	DSI2	507000	2535	1	22.96	24.00	1.271	-	-	0.16	0.138	0.175
	FR1 n7	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 7	DSI2	507000	2535	1	22.96	24.00	1.271	-	-	0.11	0.259	0.329
	FR1 n7	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 7	DSI2	507000	2535	1	22.96	24.00	1.271	-	-	0.16	0.079	0.100
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 1	DSI2	518598	2592.99	1	19.39	20.50	1.291	-	-	0.01	0.300	0.387
26	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 1	DSI2	518598	2592.99	1	19.39	20.50	1.291	-	-	-0.09	0.495	0.639
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 1	DSI2	518598	2592.99	1	19.39	20.50	1.291	-	-	0.15	0.165	0.213
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 1	DSI2	518598	2592.99	1	19.39	20.50	1.291	-	-	0.09	0.231	0.298
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 1	DSI2	518598	2592.99	1	19.35	20.50	1.303	-	-	0.07	0.282	0.367
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 1	DSI2	518598	2592.99	1	19.35	20.50	1.303	-	-	-0.11	0.468	0.610
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 1	DSI2	518598	2592.99	1	19.35	20.50	1.303	-	-	-0.04	0.142	0.185
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 1	DSI2	518598	2592.99	1	19.35	20.50	1.303	-	-	-0.03	0.210	0.274
	FR1 n41_HPUE	100M	QPSK	270	0	DFT-30	Right Tilted	0mm	Ant 1	DSI2	518598	2592.99	1	19.30	20.50	1.318	-	-	0.05	0.455	0.600
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI2	518598	2592.99	1	24.55	25.50	1.245	-	-	-0.01	0.401	0.499
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI2	518598	2592.99	1	24.55	25.50	1.245	-	-	-0.15	0.235	0.292
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	DSI2	518598	2592.99	1	24.55	25.50	1.245	-	-	0.01	0.250	0.311
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	DSI2	518598	2592.99	1	24.55	25.50	1.245	-	-	0.1	0.258	0.321
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	DSI2	518598	2592.99	1	24.33	25.50	1.309	-	-	-0.16	0.359	0.470
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	DSI2	518598	2592.99	1	24.33	25.50	1.309	-	-	-0.01	0.214	0.280
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	DSI2	518598	2592.99	1	24.33	25.50	1.309	-	-	-0.11	0.225	0.295
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	DSI2	518598	2592.99	1	24.33	25.50	1.309	-	-	0.16	0.230	0.301
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 9	DSI2	518598	2592.99	1	18.77	19.50	1.183	-	-	0.1	0.215	0.254
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 9	DSI2	518598	2592.99	1	18.77	19.50	1.183	-	-	0.04	0.045	0.053
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 9	DSI2	518598	2592.99	1	18.77	19.50	1.183	-	-	0.06	0.396	0.468
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 9	DSI2	518598	2592.99	1	18.77	19.50	1.183	-	-	-0.02	0.085	0.101
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 9	DSI2	518598	2592.99	1	18.71	19.50	1.199	-	-	-0.15	0.211	0.253
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 9	DSI2	518598	2592.99	1	18.71	19.50	1.199	-	-	0.11	0.044	0.053
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 9	DSI2	518598	2592.99	1	18.71	19.50	1.199	-	-	0.11	0.380	0.456
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 9	DSI2	518598	2592.99	1	18.71	19.50	1.199	-	-	0.01	0.080	0.096
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	DSI2	518598	2592.99	1	22.60	23.50	1.230	-	-	0.01	0.230	0.283
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	DSI2	518598	2592.99	1	22.60	23.50	1.230	-	-	0.07	0.258	0.317
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	DSI2	518598	2592.99	1	22.60	23.50	1.230	-	-	0.04	0.435	0.535
	FR1 n41_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	DSI2	518598	2592.99	1	22.60	23.50	1.230	-	-	0.15	0.143	0.176
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	DSI2	518598	2592.99	1	22.52	23.50	1.253	-	-	-0.04	0.218	0.273
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	DSI2	518598	2592.99	1	22.52	23.50	1.253	-	-	-0.1	0.241	0.302
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	DSI2	518598	2592.99	1	22.52	23.50	1.253	-	-	-0.04	0.401	0.503
	FR1 n41_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	DSI2	518598	2592.99	1	22.52	23.50	1.253	-	-	-0.16	0.130	0.163
3000~4000 MHz																					
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	55830	3609	1	15.80	16.80	1.259	62.9	1.006	0.03	0.357	0.452
	LTE Band 48C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	55830+ 55632	3609+ 3589.2	1	15.75	16.80	1.274	62.9	1.006	0.1	0.349	0.447
	LTE Band 48	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DSI2	55830	3609	1	15.80	16.80	1.259	62.9	1.006	0.01	0.121	0.153
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI2	55830	3609	1	15.80	16.80	1.259	62.9	1.006	-0.12	0.106	0.134
	LTE Band 48	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DSI2	55830	3609	1	15.80	16.80	1.259	62.9	1.006	0.13	0.067	0.085
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	55340	3560	1	15.69	16.80	1.291	62.9	1.006	0.06	0.311	0.404
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	56150	3641	1	15.69	16.80	1.291	62.9	1.006	-0.05	0.340	0.442
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	56640	3690	1	15.75	16.80	1.274	62.9	1.006	-0.12	0.309	0.396
	LTE Band 48	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSI2	55830	3609	1	15.78	16.80	1.265	62.9	1.006	-0.11	0.337	0.429
	LTE Band 48	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DSI2	55830	3609	1	15.78	16.80	1.265	62.9	1.006	0.09	0.116	0.148



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 48	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DSI2	55830	3609	1	15.78	16.80	1.265	62.9	1.006	0.06	0.100	0.127
	LTE Band 48	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DSI2	55830	3609	1	15.78	16.80	1.265	62.9	1.006	-0.09	0.059	0.075
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	DSI2	56640	3690	1	22.67	24.00	1.358	62.9	1.006	-0.09	0.080	0.109
	LTE Band 48	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	DSI2	56640	3690	1	22.67	24.00	1.358	62.9	1.006	0.06	0.098	0.134
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI2	56640	3690	1	22.67	24.00	1.358	62.9	1.006	-0.1	0.151	0.206
	LTE Band 48	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSI2	56640	3690	1	22.67	24.00	1.358	62.9	1.006	-0.05	0.105	0.143
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI2	55340	3560	1	22.44	24.00	1.432	62.9	1.006	-0.13	0.116	0.167
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI2	55830	3609	1	22.34	24.00	1.466	62.9	1.006	-0.1	0.097	0.143
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI2	56150	3641	1	22.50	24.00	1.413	62.9	1.006	-0.12	0.105	0.149
	LTE Band 48	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	DSI2	56640	3690	1	22.57	24.00	1.390	62.9	1.006	0.01	0.077	0.108
	LTE Band 48	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	DSI2	56640	3690	1	22.57	24.00	1.390	62.9	1.006	0.06	0.095	0.133
	LTE Band 48	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSI2	56640	3690	1	22.57	24.00	1.390	62.9	1.006	-0.14	0.140	0.196
	LTE Band 48	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSI2	56640	3690	1	22.57	24.00	1.390	62.9	1.006	0.04	0.095	0.133
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 8	DSI2	55830	3609	1	18.23	19.20	1.250	62.9	1.006	-0.13	0.309	0.389
	LTE Band 48	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 8	DSI2	55830	3609	1	18.23	19.20	1.250	62.9	1.006	0.15	0.185	0.233
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 8	DSI2	55830	3609	1	18.23	19.20	1.250	62.9	1.006	-0.08	0.192	0.241
	LTE Band 48	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 8	DSI2	55830	3609	1	18.23	19.20	1.250	62.9	1.006	0.11	0.168	0.211
27	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 8	DSI2	55340	3560	1	18.14	19.20	1.276	62.9	1.006	0.06	0.370	0.475
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 8	DSI2	56150	3641	1	18.16	19.20	1.271	62.9	1.006	0.16	0.311	0.398
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 8	DSI2	56640	3690	1	18.20	19.20	1.259	62.9	1.006	-0.11	0.286	0.362
	LTE Band 48	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 8	DSI2	55830	3609	1	18.16	19.20	1.271	62.9	1.006	0.15	0.287	0.367
	LTE Band 48	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 8	DSI2	55830	3609	1	18.16	19.20	1.271	62.9	1.006	-0.08	0.175	0.224
	LTE Band 48	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 8	DSI2	55830	3609	1	18.16	19.20	1.271	62.9	1.006	-0.13	0.180	0.230
	LTE Band 48	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 8	DSI2	55830	3609	1	18.16	19.20	1.271	62.9	1.006	-0.01	0.162	0.207
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 10	DSI2	55830	3609	1	23.95	24.00	1.012	62.9	1.006	-0.05	0.061	0.062
	LTE Band 48	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 10	DSI2	55830	3609	1	23.95	24.00	1.012	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 10	DSI2	55830	3609	1	23.95	24.00	1.012	62.9	1.006	0.06	0.037	0.038
	LTE Band 48	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 10	DSI2	55830	3609	1	23.95	24.00	1.012	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 10	DSI2	55340	3560	1	23.83	24.00	1.040	62.9	1.006	-0.08	0.047	0.049
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 10	DSI2	56150	3641	1	23.87	24.00	1.030	62.9	1.006	0.1	0.080	0.083
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 10	DSI2	56640	3690	1	23.93	24.00	1.016	62.9	1.006	0.1	0.077	0.079
	LTE Band 48	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 10	DSI2	55830	3609	1	22.94	23.00	1.014	62.9	1.006	-0.16	0.057	0.058
	LTE Band 48	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 10	DSI2	55830	3609	1	22.94	23.00	1.014	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 10	DSI2	55830	3609	1	22.94	23.00	1.014	62.9	1.006	0.05	0.032	0.032
	LTE Band 48	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 10	DSI2	55830	3609	1	22.94	23.00	1.014	62.9	1.006	-	n/a	n/a
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 2	DSI2	641666	3624.99	1	11.85	13.00	1.303	-	-	-0.05	0.303	0.395
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 2	DSI2	641666	3624.99	1	11.85	13.00	1.303	-	-	0.02	0.135	0.176
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 2	DSI2	641666	3624.99	1	11.85	13.00	1.303	-	-	0.02	0.047	0.061
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 2	DSI2	641666	3624.99	1	11.85	13.00	1.303	-	-	0.03	0.043	0.056
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 2	DSI2	638000	3570	1	11.72	13.00	1.343	-	-	0.05	0.357	0.479
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 2	DSI2	645332	3679.98	1	11.81	13.00	1.315	-	-	-0.04	0.321	0.422
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 2	DSI2	641666	3624.99	1	11.82	13.00	1.312	-	-	0.09	0.293	0.384
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 2	DSI2	641666	3624.99	1	11.82	13.00	1.312	-	-	-0.12	0.114	0.150
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 2	DSI2	641666	3624.99	1	11.82	13.00	1.312	-	-	0.06	0.044	0.058
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 2	DSI2	641666	3624.99	1	11.82	13.00	1.312	-	-	0.02	0.040	0.052
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI2	641666	3624.99	1	16.41	17.50	1.285	-	-	0.11	0.244	0.313
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI2	641666	3624.99	1	16.41	17.50	1.285	-	-	0.05	0.256	0.329
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI2	641666	3624.99	1	16.41	17.50	1.285	-	-	0.15	0.426	0.548
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI2	641666	3624.99	1	16.41	17.50	1.285	-	-	0.07	0.288	0.370
28	FR1 n48	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI2	638000	3570	1	16.39	17.50	1.291	-	-	-0.06	0.537	0.693
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI2	638000	3570	2	16.39	17.50	1.291	-	-	0.01	0.387	0.500
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI2	645332	3679.98	1	16.35	17.50	1.303	-	-	0.02	0.480	0.626
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 5	DSI2	641666	3624.99	1	16.36	17.50	1.300	-	-	0.15	0.176	0.229
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 5	DSI2	641666	3624.99	1	16.36	17.50	1.300	-	-	0.16	0.207	0.269
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 5	DSI2	641666	3624.99	1	16.36	17.50	1.300	-	-	-0.16	0.413	0.537
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 5	DSI2	641666	3624.99	1	16.36	17.50	1.300	-	-	-0.04	0.268	0.348



