

FCC SAR Test Report

APPLICANT : Realme Chongqing Mobile
Telecommunications Corp., Ltd.

EQUIPMENT : Mobile Phone

BRAND NAME : realme

MODEL NAME : RMX5000

FCC ID : 2AUYFRMX5000

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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1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Realme Chongqing Mobile Telecommunications Corp., Ltd., Mobile Phone, RMX5000**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.16	0.40	0.25	1.58
		GSM1900	1.01	0.39	0.19	
	WCDMA	WCDMA II	1.08	0.49	0.23	
		WCDMA IV	0.99	0.46	0.26	
		WCDMA V	0.56	0.43	0.29	
	LTE	LTE Band 2	1.05	0.55	0.27	
		LTE Band 4	0.69	0.43	0.20	
		LTE Band 5	0.56	0.40	0.25	
		LTE Band 7	0.94	0.85	0.44	
		LTE Band 12/17	0.14	0.44	0.22	
		LTE Band 13	0.40	0.30	0.12	
		LTE Band 26	0.45	0.36	0.24	
		LTE Band 66	0.78	0.48	0.20	
		LTE Band 38	1.11	0.71	0.39	
	5G NR	LTE Band 41	1.02	0.67	0.31	
		FR1 n5	0.50	0.42	0.26	
		FR1 n7	0.76	0.35	0.29	
		FR1 n66	1.04	0.49	0.22	
FR1 n38		1.17	1.00	0.58		
DTS	WLAN	2.4GHz WLAN	0.54	0.21	0.09	1.36
		5GHz WLAN	0.42	0.44	0.20	1.58
NII						
DSS	Bluetooth	2.4GHz Bluetooth	0.50	0.29	0.12	1.58

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
NII	WLAN	5GHz WLAN	0.79	0.79

Date of Testing: 2024/6/25 ~ 2024/7/12

Remark:

- This device supports LTE B17 and B12. Since the supported frequency span for LTE B17 falls completely within the supports frequency span for LTE B12, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B12.

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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



2. Administration Data

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

Testing Laboratory			
Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR02-SZ	CN1256	421272

Applicant	
Company Name	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China

Manufacturer	
Company Name	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, 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	realme
Model Name	RMX5000
FCC ID	2AUYFRMX5000
IMEI Code	IMEI 1: 864218070019917 IMEI 2: 864218070019909
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is supported) LTE: QPSK, 16QAM, 64QAM, 256QAM (Downlink only) 5G NR : CP-OFDM / DFT-s-OFDM, 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 HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 WLAN 5GHz 802.11ax HE20/HE40/HE80 Bluetooth BR/EDR/LE NFC: ASK
HW Version	11
SW Version	realme UI 5.0
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Production Unit



Remark:

1. This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5G NR (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
3. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device does not support DTM operation and support GRPS/EGPRS mode up to multi-slot class 12.
5. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
6. The device implements receiver detect mechanism reduced power for the power management for SAR compliance at different exposure conditions (head, hotspot, body-worn, and extremity). It uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. It can determine proximity to head or body and set the relevant power level for 2G&3G&4G&5G and Wi-Fi antennas accordingly. The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
7. For WLAN when transmit, when transmit simultaneously together with WWAN/BT, the device power will be reduced power at head, body worn, and extremity conditions.
8. The device supports the UL duty cycle detection mechanism limited to LTE TDD frequency bands (LTE Band 40/41) and 5G NR TDD frequency bands (5G NR n38/41).
9. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
10. For 5G NR EN-DC mode, standalone SAR performed for 5G NR NSA band with the maximum power, EN-DC SAR summed EN-DC mode 5G NR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.
11. This device has NFC function and the NFC SAR report will be separately submitted.
12. This device supports 5G NR 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	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 40, 50
	n66	FDD	15	5, 10, 15, 20, 25, 30, 40
	n38	TDD	30	10, 15, 20, 25, 30, 40
	n41	TDD	30	10, 15, 20, 30, 40, 50, 60, 80, 90, 100
SA	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 40, 50
	n66	FDD	15	5, 10, 15, 20, 25, 30, 40
	n38	TDD	30	10, 15, 20, 25, 30, 40
	n41	TDD	30	10, 15, 20, 30, 40, 50, 60, 80, 90, 100

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																															
FCC ID	2AUYFRMX5000																																																														
Equipment Name	Mobile Phone																																																														
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz																																																														
Channel Bandwidth	LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 26: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz																																																														
uplink modulations used	QPSK / 16QAM / 64QAM / 256QAM(Downlink only)																																																														
LTE Voice / Data requirements	Voice and Data																																																														
LTE Release Version	R15, Cat18																																																														
CA Support	Supported, Uplink and Downlink																																																														
LTE MPR permanently built-in by design	<p align="center">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table>	Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)																																																								
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256 QAM	≥ 1						≤ 5																																																								
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																														
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																														
Power reduction applied to satisfy SAR compliance	Yes, when operating in 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 12.																																																														
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 12.																																																														
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for intra-band with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 3 carriers in the downlink and 2 carriers in the uplink.																																																														



Transmission (H, M, L) channel numbers and frequencies in each LTE band													
LTE Band 2													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860	
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900	
LTE Band 4													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720	
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745	
LTE Band 5													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	20407	824.7	20415	825.5	20425	826.5	20450	829	20450	829	20450	829	
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	
H	20643	848.3	20635	847.5	20625	846.5	20600	844	20600	844	20600	844	
LTE Band 7													
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510	20825	2507.5	20850	2510	
M	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535	
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560	21375	2562.5	21350	2560	
LTE Band 12													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	23017	699.7	23025	700.5	23035	701.5	23060	704	23035	701.5	23060	704	
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	
H	23173	715.3	23165	714.5	23155	713.5	23130	711	23155	713.5	23130	711	
LTE Band 13													
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #
L	23205		779.5		23230		782		23230		782		23230
M	23230		782		23230		782		23230		782		23230
H	23255		784.5		23230		782		23230		782		23230
LTE Band 17													
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #
L	23755		706.5		23780		709		23780		709		23780
M	23790		710		23790		710		23790		710		23790
H	23825		713.5		23800		711		23800		711		23800
LTE Band 26													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26740	819	26765	821.5	
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26990	844	26965	841.5	
LTE Band 38													
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580	37825	2577.5	37850	2580	
M	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595	
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610	38175	2612.5	38150	2610	



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

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

<For LTE Overlap Bands Description>

1) LTE Bands BW

Band	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz
LTE Band 4	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 66	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 12	Yes	Yes	Yes	Yes		
LTE Band 17			Yes	Yes		
LTE Band 5	Yes	Yes	Yes	Yes		
LTE Band 26	Yes	Yes	Yes	Yes	Yes	
LTE Band 38			Yes	Yes	Yes	Yes
LTE Band 41			Yes	Yes	Yes	Yes

2) LTE Bands SA tune up:

Band	Ant	Full Tune-up Limit	ECI 1 Tune-up Limit	ECI 2 Tune-up Limit	ECI 3 Tune-up Limit	ECI 4 Tune-up Limit
LTE Band 5	Ant.0	25	25	25	25	25
LTE Band 26	Ant.0	25	25	25	25	25
LTE Band 12	Ant.0	25	25	25	25	25
LTE Band 17	Ant.0	25	25	25	25	25

Band	Ant	Full Tune-up Limit	ECI 1 Tune-up Limit	ECI 2 Tune-up Limit	ECI 3 Tune-up Limit	ECI 4 Tune-up Limit
LTE Band 5	Ant.1	25	25	25	25	25
LTE Band 26	Ant.1	24.5	24.5	24.5	24.5	24.5
LTE Band 12	Ant.1	24.5	24.5	24.5	24.5	24.5
LTE Band 17	Ant.1	24.5	24.5	24.5	24.5	24.5
LTE Band 4	Ant.1	24	24	20.75	24	20.75
LTE Band 66	Ant.1	24	24	20.75	24	20.75
LTE Band 38	Ant.1	24	22	21	22	21
LTE Band 41	Ant.1	24.5	21.75	20.75	21.75	20.75



Band	Ant	Full Tune-up Limit	ECI 1 Tune-up Limit	ECI 2 Tune-up Limit	ECI 3 Tune-up Limit	ECI 4 Tune-up Limit
LTE Band 4	Ant.4	24	21.25	24	21.25	24
LTE Band 66	Ant.4	24.5	21.75	24.5	21.75	24.5
LTE Band 38	Ant.4	24	24	24	24	24
LTE Band 41	Ant.4	25	23.75	25	23.75	25

Band	Ant	Full Tune-up Limit	ECI 1 Tune-up Limit	ECI 2 Tune-up Limit	ECI 3 Tune-up Limit	ECI 4 Tune-up Limit
LTE Band 4	Ant.5	24	22.25	21.75	22.25	21.75
LTE Band 66	Ant.5	24.5	23	22	23	22
LTE Band 38	Ant.5	24	24	24	24	24
LTE Band 41	Ant.5	25	24	24.5	24	24.5

3) LTE Bands NSA tune up:

Band	Ant	Full Tune-up Limit	ECI 1 Tune-up Limit	ECI 2 Tune-up Limit	ECI 3 Tune-up Limit	ECI 4 Tune-up Limit
LTE Band 5	Ant.0	25	25	25	25	25
LTE Band 26	Ant.0	25	25	25	24.5	25
LTE Band 5	Ant.1	25	24.5	25	23.5	24.5
LTE Band 26	Ant.1	24.5	24.5	24.5	23.5	24.5
LTE Band 4	Ant.4	24	19.75	24	18	24
LTE Band 66	Ant.4	24.5	20.25	24.5	18.5	24.5
LTE Band 38	Ant.4	24	20.5	24	20.5	24
LTE Band 41	Ant.4	25	21.25	25	21.25	25

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 n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz
Channel Bandwidth	The detail please refers to section 4.1 5GNR FR1 bands table.
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: QPSK / 16QAM / 64QAM / 256QAM CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n5	LTE B7/66
LTE Anchor Bands for n7	LTE B2/4/5/7/66
LTE Anchor Bands for n41	LTE B2/4/66/26/41
LTE Anchor Bands for n66	LTE B2/5/7/66
LTE Anchor Bands for n38	LTE B2/4/5/38/66

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band								
NR Band 5								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	165300	826.5	165800	829	166300	831.5	166800	834
M	167300	836.5	167300	836.5	167300	836.5	167300	836.5
H	169300	846.5	168800	844	168300	841.5	167800	839

NR Band 7																
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		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)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	504000	2520	505000	2525
M	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560	511500	2557.5	511000	2555	510000	2550	509000	2545

NR Band 66														
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720	344500	1722.5	345000	1725	346000	1730
M	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	352000	1760

NR Band 38												
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	515000	2575	515500	2577.5	516000	2580	516500	2582.5	517000	2585	518000	2590
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595
H	523000	2615	522500	2612.5	522000	2610	521500	2607.5	521000	2605	520000	2600

NR Band 41																				
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 100MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	500202	2501.01	500700	2503.5	501204	2506.02	502200	2511	503202	2516.01	504204	2521.02	505200	2526	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
H	537000	2685	536496	2682.48	535998	2679.99	534996	2674.98	534000	2670	532998	2664.99	531996	2659.98	529998	2649.99	528996	2644.98	528000	2640

<For NR Overlap Bands Description>

1) NR Bands BW

Band	Duplex	SCS(KHz)	Bandwidths(BW)
n38	TDD	30	10, 15, 20, 25, 30, 40
n41	TDD	30	10, 15, 20, 30, 40, 50, 60, 80, 90, 100

2) NR SA Bands Tune up:

Band	Ant	Full Tune-up Limit	ECI 1 Tune-up Limit	ECI 2 Tune-up Limit	ECI 3 Tune-up Limit	ECI 4 Tune-up Limit
FR1 n38	Ant.1	24	22	21	22	21
FR1 n41	Ant.1	24.5	21.75	20.75	21.75	20.75
FR1 n38	Ant.4	24	24	24	24	24
FR1 n41	Ant.4	25	23.75	25	23.75	25
FR1 n38	Ant.5	24	24	24	24	24
FR1 n41	Ant.5	25	24	24.5	24	24.5

3) NR NSA Bands Tune up:

Band	Ant	Full Tune-up Limit	ECI 1 Tune-up Limit	ECI 2 Tune-up Limit	ECI 3 Tune-up Limit	ECI 4 Tune-up Limit
FR1 n38	Ant.1	24.2	18.7	16.95	17.2	14.2
FR1 n41	Ant.1	24.2	16.95	16.2	15.7	13.7
FR1 n38	Ant.4	24.2	20.95	23.7	19.7	21.2
FR1 n41	Ant.4	24.2	17.95	22.45	16.7	19.95
FR1 n38	Ant.5	24.2	20.45	19.95	18.95	17.2
FR1 n41	Ant.5	24.2	18.95	19.2	17.7	16.7

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

5. RF Exposure Limits

5.1 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.

5.2 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.

6. Specific Absorption Rate (SAR)

6.1 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.

