FCC SAR Test Report

APPLICANT	:	Sonim Technologies, Inc.
EQUIPMENT	:	Mobile Hotspot
BRAND NAME	:	Sonim
MODEL NAME	:	H700B
FCC ID	:	WYPH700B
STANDARD	:	FCC 47 CFR Part 2 (2.1093)

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

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

Hank Huang

Approved by: Hank Huang

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People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA480204	Rev. 01	Initial issue of report	May 23, 2025

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Sonim Technologies, Inc., Mobile Hotspot, H700B,** are as follows.

Highest 1g SAR Summary				
Equipment Class	Frequency Band		Body (Separation 10mm) 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
Licensed	WCDMA	WCDMA II	1.01	1.58
		WCDMA IV	1.01	
		WCDMA V	0.35	
	LTE	LTE Band 7	1.17	
		LTE Band 12	0.42	
		LTE Band 13	0.54	
		LTE Band 14	1.16	
		LTE Band 25/2	0.99	
		LTE Band 26/5	0.35	
		LTE Band 30	0.84	
		LTE Band 66/4	1.09	
		LTE Band 71	0.27	
		LTE Band 41/38	0.98	
		LTE Band 42	1.08	
		LTE Band 43	1.09	
		LTE Band 48	1.10	
	5G NR	FR1 n7	**1.19**	
		FR1 n12	0.42	
		FR1 n13	0.41	
		FR1 n14	0.35	
		FR1 n25/n2	1.01	
		FR1 n26/n5	0.59	
		FR1 n30	0.67	
		FR1 n66	1.08	
		FR1 n71	0.25	
		FR1 n41/n38	1.00	
		FR1 n48	1.10	
		FR1 n77	1.06	
		FR1 n78	1.08	
DTS	WLAN	2.4GHz WLAN	0.27	1.58
NII		5GHz WLAN	0.86	1.58
Date of Testing:			2025/2/20 ~ 2025/3/31	

Remark:

1. This device supports LTE B2 / B4 / B5 / B38 and B25 / B66 / B26 / B41. Since the supported frequency span for LTE B2 / B4 / B5 / B38 falls completely within the supports frequency span for LTE B25 / B66 / B26 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B25 / B66 / B26 / B41.
2. This device supports 5GNR n2 / n5 / n38 and 5GNR n25 / n26 / n41. Since the supported frequency span for 5GNR n2 / n5 / n38 falls completely within the supports frequency span for 5GNR n25 / n26 / n41, both 5GNR bands have the same target power, and both 5GNR bands share the same transmission path; therefore, SAR was only assessed for 5GNR n25 / n26 / 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) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

2. Administration Data

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

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

Applicant	
Company Name	Sonim Technologies, Inc.
Address	4445 Eastgate Mall, Suite200, San Diego, CA92121, USA

Manufacturer	
Company Name	Sonim Technologies, Inc.
Address	4445 Eastgate Mall, Suite200, San Diego, CA92121, USA

3. Guidance Applied

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

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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Hotspot
Brand Name	Sonim
Model Name	H700B
FCC ID	WYPH700B
IMEI Code	351393280002167
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz LTE Band 42: 3450 MHz ~ 3550 MHz, 3550 MHz ~ 3600 MHz LTE Band 43: 3600 MHz ~ 3700 MHz LTE Band 48: 3550 MHz ~ 3700 MHz 5G NR n2: 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n12: 699 MHz ~ 716 MHz 5G NR n13: 777 MHz ~ 787 MHz 5G NR n14: 788 MHz ~ 798 MHz 5G NR n25: 1850 MHz ~ 1915 MHz 5G NR n26: 814 MHz ~ 849 MHz 5G NR n30: 2305 MHz ~ 2315 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n48: 3550 MHz ~ 3700 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n71: 663 MHz ~ 698 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 5.8GHz Band: 5745 MHz ~ 5825 MHz
Mode	RMC 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 802.11ac/ax VHT20/VHT40/HE20/HE40 WLAN 2.4GHz 802.11be EHT20/EHT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac/ax VHT20/VHT40/VHT80/HE20/HE40/HE80 WLAN 5GHz 802.11be EHT20/EHT40/EHT80

HW Version	V3.0
SW Version	H70.0-01-22.3.0-10.25.00
EUT Stage	Identical Prototype

Remark:

1. The 2.4GHz/5GHz WLAN can transmit in SISO and MIMO antenna mode.
2. The device implements proximity sensor detection for SAR compliance at hotspot exposure conditions and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
3. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to hotspot exposure conditions.
4. This device supports HPUE mode for 5GNR n77/n78 with higher power, so HPUE mode was chosen to perform full SAR testing and HPUE SAR can represent power class 3 level SAR.
5. The device supports HPUE (Power class 1) mode for LTE B14.
6. 5GNR n41/n77/n78 supports UL MIMO. Based on Qualcomm Smart Transmit algorithm, the MIMO antennas located in same AGs and the MIMO Plimit is not populated in the EFS file, so additional verification tests need to be added, the more detail UL MIMO analysis results please referred to appendix G.
7. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
8. The device supports two types of WWAN antennas: Internal Antenna and External Antenna, they share the same RF test port, and the two antennas cannot work at the same time. After evaluation, the antenna difference does not affect the Conducted measurement. In this report, only the SAR test of the Internal antenna was evaluated. For the external antenna, please refer to the MPE analysis report, which will be submitted separately.
9. This device supports 5GNR FR1 bands as following table, including NSA mode and SA mode.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n2	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n5	FDD	15	5, 10, 15, 20
	n66	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n77	TDD	30	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
SA	n2	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n12	FDD	15	5, 10, 15
	n13	FDD	15	5, 10
	n14	FDD	15	5, 10
	n25	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n26	FDD	15	5, 10, 15, 20
	n30	FDD	15	5, 10
	n66	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n71	FDD	15	5, 10, 15, 20
	n38	TDD	30	10, 15, 20, 25, 30, 40
	n41	TDD	30	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
	n48	TDD	30	10, 15, 20, 30, 40
	n77	TDD	30	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
	n78	TDD	30	10, 15, 20, 25, 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	WYPH700B
Equipment Name	Mobile Hotspot
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz LTE Band 42: 3450 MHz ~ 3550 MHz, 3550 MHz ~ 3600 MHz LTE Band 43: 3600 MHz ~ 3700 MHz LTE Band 48: 3550 MHz ~ 3700 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 14: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 43: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz
Uplink Modulations used	QPSK / 16QAM / 64QAM / 256QAM
LTE Voice / Data requirements	Data only
LTE Release Version	R17
CA Support	Yes, Uplink and Downlink
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3** Modulation: Channel bandwidth / Transmission bandwidth (N_{RB}): 1.4 MHz, 3.0 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz; MPR (dB) QPSK: > 5, > 4, > 8, > 12, > 16, > 18, ≤ 1 16 QAM: ≤ 5, ≤ 4, ≤ 8, ≤ 12, ≤ 16, ≤ 18, ≤ 1 16 QAM: > 5, > 4, > 8, > 12, > 16, > 18, ≤ 2 64 QAM: ≤ 5, ≤ 4, ≤ 8, ≤ 12, ≤ 16, ≤ 18, ≤ 2 64 QAM: > 5, > 4, > 8, > 12, > 16, > 18, ≤ 3 256 QAM: ≥ 1, ≤ 5
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
Power reduction applied to satisfy SAR compliance	Yes, when operating in Proximity sensors detect mechanism; hotspot 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 and Inter-Band possible combinations and the detail power verification please referred to section 14.
LTE Carrier Aggregation Additional Information	This device supports maximum of 5 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

Transmission (H, M, L) channel numbers and frequencies in each LTE band

LTE Band 2

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900

LTE Band 4

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

LTE Band 5

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844

LTE Band 7

	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560

LTE Band 12

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711

LTE Band 13

	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		

LTE Band 14

	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Channel #	Channel #	Freq.(MHz)
L	23305	790.5	23330	793
M	23330	793		
H	23355	795.5		

LTE Band 25

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905

LTE Band 26										
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

LTE Band 30				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	27685	2307.5	27710	2310
M	27710	2310		
H	27735	2312.5		

LTE Band 38								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680

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

LTE Band 71								
	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	133147	665.5	133172	668	133197	670.5	133222	673
M	133297	680.5	133297	680.5	133297	680.5	133297	680.5
H	133447	695.5	133422	693	133397	690.5	133372	688

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

LTE Band 42								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	43115	3552.5	43140	3555	43165	3557.5	43190	3560
M	43340	3575	43340	3575	43340	3575	43340	3575
H	43565	3597.5	43540	3595	43515	3592.5	43490	3590

LTE Band 43								
	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	43615	3602.5	43640	3605	43665	3607.5	43690	3610
M	44090	3650	44090	3650	44090	3650	44090	3650
H	44565	3697.5	44540	3695	44515	3692.5	44490	3690
LTE Band 48								
	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	55265	3552.5	55290	3555	55315	3557.5	55340	3560
LM	55810	3607	55815	3607.5	55820	3608	55830	3609
MH	56170	3643	56165	3642.5	56160	3642	56150	3641
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690

<For LTE Overlap Bands Description>

1) LTE Bands BW

Band	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz
LTE Band 2	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 25	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 4	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 66	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 5	Yes	Yes	Yes	Yes		
LTE Band 26	Yes	Yes	Yes	Yes	Yes	
LTE Band 38	Yes	Yes	Yes	Yes		
LTE Band 41			Yes	Yes		

2) LTE Bands tune up:

Band	Ant	Full	DSI 0	ECI 1/3/5	ECI 6/7/8/9/10/11/12
		Tune-up Limit	Tune-up Limit	Tune-up Limit	Tune-up Limit
LTE Band 2	Ant 0	24	24	23	23
LTE Band 25	Ant 0	24	24	23	23
LTE Band 2	Ant 1	22.5	22.5	22.5	22.5
LTE Band 25	Ant 1	22.5	22.5	22.5	22.5
LTE Band 4	Ant 0	24	24	22.5	22.5
LTE Band 66	Ant 0	24	24	22.5	22.5
LTE Band 4	Ant 1	23	23	23	23
LTE Band 66	Ant 1	23	23	23	23
LTE Band 5	Ant 0	24	24	24	24
LTE Band 26	Ant 0	24	24	24	24
LTE Band 38	Ant 0	24	24	24	24
LTE Band 41	Ant 0	24	24	24	24
LTE Band 38	Ant 1	23	23	23	23
LTE Band 41	Ant 1	23	23	23	23

4.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n2: 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n12: 699 MHz ~ 716 MHz 5G NR n13: 777 MHz ~ 787 MHz 5G NR n14: 788 MHz ~ 798 MHz 5G NR n25: 1850 MHz ~ 1915 MHz 5G NR n26: 814 MHz ~ 849 MHz 5G NR n30: 2305 MHz ~ 2315 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n48: 3550 MHz ~ 3700 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n71: 663 MHz ~ 698 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
L TE Anchor Bands for n2	LTE B5/12/14/30/66
LTE Anchor Bands for n5	LTE B2/12/30/66
LTE Anchor Bands for n66	LTE B2/12/14/30
LTE Anchor Bands for n77	LTE B2/5/12/147/30/66

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

NR Band 2 SCS15KHz

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		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)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860	372500	1862.5	373000	1865	373500	1867.5	374000	1870
M	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900	379500	1897.5	379000	1895	378500	1892.5	378000	1890

NR Band 5 SCS15KHz

	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 SCS15KHz

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Ch. #	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510	504000	2512.5	503000	2515	503500	2517.5	504000	2520
M	507000	2535	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	510000	2557.5	511000	2555	510500	2552.5	510000	2550

NR Band 12 SCS15KHz

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

NR Band 13 SCS15KHz

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

NR Band 14 SCS15KHz				
	Bandwidth 5MHz		Bandwidth 10MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	158100	790.5	158600	793
M	158600	793		
H	159100	795.5		

NR Band 25 SCS15KHz																
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz	
	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	370500	1852.5	371000	1855	371500	1857.5	372000	1860	372500	1862.5	373000	1865	373500	1867.5	374000	1870
M	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5
H	382500	1912.5	382000	1910	381500	1907.5	381000	1905	380500	1902.5	380000	1900	379500	1897.5	379000	1895

NR Band 26 SCS15KHz								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	163300	816.5	163800	819	164300	821.5	164800	824
M	166300	831.5	166300	831.5	166300	831.5	166300	831.5
H	169300	846.5	168800	844	168300	841.5	167800	839

NR Band 30 SCS15KHz				
	Bandwidth 5MHz		Bandwidth 10MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	461500	2307.5	462000	2310
M	462000	2310		
H	462500	2312.5		

NR Band 66																
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz	
	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	342500	1712.5	343000	1715	343500	1717.5	344000	1720	344500	1722.5	345000	1725	345500	1727.5	346000	1730
M	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770	353500	1767.5	353000	1765	352500	1762.5	352000	1760

NR Band 71 SCS15KHz								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	133100	665.5	133600	668	134100	670.5	134600	673
M	136100	680.5	136100	680.5	136100	680.5	136100	680.5
H	139100	695.5	138600	693	138100	690.5	137600	688

NR Band 38 SCS30KHz														
	Bandwidth5MHz		Bandwidth10MHz		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	514500	2572.5	515004	2575.02	515502	2577.51	516000	2580	516504	2582.52	517002	2585.01	518004	2590.02
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595
H	523500	2617.5	522996	2614.98	522498	2612.49	522000	2610	521496	2607.48	520998	2604.99	519996	2599.98

NR Band 41 SCS30KHz																								
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		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)	Ch. #	Freq. (MHz)
L	500202	2501.01	500700	2503.5	501204	2506.02	501702	2508.51	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	518598	2592.99	518598	2592.99	518598	2592.99
H	537000	2685	536496	2682.48	535998	2679.99	535500	2677.5	534996	2674.98	534000	2670	532998	2664.99	531996	2659.98	531000	2655	529998	2649.99	528996	2644.98	528000	2640

NR Band 48 SCS30Hz										
	Bandwidth 10MHz		Bandwidth15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	637000	3555	637168	3557.52	637334	3560.01	637668	3565.02	638000	3570
M	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99
H	646332	3694.98	646166	3692.49	646000	3690	645666	3684.99	645332	3679.98

NR Band 77 SCS30KHz																							
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		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)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	647500	3712.5	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840.00	656000	3840.00	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664832	3972.48	664666	3969.99	664500	3967.50	664332	3964.98	664000	3960	663666	3954.99	663332	3949.98	663000	3945	662666	3939.99	662332	3934.98	662000	3930

NR Band 78 SCS30KHz																							
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		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)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	647500	3712.5	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	3750.00	650000	3750.00	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	653000	3795	652834	3792.51	652668	3790.02	652500	3787.5	652334	3785.01	652000	3780	651668	3775.02	651334	3770.01	651000	3765	650668	3760.02	650334	3755.01		

For <3450 MHz ~ 3550 MHz >

NR Band 77 SCS30KHz																							
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		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)	Ch. #	Freq. (MHz)
L	630334	3455.01	630500	3457.5	630668	3460.02	630834	3462.51	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98
H	636332	3544.98	636166	3542.49	636000	3540	635832	3537.48	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634332	3514.98	634000	3510	633666	3504.99		

NR Band 78 SCS30KHz																							
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		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)	Ch. #	Freq. (MHz)
L	630334	3455.01	630500	3457.5	630668	3460.02	630834	3462.51	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98
H	636332	3544.98	636166	3542.49	636000	3540	635832	3537.48	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634332	3514.98	634000	3510	633666	3504.99		

<For NR Overlap Bands Description>

1) NR Bands BW

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
SA	FR1 n2	FDD	15	5, 10, 15, 20,25,30,35,40
	FR1 n25	FDD	15	5, 10, 15, 20,25,30,35,40
	FR1 n5	FDD	15	5, 10, 15, 20
	FR1 n26	FDD	15	5, 10, 15, 20
	FR1 n38	TDD	30	10, 15, 20, 25,30, 40
	FR1 n41	TDD	30	10,15,20,25, 30, 40, 50, 60,70, 80, 90, 100

2) NR SA Bands Tune up:

Band	Ant	Full	DSI 0	ECI 1/3/5	ECI 6/7/8/9/10/11/12
		Tune-up Limit	Tune-up Limit	Tune-up Limit	Tune-up Limit
FR1 n2	Ant 0	24	24	23	23
FR1 n25	Ant 0	24	24	23	23
FR1 n5	Ant 0	24	24	24	24
FR1 n26	Ant 0	24	24	24	24
FR1 n38	Ant 0	24	24	24	24
FR1 n41	Ant 0	24	24	24	24
FR1 n38	Ant 1	24	24	21.5	21.5
FR1 n41	Ant 1	24	24	21.5	21.5

5. Smart Transmit feature for RF Exposure compliance

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

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

This report describes the procedures for the SAR char generation, and the parameters obtained from SAR characterization (referred to as SAR char, respectively) will be used as input for Smart Transmit. SAR char will be entered via the Embedded File System (EFS) version 22 to enable the Smart Transmit GEN1 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.

<SAR design target and uncertainty>

Item	Uncertainty dB (k=2)
Total uncertainty	1.0

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	DSI 1	DSI 2	DSI 3	DSI 4	DSI 5	DSI 6	DSI 7	DSI 8	DSI 9	DSI 10	DSI 11	DSI 12	Pmax*	DSI0/ Sensor off
WCDMA II	Ant 0	22.0	23.0	23.0	23.0	23.0	22.0	23.0	22.0	22.0	23.0	23.0	22.0	23.0	23.0
WCDMA IV	Ant 0	21.5	23.0	23.0	23.0	23.0	21.5	23.0	21.5	21.5	23.0	23.0	21.5	23.0	23.0
WCDMA V	Ant 0	28.3	23.0	23.0	23.0	23.0	28.3	23.0	28.3	28.3	23.0	23.0	28.3	23.0	23.0
LTE Band 5	Ant 1	23.0	23.0	23.0	23.0	29.5	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
LTE Band 7	Ant 0	23.1	23.0	23.0	23.0	23.0	23.1	23.0	23.1	23.1	23.0	23.0	23.1	23.0	23.0
LTE Band 12	Ant 0	27.6	23.0	23.0	23.0	23.0	27.6	23.0	27.6	27.6	23.0	23.0	27.6	23.0	23.0
LTE Band 13	Ant 0	26.5	23.0	23.0	23.0	23.0	26.5	23.0	26.5	26.5	23.0	23.0	26.5	23.0	23.0
LTE Band 14	Ant 4	31.0	31.0	28.5	31.0	31.0	31.0	31.0	31.0	31.0	28.5	28.5	28.5	31.0	31.0
LTE Band 25/2	Ant 0	22.0	23.0	23.0	23.0	23.0	22.0	23.0	22.0	22.0	23.0	23.0	22.0	23.0	23.0
LTE Band 25/2	Ant 1	21.5	21.5	21.5	21.5	24.3	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band 26/5	Ant 0	28.3	23.0	23.0	23.0	23.0	28.3	23.0	28.3	28.3	23.0	23.0	28.3	23.0	23.0
LTE Band 30	Ant 0	24.5	23.0	23.0	23.0	23.0	24.5	23.0	24.5	24.5	23.0	23.0	24.5	23.0	23.0
LTE Band 30	Ant 1	22.5	22.5	22.5	22.5	26.4	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 66/4	Ant 0	21.5	23.0	23.0	23.0	23.0	21.5	23.0	21.5	21.5	23.0	23.0	21.5	23.0	23.0
LTE Band 66/4	Ant 1	22.0	22.0	22.0	22.0	27.4	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
LTE Band 71	Ant 0	29.4	23.0	23.0	23.0	23.0	29.4	23.0	29.4	29.4	23.0	23.0	29.4	23.0	23.0
LTE Band 41/38	Ant 0	25.7	21.0	21.0	21.0	21.0	25.7	21.0	25.7	25.7	21.0	25.7	25.7	21.0	21.0
LTE Band 41/38	Ant 1	20.0	20.0	20.0	20.0	20.9	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
LTE Band 42	Ant 0	19.0	20.0	20.0	20.0	20.0	19.0	21.0	19.0	19.0	20.0	20.0	19.0	20.0	20.0
LTE Band 42	Ant 1	20.0	20.0	20.0	20.0	23.3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
LTE Band 43	Ant 0	19.5	20.0	20.0	20.0	23.3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
LTE Band 43	Ant 1	20.0	20.0	20.0	20.0	23.3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
LTE Band 48	Ant 0	19.5	20.0	20.0	20.0	20.0	19.5	20.0	19.5	19.5	20.0	20.0	19.5	20.0	20.0
LTE Band 48	Ant 1	20.0	20.0	20.0	20.0	23.3	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
FR1 n2	Ant 1	23.0	23.0	23.0	23.0	24.8	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
FR1 n5	Ant 1	23.0	23.0	23.0	23.0	26.1	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
FR1 n7	Ant 0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
FR1 n12	Ant 0	27.5	23.0	23.0	23.0	23.0	27.5	23.0	27.5	27.5	23.0	23.0	27.5	23.0	23.0
FR1 n13	Ant 0	27.6	23.0	23.0	23.0	23.0	27.6	23.0	27.6	27.6	23.0	23.0	23.0	23.0	23.0
FR1 n14	Ant 4	23.0	23.0	28.3	23.0	23.0	23.0	23.0	23.0	23.0	28.3	28.3	28.3	23.0	23.0
FR1 n25/2	Ant 0	22.0	23.0	23.0	23.0	23.0	22.0	23.0	22.0	22.0	23.0	23.0	22.0	23.0	23.0
FR1 n26/5	Ant 0	27.4	23.0	23.0	23.0	23.0	27.4	23.0	27.4	27.4	23.0	23.0	27.4	23.0	23.0
FR1 n30	Ant 0	25.7	23.0	23.0	23.0	23.0	25.7	23.0	25.7	25.7	23.0	23.0	25.7	23.0	23.0
FR1 n30	Ant 1	23.0	23.0	23.0	23.0	25.5	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
FR1 n66	Ant 0	21.5	23.0	23.0	23.0	23.0	21.5	23.0	21.5	21.5	23.0	23.0	21.5	23.0	23.0
FR1 n66	Ant 1	23.0	23.0	23.0	23.0	27.3	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0

