FCC SAR Test Report

APPLICANT	: OnePlus Technology (Shenzhen) Co., Ltd.
EQUIPMENT	: Mobile Phone
BRAND NAME	: ONEPLUS,
MODEL NAME	: CPH2655
FCC ID	: 2ABZ2-OP23895
STANDARD	: FCC 47 CFR Part 2 (2.1093)

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

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

Approved by: Si Zhang

Sporton International Inc. (Shenzhen)
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People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA461101	Rev. 01	Initial issue of report.	Sep. 27, 2024

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **OnePlus Technology (Shenzhen) Co., Ltd., Mobile Phone, CPH2655,** are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 10mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.20	0.32	0.32	1.19
		GSM1900	<0.10	0.82	0.42	
	WCDMA	WCDMA V	0.89	1.17	0.76	
		WCDMA IV	0.82	1.07	0.52	
		WCDMA II	1.18	0.97	0.53	
	LTE	LTE Band 71	0.58	0.52	0.34	
		LTE Band 12/17	1.04	1.17	0.85	
		LTE Band 13	1.07	**1.19**	0.84	
		LTE Band 26/5	0.70	0.96	0.59	
		LTE Band 66/4	0.97	1.09	0.58	
		LTE Band 25/2	1.16	1.01	0.78	
		LTE Band 30	1.14	0.92	0.43	
		LTE Band 7	1.11	1.06	0.58	
		LTE Band 41/38	1.10	1.14	0.66	
		LTE Band 48	1.10	1.16	**0.97**	
	5G NR	FR1 n71	0.71	0.58	0.36	
		FR1 n12	1.08	1.18	0.71	
		FR1 n5	1.18	1.14	0.69	
		FR1 n66	1.14	1.07	0.67	
		FR1 n25/2	1.11	1.15	0.64	
		FR1 n30	1.17	1.00	0.61	
		FR1 n7	1.16	1.11	0.80	
		FR1 n41/38	**1.19**	**1.19**	0.70	
		FR1 n48	1.13	1.16	0.91	
		FR1 n77/78	**1.19**	1.12	**0.97**	
DTS	WLAN	2.4GHz WLAN	1.10	1.12	0.75	1.19
NII		5GHz WLAN	1.18	0.61	0.61	1.19
DSS	Bluetooth	2.4GHz Bluetooth	0.96	0.79	0.37	1.19

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
NII	WLAN	5GHz WLAN	**1.80**	1.80
Date of Testing:			2024/8/4 ~ 2024/9/3	

Remark:

1. This device supports LTE B17/B5/B4/B2/B38 and B12/B26/B66/B25/B41. Since the supported frequency span for LTE B17/B5/B4/B2/B38 falls completely within the supports frequency span for LTE B12/B26/B66/B25/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 B12/B26/B66/B25/B41.
2. This device supports 5GNR n2/n38/n78 and 5GNR n25/n41/n77. Since the supported frequency span for 5GNR n2/n38/n78falls completely within the supports frequency span for 5GNR n25/n41/n77, both 5GNR bands have the same target power, and both 5GNR bands share the same transmission path; therefore, SAR was only assessed for 5GNR n25/n41/n77.

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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

2. Administration Data

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

Testing Laboratory			
Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	SAR01-SZ	CN1256	421272

Applicant	
Company Name	OnePlus Technology (Shenzhen) Co., Ltd.
Address	18C02, 18C03, 18C04, and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen, Guangdong, P.R. China.

Manufacturer	
Company Name	OnePlus Technology (Shenzhen) Co., Ltd.
Address	18C02, 18C03, 18C04, and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen, Guangdong, P.R. China.

3. Guidance Applied

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

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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Phone
Brand Name	ONEPLUS,
Model Name	CPH2655
FCC ID	2ABZ2-OP23895
IMEI Code	Sample 1: IMEI 1: 866493070032552 IMEI 2: 866493070032545 Sample 2: IMEI 1: 866493070031992 IMEI 2: 766493070031984
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850MHz ~ 1910MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n25 : 1850 MHz ~ 1915 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: 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz 5G NR n78: 3700 MHz ~ 3800 MHz, 3450MHz ~ 3550MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz WLAN U-NII 5: 5925 MHz ~ 6425 MHz WLAN U-NII 6: 6425 MHz ~ 6525 MHz WLAN U-NII 7: 6525 MHz ~ 6875 MHz WLAN U-NII 8: 6875 MHz ~ 7125 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz WPT: 110.1KHz ~ 148.5KHz
Mode	GSM/GPRS/EGPRS/DTM

	RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink is supported) LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ac VHT20/VHT40 WLAN 2.4GHz 802.11ax/be HE20/HE40/EHT20/EHT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/VHT160 WLAN 5GHz 802.11ax HE20/HE40/HE80/HE160 WLAN 5GHz 802.11be EHT20/EHT40/EHT80/EHT160 WLAN 6GHz 802.11a/ax HE20/HE40/HE80/HE160 WLAN 6GHz 802.11be EHT20/EHT40/EHT80/EHT160/EHT320 Bluetooth BR/EDR/LE NFC: ASK WPT: ASK
HW Version	11
SW Version	OxygenOS V15.0
GSM / (E)GPRS Dual Transfer mode	Class A – EUT can support Packet Switched and Circuit Switched Network simultaneously.
EUT Stage	Production Unit

Remark:

1. This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5GNR (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
3. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device supports DTM operation up to multi-slot class 11 and supports GPRS/EGPRS mode up to multi-slot class 33.
5. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active).
6. The device implements receiver detect mechanism trigger reduced power for the power management for SAR compliance at different exposure conditions (head, hotspot, body-worn, and extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. It uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
7. This device supports HPUE for LTE band 41 with class 2 level, HPUE power have been measured separately. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR.
8. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
9. This device supports HPUE for 5GNR n41/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.
10. 5GNR n41 supports UL MIMO mode.
11. There are two samples under test. The difference between them is material of back cover: sample 1 is with leather back cover, Sample 2 is with glass back cover. According to the difference, sample 1 was chosen to perform full testing and sample 2 only verified the worst case of sample 1.
12. This device has NFC function and the NFC SAR report will be separately submitted.
13. RF exposure report for WPC (Wireless power charging) will be separately submitted.
14. SAR and Power density test report for WLAN 6GHz U-NII-5/6/7/8 will be separately submitted. About co-located SAR with WWAN/Bluetooth always chose higher SAR of WLAN5GHz U-NII-1/2A/2C/3 and WLAN 6GHz U-NII-5/6/7/8.
15. This device supports 5GNR FR1 bands as following table, including NSA mode and SA mode. NSA and SA mode performed SAR separately.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths (BW)
NSA	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, 50
	n25	FDD	15	5, 10, 15, 20, 25, 30, 35 ,40
	n66	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n71	FDD	15	5, 10, 15, 20, 25, 30, 35
	n38	TDD	30	10, 15, 20, 25, 30, 40
	n41	TDD	30	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
	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
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, 50
	n12	FDD	15	5, 10, 15
	n25	FDD	15	5, 10, 15, 20, 25, 30, 35 ,40
	n30	FDD	15	5, 10
	n66	FDD	15	5, 10, 15, 20, 25, 30, 35, 40, 45
	n71	FDD	15	5, 10, 15, 20, 25, 30, 35
	n38	TDD	30	10, 15, 20, 25, 30, 40
	n41	TDD	30	10, 15, 20, 25, 30, 35, 40, 45, 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	2ABZ2-OP23895
Equipment Name	Mobile Phone
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM / 64QAM / 256QAM
LTE Voice / Data requirements	Voice and Data
LTE Release Version	R15
CA Support	Supported, 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}) | MPR (dB) 1.4 MHz | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz QPSK: > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 1 16 QAM: ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 16 QAM: > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2 64 QAM: ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 2 64 QAM: > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 3 256 QAM: ≥ 1 | ≤ 5
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
Power reduction applied to satisfy SAR compliance	Yes, when operating in receiver detect mechanism, head/ body-worn /hotspot/extremity will trigger reduced power for some bands applied to satisfy SAR compliance, the detail please referred to section 13.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 13.
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for intra-band with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 6 carriers in the downlink and 2 carriers in the uplink.

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20407	824.7	20415	825.5	20425	826.5	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844				
LTE Band 7												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510				
M	21100	2535	21100	2535	21100	2535	21100	2535				
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560				
LTE Band 12												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	23017	699.7	23025	700.5	23035	701.5	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711				
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23205		779.5		23230		782					
M	23230		782									
H	23255		784.5									
LTE Band 17												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)					
L	23755		706.5		23780		709					
M	23790		710		23790		710					
H	23825		713.5		23800		711					
LTE Band 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	133247	675.5	133272	678	133297	680.5	133322	683
H	133447	695.5	133422	693	133397	690.5	133372	688

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 12	Yes	Yes	Yes	Yes		
LTE Band 17			Yes	Yes		
LTE Band 38			Yes	Yes	Yes	Yes
LTE Band 41			Yes	Yes	Yes	Yes

2) LTE Bands tune up

Band	Antenna	Default	DSI 4	DSI 5
		Tune-up Limit	Tune-up Limit	Tune-up Limit
LTE Band 2	Ant 5	25	22	22
LTE Band 25		25	22	22
LTE Band 2	Ant 0	24.8	21.3	20.3
LTE Band 25		24.8	20.8	19.8
LTE Band 2	Ant 6	24	20.5	20.5
LTE Band 25		24	23	20
LTE Band 2	Ant 7	24.8	21.8	21.8
LTE Band 25		24.8	23.8	21.8
LTE Band 4	Ant 5	24.8	23.3	23.3
LTE Band 66		25	23.5	23.5
LTE Band 4	Ant 0	24.8	22.8	22.8
LTE Band 66		24.8	22.8	22.8
LTE Band 4	Ant 6	23.8	19.8	19.3
LTE Band 66		24.8	20.3	20.3
LTE Band 4	Ant 7	23.8	20.8	19.8
LTE Band 66		25	23	21.5
LTE Band 5	Ant 0	24.8	23.3	21.3
LTE Band 26		24.8	24.8	23.3
LTE Band 5	Ant 1	25	25	25
LTE Band 26		25	25	25
LTE Band 12	Ant 0	24.8	24.8	23.8
LTE Band 17		24.8	24.8	23.8
LTE Band 12	Ant 1	25	25	25
LTE Band 17		25	25	25
LTE Band 38 PC3	Ant 5	25	23.5	23.5
LTE Band 41 PC3		24.8	23.8	24.8
LTE Band 38 PC3	Ant 0	24.8	22.3	20.3
LTE Band 41 PC3		23.8	22.3	23.3

Note: For some bands/antennas at some exposure conditions which cannot be covered were fully tested for RF exposure compliance.

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 n25 : 1850 MHz ~ 1915 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: 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz 5G NR n78: 3700 MHz ~ 3800 MHz, 3450MHz ~ 3550MHz
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: QPSK / 16QAM / 64QAM / 256QAM CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n2	LTE B4/5/7/12/13/30/66/71
LTE Anchor Bands for n5	LTE B2/7/30/48/66
LTE Anchor Bands for n7	LTE B2/4/5/12/13/66
LTE Anchor Bands for n25	LTE B7/12/13/26/66
LTE Anchor Bands for n38	LTE B2/4/5/12/66/71
LTE Anchor Bands for n41	LTE B2/4/12/25/26/66/71
LTE Anchor Bands for n66	LTE B2/5/7/12/13/30/48/71
LTE Anchor Bands for n71	LTE B2/7/66
LTE Anchor Bands for n77	LTE B2/5/7/12/13/25/30/41/66
LTE Anchor Bands for n78	LTE B2/4/5/7/12/13/25/38/41/66/71

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 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	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

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

NR Band 7

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 50MHz	
	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	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	503500	2517.5	504000	2520	505000	2525
M	507000	2535	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	511500	2557.5	511000	2555	510500	2552.5	510000	2550	509000	2545

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 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 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		Bandwidth 45MHz	
	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	342500	1712.5	343000	1715	343500	1717.5	344000	1720	344500	1722.5	345000	1725	345500	1727.5	346000	1730	346500	1732.5
M	349000	1745	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	351500	1757.5

NR Band 71 SCS15KHz														
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Ch. #	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	133100	665.5	133600	668	134100	670.5	134600	673	135100	675.5	135600	678		
M	136100	680.5	136100	680.5	136100	680.5	136100	680.5	136100	680.5	136100	680.5	136100	680.5
H	139100	695.5	138600	693	138100	690.5	137600	688	137100	685.5	136600	683		

NR Band 38 SCS30KHz												
	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)
L	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
H	522996	2614.98	522498	2612.49	522000	2610	521496	2607.48	520998	2604.99	519996	2599.98

NR Band 41																										
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 45MHz		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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500202	2501.01	500700	2503.5	501204	2506.02	501702	2508.51	502200	2511	502704	2513.52	503202	2516.01	503700	2518.5	505200	2526	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	518598	2592.99	518598	2592.99
H	537000	2685	536496	2682.48	535998	2679.99	535500	2677.5	534996	2674.98	534498	2672.49	534000	2670	533496	2667.48	531996	2659.98	531996	2659.98	531000	2655	529998	2649.99	528996	2644.98	528000	2640

NR Band 48 SCS30KHz										
	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)	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)	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	652832	3792.48	652666	3789.99	652500	3787.5	652332	3784.98	652000	3780	651666	3774.99	651332	3769.98	651000	3765	650666	3759.99	650332	3754.98				

For <3450 MHz ~ 3550 MHz >

NR Band 77 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)
FR1 NR	n2	FDD	15	5,10,15,20,25,30,35,40
	n25	FDD	15	5,10,15,20,25,30,35,40
	n38	TDD	30	10,15,20,25,30,40
	n41	TDD	30	10,15,20,25,30,35,40,45,50,60,70,80,90,100
	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

2) NR Bands Tune up:

Band	Antenna	Default	DSI 4	DSI 5
		Tune-up Limit	Tune-up Limit	Tune-up Limit
n2	Ant 5	25.4	22.4	21.9
n25		25.4	23.4	21.9
n2	Ant 0	25.2	21.2	20.2
n25		25.2	21.2	20.2
n2	Ant 6	24.7	21.2	19.2
n25		24.4	22.9	19.4
n2	Ant 7	25.2	22.2	22.2
n25		25.2	23.2	22.2
n38 PC3	Ant 5	25.4	20.9	20.9
n41 PC3		25.2	21.7	22.2
n38 PC3	Ant 0	25.2	20.2	20.2
n41 PC3		24.2	20.7	20.7
n38 PC3	Ant 6	25.2	19.7	17.7
n41 PC3		24.2	19.2	17.7
n38 PC3	Ant 7	25.4	22.4	21.4
n41 PC3		24.7	23.7	23.2
n77 PC3	Ant 10	25.2	19.7	19.7
n78 PC3		25.2	20.7	19.7
n77 PC3	Ant 6	24.7	20.7	15.7
n78 PC3		24.7	22.2	15.7
n77 PC3	Ant 11	25.2	23.2	17.7
n78 PC3		25.2	22.2	17.2
n77 PC3	Ant 12	24.2	19.2	15.7
n78 PC3		24.2	19.2	16.2
n77 PC2	Ant 10	27.2	19.7	19.7

n78 PC2		27.2	20.7	19.7
n77 PC2	Ant 6	26.7	20.7	15.7
n78 PC2		26.7	22.7	15.7
n77 PC2	Ant 11	26.5	23.2	17.7
n78 PC2		26.5	22.2	17.2
n77 PC2	Ant 12	26.2	19.2	15.7
n78 PC2		26.2	19.2	16.2

Note: For some bands/antennas at some exposure conditions which cannot be covered were fully tested for RF exposure compliance.

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 and WLAN/BT transmitter to ensure the product in compliance with FCC RF exposure limit over a defined time window. 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.

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 23 to enable the Smart Transmit GEN2 phase VI (do not support Antenna group).

<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 WWAN and WLAN/BT bands. It will then be used as input for Smart Transmit to control and manage RF exposure for WWAN and WLAN/BT bands.

<SAR design target>

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 4	DSI 5	Total Uncertainty dB (k=2)	Pmax*
GSM850	1	30.00	32.10	1.2	24.3
GSM1900	5	22.90	34.50	1.2	21.3
WCDMA II	0	20.10	19.60	1.2	23.6
WCDMA II	5	20.80	20.80	1.2	23.8
WCDMA IV	0	21.10	21.10	1.2	23.6
WCDMA IV	5	22.30	22.30	1.2	23.8
WCDMA V	0	22.10	20.60	1.2	23.6
WCDMA V	1	29.10	30.40	1.2	23.6
LTE Band 2	5	20.80	20.80	1.2	23.8
LTE Band 2	0	20.10	19.10	1.2	23.6
LTE Band 2	6	19.30	19.30	1.2	22.8
LTE Band 2	7	20.60	20.60	1.2	23.6
LTE Band 4	5	22.10	22.10	1.2	23.6
LTE Band 4	0	21.60	21.60	1.2	23.6
LTE Band 4	6	18.60	18.10	1.2	22.6
LTE Band 4	7	19.60	18.60	1.2	22.6
LTE Band 5	0	22.10	20.10	1.2	23.6
LTE Band 5	1	29.40	31.70	1.2	23.8
LTE Band 7	5	21.60	22.10	1.2	23.1
LTE Band 7	0	20.60	19.60	1.2	22.6
LTE Band 7	6	18.10	16.10	1.2	22.6
LTE Band 7	7	21.10	20.10	1.2	22.6
LTE Band 12	0	23.70	22.60	1.2	23.6
LTE Band 12	1	29.90	32.90	1.2	23.8
LTE Band 13	0	23.10	22.10	1.2	23.1
LTE Band 13	1	30.50	33.00	1.2	23.6
LTE Band 17	0	23.70	22.60	1.2	23.6
LTE Band 17	1	29.90	32.90	1.2	23.8
LTE Band 25	5	20.80	20.80	1.2	23.8
LTE Band 25	0	19.60	18.60	1.2	23.6
LTE Band 25	6	21.80	18.80	1.2	22.8
LTE Band 25	7	22.60	20.60	1.2	23.6
LTE Band 26	0	24.20	22.10	1.2	23.6
LTE Band 26	1	29.40	31.70	1.2	23.8
LTE Band 30	5	21.60	21.60	1.2	23.6
LTE Band 30	0	20.10	20.10	1.2	22.6
LTE Band 30	6	19.60	16.60	1.2	22.6
LTE Band 30	7	21.10	20.60	1.2	23.1
LTE Band 66	5	22.30	22.30	1.2	23.8
LTE Band 66	0	21.60	21.60	1.2	23.6
LTE Band 66	6	19.10	19.10	1.2	23.6
LTE Band 66	7	21.80	20.30	1.2	23.8
LTE Band 71	0	26.40	25.90	1.2	22.8
LTE Band 71	1	30.20	34.70	1.2	23.6
LTE Band 38	5	20.30	20.30	1.2	21.8
LTE Band 38	0	19.10	17.10	1.2	21.6
LTE Band 41_PC3	5	20.60	21.60	1.2	21.6

LTE Band 41_PC2	5	20.60	21.60	1.2	22.5
LTE Band 41_PC3	0	19.10	20.10	1.2	20.6
LTE Band 41_PC2	0	19.10	20.10	1.2	21.5
LTE Band 41_PC3	6	19.60	18.60	1.2	21.6
LTE Band 41_PC2	6	19.60	18.60	1.2	22.0
LTE Band 41_PC3	7	24.70	23.50	1.2	21.6
LTE Band 41_PC2	7	24.70	23.50	1.2	22.0
LTE Band 48	10	20.60	19.10	1.2	21.6
LTE Band 48	6	20.10	15.10	1.2	21.1
LTE Band 48	11	21.10	16.60	1.2	21.6
LTE Band 48	12	18.10	14.10	1.2	20.1
FR1 n2	5	21.20	20.70	1.2	24.2
FR1 n2	0	20.00	19.00	1.2	24.0
FR1 n2	6	20.00	18.00	1.2	23.5
FR1 n2	7	21.00	21.00	1.2	24.0
FR1 n5	0	22.50	21.00	1.2	24.0
FR1 n5	1	23.70	23.70	1.2	24.2
FR1 n7	5	21.00	21.00	1.2	23.5
FR1 n7	0	20.00	19.00	1.2	23.0
FR1 n7	6	18.50	16.50	1.2	23.0
FR1 n7	7	21.50	20.00	1.2	23.0
FR1 n12	0	24.00	23.00	1.2	24.0
FR1 n12	1	27.90	23.20	1.2	24.2
FR1 n25	5	22.20	20.70	1.2	24.2
FR1 n25	0	20.00	19.00	1.2	24.0
FR1 n25	6	21.70	18.20	1.2	23.2
FR1 n25	7	22.00	21.00	1.2	24.0
FR1 n30	5	21.00	21.00	1.2	24.0
FR1 n30	0	21.00	20.00	1.2	23.0
FR1 n66	5	21.70	21.70	1.2	24.2
FR1 n66	0	22.00	22.00	1.2	24.0
FR1 n66	6	19.50	19.00	1.2	24.0
FR1 n66	7	22.20	21.20	1.2	24.2
FR1 n71	0	26.30	25.40	1.2	23.2
FR1 n71	1	29.70	33.30	1.2	24.0
FR1 n38	5	19.70	19.70	1.2	24.2
FR1 n38	0	19.00	19.00	1.2	24.0
FR1 n38	6	18.50	16.50	1.2	24.0
FR1 n38	7	21.20	20.20	1.2	24.2
FR1 n41_PC3	5	20.50	21.00	1.2	24.0
FR1 n41_PC2	5	20.50	21.00	1.2	26.5
FR1 n41_PC3	0	19.50	19.50	1.2	23.0
FR1 n41_PC2	0	19.50	19.50	1.2	25.5
FR1 n41_PC3	6	18.00	16.50	1.2	23.0
FR1 n41_PC2	6	18.00	16.50	1.2	25.5
FR1 n41_PC3	7	22.50	22.00	1.2	23.5
FR1 n41_PC2	7	22.50	22.00	1.2	26.0
FR1 n48	10	21.00	20.00	1.2	24.0
FR1 n48	6	22.50	16.00	1.2	23.5
FR1 n48	11	21.50	16.50	1.2	24.0
FR1 n48	12	17.50	14.50	1.2	22.5
FR1 n77_PC3	10	18.50	18.50	1.2	24.0
FR1 n77_PC2	10	18.50	18.50	1.2	26.0
FR1 n77_PC3	6	19.50	14.50	1.2	23.5
FR1 n77_PC2	6	19.50	14.50	1.2	25.5
FR1 n77_PC3	11	22.00	16.50	1.2	24.0

FR1 n77_PC2	11	22.00	16.50	1.2	25.3
FR1 n77_PC3	12	18.00	14.50	1.2	23.0
FR1 n77_PC2	12	18.00	14.50	1.2	25.0
FR1 n78_PC3	10	19.50	18.50	1.2	24.0
FR1 n78_PC2	10	19.50	18.50	1.2	26.0
FR1 n78_PC3	6	21.00	14.50	1.2	23.5
FR1 n78_PC2	6	21.00	14.50	1.2	25.5
FR1 n78_PC3	11	21.00	16.00	1.2	24.0
FR1 n78_PC2	11	21.00	16.00	1.2	25.3
FR1 n78_PC3	12	18.00	15.00	1.2	23.0
FR1 n78_PC2	12	18.00	15.00	1.2	25.0
Bluetooth	1	12.60	12.60	1.2	12.6
Bluetooth	10	16.10	14.60	1.2	16.1
Bluetooth	13	17.60	15.60	1.2	17.6
WLAN2.4GHz	13	19.80	17.80	1.2	21.3
WLAN2.4GHz	10	18.30	17.30	1.2	21.3
WLAN2.4GHz	13+10	20.30	19.30	1.2	24.3
WLAN5.2GHz	14	15.80	16.80	1.2	20.3
WLAN5.2GHz	15	12.80	20.30	1.2	20.3
WLAN5.2GHz	14+15	11.80	15.80	1.2	20.3
WLAN5.3GHz	14	15.80	16.80	1.2	20.3
WLAN5.3GHz	15	12.80	20.30	1.2	20.3
WLAN5.3GHz	14+15	11.80	15.80	1.2	20.3
WLAN5.5GHz	14	15.80	16.80	1.2	20.3
WLAN5.5GHz	15	12.80	20.30	1.2	20.3
WLAN5.5GHz	14+15	11.80	15.80	1.2	20.3
WLAN5.8GHz	14	15.80	16.80	1.2	21.8
WLAN5.8GHz	15	12.80	20.80	1.2	21.8
WLAN5.8GHz	14+15	11.80	15.80	1.2	21.8
WLAN6GHz	14	12.30	12.30	1.2	12.3
WLAN6GHz	15	12.30	12.30	1.2	12.3
WLAN6GHz	14+15	12.30	12.30	1.2	15.3

Note:

1. *P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + total uncertainty.
2. **All P_{limit} power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).
3. The max allowed output power is the P_{limit} + total uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.