6.2 SAR Definition

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

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

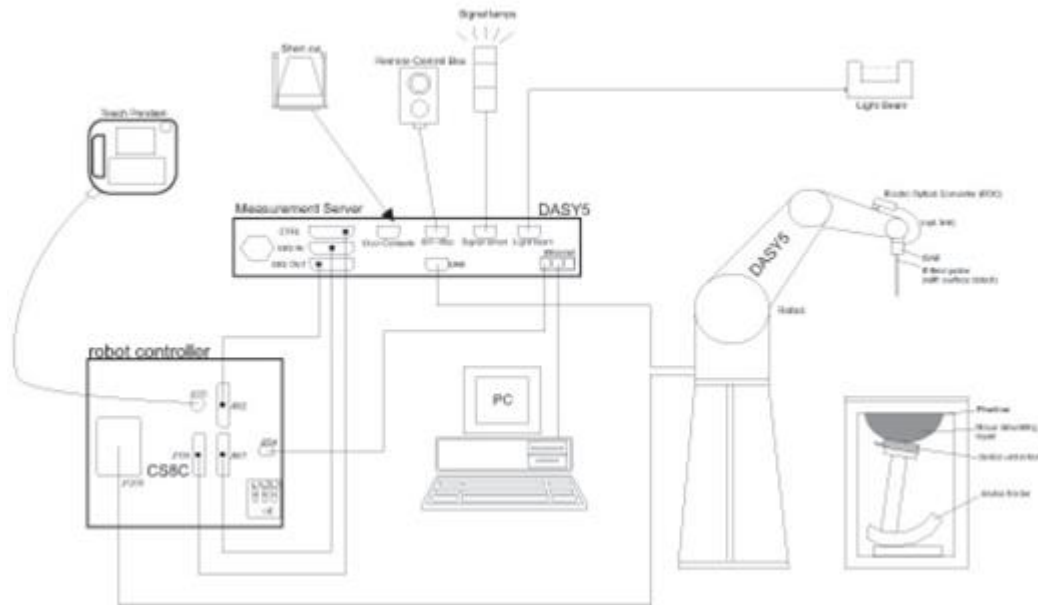
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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




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

7.1 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	

7.2 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

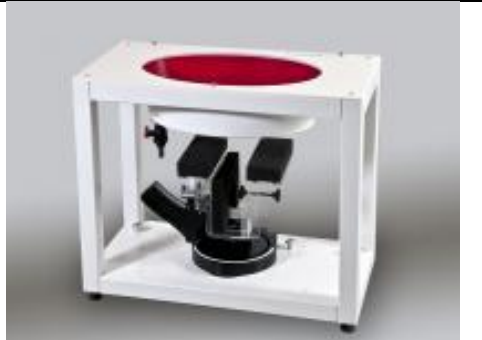
7.3 Phantom

<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.

7.4 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

8. 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

8.1 Spatial Peak SAR Evaluation

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

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

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

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

8.2 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.

8.3 Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$	≤ 2 GHz: ≤ 15 mm $2 - 3$ GHz: ≤ 12 mm	$3 - 4$ GHz: ≤ 12 mm $4 - 6$ GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.4 Zoom Scan

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

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

		≤ 3 GHz	> 3 GHz	
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

8.5 Volume Scan Procedures

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

8.6 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.



9. Test Equipment List

Table with 6 columns: Manufacturer, Name of Equipment, Type/Model, Serial Number, Last Cal., Due Date. Rows include various equipment like System Validation Kits, Network Analyzers, Signal Generators, etc.

Note:

- 1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter...
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification.
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.

10. System Verification

10.1 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.

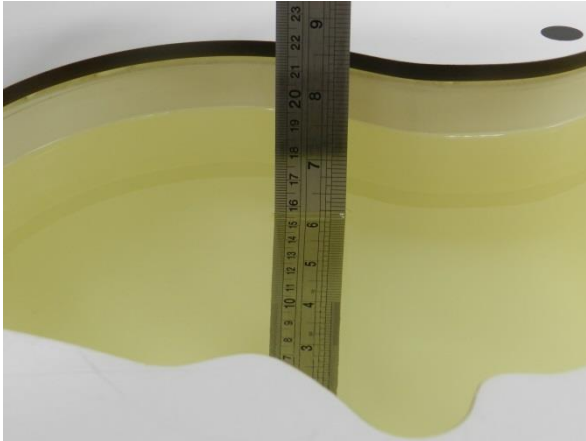


Fig 11.1 Photo of Liquid Height for Head SAR

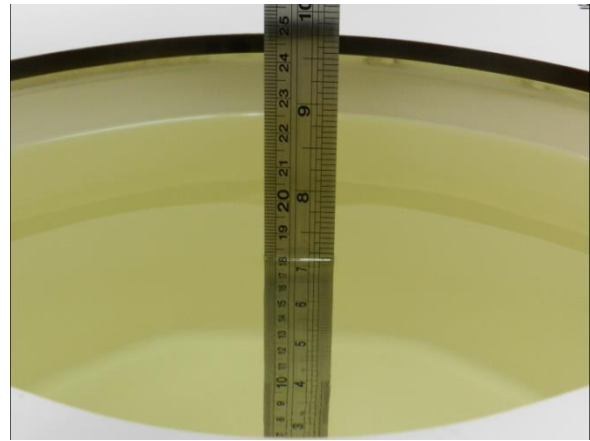


Fig 11.2 Photo of Liquid Height for Body SAR

10.2 Tissue Verification

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

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

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ε _r)	Conductivity Target (σ)	Permittivity Target (ε _r)	Delta (σ) (%)	Delta (ε _r) (%)	Limit (%)	Date
750	Head	22.3	0.860	40.931	0.89	41.90	-3.37	-2.31	±5	2024/6/25
750	Head	22.5	0.880	40.795	0.89	41.90	-1.12	-2.64	±5	2024/7/3
835	Head	22.1	0.931	41.795	0.90	41.50	3.44	0.71	±5	2024/6/26
835	Head	22.3	0.899	40.780	0.90	41.50	-0.11	-1.73	±5	2024/7/4
1750	Head	22.3	1.373	41.355	1.37	40.10	0.22	3.13	±5	2024/6/27
1750	Head	22.2	1.371	41.356	1.37	40.10	0.07	3.13	±5	2024/7/5
1900	Head	22.4	1.410	40.031	1.40	40.00	0.71	0.08	±5	2024/6/28
1900	Head	22.3	1.435	38.710	1.40	40.00	2.50	-3.23	±5	2024/7/6
2450	Head	22.5	1.771	38.173	1.80	39.20	-1.61	-2.62	±5	2024/7/11
2450	Head	22.2	1.755	39.242	1.80	39.20	-2.50	0.11	±5	2024/7/12
2600	Head	22.4	1.891	40.220	1.96	39.00	-3.52	3.13	±5	2024/6/29
2600	Head	22.5	1.897	40.200	1.96	39.00	-3.21	3.08	±5	2024/7/7
5250	Head	22.4	4.553	36.291	4.71	35.95	-3.33	0.95	±5	2024/6/30
5250	Head	22.3	4.520	36.978	4.71	35.95	-4.03	2.86	±5	2024/7/8
5600	Head	22.5	4.911	35.815	5.07	35.50	-3.14	0.89	±5	2024/7/1
5600	Head	22.2	4.858	36.522	5.07	35.50	-4.18	2.88	±5	2024/7/9
5750	Head	22.4	5.065	35.603	5.22	35.35	-2.97	0.72	±5	2024/7/2
5750	Head	22.6	5.033	36.289	5.22	35.35	-3.58	2.66	±5	2024/7/10

10.3 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 (%)
2024/6/25	750	Head	250	1099	7641	1437	2.150	8.540	8.6	0.70
2024/7/3	750	Head	250	1099	7641	1437	2.200	8.540	8.8	3.04
2024/6/26	835	Head	250	4d162	7641	1437	2.530	9.640	10.12	4.98
2024/7/4	835	Head	250	4d162	7641	1437	2.560	9.640	10.24	6.22
2024/6/27	1750	Head	250	1137	7641	1437	9.230	36.500	36.92	1.15
2024/7/5	1750	Head	250	1137	7641	1437	9.300	36.500	37.2	1.92
2024/6/28	1900	Head	250	5d182	7641	1437	10.100	39.600	40.4	2.02
2024/7/6	1900	Head	250	5d182	7641	1437	10.600	39.600	42.4	7.07
2024/7/11	2450	Head	250	924	7641	1437	13.300	52.300	53.2	1.72
2024/7/12	2450	Head	250	924	7641	1437	14.100	52.300	56.4	7.84
2024/6/29	2600	Head	250	1070	7641	1437	13.600	56.200	54.4	-3.20
2024/7/7	2600	Head	250	1070	7641	1437	15.000	56.200	60	6.76
2024/6/30	5250	Head	100	1341	7641	1437	8.200	80.700	82	1.61
2024/7/8	5250	Head	100	1341	7641	1437	7.940	80.700	79.4	-1.61
2024/7/1	5600	Head	100	1341	7641	1437	9.010	84.500	90.1	6.63
2024/7/9	5600	Head	100	1341	7641	1437	8.860	84.500	88.6	4.85
2024/7/2	5750	Head	100	1341	7641	1437	8.610	80.600	86.1	6.82
2024/7/10	5750	Head	100	1341	7641	1437	8.320	80.600	83.2	3.23

<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 (%)
2024/6/25	750	Head	250	1099	7641	1437	1.380	5.650	5.52	-2.30
2024/7/3	750	Head	250	1099	7641	1437	1.430	5.650	5.72	1.24
2024/6/26	835	Head	250	4d162	7641	1437	1.650	6.260	6.6	5.43
2024/7/4	835	Head	250	4d162	7641	1437	1.670	6.260	6.68	6.71
2024/6/27	1750	Head	250	1137	7641	1437	4.950	19.200	19.8	3.13
2024/7/5	1750	Head	250	1137	7641	1437	5.060	19.200	20.24	5.42
2024/6/28	1900	Head	250	5d182	7641	1437	5.350	20.200	21.4	5.94
2024/7/6	1900	Head	250	5d182	7641	1437	5.420	20.200	21.68	7.33
2024/7/11	2450	Head	250	924	7641	1437	6.310	24.500	25.24	3.02
2024/7/12	2450	Head	250	924	7641	1437	6.580	24.500	26.32	7.43
2024/6/29	2600	Head	250	1070	7641	1437	6.130	24.600	24.52	-0.33
2024/7/7	2600	Head	250	1070	7641	1437	6.630	24.600	26.52	7.80
2024/6/30	5250	Head	100	1341	7641	1437	2.380	23.100	23.8	3.03
2024/7/8	5250	Head	100	1341	7641	1437	2.180	23.100	21.8	-5.63
2024/7/1	5600	Head	100	1341	7641	1437	2.530	24.000	25.3	5.42
2024/7/9	5600	Head	100	1341	7641	1437	2.530	24.000	25.3	5.42
2024/7/2	5750	Head	100	1341	7641	1437	2.380	22.700	23.8	4.85
2024/7/10	5750	Head	100	1341	7641	1437	2.230	22.700	22.3	-1.76

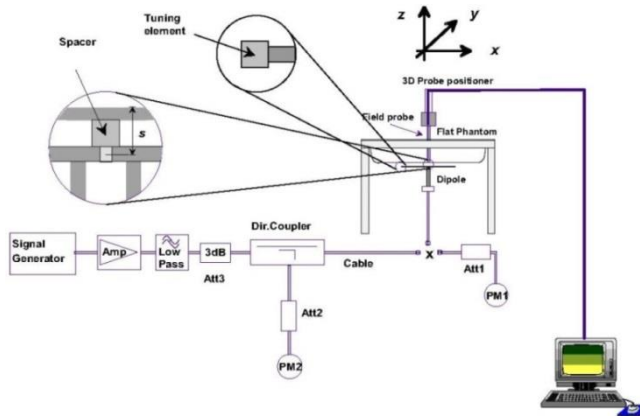


Fig 11.3.1 System Performance Check Setup



Fig 11.3.2 Setup Photo

11. RF Exposure Positions

11.1 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.

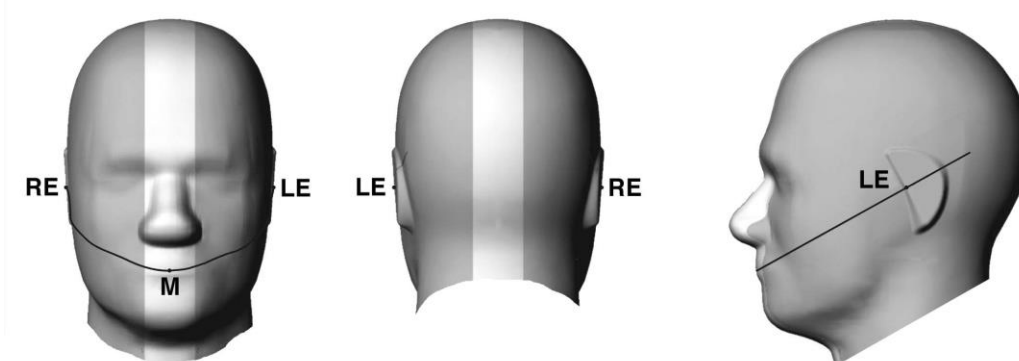


Fig 12.1.1 Front, back, and side views of SAM twin phantom

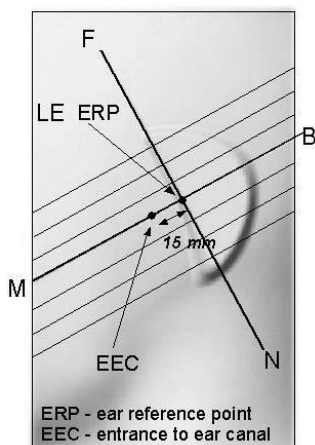


Fig 12.1.2 Close-up side view of phantom showing the ear region.