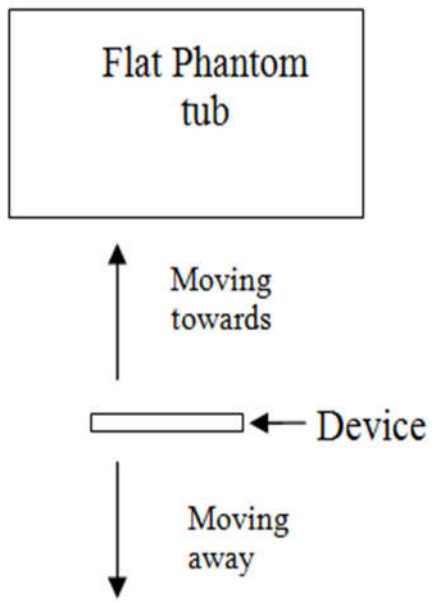
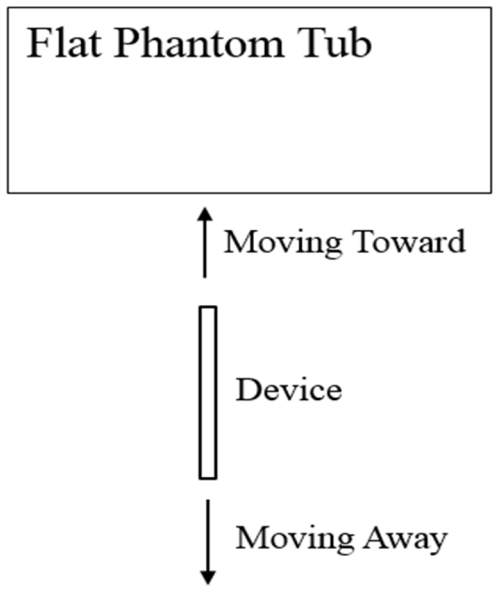
FR1 n71	Ant 0	29.7	23.0	23.0	23.0	23.0	29.7	23.0	29.7	29.7	23.0	23.0	29.7	23.0	23.0
FR1 n41/38	Ant 0	25.4	23.0	23.0	23.0	23.0	25.4	23.0	25.4	25.4	23.0	23.0	25.4	23.0	23.0
FR1 n41/38	Ant 1	23.0	23.0	23.0	23.0	20.5	23.0	20.5	20.5	20.5	20.5	20.5	20.5	23.0	23.0
FR1 n48	Ant 0	19.0	22.0	22.0	22.0	22.0	19.0	22.0	19.0	19.0	22.0	22.0	19.0	22.0	22.0
FR1 n48	Ant 1	22.0	22.0	22.0	22.0	24.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
FR1 n77 PC3	Ant 0	20.0	26.0	26.0	26.0	26.0	20.0	26.0	20.0	20.0	26.0	26.0	20.0	23.0	23.0
FR1 n77 PC2	Ant 0													26.0	26.0
FR1 n77 PC3	Ant 1	26.0	26.0	26.0	26.0	22.0	26.0	22.0	22.0	22.0	22.0	22.0	22.0	23.0	23.0
FR1 n77 PC2	Ant 1													26.0	26.0
FR1 n78 PC3	Ant 0	20.0	26.0	26.0	26.0	26.0	20.0	26.0	20.0	20.0	26.0	26.0	20.0	23.0	23.0
FR1 n78 PC2	Ant 0													26.0	26.0
FR1 n78 PC3	Ant 1	26.0	26.0	26.0	26.0	23.0	26.0	21.0	21.0	21.0	21.0	21.0	21.0	23.0	23.0
FR1 n78 PC2	Ant 1													26.0	26.0

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

6. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5850MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements around the EUT are utilized to determine when the device comes in proximity of the user's body or finger or hand at the front or back or bottom or left or top side of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
3. The sensors can use to detect the proximity of the user's body or handheld states at the front or back or bottom or left or right or top side of the device use a detection threshold distance. When front/back/right/left/top/bottom sides of body or handheld condition is detected reduced power will be active. The trigger distance shown in the sections below.
4. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed.

	
Sensor detection test set-up, Front and Back sides	Sensor detection test set-up, Left Side, Right Side, Bottom Side and Top Side

<Sensor On for ANT 0>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	10	10	22	22	25	25	17	17

< Sensor On for ANT 1>

Proximity Sensor Triggering Distance (mm)												
Position	Front		Back		Left Side		Right Side		Top Side		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	24	24	28	28	4	4	37	37	18	18	4	4

< Sensor On for ANT 4>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	24	24	29	29	42	42

<Sensor On for ANT 6>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	5	5	14	14	19	19

<Sensor On for ANT 7>

Proximity Sensor Triggering Distance (mm)				
Position	Back		Top Side	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	13	13	15	15

7. RF Exposure Limits

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

8. Specific Absorption Rate (SAR)

8.1 Introduction

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

8.2 SAR Definition

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

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

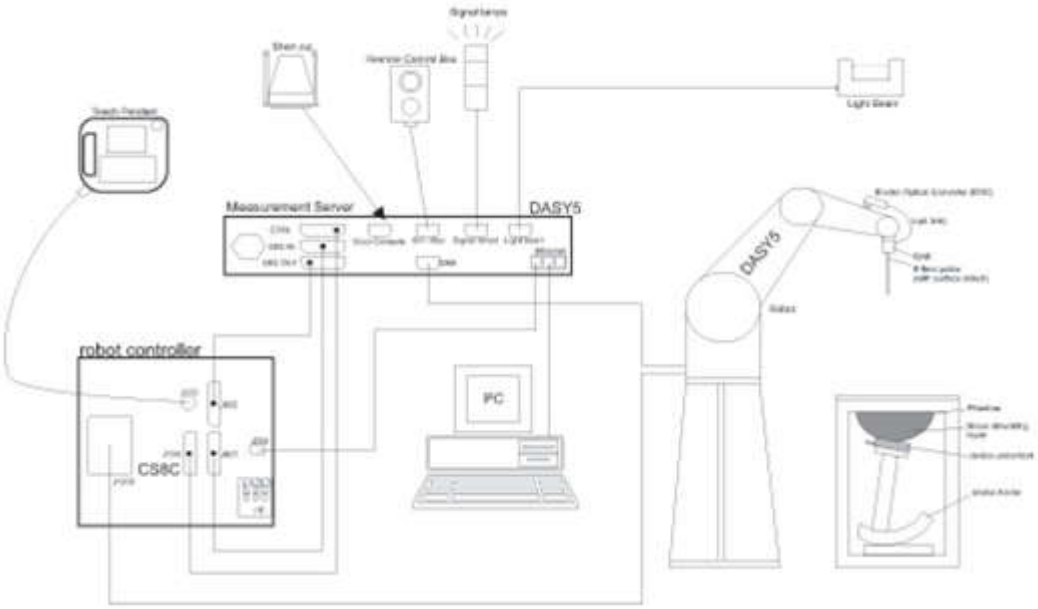
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

9. System Description and Setup

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



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

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	4 MHz – 10 GHz Linearity: ±0.2 dB (30 MHz – 10 GHz)	
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 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

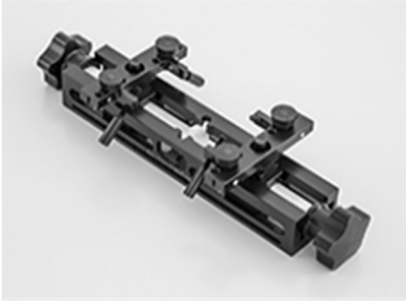
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices or for evaluating transmitters operating at low frequencies. ELI is fully compatible with standard and all known tissue simulating liquids.

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 form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

10.2 Power Reference Measurement

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

10.3 Area Scan

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

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

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

10.4 Zoom Scan

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

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
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 *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

10.5 Volume Scan Procedures

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

10.6 Power Drift Monitoring

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

11. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	Dec. 13, 2024	Dec. 12, 2025
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 13, 2024	Dec. 12, 2025
SPEAG	1750MHz System Validation Kit	D1750V2	1137	Oct. 15, 2024	Oct. 14, 2025
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Dec. 16, 2024	Dec. 15, 2025
SPEAG	2300MHz System Validation Kit	D2300V2	1056	Oct. 16, 2024	Oct. 15, 2025
SPEAG	2450MHz System Validation Kit	D2450V2	924	Nov. 03, 2023	Nov. 01, 2025
SPEAG	2600MHz System Validation Kit	D2600V2	1070	Dec. 13, 2024	Dec. 12, 2025
SPEAG	3500MHz System Validation Kit	D3500V2	1076	May 09, 2022	May 07, 2025
SPEAG	3700MHz System Validation Kit	D3700V2	1037	May 09, 2022	May 07, 2025
SPEAG	3900MHz System Validation Kit	D3900V2	1022	Aug. 18, 2022	Aug. 17, 2025
SPEAG	5000MHz System Validation Kit	D5GHzV2	1341	Dec. 12, 2024	Dec. 11, 2025
SPEAG	Data Acquisition Electronics	DAE4	1664	Jul. 10, 2024	Jul. 09, 2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	7641	Jun. 03, 2024	Jun. 02, 2025
SPEAG	ELI Phantom	QD OVA 001 BB	1225	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300653	Jul. 05, 2024	Jul. 04, 2025
Anritsu	Radio communication analyzer	MT8820C	6201341952	Dec. 26, 2024	Dec. 25, 2025
Anritsu	Radio communication analyzer	MT8821C	6262314715	Jul. 04, 2024	Jul. 03, 2025
Anritsu	Radio communication analyzer	MT8821C	6272278319	Jul. 03, 2024	Jul. 02, 2025
Agilent	Wireless Communication Test Set	E5515C	MY50267224	Jul. 03, 2024	Jul. 02, 2025
Keysight	Network Analyzer	E5071C	MY46523671	Oct. 15, 2024	Oct. 14, 2025
Speag	Dielectric Assessment KIT	DAK-3.5	1144	Aug. 20, 2024	Aug. 19, 2025
Agilent	Signal Generator	N5181A	MY50145381	Dec. 26, 2024	Dec. 25, 2025
Anritsu	Power Senor	MA2411B	1306099	Oct. 15, 2024	Oct. 14, 2025
Anritsu	Power Meter	ML2495A	1349001	Oct. 15, 2024	Oct. 14, 2025
Anritsu	Power Sensor	MA2411B	1218010	Oct. 14, 2024	Oct. 13, 2025
Anritsu	Power Meter	ML2495A	1339473	Dec. 26, 2024	Dec. 25, 2025
R&S	CBT BLUETOOTH TESTER	CBT	100963	Dec. 26, 2024	Dec. 25, 2025
R&S	Spectrum Analyzer	FSP7	100818	Jul. 04, 2024	Jul. 03, 2025
TES	Hygrometer	1310	200505600	Jul. 08, 2024	Jul. 07, 2025
Anymetre	Thermo-Hygrometer	JR593	2015030903	Dec. 28, 2024	Dec. 27, 2025
Anymetre	Thermo-Hygrometer	JR593	2015102801	Dec. 28, 2024	Dec. 27, 2025
AR	Amplifier	5S1G4	0333096	Note 1	
Mini-Circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
Mini-Circuits	Amplifier	ZVA-183W-S+	726202215	Note 1	
SPEAG	Device Holder	N/A	N/A	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Jinkexinhua	Attenuator	10db-8G	N/A	Note 1	

Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

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. 10.1. 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. 10.2.

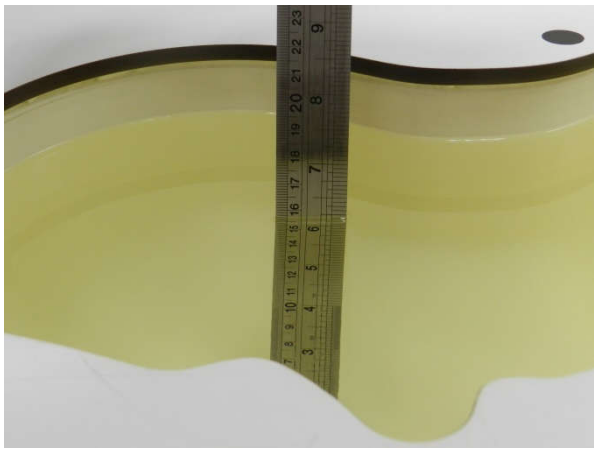


Fig 10.1Photo of Liquid Height for Head SAR

Fig 10.2 Photo of Liquid Height for Body SAR

12.2 Tissue Verification

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

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

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.1	0.900	43.165	0.89	41.90	1.12	3.02	±5	2025/2/25
835	Head	22.2	0.942	41.955	0.90	41.50	4.67	1.10	±5	2025/2/20
1750	Head	22.2	1.365	41.256	1.37	40.10	-0.36	2.88	±5	2025/2/27
1900	Head	22.4	1.419	40.811	1.40	40.00	1.36	2.03	±5	2025/3/1
2300	Head	22.3	1.706	40.526	1.67	39.50	2.16	2.60	±5	2025/2/26
2450	Head	22.2	1.821	39.970	1.80	39.20	1.17	1.96	±5	2025/3/4
2600	Head	22.3	1.955	39.919	1.96	39.00	-0.26	2.36	±5	2025/3/5
3500	Head	22.4	2.851	36.368	2.91	37.90	-2.03	-4.04	±5	2025/3/7
3700	Head	22.2	3.004	36.071	3.12	37.70	-3.72	-4.32	±5	2025/2/22
3900	Head	22.2	3.250	35.842	3.33	37.51	-2.40	-4.45	±5	2025/3/9
5250	Head	22.1	4.514	34.949	4.71	35.95	-4.16	-2.78	±5	2025/3/8
5800	Head	22.4	5.056	34.230	5.27	35.30	-4.06	-3.03	±5	2025/3/2
750	Head	22.1	0.906	40.557	0.89	41.90	1.80	-3.21	±5	2025/3/16
835	Head	22.3	0.943	42.550	0.90	41.50	4.78	2.53	±5	2025/3/10
1750	Head	22.4	1.354	40.980	1.37	40.10	-1.17	2.19	±5	2025/3/7
1900	Head	22.2	1.433	40.023	1.40	40.00	2.36	0.06	±5	2025/3/11
2300	Head	22.2	1.694	40.217	1.67	39.50	1.44	1.82	±5	2025/3/6
2450	Head	22.4	1.787	38.972	1.80	39.20	-0.72	-0.58	±5	2025/3/8
2600	Head	22.3	1.895	37.662	1.96	39.00	-3.32	-3.43	±5	2025/3/5
3500	Head	22.1	2.854	37.233	2.91	37.90	-1.92	-1.76	±5	2025/3/12
3700	Head	22.1	3.008	36.995	3.12	37.70	-3.59	-1.87	±5	2025/2/28
3900	Head	22.3	3.165	36.767	3.33	37.51	-4.95	-1.98	±5	2025/3/6
5250	Head	22.4	4.576	36.019	4.71	35.95	-2.85	0.19	±5	2025/3/31
5800	Head	22.3	5.137	35.263	5.27	35.30	-2.52	-0.10	±5	2025/3/31

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.

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 (%)
2025/2/25	750	Head	250	1099	7641	1664	1.920	8.280	7.68	-7.25
2025/2/20	835	Head	250	4d162	7641	1664	2.220	9.080	8.88	-2.20
2025/2/27	1750	Head	250	1137	7641	1664	9.270	36.800	37.08	0.76
2025/3/1	1900	Head	250	5d182	7641	1664	9.580	39.800	38.32	-3.72
2025/2/26	2300	Head	250	1056	7641	1664	12.400	48.600	49.6	2.06
2025/3/4	2450	Head	250	924	7641	1664	12.800	52.300	51.2	-2.10
2025/3/5	2600	Head	250	1070	7641	1664	14.100	56.500	56.4	-0.18
2025/3/7	3500	Head	100	1076	7641	1664	6.960	66.200	69.6	5.14
2025/2/22	3700	Head	100	1037	7641	1664	6.840	66.700	68.4	2.55
2025/3/9	3900	Head	100	1022	7641	1664	6.690	66.400	66.9	0.75
2025/3/8	5250	Head	100	1341	7641	1664	8.250	79.100	82.5	4.30
2025/3/2	5800	Head	100	1341	7641	1664	7.570	79.900	75.7	-5.26
2025/3/16	750	Head	250	1099	7641	1664	2.080	8.280	8.32	0.48
2025/3/10	835	Head	250	4d162	7641	1664	2.380	9.080	9.52	4.85
2025/3/7	1750	Head	250	1137	7641	1664	9.620	36.800	38.48	4.57
2025/3/11	1900	Head	250	5d182	7641	1664	9.610	39.800	38.44	-3.42
2025/3/6	2300	Head	250	1056	7641	1664	12.400	48.600	49.6	2.06
2025/3/8	2450	Head	250	924	7641	1664	12.700	52.300	50.8	-2.87
2025/3/5	2600	Head	250	1070	7641	1664	13.900	56.500	55.6	-1.59
2025/3/12	3500	Head	100	1076	7641	1664	6.230	66.200	62.3	-5.89
2025/2/28	3700	Head	100	1037	7641	1664	6.940	66.700	69.4	4.05
2025/3/6	3900	Head	100	1022	7641	1664	6.440	66.400	64.4	-3.01
2025/3/31	5250	Head	100	1341	7641	1664	7.550	79.100	75.5	-4.55
2025/3/31	5800	Head	100	1341	7641	1664	7.650	79.900	76.5	-4.26

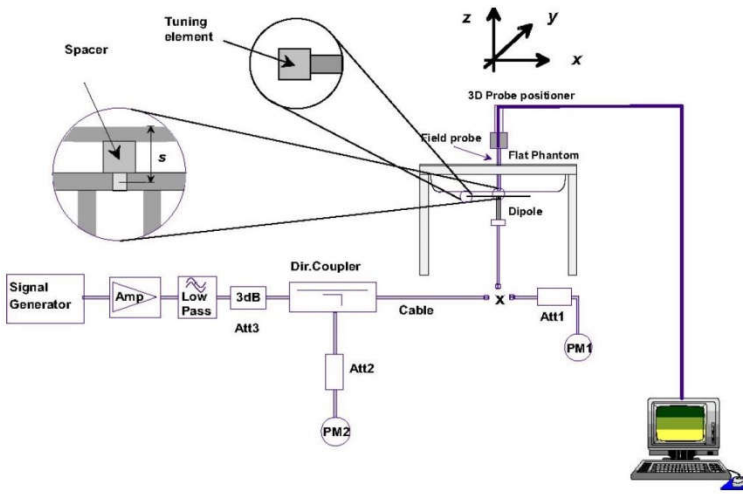


Fig 10.3.1 System Performance Check Setup

Fig 10.3.2 Setup Photo

13. RF Exposure Positions

13.1 Wireless Router

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

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

<EUT Setup Photos>

Please refer to Appendix D for the test setup photos.

14. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

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

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

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

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

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

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

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set RMC 12.2Kbps + HSDPA mode.
   ii. Set Cell Power = -25 dBm
   iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
   iv. Select HSDPA Uplink Parameters
   v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
      a). Subtest 1: β_c/β_d=2/15
      b). Subtest 2: β_c/β_d=12/15
      c). Subtest 3: β_c/β_d=15/8
      d). Subtest 4: β_c/β_d=15/4
   vi. Set Delta ACK, Delta NACK and Delta CQI = 8
   vii. Set Ack-Nack Repetition Factor to 3
   viii. Set CQI Feedback Cycle (k) to 4 ms
   ix. Set CQI Repetition Factor to 2
   x. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

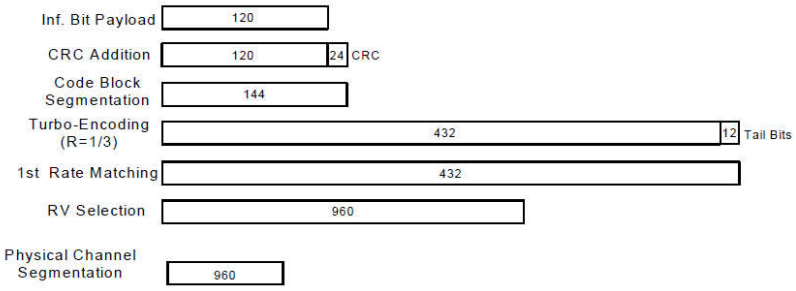


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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	$\beta_{ed}1$: 30/15 $\beta_{ed}2$: 30/15	$\beta_{ed}3$: 24/15 $\beta_{ed}4$: 24/15	3.5	2.5	14	105	105

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

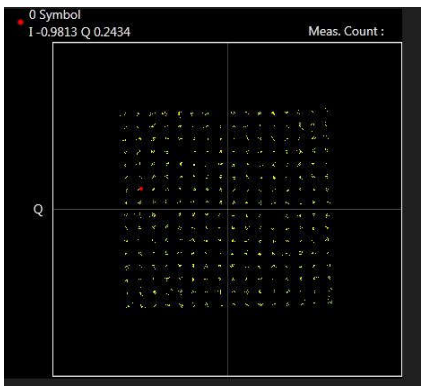
<LTE Conducted Power>

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 output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B26 / B38 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B2 / B4 / B5 / B38 SAR test was covered by B25 / B66 / B26 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to May 2017 TCB workshop, for 16QAM and 64QAM, 256QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 256QAM, 64QAM and 16QAM signal modulation are correct.

16QAM

64QAM



256QAM

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

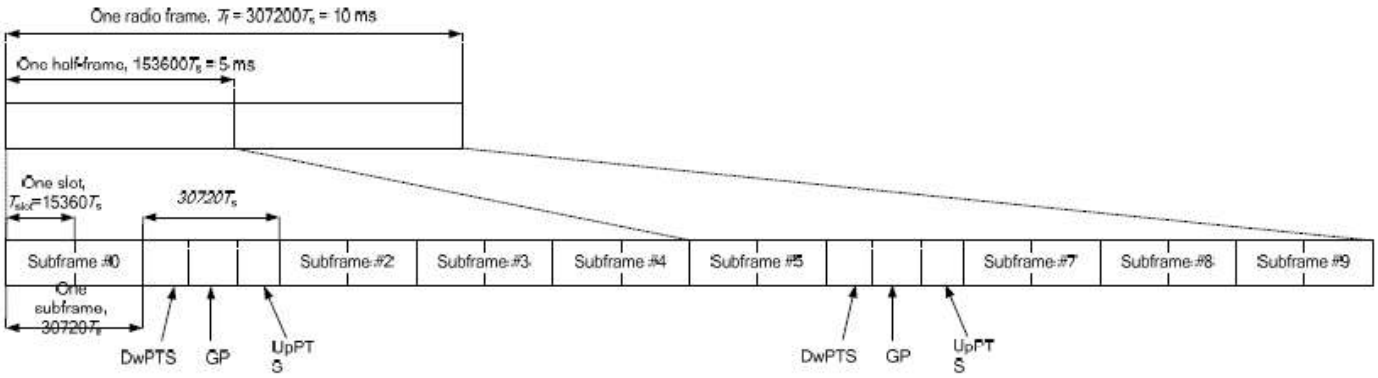


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

For LTE TDD Power class 3

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.

ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink

iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%

iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%

v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

<LTE Carrier Aggregation>

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

General Note:

1. Per Oct. 2024 TCB workshop, the downlink (DL) pertains to receiver functionality, thus it is not related to RF exposure compliance limits related to cumulative effects of different transmitters.
2. Per Oct. 2024 TCB workshop, equipment authorization applications shall refer to the worst-case UL powers resulting from all the possible modes of operations. Accordingly, CA-DL cases do not need to be analyzed separately, unless pertinent to establishing UL power setting.
3. Per Oct. 2024 TCB workshop, Manufacturer declares that TX power measurement for multiple DL CA configurations is deemed not required as the DL CA has no impact on the TX power according to preliminary scan. TX power measured in LTE standalone operation represents the worst case.
4. This device supports LTE carrier aggregation in the downlink. All 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.

LTE Carrier Aggregation Conducted Power (Uplink)

LTE Uplink CA	2CC Uplink Carrier Aggregation
Intra-band	Antenna Tx
66B	Ant 0
66C	Ant 0
48C	Ant 1

<Intra-band>

General Note:

i. The device supports intra-band uplink carrier aggregation for LTE B66/B48 with a maximum of two 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. 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.

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

iv. LTE CA_66B test was covered by CA_66C; therefore, SAR was only assessed for CA_66C.

<Inter-band>

LTE Inter CA	Band	Antenna Tx
CA_12A-30A	Band 12	ANT 0
	Band 30	ANT 1
CA_12A-66A	Band 12	ANT 0
	Band 66	ANT 1
CA_30A-66A	Band 30	ANT 0
	Band 66	ANT 1
	PCC Band 66	ANT 0
	SCC Band 30	ANT 1
CA_14A-30A	Band 14	ANT 4
	Band 30	ANT 1
CA_14A-66A	Band 14	ANT 4
	Band 66	ANT 1
CA_2A-12A	Band 2	ANT 1
	Band 12	ANT 0
CA_2A-30A	Band 2	ANT 0
	Band 30	ANT 1
	PCC Band 30	ANT 0
	SCC Band 2	ANT 1
CA_2A-66A	Band 2	ANT 0
	Band 66	ANT 1
	PCC Band 66	ANT 0
	SCC Band 2	ANT 1
CA_2A-14A	Band 2	ANT 1
	Band 14	ANT 4
CA_2A-5A	Band 2	ANT 0
	Band 5	ANT 1
	PCC Band 5	ANT 0
	SCC Band 2	ANT 1
CA_5A-30A	Band 5	ANT 0
	Band 30	ANT 1
	PCC Band 30	ANT 0
	SCC Band 5	ANT 1
CA_5A-66A	Band 5	ANT 0
	Band 66	ANT 1
	PCC Band 66	ANT 0
	SCC Band 5	ANT 1
CA_4A-5A	Band 4	ANT 0
	Band 5	ANT 1
	PCC Band 5	ANT 0
	SCC Band 4	ANT 1
CA_4A-12A	Band 4	ANT 1
	Band 12	ANT 0
CA_4A-30A	Band 4	ANT 0
	Band 30	ANT 1
	PCC Band 30	ANT 0
	SCC Band 4	ANT 1

General Note:

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

5G NR Output Power (Unit: dBm)

General Note:

1. 5G NR n2/n5/n66/n77 is NSA mode.
2. 5G NR n2/n5/n7/n12/n13/n14/n25/n26/n30/n38/n41/n48/n66/n71/n77/n78 is SA mode.
3. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-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 SAR testing are not required.
   g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
4. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
5. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR.
6. 5GNR NSA mode, the power level is the same as 5GNR SA mode, so 5GNR NSA mode and SA mode power table only show one time.
7. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
8. 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.
9. For 5GNR inter-band CA mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure between two 5GNR bands. Smart Transmit algorithm controls the total RF exposure base on 5GNR inter CA bands to not exceed FCC limit.

<3GPP 38.101 MPR for EN-DC>

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

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

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

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

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

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

<EN-DC combination>:

ENDC	Band	Antenna Tx
DC_12A-n77A	LTE B12	ANT 0
	FR1 n77	ANT 1
DC_30A-n77A	LTE B30	ANT 0
	FR1 n77	ANT 1
DC_66A-n77A	LTE B66	ANT 0
	FR1 n77	ANT 1
DC_12A-n2A	LTE B12	ANT 0
	FR1 n2	ANT 1
DC_12A-n5A	LTE B12	ANT 0
	FR1 n5	ANT 1
DC_12A-n66A	LTE B12	ANT 0
	FR1 n66	ANT 1
DC_30A-n2A	LTE B30	ANT 0
	FR1 n2	ANT 1
DC_30A-n66A	LTE B30	ANT 0
	FR1 n66	ANT 1
DC_66A-n2A	LTE B66	ANT 0
	FR1 n2	ANT 1
DC_14A-n2A	LTE B14	ANT 4
	FR1 n2	ANT 1
DC_14A-n66A	LTE B14	ANT 4
	FR1 n66	ANT 1
DC_14A-n77A	LTE B14	ANT 4
	FR1 n77	ANT 1
DC_2A-n5A	LTE B2	ANT 0
	FR1 n5	ANT 1

DC_2A-n66A	LTE B2	ANT 0
	FR1 n66	ANT 1
DC_2A-n77A	LTE B2	ANT 0
	FR1 n77	ANT 1
DC_30A-n5A	LTE B30	ANT 0
	FR1 n5	ANT 1
DC_66A-n5A	LTE B66	ANT 0
	FR1 n5	ANT 1
DC_5A-n77A	LTE B5	ANT 0
	FR1 n77	ANT 1
DC_5A-n2A	LTE B5	ANT 0
	FR1 n2	ANT 1

Inter-Band CA Configuration:

NR CA	Band	Antenna Tx
CA_n12A-n30A	n12	ANT 0
	n30	ANT 1
CA_n12A-n66A	n12	ANT 0
	n66	ANT 1
CA_n30A-n66A	PCC n30	ANT 0
	SCC n66	ANT 1
	PCC n66	ANT 0
	SCC n30	ANT 1
CA_n12A-n77A	n12	ANT 0
	n77	ANT 1
CA_n30A-n77A	n30	ANT 0
	n77	ANT 1
CA_n66A-n77A	n66	ANT 0
	n77	ANT 1
CA_n14A-n30A	n14	ANT 4
	n30	ANT 1
CA_n14A-n66A	n14	ANT 4
	n66	ANT 1
CA_n14A-n77A	n14	ANT 4
	n77	ANT 1
CA_n2A-n14A	n2	ANT 1
	n14	ANT 4
CA_n2A-n77A	n2	ANT 0
	n77	ANT 1
CA_n2A-n30A	n2	ANT 0
	n30	ANT 1
	PCC n30	ANT 0
	SCC n2	ANT 1
CA_n2A-n5A	n2	ANT 0
	n5	ANT 1
	PCC n5	ANT 0
	SCC n2	ANT 1
CA_n5A-n77A	n5	ANT 0
	n77	ANT 1
CA_n2A-n66A	n2	ANT 0
	n66	ANT 1
	PCC n66	ANT 0
	SCC n2	ANT 1
CA_n2A-n12A	n2	ANT 1
	n12	ANT 0

CA_n5A-n30A	n5	ANT 0
	n30	ANT 1
	PCC n30	ANT 0
	SCC n5	ANT 1
CA_n5A-n66A	n5	ANT 0
	n66	ANT 1
	PCC n66	ANT 0
	SCC n5	ANT 1

NR UL MIMO Bands Configuration:

NR UL MIMO	Antenna Tx
FR1 n41	Ant 0+1
FR1 n77	Ant 0+1
FR1 n78	Ant 0+1

<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. Per April 2019 TCB workshops, General principles of FCC KDB Publication 248227 D01 can be applied to determine the SAR Initial Test Configurations and test reduction for 802.11ax SAR testing.
7. For modes with the same maximum output power, the guidance from section 5.3.2 a) of FCC KDB Publication 248227 D01 should be applied, with 802.11ax being considered as the highest 802.11 mode for the appropriate frequency bands
8. 802.11 ax/be supports both full tone size mode and partial tone size mode, after verification on partial tone size mode that partial size tone mode power will not be higher than full tone size mode, therefore, full tone mode power was chosen to be measured in this report.
9. 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 two SISO antennas respectively to calculate sum of the power for MIMO mode.
10. 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 mode to perform SAR testing. However, in order to do SISO simultaneous transmission, additional tested the WLAN 5GHz SISO antenna 6/7.

15. Antenna Location

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

16. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = Measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 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 only when the measured SAR is ≥0.8W/kg.
4. Although the distance 1gSAR is greater than 0.8 W/kg at body exposure conditions, the distance SAR verified the worst of the non-distance SAR and less than non-distance SAR, so there is no need to be tested other channels.
5. According to Nov. 2017 TCB workshop, when the reported 1gSAR for UL CA configuration is <1.2 W/kg, UL CA 1gSAR is not required for all required test channels (PCC based).
6. For distance SAR and non-distance SAR always chose higher SAR to do co-located analysis.
7. The following table "n/a" means the measured SAR is too small to find the 1g cube SAR.

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 ≤ 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 ≤ 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 ≤ 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 output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B26 / B38 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B2 / B4 / B5 / B38 SAR test was covered by B25 / B66 / B26 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

5G NR Note:

For 5G NR test procedure was following step similar FCC KDB 941225 D05:

a. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
b. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
c. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
d. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM /64QAM/256QAM SAR testing are not required.
e. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device.
f. For 5G FR1 n2/n5/n7/n12/n25/n26/n66/n71/n38/n41/n77 the maximum bandwidth does not support three non-overlapping channels, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WLAN Note:

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

DSI status description:

The device has the following DSI state which used at different exposure condition.
This WWAN bands enabled with Qualcomm Smart Transmit feature which located at chapter 5. The default power is Pmax power, When Plimit power higher than Pmax power, the output power will be limited at pmax, so the SAR will be used pmax power to do the testing.

DSI	Antenna No.	Trigger Conditions
DSI0	All Ant	Full power (sensor off)
DSI1	Ant 0	Sensor on Standalone
DSI2	Ant 7	Sensor on Standalone
DSI3	Ant 4	Sensor on Standalone
DSI4	Ant 6	Sensor on Standalone
DSI5	Ant 1	Sensor on Standalone
DSI6	Ant 0+7	Sensor on Simultaneous
DSI7	Ant 1+7	Sensor on Simultaneous
DSI8	Ant 0+1+7	Sensor on Simultaneous
DSI9	Ant 0+1	Sensor on Simultaneous
DSI10	Ant 1+4	Sensor on Simultaneous
DSI11	Ant 1+4+6	Sensor on Simultaneous
DSI12	Ant 0+1+4+6+7	Sensor on Simultaneous

16.1 Body 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)
										750MHz										
	LTE Band 12	10M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	23095	707.5	23.47	24.00	1.130	-	-	-0.12	0.181	0.204
01	LTE Band 12	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	23095	707.5	23.47	24.00	1.130	-	-	-0.01	0.368	**0.416**
	LTE Band 12	10M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	23095	707.5	23.47	24.00	1.130	-	-	0.08	0.168	0.190
	LTE Band 12	10M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	23095	707.5	23.47	24.00	1.130	-	-	-	n/a	n/a
	LTE Band 12	10M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	23095	707.5	23.47	24.00	1.130	-	-	0.04	0.173	0.195
	LTE Band 12	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	23095	707.5	23.47	24.00	1.130	-	-	-0.03	0.121	0.137
	LTE Band 12	10M	QPSK	25	0	-	Front	10mm	Ant 0	DSI 0	23095	707.5	22.45	23.00	1.135	-	-	0	0.134	0.152
	LTE Band 12	10M	QPSK	25	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	23095	707.5	22.45	23.00	1.135	-	-	-0.06	0.298	0.338
	LTE Band 12	10M	QPSK	25	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	23095	707.5	22.45	23.00	1.135	-	-	-0.14	0.143	0.162
	LTE Band 12	10M	QPSK	25	0	-	Right Side	10mm	Ant 0	DSI 0	23095	707.5	22.45	23.00	1.135	-	-	-	n/a	n/a
	LTE Band 12	10M	QPSK	25	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	23095	707.5	22.45	23.00	1.135	-	-	-0.04	0.138	0.157
	LTE Band 12	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 0	DSI 0	23095	707.5	22.45	23.00	1.135	-	-	0.16	0.103	0.117
	LTE Band 13	10M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	23230	782	23.46	24.00	1.132	-	-	-0.07	0.230	0.260
02	LTE Band 13	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	23230	782	23.46	24.00	1.132	-	-	-0.15	0.473	**0.536**
	LTE Band 13	10M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	23230	782	23.46	24.00	1.132	-	-	-0.08	0.227	0.257
	LTE Band 13	10M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	23230	782	23.46	24.00	1.132	-	-	-	n/a	n/a
	LTE Band 13	10M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	23230	782	23.46	24.00	1.132	-	-	-0.03	0.198	0.224
	LTE Band 13	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	23230	782	23.46	24.00	1.132	-	-	-0.05	0.202	0.229
	LTE Band 13	10M	QPSK	25	0	-	Front	10mm	Ant 0	DSI 0	23230	782	22.45	23.00	1.135	-	-	0.19	0.176	0.200
	LTE Band 13	10M	QPSK	25	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	23230	782	22.45	23.00	1.135	-	-	0.01	0.305	0.346
	LTE Band 13	10M	QPSK	25	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	23230	782	22.45	23.00	1.135	-	-	0.14	0.175	0.199
	LTE Band 13	10M	QPSK	25	0	-	Right Side	10mm	Ant 0	DSI 0	23230	782	22.45	23.00	1.135	-	-	-	n/a	n/a
	LTE Band 13	10M	QPSK	25	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	23230	782	22.45	23.00	1.135	-	-	0	0.145	0.165
	LTE Band 13	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 0	DSI 0	23230	782	22.45	23.00	1.135	-	-	0.05	0.162	0.184
	LTE Band 14	10M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 3/10/11/12	23330	793	28.99	29.50	1.125	-	-	-0.06	0.424	0.477
03	LTE Band 14	10M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 3/10/11/12	23330	793	28.99	29.50	1.125	-	-	-0.05	1.030	**1.158**
	LTE Band 14	10M	QPSK	1	0	-	Left Side	10mm	Ant 4	DSI 0	23330	793	31.13	32.00	1.222	-	-	0.07	0.227	0.277
	LTE Band 14	10M	QPSK	1	0	-	Right Side	10mm	Ant 4	DSI 0	23330	793	31.13	32.00	1.222	-	-	0.1	0.255	0.312
	LTE Band 14	10M	QPSK	1	0	-	Top Side	10mm	Ant 4	DSI 0	23330	793	31.13	32.00	1.222	-	-	0.06	0.138	0.169
	LTE Band 14	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 4	DSI 3/10/11/12	23330	793	28.99	29.50	1.125	-	-	-0.15	0.949	1.067
	LTE Band 14	10M	QPSK	1	0	-	Front	23mm	Ant 4	DSI 0	23330	793	31.13	32.00	1.222	-	-	-0.12	0.183	0.224
	LTE Band 14	10M	QPSK	1	0	-	Back	28mm	Ant 4	DSI 0	23330	793	31.13	32.00	1.222	-	-	0.13	0.221	0.270
	LTE Band 14	10M	QPSK	1	0	-	Bottom Side	41mm	Ant 4	DSI 0	23330	793	31.13	32.00	1.222	-	-	-0.07	0.075	0.092
	LTE Band 14	10M	QPSK	25	0	-	Front	10mm	Ant 4	DSI 3/10/11/12	23330	793	27.83	28.50	1.167	-	-	0.03	0.326	0.380
	LTE Band 14	10M	QPSK	25	0	-	Back	10mm	Ant 4	DSI 3/10/11/12	23330	793	27.83	28.50	1.167	-	-	-0.17	0.820	0.957
	LTE Band 14	10M	QPSK	25	0	-	Left Side	10mm	Ant 4	DSI 0	23330	793	30.26	31.00	1.186	-	-	0.04	0.178	0.211
	LTE Band 14	10M	QPSK	25	0	-	Right Side	10mm	Ant 4	DSI 0	23330	793	30.26	31.00	1.186	-	-	0.17	0.195	0.231
	LTE Band 14	10M	QPSK	25	0	-	Top Side	10mm	Ant 4	DSI 0	23330	793	30.26	31.00	1.186	-	-	-0.03	0.094	0.111
	LTE Band 14	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 4	DSI 3/10/11/12	23330	793	27.83	28.50	1.167	-	-	-0.15	0.755	0.881
	LTE Band 14	10M	QPSK	50	0	-	Back	10mm	Ant 4	DSI 3/10/11/12	23330	793	27.75	28.50	1.189	-	-	-0.05	0.833	0.990
	LTE Band 71	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	133297	680.5	23.58	24.00	1.102	-	-	0.05	0.108	0.119
04	LTE Band 71	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	133297	680.5	23.58	24.00	1.102	-	-	-0.04	0.245	**0.270**
	LTE Band 71	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	133297	680.5	23.58	24.00	1.102	-	-	0.12	0.094	0.104
	LTE Band 71	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	133297	680.5	23.58	24.00	1.102	-	-	-	n/a	n/a
	LTE Band 71	20M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	133297	680.5	23.58	24.00	1.102	-	-	0.06	0.117	0.129
	LTE Band 71	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	133297	680.5	23.58	24.00	1.102	-	-	0.01	0.077	0.085
	LTE Band 71	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 0	133297	680.5	22.60	23.00	1.096	-	-	0.04	0.093	0.102
	LTE Band 71	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	133297	680.5	22.60	23.00	1.096	-	-	-0.13	0.201	0.220
	LTE Band 71	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	133297	680.5	22.60	23.00	1.096	-	-	0.06	0.088	0.096
	LTE Band 71	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 0	133297	680.5	22.60	23.00	1.096	-	-	-	n/a	n/a
	LTE Band 71	20M	QPSK	50	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	133297	680.5	22.60	23.00	1.096	-	-	0.14	0.102	0.112
	LTE Band 71	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 0	133297	680.5	22.60	23.00	1.096	-	-	0.15	0.072	0.079

	FR1 n12	15M	QPSK	1	1	DFT-15	Front	10mm	Ant 0	DSI 0	141500	707.5	23.69	24.00	1.074	-	-	-0.13	0.162	0.174
	FR1 n12	15M	QPSK	1	1	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	141500	707.5	23.69	24.00	1.074	-	-	0.16	0.362	0.389
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	141500	707.5	23.69	24.00	1.074	-	-	0.15	0.180	0.193
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 0	DSI 0	141500	707.5	23.69	24.00	1.074	-	-	-	n/a	n/a
	FR1 n12	15M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	141500	707.5	23.69	24.00	1.074	-	-	0.17	0.152	0.163
	FR1 n12	15M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	141500	707.5	23.69	24.00	1.074	-	-	-0.01	0.115	0.124
	FR1 n12	15M	QPSK	36	22	DFT-15	Front	10mm	Ant 0	DSI 0	141500	707.5	23.57	24.00	1.104	-	-	-0.08	0.176	0.194
05	FR1 n12	15M	QPSK	36	22	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	141500	707.5	23.57	24.00	1.104	-	-	0.05	0.383	**0.423**
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	141500	707.5	23.57	24.00	1.104	-	-	-0.06	0.204	0.225
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Side	10mm	Ant 0	DSI 0	141500	707.5	23.57	24.00	1.104	-	-	-	n/a	n/a
	FR1 n12	15M	QPSK	36	22	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	141500	707.5	23.57	24.00	1.104	-	-	-0.16	0.147	0.162
	FR1 n12	15M	QPSK	36	22	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	141500	707.5	23.57	24.00	1.104	-	-	0.18	0.120	0.132
	FR1 n13	10M	QPSK	1	1	DFT-15	Front	10mm	Ant 0	DSI 0	156400	782	23.65	24.00	1.084	-	-	0	0.205	0.222
06	FR1 n13	10M	QPSK	1	1	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	156400	782	23.65	24.00	1.084	-	-	-0.01	0.378	**0.410**
	FR1 n13	10M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	156400	782	23.65	24.00	1.084	-	-	-0.12	0.249	0.270
	FR1 n13	10M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 0	DSI 0	156400	782	23.65	24.00	1.084	-	-	-	n/a	n/a
	FR1 n13	10M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	156400	782	23.65	24.00	1.084	-	-	0.02	0.144	0.156
	FR1 n13	10M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	156400	782	23.65	24.00	1.084	-	-	0.1	0.146	0.158
	FR1 n13	10M	QPSK	25	14	DFT-15	Front	10mm	Ant 0	DSI 0	156400	782	23.55	24.00	1.109	-	-	0.16	0.200	0.222
	FR1 n13	10M	QPSK	25	14	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	156400	782	23.55	24.00	1.109	-	-	0.01	0.326	0.362
	FR1 n13	10M	QPSK	25	14	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	156400	782	23.55	24.00	1.109	-	-	0.11	0.235	0.261
	FR1 n13	10M	QPSK	25	14	DFT-15	Right Side	10mm	Ant 0	DSI 0	156400	782	23.55	24.00	1.109	-	-	-	n/a	n/a
	FR1 n13	10M	QPSK	25	14	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	156400	782	23.55	24.00	1.109	-	-	-0.17	0.141	0.156
	FR1 n13	10M	QPSK	25	14	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	156400	782	23.55	24.00	1.109	-	-	0.01	0.163	0.181
	FR1 n14	10M	QPSK	1	1	DFT-15	Front	10mm	Ant 4	DSI 3/10/11/12	158600	793	23.67	24.00	1.079	-	-	-0.05	0.115	0.124
07	FR1 n14	10M	QPSK	1	1	DFT-15	Back	10mm	Ant 4	DSI 3/10/11/12	158600	793	23.67	24.00	1.079	-	-	-0.02	0.326	**0.352**
	FR1 n14	10M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 4	DSI 0	158600	793	23.67	24.00	1.079	-	-	-	n/a	n/a
	FR1 n14	10M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 4	DSI 0	158600	793	23.67	24.00	1.079	-	-	-	n/a	n/a
	FR1 n14	10M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 4	DSI 0	158600	793	23.67	24.00	1.079	-	-	-	n/a	n/a
	FR1 n14	10M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 4	DSI 3/10/11/12	158600	793	23.67	24.00	1.079	-	-	-0.07	0.245	0.264
	FR1 n14	10M	QPSK	25	14	DFT-15	Front	10mm	Ant 4	DSI 3/10/11/12	158600	793	23.61	24.00	1.094	-	-	0.09	0.118	0.129
	FR1 n14	10M	QPSK	25	14	DFT-15	Back	10mm	Ant 4	DSI 3/10/11/12	158600	793	23.61	24.00	1.094	-	-	0.09	0.283	0.310
	FR1 n14	10M	QPSK	25	14	DFT-15	Left Side	10mm	Ant 4	DSI 0	158600	793	23.61	24.00	1.094	-	-	-	n/a	n/a
	FR1 n14	10M	QPSK	25	14	DFT-15	Right Side	10mm	Ant 4	DSI 0	158600	793	23.61	24.00	1.094	-	-	-	n/a	n/a
	FR1 n14	10M	QPSK	25	14	DFT-15	Top Side	10mm	Ant 4	DSI 0	158600	793	23.61	24.00	1.094	-	-	-	n/a	n/a
	FR1 n14	10M	QPSK	25	14	DFT-15	Bottom Side	10mm	Ant 4	DSI 3/10/11/12	158600	793	23.61	24.00	1.094	-	-	-0.09	0.269	0.294
	FR1 n71	20M	QPSK	1	1	DFT-15	Front	10mm	Ant 0	DSI 0	136100	680.5	23.76	24.00	1.057	-	-	0.02	0.110	0.116
08	FR1 n71	20M	QPSK	1	1	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	136100	680.5	23.76	24.00	1.057	-	-	0.08	0.240	**0.254**
	FR1 n71	20M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	136100	680.5	23.76	24.00	1.057	-	-	0.17	0.118	0.125
	FR1 n71	20M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 0	DSI 0	136100	680.5	23.76	24.00	1.057	-	-	-	n/a	n/a
	FR1 n71	20M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	136100	680.5	23.76	24.00	1.057	-	-	-0.16	0.123	0.130
	FR1 n71	20M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	136100	680.5	23.76	24.00	1.057	-	-	-0.06	0.075	0.079
	FR1 n71	20M	QPSK	50	28	DFT-15	Front	10mm	Ant 0	DSI 0	136100	680.5	23.68	24.00	1.076	-	-	-0.18	0.126	0.136
	FR1 n71	20M	QPSK	50	28	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	136100	680.5	23.68	24.00	1.076	-	-	-0.17	0.228	0.245
	FR1 n71	20M	QPSK	50	28	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	136100	680.5	23.68	24.00	1.076	-	-	0.13	0.130	0.140
	FR1 n71	20M	QPSK	50	28	DFT-15	Right Side	10mm	Ant 0	DSI 0	136100	680.5	23.68	24.00	1.076	-	-	-	n/a	n/a
	FR1 n71	20M	QPSK	50	28	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	136100	680.5	23.68	24.00	1.076	-	-	0.13	0.133	0.143
	FR1 n71	20M	QPSK	50	28	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	136100	680.5	23.68	24.00	1.076	-	-	0.13	0.084	0.090
835MHz																				
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI 0	4182	836.4	23.40	24.00	1.148	-	-	0.01	0.129	0.148
09	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 1/6/8/9/12	4182	836.4	23.40	24.00	1.148	-	-	0.05	0.303	**0.348**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	4182	836.4	23.40	24.00	1.148	-	-	0.18	0.196	0.225
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 0	DSI 0	4182	836.4	23.40	24.00	1.148	-	-	-	n/a	n/a
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	4182	836.4	23.40	24.00	1.148	-	-	0.17	0.056	0.064
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 0	4182	836.4	23.40	24.00	1.148	-	-	-0.12	0.106	0.122
	LTE Band 5	10M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	20525	836.5	22.90	24.00	1.288	-	-	0	0.111	0.143
10	LTE Band 5	10M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	20525	836.5	22.90	24.00	1.288	-	-	-0.19	0.205	**0.264**

