

FCC SAR Test Report

APPLICANT : Xiaomi Communications Co., Ltd.
EQUIPMENT : Mobile Phone
BRAND NAME : POCO
MODEL NAME : 23049PCD8G
FCC ID : 2AFZZPCD8G
STANDARD : FCC 47 CFR PART 2 (2.1093)

We, Sporton International Inc. (Kunshan), 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. (Kunshan), the test report shall not be reproduced except in full.



Approved by: Si Zhang

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1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Xiaomi Communications Co., Ltd., Mobile Phone, 23049PCD8G**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	1.09	0.55	0.36	1.59
		GSM1900	0.45	0.49	0.16	
	WCDMA	Band II	1.00	1.02	0.45	
		Band IV	1.01	0.85	0.39	
		Band V	1.09	0.47	0.39	
	LTE	Band 2	0.88	1.09	0.43	
		Band 5	0.88	0.40	0.36	
		Band 7	1.05	0.65	0.53	
		Band 66/4	1.09	0.82	0.57	
		Band 41/38	1.06	0.51	0.38	
	5G NR	n5	0.69	0.40	0.41	
		n7	0.97	0.42	0.47	
		n41/n38	1.07	0.56	0.56	
		n77	1.05	0.54	0.97	
		n78	1.08	0.57	1.08	
DTS	WLAN	2.4GHz WLAN	0.72	0.75	0.38	1.59
NII		5GHz WLAN	0.88	0.48	0.50	1.59
DSS	Bluetooth	2.4GHz Bluetooth	0.70	0.25	<0.10	1.55

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
NII	WLAN	5GHz WLAN	2.09	2.09
Date of Testing:			2023/1/6 ~ 2023/1/28	

Remark:

- This device supports LTE B4 / B38 and B66 / B41. Since the supported frequency span for LTE B4 / B38 falls completely within the supports frequency span for LTE B66 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66 / B41.
- This device supports 5G NR n38 and 5G NR n41. Since the supported frequency span for 5G NR n38 falls completely within the supports frequency span for 5G NR n41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for 5G NR n41.

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

Table with 4 columns: Test Firm, Test Site Location, Sporton Site No., FCC Designation No., FCC Test Firm Registration No.

Table with 2 columns: Applicant, Company Name, Address

Table with 2 columns: Manufacturer, Company Name, Address

3. Guidance Applied

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

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



4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Phone
Brand Name	POCO
Model Name	23049PCD8G
FCC ID	2AFZZPCD8G
IMEI Code	SIM1: 860460060032641 SIM2: 860460060032658
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 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz 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 supported) LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ax HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/VHT160 WLAN 5GHz 802.11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC: ASK
HW Version	P2
SW Version	MIUI 14
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:	
<ol style="list-style-type: none"> This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications. 	



3. This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 33.
5. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
6. There are three samples with different memory/storage capacity: sample 1 is 8+128G, sample 2 is 12+256G, and sample 3 is 8+256G. According to the difference, we choose sample 1 to perform full test.
7. The device has two batteries. For battery 1/2 only suppliers are different, so we only choose battery 1 to perform full SAR testing.
8. 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. It uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. It can determine proximity to head or body and set the relevant power level for 2G&3G&4G and Wi-Fi/BT antennas accordingly. 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.
9. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, hotspot, body-worn and extremity. For BT when transmit simultaneous with WWAN, power reduction will be activated to head.
10. For 5GNR n77/n78 HPUE, 5GNR n77/n78 PC2 Maximum Duty Cycle is 50%, using FTM (Factory Test Mode) with 50% duty cycle is considered during SAR testing. For 5G NR other bands test, using FTM (Factory Test Mode) with default 100% duty cycle transmission to perform SAR testing.
11. 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.
12. 5GNR NSA mode, the power level is the same as 5GNR SA mode, so 5GNR NSA mode and SA mode power table only show one time.
13. 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.
14. 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.
15. 5GNR n77/n78 supports HPUE, HPUE power and SAR testing performed separately.
16. 5GNR n77/n78 HPUE with higher power. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR.
17. This device supports 5GNR FR1 bands as following table, including NSA mode and SA mode.
18. This device has NFC function and the NFC SAR report will be separately submitted.

<5G NR>

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



4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																															
FCC ID	2AFZZPCD8G																																																														
Equipment Name	Mobile Phone																																																														
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 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 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz																																																														
uplink modulations used	QPSK / 16QAM / 64QAM /256QAM																																																														
LTE Voice / Data requirements	Voice and Data																																																														
LTE Release Version	R15, Cat21																																																														
CA Support	Supported, Uplink and Downlink																																																														
LTE MPR permanently built-in by design	<p>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">≥ 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	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 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 3 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 38												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580				
M	38000	2595	38000	2595	38000	2595	38000	2595				
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610				
LTE Band 41												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506				
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5				
M	40620	2593	40620	2593	40620	2593	40620	2593				
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5				
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680				
LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770



<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 4	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 66	Yes	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	Default	DSI-1	DSI-5	DSI-3	DSI-4
		Tune up Limit	Tune up Limit	Tune up Limit	Tune up Limit	Tune up Limit
LTE Band 4	Ant 0	24.50	24.50	24.50	24.50	24.50
LTE Band 66		24.50	24.50	24.50	24.50	24.50
LTE Band 4	Ant 1	25.70	22.70	22.70	25.20	25.20
LTE Band 66		25.70	23.20	23.20	25.20	25.20
LTE Band 4	Ant 2	25.70	25.70	23.70	23.70	25.70
LTE Band 66		25.70	25.70	23.70	23.70	25.70
LTE Band 4	Ant 3	25.00	20.00	20.00	22.50	25.00
LTE Band 66		25.00	20.50	20.50	23.00	25.00
LTE Band 38	Ant 0	24.00	24.00	24.00	24.00	24.00
LTE Band 41		24.50	24.50	24.50	24.50	24.50
LTE Band 38	Ant 1	25.00	19.00	19.00	23.00	23.00
LTE Band 41		25.20	19.20	19.20	23.20	23.20
LTE Band 38	Ant 2	25.70	25.70	22.70	22.70	25.70
LTE Band 41		25.70	25.70	23.20	23.20	25.70
LTE Band 38	Ant 3	25.00	20.00	20.00	22.50	25.00
LTE Band 41		25.00	21.00	21.00	22.50	25.00



4.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz
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 n5	LTE B7
LTE Anchor Bands for n78	LTE B2/5/7/38/41

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

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

NR Band 38										
	Bandwidth10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	515004	2575.02	515502	2577.51	516000	2580	517002	2585.01	518004	2590.02
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595
H	522996	2614.98	522498	2612.49	522000	2610	520998	2604.99	519996	2599.98

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



<3700 MHz ~ 3980 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	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	3850	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664834	3972.51	664668	3970.02	664334	3965.01	664000	3960	663668	3955.02	663334	3950.01	663000	3945	662668	3940.02	662334	3935.01	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	652834	3792.51	652668	3790.02	652334	3785.01	652000	3780	651668	3775.02	651334	3770.01	651000	3765	650668	3760.02	650334	3755.01		

<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	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H	636334	3545.01	636168	3542.52	636000	3540	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634334	3515.01	634000	3510	633668	3505.02		

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	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H	636334	3545.01	636168	3542.52	636000	3540	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634334	3515.01	634000	3510	633668	3505.02		

<For NR Overlap Bands Description>

1) NR Bands BW

Band	10 MHz	15 MHz	20 MHz	30 MHz	40 MHz	50 MHz	60 MHz	70 MHz	80 MHz	90 MHz	100 MHz
FR1 n38	Yes	Yes	Yes	Yes	Yes						
FR1 n41			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2) NR Bands tune up:

Band	Antenna	Default	DSI-1	DSI-5	DSI-3	DSI-4
		Tune up Limit	Tune up Limit	Tune up Limit	Tune up Limit	Tune up Limit
FR1 n38	Ant 0	23.30	23.30	23.30	23.30	23.30
FR1 n41		23.30	23.30	23.30	23.30	23.30
FR1 n38	Ant 1	25.70	18.20	18.20	19.70	19.70
FR1 n41		25.70	18.20	18.20	19.70	19.70
FR1 n38	Ant 2	25.70	25.70	21.20	21.20	25.70
FR1 n41		25.70	25.70	21.70	21.70	25.70
FR1 n38	Ant 3	24.30	18.80	18.80	21.80	23.30
FR1 n41		24.50	19.00	19.00	22.00	24.00

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.



<Uncertainty>

Tech	Antenna	Total Uncertainty (dB)	Description	
			Antenna Number	Frequency
GSM	Main	1.00	Ant 0/2	All Frequency
	Aux	1.50	Ant 1	All Frequency
WCDMA	Main	1.00	Ant 0/2	All Frequency
	Aux 1	1.50	Ant 1	All Frequency
LTE	Main	0.70	Ant 2	All Frequency
		0.70	Ant 0	Fre. < 1GHz
	Aux 1	1.00	Ant 1	All Frequency
		1.50	Ant 0	1GHz < Fre. < 3GHz
	Aux 2	1.00	Ant 3	All Frequency
		1.00	Ant 1	All Frequency
NR	Main	0.70	Ant 0	Fre < 1GHz
		0.70	Ant 2	All Frequency
		1.00	Ant 6	Fre. ≥ 3GHz
	Aux 1	1.50	Ant 0	1GHz < Fre. < 3GHz
		1.50	Ant 3	All Frequency
		1.50	Ant7/8/10	Fre. ≥ 3GHz
	Aux 1 / Aux 2	1.00	Ant 1	All Frequency

Band	Antenna		
GSM 850	Main Ant0	AuX Ant1	NA
GSM 1900	Main Ant2	AuX Ant1	NA
WCDMA B5	Main Ant0	AuX1 Ant1	NA
WCDMA B2/4	Main Ant2	AuX Ant1	NA
LTE B2	Main Ant2	AuX Ant1	NA
LTE B5	Main Ant0	AuX1 Ant1	NA
LTE B4/5/7/38/41/66	Main Ant2	AuX1 Ant0	AuX2 Ant1/3
5G NR n5	Main Ant0	AuX1 Ant1	NA
5G NR n7/38/41	Main Ant2	AuX1 Ant0/3	AuX2 Ant1
5G NR n77/78	Main Ant6	AuX1 Ant7/8/10	NA

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 DSI 1	Hotspot DSI 5	Body Worn DSI 4	Sensor On DSI 3	Pmax*
GSM850	Ant 0	29.70	30.50	31.60	24.00	24.0
GSM850	Ant 1	21.90	21.90	29.20	24.40	24.4
GSM1900	Ant 2	34.20	24.50	29.50	21.00	21.0
GSM1900	Ant 1	20.00	20.00	29.50	21.00	21.0
WCDMA II	Ant 2	32.40	22.50	27.90	22.50	24.0
WCDMA II	Ant 1	20.30	20.30	22.30	22.30	23.8
WCDMA IV	Ant 2	32.70	22.00	28.40	22.00	24.0
WCDMA IV	Ant 1	21.10	21.10	22.60	22.60	23.6
WCDMA V	Ant 0	32.80	31.30	33.60	26.50	24.0
WCDMA V	Ant 1	20.60	20.60	23.60	23.60	24.1
LTE Band 2	Ant 2	33.10	23.50	28.60	23.50	24.5
LTE Band 2	Ant 1	21.30	21.30	22.80	22.80	24.3
LTE Band 5	Ant 0	32.70	29.80	28.30	26.20	25.0
LTE Band 5	Ant 1	21.20	21.20	25.90	25.90	24.7
LTE Band 7	Ant 2	32.50	22.00	28.20	22.00	25.0
LTE Band 7	Ant 1	16.50	16.50	20.50	20.50	24.5
LTE Band 7	Ant 3	17.50	17.50	22.50	21.00	24.0
LTE Band 7	Ant 0	29.80	22.00	30.20	22.00	23.0
LTE Band 4	Ant 2	32.40	23.00	29.50	23.00	25.0
LTE Band 4	Ant 1	21.70	21.70	24.20	24.20	24.7
LTE Band 4	Ant 3	19.00	19.00	26.80	21.50	24.0
LTE Band 4	Ant 0	35.00	25.80	29.10	23.00	23.0
LTE Band 66	Ant 2	32.40	23.00	29.50	23.00	25.0
LTE Band 66	Ant 1	22.20	22.20	24.20	24.20	24.7
LTE Band 66	Ant 3	19.50	19.50	26.80	22.00	24.0
LTE Band 66	Ant 0	35.00	25.80	29.10	23.00	23.0
LTE Band 38	Ant 2	31.40	20.00	27.60	20.00	23.0
LTE Band 38	Ant 1	16.00	16.00	20.00	20.00	22.0
LTE Band 38	Ant 3	17.00	17.00	22.70	19.50	22.0
LTE Band 38	Ant 0	30.00	26.10	30.20	21.60	20.5
LTE Band 41	Ant 2	31.40	20.50	27.60	20.50	23.0
LTE Band 41	Ant 1	16.20	16.20	20.20	20.20	22.2
LTE Band 41	Ant 3	18.00	18.00	22.80	19.50	22.0
LTE Band 41	Ant 0	30.00	26.10	30.20	21.60	21.0
FR1 n5	Ant 0	32.60	30.00	33.40	27.00	25.0
FR1 n5	Ant 1	21.00	21.00	25.30	25.30	24.5
FR1 n7	Ant 2	31.80	20.50	27.70	20.50	24.0
FR1 n7	Ant 1	16.00	16.00	18.50	18.50	23.0
FR1 n7	Ant 3	17.50	17.50	22.30	20.50	22.0
FR1 n7	Ant 0	29.70	26.50	36.40	22.60	21.5
FR1 n38	Ant 2	31.20	20.50	27.90	20.50	25.0
FR1 n38	Ant 1	17.20	17.20	18.70	18.70	24.7
FR1 n38	Ant 3	17.30	17.30	21.80	20.30	22.8
FR1 n38	Ant 0	29.50	25.80	29.20	22.30	21.8
FR1 n41	Ant 2	31.20	21.00	27.90	21.00	25.0
FR1 n41	Ant 1	17.20	17.20	18.70	18.70	24.7



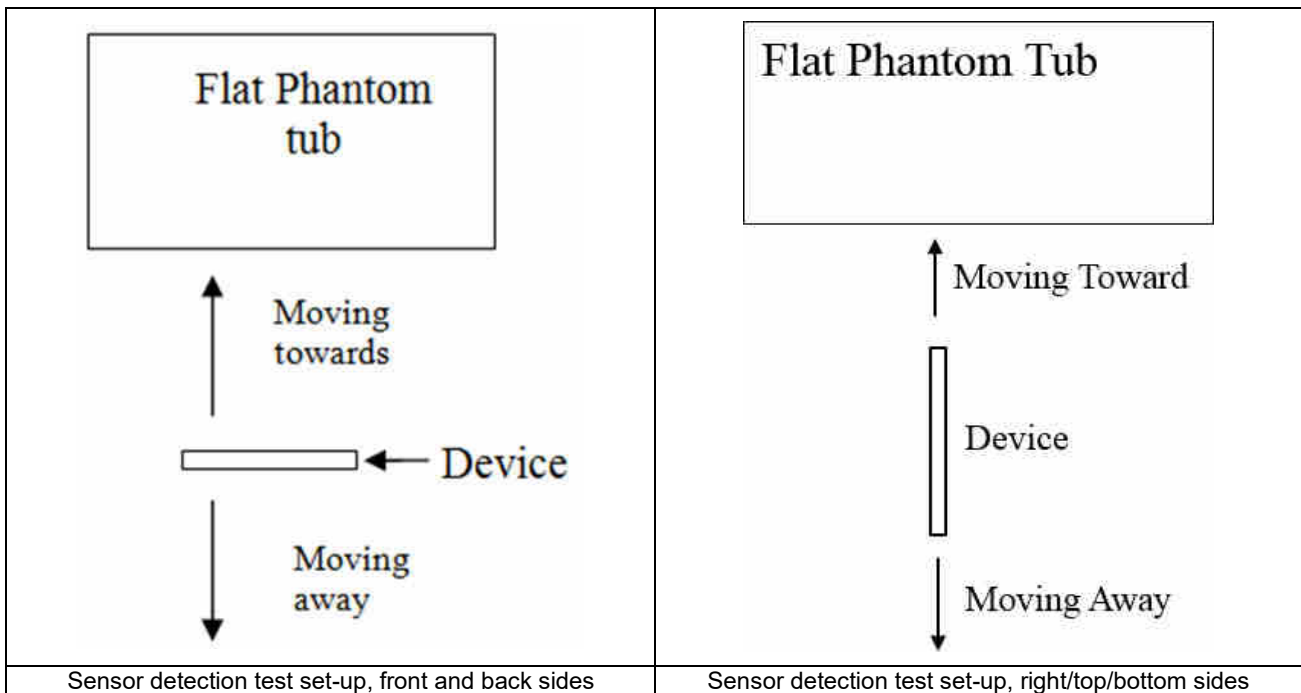
FR1 n41	Ant 3	17.50	17.50	22.50	20.50	23.0
FR1 n41	Ant 0	29.50	25.80	29.20	22.10	21.8
FR1 n77 PC3	Ant 6	16.00	16.00	18.00	18.00	25.0
FR1 n77 PC2	Ant 6	16.00	16.00	18.00	18.00	24.0
FR1 n77 PC3	Ant 7	15.60	15.60	22.60	18.60	23.6
FR1 n77 PC2	Ant 7	15.60	15.60	22.60	18.60	22.6
FR1 n77 PC3	Ant 10	15.00	15.00	18.50	18.50	19.5
FR1 n77 PC2	Ant 10	15.00	15.00	18.50	18.50	19.0
FR1 n77 PC3	Ant 8	29.40	15.00	15.00	15.00	24.0
FR1 n77 PC2	Ant 8	29.40	15.00	15.00	15.00	23.0
FR1 n78 PC3	Ant 6	16.50	16.50	18.50	18.50	25.0
FR1 n78 PC2	Ant 6	16.50	16.50	18.50	18.50	24.0
FR1 n78 PC3	Ant 7	15.60	15.60	23.10	18.60	23.6
FR1 n78 PC2	Ant 7	15.60	15.60	23.10	18.60	22.6
FR1 n78 PC3	Ant 10	14.00	14.00	18.00	18.00	19.5
FR1 n78 PC2	Ant 10	14.00	14.00	18.00	18.00	19.0
FR1 n78 PC3	Ant 8	27.60	16.00	16.00	16.00	24.0
FR1 n78 PC2	Ant 8	27.60	16.00	16.00	16.00	23.0

- Note: 1) *P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to P_{max} + Total uncertainty.
- 2) All P_{limit} power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).
- 3) The max allowed output power is the P_{limit} + Total uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.
- 4) GSM/WCDMA applies force peak method. if force peak is set to 'x' for a given tech/band/antenna/DSI in the EFS, then the Smart Transmit feature limits the maximum instantaneous Tx power to P_{limit} for the selected tech/band/antenna /DSI. In other words, with force peak set to 'x', under static condition (i.e., fixed tech/band /antenna/DSI) and in single active Tx scenario, Smart Transmit can guarantee Tx power level of P_{limit} at all times.
- 5) For 5G NR n77/n78 HPUE, 5G NR n77/n78 PC2 Maximum Duty Cycle is 50%, using FTM (Factory Test Mode) with 50% duty cycle is considered during SAR testing. For 5G NR other bands, using FTM to perform SAR with default 100% transmission.

6. Proximity Sensor Triggering Test

6.1 Proximity sensor triggering distances(Per KDB616217§6.2)

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.
2. Proximity sensor triggering distance testing was performed according and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (3980MHz) and lowest (1750MHz) frequency was used for proximity sensor triggering testing.
3. Capacitive proximity sensor placed coincident with antenna elements at the top/bottom end of the phone are utilized to determine when the device comes in proximity of the user's body or finger or hand at the front or back or bottom or left or top side of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
4. The sensors can use to detect the proximity of the user's body or handheld states at the front or back or bottom or right or top side of the device use a detection threshold distance. When front/back/right/top/bottom sides of body or handheld condition is detected reduced power will be active. The trigger distance shown in the sections below.
5. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed.





<P-Sensor>

<Sensor for Ant0/Ant2 >

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Right Side		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	16	16	16	16	16	16	16	16

<Sensor for Ant3/Ant7>

Proximity Sensor Triggering Distance (mm)				
Position	Back		Top Side	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	6	6	6



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:

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

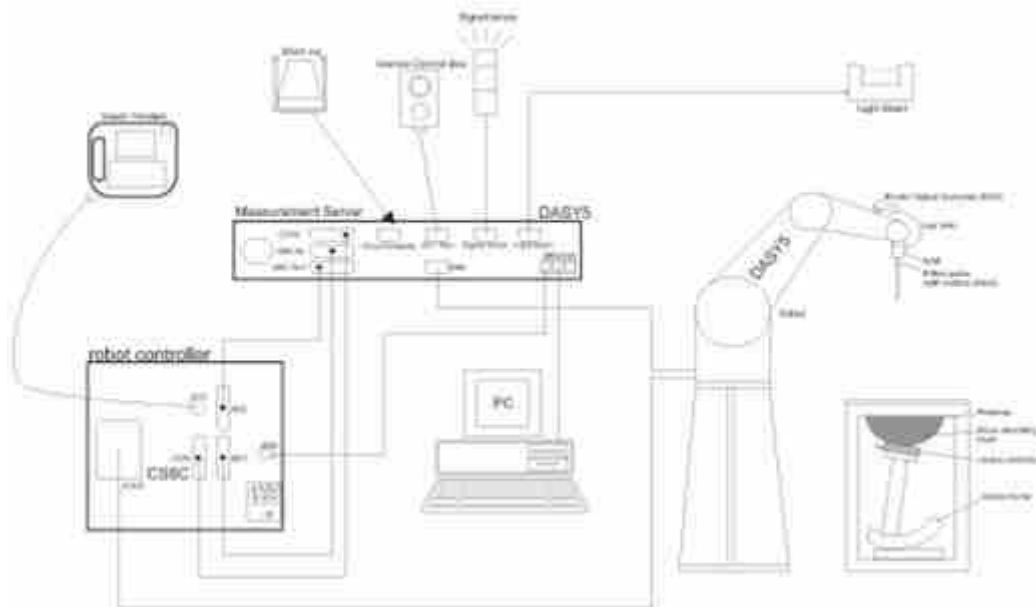
SAR is expressed in units of Watts per kilogram (W/kg)

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

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




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

9.1 E-Field Probe

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

<EX3DV4 Probe>

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

9.2 Data Acquisition Electronics (DAE)

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


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



Photo of DAE

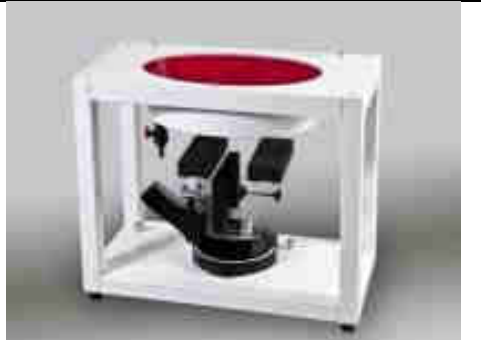
9.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

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

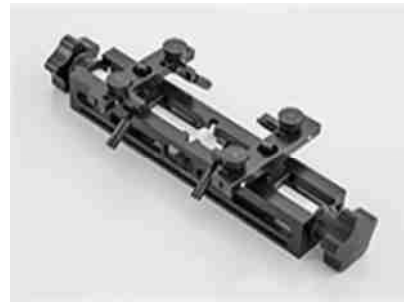
9.4 Device Holder

<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	835MHz System Validation Kit	D835V2	4d091	2022/8/19	2023/8/18
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2022/2/24	2023/2/23
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	2021/12/20	2024/12/19
SPEAG	2450MHz System Validation Kit	D2450V2	1040	2020/5/6	2023/5/4
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2020/11/26	2023/11/24
SPEAG	3500MHz System Validation Kit	D3500V2	1037	2020/11/25	2023/11/23
SPEAG	3700MHz System Validation Kit	D3700V2	1008	2020/11/25	2023/11/23
SPEAG	3900MHz System Validation Kit	D3900V2	1048	2020/5/14	2023/5/12
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2022/9/23	2023/9/22
SPEAG	Data Acquisition Electronics	DAE4	1358	2022/2/23	2023/2/22
SPEAG	Dosimetric E-Field Probe	EX3DV4	7796	2022/11/21	2023/11/20
SPEAG	SAM Twin Phantom	SAM Twin	TP-1697	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6262306175	2022/7/14	2023/7/13
Agilent	ENA Series Network Analyzer	E5071C	MY46104587	2022/5/24	2023/5/23
SPEAG	Dielectric Probe Kit	DAK-3.5	1144	2022/8/15	2023/8/14
Anritsu	Vector Signal Generator	MG3710A	6201682672	2023/1/5	2024/1/4
Rohde & Schwarz	Power Meter	NRVD	102081	2022/7/14	2023/7/13
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2022/7/14	2023/7/13
R&S	BLUETOOTH TESTER	CBT	101246	2022/5/24	2023/5/23
Rohde & Schwarz	Spectrum Analyzer	FSV7	101631	2022/10/12	2023/10/11
TES	DIGITAC THERMOMETER	1310	200505600	2022/7/12	2023/7/11
Testo	Thermo-Hygrometer	608-H1	1241332126	2022/7/20	2023/7/19
ARRA	Power Divider	A3200-2	N/A	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	

Note:

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

12. System Verification

12.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 12.1. 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. 12.2.