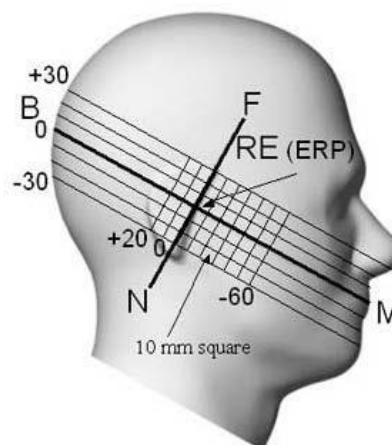


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

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

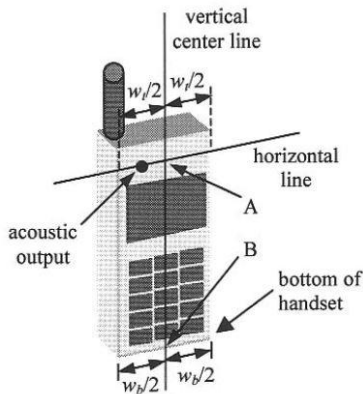


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

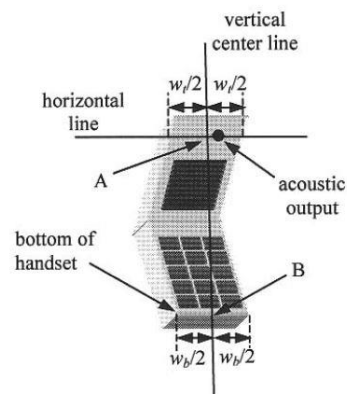


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

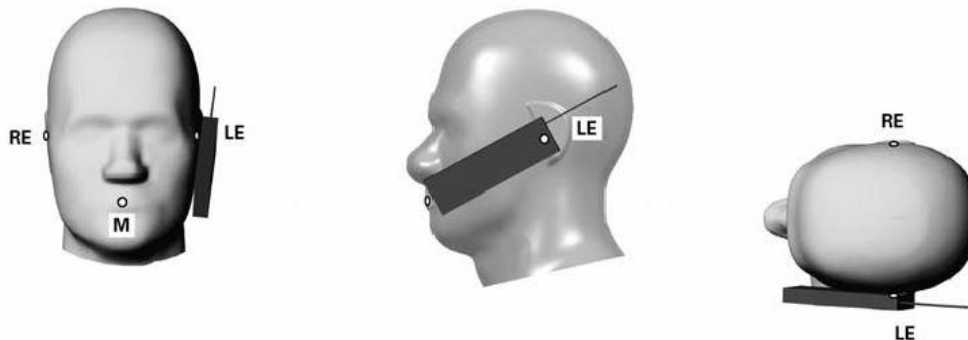


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 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

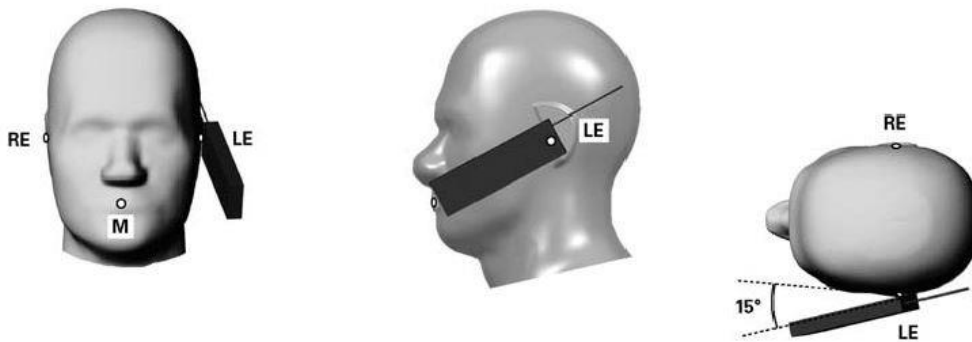


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

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

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

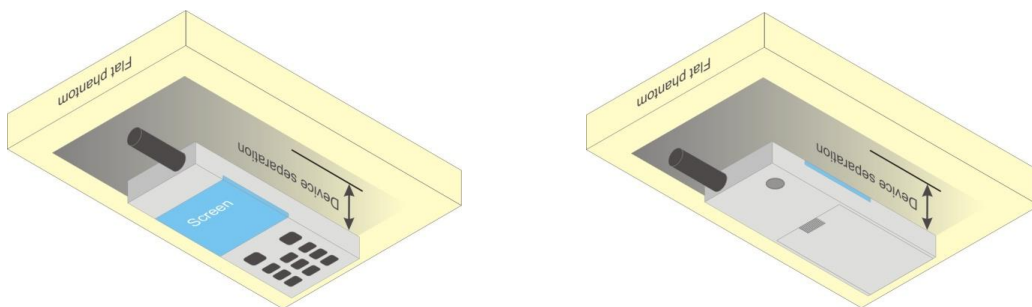


Fig 12.4 Body Worn Position

11.5 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.

11.6 Wireless Router

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

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

12. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

1. Per KDB 447498 D01, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15, \beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

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

Setup Configuration

HSUPA Setup Configuration:

- 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	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

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

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

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

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

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

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

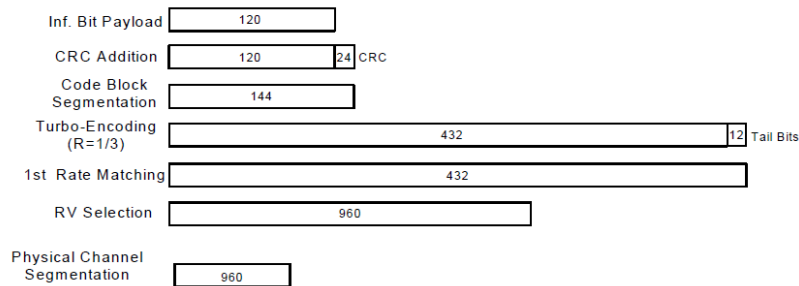


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK) Setup Configuration

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

1. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
2. The RF path losses were compensated into the measurements.
3. A call was established between EUT and Base Station with following setting * :
 - i. Call Configs = 5.2E:HSPA+:UL with 16QAM
 - ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.4, quoted from the TS 34.121-1 s5.2E
 - iii. Set Channel 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-TFCl is equal to the target E-TFCl of 105 for sub-test 1, and other subtest's E-TFCl
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-TFCl (Note 5)	E-TFCl (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

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

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

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

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

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

Setup Configuration

<WCDMA Conducted Power>

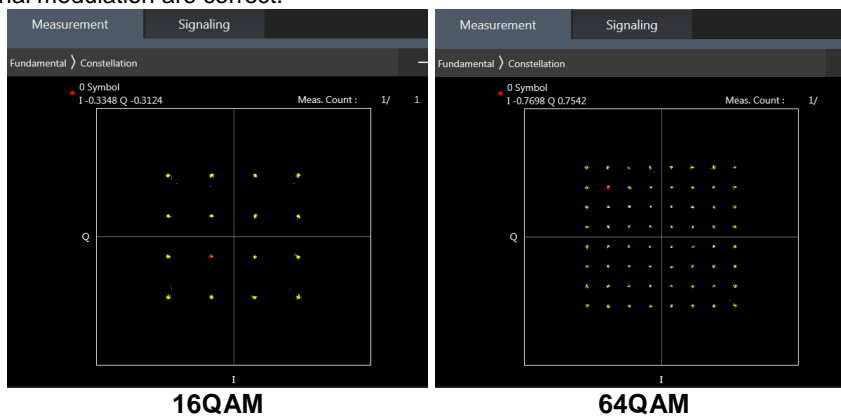
General Note:

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

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B4 / B5 / B17 / B38 SAR test was covered by B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is \leq the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to May 2017 TCB workshop, for 16QAM and 64QAM 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 64QAM and 16QAM signal modulation are correct.



<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

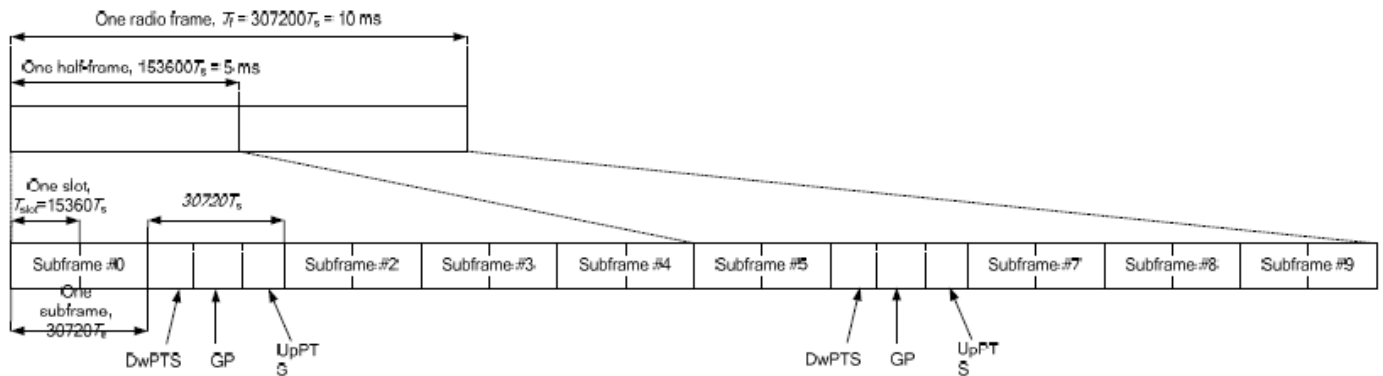


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

For LTE TDD Power class 3

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



<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	CA_2C	2C		1	CA_2A-7C		
2	CA_7C	7C	3CC-1	2	CA_41D		
3	CA_38C	38C	3CC-13	3	CA_5A-66A-66A	66A, 66A-66A	
4	CA_41C	41C	3CC-11	4	CA_5A-7A-7A	7A-7A	
5	CA_41A-41A	41A, 41A-41A	3CC-6	5	CA_5A-7A-66A	7A-66A	
6	CA_7A-7A	7A, 7A-7A	3CC-4	6	CA_41A-41A-41A	41A, 41A-41A-41A	
7	CA_5A-41A	41A		7	CA_4A-7C	4A, 7C	
8	CA_5A-66A	66A	3CC-3	8	CA_5A-7C	7C	
9	CA_7A-66A	7A,66A	3CC-5	9	CA_7A-66A-66A	7A-66A-66A	
10	CA_2A-2A			10	CA_7C-66A	7C-66A	
11	CA_2A-5A	.	3CC-22	11	CA_26A-41C	41C	
12	CA_2A-12A	2A		12	CA_2A-4A-5A		
13	CA_2A-7A		3CC-17	13	CA_38C-66A	38C,66A	
14	CA_4A-5A	4A	3CC-12	14	CA_4A-5A-7A	4A,7A	
15	CA_4A-7A	4A, 7A	3CC-21	15	CA_41C-66A	41C,66A	
16	CA_5A-7A	7A	3CC-23	16	CA_5A-41C	41C	
17	CA_12A-66A	66A		17	CA_2A-7A-7A		
18	CA_66A-66A	66A, 66A-66A	3CC-9	18	CA_5A-66C	66C	
19	CA_4A-4A	4A, 4A-4A	3CC-21	19	CA_4A-4A-5A	4A-4A	
20	CA_26A-41A	41A		20	CA_4C-7A	4C-7A	
21	CA_5A-38A	38A		21	CA_4A-4A-7A	4A-4A-7A	
22	CA_2A-4A		3CC-12	22	CA_2A-5A-66A		
23	CA_38A-66A	38A,66A		23	CA_2A-5A-7A		
24	CA_26A-38A	38A					
25	CA_2A-66A						
26	CA_7A-26A	7A					
27	CA_2A-38A						



LTE Carrier Aggregation Conducted Power (Downlink)

- i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.
- ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.
- iii. The device supports downlink three carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
- iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
- v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.
- vi. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- vii. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

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

LTE 4x4 MIMO (Downlink)

This device supports downlink 4x4 MIMO operations for LTE Band 2/4/7/66/38/41 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 2/4/7/66/38/41

LTE Carrier Aggregation Conducted Power (Uplink)

LTE Uplink CA	2CC Uplink Carrier Aggregation		
Intra-band	Antenna Tx		
CA_7C	Ant 1	Ant 4	Ant 5
CA_38C	Ant 1	Ant 4	Ant 5
CA_41C	Ant 1	Ant 4	Ant 5

<Intra-band>

General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B7/38/41 with a maximum of two uplink component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.
- ii. The device supports uplink carrier aggregation with a maximum of two uplink component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.
- iii. According Nov. 2017 TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- iv. Additional SAR measurement for LTE UL CA with other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

5G NR Output Power (Unit: dBm)

General Note:

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

<3GPP 38.101 MPR for EN-DC>

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

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	$\leq 3.5^1$ $\leq 0.5^2$	$\leq 1.2^1$ $\leq 0.5^2$	$\leq 0.2^1$ 0^2
	QPSK		≤ 1	0
	16 QAM		≤ 2	≤ 1
	64 QAM			
	256 QAM		≤ 2.5 ≤ 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	Antenna Tx			
	LTE TX		NR TX	
DC_2A_n7A	Ant4	/	Ant1	Ant5
DC_2A_n66A	Ant4	/	Ant1	Ant5
DC_2A_n38A	Ant4	/	Ant1	Ant5
DC_2A_n41A	Ant4	/	Ant1	Ant5
DC_4A_n7A	Ant4	/	Ant1	Ant5
DC_4A_n38A	Ant4	/	Ant1	Ant5
DC_4A_n41A	Ant4	/	Ant1	Ant5
DC_5A_n7A	Ant0	Ant1	Ant1	Ant4
DC_5A_n66A	Ant0	Ant1	Ant1	Ant4
DC_5A_n38A	Ant0	Ant1	Ant1	Ant4
DC_7A_n5A	Ant4	Ant5	Ant0	Ant1
DC_7A_n7A	Ant4	/	Ant1	Ant5
DC_7A_n66A	Ant4	/	Ant1	Ant5
DC_26A_n41A	Ant0	Ant1	Ant1	Ant4
DC_66A_n5A	Ant4	Ant5	Ant0	Ant1
DC_66A_n7A	Ant4	/	Ant1	Ant5
DC_66A_n66A	Ant4	/	Ant1	Ant5
DC_66A_n38A	Ant4	/	Ant1	Ant5
DC_66A_n41A	Ant4	/	Ant1	Ant5
DC_38A_n38A	Ant4	/	Ant1	Ant5
DC_41A_n41A	Ant4	/	Ant1	Ant5