6. RF Exposure Limits

6.1 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.

6.2 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.

7. Specific Absorption Rate (SAR)

7.1 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.

7.2 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:

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

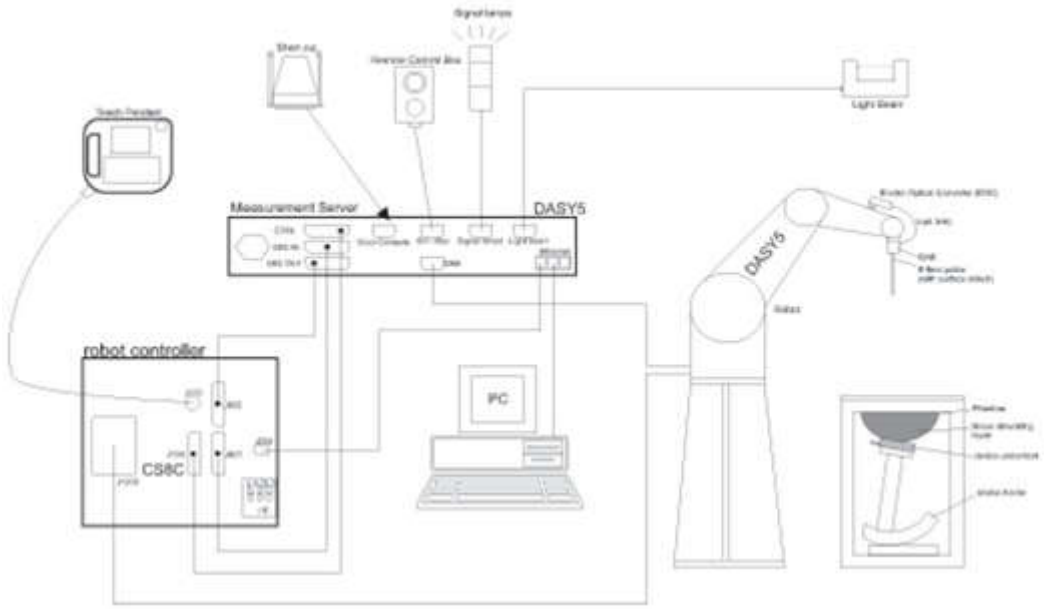
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. System Description and Setup

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



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win7 or Win10 and the DASY5 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.

8.1 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

8.2 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

8.3 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

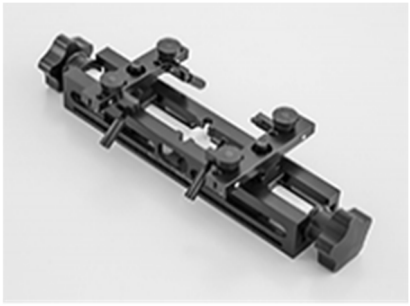
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices or for evaluating transmitters operating at low frequencies. ELI is fully compatible with standard and all known tissue simulating liquids.

8.4 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

9. 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

9.1 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

9.2 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.

9.3 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.	

9.4 Zoom Scan

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

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

9.5 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.

9.6 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.

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	Dec. 15, 2021	Dec. 13, 2024
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 17, 2021	Dec. 15, 2024
SPEAG	1750MHz System Validation Kit	D1750V2	1137	Oct. 19, 2021	Oct. 17, 2024
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Dec. 20, 2021	Dec. 18, 2024
SPEAG	2300MHz System Validation Kit	D2300V2	1056	Oct. 20, 2021	Oct. 18, 2024
SPEAG	2450MHz System Validation Kit	D2450V2	924	Nov. 03, 2023	Nov. 02, 2024
SPEAG	2600MHz System Validation Kit	D2600V2	1070	Dec. 20, 2021	Dec. 18, 2024
SPEAG	3500MHz System Validation Kit	D3500V2	1037	Nov. 20, 2023	Nov. 19, 2024
SPEAG	3700MHz System Validation Kit	D3700V2	1008	Nov. 20, 2023	Nov. 19, 2024
SPEAG	3900MHz System Validation Kit	D3900V2	1048	Mar. 09, 2023	Mar. 08, 2026
SPEAG	5000MHz System Validation Kit	D5GHzV2	1341	Dec. 13, 2021	Dec. 11, 2024
SPEAG	Data Acquisition Electronics	DAE4	1437	Mar. 14, 2024	Mar. 13, 2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	7641	Jun. 03, 2024	Jun. 02, 2025
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1671	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P41 AA	2033	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201341952	Dec. 28, 2023	Dec. 27, 2024
Anritsu	Radio communication analyzer	MT8820C	6201563813	Dec. 28, 2023	Dec. 27, 2024
Anritsu	Radio communication analyzer	MT8821C	6272416837	Apr. 08, 2024	Apr. 07, 2025
Anritsu	Radio communication analyzer	MT8821C	6272416846	Apr. 08, 2024	Apr. 07, 2025
Agilent	Wireless Communication Test Set	E5515C	MY50267224	Jul. 03, 2024	Jul. 02, 2025
Keysight	Network Analyzer	E5071C	MY46523671	Oct. 16, 2023	Oct. 15, 2024
Speag	Dielectric Assessment KIT	DAK-3.5	1071	Feb. 19, 2024	Feb. 18, 2025
Agilent	Signal Generator	N5181A	MY50145381	Dec. 28, 2023	Dec. 27, 2024
R&S	Signal Generator	SMB100A	175779	Dec. 28, 2023	Dec. 27, 2024
Anritsu	Power Senor	MA2411B	1306099	Oct. 16, 2023	Oct. 15, 2024
Anritsu	Power Meter	ML2495A	1349001	Oct. 16, 2023	Oct. 15, 2024
Anritsu	Power Sensor	MA2411B	1542004	Dec. 28, 2023	Dec. 27, 2024
Anritsu	Power Meter	ML2495A	1339473	Dec. 28, 2023	Dec. 27, 2024
R&S	CBT BLUETOOTH TESTER	CBT	100963	Dec. 28, 2023	Dec. 27, 2024
R&S	Spectrum Analyzer	FSP7	100818	Jul. 04, 2024	Jul. 03, 2025
TES	Hygrometer	1310	200505600	Jul. 08, 2024	Jul. 07, 2025
Anymetre	Thermo-Hygrometer	JR593	2015030903	Jan. 02, 2024	Jan. 01, 2025
Anymetre	Thermo-Hygrometer	JR593	2015102801	Jan. 02, 2024	Jan. 01, 2025
SPEAG	Device Holder	N/A	N/A	N/A	N/A
AR	Amplifier	5S1G4	0333096	Note 1	
Mini-Circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
Mini-Circuits	Amplifier	ZVA-183W-S+	726202215	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Jinkexinhua	Attenuator	10db-8G	N/A	Note 1	

Note:

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

11. System Verification

11.1 Tissue Simulating Liquids

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

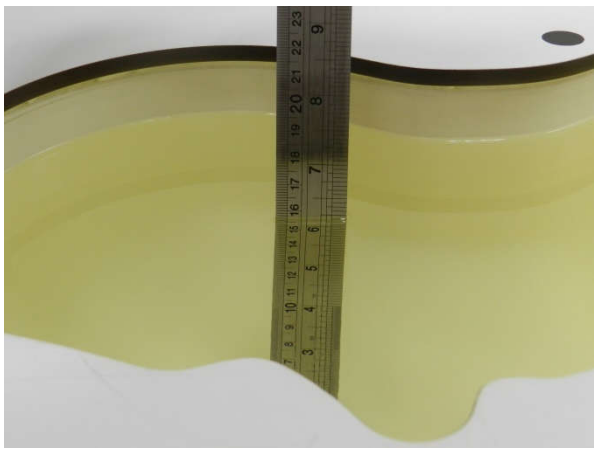


Fig 11.1 Photo of Liquid Height for Head SAR

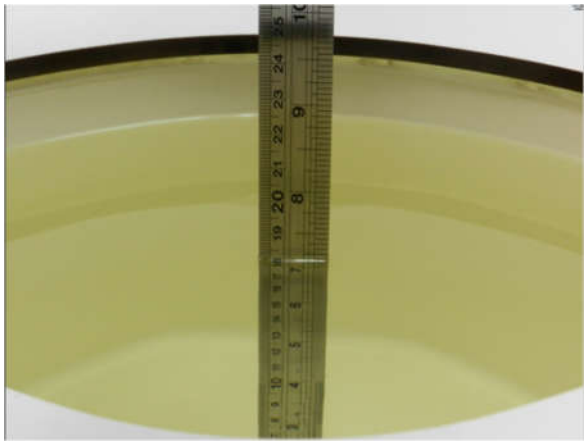


Fig 11.2 Photo of Liquid Height for Body SAR

11.2 Tissue Verification

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

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

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.1	0.901	42.355	0.89	41.90	1.24	1.09	±5	2024/8/8
750	Head	22.3	0.895	41.004	0.89	41.90	0.56	-2.14	±5	2024/8/20
835	Head	22.1	0.942	42.739	0.90	41.50	4.67	2.99	±5	2024/8/6
835	Head	22.6	0.904	41.212	0.90	41.50	0.44	-0.69	±5	2024/8/28
1750	Head	22.2	1.352	41.174	1.37	40.10	-1.31	2.68	±5	2024/8/7
1750	Head	22.1	1.407	41.718	1.37	40.10	2.70	4.03	±5	2024/8/29
1900	Head	22.4	1.436	40.948	1.40	40.00	2.57	2.37	±5	2024/8/4
1900	Head	22.4	1.434	40.995	1.40	40.00	2.43	2.49	±5	2024/8/31
2300	Head	22.2	1.689	40.381	1.67	39.50	1.14	2.23	±5	2024/8/9
2300	Head	22.1	1.678	37.879	1.67	39.50	0.48	-4.10	±5	2024/8/24
2450	Head	22.5	1.797	40.232	1.80	39.20	-0.17	2.63	±5	2024/8/25
2450	Head	22.3	1.786	37.661	1.80	39.20	-0.78	-3.93	±5	2024/9/2
2600	Head	22.4	1.910	39.218	1.96	39.00	-2.55	0.56	±5	2024/8/15
2600	Head	22.5	1.981	40.195	1.96	39.00	1.07	3.06	±5	2024/8/26
3500	Head	22.3	2.851	36.434	2.91	37.90	-2.03	-3.87	±5	2024/8/17
3500	Head	22.6	2.981	39.219	2.91	37.90	2.44	3.48	±5	2024/8/28
3700	Head	22.5	3.003	36.123	3.12	37.70	-3.75	-4.18	±5	2024/8/16
3700	Head	22.3	3.141	38.960	3.12	37.70	0.67	3.34	±5	2024/8/29
3900	Head	22.5	3.249	35.889	3.33	37.51	-2.43	-4.32	±5	2024/8/15
3900	Head	22.1	3.312	38.755	3.33	37.51	-0.54	3.32	±5	2024/8/30
5250	Head	22.6	4.519	36.967	4.71	35.95	-4.06	2.83	±5	2024/8/22
5250	Head	22.1	4.556	36.836	4.71	35.95	-3.27	2.46	±5	2024/8/28
5600	Head	22.4	4.850	36.514	5.07	35.50	-4.34	2.86	±5	2024/8/22
5600	Head	22.5	4.900	36.343	5.07	35.50	-3.35	2.37	±5	2024/8/29
5750	Head	22.3	5.026	36.211	5.22	35.35	-3.72	2.44	±5	2024/8/23
5750	Head	22.3	5.059	36.094	5.22	35.35	-3.08	2.10	±5	2024/8/30

11.3 System Performance Check Results

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

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2024/8/8	750	Head	250	1099	7641	1437	2.010	8.540	8.04	-5.85
2024/8/20	750	Head	250	1099	7641	1437	2.060	8.540	8.24	-3.51
2024/8/6	835	Head	250	4d162	7641	1437	2.410	9.640	9.64	0.00
2024/8/28	835	Head	250	4d162	7641	1437	2.220	9.640	8.88	-7.88
2024/8/7	1750	Head	250	1137	7641	1437	8.460	36.500	33.84	-7.29
2024/8/29	1750	Head	250	1137	7641	1437	8.830	36.500	35.32	-3.23
2024/8/4	1900	Head	250	5d182	7641	1437	9.730	39.600	38.92	-1.72
2024/8/31	1900	Head	250	5d182	7641	1437	9.450	39.600	37.8	-4.55
2024/8/9	2300	Head	250	1056	7641	1437	12.000	48.800	48	-1.64
2024/8/24	2300	Head	250	1056	7641	1437	11.600	48.800	46.4	-4.92
2024/8/25	2450	Head	250	924	7641	1437	12.400	52.300	49.6	-5.16
2024/9/2	2450	Head	250	924	7641	1437	12.100	52.300	48.4	-7.46
2024/8/15	2600	Head	250	1070	7641	1437	13.100	56.200	52.4	-6.76
2024/8/26	2600	Head	250	1070	7641	1437	13.000	56.200	52	-7.47
2024/8/17	3500	Head	100	1037	7641	1437	6.080	65.400	60.8	-7.03
2024/8/28	3500	Head	100	1037	7641	1437	6.590	65.400	65.9	0.76
2024/8/16	3700	Head	100	1008	7641	1437	6.690	67.200	66.9	-0.45
2024/8/29	3700	Head	100	1008	7641	1437	7.160	67.200	71.6	6.55
2024/8/15	3900	Head	100	1048	7641	1437	7.140	69.100	71.4	3.33
2024/8/30	3900	Head	100	1048	7641	1437	6.600	69.100	66	-4.49
2024/8/22	5250	Head	100	1341	7641	1437	7.920	80.700	79.2	-1.86
2024/8/28	5250	Head	100	1341	7641	1437	8.560	80.700	85.6	6.07
2024/8/22	5600	Head	100	1341	7641	1437	8.480	84.500	84.8	0.36
2024/8/29	5600	Head	100	1341	7641	1437	7.880	84.500	78.8	-6.75
2024/8/23	5750	Head	100	1341	7641	1437	8.360	80.600	83.6	3.72
2024/8/30	5750	Head	100	1341	7641	1437	8.300	80.600	83	2.98

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2024/8/8	750	Head	250	1099	7641	1437	1.350	5.650	5.4	-4.42
2024/8/20	750	Head	250	1099	7641	1437	1.310	5.650	5.24	-7.26
2024/8/6	835	Head	250	4d162	7641	1437	1.580	6.260	6.32	0.96
2024/8/28	835	Head	250	4d162	7641	1437	1.450	6.260	5.8	-7.35
2024/8/7	1750	Head	250	1137	7641	1437	4.520	19.200	18.08	-5.83
2024/8/29	1750	Head	250	1137	7641	1437	4.740	19.200	18.96	-1.25
2024/8/4	1900	Head	250	5d182	7641	1437	5.020	20.200	20.08	-0.59
2024/8/31	1900	Head	250	5d182	7641	1437	4.860	20.200	19.44	-3.76
2024/8/9	2300	Head	250	1056	7641	1437	5.580	22.800	22.32	-2.11
2024/8/24	2300	Head	250	1056	7641	1437	5.390	22.800	21.56	-5.44
2024/8/25	2450	Head	250	924	7641	1437	5.670	24.500	22.68	-7.43
2024/9/2	2450	Head	250	924	7641	1437	5.680	24.500	22.72	-7.27
2024/8/15	2600	Head	250	1070	7641	1437	5.670	24.600	22.68	-7.80
2024/8/26	2600	Head	250	1070	7641	1437	5.680	24.600	22.72	-7.64
2024/8/17	3500	Head	100	1037	7641	1437	2.390	24.700	23.9	-3.24
2024/8/28	3500	Head	100	1037	7641	1437	2.530	24.700	25.3	2.43
2024/8/16	3700	Head	100	1008	7641	1437	2.580	24.400	25.8	5.74
2024/8/29	3700	Head	100	1008	7641	1437	2.610	24.400	26.1	6.97
2024/8/15	3900	Head	100	1048	7641	1437	2.490	24.100	24.9	3.32
2024/8/30	3900	Head	100	1048	7641	1437	2.300	24.100	23	-4.56
2024/8/22	5250	Head	100	1341	7641	1437	2.230	23.100	22.3	-3.46
2024/8/28	5250	Head	100	1341	7641	1437	2.410	23.100	24.1	4.33
2024/8/22	5600	Head	100	1341	7641	1437	2.380	24.000	23.8	-0.83
2024/8/29	5600	Head	100	1341	7641	1437	2.290	24.000	22.9	-4.58
2024/8/23	5750	Head	100	1341	7641	1437	2.330	22.700	23.3	2.64
2024/8/30	5750	Head	100	1341	7641	1437	2.340	22.700	23.4	3.08

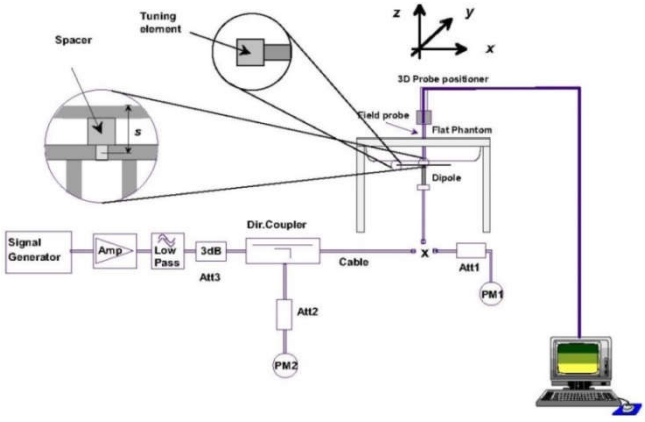


Fig 11.3.1 System Performance Check Setup

Fig 11.3.2 Setup Photo

12. RF Exposure Positions

12.1 Ear and handset reference point

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

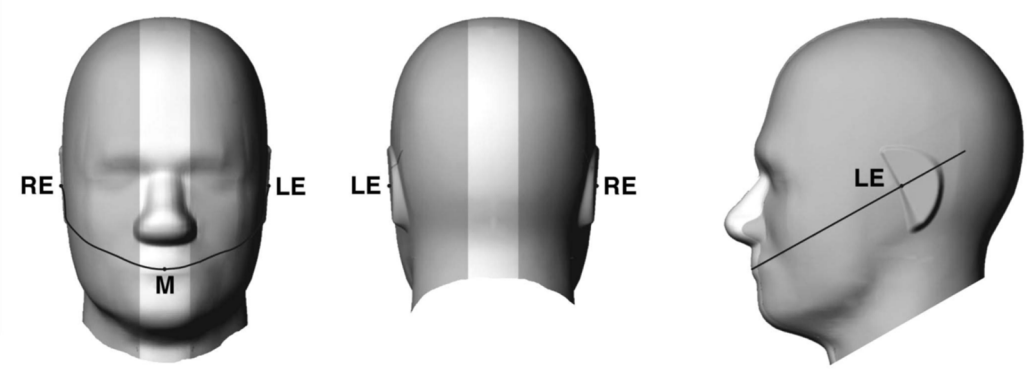


Fig 12.1.1 Front, back, and side views of SAM twin phantom

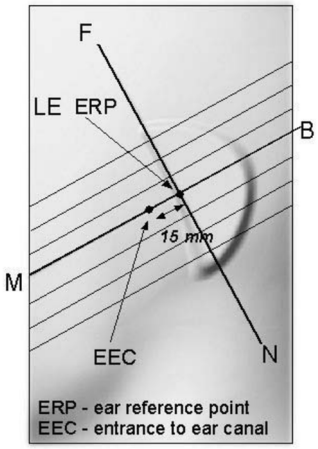


Fig 12.1.2 Close-up side view of phantom showing the ear region.

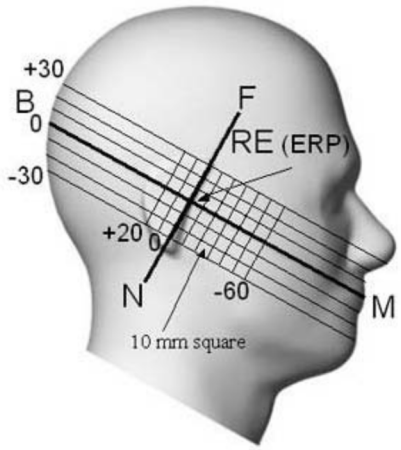


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

12.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width wt of the handset at the level of the acoustic output (point A in Figure 12.2.1 and Figure 12.2.2), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 12.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 12.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 12.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 12.2.3. The actual rotation angles should be documented in the test report.