Fig 12.1 Photo of Liquid Height for Head SAR

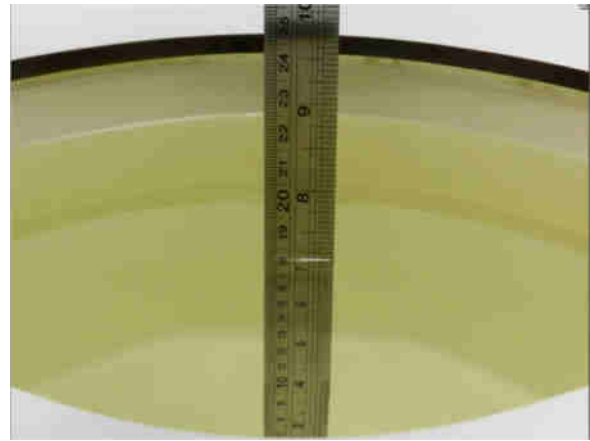


Fig 12.2 Photo of Liquid Height for Body SAR

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
835	Head	22.8	0.938	42.440	0.90	41.50	4.22	2.27	±5	2023/1/6
1750	Head	22.6	1.344	39.239	1.37	40.10	-1.90	-2.15	±5	2023/1/6
1900	Head	22.7	1.423	38.976	1.40	40.00	1.64	-2.56	±5	2023/1/7
2450	Head	22.6	1.831	37.489	1.80	39.20	1.72	-4.36	±5	2023/1/11
2600	Head	22.8	2.013	40.647	1.96	39.00	2.70	4.22	±5	2023/1/7
3500	Head	22.6	2.826	39.043	2.91	37.90	-2.89	3.02	±5	2023/1/8
3700	Head	22.9	3.015	38.714	3.12	37.70	-3.37	2.69	±5	2023/1/9
3900	Head	22.7	3.219	38.416	3.32	37.50	-3.04	2.44	±5	2023/1/10
5250	Head	22.6	4.640	36.528	4.71	35.90	-1.49	1.75	±5	2023/1/12
5600	Head	22.8	4.989	35.907	5.07	35.50	-1.60	1.15	±5	2023/1/13
5750	Head	22.6	5.215	35.594	5.22	35.40	-0.10	0.55	±5	2023/1/14
835	Head	22.8	0.933	41.836	0.90	41.50	3.67	0.81	±5	2023/1/15
1750	Head	22.7	1.374	40.626	1.37	40.10	0.29	1.31	±5	2023/1/15
1900	Head	22.8	1.459	40.034	1.40	40.00	4.21	0.08	±5	2023/1/16
2600	Head	22.6	2.056	37.718	1.96	39.00	4.90	-3.29	±5	2023/1/16
3500	Head	22.8	2.849	38.661	2.91	37.90	-2.10	2.01	±5	2023/1/17
3700	Head	22.8	3.044	38.217	3.12	37.70	-2.44	1.37	±5	2023/1/18
3900	Head	22.7	3.246	37.815	3.32	37.50	-2.23	0.84	±5	2023/1/19
835	Head	22.8	0.931	41.366	0.90	41.50	3.44	-0.32	±5	2023/1/20
1750	Head	22.6	1.401	40.501	1.37	40.10	2.26	1.00	±5	2023/1/20
1900	Head	22.7	1.432	39.781	1.40	40.00	2.29	-0.55	±5	2023/1/21
2600	Head	22.8	1.924	38.268	1.96	39.00	-1.84	-1.88	±5	2023/1/21
3500	Head	22.6	2.833	39.052	2.91	37.90	-2.65	3.04	±5	2023/1/22
3700	Head	22.6	2.994	38.681	3.12	37.70	-4.04	2.60	±5	2023/1/23
3900	Head	22.7	3.247	37.817	3.32	37.50	-2.20	0.85	±5	2023/1/24
2450	Head	22.8	1.880	38.346	1.80	39.20	4.44	-2.18	±5	2023/1/25
5250	Head	22.6	4.637	36.499	4.71	35.90	-1.55	1.67	±5	2023/1/26
5600	Head	22.7	4.988	35.914	5.07	35.50	-1.62	1.17	±5	2023/1/27
5750	Head	22.7	5.214	35.621	5.22	35.40	-0.11	0.62	±5	2023/1/28



12.3 System Performance Check Results

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

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2023/1/6	835	Head	50	4d091	7796	1358	0.504	9.45	10.08	6.67
2023/1/6	1750	Head	50	1090	7796	1358	1.87	37.00	37.4	1.08
2023/1/7	1900	Head	50	5d182	7796	1358	2.02	39.60	40.4	2.02
2023/1/11	2450	Head	50	1040	7796	1358	2.79	51.80	55.8	7.72
2023/1/7	2600	Head	50	1061	7796	1358	3.04	56.60	60.8	7.42
2023/1/8	3500	Head	50	1037	7796	1358	3.38	68.00	67.6	-0.59
2023/1/9	3700	Head	50	1008	7796	1358	3.31	67.60	66.2	-2.07
2023/1/10	3900	Head	50	1048	7796	1358	3.61	70.20	72.2	2.85
2023/1/12	5250	Head	50	1113	7796	1358	4.09	81.50	81.8	0.37
2023/1/13	5600	Head	50	1113	7796	1358	4.32	82.60	86.4	4.60
2023/1/14	5750	Head	50	1113	7796	1358	3.90	80.80	78	-3.47
2023/1/15	835	Head	50	4d091	7796	1358	0.501	9.45	10.02	6.03
2023/1/15	1750	Head	50	1090	7796	1358	1.72	37.00	34.4	-7.03
2023/1/16	1900	Head	50	5d182	7796	1358	1.92	39.60	38.4	-3.03
2023/1/16	2600	Head	50	1061	7796	1358	3.05	56.60	61	7.77
2023/1/17	3500	Head	50	1037	7796	1358	3.41	68.00	68.2	0.29
2023/1/18	3700	Head	50	1008	7796	1358	3.34	67.60	66.8	-1.18
2023/1/19	3900	Head	50	1048	7796	1358	3.64	70.20	72.8	3.70
2023/1/20	835	Head	50	4d091	7796	1358	0.501	9.45	10.02	6.03
2023/1/20	1750	Head	50	1090	7796	1358	1.85	37.00	37	0.00
2023/1/21	1900	Head	50	5d182	7796	1358	2.05	39.60	41	3.54
2023/1/21	2600	Head	50	1061	7796	1358	2.82	56.60	56.4	-0.35
2023/1/22	3500	Head	50	1037	7796	1358	3.18	68.00	63.6	-6.47
2023/1/23	3700	Head	50	1008	7796	1358	3.24	67.60	64.8	-4.14
2023/1/24	3900	Head	50	1048	7796	1358	3.35	70.20	67	-4.56
2023/1/25	2450	Head	50	1040	7796	1358	2.78	51.80	55.6	7.34
2023/1/26	5250	Head	50	1113	7796	1358	4.05	81.50	81	-0.61
2023/1/27	5600	Head	50	1113	7796	1358	4.34	82.60	86.8	5.08
2023/1/28	5750	Head	50	1113	7796	1358	3.92	80.80	78.4	-2.97

<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 (%)
2023/1/6	835	Head	50	4d091	7796	1358	0.334	6.22	6.68	7.40
2023/1/6	1750	Head	50	1090	7796	1358	1.00	19.50	20	2.56
2023/1/7	1900	Head	50	5d182	7796	1358	1.06	20.20	21.2	4.95
2023/1/11	2450	Head	50	1040	7796	1358	1.25	24.00	25	4.17
2023/1/7	2600	Head	50	1061	7796	1358	1.31	25.10	26.2	4.38
2023/1/8	3500	Head	50	1037	7796	1358	1.36	25.40	27.2	7.09
2023/1/9	3700	Head	50	1008	7796	1358	1.29	24.40	25.8	5.74
2023/1/10	3900	Head	50	1048	7796	1358	1.31	24.40	26.2	7.38
2023/1/12	5250	Head	50	1113	7796	1358	1.19	23.30	23.8	2.15
2023/1/13	5600	Head	50	1113	7796	1358	1.23	23.70	24.6	3.80
2023/1/14	5750	Head	50	1113	7796	1358	1.13	23.00	22.6	-1.74
2023/1/15	835	Head	50	4d091	7796	1358	0.332	6.22	6.64	6.75
2023/1/15	1750	Head	50	1090	7796	1358	0.922	19.50	18.44	-5.44
2023/1/16	1900	Head	50	5d182	7796	1358	1.01	20.20	20.2	0.00
2023/1/16	2600	Head	50	1061	7796	1358	1.31	25.10	26.2	4.38
2023/1/17	3500	Head	50	1037	7796	1358	1.37	25.40	27.4	7.87
2023/1/18	3700	Head	50	1008	7796	1358	1.29	24.40	25.8	5.74
2023/1/19	3900	Head	50	1048	7796	1358	1.31	24.40	26.2	7.38
2023/1/20	835	Head	50	4d091	7796	1358	0.335	6.22	6.7	7.72
2023/1/20	1750	Head	50	1090	7796	1358	1.01	19.50	20.2	3.59
2023/1/21	1900	Head	50	5d182	7796	1358	1.09	20.20	21.8	7.92
2023/1/21	2600	Head	50	1061	7796	1358	1.32	25.10	26.4	5.18
2023/1/22	3500	Head	50	1037	7796	1358	1.24	25.40	24.8	-2.36
2023/1/23	3700	Head	50	1008	7796	1358	1.22	24.40	24.4	0.00
2023/1/24	3900	Head	50	1048	7796	1358	1.24	24.40	24.8	1.64
2023/1/25	2450	Head	50	1040	7796	1358	1.29	24.00	25.8	7.50
2023/1/26	5250	Head	50	1113	7796	1358	1.17	23.30	23.4	0.43
2023/1/27	5600	Head	50	1113	7796	1358	1.21	23.70	24.2	2.11
2023/1/28	5750	Head	50	1113	7796	1358	1.13	23.00	22.6	-1.74

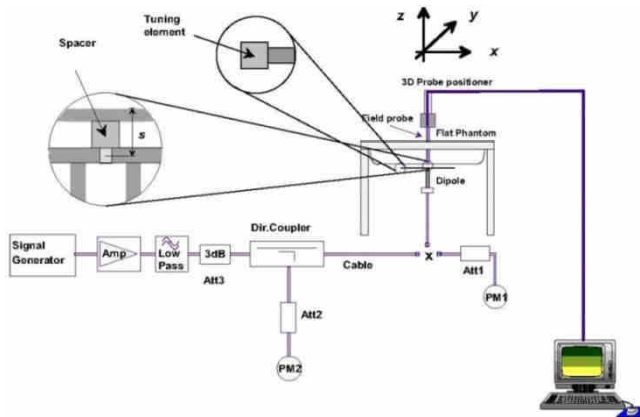


Fig 12.3.1 System Performance Check Setup



Fig 12.3.2 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.

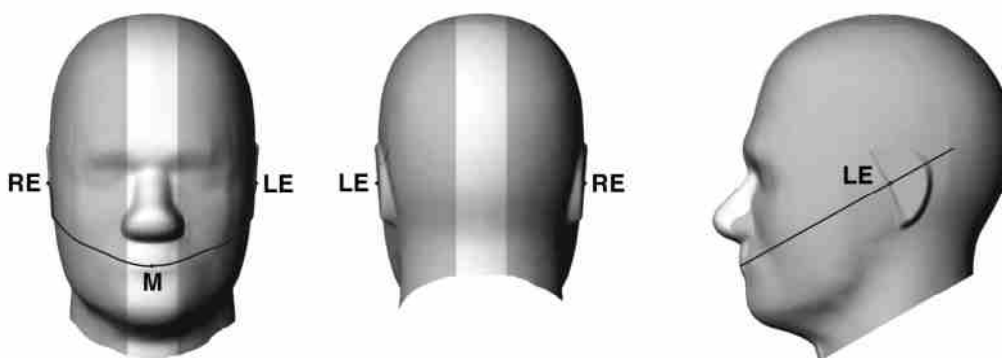


Fig 12.1.1 Front, back, and side views of SAM twin phantom

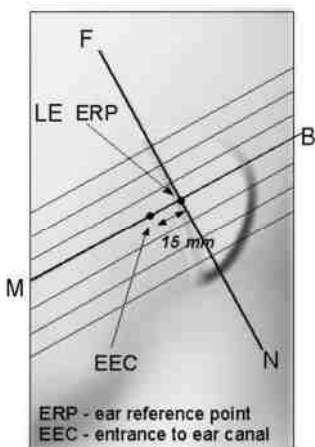


Fig 12.1.2 Close-up side view of phantom showing the ear region.

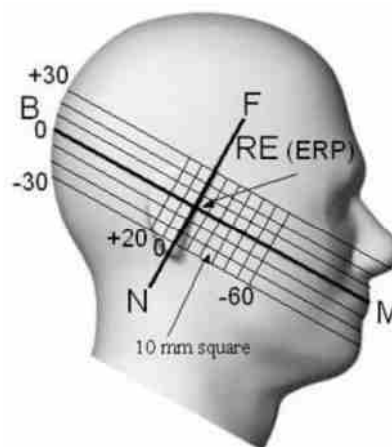


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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.

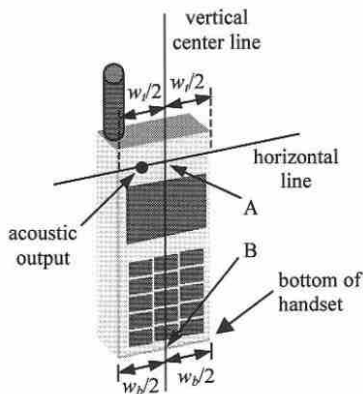


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

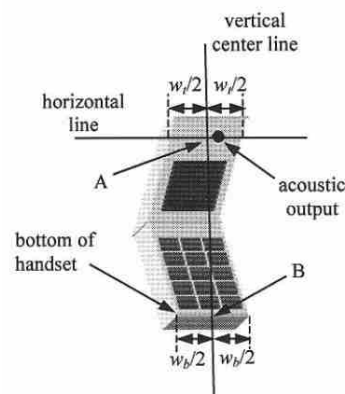


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

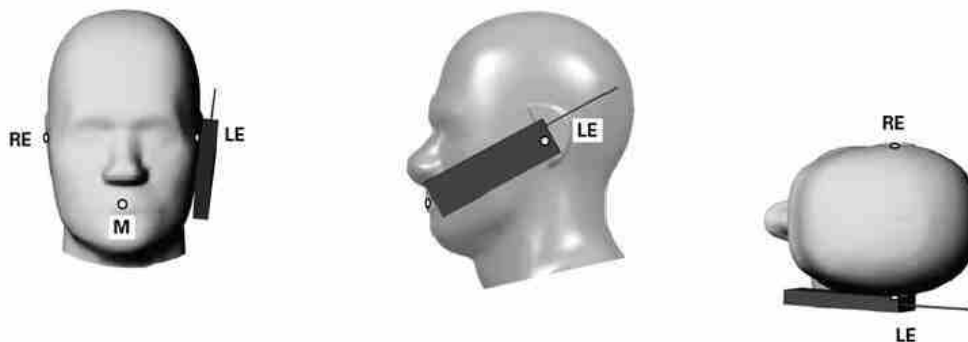


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

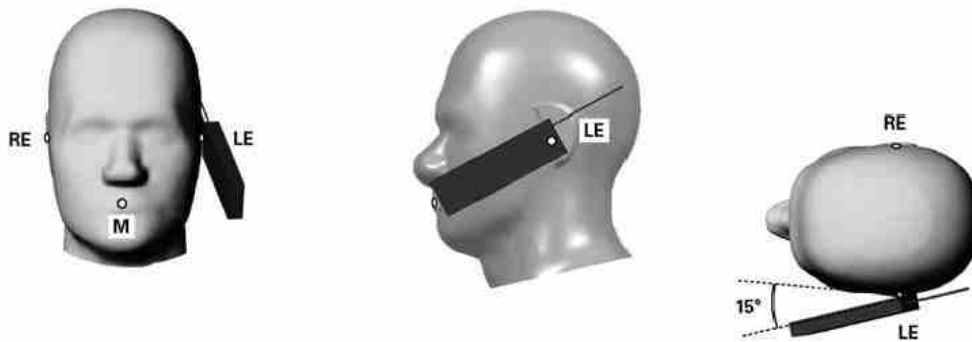


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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

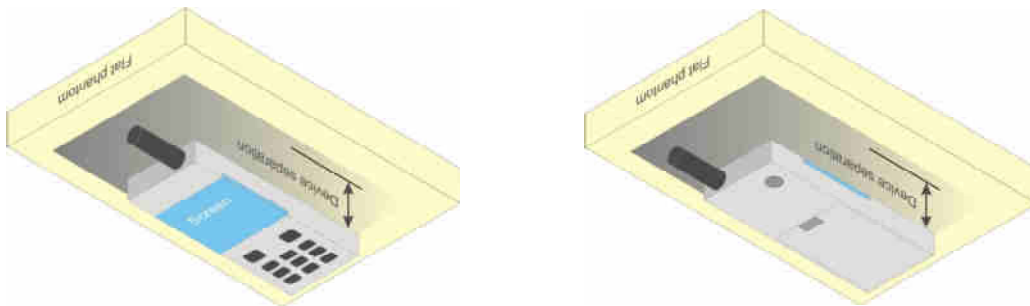


Fig 12.4 Body Worn Position

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 HSPA+ devices supporting 16 QAM in the uplink, power measurements procedure is according to the configurations in Table C.11.1.4 of 3GPP TS 34.121-1.
4. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_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_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

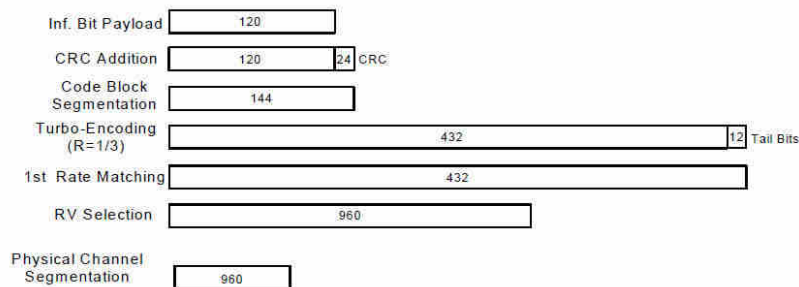


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

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

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

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

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{fs} = 30/15 * \beta_c$.

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signaled to use the extrapolation algorithm.

Setup Configuration



<WCDMA Conducted Power>

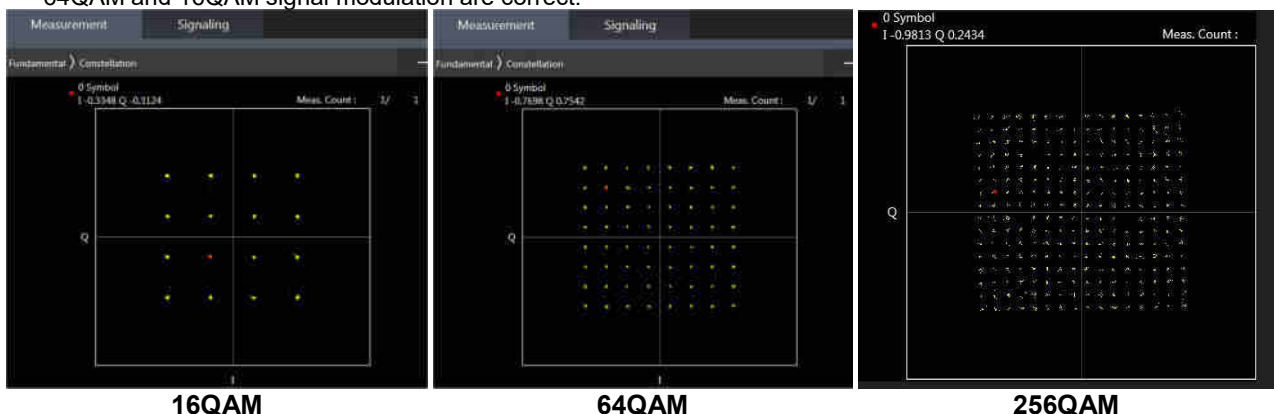
General Note:

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

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B4 / B38 SAR test was covered by B66 / 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.



<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

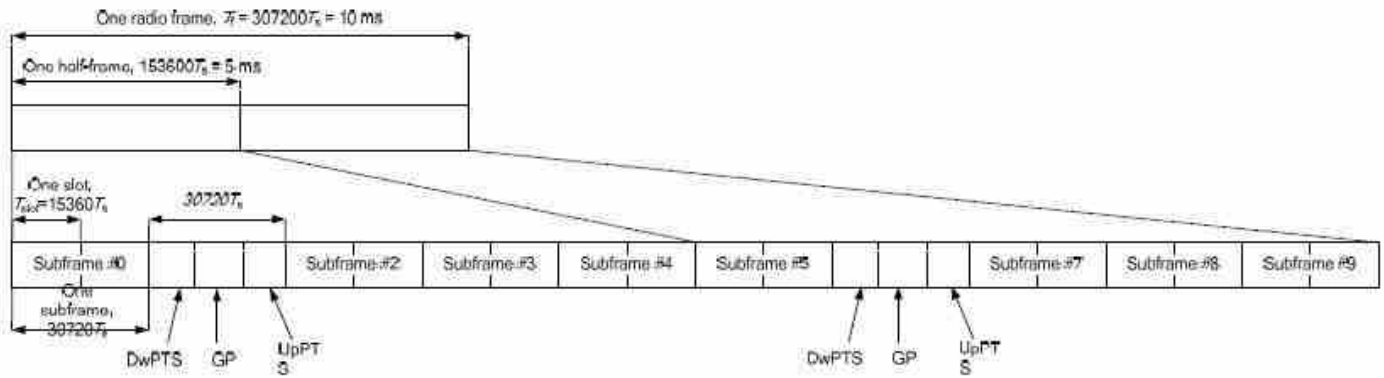


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	6592 · 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:

- 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.



<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.
4. All permutations exist. No restrictions on Pcell & Scell combinations.

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
1	CA_2A-4A		1	CA_2A-7C	
2	CA_2A-7A	3CC-2	2	CA_2A-7A-7A	
3	CA_38C		3	CA_4A-7C	
4	CA_41A-41A		4	CA_5A-7A-7A	
5	CA_41C	3CC-6	5	CA_5A-7A-66A	
6	CA_4A-5A		6	CA_41D	
7	CA_4A-7A	3CC-3			
8	CA_7A-7A	3CC-2			
9	CA_7C	3CC-1			
10	CA_66C				
11	CA_66B				
12	CA_2A-2A				



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 three 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 non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- vi. 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 Bands 4/7/38/41/66 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	WWAN Band
	LTE Band: B4/B7/B38/B41/B66



LTE Carrier Aggregation Conducted Power (Uplink)

<Intra-band>

2CC Uplink Carrier Aggregation		
Number	Combination	Ant No.
1	7C	ANT0/1/2/3
2	38C	ANT0/1/2/3

General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B7/B38 with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 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 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.
- iii. According Nov. 2017 TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- iv. Additional SAR measurement for LTE UL CA with other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

**5G NR Output Power (Unit: dBm)****General Note:**

1. 5G NR n5, n7, n38, n41, n77, n78 supports SA operation.
2. 5G NR n5, n78 supports NSA operation.
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-QPSK and the reported SAR for the DFT-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 AM 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. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.
5. 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.
6. 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.
7. 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.
8. 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.
9. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
10. 5G NR n77/n78 supports HPUE, HPUE power and SAR testing performed separately.
11. 5G NR n77/n78 HPUE with higher power. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR.

<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 List	LTE Ant No.	NR Ant No.
DC_7A_n5A	ANT0/1/2/3	ANT0/1
DC_2A_n78A	ANT1/2	ANT6/7/8/10
DC_7A_n78A	ANT0/1/2/3	ANT6/7/8/10
DC_38A_n78A	ANT0/1/2/3	ANT6/7/8/10
DC_41A_n78A	ANT0/1/2/3	ANT6/7/8/10
DC_5A_n78A	ANT0/1	ANT6/7/8/10

<WLAN Conducted Power>

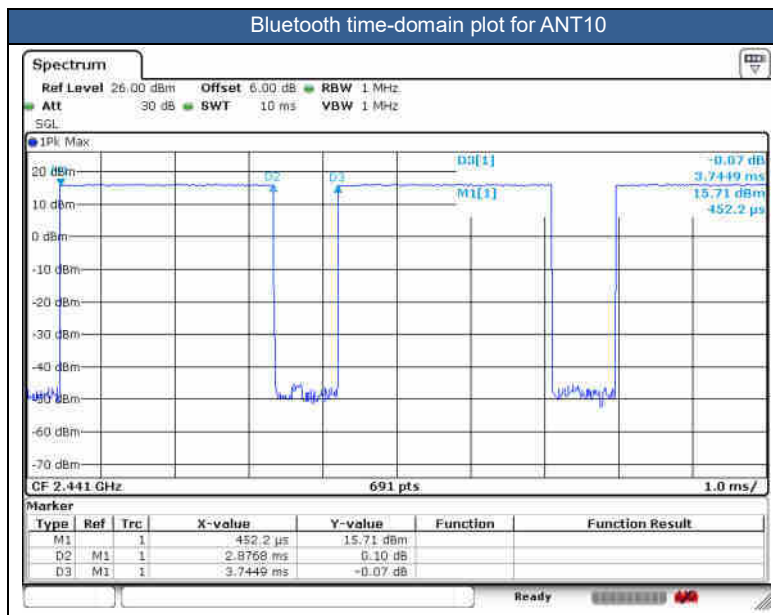
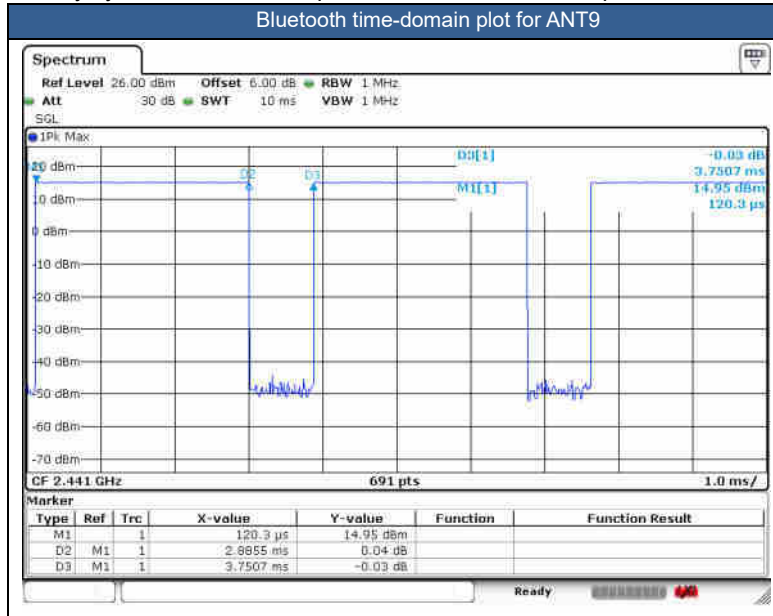
General Note:

1. The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) 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 in the initial test configuration. Additional output power measurements were not necessary.
2. 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.
3. 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).
4. 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.
5. 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.
6. 802.11ax supports full tone size and partial tone size, after verification for the partial tone power level is far less than full tone power level, so we chose full tone power to be measured in this report.
7. SISO and MIMO all supported by WLAN2.4GHz/WLAN5GHz, for SISO mode power is less than per chain power of MIMO mode. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to their higher conducted power, so only chose MIMO power to perform SAR testing.
8. For the conducted power measurement is MIMO chains transmitting simultaneously and measured the separately conducted power for both chains and then based on the conducted power of SISO antennas respectively to calculate sum of the power for MIMO mode
9. Only chose MIMO power to perform SAR testing.