<WLAN Conducted Power>

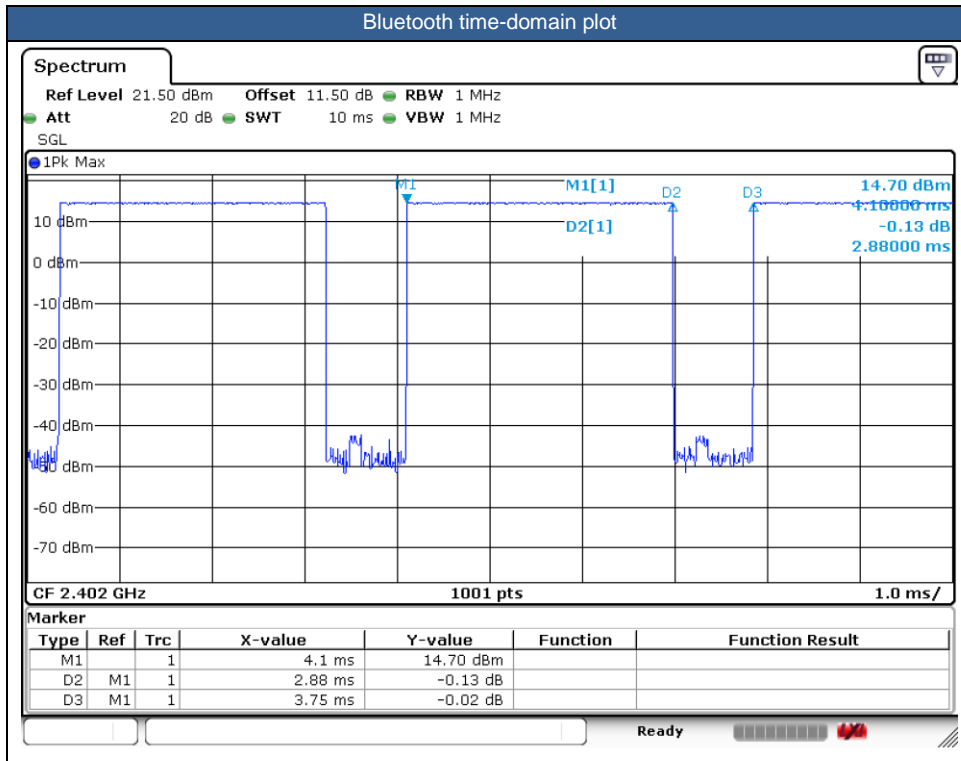
General Note:

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

<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 76.8% 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





13. Antenna Location

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

14. SAR Test Results

General Note:

- Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - 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.
 - 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)"
 - For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - 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.
- 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
- 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.
- The device implements receiver detect mechanism trigger reduced power for the power management for SAR compliance at different exposure conditions (head, hotspot, body, and extremity). It uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. It can determine proximity to head or body and set the relevant power level for 2G&3G&4G&5G and Wi-Fi antennas accordingly. The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E.
- For WLAN when transmit, when transmit simultaneously together with WWAN/BT, the device power will be reduced power at head, body worn, and extremity conditions.
- For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
- For 5G NR EN-DC mode, standalone SAR performed for 5G NR NSA band with the maximum power, EN-DC SAR summed EN-DC mode 5G NR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.
- 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.
 - WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
 - 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.
- 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).
- The following table "n/a" in the result means the SAR cube is too small to be detected.

GSM Note:

- 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.
- Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤



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

WCDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are \leq 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is $>$ 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is $>$ not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is \leq 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $>$ not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is \leq 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B4 / B5 / B17 / B38 SAR test was covered by B66 / B26 / B12 / B41;; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is \leq the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
 - b. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
 - c. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are \leq 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is $>$ 1.45 W/kg, the remaining required test channels must also be tested.
 - 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 \leq 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
 - f. For 5G FR1 n5/n7 /n38/n41/n66 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.

UL duty cycle detection mechanism specification:

The device supports the UL duty cycle detection mechanism for LTE TDD, the rest RAT will not apply. The main purpose is to distinguish duty cycle of UL symbol and apply the relevant power levels accordingly. The main purpose is to provide enhanced user experience while meeting the SAR compliance for transmission scheduling.

Note:

1. SAR is not required because the average output power is not higher than the Max UL duty cycle configuration.
2. For each band, the SAR evaluation uses the highest Time-average power configuration. Since the simulated base station cannot be configured with an accurate Max UL duty cycle, for the SAR test of LTE TDD bands, the highest Time-average power configuration is triggered by some test script to test 4G bands to simulate extreme scenarios (Max UL duty cycle).
3. The detail results please referred to Duty cycle_OD.

ECI status description:

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

ECI	Trigger Conditions	Antenna No.	Exposure conditions	
ECI2	Receiver on	All ant	Head Standalone	Head all Position
ECI1	Receiver off	All ant	Body Worn/Extremity Standalone	Body Worn/Extremity all Position
ECI4	Receiver on + WLAN/BT	All ant	Head Simultaneous	Head all Position
ECI3	Receiver off + WLAN/BT	All ant	Hotspot/ Body Worn/Extremity Simultaneous	Hotspot/Body Worn/Extremity all Position



14.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2	23095	707.5	24.09	25.00	1.233	-	-	-0.06	0.074	0.091
	LTE Band 12	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	ECI 2	23095	707.5	24.09	25.00	1.233	-	-	0	0.046	0.057
01	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 2	23095	707.5	24.09	25.00	1.233	-	-	-0.11	0.110	0.136
	LTE Band 12	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	ECI 2	23095	707.5	24.09	25.00	1.233	-	-	-0.11	0.064	0.079
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	ECI 2	23095	707.5	23.04	24.00	1.247	-	-	-0.16	0.060	0.075
	LTE Band 12	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	ECI 2	23095	707.5	23.04	24.00	1.247	-	-	0.02	0.040	0.050
	LTE Band 12	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	ECI 2	23095	707.5	23.04	24.00	1.247	-	-	0.07	0.090	0.112
	LTE Band 12	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	ECI 2	23095	707.5	23.04	24.00	1.247	-	-	0.12	0.053	0.066
	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	23095	707.5	24.06	24.50	1.107	-	-	0.1	0.099	0.109
	LTE Band 12	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECI 2	23095	707.5	24.06	24.50	1.107	-	-	0.1	0.095	0.105
	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2	23095	707.5	24.06	24.50	1.107	-	-	0.05	0.048	0.053
	LTE Band 12	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECI 2	23095	707.5	24.06	24.50	1.107	-	-	0.01	0.045	0.050
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	ECI 2	23095	707.5	23.03	23.50	1.114	-	-	-0.19	0.094	0.105
	LTE Band 12	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	ECI 2	23095	707.5	23.03	23.50	1.114	-	-	0.18	0.092	0.103
	LTE Band 12	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	ECI 2	23095	707.5	23.03	23.50	1.114	-	-	-0.19	0.042	0.047
	LTE Band 12	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	ECI 2	23095	707.5	23.03	23.50	1.114	-	-	0.08	0.040	0.045
	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2	23230	782	23.99	25.00	1.262	-	-	0.13	0.049	0.062
	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	ECI 2	23230	782	23.99	25.00	1.262	-	-	0.11	0.023	0.029
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 2	23230	782	23.99	25.00	1.262	-	-	-0.07	0.079	0.100
	LTE Band 13	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	ECI 2	23230	782	23.99	25.00	1.262	-	-	-0.07	0.035	0.044
	LTE Band 13	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	ECI 2	23230	782	23.10	24.00	1.230	-	-	0.06	0.039	0.048
	LTE Band 13	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	ECI 2	23230	782	23.10	24.00	1.230	-	-	0.02	0.018	0.022
	LTE Band 13	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	ECI 2	23230	782	23.10	24.00	1.230	-	-	-0.19	0.060	0.074
	LTE Band 13	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	ECI 2	23230	782	23.10	24.00	1.230	-	-	0.03	0.028	0.034
02	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	23230	782	23.93	24.50	1.140	-	-	-0.02	0.350	0.399
	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECI 2	23230	782	23.93	24.50	1.140	-	-	-0.01	0.337	0.384
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2	23230	782	23.93	24.50	1.140	-	-	0.07	0.197	0.225
	LTE Band 13	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECI 2	23230	782	23.93	24.50	1.140	-	-	0.01	0.176	0.201
	LTE Band 13	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	ECI 2	23230	782	22.89	23.50	1.151	-	-	0.12	0.291	0.335
	LTE Band 13	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	ECI 2	23230	782	22.89	23.50	1.151	-	-	-0.01	0.270	0.311
	LTE Band 13	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	ECI 2	23230	782	22.89	23.50	1.151	-	-	0.18	0.148	0.170
	LTE Band 13	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	ECI 2	23230	782	22.89	23.50	1.151	-	-	-0.1	0.131	0.151
835MHz																				
	GSM850	-	-	-	-	GPRS(3 Tx slots)	Right Cheek	0mm	Ant 0	ECI 2	189	836.4	29.08	30.50	1.387	-	-	0.06	0.070	0.097
	GSM850	-	-	-	-	GPRS(3 Tx slots)	Right Tilted	0mm	Ant 0	ECI 2	189	836.4	29.08	30.50	1.387	-	-	0.01	0.032	0.044
03	GSM850	-	-	-	-	GPRS(3 Tx slots)	Left Cheek	0mm	Ant 0	ECI 2	189	836.4	29.08	30.50	1.387	-	-	-0.03	0.116	0.161
	GSM850	-	-	-	-	GPRS(3 Tx slots)	Left Tilted	0mm	Ant 0	ECI 2	189	836.4	29.08	30.50	1.387	-	-	0.1	0.059	0.082
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	ECI 2	4182	836.4	25.20	25.50	1.072	-	-	0.04	0.142	0.152
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	ECI 2	4182	836.4	25.20	25.50	1.072	-	-	-0.16	0.081	0.087
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	ECI 2	4182	836.4	25.20	25.50	1.072	-	-	0.19	0.212	0.227
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	ECI 2	4182	836.4	25.20	25.50	1.072	-	-	0.03	0.111	0.119
04	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECI 2	4182	836.4	24.60	25.00	1.096	-	-	0.09	0.512	0.561
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	ECI 2	4182	836.4	24.60	25.00	1.096	-	-	-0.07	0.422	0.463
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	ECI 2	4182	836.4	24.60	25.00	1.096	-	-	-0.03	0.283	0.310
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	ECI 2	4182	836.4	24.60	25.00	1.096	-	-	0.12	0.236	0.259
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2	26865	831.5	24.07	25.00	1.239	-	-	-0.06	0.110	0.136
	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	ECI 2	26865	831.5	24.07	25.00	1.239	-	-	-0.18	0.058	0.072
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 2	26865	831.5	24.07	25.00	1.239	-	-	-0.11	0.151	0.187
	LTE Band 26	15M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	ECI 2	26865	831.5	24.07	25.00	1.239	-	-	-0.17	0.078	0.097
	LTE Band 26	15M	QPSK	36	0	-	Right Cheek	0mm	Ant 0	ECI 2	26865	831.5	23.00	24.00	1.259	-	-	0.05	0.088	0.111