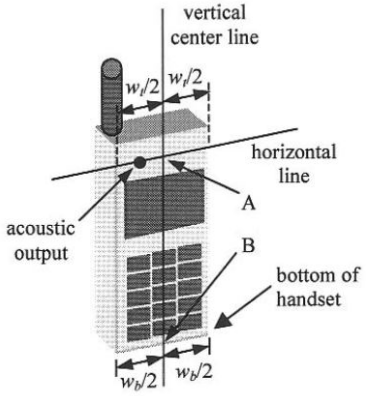


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

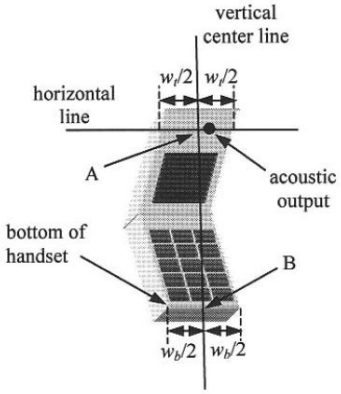


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

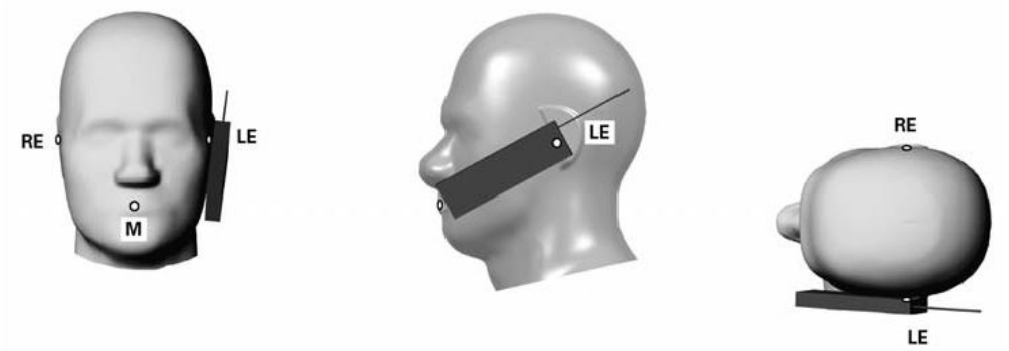


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

12.3 Definition of the tilt position

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

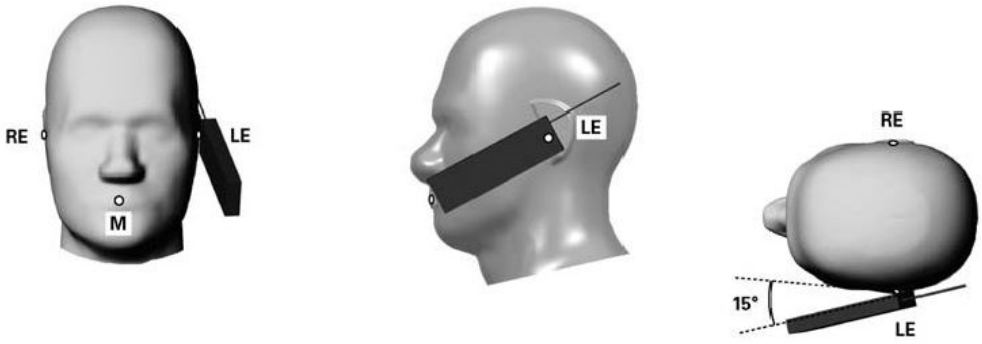


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

12.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 11.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

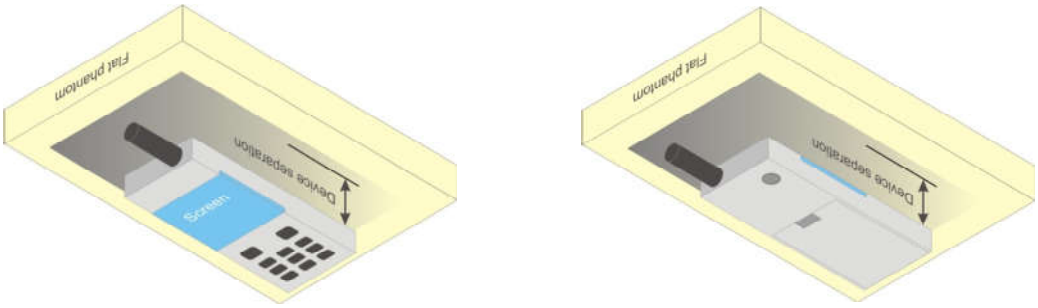


Fig 12.4 Body Worn Position

12.5 Product Specific 10g SAR Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, that can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.

2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

12.6 Wireless Router

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

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

13. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

1. For DTM multi-slot class mode, the device was linked with base station simulator (Agilent E5515C) and transmit maximum power on maximum number of TX slots, i.e. one CS timeslot, and additional PS timeslots (1 for DTM class 5 and 9, 2 for DTM class 11) in one TDMA frame.
2. Agilent E5515C was used to setup the device operated under DTM mode for power measurement and SAR testing. For conducted power, the power of the burst for voice and the power of the bursts for data was reported separately in the table below, and the frame-average power is derived below to determine SAR testing.

   *DTM frame average power (dBm) = 10*log [∑(power of each slot, in mW)/8]*
3. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
4. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE / DTM modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
5. Other configurations of GSM / GPRS / EDGE / DTM are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (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 $\beta_{hs} = 30/15 * \beta_c$.

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

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

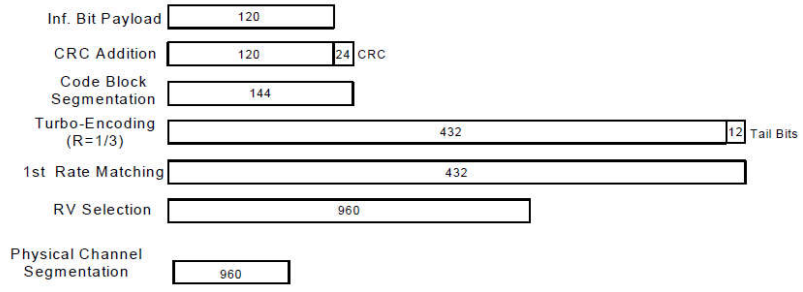


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

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

1. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
2. The RF path losses were compensated into the measurements.
3. A call was established between EUT and Base Station with following setting * :
   i. Call Configs = 5.2E:HSPA+:UL with 16QAM
   ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.4, quoted from the TS 34.121-1 s5.2E
   iii. Set Channel 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
4. The transmitted maximum output power was recorded.

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

Sub-test	β_c (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:

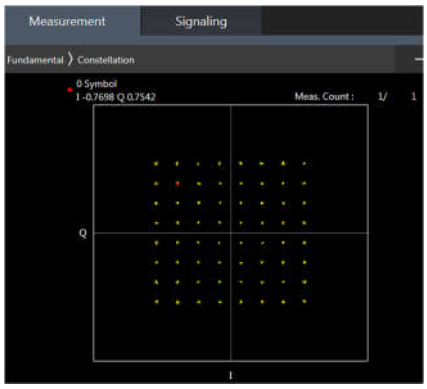
1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / 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>

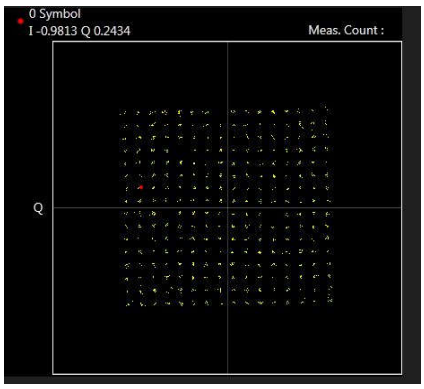
General Note:

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/64QAM/256QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
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 / B17 / B26 / B38 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B17 / B5 / B4 / B2 / B38 SAR test was covered by B12 / B26 / B66 / B25 / 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.

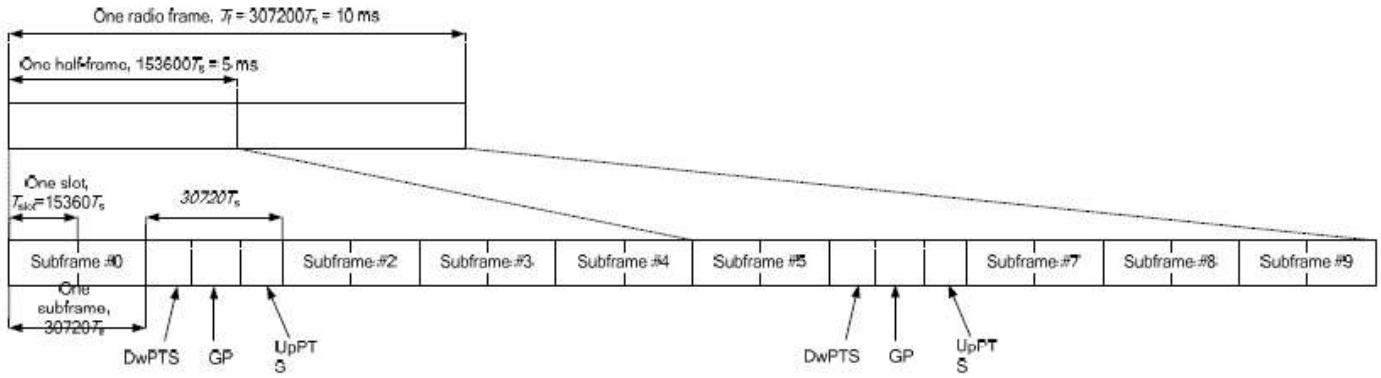


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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 2

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

For LTE TDD Power class 3

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 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.

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

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

<LTE Carrier Aggregation>

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

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.
3. All permutations exist. No restrictions on Pcell & Scell combinations.
4. The gray color table is covered by other combinations and no need to verify power.

2CC Downlink Carrier Aggregation				3CC Downlink Carrier Aggregation			
Number	Combination	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset
1	2A-2A	2A-2A	3CC-1	1	2A-2A-4A	2A-2A-4A	4CC-1
2	2A-4A	4A,2A,2A-4A	3CC-1	2	2A-2A-5A	2A-2A	4CC-2
3	2A-5A	2A	3CC-2	3	2A-2A-7A	2A-2A,7A	4CC-6
4	2A-7A	2A,7A	3CC-3	4	2A-2A-12A	2A-2A	4CC-7
5	2A-12A	2A	3CC-4	5	2A-2A-13A	2A-2A	4CC-8
6	2A-13A	2A	3CC-5	6	2A-2A-30A		
7	2A-17A	2A		7	2A-2A-66A	2A-2A-66A	4CC-5
8	2A-26A	2A		8	2A-2A-71A	2A-2A	4CC-10
10	2A-30A		3CC-17	9	2A-4A-4A	2A-4A-4A	4CC-1
11	2A-48A	2A-48A	3CC-29	10	2A-4A-5A	2A-4A	4CC-2
12	2A-66A	66A,2A,2A-66A	3CC-7	11	2A-4A-7A		4CC-15
13	2A-71A	2A	3CC-8	12	2A-4A-12A	2A-4A	4CC-14
14	4A-4A	4A-4A	3CC-9	13	2A-4A-13A	2A-4A	
15	4A-5A	4A	3CC-10	14	2A-4A-71A	2A-4A	4CC-4
16	4A-7A	7A,4A	3CC-11	15	2A-5A-5A	2A	4CC-16
17	4A-12A	4A	3CC-12	16	2A-5A-7A	2A,7A	4CC-17
18	4A-13A	4A	3CC-13	17	2A-5A-30A		
19	4A-17A	4A		18	2A-5A-48A	2A-48A	
20	4A-30A		3CC-44	19	2A-5A-66A	2A-66A,66A	4CC-16
21	4A-48A	4A-48A		20	2A-7A-7A	2A,7A-7A	4CC-17
22	4A-71A	4A	3CC-14	21	2A-7A-12A	2A,7A	
23	5A-5A		3CC-15	22	2A-7A-13A	2A,7A	4CC-22
24	5A-7A	7A	3CC-16	23	2A-7A-66A		4CC-23
26	5A-30A	30A	3CC-17	24	2A-12A-30A		
27	5A-48A	48A	3CC-18	25	2A-12A-66A	2A-66A	4CC-25
28	5A-66A	66A	3CC-19	26	2A-13A-48A	2A-48A	
29	7A-7A	7A,7A-7A	3CC-20	27	2A-13A-66A	2A-66A	4CC-27
30	7A-12A	7A	3CC-21	28	2A-30A-66A		
31	7A-13A	7A	3CC-22	29	2A-48A-48A	2A-48A-48A	
32	7A-25A	7A,25A	3CC-63	30	2A-48A-66A	2A-48A-66A	
33	7A-26A	7A		31	2A-66A-66A	2A-66A-66A	4CC-29
34	7A-66A	66A,7A	3CC-23	32	2A-66A-71A	2A-66A	4CC-30
35	7A-71A	7A		33	2A-5B	2A	4CC-31
36	12A-30A	30A	3CC-24	34	2A-12B	2A	
37	12A-48A	48A		35	2A-66B	2A-66B	4CC-11
38	12A-66A	66A	3CC-25	36	2A-7C	2A,7C	
39	13A-48A	48A	3CC-26	37	2A-48C	2A-48C	4CC-34
40	13A-66A	66A	3CC-27	38	2A-66C	2A-66C	4CC-35
41	25A-25A	25A-25A	3CC-77	39	4A-4A-5A	4A-4A	4CC-13
42	25A-26A	25A		40	4A-4A-7A	4A-4A,7A	

43	25A-66A	25A-66A	3CC-77	41	4A-4A-12A	4A-4A	4CC-14
44	30A-66A		3CC-55	42	4A-4A-13A	4A-4A	
45	41A-41A	41A-41A	3CC-79	43	4A-4A-71A	4A-4A	
46	48A-48A	48A-48A	3CC-81	44	4A-5A-30A		
47	48A-66A	48A-66A	3CC-56	45	4A-7A-7A	4A,7A-7A	4CC-15
48	48A-71A	48A		46	4A-7A-12A	4A,7A	
49	66A-66A	66A,66A-66A	3CC-57	47	4A-12A-30A		
50	66A-71A	66A	3CC-32	48	4A-5B	4A	4CC-37
51	5B		3CC-48	49	4A-12B	4A	4CC-38
52	12B		3CC-49	50	4A-7C	7C,4A	
53	48B	48B		51	4A-48C	4A-48C	
54	66B	66B	3CC-35	52	5A-5A-66A	66A	4CC-40
55	2C	2C	3CC-94	53	5A-7A-7A	7A-7A	4CC-43
56	7C	7C	3CC-50	54	5A-7A-66A	7A,66A	4CC-44
57	38C	38C		55	5A-30A-66A		
58	41C	41C	3CC-80	56	5A-48A-66A	48A-66A	
59	48C	48C	3CC-51	57	5A-66A-66A	66A-66A	4CC-18
60	66C	66C	3CC-38	58	5A-66B	66B	4CC-19
				59	5A-7C	7C	4CC-45
				60	5A-48C	48C	4CC-20
				61	5A-66C	66C	4CC-21
				62	7A-7A-13A	7A-7A	4CC-22
				63	7A-7A-25A	7A-7A,25A	4CC-49
				64	7A-7A-66A	7A-7A,66A	4CC-23
				65	7A-12A-66A	7A,66A	
				66	7A-13A-66A	7A,66A	4CC-48
				67	7A-66A-66A	66A-66A,7A	4CC-24
				68	7A-12B	7A	
				69	12A-30A-66A		
				70	12A-66A-66A	66A-66A	4CC-25
				71	12A-66C	66C	4CC-26
				72	13A-48A-66A	48A-66A	
				73	13A-66A-66A	66A-66A	4CC-27
				74	13A-66B	66B	4CC-52
				75	13A-48C	48C	4CC-28
				76	13A-66C	66C	4CC-53
				77	25A-25A-66A	25A-25A-66A	
				78	30A-66A-66A		
				79	41A-41A-41A	41A-41A-41A	
				80	41A-41C	41A-41C	4CC-58
				81	48A-48A-66A	48A-48A-66A	
				82	48A-66A-66A	48A-66A-66A	
				83	48A-66B	48A-66B	
				84	48A-48C	48A-48C	
				85	48A-66C	48A-66C	
				86	66A-66A-66A	66A-66A-66A	4CC-29
				87	66A-66A-71A	66A-66A	4CC-30
				88	66A-66B	66A-66B	4CC-52
				89	66A-66C	66A-66C	4CC-53
				90	5B-66A	66A	4CC-31
				91	12B-66A	66A	4CC-63
				92	2C-5A	2C	
				93	2C-12A	2C	
				94	2C-66A	2C-66A	4CC-64
				95	7C-13A	7C	4CC-32
				96	7C-66A	7C,66A	4CC-33

				97	48C-66A	48C-66A	4CC-34
				98	66C-71A	66C	4CC-35
				99	41D	41D	4CC-57
				100	48D	48D	4CC-36

4CC Downlink Carrier Aggregation				5CC Downlink Carrier Aggregation				6CC Downlink Carrier Aggregation			
Number	Combination	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset
1	2A-2A-4A-4A	2A-2A-4A-4A		1	2A-2A-5A-66A-66A	2A-2A-66A-66A		1	2A-48E-66A	48E,2A-66A	
2	2A-2A-4A-5A	2A-2A-4A		2	2A-2A-13A-66A-66A	2A-2A-66A-66A					
3	2A-2A-4A-12A	2A-2A-4A		3	2A-5A-5A-66A-66A	2A-66A-66A					
4	2A-2A-4A-71A	2A-2A-4A		4	2A-7A-7A-66A-66A						
5	2A-2A-5A-66A	2A-2A-66A	5CC-1	5	2A-13A-48D	2A-48D					
6	2A-2A-7A-66A			6	2A-48D-66A	2A-48D-66A					
7	2A-2A-12A-66A	2A-2A-66A		7	2A-48E	2A-48E	6CC-1				
8	2A-2A-13A-66A	2A-2A-66A	5CC-2	8	4A-48E	4A-48E					
9	2A-2A-66A-66A	2A-2A-66A-66A	5CC-1	9	5A-7C-66A-66A	66A-66A,7C					
10	2A-2A-66A-71A	2A-2A-66A		10	13A-48D-66A	48D-66A					
11	2A-2A-66B	2A-2A-66B		11	13A-48E	48E					
12	2A-2A-66C	2A-2A-66C		12	41C-41D	41C-41D					
13	2A-4A-4A-5A	2A-4A-4A		13	48E-66A	48E-66A	6CC-1				
14	2A-4A-4A-12A	2A-4A-4A									
15	2A-4A-7A-7A										
16	2A-5A-5A-66A	2A-66A									
17	2A-5A-7A-7A	2A,7A-7A									
18	2A-5A-66A-66A	2A-66A-66A	5CC-3								
19	2A-5A-66B	2A-66B									
20	2A-5A-48C	2A-48C									
21	2A-5A-66C	2A-66C									
22	2A-7A-7A-13A	2A,7A-7A									
23	2A-7A-7A-66A		5CC-4								
24	2A-7A-66A-66A		5CC-4								
25	2A-12A-66A-66A	2A-66A-66A									
26	2A-12A-66C	2A-66C									
27	2A-13A-66A-66A	2A-66A-66A	5CC-2								
28	2A-13A-48C	2A-48C									
29	2A-66A-66A-66A	2A-66A-66A-66A									
30	2A-66A-66A-71A	2A-66A-66A									
31	2A-5B-66A	2A-66A									
32	2A-7C-13A	2A,7C									
33	2A-7C-66A										
34	2A-48C-66A	2A-48C-66A									
35	2A-66C-71A	2A-66C									
36	2A-48D	2A-48D	5CC-5								
37	4A-4A-5B	4A-4A									
38	4A-4A-12B	4A-4A									
39	4A-48D	4A-48D									
40	5A-5A-66A-66A	66A-66A	5CC-3								
41	5A-5A-66B	66B									
42	5A-5A-66C	66C									
43	5A-7A-7A-66A	7A-7A,66A									
44	5A-7A-66A-66A	66A-66A,7A									
45	5A-7C-66A	7C,66A	5CC-9								
46	5A-48C-66A	48C-66A									
47	5A-48D	48D									
48	7A-7A-13A-66A	7A-7A,66A									

49	7A-7A-25A-25A	7A-7A,25A-25A									
50	7A-7A-25A-66A										
51	7A-7A-66A-66A	7A-7A,66A-66A									
52	13A-66A-66B	66A-66B									
53	13A-66A-66C	66A-66C									
54	13A-48C-66A	48C-66A									
55	13A-48D	48D	5CC-5								
56	13A-66D	66D									
57	25A-41D	25A-41D									
58	41A-41A-41C	41A-41A-41C									
59	41A-41D	41A-41D									
60	5B-66A-66A	66A-66A									
61	5B-66B	66B									
62	5B-66C	66C									
63	12B-66A-66A	66A-66A									
64	2C-66A-66A	2C-66A-66A									
65	7C-13A-66A	7C,66A									
66	7C-66A-66A	66A-66A,7C	5CC-9								
67	41C-41C	41C-41C									
68	48C-66A-66A	48C-66A-66A									
69	48D-66A	48D-66A	5CC-10								
70	41E	41E									
71	48E	48E	5CC-7								

LTE Carrier Aggregation Conducted Power (Downlink)

i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.

ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

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

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

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

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

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

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

LTE 4x4 MIMO (Downlink)

This device supports downlink 4x4 MIMO operations for LTE Band 2/4/7/25/30/38/66/48/41 only. Uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

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

4X4 MIMO	Band
	LTE Band 2/4/7/25/30/38/66/48/41

LTE Carrier Aggregation Conducted Power (Uplink)

LTE Uplink CA	2CC Uplink Carrier Aggregation	
Intra-band	Antenna Tx	
7C	Ant 5	Ant 0
38C	Ant 5	Ant 0
41C	Ant 5	Ant 0
66B	Ant 5	Ant 0
66C	Ant 5	Ant 0
48C	Ant 6	Ant 10

<Intra-band>

General Note:

i. The device supports intra-band uplink carrier aggregation for LTE B7/38/41/66/48 with a maximum of two uplink component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.

ii. The device supports uplink carrier aggregation with a maximum of two uplink component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.

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

iv. Additional SAR measurement for LTE UL CA 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.

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

<Inter-band>

LTE Inter CA	LTE Band	TX Ant	TX Ant
2A-4A	B2	ANT7	ANT6
	B4	ANT5	ANT0
2A-5A	B2	ANT7	ANT6
	B5	ANT1	ANT0
2A-7A	B2	ANT7	ANT6
	B7	ANT5	ANT0
2A-12A	B2	ANT7	ANT6
	B12	ANT1	ANT0
2A-13A	B2	ANT7	ANT6
	B13	ANT1	ANT0
2A-66A	B2	ANT7	ANT6
	B66	ANT5	ANT0
2A-71A	B2	ANT7	ANT6
	B71	ANT1	ANT0
4A-5A	B4	ANT7	ANT6
	B5	ANT1	ANT0
4A-12A	B4	ANT7	ANT6
	B12	ANT1	ANT0
4A-17A	B4	ANT7	ANT6
	B17	ANT1	ANT0
4A-71A	B4	ANT7	ANT6
	B71	ANT1	ANT0
5A-7A	B5	ANT1	ANT0
	B7	ANT7	ANT6
5A-30A	B5	ANT1	ANT0
	B30	ANT7	ANT6
5A-66A	B5	ANT1	ANT0
	B66	ANT7	ANT6
12A-30A	B12	ANT1	ANT0
	B30	ANT7	ANT6
7A-66A	B7	ANT5	ANT0
	B66	ANT7	ANT6
12A-66A	B12	ANT1	ANT0
	B66	ANT7	ANT6
13A-66A	B13	ANT1	ANT0
	B66	ANT7	ANT6
66A-71A	B66	ANT7	ANT6
	B71	ANT1	ANT0

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. To control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement.
3. For LTE inter-band CA mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure between two LTE bands. Smart Transmit algorithm controls the total RF exposure base on LTE inter CA bands to not exceed FCC limit. In Part 1 Report, simultaneous transmission compliance was evaluated with other Radios (WLAN or BT) using standalone LTE SAR mode.