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.93 % for ANT9, and 76.82 % for ANT10 as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to 83.3% 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 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 SAR testing of Bluetooth signal with 83.3% theoretical duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle) *83.3%".
 - d. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - e. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - f. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8 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. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
5. 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. It uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. It can determine proximity to head or body and set the relevant power level for 2G&3G&4G and Wi-Fi/BT antennas accordingly. 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.
6. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, hotspot, body-worn and extremity. For BT when transmit simultaneous with WWAN, power reduction will be activated to head.
7. For 5G NR n77/n78 HPUE, 5G NR n77/n78 PC2 Maximum Duty Cycle is 50%, using FTM (Factory Test Mode) with 50% duty cycle is considered during SAR testing. For 5G NR other bands test, using FTM (Factory Test Mode) with default 100% duty cycle transmission to perform SAR testing.
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. 5G NR n77/n78 supports HPUE, HPUE power and SAR testing performed separately.
13. 5G NR n77/n78 HPUE with higher power. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR.



14. 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. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
 - b. 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.
15. The LTE B4 ant 0/3 and LTE B7/38/41 at ant 0/1/2/3 support different PAs, the maximum power of Main PA is higher than and very close to the other PA, so we choose Main PA to perform full SAR tested to ensure the RF exposure is compliance.

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 ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

WCDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are \leq 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is \leq 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is \leq 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B4 / B38 SAR test was covered by B66 / 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/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 Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.
6. 802.11ax supports full tone size and partial tone size, after verification for the partial tone power level is far less than full tone power level, so we chose full tone power to be measured in this report.
7. SISO and MIMO all supported by WLAN2.4GHz/WLAN5GHz, for SISO mode power is less than per chain power of MIMO mode. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to their higher conducted power, so only chose MIMO power to perform SAR testing.
8. For the conducted power measurement is MIMO chains transmitting simultaneously and measured the separately conducted power for both chains and then based on the conducted power of SISO antennas respectively to calculate sum of the power for MIMO mode
9. Only chose MIMO power to perform SAR testing.

DSI status description:

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

This WWAN bands enabled with Qualcomm Smart Transmit feature which located at chapter 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 1
Body worn Mode SAR	DSI 4
Hotspot Mode SAR	DSI 5
Extremity(Handheld) SAR	DSI 3



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)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
835MHz																		
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 0	DS11	189	836.4	26.66	28.00	1.361	-0.09	0.217	0.295
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 0	DS11	189	836.4	26.66	28.00	1.361	0.04	0.124	0.169
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 0	DS11	189	836.4	26.66	28.00	1.361	0.07	0.211	0.287
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 0	DS11	189	836.4	26.66	28.00	1.361	-0.04	0.112	0.152
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 1	DS11	189	836.4	24.52	26.40	1.542	0.09	0.692	1.067
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 1	DS11	189	836.4	24.52	26.40	1.542	0.09	0.274	0.422
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 1	DS11	189	836.4	24.52	26.40	1.542	0.08	0.323	0.498
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 1	DS11	189	836.4	24.52	26.40	1.542	-0.09	0.168	0.259
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 1	DS11	128	824.2	24.44	26.40	1.570	0.07	0.536	0.842
01	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 1	DS11	251	848.8	24.45	26.40	1.567	0.08	0.698	1.094
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DS11	4182	836.4	24.25	25.00	1.189	-0.15	0.065	0.077
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DS11	4182	836.4	24.25	25.00	1.189	0.01	0.048	0.057
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DS11	4182	836.4	24.25	25.00	1.189	-0.02	0.089	0.106
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DS11	4182	836.4	24.25	25.00	1.189	-0.15	0.000	0.000
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DS11	4182	836.4	20.58	22.10	1.419	0.15	0.682	0.968
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DS11	4182	836.4	20.58	22.10	1.419	0.03	0.232	0.329
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DS11	4182	836.4	20.58	22.10	1.419	0.12	0.298	0.423
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	DS11	4182	836.4	20.58	22.10	1.419	0.14	0.136	0.193
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DS11	4132	826.4	20.35	22.10	1.496	-0.16	0.527	0.789
02	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DS11	4233	846.6	20.57	22.10	1.422	0.03	0.763	1.085
	LTE Band 5	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DS11	20525	836.5	25.01	25.70	1.172	-0.03	0.161	0.189
	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	DS11	20525	836.5	24.05	24.70	1.161	-0.09	0.128	0.149
	LTE Band 5	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DS11	20525	836.5	25.01	25.70	1.172	-0.13	0.103	0.121
	LTE Band 5	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	DS11	20525	836.5	24.05	24.70	1.161	-0.1	0.081	0.094
	LTE Band 5	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DS11	20525	836.5	25.01	25.70	1.172	0.06	0.158	0.185
	LTE Band 5	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	DS11	20525	836.5	24.05	24.70	1.161	0.07	0.125	0.145
	LTE Band 5	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DS11	20525	836.5	25.01	25.70	1.172	-0.08	0.082	0.096
	LTE Band 5	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	DS11	20525	836.5	24.05	24.70	1.161	0.03	0.067	0.078
03	LTE Band 5	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	20525	836.5	21.42	22.20	1.197	0.02	0.732	0.876
	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	DS11	20525	836.5	21.21	22.20	1.256	-0.01	0.581	0.730
	LTE Band 5	10M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS11	20525	836.5	21.30	22.20	1.230	0.06	0.576	0.709
	LTE Band 5	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DS11	20525	836.5	21.42	22.20	1.197	0.16	0.276	0.330
	LTE Band 5	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	DS11	20525	836.5	21.21	22.20	1.256	-0.15	0.219	0.275
	LTE Band 5	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DS11	20525	836.5	21.42	22.20	1.197	0.02	0.342	0.409
	LTE Band 5	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	DS11	20525	836.5	21.21	22.20	1.256	0.03	0.272	0.342
	LTE Band 5	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DS11	20525	836.5	21.42	22.20	1.197	0.05	0.164	0.196
	LTE Band 5	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	DS11	20525	836.5	21.21	22.20	1.256	0.04	0.128	0.161
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DS11	167300	836.5	25.18	25.70	1.127	0.09	0.165	0.186
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DS11	167300	836.5	25.16	25.70	1.132	-0.02	0.164	0.186
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	DS11	167300	836.5	25.18	25.70	1.127	0.08	0.109	0.123
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	DS11	167300	836.5	25.16	25.70	1.132	-0.07	0.106	0.120
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	DS11	167300	836.5	25.18	25.70	1.127	-0.08	0.169	0.190
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	DS11	167300	836.5	25.16	25.70	1.132	-0.08	0.166	0.188
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	DS11	167300	836.5	25.18	25.70	1.127	-0.11	0.090	0.101
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	DS11	167300	836.5	25.16	25.70	1.132	0.18	0.088	0.100
04	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DS11	167300	836.5	21.12	22.00	1.225	0.05	0.561	0.687
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DS11	167300	836.5	20.97	22.00	1.269	-0.01	0.536	0.680
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DS11	167300	836.5	21.12	22.00	1.225	0.07	0.208	0.255
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DS11	167300	836.5	20.97	22.00	1.269	0.06	0.204	0.259
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DS11	167300	836.5	21.12	22.00	1.225	0.04	0.268	0.328
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DS11	167300	836.5	20.97	22.00	1.269	-0.05	0.249	0.316



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	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	DS11	167300	836.5	21.12	22.00	1.225	-0.11	0.124	0.152	
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	DS11	167300	836.5	20.97	22.00	1.269	0.06	0.120	0.152	
1750MHz																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DS11	1413	1732.6	24.38	25.00	1.153	-0.1	0.126	0.145	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	DS11	1413	1732.6	24.38	25.00	1.153	0.09	0.079	0.091	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	DS11	1413	1732.6	24.38	25.00	1.153	0.02	0.127	0.146	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	DS11	1413	1732.6	24.38	25.00	1.153	0.07	0.081	0.093	
05	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DS11	1413	1732.6	21.68	22.60	1.236	0.06	0.818	1.011	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DS11	1413	1732.6	21.68	22.60	1.236	-0.08	0.247	0.305	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DS11	1413	1732.6	21.68	22.60	1.236	0.07	0.370	0.457	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	DS11	1413	1732.6	21.68	22.60	1.236	-0.17	0.260	0.321	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DS11	1312	1712.4	21.43	22.60	1.309	0.05	0.768	1.005	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DS11	1513	1752.6	21.46	22.60	1.300	-0.11	0.719	0.935	
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DS11	132322	1745	25.06	25.70	1.159	-0.07	0.131	0.152	
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DS11	132322	1745	24.06	24.70	1.159	0.03	0.106	0.123	
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DS11	132322	1745	25.06	25.70	1.159	0.18	0.105	0.122	
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DS11	132322	1745	24.06	24.70	1.159	-0.01	0.083	0.096	
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DS11	132322	1745	25.06	25.70	1.159	-0.05	0.175	0.203	
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DS11	132322	1745	24.06	24.70	1.159	0.05	0.142	0.165	
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DS11	132322	1745	25.06	25.70	1.159	-0.14	0.097	0.112	
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DS11	132322	1745	24.06	24.70	1.159	0.02	0.078	0.090	
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	132322	1745	22.34	23.20	1.219	0.08	0.824	1.004	
06	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	132072	1720	22.30	23.20	1.230	0.07	0.888	1.092	
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	132572	1770	22.24	23.20	1.247	0.08	0.706	0.881	
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS11	132322	1745	22.27	23.20	1.239	-0.03	0.674	0.835	
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS11	132072	1720	22.11	23.20	1.285	0.08	0.726	0.933	
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS11	132572	1770	22.15	23.20	1.274	0.1	0.629	0.801	
	LTE Band 66	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	DS11	132322	1745	22.15	23.20	1.274	0.04	0.674	0.858	
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DS11	132322	1745	22.34	23.20	1.219	-0.13	0.266	0.324	
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DS11	132322	1745	22.27	23.20	1.239	0.17	0.214	0.265	
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DS11	132322	1745	22.34	23.20	1.219	0.07	0.418	0.510	
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DS11	132322	1745	22.27	23.20	1.239	0.03	0.344	0.426	
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DS11	132322	1745	22.34	23.20	1.219	-0.1	0.292	0.356	
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DS11	132322	1745	22.27	23.20	1.239	-0.18	0.238	0.295	
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DS11	132322	1745	19.09	20.50	1.384	0.09	0.725	1.003	
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DS11	132072	1720	18.94	20.50	1.432	-0.03	0.659	0.944	
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DS11	132572	1770	18.88	20.50	1.452	0.08	0.685	0.995	
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DS11	132322	1745	18.86	20.50	1.459	0.02	0.541	0.789	
	LTE Band 66	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 3	DS11	132322	1745	18.81	20.50	1.476	0.06	0.677	0.999	
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DS11	132322	1745	19.09	20.50	1.384	-0.07	0.717	0.992	
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DS11	132072	1720	18.94	20.50	1.432	-0.04	0.659	0.944	
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DS11	132572	1770	18.88	20.50	1.452	-0.08	0.686	0.996	
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DS11	132322	1745	18.86	20.50	1.459	-0.15	0.547	0.798	
	LTE Band 66	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 3	DS11	132322	1745	18.81	20.50	1.476	0.09	0.657	0.970	
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 3	DS11	132322	1745	19.09	20.50	1.384	-0.18	0.483	0.668	
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 3	DS11	132322	1745	18.86	20.50	1.459	0.04	0.377	0.550	
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 3	DS11	132322	1745	19.09	20.50	1.384	0.16	0.546	0.755	
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 3	DS11	132322	1745	18.86	20.50	1.459	0.03	0.444	0.648	
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DS11	132322	1745	23.02	24.50	1.406	0.04	0.050	0.070	
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DS11	132322	1745	21.99	23.50	1.416	-0.07	0.030	0.042	
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DS11	132322	1745	23.02	24.50	1.406	-0.17	0.001	0.001	
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DS11	132322	1745	21.99	23.50	1.416	0.06	0.001	0.001	
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DS11	132322	1745	23.02	24.50	1.406	0.03	0.001	0.001	
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DS11	132322	1745	21.99	23.50	1.416	-0.04	0.001	0.001	
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DS11	132322	1745	23.02	24.50	1.406	-0.18	0.001	0.001	
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DS11	132322	1745	21.99	23.50	1.416	0.03	0.001	0.001	



1900MHz																		
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 2	DS11	661	1880	24.58	25.00	1.102	-0.1	0.043	0.047
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 2	DS11	661	1880	24.58	25.00	1.102	0.09	0.001	0.001
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 2	DS11	661	1880	24.58	25.00	1.102	0.08	0.047	0.052
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 2	DS11	661	1880	24.58	25.00	1.102	0.01	0.001	0.001
07	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 1	DS11	661	1880	23.12	24.50	1.374	0.01	0.325	0.447
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 1	DS11	661	1880	23.12	24.50	1.374	-0.04	0.109	0.150
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 1	DS11	661	1880	23.12	24.50	1.374	0.07	0.157	0.216
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 1	DS11	661	1880	23.12	24.50	1.374	0.02	0.060	0.082
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DS11	9400	1880	24.43	25.00	1.140	-0.14	0.127	0.145
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	DS11	9400	1880	24.43	25.00	1.140	0.04	0.081	0.092
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	DS11	9400	1880	24.43	25.00	1.140	0.01	0.140	0.160
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	DS11	9400	1880	24.43	25.00	1.140	0.02	0.098	0.112
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DS11	9400	1880	20.36	21.80	1.393	-0.04	0.611	0.851
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DS11	9400	1880	20.36	21.80	1.393	0.13	0.188	0.262
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DS11	9400	1880	20.36	21.80	1.393	-0.12	0.279	0.389
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	DS11	9400	1880	20.36	21.80	1.393	0.1	0.104	0.145
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DS11	9262	1852.4	20.27	21.80	1.422	0.03	0.503	0.715
08	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DS11	9538	1907.6	20.18	21.80	1.452	0.02	0.685	0.995
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DS11	18900	1880	24.49	25.20	1.178	0.13	0.054	0.064
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DS11	18900	1880	23.40	24.20	1.202	-0.17	0.091	0.109
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DS11	18900	1880	24.49	25.20	1.178	0.04	0.091	0.107
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DS11	18900	1880	23.40	24.20	1.202	0.02	0.070	0.084
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DS11	18900	1880	24.49	25.20	1.178	0.04	0.128	0.151
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DS11	18900	1880	23.40	24.20	1.202	-0.16	0.103	0.124
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DS11	18900	1880	24.49	25.20	1.178	-0.05	0.107	0.126
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DS11	18900	1880	23.40	24.20	1.202	-0.01	0.075	0.090
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	18900	1880	21.03	22.30	1.340	0.12	0.634	0.849
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	18700	1860	20.89	22.30	1.384	-0.18	0.618	0.855
09	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	19100	1900	20.95	22.30	1.365	0.09	0.641	0.875
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS11	18900	1880	20.97	22.30	1.358	0.1	0.461	0.626
	LTE Band 2	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	DS11	18900	1880	21.00	22.30	1.349	0.13	0.458	0.618
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DS11	18900	1880	21.03	22.30	1.340	0.05	0.198	0.265
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DS11	18900	1880	20.97	22.30	1.358	0.02	0.158	0.215
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DS11	18900	1880	21.03	22.30	1.340	0.14	0.292	0.391
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DS11	18900	1880	20.97	22.30	1.358	-0.07	0.235	0.319
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DS11	18900	1880	21.03	22.30	1.340	0.01	0.162	0.217
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DS11	18900	1880	20.97	22.30	1.358	-0.13	0.131	0.178

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DS11	21100	2535	25.16	25.70	1.132	-	-	0.07	0.101	0.114
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DS11	21100	2535	24.13	24.70	1.140	-	-	-0.02	0.075	0.086
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DS11	21100	2535	25.16	25.70	1.132	-	-	0.03	0.067	0.076
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DS11	21100	2535	24.13	24.70	1.140	-	-	-0.04	0.052	0.059
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DS11	21100	2535	25.16	25.70	1.132	-	-	0.02	0.172	0.195
	LTE Band 7C	20M	QPSK	1	99	-	Left Cheek	0mm	Ant 2	DS11	21100+21298	2535+2554.8	23.11	23.70	1.146	-	-	0.01	0.109	0.125
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DS11	21100	2535	24.13	24.70	1.140	-	-	-0.14	0.137	0.156
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DS11	21100	2535	25.16	25.70	1.132	-	-	0.06	0.076	0.086
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DS11	21100	2535	24.13	24.70	1.140	-	-	0.02	0.061	0.070
10	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	21100	2535	16.48	17.50	1.265	-	-	0.03	0.828	1.047
	LTE Band 7C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	DS11	21100+21298	2535+2554.8	16.47	17.50	1.268	-	-	0.03	0.811	1.028
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	20850	2510	16.33	17.50	1.309	-	-	0.06	0.754	0.987
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	21350	2560	16.46	17.50	1.271	-	-	0.03	0.812	1.032



FCC SAR Test Report

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LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI1	21100	2535	16.42	17.50	1.282	-	-	0.04	0.654	0.839
LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI1	20850	2510	16.18	17.50	1.355	-	-	-0.01	0.622	0.843
LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI1	21350	2560	16.38	17.50	1.294	-	-	-0.09	0.665	0.861
LTE Band 7	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	DSI1	21100	2535	16.27	17.50	1.327	-	-	-0.01	0.654	0.868
LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI1	21100	2535	16.48	17.50	1.265	-	-	0.18	0.222	0.281
LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI1	21100	2535	16.42	17.50	1.282	-	-	0.18	0.178	0.228
LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI1	21100	2535	16.48	17.50	1.265	-	-	-0.12	0.401	0.507
LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI1	21100	2535	16.42	17.50	1.282	-	-	0.04	0.330	0.423
LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI1	21100	2535	16.48	17.50	1.265	-	-	0.19	0.125	0.158
LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI1	21100	2535	16.42	17.50	1.282	-	-	0.07	0.096	0.123
LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI1	21100	2535	17.51	18.50	1.256	-	-	0.1	0.750	0.942
LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI1	20850	2510	17.38	18.50	1.294	-	-	-0.03	0.745	0.964
LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI1	21350	2560	17.44	18.50	1.276	-	-	0.16	0.762	0.973
LTE Band 7C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI1	21350+21152	2560+2579.8	17.43	18.50	1.279	-	-	0.12	0.728	0.931
LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI1	21100	2535	17.49	18.50	1.262	-	-	0.05	0.608	0.767
LTE Band 7	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 3	DSI1	21100	2535	17.42	18.50	1.282	-	-	0.08	0.597	0.766
LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI1	21100	2535	17.51	18.50	1.256	-	-	0.05	0.704	0.884
LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI1	20850	2510	17.38	18.50	1.294	-	-	-0.04	0.704	0.911
LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI1	21350	2560	17.44	18.50	1.276	-	-	-0.05	0.750	0.957
LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI1	21100	2535	17.49	18.50	1.262	-	-	0.07	0.579	0.731
LTE Band 7	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 3	DSI1	21100	2535	17.42	18.50	1.282	-	-	0.02	0.568	0.728
LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 3	DSI1	21100	2535	17.51	18.50	1.256	-	-	0.05	0.452	0.568
LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 3	DSI1	21100	2535	17.49	18.50	1.262	-	-	0.08	0.374	0.472
LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 3	DSI1	21100	2535	17.51	18.50	1.256	-	-	-0.07	0.446	0.560
LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 3	DSI1	21100	2535	17.49	18.50	1.262	-	-	0.07	0.353	0.445
LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI1	21100	2535	23.21	24.50	1.346	-	-	-0.03	0.171	0.230
LTE Band 7C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 0	DSI1	21100+21298	2535+2554.8	21.30	22.50	1.318	-	-	-0.01	0.112	0.148
LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI1	21100	2535	22.17	23.50	1.358	-	-	-0.05	0.140	0.190
LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI1	21100	2535	23.21	24.50	1.346	-	-	0.18	0.060	0.081
LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI1	21100	2535	22.17	23.50	1.358	-	-	-0.17	0.048	0.065
LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI1	21100	2535	23.21	24.50	1.346	-	-	0.03	0.106	0.143
LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI1	21100	2535	22.17	23.50	1.358	-	-	0.09	0.083	0.113
LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI1	21100	2535	23.21	24.50	1.346	-	-	0.03	0.075	0.101
LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI1	21100	2535	22.17	23.50	1.358	-	-	0.01	0.060	0.081
LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI1	40620	2593	25.16	25.70	1.132	62.9	1.006	-0.06	0.078	0.089
LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSI1	40620	2593	24.02	24.70	1.169	62.9	1.006	-0.11	0.065	0.076
LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DSI1	40620	2593	25.16	25.70	1.132	62.9	1.006	0.07	0.049	0.056
LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DSI1	40620	2593	24.02	24.70	1.169	62.9	1.006	0.17	0.040	0.047
LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI1	40620	2593	25.16	25.70	1.132	62.9	1.006	0.01	0.140	0.159
LTE Band 38C	20M	QPSK	1	99	-	Left Cheek	0mm	Ant 2	DSI1	37901+38099	2593+2604.9	23.14	23.70	1.138	62.9	1.006	-0.06	0.088	0.101
LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DSI1	40620	2593	24.02	24.70	1.169	62.9	1.006	0.07	0.112	0.132
LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DSI1	40620	2593	25.16	25.70	1.132	62.9	1.006	0.01	0.054	0.062
LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DSI1	40620	2593	24.02	24.70	1.169	62.9	1.006	-0.11	0.042	0.049
LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI1	40620	2593	18.33	19.20	1.222	62.9	1.006	-0.07	0.750	0.922
LTE Band 38C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	DSI1	37901+38099	2593+2604.9	18.43	19.00	1.140	62.9	1.006	0.01	0.712	0.817
LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI1	39750	2506	18.25	19.20	1.245	62.9	1.006	0.03	0.660	0.826
LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI1	40185	2549.5	18.14	19.20	1.276	62.9	1.006	-0.06	0.709	0.910
LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI1	41055	2636.5	18.12	19.20	1.282	62.9	1.006	0.03	0.446	0.575
LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI1	41490	2680	18.24	19.20	1.247	62.9	1.006	0.05	0.363	0.456
LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI1	40620	2593	18.31	19.20	1.227	62.9	1.006	0.08	0.594	0.733
LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI1	39750	2506	18.05	19.20	1.303	62.9	1.006	0.06	0.539	0.707
LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI1	40185	2549.5	18.14	19.20	1.276	62.9	1.006	0.01	0.584	0.750
LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI1	41055	2636.5	17.95	19.20	1.334	62.9	1.006	0.04	0.466	0.625
LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI1	41490	2680	18.24	19.20	1.247	62.9	1.006	-0.07	0.495	0.621
LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	DSI1	40620	2593	18.28	19.20	1.236	62.9	1.006	0.07	0.594	0.739
LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI1	40620	2593	18.33	19.20	1.222	62.9	1.006	-0.13	0.158	0.194



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	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI1	40620	2593	18.31	19.20	1.227	62.9	1.006	0.02	0.127	0.157
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI1	40620	2593	18.33	19.20	1.222	62.9	1.006	-0.01	0.297	0.365
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI1	40620	2593	18.31	19.20	1.227	62.9	1.006	0.14	0.236	0.291
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI1	40620	2593	18.33	19.20	1.222	62.9	1.006	-0.06	0.083	0.102
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI1	40620	2593	18.31	19.20	1.227	62.9	1.006	0.07	0.066	0.081
11	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI1	40620	2593	20.23	21.00	1.194	62.9	1.006	0.06	0.884	1.062
	LTE Band 38C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 3	DSI1	37901+38099	2593+2604.9	19.05	20.00	1.245	62.9	1.006	0.01	0.731	0.915
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI1	39750	2506	20.10	21.00	1.230	62.9	1.006	0.01	0.788	0.975
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI1	40185	2549.5	20.14	21.00	1.219	62.9	1.006	-0.06	0.820	1.006
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI1	41055	2636.5	20.13	21.00	1.222	62.9	1.006	0.16	0.863	1.061
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI1	41490	2680	20.22	21.00	1.197	62.9	1.006	-0.12	0.836	1.006
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI1	40620	2593	20.17	21.00	1.211	62.9	1.006	-0.17	0.692	0.843
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI1	39750	2506	19.97	21.00	1.268	62.9	1.006	-0.1	0.644	0.821
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI1	40185	2549.5	20.11	21.00	1.227	62.9	1.006	-0.01	0.655	0.809
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI1	41055	2636.5	20.07	21.00	1.239	62.9	1.006	-0.16	0.703	0.876
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI1	41490	2680	20.10	21.00	1.230	62.9	1.006	0.03	0.671	0.830
	LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 3	DSI1	40620	2593	20.18	21.00	1.208	62.9	1.006	0.07	0.687	0.835
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI1	40620	2593	20.23	21.00	1.194	62.9	1.006	0.06	0.852	1.023
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI1	39750	2506	20.10	21.00	1.230	62.9	1.006	0.08	0.751	0.929
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI1	40185	2549.5	20.14	21.00	1.219	62.9	1.006	-0.14	0.772	0.947
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI1	41055	2636.5	20.13	21.00	1.222	62.9	1.006	0.18	0.862	1.060
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI1	41490	2680	20.22	21.00	1.197	62.9	1.006	-0.14	0.820	0.987
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI1	40620	2593	20.17	21.00	1.211	62.9	1.006	-0.13	0.671	0.817
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI1	39750	2506	19.97	21.00	1.268	62.9	1.006	0.06	0.618	0.788
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI1	40185	2549.5	20.11	21.00	1.227	62.9	1.006	0.02	0.628	0.775
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI1	41055	2636.5	20.07	21.00	1.239	62.9	1.006	-0.1	0.703	0.876
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI1	41490	2680	20.10	21.00	1.230	62.9	1.006	-0.13	0.660	0.817
	LTE Band 41	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 3	DSI1	40620	2593	20.18	21.00	1.208	62.9	1.006	0.03	0.671	0.815
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 3	DSI1	40620	2593	20.23	21.00	1.194	62.9	1.006	-0.09	0.487	0.585
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 3	DSI1	40620	2593	20.17	21.00	1.211	62.9	1.006	0.01	0.449	0.547
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 3	DSI1	40620	2593	20.23	21.00	1.194	62.9	1.006	-0.07	0.493	0.592
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 3	DSI1	40620	2593	20.17	21.00	1.211	62.9	1.006	0.17	0.422	0.514
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI1	40620	2593	22.93	24.50	1.435	62.9	1.006	-0.09	0.097	0.140
	LTE Band 38C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 0	DSI1	37901+38099	2593+2604.9	21.25	22.00	1.189	62.9	1.006	0.03	0.066	0.079
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI1	40620	2593	21.88	23.50	1.452	62.9	1.006	0.07	0.078	0.114
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI1	40620	2593	22.93	24.50	1.435	62.9	1.006	0.06	0.053	0.077
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI1	40620	2593	21.88	23.50	1.452	62.9	1.006	-0.14	0.000	0.000
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI1	40620	2593	22.93	24.50	1.435	62.9	1.006	-0.09	0.056	0.081
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI1	40620	2593	21.88	23.50	1.452	62.9	1.006	0.02	0.046	0.067
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI1	40620	2593	22.93	24.50	1.435	62.9	1.006	0.02	0.045	0.065
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI1	40620	2593	21.88	23.50	1.452	62.9	1.006	0.01	0.029	0.042
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 2	DSI1	507000	2535	24.30	24.70	1.096	-	-	-0.17	0.086	0.094
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Cheek	0mm	Ant 2	DSI1	507000	2535	24.11	24.70	1.146	-	-	0.03	0.089	0.102
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 2	DSI1	507000	2535	24.30	24.70	1.096	-	-	-0.03	0.071	0.078
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Tilted	0mm	Ant 2	DSI1	507000	2535	24.11	24.70	1.146	-	-	0.02	0.068	0.078
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 2	DSI1	507000	2535	24.30	24.70	1.096	-	-	0.02	0.150	0.164
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Cheek	0mm	Ant 2	DSI1	507000	2535	24.11	24.70	1.146	-	-	0.02	0.159	0.182
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 2	DSI1	507000	2535	24.30	24.70	1.096	-	-	0.02	0.071	0.078
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Tilted	0mm	Ant 2	DSI1	507000	2535	24.11	24.70	1.146	-	-	0.05	0.065	0.074
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI1	507000	2535	16.61	17.00	1.094	-	-	0.03	0.873	0.955
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI1	507000	2535	16.60	17.00	1.096	-	-	0.04	0.876	0.961
	FR1 n7	40M	QPSK	216	0	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI1	507000	2535	16.54	17.00	1.112	-	-	0.01	0.705	0.784
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DSI1	507000	2535	16.61	17.00	1.094	-	-	0.17	0.255	0.279
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DSI1	507000	2535	16.60	17.00	1.096	-	-	0.17	0.233	0.255
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI1	507000	2535	16.61	17.00	1.094	-	-	-0.15	0.424	0.464
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI1	507000	2535	16.60	17.00	1.096	-	-	0.08	0.435	0.477