	LTE Band 5	10M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 0	20525	836.5	22.90	24.00	1.288	-	-	0.1	0.146	0.188
	LTE Band 5	10M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	20525	836.5	22.90	24.00	1.288	-	-	-	n/a	n/a
	LTE Band 5	10M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	20525	836.5	22.90	24.00	1.288	-	-	0.03	0.079	0.102
	LTE Band 5	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 1	DSI 0	20525	836.5	22.90	24.00	1.288	-	-	0.05	0.117	0.151
	LTE Band 5	10M	QPSK	25	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	20525	836.5	21.86	23.00	1.300	-	-	0.06	0.096	0.125
	LTE Band 5	10M	QPSK	25	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	20525	836.5	21.86	23.00	1.300	-	-	0.06	0.159	0.207
	LTE Band 5	10M	QPSK	25	0	-	Left Side	10mm	Ant 1	DSI 0	20525	836.5	21.86	23.00	1.300	-	-	0.19	0.128	0.166
	LTE Band 5	10M	QPSK	25	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	20525	836.5	21.86	23.00	1.300	-	-	-	n/a	n/a
	LTE Band 5	10M	QPSK	25	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	20525	836.5	21.86	23.00	1.300	-	-	0	0.056	0.073
	LTE Band 5	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 1	DSI 0	20525	836.5	21.86	23.00	1.300	-	-	0.15	0.089	0.116
	LTE Band 26	15M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	26865	831.5	23.53	24.00	1.114	-	-	0.18	0.152	0.169
11	LTE Band 26	15M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	26865	831.5	23.53	24.00	1.114	-	-	-0.08	0.316	**0.352**
	LTE Band 26	15M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	26865	831.5	23.53	24.00	1.114	-	-	0.02	0.196	0.218
	LTE Band 26	15M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	26865	831.5	23.53	24.00	1.114	-	-	-	n/a	n/a
	LTE Band 26	15M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	26865	831.5	23.53	24.00	1.114	-	-	-0.19	0.082	0.091
	LTE Band 26	15M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	26865	831.5	23.53	24.00	1.114	-	-	0.04	0.141	0.157
	LTE Band 26	15M	QPSK	36	0	-	Front	10mm	Ant 0	DSI 0	26865	831.5	22.49	23.00	1.125	-	-	-0.09	0.115	0.129
	LTE Band 26	15M	QPSK	36	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	26865	831.5	22.49	23.00	1.125	-	-	-0.15	0.201	0.226
	LTE Band 26	15M	QPSK	36	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	26865	831.5	22.49	23.00	1.125	-	-	-	n/a	n/a
	LTE Band 26	15M	QPSK	36	0	-	Right Side	10mm	Ant 0	DSI 0	26865	831.5	22.49	23.00	1.125	-	-	-0.07	0.148	0.166
	LTE Band 26	15M	QPSK	36	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	26865	831.5	22.49	23.00	1.125	-	-	-0.05	0.065	0.073
	LTE Band 26	15M	QPSK	36	0	-	Bottom Side	10mm	Ant 0	DSI 0	26865	831.5	22.49	23.00	1.125	-	-	-0.06	0.106	0.119
	FR1 n5	20M	QPSK	1	1	DFT-15	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	167300	836.5	22.75	24.00	1.334	-	-	0.06	0.351	0.468
12	FR1 n5	20M	QPSK	1	1	DFT-15	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	167300	836.5	22.75	24.00	1.334	-	-	-0.11	0.439	**0.585**
	FR1 n5	20M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 1	DSI 0	167300	836.5	22.75	24.00	1.334	-	-	-	n/a	n/a
	FR1 n5	20M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	167300	836.5	22.75	24.00	1.334	-	-	-0.19	0.210	0.280
	FR1 n5	20M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	167300	836.5	22.75	24.00	1.334	-	-	0.1	0.078	0.104
	FR1 n5	20M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 1	DSI 0	167300	836.5	22.75	24.00	1.334	-	-	-0.16	0.132	0.176
	FR1 n5	20M	QPSK	50	28	DFT-15	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	167300	836.5	22.56	24.00	1.393	-	-	-0.06	0.377	0.525
	FR1 n5	20M	QPSK	50	28	DFT-15	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	167300	836.5	22.56	24.00	1.393	-	-	0.07	0.349	0.486
	FR1 n5	20M	QPSK	50	28	DFT-15	Left Side	10mm	Ant 1	DSI 0	167300	836.5	22.56	24.00	1.393	-	-	-0.04	0.044	0.061
	FR1 n5	20M	QPSK	50	28	DFT-15	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	167300	836.5	22.56	24.00	1.393	-	-	-0.12	0.239	0.333
	FR1 n5	20M	QPSK	50	28	DFT-15	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	167300	836.5	22.56	24.00	1.393	-	-	0.04	0.078	0.109
	FR1 n5	20M	QPSK	50	28	DFT-15	Bottom Side	10mm	Ant 1	DSI 0	167300	836.5	22.56	24.00	1.393	-	-	0.05	0.142	0.198
	FR1 n26	20M	QPSK	1	1	DFT-15	Front	10mm	Ant 0	DSI 0	166300	831.5	23.62	24.00	1.091	-	-	0.14	0.146	0.159
13	FR1 n26	20M	QPSK	1	1	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	166300	831.5	23.62	24.00	1.091	-	-	-0.02	0.396	**0.432**
	FR1 n26	20M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	166300	831.5	23.62	24.00	1.091	-	-	0.13	0.202	0.220
	FR1 n26	20M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 0	DSI 0	166300	831.5	23.62	24.00	1.091	-	-	-	n/a	n/a
	FR1 n26	20M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	166300	831.5	23.62	24.00	1.091	-	-	-0.17	0.079	0.086
	FR1 n26	20M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	166300	831.5	23.62	24.00	1.091	-	-	-0.09	0.135	0.147
	FR1 n26	20M	QPSK	50	28	DFT-15	Front	10mm	Ant 0	DSI 0	166300	831.5	23.59	24.00	1.099	-	-	0.09	0.142	0.156
	FR1 n26	20M	QPSK	50	28	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	166300	831.5	23.59	24.00	1.099	-	-	0.16	0.249	0.274
	FR1 n26	20M	QPSK	50	28	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	166300	831.5	23.59	24.00	1.099	-	-	-0.09	0.189	0.208
	FR1 n26	20M	QPSK	50	28	DFT-15	Right Side	10mm	Ant 0	DSI 0	166300	831.5	23.59	24.00	1.099	-	-	-	n/a	n/a
	FR1 n26	20M	QPSK	50	28	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	166300	831.5	23.59	24.00	1.099	-	-	-0.04	0.069	0.076
	FR1 n26	20M	QPSK	50	28	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	166300	831.5	23.59	24.00	1.099	-	-	0.03	0.113	0.124
	1750MHz																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI 0	1413	1732.6	23.30	24.00	1.175	-	-	-0.18	0.185	0.217
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 1/6/8/9/12	1413	1732.6	22.11	22.50	1.094	-	-	-0.17	0.587	0.642
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	1413	1732.6	22.11	22.50	1.094	-	-	-0.13	0.886	0.969
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 0	DSI 0	1413	1732.6	23.30	24.00	1.175	-	-	-	n/a	n/a
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	1413	1732.6	22.11	22.50	1.094	-	-	-0.19	0.139	0.152
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 0	1413	1732.6	23.30	24.00	1.175	-	-	-	n/a	n/a
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	1312	1712.4	22.07	22.50	1.104	-	-	0.15	0.837	0.924
14	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	1513	1752.6	22.07	22.50	1.104	-	-	-0.14	0.910	**1.005**
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	21mm	Ant 0	DSI 0	1413	1732.6	23.30	24.00	1.175	-	-	-0.08	0.214	0.251
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	24mm	Ant 0	DSI 0	1513	1752.6	23.23	24.00	1.194	-	-	-0.13	0.201	0.240

	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	16mm	Ant 0	DSI 0	1413	1732.6	23.30	24.00	1.175	-	-	0.05	0.122	0.143
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	132322	1745	23.28	24.00	1.180	-	-	0.17	0.194	0.229
	LTE Band 66	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	132322	1745	21.97	22.50	1.130	-	-	-0.19	0.605	0.684
	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132322	1745	21.97	22.50	1.130	-	-	0.02	0.930	1.051
	LTE Band 66	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	132322	1745	23.28	24.00	1.180	-	-	-	n/a	n/a
	LTE Band 66	20M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	132322	1745	21.97	22.50	1.130	-	-	-0.04	0.161	0.182
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	132322	1745	23.28	24.00	1.180	-	-	-	n/a	n/a
	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132072	1720	21.90	22.50	1.148	-	-	-0.15	0.787	0.904
15	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132572	1770	21.96	22.50	1.132	-	-	0.07	0.958	**1.085**
	LTE Band 66C	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132572+ 132374	1770+ 1750.2	21.77	22.50	1.183	-	-	-0.13	0.903	1.068
	LTE Band 66	20M	QPSK	1	0	-	Back	21mm	Ant 0	DSI 0	132322	1745	23.28	24.00	1.180	-	-	-0.01	0.204	0.241
	LTE Band 66	20M	QPSK	1	0	-	Left Side	24mm	Ant 0	DSI 0	132572	1770	23.27	24.00	1.183	-	-	-0.16	0.197	0.233
	LTE Band 66	20M	QPSK	1	0	-	Top Side	16mm	Ant 0	DSI 0	132322	1745	23.28	24.00	1.180	-	-	-0.1	0.131	0.155
	LTE Band 66	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 0	132322	1745	22.13	23.00	1.222	-	-	-0.05	0.164	0.200
	LTE Band 66	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	132322	1745	20.96	21.50	1.132	-	-	-0.07	0.496	0.562
	LTE Band 66	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132322	1745	20.96	21.50	1.132	-	-	-0.15	0.791	0.896
	LTE Band 66	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 0	132322	1745	22.13	23.00	1.222	-	-	-	n/a	n/a
	LTE Band 66	20M	QPSK	50	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	132322	1745	20.96	21.50	1.132	-	-	0.12	0.134	0.152
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 0	132322	1745	22.13	23.00	1.222	-	-	-	n/a	n/a
	LTE Band 66	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132072	1720	20.93	21.50	1.140	-	-	-0.01	0.655	0.747
	LTE Band 66	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132572	1770	20.90	21.50	1.148	-	-	-0.18	0.797	0.915
	LTE Band 66	20M	QPSK	100	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132322	1745	20.91	21.50	1.146	-	-	0.04	0.778	0.891
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	132322	1745	21.98	23.00	1.265	-	-	-0.15	0.272	0.344
	LTE Band 66	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	132322	1745	21.98	23.00	1.265	-	-	-0.08	0.225	0.285
	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 0	132322	1745	21.98	23.00	1.265	-	-	-0.01	0.106	0.134
	LTE Band 66	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	132322	1745	21.98	23.00	1.265	-	-	0.06	0.140	0.177
	LTE Band 66	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	132322	1745	21.98	23.00	1.265	-	-	0.08	0.206	0.261
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 1	DSI 0	132322	1745	21.98	23.00	1.265	-	-	-0.18	0.063	0.080
	LTE Band 66	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	132322	1745	21.35	22.00	1.161	-	-	0.09	0.224	0.260
	LTE Band 66	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	132322	1745	21.35	22.00	1.161	-	-	-0.16	0.200	0.232
	LTE Band 66	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI 0	132322	1745	21.35	22.00	1.161	-	-	-0.13	0.082	0.095
	LTE Band 66	20M	QPSK	50	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	132322	1745	21.35	22.00	1.161	-	-	-0.18	0.119	0.138
	LTE Band 66	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	132322	1745	21.35	22.00	1.161	-	-	-0.15	0.171	0.199
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 1	DSI 0	132322	1745	21.35	22.00	1.161	-	-	-0.1	0.047	0.055
	FR1 n66	40M	QPSK	1	1	DFT-15	Front	10mm	Ant 0	DSI 0	349000	1745	23.22	24.00	1.197	-	-	-0.12	0.193	0.231
	FR1 n66	40M	QPSK	1	1	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	349000	1745	21.82	22.50	1.169	-	-	-0.01	0.521	0.609
	FR1 n66	40M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	349000	1745	21.82	22.50	1.169	-	-	0.04	0.788	0.922
	FR1 n66	40M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 0	DSI 0	349000	1745	23.22	24.00	1.197	-	-	-	n/a	n/a
	FR1 n66	40M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	349000	1745	21.82	22.50	1.169	-	-	0.11	0.110	0.129
	FR1 n66	40M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	349000	1745	23.22	24.00	1.197	-	-	-	n/a	n/a
	FR1 n66	40M	QPSK	1	1	DFT-15	Back	21mm	Ant 0	DSI 0	349000	1745	23.22	24.00	1.197	-	-	0.05	0.212	0.254
	FR1 n66	40M	QPSK	1	1	DFT-15	Left Side	24mm	Ant 0	DSI 0	349000	1745	23.22	24.00	1.197	-	-	0.04	0.202	0.242
	FR1 n66	40M	QPSK	1	1	DFT-15	Top Side	16mm	Ant 0	DSI 0	349000	1745	23.22	24.00	1.197	-	-	-0.03	0.103	0.123
	FR1 n66	40M	QPSK	108	54	DFT-15	Front	10mm	Ant 0	DSI 0	349000	1745	23.17	24.00	1.211	-	-	-0.15	0.224	0.271
	FR1 n66	40M	QPSK	108	54	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	349000	1745	21.77	22.50	1.183	-	-	-0.01	0.586	0.693
16	FR1 n66	40M	QPSK	108	54	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	349000	1745	21.77	22.50	1.183	-	-	0.07	0.916	**1.084**
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Side	10mm	Ant 0	DSI 0	349000	1745	23.17	24.00	1.211	-	-	-	n/a	n/a
	FR1 n66	40M	QPSK	108	54	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	349000	1745	21.77	22.50	1.183	-	-	-0.02	0.143	0.169
	FR1 n66	40M	QPSK	108	54	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	349000	1745	23.17	24.00	1.211	-	-	-	n/a	n/a
	FR1 n66	40M	QPSK	216	0	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	349000	1745	21.77	22.50	1.183	-	-	-0.17	0.880	1.041
	FR1 n66	40M	QPSK	1	1	DFT-15	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	349000	1745	23.07	24.00	1.239	-	-	0.16	0.347	0.430
	FR1 n66	40M	QPSK	1	1	DFT-15	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	349000	1745	23.07	24.00	1.239	-	-	0	0.354	0.439
	FR1 n66	40M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 1	DSI 0	349000	1745	23.07	24.00	1.239	-	-	0.12	0.162	0.201
	FR1 n66	40M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	349000	1745	23.07	24.00	1.239	-	-	0.19	0.149	0.185
	FR1 n66	40M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	349000	1745	23.07	24.00	1.239	-	-	0.01	0.251	0.311
	FR1 n66	40M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 1	DSI 0	349000	1745	23.07	24.00	1.239	-	-	-0.06	0.120	0.149
	FR1 n66	40M	QPSK	108	54	DFT-15	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	349000	1745	22.83	24.00	1.309	-	-	-0.02	0.295	0.386

	FR1 n66	40M	QPSK	108	54	DFT-15	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	349000	1745	22.83	24.00	1.309	-	-	-0.01	0.313	0.410
	FR1 n66	40M	QPSK	108	54	DFT-15	Left Side	10mm	Ant 1	DSI 0	349000	1745	22.83	24.00	1.309	-	-	-0.16	0.110	0.144
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	349000	1745	22.83	24.00	1.309	-	-	-0.1	0.145	0.190
	FR1 n66	40M	QPSK	108	54	DFT-15	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	349000	1745	22.83	24.00	1.309	-	-	-0.15	0.216	0.283
	FR1 n66	40M	QPSK	108	54	DFT-15	Bottom Side	10mm	Ant 1	DSI 0	349000	1745	22.83	24.00	1.309	-	-	0.08	0.103	0.135
1900MHz																				
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI 0	9400	1880	23.28	24.00	1.180	-	-	-0.11	0.229	0.270
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 1/6/8/9/12	9400	1880	22.49	23.00	1.125	-	-	-0.05	0.616	0.693
17	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	9400	1880	22.49	23.00	1.125	-	-	0.13	0.898	**1.010**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 0	DSI 0	9400	1880	23.28	24.00	1.180	-	-	0	0.064	0.076
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	9400	1880	22.49	23.00	1.125	-	-	0.14	0.278	0.313
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 0	9400	1880	23.28	24.00	1.180	-	-	-	n/a	n/a
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	9262	1852.4	22.39	23.00	1.151	-	-	0.12	0.860	0.990
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	9538	1907.6	22.43	23.00	1.140	-	-	0.19	0.876	0.999
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	21mm	Ant 0	DSI 0	9400	1880	23.28	24.00	1.180	-	-	0.14	0.200	0.236
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	24mm	Ant 0	DSI 0	9400	1880	23.28	24.00	1.180	-	-	-0.05	0.224	0.264
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	16mm	Ant 0	DSI 0	9400	1880	23.28	24.00	1.180	-	-	-0.09	0.220	0.260
	LTE Band 25	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	26340	1880	23.30	24.00	1.175	-	-	0.03	0.213	0.250
	LTE Band 25	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	26340	1880	22.45	23.00	1.135	-	-	0.09	0.617	0.700
	LTE Band 25	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	26340	1880	22.45	23.00	1.135	-	-	0.02	0.837	0.950
	LTE Band 25	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	26340	1880	23.30	24.00	1.175	-	-	-0.05	0.076	0.089
	LTE Band 25	20M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	26340	1880	22.45	23.00	1.135	-	-	-0.09	0.305	0.346
	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	26340	1880	23.30	24.00	1.175	-	-	-	n/a	n/a
18	LTE Band 25	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	26140	1860	22.35	23.00	1.161	-	-	0.01	0.856	**0.994**
	LTE Band 25	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	26590	1905	22.44	23.00	1.138	-	-	0.1	0.831	0.945
	LTE Band 25	20M	QPSK	1	0	-	Back	21mm	Ant 0	DSI 0	26340	1880	23.30	24.00	1.175	-	-	-0.13	0.219	0.257
	LTE Band 25	20M	QPSK	1	0	-	Left Side	24mm	Ant 0	DSI 0	26340	1880	23.30	24.00	1.175	-	-	0.11	0.196	0.230
	LTE Band 25	20M	QPSK	1	0	-	Top Side	16mm	Ant 0	DSI 0	26340	1880	23.30	24.00	1.175	-	-	0.13	0.188	0.221
	LTE Band 25	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 0	26340	1880	22.11	23.00	1.227	-	-	0.08	0.167	0.205
	LTE Band 25	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	26340	1880	21.45	22.00	1.135	-	-	0.04	0.482	0.547
	LTE Band 25	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	26340	1880	21.45	22.00	1.135	-	-	0.05	0.695	0.789
	LTE Band 25	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 0	26340	1880	22.11	23.00	1.227	-	-	0.19	0.056	0.069
	LTE Band 25	20M	QPSK	50	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	26340	1880	21.45	22.00	1.135	-	-	-0.01	0.262	0.297
	LTE Band 25	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 0	26340	1880	22.11	23.00	1.227	-	-	-	n/a	n/a
	LTE Band 25	20M	QPSK	100	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	26340	1880	21.41	22.00	1.146	-	-	-0.14	0.677	0.776
	LTE Band 25	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	26340	1880	21.70	22.50	1.202	-	-	-0.09	0.274	0.329
	LTE Band 25	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	26340	1880	21.70	22.50	1.202	-	-	0.09	0.521	0.626
	LTE Band 25	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 0	26340	1880	21.70	22.50	1.202	-	-	-	n/a	n/a
	LTE Band 25	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	26340	1880	21.70	22.50	1.202	-	-	0.18	0.217	0.261
	LTE Band 25	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	26340	1880	21.70	22.50	1.202	-	-	0.13	0.229	0.275
	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 1	DSI 0	26340	1880	21.70	22.50	1.202	-	-	-0.14	0.040	0.048
	LTE Band 25	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	26340	1880	20.92	21.50	1.143	-	-	-0.17	0.209	0.239
	LTE Band 25	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	26340	1880	20.92	21.50	1.143	-	-	-0.18	0.343	0.392
	LTE Band 25	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI 0	26340	1880	20.92	21.50	1.143	-	-	-	n/a	n/a
	LTE Band 25	20M	QPSK	50	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	26340	1880	20.92	21.50	1.143	-	-	0.15	0.184	0.210
	LTE Band 25	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	26340	1880	20.92	21.50	1.143	-	-	0.14	0.176	0.201
	LTE Band 25	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 1	DSI 0	26340	1880	20.92	21.50	1.143	-	-	-	n/a	n/a
	FR1 n2	40M	QPSK	1	1	DFT-15	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	376000	1880	22.63	24.00	1.371	-	-	0.19	0.319	0.437
	FR1 n2	40M	QPSK	1	1	DFT-15	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	376000	1880	22.63	24.00	1.371	-	-	0.09	0.489	0.670
	FR1 n2	40M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 1	DSI 0	376000	1880	22.63	24.00	1.371	-	-	-0.1	0.045	0.062
	FR1 n2	40M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	376000	1880	22.63	24.00	1.371	-	-	-0.04	0.208	0.285
	FR1 n2	40M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	376000	1880	22.63	24.00	1.371	-	-	-0.08	0.271	0.372
	FR1 n2	40M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 1	DSI 0	376000	1880	22.63	24.00	1.371	-	-	0.12	0.042	0.058
	FR1 n2	40M	QPSK	108	54	DFT-15	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	376000	1880	22.33	24.00	1.469	-	-	-0.12	0.304	0.447
19	FR1 n2	40M	QPSK	108	54	DFT-15	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	376000	1880	22.33	24.00	1.469	-	-	0.14	0.536	**0.787**
	FR1 n2	40M	QPSK	108	54	DFT-15	Left Side	10mm	Ant 1	DSI 0	376000	1880	22.33	24.00	1.469	-	-	0.05	0.069	0.101
	FR1 n2	40M	QPSK	108	54	DFT-15	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	376000	1880	22.33	24.00	1.469	-	-	-0.11	0.228	0.335