FCC SAR Test Report

Report No. : FA2N2910

	FR1 n48	40M	QPSK	100	0	DFT-30	Left Cheek	0mm	Ant 5	DSI2	641666	3624.99	1	16.32	17.50	1.312	-	-	0.05	0.410	0.538
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 8	DSI2	641666	3624.99	1	16.55	17.50	1.245	-	-	0.13	0.258	0.321
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 8	DSI2	641666	3624.99	1	16.55	17.50	1.245	-	-	-0.06	0.247	0.307
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 8	DSI2	641666	3624.99	1	16.55	17.50	1.245	-	-	0.12	0.203	0.253
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 8	DSI2	641666	3624.99	1	16.55	17.50	1.245	-	-	-0.02	0.200	0.249
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 8	DSI2	638000	3570	1	16.41	17.50	1.285	-	-	0.06	0.363	0.467
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 8	DSI2	645332	3679.98	1	16.45	17.50	1.274	-	-	0.02	0.305	0.388
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 8	DSI2	641666	3624.99	1	16.42	17.50	1.282	-	-	0.09	0.231	0.296
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 8	DSI2	641666	3624.99	1	16.42	17.50	1.282	-	-	-0.02	0.223	0.286
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 8	DSI2	641666	3624.99	1	16.42	17.50	1.282	-	-	-0.06	0.185	0.237
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 8	DSI2	641666	3624.99	1	16.42	17.50	1.282	-	-	-0.16	0.184	0.236
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 10	DSI2	638000	3570	1	22.25	23.00	1.189	-	-	-0.08	0.057	0.068
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 10	DSI2	638000	3570	1	22.25	23.00	1.189	-	-	-	n/a	n/a
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 10	DSI2	638000	3570	1	22.25	23.00	1.189	-	-	0.04	0.033	0.039
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 10	DSI2	638000	3570	1	22.25	23.00	1.189	-	-	-	n/a	n/a
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 10	DSI2	641666	3624.99	1	22.18	23.00	1.208	-	-	-0.04	0.052	0.062
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 10	DSI2	645332	3679.98	1	21.96	23.00	1.271	-	-	-0.08	0.044	0.056
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 10	DSI2	638000	3570	1	22.18	23.00	1.208	-	-	-0.08	0.055	0.067
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 10	DSI2	638000	3570	1	22.18	23.00	1.208	-	-	-	n/a	n/a
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 10	DSI2	638000	3570	1	22.18	23.00	1.208	-	-	-0.11	0.031	0.037
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 10	DSI2	638000	3570	1	22.18	23.00	1.208	-	-	-	n/a	n/a
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 2	DSI2	656000	3840	1	13.00	14.00	1.259	-	-	-0.05	0.369	0.465
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 2	DSI2	656000	3840	1	13.00	14.00	1.259	-	-	0.13	0.132	0.166
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 2	DSI2	656000	3840	1	13.00	14.00	1.259	-	-	0.01	0.064	0.081
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 2	DSI2	656000	3840	1	13.00	14.00	1.259	-	-	-0.06	0.044	0.055
	FR1 n77_Part270_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 2	DSI2	656000	3840	1	12.95	14.00	1.274	-	-	0.08	0.359	0.457
	FR1 n77_Part270_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 2	DSI2	656000	3840	1	12.95	14.00	1.274	-	-	-0.01	0.131	0.167
	FR1 n77_Part270_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 2	DSI2	656000	3840	1	12.95	14.00	1.274	-	-	0.13	0.061	0.078
	FR1 n77_Part270_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 2	DSI2	656000	3840	1	12.95	14.00	1.274	-	-	0.03	0.039	0.049
	FR1 n77_Part270_HPUE	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 2	DSI2	656000	3840	1	12.95	14.00	1.274	-	-	0.03	0.355	0.452
	FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 2	DSI2	633332	3499.98	1	13.30	14.00	1.175	-	-	0.1	0.420	0.493
	FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 2	DSI2	633332	3499.98	1	13.30	14.00	1.175	-	-	0.02	0.163	0.192
	FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 2	DSI2	633332	3499.98	1	13.30	14.00	1.175	-	-	-0.06	0.080	0.094
	FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 2	DSI2	633332	3499.98	1	13.30	14.00	1.175	-	-	0.02	0.054	0.063
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 2	DSI2	633332	3499.98	1	13.27	14.00	1.183	-	-	-0.07	0.402	0.476
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 2	DSI2	633332	3499.98	1	13.27	14.00	1.183	-	-	-0.08	0.142	0.168
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 2	DSI2	633332	3499.98	1	13.27	14.00	1.183	-	-	0.01	0.068	0.080
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 2	DSI2	633332	3499.98	1	13.27	14.00	1.183	-	-	-0.11	0.042	0.050
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI2	656000	3840	1	17.01	18.00	1.256	-	-	-0.15	0.119	0.149
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI2	656000	3840	1	17.01	18.00	1.256	-	-	-0.09	0.130	0.163
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI2	656000	3840	1	17.01	18.00	1.256	-	-	-0.1	0.371	0.466
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI2	656000	3840	1	17.01	18.00	1.256	-	-	-0.11	0.328	0.412
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI2	656000	3840	1	16.94	18.00	1.276	-	-	0.1	0.097	0.124
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI2	656000	3840	1	16.94	18.00	1.276	-	-	-0.05	0.101	0.129
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI2	656000	3840	1	16.94	18.00	1.276	-	-	-0.14	0.359	0.458
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI2	656000	3840	1	16.94	18.00	1.276	-	-	0.05	0.315	0.402
	FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI2	633332	3499.98	1	17.16	18.00	1.213	-	-	0.14	0.086	0.104
	FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI2	633332	3499.98	1	17.16	18.00	1.213	-	-	0.03	0.085	0.103
	FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI2	633332	3499.98	1	17.16	18.00	1.213	-	-	-0.11	0.440	0.534
	FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI2	633332	3499.98	1	17.16	18.00	1.213	-	-	0.09	0.416	0.505
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI2	633332	3499.98	1	17.07	18.00	1.239	-	-	-0.13	0.133	0.165
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI2	633332	3499.98	1	17.07	18.00	1.239	-	-	0.01	0.138	0.171
29	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI2	633332	3499.98	1	17.07	18.00	1.239	-	-	-0.07	0.471	0.583
	FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI2	633332	3499.98	1	17.07	18.00	1.239	-	-	0.08	0.455	0.564
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 8	DSI2	656000	3840	1	15.65	16.50	1.216	-	-	0.11	0.161	0.196
	FR1 n77_Part270_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 8	DSI2	656000	3840	1	15.65	16.50	1.216	-	-	-0.04	0.149	0.181



FCC SAR Test Report

Report No. : FA2N2910

FR1 n77_Part27O_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 8	DSI2	656000	3840	1	15.65	16.50	1.216	-	-	-0.16	0.191	0.232
FR1 n77_Part27O_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 8	DSI2	656000	3840	1	15.65	16.50	1.216	-	-	-0.13	0.362	0.440
FR1 n77_Part27O_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 8	DSI2	656000	3840	1	15.62	16.50	1.225	-	-	-0.15	0.115	0.141
FR1 n77_Part27O_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 8	DSI2	656000	3840	1	15.62	16.50	1.225	-	-	-0.14	0.142	0.174
FR1 n77_Part27O_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 8	DSI2	656000	3840	1	15.62	16.50	1.225	-	-	-0.05	0.187	0.229
FR1 n77_Part27O_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 8	DSI2	656000	3840	1	15.62	16.50	1.225	-	-	0.11	0.315	0.386
FR1 n77_Part27O_HPUE	100M	QPSK	270	0	DFT-30	Left Tilted	0mm	Ant 8	DSI2	656000	3840	1	15.47	16.50	1.268	-	-	-0.13	0.305	0.387
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 8	DSI2	633332	3499.98	1	15.50	16.50	1.259	-	-	-0.14	0.349	0.439
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 8	DSI2	633332	3499.98	1	15.50	16.50	1.259	-	-	-0.15	0.291	0.366
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 8	DSI2	633332	3499.98	1	15.50	16.50	1.259	-	-	0.06	0.204	0.257
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 8	DSI2	633332	3499.98	1	15.50	16.50	1.259	-	-	-0.07	0.244	0.307
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 8	DSI2	633332	3499.98	1	15.45	16.50	1.274	-	-	-0.13	0.382	0.486
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 8	DSI2	633332	3499.98	1	15.45	16.50	1.274	-	-	-0.15	0.305	0.388
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 8	DSI2	633332	3499.98	1	15.45	16.50	1.274	-	-	-0.04	0.209	0.266
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 8	DSI2	633332	3499.98	1	15.45	16.50	1.274	-	-	0.06	0.247	0.315
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 10	DSI2	656000	3840	1	24.57	25.50	1.239	-	-	0.16	0.067	0.082
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 10	DSI2	656000	3840	1	24.57	25.50	1.239	-	-	-	n/a	n/a
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 10	DSI2	656000	3840	1	24.57	25.50	1.239	-	-	0.15	0.043	0.053
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 10	DSI2	656000	3840	1	24.57	25.50	1.239	-	-	-	n/a	n/a
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 10	DSI2	656000	3840	1	24.30	25.50	1.318	-	-	-0.15	0.066	0.087
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 10	DSI2	656000	3840	1	24.30	25.50	1.318	-	-	-	n/a	n/a
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 10	DSI2	656000	3840	1	24.30	25.50	1.318	-	-	-0.1	0.039	0.051
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 10	DSI2	656000	3840	1	24.30	25.50	1.318	-	-	-	n/a	n/a
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 10	DSI2	633332	3499.98	1	24.42	25.50	1.282	-	-	-0.02	0.043	0.055
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 10	DSI2	633332	3499.98	1	24.42	25.50	1.282	-	-	-	n/a	n/a
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 10	DSI2	633332	3499.98	1	24.42	25.50	1.282	-	-	0.09	0.035	0.045
FR1 n77_Part27Q_HPUE	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 10	DSI2	633332	3499.98	1	24.42	25.50	1.282	-	-	-	n/a	n/a
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 10	DSI2	633332	3499.98	1	24.33	25.50	1.309	-	-	-0.1	0.042	0.055
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 10	DSI2	633332	3499.98	1	24.33	25.50	1.309	-	-	-	n/a	n/a
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 10	DSI2	633332	3499.98	1	24.33	25.50	1.309	-	-	-0.01	0.031	0.040
FR1 n77_Part27Q_HPUE	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 10	DSI2	633332	3499.98	1	24.33	25.50	1.309	-	-	-	n/a	n/a