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	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	DSI1	507000	2535	16.61	17.00	1.094	-	-	0.03	0.137	0.150
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	DSI1	507000	2535	16.60	17.00	1.096	-	-	0.02	0.130	0.143
12	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 3	DSI1	507000	2535	17.65	19.00	1.365	-	-	0.07	0.714	0.974
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Cheek	0mm	Ant 3	DSI1	507000	2535	17.57	19.00	1.390	-	-	0.05	0.665	0.924
	FR1 n7	40M	QPSK	216	0	DFT-SCS-15KHz	Right Cheek	0mm	Ant 3	DSI1	507000	2535	17.43	19.00	1.435	-	-	0.06	0.536	0.769
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 3	DSI1	507000	2535	17.65	19.00	1.365	-	-	0.02	0.706	0.963
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Tilted	0mm	Ant 3	DSI1	507000	2535	17.57	19.00	1.390	-	-	-0.09	0.665	0.924
	FR1 n7	40M	QPSK	216	0	DFT-SCS-15KHz	Right Tilted	0mm	Ant 3	DSI1	507000	2535	17.43	19.00	1.435	-	-	-0.12	0.531	0.762
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 3	DSI1	507000	2535	17.65	19.00	1.365	-	-	0.03	0.446	0.609
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Cheek	0mm	Ant 3	DSI1	507000	2535	17.57	19.00	1.390	-	-	0.05	0.418	0.581
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 3	DSI1	507000	2535	17.65	19.00	1.365	-	-	-0.16	0.414	0.565
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Tilted	0mm	Ant 3	DSI1	507000	2535	17.57	19.00	1.390	-	-	0.05	0.410	0.570
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI1	507000	2535	21.45	23.00	1.429	-	-	0.02	0.116	0.166
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI1	507000	2535	21.40	23.00	1.445	-	-	-0.11	0.099	0.143
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	DSI1	507000	2535	21.45	23.00	1.429	-	-	-0.09	0.000	0.000
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	DSI1	507000	2535	21.40	23.00	1.445	-	-	0.03	0.000	0.000
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	DSI1	507000	2535	21.45	23.00	1.429	-	-	-0.17	0.064	0.091
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	DSI1	507000	2535	21.40	23.00	1.445	-	-	-0.05	0.056	0.081
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	DSI1	507000	2535	21.45	23.00	1.429	-	-	0.02	0.048	0.069
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	DSI1	507000	2535	21.40	23.00	1.445	-	-	0.09	0.048	0.069
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	DSI1	518598	2592.99	25.38	25.70	1.076	-	-	0.02	0.116	0.125
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	DSI1	518598	2592.99	25.28	25.70	1.102	-	-	-0.15	0.145	0.160
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	DSI1	518598	2592.99	25.38	25.70	1.076	-	-	-0.05	0.060	0.065
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	DSI1	518598	2592.99	25.28	25.70	1.102	-	-	0.09	0.071	0.078
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	DSI1	518598	2592.99	25.38	25.70	1.076	-	-	0.02	0.194	0.209
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	DSI1	518598	2592.99	25.28	25.70	1.102	-	-	-0.01	0.238	0.262
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	DSI1	518598	2592.99	25.38	25.70	1.076	-	-	-0.02	0.088	0.095
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	DSI1	518598	2592.99	25.28	25.70	1.102	-	-	-0.15	0.092	0.101
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSI1	518598	2592.99	17.15	18.20	1.274	-	-	0.06	0.684	0.871
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSI1	518598	2592.99	17.14	18.20	1.276	-	-	0.07	0.734	0.937
	FR1 n41	100M	QPSK	270	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSI1	518598	2592.99	17.00	18.20	1.318	-	-	0.03	0.494	0.651
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 1	DSI1	518598	2592.99	17.15	18.20	1.274	-	-	0.05	0.182	0.232
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 1	DSI1	518598	2592.99	17.14	18.20	1.276	-	-	-0.01	0.152	0.194
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSI1	518598	2592.99	17.15	18.20	1.274	-	-	-0.02	0.327	0.416
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSI1	518598	2592.99	17.14	18.20	1.276	-	-	0.02	0.305	0.389
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 1	DSI1	518598	2592.99	17.15	18.20	1.274	-	-	0.04	0.093	0.118
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 1	DSI1	518598	2592.99	17.14	18.20	1.276	-	-	-0.1	0.078	0.100
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI1	518598	2592.99	17.55	19.00	1.396	-	-	0.15	0.763	1.065
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI1	518598	2592.99	17.57	19.00	1.390	-	-	0.01	0.756	1.051
	FR1 n41	100M	QPSK	270	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI1	518598	2592.99	17.50	19.00	1.413	-	-	0.07	0.613	0.866
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI1	518598	2592.99	17.55	19.00	1.396	-	-	-0.03	0.756	1.056
13	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI1	518598	2592.99	17.57	19.00	1.390	-	-	-0.01	0.771	1.072
	FR1 n41	100M	QPSK	270	0	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI1	518598	2592.99	17.50	19.00	1.413	-	-	0.02	0.624	0.881
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DSI1	518598	2592.99	17.55	19.00	1.396	-	-	0.18	0.508	0.709
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DSI1	518598	2592.99	17.57	19.00	1.390	-	-	0.08	0.496	0.689
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DSI1	518598	2592.99	17.55	19.00	1.396	-	-	0.18	0.493	0.688
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DSI1	518598	2592.99	17.57	19.00	1.390	-	-	0.08	0.500	0.695
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 0	DSI1	518598	2592.99	21.98	23.30	1.355	-	-	-0.09	0.137	0.186
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 0	DSI1	518598	2592.99	21.84	23.30	1.400	-	-	-0.08	0.121	0.169
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 0	DSI1	518598	2592.99	21.98	23.30	1.355	-	-	0.01	0.038	0.051
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 0	DSI1	518598	2592.99	21.84	23.30	1.400	-	-	0.15	0.050	0.070
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 0	DSI1	518598	2592.99	21.98	23.30	1.355	-	-	-0.04	0.078	0.106
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 0	DSI1	518598	2592.99	21.84	23.30	1.400	-	-	-0.07	0.064	0.090
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 0	DSI1	518598	2592.99	21.98	23.30	1.355	-	-	0.03	0.064	0.087
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 0	DSI1	518598	2592.99	21.84	23.30	1.400	-	-	0.03	0.060	0.084

3500MHz



FCC SAR Test Report

Report No. : FA2D2814

	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	656000	3840	15.99	17.00	1.262	-	-	0.09	0.678	0.856
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	656000	3840	15.90	17.00	1.288	-	-	-0.09	0.661	0.852
	FR1 n77	100M	QPSK	270	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	656000	3840	15.87	17.00	1.297	-	-	0.19	0.655	0.850
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 6	DS11	656000	3840	15.99	17.00	1.262	-	-	-0.06	0.430	0.543
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 6	DS11	656000	3840	15.90	17.00	1.288	-	-	0.08	0.403	0.519
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 6	DS11	656000	3840	15.99	17.00	1.262	-	-	0.06	0.185	0.233
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 6	DS11	656000	3840	15.90	17.00	1.288	-	-	-0.05	0.170	0.219
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 6	DS11	656000	3840	15.99	17.00	1.262	-	-	0.08	0.150	0.189
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 6	DS11	656000	3840	15.90	17.00	1.288	-	-	0.16	0.143	0.184
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	656000	3840	18.95	20.00	1.274	50	1.000	-0.12	0.637	0.811
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	633334	3500.01	15.81	17.00	1.315	-	-	-0.05	0.682	0.897
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	633334	3500.01	15.79	17.00	1.321	-	-	0.16	0.627	0.828
	FR1 n77	100M	QPSK	270	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	633334	3500.01	15.75	17.00	1.334	-	-	-0.16	0.625	0.833
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 6	DS11	633334	3500.01	15.81	17.00	1.315	-	-	0.06	0.506	0.666
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 6	DS11	633334	3500.01	15.79	17.00	1.321	-	-	-0.11	0.445	0.588
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 6	DS11	633334	3500.01	15.81	17.00	1.315	-	-	0.08	0.174	0.229
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 6	DS11	633334	3500.01	15.79	17.00	1.321	-	-	-0.14	0.152	0.201
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 6	DS11	633334	3500.01	15.81	17.00	1.315	-	-	0.06	0.164	0.216
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 6	DS11	633334	3500.01	15.79	17.00	1.321	-	-	-0.07	0.151	0.200
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	633334	3500.01	18.87	20.00	1.297	50	1.000	-0.05	0.633	0.821
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DS11	656000	3840	15.73	17.10	1.371	-	-	-0.07	0.295	0.404
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DS11	656000	3840	15.68	17.10	1.387	-	-	-0.01	0.269	0.373
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DS11	656000	3840	15.73	17.10	1.371	-	-	0.05	0.378	0.518
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DS11	656000	3840	15.68	17.10	1.387	-	-	0.07	0.344	0.477
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DS11	656000	3840	15.73	17.10	1.371	-	-	-0.17	0.441	0.605
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DS11	656000	3840	15.68	17.10	1.387	-	-	-0.15	0.415	0.576
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	656000	3840	15.73	17.10	1.371	-	-	-0.07	0.524	0.718
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	656000	3840	15.68	17.10	1.387	-	-	0.05	0.481	0.667
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	656000	3840	18.79	20.10	1.352	50	1.000	0.05	0.488	0.660
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DS11	633334	3500.01	15.64	17.10	1.400	-	-	0.07	0.401	0.561
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DS11	633334	3500.01	15.51	17.10	1.442	-	-	-0.05	0.405	0.584
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DS11	633334	3500.01	15.64	17.10	1.400	-	-	-0.05	0.491	0.687
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DS11	633334	3500.01	15.51	17.10	1.442	-	-	0.04	0.523	0.754
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DS11	633334	3500.01	15.64	17.10	1.400	-	-	0.06	0.629	0.880
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DS11	633334	3500.01	15.51	17.10	1.442	-	-	0.16	0.619	0.893
	FR1 n77	100M	QPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DS11	633334	3500.01	15.53	17.10	1.435	-	-	0.03	0.641	0.920
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	633334	3500.01	15.64	17.10	1.400	-	-	0.06	0.707	0.990
14	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	633334	3500.01	15.51	17.10	1.442	-	-	0.04	0.729	1.051
	FR1 n77	100M	QPSK	270	0	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	633334	3500.01	15.53	17.10	1.435	-	-	0.06	0.722	1.036
	FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	633334	3500.01	18.53	20.10	1.435	50	1.000	-0.09	0.687	0.986
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 10	DS11	656000	3840	15.69	16.50	1.205	-	-	0.07	0.083	0.100
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 10	DS11	656000	3840	15.61	16.50	1.227	-	-	-0.16	0.078	0.096
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 10	DS11	656000	3840	15.69	16.50	1.205	-	-	-0.08	0.082	0.099
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 10	DS11	656000	3840	15.61	16.50	1.227	-	-	-0.16	0.074	0.091
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DS11	656000	3840	15.69	16.50	1.205	-	-	-0.08	0.315	0.380
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DS11	656000	3840	15.61	16.50	1.227	-	-	-0.08	0.252	0.309
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 10	DS11	656000	3840	15.69	16.50	1.205	-	-	-0.13	0.155	0.187
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 10	DS11	656000	3840	15.61	16.50	1.227	-	-	0.18	0.146	0.179
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DS11	656000	3840	18.59	19.50	1.233	50	1.000	0.03	0.292	0.360
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 10	DS11	633334	3500.01	15.47	16.50	1.268	-	-	0.04	0.136	0.172
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 10	DS11	633334	3500.01	15.44	16.50	1.276	-	-	0.04	0.160	0.204
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 10	DS11	633334	3500.01	15.47	16.50	1.268	-	-	0.13	0.118	0.150
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 10	DS11	633334	3500.01	15.44	16.50	1.276	-	-	0.05	0.148	0.189
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DS11	633334	3500.01	15.47	16.50	1.268	-	-	0.18	0.618	0.783
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DS11	633334	3500.01	15.44	16.50	1.276	-	-	-0.08	0.749	0.956
	FR1 n77	100M	QPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DS11	633334	3500.01	15.38	16.50	1.294	-	-	0.04	0.721	0.933



FCC SAR Test Report

Report No. : FA2D2814

	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 10	DS11	633334	3500.01	15.47	16.50	1.268	-	-	-0.06	0.245	0.311
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 10	DS11	633334	3500.01	15.44	16.50	1.276	-	-	0.02	0.297	0.379
	FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DS11	633334	3500.01	18.55	19.50	1.245	50	1.000	-0.12	0.715	0.890
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DS11	656000	3840	23.92	25.50	1.439	-	-	-0.06	0.118	0.170
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DS11	656000	3840	23.89	25.50	1.449	-	-	-0.12	0.101	0.146
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DS11	656000	3840	23.92	25.50	1.439	-	-	0.14	0.089	0.128
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DS11	656000	3840	23.89	25.50	1.449	-	-	0.05	0.109	0.158
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DS11	656000	3840	23.92	25.50	1.439	-	-	0.09	0.066	0.095
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DS11	656000	3840	23.89	25.50	1.449	-	-	0.07	0.069	0.100
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 8	DS11	656000	3840	23.92	25.50	1.439	-	-	0.17	0.079	0.114
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 8	DS11	656000	3840	23.89	25.50	1.449	-	-	0.04	0.080	0.116
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DS11	656000	3840	26.01	27.50	1.409	50	1.000	0.06	0.097	0.137
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DS11	633334	3500.01	23.80	25.50	1.479	-	-	-0.16	0.181	0.268
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DS11	633334	3500.01	23.76	25.50	1.493	-	-	-0.18	0.202	0.302
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DS11	633334	3500.01	23.80	25.50	1.479	-	-	0.11	0.190	0.281
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DS11	633334	3500.01	23.76	25.50	1.493	-	-	-0.07	0.215	0.321
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DS11	633334	3500.01	23.80	25.50	1.479	-	-	-0.13	0.090	0.133
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DS11	633334	3500.01	23.76	25.50	1.493	-	-	0.08	0.104	0.155
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 8	DS11	633334	3500.01	23.80	25.50	1.479	-	-	0.11	0.096	0.142
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 8	DS11	633334	3500.01	23.76	25.50	1.493	-	-	0.08	0.112	0.167
	FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DS11	633334	3500.01	25.63	27.50	1.538	50	1.000	0.06	0.157	0.241
15	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	650000	3750	16.32	17.50	1.312	-	-	0.01	0.825	1.083
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	650000	3750	16.30	17.50	1.318	-	-	-0.13	0.768	1.012
	FR1 n78	100M	QPSK	270	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	650000	3750	16.25	17.50	1.334	-	-	-0.06	0.764	1.019
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 6	DS11	650000	3750	16.32	17.50	1.312	-	-	0.03	0.520	0.682
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 6	DS11	650000	3750	16.30	17.50	1.318	-	-	0.01	0.472	0.622
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 6	DS11	650000	3750	16.32	17.50	1.312	-	-	-0.03	0.226	0.297
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 6	DS11	650000	3750	16.30	17.50	1.318	-	-	-0.12	0.191	0.252
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 6	DS11	650000	3750	16.32	17.50	1.312	-	-	0.18	0.195	0.256
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 6	DS11	650000	3750	16.30	17.50	1.318	-	-	0.08	0.157	0.207
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	650000	3750	19.40	20.50	1.288	50	1.000	-0.16	0.798	1.028
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	633334	3500.01	16.28	17.50	1.324	-	-	0.07	0.684	0.906
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	633334	3500.01	16.25	17.50	1.334	-	-	0.08	0.615	0.820
	FR1 n78	100M	QPSK	270	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	633334	3500.01	16.19	17.50	1.352	-	-	-0.06	0.551	0.745
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 6	DS11	633334	3500.01	16.28	17.50	1.324	-	-	0.15	0.516	0.683
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 6	DS11	633334	3500.01	16.25	17.50	1.334	-	-	0.07	0.451	0.601
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 6	DS11	633334	3500.01	16.28	17.50	1.324	-	-	0.13	0.177	0.234
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 6	DS11	633334	3500.01	16.25	17.50	1.334	-	-	-0.02	0.155	0.207
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 6	DS11	633334	3500.01	16.28	17.50	1.324	-	-	0.05	0.168	0.222
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 6	DS11	633334	3500.01	16.25	17.50	1.334	-	-	-0.09	0.147	0.196
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	633334	3500.01	19.25	20.50	1.334	50	1.000	0.01	0.644	0.859
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DS11	650000	3750	15.53	17.10	1.435	-	-	0.02	0.319	0.458
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DS11	650000	3750	15.47	17.10	1.455	-	-	-0.03	0.282	0.410
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DS11	650000	3750	15.53	17.10	1.435	-	-	0.02	0.398	0.571
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DS11	650000	3750	15.47	17.10	1.455	-	-	0.08	0.379	0.552
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DS11	650000	3750	15.53	17.10	1.435	-	-	0.1	0.469	0.673
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DS11	650000	3750	15.47	17.10	1.455	-	-	-0.04	0.451	0.656
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	650000	3750	15.53	17.10	1.435	-	-	-0.01	0.568	0.815
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	650000	3750	15.47	17.10	1.455	-	-	0.02	0.528	0.768
	FR1 n78	100M	QPSK	270	0	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	650000	3750	15.43	17.10	1.469	-	-	0.05	0.520	0.764
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DS11	650000	3750	18.61	20.10	1.409	50	1.000	-0.06	0.546	0.769
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DS11	633334	3500.01	15.68	17.10	1.387	-	-	-0.1	0.404	0.560
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DS11	633334	3500.01	15.58	17.10	1.419	-	-	-0.06	0.420	0.596
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DS11	633334	3500.01	15.68	17.10	1.387	-	-	0.13	0.497	0.689
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DS11	633334	3500.01	15.58	17.10	1.419	-	-	-0.15	0.535	0.759
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DS11	633334	3500.01	15.68	17.10	1.387	-	-	0.04	0.633	0.878



FCC SAR Test Report

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FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DSI1	633334	3500.01	15.58	17.10	1.419	-	-	-0.01	0.603	0.856
FR1 n78	100M	QPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DSI1	633334	3500.01	15.60	17.10	1.413	-	-	0.16	0.625	0.883
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DSI1	633334	3500.01	15.68	17.10	1.387	-	-	0.17	0.732	1.015
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DSI1	633334	3500.01	15.58	17.10	1.419	-	-	-0.07	0.754	1.070
FR1 n78	100M	QPSK	270	0	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DSI1	633334	3500.01	15.60	17.10	1.413	-	-	0.02	0.720	1.017
FR1 n78 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DSI1	633334	3500.01	18.52	20.10	1.439	50	1.000	-0.17	0.722	1.039
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 10	DSI1	650000	3750	14.53	15.50	1.250	-	-	-0.18	0.075	0.094
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 10	DSI1	650000	3750	14.44	15.50	1.276	-	-	0.02	0.066	0.084
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 10	DSI1	650000	3750	14.53	15.50	1.250	-	-	0.04	0.077	0.096
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 10	DSI1	650000	3750	14.44	15.50	1.276	-	-	0.04	0.064	0.082
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DSI1	650000	3750	14.53	15.50	1.250	-	-	-0.04	0.300	0.375
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DSI1	650000	3750	14.44	15.50	1.276	-	-	0.06	0.256	0.327
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 10	DSI1	650000	3750	14.53	15.50	1.250	-	-	0.05	0.136	0.170
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 10	DSI1	650000	3750	14.44	15.50	1.276	-	-	0.01	0.122	0.156
FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DSI1	650000	3750	17.64	18.50	1.219	50	1.000	-0.06	0.296	0.361
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 10	DSI1	633334	3500.01	14.58	15.50	1.236	-	-	0.08	0.107	0.132
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 10	DSI1	633334	3500.01	14.52	15.50	1.253	-	-	-0.12	0.124	0.155
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 10	DSI1	633334	3500.01	14.58	15.50	1.236	-	-	-0.17	0.094	0.116
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 10	DSI1	633334	3500.01	14.52	15.50	1.253	-	-	0.04	0.111	0.139
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DSI1	633334	3500.01	14.58	15.50	1.236	-	-	0.06	0.487	0.602
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DSI1	633334	3500.01	14.52	15.50	1.253	-	-	-0.02	0.581	0.728
FR1 n78	100M	QPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DSI1	633334	3500.01	14.47	15.50	1.268	-	-	-0.04	0.512	0.649
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 10	DSI1	633334	3500.01	14.58	15.50	1.236	-	-	0.04	0.203	0.251
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 10	DSI1	633334	3500.01	14.52	15.50	1.253	-	-	-0.08	0.228	0.286
FR1 n78 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 10	DSI1	633334	3500.01	17.29	18.50	1.321	50	1.000	-0.11	0.545	0.720
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DSI1	650000	3750	23.88	25.50	1.452	-	-	-0.06	0.114	0.166
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DSI1	650000	3750	23.85	25.50	1.462	-	-	0.08	0.112	0.164
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DSI1	650000	3750	23.88	25.50	1.452	-	-	0.03	0.110	0.160
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DSI1	650000	3750	23.85	25.50	1.462	-	-	0.04	0.091	0.133
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DSI1	650000	3750	23.88	25.50	1.452	-	-	0.02	0.059	0.086
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DSI1	650000	3750	23.85	25.50	1.462	-	-	-0.08	0.056	0.082
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 8	DSI1	650000	3750	23.88	25.50	1.452	-	-	-0.03	0.086	0.125
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 8	DSI1	650000	3750	23.85	25.50	1.462	-	-	-0.18	0.076	0.111
FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DSI1	650000	3750	25.84	27.50	1.466	50	1.000	0.12	0.105	0.154
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DSI1	633334	3500.01	23.79	25.50	1.483	-	-	0.08	0.269	0.399
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 8	DSI1	633334	3500.01	23.70	25.50	1.514	-	-	0.17	0.299	0.453
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DSI1	633334	3500.01	23.79	25.50	1.483	-	-	-0.1	0.293	0.434
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DSI1	633334	3500.01	23.70	25.50	1.514	-	-	-0.09	0.315	0.477
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DSI1	633334	3500.01	23.79	25.50	1.483	-	-	-0.11	0.138	0.205
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DSI1	633334	3500.01	23.70	25.50	1.514	-	-	0.1	0.151	0.229
FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 8	DSI1	633334	3500.01	23.79	25.50	1.483	-	-	0.14	0.140	0.208
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 8	DSI1	633334	3500.01	23.70	25.50	1.514	-	-	-0.1	0.159	0.241
FR1 n78 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 8	DSI1	633334	3500.01	25.70	27.50	1.514	50	1.000	-0.15	0.252	0.381



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 9+10	Standalone	11	2462	16.71	18.50	1.510	98.29	1.017	0.02	0.151	0.232
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 9+10	Standalone	11	2462	16.71	18.50	1.510	98.29	1.017	0.05	0.173	0.266
16	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 9+10	Standalone	11	2462	16.71	18.50	1.510	98.29	1.017	-0.05	0.467	0.717
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 9+10	Standalone	11	2462	16.71	18.50	1.510	98.29	1.017	-0.06	0.384	0.590
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 9+10	Simultaneous	11	2462	12.35	14.00	1.462	98.29	1.017	-0.03	0.147	0.219
	Bluetooth	1Mbps	Right Cheek	0mm	Ant 9	Standalone	39	2441	15.37	16.50	1.297	76.93	1.083	0.05	0.127	0.178
	Bluetooth	1Mbps	Right Tilted	0mm	Ant 9	Standalone	39	2441	15.37	16.50	1.297	76.93	1.083	0.09	0.170	0.239
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 9	Standalone	39	2441	15.37	16.50	1.297	76.93	1.083	-0.02	0.205	0.288
	Bluetooth	1Mbps	Left Tilted	0mm	Ant 9	Standalone	39	2441	15.37	16.50	1.297	76.93	1.083	-0.16	0.257	0.361
	Bluetooth	1Mbps	Left Tilted	0mm	Ant 9	Simultaneous	39	2441	12.59	13.50	1.233	76.93	1.083	-0.02	0.161	0.215
	Bluetooth	1Mbps	Right Cheek	0mm	Ant 10	Standalone	0	2402	17.18	18.00	1.209	76.82	1.084	-0.08	0.089	0.117
	Bluetooth	1Mbps	Right Tilted	0mm	Ant 10	Standalone	0	2402	17.18	18.00	1.209	76.82	1.084	-0.01	0.062	0.081
17	Bluetooth	1Mbps	Left Cheek	0mm	Ant 10	Standalone	0	2402	17.18	18.00	1.209	76.82	1.084	0.05	0.537	0.704
	Bluetooth	1Mbps	Left Tilted	0mm	Ant 10	Standalone	0	2402	17.18	18.00	1.209	76.82	1.084	0.03	0.179	0.235
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 10	Simultaneous	0	2402	10.94	12.00	1.276	76.82	1.084	-0.03	0.153	0.212
5000MHz																
	WLAN5.3GHz	802.11ax-HE80 MCS0	Right Cheek	0mm	Ant 9+11	Standalone	58	5290	19.30	20.50	1.318	100	1.000	0.012	0.238	0.314
	WLAN5.3GHz	802.11ax-HE80 MCS0	Right Tilted	0mm	Ant 9+11	Standalone	58	5290	19.30	20.50	1.318	100	1.000	0.07	0.342	0.451
18	WLAN5.3GHz	802.11ax-HE80 MCS0	Left Cheek	0mm	Ant 9+11	Standalone	58	5290	19.30	20.50	1.318	100	1.000	-0.02	0.536	0.707
	WLAN5.3GHz	802.11ax-HE80 MCS0	Left Tilted	0mm	Ant 9+11	Standalone	58	5290	19.30	20.50	1.318	100	1.000	0.03	0.429	0.566
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 9+11	Simultaneous	58	5290	14.86	16.00	1.300	100	1.000	-0.08	0.185	0.241
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 9+11	Standalone	106	5530	17.49	18.50	1.262	100	1.000	-0.12	0.363	0.458
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 9+11	Standalone	106	5530	17.49	18.50	1.262	100	1.000	-0.05	0.510	0.644
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 9+11	Standalone	106	5530	17.49	18.50	1.262	100	1.000	0.06	0.385	0.486
19	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 9+11	Standalone	106	5530	17.49	18.50	1.262	100	1.000	-0.09	0.604	0.762
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 9+11	Simultaneous	106	5530	13.19	14.00	1.205	100	1.000	-0.07	0.199	0.240
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 9+11	Standalone	155	5775	16.79	18.00	1.321	100	1.000	0.04	0.484	0.640
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 9+11	Standalone	155	5775	16.79	18.00	1.321	100	1.000	0.02	0.596	0.787
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 9+11	Standalone	155	5775	16.79	18.00	1.321	100	1.000	0.08	0.522	0.690
20	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 9+11	Standalone	155	5775	16.79	18.00	1.321	100	1.000	-0.09	0.664	0.877
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 9+11	Simultaneous	155	5775	12.37	13.50	1.297	100	1.000	-0.08	0.183	0.237