	FR1 n2	40M	QPSK	108	54	DFT-15	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	376000	1880	22.33	24.00	1.469	-	-	0.02	0.255	0.375
	FR1 n2	40M	QPSK	108	54	DFT-15	Bottom Side	10mm	Ant 1	DSI 0	376000	1880	22.33	24.00	1.469	-	-	0.09	0.049	0.072
	FR1 n25	40M	QPSK	1	1	DFT-15	Front	10mm	Ant 0	DSI 0	376500	1882.5	23.51	24.00	1.119	-	-	0.11	0.217	0.243
	FR1 n25	40M	QPSK	1	1	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	376500	1882.5	22.59	23.00	1.099	-	-	-0.06	0.511	0.562
20	FR1 n25	40M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	376500	1882.5	22.59	23.00	1.099	-	-	-0.03	0.918	**1.009**
	FR1 n25	40M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 0	DSI 0	376500	1882.5	23.51	24.00	1.119	-	-	0.16	0.087	0.097
	FR1 n25	40M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	376500	1882.5	22.59	23.00	1.099	-	-	-0.05	0.221	0.243
	FR1 n25	40M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	376500	1882.5	23.51	24.00	1.119	-	-	-	n/a	n/a
	FR1 n25	40M	QPSK	1	1	DFT-15	Back	21mm	Ant 0	DSI 0	376500	1882.5	23.51	24.00	1.119	-	-	0.05	0.229	0.256
	FR1 n25	40M	QPSK	1	1	DFT-15	Left Side	24mm	Ant 0	DSI 0	376500	1882.5	23.51	24.00	1.119	-	-	0.02	0.205	0.229
	FR1 n25	40M	QPSK	1	1	DFT-15	Top Side	16mm	Ant 0	DSI 0	376500	1882.5	23.51	24.00	1.119	-	-	-0.16	0.196	0.219
	FR1 n25	40M	QPSK	108	54	DFT-15	Front	10mm	Ant 0	DSI 0	376500	1882.5	23.49	24.00	1.125	-	-	-0.18	0.197	0.222
	FR1 n25	40M	QPSK	108	54	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	376500	1882.5	22.57	23.00	1.104	-	-	-0.14	0.502	0.554
	FR1 n25	40M	QPSK	108	54	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	376500	1882.5	22.57	23.00	1.104	-	-	-0.11	0.759	0.838
	FR1 n25	40M	QPSK	108	54	DFT-15	Right Side	10mm	Ant 0	DSI 0	376500	1882.5	23.49	24.00	1.125	-	-	-0.15	0.068	0.076
	FR1 n25	40M	QPSK	108	54	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	376500	1882.5	22.57	23.00	1.104	-	-	0.06	0.212	0.234
	FR1 n25	40M	QPSK	108	54	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	376500	1882.5	23.49	24.00	1.125	-	-	-	n/a	n/a
	FR1 n25	40M	QPSK	216	0	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	376500	1882.5	22.58	23.00	1.102	-	-	0.05	0.782	0.861
										2300MHz										
	LTE Band 30	10M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	27710	2310	23.11	24.00	1.227	-	-	0.04	0.167	0.205
	LTE Band 30	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	27710	2310	23.11	24.00	1.227	-	-	-0.19	0.527	0.647
21	LTE Band 30	10M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	27710	2310	23.11	24.00	1.227	-	-	-0.17	0.688	**0.844**
	LTE Band 30	10M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	27710	2310	23.11	24.00	1.227	-	-	-0.11	0.063	0.077
	LTE Band 30	10M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	27710	2310	23.11	24.00	1.227	-	-	0.05	0.220	0.270
	LTE Band 30	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	27710	2310	23.11	24.00	1.227	-	-	-	n/a	n/a
	LTE Band 30	10M	QPSK	25	0	-	Front	10mm	Ant 0	DSI 0	27710	2310	21.98	23.00	1.265	-	-	-0.19	0.136	0.172
	LTE Band 30	10M	QPSK	25	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	27710	2310	21.98	23.00	1.265	-	-	0.08	0.438	0.554
	LTE Band 30	10M	QPSK	25	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	27710	2310	21.98	23.00	1.265	-	-	-0.05	0.475	0.601
	LTE Band 30	10M	QPSK	25	0	-	Right Side	10mm	Ant 0	DSI 0	27710	2310	21.98	23.00	1.265	-	-	-0.15	0.048	0.061
	LTE Band 30	10M	QPSK	25	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	27710	2310	21.98	23.00	1.265	-	-	-0.02	0.166	0.210
	LTE Band 30	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 0	DSI 0	27710	2310	21.98	23.00	1.265	-	-	-	n/a	n/a
	LTE Band 30	10M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	27710	2310	21.95	23.00	1.274	-	-	0.05	0.458	0.583
	LTE Band 30	10M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	27710	2310	22.35	23.50	1.303	-	-	0	0.107	0.139
	LTE Band 30	10M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	27710	2310	22.35	23.50	1.303	-	-	-0.13	0.246	0.321
	LTE Band 30	10M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 0	27710	2310	22.35	23.50	1.303	-	-	-	n/a	n/a
	LTE Band 30	10M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	27710	2310	22.35	23.50	1.303	-	-	-0.04	0.374	0.487
	LTE Band 30	10M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	27710	2310	22.35	23.50	1.303	-	-	0.17	0.143	0.186
	LTE Band 30	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 1	DSI 0	27710	2310	22.35	23.50	1.303	-	-	-	n/a	n/a
	LTE Band 30	10M	QPSK	25	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	27710	2310	21.63	22.50	1.222	-	-	0.1	0.087	0.106
	LTE Band 30	10M	QPSK	25	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	27710	2310	21.63	22.50	1.222	-	-	0.19	0.211	0.258
	LTE Band 30	10M	QPSK	25	0	-	Left Side	10mm	Ant 1	DSI 0	27710	2310	21.63	22.50	1.222	-	-	-	n/a	n/a
	LTE Band 30	10M	QPSK	25	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	27710	2310	21.63	22.50	1.222	-	-	0.01	0.483	0.590
	LTE Band 30	10M	QPSK	25	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	27710	2310	21.63	22.50	1.222	-	-	-0.05	0.131	0.160
	LTE Band 30	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 1	DSI 0	27710	2310	21.63	22.50	1.222	-	-	-	n/a	n/a
	FR1 n30	10M	QPSK	1	1	DFT-15	Front	10mm	Ant 0	DSI 0	462000	2310	23.24	24.00	1.191	-	-	0.16	0.141	0.168
	FR1 n30	10M	QPSK	1	1	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	462000	2310	23.24	24.00	1.191	-	-	0.11	0.527	0.628
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	462000	2310	23.24	24.00	1.191	-	-	0.05	0.538	0.641
	FR1 n30	10M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 0	DSI 0	462000	2310	23.24	24.00	1.191	-	-	0.06	0.048	0.057
	FR1 n30	10M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	462000	2310	23.24	24.00	1.191	-	-	-0.09	0.178	0.212
	FR1 n30	10M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	462000	2310	23.24	24.00	1.191	-	-	-0.08	0.042	0.050
	FR1 n30	10M	QPSK	25	14	DFT-15	Front	10mm	Ant 0	DSI 0	462000	2310	23.22	24.00	1.197	-	-	-0.16	0.154	0.184
	FR1 n30	10M	QPSK	25	14	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	462000	2310	23.22	24.00	1.197	-	-	-0.14	0.518	0.620
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	462000	2310	23.22	24.00	1.197	-	-	0.05	0.525	0.628
	FR1 n30	10M	QPSK	25	14	DFT-15	Right Side	10mm	Ant 0	DSI 0	462000	2310	23.22	24.00	1.197	-	-	0.18	0.044	0.053
	FR1 n30	10M	QPSK	25	14	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	462000	2310	23.22	24.00	1.197	-	-	0.16	0.242	0.290
	FR1 n30	10M	QPSK	25	14	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	462000	2310	23.22	24.00	1.197	-	-	-	n/a	n/a
	FR1 n30	10M	QPSK	1	1	DFT-15	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	462000	2310	22.57	24.00	1.390	-	-	0.11	0.110	0.153

	FR1 n30	10M	QPSK	1	1	DFT-15	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	462000	2310	22.57	24.00	1.390	-	-	0.14	0.234	0.325
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 1	DSI 0	462000	2310	22.57	24.00	1.390	-	-	-	n/a	n/a
	FR1 n30	10M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	462000	2310	22.57	24.00	1.390	-	-	-0.02	0.470	0.653
	FR1 n30	10M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	462000	2310	22.57	24.00	1.390	-	-	0.1	0.179	0.249
	FR1 n30	10M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 1	DSI 0	462000	2310	22.57	24.00	1.390	-	-	-	n/a	n/a
	FR1 n30	10M	QPSK	25	14	DFT-15	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	462000	2310	22.52	24.00	1.406	-	-	0.14	0.115	0.162
	FR1 n30	10M	QPSK	25	14	DFT-15	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	462000	2310	22.52	24.00	1.406	-	-	0.18	0.227	0.319
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Side	10mm	Ant 1	DSI 0	462000	2310	22.52	24.00	1.406	-	-	-	n/a	n/a
22	FR1 n30	10M	QPSK	25	14	DFT-15	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	462000	2310	22.52	24.00	1.406	-	-	0.15	0.478	**0.672**
	FR1 n30	10M	QPSK	25	14	DFT-15	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	462000	2310	22.52	24.00	1.406	-	-	0.05	0.184	0.259
	FR1 n30	10M	QPSK	25	14	DFT-15	Bottom Side	10mm	Ant 1	DSI 0	462000	2310	22.52	24.00	1.406	-	-	-	n/a	n/a
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	21100	2535	23.35	24.00	1.161	-	-	0.19	0.213	0.247
	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	21100	2535	23.35	24.00	1.161	-	-	-0.08	0.521	0.605
	LTE Band 7	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	21100	2535	23.35	24.00	1.161	-	-	0.02	0.728	0.846
	LTE Band 7	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	21100	2535	23.35	24.00	1.161	-	-	0.09	0.056	0.065
	LTE Band 7	20M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	21100	2535	23.35	24.00	1.161	-	-	0.15	0.232	0.269
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	21100	2535	23.35	24.00	1.161	-	-	-0.01	0.050	0.058
23	LTE Band 7	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	20850	2510	22.88	24.00	1.294	-	-	0.17	0.906	**1.173**
	LTE Band 7	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	21350	2560	23.33	24.00	1.167	-	-	0.16	0.770	0.898
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 0	21100	2535	22.23	23.00	1.194	-	-	-0.17	0.181	0.216
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	21100	2535	22.23	23.00	1.194	-	-	0.07	0.443	0.529
	LTE Band 7	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	21100	2535	22.23	23.00	1.194	-	-	-0.19	0.620	0.740
	LTE Band 7	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 0	21100	2535	22.23	23.00	1.194	-	-	-0.16	0.048	0.057
	LTE Band 7	20M	QPSK	50	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	21100	2535	22.23	23.00	1.194	-	-	-0.09	0.197	0.235
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 0	21100	2535	22.23	23.00	1.194	-	-	-0.06	0.043	0.051
	LTE Band 7	20M	QPSK	100	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	21100	2535	22.20	23.00	1.202	-	-	-0.15	0.603	0.725
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	40185	2549.5	23.25	24.00	1.189	62.9	1.006	0.16	0.127	0.152
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	40185	2549.5	23.25	24.00	1.189	62.9	1.006	0.14	0.284	0.340
	LTE Band 41	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	40185	2549.5	23.25	24.00	1.189	62.9	1.006	0.06	0.340	0.407
	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	40185	2549.5	23.25	24.00	1.189	62.9	1.006	-	n/a	n/a
	LTE Band 41	20M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	40185	2549.5	23.25	24.00	1.189	62.9	1.006	-0.11	0.149	0.178
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	40185	2549.5	23.25	24.00	1.189	62.9	1.006	-	n/a	n/a
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 0	40185	2549.5	22.26	23.00	1.186	62.9	1.006	0.07	0.097	0.116
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	40185	2549.5	22.26	23.00	1.186	62.9	1.006	-0.04	0.219	0.261
	LTE Band 41	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	40185	2549.5	22.26	23.00	1.186	62.9	1.006	-0.04	0.280	0.334
	LTE Band 41	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 0	40185	2549.5	22.26	23.00	1.186	62.9	1.006	-	n/a	n/a
	LTE Band 41	20M	QPSK	50	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	40185	2549.5	22.26	23.00	1.186	62.9	1.006	-0.19	0.096	0.115
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 0	40185	2549.5	22.26	23.00	1.186	62.9	1.006	-	n/a	n/a
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40185	2549.5	22.22	23.00	1.197	62.9	1.006	0.15	0.110	0.132
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40185	2549.5	22.22	23.00	1.197	62.9	1.006	-0.17	0.173	0.208
	LTE Band 41	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 0	40185	2549.5	22.22	23.00	1.197	62.9	1.006	-	n/a	n/a
	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40185	2549.5	22.22	23.00	1.197	62.9	1.006	-0.01	0.506	0.609
	LTE Band 41	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40185	2549.5	22.22	23.00	1.197	62.9	1.006	0	0.276	0.332
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 1	DSI 0	40185	2549.5	22.22	23.00	1.197	62.9	1.006	-	n/a	n/a
	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	39750	2506	22.06	23.00	1.242	62.9	1.006	-0.12	0.400	0.500
	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40620	2593	22.08	23.00	1.236	62.9	1.006	0.06	0.421	0.523
24	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	41055	2636.5	21.95	23.00	1.274	62.9	1.006	0.03	0.761	**0.975**
	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	41490	2680	22.04	23.00	1.247	62.9	1.006	-0.13	0.489	0.614
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40185	2549.5	21.18	22.00	1.208	62.9	1.006	-0.18	0.107	0.130
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40185	2549.5	21.18	22.00	1.208	62.9	1.006	-0.17	0.169	0.205
	LTE Band 41	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI 0	40185	2549.5	21.18	22.00	1.208	62.9	1.006	-	n/a	n/a
	LTE Band 41	20M	QPSK	50	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40185	2549.5	21.18	22.00	1.208	62.9	1.006	-0.05	0.483	0.587
	LTE Band 41	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40185	2549.5	21.18	22.00	1.208	62.9	1.006	0.09	0.269	0.327
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 1	DSI 0	40185	2549.5	21.18	22.00	1.208	62.9	1.006	-	n/a	n/a
	LTE Band 41	20M	QPSK	100	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	40185	2549.5	21.17	22.00	1.211	62.9	1.006	0.01	0.469	0.571
	FR1 n7	40M	QPSK	1	1	DFT-15	Front	10mm	Ant 0	DSI 0	507000	2535	23.17	24.00	1.211	-	-	0.05	0.235	0.284

	FR1 n7	40M	QPSK	1	1	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.17	24.00	1.211	-	-	0.09	0.606	0.734
25	FR1 n7	40M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.17	24.00	1.211	-	-	-0.15	0.986	**1.194**
	FR1 n7	40M	QPSK	1	1	DFT-15	Right Side	10mm	Ant 0	DSI 0	507000	2535	23.17	24.00	1.211	-	-	-0.13	0.070	0.085
	FR1 n7	40M	QPSK	1	1	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.17	24.00	1.211	-	-	0.01	0.219	0.265
	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.17	24.00	1.211	-	-	0.13	0.055	0.067
	FR1 n7	40M	QPSK	108	54	DFT-15	Front	10mm	Ant 0	DSI 0	507000	2535	23.11	24.00	1.227	-	-	0.1	0.216	0.265
	FR1 n7	40M	QPSK	108	54	DFT-15	Back	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.11	24.00	1.227	-	-	0.19	0.509	0.625
	FR1 n7	40M	QPSK	108	54	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.11	24.00	1.227	-	-	0.03	0.663	0.814
	FR1 n7	40M	QPSK	108	54	DFT-15	Right Side	10mm	Ant 0	DSI 0	507000	2535	23.11	24.00	1.227	-	-	-0.05	0.061	0.075
	FR1 n7	40M	QPSK	108	54	DFT-15	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.11	24.00	1.227	-	-	-0.06	0.208	0.255
	FR1 n7	40M	QPSK	108	54	DFT-15	Bottom Side	10mm	Ant 0	DSI 0	507000	2535	23.11	24.00	1.227	-	-	0.16	0.048	0.059
	FR1 n7	40M	QPSK	216	0	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.09	24.00	1.233	-	-	0.19	0.530	0.654
	FR1 n41	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 0	DSI 0	518598	2592.99	23.62	24.00	1.091	-	-	-0.02	0.229	0.250
	FR1 n41	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	518598	2592.99	23.62	24.00	1.091	-	-	-0.01	0.489	0.534
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	518598	2592.99	23.62	24.00	1.091	-	-	-0.09	0.632	0.690
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 0	DSI 0	518598	2592.99	23.62	24.00	1.091	-	-	-0.17	0.043	0.047
	FR1 n41	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	518598	2592.99	23.62	24.00	1.091	-	-	0.17	0.220	0.240
	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	518598	2592.99	23.62	24.00	1.091	-	-	0.07	0.043	0.047
	FR1 n41	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 0	DSI 0	518598	2592.99	23.27	24.00	1.183	-	-	-0.12	0.188	0.222
	FR1 n41	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	518598	2592.99	23.27	24.00	1.183	-	-	0.14	0.403	0.477
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	518598	2592.99	23.27	24.00	1.183	-	-	0.1	0.502	0.594
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 0	DSI 0	518598	2592.99	23.27	24.00	1.183	-	-	-	n/a	n/a
	FR1 n41	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	518598	2592.99	23.27	24.00	1.183	-	-	-0.11	0.179	0.212
	FR1 n41	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	518598	2592.99	23.27	24.00	1.183	-	-	-	n/a	n/a
	FR1 n41	100M	QPSK	270	0	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	518598	2592.99	23.20	24.00	1.202	-	-	-0.12	0.500	0.601
	FR1 n41	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	518598	2592.99	20.19	21.50	1.352	-	-	0	0.123	0.166
	FR1 n41	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	518598	2592.99	20.19	21.50	1.352	-	-	0.14	0.187	0.253
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 1	DSI 0	518598	2592.99	22.54	24.00	1.400	-	-	-	n/a	n/a
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	518598	2592.99	20.19	21.50	1.352	-	-	-0.16	0.632	0.855
	FR1 n41	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	518598	2592.99	20.19	21.50	1.352	-	-	0.12	0.315	0.426
	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	518598	2592.99	22.54	24.00	1.400	-	-	-	n/a	n/a
	FR1 n41	100M	QPSK	1	1	DFT-30	Front	23mm	Ant 1	DSI 0	518598	2592.99	22.54	24.00	1.400	-	-	-0.07	0.075	0.105
	FR1 n41	100M	QPSK	1	1	DFT-30	Back	27mm	Ant 1	DSI 0	518598	2592.99	22.54	24.00	1.400	-	-	-0.04	0.113	0.158
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Side	36mm	Ant 1	DSI 0	518598	2592.99	22.54	24.00	1.400	-	-	-0.15	0.135	0.189
	FR1 n41	100M	QPSK	1	1	DFT-30	Top Side	17mm	Ant 1	DSI 0	518598	2592.99	22.54	24.00	1.400	-	-	-0.01	0.332	0.465
	FR1 n41	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	518598	2592.99	20.12	21.50	1.374	-	-	0.03	0.121	0.166
	FR1 n41	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	518598	2592.99	20.12	21.50	1.374	-	-	0.07	0.226	0.311
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 1	DSI 0	518598	2592.99	22.11	24.00	1.545	-	-	-	n/a	n/a
26	FR1 n41	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	518598	2592.99	20.12	21.50	1.374	-	-	0.12	0.731	**1.004**
	FR1 n41	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	518598	2592.99	20.12	21.50	1.374	-	-	-0.11	0.300	0.412
	FR1 n41	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	518598	2592.99	22.11	24.00	1.545	-	-	-	n/a	n/a
	FR1 n41	100M	QPSK	270	0	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	518598	2592.99	20.09	21.50	1.384	-	-	0.15	0.705	0.975
3000MHz																				
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	42590	3500	21.73	23.00	1.340	62.9	1.006	0.12	0.207	0.279
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	42590	3500	21.20	22.00	1.202	62.9	1.006	0.04	0.161	0.195
	LTE Band 42	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	42590	3500	21.20	22.00	1.202	62.9	1.006	0.16	0.455	0.550
	LTE Band 42	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	42590	3500	21.73	23.00	1.340	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	42590	3500	21.20	22.00	1.202	62.9	1.006	0.18	0.082	0.099
	LTE Band 42	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	42590	3500	21.73	23.00	1.340	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	0	-	Back	21mm	Ant 0	DSI 0	42590	3500	21.73	23.00	1.340	62.9	1.006	-0.06	0.142	0.191
	LTE Band 42	20M	QPSK	1	0	-	Left Side	24mm	Ant 0	DSI 0	42590	3500	21.73	23.00	1.340	62.9	1.006	0.02	0.213	0.287
	LTE Band 42	20M	QPSK	1	0	-	Top Side	16mm	Ant 0	DSI 0	42590	3500	21.73	23.00	1.340	62.9	1.006	-0.07	0.065	0.088
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 0	42590	3500	20.70	22.00	1.349	62.9	1.006	0.03	0.168	0.228
	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	42590	3500	20.11	21.00	1.227	62.9	1.006	-0.12	0.160	0.198
	LTE Band 42	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	42590	3500	20.11	21.00	1.227	62.9	1.006	0.15	0.494	0.610
	LTE Band 42	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 0	42590	3500	20.70	22.00	1.349	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	50	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	42590	3500	20.11	21.00	1.227	62.9	1.006	-0.01	0.072	0.089
	LTE Band 42	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 0	42590	3500	20.70	22.00	1.349	62.9	1.006	-	n/a	n/a