5G NR Output Power (Unit: dBm)

General Note:

1. 5G NR n2/n5/n7/n12/n25/n30/n66/n71/n38/n41/n48/n77/n78 is SA mode.
2. 5G NR n2/n5/n7/n25/n66/n71/n38/n41/n77/n78 is NSA mode.
3. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-s QPSK and the reported SAR for the DFT-s QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
   b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, for 16QAM/64QAM/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM/64QAM/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.
   c. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel
   d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
   e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested
   f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK /16QAM/64QAM/256QAM SAR testing are not required.
   g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
4. For 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. 5GNR n41 supports UL MIMO mode.
10. This device supports HPUE for 5GNR n41/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.
11. For NR inter-band CA mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure between two NR bands. Smart Transmit algorithm controls the total RF exposure base on NR inter band ULCA 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	TX Ant	TX Ant	TX Ant	TX Ant
DC_30A_n2A	B30	ANT5	ANT0		
	N2	ANT7	ANT6		
DC_4A_n2A	B4	ANT5	ANT0		
	N2	ANT7	ANT6		
DC_5A_n2A	B5	ANT1	ANT0		
	N2	ANT7	ANT6		
DC_7A_n2A	B7	ANT5	ANT0		
	N2	ANT7	ANT6		
DC_12A_n2A	B12	ANT1	ANT0		
	N2	ANT7	ANT6		
DC_13A_n2A	B13	ANT1	ANT0		
	N2	ANT7	ANT6		
DC_66A_n2A	B66	ANT5	ANT0		
	N2	ANT7	ANT6		
DC_71A_n2A	B71	ANT1	ANT0		
	N2	ANT7	ANT6		
DC_2A_n5A	B2	ANT7	ANT6		
	N5	ANT1	ANT0		
DC_7A_n5A	B7	ANT7	ANT6		
	N5	ANT1	ANT0		
DC_30A_n5A	B30	ANT7	ANT6		
	N5	ANT1	ANT0		
DC_48A_n5A	B48	ANT10	ANT6		
	N5	ANT1	ANT0		
DC_66A_n5A	B66	ANT7	ANT6		
	N5	ANT1	ANT0		
DC_2A_n7A	B2	ANT5	ANT0		

	N7	ANT7	ANT6		
DC_4A_n7A	B4	ANT5	ANT0		
	N7	ANT7	ANT6		
DC_5A_n7A	B5	ANT1	ANT0		
	N7	ANT7	ANT6		
DC_12A_n7A	B12	ANT1	ANT0		
	N7	ANT7	ANT6		
DC_13A_n7A	B13	ANT1	ANT0		
	N7	ANT7	ANT6		
DC_66A_n7A	B66	ANT5	ANT0		
	N7	ANT7	ANT6		
DC_7A_n25A	B7	ANT5	ANT0		
	N25	ANT7	ANT6		
DC_12A_n25A	B12	ANT1	ANT0		
	N25	ANT7	ANT6		
DC_13A_n25A	B13	ANT1	ANT0		
	N25	ANT7	ANT6		
DC_26A_n25A	B26	ANT1	ANT0		
	N25	ANT7	ANT6		
DC_66A_n25A	B66	ANT5	ANT0		
	N25	ANT7	ANT6		
DC_2A_n38A	B2	ANT7	ANT6		
	N38	ANT5	ANT5		
DC_4A_n38A	B4	ANT5	ANT0		
	N38	ANT7	ANT6		
DC_5A_n38A	B5	ANT1	ANT0		
	N38	ANT7	ANT6		
DC_12A_n38A	B12	ANT1	ANT0		
	N38	ANT7	ANT6		
DC_66A_n38A	B66	ANT5	ANT0		
	N38	ANT7	ANT6		
DC_71A_n38A	B71	ANT1	ANT0		
	N38	ANT7	ANT6		
DC_2A_n41A	B2	ANT7	ANT6		
	N41	ANT5	ANT0		
DC_4A_n41A	B4	ANT5	ANT0		
	N41	ANT7	ANT6		
DC_12A_n41A	B12	ANT1	ANT0		
	N41	ANT7	ANT6		
DC_25A_n41A	B25	ANT7	ANT6		
	N41	ANT5	ANT0		
DC_26A_n41A	B26	ANT1	ANT0		
	N41	ANT7	ANT6		
DC_66A_n41A	B66	ANT5	ANT0		
	N41	ANT7	ANT6		
DC_71A_n41A	B71	ANT1	ANT0		
	N41	ANT7	ANT6		
DC_30A_n66A	B30	ANT5	ANT0		
	N66	ANT7	ANT6		
DC_2A_n66A	B2	ANT5	ANT0		
	N66	ANT7	ANT6		
DC_5A_n66A	B5	ANT1	ANT0		
	N66	ANT7	ANT6		
DC_7A_n66A	B7	ANT5	ANT0		
	N66	ANT7	ANT6		
DC_12A_n66A	B12	ANT1	ANT0		

	N66	ANT7	ANT6		
DC_13A_n66A	B13	ANT1	ANT0		
	N66	ANT7	ANT6		
DC_48A_n66A	B48	ANT10	ANT6		
	N66	ANT5	ANT0		
DC_71A_n66A	B71	ANT1	ANT0		
	N66	ANT7	ANT6		
DC_2A_n71A	B2	ANT7	ANT6		
	N71	ANT1	ANT0		
DC_7A_n71A	B7	ANT7	ANT6		
	N71	ANT1	ANT0		
DC_66A_n71A	B66	ANT7	ANT6		
	N71	ANT1	ANT0		
DC_2A_n77A	B2	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
DC_5A_n77A	B5	ANT1	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
DC_7A_n77A	B7	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
DC_12A_n77A	B12	ANT1	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
DC_13A_n77A	B13	ANT1	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
DC_25A_n77A	B25	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
DC_30A_n77A	B30	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
DC_41A_n77A	B41	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
DC_66A_n77A	B66	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
DC_2A_n78A	B2	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_4A_n78A	B4	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_5A_n78A	B5	ANT1	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_7A_n78A	B7	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_12A_n78A	B12	ANT1	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_13A_n78A	B13	ANT1	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_25A_n78A	B25	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_38A_n78A	B38	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_41A_n78A	B41	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_66A_n78A	B66	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
DC_71A_n78A	B71	ANT1	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12

<Inter-Band CA Configuration>

NR Inter CA	NR Band	TX Ant	TX Ant	TX Ant	TX Ant
CA_n2A-n5A	N2	ANT7	ANT6		
	N5	ANT1	ANT0		
CA_n2A-n66A	N2	ANT5	ANT0		
	N66	ANT7	ANT6		
CA_n2A-n71A	N2	ANT7	ANT0		
	N71	ANT1	ANT0		
CA_n2A-n77A	N2	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
CA_n2A-n78A	N2	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
CA_n5A-n7A	N5	ANT1	ANT0		
	N7	ANT7	ANT6		
CA_n5A-n66A	N5	ANT1	ANT0		
	N66	ANT7	ANT6		
CA_n5A-n77A	N5	ANT1	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
CA_n5A-n78A	N5	ANT1	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
CA_n7A-n25A	N7	ANT7	ANT6		
	N25	ANT5	ANT0		
CA_n7A-n66A	N7	ANT7	ANT6		
	N66	ANT5	ANT0		
CA_n7A-n77A	N7	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
CA_n7A-n78A	N7	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
CA_n25A-n41A	N25	ANT7	ANT6		
	N41	ANT5	ANT0		
CA_n25A-n66A	N25	ANT5	ANT0		
	N66	ANT7	ANT6		
CA_n25A-n71A	N25	ANT7	ANT6		
	N71	ANT1	ANT0		
CA_n25A-n77A	N25	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
CA_n25A-n78A	N25	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
CA_n30A-n77A	N30	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
CA_n38A-n66A	N38	ANT7	ANT6		
	N66	ANT5	ANT0		
CA_n41A-n66A	N41	ANT7	ANT6		
	N66	ANT5	ANT0		
CA_n41A-n71A	N41	ANT7	ANT6		
	N71	ANT1	ANT0		
CA_n66A-n71A	N66	ANT7	ANT6		
	N71	ANT1	ANT0		
CA_n66A-n77A	N66	ANT5	ANT0		
	N77	ANT10	ANT6	ANT11	ANT12
CA_n66A-n78A	N66	ANT5	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12
CA_n71A-n77A	N71	ANT1	ANT0		
	N78	ANT10	ANT6	ANT11	ANT12

<NR UL MIMO Bands Configuration>

UL MIMO	TX Ant	TX Ant
n41	ANT5	ANT0
	ANT7	ANT6

<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. In applying the test guidance, the IEEE 802.11 mode with the maximum output power (out of all modes) should be considered for testing
8. 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

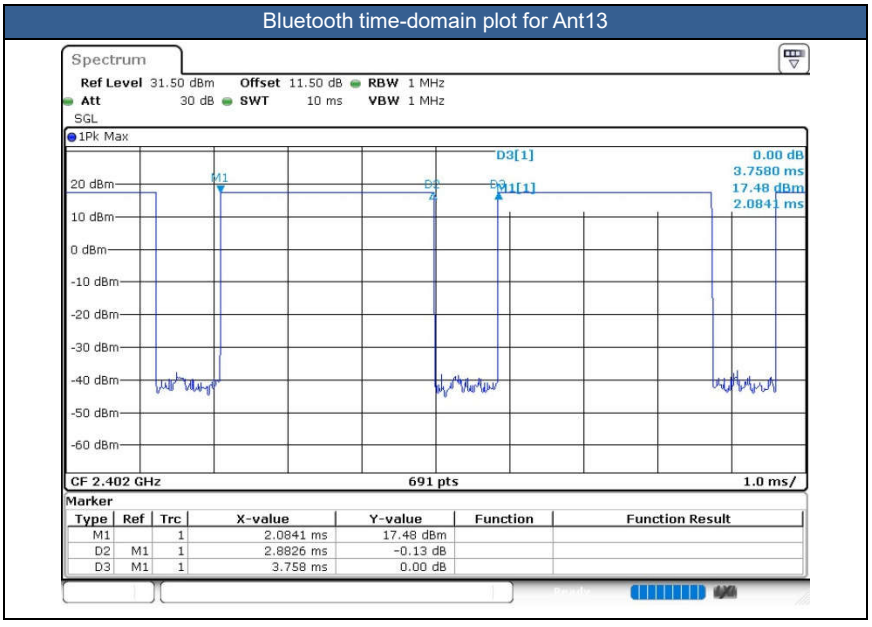
9. When SAR testing for 802.11ax is required
   a. If the maximum output power is highest for OFDMA scenarios, choose the tone size with the maximum number of tones and the highest maximum output power
   b. Otherwise, consider the fully allocated channel for SAR testing
   c. When SAR testing is required on RU sizes less than the fully allocated channel, use the RU number closest to the middle of the channel, choosing the higher RU number when two RUs are equidistant to the middle of the channel
10. The 2.4GHz/5GHz/6GHz WLAN can transmit in SISO/MIMO antenna mode.
11. 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.
12. SISO and MIMO all supported by WLAN2.4GHz/5GHz, when the single antenna RF power in MIMO mode is less than the single antenna RF power in SISO mode, SAR testing was performed on SISO mode, and additional MIMO mode was chosen to perform SAR testing; When the single antenna RF power in MIMO mode is larger than the single antenna RF power in SISO mode, SAR testing was performed on dual antenna.
13. 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 antennas respectively to calculate sum of the power for MIMO mode.

<2.4GHz Bluetooth>

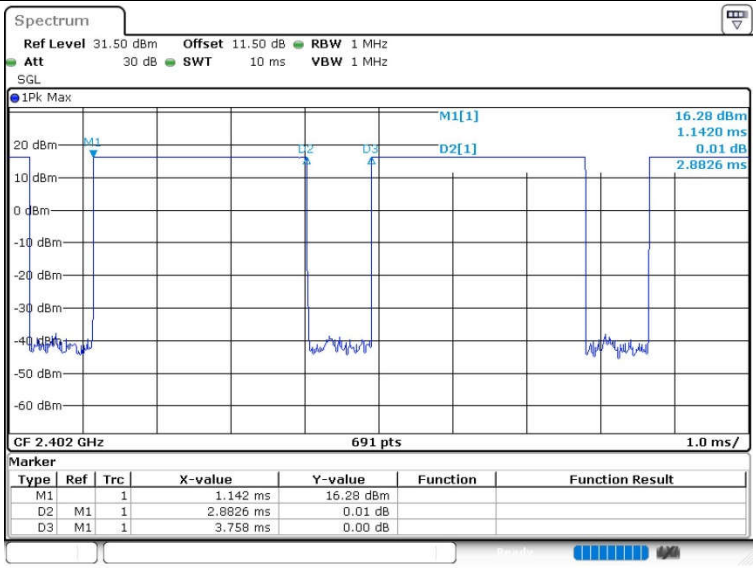
General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle are 76.71% for Ant13/10, 76.59% for Ant1 as following figure, according to Oct. 2016 TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to100% for Bluetooth reported SAR calculation

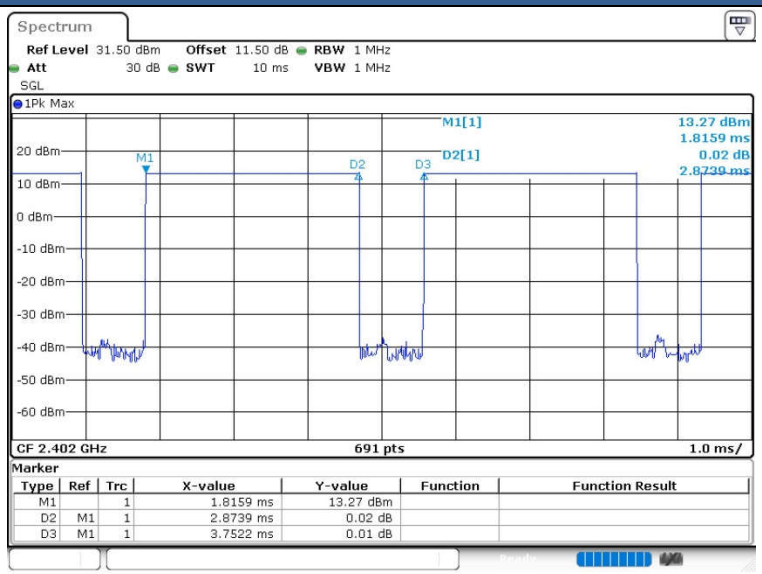
Bluetooth time-domain plot for Ant13



Bluetooth time-domain plot for Ant10



Bluetooth time-domain plot for Ant1



14. Antenna Location

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

15. 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/Bluetooth signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = Measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
   f. For TDD LTE SAR measurement of power class 2, the duty cycle 1:2.33 (42.9 %) was used perform testing and considering the theoretical duty cycle of 43.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 42.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 43.3%/42.9% = 1.009 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The device implements receiver detect mechanism trigger reduced power for the power management for SAR compliance at different exposure conditions (head, hotspot, body-worn, and extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. It uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
5. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
6. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
   a. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
   b. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
7. 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).

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
2. Other configurations of GSM / GPRS / EDGE / DTM are considered as secondary modes. Both primary and secondary modes must be in the same frequency band. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

WCDMA Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is ≤ 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/64QAM/256QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / 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 B17 / B5 / B4 / B2 / B38 SAR test was covered by B12 / B26 / B66 / B25 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
   b. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
   c. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
   d. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK /16QAM/64QAM/256QAM SAR testing are not required.
   e. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
   f. For 5G FR1 n2/n5/n7/n12/n25/n66/n38/n41/n77 the maximum bandwidth does not support three non-overlapping channels, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WLAN/Bluetooth Note:

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

DSI status description：

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

Exposure Condition	DSI Number
Head SAR	DSI 5
Hotspot/Body worn/Product Specific 10g SAR	DSI 4

15.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750 MHz																					
	LTE Band 71	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	133297	680.5	1	23.20	24.00	1.202	-	-	-0.17	0.252	0.303
	LTE Band 71	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 0	DSI 5	133297	680.5	1	23.20	24.00	1.202	-	-	0.13	0.047	0.057
01	LTE Band 71	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	133297	680.5	1	23.20	24.00	1.202	-	-	-0.07	0.478	**0.575**
	LTE Band 71	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 0	DSI 5	133297	680.5	1	23.20	24.00	1.202	-	-	0.19	0.055	0.066
	LTE Band 71	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	133297	680.5	1	22.16	23.00	1.213	-	-	0.09	0.204	0.248
	LTE Band 71	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 0	DSI 5	133297	680.5	1	22.16	23.00	1.213	-	-	-0.13	0.041	0.050
	LTE Band 71	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	133297	680.5	1	22.16	23.00	1.213	-	-	-0.12	0.371	0.450
	LTE Band 71	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 0	DSI 5	133297	680.5	1	22.16	23.00	1.213	-	-	0.02	0.044	0.053
	LTE Band 71	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 1	DSI 5	133297	680.5	1	23.88	24.80	1.236	-	-	-0.09	0.027	0.033
	LTE Band 71	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 1	DSI 5	133297	680.5	1	23.88	24.80	1.236	-	-	-0.17	0.021	0.026
	LTE Band 71	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 1	DSI 5	133297	680.5	1	23.88	24.80	1.236	-	-	0.13	0.074	0.091
	LTE Band 71	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 1	DSI 5	133297	680.5	1	23.88	24.80	1.236	-	-	-0.03	0.035	0.043
	LTE Band 71	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 1	DSI 5	133297	680.5	1	22.77	23.80	1.268	-	-	0.15	0.024	0.030
	LTE Band 71	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 1	DSI 5	133297	680.5	1	22.77	23.80	1.268	-	-	0.04	0.019	0.024
	LTE Band 71	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 1	DSI 5	133297	680.5	1	22.77	23.80	1.268	-	-	0.12	0.060	0.076
	LTE Band 71	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 1	DSI 5	133297	680.5	1	22.77	23.80	1.268	-	-	0.05	0.033	0.042
	LTE Band 12	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 0	DSI 5	23095	707.5	1	22.60	23.80	1.318	-	-	0.12	0.474	0.625
	LTE Band 12	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 0	DSI 5	23095	707.5	1	22.60	23.80	1.318	-	-	0	0.086	0.113
02	LTE Band 12	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 0	DSI 5	23095	707.5	1	22.60	23.80	1.318	-	-	0.02	0.792	**1.044**
	LTE Band 12	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 0	DSI 5	23095	707.5	1	22.60	23.80	1.318	-	-	0.1	0.130	0.171
	LTE Band 12	10M	QPSK	25	12	-	Right Cheek	0mm	Ant 0	DSI 5	23095	707.5	1	22.55	23.80	1.334	-	-	-0.14	0.452	0.603
	LTE Band 12	10M	QPSK	25	12	-	Right Tilted	0mm	Ant 0	DSI 5	23095	707.5	1	22.55	23.80	1.334	-	-	-0.1	0.082	0.109
	LTE Band 12	10M	QPSK	25	12	-	Left Cheek	0mm	Ant 0	DSI 5	23095	707.5	1	22.55	23.80	1.334	-	-	-0.17	0.759	1.012
	LTE Band 12	10M	QPSK	25	12	-	Left Tilted	0mm	Ant 0	DSI 5	23095	707.5	1	22.55	23.80	1.334	-	-	-0.12	0.121	0.161
	LTE Band 12	10M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 5	23095	707.5	1	22.47	23.80	1.358	-	-	0.13	0.747	1.015
	LTE Band 12	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 1	DSI 5	23095	707.5	1	23.85	25.00	1.303	-	-	0.16	0.043	0.056
	LTE Band 12	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 1	DSI 5	23095	707.5	1	23.85	25.00	1.303	-	-	-0.13	0.027	0.035
	LTE Band 12	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 1	DSI 5	23095	707.5	1	23.85	25.00	1.303	-	-	0.14	0.113	0.147
	LTE Band 12	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 1	DSI 5	23095	707.5	1	23.85	25.00	1.303	-	-	-0.06	0.067	0.087
	LTE Band 12	10M	QPSK	25	12	-	Right Cheek	0mm	Ant 1	DSI 5	23095	707.5	1	22.85	24.00	1.303	-	-	-0.12	0.038	0.050
	LTE Band 12	10M	QPSK	25	12	-	Right Tilted	0mm	Ant 1	DSI 5	23095	707.5	1	22.85	24.00	1.303	-	-	0.16	0.024	0.031
	LTE Band 12	10M	QPSK	25	12	-	Left Cheek	0mm	Ant 1	DSI 5	23095	707.5	1	22.85	24.00	1.303	-	-	0.02	0.095	0.124
	LTE Band 12	10M	QPSK	25	12	-	Left Tilted	0mm	Ant 1	DSI 5	23095	707.5	1	22.85	24.00	1.303	-	-	0.08	0.053	0.069
	LTE Band 13	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 0	DSI 5	23230	782	1	22.32	23.30	1.253	-	-	0.02	0.456	0.571
	LTE Band 13	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 0	DSI 5	23230	782	1	22.32	23.30	1.253	-	-	-0.06	0.089	0.112
03	LTE Band 13	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 0	DSI 5	23230	782	1	22.32	23.30	1.253	-	-	-0.11	0.854	**1.070**
	LTE Band 13	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 0	DSI 5	23230	782	1	22.32	23.30	1.253	-	-	0.1	0.118	0.148
	LTE Band 13	10M	QPSK	25	12	-	Right Cheek	0mm	Ant 0	DSI 5	23230	782	1	22.30	23.30	1.259	-	-	0.08	0.453	0.570
	LTE Band 13	10M	QPSK	25	12	-	Right Tilted	0mm	Ant 0	DSI 5	23230	782	1	22.30	23.30	1.259	-	-	0.09	0.082	0.103
	LTE Band 13	10M	QPSK	25	12	-	Left Cheek	0mm	Ant 0	DSI 5	23230	782	1	22.30	23.30	1.259	-	-	0.19	0.831	1.046
	LTE Band 13	10M	QPSK	25	12	-	Left Tilted	0mm	Ant 0	DSI 5	23230	782	1	22.30	23.30	1.259	-	-	0.16	0.115	0.145
	LTE Band 13	10M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 5	23230	782	1	22.14	23.30	1.306	-	-	0.13	0.681	0.890
	LTE Band 13	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 1	DSI 5	23230	782	1	23.45	24.80	1.365	-	-	-0.16	0.048	0.065
	LTE Band 13	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 1	DSI 5	23230	782	1	23.45	24.80	1.365	-	-	-0.15	0.026	0.035
	LTE Band 13	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 1	DSI 5	23230	782	1	23.45	24.80	1.365	-	-	-0.15	0.100	0.136
	LTE Band 13	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 1	DSI 5	23230	782	1	23.45	24.80	1.365	-	-	-0.16	0.066	0.090
	LTE Band 13	10M	QPSK	25	12	-	Right Cheek	0mm	Ant 1	DSI 5	23230	782	1	22.58	23.80	1.324	-	-	-0.17	0.044	0.058
	LTE Band 13	10M	QPSK	25	12	-	Right Tilted	0mm	Ant 1	DSI 5	23230	782	1	22.58	23.80	1.324	-	-	-0.1	0.022	0.029
	LTE Band 13	10M	QPSK	25	12	-	Left Cheek	0mm	Ant 1	DSI 5	23230	782	1	22.58	23.80	1.324	-	-	0.01	0.083	0.110
	LTE Band 13	10M	QPSK	25	12	-	Left Tilted	0mm	Ant 1	DSI 5	23230	782	1	22.58	23.80	1.324	-	-	0.04	0.054	0.072