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)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
835MHz																		
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	DSI5	189	836.4	26.66	28.00	1.361	-0.03	0.146	0.199
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 0	DSI5	189	836.4	26.66	28.00	1.361	-0.03	0.178	0.242
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Side	10mm	Ant 0	DSI5	189	836.4	26.66	28.00	1.361	-0.14	0.150	0.204
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	10mm	Ant 0	DSI5	189	836.4	26.66	28.00	1.361	-0.17	0.096	0.131
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 1	DSI5	189	836.4	24.52	26.40	1.542	0.09	0.213	0.328
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 1	DSI5	189	836.4	24.52	26.40	1.542	-0.02	0.288	0.444
21	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Side	10mm	Ant 1	DSI5	189	836.4	24.52	26.40	1.542	-0.02	0.359	0.553
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Top Side	10mm	Ant 1	DSI5	189	836.4	24.52	26.40	1.542	0.09	0.039	0.060
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI5	4182	836.4	24.25	25.00	1.189	0.03	0.159	0.189
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI5	4182	836.4	24.25	25.00	1.189	0.02	0.170	0.202
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 0	DSI5	4182	836.4	24.25	25.00	1.189	-0.05	0.107	0.127
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI5	4182	836.4	24.25	25.00	1.189	0.18	0.086	0.102
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 1	DSI5	4182	836.4	20.58	22.10	1.419	0.06	0.205	0.291
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 1	DSI5	4182	836.4	20.58	22.10	1.419	0.09	0.307	0.436
22	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 1	DSI5	4182	836.4	20.58	22.10	1.419	0.03	0.331	0.470
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 1	DSI5	4182	836.4	20.58	22.10	1.419	0.1	0.042	0.060
	LTE Band 5	10M	QPSK	1	0	-	Front	10mm	Ant 0	DSI5	20525	836.5	25.01	25.70	1.172	-0.03	0.223	0.261
	LTE Band 5	10M	QPSK	25	0	-	Front	10mm	Ant 0	DSI5	20525	836.5	24.05	24.70	1.161	-0.15	0.176	0.204
	LTE Band 5	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI5	20525	836.5	25.01	25.70	1.172	-0.01	0.314	0.368
	LTE Band 5	10M	QPSK	25	0	-	Back	10mm	Ant 0	DSI5	20525	836.5	24.05	24.70	1.161	0.12	0.236	0.274
	LTE Band 5	10M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI5	20525	836.5	25.01	25.70	1.172	-0.07	0.294	0.345
	LTE Band 5	10M	QPSK	25	0	-	Right Side	10mm	Ant 0	DSI5	20525	836.5	24.05	24.70	1.161	0.01	0.234	0.272
	LTE Band 5	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI5	20525	836.5	25.01	25.70	1.172	-0.08	0.159	0.186
	LTE Band 5	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 0	DSI5	20525	836.5	24.05	24.70	1.161	0.02	0.124	0.144
	LTE Band 5	10M	QPSK	1	0	-	Front	10mm	Ant 1	DSI5	20525	836.5	21.42	22.20	1.197	0.01	0.215	0.257
	LTE Band 5	10M	QPSK	25	0	-	Front	10mm	Ant 1	DSI5	20525	836.5	21.21	22.20	1.256	0.09	0.174	0.219
	LTE Band 5	10M	QPSK	1	0	-	Back	10mm	Ant 1	DSI5	20525	836.5	21.42	22.20	1.197	0.11	0.301	0.360
	LTE Band 5	10M	QPSK	25	0	-	Back	10mm	Ant 1	DSI5	20525	836.5	21.21	22.20	1.256	-0.01	0.238	0.299
23	LTE Band 5	10M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI5	20525	836.5	21.42	22.20	1.197	0.02	0.330	0.395
	LTE Band 5	10M	QPSK	25	0	-	Left Side	10mm	Ant 1	DSI5	20525	836.5	21.21	22.20	1.256	0.06	0.260	0.327
	LTE Band 5	10M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI5	20525	836.5	21.42	22.20	1.197	-0.08	0.044	0.053
	LTE Band 5	10M	QPSK	25	0	-	Top Side	10mm	Ant 1	DSI5	20525	836.5	21.21	22.20	1.256	0.05	0.036	0.045
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Front	10mm	Ant 0	DSI5	167300	836.5	25.18	25.70	1.127	0.03	0.218	0.246
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Front	10mm	Ant 0	DSI5	167300	836.5	25.16	25.70	1.132	-0.18	0.244	0.276
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Back	10mm	Ant 0	DSI5	167300	836.5	25.18	25.70	1.127	0.06	0.283	0.319
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Back	10mm	Ant 0	DSI5	167300	836.5	25.16	25.70	1.132	-0.08	0.308	0.349
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Right Side	10mm	Ant 0	DSI5	167300	836.5	25.18	25.70	1.127	0.16	0.200	0.225
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Right Side	10mm	Ant 0	DSI5	167300	836.5	25.16	25.70	1.132	0.08	0.232	0.263
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	10mm	Ant 0	DSI5	167300	836.5	25.18	25.70	1.127	0.04	0.179	0.202
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Bottom Side	10mm	Ant 0	DSI5	167300	836.5	25.16	25.70	1.132	0.07	0.190	0.215
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Front	10mm	Ant 1	DSI5	167300	836.5	21.27	22.00	1.183	-0.06	0.163	0.193
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Front	10mm	Ant 1	DSI5	167300	836.5	21.12	22.00	1.225	0.03	0.198	0.242
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Back	10mm	Ant 1	DSI5	167300	836.5	21.27	22.00	1.183	0.06	0.240	0.284
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Back	10mm	Ant 1	DSI5	167300	836.5	21.12	22.00	1.225	-0.03	0.293	0.359
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Left Side	10mm	Ant 1	DSI5	167300	836.5	21.27	22.00	1.183	0.05	0.259	0.306
24	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Left Side	10mm	Ant 1	DSI5	167300	836.5	21.12	22.00	1.225	-0.06	0.323	0.396
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Top Side	10mm	Ant 1	DSI5	167300	836.5	21.27	22.00	1.183	0.05	0.032	0.038
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Top Side	10mm	Ant 1	DSI5	167300	836.5	21.12	22.00	1.225	0.15	0.040	0.049
1750MHz																		
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 2	DSI5	1413	1732.6	22.33	23.00	1.167	0.04	0.341	0.398
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 2	DSI5	1413	1732.6	22.33	23.00	1.167	-0.09	0.545	0.636



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	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 2	DSI5	1312	1712.4	22.24	23.00	1.191	0.13	0.510	0.608
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 2	DSI5	1513	1752.6	22.28	23.00	1.180	0.01	0.543	0.641
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 2	DSI5	1413	1732.6	22.33	23.00	1.167	0.02	0.143	0.167
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 2	DSI5	1413	1732.6	22.33	23.00	1.167	0.03	0.688	0.803
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 2	DSI5	1312	1712.4	22.24	23.00	1.191	0.02	0.637	0.759
25	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 2	DSI5	1513	1752.6	22.28	23.00	1.180	-0.08	0.716	0.845
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 1	DSI5	1413	1732.6	21.68	22.60	1.236	-0.06	0.184	0.227
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 1	DSI5	1413	1732.6	21.68	22.60	1.236	-0.05	0.286	0.353
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 1	DSI5	1413	1732.6	21.68	22.60	1.236	0.01	0.462	0.571
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 1	DSI5	1413	1732.6	21.68	22.60	1.236	-0.13	0.067	0.083
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 2	DSI5	132322	1745	23.12	23.70	1.143	0.08	0.387	0.442
	LTE Band 66	20M	QPSK	50	0	-	Front	10mm	Ant 2	DSI5	132322	1745	23.06	23.70	1.159	0.08	0.314	0.364
	LTE Band 66	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI5	132322	1745	23.12	23.70	1.143	-0.03	0.559	0.639
	LTE Band 66	20M	QPSK	50	0	-	Back	10mm	Ant 2	DSI5	132322	1745	23.06	23.70	1.159	0.07	0.473	0.548
	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 2	DSI5	132322	1745	23.12	23.70	1.143	-0.1	0.147	0.168
	LTE Band 66	20M	QPSK	50	0	-	Left Side	10mm	Ant 2	DSI5	132322	1745	23.06	23.70	1.159	0.08	0.120	0.139
26	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI5	132322	1745	23.12	23.70	1.143	0.01	0.721	0.824
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI5	132072	1720	23.03	23.70	1.167	0.02	0.664	0.775
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI5	132572	1770	23.06	23.70	1.159	0.06	0.683	0.791
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI5	132322	1745	23.06	23.70	1.159	0.07	0.583	0.676
	LTE Band 66	20M	QPSK	100	0	-	Bottom Side	10mm	Ant 2	DSI5	132322	1745	22.99	23.70	1.178	-0.04	0.584	0.688
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI5	132322	1745	22.34	23.20	1.219	0.07	0.191	0.233
	LTE Band 66	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI5	132322	1745	22.27	23.20	1.239	-0.13	0.157	0.194
	LTE Band 66	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI5	132322	1745	22.34	23.20	1.219	-0.04	0.291	0.355
	LTE Band 66	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI5	132322	1745	22.27	23.20	1.239	-0.07	0.239	0.296
	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI5	132322	1745	22.34	23.20	1.219	-0.02	0.507	0.618
	LTE Band 66	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI5	132322	1745	22.27	23.20	1.239	0.03	0.416	0.515
	LTE Band 66	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI5	132322	1745	22.34	23.20	1.219	0.06	0.071	0.087
	LTE Band 66	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI5	132322	1745	22.27	23.20	1.239	-0.11	0.061	0.076
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 3	DSI5	132322	1745	19.09	20.50	1.384	0.02	0.162	0.224
	LTE Band 66	20M	QPSK	50	0	-	Front	10mm	Ant 3	DSI5	132322	1745	18.86	20.50	1.459	0.07	0.129	0.188
	LTE Band 66	20M	QPSK	1	0	-	Back	10mm	Ant 3	DSI5	132322	1745	19.09	20.50	1.384	0.07	0.368	0.509
	LTE Band 66	20M	QPSK	50	0	-	Back	10mm	Ant 3	DSI5	132322	1745	18.86	20.50	1.459	0.06	0.301	0.439
	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	DSI5	132322	1745	19.09	20.50	1.384	0.18	0.100	0.138
	LTE Band 66	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	DSI5	132322	1745	18.86	20.50	1.459	-0.06	0.084	0.123
	LTE Band 66	20M	QPSK	1	0	-	Top Side	10mm	Ant 3	DSI5	132322	1745	19.09	20.50	1.384	0.01	0.403	0.558
	LTE Band 66	20M	QPSK	50	0	-	Top Side	10mm	Ant 3	DSI5	132322	1745	18.86	20.50	1.459	0.16	0.308	0.449
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI5	132322	1745	23.02	24.50	1.406	0.04	0.237	0.333
	LTE Band 66	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI5	132322	1745	21.99	23.50	1.416	0.04	0.194	0.275
	LTE Band 66	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI5	132322	1745	23.02	24.50	1.406	0.02	0.410	0.576
	LTE Band 66	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI5	132322	1745	21.99	23.50	1.416	0.05	0.335	0.474
	LTE Band 66	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI5	132322	1745	23.02	24.50	1.406	0.05	0.384	0.540
	LTE Band 66	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI5	132322	1745	21.99	23.50	1.416	-0.17	0.311	0.440
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI5	132322	1745	23.02	24.50	1.406	-0.06	0.194	0.273
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI5	132322	1745	21.99	23.50	1.416	0.02	0.160	0.227
1900MHz																		
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 2	DSI5	661	1880	24.58	25.00	1.102	-0.04	0.212	0.234
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 2	DSI5	661	1880	24.58	25.00	1.102	0.07	0.346	0.381
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Side	10mm	Ant 2	DSI5	661	1880	24.58	25.00	1.102	0.06	0.091	0.100
27	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	10mm	Ant 2	DSI5	661	1880	24.58	25.00	1.102	0.09	0.442	0.487
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 1	DSI5	661	1880	23.12	24.50	1.374	0.05	0.085	0.117
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 1	DSI5	661	1880	23.12	24.50	1.374	0.16	0.131	0.180
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Side	10mm	Ant 1	DSI5	661	1880	23.12	24.50	1.374	-0.05	0.219	0.301
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Top Side	10mm	Ant 1	DSI5	661	1880	23.12	24.50	1.374	0.05	0.028	0.038
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 2	DSI5	9400	1880	22.82	23.50	1.169	0.07	0.372	0.435
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 2	DSI5	9400	1880	22.82	23.50	1.169	0.07	0.554	0.648



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	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 2	DSI5	9400	1880	22.82	23.50	1.169	-0.19	0.171	0.200
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 2	DSI5	9400	1880	22.82	23.50	1.169	0.09	0.812	0.950
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 2	DSI5	9262	1852.4	22.67	23.50	1.211	-0.01	0.683	0.827
28	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 2	DSI5	9538	1907.6	22.69	23.50	1.205	-0.02	0.845	1.018
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 1	DSI5	9400	1880	20.36	21.80	1.393	-0.12	0.147	0.205
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 1	DSI5	9400	1880	20.36	21.80	1.393	-0.04	0.217	0.302
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 1	DSI5	9400	1880	20.36	21.80	1.393	0.02	0.401	0.559
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 1	DSI5	9400	1880	20.36	21.80	1.393	-0.02	0.048	0.067
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 1	DSI5	9262	1852.4	20.27	21.80	1.422	0.04	0.341	0.485
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 2	DSI5	18900	1880	23.57	24.20	1.156	0.03	0.396	0.458
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 2	DSI5	18900	1880	23.47	24.20	1.183	-0.03	0.332	0.393
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI5	18900	1880	23.57	24.20	1.156	0.03	0.551	0.637
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 2	DSI5	18900	1880	23.47	24.20	1.183	0.16	0.504	0.596
	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 2	DSI5	18900	1880	23.57	24.20	1.156	0.15	0.181	0.209
	LTE Band 2	20M	QPSK	50	0	-	Left Side	10mm	Ant 2	DSI5	18900	1880	23.47	24.20	1.183	0.02	0.151	0.179
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI5	18900	1880	23.57	24.20	1.156	-0.16	0.925	1.069
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI5	18700	1860	23.49	24.20	1.178	-0.03	0.777	0.915
29	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI5	19100	1900	23.55	24.20	1.161	-0.03	0.936	1.087
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI5	18900	1880	23.47	24.20	1.183	0.07	0.718	0.849
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI5	18700	1860	23.11	24.20	1.285	-0.08	0.649	0.834
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI5	19100	1900	23.33	24.20	1.222	-0.06	0.758	0.926
	LTE Band 2	20M	QPSK	100	0	-	Bottom Side	10mm	Ant 2	DSI5	18900	1880	23.42	24.20	1.197	0.14	0.722	0.864
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI5	18900	1880	21.03	22.30	1.340	-0.06	0.164	0.220
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI5	18900	1880	20.97	22.30	1.358	0.01	0.158	0.215
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI5	18900	1880	21.03	22.30	1.340	0.09	0.225	0.301
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI5	18900	1880	20.97	22.30	1.358	-0.13	0.221	0.300
	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI5	18900	1880	21.03	22.30	1.340	0.01	0.477	0.639
	LTE Band 2	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI5	18900	1880	20.97	22.30	1.358	-0.04	0.323	0.439
	LTE Band 2	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI5	18900	1880	21.03	22.30	1.340	0.03	0.045	0.060
	LTE Band 2	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI5	18900	1880	20.97	22.30	1.358	0.1	0.036	0.049

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 2	DSI5	21100	2535	22.20	22.70	1.122	-	-	0.01	0.326	0.366
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 2	DSI5	21100	2535	22.13	22.70	1.140	-	-	0.09	0.266	0.303
30	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI5	21100	2535	22.20	22.70	1.122	-	-	0.04	0.578	0.649
	LTE Band 7C	20M	QPSK	1	99	-	Back	10mm	Ant 2	DSI5	21100+21298	2535+2554.8	22.18	22.70	1.127	-	-	-0.01	0.561	0.632
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 2	DSI5	21100	2535	22.13	22.70	1.140	-	-	-0.1	0.432	0.493
	LTE Band 7	20M	QPSK	1	0	-	Left Side	10mm	Ant 2	DSI5	21100	2535	22.20	22.70	1.122	-	-	-0.03	0.148	0.166
	LTE Band 7	20M	QPSK	50	0	-	Left Side	10mm	Ant 2	DSI5	21100	2535	22.13	22.70	1.140	-	-	0.05	0.122	0.139
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI5	21100	2535	22.20	22.70	1.122	-	-	0.07	0.495	0.555
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI5	21100	2535	22.13	22.70	1.140	-	-	0.1	0.400	0.456
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI5	21100	2535	16.48	17.50	1.265	-	-	0.04	0.171	0.216
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI5	21100	2535	16.42	17.50	1.282	-	-	-0.06	0.139	0.178
	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI5	21100	2535	16.48	17.50	1.265	-	-	0.04	0.274	0.347
	LTE Band 7C	20M	QPSK	1	99	-	Back	10mm	Ant 1	DSI5	21100+21298	2535+2554.8	16.47	17.50	1.268	-	-	0.01	0.264	0.335
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI5	21100	2535	16.42	17.50	1.282	-	-	0.03	0.218	0.280
	LTE Band 7	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI5	21100	2535	16.48	17.50	1.265	-	-	0.12	0.226	0.286
	LTE Band 7	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI5	21100	2535	16.42	17.50	1.282	-	-	0.03	0.184	0.236
	LTE Band 7	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI5	21100	2535	16.48	17.50	1.265	-	-	-0.03	0.024	0.030
	LTE Band 7	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI5	21100	2535	16.42	17.50	1.282	-	-	0.05	0.019	0.024
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 3	DSI5	21100	2535	17.51	18.50	1.256	-	-	-0.11	0.122	0.153
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 3	DSI5	21100	2535	17.49	18.50	1.262	-	-	-0.06	0.098	0.124
	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 3	DSI5	21100	2535	17.51	18.50	1.256	-	-	-0.04	0.225	0.283

Sporton International Inc. (Kunshan)

TEL : 86-512-57900158 / FAX : 86-512-57900958

FCC ID : 2AFZZPCD8G

Issued Date : Feb. 14, 2023

Form version. : 200414



FCC SAR Test Report

Report No. : FA2D2814

	LTE Band 7C	20M	QPSK	1	99	-	Back	10mm	Ant 3	DSI5	21100+21298	2535+2554.8	17.49	18.50	1.262	-	-	-0.02	0.211	0.266
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 3	DSI5	21100	2535	17.49	18.50	1.262	-	-	0.05	0.170	0.215
	LTE Band 7	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	DSI5	21100	2535	17.51	18.50	1.256	-	-	-0.1	0.075	0.094
	LTE Band 7	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	DSI5	21100	2535	17.49	18.50	1.262	-	-	0.11	0.063	0.079
	LTE Band 7	20M	QPSK	1	0	-	Top Side	10mm	Ant 3	DSI5	21100	2535	17.51	18.50	1.256	-	-	0.13	0.190	0.239
	LTE Band 7	20M	QPSK	50	0	-	Top Side	10mm	Ant 3	DSI5	21100	2535	17.49	18.50	1.262	-	-	0.17	0.155	0.196
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI5	21100	2535	22.28	23.50	1.324	-	-	0.09	0.321	0.425
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI5	21100	2535	22.17	23.50	1.358	-	-	-0.1	0.260	0.353
	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI5	21100	2535	22.28	23.50	1.324	-	-	-0.02	0.344	0.456
	LTE Band 7C	20M	QPSK	1	99	-	Back	10mm	Ant 0	DSI5	21100+21298	2535+2554.8	21.30	22.50	1.318	-	-	-0.04	0.276	0.364
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI5	21100	2535	22.17	23.50	1.358	-	-	0.12	0.289	0.393
	LTE Band 7	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI5	21100	2535	22.28	23.50	1.324	-	-	-0.16	0.112	0.148
	LTE Band 7	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI5	21100	2535	22.17	23.50	1.358	-	-	0.13	0.095	0.129
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI5	21100	2535	22.28	23.50	1.324	-	-	0.12	0.119	0.158
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI5	21100	2535	22.17	23.50	1.358	-	-	0.03	0.101	0.137
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 2	DSI5	40620	2593	22.88	23.20	1.076	62.9	1.006	0.06	0.281	0.304
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 2	DSI5	40620	2593	22.79	23.20	1.099	62.9	1.006	0.02	0.228	0.252
31	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI5	40620	2593	22.88	23.20	1.076	62.9	1.006	-0.01	0.468	0.507
	LTE Band 38C	20M	QPSK	1	99	-	Back	10mm	Ant 2	DSI5	37901+38099	2593+2604.9	22.14	22.70	1.138	62.9	1.006	0.01	0.395	0.452
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 2	DSI5	40620	2593	22.79	23.20	1.099	62.9	1.006	-0.08	0.424	0.469
	LTE Band 41	20M	QPSK	1	0	-	Left Side	10mm	Ant 2	DSI5	40620	2593	22.88	23.20	1.076	62.9	1.006	0.16	0.145	0.157
	LTE Band 41	20M	QPSK	50	0	-	Left Side	10mm	Ant 2	DSI5	40620	2593	22.79	23.20	1.099	62.9	1.006	0.11	0.118	0.130
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI5	40620	2593	22.88	23.20	1.076	62.9	1.006	0.02	0.406	0.440
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI5	40620	2593	22.79	23.20	1.099	62.9	1.006	0.14	0.334	0.369
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI5	40620	2593	18.33	19.20	1.222	62.9	1.006	-0.13	0.171	0.210
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI5	40620	2593	18.31	19.20	1.227	62.9	1.006	0.09	0.138	0.170
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI5	40620	2593	18.33	19.20	1.222	62.9	1.006	0.05	0.278	0.342
	LTE Band 38C	20M	QPSK	1	99	-	Back	10mm	Ant 1	DSI5	37901+38099	2593+2604.9	18.43	19.00	1.140	62.9	1.006	-0.03	0.253	0.290
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI5	40620	2593	18.31	19.20	1.227	62.9	1.006	0.11	0.213	0.263
	LTE Band 41	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI5	40620	2593	18.33	19.20	1.222	62.9	1.006	0.02	0.205	0.252
	LTE Band 41	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI5	40620	2593	18.31	19.20	1.227	62.9	1.006	0.03	0.163	0.201
	LTE Band 41	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI5	40620	2593	18.33	19.20	1.222	62.9	1.006	0.02	0.024	0.029
	LTE Band 41	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI5	40620	2593	18.31	19.20	1.227	62.9	1.006	0.05	0.018	0.022
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 3	DSI5	40620	2593	20.23	21.00	1.194	62.9	1.006	0.18	0.181	0.217
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 3	DSI5	40620	2593	20.17	21.00	1.211	62.9	1.006	-0.15	0.145	0.177
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 3	DSI5	40620	2593	20.23	21.00	1.194	62.9	1.006	0.07	0.283	0.340
	LTE Band 38C	20M	QPSK	1	99	-	Back	10mm	Ant 3	DSI5	37901+38099	2593+2604.9	19.05	20.00	1.245	62.9	1.006	0.01	0.216	0.270
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 3	DSI5	40620	2593	20.17	21.00	1.211	62.9	1.006	0.05	0.225	0.274
	LTE Band 41	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	DSI5	40620	2593	20.23	21.00	1.194	62.9	1.006	0.1	0.149	0.179
	LTE Band 41	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	DSI5	40620	2593	20.17	21.00	1.211	62.9	1.006	0.02	0.116	0.141
	LTE Band 41	20M	QPSK	1	0	-	Top Side	10mm	Ant 3	DSI5	40620	2593	20.23	21.00	1.194	62.9	1.006	0.07	0.276	0.332
	LTE Band 41	20M	QPSK	50	0	-	Top Side	10mm	Ant 3	DSI5	40620	2593	20.17	21.00	1.211	62.9	1.006	0.09	0.224	0.273
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI5	40620	2593	22.93	24.50	1.435	62.9	1.006	0.09	0.205	0.296
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI5	40620	2593	21.88	23.50	1.452	62.9	1.006	0.04	0.163	0.238
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI5	40620	2593	22.93	24.50	1.435	62.9	1.006	0.01	0.239	0.345
	LTE Band 38C	20M	QPSK	1	99	-	Back	10mm	Ant 0	DSI5	37901+38099	2593+2604.9	21.25	22.00	1.189	62.9	1.006	-0.06	0.164	0.196
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI5	40620	2593	21.88	23.50	1.452	62.9	1.006	-0.06	0.184	0.269
	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI5	40620	2593	22.93	24.50	1.435	62.9	1.006	-0.06	0.087	0.126
	LTE Band 41	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI5	40620	2593	21.88	23.50	1.452	62.9	1.006	-0.17	0.071	0.104
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI5	40620	2593	22.93	24.50	1.435	62.9	1.006	0.05	0.076	0.110
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI5	40620	2593	21.88	23.50	1.452	62.9	1.006	-0.05	0.063	0.092
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	10mm	Ant 2	DSI5	507000	2535	20.93	21.20	1.064	-	-	0.06	0.206	0.219
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	10mm	Ant 2	DSI5	507000	2535	20.83	21.20	1.089	-	-	0.04	0.213	0.232
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	10mm	Ant 2	DSI5	507000	2535	20.93	21.20	1.064	-	-	0.08	0.362	0.385
32	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	10mm	Ant 2	DSI5	507000	2535	20.83	21.20	1.089	-	-	-0.01	0.385	0.419
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Side	10mm	Ant 2	DSI5	507000	2535	20.93	21.20	1.064	-	-	0.06	0.103	0.110