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
BT&WLAN																		
	Bluetooth	DH5 1Mbps	Right Cheek	0mm	Ant 3	Standalone	78	2480	1	11.50	13.00	1.413	76.6	1.305	0.1	0.062	0.114	
	Bluetooth	DH5 1Mbps	Right Tilted	0mm	Ant 3	Standalone	78	2480	1	11.50	13.00	1.413	76.6	1.305	0.05	0.058	0.108	
	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 3	Standalone	78	2480	1	11.50	13.00	1.413	76.6	1.305	0.02	0.114	0.210	
	Bluetooth	DH5 1Mbps	Left Tilted	0mm	Ant 3	Standalone	78	2480	1	11.50	13.00	1.413	76.6	1.305	-0.08	0.102	0.188	
	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 3	Standalone	0	2402	1	11.40	13.00	1.445	76.6	1.305	-0.11	0.164	0.309	
30	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 3	Standalone	39	2441	1	11.00	13.00	1.585	76.6	1.305	0.07	0.165	0.341	
	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 3	Simultaneous	39	2441	1	6.50	8.50	1.585	76.6	1.305	0.01	0.052	0.108	
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 3	Standalone	1	2412	1	16.70	18.00	1.349	98.28	1.018	-0.14	0.284	0.390	
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 3	Standalone	1	2412	1	16.70	18.00	1.349	98.28	1.018	-0.05	0.276	0.379	
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Standalone	1	2412	1	16.70	18.00	1.349	98.28	1.018	0.02	0.707	0.971	
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 3	Standalone	1	2412	1	16.70	18.00	1.349	98.28	1.018	0.07	0.608	0.835	
31	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Standalone	6	2437	1	16.50	18.00	1.413	98.28	1.018	0.09	0.718	1.032	
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Standalone	6	2437	2	16.50	18.00	1.413	98.28	1.018	0.03	0.704	1.012	
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Standalone	11	2462	1	16.60	18.00	1.380	98.28	1.018	-0.03	0.576	0.809	
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 3	Standalone	6	2437	1	16.50	18.00	1.413	98.28	1.018	0.18	0.552	0.794	
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 3	Standalone	11	2462	1	16.60	18.00	1.380	98.28	1.018	0.06	0.482	0.677	
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Simultaneous	6	2437	1	14.10	15.50	1.380	98.28	1.018	0.12	0.343	0.482	
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 5	Standalone	54	5270	1	15.06	16.50	1.393	96.46	1.037	-0.11	0.368	0.532	
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 5	Standalone	54	5270	1	15.06	16.50	1.393	96.46	1.037	-0.05	0.322	0.465	
32	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 5	Standalone	54	5270	1	15.06	16.50	1.393	96.46	1.037	0.02	0.824	1.190	
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 5	Standalone	54	5270	2	15.06	16.50	1.393	96.46	1.037	0.03	0.795	1.149	
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 5	Standalone	54	5270	1	15.06	16.50	1.393	96.46	1.037	0.08	0.580	0.838	
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 5	Standalone	62	5310	1	14.97	16.50	1.422	96.46	1.037	0.01	0.705	1.040	
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 5	Standalone	62	5310	1	14.97	16.50	1.422	96.46	1.037	0.12	0.510	0.752	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 5	Simultaneous	58	5290	1	11.19	12.50	1.352	93.02	1.075	-0.09	0.255	0.371	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 5	Standalone	106	5530	1	15.46	17.00	1.426	93.02	1.075	-0.18	0.302	0.463	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 5	Standalone	106	5530	1	15.46	17.00	1.426	93.02	1.075	0.06	0.270	0.414	
33	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 5	Standalone	106	5530	1	15.46	17.00	1.426	93.02	1.075	-0.08	0.699	1.071	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 5	Standalone	106	5530	1	15.46	17.00	1.426	93.02	1.075	0.02	0.438	0.671	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 5	Simultaneous	106	5530	1	11.65	13.00	1.365	93.02	1.075	0.07	0.267	0.392	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 5	Standalone	155	5775	1	13.11	14.50	1.377	93.02	1.075	0.05	0.220	0.326	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 5	Standalone	155	5775	1	13.11	14.50	1.377	93.02	1.075	-0.11	0.246	0.364	
34	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 5	Standalone	155	5775	1	13.11	14.50	1.377	93.02	1.075	0.17	0.749	1.109	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 5	Standalone	155	5775	1	13.11	14.50	1.377	93.02	1.075	0.12	0.366	0.542	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 5	Simultaneous	155	5775	1	9.04	10.50	1.400	93.02	1.075	0.06	0.227	0.342	



16.2 Hotspot SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750 MHz																					
35	LTE Band 71	20M	QPSK	1	0	-	Front	5mm	Ant 1	DSI3	133297	680.5	1	23.23	24.00	1.194	-	-	0.06	0.321	0.383
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	133297	680.5	1	23.23	24.00	1.194	-	-	-0.12	0.590	0.704
	LTE Band 71	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI7	133297	680.5	1	23.23	24.00	1.194	-	-	0.04	0.311	0.371
	LTE Band 71	20M	QPSK	1	0	-	Right Side	5mm	Ant 1	DSI7	133297	680.5	1	23.23	24.00	1.194	-	-	-0.03	0.195	0.233
	LTE Band 71	20M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	133297	680.5	1	23.23	24.00	1.194	-	-	-0.07	0.470	0.561
	LTE Band 71	20M	QPSK	50	0	-	Front	5mm	Ant 1	DSI3	133297	680.5	1	23.20	24.00	1.202	-	-	-0.12	0.267	0.321
	LTE Band 71	20M	QPSK	50	0	-	Back	5mm	Ant 1	DSI3	133297	680.5	1	23.20	24.00	1.202	-	-	0.16	0.543	0.653
	LTE Band 71	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	DSI7	133297	680.5	1	23.20	24.00	1.202	-	-	-0.16	0.265	0.319
	LTE Band 71	20M	QPSK	50	0	-	Right Side	5mm	Ant 1	DSI7	133297	680.5	1	23.20	24.00	1.202	-	-	-0.09	0.165	0.198
	LTE Band 71	20M	QPSK	50	0	-	Top Side	5mm	Ant 1	DSI7	133297	680.5	1	23.20	24.00	1.202	-	-	-0.07	0.358	0.430
	LTE Band 71	20M	QPSK	1	0	-	Front	5mm	Ant 0	DSI3	133297	680.5	1	23.12	24.00	1.225	-	-	0.13	0.389	0.476
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	133297	680.5	1	23.12	24.00	1.225	-	-	0.05	0.501	0.614
	LTE Band 71	20M	QPSK	1	0	-	Left Side	5mm	Ant 0	DSI7	133297	680.5	1	23.12	24.00	1.225	-	-	-0.02	0.176	0.216
	LTE Band 71	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI7	133297	680.5	1	23.12	24.00	1.225	-	-	0.01	0.213	0.261
	LTE Band 71	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	133297	680.5	1	23.12	24.00	1.225	-	-	-0.09	0.355	0.435
LTE Band 71	20M	QPSK	50	0	-	Front	5mm	Ant 0	DSI3	133297	680.5	1	23.05	24.00	1.245	-	-	-0.13	0.337	0.419	
LTE Band 71	20M	QPSK	50	0	-	Back	5mm	Ant 0	DSI3	133297	680.5	1	23.05	24.00	1.245	-	-	-0.05	0.463	0.576	
LTE Band 71	20M	QPSK	50	0	-	Left Side	5mm	Ant 0	DSI7	133297	680.5	1	23.05	24.00	1.245	-	-	-0.11	0.152	0.189	
LTE Band 71	20M	QPSK	50	0	-	Right Side	5mm	Ant 0	DSI7	133297	680.5	1	23.05	24.00	1.245	-	-	0.13	0.189	0.235	
LTE Band 71	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	DSI7	133297	680.5	1	23.05	24.00	1.245	-	-	0.16	0.340	0.423	
36	LTE Band 12	10M	QPSK	1	0	-	Front	5mm	Ant 1	DSI3	23095	707.5	1	23.55	24.00	1.109	-	-	0.06	0.402	0.446
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	23095	707.5	1	23.55	24.00	1.109	-	-	0.09	0.689	0.764
	LTE Band 12	10M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI7	23095	707.5	1	23.55	24.00	1.109	-	-	-0.06	0.376	0.417
	LTE Band 12	10M	QPSK	1	0	-	Right Side	5mm	Ant 1	DSI7	23095	707.5	1	23.55	24.00	1.109	-	-	-0.01	0.260	0.288
	LTE Band 12	10M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	23095	707.5	1	23.55	24.00	1.109	-	-	-0.04	0.424	0.470
	LTE Band 12	10M	QPSK	25	0	-	Front	5mm	Ant 1	DSI3	23095	707.5	1	23.45	24.00	1.135	-	-	0.09	0.313	0.355
	LTE Band 12	10M	QPSK	25	0	-	Back	5mm	Ant 1	DSI3	23095	707.5	1	23.45	24.00	1.135	-	-	0.1	0.448	0.508
	LTE Band 12	10M	QPSK	25	0	-	Left Side	5mm	Ant 1	DSI7	23095	707.5	1	23.45	24.00	1.135	-	-	-0.02	0.289	0.328
	LTE Band 12	10M	QPSK	25	0	-	Right Side	5mm	Ant 1	DSI7	23095	707.5	1	23.45	24.00	1.135	-	-	0.02	0.203	0.230
	LTE Band 12	10M	QPSK	25	0	-	Top Side	5mm	Ant 1	DSI7	23095	707.5	1	23.45	24.00	1.135	-	-	-0.15	0.329	0.373
	LTE Band 12	10M	QPSK	1	0	-	Front	5mm	Ant 0	DSI3	23095	707.5	1	22.95	24.00	1.274	-	-	-0.16	0.310	0.395
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	23095	707.5	1	22.95	24.00	1.274	-	-	-0.11	0.556	0.708
	LTE Band 12	10M	QPSK	1	0	-	Left Side	5mm	Ant 0	DSI7	23095	707.5	1	22.95	24.00	1.274	-	-	-0.16	0.231	0.294
	LTE Band 12	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI7	23095	707.5	1	22.95	24.00	1.274	-	-	-0.11	0.251	0.320
	LTE Band 12	10M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	23095	707.5	1	22.95	24.00	1.274	-	-	0.1	0.414	0.527
LTE Band 12	10M	QPSK	25	0	-	Front	5mm	Ant 0	DSI3	23095	707.5	1	22.91	24.00	1.285	-	-	-0.01	0.291	0.374	
LTE Band 12	10M	QPSK	25	0	-	Back	5mm	Ant 0	DSI3	23095	707.5	1	22.91	24.00	1.285	-	-	-0.16	0.505	0.649	
LTE Band 12	10M	QPSK	25	0	-	Left Side	5mm	Ant 0	DSI7	23095	707.5	1	22.91	24.00	1.285	-	-	-0.08	0.197	0.253	
LTE Band 12	10M	QPSK	25	0	-	Right Side	5mm	Ant 0	DSI7	23095	707.5	1	22.91	24.00	1.285	-	-	-0.07	0.237	0.305	
LTE Band 12	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 0	DSI7	23095	707.5	1	22.91	24.00	1.285	-	-	0.04	0.389	0.500	
37	LTE Band 13	10M	QPSK	1	0	-	Front	5mm	Ant 1	DSI3	23230	782	1	22.80	24.00	1.318	-	-	0.03	0.392	0.517
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	23230	782	1	22.80	24.00	1.318	-	-	0.16	0.644	0.849
	LTE Band 13	10M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI7	23230	782	1	22.80	24.00	1.318	-	-	-0.16	0.176	0.232
	LTE Band 13	10M	QPSK	1	0	-	Right Side	5mm	Ant 1	DSI7	23230	782	1	22.80	24.00	1.318	-	-	-0.14	0.169	0.223
	LTE Band 13	10M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	23230	782	1	22.80	24.00	1.318	-	-	-0.03	0.471	0.621
	LTE Band 13	10M	QPSK	25	0	-	Front	5mm	Ant 1	DSI3	23230	782	1	22.41	23.50	1.285	-	-	-0.16	0.321	0.413
	LTE Band 13	10M	QPSK	25	0	-	Back	5mm	Ant 1	DSI3	23230	782	1	22.41	23.50	1.285	-	-	-0.03	0.506	0.650
	LTE Band 13	10M	QPSK	25	0	-	Left Side	5mm	Ant 1	DSI7	23230	782	1	22.41	23.50	1.285	-	-	0.07	0.143	0.184
LTE Band 13	10M	QPSK	25	0	-	Right Side	5mm	Ant 1	DSI7	23230	782	1	22.41	23.50	1.285	-	-	-0.05	0.137	0.176	
LTE Band 13	10M	QPSK	25	0	-	Top Side	5mm	Ant 1	DSI7	23230	782	1	22.41	23.50	1.285	-	-	0.08	0.381	0.490	