	LTE Band 26	15M	QPSK	36	0	-	Right Tilted	0mm	Ant 0	ECI 2	26865	831.5	23.00	24.00	1.259	-	-	0.1	0.049	0.062
	LTE Band 26	15M	QPSK	36	0	-	Left Cheek	0mm	Ant 0	ECI 2	26865	831.5	23.00	24.00	1.259	-	-	0.17	0.121	0.152
	LTE Band 26	15M	QPSK	36	0	-	Left Tilted	0mm	Ant 0	ECI 2	26865	831.5	23.00	24.00	1.259	-	-	0.18	0.064	0.081
05	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	26865	831.5	23.98	24.50	1.127	-	-	0.17	0.395	0.445
	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECI 2	26865	831.5	23.98	24.50	1.127	-	-	-0.01	0.293	0.330
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2	26865	831.5	23.98	24.50	1.127	-	-	0.08	0.185	0.209
	LTE Band 26	15M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECI 2	26865	831.5	23.98	24.50	1.127	-	-	-0.19	0.155	0.175
	LTE Band 26	15M	QPSK	36	0	-	Right Cheek	0mm	Ant 1	ECI 2	26865	831.5	22.94	23.50	1.138	-	-	0.06	0.289	0.329
	LTE Band 26	15M	QPSK	36	0	-	Right Tilted	0mm	Ant 1	ECI 2	26865	831.5	22.94	23.50	1.138	-	-	-0.05	0.238	0.271
	LTE Band 26	15M	QPSK	36	0	-	Left Cheek	0mm	Ant 1	ECI 2	26865	831.5	22.94	23.50	1.138	-	-	0.19	0.159	0.181
	LTE Band 26	15M	QPSK	36	0	-	Left Tilted	0mm	Ant 1	ECI 2	26865	831.5	22.94	23.50	1.138	-	-	-0.16	0.130	0.148
	LTE Band 5	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2	20525	836.5	23.97	25.00	1.268	-	-	-0.18	0.112	0.142
	LTE Band 5	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	ECI 2	20525	836.5	23.97	25.00	1.268	-	-	-0.14	0.059	0.075
	LTE Band 5	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	ECI 2	20525	836.5	23.97	25.00	1.268	-	-	-0.13	0.156	0.198
	LTE Band 5	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	ECI 2	20525	836.5	23.97	25.00	1.268	-	-	-0.04	0.076	0.096
	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	ECI 2	20525	836.5	22.95	24.00	1.274	-	-	-0.03	0.088	0.112
	LTE Band 5	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	ECI 2	20525	836.5	22.95	24.00	1.274	-	-	-0.05	0.054	0.069
	LTE Band 5	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	ECI 2	20525	836.5	22.95	24.00	1.274	-	-	0.04	0.122	0.155
	LTE Band 5	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	ECI 2	20525	836.5	22.95	24.00	1.274	-	-	0.1	0.062	0.079
06	LTE Band 5	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	20525	836.5	23.89	25.00	1.291	-	-	0.08	0.430	0.555
	LTE Band 5	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECI 2	20525	836.5	23.89	25.00	1.291	-	-	-0.01	0.369	0.476
	LTE Band 5	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2	20525	836.5	23.89	25.00	1.291	-	-	-0.12	0.243	0.314
	LTE Band 5	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECI 2	20525	836.5	23.89	25.00	1.291	-	-	0.18	0.203	0.262
	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	ECI 2	20525	836.5	22.87	24.00	1.297	-	-	-0.02	0.372	0.483
	LTE Band 5	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	ECI 2	20525	836.5	22.87	24.00	1.297	-	-	-0.19	0.300	0.389
	LTE Band 5	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	ECI 2	20525	836.5	22.87	24.00	1.297	-	-	-0.19	0.201	0.261
	LTE Band 5	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	ECI 2	20525	836.5	22.87	24.00	1.297	-	-	0.18	0.170	0.221
	FR1 n5	20M	QPSK	1	53	DFT-15	Right Cheek	0mm	Ant 0	ECI 2	167300	836.5	23.35	24.70	1.365	-	-	0.02	0.089	0.121
	FR1 n5	20M	QPSK	1	53	DFT-15	Right Tilted	0mm	Ant 0	ECI 2	167300	836.5	23.35	24.70	1.365	-	-	-0.19	0.048	0.065
	FR1 n5	20M	QPSK	1	53	DFT-15	Left Cheek	0mm	Ant 0	ECI 2	167300	836.5	23.35	24.70	1.365	-	-	0.1	0.116	0.158
	FR1 n5	20M	QPSK	1	53	DFT-15	Left Tilted	0mm	Ant 0	ECI 2	167300	836.5	23.35	24.70	1.365	-	-	0.09	0.066	0.090
	FR1 n5	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 0	ECI 2	167300	836.5	23.25	24.70	1.396	-	-	-0.02	0.085	0.119
	FR1 n5	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 0	ECI 2	167300	836.5	23.25	24.70	1.396	-	-	-0.04	0.042	0.059
	FR1 n5	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 0	ECI 2	167300	836.5	23.25	24.70	1.396	-	-	0.15	0.101	0.141
	FR1 n5	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 0	ECI 2	167300	836.5	23.25	24.70	1.396	-	-	0.12	0.053	0.074
	FR1 n5	20M	QPSK	1	53	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	167300	836.5	23.91	24.70	1.199	-	-	0.04	0.362	0.434
	FR1 n5	20M	QPSK	1	53	DFT-15	Right Tilted	0mm	Ant 1	ECI 2	167300	836.5	23.91	24.70	1.199	-	-	0.13	0.308	0.369
	FR1 n5	20M	QPSK	1	53	DFT-15	Left Cheek	0mm	Ant 1	ECI 2	167300	836.5	23.91	24.70	1.199	-	-	-0.19	0.200	0.240
	FR1 n5	20M	QPSK	1	53	DFT-15	Left Tilted	0mm	Ant 1	ECI 2	167300	836.5	23.91	24.70	1.199	-	-	0.17	0.168	0.202
07	FR1 n5	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	167300	836.5	23.79	24.70	1.233	-	-	0.12	0.407	0.502
	FR1 n5	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 1	ECI 2	167300	836.5	23.79	24.70	1.233	-	-	0.13	0.338	0.417
	FR1 n5	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 1	ECI 2	167300	836.5	23.79	24.70	1.233	-	-	0.16	0.227	0.280
	FR1 n5	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 1	ECI 2	167300	836.5	23.79	24.70	1.233	-	-	-0.11	0.192	0.237
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECI 2	1513	1752.6	20.96	21.25	1.069	-	-	-0.09	0.881	0.942
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	ECI 2	1513	1752.6	20.96	21.25	1.069	-	-	0.13	0.482	0.515
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	ECI 2	1513	1752.6	20.96	21.25	1.069	-	-	-0.16	0.516	0.552
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	ECI 2	1513	1752.6	20.96	21.25	1.069	-	-	0.15	0.504	0.539
08	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECI 2	1312	1712.4	20.83	21.25	1.102	-	-	-0.12	0.895	0.986
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECI 2	1413	1732.6	20.54	21.25	1.178	-	-	-0.08	0.796	0.937
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	ECI 2	1513	1752.6	24.88	25.00	1.028	-	-	0.05	0.071	0.073
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 4	ECI 2	1513	1752.6	24.88	25.00	1.028	-	-	0.05	0.030	0.031
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 4	ECI 2	1513	1752.6	24.88	25.00	1.028	-	-	-0.08	0.082	0.084
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 4	ECI 2	1513	1752.6	24.88	25.00	1.028	-	-	0.11	0.042	0.043
09	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	20175	1732.5	19.84	20.75	1.233	-	-	0.04	0.556	0.686
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECI 2	20175	1732.5	19.84	20.75	1.233	-	-	-0.06	0.343	0.423



FCC SAR Test Report

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	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2	20175	1732.5	19.84	20.75	1.233	-	-	-0.17	0.361	0.445
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECI 2	20175	1732.5	19.84	20.75	1.233	-	-	-0.09	0.350	0.432
	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	ECI 2	20175	1732.5	19.82	20.75	1.239	-	-	-0.02	0.514	0.637
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	ECI 2	20175	1732.5	19.82	20.75	1.239	-	-	-0.16	0.322	0.399
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	ECI 2	20175	1732.5	19.82	20.75	1.239	-	-	-0.06	0.347	0.430
	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	ECI 2	20175	1732.5	19.82	20.75	1.239	-	-	0.07	0.331	0.410
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 2	20175	1732.5	23.67	24.00	1.079	-	-	-0.03	0.057	0.061
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 2	20175	1732.5	23.67	24.00	1.079	-	-	0.08	0.029	0.031
	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	ECI 2	20175	1732.5	23.67	24.00	1.079	-	-	-0.14	0.058	0.063
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	ECI 2	20175	1732.5	23.67	24.00	1.079	-	-	-0.03	0.031	0.033
	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	ECI 2	20175	1732.5	22.57	23.00	1.104	-	-	0.02	0.043	0.047
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	ECI 2	20175	1732.5	22.57	23.00	1.104	-	-	0.06	0.021	0.023
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	ECI 2	20175	1732.5	22.57	23.00	1.104	-	-	0.07	0.044	0.049
	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	ECI 2	20175	1732.5	22.57	23.00	1.104	-	-	0.03	0.023	0.025
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	ECI 2	20175	1732.5	21.17	21.75	1.143	-	-	-0.01	0.079	0.090
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	ECI 2	20175	1732.5	21.17	21.75	1.143	-	-	0.03	0.036	0.041
	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 2	20175	1732.5	21.17	21.75	1.143	-	-	-0.05	0.045	0.051
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 2	20175	1732.5	21.17	21.75	1.143	-	-	0.01	0.021	0.024
	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	ECI 2	20175	1732.5	21.14	21.75	1.151	-	-	0.14	0.079	0.091
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	ECI 2	20175	1732.5	21.14	21.75	1.151	-	-	-0.02	0.035	0.040
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	ECI 2	20175	1732.5	21.14	21.75	1.151	-	-	0.09	0.043	0.049
	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	ECI 2	20175	1732.5	21.14	21.75	1.151	-	-	0.09	0.020	0.023
10	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	132322	1745	20.33	20.75	1.102	-	-	0.03	0.705	0.777
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECI 2	132322	1745	20.33	20.75	1.102	-	-	-0.14	0.374	0.412
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2	132322	1745	20.33	20.75	1.102	-	-	-0.15	0.412	0.454
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECI 2	132322	1745	20.33	20.75	1.102	-	-	-0.17	0.392	0.432
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	ECI 2	132322	1745	20.32	20.75	1.104	-	-	-0.01	0.671	0.741
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	ECI 2	132322	1745	20.32	20.75	1.104	-	-	-0.09	0.361	0.399
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	ECI 2	132322	1745	20.32	20.75	1.104	-	-	-0.05	0.401	0.443
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	ECI 2	132322	1745	20.32	20.75	1.104	-	-	-0.12	0.385	0.425
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 2	132322	1745	23.73	24.50	1.194	-	-	0.04	0.054	0.064
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 2	132322	1745	23.73	24.50	1.194	-	-	0.05	0.025	0.030
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	ECI 2	132322	1745	23.73	24.50	1.194	-	-	-0.07	0.060	0.072
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	ECI 2	132322	1745	23.73	24.50	1.194	-	-	-0.09	0.029	0.035
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	ECI 2	132322	1745	22.69	23.50	1.205	-	-	-0.03	0.045	0.054
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	ECI 2	132322	1745	22.69	23.50	1.205	-	-	0.03	0.019	0.023
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	ECI 2	132322	1745	22.69	23.50	1.205	-	-	0.11	0.047	0.057
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	ECI 2	132322	1745	22.69	23.50	1.205	-	-	0.05	0.021	0.025
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	ECI 2	132322	1745	21.88	22.00	1.028	-	-	-0.06	0.087	0.089
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	ECI 2	132322	1745	21.88	22.00	1.028	-	-	0.06	0.049	0.050
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 2	132322	1745	21.88	22.00	1.028	-	-	0.06	0.051	0.052
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 2	132322	1745	21.88	22.00	1.028	-	-	0.02	0.026	0.027
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	ECI 2	132322	1745	21.85	22.00	1.035	-	-	-0.19	0.095	0.098
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	ECI 2	132322	1745	21.85	22.00	1.035	-	-	0.01	0.050	0.052
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	ECI 2	132322	1745	21.85	22.00	1.035	-	-	0.16	0.056	0.058
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	ECI 2	132322	1745	21.85	22.00	1.035	-	-	-0.13	0.027	0.028
	FR1 n66	40M	QPSK	1	108	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	349000	1745	21.45	22.20	1.189	-	-	-0.18	0.824	0.979
	FR1 n66	40M	QPSK	1	108	DFT-15	Right Tilted	0mm	Ant 1	ECI 2	349000	1745	21.45	22.20	1.189	-	-	-0.02	0.496	0.589
	FR1 n66	40M	QPSK	1	108	DFT-15	Left Cheek	0mm	Ant 1	ECI 2	349000	1745	21.45	22.20	1.189	-	-	-0.1	0.524	0.623
	FR1 n66	40M	QPSK	1	108	DFT-15	Left Tilted	0mm	Ant 1	ECI 2	349000	1745	21.45	22.20	1.189	-	-	-0.16	0.508	0.604
	FR1 n66 ENDC	40M	QPSK	1	108	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	349000	1745	20.03	20.70	1.167	-	-	0.03	0.342	0.399
	FR1 n66 ENDC	40M	QPSK	1	108	DFT-15	Left Cheek	0mm	Ant 1	ECI 2	349000	1745	20.03	20.70	1.167	-	-	0.04	0.201	0.235
11	FR1 n66	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	349000	1745	21.39	22.20	1.205	-	-	0.03	0.866	1.044
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 1	ECI 2	349000	1745	21.39	22.20	1.205	-	-	0.13	0.507	0.611
	FR1 n66	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 1	ECI 2	349000	1745	21.39	22.20	1.205	-	-	-0.01	0.545	0.657
	FR1 n66	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 1	ECI 2	349000	1745	21.39	22.20	1.205	-	-	0.12	0.520	0.627