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	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Side	10mm	Ant 2	DSI5	507000	2535	20.83	21.20	1.089	-	-	0.18	0.097	0.106
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	10mm	Ant 2	DSI5	507000	2535	20.93	21.20	1.064	-	-	0.14	0.352	0.375
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Bottom Side	10mm	Ant 2	DSI5	507000	2535	20.83	21.20	1.089	-	-	0.14	0.370	0.403
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	10mm	Ant 1	DSI5	507000	2535	16.61	17.00	1.094	-	-	0.04	0.162	0.177
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	10mm	Ant 1	DSI5	507000	2535	16.60	17.00	1.096	-	-	-0.03	0.164	0.180
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	10mm	Ant 1	DSI5	507000	2535	16.61	17.00	1.094	-	-	-0.09	0.259	0.283
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	10mm	Ant 1	DSI5	507000	2535	16.60	17.00	1.096	-	-	0.07	0.246	0.270
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Side	10mm	Ant 1	DSI5	507000	2535	16.61	17.00	1.094	-	-	0.03	0.199	0.218
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Side	10mm	Ant 1	DSI5	507000	2535	16.60	17.00	1.096	-	-	0.05	0.211	0.231
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Top Side	10mm	Ant 1	DSI5	507000	2535	16.61	17.00	1.094	-	-	-0.18	0.027	0.030
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Top Side	10mm	Ant 1	DSI5	507000	2535	16.60	17.00	1.096	-	-	-0.15	0.028	0.031
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	10mm	Ant 3	DSI5	507000	2535	17.65	19.00	1.365	-	-	-0.06	0.112	0.153
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	10mm	Ant 3	DSI5	507000	2535	17.57	19.00	1.390	-	-	-0.09	0.103	0.143
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	10mm	Ant 3	DSI5	507000	2535	17.65	19.00	1.365	-	-	-0.02	0.184	0.251
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	10mm	Ant 3	DSI5	507000	2535	17.57	19.00	1.390	-	-	0.09	0.178	0.247
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Side	10mm	Ant 3	DSI5	507000	2535	17.65	19.00	1.365	-	-	0.03	0.080	0.109
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Side	10mm	Ant 3	DSI5	507000	2535	17.57	19.00	1.390	-	-	0.05	0.076	0.106
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Top Side	10mm	Ant 3	DSI5	507000	2535	17.65	19.00	1.365	-	-	-0.13	0.157	0.214
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Top Side	10mm	Ant 3	DSI5	507000	2535	17.57	19.00	1.390	-	-	0.02	0.155	0.215
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	10mm	Ant 0	DSI5	507000	2535	21.45	23.00	1.429	-	-	0.13	0.229	0.327
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	10mm	Ant 0	DSI5	507000	2535	21.40	23.00	1.445	-	-	-0.18	0.224	0.324
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	10mm	Ant 0	DSI5	507000	2535	21.45	23.00	1.429	-	-	-0.17	0.241	0.344
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	10mm	Ant 0	DSI5	507000	2535	21.40	23.00	1.445	-	-	-0.05	0.242	0.350
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Side	10mm	Ant 0	DSI5	507000	2535	21.45	23.00	1.429	-	-	0.04	0.089	0.127
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Side	10mm	Ant 0	DSI5	507000	2535	21.40	23.00	1.445	-	-	-0.06	0.076	0.110
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	10mm	Ant 0	DSI5	507000	2535	21.45	23.00	1.429	-	-	0.02	0.097	0.139
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Bottom Side	10mm	Ant 0	DSI5	507000	2535	21.40	23.00	1.445	-	-	0.1	0.088	0.127
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 2	DSI5	518598	2592.99	21.28	21.70	1.102	-	-	0.15	0.258	0.284
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 2	DSI5	518598	2592.99	21.24	21.70	1.112	-	-	0.04	0.293	0.326
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 2	DSI5	518598	2592.99	21.28	21.70	1.102	-	-	0.08	0.447	0.492
33	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 2	DSI5	518598	2592.99	21.24	21.70	1.112	-	-	-0.06	0.504	0.560
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 2	DSI5	518598	2592.99	21.28	21.70	1.102	-	-	0.14	0.140	0.154
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 2	DSI5	518598	2592.99	21.24	21.70	1.112	-	-	-0.06	0.146	0.162
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	10mm	Ant 2	DSI5	518598	2592.99	21.28	21.70	1.102	-	-	0.13	0.381	0.420
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	10mm	Ant 2	DSI5	518598	2592.99	21.24	21.70	1.112	-	-	0.02	0.471	0.524
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 1	DSI5	518598	2592.99	17.15	18.20	1.274	-	-	-0.13	0.167	0.213
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 1	DSI5	518598	2592.99	17.14	18.20	1.276	-	-	-0.1	0.150	0.191
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 1	DSI5	518598	2592.99	17.15	18.20	1.274	-	-	0.09	0.261	0.332
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 1	DSI5	518598	2592.99	17.14	18.20	1.276	-	-	0.09	0.227	0.290
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 1	DSI5	518598	2592.99	17.15	18.20	1.274	-	-	-0.06	0.163	0.208
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 1	DSI5	518598	2592.99	17.14	18.20	1.276	-	-	0.05	0.179	0.228
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 1	DSI5	518598	2592.99	17.15	18.20	1.274	-	-	0.04	0.026	0.033
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 1	DSI5	518598	2592.99	17.14	18.20	1.276	-	-	0.03	0.027	0.034
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 3	DSI5	518598	2592.99	17.55	19.00	1.396	-	-	0.11	0.175	0.244
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 3	DSI5	518598	2592.99	17.57	19.00	1.390	-	-	0.03	0.173	0.240
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 3	DSI5	518598	2592.99	17.55	19.00	1.396	-	-	-0.1	0.234	0.327
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 3	DSI5	518598	2592.99	17.57	19.00	1.390	-	-	-0.15	0.238	0.331
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 3	DSI5	518598	2592.99	17.55	19.00	1.396	-	-	0.08	0.149	0.208
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 3	DSI5	518598	2592.99	17.57	19.00	1.390	-	-	0.17	0.143	0.199
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 3	DSI5	518598	2592.99	17.55	19.00	1.396	-	-	0.09	0.246	0.344
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 3	DSI5	518598	2592.99	17.57	19.00	1.390	-	-	-0.06	0.248	0.345
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 0	DSI5	518598	2592.99	21.98	23.30	1.355	-	-	-0.12	0.290	0.393
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 0	DSI5	518598	2592.99	21.84	23.30	1.400	-	-	-0.09	0.243	0.340
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 0	DSI5	518598	2592.99	21.98	23.30	1.355	-	-	0.08	0.321	0.435
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 0	DSI5	518598	2592.99	21.84	23.30	1.400	-	-	-0.15	0.259	0.362
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 0	DSI5	518598	2592.99	21.98	23.30	1.355	-	-	0.08	0.122	0.165



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FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 0	DSIS	518598	2592.99	21.84	23.30	1.400	-	-	-0.16	0.103	0.144
FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	10mm	Ant 0	DSIS	518598	2592.99	21.98	23.30	1.355	-	-	0.05	0.123	0.167
FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	10mm	Ant 0	DSIS	518598	2592.99	21.84	23.30	1.400	-	-	0.12	0.094	0.132
3500MHz																			
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 6	DSIS	656000	3840	15.99	17.00	1.262	-	-	0.06	0.106	0.134
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 6	DSIS	656000	3840	15.90	17.00	1.288	-	-	0.07	0.099	0.128
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 6	DSIS	656000	3840	15.99	17.00	1.262	-	-	-0.06	0.139	0.175
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 6	DSIS	656000	3840	15.90	17.00	1.288	-	-	0.03	0.124	0.160
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSIS	656000	3840	15.99	17.00	1.262	-	-	0.06	0.207	0.261
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSIS	656000	3840	15.90	17.00	1.288	-	-	-0.09	0.225	0.290
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 6	DSIS	656000	3840	15.99	17.00	1.262	-	-	0.04	0.078	0.098
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 6	DSIS	656000	3840	15.90	17.00	1.288	-	-	0.12	0.063	0.081
FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSIS	656000	3840	18.88	20.00	1.294	50	1.000	0.02	0.223	0.289
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 6	DSIS	633334	3500.01	15.81	17.00	1.315	-	-	-0.14	0.083	0.109
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 6	DSIS	633334	3500.01	15.79	17.00	1.321	-	-	0.08	0.079	0.104
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 6	DSIS	633334	3500.01	15.81	17.00	1.315	-	-	0.15	0.140	0.184
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 6	DSIS	633334	3500.01	15.79	17.00	1.321	-	-	-0.12	0.136	0.180
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSIS	633334	3500.01	15.81	17.00	1.315	-	-	-0.04	0.194	0.255
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSIS	633334	3500.01	15.79	17.00	1.321	-	-	-0.14	0.181	0.239
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 6	DSIS	633334	3500.01	15.81	17.00	1.315	-	-	0.14	0.122	0.160
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 6	DSIS	633334	3500.01	15.79	17.00	1.321	-	-	0.07	0.100	0.132
FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSIS	633334	3500.01	18.87	20.00	1.297	50	1.000	0.08	0.185	0.240
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 7	DSIS	656000	3840	15.73	17.10	1.371	-	-	0.03	0.091	0.125
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 7	DSIS	656000	3840	15.68	17.10	1.387	-	-	0.05	0.085	0.118
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 7	DSIS	656000	3840	15.73	17.10	1.371	-	-	-0.12	0.210	0.288
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 7	DSIS	656000	3840	15.68	17.10	1.387	-	-	-0.19	0.194	0.269
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 7	DSIS	656000	3840	15.73	17.10	1.371	-	-	0.09	0.019	0.026
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 7	DSIS	656000	3840	15.68	17.10	1.387	-	-	0.05	0.017	0.024
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 7	DSIS	656000	3840	15.73	17.10	1.371	-	-	0.08	0.057	0.078
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 7	DSIS	656000	3840	15.68	17.10	1.387	-	-	-0.08	0.051	0.071
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSIS	656000	3840	15.73	17.10	1.371	-	-	-0.05	0.285	0.391
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSIS	656000	3840	15.68	17.10	1.387	-	-	0.02	0.237	0.329
FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSIS	656000	3840	18.79	20.10	1.352	50	1.000	0.06	0.234	0.316
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 7	DSIS	633334	3500.01	15.64	17.10	1.400	-	-	-0.06	0.113	0.158
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 7	DSIS	633334	3500.01	15.51	17.10	1.442	-	-	0.16	0.119	0.172
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 7	DSIS	633334	3500.01	15.64	17.10	1.400	-	-	-0.13	0.277	0.388
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 7	DSIS	633334	3500.01	15.51	17.10	1.442	-	-	0.05	0.285	0.411
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 7	DSIS	633334	3500.01	15.64	17.10	1.400	-	-	-0.07	0.018	0.025
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 7	DSIS	633334	3500.01	15.51	17.10	1.442	-	-	0.06	0.023	0.033
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 7	DSIS	633334	3500.01	15.64	17.10	1.400	-	-	0.12	0.056	0.078
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 7	DSIS	633334	3500.01	15.51	17.10	1.442	-	-	-0.17	0.067	0.097
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSIS	633334	3500.01	15.64	17.10	1.400	-	-	0.02	0.324	0.453
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSIS	633334	3500.01	15.51	17.10	1.442	-	-	-0.04	0.337	0.486
FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSIS	633334	3500.01	18.53	20.10	1.435	50	1.000	0.04	0.326	0.468
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 10	DSIS	656000	3840	15.69	16.50	1.205	-	-	0.03	0.069	0.083
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 10	DSIS	656000	3840	15.61	16.50	1.227	-	-	-0.17	0.050	0.061
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 10	DSIS	656000	3840	15.69	16.50	1.205	-	-	-0.17	0.121	0.146
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 10	DSIS	656000	3840	15.61	16.50	1.227	-	-	-0.06	0.097	0.119
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSIS	656000	3840	15.69	16.50	1.205	-	-	-0.03	0.185	0.223
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSIS	656000	3840	15.61	16.50	1.227	-	-	0.15	0.142	0.174
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 10	DSIS	656000	3840	15.69	16.50	1.205	-	-	0.09	0.058	0.070
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 10	DSIS	656000	3840	15.61	16.50	1.227	-	-	0.01	0.049	0.060
FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSIS	656000	3840	18.59	19.50	1.233	50	1.000	-0.08	0.165	0.203
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 10	DSIS	633334	3500.01	15.47	16.50	1.268	-	-	0.05	0.135	0.171
FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 10	DSIS	633334	3500.01	15.44	16.50	1.276	-	-	-0.09	0.165	0.211
FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 10	DSIS	633334	3500.01	15.47	16.50	1.268	-	-	0.1	0.216	0.274



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	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 10	DSI5	633334	3500.01	15.44	16.50	1.276	-	-	0.04	0.277	0.354
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSI5	633334	3500.01	15.47	16.50	1.268	-	-	0.06	0.332	0.421
34	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSI5	633334	3500.01	15.44	16.50	1.276	-	-	-0.04	0.419	0.535
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 10	DSI5	633334	3500.01	15.47	16.50	1.268	-	-	0.07	0.067	0.085
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 10	DSI5	633334	3500.01	15.44	16.50	1.276	-	-	-0.15	0.097	0.124
	FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSI5	633334	3500.01	18.55	19.50	1.245	50	1.000	0.03	0.413	0.514
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 8	DSI5	656000	3840	15.13	16.50	1.371	-	-	-0.16	0.005	0.007
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 8	DSI5	656000	3840	15.08	16.50	1.387	-	-	0.02	0.005	0.007
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	656000	3840	15.13	16.50	1.371	-	-	0.04	0.134	0.184
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	656000	3840	15.08	16.50	1.387	-	-	-0.08	0.164	0.227
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 8	DSI5	656000	3840	15.13	16.50	1.371	-	-	0.17	0.021	0.029
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 8	DSI5	656000	3840	15.08	16.50	1.387	-	-	0.1	0.028	0.039
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 8	DSI5	656000	3840	15.13	16.50	1.371	-	-	0.02	0.014	0.019
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 8	DSI5	656000	3840	15.08	16.50	1.387	-	-	0.05	0.014	0.019
	FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	656000	3840	18.15	19.50	1.365	50	1.000	0.03	0.140	0.191
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 8	DSI5	633334	3500.01	15.06	16.50	1.393	-	-	-0.16	0.008	0.011
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 8	DSI5	633334	3500.01	14.97	16.50	1.422	-	-	0.03	0.010	0.014
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	633334	3500.01	15.06	16.50	1.393	-	-	-0.1	0.252	0.351
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	633334	3500.01	14.97	16.50	1.422	-	-	0.06	0.272	0.387
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 8	DSI5	633334	3500.01	15.06	16.50	1.393	-	-	0.06	0.025	0.035
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 8	DSI5	633334	3500.01	14.97	16.50	1.422	-	-	0.13	0.025	0.036
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 8	DSI5	633334	3500.01	15.06	16.50	1.393	-	-	0.06	0.030	0.042
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 8	DSI5	633334	3500.01	14.97	16.50	1.422	-	-	-0.07	0.037	0.053
	FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	633334	3500.01	17.92	19.50	1.439	50	1.000	0.08	0.249	0.358
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 6	DSI5	650000	3750	16.32	17.50	1.312	-	-	0.04	0.146	0.192
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 6	DSI5	650000	3750	16.30	17.50	1.318	-	-	0.04	0.139	0.183
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 6	DSI5	650000	3750	16.32	17.50	1.312	-	-	-0.01	0.224	0.294
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 6	DSI5	650000	3750	16.30	17.50	1.318	-	-	-0.12	0.196	0.258
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSI5	650000	3750	16.32	17.50	1.312	-	-	0.04	0.284	0.373
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSI5	650000	3750	16.30	17.50	1.318	-	-	-0.01	0.288	0.380
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 6	DSI5	650000	3750	16.32	17.50	1.312	-	-	-0.02	0.150	0.197
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 6	DSI5	650000	3750	16.30	17.50	1.318	-	-	0.03	0.115	0.152
	FR1 n78 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSI5	650000	3750	19.35	20.50	1.303	50	1.000	0.08	0.262	0.341
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 6	DSI5	633334	3500.01	16.28	17.50	1.324	-	-	0.04	0.117	0.155
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 6	DSI5	633334	3500.01	16.25	17.50	1.334	-	-	0.09	0.092	0.123
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 6	DSI5	633334	3500.01	16.28	17.50	1.324	-	-	0.02	0.242	0.320
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 6	DSI5	633334	3500.01	16.25	17.50	1.334	-	-	-0.18	0.178	0.237
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSI5	633334	3500.01	16.28	17.50	1.324	-	-	-0.07	0.275	0.364
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSI5	633334	3500.01	16.25	17.50	1.334	-	-	-0.11	0.179	0.239
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 6	DSI5	633334	3500.01	16.28	17.50	1.324	-	-	-0.11	0.178	0.236
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 6	DSI5	633334	3500.01	16.25	17.50	1.334	-	-	0.08	0.138	0.184
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 6	DSI5	633334	3500.01	19.25	20.50	1.334	50	1.000	0.02	0.268	0.357
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 7	DSI5	650000	3750	15.53	17.10	1.435	-	-	0.07	0.128	0.184
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 7	DSI5	650000	3750	15.47	17.10	1.455	-	-	0.06	0.126	0.183
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 7	DSI5	650000	3750	15.53	17.10	1.435	-	-	-0.08	0.268	0.385
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 7	DSI5	650000	3750	15.47	17.10	1.455	-	-	0.05	0.249	0.362
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 7	DSI5	650000	3750	15.53	17.10	1.435	-	-	-0.17	0.022	0.032
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 7	DSI5	650000	3750	15.47	17.10	1.455	-	-	-0.16	0.022	0.032
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 7	DSI5	650000	3750	15.53	17.10	1.435	-	-	-0.15	0.065	0.093
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 7	DSI5	650000	3750	15.47	17.10	1.455	-	-	0.06	0.075	0.109
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSI5	650000	3750	15.53	17.10	1.435	-	-	-0.04	0.389	0.558
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSI5	650000	3750	15.47	17.10	1.455	-	-	0.04	0.363	0.528
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSI5	650000	3750	18.61	20.10	1.409	50	1.000	0.04	0.331	0.466
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 7	DSI5	633334	3500.01	15.68	17.10	1.387	-	-	0.14	0.131	0.182
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 7	DSI5	633334	3500.01	15.58	17.10	1.419	-	-	0.09	0.140	0.199
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 7	DSI5	633334	3500.01	15.68	17.10	1.387	-	-	0.06	0.305	0.423



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	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 7	DSI5	633334	3500.01	15.58	17.10	1.419	-	-	0.06	0.292	0.414
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 7	DSI5	633334	3500.01	15.68	17.10	1.387	-	-	0.04	0.021	0.029
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 7	DSI5	633334	3500.01	15.58	17.10	1.419	-	-	0.18	0.026	0.037
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 7	DSI5	633334	3500.01	15.68	17.10	1.387	-	-	-0.06	0.067	0.093
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 7	DSI5	633334	3500.01	15.58	17.10	1.419	-	-	0.13	0.074	0.105
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSI5	633334	3500.01	15.68	17.10	1.387	-	-	0.03	0.298	0.413
35	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSI5	633334	3500.01	15.58	17.10	1.419	-	-	-0.03	0.398	0.565
	FR1 n78 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 7	DSI5	633334	3500.01	18.52	20.10	1.439	50	1.000	0.09	0.362	0.521
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 10	DSI5	650000	3750	14.53	15.50	1.250	-	-	0.12	0.077	0.096
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 10	DSI5	650000	3750	14.44	15.50	1.276	-	-	0.02	0.069	0.088
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 10	DSI5	650000	3750	14.53	15.50	1.250	-	-	-0.17	0.130	0.163
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 10	DSI5	650000	3750	14.44	15.50	1.276	-	-	-0.08	0.120	0.153
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSI5	650000	3750	14.53	15.50	1.250	-	-	0.09	0.215	0.269
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSI5	650000	3750	14.44	15.50	1.276	-	-	0.09	0.210	0.268
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 10	DSI5	650000	3750	14.53	15.50	1.250	-	-	0.03	0.067	0.084
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 10	DSI5	650000	3750	14.44	15.50	1.276	-	-	0.03	0.062	0.079
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSI5	650000	3750	17.64	18.50	1.219	50	1.000	-0.16	0.184	0.224
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 10	DSI5	633334	3500.01	14.58	15.50	1.236	-	-	0.12	0.088	0.109
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 10	DSI5	633334	3500.01	14.52	15.50	1.253	-	-	0.12	0.104	0.130
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 10	DSI5	633334	3500.01	14.58	15.50	1.236	-	-	0.01	0.131	0.162
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 10	DSI5	633334	3500.01	14.52	15.50	1.253	-	-	0.08	0.155	0.194
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSI5	633334	3500.01	14.58	15.50	1.236	-	-	-0.16	0.217	0.268
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSI5	633334	3500.01	14.52	15.50	1.253	-	-	-0.06	0.299	0.375
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 10	DSI5	633334	3500.01	14.58	15.50	1.236	-	-	0.03	0.050	0.062
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 10	DSI5	633334	3500.01	14.52	15.50	1.253	-	-	-0.02	0.062	0.078
	FR1 n78 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 10	DSI5	633334	3500.01	17.29	18.50	1.321	50	1.000	0.16	0.291	0.384
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 8	DSI5	650000	3750	15.96	17.50	1.426	-	-	-0.1	0.009	0.013
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 8	DSI5	650000	3750	15.91	17.50	1.442	-	-	0.14	0.008	0.012
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	650000	3750	15.96	17.50	1.426	-	-	0.09	0.206	0.294
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	650000	3750	15.91	17.50	1.442	-	-	0.01	0.188	0.271
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 8	DSI5	650000	3750	15.96	17.50	1.426	-	-	0.08	0.038	0.054
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 8	DSI5	650000	3750	15.91	17.50	1.442	-	-	0.14	0.032	0.046
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 8	DSI5	650000	3750	15.96	17.50	1.426	-	-	0.05	0.028	0.040
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 8	DSI5	650000	3750	15.91	17.50	1.442	-	-	-0.08	0.020	0.029
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	650000	3750	18.92	20.50	1.439	50	1.000	-0.02	0.176	0.253
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 8	DSI5	633334	3500.01	15.81	17.50	1.476	-	-	-0.18	0.185	0.273
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 8	DSI5	633334	3500.01	15.78	17.50	1.486	-	-	0.08	0.185	0.275
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	633334	3500.01	15.81	17.50	1.476	-	-	-0.02	0.346	0.511
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	633334	3500.01	15.78	17.50	1.486	-	-	-0.11	0.316	0.470
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 8	DSI5	633334	3500.01	15.81	17.50	1.476	-	-	0.01	0.036	0.053
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 8	DSI5	633334	3500.01	15.78	17.50	1.486	-	-	-0.13	0.036	0.053
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	10mm	Ant 8	DSI5	633334	3500.01	15.81	17.50	1.476	-	-	0.03	0.046	0.068
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 8	DSI5	633334	3500.01	15.78	17.50	1.486	-	-	0.02	0.053	0.079
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 8	DSI5	633334	3500.01	18.88	20.50	1.452	50	1.000	0.06	0.344	0.500



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 9+10	Full power	11	2462	21.85	23.00	1.303	98.29	1.017	0.12	0.313	0.415
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 9+10	Full power	11	2462	21.85	23.00	1.303	98.29	1.017	-0.11	0.456	0.604
36	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 9+10	Full power	11	2462	21.85	23.00	1.303	98.29	1.017	-0.01	0.566	0.750
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 9+10	Full power	11	2462	21.85	23.00	1.303	98.29	1.017	0.07	0.251	0.333
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 9+10	Simultaneous	11	2462	18.91	20.50	1.442	98.29	1.017	0.02	0.335	0.491
	Bluetooth	1Mbps	Front	10mm	Ant 9	Full power	39	2441	15.37	16.50	1.297	76.93	1.083	0.03	0.024	0.034
	Bluetooth	1Mbps	Back	10mm	Ant 9	Full power	39	2441	15.37	16.50	1.297	76.93	1.083	0.04	0.051	0.072
	Bluetooth	1Mbps	Right Side	10mm	Ant 9	Full power	39	2441	15.37	16.50	1.297	76.93	1.083	-0.16	0.004	0.006
	Bluetooth	1Mbps	Top Side	10mm	Ant 9	Full power	39	2441	15.37	16.50	1.297	76.93	1.083	0.14	0.061	0.086
	Bluetooth	1Mbps	Front	10mm	Ant 10	Full power	0	2402	17.18	18.00	1.208	76.82	1.084	-0.1	0.090	0.118
	Bluetooth	1Mbps	Back	10mm	Ant 10	Full power	0	2402	17.18	18.00	1.208	76.82	1.084	0.03	0.141	0.185
37	Bluetooth	1Mbps	Right Side	10mm	Ant 10	Full power	0	2402	17.18	18.00	1.208	76.82	1.084	-0.11	0.194	0.254
	Bluetooth	1Mbps	Top Side	10mm	Ant 10	Full power	0	2402	17.18	18.00	1.208	76.82	1.084	0.14	0.004	0.005
5000MHz																
	WLAN5.2GHz	802.11ax-HE80 MCS0	Front	10mm	Ant 9+11	Simultaneous	42	5210	19.74	21.00	1.337	100	1.000	-0.07	0.177	0.237
	WLAN5.2GHz	802.11ax-HE80 MCS0	Back	10mm	Ant 9+11	Simultaneous	42	5210	19.74	21.00	1.337	100	1.000	0.08	0.252	0.337
38	WLAN5.2GHz	802.11ax-HE80 MCS0	Right Side	10mm	Ant 9+11	Simultaneous	42	5210	19.74	21.00	1.337	100	1.000	-0.08	0.339	0.453
	WLAN5.2GHz	802.11ax-HE80 MCS0	Top Side	10mm	Ant 9+11	Simultaneous	42	5210	19.74	21.00	1.337	100	1.000	0.02	0.313	0.418
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 9+11	Simultaneous	155	5775	17.42	18.50	1.282	100	1.000	0.17	0.136	0.174
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 9+11	Simultaneous	155	5775	17.42	18.50	1.282	100	1.000	0.09	0.291	0.373
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 9+11	Simultaneous	155	5775	17.42	18.50	1.282	100	1.000	-0.18	0.270	0.346
39	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 9+11	Simultaneous	155		17.42	18.50	1.282	100	1.000	-0.04	0.372	0.477