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 13	10M	QPSK	50	0	-	Back	5mm	Ant 1	DSI3	23230	782	1	22.35	23.50	1.303	-	-	0.04	0.489	0.637
	LTE Band 13	10M	QPSK	1	0	-	Front	5mm	Ant 0	DSI3	23230	782	1	22.81	24.00	1.315	-	-	0.13	0.369	0.485
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	23230	782	1	22.81	24.00	1.315	-	-	0.07	0.622	0.818
	LTE Band 13	10M	QPSK	1	0	-	Left Side	5mm	Ant 0	DSI7	23230	782	1	22.81	24.00	1.315	-	-	-0.08	0.165	0.217
	LTE Band 13	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI7	23230	782	1	22.81	24.00	1.315	-	-	-0.01	0.208	0.274
	LTE Band 13	10M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	23230	782	1	22.81	24.00	1.315	-	-	0.14	0.415	0.546
	LTE Band 13	10M	QPSK	25	0	-	Front	5mm	Ant 0	DSI3	23230	782	1	22.76	24.00	1.330	-	-	0.04	0.330	0.439
	LTE Band 13	10M	QPSK	25	0	-	Back	5mm	Ant 0	DSI3	23230	782	1	22.76	24.00	1.330	-	-	0.11	0.555	0.738
	LTE Band 13	10M	QPSK	25	0	-	Left Side	5mm	Ant 0	DSI7	23230	782	1	22.76	24.00	1.330	-	-	-0.05	0.152	0.202
	LTE Band 13	10M	QPSK	25	0	-	Right Side	5mm	Ant 0	DSI7	23230	782	1	22.76	24.00	1.330	-	-	-0.05	0.196	0.261
	LTE Band 13	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 0	DSI7	23230	782	1	22.76	24.00	1.330	-	-	-0.01	0.400	0.532
	LTE Band 13	10M	QPSK	50	0	-	Back	5mm	Ant 0	DSI3	23230	782	1	22.70	24.00	1.349	-	-	0.13	0.546	0.737
	LTE Band 14	10M	QPSK	1	0	-	Front	5mm	Ant 1	DSI3	23330	793	1	23.01	24.00	1.256	-	-	0.14	0.406	0.510
38	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	23330	793	1	23.01	24.00	1.256	-	-	0.03	0.869	1.091
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	23330	793	2	23.01	24.00	1.256	-	-	0.01	0.664	0.834
	LTE Band 14	10M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI7	23330	793	1	23.01	24.00	1.256	-	-	0.15	0.163	0.205
	LTE Band 14	10M	QPSK	1	0	-	Right Side	5mm	Ant 1	DSI7	23330	793	1	23.01	24.00	1.256	-	-	0.14	0.151	0.190
	LTE Band 14	10M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	23330	793	1	23.01	24.00	1.256	-	-	-0.11	0.467	0.587
	LTE Band 14	10M	QPSK	25	0	-	Front	5mm	Ant 1	DSI3	23330	793	1	22.99	24.00	1.262	-	-	0.14	0.399	0.503
	LTE Band 14	10M	QPSK	25	0	-	Back	5mm	Ant 1	DSI3	23330	793	1	22.99	24.00	1.262	-	-	0.05	0.831	1.049
	LTE Band 14	10M	QPSK	25	0	-	Left Side	5mm	Ant 1	DSI7	23330	793	1	22.99	24.00	1.262	-	-	-0.11	0.155	0.196
	LTE Band 14	10M	QPSK	25	0	-	Right Side	5mm	Ant 1	DSI7	23330	793	1	22.99	24.00	1.262	-	-	-0.08	0.149	0.188
	LTE Band 14	10M	QPSK	25	0	-	Top Side	5mm	Ant 1	DSI7	23330	793	1	22.99	24.00	1.262	-	-	0.14	0.443	0.559
	LTE Band 14	10M	QPSK	50	0	-	Back	5mm	Ant 1	DSI3	23330	793	1	22.92	24.00	1.282	-	-	0.14	0.519	0.666
	LTE Band 14	10M	QPSK	1	0	-	Front	5mm	Ant 0	DSI3	23330	793	1	22.77	24.00	1.327	-	-	0.09	0.356	0.473
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	23330	793	1	22.77	24.00	1.327	-	-	-0.14	0.616	0.818
	LTE Band 14	10M	QPSK	1	0	-	Left Side	5mm	Ant 0	DSI7	23330	793	1	22.77	24.00	1.327	-	-	-0.07	0.169	0.224
	LTE Band 14	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI7	23330	793	1	22.77	24.00	1.327	-	-	0.03	0.213	0.283
	LTE Band 14	10M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	23330	793	1	22.77	24.00	1.327	-	-	0.05	0.422	0.560
	LTE Band 14	10M	QPSK	25	0	-	Front	5mm	Ant 0	DSI3	23330	793	1	22.75	24.00	1.334	-	-	-0.15	0.324	0.432
	LTE Band 14	10M	QPSK	25	0	-	Back	5mm	Ant 0	DSI3	23330	793	1	22.75	24.00	1.334	-	-	0.14	0.582	0.776
	LTE Band 14	10M	QPSK	25	0	-	Left Side	5mm	Ant 0	DSI7	23330	793	1	22.75	24.00	1.334	-	-	-0.05	0.152	0.203
	LTE Band 14	10M	QPSK	25	0	-	Right Side	5mm	Ant 0	DSI7	23330	793	1	22.75	24.00	1.334	-	-	0.01	0.198	0.264
	LTE Band 14	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 0	DSI7	23330	793	1	22.75	24.00	1.334	-	-	0.13	0.400	0.533
	LTE Band 14	10M	QPSK	50	0	-	Back	5mm	Ant 0	DSI3	23330	793	1	22.73	24.00	1.340	-	-	0.09	0.585	0.784
	FR1 n71	20M	QPSK	1	1	DFT-15	Front	5mm	Ant 1	DSI3	136100	680.5	1	23.09	24.00	1.233	-	-	-0.1	0.204	0.252
39	FR1 n71	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	136100	680.5	1	23.09	24.00	1.233	-	-	0.02	0.416	0.513
	FR1 n71	20M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 1	DSI7	136100	680.5	1	23.09	24.00	1.233	-	-	0.13	0.215	0.265
	FR1 n71	20M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 1	DSI7	136100	680.5	1	23.09	24.00	1.233	-	-	-0.02	0.132	0.163
	FR1 n71	20M	QPSK	1	1	DFT-15	Top Side	5mm	Ant 1	DSI7	136100	680.5	1	23.09	24.00	1.233	-	-	-0.02	0.316	0.390
	FR1 n71	20M	QPSK	50	28	DFT-15	Front	5mm	Ant 1	DSI3	136100	680.5	1	23.04	24.00	1.247	-	-	0.06	0.202	0.252
	FR1 n71	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 1	DSI3	136100	680.5	1	23.04	24.00	1.247	-	-	0.04	0.389	0.485
	FR1 n71	20M	QPSK	50	28	DFT-15	Left Side	5mm	Ant 1	DSI7	136100	680.5	1	23.04	24.00	1.247	-	-	-0.11	0.209	0.261
	FR1 n71	20M	QPSK	50	28	DFT-15	Right Side	5mm	Ant 1	DSI7	136100	680.5	1	23.04	24.00	1.247	-	-	0.07	0.128	0.160
	FR1 n71	20M	QPSK	50	28	DFT-15	Top Side	5mm	Ant 1	DSI7	136100	680.5	1	23.04	24.00	1.247	-	-	-0.09	0.312	0.389
	FR1 n71	20M	QPSK	1	1	DFT-15	Front	5mm	Ant 0	DSI3	136100	680.5	1	23.02	24.00	1.253	-	-	-0.04	0.191	0.239
	FR1 n71	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	136100	680.5	1	23.02	24.00	1.253	-	-	-0.16	0.322	0.404
	FR1 n71	20M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 0	DSI7	136100	680.5	1	23.02	24.00	1.253	-	-	-0.11	0.174	0.218
	FR1 n71	20M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 0	DSI7	136100	680.5	1	23.02	24.00	1.253	-	-	0.08	0.189	0.237
	FR1 n71	20M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	136100	680.5	1	23.02	24.00	1.253	-	-	-0.02	0.240	0.301
	FR1 n71	20M	QPSK	50	28	DFT-15	Front	5mm	Ant 0	DSI3	136100	680.5	1	22.91	24.00	1.285	-	-	-0.08	0.180	0.231
	FR1 n71	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 0	DSI3	136100	680.5	1	22.91	24.00	1.285	-	-	-0.01	0.301	0.387
	FR1 n71	20M	QPSK	50	28	DFT-15	Left Side	5mm	Ant 0	DSI7	136100	680.5	1	22.91	24.00	1.285	-	-	0.09	0.163	0.210
	FR1 n71	20M	QPSK	50	28	DFT-15	Right Side	5mm	Ant 0	DSI7	136100	680.5	1	22.91	24.00	1.285	-	-	-0.15	0.181	0.233
	FR1 n71	20M	QPSK	50	28	DFT-15	Bottom Side	5mm	Ant 0	DSI7	136100	680.5	1	22.91	24.00	1.285	-	-	-0.05	0.209	0.269
	FR1 n12	15M	QPSK	1	1	DFT-15	Front	5mm	Ant 1	DSI3	141500	707.5	1	23.35	24.00	1.161	-	-	0.05	0.274	0.318