	FR1 n71	35M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	136100	680.5	1	22.89	24.40	1.416	-	-	0.05	0.142	0.201
	FR1 n71	35M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	136100	680.5	1	22.89	24.40	1.416	-	-	-0.13	0.026	0.037
	FR1 n71	35M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	136100	680.5	1	22.89	24.40	1.416	-	-	0.19	0.376	0.532
	FR1 n71	35M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	136100	680.5	1	22.89	24.40	1.416	-	-	0.13	0.037	0.052
	FR1 n71	35M	QPSK	90	45	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	136100	680.5	1	22.87	24.40	1.422	-	-	0.06	0.257	0.366
	FR1 n71	35M	QPSK	90	45	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	136100	680.5	1	22.87	24.40	1.422	-	-	0.05	0.041	0.058
04	FR1 n71	35M	QPSK	90	45	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	136100	680.5	1	22.87	24.40	1.422	-	-	0.08	0.501	**0.713**
	FR1 n71	35M	QPSK	90	45	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	136100	680.5	1	22.87	24.40	1.422	-	-	-0.02	0.068	0.097
	FR1 n71	35M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI 5	136100	680.5	1	23.57	25.20	1.455	-	-	0.05	0.032	0.047
	FR1 n71	35M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI 5	136100	680.5	1	23.57	25.20	1.455	-	-	0.05	0.025	0.036
	FR1 n71	35M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI 5	136100	680.5	1	23.57	25.20	1.455	-	-	-0.09	0.095	0.138
	FR1 n71	35M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI 5	136100	680.5	1	23.57	25.20	1.455	-	-	0.07	0.039	0.057
	FR1 n71	35M	QPSK	90	45	DFT-15	Right Cheek	0mm	Ant 1	DSI 5	136100	680.5	1	23.41	25.20	1.510	-	-	0.14	0.029	0.044
	FR1 n71	35M	QPSK	90	45	DFT-15	Right Tilted	0mm	Ant 1	DSI 5	136100	680.5	1	23.41	25.20	1.510	-	-	0.06	0.022	0.033
	FR1 n71	35M	QPSK	90	45	DFT-15	Left Cheek	0mm	Ant 1	DSI 5	136100	680.5	1	23.41	25.20	1.510	-	-	0.13	0.071	0.107
	FR1 n71	35M	QPSK	90	45	DFT-15	Left Tilted	0mm	Ant 1	DSI 5	136100	680.5	1	23.41	25.20	1.510	-	-	-0.02	0.034	0.051
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	141500	707.5	1	22.60	24.20	1.445	-	-	0.12	0.387	0.559
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	141500	707.5	1	22.60	24.20	1.445	-	-	0.14	0.062	0.090
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	141500	707.5	1	22.60	24.20	1.445	-	-	0.17	0.647	0.935
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	141500	707.5	1	22.60	24.20	1.445	-	-	-0.16	0.071	0.103
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	141500	707.5	1	22.49	24.20	1.483	-	-	-0.08	0.446	0.661
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	141500	707.5	1	22.49	24.20	1.483	-	-	-0.01	0.076	0.113
05	FR1 n12	15M	QPSK	36	22	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	141500	707.5	1	22.49	24.20	1.483	-	-	-0.19	0.728	**1.079**
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	141500	707.5	1	22.49	24.20	1.483	-	-	-0.04	0.096	0.142
	FR1 n12	15M	QPSK	75	0	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	141500	707.5	1	22.38	24.20	1.521	-	-	0.12	0.652	0.991
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI 5	141500	707.5	1	22.67	24.40	1.489	-	-	-0.09	0.038	0.057
	FR1 n12	15M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI 5	141500	707.5	1	22.67	24.40	1.489	-	-	-0.08	0.023	0.034
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI 5	141500	707.5	1	22.67	24.40	1.489	-	-	0.16	0.082	0.122
	FR1 n12	15M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI 5	141500	707.5	1	22.67	24.40	1.489	-	-	0.11	0.043	0.064
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Cheek	0mm	Ant 1	DSI 5	141500	707.5	1	22.64	24.40	1.500	-	-	0.05	0.040	0.060
	FR1 n12	15M	QPSK	36	22	DFT-15	Right Tilted	0mm	Ant 1	DSI 5	141500	707.5	1	22.64	24.40	1.500	-	-	0.07	0.025	0.037
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Cheek	0mm	Ant 1	DSI 5	141500	707.5	1	22.64	24.40	1.500	-	-	0.15	0.090	0.135
	FR1 n12	15M	QPSK	36	22	DFT-15	Left Tilted	0mm	Ant 1	DSI 5	141500	707.5	1	22.64	24.40	1.500	-	-	0.07	0.046	0.069
835 MHz																					
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 1	DSI 5	128	824.2	1	27.15	28.50	1.365	-	-	0.15	0.068	0.093
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 1	DSI 5	128	824.2	1	27.15	28.50	1.365	-	-	0.14	0.040	0.055
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 1	DSI 5	128	824.2	1	27.15	28.50	1.365	-	-	0.1	0.108	0.147
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 1	DSI 5	128	824.2	1	27.15	28.50	1.365	-	-	0.17	0.080	0.109
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 1	DSI 5	189	836.4	1	26.68	28.50	1.521	-	-	0.1	0.117	0.178
06	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 1	DSI 5	251	848.8	1	26.70	28.50	1.514	-	-	0.14	0.129	**0.195**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 5	4182	836.4	1	20.77	21.80	1.268	-	-	0.1	0.453	0.574
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSI 5	4182	836.4	1	20.77	21.80	1.268	-	-	0.17	0.096	0.122
07	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI 5	4182	836.4	1	20.77	21.80	1.268	-	-	-0.04	0.699	**0.886**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSI 5	4182	836.4	1	20.77	21.80	1.268	-	-	-0.16	0.119	0.151
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI 5	4132	826.4	1	20.75	21.80	1.274	-	-	0.14	0.637	0.811
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI 5	4233	846.6	1	20.72	21.80	1.282	-	-	-0.04	0.642	0.823
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSI 5	4182	836.4	1	24.20	24.80	1.148	-	-	-0.03	0.067	0.077
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI 5	4182	836.4	1	24.20	24.80	1.148	-	-	-0.1	0.041	0.047
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DSI 5	4182	836.4	1	24.20	24.80	1.148	-	-	-0.13	0.161	0.185
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	DSI 5	4182	836.4	1	24.20	24.80	1.148	-	-	0.02	0.081	0.093
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DSI 5	4132	826.4	1	24.17	24.80	1.156	-	-	0.06	0.149	0.172
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DSI 5	4233	846.6	1	24.13	24.80	1.167	-	-	-0.08	0.213	0.249
	LTE Band 26	15M	QPSK	1	37	-	Right Cheek	0mm	Ant 0	DSI 5	26865	831.5	1	22.00	23.30	1.349	-	-	-0.11	0.306	0.413
	LTE Band 26	15M	QPSK	1	37	-	Right Tilted	0mm	Ant 0	DSI 5	26865	831.5	1	22.00	23.30	1.349	-	-	0.08	0.054	0.073
	LTE Band 26	15M	QPSK	1	37	-	Left Cheek	0mm	Ant 0	DSI 5	26865	831.5	1	22.00	23.30	1.349	-	-	0.12	0.438	0.591
	LTE Band 26	15M	QPSK	1	37	-	Left Tilted	0mm	Ant 0	DSI 5	26865	831.5	1	22.00	23.30	1.349	-	-	-0.02	0.063	0.085

	LTE Band 26	15M	QPSK	1	37	-	Left Cheek	0mm	Ant 0	DSI 5	26765	821.5	1	22.02	23.30	1.343	-	-	-0.18	0.452	0.607
	LTE Band 26	15M	QPSK	1	37	-	Left Cheek	0mm	Ant 0	DSI 5	26965	841.5	1	21.97	23.30	1.358	-	-	0.06	0.421	0.572
	LTE Band 26	15M	QPSK	36	20	-	Right Cheek	0mm	Ant 0	DSI 5	26865	831.5	1	21.85	23.30	1.396	-	-	0.14	0.349	0.487
	LTE Band 26	15M	QPSK	36	20	-	Right Tilted	0mm	Ant 0	DSI 5	26865	831.5	1	21.85	23.30	1.396	-	-	-0.08	0.058	0.081
08	LTE Band 26	15M	QPSK	36	20	-	Left Cheek	0mm	Ant 0	DSI 5	26865	831.5	1	21.85	23.30	1.396	-	-	-0.15	0.500	**0.698**
	LTE Band 26	15M	QPSK	36	20	-	Left Tilted	0mm	Ant 0	DSI 5	26865	831.5	1	21.85	23.30	1.396	-	-	0.04	0.076	0.106
	LTE Band 26	15M	QPSK	36	20	-	Left Cheek	0mm	Ant 0	DSI 5	26765	821.5	1	21.92	23.30	1.374	-	-	0.05	0.463	0.636
	LTE Band 26	15M	QPSK	36	20	-	Left Cheek	0mm	Ant 0	DSI 5	26965	841.5	1	21.82	23.30	1.406	-	-	0.02	0.469	0.659
	LTE Band 26	15M	QPSK	1	37	-	Right Cheek	0mm	Ant 1	DSI 5	26865	831.5	1	23.80	25.00	1.318	-	-	-0.1	0.065	0.086
	LTE Band 26	15M	QPSK	1	37	-	Right Tilted	0mm	Ant 1	DSI 5	26865	831.5	1	23.80	25.00	1.318	-	-	-0.09	0.036	0.047
	LTE Band 26	15M	QPSK	1	37	-	Left Cheek	0mm	Ant 1	DSI 5	26865	831.5	1	23.80	25.00	1.318	-	-	0.18	0.146	0.192
	LTE Band 26	15M	QPSK	1	37	-	Left Tilted	0mm	Ant 1	DSI 5	26865	831.5	1	23.80	25.00	1.318	-	-	-0.08	0.085	0.112
	LTE Band 26	15M	QPSK	1	37	-	Left Cheek	0mm	Ant 1	DSI 5	26765	821.5	1	23.92	25.00	1.282	-	-	0.15	0.114	0.146
	LTE Band 26	15M	QPSK	1	37	-	Left Cheek	0mm	Ant 1	DSI 5	26965	841.5	1	23.79	25.00	1.321	-	-	-0.04	0.143	0.189
	LTE Band 26	15M	QPSK	36	20	-	Right Cheek	0mm	Ant 1	DSI 5	26865	831.5	1	22.82	24.00	1.312	-	-	0.01	0.060	0.079
	LTE Band 26	15M	QPSK	36	20	-	Right Tilted	0mm	Ant 1	DSI 5	26865	831.5	1	22.82	24.00	1.312	-	-	0.12	0.034	0.045
	LTE Band 26	15M	QPSK	36	20	-	Left Cheek	0mm	Ant 1	DSI 5	26865	831.5	1	22.82	24.00	1.312	-	-	-0.18	0.123	0.161
	LTE Band 26	15M	QPSK	36	20	-	Left Tilted	0mm	Ant 1	DSI 5	26865	831.5	1	22.82	24.00	1.312	-	-	0.09	0.070	0.092
	LTE Band 26	15M	QPSK	36	20	-	Left Cheek	0mm	Ant 1	DSI 5	26765	821.5	1	22.88	24.00	1.294	-	-	0.1	0.093	0.120
	LTE Band 26	15M	QPSK	36	20	-	Left Cheek	0mm	Ant 1	DSI 5	26965	841.5	1	22.80	24.00	1.318	-	-	-0.04	0.118	0.156
	FR1 n5	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	167300	836.5	1	20.95	22.20	1.334	-	-	0.1	0.584	0.779
	FR1 n5	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	167300	836.5	1	20.95	22.20	1.334	-	-	0.12	0.125	0.167
09	FR1 n5	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	167300	836.5	1	20.95	22.20	1.334	-	-	0.02	0.884	**1.179**
	FR1 n5	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	167300	836.5	2	20.95	22.20	1.334	-	-	0.09	0.810	1.080
	FR1 n5	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	167300	836.5	1	20.95	22.20	1.334	-	-	-0.12	0.141	0.188
	FR1 n5	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	167300	836.5	1	20.94	22.20	1.337	-	-	0.08	0.560	0.748
	FR1 n5	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	167300	836.5	1	20.94	22.20	1.337	-	-	0.09	0.114	0.152
	FR1 n5	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	167300	836.5	1	20.94	22.20	1.337	-	-	0.13	0.842	1.125
	FR1 n5	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	167300	836.5	1	20.94	22.20	1.337	-	-	-0.02	0.138	0.184
	FR1 n5	20M	QPSK	100	0	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	167300	836.5	1	20.82	22.20	1.374	-	-	0.06	0.796	1.094
	FR1 n5	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI 5	167300	836.5	1	23.44	24.90	1.400	-	-	0.14	0.057	0.080
	FR1 n5	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI 5	167300	836.5	1	23.44	24.90	1.400	-	-	0.09	0.030	0.042
	FR1 n5	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI 5	167300	836.5	1	23.44	24.90	1.400	-	-	0.05	0.114	0.160
	FR1 n5	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI 5	167300	836.5	1	23.44	24.90	1.400	-	-	-0.12	0.061	0.085
	FR1 n5	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 1	DSI 5	167300	836.5	1	23.35	24.90	1.429	-	-	0.16	0.059	0.084
	FR1 n5	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 1	DSI 5	167300	836.5	1	23.35	24.90	1.429	-	-	-0.01	0.032	0.046
	FR1 n5	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 1	DSI 5	167300	836.5	1	23.35	24.90	1.429	-	-	-0.12	0.116	0.166
	FR1 n5	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 1	DSI 5	167300	836.5	1	23.35	24.90	1.429	-	-	-0.08	0.064	0.091
1750 MHz																					
10	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 5	1413	1732.6	1	21.75	22.30	1.135	-	-	0.1	0.723	**0.821**
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSI 5	1413	1732.6	1	21.75	22.30	1.135	-	-	-0.08	0.189	0.215
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI 5	1413	1732.6	1	21.75	22.30	1.135	-	-	0.01	0.575	0.653
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSI 5	1413	1732.6	1	21.75	22.30	1.135	-	-	0.09	0.085	0.096
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 5	1312	1712.4	1	21.69	22.30	1.151	-	-	-0.01	0.664	0.764
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 5	1513	1752.6	1	21.70	22.30	1.148	-	-	0.1	0.706	0.811
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 5	DSI 5	1413	1732.6	1	22.82	23.50	1.169	-	-	0.05	0.044	0.051
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 5	DSI 5	1413	1732.6	1	22.82	23.50	1.169	-	-	-0.1	0.015	0.018
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	DSI 5	1413	1732.6	1	22.82	23.50	1.169	-	-	0.14	0.064	0.075
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 5	DSI 5	1413	1732.6	1	22.82	23.50	1.169	-	-	0.09	0.041	0.048
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	DSI 5	1312	1712.4	1	22.77	23.50	1.183	-	-	-0.18	0.057	0.067
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	DSI 5	1513	1752.6	1	22.73	23.50	1.194	-	-	0.08	0.069	0.082
	LTE Band 66	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	132322	1745	1	22.38	22.80	1.102	-	-	-0.01	0.856	0.943
	LTE Band 66	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 0	DSI 5	132322	1745	1	22.38	22.80	1.102	-	-	-0.01	0.151	0.166
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	132322	1745	1	22.38	22.80	1.102	-	-	0.08	0.794	0.875
	LTE Band 66	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 0	DSI 5	132322	1745	1	22.38	22.80	1.102	-	-	-0.13	0.111	0.122
	LTE Band 66	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	132072	1720	1	22.25	22.80	1.135	-	-	0.07	0.781	0.886

11	LTE Band 66	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	132572	1770	1	22.30	22.80	1.122	-	-	0.01	0.862	**0.967**
	LTE Band 66C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 5	132322+ 132520	1745+ 1764.8	1	21.48	22.80	1.355	-	-	0.02	0.700	0.949
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	132072	1720	1	22.25	22.80	1.135	-	-	0.04	0.701	0.796
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	132572	1770	1	22.30	22.80	1.122	-	-	0.05	0.811	0.910
	LTE Band 66	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	132322	1745	1	22.30	22.80	1.122	-	-	0.13	0.837	0.939
	LTE Band 66	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 0	DSI 5	132322	1745	1	22.30	22.80	1.122	-	-	-0.01	0.145	0.163
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	132322	1745	1	22.30	22.80	1.122	-	-	0.09	0.762	0.855
	LTE Band 66	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 0	DSI 5	132322	1745	1	22.30	22.80	1.122	-	-	0.04	0.108	0.121
	LTE Band 66	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	132072	1720	1	22.17	22.80	1.156	-	-	-0.1	0.759	0.877
	LTE Band 66	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	132572	1770	1	22.29	22.80	1.125	-	-	-0.11	0.676	0.760
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	132072	1720	1	22.17	22.80	1.156	-	-	0.08	0.681	0.787
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	132572	1770	1	22.29	22.80	1.125	-	-	0.03	0.771	0.867
	LTE Band 66	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 0	DSI 5	132322	1745	1	22.28	22.80	1.127	-	-	-0.02	0.825	0.930
	LTE Band 66	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 0	DSI 5	132322	1745	1	22.28	22.80	1.127	-	-	0.06	0.750	0.845
	LTE Band 66	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 5	DSI 5	132322	1745	1	22.80	23.50	1.175	-	-	-0.11	0.056	0.066
	LTE Band 66	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 5	DSI 5	132322	1745	1	22.80	23.50	1.175	-	-	0.12	0.019	0.022
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	132322	1745	1	22.80	23.50	1.175	-	-	0.06	0.083	0.098
	LTE Band 66	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 5	DSI 5	132322	1745	1	22.80	23.50	1.175	-	-	0.04	0.052	0.061
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	132072	1720	1	22.75	23.50	1.189	-	-	0.1	0.074	0.088
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	132572	1770	1	22.73	23.50	1.194	-	-	0.01	0.086	0.103
	LTE Band 66C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI 5	132322+ 132520	1745+ 1764.8	1	22.37	23.50	1.297	-	-	0.08	0.066	0.086
	LTE Band 66	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 5	DSI 5	132322	1745	1	22.77	23.50	1.183	-	-	-0.14	0.052	0.062
	LTE Band 66	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 5	DSI 5	132322	1745	1	22.77	23.50	1.183	-	-	0.06	0.017	0.020
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	132322	1745	1	22.77	23.50	1.183	-	-	0.17	0.075	0.089
	LTE Band 66	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 5	DSI 5	132322	1745	1	22.77	23.50	1.183	-	-	-0.01	0.046	0.054
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	132072	1720	1	22.73	23.50	1.194	-	-	-0.08	0.069	0.082
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	132572	1770	1	22.70	23.50	1.202	-	-	0.01	0.076	0.091
	LTE Band 66	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	132322	1745	1	19.92	20.30	1.091	-	-	-0.12	0.593	0.647
	LTE Band 66	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	132322	1745	1	19.92	20.30	1.091	-	-	0.14	0.537	0.586
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 6	DSI 5	132322	1745	1	19.92	20.30	1.091	-	-	-0.08	0.356	0.389
	LTE Band 66	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	132322	1745	1	19.92	20.30	1.091	-	-	0.04	0.502	0.548
	LTE Band 66	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	132072	1720	1	19.84	20.30	1.112	-	-	0.11	0.620	0.689
	LTE Band 66	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	132572	1770	1	19.88	20.30	1.102	-	-	0.18	0.699	0.770
	LTE Band 66	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	132322	1745	1	19.90	20.30	1.096	-	-	-0.15	0.575	0.630
	LTE Band 66	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	132322	1745	1	19.90	20.30	1.096	-	-	-0.1	0.506	0.555
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 6	DSI 5	132322	1745	1	19.90	20.30	1.096	-	-	0.11	0.348	0.382
	LTE Band 66	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	132322	1745	1	19.90	20.30	1.096	-	-	0.15	0.491	0.538
	LTE Band 66	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	132072	1720	1	19.80	20.30	1.122	-	-	-0.19	0.592	0.664
	LTE Band 66	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	132572	1770	1	19.87	20.30	1.104	-	-	0.19	0.602	0.665
	LTE Band 66	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	132322	1745	1	21.06	21.50	1.107	-	-	-0.09	0.523	0.579
	LTE Band 66	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 7	DSI 5	132322	1745	1	21.06	21.50	1.107	-	-	-0.18	0.119	0.132
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 7	DSI 5	132322	1745	1	21.06	21.50	1.107	-	-	0.16	0.585	0.647
	LTE Band 66	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 7	DSI 5	132322	1745	1	21.06	21.50	1.107	-	-	0.06	0.131	0.145
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 7	DSI 5	132072	1720	1	21.02	21.50	1.117	-	-	-0.11	0.476	0.532
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 7	DSI 5	132572	1770	1	21.00	21.50	1.122	-	-	-0.08	0.527	0.591
	LTE Band 66	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	132322	1745	1	21.02	21.50	1.117	-	-	-0.18	0.512	0.572
	LTE Band 66	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 7	DSI 5	132322	1745	1	21.02	21.50	1.117	-	-	-0.1	0.101	0.113
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 7	DSI 5	132322	1745	1	21.02	21.50	1.117	-	-	-0.04	0.553	0.618
	LTE Band 66	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 7	DSI 5	132322	1745	1	21.02	21.50	1.117	-	-	0.04	0.125	0.140
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 7	DSI 5	132072	1720	1	20.98	21.50	1.127	-	-	0	0.461	0.520
	LTE Band 66	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 7	DSI 5	132572	1770	1	20.99	21.50	1.125	-	-	-0.18	0.515	0.579
	FR1 n66	45M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	349000	1745	1	22.22	23.20	1.253	-	-	-0.12	0.841	1.054
	FR1 n66	45M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	349000	1745	1	22.22	23.20	1.253	-	-	0.08	0.169	0.212
	FR1 n66	45M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	349000	1745	1	22.22	23.20	1.253	-	-	-0.08	0.486	0.609
	FR1 n66	45M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	349000	1745	1	22.22	23.20	1.253	-	-	0.1	0.090	0.113