FR1 n66 ENDC	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	349000	1745	20.00	20.70	1.175	-	-	0.01	0.351	0.412	
FR1 n66 ENDC	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 1	ECI 2	349000	1745	20.00	20.70	1.175	-	-	-0.01	0.215	0.253	
FR1 n66	40M	QPSK	216	0	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	349000	1745	21.24	22.20	1.247	-	-	0.08	0.776	0.968	
FR1 n66 ENDC	40M	QPSK	216	0	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	349000	1745	19.98	20.70	1.180	-	-	0.03	0.331	0.391	
FR1 n66	40M	QPSK	1	108	DFT-15	Right Cheek	0mm	Ant 4	ECI 2	349000	1745	23.76	24.70	1.242	-	-	0.01	0.071	0.088	
FR1 n66	40M	QPSK	1	108	DFT-15	Right Tilted	0mm	Ant 4	ECI 2	349000	1745	23.76	24.70	1.242	-	-	-	n/a	n/a	
FR1 n66	40M	QPSK	1	108	DFT-15	Left Cheek	0mm	Ant 4	ECI 2	349000	1745	23.76	24.70	1.242	-	-	0.06	0.045	0.056	
FR1 n66	40M	QPSK	1	108	DFT-15	Left Tilted	0mm	Ant 4	ECI 2	349000	1745	23.76	24.70	1.242	-	-	-	n/a	n/a	
FR1 n66	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 4	ECI 2	349000	1745	23.68	24.70	1.265	-	-	-0.1	0.070	0.089	
FR1 n66	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 4	ECI 2	349000	1745	23.68	24.70	1.265	-	-	-	n/a	n/a	
FR1 n66	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 4	ECI 2	349000	1745	23.68	24.70	1.265	-	-	-0.04	0.044	0.056	
FR1 n66	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 4	ECI 2	349000	1745	23.68	24.70	1.265	-	-	-	n/a	n/a	
FR1 n66	40M	QPSK	1	108	DFT-15	Right Cheek	0mm	Ant 5	ECI 2	349000	1745	20.99	21.95	1.247	-	-	0.11	0.094	0.117	
FR1 n66	40M	QPSK	1	108	DFT-15	Right Tilted	0mm	Ant 5	ECI 2	349000	1745	20.99	21.95	1.247	-	-	-	n/a	n/a	
FR1 n66	40M	QPSK	1	108	DFT-15	Left Cheek	0mm	Ant 5	ECI 2	349000	1745	20.99	21.95	1.247	-	-	-0.03	0.054	0.067	
FR1 n66	40M	QPSK	1	108	DFT-15	Left Tilted	0mm	Ant 5	ECI 2	349000	1745	20.99	21.95	1.247	-	-	-	n/a	n/a	
FR1 n66	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 5	ECI 2	349000	1745	20.93	21.95	1.265	-	-	0.04	0.106	0.134	
FR1 n66	40M	QPSK	108	54	DFT-15	Right Tilted	0mm	Ant 5	ECI 2	349000	1745	20.93	21.95	1.265	-	-	-	n/a	n/a	
FR1 n66	40M	QPSK	108	54	DFT-15	Left Cheek	0mm	Ant 5	ECI 2	349000	1745	20.93	21.95	1.265	-	-	0.11	0.058	0.073	
FR1 n66	40M	QPSK	108	54	DFT-15	Left Tilted	0mm	Ant 5	ECI 2	349000	1745	20.93	21.95	1.265	-	-	-	n/a	n/a	
1900MHz																				
12	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Right Cheek	0mm	Ant 1	ECI 2	661	1880	27.13	28.00	1.222	-	-	0.06	0.828	1.012
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Right Tilted	0mm	Ant 1	ECI 2	661	1880	27.13	28.00	1.222	-	-	0.15	0.603	0.737
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Left Cheek	0mm	Ant 1	ECI 2	661	1880	27.13	28.00	1.222	-	-	0.15	0.418	0.511
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Left Tilted	0mm	Ant 1	ECI 2	661	1880	27.13	28.00	1.222	-	-	-0.18	0.415	0.507
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Right Cheek	0mm	Ant 1	ECI 2	512	1850.2	27.02	28.00	1.253	-	-	0.02	0.737	0.924
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Right Cheek	0mm	Ant 1	ECI 2	810	1909.8	26.99	28.00	1.262	-	-	-0.15	0.702	0.886
	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Right Cheek	0mm	Ant 4	ECI 2	661	1880	26.48	27.50	1.265	-	-	-0.15	0.050	0.063
	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Right Tilted	0mm	Ant 4	ECI 2	661	1880	26.48	27.50	1.265	-	-	0.09	0.025	0.032
	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Left Cheek	0mm	Ant 4	ECI 2	661	1880	26.48	27.50	1.265	-	-	0.15	0.043	0.054
	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Left Tilted	0mm	Ant 4	ECI 2	661	1880	26.48	27.50	1.265	-	-	-0.03	0.021	0.027
13	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECI 2	9538	1907.6	20.94	21.50	1.138	-	-	-0.05	0.953	1.084
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	ECI 2	9538	1907.6	20.94	21.50	1.138	-	-	0.08	0.538	0.612
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	ECI 2	9538	1907.6	20.94	21.50	1.138	-	-	0.18	0.460	0.523
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	ECI 2	9538	1907.6	20.94	21.50	1.138	-	-	0.03	0.413	0.470
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECI 2	9262	1852.4	20.70	21.50	1.202	-	-	-0.01	0.867	1.042
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECI 2	9400	1880	20.73	21.50	1.194	-	-	-0.16	0.831	0.992
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	ECI 2	9538	1907.6	23.82	24.00	1.042	-	-	-0.03	0.058	0.060
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 4	ECI 2	9538	1907.6	23.82	24.00	1.042	-	-	0.06	0.026	0.027
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 4	ECI 2	9538	1907.6	23.82	24.00	1.042	-	-	-0.19	0.052	0.054
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 4	ECI 2	9538	1907.6	23.82	24.00	1.042	-	-	0.02	0.021	0.022
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	18900	1880	21.42	22.00	1.143	-	-	0.17	0.780	0.891
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECI 2	18900	1880	21.42	22.00	1.143	-	-	-0.05	0.571	0.653
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2	18900	1880	21.42	22.00	1.143	-	-	-0.06	0.428	0.489
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECI 2	18900	1880	21.42	22.00	1.143	-	-	-0.18	0.421	0.481
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	18700	1860	21.34	22.00	1.164	-	-	-0.03	0.802	0.934
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	19100	1900	21.41	22.00	1.146	-	-	-0.06	0.738	0.845
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	ECI 2	18900	1880	21.41	22.00	1.146	-	-	-0.12	0.845	0.968
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	ECI 2	18900	1880	21.41	22.00	1.146	-	-	0.09	0.610	0.699
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	ECI 2	18900	1880	21.41	22.00	1.146	-	-	-0.1	0.462	0.529
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	ECI 2	18900	1880	21.41	22.00	1.146	-	-	-0.02	0.437	0.501
14	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	ECI 2	18700	1860	21.27	22.00	1.183	-	-	-0.18	0.885	1.047
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	ECI 2	19100	1900	21.31	22.00	1.172	-	-	0.16	0.794	0.931
	LTE Band 2	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	ECI 2	18900	1880	21.37	22.00	1.156	-	-	0.03	0.765	0.884
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 2	18900	1880	23.08	24.50	1.387	-	-	-0.13	0.043	0.060
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 2	18900	1880	23.08	24.50	1.387	-	-	-	n/a	n/a



	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	ECl 2	18900	1880	23.08	24.50	1.387	-	-	-0.01	0.037	0.051
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	ECl 2	18900	1880	23.08	24.50	1.387	-	-	-	n/a	n/a
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	ECl 2	18900	1880	22.01	23.50	1.409	-	-	0.06	0.040	0.056
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	ECl 2	18900	1880	22.01	23.50	1.409	-	-	-	n/a	n/a
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	ECl 2	18900	1880	22.01	23.50	1.409	-	-	0.07	0.030	0.042
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	ECl 2	18900	1880	22.01	23.50	1.409	-	-	-	n/a	n/a
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECl 2	21100	2535	18.59	19.00	1.099	-	-	-0.09	0.687	0.755
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECl 2	21100	2535	18.59	19.00	1.099	-	-	-0.17	0.313	0.344
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECl 2	21100	2535	18.59	19.00	1.099	-	-	0.16	0.294	0.323
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECl 2	21100	2535	18.59	19.00	1.099	-	-	-0.16	0.272	0.299
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	ECl 2	21100	2535	18.58	19.00	1.102	-	-	0	0.735	0.810
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	ECl 2	21100	2535	18.58	19.00	1.102	-	-	0.01	0.337	0.371
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	ECl 2	21100	2535	18.58	19.00	1.102	-	-	-0.15	0.308	0.339
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	ECl 2	21100	2535	18.58	19.00	1.102	-	-	0.18	0.290	0.319
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	ECl 2	20850	2510	18.30	19.00	1.175	-	-	-0.18	0.755	0.887
15	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	ECl 2	21350	2560	18.48	19.00	1.127	-	-	0.06	0.836	0.942
	LTE Band 7C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECl 2	21350+ 21152	2560+ 2540.2	18.52	19.00	1.117	-	-	0.06	0.792	0.885
	LTE Band 7	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	ECl 2	21100	2535	18.55	19.00	1.109	-	-	-0.08	0.721	0.800
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECl 2	21100	2535	23.66	24.50	1.213	-	-	-0.09	0.392	0.476
	LTE Band 7C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECl 2	21100+ 21298	2535+ 2554.8	23.63	24.50	1.222	-	-	-0.09	0.367	0.448
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECl 2	21100	2535	23.66	24.50	1.213	-	-	0.03	0.199	0.241
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	ECl 2	21100	2535	23.66	24.50	1.213	-	-	-0.11	0.200	0.243
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	ECl 2	21100	2535	23.66	24.50	1.213	-	-	-0.03	0.144	0.175
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	ECl 2	21100	2535	22.77	23.50	1.183	-	-	-0.06	0.324	0.383
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	ECl 2	21100	2535	22.77	23.50	1.183	-	-	-0.17	0.129	0.153
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	ECl 2	21100	2535	22.77	23.50	1.183	-	-	0.18	0.167	0.198
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	ECl 2	21100	2535	22.77	23.50	1.183	-	-	-0.03	0.127	0.150
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	ECl 2	21100	2535	19.55	20.25	1.175	-	-	0.09	0.465	0.546
	LTE Band 7C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	ECl 2	21100+ 21298	2535+ 2554.8	19.53	20.25	1.180	-	-	0.09	0.423	0.499
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	ECl 2	21100	2535	19.55	20.25	1.175	-	-	0.11	0.156	0.183
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECl 2	21100	2535	19.55	20.25	1.175	-	-	-0.18	0.295	0.347
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECl 2	21100	2535	19.55	20.25	1.175	-	-	-0.15	0.091	0.107
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	ECl 2	21100	2535	19.52	20.25	1.183	-	-	0.03	0.411	0.486
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	ECl 2	21100	2535	19.52	20.25	1.183	-	-	-0.13	0.152	0.180
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	ECl 2	21100	2535	19.52	20.25	1.183	-	-	-0.1	0.304	0.360
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	ECl 2	21100	2535	19.52	20.25	1.183	-	-	0.1	0.091	0.108
16	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECl 2	38000	2595	20.53	21.00	1.114	62.9	1.006	0.15	0.994	1.114
	LTE Band 38C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECl 2	37901+ 38099	2585.1+ 2604.9	20.26	21.00	1.186	62.9	1.006	0.15	0.904	1.078
	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECl 2	38000	2595	20.53	21.00	1.114	62.9	1.006	0.12	0.538	0.603
	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECl 2	38000	2595	20.53	21.00	1.114	62.9	1.006	0.03	0.464	0.520
	LTE Band 38	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECl 2	38000	2595	20.53	21.00	1.114	62.9	1.006	0.09	0.448	0.502
	LTE Band 38	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	ECl 2	38000	2595	20.50	21.00	1.122	62.9	1.006	0.04	0.904	1.020
	LTE Band 38	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	ECl 2	38000	2595	20.50	21.00	1.122	62.9	1.006	0.08	0.523	0.590
	LTE Band 38	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	ECl 2	38000	2595	20.50	21.00	1.122	62.9	1.006	-0.11	0.449	0.507
	LTE Band 38	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	ECl 2	38000	2595	20.50	21.00	1.122	62.9	1.006	0.05	0.427	0.482
	LTE Band 38	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	ECl 2	38000	2595	20.43	21.00	1.140	62.9	1.006	-0.08	0.876	1.005
	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECl 2	38000	2595	23.43	24.00	1.140	62.9	1.006	0.05	0.337	0.387
	LTE Band 38C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECl 2	37901+ 38099	2585.1+ 2604.9	23.40	24.00	1.148	62.9	1.006	0.05	0.282	0.326
	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECl 2	38000	2595	23.43	24.00	1.140	62.9	1.006	-0.1	0.154	0.177
	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	ECl 2	38000	2595	23.43	24.00	1.140	62.9	1.006	0.11	0.176	0.202
	LTE Band 38	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	ECl 2	38000	2595	23.43	24.00	1.140	62.9	1.006	0.09	0.135	0.155
	LTE Band 38	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	ECl 2	38000	2595	22.53	23.00	1.114	62.9	1.006	0.02	0.265	0.297
	LTE Band 38	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	ECl 2	38000	2595	22.53	23.00	1.114	62.9	1.006	-0.03	0.101	0.113