FCC SAR Test Report

Report No. : FA2N2910

	FR1 n12	15M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	141500	707.5	1	23.35	24.00	1.161	-	-	-0.07	0.433	0.503
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 1	DSI7	141500	707.5	1	23.35	24.00	1.161	-	-	-0.13	0.217	0.252
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 1	DSI7	141500	707.5	1	23.35	24.00	1.161	-	-	0.01	0.148	0.172
	FR1 n12	15M	QPSK	1	1	DFT-15	Top Side	5mm	Ant 1	DSI7	141500	707.5	1	23.35	24.00	1.161	-	-	-0.1	0.288	0.334
	FR1 n12	15M	QPSK	36	22	DFT-15	Front	5mm	Ant 1	DSI3	141500	707.5	1	23.22	24.00	1.197	-	-	0.1	0.254	0.304
	FR1 n12	15M	QPSK	36	22	DFT-15	Back	5mm	Ant 1	DSI3	141500	707.5	1	23.22	24.00	1.197	-	-	-0.13	0.413	0.494
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Side	5mm	Ant 1	DSI7	141500	707.5	1	23.22	24.00	1.197	-	-	0.11	0.213	0.255
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Side	5mm	Ant 1	DSI7	141500	707.5	1	23.22	24.00	1.197	-	-	-0.09	0.143	0.171
	FR1 n12	15M	QPSK	36	22	DFT-15	Top Side	5mm	Ant 1	DSI7	141500	707.5	1	23.22	24.00	1.197	-	-	0.06	0.267	0.320
	FR1 n12	15M	QPSK	1	1	DFT-15	Front	5mm	Ant 0	DSI3	141500	707.5	1	22.83	24.00	1.309	-	-	-0.1	0.325	0.425
40	FR1 n12	15M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	141500	707.5	1	22.83	24.00	1.309	-	-	-0.05	0.413	0.541
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 0	DSI7	141500	707.5	1	22.83	24.00	1.309	-	-	0.14	0.140	0.183
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 0	DSI7	141500	707.5	1	22.83	24.00	1.309	-	-	0.08	0.195	0.255
	FR1 n12	15M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	141500	707.5	1	22.83	24.00	1.309	-	-	0.09	0.321	0.420
	FR1 n12	15M	QPSK	36	22	DFT-15	Front	5mm	Ant 0	DSI3	141500	707.5	1	22.76	24.00	1.330	-	-	0.04	0.278	0.370
	FR1 n12	15M	QPSK	36	22	DFT-15	Back	5mm	Ant 0	DSI3	141500	707.5	1	22.76	24.00	1.330	-	-	-0.06	0.403	0.536
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Side	5mm	Ant 0	DSI7	141500	707.5	1	22.76	24.00	1.330	-	-	-0.1	0.136	0.181
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Side	5mm	Ant 0	DSI7	141500	707.5	1	22.76	24.00	1.330	-	-	0.15	0.189	0.251
	FR1 n12	15M	QPSK	36	22	DFT-15	Bottom Side	5mm	Ant 0	DSI7	141500	707.5	1	22.76	24.00	1.330	-	-	0.03	0.284	0.378
	FR1 n13	10M	QPSK	1	1	DFT-15	Front	5mm	Ant 1	DSI3	156400	782	1	23.02	24.00	1.253	-	-	0.02	0.082	0.103
	FR1 n13	10M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	156400	782	1	23.02	24.00	1.253	-	-	0.11	0.123	0.154
	FR1 n13	10M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 1	DSI7	156400	782	1	23.02	24.00	1.253	-	-	-0.15	0.044	0.055
	FR1 n13	10M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 1	DSI7	156400	782	1	23.02	24.00	1.253	-	-	0.1	0.031	0.039
	FR1 n13	10M	QPSK	1	1	DFT-15	Top Side	5mm	Ant 1	DSI7	156400	782	1	23.02	24.00	1.253	-	-	-0.01	0.085	0.107
	FR1 n13	10M	QPSK	25	14	DFT-15	Front	5mm	Ant 1	DSI3	156400	782	1	22.64	24.00	1.368	-	-	0.05	0.069	0.094
	FR1 n13	10M	QPSK	25	14	DFT-15	Back	5mm	Ant 1	DSI3	156400	782	1	22.64	24.00	1.368	-	-	0.14	0.090	0.123
	FR1 n13	10M	QPSK	25	14	DFT-15	Left Side	5mm	Ant 1	DSI7	156400	782	1	22.64	24.00	1.368	-	-	0.14	0.032	0.044
	FR1 n13	10M	QPSK	25	14	DFT-15	Right Side	5mm	Ant 1	DSI7	156400	782	1	22.64	24.00	1.368	-	-	-0.13	0.028	0.038
	FR1 n13	10M	QPSK	25	14	DFT-15	Top Side	5mm	Ant 1	DSI7	156400	782	1	22.64	24.00	1.368	-	-	-0.02	0.071	0.097
	FR1 n13	10M	QPSK	1	1	DFT-15	Front	5mm	Ant 0	DSI3	156400	782	1	22.82	24.00	1.312	-	-	0.12	0.300	0.394
41	FR1 n13	10M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	156400	782	1	22.82	24.00	1.312	-	-	0.16	0.462	0.606
	FR1 n13	10M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 0	DSI7	156400	782	1	22.82	24.00	1.312	-	-	0.01	0.092	0.121
	FR1 n13	10M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 0	DSI7	156400	782	1	22.82	24.00	1.312	-	-	-0.12	0.162	0.213
	FR1 n13	10M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	156400	782	1	22.82	24.00	1.312	-	-	0.06	0.405	0.531
	FR1 n13	10M	QPSK	25	14	DFT-15	Front	5mm	Ant 0	DSI3	156400	782	1	22.57	24.00	1.390	-	-	0.01	0.272	0.378
	FR1 n13	10M	QPSK	25	14	DFT-15	Back	5mm	Ant 0	DSI3	156400	782	1	22.57	24.00	1.390	-	-	0.09	0.426	0.592
	FR1 n13	10M	QPSK	25	14	DFT-15	Left Side	5mm	Ant 0	DSI7	156400	782	1	22.57	24.00	1.390	-	-	0.05	0.084	0.117
	FR1 n13	10M	QPSK	25	14	DFT-15	Right Side	5mm	Ant 0	DSI7	156400	782	1	22.57	24.00	1.390	-	-	0.01	0.149	0.207
	FR1 n13	10M	QPSK	25	14	DFT-15	Bottom Side	5mm	Ant 0	DSI7	156400	782	1	22.57	24.00	1.390	-	-	-0.06	0.354	0.492
	FR1 n14	10M	QPSK	1	1	DFT-15	Front	5mm	Ant 1	DSI3	158600	793	1	23.12	24.00	1.225	-	-	0.07	0.337	0.413
42	FR1 n14	10M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	158600	793	1	23.12	24.00	1.225	-	-	-0.01	0.527	0.645
	FR1 n14	10M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 1	DSI7	158600	793	1	23.12	24.00	1.225	-	-	-0.12	0.199	0.244
	FR1 n14	10M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 1	DSI7	158600	793	1	23.12	24.00	1.225	-	-	-0.16	0.134	0.164
	FR1 n14	10M	QPSK	1	1	DFT-15	Top Side	5mm	Ant 1	DSI7	158600	793	1	23.12	24.00	1.225	-	-	0.13	0.400	0.490
	FR1 n14	10M	QPSK	25	14	DFT-15	Front	5mm	Ant 1	DSI3	158600	793	1	23.01	24.00	1.256	-	-	-0.14	0.321	0.403
	FR1 n14	10M	QPSK	25	14	DFT-15	Back	5mm	Ant 1	DSI3	158600	793	1	23.01	24.00	1.256	-	-	-0.13	0.496	0.623
	FR1 n14	10M	QPSK	25	14	DFT-15	Left Side	5mm	Ant 1	DSI7	158600	793	1	23.01	24.00	1.256	-	-	-0.15	0.167	0.210
	FR1 n14	10M	QPSK	25	14	DFT-15	Right Side	5mm	Ant 1	DSI7	158600	793	1	23.01	24.00	1.256	-	-	0.14	0.129	0.162
	FR1 n14	10M	QPSK	25	14	DFT-15	Top Side	5mm	Ant 1	DSI7	158600	793	1	23.01	24.00	1.256	-	-	0.13	0.372	0.467
	FR1 n14	10M	QPSK	1	1	DFT-15	Front	5mm	Ant 0	DSI3	158600	793	1	22.76	24.00	1.330	-	-	-0.11	0.176	0.234
	FR1 n14	10M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	158600	793	1	22.76	24.00	1.330	-	-	-0.13	0.484	0.644
	FR1 n14	10M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 0	DSI7	158600	793	1	22.76	24.00	1.330	-	-	0.14	0.129	0.172
	FR1 n14	10M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 0	DSI7	158600	793	1	22.76	24.00	1.330	-	-	0.13	0.159	0.212
	FR1 n14	10M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	158600	793	1	22.76	24.00	1.330	-	-	0.14	0.231	0.307
	FR1 n14	10M	QPSK	25	14	DFT-15	Front	5mm	Ant 0	DSI3	158600	793	1	22.63	24.00	1.371	-	-	-0.14	0.171	0.234
	FR1 n14	10M	QPSK	25	14	DFT-15	Back	5mm	Ant 0	DSI3	158600	793	1	22.63	24.00	1.371	-	-	0.13	0.452	0.620