12	FR1 n66	45M	QPSK	120	60	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	349000	1745	1	22.18	23.20	1.265	-	-	0.13	0.898	**1.136**
	FR1 n66	45M	QPSK	120	60	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	349000	1745	1	22.18	23.20	1.265	-	-	-0.03	0.175	0.221
	FR1 n66	45M	QPSK	120	60	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	349000	1745	1	22.18	23.20	1.265	-	-	0.04	0.509	0.644
	FR1 n66	45M	QPSK	120	60	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	349000	1745	1	22.18	23.20	1.265	-	-	0.07	0.092	0.116
	FR1 n66	45M	QPSK	240	0	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	349000	1745	1	22.17	23.20	1.268	-	-	0.03	0.872	1.105
	FR1 n66	45M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 5	DSI 5	349000	1745	1	21.60	22.90	1.349	-	-	-0.16	0.045	0.061
	FR1 n66	45M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 5	DSI 5	349000	1745	1	21.60	22.90	1.349	-	-	-0.03	0.015	0.020
	FR1 n66	45M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 5	DSI 5	349000	1745	1	21.60	22.90	1.349	-	-	0.01	0.065	0.088
	FR1 n66	45M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 5	DSI 5	349000	1745	1	21.60	22.90	1.349	-	-	0.11	0.037	0.050
	FR1 n66	45M	QPSK	120	60	DFT-15	Right Cheek	0mm	Ant 5	DSI 5	349000	1745	1	21.56	22.90	1.361	-	-	0.02	0.042	0.057
	FR1 n66	45M	QPSK	120	60	DFT-15	Right Tilted	0mm	Ant 5	DSI 5	349000	1745	1	21.56	22.90	1.361	-	-	-0.03	0.013	0.018
	FR1 n66	45M	QPSK	120	60	DFT-15	Left Cheek	0mm	Ant 5	DSI 5	349000	1745	1	21.56	22.90	1.361	-	-	-0.07	0.060	0.082
	FR1 n66	45M	QPSK	120	60	DFT-15	Left Tilted	0mm	Ant 5	DSI 5	349000	1745	1	21.56	22.90	1.361	-	-	0.09	0.041	0.056
	FR1 n66	45M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 6	DSI 5	349000	1745	1	19.12	20.20	1.282	-	-	0.1	0.811	1.040
	FR1 n66	45M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 6	DSI 5	349000	1745	1	19.12	20.20	1.282	-	-	-0.02	0.702	0.900
	FR1 n66	45M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 6	DSI 5	349000	1745	1	19.12	20.20	1.282	-	-	-0.16	0.327	0.419
	FR1 n66	45M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 6	DSI 5	349000	1745	1	19.12	20.20	1.282	-	-	0.06	0.557	0.714
	FR1 n66	45M	QPSK	120	60	DFT-15	Right Cheek	0mm	Ant 6	DSI 5	349000	1745	1	19.10	20.20	1.288	-	-	0.19	0.843	1.086
	FR1 n66	45M	QPSK	120	60	DFT-15	Right Tilted	0mm	Ant 6	DSI 5	349000	1745	1	19.10	20.20	1.288	-	-	0.14	0.713	0.919
	FR1 n66	45M	QPSK	120	60	DFT-15	Left Cheek	0mm	Ant 6	DSI 5	349000	1745	1	19.10	20.20	1.288	-	-	0.19	0.331	0.426
	FR1 n66	45M	QPSK	120	60	DFT-15	Left Tilted	0mm	Ant 6	DSI 5	349000	1745	1	19.10	20.20	1.288	-	-	-0.08	0.575	0.741
	FR1 n66	45M	QPSK	240	0	DFT-15	Right Cheek	0mm	Ant 6	DSI 5	349000	1745	1	19.03	20.20	1.309	-	-	0.02	0.810	1.060
	FR1 n66	45M	QPSK	240	0	DFT-15	Right Tilted	0mm	Ant 6	DSI 5	349000	1745	1	19.03	20.20	1.309	-	-	0.08	0.668	0.875
	FR1 n66	45M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 7	DSI 5	349000	1745	1	21.25	22.40	1.303	-	-	-0.13	0.587	0.765
	FR1 n66	45M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 7	DSI 5	349000	1745	1	21.25	22.40	1.303	-	-	0.11	0.094	0.122
	FR1 n66	45M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 7	DSI 5	349000	1745	1	21.25	22.40	1.303	-	-	-0.14	0.616	0.803
	FR1 n66	45M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 7	DSI 5	349000	1745	1	21.25	22.40	1.303	-	-	-0.18	0.147	0.192
	FR1 n66	45M	QPSK	120	60	DFT-15	Right Cheek	0mm	Ant 7	DSI 5	349000	1745	1	21.23	22.40	1.309	-	-	0.09	0.601	0.787
	FR1 n66	45M	QPSK	120	60	DFT-15	Right Tilted	0mm	Ant 7	DSI 5	349000	1745	1	21.23	22.40	1.309	-	-	-0.12	0.104	0.136
	FR1 n66	45M	QPSK	120	60	DFT-15	Left Cheek	0mm	Ant 7	DSI 5	349000	1745	1	21.23	22.40	1.309	-	-	0.17	0.658	0.861
	FR1 n66	45M	QPSK	120	60	DFT-15	Left Tilted	0mm	Ant 7	DSI 5	349000	1745	1	21.23	22.40	1.309	-	-	0.11	0.150	0.196
	FR1 n66	45M	QPSK	240	0	DFT-15	Left Cheek	0mm	Ant 7	DSI 5	349000	1745	1	21.15	22.40	1.334	-	-	0.03	0.588	0.784
1900 MHz																					
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 5	DSI 5	810	1909.8	1	24.55	25.50	1.245	-	-	0.05	0.029	0.036
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 5	DSI 5	810	1909.8	1	24.55	25.50	1.245	-	-	-0.18	0.010	0.012
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 5	DSI 5	810	1909.8	1	24.55	25.50	1.245	-	-	0.07	0.045	0.056
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 5	DSI 5	810	1909.8	1	24.55	25.50	1.245	-	-	-0.15	0.035	0.044
13	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 5	DSI 5	512	1850.2	1	24.20	25.50	1.349	-	-	-0.04	0.042	**0.057**
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 5	DSI 5	661	1880	1	24.30	25.50	1.318	-	-	0.09	0.036	0.047
14	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 5	9400	1880	1	19.40	20.80	1.380	-	-	0.07	0.851	**1.175**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 5	9400	1880	2	19.40	20.80	1.380	-	-	-0.09	0.842	1.162
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSI 5	9400	1880	1	19.40	20.80	1.380	-	-	0.18	0.214	0.295
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI 5	9400	1880	1	19.40	20.80	1.380	-	-	0.16	0.468	0.646
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSI 5	9400	1880	1	19.40	20.80	1.380	-	-	0.12	0.078	0.108
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 5	9262	1852.4	1	19.35	20.80	1.396	-	-	-0.01	0.786	1.098
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 5	9538	1907.6	1	19.32	20.80	1.406	-	-	-0.11	0.819	1.152
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 5	DSI 5	9400	1880	1	21.33	22.00	1.167	-	-	0.07	0.044	0.051
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 5	DSI 5	9400	1880	1	21.33	22.00	1.167	-	-	-0.11	0.014	0.016
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	DSI 5	9400	1880	1	21.33	22.00	1.167	-	-	0.09	0.051	0.060
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 5	DSI 5	9400	1880	1	21.33	22.00	1.167	-	-	0.04	0.039	0.046
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	DSI 5	9262	1852.4	1	21.22	22.00	1.197	-	-	0.1	0.049	0.059
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 5	DSI 5	9538	1907.6	1	21.25	22.00	1.189	-	-	0.18	0.050	0.059
15	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	18900	1880	1	19.57	20.30	1.183	-	-	-0.17	0.977	**1.156**
	LTE Band 2	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 0	DSI 5	18900	1880	1	19.57	20.30	1.183	-	-	0.03	0.182	0.215
	LTE Band 2	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	18900	1880	1	19.57	20.30	1.183	-	-	0.19	0.662	0.783
	LTE Band 2	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 0	DSI 5	18900	1880	1	19.57	20.30	1.183	-	-	0.19	0.102	0.121

	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	18700	1860	1	19.48	20.30	1.208	-	-	-0.05	0.795	0.960
	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	19100	1900	1	19.50	20.30	1.202	-	-	-0.15	0.822	0.988
	LTE Band 2	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	18900	1880	1	19.53	20.30	1.194	-	-	-0.08	0.933	1.114
	LTE Band 2	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 0	DSI 5	18900	1880	1	19.53	20.30	1.194	-	-	-0.1	0.176	0.210
	LTE Band 2	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	18900	1880	1	19.53	20.30	1.194	-	-	0.16	0.646	0.771
	LTE Band 2	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 0	DSI 5	18900	1880	1	19.53	20.30	1.194	-	-	0.01	0.099	0.118
	LTE Band 2	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	18700	1860	1	19.45	20.30	1.216	-	-	0.15	0.762	0.927
	LTE Band 2	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	19100	1900	1	19.47	20.30	1.211	-	-	0.03	0.795	0.962
	LTE Band 2	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 0	DSI 5	18900	1880	1	19.45	20.30	1.216	-	-	0.06	0.911	1.108
	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	18900	1880	1	19.58	20.50	1.236	-	-	0.16	0.679	0.839
	LTE Band 2	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	18900	1880	1	19.58	20.50	1.236	-	-	-0.19	0.641	0.792
	LTE Band 2	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 6	DSI 5	18900	1880	1	19.58	20.50	1.236	-	-	0.14	0.351	0.434
	LTE Band 2	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	18900	1880	1	19.58	20.50	1.236	-	-	-0.15	0.450	0.556
	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	18700	1860	1	19.54	20.50	1.247	-	-	-0.02	0.621	0.775
	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	19100	1900	1	19.43	20.50	1.279	-	-	0.01	0.606	0.775
	LTE Band 2	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	18900	1880	1	19.55	20.50	1.245	-	-	-0.02	0.654	0.814
	LTE Band 2	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	18900	1880	1	19.55	20.50	1.245	-	-	0.07	0.621	0.773
	LTE Band 2	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 6	DSI 5	18900	1880	1	19.55	20.50	1.245	-	-	0.17	0.343	0.427
	LTE Band 2	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	18900	1880	1	19.55	20.50	1.245	-	-	0.07	0.443	0.551
	LTE Band 2	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	18700	1860	1	19.53	20.50	1.250	-	-	-0.1	0.619	0.774
	LTE Band 2	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	19100	1900	1	19.42	20.50	1.282	-	-	0.06	0.590	0.757
	LTE Band 2	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 6	DSI 5	18900	1880	1	19.45	20.50	1.274	-	-	0.06	0.640	0.815
16	LTE Band 25	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	26340	1880	1	19.05	19.80	1.189	-	-	0.06	0.876	**1.041**
	LTE Band 25	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 0	DSI 5	26340	1880	1	19.05	19.80	1.189	-	-	-0.18	0.121	0.144
	LTE Band 25	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	26340	1880	1	19.05	19.80	1.189	-	-	-0.1	0.596	0.708
	LTE Band 25	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 0	DSI 5	26340	1880	1	19.05	19.80	1.189	-	-	0.07	0.095	0.113
	LTE Band 25	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	26140	1860	1	19.00	19.80	1.202	-	-	-0.15	0.786	0.945
	LTE Band 25	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	26590	1905	1	19.02	19.80	1.197	-	-	0.01	0.837	1.002
	LTE Band 25	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	26340	1880	1	19.02	19.80	1.197	-	-	0.16	0.842	1.008
	LTE Band 25	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 0	DSI 5	26340	1880	1	19.02	19.80	1.197	-	-	-0.1	0.115	0.138
	LTE Band 25	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	26340	1880	1	19.02	19.80	1.197	-	-	-0.12	0.584	0.699
	LTE Band 25	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 0	DSI 5	26340	1880	1	19.02	19.80	1.197	-	-	0.16	0.091	0.109
	LTE Band 25	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	26140	1860	1	18.94	19.80	1.219	-	-	-0.08	0.766	0.934
	LTE Band 25	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	26590	1905	1	19.00	19.80	1.202	-	-	0	0.809	0.973
	LTE Band 25	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 0	DSI 5	26340	1880	1	18.96	19.80	1.213	-	-	0.03	0.836	1.014
	LTE Band 25	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 5	DSI 5	26340	1880	1	21.36	22.00	1.159	-	-	-0.08	0.043	0.050
	LTE Band 25	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 5	DSI 5	26340	1880	1	21.36	22.00	1.159	-	-	0.07	0.014	0.016
	LTE Band 25	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	26340	1880	1	21.36	22.00	1.159	-	-	0.16	0.050	0.058
	LTE Band 25	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 5	DSI 5	26340	1880	1	21.36	22.00	1.159	-	-	-0.11	0.033	0.038
	LTE Band 25	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	26140	1860	1	21.31	22.00	1.172	-	-	-0.04	0.047	0.055
	LTE Band 25	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	26590	1905	1	21.25	22.00	1.189	-	-	-0.06	0.054	0.064
	LTE Band 25	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 5	DSI 5	26340	1880	1	21.32	22.00	1.169	-	-	-0.14	0.041	0.048
	LTE Band 25	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 5	DSI 5	26340	1880	1	21.32	22.00	1.169	-	-	-0.12	0.012	0.014
	LTE Band 25	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	26340	1880	1	21.32	22.00	1.169	-	-	0.15	0.052	0.061
	LTE Band 25	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 5	DSI 5	26340	1880	1	21.32	22.00	1.169	-	-	-0.12	0.036	0.042
	LTE Band 25	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	26140	1860	1	21.29	22.00	1.178	-	-	-0.14	0.050	0.059
	LTE Band 25	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	26590	1905	1	21.22	22.00	1.197	-	-	0.19	0.051	0.061
	LTE Band 25	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	26340	1880	1	19.66	20.00	1.081	-	-	-0.12	0.626	0.677
	LTE Band 25	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	26340	1880	1	19.66	20.00	1.081	-	-	-0.04	0.594	0.642
	LTE Band 25	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 6	DSI 5	26340	1880	1	19.66	20.00	1.081	-	-	0.04	0.428	0.463
	LTE Band 25	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	26340	1880	1	19.66	20.00	1.081	-	-	-0.18	0.581	0.628
	LTE Band 25	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	26140	1860	1	19.57	20.00	1.104	-	-	0	0.637	0.703
	LTE Band 25	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	26590	1905	1	19.60	20.00	1.096	-	-	0.08	0.589	0.646
	LTE Band 25	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	26340	1880	1	19.59	20.00	1.099	-	-	-0.02	0.612	0.673
	LTE Band 25	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	26340	1880	1	19.59	20.00	1.099	-	-	0.17	0.571	0.628
	LTE Band 25	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 6	DSI 5	26340	1880	1	19.59	20.00	1.099	-	-	-0.08	0.409	0.449

	LTE Band 25	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	26340	1880	1	19.59	20.00	1.099	-	-	0.04	0.561	0.617
	LTE Band 25	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	26140	1860	1	19.50	20.00	1.122	-	-	-0.07	0.622	0.698
	LTE Band 25	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	26590	1905	1	19.55	20.00	1.109	-	-	-0.02	0.585	0.649
	LTE Band 25	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	26340	1880	1	21.35	21.80	1.109	-	-	0.1	0.557	0.618
	LTE Band 25	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 7	DSI 5	26340	1880	1	21.35	21.80	1.109	-	-	0.06	0.121	0.134
	LTE Band 25	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 7	DSI 5	26340	1880	1	21.35	21.80	1.109	-	-	0.08	0.587	0.651
	LTE Band 25	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 7	DSI 5	26340	1880	1	21.35	21.80	1.109	-	-	0.01	0.109	0.121
	LTE Band 25	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 7	DSI 5	26140	1860	1	21.28	21.80	1.127	-	-	0.07	0.606	0.683
	LTE Band 25	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 7	DSI 5	26590	1905	1	21.30	21.80	1.122	-	-	-0.03	0.541	0.607
	LTE Band 25	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	26340	1880	1	21.33	21.80	1.114	-	-	-0.05	0.575	0.641
	LTE Band 25	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 7	DSI 5	26340	1880	1	21.33	21.80	1.114	-	-	-0.17	0.129	0.144
	LTE Band 25	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 7	DSI 5	26340	1880	1	21.33	21.80	1.114	-	-	0.01	0.593	0.661
	LTE Band 25	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 7	DSI 5	26340	1880	1	21.33	21.80	1.114	-	-	-0.05	0.126	0.140
	LTE Band 25	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 7	DSI 5	26140	1860	1	21.23	21.80	1.140	-	-	0.04	0.622	0.709
	LTE Band 25	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 7	DSI 5	26590	1905	1	21.21	21.80	1.146	-	-	0.03	0.564	0.646
	FR1 n25	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	376500	1882.5	1	18.62	20.20	1.439	-	-	-0.14	0.752	1.082
	FR1 n25	40M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	376500	1882.5	1	18.62	20.20	1.439	-	-	0.18	0.156	0.224
	FR1 n25	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	376500	1882.5	1	18.62	20.20	1.439	-	-	0.02	0.611	0.879
	FR1 n25	40M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	376500	1882.5	1	18.62	20.20	1.439	-	-	0.06	0.093	0.134
	FR1 n25	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	376500	1882.5	1	18.59	20.20	1.449	-	-	-0.05	0.760	1.101
	FR1 n25	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	376500	1882.5	1	18.59	20.20	1.449	-	-	0.19	0.161	0.233
	FR1 n25	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	376500	1882.5	1	18.59	20.20	1.449	-	-	0.03	0.629	0.911
	FR1 n25	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	376500	1882.5	1	18.59	20.20	1.449	-	-	-0.14	0.097	0.141
	FR1 n25	40M	QPSK	216	0	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	376500	1882.5	1	18.50	20.20	1.479	-	-	0.12	0.712	1.053
	FR1 n25	40M	QPSK	216	0	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	376500	1882.5	1	18.50	20.20	1.479	-	-	0.02	0.600	0.887
	FR1 n25	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 5	DSI 5	376500	1882.5	1	20.40	21.90	1.413	-	-	-0.17	0.081	0.114
	FR1 n25	40M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 5	DSI 5	376500	1882.5	1	20.40	21.90	1.413	-	-	-0.05	0.028	0.040
	FR1 n25	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 5	DSI 5	376500	1882.5	1	20.40	21.90	1.413	-	-	-0.06	0.102	0.144
	FR1 n25	40M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 5	DSI 5	376500	1882.5	1	20.40	21.90	1.413	-	-	-0.07	0.067	0.095
	FR1 n25	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 5	DSI 5	376500	1882.5	1	20.35	21.90	1.429	-	-	-0.05	0.077	0.110
	FR1 n25	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 5	DSI 5	376500	1882.5	1	20.35	21.90	1.429	-	-	-0.06	0.026	0.037
	FR1 n25	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 5	DSI 5	376500	1882.5	1	20.35	21.90	1.429	-	-	0.13	0.097	0.139
	FR1 n25	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 5	DSI 5	376500	1882.5	1	20.35	21.90	1.429	-	-	-0.19	0.061	0.087
17	FR1 n25	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 6	DSI 5	376500	1882.5	1	18.54	19.40	1.219	-	-	-0.01	0.907	**1.106**
	FR1 n25	40M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 6	DSI 5	376500	1882.5	1	18.54	19.40	1.219	-	-	0.07	0.736	0.897
	FR1 n25	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 6	DSI 5	376500	1882.5	1	18.54	19.40	1.219	-	-	0.01	0.350	0.427
	FR1 n25	40M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 6	DSI 5	376500	1882.5	1	18.54	19.40	1.219	-	-	0.17	0.464	0.566
	FR1 n25	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 6	DSI 5	376500	1882.5	1	18.46	19.40	1.242	-	-	-0.18	0.886	1.100
	FR1 n25	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 6	DSI 5	376500	1882.5	1	18.46	19.40	1.242	-	-	-0.12	0.691	0.858
	FR1 n25	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 6	DSI 5	376500	1882.5	1	18.46	19.40	1.242	-	-	0.06	0.325	0.404
	FR1 n25	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 6	DSI 5	376500	1882.5	1	18.46	19.40	1.242	-	-	0.08	0.446	0.554
	FR1 n25	40M	QPSK	216	0	DFT-15	Right Cheek	0mm	Ant 6	DSI 5	376500	1882.5	1	18.39	19.40	1.262	-	-	0.06	0.822	1.037
	FR1 n25	40M	QPSK	216	0	DFT-15	Right Tilted	0mm	Ant 6	DSI 5	376500	1882.5	1	18.39	19.40	1.262	-	-	0.07	0.676	0.853
	FR1 n25	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 7	DSI 5	376500	1882.5	1	20.85	22.20	1.365	-	-	-0.17	0.529	0.722
	FR1 n25	40M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 7	DSI 5	376500	1882.5	1	20.85	22.20	1.365	-	-	-0.16	0.107	0.146
	FR1 n25	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 7	DSI 5	376500	1882.5	1	20.85	22.20	1.365	-	-	-0.14	0.562	0.767
	FR1 n25	40M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 7	DSI 5	376500	1882.5	1	20.85	22.20	1.365	-	-	-0.12	0.097	0.132
	FR1 n25	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 7	DSI 5	376500	1882.5	1	20.83	22.20	1.371	-	-	-0.19	0.505	0.692
	FR1 n25	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 7	DSI 5	376500	1882.5	1	20.83	22.20	1.371	-	-	-0.12	0.104	0.143
	FR1 n25	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 7	DSI 5	376500	1882.5	1	20.83	22.20	1.371	-	-	0.07	0.533	0.731
	FR1 n25	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 7	DSI 5	376500	1882.5	1	20.83	22.20	1.371	-	-	-0.13	0.091	0.125
2300 MHz																					
	LTE Band 30	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 0	DSI 5	27710	2310	1	21.02	21.30	1.067		1.000	0.09	0.981	1.046
	LTE Band 30	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 0	DSI 5	27710	2310	1	21.02	21.30	1.067		1.000	-0.1	0.184	0.196
	LTE Band 30	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 0	DSI 5	27710	2310	1	21.02	21.30	1.067		1.000	0.18	0.701	0.748
	LTE Band 30	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 0	DSI 5	27710	2310	1	21.02	21.30	1.067		1.000	-0.13	0.098	0.105

	LTE Band 30	10M	QPSK	25	12	-	Right Cheek	0mm	Ant 0	DSI 5	27710	2310	1	20.92	21.30	1.091	-	-	-0.18	0.956	1.043
	LTE Band 30	10M	QPSK	25	12	-	Right Tilted	0mm	Ant 0	DSI 5	27710	2310	1	20.92	21.30	1.091	-	-	-0.18	0.177	0.193
	LTE Band 30	10M	QPSK	25	12	-	Left Cheek	0mm	Ant 0	DSI 5	27710	2310	1	20.92	21.30	1.091	-	-	-0.13	0.689	0.752
	LTE Band 30	10M	QPSK	25	12	-	Left Tilted	0mm	Ant 0	DSI 5	27710	2310	1	20.92	21.30	1.091	-	-	-0.1	0.097	0.106
	LTE Band 30	10M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 5	27710	2310	1	20.90	21.30	1.096	-	-	0.05	0.889	0.975
	LTE Band 30	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 5	DSI 5	27710	2310	1	22.35	22.80	1.109	-	-	-0.05	0.037	0.041
	LTE Band 30	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 5	DSI 5	27710	2310	1	22.35	22.80	1.109	-	-	0.07	0.026	0.029
	LTE Band 30	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 5	DSI 5	27710	2310	1	22.35	22.80	1.109	-	-	0.03	0.084	0.093
	LTE Band 30	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 5	DSI 5	27710	2310	1	22.35	22.80	1.109	-	-	-0.17	0.016	0.000
	LTE Band 30	10M	QPSK	25	12	-	Right Cheek	0mm	Ant 5	DSI 5	27710	2310	1	22.32	22.80	1.117	-	-	-0.19	0.034	0.038
	LTE Band 30	10M	QPSK	25	12	-	Right Tilted	0mm	Ant 5	DSI 5	27710	2310	1	22.32	22.80	1.117	-	-	0.02	0.023	0.026
	LTE Band 30	10M	QPSK	25	12	-	Left Cheek	0mm	Ant 5	DSI 5	27710	2310	1	22.32	22.80	1.117	-	-	0.13	0.081	0.090
	LTE Band 30	10M	QPSK	25	12	-	Left Tilted	0mm	Ant 5	DSI 5	27710	2310	1	22.32	22.80	1.117	-	-	0.16	0.015	0.017
	LTE Band 30	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 6	DSI 5	27710	2310	1	16.50	17.80	1.349	-	-	0.07	0.669	0.902
18	LTE Band 30	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 6	DSI 5	27710	2310	1	16.50	17.80	1.349	-	-	-0.13	0.843	**1.137**
	LTE Band 30	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 6	DSI 5	27710	2310	1	16.50	17.80	1.349	-	-	-0.18	0.369	0.498
	LTE Band 30	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 6	DSI 5	27710	2310	1	16.50	17.80	1.349	-	-	0.15	0.422	0.569
	LTE Band 30	10M	QPSK	25	12	-	Right Cheek	0mm	Ant 6	DSI 5	27710	2310	1	16.47	17.80	1.358	-	-	-0.03	0.637	0.865
	LTE Band 30	10M	QPSK	25	12	-	Right Tilted	0mm	Ant 6	DSI 5	27710	2310	1	16.47	17.80	1.358	-	-	-0.1	0.777	1.055
	LTE Band 30	10M	QPSK	25	12	-	Left Cheek	0mm	Ant 6	DSI 5	27710	2310	1	16.47	17.80	1.358	-	-	0.07	0.313	0.425
	LTE Band 30	10M	QPSK	25	12	-	Left Tilted	0mm	Ant 6	DSI 5	27710	2310	1	16.47	17.80	1.358	-	-	0.15	0.365	0.496
	LTE Band 30	10M	QPSK	50	0	-	Right Cheek	0mm	Ant 6	DSI 5	27710	2310	1	16.42	17.80	1.374	-	-	-0.11	0.655	0.900
	LTE Band 30	10M	QPSK	50	0	-	Right Tilted	0mm	Ant 6	DSI 5	27710	2310	1	16.42	17.80	1.374	-	-	-0.14	0.780	1.072
	LTE Band 30	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 7	DSI 5	27710	2310	1	20.72	21.80	1.282	-	-	0	0.561	0.719
	LTE Band 30	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 7	DSI 5	27710	2310	1	20.72	21.80	1.282	-	-	-0.06	0.081	0.104
	LTE Band 30	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 7	DSI 5	27710	2310	1	20.72	21.80	1.282	-	-	0.18	0.241	0.309
	LTE Band 30	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 7	DSI 5	27710	2310	1	20.72	21.80	1.282	-	-	-0.11	0.060	0.077
	LTE Band 30	10M	QPSK	25	12	-	Right Cheek	0mm	Ant 7	DSI 5	27710	2310	1	20.60	21.80	1.318	-	-	-0.01	0.594	0.783
	LTE Band 30	10M	QPSK	25	12	-	Right Tilted	0mm	Ant 7	DSI 5	27710	2310	1	20.60	21.80	1.318	-	-	0.14	0.083	0.109
	LTE Band 30	10M	QPSK	25	12	-	Left Cheek	0mm	Ant 7	DSI 5	27710	2310	1	20.60	21.80	1.318	-	-	0.08	0.252	0.332
	LTE Band 30	10M	QPSK	25	12	-	Left Tilted	0mm	Ant 7	DSI 5	27710	2310	1	20.60	21.80	1.318	-	-	0.06	0.067	0.088
19	FR1 n30	10M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	462000	2310	1	19.93	21.20	1.340	-	-	0.04	0.873	**1.170**
	FR1 n30	10M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	462000	2310	1	19.93	21.20	1.340	-	-	0.18	0.170	0.228
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	462000	2310	1	19.93	21.20	1.340	-	-	-0.13	0.671	0.899
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	462000	2310	1	19.93	21.20	1.340	-	-	0.08	0.099	0.133
	FR1 n30	10M	QPSK	25	14	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	462000	2310	1	19.90	21.20	1.349	-	-	-0.07	0.796	1.074
	FR1 n30	10M	QPSK	25	14	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	462000	2310	1	19.90	21.20	1.349	-	-	-0.17	0.163	0.220
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	462000	2310	1	19.90	21.20	1.349	-	-	0.11	0.667	0.900
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	462000	2310	1	19.90	21.20	1.349	-	-	0.13	0.095	0.128
	FR1 n30	10M	QPSK	50	0	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	462000	2310	1	19.88	21.20	1.355	-	-	0.03	0.777	1.053
	FR1 n30	10M	QPSK	50	0	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	462000	2310	1	19.88	21.20	1.355	-	-	0.09	0.647	0.877
	FR1 n30	10M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 5	DSI 5	462000	2310	1	20.38	22.20	1.521	-	-	-0.14	0.025	0.038
	FR1 n30	10M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 5	DSI 5	462000	2310	1	20.38	22.20	1.521	-	-	0.18	0.017	0.026
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 5	DSI 5	462000	2310	1	20.38	22.20	1.521	-	-	-0.14	0.042	0.064
	FR1 n30	10M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 5	DSI 5	462000	2310	1	20.38	22.20	1.521	-	-	0.13	0.011	0.017
	FR1 n30	10M	QPSK	25	14	DFT-15	Right Cheek	0mm	Ant 5	DSI 5	462000	2310	1	20.36	22.20	1.528	-	-	0.11	0.022	0.034
	FR1 n30	10M	QPSK	25	14	DFT-15	Right Tilted	0mm	Ant 5	DSI 5	462000	2310	1	20.36	22.20	1.528	-	-	0.06	0.015	0.023
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Cheek	0mm	Ant 5	DSI 5	462000	2310	1	20.36	22.20	1.528	-	-	-0.17	0.040	0.061
	FR1 n30	10M	QPSK	25	14	DFT-15	Left Tilted	0mm	Ant 5	DSI 5	462000	2310	1	20.36	22.20	1.528	-	-	0.11	0.010	0.015
2600 MHz																				
	LTE Band 7	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	21100	2535	1	20.41	20.80	1.094	-	-	0.04	0.878	0.960
	LTE Band 7	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 0	DSI 5	21100	2535	1	20.41	20.80	1.094	-	-	0.18	0.160	0.175
	LTE Band 7	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	21100	2535	1	20.41	20.80	1.094	-	-	-0.04	0.714	0.781
	LTE Band 7	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 0	DSI 5	21100	2535	1	20.41	20.80	1.094	-	-	-0.08	0.116	0.127
	LTE Band 7	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	20850	2510	1	20.37	20.80	1.104	-	-	0.06	0.905	0.999
20	LTE Band 7	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	21350	2560	1	20.33	20.80	1.114	-	-	0.04	0.995	**1.109**