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	LTE Band 38	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	ECI 2	38000	2595	22.53	23.00	1.114	62.9	1.006	0.01	0.139	0.156
	LTE Band 38	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	ECI 2	38000	2595	22.53	23.00	1.114	62.9	1.006	0.15	0.105	0.118
	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	ECI 2	38000	2595	23.36	24.00	1.159	62.9	1.006	-0.19	0.803	0.936
	LTE Band 38C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	ECI 2	37901+38099	2585.1+2604.9	23.04	24.00	1.247	62.9	1.006	-0.19	0.714	0.896
	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	ECI 2	38000	2595	23.36	24.00	1.159	62.9	1.006	-0.18	0.240	0.280
	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 2	38000	2595	23.36	24.00	1.159	62.9	1.006	0.1	0.540	0.629
	LTE Band 38	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 2	38000	2595	23.36	24.00	1.159	62.9	1.006	-0.19	0.154	0.180
	LTE Band 38	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	ECI 2	38000	2595	22.39	23.00	1.151	62.9	1.006	0.01	0.687	0.795
	LTE Band 38	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	ECI 2	38000	2595	22.39	23.00	1.151	62.9	1.006	-0.01	0.192	0.222
	LTE Band 38	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	ECI 2	38000	2595	22.39	23.00	1.151	62.9	1.006	0.19	0.445	0.515
	LTE Band 38	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	ECI 2	38000	2595	22.39	23.00	1.151	62.9	1.006	-0.18	0.124	0.144
	LTE Band 38	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 5	ECI 2	38000	2595	22.30	23.00	1.175	62.9	1.006	0.08	0.742	0.877
	LTE Band 41	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	ECI 2	40620	2593	20.43	20.75	1.076	62.9	1.006	-0.01	0.893	0.967
	LTE Band 41	20M	QPSK	1	99	-	Right Tilted	0mm	Ant 1	ECI 2	40620	2593	20.43	20.75	1.076	62.9	1.006	0.08	0.477	0.517
	LTE Band 41	20M	QPSK	1	99	-	Left Cheek	0mm	Ant 1	ECI 2	40620	2593	20.43	20.75	1.076	62.9	1.006	0.12	0.395	0.428
	LTE Band 41	20M	QPSK	1	99	-	Left Tilted	0mm	Ant 1	ECI 2	40620	2593	20.43	20.75	1.076	62.9	1.006	-0.01	0.436	0.472
	LTE Band 41	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	ECI 2	39750	2506	19.87	20.75	1.225	62.9	1.006	0.02	0.445	0.548
	LTE Band 41	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	ECI 2	40185	2549.5	20.20	20.75	1.135	62.9	1.006	0.17	0.642	0.733
	LTE Band 41	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	ECI 2	41055	2636.5	20.24	20.75	1.125	62.9	1.006	0.11	0.721	0.816
	LTE Band 41	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	ECI 2	41490	2680	20.35	20.75	1.096	62.9	1.006	0.05	0.462	0.510
17	LTE Band 41	20M	QPSK	50	50	-	Right Cheek	0mm	Ant 1	ECI 2	40620	2593	20.41	20.75	1.081	62.9	1.006	0.17	0.934	1.016
	LTE Band 41C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2	40620+40422	2593+2573.2	20.38	20.75	1.089	62.9	1.006	0.17	0.913	1.000
	LTE Band 41	20M	QPSK	50	50	-	Right Tilted	0mm	Ant 1	ECI 2	40620	2593	20.41	20.75	1.081	62.9	1.006	-0.03	0.497	0.541
	LTE Band 41	20M	QPSK	50	50	-	Left Cheek	0mm	Ant 1	ECI 2	40620	2593	20.41	20.75	1.081	62.9	1.006	-0.11	0.386	0.420
	LTE Band 41	20M	QPSK	50	50	-	Left Tilted	0mm	Ant 1	ECI 2	40620	2593	20.41	20.75	1.081	62.9	1.006	-0.1	0.429	0.467
	LTE Band 41	20M	QPSK	50	50	-	Right Cheek	0mm	Ant 1	ECI 2	39750	2506	19.85	20.75	1.230	62.9	1.006	0.09	0.466	0.577
	LTE Band 41	20M	QPSK	50	50	-	Right Cheek	0mm	Ant 1	ECI 2	40185	2549.5	20.08	20.75	1.167	62.9	1.006	0.14	0.664	0.779
	LTE Band 41	20M	QPSK	50	50	-	Right Cheek	0mm	Ant 1	ECI 2	41055	2636.5	20.14	20.75	1.151	62.9	1.006	0.01	0.705	0.816
	LTE Band 41	20M	QPSK	50	50	-	Right Cheek	0mm	Ant 1	ECI 2	41490	2680	20.30	20.75	1.109	62.9	1.006	0.14	0.440	0.491
	LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	ECI 2	40620	2593	20.37	20.75	1.091	62.9	1.006	-0.19	0.854	0.938
	LTE Band 41	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 4	ECI 2	39750	2506	24.76	25.00	1.057	62.9	1.006	-0.15	0.301	0.320
	LTE Band 41C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 2	39750+39948	2506+2525.8	24.72	25.00	1.067	62.9	1.006	-0.15	0.262	0.281
	LTE Band 41	20M	QPSK	1	99	-	Right Tilted	0mm	Ant 4	ECI 2	39750	2506	24.76	25.00	1.057	62.9	1.006	-0.14	0.127	0.135
	LTE Band 41	20M	QPSK	1	99	-	Left Cheek	0mm	Ant 4	ECI 2	39750	2506	24.76	25.00	1.057	62.9	1.006	0.18	0.159	0.169
	LTE Band 41	20M	QPSK	1	99	-	Left Tilted	0mm	Ant 4	ECI 2	39750	2506	24.76	25.00	1.057	62.9	1.006	-0.13	0.119	0.127
	LTE Band 41	20M	QPSK	50	50	-	Right Cheek	0mm	Ant 4	ECI 2	39750	2506	23.82	24.00	1.042	62.9	1.006	0.09	0.247	0.259
	LTE Band 41	20M	QPSK	50	50	-	Right Tilted	0mm	Ant 4	ECI 2	39750	2506	23.82	24.00	1.042	62.9	1.006	0.03	0.108	0.113
	LTE Band 41	20M	QPSK	50	50	-	Left Cheek	0mm	Ant 4	ECI 2	39750	2506	23.82	24.00	1.042	62.9	1.006	0.03	0.131	0.137
	LTE Band 41	20M	QPSK	50	50	-	Left Tilted	0mm	Ant 4	ECI 2	39750	2506	23.82	24.00	1.042	62.9	1.006	0.13	0.088	0.092
	LTE Band 41	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 5	ECI 2	41490	2680	24.09	24.50	1.099	62.9	1.006	0.18	0.477	0.527
	LTE Band 41	20M	QPSK	1	99	-	Right Tilted	0mm	Ant 5	ECI 2	41490	2680	24.09	24.50	1.099	62.9	1.006	-0.18	0.164	0.181
	LTE Band 41	20M	QPSK	1	99	-	Left Cheek	0mm	Ant 5	ECI 2	41490	2680	24.09	24.50	1.099	62.9	1.006	0.11	0.596	0.659
	LTE Band 41C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 2	41490+41292	2680+2660.2	23.68	24.50	1.208	62.9	1.006	0.11	0.528	0.642
	LTE Band 41	20M	QPSK	1	99	-	Left Tilted	0mm	Ant 5	ECI 2	41490	2680	24.09	24.50	1.099	62.9	1.006	-0.07	0.102	0.113
	LTE Band 41	20M	QPSK	1	99	-	Left Cheek	0mm	Ant 5	ECI 2	39750	2506	23.48	24.50	1.265	62.9	1.006	0.08	0.483	0.615
	LTE Band 41	20M	QPSK	1	99	-	Left Cheek	0mm	Ant 5	ECI 2	40185	2549.5	23.55	24.50	1.245	62.9	1.006	0.06	0.492	0.616
	LTE Band 41	20M	QPSK	1	99	-	Left Cheek	0mm	Ant 5	ECI 2	40620	2593	23.46	24.50	1.271	62.9	1.006	-0.11	0.463	0.592
	LTE Band 41	20M	QPSK	1	99	-	Left Cheek	0mm	Ant 5	ECI 2	41055	2636.5	23.76	24.50	1.186	62.9	1.006	-0.12	0.518	0.618
	LTE Band 41	20M	QPSK	50	50	-	Right Cheek	0mm	Ant 5	ECI 2	41490	2680	23.74	24.00	1.062	62.9	1.006	0.03	0.471	0.503
	LTE Band 41	20M	QPSK	50	50	-	Right Tilted	0mm	Ant 5	ECI 2	41490	2680	23.74	24.00	1.062	62.9	1.006	0.14	0.157	0.168
	LTE Band 41	20M	QPSK	50	50	-	Left Cheek	0mm	Ant 5	ECI 2	41490	2680	23.74	24.00	1.062	62.9	1.006	0.04	0.534	0.570
	LTE Band 41	20M	QPSK	50	50	-	Left Tilted	0mm	Ant 5	ECI 2	41490	2680	23.74	24.00	1.062	62.9	1.006	-0.03	0.097	0.104
	LTE Band 41	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 5	ECI 2	41490	2680	23.63	24.00	1.089	62.9	1.006	0.16	0.537	0.588
	FR1 n7	50M	QPSK	1	135	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	507000	2535	17.88	17.95	1.016	-	-	-0.04	0.584	0.593



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	FR1 n7	50M	QPSK	1	135	DFT-15	Right Tilted	0mm	Ant 1	ECI 2	507000	2535	17.88	17.95	1.016	-	-	0.17	0.205	0.208
	FR1 n7	50M	QPSK	1	135	DFT-15	Left Cheek	0mm	Ant 1	ECI 2	507000	2535	17.88	17.95	1.016	-	-	-0.14	0.197	0.200
	FR1 n7	50M	QPSK	1	135	DFT-15	Left Tilted	0mm	Ant 1	ECI 2	507000	2535	17.88	17.95	1.016	-	-	0.03	0.174	0.177
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Cheek	0mm	Ant 1	ECI 2	507000	2535	17.75	17.95	1.047	-	-	-0.1	0.638	0.668
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Tilted	0mm	Ant 1	ECI 2	507000	2535	17.75	17.95	1.047	-	-	0.01	0.293	0.307
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Cheek	0mm	Ant 1	ECI 2	507000	2535	17.75	17.95	1.047	-	-	-0.1	0.266	0.279
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Tilted	0mm	Ant 1	ECI 2	507000	2535	17.75	17.95	1.047	-	-	0.17	0.241	0.252
	FR1 n7	50M	QPSK	1	135	DFT-15	Right Cheek	0mm	Ant 4	ECI 2	507000	2535	23.37	24.70	1.358	-	-	-0.15	0.355	0.482
	FR1 n7	50M	QPSK	1	135	DFT-15	Right Tilted	0mm	Ant 4	ECI 2	507000	2535	23.37	24.70	1.358	-	-	-0.06	0.126	0.171
	FR1 n7	50M	QPSK	1	135	DFT-15	Left Cheek	0mm	Ant 4	ECI 2	507000	2535	23.37	24.70	1.358	-	-	0.07	0.214	0.291
	FR1 n7	50M	QPSK	1	135	DFT-15	Left Tilted	0mm	Ant 4	ECI 2	507000	2535	23.37	24.70	1.358	-	-	-0.03	0.174	0.236
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Cheek	0mm	Ant 4	ECI 2	507000	2535	23.25	24.70	1.396	-	-	-0.13	0.366	0.511
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Tilted	0mm	Ant 4	ECI 2	507000	2535	23.25	24.70	1.396	-	-	-0.08	0.128	0.179
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Cheek	0mm	Ant 4	ECI 2	507000	2535	23.25	24.70	1.396	-	-	-0.15	0.214	0.299
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Tilted	0mm	Ant 4	ECI 2	507000	2535	23.25	24.70	1.396	-	-	-0.04	0.180	0.251
	FR1 n7	50M	QPSK	1	135	DFT-15	Right Cheek	0mm	Ant 5	ECI 2	507000	2535	19.60	20.70	1.288	-	-	0.14	0.564	0.727
	FR1 n7	50M	QPSK	1	135	DFT-15	Right Tilted	0mm	Ant 5	ECI 2	507000	2535	19.60	20.70	1.288	-	-	0.09	0.187	0.241
	FR1 n7	50M	QPSK	1	135	DFT-15	Left Cheek	0mm	Ant 5	ECI 2	507000	2535	19.60	20.70	1.288	-	-	0.14	0.328	0.423
	FR1 n7	50M	QPSK	1	135	DFT-15	Left Tilted	0mm	Ant 5	ECI 2	507000	2535	19.60	20.70	1.288	-	-	0.07	0.105	0.135
18	FR1 n7	50M	QPSK	135	68	DFT-15	Right Cheek	0mm	Ant 5	ECI 2	507000	2535	19.58	20.70	1.294	-	-	-0.03	0.590	0.764
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Tilted	0mm	Ant 5	ECI 2	507000	2535	19.58	20.70	1.294	-	-	-0.17	0.196	0.254
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Cheek	0mm	Ant 5	ECI 2	507000	2535	19.58	20.70	1.294	-	-	0.14	0.350	0.453
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Tilted	0mm	Ant 5	ECI 2	507000	2535	19.58	20.70	1.294	-	-	-0.03	0.103	0.133
	FR1 n38	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	519000	2595	18.34	18.45	1.026	-	-	0.19	0.969	0.994
	FR1 n38	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 1	ECI 2	519000	2595	18.34	18.45	1.026	-	-	0.07	0.513	0.526
	FR1 n38	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 1	ECI 2	519000	2595	18.34	18.45	1.026	-	-	0.12	0.471	0.483
	FR1 n38	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 1	ECI 2	519000	2595	18.34	18.45	1.026	-	-	0.17	0.445	0.456
	FR1 n38 ENDC	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	519000	2595	16.73	16.95	1.052	-	-	0.01	0.356	0.374
	FR1 n38	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	519000	2595	18.11	18.45	1.081	-	-	0.16	0.836	0.904
	FR1 n38	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 1	ECI 2	519000	2595	18.11	18.45	1.081	-	-	-0.01	0.479	0.518
	FR1 n38	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 1	ECI 2	519000	2595	18.11	18.45	1.081	-	-	0.04	0.448	0.484
	FR1 n38	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 1	ECI 2	519000	2595	18.11	18.45	1.081	-	-	-0.19	0.418	0.452
	FR1 n38 ENDC	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	519000	2595	16.71	16.95	1.057	-	-	0.06	0.321	0.339
	FR1 n38	40M	QPSK	100	0	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	519000	2595	18.16	18.45	1.069	-	-	0.1	0.821	0.878
	FR1 n38 ENDC	40M	QPSK	100	0	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	519000	2595	16.70	16.95	1.059	-	-	0.05	0.311	0.329
	FR1 n38	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 4	ECI 2	519000	2595	23.54	24.70	1.306	-	-	0.15	0.491	0.641
	FR1 n38	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 4	ECI 2	519000	2595	23.54	24.70	1.306	-	-	-0.13	0.196	0.256
	FR1 n38	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 4	ECI 2	519000	2595	23.54	24.70	1.306	-	-	0.18	0.288	0.376
	FR1 n38	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 4	ECI 2	519000	2595	23.54	24.70	1.306	-	-	-0.04	0.221	0.289
	FR1 n38	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 4	ECI 2	519000	2595	23.13	24.70	1.435	-	-	0	0.452	0.649
	FR1 n38	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 4	ECI 2	519000	2595	23.13	24.70	1.435	-	-	0.12	0.191	0.274
	FR1 n38	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 4	ECI 2	519000	2595	23.13	24.70	1.435	-	-	0.04	0.260	0.373
	FR1 n38	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 4	ECI 2	519000	2595	23.13	24.70	1.435	-	-	-0.04	0.195	0.280
	FR1 n38	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	519000	2595	20.48	21.45	1.250	-	-	0.19	0.755	0.944
	FR1 n38	40M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	ECI 2	519000	2595	20.48	21.45	1.250	-	-	0.07	0.215	0.269
	FR1 n38	40M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	ECI 2	519000	2595	20.48	21.45	1.250	-	-	0.14	0.468	0.585
	FR1 n38	40M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	ECI 2	519000	2595	20.48	21.45	1.250	-	-	0.13	0.147	0.184
	FR1 n38 ENDC	40M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	519000	2595	18.88	19.95	1.279	-	-	0.03	0.321	0.411
19	FR1 n38	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	519000	2595	20.46	21.45	1.256	-	-	0.17	0.933	1.172
	FR1 n38	40M	QPSK	50	28	DFT-30	Right Tilted	0mm	Ant 5	ECI 2	519000	2595	20.46	21.45	1.256	-	-	0.13	0.242	0.304
	FR1 n38	40M	QPSK	50	28	DFT-30	Left Cheek	0mm	Ant 5	ECI 2	519000	2595	20.46	21.45	1.256	-	-	0.01	0.544	0.683
	FR1 n38	40M	QPSK	50	28	DFT-30	Left Tilted	0mm	Ant 5	ECI 2	519000	2595	20.46	21.45	1.256	-	-	-0.13	0.162	0.203
	FR1 n38 ENDC	40M	QPSK	50	28	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	519000	2595	18.86	19.95	1.285	-	-	0.02	0.354	0.455
	FR1 n38	40M	QPSK	100	0	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	519000	2595	20.45	21.45	1.259	-	-	0.1	0.769	0.968
	FR1 n38 ENDC	40M	QPSK	100	0	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	519000	2595	18.83	19.95	1.294	-	-	0.06	0.311	0.402
	FR1 n41	100M	QPSK	1	137	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	518598	2592.99	17.54	17.70	1.038	-	-	0.04	0.696	0.722