	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	43340	3575	21.50	23.00	1.413	62.9	1.006	0.11	0.251	0.357
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	43340	3575	20.95	22.00	1.274	62.9	1.006	-0.09	0.155	0.199
27	LTE Band 42	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	43340	3575	20.95	22.00	1.274	62.9	1.006	-0.15	0.840	**1.076**
	LTE Band 42	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	43340	3575	21.50	23.00	1.413	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	43340	3575	20.95	22.00	1.274	62.9	1.006	0.03	0.065	0.083
	LTE Band 42	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	43340	3575	21.50	23.00	1.413	62.9	1.006	0.12	0.063	0.089
	LTE Band 42	20M	QPSK	1	0	-	Back	21mm	Ant 0	DSI 0	43340	3575	21.50	23.00	1.413	62.9	1.006	-0.17	0.122	0.173
	LTE Band 42	20M	QPSK	1	0	-	Left Side	24mm	Ant 0	DSI 0	43340	3575	21.50	23.00	1.413	62.9	1.006	-0.11	0.226	0.322
	LTE Band 42	20M	QPSK	1	0	-	Top Side	16mm	Ant 0	DSI 0	43340	3575	21.50	23.00	1.413	62.9	1.006	-0.08	0.062	0.089
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 0	43340	3575	20.48	22.00	1.419	62.9	1.006	-0.14	0.184	0.262
	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	43340	3575	19.93	21.00	1.279	62.9	1.006	0.18	0.148	0.190
	LTE Band 42	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	43340	3575	19.93	21.00	1.279	62.9	1.006	0.12	0.637	0.820
	LTE Band 42	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 0	43340	3575	20.48	22.00	1.419	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	50	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	43340	3575	19.93	21.00	1.279	62.9	1.006	-0.11	0.076	0.098
	LTE Band 42	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 0	43340	3575	20.48	22.00	1.419	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	100	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	43340	3575	19.88	21.00	1.294	62.9	1.006	-0.14	0.622	0.810
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	42590	3500	21.43	23.00	1.435	62.9	1.006	0.1	0.152	0.220
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	42590	3500	21.43	23.00	1.435	62.9	1.006	0.06	0.302	0.436
	LTE Band 42	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 0	42590	3500	21.43	23.00	1.435	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	42590	3500	21.43	23.00	1.435	62.9	1.006	-0.01	0.438	0.632
	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	42590	3500	21.43	23.00	1.435	62.9	1.006	-0.06	0.392	0.566
	LTE Band 42	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 1	DSI 0	42590	3500	21.43	23.00	1.435	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	42590	3500	20.48	22.00	1.419	62.9	1.006	0.09	0.141	0.202
	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	42590	3500	20.48	22.00	1.419	62.9	1.006	-0.14	0.235	0.335
	LTE Band 42	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI 0	42590	3500	20.48	22.00	1.419	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	50	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	42590	3500	20.48	22.00	1.419	62.9	1.006	-0.15	0.358	0.511
	LTE Band 42	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	42590	3500	20.48	22.00	1.419	62.9	1.006	0.1	0.320	0.456
	LTE Band 42	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 1	DSI 0	42590	3500	20.48	22.00	1.419	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	43340	3575	21.66	23.00	1.361	62.9	1.006	0.18	0.120	0.164
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	43340	3575	21.66	23.00	1.361	62.9	1.006	-0.09	0.254	0.348
	LTE Band 42	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 0	43340	3575	21.66	23.00	1.361	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	43340	3575	21.66	23.00	1.361	62.9	1.006	-0.13	0.435	0.596
	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	43340	3575	21.66	23.00	1.361	62.9	1.006	-0.02	0.361	0.495
	LTE Band 42	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 1	DSI 0	43340	3575	21.66	23.00	1.361	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	43340	3575	20.68	22.00	1.355	62.9	1.006	-0.07	0.104	0.141
	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	43340	3575	20.68	22.00	1.355	62.9	1.006	0.14	0.208	0.283
	LTE Band 42	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI 0	43340	3575	20.68	22.00	1.355	62.9	1.006	-0.09	0.043	0.059
	LTE Band 42	20M	QPSK	50	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	43340	3575	20.68	22.00	1.355	62.9	1.006	-0.18	0.351	0.478
	LTE Band 42	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	43340	3575	20.68	22.00	1.355	62.9	1.006	0.02	0.297	0.405
	LTE Band 42	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 1	DSI 0	43340	3575	20.68	22.00	1.355	62.9	1.006	-	n/a	n/a
	LTE Band 43	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	44090	3650	21.60	23.00	1.380	62.9	1.006	0.05	0.277	0.385
	LTE Band 43	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	44090	3650	21.19	22.50	1.352	62.9	1.006	0.19	0.147	0.200
28	LTE Band 43	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	44090	3650	21.19	22.50	1.352	62.9	1.006	0.1	0.798	**1.085**
	LTE Band 43	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	44090	3650	21.60	23.00	1.380	62.9	1.006	-	n/a	n/a
	LTE Band 43	20M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	44090	3650	21.19	22.50	1.352	62.9	1.006	0.01	0.074	0.101
	LTE Band 43	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	44090	3650	21.60	23.00	1.380	62.9	1.006	0	0.068	0.094
	LTE Band 43	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	44090	3650	21.12	22.50	1.374	62.9	1.006	0.05	0.720	0.995
	LTE Band 43	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	44090	3650	21.14	22.50	1.368	62.9	1.006	0.01	0.745	1.025
	LTE Band 43	20M	QPSK	1	0	-	Back	21mm	Ant 0	DSI 0	44090	3650	21.60	23.00	1.380	62.9	1.006	-0.13	0.116	0.161
	LTE Band 43	20M	QPSK	1	0	-	Left Side	24mm	Ant 0	DSI 0	44090	3650	21.60	23.00	1.380	62.9	1.006	0.09	0.229	0.318
	LTE Band 43	20M	QPSK	1	0	-	Top Side	16mm	Ant 0	DSI 0	44090	3650	21.60	23.00	1.380	62.9	1.006	-0.1	0.073	0.101
	LTE Band 43	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 0	44090	3650	20.63	22.00	1.371	62.9	1.006	0.19	0.234	0.323
	LTE Band 43	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	44090	3650	20.21	21.50	1.346	62.9	1.006	0.15	0.153	0.207
	LTE Band 43	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	44090	3650	20.21	21.50	1.346	62.9	1.006	0.06	0.581	0.787
	LTE Band 43	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 0	44090	3650	20.63	22.00	1.371	62.9	1.006	-	n/a	n/a
	LTE Band 43	20M	QPSK	50	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	44090	3650	20.21	21.50	1.346	62.9	1.006	-0.09	0.065	0.088
	LTE Band 43	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 0	44090	3650	20.63	22.00	1.371	62.9	1.006	-	n/a	n/a
	LTE Band 43	20M	QPSK	100	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	44090	3650	20.15	21.50	1.365	62.9	1.006	-0.1	0.576	0.791

	LTE Band 43	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	44090	3650	21.55	23.00	1.396	62.9	1.006	-0.05	0.108	0.152
	LTE Band 43	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	44090	3650	21.55	23.00	1.396	62.9	1.006	-0.13	0.242	0.340
	LTE Band 43	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 0	44090	3650	21.55	23.00	1.396	62.9	1.006	-	n/a	n/a
	LTE Band 43	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	44090	3650	21.55	23.00	1.396	62.9	1.006	-0.14	0.377	0.530
	LTE Band 43	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	44090	3650	21.55	23.00	1.396	62.9	1.006	0.13	0.329	0.462
	LTE Band 43	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 1	DSI 0	44090	3650	21.55	23.00	1.396	62.9	1.006	-	n/a	n/a
	LTE Band 43	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	44090	3650	20.63	22.00	1.371	62.9	1.006	0.02	0.079	0.109
	LTE Band 43	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	44090	3650	20.63	22.00	1.371	62.9	1.006	0.15	0.119	0.164
	LTE Band 43	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI 0	44090	3650	20.63	22.00	1.371	62.9	1.006	-	n/a	n/a
	LTE Band 43	20M	QPSK	50	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	44090	3650	20.63	22.00	1.371	62.9	1.006	-0.16	0.301	0.415
	LTE Band 43	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	44090	3650	20.63	22.00	1.371	62.9	1.006	-0.17	0.261	0.360
	LTE Band 43	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 1	DSI 0	44090	3650	20.63	22.00	1.371	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 0	55340	3560	21.75	23.00	1.334	62.9	1.006	-0.15	0.213	0.286
	LTE Band 48	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	55340	3560	21.32	22.50	1.312	62.9	1.006	0.02	0.193	0.255
29	LTE Band 48	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	55340	3560	21.32	22.50	1.312	62.9	1.006	-0.1	0.833	**1.100**
	LTE Band 48	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 0	55340	3560	21.75	23.00	1.334	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	1	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	55340	3560	21.32	22.50	1.312	62.9	1.006	0.02	0.085	0.112
	LTE Band 48	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 0	55340	3560	21.75	23.00	1.334	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	55830	3609	21.14	22.50	1.368	62.9	1.006	0.13	0.650	0.894
	LTE Band 48	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	56150	3641	21.05	22.50	1.396	62.9	1.006	-0.11	0.638	0.896
	LTE Band 48	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	56640	3690	21.26	22.50	1.330	62.9	1.006	-0.19	0.488	0.653
	LTE Band 48	20M	QPSK	1	0	-	Back	21mm	Ant 0	DSI 0	55340	3560	21.75	23.00	1.334	62.9	1.006	-0.18	0.107	0.144
	LTE Band 48	20M	QPSK	1	0	-	Left Side	24mm	Ant 0	DSI 0	55340	3560	21.75	23.00	1.334	62.9	1.006	-0.01	0.207	0.278
	LTE Band 48	20M	QPSK	1	0	-	Top Side	16mm	Ant 0	DSI 0	55340	3560	21.75	23.00	1.334	62.9	1.006	0.14	0.058	0.078
	LTE Band 48	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 0	55340	3560	21.73	23.00	1.340	62.9	1.006	0.06	0.170	0.229
	LTE Band 48	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 1/6/8/9/12	55340	3560	21.29	22.50	1.321	62.9	1.006	-0.11	0.182	0.242
	LTE Band 48	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	55340	3560	21.29	22.50	1.321	62.9	1.006	-0.11	0.786	1.045
	LTE Band 48	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 0	55340	3560	21.73	23.00	1.340	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	50	0	-	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	55340	3560	21.29	22.50	1.321	62.9	1.006	-0.18	0.080	0.106
	LTE Band 48	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 0	55340	3560	21.73	23.00	1.340	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	55830	3609	21.11	22.50	1.377	62.9	1.006	-0.03	0.614	0.851
	LTE Band 48	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	56150	3641	21.01	22.50	1.409	62.9	1.006	0.07	0.602	0.853
	LTE Band 48	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	56640	3690	21.22	22.50	1.343	62.9	1.006	-0.11	0.461	0.623
	LTE Band 48	20M	QPSK	100	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	55340	3560	21.23	22.50	1.340	62.9	1.006	0.06	0.757	1.020
	LTE Band 48	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	56150	3641	21.70	23.00	1.349	62.9	1.006	-0.15	0.098	0.133
	LTE Band 48	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	56150	3641	21.70	23.00	1.349	62.9	1.006	0.08	0.176	0.239
	LTE Band 48	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 0	56150	3641	21.70	23.00	1.349	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	56150	3641	21.70	23.00	1.349	62.9	1.006	0.01	0.315	0.427
	LTE Band 48C	20M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	56150+ 56348	3641+ 3660.8	21.60	23.00	1.380	62.9	1.006	0.12	0.298	0.414
	LTE Band 48	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	56150	3641	21.70	23.00	1.349	62.9	1.006	-0.05	0.309	0.419
	LTE Band 48	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 1	DSI 0	56150	3641	21.70	23.00	1.349	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	56150	3641	20.65	22.00	1.365	62.9	1.006	-0.07	0.062	0.085
	LTE Band 48	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	56150	3641	20.65	22.00	1.365	62.9	1.006	0.05	0.144	0.198
	LTE Band 48	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI 0	56150	3641	20.65	22.00	1.365	62.9	1.006	-	n/a	n/a
	LTE Band 48	20M	QPSK	50	0	-	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	56150	3641	20.65	22.00	1.365	62.9	1.006	-0.17	0.273	0.375
	LTE Band 48	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	56150	3641	20.65	22.00	1.365	62.9	1.006	0.06	0.256	0.351
	LTE Band 48	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 1	DSI 0	56150	3641	20.65	22.00	1.365	62.9	1.006	-	n/a	n/a
	FR1 n48	40M	QPSK	1	1	DFT-30	Front	10mm	Ant 0	DSI 0	641666	3624.99	22.28	23.00	1.180	-	-	0.06	0.322	0.380
	FR1 n48	40M	QPSK	1	1	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	641666	3624.99	19.38	20.00	1.153	-	-	0.19	0.237	0.273
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	641666	3624.99	19.38	20.00	1.153	-	-	0.12	0.896	1.033
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 0	DSI 0	641666	3624.99	22.28	23.00	1.180	-	-	-	n/a	n/a
	FR1 n48	40M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	641666	3624.99	19.38	20.00	1.153	-	-	-0.12	0.095	0.110
	FR1 n48	40M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	641666	3624.99	22.28	23.00	1.180	-	-	-0.14	0.050	0.059
30	FR1 n48	40M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	638000	3570	19.17	20.00	1.211	-	-	-0.1	0.910	**1.102**
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	645332	3679.98	19.36	20.00	1.159	-	-	-0.01	0.637	0.738
	FR1 n48	40M	QPSK	1	1	DFT-30	Back	21mm	Ant 0	DSI 0	641666	3624.99	22.28	23.00	1.180	-	-	-0.19	0.175	0.207
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Side	24mm	Ant 0	DSI 0	638000	3570	22.16	23.00	1.213	-	-	0.13	0.329	0.399

	FR1 n48	40M	QPSK	1	1	DFT-30	Top Side	16mm	Ant 0	DSI 0	641666	3624.99	22.28	23.00	1.180	-	-	0.03	0.093	0.110
	FR1 n48	40M	QPSK	50	28	DFT-30	Front	10mm	Ant 0	DSI 0	641666	3624.99	22.16	23.00	1.213	-	-	-0.13	0.338	0.410
	FR1 n48	40M	QPSK	50	28	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	641666	3624.99	19.38	20.00	1.153	-	-	-0.19	0.239	0.276
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	641666	3624.99	19.38	20.00	1.153	-	-	0.18	0.859	0.991
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Side	10mm	Ant 0	DSI 0	641666	3624.99	22.16	23.00	1.213	-	-	-	n/a	n/a
	FR1 n48	40M	QPSK	50	28	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	641666	3624.99	19.38	20.00	1.153	-	-	0.1	0.101	0.116
	FR1 n48	40M	QPSK	50	28	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	641666	3624.99	22.16	23.00	1.213	-	-	-0.13	0.058	0.070
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	638000	3570	19.22	20.00	1.197	-	-	-0.07	0.859	1.028
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	645332	3679.98	19.34	20.00	1.164	-	-	0.11	0.601	0.700
	FR1 n48	40M	QPSK	100	0	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	641666	3624.99	19.34	20.00	1.164	-	-	-0.06	0.839	0.977
	FR1 n48	40M	QPSK	1	1	DFT-30	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	21.75	23.00	1.334	-	-	0.14	0.135	0.180
	FR1 n48	40M	QPSK	1	1	DFT-30	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	21.75	23.00	1.334	-	-	0.08	0.287	0.383
	FR1 n48	40M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 1	DSI 0	641666	3624.99	21.75	23.00	1.334	-	-	-	n/a	n/a
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	21.75	23.00	1.334	-	-	0.15	0.566	0.755
	FR1 n48	40M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	21.75	23.00	1.334	-	-	0.04	0.528	0.704
	FR1 n48	40M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	641666	3624.99	21.75	23.00	1.334	-	-	-	n/a	n/a
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	638000	3570	21.71	23.00	1.346	-	-	-0.02	0.518	0.697
	FR1 n48	40M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	645332	3679.98	21.72	23.00	1.343	-	-	-0.19	0.431	0.579
	FR1 n48	40M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	638000	3570	21.71	23.00	1.346	-	-	-0.18	0.483	0.650
	FR1 n48	40M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	645332	3679.98	21.72	23.00	1.343	-	-	-0.11	0.402	0.540
	FR1 n48	40M	QPSK	50	28	DFT-30	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	21.72	23.00	1.343	-	-	-0.01	0.139	0.187
	FR1 n48	40M	QPSK	50	28	DFT-30	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	21.72	23.00	1.343	-	-	0.15	0.268	0.360
	FR1 n48	40M	QPSK	50	28	DFT-30	Left Side	10mm	Ant 1	DSI 0	641666	3624.99	21.72	23.00	1.343	-	-	0.08	0.060	0.081
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	21.72	23.00	1.343	-	-	0.07	0.562	0.755
	FR1 n48	40M	QPSK	50	28	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	21.72	23.00	1.343	-	-	-0.06	0.524	0.704
	FR1 n48	40M	QPSK	50	28	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	641666	3624.99	21.72	23.00	1.343	-	-	0.02	0.048	0.064
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	638000	3570	21.57	23.00	1.390	-	-	-0.14	0.480	0.667
	FR1 n48	40M	QPSK	50	28	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	645332	3679.98	21.66	23.00	1.361	-	-	-0.04	0.399	0.543
	FR1 n48	40M	QPSK	50	28	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	638000	3570	21.57	23.00	1.390	-	-	0.07	0.448	0.623
	FR1 n48	40M	QPSK	50	28	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	645332	3679.98	21.66	23.00	1.361	-	-	-0.14	0.373	0.508
	FR1 n48	40M	QPSK	100	0	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	20.73	22.00	1.340	-	-	0.14	0.421	0.564
	FR1 n48	40M	QPSK	100	0	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	641666	3624.99	20.73	22.00	1.340	-	-	-0.15	0.407	0.545
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 0	DSI 0	633332	3499.98	26.32	27.00	1.169	-	-	0.11	0.589	0.689
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.39	21.00	1.151	-	-	-0.03	0.247	0.284
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.39	21.00	1.151	-	-	-0.12	0.801	0.922
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 0	DSI 0	633332	3499.98	26.32	27.00	1.169	-	-	-	n/a	n/a
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.39	21.00	1.151	-	-	0.11	0.147	0.169
	FR1 n77	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	633332	3499.98	26.32	27.00	1.169	-	-	-0.14	0.092	0.108
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	21mm	Ant 0	DSI 0	633332	3499.98	26.32	27.00	1.169	-	-	-0.05	0.408	0.477
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	24mm	Ant 0	DSI 0	633332	3499.98	26.32	27.00	1.169	-	-	0.19	0.656	0.767
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	16mm	Ant 0	DSI 0	633332	3499.98	26.32	27.00	1.169	-	-	0.18	0.215	0.251
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 0	DSI 0	633332	3499.98	26.07	27.00	1.239	-	-	0.04	0.590	0.731
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.33	21.00	1.167	-	-	0.12	0.241	0.281
31	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.33	21.00	1.167	-	-	0.02	0.893	**1.042**
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 0	DSI 0	633332	3499.98	26.07	27.00	1.239	-	-	-	n/a	n/a
	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.33	21.00	1.167	-	-	0.09	0.108	0.126
	FR1 n77	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	633332	3499.98	26.07	27.00	1.239	-	-	0.06	0.090	0.111
	FR1 n77	100M	QPSK	270	0	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.32	21.00	1.169	-	-	-0.15	0.704	0.823
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 0	DSI 0	656000	3840	25.73	27.00	1.340	-	-	0.06	0.538	0.721
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	656000	3840	19.82	21.00	1.312	-	-	0.12	0.122	0.160
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	656000	3840	19.82	21.00	1.312	-	-	0.13	0.617	0.810
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 0	DSI 0	656000	3840	25.73	27.00	1.340	-	-	0.05	0.065	0.087
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	656000	3840	19.82	21.00	1.312	-	-	-0.08	0.109	0.143
	FR1 n77	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	656000	3840	25.73	27.00	1.340	-	-	-0.02	0.148	0.198
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	21mm	Ant 0	DSI 0	656000	3840	25.73	27.00	1.340	-	-	-0.08	0.194	0.260
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	24mm	Ant 0	DSI 0	656000	3840	25.73	27.00	1.340	-	-	0.17	0.334	0.447
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	16mm	Ant 0	DSI 0	656000	3840	25.73	27.00	1.340	-	-	0.07	0.148	0.198
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 0	DSI 0	656000	3840	25.11	27.00	1.545	-	-	-0.04	0.502	0.776