16.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
835MHz																				
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	15mm	Ant 0	DSI4	189	836.4	26.66	28.00	1.361	-	-	0.04	0.108	0.147
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	15mm	Ant 0	DSI4	189	836.4	26.66	28.00	1.361	-	-	-0.08	0.138	0.188
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	15mm	Ant 1	DSI4	189	836.4	26.97	28.90	1.560	-	-	-0.03	0.162	0.253
40	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	15mm	Ant 1	DSI4	189	836.4	26.97	28.90	1.560	-	-	-0.07	0.231	0.360
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 0	DSI4	4182	836.4	24.25	25.00	1.189	-	-	-0.17	0.081	0.096
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	DSI4	4182	836.4	24.25	25.00	1.189	-	-	-0.08	0.101	0.120
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 1	DSI4	4182	836.4	23.48	25.10	1.452	-	-	0.04	0.185	0.269
41	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 1	DSI4	4182	836.4	23.48	25.10	1.452	-	-	-0.05	0.266	0.386
	LTE Band 5	10M	QPSK	1	0	-	Front	15mm	Ant 0	DSI4	20525	836.5	25.01	25.70	1.172	-	-	0.06	0.119	0.139
	LTE Band 5	10M	QPSK	25	0	-	Front	15mm	Ant 0	DSI4	20525	836.5	24.05	24.70	1.161	-	-	0.04	0.105	0.122
	LTE Band 5	10M	QPSK	1	0	-	Back	15mm	Ant 0	DSI4	20525	836.5	25.01	25.70	1.172	-	-	-0.08	0.158	0.185
	LTE Band 5	10M	QPSK	25	0	-	Back	15mm	Ant 0	DSI4	20525	836.5	24.05	24.70	1.161	-	-	0.05	0.124	0.144
	LTE Band 5	10M	QPSK	1	0	-	Front	15mm	Ant 1	DSI4	20525	836.5	24.78	25.70	1.236	-	-	0.07	0.209	0.258
	LTE Band 5	10M	QPSK	25	0	-	Front	15mm	Ant 1	DSI4	20525	836.5	23.82	24.70	1.225	-	-	0.02	0.164	0.201
42	LTE Band 5	10M	QPSK	1	0	-	Back	15mm	Ant 1	DSI4	20525	836.5	24.78	25.70	1.236	-	-	-0.02	0.291	0.360
	LTE Band 5	10M	QPSK	25	0	-	Back	15mm	Ant 1	DSI4	20525	836.5	23.82	24.70	1.225	-	-	0.08	0.233	0.285
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Front	15mm	Ant 0	DSI4	167300	836.5	25.18	25.70	1.127	-	-	-0.1	0.116	0.131
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Front	15mm	Ant 0	DSI4	167300	836.5	25.16	25.70	1.132	-	-	0.05	0.106	0.120
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Back	15mm	Ant 0	DSI4	167300	836.5	25.18	25.70	1.127	-	-	0.01	0.142	0.160
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Back	15mm	Ant 0	DSI4	167300	836.5	25.16	25.70	1.132	-	-	0.09	0.133	0.151
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Front	15mm	Ant 1	DSI4	167300	836.5	24.81	25.50	1.172	-	-	0.03	0.201	0.236
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Front	15mm	Ant 1	DSI4	167300	836.5	24.81	25.50	1.172	-	-	0.02	0.241	0.282
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Back	15mm	Ant 1	DSI4	167300	836.5	24.81	25.50	1.172	-	-	0.08	0.283	0.332
43	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Back	15mm	Ant 1	DSI4	167300	836.5	24.81	25.50	1.172	-	-	-0.09	0.351	0.411
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 2	DSI4	1413	1732.6	24.38	25.00	1.153	-	-	0.07	0.245	0.283
44	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 2	DSI4	1413	1732.6	24.38	25.00	1.153	-	-	-0.07	0.341	0.393
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 1	DSI4	1413	1732.6	23.12	24.10	1.253	-	-	0.15	0.131	0.164
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 1	DSI4	1413	1732.6	23.12	24.10	1.253	-	-	-0.13	0.187	0.234
	LTE Band 66	20M	QPSK	1	0	-	Front	15mm	Ant 2	DSI4	132322	1745	25.06	25.70	1.159	-	-	0.04	0.253	0.293
	LTE Band 66	20M	QPSK	50	0	-	Front	15mm	Ant 2	DSI4	132322	1745	24.06	24.70	1.159	-	-	-0.13	0.206	0.239
	LTE Band 66	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSI4	132322	1745	25.06	25.70	1.159	-	-	-0.09	0.388	0.450
	LTE Band 66	20M	QPSK	50	0	-	Back	15mm	Ant 2	DSI4	132322	1745	24.06	24.70	1.159	-	-	0.16	0.310	0.359
	LTE Band 66	20M	QPSK	1	0	-	Front	15mm	Ant 1	DSI4	132322	1745	24.35	25.20	1.216	-	-	0.01	0.156	0.190
	LTE Band 66	20M	QPSK	50	0	-	Front	15mm	Ant 1	DSI4	132322	1745	23.41	24.70	1.346	-	-	0.1	0.127	0.171
	LTE Band 66	20M	QPSK	1	0	-	Back	15mm	Ant 1	DSI4	132322	1745	24.35	25.20	1.216	-	-	-0.02	0.222	0.270
	LTE Band 66	20M	QPSK	50	0	-	Back	15mm	Ant 1	DSI4	132322	1745	23.41	24.70	1.346	-	-	0.01	0.181	0.244
	LTE Band 66	20M	QPSK	1	0	-	Front	15mm	Ant 3	DSI4	132322	1745	23.81	25.00	1.315	-	-	0.03	0.223	0.293
	LTE Band 66	20M	QPSK	50	0	-	Front	15mm	Ant 3	DSI4	132322	1745	22.78	24.00	1.324	-	-	-0.07	0.176	0.233
45	LTE Band 66	20M	QPSK	1	0	-	Back	15mm	Ant 3	DSI4	132322	1745	23.81	25.00	1.315	-	-	-0.06	0.433	0.569
	LTE Band 66	20M	QPSK	50	0	-	Back	15mm	Ant 3	DSI4	132322	1745	22.78	24.00	1.324	-	-	-0.03	0.350	0.464
	LTE Band 66	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI4	132322	1745	23.02	24.50	1.406	-	-	0.08	0.132	0.186
	LTE Band 66	20M	QPSK	50	0	-	Front	15mm	Ant 0	DSI4	132322	1745	21.99	23.50	1.416	-	-	0.04	0.107	0.151
	LTE Band 66	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSI4	132322	1745	23.02	24.50	1.406	-	-	0.04	0.194	0.273
	LTE Band 66	20M	QPSK	50	0	-	Back	15mm	Ant 0	DSI4	132322	1745	21.99	23.50	1.416	-	-	0.05	0.158	0.224
1900MHz																				
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	15mm	Ant 2	DSI4	661	1880	24.58	25.00	1.102	-	-	-0.16	0.098	0.108
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	15mm	Ant 2	DSI4	661	1880	24.58	25.00	1.102	-	-	-0.01	0.141	0.155
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	15mm	Ant 1	DSI4	661	1880	24.37	25.50	1.297	-	-	0.02	0.089	0.115
46	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	15mm	Ant 1	DSI4	661	1880	24.37	25.50	1.297	-	-	-0.04	0.121	0.157
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 2	DSI4	9400	1880	24.43	25.00	1.140	-	-	0.08	0.229	0.261



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47	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 2	DSi4	9400	1880	24.43	25.00	1.140	-	-	-0.07	0.391	0.446
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 1	DSi4	9400	1880	22.34	23.80	1.400	-	-	0.01	0.105	0.147
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 1	DSi4	9400	1880	22.34	23.80	1.400	-	-	-0.05	0.147	0.206
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 2	DSi4	18900	1880	24.49	25.20	1.178	-	-	0.08	0.228	0.268
	LTE Band 2	20M	QPSK	50	0	-	Front	15mm	Ant 2	DSi4	18900	1880	23.40	24.20	1.202	-	-	0.05	0.180	0.216
48	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSi4	18900	1880	24.49	25.20	1.178	-	-	-0.03	0.365	0.430
	LTE Band 2	20M	QPSK	50	0	-	Back	15mm	Ant 2	DSi4	18900	1880	23.40	24.20	1.202	-	-	0.08	0.292	0.351
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 1	DSi4	18900	1880	22.63	23.80	1.309	-	-	0.14	0.098	0.128
	LTE Band 2	20M	QPSK	50	0	-	Front	15mm	Ant 1	DSi4	18900	1880	22.33	23.80	1.403	-	-	0.16	0.083	0.116
	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 1	DSi4	18900	1880	22.63	23.80	1.309	-	-	0.03	0.141	0.185
	LTE Band 2	20M	QPSK	50	0	-	Back	15mm	Ant 1	DSi4	18900	1880	22.33	23.80	1.403	-	-	0.1	0.120	0.168
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 2	DSi4	21100	2535	25.16	25.70	1.132	-	-	0.06	0.294	0.333
	LTE Band 7	20M	QPSK	50	0	-	Front	15mm	Ant 2	DSi4	21100	2535	24.13	24.70	1.140	-	-	0.03	0.242	0.276
49	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSi4	21100	2535	25.16	25.70	1.132	-	-	-0.05	0.464	0.525
	LTE Band 7C	20M	QPSK	1	99	-	Back	15mm	Ant 2	DSi4	21100+21298	2535+2554.8	23.11	23.70	1.146	-	-	0.04	0.293	0.336
	LTE Band 7	20M	QPSK	50	0	-	Back	15mm	Ant 2	DSi4	21100	2535	24.13	24.70	1.140	-	-	0.07	0.373	0.425
	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 1	DSi4	21100	2535	20.64	21.50	1.219	-	-	0.04	0.207	0.252
	LTE Band 7	20M	QPSK	50	0	-	Front	15mm	Ant 1	DSi4	21100	2535	20.55	21.50	1.245	-	-	-0.19	0.167	0.208
	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 1	DSi4	21100	2535	20.64	21.50	1.219	-	-	-0.07	0.287	0.350
	LTE Band 7C	20M	QPSK	1	99	-	Back	15mm	Ant 1	DSi4	21100+21298	2535+2554.8	20.46	21.50	1.271	-	-	0.02	0.226	0.287
	LTE Band 7	20M	QPSK	50	0	-	Back	15mm	Ant 1	DSi4	21100	2535	20.55	21.50	1.245	-	-	-0.14	0.235	0.292
	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 3	DSi4	21100	2535	22.65	23.50	1.216	-	-	0.04	0.255	0.310
	LTE Band 7	20M	QPSK	50	0	-	Front	15mm	Ant 3	DSi4	21100	2535	22.51	23.50	1.256	-	-	0.18	0.248	0.311
	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 3	DSi4	21100	2535	22.65	23.50	1.216	-	-	-0.03	0.367	0.446
	LTE Band 7C	20M	QPSK	1	99	-	Back	15mm	Ant 3	DSi4	21100+21298	2535+2554.8	22.00	23.00	1.259	-	-	0.02	0.321	0.404
	LTE Band 7	20M	QPSK	50	0	-	Back	15mm	Ant 3	DSi4	21100	2535	22.51	23.50	1.256	-	-	0.17	0.312	0.392
	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSi4	21100	2535	23.21	24.50	1.346	-	-	-0.06	0.155	0.209
	LTE Band 7C	20M	QPSK	1	99	-	Front	15mm	Ant 0	DSi4	21100+21298	2535+2554.8	21.30	22.50	1.318	-	-	0.04	0.112	0.148
	LTE Band 7	20M	QPSK	50	0	-	Front	15mm	Ant 0	DSi4	21100	2535	22.17	23.50	1.358	-	-	0.03	0.124	0.168
	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSi4	21100	2535	23.21	24.50	1.346	-	-	-0.11	0.151	0.203
	LTE Band 7	20M	QPSK	50	0	-	Back	15mm	Ant 0	DSi4	21100	2535	22.17	23.50	1.358	-	-	-0.06	0.123	0.167
	LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 2	DSi4	40620	2593	25.16	25.70	1.132	62.9	1.006	-0.11	0.226	0.257
	LTE Band 41	20M	QPSK	50	0	-	Front	15mm	Ant 2	DSi4	40620	2593	24.02	24.70	1.169	62.9	1.006	0.06	0.179	0.211
50	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSi4	40620	2593	25.16	25.70	1.132	62.9	1.006	-0.08	0.337	0.384
	LTE Band 38C	20M	QPSK	1	99	-	Back	15mm	Ant 2	DSi4	37901+38099	2593+2604.9	23.14	23.70	1.138	62.9	1.006	0.06	0.224	0.256
	LTE Band 41	20M	QPSK	50	0	-	Back	15mm	Ant 2	DSi4	40620	2593	24.02	24.70	1.169	62.9	1.006	-0.12	0.269	0.316
	LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 1	DSi4	40620	2593	22.71	23.20	1.119	62.9	1.006	0.07	0.141	0.159
	LTE Band 41	20M	QPSK	50	0	-	Front	15mm	Ant 1	DSi4	40620	2593	22.67	23.20	1.130	62.9	1.006	0.05	0.112	0.127
	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 1	DSi4	40620	2593	22.71	23.20	1.119	62.9	1.006	0.04	0.203	0.229
	LTE Band 38C	20M	QPSK	1	99	-	Back	15mm	Ant 1	DSi4	37901+38099	2593+2604.9	22.24	23.00	1.191	62.9	1.006	0.01	0.186	0.223
	LTE Band 41	20M	QPSK	50	0	-	Back	15mm	Ant 1	DSi4	40620	2593	22.67	23.20	1.130	62.9	1.006	0.15	0.160	0.182
	LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 3	DSi4	40620	2593	24.09	25.00	1.233	62.9	1.006	0.11	0.190	0.236
	LTE Band 41	20M	QPSK	50	0	-	Front	15mm	Ant 3	DSi4	40620	2593	23.03	24.00	1.250	62.9	1.006	0.05	0.152	0.191
	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 3	DSi4	40620	2593	24.09	25.00	1.233	62.9	1.006	0.09	0.265	0.329
	LTE Band 38C	20M	QPSK	1	99	-	Back	15mm	Ant 3	DSi4	37901+38099	2593+2604.9	22.13	23.00	1.222	62.9	1.006	-0.03	0.167	0.205
	LTE Band 41	20M	QPSK	50	0	-	Back	15mm	Ant 3	DSi4	40620	2593	23.03	24.00	1.250	62.9	1.006	0.04	0.214	0.269
	LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSi4	40620	2593	22.93	24.50	1.435	62.9	1.006	-0.07	0.092	0.133
	LTE Band 38C	20M	QPSK	1	99	-	Front	15mm	Ant 0	DSi4	37901+38099	2593+2604.9	21.25	22.00	1.189	62.9	1.006	-0.03	0.062	0.074
	LTE Band 41	20M	QPSK	50	0	-	Front	15mm	Ant 0	DSi4	40620	2593	21.88	23.50	1.452	62.9	1.006	0.03	0.077	0.112
	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSi4	40620	2593	22.93	24.50	1.435	62.9	1.006	-0.16	0.088	0.127
	LTE Band 41	20M	QPSK	50	0	-	Back	15mm	Ant 0	DSi4	40620	2593	21.88	23.50	1.452	62.9	1.006	0.16	0.072	0.105
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	15mm	Ant 2	DSi4	507000	2535	24.30	24.70	1.096	-	-	-0.12	0.223	0.245
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	15mm	Ant 2	DSi4	507000	2535	24.11	24.70	1.146	-	-	0.18	0.234	0.268
51	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	15mm	Ant 2	DSi4	507000	2535	24.30	24.70	1.096	-	-	-0.06	0.425	0.466
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	15mm	Ant 2	DSi4	507000	2535	24.11	24.70	1.146	-	-	0.04	0.405	0.464
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	15mm	Ant 1	DSi4	507000	2535	19.01	19.50	1.119	-	-	0.02	0.131	0.147



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	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	15mm	Ant 1	DSI4	507000	2535	18.97	19.50	1.130	-	-	-0.06	0.116	0.131
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	15mm	Ant 1	DSI4	507000	2535	19.01	19.50	1.119	-	-	-0.03	0.201	0.225
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	15mm	Ant 1	DSI4	507000	2535	18.97	19.50	1.130	-	-	0.02	0.182	0.206
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	15mm	Ant 3	DSI4	507000	2535	22.32	23.50	1.312	-	-	0.11	0.190	0.249
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	15mm	Ant 3	DSI4	507000	2535	22.26	23.50	1.330	-	-	0.08	0.169	0.225
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	15mm	Ant 3	DSI4	507000	2535	22.32	23.50	1.312	-	-	-0.04	0.278	0.365
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	15mm	Ant 3	DSI4	507000	2535	22.26	23.50	1.330	-	-	0.09	0.265	0.353
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	15mm	Ant 0	DSI4	507000	2535	21.45	23.00	1.429	-	-	-0.08	0.121	0.173
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	15mm	Ant 0	DSI4	507000	2535	21.40	23.00	1.445	-	-	-0.12	0.115	0.166
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	15mm	Ant 0	DSI4	507000	2535	21.45	23.00	1.429	-	-	0.08	0.116	0.166
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	15mm	Ant 0	DSI4	507000	2535	21.40	23.00	1.445	-	-	-0.02	0.111	0.160
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 2	DSI4	518598	2592.99	25.38	25.70	1.076	-	-	0.05	0.273	0.294
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 2	DSI4	518598	2592.99	25.28	25.70	1.102	-	-	-0.15	0.307	0.338
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 2	DSI4	518598	2592.99	25.38	25.70	1.076	-	-	0.01	0.493	0.531
52	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 2	DSI4	518598	2592.99	25.28	25.70	1.102	-	-	-0.05	0.511	0.563
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 1	DSI4	518598	2592.99	18.70	19.70	1.259	-	-	0.01	0.098	0.123
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 1	DSI4	518598	2592.99	18.66	19.70	1.271	-	-	-0.17	0.081	0.103
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 1	DSI4	518598	2592.99	18.70	19.70	1.259	-	-	-0.02	0.146	0.184
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 1	DSI4	518598	2592.99	18.66	19.70	1.271	-	-	-0.08	0.117	0.149
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 3	DSI4	518598	2592.99	22.49	24.00	1.416	-	-	-0.13	0.261	0.370
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 3	DSI4	518598	2592.99	22.47	24.00	1.422	-	-	0.05	0.241	0.343
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 3	DSI4	518598	2592.99	22.49	24.00	1.416	-	-	0.05	0.341	0.483
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 3	DSI4	518598	2592.99	22.47	24.00	1.422	-	-	-0.03	0.359	0.511
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 0	DSI4	518598	2592.99	21.98	23.30	1.355	-	-	-0.09	0.147	0.199
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 0	DSI4	518598	2592.99	21.84	23.30	1.400	-	-	-0.09	0.119	0.167
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 0	DSI4	518598	2592.99	21.98	23.30	1.355	-	-	-0.15	0.137	0.186
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 0	DSI4	518598	2592.99	21.84	23.30	1.400	-	-	0.01	0.098	0.137
3500MHz																				
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 6	DSI4	656000	3840	17.95	19.00	1.274	-	-	-0.02	0.116	0.148
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 6	DSI4	656000	3840	17.90	19.00	1.288	-	-	-0.15	0.100	0.129
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	656000	3840	17.95	19.00	1.274	-	-	-0.02	0.121	0.154
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	656000	3840	17.90	19.00	1.288	-	-	-0.13	0.117	0.151
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	656000	3840	20.92	22.00	1.282	50	1.000	-0.06	0.102	0.131
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 6	DSI4	633334	3500.01	17.87	19.00	1.297	-	-	0.17	0.122	0.158
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 6	DSI4	633334	3500.01	17.86	19.00	1.300	-	-	-0.14	0.103	0.134
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	633334	3500.01	17.87	19.00	1.297	-	-	-0.1	0.192	0.249
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	633334	3500.01	17.86	19.00	1.300	-	-	0.07	0.176	0.229
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	633334	3500.01	20.86	22.00	1.300	50	1.000	-0.03	0.179	0.233
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 7	DSI4	656000	3840	22.76	24.10	1.361	-	-	0.06	0.278	0.378
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 7	DSI4	656000	3840	22.72	24.10	1.374	-	-	0.08	0.260	0.357
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	656000	3840	22.76	24.10	1.361	-	-	-0.01	0.548	0.746
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	656000	3840	22.72	24.10	1.374	-	-	-0.12	0.519	0.713
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	656000	3840	25.56	27.10	1.426	50	1.000	0.08	0.512	0.730
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 7	DSI4	633334	3500.01	22.57	24.10	1.422	-	-	0.05	0.357	0.508
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 7	DSI4	633334	3500.01	22.42	24.10	1.472	-	-	0.03	0.349	0.514
53	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	633334	3500.01	22.57	24.10	1.422	-	-	0.07	0.680	0.967
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	633334	3500.01	22.42	24.10	1.472	-	-	0.02	0.639	0.941
	FR1 n77	100M	QPSK	270	0	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	633334	3500.01	22.34	24.10	1.500	-	-	0.02	0.620	0.930
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	633334	3500.01	25.55	27.10	1.429	50	1.000	-0.04	0.672	0.960
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 10	DSI4	656000	3840	19.17	20.00	1.211	-	-	0.07	0.063	0.076
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 10	DSI4	656000	3840	19.14	20.00	1.219	-	-	-0.03	0.043	0.052
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	656000	3840	19.17	20.00	1.211	-	-	-0.01	0.109	0.132
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	656000	3840	19.14	20.00	1.219	-	-	-0.14	0.090	0.110
	FR1 n77 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	656000	3840	22.00	23.00	1.259	50	1.000	-0.02	0.090	0.113
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 10	DSI4	633334	3500.01	18.95	20.00	1.274	-	-	0.11	0.103	0.131
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 10	DSI4	633334	3500.01	18.87	20.00	1.297	-	-	-0.05	0.132	0.171
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	633334	3500.01	18.95	20.00	1.274	-	-	0.06	0.168	0.214



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	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	633334	3500.01	18.87	20.00	1.297	-	-	-0.01	0.227	0.294
	FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	633334	3500.01	21.85	23.00	1.303	50	1.000	0.16	0.218	0.284
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 8	DSI4	656000	3840	15.13	16.50	1.371	-	-	-0.02	0.003	0.004
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 8	DSI4	656000	3840	15.08	16.50	1.387	-	-	0.02	0.003	0.004
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	656000	3840	15.13	16.50	1.371	-	-	0.05	0.053	0.073
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	656000	3840	15.08	16.50	1.387	-	-	0.03	0.063	0.087
	FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	656000	3840	18.15	19.50	1.365	50	1.000	-0.17	0.049	0.067
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 8	DSI4	633334	3500.01	15.06	16.50	1.393	-	-	-0.17	0.004	0.006
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 8	DSI4	633334	3500.01	14.97	16.50	1.422	-	-	0.03	0.005	0.007
	FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	633334	3500.01	15.06	16.50	1.393	-	-	0.05	0.086	0.120
	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	633334	3500.01	14.97	16.50	1.422	-	-	-0.08	0.091	0.129
	FR1 n77 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	633334	3500.01	17.92	19.50	1.439	50	1.000	0.03	0.081	0.117
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 6	DSI4	650000	3750	18.35	19.50	1.303	-	-	-0.12	0.097	0.126
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 6	DSI4	650000	3750	18.27	19.50	1.327	-	-	-0.09	0.094	0.125
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	650000	3750	18.35	19.50	1.303	-	-	0.01	0.123	0.160
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	650000	3750	18.27	19.50	1.327	-	-	-0.06	0.125	0.166
	FR1 n78 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	650000	3750	21.34	22.50	1.306	50	1.000	-0.07	0.106	0.138
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 6	DSI4	633334	3500.01	18.24	19.50	1.337	-	-	0.01	0.120	0.160
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 6	DSI4	633334	3500.01	18.21	19.50	1.346	-	-	0.01	0.092	0.124
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	633334	3500.01	18.24	19.50	1.337	-	-	-0.04	0.238	0.318
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	633334	3500.01	18.21	19.50	1.346	-	-	0.06	0.178	0.240
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 6	DSI4	633334	3500.01	21.26	22.50	1.330	50	1.000	0.07	0.233	0.310
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 7	DSI4	650000	3750	22.93	24.60	1.469	-	-	0.04	0.395	0.580
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 7	DSI4	650000	3750	22.62	24.60	1.578	-	-	0.03	0.369	0.582
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	650000	3750	22.93	24.60	1.469	-	-	-0.03	0.722	1.061
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	650000	3750	22.62	24.60	1.578	-	-	-0.06	0.654	1.032
	FR1 n78	100M	QPSK	270	0	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	650000	3750	22.13	24.10	1.574	-	-	-0.06	0.643	1.012
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	650000	3750	25.31	27.10	1.510	50	1.000	0.13	0.700	1.057
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 7	DSI4	633334	3500.01	23.09	24.60	1.416	-	-	0.15	0.358	0.507
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 7	DSI4	633334	3500.01	22.95	24.60	1.462	-	-	0.03	0.381	0.557
54	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	633334	3500.01	23.09	24.60	1.416	-	-	0.02	0.761	1.077
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	633334	3500.01	22.95	24.60	1.462	-	-	-0.03	0.736	1.076
	FR1 n78	100M	QPSK	270	0	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	633334	3500.01	22.34	24.10	1.500	-	-	0.01	0.712	1.068
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 7	DSI4	633334	3500.01	25.52	27.10	1.439	50	1.000	0.05	0.748	1.076
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 10	DSI4	650000	3750	18.39	19.50	1.291	-	-	0.06	0.069	0.089
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 10	DSI4	650000	3750	18.38	19.50	1.294	-	-	0.08	0.063	0.082
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	650000	3750	18.39	19.50	1.291	-	-	-0.02	0.115	0.148
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	650000	3750	18.38	19.50	1.294	-	-	0.03	0.103	0.133
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	650000	3750	21.42	22.50	1.282	50	1.000	0.02	0.092	0.118
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 10	DSI4	633334	3500.01	18.37	19.50	1.297	-	-	-0.15	0.120	0.156
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 10	DSI4	633334	3500.01	18.32	19.50	1.312	-	-	0.13	0.142	0.186
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	633334	3500.01	18.37	19.50	1.297	-	-	0.04	0.188	0.244
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	633334	3500.01	18.32	19.50	1.312	-	-	0.02	0.246	0.323
	FR1 n78 PC2	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 10	DSI4	633334	3500.01	21.26	22.50	1.330	50	1.000	0.19	0.240	0.319
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 8	DSI4	650000	3750	15.96	17.50	1.426	-	-	-0.15	0.005	0.007
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 8	DSI4	650000	3750	15.91	17.50	1.442	-	-	-0.03	0.005	0.007
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	650000	3750	15.96	17.50	1.426	-	-	-0.06	0.066	0.094
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	650000	3750	15.91	17.50	1.442	-	-	0.03	0.065	0.094
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	650000	3750	18.92	20.50	1.439	50	1.000	-0.05	0.059	0.085
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 8	DSI4	633334	3500.01	15.81	17.50	1.476	-	-	0.1	0.004	0.006
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 8	DSI4	633334	3500.01	15.78	17.50	1.486	-	-	-0.11	0.007	0.010
	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	633334	3500.01	15.81	17.50	1.476	-	-	0.04	0.114	0.168
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	633334	3500.01	15.78	17.50	1.486	-	-	0.04	0.108	0.160
	FR1 n78 PC2	100M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 8	DSI4	633334	3500.01	18.88	20.50	1.452	50	1.000	-0.01	0.124	0.180