FCC SAR Test Report

Report No. : FA2N2910

FR1 n14	10M	QPSK	25	14	DFT-15	Left Side	5mm	Ant 0	DSI7	158600	793	1	22.63	24.00	1.371	-	-	0.05	0.120	0.165	
FR1 n14	10M	QPSK	25	14	DFT-15	Right Side	5mm	Ant 0	DSI7	158600	793	1	22.63	24.00	1.371	-	-	0.03	0.147	0.202	
FR1 n14	10M	QPSK	25	14	DFT-15	Bottom Side	5mm	Ant 0	DSI7	158600	793	1	22.63	24.00	1.371	-	-	-0.01	0.213	0.292	
835 MHz																					
GSM850	-	-	-	-	GPRS (3 Tx slots)	Front	5mm	Ant 0	DSI3	251	848.8	1	28.99	29.50	1.125	-	-	-0.02	0.106	0.119	
GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI3	251	848.8	1	28.99	29.50	1.125	-	-	-0.16	0.212	0.238	
GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Side	5mm	Ant 0	DSI7	251	848.8	1	28.99	29.50	1.125	-	-	-0.04	0.028	0.031	
GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Side	5mm	Ant 0	DSI7	251	848.8	1	28.99	29.50	1.125	-	-	-0.01	0.061	0.069	
GSM850	-	-	-	-	GPRS (3 Tx slots)	Bottom Side	5mm	Ant 0	DSI7	251	848.8	1	28.99	29.50	1.125	-	-	-0.09	0.161	0.181	
43	GSM850	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI3	128	824.2	1	28.61	29.50	1.227	-	-	0.12	0.292	0.358	
GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI3	189	836.4	1	28.51	29.50	1.256	-	-	-0.16	0.212	0.266	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	DSI3	4182	836.4	1	23.41	24.00	1.146	-	-	0.09	0.419	0.480	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	4182	836.4	1	23.41	24.00	1.146	-	-	0.05	0.712	0.816	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 1	DSI7	4182	836.4	1	23.41	24.00	1.146	-	-	0.07	0.130	0.149	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 1	DSI7	4182	836.4	1	23.41	24.00	1.146	-	-	0.13	0.133	0.152	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 1	DSI7	4182	836.4	1	23.41	24.00	1.146	-	-	-0.04	0.651	0.746	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	4132	826.4	1	23.19	24.00	1.205	-	-	0.11	0.560	0.675	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	4233	846.6	1	23.25	24.00	1.189	-	-	0.04	0.730	0.868	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	DSI3	4182	836.4	1	23.08	24.00	1.236	-	-	0.09	0.558	0.690	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	4182	836.4	1	23.08	24.00	1.236	-	-	-0.1	0.743	0.918	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 0	DSI7	4182	836.4	1	23.08	24.00	1.236	-	-	0.16	0.145	0.179	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 0	DSI7	4182	836.4	1	23.08	24.00	1.236	-	-	-0.01	0.178	0.220	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI7	4182	836.4	1	23.08	24.00	1.236	-	-	0.04	0.670	0.828	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI3	4132	826.4	1	23.05	24.00	1.245	-	-	0.04	0.610	0.759	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI3	4233	846.6	1	22.91	24.00	1.285	-	-	0.11	0.590	0.758	
44	WCDMA V	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	4132	826.4	1	23.05	24.00	1.245	-	-	0.12	0.811	1.009	
WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	4233	846.6	1	22.91	24.00	1.285	-	-	0.06	0.777	0.999	
LTE Band 26	15M	QPSK	1	0	-	Front	5mm	Ant 1	DSI3	26865	831.5	1	23.16	24.00	1.213	-	-	-0.09	0.615	0.746	
45	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	26865	831.5	1	23.16	24.00	1.213	-	-	-0.1	0.841	1.020
LTE Band 26	15M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI7	26865	831.5	1	23.16	24.00	1.213	-	-	-0.07	0.191	0.232	
LTE Band 26	15M	QPSK	1	0	-	Right Side	5mm	Ant 1	DSI7	26865	831.5	1	23.16	24.00	1.213	-	-	-0.02	0.220	0.267	
LTE Band 26	15M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	26865	831.5	1	23.16	24.00	1.213	-	-	0.09	0.790	0.959	
LTE Band 26	15M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	26765	821.5	1	23.09	24.00	1.233	-	-	0.03	0.637	0.785	
LTE Band 26	15M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	26965	841.5	1	23.15	24.00	1.216	-	-	0.09	0.744	0.905	
LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	26765	821.5	1	23.09	24.00	1.233	-	-	-0.04	0.808	0.996	
LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	26965	841.5	1	23.15	24.00	1.216	-	-	-0.15	0.802	0.975	
LTE Band 26	15M	QPSK	36	0	-	Front	5mm	Ant 1	DSI3	26865	831.5	1	23.05	24.00	1.245	-	-	-0.07	0.498	0.620	
LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 1	DSI3	26865	831.5	1	23.05	24.00	1.245	-	-	-0.11	0.777	0.967	
LTE Band 26	15M	QPSK	36	0	-	Left Side	5mm	Ant 1	DSI7	26865	831.5	1	23.05	24.00	1.245	-	-	-0.13	0.161	0.200	
LTE Band 26	15M	QPSK	36	0	-	Right Side	5mm	Ant 1	DSI7	26865	831.5	1	23.05	24.00	1.245	-	-	0.1	0.175	0.218	
LTE Band 26	15M	QPSK	36	0	-	Top Side	5mm	Ant 1	DSI7	26865	831.5	1	23.05	24.00	1.245	-	-	-0.07	0.660	0.821	
LTE Band 26	15M	QPSK	36	0	-	Top Side	5mm	Ant 1	DSI7	26765	821.5	1	22.98	24.00	1.265	-	-	0.03	0.606	0.766	
LTE Band 26	15M	QPSK	36	0	-	Top Side	5mm	Ant 1	DSI7	26965	841.5	1	23.04	24.00	1.247	-	-	-0.11	0.651	0.812	
LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 1	DSI3	26765	821.5	1	22.98	24.00	1.265	-	-	-0.13	0.644	0.814	
LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 1	DSI3	26965	841.5	1	23.04	24.00	1.247	-	-	0.03	0.656	0.818	
LTE Band 26	15M	QPSK	75	0	-	Top Side	5mm	Ant 1	DSI7	26865	831.5	1	23.03	24.00	1.250	-	-	0.04	0.623	0.779	
LTE Band 26	15M	QPSK	75	0	-	Back	5mm	Ant 1	DSI3	26865	831.5	1	23.03	24.00	1.250	-	-	0.06	0.756	0.945	
LTE Band 26	15M	QPSK	1	0	-	Front	5mm	Ant 0	DSI3	26865	831.5	1	23.06	24.00	1.242	-	-	0.03	0.352	0.437	
LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	26865	831.5	1	23.06	24.00	1.242	-	-	-0.14	0.613	0.761	
LTE Band 26	15M	QPSK	1	0	-	Left Side	5mm	Ant 0	DSI7	26865	831.5	1	23.06	24.00	1.242	-	-	0.12	0.171	0.212	
LTE Band 26	15M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI7	26865	831.5	1	23.06	24.00	1.242	-	-	0.1	0.222	0.276	
LTE Band 26	15M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	26865	831.5	1	23.06	24.00	1.242	-	-	0.14	0.495	0.615	
LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	26765	821.5	1	22.95	24.00	1.274	-	-	-0.1	0.693	0.883	
LTE Band 5B	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	20450+ 20549	829+ 838.9	1	22.96	24.00	1.271	-	-	0.03	0.659	0.837	
LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	26965	841.5	1	22.92	24.00	1.282	-	-	0.15	0.629	0.807	
LTE Band 26	15M	QPSK	36	0	-	Front	5mm	Ant 0	DSI3	26865	831.5	1	23.01	24.00	1.256	-	-	-0.16	0.342	0.430	