	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	656000	3840	19.71	21.00	1.346	-	-	-0.18	0.101	0.135
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	656000	3840	19.71	21.00	1.346	-	-	-0.09	0.584	0.786
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 0	DSI 0	656000	3840	25.11	27.00	1.545	-	-	-	n/a	n/a
	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	656000	3840	19.71	21.00	1.346	-	-	-0.15	0.087	0.117
	FR1 n77	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	656000	3840	25.11	27.00	1.545	-	-	-0.16	0.117	0.181
	FR1 n77	100M	QPSK	270	0	DFT-30	Front	10mm	Ant 0	DSI 0	656000	3840	24.42	26.00	1.439	-	-	-0.09	0.492	0.708
	FR1 n77	100M	QPSK	270	0	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	656000	3840	19.70	21.00	1.349	-	-	0.06	0.563	0.759
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	633332	3499.98	22.18	23.00	1.208	-	-	-0.15	0.261	0.315
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	633332	3499.98	22.18	23.00	1.208	-	-	0.15	0.427	0.516
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 1	DSI 0	633332	3499.98	26.06	27.00	1.242	-	-	0.12	0.065	0.081
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	633332	3499.98	22.18	23.00	1.208	-	-	-0.02	0.750	0.906
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	633332	3499.98	22.18	23.00	1.208	-	-	-0.19	0.574	0.693
	FR1 n77	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	633332	3499.98	26.06	27.00	1.242	-	-	-	n/a	n/a
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	23mm	Ant 1	DSI 0	633332	3499.98	26.06	27.00	1.242	-	-	0.13	0.332	0.412
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	27mm	Ant 1	DSI 0	633332	3499.98	26.06	27.00	1.242	-	-	-0.1	0.521	0.647
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	36mm	Ant 1	DSI 0	633332	3499.98	26.06	27.00	1.242	-	-	-0.16	0.255	0.317
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	17mm	Ant 1	DSI 0	633332	3499.98	26.06	27.00	1.242	-	-	0.16	0.789	0.980
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	633332	3499.98	22.16	23.00	1.213	-	-	0.16	0.205	0.249
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	633332	3499.98	22.16	23.00	1.213	-	-	0.08	0.334	0.405
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 1	DSI 0	633332	3499.98	25.27	27.00	1.489	-	-	-	n/a	n/a
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	633332	3499.98	22.16	23.00	1.213	-	-	0.11	0.731	0.887
	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	633332	3499.98	22.16	23.00	1.213	-	-	0.17	0.499	0.605
	FR1 n77	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	633332	3499.98	25.27	27.00	1.489	-	-	0.18	0.068	0.101
	FR1 n77	100M	QPSK	270	0	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	633332	3499.98	22.15	23.00	1.216	-	-	0.02	0.719	0.874
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.08	23.00	1.236	-	-	0.18	0.183	0.226
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.08	23.00	1.236	-	-	0.12	0.331	0.409
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 1	DSI 0	656000	3840	25.98	27.00	1.265	-	-	0.15	0.060	0.076
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.08	23.00	1.236	-	-	-0.16	0.662	0.818
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.08	23.00	1.236	-	-	0.04	0.497	0.614
	FR1 n77	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	656000	3840	25.98	27.00	1.265	-	-	0.11	0.063	0.080
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	23mm	Ant 1	DSI 0	656000	3840	25.98	27.00	1.265	-	-	-0.02	0.355	0.449
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	27mm	Ant 1	DSI 0	656000	3840	25.98	27.00	1.265	-	-	0.07	0.542	0.685
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	36mm	Ant 1	DSI 0	656000	3840	25.98	27.00	1.265	-	-	-0.08	0.264	0.334
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	17mm	Ant 1	DSI 0	656000	3840	25.98	27.00	1.265	-	-	0.08	0.803	1.016
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.01	23.00	1.256	-	-	0.04	0.181	0.227
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.01	23.00	1.256	-	-	0.08	0.321	0.403
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 1	DSI 0	656000	3840	25.16	27.00	1.528	-	-	-	n/a	n/a
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.01	23.00	1.256	-	-	0.18	0.689	0.865
	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.01	23.00	1.256	-	-	0.17	0.511	0.642
	FR1 n77	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	656000	3840	25.16	27.00	1.528	-	-	-	n/a	n/a
	FR1 n77	100M	QPSK	270	0	DFT-30	Back	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.00	23.00	1.259	-	-	0.04	0.324	0.408
	FR1 n77	100M	QPSK	270	0	DFT-30	Right Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.00	23.00	1.259	-	-	-0.1	0.656	0.826
	FR1 n77	100M	QPSK	270	0	DFT-30	Top Side	10mm	Ant 1	DSI 5/7/8/9/10/11/12	656000	3840	22.00	23.00	1.259	-	-	-0.15	0.537	0.676
	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 0	DSI 0	633332	3499.98	26.25	27.00	1.189	-	-	-0.05	0.679	0.807
	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.35	21.00	1.161	-	-	-0.02	0.216	0.251
	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.35	21.00	1.161	-	-	-0.13	0.818	0.950
	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 0	DSI 0	633332	3499.98	26.25	27.00	1.189	-	-	-	n/a	n/a
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.35	21.00	1.161	-	-	0	0.140	0.163
	FR1 n78	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	633332	3499.98	26.25	27.00	1.189	-	-	0.03	0.103	0.122
	FR1 n78	100M	QPSK	1	1	DFT-30	Back	21mm	Ant 0	DSI 0	633332	3499.98	26.25	27.00	1.189	-	-	0.15	0.410	0.487
	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	24mm	Ant 0	DSI 0	633332	3499.98	26.25	27.00	1.189	-	-	-0.04	0.682	0.811
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	16mm	Ant 0	DSI 0	633332	3499.98	26.25	27.00	1.189	-	-	-0.1	0.212	0.252
	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 0	DSI 0	633332	3499.98	25.92	27.00	1.282	-	-	-0.14	0.695	0.891
	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.31	21.00	1.172	-	-	0.15	0.192	0.225
	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.31	21.00	1.172	-	-	0.07	0.849	0.995
	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 0	DSI 0	633332	3499.98	25.92	27.00	1.282	-	-	-	n/a	n/a
	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.31	21.00	1.172	-	-	0.03	0.143	0.168
	FR1 n78	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	633332	3499.98	25.92	27.00	1.282	-	-	-0.16	0.094	0.121

	FR1 n78	100M	QPSK	270	0	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	633332	3499.98	20.28	21.00	1.180	-	-	0.04	0.803	0.948
	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 0	DSI 0	650000	3750	26.13	27.00	1.222	-	-	-0.06	0.548	0.670
	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	650000	3750	20.23	21.00	1.194	-	-	-0.01	0.207	0.247
	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	650000	3750	20.23	21.00	1.194	-	-	-0.13	0.621	0.741
	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 0	DSI 0	650000	3750	26.13	27.00	1.222	-	-	-0.1	0.060	0.073
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	650000	3750	20.23	21.00	1.194	-	-	0.16	0.290	0.346
	FR1 n78	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	650000	3750	26.13	27.00	1.222	-	-	0.07	0.102	0.125
	FR1 n78	100M	QPSK	1	1	DFT-30	Back	21mm	Ant 0	DSI 0	650000	3750	26.13	27.00	1.222	-	-	0.06	0.422	0.516
	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	24mm	Ant 0	DSI 0	650000	3750	26.13	27.00	1.222	-	-	-0.11	0.691	0.844
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	16mm	Ant 0	DSI 0	650000	3750	26.13	27.00	1.222	-	-	-0.01	0.234	0.286
	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 0	DSI 0	650000	3750	25.83	27.00	1.309	-	-	0.1	0.697	0.912
	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 0	DSI 1/6/8/9/12	650000	3750	20.19	21.00	1.205	-	-	-0.11	0.150	0.181
	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	650000	3750	20.19	21.00	1.205	-	-	0.13	0.614	0.740
	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 0	DSI 0	650000	3750	25.83	27.00	1.309	-	-	0.06	0.082	0.107
	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 0	DSI 1/6/8/9/12	650000	3750	20.19	21.00	1.205	-	-	0.18	0.116	0.140
	FR1 n78	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 0	DSI 0	650000	3750	25.83	27.00	1.309	-	-	0.06	0.113	0.148
	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 1	DSI 5	633332	3499.98	22.45	24.00	1.429	-	-	0.13	0.305	0.436
	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 1	DSI 5	633332	3499.98	22.45	24.00	1.429	-	-	0.01	0.529	0.756
	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 1	DSI 0	633332	3499.98	25.54	27.00	1.400	-	-	-0.16	0.059	0.083
32	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 1	DSI 5	633332	3499.98	22.45	24.00	1.429	-	-	0.03	0.758	**1.083**
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 5	633332	3499.98	22.45	24.00	1.429	-	-	0.13	0.731	1.045
	FR1 n78	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	633332	3499.98	25.54	27.00	1.400	-	-	-0.08	0.079	0.111
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 7/8/9/10/11/12	633332	3499.98	20.47	22.00	1.422	-	-	-0.14	0.461	0.656
	FR1 n78	100M	QPSK	1	1	DFT-30	Front	23mm	Ant 1	DSI 0	633332	3499.98	25.54	27.00	1.400	-	-	-0.1	0.310	0.434
	FR1 n78	100M	QPSK	1	1	DFT-30	Back	27mm	Ant 1	DSI 0	633332	3499.98	25.54	27.00	1.400	-	-	0.16	0.519	0.726
	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	36mm	Ant 1	DSI 0	633332	3499.98	25.54	27.00	1.400	-	-	-0.01	0.195	0.273
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	17mm	Ant 1	DSI 0	633332	3499.98	25.54	27.00	1.400	-	-	-0.18	0.725	1.015
	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 1	DSI 5	633332	3499.98	22.40	24.00	1.445	-	-	0.11	0.255	0.369
	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 1	DSI 5	633332	3499.98	22.40	24.00	1.445	-	-	0.18	0.448	0.648
	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 1	DSI 0	633332	3499.98	25.16	27.00	1.528	-	-	0.16	0.053	0.081
	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 1	DSI 5	633332	3499.98	22.40	24.00	1.445	-	-	0.19	0.729	1.054
	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 1	DSI 5	633332	3499.98	22.40	24.00	1.445	-	-	-0.16	0.677	0.979
	FR1 n78	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	633332	3499.98	25.16	27.00	1.528	-	-	0.09	0.066	0.101
	FR1 n78	100M	QPSK	270	0	DFT-30	Right Side	10mm	Ant 1	DSI 5	633332	3499.98	22.42	24.00	1.439	-	-	-0.08	0.690	0.993
	FR1 n78	100M	QPSK	270	0	DFT-30	Top Side	10mm	Ant 1	DSI 5	633332	3499.98	22.42	24.00	1.439	-	-	-0.05	0.650	0.935
	FR1 n78	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 1	DSI 5	650000	3750	22.58	24.00	1.387	-	-	0.16	0.177	0.245
	FR1 n78	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 1	DSI 5	650000	3750	22.58	24.00	1.387	-	-	0.08	0.419	0.581
	FR1 n78	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 1	DSI 0	650000	3750	25.62	27.00	1.374	-	-	-	n/a	n/a
	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 1	DSI 5	650000	3750	22.58	24.00	1.387	-	-	-0.1	0.776	1.076
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 5	650000	3750	22.58	24.00	1.387	-	-	-0.18	0.521	0.722
	FR1 n78	100M	QPSK	1	1	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	650000	3750	25.62	27.00	1.374	-	-	0.09	0.080	0.110
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 1	DSI 7/8/9/10/11/12	650000	3750	22.58	24.00	1.387	-	-	0.02	0.376	0.521
	FR1 n78	100M	QPSK	1	1	DFT-30	Front	23mm	Ant 1	DSI 0	650000	3750	25.62	27.00	1.374	-	-	0.1	0.316	0.434
	FR1 n78	100M	QPSK	1	1	DFT-30	Back	27mm	Ant 1	DSI 0	650000	3750	25.62	27.00	1.374	-	-	-0.17	0.523	0.719
	FR1 n78	100M	QPSK	1	1	DFT-30	Right Side	36mm	Ant 1	DSI 0	650000	3750	25.62	27.00	1.374	-	-	0.09	0.220	0.302
	FR1 n78	100M	QPSK	1	1	DFT-30	Top Side	17mm	Ant 1	DSI 0	650000	3750	25.62	27.00	1.374	-	-	0.01	0.737	1.013
	FR1 n78	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 1	DSI 5	650000	3750	22.57	24.00	1.390	-	-	0.18	0.191	0.265
	FR1 n78	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 1	DSI 5	650000	3750	22.57	24.00	1.390	-	-	-0.18	0.443	0.616
	FR1 n78	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 1	DSI 0	650000	3750	25.21	27.00	1.510	-	-	-	n/a	n/a
	FR1 n78	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 1	DSI 5	650000	3750	22.57	24.00	1.390	-	-	-0.18	0.694	0.965
	FR1 n78	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 1	DSI 5	650000	3750	22.57	24.00	1.390	-	-	0.17	0.511	0.710
	FR1 n78	100M	QPSK	135	69	DFT-30	Bottom Side	10mm	Ant 1	DSI 0	650000	3750	25.21	27.00	1.510	-	-	0.06	0.075	0.113
	FR1 n78	100M	QPSK	270	0	DFT-30	Right Side	10mm	Ant 1	DSI 5	650000	3750	22.54	24.00	1.400	-	-	0.13	0.773	1.082
	FR1 n78	100M	QPSK	270	0	DFT-30	Top Side	10mm	Ant 1	DSI 5	650000	3750	22.54	24.00	1.400	-	-	0.06	0.510	0.714

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 7+6	Full	6	2437	18.37	20.00	1.455	100	1.000	-0.05	0.125	0.182
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 7+6	Full	6	2437	18.37	20.00	1.455	100	1.000	0.08	0.112	0.163
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 7+6	Full	6	2437	18.37	20.00	1.455	100	1.000	-0.17	0.059	0.086
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 7+6	Full	6	2437	18.37	20.00	1.455	100	1.000	-	0.000	0.000
33	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 7+6	Full	6	2437	18.37	20.00	1.455	100	1.000	0.12	0.183	**0.266**
	WLAN2.4GHz	802.11b 1Mbps	Bottom Side	10mm	Ant 7+6	Full	6	2437	18.37	20.00	1.455	100	1.000	-	0.000	0.000
5000MHz																
	WLAN5.2GHz	802.11a 6Mbps	Front	10mm	Ant 7+6	Full	44	5220	18.75	20.00	1.334	99.05	1.010	-0.07	0.191	0.257
	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 7+6	Full	44	5220	18.75	20.00	1.334	99.05	1.010	-0.01	0.355	0.478
	WLAN5.2GHz	802.11a 6Mbps	Left Side	10mm	Ant 7+6	Full	44	5220	18.75	20.00	1.334	99.05	1.010	-	n/a	n/a
	WLAN5.2GHz	802.11a 6Mbps	Right Side	10mm	Ant 7+6	Full	44	5220	18.75	20.00	1.334	99.05	1.010	-0.12	0.077	0.104
	WLAN5.2GHz	802.11a 6Mbps	Top Side	10mm	Ant 7+6	Full	44	5220	18.75	20.00	1.334	99.05	1.010	-0.03	0.598	0.806
	WLAN5.2GHz	802.11a 6Mbps	Bottom Side	10mm	Ant 7+6	Full	44	5220	18.75	20.00	1.334	99.05	1.010	-	n/a	n/a
	WLAN5.2GHz	802.11a 6Mbps	Top Side	10mm	Ant 7+6	Full	36	5180	18.62	20.00	1.374	99.05	1.010	-0.18	0.608	0.843
34	WLAN5.2GHz	802.11a 6Mbps	Top Side	10mm	Ant 7+6	Full	40	5200	18.66	20.00	1.362	99.05	1.010	0.05	0.628	**0.864**
	WLAN5.2GHz	802.11a 6Mbps	Top Side	10mm	Ant 7+6	Full	48	5240	18.74	20.00	1.337	99.05	1.010	-0.01	0.591	0.798
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	10mm	Ant 7+6	Sensor on Simultaneous	46	5230	16.28	18.00	1.486	100	1.000	0.17	0.166	0.247
	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 7	Sensor on Simultaneous	46	5230	13.23	15.00	1.503	100	1.000	0.06	0.281	0.422
	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 6	Sensor on Simultaneous	46	5230	13.31	15.00	1.476	100	1.000	-0.18	0.113	0.167
	WLAN5.2GHz	802.11a 6Mbps	Back	12mm	Ant 7	Full	44	5220	15.59	17.00	1.383	99.05	1.010	-0.05	0.299	0.418
	WLAN5.2GHz	802.11a 6Mbps	Top Side	14mm	Ant 7	Full	40	5200	15.55	17.00	1.396	99.05	1.010	0.09	0.354	0.499
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	12mm	Ant 7	Simultaneous	46	5230	13.23	15.00	1.503	100	1.000	0.06	0.156	0.234
	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	14mm	Ant 7	Simultaneous	46	5230	13.23	15.00	1.503	100	1.000	0.03	0.191	0.287
	WLAN5.2GHz	802.11a 6Mbps	Back	28mm	Ant 6	Full	44	5220	15.88	17.00	1.294	99.05	1.010	0.07	0.096	0.125
	WLAN5.2GHz	802.11a 6Mbps	Bottom Side	41mm	Ant 6	Full	44	5220	15.88	17.00	1.294	99.05	1.010	-	n/a	n/a
	WLAN5.8GHz	802.11a 6Mbps	Front	10mm	Ant 7+6	Full	165	5825	18.39	20.00	1.448	99.05	1.010	-0.18	0.113	0.165
	WLAN5.8GHz	802.11a 6Mbps	Back	10mm	Ant 7+6	Full	165	5825	18.39	20.00	1.448	99.05	1.010	0.04	0.290	0.424
	WLAN5.8GHz	802.11a 6Mbps	Left Side	10mm	Ant 7+6	Full	165	5825	18.39	20.00	1.448	99.05	1.010	-	n/a	n/a
	WLAN5.8GHz	802.11a 6Mbps	Right Side	10mm	Ant 7+6	Full	165	5825	18.39	20.00	1.448	99.05	1.010	-	n/a	n/a
35	WLAN5.8GHz	802.11a 6Mbps	Top Side	10mm	Ant 7+6	Full	165	5825	18.39	20.00	1.448	99.05	1.010	-0.12	0.506	**0.740**
	WLAN5.8GHz	802.11a 6Mbps	Bottom Side	10mm	Ant 7+6	Full	165	5825	18.39	20.00	1.448	99.05	1.010	-	n/a	n/a
	WLAN5.8GHz	802.11n-HT40 MCS0	Back	10mm	Ant 7+6	Sensor on Simultaneous	159	5795	17.26	18.50	1.330	100	1.000	0	0.141	0.188
	WLAN5.8GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 7	Sensor on Simultaneous	159	5795	14.29	15.50	1.321	100	1.000	0.06	0.281	0.371
	WLAN5.8GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 6	Sensor on Simultaneous	159	5795	14.20	15.50	1.349	100	1.000	-0.13	0.138	0.186
	WLAN5.8GHz	802.11a 6Mbps	Back	12mm	Ant 7	Full	165	5825	15.49	17.00	1.415	99.05	1.010	0	0.219	0.313
	WLAN5.8GHz	802.11a 6Mbps	Top Side	14mm	Ant 7	Full	165	5825	15.49	17.00	1.415	99.05	1.010	0.19	0.256	0.366
	WLAN5.8GHz	802.11n-HT40 MCS0	Back	12mm	Ant 7	Simultaneous	159	5795	14.29	15.50	1.321	100	1.000	0.03	0.135	0.178
	WLAN5.8GHz	802.11n-HT40 MCS0	Top Side	14mm	Ant 7	Simultaneous	159	5795	14.29	15.50	1.321	100	1.000	0.08	0.181	0.239
	WLAN5.8GHz	802.11a 6Mbps	Back	28mm	Ant 6	Full	165	5825	15.27	17.00	1.489	99.05	1.010	0.1	0.055	0.083
	WLAN5.8GHz	802.11a 6Mbps	Bottom Side	41mm	Ant 6	Full	165	5825	15.27	17.00	1.489	99.05	1.010	-	n/a	n/a

16.2 Repeated SAR Measurement

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)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 14	10M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 3/10/11/12	23330	793	28.99	29.50	1.125	-0.05	1.030	1	1.158
2nd	LTE Band 14	10M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 3/10/11/12	23330	793	28.99	29.50	1.125	0.06	0.986	1.045	1.109
1st	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132572	1770	21.96	22.50	1.132	0.07	0.958	1	1.085
2nd	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	132572	1770	21.96	22.50	1.132	-0.01	0.928	1.032	1.051
1st	FR1 n25	40M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	376500	1882.5	22.59	23.00	1.099	-0.03	0.918	1	1.009
2nd	FR1 n25	40M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	376500	1882.5	22.59	23.00	1.099	-0.15	0.885	1.037	0.973
1st	FR1 n7	40M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.17	24.00	1.211	-0.15	0.986	1	1.194
2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	507000	2535	23.17	24.00	1.211	-0.09	0.959	1.028	1.161
1st	FR1 n48	40M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	638000	3570	19.17	20.00	1.211	-0.1	0.910	1	1.102
2nd	FR1 n48	40M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	638000	3570	19.17	20.00	1.211	-0.1	0.877	1.038	1.062
1st	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	17mm	Ant 1	DSI 0	656000	3840	25.98	27.00	1.265	0.08	0.803	1	1.016
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	17mm	Ant 1	DSI 0	656000	3840	25.98	27.00	1.265	0.04	0.794	1.011	1.004
1st	FR1 n48	40M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	641666	3624.99	19.38	20.00	1.153	0.12	0.896	1	1.016
2nd	FR1 n48	40M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 0	DSI 1/6/8/9/12	641666	3624.99	19.38	20.00	1.153	-0.01	0.872	1.028	1.004

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. 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.

17. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Mobile Hotspot
		Body
1.	WWAN + 2.4GHz WLAN	Yes
2.	WWAN + 5GHz WLAN	Yes
3.	2.4GHz WLAN + 5GHz WLAN	Yes
4.	WWAN +2.4GHz WLAN + 5GHz WLAN	Yes

General Note:

1. EUT will choose each WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
2. WWAN above includes 5G NR bands and EN-DC combination.
3. 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) using one of 4G or 5G NR.
4. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment though they have independent antenna.
5. All licensed modes share the same antenna part and cannot transmit simultaneously.
6. The reported SAR summation is calculated based on the same configuration and test position
7. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04 for 1g SAR and SPLSR≤ 0.10 for 10g SAR , simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.