	LTE Band 7C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 5	21350+ 21152	2560+ 2540.2	1	20.18	20.80	1.153	-	-	-0.01	0.890	1.027
	LTE Band 7	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	21100	2535	1	20.38	20.80	1.102	-	-	0.1	0.861	0.948
	LTE Band 7	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 0	DSI 5	21100	2535	1	20.38	20.80	1.102	-	-	0.14	0.157	0.173
	LTE Band 7	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	21100	2535	1	20.38	20.80	1.102	-	-	0.01	0.708	0.780
	LTE Band 7	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 0	DSI 5	21100	2535	1	20.38	20.80	1.102	-	-	0.1	0.110	0.121
	LTE Band 7	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	20850	2510	1	20.34	20.80	1.112	-	-	-0.01	0.887	0.986
	LTE Band 7	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	21350	2560	1	20.32	20.80	1.117	-	-	-0.11	0.976	1.090
	LTE Band 7	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 0	DSI 5	21100	2535	1	20.33	20.80	1.114	-	-	0.06	0.858	0.956
	LTE Band 7	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 5	DSI 5	21100	2535	1	23.00	23.30	1.072	-	-	0.16	0.040	0.043
	LTE Band 7	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 5	DSI 5	21100	2535	1	23.00	23.30	1.072	-	-	0.09	0.036	0.039
	LTE Band 7	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	21100	2535	1	23.00	23.30	1.072	-	-	0.12	0.209	0.224
	LTE Band 7	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 5	DSI 5	21100	2535	1	23.00	23.30	1.072	-	-	-0.07	0.089	0.095
	LTE Band 7	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	20850	2510	1	22.97	23.30	1.079	-	-	0.1	0.212	0.229
	LTE Band 7C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI 5	21350+ 21152	2560+ 2540.2	1	22.70	23.30	1.148	-	-	0.06	0.188	0.216
	LTE Band 7	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	21350	2560	1	22.99	23.30	1.074	-	-	0.06	0.202	0.217
	LTE Band 7	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 5	DSI 5	21100	2535	1	22.92	23.30	1.091	-	-	0.14	0.037	0.040
	LTE Band 7	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 5	DSI 5	21100	2535	1	22.92	23.30	1.091	-	-	0.09	0.033	0.036
	LTE Band 7	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	21100	2535	1	22.92	23.30	1.091	-	-	0.02	0.168	0.183
	LTE Band 7	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 5	DSI 5	21100	2535	1	22.92	23.30	1.091	-	-	-0.04	0.075	0.082
	LTE Band 7	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	20850	2510	1	22.90	23.30	1.096	-	-	0.04	0.162	0.178
	LTE Band 7	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	21350	2560	1	22.88	23.30	1.102	-	-	-0.19	0.158	0.174
	LTE Band 7	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	21100	2535	1	17.00	17.30	1.072	-	-	0.11	0.562	0.602
	LTE Band 7	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	21100	2535	1	17.00	17.30	1.072	-	-	0.03	0.713	0.764
	LTE Band 7	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 6	DSI 5	21100	2535	1	17.00	17.30	1.072	-	-	0.12	0.471	0.505
	LTE Band 7	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	21100	2535	1	17.00	17.30	1.072	-	-	0.08	0.626	0.671
	LTE Band 7	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	20850	2510	1	16.96	17.30	1.081	-	-	-0.08	0.898	0.971
	LTE Band 7	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	21350	2560	1	16.92	17.30	1.091	-	-	0.19	0.824	0.899
	LTE Band 7	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	21100	2535	1	16.97	17.30	1.079	-	-	0.09	0.554	0.598
	LTE Band 7	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	21100	2535	1	16.97	17.30	1.079	-	-	0.06	0.670	0.723
	LTE Band 7	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 6	DSI 5	21100	2535	1	16.97	17.30	1.079	-	-	0.01	0.462	0.498
	LTE Band 7	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	21100	2535	1	16.97	17.30	1.079	-	-	-0.15	0.606	0.654
	LTE Band 7	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	20850	2510	1	16.94	17.30	1.086	-	-	0.13	0.861	0.935
	LTE Band 7	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	21350	2560	1	16.90	17.30	1.096	-	-	-0.04	0.812	0.890
	LTE Band 7	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 6	DSI 5	21100	2535	1	16.89	17.30	1.099	-	-	0.14	0.700	0.769
	LTE Band 7	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	21100	2535	1	21.12	21.30	1.042	-	-	-0.19	0.441	0.460
	LTE Band 7	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 7	DSI 5	21100	2535	1	21.12	21.30	1.042	-	-	0.07	0.065	0.068
	LTE Band 7	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 7	DSI 5	21100	2535	1	21.12	21.30	1.042	-	-	-0.13	0.204	0.213
	LTE Band 7	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 7	DSI 5	21100	2535	1	21.12	21.30	1.042	-	-	-0.16	0.081	0.084
	LTE Band 7	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	20850	2510	1	21.08	21.30	1.052	-	-	-0.12	0.434	0.457
	LTE Band 7	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	21350	2560	1	21.05	21.30	1.059	-	-	-0.14	0.428	0.453
	LTE Band 7	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	21100	2535	1	21.09	21.30	1.050	-	-	0.01	0.461	0.484
	LTE Band 7	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 7	DSI 5	21100	2535	1	21.09	21.30	1.050	-	-	0.15	0.068	0.071
	LTE Band 7	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 7	DSI 5	21100	2535	1	21.09	21.30	1.050	-	-	-0.17	0.209	0.219
	LTE Band 7	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 7	DSI 5	21100	2535	1	21.09	21.30	1.050	-	-	-0.19	0.084	0.088
	LTE Band 7	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	20850	2510	1	21.06	21.30	1.057	-	-	-0.02	0.441	0.466
	LTE Band 7	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	21350	2560	1	21.00	21.30	1.072	-	-	0.13	0.432	0.463
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	40185	2549.5	1	23.15	23.30	1.035	62.9	1.006	-0.03	0.869	0.905
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 0	DSI 5	40185	2549.5	1	23.15	23.30	1.035	62.9	1.006	0.07	0.178	0.185
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	40185	2549.5	1	23.15	23.30	1.035	62.9	1.006	0.19	0.846	0.881
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 0	DSI 5	40185	2549.5	1	23.15	23.30	1.035	62.9	1.006	-0.13	0.126	0.131
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	39750	2506	1	23.12	23.30	1.042	62.9	1.006	0.17	0.930	0.975
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	40620	2593	1	23.11	23.30	1.045	62.9	1.006	0.16	1.030	1.083
	LTE Band 41C PC3	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 5	40620+ 40818	2593+ 2612.8	1	22.89	23.30	1.099	62.9	1.006	0.04	0.941	1.040

	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	41055	2636.5	1	23.10	23.30	1.047	62.9	1.006	0.05	1.020	1.074
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	41490	2680	1	23.08	23.30	1.052	62.9	1.006	0.07	0.974	1.031
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	39750	2506	1	23.12	23.30	1.042	62.9	1.006	0.03	0.818	0.858
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	40620	2593	1	23.11	23.30	1.045	62.9	1.006	-0.06	0.884	0.929
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	41055	2636.5	1	23.10	23.30	1.047	62.9	1.006	-0.01	0.867	0.913
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 0	DSI 5	41490	2680	1	23.08	23.30	1.052	62.9	1.006	0.04	0.808	0.855
	LTE Band 41 PC2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	DSI 5	40620	2593	1	24.50	24.90	1.096	42.9	1.009	0.04	0.946	1.047
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	40185	2549.5	1	22.77	22.80	1.007	62.9	1.006	-0.17	0.826	0.837
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 0	DSI 5	40185	2549.5	1	22.77	22.80	1.007	62.9	1.006	-0.19	0.169	0.171
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	40185	2549.5	1	22.77	22.80	1.007	62.9	1.006	0.04	0.772	0.782
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 0	DSI 5	40185	2549.5	1	22.77	22.80	1.007	62.9	1.006	-0.01	0.105	0.106
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	39750	2506	1	22.66	22.80	1.033	62.9	1.006	0.18	0.835	0.868
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	40620	2593	1	22.70	22.80	1.023	62.9	1.006	0.19	0.932	0.959
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	41055	2636.5	1	22.74	22.80	1.014	62.9	1.006	-0.12	0.919	0.937
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 0	DSI 5	41490	2680	1	22.72	22.80	1.019	62.9	1.006	0.01	0.901	0.923
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	39750	2506	1	22.66	22.80	1.033	62.9	1.006	-0.14	0.789	0.820
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	40620	2593	1	22.70	22.80	1.023	62.9	1.006	-0.08	0.839	0.864
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	41055	2636.5	1	22.74	22.80	1.014	62.9	1.006	-0.1	0.814	0.830
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 0	DSI 5	41490	2680	1	22.72	22.80	1.019	62.9	1.006	-0.09	0.774	0.793
	LTE Band 41 PC3	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 0	DSI 5	40185	2549.5	1	22.75	22.80	1.012	62.9	1.006	0.12	0.812	0.826
	LTE Band 41 PC3	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 0	DSI 5	40185	2549.5	1	22.75	22.80	1.012	62.9	1.006	0.05	0.782	0.796
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 5	DSI 5	40185	2549.5	1	24.60	24.80	1.047	62.9	1.006	0.05	0.030	0.032
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 5	DSI 5	40185	2549.5	1	24.60	24.80	1.047	62.9	1.006	-0.03	0.016	0.017
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	40185	2549.5	1	24.60	24.80	1.047	62.9	1.006	0.16	0.150	0.158
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 5	DSI 5	40185	2549.5	1	24.60	24.80	1.047	62.9	1.006	0.06	0.075	0.079
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	39750	2506	1	24.53	24.80	1.064	62.9	1.006	0.16	0.155	0.166
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	40620	2593	1	24.55	24.80	1.059	62.9	1.006	0.01	0.147	0.157
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	41055	2636.5	1	24.52	24.80	1.067	62.9	1.006	-0.17	0.176	0.189
	LTE Band 41C PC3	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI 5	40620+ 40818	2593+ 2612.8	1	24.02	24.30	1.067	62.9	1.006	0.07	0.145	0.156
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	41490	2680	1	24.42	24.80	1.091	62.9	1.006	0.11	0.142	0.156
	LTE Band 41 PC2	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 5	DSI 5	41055	2636.5	1	25.78	26.40	1.153	42.9	1.009	0.02	0.163	0.190
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 5	DSI 5	40185	2549.5	1	23.65	23.80	1.035	62.9	1.006	0.06	0.028	0.029
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 5	DSI 5	40185	2549.5	1	23.65	23.80	1.035	62.9	1.006	-0.03	0.014	0.015
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	40185	2549.5	1	23.65	23.80	1.035	62.9	1.006	-0.11	0.142	0.148
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 5	DSI 5	40185	2549.5	1	23.65	23.80	1.035	62.9	1.006	0.11	0.072	0.075
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	39750	2506	1	23.60	23.80	1.047	62.9	1.006	-0.04	0.143	0.151
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	40620	2593	1	23.57	23.80	1.054	62.9	1.006	0.01	0.142	0.151
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	41055	2636.5	1	23.63	23.80	1.040	62.9	1.006	0.01	0.166	0.174
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 5	DSI 5	41490	2680	1	23.56	23.80	1.057	62.9	1.006	-0.09	0.138	0.147
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	40185	2549.5	1	21.60	21.80	1.047	62.9	1.006	-0.07	0.630	0.664
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	40185	2549.5	1	21.60	21.80	1.047	62.9	1.006	0.03	0.865	0.911
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 6	DSI 5	40185	2549.5	1	21.60	21.80	1.047	62.9	1.006	0.14	0.548	0.577
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	40185	2549.5	1	21.60	21.80	1.047	62.9	1.006	0.17	0.769	0.810

	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	39750	2506	1	21.59	21.80	1.050	62.9	1.006	0.13	0.736	0.777
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	40620	2593	1	21.55	21.80	1.059	62.9	1.006	0.08	0.636	0.678
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	41055	2636.5	1	21.52	21.80	1.067	62.9	1.006	-0.01	0.585	0.628
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	41490	2680	1	21.49	21.80	1.074	62.9	1.006	-0.03	0.520	0.562
21	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	39750	2506	1	21.59	21.80	1.050	62.9	1.006	0.15	1.040	**1.098**
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	40620	2593	1	21.55	21.80	1.059	62.9	1.006	0.03	0.899	0.958
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	41055	2636.5	1	21.52	21.80	1.067	62.9	1.006	0.12	0.826	0.886
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	41490	2680	1	21.49	21.80	1.074	62.9	1.006	-0.08	0.735	0.794
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	39750	2506	1	21.59	21.80	1.050	62.9	1.006	-0.04	0.927	0.979
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	40620	2593	1	21.55	21.80	1.059	62.9	1.006	0.05	0.801	0.854
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	41055	2636.5	1	21.52	21.80	1.067	62.9	1.006	0.04	0.736	0.790
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	41490	2680	1	21.49	21.80	1.074	62.9	1.006	0.13	0.655	0.708
	LTE Band 41 PC2	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	39750	2506	1	21.98	23.40	1.387	42.9	1.009	0.06	0.762	1.066
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	40185	2549.5	1	21.58	21.80	1.052	62.9	1.006	0.03	0.588	0.622
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	40185	2549.5	1	21.58	21.80	1.052	62.9	1.006	0.06	0.814	0.861
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 6	DSI 5	40185	2549.5	1	21.58	21.80	1.052	62.9	1.006	-0.19	0.526	0.557
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	40185	2549.5	1	21.58	21.80	1.052	62.9	1.006	-0.09	0.729	0.771
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	39750	2506	1	21.57	21.80	1.054	62.9	1.006	0.1	0.716	0.759
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	40620	2593	1	21.45	21.80	1.084	62.9	1.006	-0.13	0.629	0.686
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	41055	2636.5	1	21.48	21.80	1.076	62.9	1.006	-0.06	0.575	0.623
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	41490	2680	1	21.37	21.80	1.104	62.9	1.006	-0.01	0.509	0.565
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	39750	2506	1	21.57	21.80	1.054	62.9	1.006	0.11	0.951	1.009
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	40620	2593	1	21.45	21.80	1.084	62.9	1.006	-0.04	0.846	0.923
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	41055	2636.5	1	21.48	21.80	1.076	62.9	1.006	-0.09	0.801	0.867
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	41490	2680	1	21.37	21.80	1.104	62.9	1.006	0.01	0.726	0.806
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	39750	2506	1	21.57	21.80	1.054	62.9	1.006	-0.08	0.906	0.961
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	40620	2593	1	21.45	21.80	1.084	62.9	1.006	-0.07	0.784	0.855
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	41055	2636.5	1	21.48	21.80	1.076	62.9	1.006	0.12	0.726	0.786
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	41490	2680	1	21.37	21.80	1.104	62.9	1.006	-0.06	0.637	0.708
	LTE Band 41 PC3	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 6	DSI 5	40185	2549.5	1	21.55	21.80	1.059	62.9	1.006	0.03	0.570	0.607
	LTE Band 41 PC3	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 6	DSI 5	40185	2549.5	1	21.55	21.80	1.059	62.9	1.006	0.05	0.779	0.830
	LTE Band 41 PC3	20M	QPSK	100	0	-	Left Tilted	0mm	Ant 6	DSI 5	40185	2549.5	1	21.55	21.80	1.059	62.9	1.006	0.09	0.722	0.769
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	40185	2549.5	1	24.71	24.80	1.021	62.9	1.006	0.12	0.756	0.776
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 7	DSI 5	40185	2549.5	1	24.71	24.80	1.021	62.9	1.006	0.18	0.101	0.104
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 7	DSI 5	40185	2549.5	1	24.71	24.80	1.021	62.9	1.006	-0.01	0.576	0.592
	LTE Band 41 PC3	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 7	DSI 5	40185	2549.5	1	24.71	24.80	1.021	62.9	1.006	-0.02	0.168	0.173
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	39750	2506	1	24.66	24.80	1.033	62.9	1.006	0.13	0.694	0.721
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	40620	2593	1	24.67	24.80	1.030	62.9	1.006	0.19	0.734	0.761
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	41055	2636.5	1	24.62	24.80	1.042	62.9	1.006	0.12	0.735	0.771
	LTE Band 41 PC3	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	41490	2680	1	24.68	24.80	1.028	62.9	1.006	0.08	0.655	0.677
	LTE Band 41 PC2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 7	DSI 5	40185	2549.5	1	26.42	26.80	1.091	42.9	1.009	0.09	0.729	0.803
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	40185	2549.5	1	23.77	23.80	1.007	62.9	1.006	0.02	0.731	0.740
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 7	DSI 5	40185	2549.5	1	23.77	23.80	1.007	62.9	1.006	-0.16	0.093	0.094