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 0	DSI3	26865	831.5	1	23.01	24.00	1.256	-	-	0.07	0.600	0.754
	LTE Band 26	15M	QPSK	36	0	-	Left Side	5mm	Ant 0	DSI7	26865	831.5	1	23.01	24.00	1.256	-	-	-0.11	0.155	0.195
	LTE Band 26	15M	QPSK	36	0	-	Right Side	5mm	Ant 0	DSI7	26865	831.5	1	23.01	24.00	1.256	-	-	0.06	0.197	0.247
	LTE Band 26	15M	QPSK	36	0	-	Bottom Side	5mm	Ant 0	DSI7	26865	831.5	1	23.01	24.00	1.256	-	-	-0.09	0.439	0.551
	LTE Band 26	15M	QPSK	75	0	-	Back	5mm	Ant 0	DSI3	26865	831.5	1	22.99	24.00	1.262	-	-	0.06	0.595	0.751
46	FR1 n26	20M	QPSK	1	1	DFT-15	Front	5mm	Ant 1	DSI3	166300	831.5	1	23.20	24.00	1.202	-	-	-0.11	0.399	0.480
	FR1 n26	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	166300	831.5	1	23.20	24.00	1.202	-	-	0.11	0.541	0.650
	FR1 n26	20M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 1	DSI7	166300	831.5	1	23.20	24.00	1.202	-	-	-0.07	0.120	0.144
	FR1 n26	20M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 1	DSI7	166300	831.5	1	23.20	24.00	1.202	-	-	-0.06	0.134	0.161
	FR1 n26	20M	QPSK	1	1	DFT-15	Top Side	5mm	Ant 1	DSI7	166300	831.5	1	23.20	24.00	1.202	-	-	0.01	0.528	0.635
	FR1 n26	20M	QPSK	50	28	DFT-15	Front	5mm	Ant 1	DSI3	166300	831.5	1	23.11	24.00	1.227	-	-	0.05	0.343	0.421
	FR1 n26	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 1	DSI3	166300	831.5	1	23.11	24.00	1.227	-	-	0.04	0.460	0.565
	FR1 n26	20M	QPSK	50	28	DFT-15	Left Side	5mm	Ant 1	DSI7	166300	831.5	1	23.11	24.00	1.227	-	-	-0.14	0.103	0.126
	FR1 n26	20M	QPSK	50	28	DFT-15	Right Side	5mm	Ant 1	DSI7	166300	831.5	1	23.11	24.00	1.227	-	-	0.07	0.117	0.144
	FR1 n26	20M	QPSK	50	28	DFT-15	Top Side	5mm	Ant 1	DSI7	166300	831.5	1	23.11	24.00	1.227	-	-	-0.1	0.447	0.549
	FR1 n26	20M	QPSK	1	1	DFT-15	Front	5mm	Ant 0	DSI3	166300	831.5	1	23.19	24.00	1.205	-	-	0.14	0.362	0.436
	FR1 n26	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	166300	831.5	1	23.19	24.00	1.205	-	-	-0.12	0.510	0.615
	FR1 n26	20M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 0	DSI7	166300	831.5	1	23.19	24.00	1.205	-	-	0.02	0.179	0.216
	FR1 n26	20M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 0	DSI7	166300	831.5	1	23.19	24.00	1.205	-	-	-0.04	0.218	0.263
	FR1 n26	20M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	166300	831.5	1	23.19	24.00	1.205	-	-	0.09	0.415	0.500
	FR1 n26	20M	QPSK	50	28	DFT-15	Front	5mm	Ant 0	DSI3	166300	831.5	1	23.10	24.00	1.230	-	-	0.01	0.333	0.410
	FR1 n26	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 0	DSI3	166300	831.5	1	23.10	24.00	1.230	-	-	-0.15	0.481	0.592
	FR1 n26	20M	QPSK	50	28	DFT-15	Left Side	5mm	Ant 0	DSI7	166300	831.5	1	23.10	24.00	1.230	-	-	-0.08	0.150	0.185
	FR1 n26	20M	QPSK	50	28	DFT-15	Right Side	5mm	Ant 0	DSI7	166300	831.5	1	23.10	24.00	1.230	-	-	-0.03	0.186	0.229
	FR1 n26	20M	QPSK	50	28	DFT-15	Bottom Side	5mm	Ant 0	DSI7	166300	831.5	1	23.10	24.00	1.230	-	-	-0.03	0.398	0.490
1750 MHz																					
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	DSI3	1413	1732.6	1	17.59	18.50	1.233	-	-	-0.14	0.344	0.424
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	1413	1732.6	1	17.59	18.50	1.233	-	-	-0.15	0.707	0.872
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 1	DSI7	1413	1732.6	1	16.60	17.50	1.230	-	-	-0.09	0.070	0.086
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 1	DSI7	1413	1732.6	1	16.60	17.50	1.230	-	-	0.07	0.026	0.032
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 1	DSI7	1413	1732.6	1	16.60	17.50	1.230	-	-	0.08	0.716	0.881
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 1	DSI7	1312	1712.4	1	16.13	17.50	1.371	-	-	-0.01	0.575	0.788
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 1	DSI7	1513	1752.6	1	16.24	17.50	1.337	-	-	-0.09	0.784	1.048
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	1312	1712.4	1	17.12	18.50	1.374	-	-	-0.01	0.623	0.856
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	1513	1752.6	1	17.26	18.50	1.330	-	-	-0.12	0.723	0.962
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	DSI3	1413	1732.6	1	17.10	17.80	1.175	-	-	0.15	0.454	0.533
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	1413	1732.6	1	17.10	17.80	1.175	-	-	-0.03	0.689	0.810
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 0	DSI7	1413	1732.6	1	16.06	16.80	1.186	-	-	0.04	0.031	0.037
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 0	DSI7	1413	1732.6	1	16.06	16.80	1.186	-	-	-0.08	0.024	0.028
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI7	1413	1732.6	1	16.06	16.80	1.186	-	-	-0.05	0.726	0.861
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI7	1312	1712.4	1	15.60	16.80	1.318	-	-	0.13	0.684	0.902
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI7	1513	1752.6	1	16.00	16.80	1.202	-	-	-0.1	0.860	1.034
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	1312	1712.4	1	16.59	17.80	1.321	-	-	-0.08	0.623	0.823
47	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	1513	1752.6	1	17.02	17.80	1.197	-	-	-0.12	0.902	1.079
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 1	DSI3	132322	1745	1	17.23	18.30	1.279	-	-	-0.04	0.312	0.399
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	132322	1745	1	17.23	18.30	1.279	-	-	0.15	0.674	0.862
	LTE Band 66	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI7	132322	1745	1	16.66	17.80	1.300	-	-	0.07	0.064	0.083
	LTE Band 66	20M	QPSK	1	0	-	Right Side	5mm	Ant 1	DSI7	132322	1745	1	16.66	17.80	1.300	-	-	0.11	0.058	0.075
	LTE Band 66	20M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	132322	1745	1	16.66	17.80	1.300	-	-	-0.06	0.653	0.849
	LTE Band 66	20M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	132072	1720	1	16.61	17.80	1.315	-	-	-0.14	0.567	0.746
	LTE Band 66	20M	QPSK	1	0	-	Top Side	5mm	Ant 1	DSI7	132572	1770	1	16.37	17.80	1.390	-	-	-0.16	0.753	1.047
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	132072	1720	1	17.15	18.30	1.303	-	-	-0.05	0.637	0.830
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	132572	1770	1	16.92	18.30	1.374	-	-	-0.1	0.768	1.055
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	DSI3	132322	1745	1	17.19	18.30	1.291	-	-	0.08	0.302	0.390
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	DSI3	132322	1745	1	17.19	18.30	1.291	-	-	-0.15	0.662	0.855
	LTE Band 66	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	DSI7	132322	1745	1	16.64	17.80	1.306	-	-	-0.15	0.061	0.080



FCC SAR Test Report

Report No. : FA2N2910

	LTE Band 66	20M	QPSK	50	0	-	Right Side	5mm	Ant 1	DSI7	132322	1745	1	16.64	17.80	1.306	-	-	-0.04	0.053	0.069
	LTE Band 66	20M	QPSK	50	0	-	Top Side	5mm	Ant 1	DSI7	132322	1745	1	16.64	17.80	1.306	-	-	0.01	0.645	0.842
	LTE Band 66	20M	QPSK	50	0	-	Top Side	5mm	Ant 1	DSI7	132072	1720	1	16.57	17.80	1.327	-	-	0.03	0.549	0.729
	LTE Band 66	20M	QPSK	50	0	-	Top Side	5mm	Ant 1	DSI7	132572	1770	1	16.61	17.80	1.315	-	-	-0.12	0.743	0.977
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	DSI3	132072	1720	1	17.06	18.30	1.330	-	-	-0.09	0.615	0.818
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	DSI3	132572	1770	1	17.06	18.30	1.330	-	-	0.05	0.731	0.973
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant 1	DSI3	132322	1745	1	17.08	18.30	1.324	-	-	0.09	0.573	0.759
	LTE Band 66	20M	QPSK	100	0	-	Top Side	5mm	Ant 1	DSI7	132322	1745	1	16.57	17.80	1.327	-	-	0.06	0.639	0.848
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 0	DSI3	132322	1745	1	17.38	17.70	1.076	-	-	0.16	0.389	0.419
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	132322	1745	1	17.38	17.70	1.076	-	-	0.03	0.747	0.804
	LTE Band 66	20M	QPSK	1	0	-	Left Side	5mm	Ant 0	DSI7	132322	1745	1	16.93	17.20	1.064	-	-	0.14	0.033	0.035
	LTE Band 66	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI7	132322	1745	1	16.93	17.20	1.064	-	-	-0.03	0.027	0.029
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	132322	1745	1	16.93	17.20	1.064	-	-	-0.05	0.766	0.815
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	132072	1720	1	16.75	17.20	1.109	-	-	0.04	0.723	0.802
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	132572	1770	1	16.72	17.20	1.117	-	-	-0.04	0.899	1.004
	LTE Band 66C	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	132572+ 132374	1770+ 1750.2	1	16.68	17.20	1.127	-	-	0.03	0.825	0.930
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	132072	1720	1	17.20	17.70	1.122	-	-	0.14	0.736	0.826
48	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	132572	1770	1	17.27	17.70	1.104	-	-	-0.07	1.010	1.115
	LTE Band 66C	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	132572+ 132374	1770+ 1750.2	1	17.19	17.70	1.125	-	-	-0.08	0.772	0.868
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 0	DSI3	132322	1745	1	17.35	17.70	1.084	-	-	0.13	0.367	0.398
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 0	DSI3	132322	1745	1	17.35	17.70	1.084	-	-	0.15	0.739	0.801
	LTE Band 66	20M	QPSK	50	0	-	Left Side	5mm	Ant 0	DSI7	132322	1745	1	16.90	17.20	1.072	-	-	-0.02	0.030	0.032
	LTE Band 66	20M	QPSK	50	0	-	Right Side	5mm	Ant 0	DSI7	132322	1745	1	16.90	17.20	1.072	-	-	-0.13	0.024	0.026
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	DSI7	132322	1745	1	16.90	17.20	1.072	-	-	-0.06	0.752	0.806
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	DSI7	132072	1720	1	16.76	17.20	1.107	-	-	0.04	0.703	0.778
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	DSI7	132572	1770	1	16.87	17.20	1.079	-	-	-0.07	0.876	0.945
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 0	DSI3	132072	1720	1	17.31	17.70	1.094	-	-	0.14	0.728	0.796
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 0	DSI3	132572	1770	1	17.35	17.70	1.084	-	-	0.05	0.939	1.018
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant 0	DSI3	132322	1745	1	17.28	17.70	1.102	-	-	0.09	0.706	0.778
	LTE Band 66	20M	QPSK	100	0	-	Bottom Side	5mm	Ant 0	DSI7	132322	1745	1	16.80	17.20	1.096	-	-	-0.15	0.733	0.804
	FR1 n70	15M	QPSK	1	1	DFT-15	Front	5mm	Ant 1	DSI3	340500	1702.5	1	18.98	20.00	1.265	-	-	-0.14	0.469	0.593
	FR1 n70	15M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	340500	1702.5	1	18.98	20.00	1.265	-	-	0.16	0.849	1.074
	FR1 n70	15M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 1	DSI7	340500	1702.5	1	17.95	19.00	1.274	-	-	-0.09	0.091	0.116
	FR1 n70	15M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 1	DSI7	340500	1702.5	1	17.95	19.00	1.274	-	-	-0.01	0.026	0.033
	FR1 n70	15M	QPSK	1	1	DFT-15	Top Side	5mm	Ant 1	DSI7	340500	1702.5	1	17.95	19.00	1.274	-	-	0.09	0.829	1.056
	FR1 n70	15M	QPSK	36	22	DFT-15	Front	5mm	Ant 1	DSI3	340500	1702.5	1	18.95	20.00	1.274	-	-	-0.07	0.445	0.567
	FR1 n70	15M	QPSK	36	22	DFT-15	Back	5mm	Ant 1	DSI3	340500	1702.5	1	18.95	20.00	1.274	-	-	-0.01	0.822	1.047
	FR1 n70	15M	QPSK	36	22	DFT-15	Left Side	5mm	Ant 1	DSI7	340500	1702.5	1	17.94	19.00	1.276	-	-	0.1	0.087	0.111
	FR1 n70	15M	QPSK	36	22	DFT-15	Right Side	5mm	Ant 1	DSI7	340500	1702.5	1	17.94	19.00	1.276	-	-	-0.1	0.022	0.028
	FR1 n70	15M	QPSK	36	22	DFT-15	Top Side	5mm	Ant 1	DSI7	340500	1702.5	1	17.94	19.00	1.276	-	-	0.03	0.810	1.034
	FR1 n70	15M	QPSK	75	0	DFT-15	Back	5mm	Ant 1	DSI3	340500	1702.5	1	18.68	20.00	1.355	-	-	-0.1	0.750	1.016
	FR1 n70	15M	QPSK	75	0	DFT-15	Top Side	5mm	Ant 1	DSI7	340500	1702.5	1	17.79	19.00	1.321	-	-	0.08	0.780	1.031
	FR1 n70	15M	QPSK	1	1	DFT-15	Front	5mm	Ant 0	DSI3	340500	1702.5	1	18.40	19.00	1.148	-	-	0.04	0.654	0.751
	FR1 n70	15M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	340500	1702.5	1	18.40	19.00	1.148	-	-	-0.05	0.877	1.007
	FR1 n70	15M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 0	DSI7	340500	1702.5	1	17.99	18.50	1.125	-	-	-0.12	0.045	0.051
	FR1 n70	15M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 0	DSI7	340500	1702.5	1	17.99	18.50	1.125	-	-	-0.09	0.028	0.031
49	FR1 n70	15M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	340500	1702.5	1	17.99	18.50	1.125	-	-	0.02	1.060	1.192
	FR1 n70	15M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	340500	1702.5	2	17.99	18.50	1.125	-	-	0.04	0.874	0.983
	FR1 n70	15M	QPSK	36	22	DFT-15	Front	5mm	Ant 0	DSI3	340500	1702.5	1	18.30	19.00	1.175	-	-	-0.03	0.631	0.741
	FR1 n70	15M	QPSK	36	22	DFT-15	Back	5mm	Ant 0	DSI3	340500	1702.5	1	18.30	19.00	1.175	-	-	0.01	0.846	0.994
	FR1 n70	15M	QPSK	36	22	DFT-15	Left Side	5mm	Ant 0	DSI7	340500	1702.5	1	17.80	18.50	1.175	-	-	-0.04	0.041	0.048
	FR1 n70	15M	QPSK	36	22	DFT-15	Right Side	5mm	Ant 0	DSI7	340500	1702.5	1	17.80	18.50	1.175	-	-	-0.15	0.023	0.027
	FR1 n70	15M	QPSK	36	22	DFT-15	Bottom Side	5mm	Ant 0	DSI7	340500	1702.5	1	17.80	18.50	1.175	-	-	-0.04	0.955	1.122
	FR1 n70	15M	QPSK	75	0	DFT-15	Back	5mm	Ant 0	DSI3	340500	1702.5	1	18.12	19.00	1.225	-	-	0.1	0.820	1.004
	FR1 n70	15M	QPSK	75	0	DFT-15	Bottom Side	5mm	Ant 0	DSI7	340500	1702.5	1	17.72	18.50	1.197	-	-	0.08	0.960	1.149
	FR1 n66	40M	QPSK	1	1	DFT-15	Front	5mm	Ant 1	DSI3	349000	1745	1	18.45	19.50	1.274	-	-	0.03	0.381	0.485