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 9+10	Full power	11	2462	21.85	23.00	1.304	98.29	1.017	0.02	0.217	0.288
55	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 9+10	Full power	11	2462	21.85	23.00	1.304	98.29	1.017	-0.02	0.289	0.383
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 9+10	Simultaneous	11	2462	18.91	20.50	1.442	98.29	1.017	0.04	0.197	0.289
	Bluetooth	1Mbps	Front	15mm	Ant 9	Full power	39	2441	15.37	16.50	1.297	76.93	1.083	0.04	0.016	0.022
	Bluetooth	1Mbps	Back	15mm	Ant 9	Full power	39	2441	15.37	16.50	1.297	76.93	1.083	0.01	0.035	0.049
	Bluetooth	1Mbps	Front	15mm	Ant 10	Full power	0	2402	17.18	18.00	1.209	76.82	1.084	-0.02	0.004	0.005
56	Bluetooth	1Mbps	Back	15mm	Ant 10	Full power	0	2402	17.18	18.00	1.209	76.82	1.084	0.04	0.062	0.081
5000MHz																
	WLAN5.3GHz	802.11a 6Mbps	Front	15mm	Ant 9+11	Full power	60	5300	20.98	22.00	1.264	99.45	1.006	0.06	0.151	0.192
57	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 9+11	Full power	60	5300	20.98	22.00	1.264	99.45	1.006	-0.02	0.245	0.311
	WLAN5.3GHz	802.11ax-HE80 MCS0	Back	15mm	Ant 9+11	Simultaneous	58	5290	19.72	21.00	1.343	100	1.000	0.13	0.167	0.224
	WLAN5.5GHz	802.11a 6Mbps	Front	15mm	Ant 9+11	Full power	116	5580	20.42	21.50	1.283	99.45	1.006	0.07	0.142	0.183
58	WLAN5.5GHz	802.11a 6Mbps	Back	15mm	Ant 9+11	Full power	116	5580	20.42	21.50	1.283	99.45	1.006	-0.09	0.349	0.450
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 9+11	Simultaneous	106	5530	18.13	19.00	1.222	100	1.000	0.02	0.177	0.216
	WLAN5.8GHz	802.11a 6Mbps	Front	15mm	Ant 9+11	Full power	165	5825	20.54	21.50	1.248	99.45	1.006	-0.01	0.214	0.269
59	WLAN5.8GHz	802.11a 6Mbps	Back	15mm	Ant 9+11	Full power	165	5825	20.54	21.50	1.248	99.45	1.006	-0.05	0.395	0.496
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 9+11	Simultaneous	155	5775	17.42	18.50	1.282	100	1.000	0.01	0.177	0.227



16.4 Product Specific 10g SAR

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
5000MHz																
	WLAN5.3GHz	802.11a 6Mbps	Front	0mm	Ant 9+11	Full power	60	5300	20.98	22.00	1.265	99.45	1.006	0.05	0.635	0.808
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 9+11	Full power	60	5300	20.98	22.00	1.265	99.45	1.006	0.06	0.765	0.973
60	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 9+11	Full power	60	5300	20.98	22.00	1.265	99.45	1.006	0.07	1.60	2.036
	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	Ant 9+11	Full power	60	5300	20.98	22.00	1.265	99.45	1.006	0.06	0.94	1.197
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 9+11	Full power	56	5280	20.97	22.00	1.268	99.45	1.006	0.03	1.53	1.951
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	Ant 9+11	Full power	116	5580	20.42	21.50	1.282	99.45	1.006	0.01	0.640	0.826
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 9+11	Full power	116	5580	20.42	21.50	1.282	99.45	1.006	0.08	0.882	1.138
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant 9+11	Full power	116	5580	20.42	21.50	1.282	99.45	1.006	0.05	0.975	1.258
61	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Ant 9+11	Full power	116	5580	20.42	21.50	1.282	99.45	1.006	-0.03	1.62	2.090
	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Ant 9+11	Full power	124	5620	20.18	21.50	1.355	99.45	1.006	0.05	1.46	1.990



16.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	132072	1720	22.30	23.20	1.230	-	-	0.07	0.888	1	1.092
2nd	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS11	132072	1720	22.30	23.20	1.230	-	-	0.01	0.871	1.020	1.072
1st	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DS11	40620	2593	20.23	21.00	1.194	62.9	1.006	0.06	0.884	1	1.062
2nd	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DS11	40620	2593	20.23	21.00	1.194	62.9	1.006	0.03	0.869	1.017	1.044
1st	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	650000	3750	16.32	17.50	1.312	-	-	0.01	0.825	1	1.083
2nd	FR1 n78	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 6	DS11	650000	3750	16.32	17.50	1.312	-	-	0.05	0.813	1.015	1.067
1st	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DS15	19100	1900	23.55	24.20	1.161	-	-	-0.03	0.936	1	1.087
2nd	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DS15	19100	1900	23.55	24.20	1.161	-	-	0.05	0.915	1.023	1.063

General Note:

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



16.6 TDD NR Linearity Data Analysis

General Note:

This device support Power Class 2 and Power Class 3 operations for 5G NR n77/n78. The highest available duty cycle for Power Class 2 operation is 50% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each NR configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 W/kg for 1g and < 3.5 W/kg for 10g, Separate SAR testing for Power Class 2 is not required.

NR n77(HPUE)-Linearity Data for Head Ant6			NR n77(HPUE)-Linearity Data for Head Ant7		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	17.00	20.00	Maximum Tune up Power (dBm)	17.10	20.10
Reported 1g SAR (W/kg)	0.897	0.821	Reported 1g SAR (W/kg)	1.051	0.986
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	50.12	50.00	Frame Averaged (mW)	51.29	51.16
Linearity SAR (W/kg)	0.895		Linearity SAR (W/kg)	1.049	
% deviation from expected linearity		-8.26%	% deviation from expected linearity		-5.96%
NR n77(HPUE)-Linearity Data for Body-worn Ant6			NR n77(HPUE)-Linearity Data for Body-worn Ant7		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	19.00	22.00	Maximum Tune up Power (dBm)	24.10	27.10
Reported 1g SAR (W/kg)	0.249	0.233	Reported 1g SAR (W/kg)	0.967	0.960
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	79.43	79.24	Frame Averaged (mW)	257.04	256.43
Linearity SAR (W/kg)	0.248		Linearity SAR (W/kg)	0.965	
% deviation from expected linearity		-6.20%	% deviation from expected linearity		-0.49%
NR n77(HPUE)-Linearity Data for Hotspot Ant6			NR n77(HPUE)-Linearity Data for Hotspot Ant7		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	17.00	20.00	Maximum Tune up Power (dBm)	17.10	20.10
Reported 1g SAR (W/kg)	0.290	0.289	Reported 1g SAR (W/kg)	0.486	0.468
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	50.12	50.00	Frame Averaged (mW)	51.29	51.16
Linearity SAR (W/kg)	0.289		Linearity SAR (W/kg)	0.485	
% deviation from expected linearity		-0.11%	% deviation from expected linearity		-3.48%
NR n78(HPUE)-Linearity Data for Head Ant6			NR n78(HPUE)-Linearity Data for Head Ant7		
	NR n78 (Power Class 3)	NR n78 (Power Class 2)		NR n78 (Power Class 3)	NR n78 (Power Class 2)
Maximum Tune up Power (dBm)	17.50	20.50	Maximum Tune up Power (dBm)	17.10	20.10
Reported 1g SAR (W/kg)	1.083	1.028	Reported 1g SAR (W/kg)	1.070	1.036
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	56.23	56.10	Frame Averaged (mW)	51.29	51.16
Linearity SAR (W/kg)	1.080		Linearity SAR (W/kg)	1.067	
% deviation from expected linearity		-4.85%	% deviation from expected linearity		-2.95%
NR n78(HPUE)-Linearity Data for Body-worn Ant6			NR n78(HPUE)-Linearity Data for Body-worn Ant7		
	NR n78 (Power Class 3)	NR n78 (Power Class 2)		NR n78 (Power Class 3)	NR n78 (Power Class 2)
Maximum Tune up Power (dBm)	19.50	22.50	Maximum Tune up Power (dBm)	24.60	27.10
Reported 1g SAR (W/kg)	0.318	0.310	Reported 1g SAR (W/kg)	1.077	1.076
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	89.13	88.91	Frame Averaged (mW)	288.40	256.43
Linearity SAR (W/kg)	0.317		Linearity SAR (W/kg)	0.958	
% deviation from expected linearity		-2.28%	% deviation from expected linearity		12.36%
NR n78(HPUE)-Linearity Data for Hotspot Ant6			NR n78(HPUE)-Linearity Data for Hotspot Ant7		
	NR n78 (Power Class 3)	NR n78 (Power Class 2)		NR n78 (Power Class 3)	NR n78 (Power Class 2)
Maximum Tune up Power (dBm)	17.50	20.50	Maximum Tune up Power (dBm)	17.10	20.10



Reported 1g SAR (W/kg)	0.380	0.357	Reported 1g SAR (W/kg)	0.565	0.521
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	56.23	56.10	Frame Averaged (mW)	51.29	51.16
Linearity SAR (W/kg)	0.379		Linearity SAR (W/kg)	0.564	
% deviation from expected linearity		-5.83%	% deviation from expected linearity		-7.57%

NR n77(HPUE)-Linearity Data for Head Ant10			NR n77(HPUE)-Linearity Data for Head Ant8		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	16.50	19.50	Maximum Tune up Power (dBm)	25.50	27.50
Reported 1g SAR (W/kg)	0.956	0.890	Reported 1g SAR (W/kg)	0.321	0.241
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	44.67	44.56	Frame Averaged (mW)	354.81	281.17
Linearity SAR (W/kg)	0.954		Linearity SAR (W/kg)	0.254	
% deviation from expected linearity		-6.68%	% deviation from expected linearity		-5.26%
NR n77(HPUE)-Linearity Data for Body-worn Ant10			NR n77(HPUE)-Linearity Data for Body-worn Ant8		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	20.00	23.00	Maximum Tune up Power (dBm)	16.50	19.50
Reported 1g SAR (W/kg)	0.294	0.284	Reported 1g SAR (W/kg)	0.129	0.117
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	100.00	99.76	Frame Averaged (mW)	44.67	44.56
Linearity SAR (W/kg)	0.293		Linearity SAR (W/kg)	0.129	
% deviation from expected linearity		-3.17%	% deviation from expected linearity		-9.09%
NR n77(HPUE)-Linearity Data for Hotspot Ant10			NR n77(HPUE)-Linearity Data for Hotspot Ant8		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	16.50	19.50	Maximum Tune up Power (dBm)	16.50	19.50
Reported 1g SAR (W/kg)	0.535	0.514	Reported 1g SAR (W/kg)	0.387	0.358
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	44.67	44.56	Frame Averaged (mW)	44.67	44.56
Linearity SAR (W/kg)	0.534		Linearity SAR (W/kg)	0.386	
% deviation from expected linearity		-3.70%	% deviation from expected linearity		-7.27%
NR n78(HPUE)-Linearity Data for Head Ant10			NR n78(HPUE)-Linearity Data for Head Ant8		
	NR n78 (Power Class 3)	NR n78 (Power Class 2)		NR n78 (Power Class 3)	NR n78 (Power Class 2)
Maximum Tune up Power (dBm)	15.50	18.50	Maximum Tune up Power (dBm)	25.50	27.50
Reported 1g SAR (W/kg)	0.728	0.720	Reported 1g SAR (W/kg)	0.477	0.381
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	35.48	35.40	Frame Averaged (mW)	354.81	281.17
Linearity SAR (W/kg)	0.726		Linearity SAR (W/kg)	0.378	
% deviation from expected linearity		-0.86%	% deviation from expected linearity		0.79%
NR n78(HPUE)-Linearity Data for Body-worn Ant10			NR n78(HPUE)-Linearity Data for Body-worn Ant8		
	NR n78 (Power Class 3)	NR n78 (Power Class 2)		NR n78 (Power Class 3)	NR n78 (Power Class 2)
Maximum Tune up Power (dBm)	19.50	22.50	Maximum Tune up Power (dBm)	17.50	20.50
Reported 1g SAR (W/kg)	0.323	0.319	Reported 1g SAR (W/kg)	0.168	0.180
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	89.13	88.91	Frame Averaged (mW)	56.23	56.10
Linearity SAR (W/kg)	0.322		Linearity SAR (W/kg)	0.168	
% deviation from expected linearity		-1.00%	% deviation from expected linearity		7.40%
NR n78(HPUE)-Linearity Data for Hotspot Ant10			NR n78(HPUE)-Linearity Data for Hotspot Ant8		
	NR n78 (Power Class 3)	NR n78 (Power Class 2)		NR n78 (Power Class 3)	NR n78 (Power Class 2)
Maximum Tune up Power (dBm)	15.50	18.50	Maximum Tune up Power (dBm)	17.50	20.50
Reported 1g SAR (W/kg)	0.375	0.384	Reported 1g SAR (W/kg)	0.511	0.500
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	35.48	35.40	Frame Averaged (mW)	56.23	56.10
Linearity SAR (W/kg)	0.374		Linearity SAR (W/kg)	0.510	
% deviation from expected linearity		2.64%	% deviation from expected linearity		-1.92%

17. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1.	WWAN + WLAN 2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN 5GHz	Yes	Yes	Yes	Yes
3.	WLAN 5GHz + Bluetooth	Yes	Yes	Yes	Yes
4.	WWAN + WLAN 5GHz + Bluetooth	Yes	Yes	Yes	Yes
5.	WLAN 2.4GHz + WLAN 5GHz	Yes	Yes	Yes	Yes
6.	WWAN + WLAN 2.4GHz + WLAN 5GHz	Yes	Yes	Yes	Yes
7.	WWAN + WLAN 2.4GHz +NFC				Yes
8.	WWAN + WLAN 5GHz+NFC				Yes
9.	WLAN 5GHz + Bluetooth+NFC				Yes
10.	WWAN + WLAN 5GHz + Bluetooth+NFC				Yes
11.	WLAN 2.4GHz + WLAN 5GHz+NFC				Yes
12.	WWAN + WLAN 2.4GHz + WLAN 5GHz +NFC				Yes

General Note:

- This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
- WWAN above includes 5G NR bands.
- EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- For EN-DC mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR to not exceed FCC limit. Therefore, simultaneous transmission compliance between 4G+5G NR operation is demonstrated in the Part 2 Report during algorithm validation. In Part 1 Report, simultaneous transmission compliance was evaluated individually with other Radios (WLAN or BT) using one of 4G or 5G NR.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- This device 2.4GHz WLAN/ 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
- According to the EUT characteristic, WLAN 2.4GHz and Bluetooth cannot transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz and Bluetooth can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz and WLAN 2.4GHz can transmit simultaneously.
- According to the EUT characteristic, two Bluetooth antennas cannot transmit simultaneously with each other.
- For simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
- The reported SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
 - $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR , simultaneously transmission SAR measurement is not necessary.
 - Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.

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

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

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

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

$$x\% * A + (100-x)\% * B \leq 1.0,$$

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

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

$$x\% * A + (100-x)\% * B + C \leq 1.0 \quad (1)$$

$$x\% * A + (100-x)\% * B \leq x\% * \max(A, B) + (100-x)\% * \max(A, B) \leq \max(A, B)$$

$$x\% * A + (100-x)\% * B + C \leq \max(A, B) + C \leq 1.0 \quad (2)$$

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

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

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

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

- i. A and C are decoupled based on the SPLSR criteria, and
- ii. $(100-x)\% * B + C \leq 1.0$, and
- iii. $x\% * A + (100-x)\% * B \leq 1.0$

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



17.2 Head Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	5	1+2+3	1+3+4	1+3+5
		WWAN	WLAN2.4GHz Ant 9+10	WLAN5GHz Ant 9+11	Bluetooth Ant 9	Bluetooth Ant 10	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN All Bands Ant 0	Right Cheek	0.295	0.219	0.241	0.215	0.212	0.76	0.75	0.75
	Right Tilted	0.169	0.219	0.241	0.215	0.212	0.63	0.63	0.62
	Left Cheek	0.287	0.219	0.241	0.215	0.212	0.75	0.74	0.74
	Left Tilted	0.152	0.219	0.241	0.215	0.212	0.61	0.61	0.61
WWAN All Bands Ant 1	Right Cheek	1.094	0.219	0.241	0.215	0.212	1.55	1.55	1.55
	Right Tilted	0.422	0.219	0.241	0.215	0.212	0.88	0.88	0.88
	Left Cheek	0.510	0.219	0.241	0.215	0.212	0.97	0.97	0.96
	Left Tilted	0.356	0.219	0.241	0.215	0.212	0.82	0.81	0.81
WWAN All Bands Ant 2	Right Cheek	0.160	0.219	0.241	0.215	0.212	0.62	0.62	0.61
	Right Tilted	0.122	0.219	0.241	0.215	0.212	0.58	0.58	0.58
	Left Cheek	0.262	0.219	0.241	0.215	0.212	0.72	0.72	0.72
	Left Tilted	0.126	0.219	0.241	0.215	0.212	0.59	0.58	0.58
WWAN All Bands Ant 3	Right Cheek	1.065	0.219	0.241	0.215	0.212	1.53	1.52	1.52
	Right Tilted	1.072	0.219	0.241	0.215	0.212	1.53	1.53	1.53
	Left Cheek	0.709	0.219	0.241	0.215	0.212	1.17	1.17	1.16
	Left Tilted	0.755	0.219	0.241	0.215	0.212	1.22	1.21	1.21
WWAN All Bands Ant 6	Right Cheek	1.083	0.219	0.241	0.215	0.212	1.54	1.54	1.54
	Right Tilted	0.683	0.219	0.241	0.215	0.212	1.14	1.14	1.14
	Left Cheek	0.297	0.219	0.241	0.215	0.212	0.76	0.75	0.75
	Left Tilted	0.256	0.219	0.241	0.215	0.212	0.72	0.71	0.71
WWAN All Bands Ant 7	Right Cheek	0.596	0.219	0.241	0.215	0.212	1.06	1.05	1.05
	Right Tilted	0.759	0.219	0.241	0.215	0.212	1.22	1.22	1.21
	Left Cheek	0.920	0.219	0.241	0.215	0.212	1.38	1.38	1.37
	Left Tilted	1.070	0.219	0.241	0.215	0.212	1.53	1.53	1.52
WWAN All Bands Ant 8	Right Cheek	0.453	0.219	0.241	0.215	0.212	0.91	0.91	0.91
	Right Tilted	0.477	0.219	0.241	0.215	0.212	0.94	0.93	0.93
	Left Cheek	0.229	0.219	0.241	0.215	0.212	0.69	0.69	0.68
	Left Tilted	0.241	0.219	0.241	0.215	0.212	0.70	0.70	0.69
WWAN All Bands Ant 10	Right Cheek	0.204	0.219	0.241	0.215	0.212	0.66	0.66	0.66
	Right Tilted	0.189	0.219	0.241	0.215	0.212	0.65	0.65	0.64
	Left Cheek	0.956	0.219	0.241	0.215	0.212	1.42	1.41	1.41
	Left Tilted	0.379	0.219	0.241	0.215	0.212	0.84	0.84	0.83



17.3 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	5	1+2+3	1+3+4	1+3+5
		WWAN 1g SAR (W/kg)	WLAN2.4GHz Ant 9+10 1g SAR (W/kg)	WLAN5GHz Ant 9+11 1g SAR (W/kg)	Bluetooth Ant 9 1g SAR (W/kg)	Bluetooth Ant 10 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)
WWAN All Bands Ant 0	Front	0.425	0.491	0.237	0.034	0.118	1.15	0.70	0.78
	Back	0.576	0.491	0.373	0.072	0.185	1.44	1.02	1.13
	Left side						0.00	0.00	0.00
	Right side	0.540	0.491	0.453	0.006	0.254	1.48	1.00	1.25
	Top side		0.491	0.477	0.086	0.005	0.97	0.56	0.48
	Bottom side	0.273					0.27	0.27	0.27
WWAN All Bands Ant 1	Front	0.328	0.491	0.237	0.034	0.118	1.06	0.60	0.68
	Back	0.444	0.491	0.373	0.072	0.185	1.31	0.89	1.00
	Left side	0.639					0.64	0.64	0.64
	Right side		0.491	0.453	0.006	0.254	0.94	0.46	0.71
	Top side	0.087	0.491	0.477	0.086	0.005	1.06	0.65	0.57
	Bottom side						0.00	0.00	0.00
WWAN All Bands Ant 2	Front	0.458	0.491	0.237	0.034	0.118	1.19	0.73	0.81
	Back	0.649	0.491	0.373	0.072	0.185	1.51	1.09	1.21
	Left side	0.209					0.21	0.21	0.21
	Right side		0.491	0.453	0.006	0.254	0.94	0.46	0.71
	Top side		0.491	0.477	0.086	0.005	0.97	0.56	0.48
	Bottom side	1.087					1.09	1.09	1.09
WWAN All Bands Ant 3	Front	0.244	0.491	0.237	0.034	0.118	0.97	0.52	0.60
	Back	0.509	0.491	0.373	0.072	0.185	1.37	0.95	1.07
	Left side	0.208					0.21	0.21	0.21
	Right side		0.491	0.453	0.006	0.254	0.94	0.46	0.71
	Top side	0.558	0.491	0.477	0.086	0.005	1.53	1.12	1.04
	Bottom side						0.00	0.00	0.00
WWAN All Bands Ant 6	Front	0.192	0.491	0.237	0.034	0.118	0.92	0.46	0.55
	Back	0.320	0.491	0.373	0.072	0.185	1.18	0.77	0.88
	Left side	0.380					0.38	0.38	0.38
	Right side		0.491	0.453	0.006	0.254	0.94	0.46	0.71
	Top side	0.236	0.491	0.477	0.086	0.005	1.20	0.80	0.72
	Bottom side						0.00	0.00	0.00
WWAN All Bands Ant 7	Front	0.199	0.491	0.237	0.034	0.118	0.93	0.47	0.55
	Back	0.423	0.491	0.373	0.072	0.185	1.29	0.87	0.98
	Left side	0.037					0.04	0.04	0.04
	Right side	0.109	0.491	0.453	0.006	0.254	1.05	0.57	0.82
	Top side	0.565	0.491	0.477	0.086	0.005	1.53	1.13	1.05
	Bottom side						0.00	0.00	0.00
WWAN All Bands Ant 8	Front	0.275	0.491	0.237	0.034	0.118	1.00	0.55	0.63
	Back	0.511	0.491	0.373	0.072	0.185	1.38	0.96	1.07
	Left side	0.054					0.05	0.05	0.05
	Right side		0.491	0.453	0.006	0.254	0.94	0.46	0.71
	Top side	0.079	0.491	0.477	0.086	0.005	1.05	0.64	0.56
	Bottom side						0.00	0.00	0.00
WWAN All Bands Ant 10	Front	0.211	0.491	0.237	0.034	0.118	0.94	0.48	0.57
	Back	0.354	0.491	0.373	0.072	0.185	1.22	0.80	0.91
	Left side						0.00	0.00	0.00
	Right side	0.535	0.491	0.453	0.006	0.254	1.48	0.99	1.24
	Top side	0.124	0.491	0.477	0.086	0.005	1.09	0.69	0.61
	Bottom side						0.00	0.00	0.00



17.4 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	5	1+2+3	1+3+4	1+3+5
		WWAN	WLAN2.4GHz Ant 9+10	WLAN5GHz Ant 9+11	Bluetooth Ant 9	Bluetooth Ant 10	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN All Bands Ant 0	Front	0.209	0.289	0.227	0.022	0.005	0.73	0.46	0.44
	Back	0.273	0.289	0.227	0.049	0.081	0.79	0.55	0.58
WWAN All Bands Ant 1	Front	0.282	0.289	0.227	0.022	0.005	0.80	0.53	0.51
	Back	0.411	0.289	0.227	0.049	0.081	0.93	0.69	0.72
WWAN All Bands Ant 2	Front	0.338	0.289	0.227	0.022	0.005	0.85	0.59	0.57
	Back	0.563	0.289	0.227	0.049	0.081	1.08	0.84	0.87
WWAN All Bands Ant 3	Front	0.370	0.289	0.227	0.022	0.005	0.89	0.62	0.60
	Back	0.569	0.289	0.227	0.049	0.081	1.09	0.85	0.88
WWAN All Bands Ant 6	Front	0.160	0.289	0.227	0.022	0.005	0.68	0.41	0.39
	Back	0.318	0.289	0.227	0.049	0.081	0.83	0.59	0.63
WWAN All Bands Ant 7	Front	0.582	0.289	0.227	0.022	0.005	1.10	0.83	0.81
	Back	1.077	0.289	0.227	0.049	0.081	1.59	1.35	1.39
WWAN All Bands Ant 8	Front	0.010	0.289	0.227	0.022	0.005	0.53	0.26	0.24
	Back	0.180	0.289	0.227	0.049	0.081	0.70	0.46	0.49
WWAN All Bands Ant 10	Front	0.186	0.289	0.227	0.022	0.005	0.70	0.44	0.42
	Back	0.323	0.289	0.227	0.049	0.081	0.84	0.60	0.63

17.5 Product Specific 10g SAR Exposure Conditions

Exposure Position	1	2	1+2 Summed 10g SAR (W/kg)
	NFC	WLAN5GHz Ant 9+11	
	10g SAR (W/kg)	10g SAR (W/kg)	
Front	0.001	0.826	0.83
Back	0.034	1.138	1.17
Left side	0.001		0.00
Right side	0.001	2.036	2.04
Top side	0.001	2.090	2.09
Bottom side	0.001		0.00

Remark:

1. For WLAN2.4GHz/Bluetooth Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg.

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18. Uncertainty Assessment

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



19. References

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

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