	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 7	DSI 5	40185	2549.5	1	23.77	23.80	1.007	62.9	1.006	-0.14	0.561	0.568
	LTE Band 41 PC3	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 7	DSI 5	40185	2549.5	1	23.77	23.80	1.007	62.9	1.006	-0.12	0.149	0.151
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	39750	2506	1	23.68	23.80	1.028	62.9	1.006	0.13	0.662	0.685
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	40620	2593	1	23.75	23.80	1.012	62.9	1.006	-0.03	0.701	0.713
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	41055	2636.5	1	23.66	23.80	1.033	62.9	1.006	0.08	0.706	0.734
	LTE Band 41 PC3	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 7	DSI 5	41490	2680	1	23.69	23.80	1.026	62.9	1.006	0.08	0.637	0.657
	LTE Band 41 PC3	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 7	DSI 5	40185	2549.5	1	23.71	23.80	1.021	62.9	1.006	0.11	0.575	0.591
	FR1 n7	50M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	507000	2535	1	18.86	20.20	1.361	-	-	-0.12	0.810	1.103
	FR1 n7	50M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	507000	2535	1	18.86	20.20	1.361	-	-	0.1	0.129	0.176
	FR1 n7	50M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	507000	2535	1	18.86	20.20	1.361	-	-	-0.02	0.569	0.775
	FR1 n7	50M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	507000	2535	1	18.86	20.20	1.361	-	-	0.08	0.076	0.103
22	FR1 n7	50M	QPSK	135	68	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	507000	2535	1	18.81	20.20	1.377	-	-	0.04	0.839	**1.155**
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Tilted	0mm	Ant 0	DSI 5	507000	2535	1	18.81	20.20	1.377	-	-	-0.1	0.137	0.189
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Cheek	0mm	Ant 0	DSI 5	507000	2535	1	18.81	20.20	1.377	-	-	-0.08	0.576	0.793
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Tilted	0mm	Ant 0	DSI 5	507000	2535	1	18.81	20.20	1.377	-	-	0.13	0.086	0.118
	FR1 n7	50M	QPSK	270	0	DFT-15	Right Cheek	0mm	Ant 0	DSI 5	507000	2535	1	18.77	20.20	1.390	-	-	0.16	0.797	1.108
	FR1 n7	50M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 5	DSI 5	507000	2535	1	21.40	22.20	1.202	-	-	0.18	0.022	0.026
	FR1 n7	50M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 5	DSI 5	507000	2535	1	21.40	22.20	1.202	-	-	-0.03	0.010	0.012
	FR1 n7	50M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 5	DSI 5	507000	2535	1	21.40	22.20	1.202	-	-	0.07	0.055	0.066
	FR1 n7	50M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 5	DSI 5	507000	2535	1	21.40	22.20	1.202	-	-	-0.07	0.047	0.057
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Cheek	0mm	Ant 5	DSI 5	507000	2535	1	21.35	22.20	1.216	-	-	0.14	0.020	0.024
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Tilted	0mm	Ant 5	DSI 5	507000	2535	1	21.35	22.20	1.216	-	-	0.01	0.009	0.011
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Cheek	0mm	Ant 5	DSI 5	507000	2535	1	21.35	22.20	1.216	-	-	0.06	0.053	0.064
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Tilted	0mm	Ant 5	DSI 5	507000	2535	1	21.35	22.20	1.216	-	-	0.06	0.046	0.056
	FR1 n7	50M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 6	DSI 5	507000	2535	1	17.25	17.70	1.109	-	-	-0.03	0.607	0.673
	FR1 n7	50M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 6	DSI 5	507000	2535	1	17.25	17.70	1.109	-	-	-0.09	1.000	1.109
	FR1 n7	50M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 6	DSI 5	507000	2535	1	17.25	17.70	1.109	-	-	0.12	0.429	0.476
	FR1 n7	50M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 6	DSI 5	507000	2535	1	17.25	17.70	1.109	-	-	-0.06	0.689	0.764
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Cheek	0mm	Ant 6	DSI 5	507000	2535	1	17.22	17.70	1.117	-	-	0.05	0.571	0.638
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Tilted	0mm	Ant 6	DSI 5	507000	2535	1	17.22	17.70	1.117	-	-	0.18	0.921	1.029
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Cheek	0mm	Ant 6	DSI 5	507000	2535	1	17.22	17.70	1.117	-	-	-0.14	0.387	0.432
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Tilted	0mm	Ant 6	DSI 5	507000	2535	1	17.22	17.70	1.117	-	-	0.18	0.653	0.729
	FR1 n7	50M	QPSK	270	0	DFT-15	Right Tilted	0mm	Ant 6	DSI 5	507000	2535	1	17.20	17.70	1.122	-	-	0.1	0.897	1.006
	FR1 n7	50M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 7	DSI 5	507000	2535	1	20.43	21.20	1.194	-	-	-0.11	0.583	0.696
	FR1 n7	50M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 7	DSI 5	507000	2535	1	20.43	21.20	1.194	-	-	0.14	0.100	0.119
	FR1 n7	50M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 7	DSI 5	507000	2535	1	20.43	21.20	1.194	-	-	-0.17	0.411	0.491
	FR1 n7	50M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 7	DSI 5	507000	2535	1	20.43	21.20	1.194	-	-	0.18	0.116	0.139
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Cheek	0mm	Ant 7	DSI 5	507000	2535	1	20.41	21.20	1.199	-	-	0.15	0.564	0.677
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Tilted	0mm	Ant 7	DSI 5	507000	2535	1	20.41	21.20	1.199	-	-	-0.19	0.090	0.108
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Cheek	0mm	Ant 7	DSI 5	507000	2535	1	20.41	21.20	1.199	-	-	0.05	0.389	0.467
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Tilted	0mm	Ant 7	DSI 5	507000	2535	1	20.41	21.20	1.199	-	-	0.19	0.097	0.116
23	FR1 n41	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 0	DSI 5	518598	2592.99	1	19.43	20.70	1.340	-	-	0.17	0.891	**1.194**
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 0	DSI 5	518598	2592.99	2	19.43	20.70	1.340	-	-	0.09	0.820	1.099
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 0	DSI 5	518598	2592.99	1	19.43	20.70	1.340	-	-	-0.18	0.200	0.268
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 0	DSI 5	518598	2592.99	1	19.43	20.70	1.340	-	-	0.06	0.642	0.860
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 0	DSI 5	518598	2592.99	1	19.43	20.70	1.340	-	-	0.18	0.091	0.122
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 0	DSI 5	518598	2592.99	1	19.38	20.70	1.355	-	-	-0.18	0.870	1.179
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 0	DSI 5	518598	2592.99	1	19.38	20.70	1.355	-	-	0.01	0.192	0.260
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 0	DSI 5	518598	2592.99	1	19.38	20.70	1.355	-	-	-0.14	0.618	0.838
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 0	DSI 5	518598	2592.99	1	19.38	20.70	1.355	-	-	0.01	0.088	0.119
	FR1 n41	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 0	DSI 5	518598	2592.99	1	19.23	20.70	1.403	-	-	0.09	0.810	1.136
	FR1 n41	100M	QPSK	270	0	DFT-30	Left Cheek	0mm	Ant 0	DSI 5	518598	2592.99	1	19.23	20.70	1.403	-	-	0.12	0.585	0.821
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI 5	518598	2592.99	1	21.04	22.20	1.306	-	-	-0.1	0.036	0.047
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI 5	518598	2592.99	1	21.04	22.20	1.306	-	-	0.07	0.033	0.043

	FR1 n41	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI 5	518598	2592.99	1	21.04	22.20	1.306	-	-	-0.11	0.082	0.107
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI 5	518598	2592.99	1	21.04	22.20	1.306	-	-	0.17	0.039	0.051
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI 5	518598	2592.99	1	20.87	22.20	1.358	-	-	-0.12	0.040	0.054
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI 5	518598	2592.99	1	20.87	22.20	1.358	-	-	0.07	0.037	0.050
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI 5	518598	2592.99	1	20.87	22.20	1.358	-	-	-0.04	0.091	0.124
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI 5	518598	2592.99	1	20.87	22.20	1.358	-	-	0.16	0.043	0.058
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	518598	2592.99	1	16.18	17.70	1.419	-	-	-0.1	0.595	0.844
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	518598	2592.99	1	16.18	17.70	1.419	-	-	-0.14	0.720	1.022
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	DSI 5	518598	2592.99	1	16.18	17.70	1.419	-	-	-0.05	0.526	0.746
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	DSI 5	518598	2592.99	1	16.18	17.70	1.419	-	-	0.13	0.703	0.998
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	518598	2592.99	1	16.12	17.70	1.439	-	-	0.05	0.602	0.866
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	518598	2592.99	1	16.12	17.70	1.439	-	-	0.11	0.759	1.092
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	DSI 5	518598	2592.99	1	16.12	17.70	1.439	-	-	-0.04	0.531	0.764
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	DSI 5	518598	2592.99	1	16.12	17.70	1.439	-	-	-0.09	0.711	1.023
	FR1 n41	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	518598	2592.99	1	16.06	17.70	1.459	-	-	0.05	0.575	0.839
	FR1 n41	100M	QPSK	270	0	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	518598	2592.99	1	16.06	17.70	1.459	-	-	0.11	0.710	1.036
	FR1 n41	100M	QPSK	270	0	DFT-30	Left Cheek	0mm	Ant 6	DSI 5	518598	2592.99	1	16.06	17.70	1.459	-	-	0.07	0.518	0.756
	FR1 n41	100M	QPSK	270	0	DFT-30	Left Tilted	0mm	Ant 6	DSI 5	518598	2592.99	1	16.06	17.70	1.459	-	-	-0.09	0.696	1.015
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	DSI 5	518598	2592.99	1	21.74	23.20	1.400	-	-	0.08	0.663	0.928
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	DSI 5	518598	2592.99	1	21.74	23.20	1.400	-	-	0.01	0.112	0.157
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	DSI 5	518598	2592.99	1	21.74	23.20	1.400	-	-	-0.02	0.372	0.521
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	DSI 5	518598	2592.99	1	21.74	23.20	1.400	-	-	-0.19	0.136	0.190
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	DSI 5	518598	2592.99	1	21.66	23.20	1.426	-	-	-0.09	0.616	0.878
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	DSI 5	518598	2592.99	1	21.66	23.20	1.426	-	-	0.17	0.108	0.154
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	DSI 5	518598	2592.99	1	21.66	23.20	1.426	-	-	-0.17	0.361	0.515
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	DSI 5	518598	2592.99	1	21.66	23.20	1.426	-	-	-0.05	0.125	0.178
	FR1 n41	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 7	DSI 5	518598	2592.99	1	21.51	23.20	1.476	-	-	0.12	0.590	0.871
3000-4000MHz																					
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 10	DSI 5	55830	3609	1	21.80	22.30	1.122	62.9	1.006	0.19	0.187	0.211
	LTE Band 48	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 10	DSI 5	55830	3609	1	21.80	22.30	1.122	62.9	1.006	-0.08	0.159	0.179
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 10	DSI 5	55830	3609	1	21.80	22.30	1.122	62.9	1.006	-0.11	0.874	0.987
	LTE Band 48C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 10	DSI 5	55340+ 55538	3560+ 3579.8	1	21.71	22.30	1.146	62.9	1.006	0.02	0.823	0.948
	LTE Band 48	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 10	DSI 5	55830	3609	1	21.80	22.30	1.122	62.9	1.006	-0.02	0.326	0.368
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 10	DSI 5	55340	3560	1	21.70	22.30	1.148	62.9	1.006	0.09	0.816	0.943
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 10	DSI 5	56150	3641	1	21.78	22.30	1.127	62.9	1.006	0.03	0.831	0.942
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 10	DSI 5	56640	3690	1	21.74	22.30	1.138	62.9	1.006	-0.11	0.751	0.859
	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 10	DSI 5	55830	3609	1	21.76	22.30	1.132	62.9	1.006	0.13	0.177	0.202
	LTE Band 48	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 10	DSI 5	55830	3609	1	21.76	22.30	1.132	62.9	1.006	0.17	0.152	0.173
	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 10	DSI 5	55830	3609	1	21.76	22.30	1.132	62.9	1.006	-0.19	0.843	0.960
	LTE Band 48	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 10	DSI 5	55830	3609	1	21.76	22.30	1.132	62.9	1.006	0.15	0.316	0.360
	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 10	DSI 5	55340	3560	1	21.64	22.30	1.164	62.9	1.006	0.17	0.801	0.938
	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 10	DSI 5	56150	3641	1	21.64	22.30	1.164	62.9	1.006	0.07	0.820	0.960
	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 10	DSI 5	56640	3690	1	21.65	22.30	1.161	62.9	1.006	-0.08	0.737	0.861
	LTE Band 48	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 10	DSI 5	55830	3609	1	17.88	18.80	1.236	62.9	1.006	0.03	0.724	0.900
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	55830	3609	1	18.00	18.30	1.072	62.9	1.006	-0.15	0.667	0.719
	LTE Band 48	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	55830	3609	1	18.00	18.30	1.072	62.9	1.006	-0.11	0.807	0.870
	LTE Band 48C	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 6	DSI 5	55340+ 55538	3560+ 3579.8	1	17.83	18.30	1.114	62.9	1.006	0.04	0.767	0.860
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 6	DSI 5	55830	3609	1	18.00	18.30	1.072	62.9	1.006	0.16	0.183	0.197
	LTE Band 48	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 6	DSI 5	55830	3609	1	18.00	18.30	1.072	62.9	1.006	0.05	0.229	0.247
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	55340	3560	1	17.95	18.30	1.084	62.9	1.006	0.04	0.421	0.459
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	56150	3641	1	17.90	18.30	1.096	62.9	1.006	0.09	0.437	0.482
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 6	DSI 5	56640	3690	1	17.92	18.30	1.091	62.9	1.006	0.05	0.638	0.701
	LTE Band 48	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	55340	3560	1	17.95	18.30	1.084	62.9	1.006	-0.01	0.506	0.552
	LTE Band 48	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	56150	3641	1	17.90	18.30	1.096	62.9	1.006	-0.01	0.525	0.579
	LTE Band 48	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 6	DSI 5	56640	3690	1	17.92	18.30	1.091	62.9	1.006	-0.11	0.767	0.842

	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	55830	3609	1	17.98	18.30	1.076	62.9	1.006	0.04	0.606	0.656
	LTE Band 48	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	55830	3609	1	17.98	18.30	1.076	62.9	1.006	-0.13	0.755	0.818
	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 6	DSI 5	55830	3609	1	17.98	18.30	1.076	62.9	1.006	0.13	0.171	0.185
	LTE Band 48	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 6	DSI 5	55830	3609	1	17.98	18.30	1.076	62.9	1.006	-0.12	0.225	0.244
	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	55340	3560	1	17.88	18.30	1.102	62.9	1.006	0.01	0.404	0.448
	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	56150	3641	1	17.84	18.30	1.112	62.9	1.006	0.05	0.413	0.462
	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 6	DSI 5	56640	3690	1	17.91	18.30	1.094	62.9	1.006	0.07	0.606	0.667
	LTE Band 48	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	55340	3560	1	17.88	18.30	1.102	62.9	1.006	-0.1	0.486	0.539
	LTE Band 48	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	56150	3641	1	17.84	18.30	1.112	62.9	1.006	-0.14	0.496	0.555
	LTE Band 48	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 6	DSI 5	56640	3690	1	17.91	18.30	1.094	62.9	1.006	0.14	0.728	0.801
	LTE Band 48	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 6	DSI 5	55830	3609	1	17.93	18.30	1.089	62.9	1.006	0.07	0.568	0.622
	LTE Band 48	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 6	DSI 5	55830	3609	1	17.93	18.30	1.089	62.9	1.006	0.09	0.687	0.753
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 11	DSI 5	55830	3609	1	19.50	19.80	1.072	62.9	1.006	-0.04	0.318	0.343
	LTE Band 48	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 11	DSI 5	55830	3609	1	19.50	19.80	1.072	62.9	1.006	0.08	0.272	0.293
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 11	DSI 5	55830	3609	1	19.50	19.80	1.072	62.9	1.006	0.15	0.847	0.913
	LTE Band 48	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 11	DSI 5	55830	3609	1	19.50	19.80	1.072	62.9	1.006	0.02	0.742	0.800
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 11	DSI 5	55340	3560	1	19.45	19.80	1.084	62.9	1.006	0.01	0.917	1.000
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 11	DSI 5	56150	3641	1	19.48	19.80	1.076	62.9	1.006	-0.12	0.768	0.832
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 11	DSI 5	56640	3690	1	19.44	19.80	1.086	62.9	1.006	-0.05	0.782	0.855
	LTE Band 48	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 11	DSI 5	55340	3560	1	19.45	19.80	1.084	62.9	1.006	0.05	0.831	0.906
	LTE Band 48	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 11	DSI 5	56150	3641	1	19.48	19.80	1.076	62.9	1.006	-0.01	0.748	0.810
	LTE Band 48	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 11	DSI 5	56640	3690	1	19.44	19.80	1.086	62.9	1.006	0.08	0.689	0.753
	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 11	DSI 5	55830	3609	1	19.47	19.80	1.079	62.9	1.006	0.08	0.336	0.365
	LTE Band 48	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 11	DSI 5	55830	3609	1	19.47	19.80	1.079	62.9	1.006	0.16	0.298	0.323
	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 11	DSI 5	55830	3609	1	19.47	19.80	1.079	62.9	1.006	-0.02	0.905	0.982
	LTE Band 48	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 11	DSI 5	55830	3609	1	19.47	19.80	1.079	62.9	1.006	-0.1	0.798	0.866
24	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 11	DSI 5	55340	3560	1	19.38	19.80	1.102	62.9	1.006	-0.18	0.988	**1.095**
	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 11	DSI 5	56150	3641	1	19.38	19.80	1.102	62.9	1.006	-0.03	0.883	0.978
	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 11	DSI 5	56640	3690	1	19.39	19.80	1.099	62.9	1.006	-0.07	0.829	0.917
	LTE Band 48	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 11	DSI 5	55340	3560	1	19.38	19.80	1.102	62.9	1.006	0.03	0.841	0.932
	LTE Band 48	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 11	DSI 5	56150	3641	1	19.38	19.80	1.102	62.9	1.006	0.01	0.752	0.833
	LTE Band 48	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 11	DSI 5	56640	3690	1	19.39	19.80	1.099	62.9	1.006	0.09	0.706	0.781
	LTE Band 48	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 11	DSI 5	55830	3609	1	18.60	19.00	1.096	62.9	1.006	0.02	0.808	0.891
	LTE Band 48	20M	QPSK	100	0	-	Left Tilted	0mm	Ant 11	DSI 5	55830	3609	1	18.60	19.00	1.096	62.9	1.006	0.09	0.711	0.784
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 12	DSI 5	55830	3609	1	17.05	17.30	1.059	62.9	1.006	0.1	0.966	1.029
	LTE Band 48	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 12	DSI 5	55830	3609	1	17.05	17.30	1.059	62.9	1.006	0.05	0.462	0.492
	LTE Band 48	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 12	DSI 5	55830	3609	1	17.05	17.30	1.059	62.9	1.006	0.06	0.326	0.347
	LTE Band 48	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 12	DSI 5	55830	3609	1	17.05	17.30	1.059	62.9	1.006	0.09	0.276	0.294
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 12	DSI 5	55340	3560	1	17.02	17.30	1.067	62.9	1.006	-0.02	0.914	0.981
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 12	DSI 5	56150	3641	1	16.95	17.30	1.084	62.9	1.006	-0.01	0.858	0.936
	LTE Band 48	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 12	DSI 5	56640	3690	1	17.00	17.30	1.072	62.9	1.006	-0.08	0.869	0.937
	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 12	DSI 5	55830	3609	1	17.00	17.30	1.072	62.9	1.006	0.04	0.906	0.977
	LTE Band 48	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 12	DSI 5	55830	3609	1	17.00	17.30	1.072	62.9	1.006	-0.14	0.401	0.432
	LTE Band 48	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 12	DSI 5	55830	3609	1	17.00	17.30	1.072	62.9	1.006	0	0.310	0.334
	LTE Band 48	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 12	DSI 5	55830	3609	1	17.00	17.30	1.072	62.9	1.006	0.14	0.267	0.288
	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 12	DSI 5	55340	3560	1	16.96	17.30	1.081	62.9	1.006	0.19	0.852	0.927
	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 12	DSI 5	56150	3641	1	16.90	17.30	1.096	62.9	1.006	-0.16	0.831	0.917
	LTE Band 48	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 12	DSI 5	56640	3690	1	16.90	17.30	1.096	62.9	1.006	0.09	0.809	0.892
	LTE Band 48	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 12	DSI 5	55830	3609	1	16.97	17.30	1.079	62.9	1.006	0.09	0.897	0.974
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 10	DSI 5	641666	3624.99	1	20.16	21.20	1.271	-	-	-0.13	0.271	0.344
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 10	DSI 5	641666	3624.99	1	20.16	21.20	1.271	-	-	0.15	0.175	0.222
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 10	DSI 5	641666	3624.99	1	20.16	21.20	1.271	-	-	0.09	0.825	1.048
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 10	DSI 5	641666	3624.99	1	20.16	21.20	1.271	-	-	0.01	0.512	0.651
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 10	DSI 5	638000	3570	1	20.06	21.20	1.300	-	-	-0.14	0.708	0.921

	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 10	DSI 5	645332	3679.98	1	20.06	21.20	1.300	-	-	-0.02	0.786	1.022
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 10	DSI 5	638000	3570	1	20.06	21.20	1.300	-	-	0.05	0.468	0.608
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 10	DSI 5	645332	3679.98	1	20.06	21.20	1.300	-	-	0.01	0.439	0.571
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 10	DSI 5	641666	3624.99	1	20.12	21.20	1.282	-	-	-0.04	0.263	0.337
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 10	DSI 5	641666	3624.99	1	20.12	21.20	1.282	-	-	-0.18	0.169	0.217
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 10	DSI 5	641666	3624.99	1	20.12	21.20	1.282	-	-	-0.09	0.777	0.996
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 10	DSI 5	641666	3624.99	1	20.12	21.20	1.282	-	-	0.05	0.466	0.598
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 10	DSI 5	638000	3570	1	20.00	21.20	1.318	-	-	0.01	0.689	0.908
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 10	DSI 5	645332	3679.98	1	20.10	21.20	1.288	-	-	0.05	0.752	0.969
	FR1 n48 Part96	40M	QPSK	100	0	DFT-30	Left Cheek	0mm	Ant 10	DSI 5	641666	3624.99	1	19.98	21.20	1.324	-	-	0.05	0.745	0.987
	FR1 n48 Part96	40M	QPSK	100	0	DFT-30	Left Tilted	0mm	Ant 10	DSI 5	641666	3624.99	1	19.98	21.20	1.324	-	-	0.09	0.468	0.620
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	641666	3624.99	1	16.20	17.20	1.259	-	-	0.03	0.626	0.788
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	641666	3624.99	1	16.20	17.20	1.259	-	-	-0.16	0.707	0.890
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	DSI 5	641666	3624.99	1	16.20	17.20	1.259	-	-	-0.03	0.197	0.248
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	DSI 5	641666	3624.99	1	16.20	17.20	1.259	-	-	-0.12	0.241	0.303
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	638000	3570	1	16.12	17.20	1.282	-	-	0.09	0.424	0.544
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	645332	3679.98	1	16.18	17.20	1.265	-	-	0.07	0.576	0.728
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	638000	3570	1	16.12	17.20	1.282	-	-	-0.11	0.526	0.675
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	645332	3679.98	1	16.18	17.20	1.265	-	-	0.11	0.642	0.812
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	641666	3624.99	1	16.10	17.20	1.288	-	-	0.09	0.638	0.822
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	641666	3624.99	1	16.10	17.20	1.288	-	-	0.12	0.719	0.926
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 6	DSI 5	641666	3624.99	1	16.10	17.20	1.288	-	-	0.12	0.223	0.287
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 6	DSI 5	641666	3624.99	1	16.10	17.20	1.288	-	-	0.16	0.277	0.357
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	638000	3570	1	16.03	17.20	1.309	-	-	0.09	0.487	0.638
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	645332	3679.98	1	16.04	17.20	1.306	-	-	0.01	0.600	0.784
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	638000	3570	1	16.03	17.20	1.309	-	-	0.17	0.546	0.715
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	645332	3679.98	1	16.04	17.20	1.306	-	-	0.08	0.673	0.879
	FR1 n48 Part96	40M	QPSK	100	0	DFT-30	Right Cheek	0mm	Ant 6	DSI 5	641666	3624.99	1	15.96	17.20	1.330	-	-	0.05	0.612	0.814
	FR1 n48 Part96	40M	QPSK	100	0	DFT-30	Right Tilted	0mm	Ant 6	DSI 5	641666	3624.99	1	15.96	17.20	1.330	-	-	0.1	0.686	0.913
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 11	DSI 5	641666	3624.99	1	16.69	17.70	1.262	-	-	0.06	0.334	0.421
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 11	DSI 5	641666	3624.99	1	16.69	17.70	1.262	-	-	0.19	0.303	0.382
25	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 11	DSI 5	641666	3624.99	1	16.69	17.70	1.262	-	-	-0.12	0.892	**1.126**
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 11	DSI 5	641666	3624.99	1	16.69	17.70	1.262	-	-	-0.09	0.694	0.876
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 11	DSI 5	638000	3570	1	16.60	17.70	1.288	-	-	0.14	0.874	1.126
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 11	DSI 5	645332	3679.98	1	16.68	17.70	1.265	-	-	-0.17	0.831	1.051
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 11	DSI 5	638000	3570	1	16.60	17.70	1.288	-	-	0.07	0.641	0.826
	FR1 n48 Part96	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 11	DSI 5	645332	3679.98	1	16.68	17.70	1.265	-	-	0.01	0.652	0.825
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 11	DSI 5	641666	3624.99	1	16.61	17.70	1.285	-	-	0.01	0.316	0.406
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 11	DSI 5	641666	3624.99	1	16.61	17.70	1.285	-	-	-0.15	0.288	0.370
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 11	DSI 5	641666	3624.99	1	16.61	17.70	1.285	-	-	-0.17	0.871	1.119
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 11	DSI 5	641666	3624.99	1	16.61	17.70	1.285	-	-	-0.12	0.652	0.838
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 11	DSI 5	638000	3570	1	16.47	17.70	1.327	-	-	-0.02	0.834	1.107
	FR1 n48 Part96	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 11	DSI 5	645332	3679.98	1	16.54	17.70	1.306	-	-	-0.12	0.811	1.059