FCC SAR Test Report

Report No. : FA2N2910

	FR1 n66	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	349000	1745	1	18.45	19.50	1.274	-	-	-0.14	0.863	1.099
	FR1 n66	40M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 1	DSI7	349000	1745	1	17.98	19.00	1.265	-	-	0.08	0.082	0.104
	FR1 n66	40M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 1	DSI7	349000	1745	1	17.98	19.00	1.265	-	-	-0.13	0.032	0.040
	FR1 n66	40M	QPSK	1	1	DFT-15	Top Side	5mm	Ant 1	DSI7	349000	1745	1	17.98	19.00	1.265	-	-	-0.12	0.879	1.112
	FR1 n66	40M	QPSK	108	54	DFT-15	Front	5mm	Ant 1	DSI3	349000	1745	1	18.31	19.50	1.315	-	-	0.15	0.361	0.475
	FR1 n66	40M	QPSK	108	54	DFT-15	Back	5mm	Ant 1	DSI3	349000	1745	1	18.31	19.50	1.315	-	-	-0.05	0.802	1.055
	FR1 n66	40M	QPSK	108	54	DFT-15	Left Side	5mm	Ant 1	DSI7	349000	1745	1	17.84	19.00	1.306	-	-	-0.04	0.080	0.104
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Side	5mm	Ant 1	DSI7	349000	1745	1	17.84	19.00	1.306	-	-	0.16	0.030	0.039
	FR1 n66	40M	QPSK	108	54	DFT-15	Top Side	5mm	Ant 1	DSI7	349000	1745	1	17.84	19.00	1.306	-	-	-0.09	0.843	1.101
	FR1 n66	40M	QPSK	216	0	DFT-15	Back	5mm	Ant 1	DSI3	349000	1745	1	18.30	19.50	1.318	-	-	0.08	0.770	1.015
	FR1 n66	40M	QPSK	216	0	DFT-15	Top Side	5mm	Ant 1	DSI7	349000	1745	1	17.81	19.00	1.315	-	-	0.02	0.808	1.063
	FR1 n66	40M	QPSK	1	1	DFT-15	Front	5mm	Ant 0	DSI3	349000	1745	1	18.99	19.50	1.125	-	-	-0.09	0.531	0.597
50	FR1 n66	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	349000	1745	1	18.99	19.50	1.125	-	-	0.14	1.060	1.192
	FR1 n66	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	349000	1745	2	18.99	19.50	1.125	-	-	0.04	1.030	1.158
	FR1 n66	40M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 0	DSI7	349000	1745	1	18.01	18.50	1.119	-	-	-0.08	0.045	0.050
	FR1 n66	40M	QPSK	1	1	DFT-15	Right Side	5mm	Ant 0	DSI7	349000	1745	1	18.01	18.50	1.119	-	-	0.11	0.021	0.024
	FR1 n66	40M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	349000	1745	1	18.01	18.50	1.119	-	-	-0.14	1.030	1.153
	FR1 n66	40M	QPSK	108	54	DFT-15	Front	5mm	Ant 0	DSI3	349000	1745	1	18.87	19.50	1.156	-	-	-0.13	0.515	0.595
	FR1 n66	40M	QPSK	108	54	DFT-15	Back	5mm	Ant 0	DSI3	349000	1745	1	18.87	19.50	1.156	-	-	0.1	0.985	1.139
	FR1 n66	40M	QPSK	108	54	DFT-15	Left Side	5mm	Ant 0	DSI7	349000	1745	1	17.91	18.50	1.146	-	-	0.07	0.039	0.045
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Side	5mm	Ant 0	DSI7	349000	1745	1	17.91	18.50	1.146	-	-	0.01	0.018	0.021
	FR1 n66	40M	QPSK	108	54	DFT-15	Bottom Side	5mm	Ant 0	DSI7	349000	1745	1	17.91	18.50	1.146	-	-	0.01	0.971	1.112
	FR1 n66	40M	QPSK	216	0	DFT-15	Back	5mm	Ant 0	DSI3	349000	1745	1	18.85	19.50	1.161	-	-	0.09	0.966	1.122
	FR1 n66	40M	QPSK	216	0	DFT-15	Bottom Side	5mm	Ant 0	DSI7	349000	1745	1	17.90	18.50	1.148	-	-	0.02	0.948	1.088
1900 MHz																					
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Front	5mm	Ant 0	DSI3	661	1880	1	20.81	22.00	1.315	-	-	-0.06	0.286	0.376
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI3	661	1880	1	20.81	22.50	1.476	-	-	-0.04	0.637	0.940
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Side	5mm	Ant 0	DSI7	661	1880	1	20.34	22.00	1.466	-	-	0.01	0.030	0.044
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Side	5mm	Ant 0	DSI7	661	1880	1	20.34	22.00	1.466	-	-	0.15	0.021	0.031
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Bottom Side	5mm	Ant 0	DSI7	661	1880	1	20.34	22.00	1.466	-	-	-0.14	0.722	1.058
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Bottom Side	5mm	Ant 0	DSI7	512	1850.2	1	20.14	22.00	1.535	-	-	-0.05	0.700	1.074
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Bottom Side	5mm	Ant 0	DSI7	810	1909.8	1	20.27	22.00	1.489	-	-	0.05	0.726	1.081
51	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI3	512	1850.2	1	20.60	22.50	1.549	-	-	-0.08	0.714	1.106
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI3	810	1909.8	1	20.80	22.50	1.479	-	-	0.14	0.606	0.896
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	DSI3	9400	1880	1	19.21	20.00	1.199	-	-	-0.13	0.346	0.415
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	9400	1880	1	19.21	20.00	1.199	-	-	-0.01	0.679	0.814
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 1	DSI7	9400	1880	1	17.65	18.50	1.216	-	-	-0.13	0.071	0.086
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 1	DSI7	9400	1880	1	17.65	18.50	1.216	-	-	-0.07	0.046	0.056
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 1	DSI7	9400	1880	1	17.65	18.50	1.216	-	-	-0.04	0.693	0.843
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 1	DSI7	9262	1852.4	1	17.45	18.50	1.274	-	-	-0.13	0.795	1.012
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 1	DSI7	9538	1907.6	1	17.32	18.50	1.312	-	-	0.07	0.742	0.974
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	9262	1852.4	1	18.97	20.00	1.268	-	-	0.03	0.732	0.928
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	9538	1907.6	1	18.76	20.00	1.330	-	-	-0.03	0.766	1.019
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	DSI3	9400	1880	1	17.89	18.30	1.099	-	-	-0.07	0.533	0.586
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	9400	1880	1	17.89	18.30	1.099	-	-	-0.03	0.865	0.951
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 0	DSI7	9400	1880	1	16.96	17.30	1.081	-	-	-0.03	0.036	0.039
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 0	DSI7	9400	1880	1	16.96	17.30	1.081	-	-	0.13	0.024	0.026
52	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI7	9400	1880	1	16.96	17.30	1.081	-	-	-0.03	1.000	1.081
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI7	9262	1852.4	1	16.61	17.30	1.172	-	-	-0.14	0.890	1.043
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI7	9538	1907.6	1	16.70	17.30	1.148	-	-	0.02	0.880	1.010
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	9262	1852.4	1	17.61	18.30	1.172	-	-	0.15	0.900	1.055
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	9538	1907.6	1	17.74	18.30	1.138	-	-	-0.16	0.789	0.898
	LTE Band 25	20M	QPSK	1	0	-	Front	5mm	Ant 1	DSI3	26340	1880	1	18.02	19.50	1.406	-	-	-0.02	0.282	0.397
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	26340	1880	1	18.02	19.50	1.406	-	-	0.04	0.632	0.889
	LTE Band 25	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI7	26340	1880	1	17.34	18.50	1.306	-	-	0.12	0.066	0.086
	LTE Band 25	20M	QPSK	1	0	-	Right Side	5mm	Ant 1	DSI7	26340	1880	1	17.34	18.50	1.306	-	-	0.02	0.051	0.067