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

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

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

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

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

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

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

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

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

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

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

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

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 ≤ 1.0, and
iii. x% * A + (100-x)% * B ≤ 1.0
Note iii. is covered in Part 2 report; i. and ii. should be addressed in Part 1 report.

Above analysis is also apply to LTE/NR inter-band uplink CA, LTE(NR)1 + LTE(NR)2 + WLAN + BT simultaneous transmission, So inter-band uplink CA no need to do additional simultaneously analysis again. Only required comply with total exposure ratio (TER) of LTE/NR + WLAN + BT < 1.

17.2 MIMO SAR Test condition and verification

General Note:

1. Smart Transmit EFS v20 (or lower) uses SISO Plimit to calculate RF exposure from MIMO transmission scenario. Therefore, if MIMO is supported for WWAN technologies (including 5G sub6 NR), below procedure should be performed for validity of Smart Transmit operation:
   1) Below procedure should also be performed for Smart Transmit EFS v21 (or higher) if MIMO Plimit is not populated in the EFS but MIMO operation is supported for antennas belonging to the same antenna group (refer to Section 4.2.5 of of Qualcomm's document 80-W2112-4).
2. Measure SAR for supported MIMO scenarios in FTM mode with each of the MIMO antennas set to transmit continuously at *Ptest* = minimum {*Plimit(i), Pmax(i); i*=1 to *n* MIMO antennas}, where *Plimit(i)* is the power level entered in the Smart Transmit EFS for antenna *i* under the corresponding tech/band/DSI. For Smart Transmit to ensure the compliance in MIMO transmission scenario, the below criteria should be met for measured MIMO SAR (i.e., highest peak spatial-average SAR from the measurement):

   $$reported\ SAR_{MIMO} = Measured\ MIMO\ SAR_{MIMO}\ \ at\ (P_{test} + device\ total\ uncertainty) \leq calc.SAR$$

   Where $calc.SAR = \sum_{i=1}^{n}\left[SAR_design_target * 10^{\left(\frac{total\ uncertainty + P_{test} - P_{limit}(i) - backoff(i)}{10}\right)}\right]$

   Here,
   - *n* is number of MIMO antennas (in case of 2x2MIMO, n=2).
   - *Plimit(i)* is EFS *Plimit* for antenna *i* ϵ MIMO for a given tech/band/DSI. *Plimit* corresponds to *SAR_design_target.*
   - *backoff(i)* is backoff from *SAR_design_target* used for the *i*th antenna's *Plimit* to meet TER with external radios (i.e., radios outside of Smart Transmit control). If EFS *Plimit* of antenna *i* corresponds to *SAR_design_target*, then *backoff(i)* = 0 in the above equation.
   - *Ptest* (i.e., power level used for MIMO SAR measurement, MIMO.SAR @*Ptest*) = min {*Plimit(i)*, Pmax*(i)*, *i* = 1 to n MIMO antenna}. To further clarify, *Ptest* = min {*Plimit(i), SISO.Pmax(i)*, *MIMO.Pmax*, *i*= 1 to n antenna ϵ MIMO}, where, *Plimit* corresponds to *SAR_design_target*; *SISO.Pmax* and *MIMO.Pmax* correspond to the maximum output power (nominal levels without device uncertainty) that device is capable; here, *Ptest* is nominal power level, not measured level.
3. If the $reported\ SARMIMO$ does not meet the above condition, then *Plimit(i)* for each of the MIMO antenna in the Smart Transmit EFS should be reduced by *10*log10[*$reported\ SARMIMO$ */calc.SAR]* dB.
4. Per Qualcomm's document guideline, FR1 MIMO Plimit is not populated in the EFS file, but MIMO operation is supported for antennas belonging to the same antenna group, the detail FR1 MIMO analysis results please referred to appendix G.

17.3 Body Exposure Conditions

WWAN Band	Exposure Position	1	3	4	6	7	1+3	1+4	1+3+4	1+3+6+7
		WWAN	WLAN2.4GHz Ant 7+6	WLAN5GHz Ant 7+6	WLAN5GHz Ant 7	WLAN5GHz Ant 6	Summed	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)	1g SAR (W/kg)
WCDMA II Ant 0	Front	0.270	0.182	0.257			0.45	0.53	0.71	
	Back	0.693	0.163	0.247			0.86	0.94	1.10	
	Left side	1.010	0.086				1.10	1.01	1.10	
	Right side	0.076		0.104			0.08	0.18	0.18	
	Top side	0.313	0.266		0.422	0.186	0.58	0.31		1.19
	Bottom side						0.00	0.00	0.00	
WCDMA IV Ant 0	Front	0.217	0.182	0.257			0.40	0.47	0.66	
	Back	0.642	0.163	0.247			0.81	0.89	1.05	
	Left side	1.005	0.086				1.09	1.01	1.09	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.152	0.266		0.422	0.186	0.42	0.15		1.03
	Bottom side						0.00	0.00	0.00	
WCDMA V Ant 0	Front	0.148	0.182	0.257			0.33	0.41	0.59	
	Back	0.348	0.163	0.247			0.51	0.60	0.76	
	Left side	0.225	0.086				0.31	0.23	0.31	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.064	0.266		0.422	0.186	0.33	0.06		0.94
	Bottom side	0.122					0.12	0.12	0.12	
LTE Band 5 Ant 1	Front	0.143	0.182	0.257			0.33	0.40	0.58	
	Back	0.264	0.163	0.247			0.43	0.51	0.67	
	Left side	0.188	0.086				0.27	0.19	0.27	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.102	0.266		0.422	0.186	0.37	0.10		0.98
	Bottom side	0.151					0.15	0.15	0.15	
LTE Band 7 Ant 0	Front	0.247	0.182	0.257			0.43	0.50	0.69	
	Back	0.605	0.163	0.247			0.77	0.85	1.02	
	Left side	1.173	0.086				1.26	1.17	1.26	
	Right side	0.065		0.104			0.07	0.17	0.17	
	Top side	0.269	0.266		0.422	0.186	0.54	0.27		1.14
	Bottom side	0.058					0.06	0.06	0.06	
LTE Band 12 Ant 0	Front	0.204	0.182	0.257			0.39	0.46	0.64	
	Back	0.416	0.163	0.247			0.58	0.66	0.83	
	Left side	0.190	0.086				0.28	0.19	0.28	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.195	0.266		0.422	0.186	0.46	0.20		1.07
	Bottom side	0.137					0.14	0.14	0.14	
LTE Band 13 Ant 0	Front	0.260	0.182	0.257			0.44	0.52	0.70	
	Back	0.536	0.163	0.247			0.70	0.78	0.95	
	Left side	0.257	0.086				0.34	0.26	0.34	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.224	0.266		0.422	0.186	0.49	0.22		1.10
	Bottom side	0.229					0.23	0.23	0.23	
LTE Band 14 Ant 4	Front	0.477	0.182	0.257			0.66	0.73	0.92	
	Back	1.158	0.163	0.247			1.32	1.41	1.57	
	Left side	0.277	0.086				0.36	0.28	0.36	
	Right side	0.312		0.104			0.31	0.42	0.42	
	Top side	0.169	0.266		0.422	0.186	0.44	0.17		1.04
	Bottom side	1.067					1.07	1.07	1.07	
LTE Band 25 Ant 0	Front	0.250	0.182	0.257			0.43	0.51	0.69	
	Back	0.700	0.163	0.247			0.86	0.95	1.11	
	Left side	0.994	0.086				1.08	0.99	1.08	

	Right side	0.089		0.104			0.09	0.19	0.19	
	Top side	0.346	0.266		0.422	0.186	0.61	0.35		1.22
	Bottom side						0.00	0.00	0.00	
LTE Band 25 Ant 1	Front	0.329	0.182	0.257			0.51	0.59	0.77	
	Back	0.626	0.163	0.247			0.79	0.87	1.04	
	Left side		0.086				0.09	0.00	0.09	
	Right side	0.261		0.104			0.26	0.37	0.37	
	Top side	0.275	0.266		0.422	0.186	0.54	0.28		1.15
	Bottom side	0.048					0.05	0.05	0.05	
LTE Band 26 Ant 0	Front	0.169	0.182	0.257			0.35	0.43	0.61	
	Back	0.352	0.163	0.247			0.52	0.60	0.76	
	Left side	0.218	0.086				0.30	0.22	0.30	
	Right side	0.166		0.104			0.17	0.27	0.27	
	Top side	0.091	0.266		0.422	0.186	0.36	0.09		0.97
	Bottom side	0.157					0.16	0.16	0.16	
LTE Band 30 Ant 0	Front	0.205	0.182	0.257			0.39	0.46	0.64	
	Back	0.647	0.163	0.247			0.81	0.89	1.06	
	Left side	0.844	0.086				0.93	0.84	0.93	
	Right side	0.077		0.104			0.08	0.18	0.18	
	Top side	0.270	0.266		0.422	0.186	0.54	0.27		1.14
	Bottom side						0.00	0.00	0.00	
LTE Band 30 Ant 1	Front	0.139	0.182	0.257			0.32	0.40	0.58	
	Back	0.321	0.163	0.247			0.48	0.57	0.73	
	Left side		0.086				0.09	0.00	0.09	
	Right side	0.590		0.104			0.59	0.69	0.69	
	Top side	0.186	0.266		0.422	0.186	0.45	0.19		1.06
	Bottom side						0.00	0.00	0.00	
LTE Band 66 Ant 0	Front	0.229	0.182	0.257			0.41	0.49	0.67	
	Back	0.684	0.163	0.247			0.85	0.93	1.09	
	Left side	1.085	0.086				1.17	1.09	1.17	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.182	0.266		0.422	0.186	0.45	0.18		1.06
	Bottom side						0.00	0.00	0.00	
LTE Band 66 Ant 1	Front	0.344	0.182	0.257			0.53	0.60	0.78	
	Back	0.285	0.163	0.247			0.45	0.53	0.70	
	Left side	0.134	0.086				0.22	0.13	0.22	
	Right side	0.177		0.104			0.18	0.28	0.28	
	Top side	0.261	0.266		0.422	0.186	0.53	0.26		1.14
	Bottom side	0.080					0.08	0.08	0.08	
LTE Band 71 Ant 0	Front	0.119	0.182	0.257			0.30	0.38	0.56	
	Back	0.270	0.163	0.247			0.43	0.52	0.68	
	Left side	0.104	0.086				0.19	0.10	0.19	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.129	0.266		0.422	0.186	0.40	0.13		1.00
	Bottom side	0.085					0.09	0.09	0.09	
LTE Band 41 Ant 0	Front	0.152	0.182	0.257			0.33	0.41	0.59	
	Back	0.340	0.163	0.247			0.50	0.59	0.75	
	Left side	0.407	0.086				0.49	0.41	0.49	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.178	0.266		0.422	0.186	0.44	0.18		1.05
	Bottom side						0.00	0.00	0.00	
LTE Band 41 Ant 1	Front	0.132	0.182	0.257			0.31	0.39	0.57	
	Back	0.208	0.163	0.247			0.37	0.46	0.62	
	Left side		0.086				0.09	0.00	0.09	
	Right side	0.975		0.104			0.98	1.08	1.08	
	Top side	0.332	0.266		0.422	0.186	0.60	0.33		1.21

	Bottom side						0.00	0.00	0.00	
LTE Band 42 Ant 0	Front	0.357	0.182	0.257			0.54	0.61	0.80	
	Back	0.199	0.163	0.247			0.36	0.45	0.61	
	Left side	1.076	0.086				1.16	1.08	1.16	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.099	0.266		0.422	0.186	0.37	0.10		0.97
	Bottom side	0.089					0.09	0.09	0.09	
LTE Band 42 Ant 1	Front	0.220	0.182	0.257			0.40	0.48	0.66	
	Back	0.436	0.163	0.247			0.60	0.68	0.85	
	Left side	0.059	0.086				0.15	0.06	0.15	
	Right side	0.632		0.104			0.63	0.74	0.74	
	Top side	0.566	0.266		0.422	0.186	0.83	0.57		1.44
	Bottom side						0.00	0.00	0.00	
LTE Band 43 Ant 0	Front	0.385	0.182	0.257			0.57	0.64	0.82	
	Back	0.207	0.163	0.247			0.37	0.45	0.62	
	Left side	1.085	0.086				1.17	1.09	1.17	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.101	0.266		0.422	0.186	0.37	0.10		0.98
	Bottom side	0.094					0.09	0.09	0.09	
LTE Band 43 Ant 1	Front	0.152	0.182	0.257			0.33	0.41	0.59	
	Back	0.340	0.163	0.247			0.50	0.59	0.75	
	Left side		0.086				0.09	0.00	0.09	
	Right side	0.530		0.104			0.53	0.63	0.63	
	Top side	0.462	0.266		0.422	0.186	0.73	0.46		1.34
	Bottom side						0.00	0.00	0.00	
LTE Band 48 Ant 0	Front	0.286	0.182	0.257			0.47	0.54	0.73	
	Back	0.255	0.163	0.247			0.42	0.50	0.67	
	Left side	1.100	0.086				1.19	1.10	1.19	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.112	0.266		0.422	0.186	0.38	0.11		0.99
	Bottom side						0.00	0.00	0.00	
LTE Band 48 Ant 1	Front	0.133	0.182	0.257			0.32	0.39	0.57	
	Back	0.239	0.163	0.247			0.40	0.49	0.65	
	Left side		0.086				0.09	0.00	0.09	
	Right side	0.427		0.104			0.43	0.53	0.53	
	Top side	0.419	0.266		0.422	0.186	0.69	0.42		1.29
	Bottom side						0.00	0.00	0.00	
FR1 n2 Ant 1	Front	0.447	0.182	0.257			0.63	0.70	0.89	
	Back	0.787	0.163	0.247			0.95	1.03	1.20	
	Left side	0.101	0.086				0.19	0.10	0.19	
	Right side	0.335		0.104			0.34	0.44	0.44	
	Top side	0.375	0.266		0.422	0.186	0.64	0.38		1.25
	Bottom side	0.072					0.07	0.07	0.07	
FR1 n5 Ant 1	Front	0.525	0.182	0.257			0.71	0.78	0.96	
	Back	0.585	0.163	0.247			0.75	0.83	1.00	
	Left side	0.061	0.086				0.15	0.06	0.15	
	Right side	0.333		0.104			0.33	0.44	0.44	
	Top side	0.109	0.266		0.422	0.186	0.38	0.11		0.98
	Bottom side	0.198					0.20	0.20	0.20	
FR1 n7 Ant 0	Front	0.284	0.182	0.257			0.47	0.54	0.72	
	Back	0.734	0.163	0.247			0.90	0.98	1.14	
	Left side	1.194	0.086				1.28	1.19	1.28	
	Right side	0.085		0.104			0.09	0.19	0.19	
	Top side	0.265	0.266		0.422	0.186	0.53	0.27		1.14
	Bottom side	0.067					0.07	0.07	0.07	
FR1 n12 Ant 0	Front	0.194	0.182	0.257			0.38	0.45	0.63	

	Back	0.423	0.163	0.247			0.59	0.67	0.83	
	Left side	0.225	0.086				0.31	0.23	0.31	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.163	0.266		0.422	0.186	0.43	0.16		1.04
	Bottom side	0.132					0.13	0.13	0.13	
FR1 n13 Ant 0	Front	0.222	0.182	0.257			0.40	0.48	0.66	
	Back	0.410	0.163	0.247			0.57	0.66	0.82	
	Left side	0.270	0.086				0.36	0.27	0.36	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.156	0.266		0.422	0.186	0.42	0.16		1.03
	Bottom side	0.181					0.18	0.18	0.18	
FR1 n14 Ant 4	Front	0.129	0.182	0.257			0.31	0.39	0.57	
	Back	0.352	0.163	0.247			0.52	0.60	0.76	
	Left side		0.086				0.09	0.00	0.09	
	Right side			0.104			0.00	0.10	0.10	
	Top side		0.266		0.422	0.186	0.27	0.00		0.87
	Bottom side	0.294					0.29	0.29	0.29	
FR1 n25 Ant 0	Front	0.243	0.182	0.257			0.43	0.50	0.68	
	Back	0.562	0.163	0.247			0.73	0.81	0.97	
	Left side	1.009	0.086				1.10	1.01	1.10	
	Right side	0.097		0.104			0.10	0.20	0.20	
	Top side	0.243	0.266		0.422	0.186	0.51	0.24		1.12
	Bottom side						0.00	0.00	0.00	
FR1 n26 Ant 0	Front	0.159	0.182	0.257			0.34	0.42	0.60	
	Back	0.432	0.163	0.247			0.60	0.68	0.84	
	Left side	0.220	0.086				0.31	0.22	0.31	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.086	0.266		0.422	0.186	0.35	0.09		0.96
	Bottom side	0.147					0.15	0.15	0.15	
FR1 n30 Ant 0	Front	0.184	0.182	0.257			0.37	0.44	0.62	
	Back	0.628	0.163	0.247			0.79	0.88	1.04	
	Left side	0.641	0.086				0.73	0.64	0.73	
	Right side	0.057		0.104			0.06	0.16	0.16	
	Top side	0.290	0.266		0.422	0.186	0.56	0.29		1.16
	Bottom side	0.050					0.05	0.05	0.05	
FR1 n30 Ant 1	Front	0.162	0.182	0.257			0.34	0.42	0.60	
	Back	0.325	0.163	0.247			0.49	0.57	0.74	
	Left side		0.086				0.09	0.00	0.09	
	Right side	0.672		0.104			0.67	0.78	0.78	
	Top side	0.259	0.266		0.422	0.186	0.53	0.26		1.13
	Bottom side						0.00	0.00	0.00	
FR1 n66 Ant 0	Front	0.271	0.182	0.257			0.45	0.53	0.71	
	Back	0.693	0.163	0.247			0.86	0.94	1.10	
	Left side	1.084	0.086				1.17	1.08	1.17	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.169	0.266		0.422	0.186	0.44	0.17		1.04
	Bottom side						0.00	0.00	0.00	
FR1 n66 Ant 1	Front	0.430	0.182	0.257			0.61	0.69	0.87	
	Back	0.439	0.163	0.247			0.60	0.69	0.85	
	Left side	0.201	0.086				0.29	0.20	0.29	
	Right side	0.190		0.104			0.19	0.29	0.29	
	Top side	0.311	0.266		0.422	0.186	0.58	0.31		1.19
	Bottom side	0.149					0.15	0.15	0.15	
FR1 n71 Ant 0	Front	0.136	0.182	0.257			0.32	0.39	0.58	
	Back	0.254	0.163	0.247			0.42	0.50	0.66	
	Left side	0.140	0.086				0.23	0.14	0.23	

	Right side			0.104			0.00	0.10	0.10	
	Top side	0.143	0.266		0.422	0.186	0.41	0.14		1.02
	Bottom side	0.090					0.09	0.09	0.09	
FR1 n41 Ant 0	Front	0.250	0.182	0.257			0.43	0.51	0.69	
	Back	0.534	0.163	0.247			0.70	0.78	0.94	
	Left side	0.690	0.086				0.78	0.69	0.78	
	Right side	0.047		0.104			0.05	0.15	0.15	
	Top side	0.240	0.266		0.422	0.186	0.51	0.24		1.11
	Bottom side	0.047					0.05	0.05	0.05	
FR1 n41 Ant 1	Front	0.166	0.182	0.257			0.35	0.42	0.61	
	Back	0.311	0.163	0.247			0.47	0.56	0.72	
	Left side		0.086				0.09	0.00	0.09	
	Right side	1.004		0.104			1.00	1.11	1.11	
	Top side	0.426	0.266		0.422	0.186	0.69	0.43		1.30
	Bottom side						0.00	0.00	0.00	
FR1 n48 Ant 0	Front	0.410	0.182	0.257			0.59	0.67	0.85	
	Back	0.276	0.163	0.247			0.44	0.52	0.69	
	Left side	1.102	0.086				1.19	1.10	1.19	
	Right side			0.104			0.00	0.10	0.10	
	Top side	0.116	0.266		0.422	0.186	0.38	0.12		0.99
	Bottom side	0.070					0.07	0.07	0.07	
FR1 n48 Ant 1	Front	0.187	0.182	0.257			0.37	0.44	0.63	
	Back	0.383	0.163	0.247			0.55	0.63	0.79	
	Left side	0.081	0.086				0.17	0.08	0.17	
	Right side	0.755		0.104			0.76	0.86	0.86	
	Top side	0.704	0.266		0.422	0.186	0.97	0.70		**1.58**
	Bottom side	0.064					0.06	0.06	0.06	
FR1 n77 Ant 0	Front	0.776	0.182	0.257			0.96	1.03	1.22	
	Back	0.284	0.163	0.247			0.45	0.53	0.69	
	Left side	1.042	0.086				1.13	1.04	1.13	
	Right side	0.087		0.104			0.09	0.19	0.19	
	Top side	0.169	0.266		0.422	0.186	0.44	0.17		1.04
	Bottom side	0.198					0.20	0.20	0.20	
FR1 n77 Ant 1	Front	0.315	0.182	0.257			0.50	0.57	0.75	
	Back	0.516	0.163	0.247			0.68	0.76	0.93	
	Left side	0.081	0.086				0.17	0.08	0.17	
	Right side	0.906		0.104			0.91	1.01	1.01	
	Top side	0.693	0.266		0.422	0.186	0.96	0.69		1.57
	Bottom side	0.101					0.10	0.10	0.10	
FR1 n78 Ant 0	Front	0.912	0.182	0.257			1.09	1.17	1.35	
	Back	0.251	0.163	0.247			0.41	0.50	0.66	
	Left side	0.995	0.086				1.08	1.00	1.08	
	Right side	0.107		0.104			0.11	0.21	0.21	
	Top side	0.346	0.266		0.422	0.186	0.61	0.35		1.22
	Bottom side	0.148					0.15	0.15	0.15	
FR1 n78 Ant 1	Front	0.436	0.182	0.257			0.62	0.69	0.88	
	Back	0.756	0.163	0.247			0.92	1.00	1.17	
	Left side	0.083	0.086				0.17	0.08	0.17	
	Right side	1.083		0.104			1.08	1.19	1.19	
	Top side	0.521	0.266		0.422	0.186	0.79	0.52		1.40
	Bottom side	0.113					0.11	0.11	0.11	

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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 ≤ 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 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

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

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

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

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

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

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

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

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

Appendixes

Please refer to separated files for the following appendixes

Appendix A. Plots of System Performance Check

Appendix B. Plots of High SAR Measurement

Appendix C. DASY Calibration Certificate

Appendix D. Test Setup Photos

Appendix E. Conducted RF Output Power Table

Appendix F. Power measurement connection diagram and CA Conducted RF Output Power Table

Appendix G. Verify MIMO SAR analysis results

Appendix H. Power reduction mechanism verification

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