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	FR1 n41	100M	QPSK	1	137	DFT-30	Right Tilted	0mm	Ant 1	ECI 2	518598	2592.99	17.54	17.70	1.038	-	-	0.14	0.292	0.303
	FR1 n41	100M	QPSK	1	137	DFT-30	Left Cheek	0mm	Ant 1	ECI 2	518598	2592.99	17.54	17.70	1.038	-	-	-0.04	0.243	0.252
	FR1 n41	100M	QPSK	1	137	DFT-30	Left Tilted	0mm	Ant 1	ECI 2	518598	2592.99	17.54	17.70	1.038	-	-	0.01	0.228	0.237
	FR1 n41 ENDC	100M	QPSK	1	137	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	518598	2592.99	16.13	16.20	1.016	-	-	0.06	0.285	0.290
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	518598	2592.99	17.47	17.70	1.054	-	-	-0.03	0.765	0.807
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 1	ECI 2	518598	2592.99	17.47	17.70	1.054	-	-	0.07	0.408	0.430
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 1	ECI 2	518598	2592.99	17.47	17.70	1.054	-	-	0.07	0.313	0.330
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 1	ECI 2	518598	2592.99	17.47	17.70	1.054	-	-	0.14	0.307	0.324
	FR1 n41 ENDC	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	518598	2592.99	16.10	16.20	1.023	-	-	0.03	0.301	0.308
	FR1 n41	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	518598	2592.99	17.52	17.70	1.042	-	-	-0.01	0.587	0.612
	FR1 n41 ENDC	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 1	ECI 2	518598	2592.99	16.08	16.20	1.028	-	-	0.01	0.265	0.272
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 4	ECI 2	518598	2592.99	23.54	24.20	1.164	-	-	-0.14	0.400	0.466
	FR1 n41	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 4	ECI 2	518598	2592.99	23.54	24.20	1.164	-	-	-0.15	0.181	0.211
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 4	ECI 2	518598	2592.99	23.54	24.20	1.164	-	-	-0.12	0.277	0.322
	FR1 n41	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 4	ECI 2	518598	2592.99	23.54	24.20	1.164	-	-	-0.12	0.221	0.257
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 4	ECI 2	518598	2592.99	23.33	24.20	1.222	-	-	-0.19	0.378	0.462
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 4	ECI 2	518598	2592.99	23.33	24.20	1.222	-	-	0	0.191	0.233
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 4	ECI 2	518598	2592.99	23.33	24.20	1.222	-	-	-0.14	0.280	0.342
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 4	ECI 2	518598	2592.99	23.33	24.20	1.222	-	-	0.1	0.231	0.282
	FR1 n41	100M	QPSK	1	271	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	518598	2592.99	20.25	20.95	1.175	-	-	-0.16	0.661	0.777
	FR1 n41	100M	QPSK	1	271	DFT-30	Right Tilted	0mm	Ant 5	ECI 2	518598	2592.99	20.25	20.95	1.175	-	-	-0.1	0.189	0.222
	FR1 n41	100M	QPSK	1	271	DFT-30	Left Cheek	0mm	Ant 5	ECI 2	518598	2592.99	20.25	20.95	1.175	-	-	0	0.528	0.620
	FR1 n41	100M	QPSK	1	271	DFT-30	Left Tilted	0mm	Ant 5	ECI 2	518598	2592.99	20.25	20.95	1.175	-	-	0.13	0.126	0.148
	FR1 n41 ENDC	100M	QPSK	1	271	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	518598	2592.99	18.30	19.20	1.230	-	-	0.06	0.289	0.356
20	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	518598	2592.99	20.15	20.95	1.202	-	-	-0.18	0.829	0.997
	FR1 n41	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	ECI 2	518598	2592.99	20.15	20.95	1.202	-	-	0.03	0.221	0.266
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	ECI 2	518598	2592.99	20.15	20.95	1.202	-	-	-0.02	0.490	0.589
	FR1 n41	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	ECI 2	518598	2592.99	20.15	20.95	1.202	-	-	0.17	0.147	0.177
	FR1 n41 ENDC	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	518598	2592.99	18.28	19.20	1.236	-	-	0.04	0.301	0.372
	FR1 n41	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	518598	2592.99	19.83	20.95	1.294	-	-	0.16	0.693	0.897
	FR1 n41	100M	QPSK	270	0	DFT-30	Left Cheek	0mm	Ant 5	ECI 2	518598	2592.99	19.83	20.95	1.294	-	-	0.16	0.447	0.579
	FR1 n41 ENDC	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 5	ECI 2	518598	2592.99	18.25	19.20	1.245	-	-	0.12	0.264	0.329



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	Bluetooth	DH5 1Mbps	Right Cheek	0mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	0.05	0.102	0.146
	Bluetooth	DH5 1Mbps	Right Tilted	0mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	-0.07	0.143	0.204
21	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	0.13	0.353	0.504
	Bluetooth	DH5 1Mbps	Left Tilted	0mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	0.02	0.158	0.226
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 10	Standalone	11	2462	14.70	16.00	1.349	99.52	1.005	-0.19	0.151	0.205
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 10	Standalone	11	2462	14.70	16.00	1.349	99.52	1.005	-0.01	0.200	0.271
22	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 10	Standalone	11	2462	14.70	16.00	1.349	99.52	1.005	0.09	0.399	0.541
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 10	Standalone	11	2462	14.70	16.00	1.349	99.52	1.005	-0.01	0.248	0.336
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 10	Simultaneous(WWAN+2.4G)	11	2462	12.20	13.50	1.349	99.52	1.005	-0.19	0.085	0.115
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 10	Simultaneous(WWAN+2.4G)	11	2462	12.20	13.50	1.349	99.52	1.005	-0.01	0.113	0.153
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 10	Simultaneous(WWAN+2.4G)	11	2462	12.20	13.50	1.349	99.52	1.005	0.09	0.225	0.305
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 10	Simultaneous(WWAN+2.4G)	11	2462	12.20	13.50	1.349	99.52	1.005	-0.01	0.140	0.190
5000MHz																
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	54	5270	13.10	15.00	1.549	93.1	1.074	-0.14	0.181	0.301
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	54	5270	13.10	15.00	1.549	93.1	1.074	0.1	0.234	0.389
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	54	5270	13.10	15.00	1.549	93.1	1.074	-0.01	0.218	0.363
23	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	54	5270	13.10	15.00	1.549	93.1	1.074	0.09	0.252	0.419
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	58	5290	8.89	10.50	1.449	87.88	1.138	-0.14	0.073	0.120
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	58	5290	8.89	10.50	1.449	87.88	1.138	0.1	0.094	0.155
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	58	5290	8.89	10.50	1.449	87.88	1.138	-0.01	0.088	0.145
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	58	5290	8.89	10.50	1.449	87.88	1.138	0.09	0.102	0.168
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	122	5610	12.78	14.50	1.486	87.88	1.138	-0.07	0.171	0.289
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	122	5610	12.78	14.50	1.486	87.88	1.138	0.06	0.190	0.321
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	122	5610	12.78	14.50	1.486	87.88	1.138	0.06	0.191	0.323
24	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	122	5610	12.78	14.50	1.486	87.88	1.138	0.1	0.214	0.362
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	122	5610	8.15	10.00	1.531	87.88	1.138	-0.07	0.073	0.127
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	122	5610	8.15	10.00	1.531	87.88	1.138	0.06	0.085	0.148
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	122	5610	8.15	10.00	1.531	87.88	1.138	0.06	0.085	0.148
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	122	5610	8.15	10.00	1.531	87.88	1.138	0.1	0.109	0.190
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	155	5775	11.85	13.50	1.462	87.88	1.138	-0.01	0.175	0.291
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	155	5775	11.85	13.50	1.462	87.88	1.138	-0.14	0.202	0.336
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	155	5775	11.85	13.50	1.462	87.88	1.138	-0.15	0.189	0.314
25	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 10	Standalone&Simultaneous(5G+BT)	155	5775	11.85	13.50	1.462	87.88	1.138	-0.12	0.225	0.374
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	155	5775	7.35	9.00	1.462	87.88	1.138	-0.01	0.079	0.131
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	155	5775	7.35	9.00	1.462	87.88	1.138	-0.14	0.090	0.150
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	155	5775	7.35	9.00	1.462	87.88	1.138	-0.15	0.084	0.140
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 10	Simultaneous (WWAN+5G&WWAN+5G+BT)	155	5775	7.35	9.00	1.462	87.88	1.138	-0.12	0.111	0.185



14.2 Hotspot SAR

Table with columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB offset, Mode, Test Position, Gap (mm), Antenna, Power State, Ch., Freq. (MHz), Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Duty Cycle %, Duty Cycle Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Rows include LTE Bands 12, 13, GSM850, and WCDMA V.



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Table with columns for Band, Power, Modulation, etc. Includes rows for LTE Band 26, LTE Band 5, FR1 n5, WCDMA IV, and LTE Band 4. Some cells are highlighted in yellow (e.g., 0.396, 0.416, 0.459, 0.431).



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	LTE Band 4	20M	QPSK	50	0	-	Front	10mm	Ant 1	ECI 3	20175	1732.5	21.80	23.00	1.318	-	-	-0.02	0.215	0.283
	LTE Band 4	20M	QPSK	50	0	-	Back	10mm	Ant 1	ECI 3	20175	1732.5	21.80	23.00	1.318	-	-	0.16	0.233	0.307
	LTE Band 4	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	ECI 3	20175	1732.5	21.80	23.00	1.318	-	-	0.09	0.108	0.142
	LTE Band 4	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	ECI 3	20175	1732.5	21.80	23.00	1.318	-	-	-0.17	0.269	0.355
	LTE Band 4	20M	QPSK	1	0	-	Front	10mm	Ant 4	ECI 3	20175	1732.5	20.88	21.25	1.089	-	-	0.06	0.116	0.126
	LTE Band 4	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 3	20175	1732.5	20.88	21.25	1.089	-	-	0.18	0.377	0.411
	LTE Band 4	20M	QPSK	1	0	-	Right Side	10mm	Ant 4	ECI 3	20175	1732.5	20.88	21.25	1.089	-	-	-0.11	0.071	0.077
	LTE Band 4	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 4	ECI 3	20175	1732.5	20.88	21.25	1.089	-	-	-0.1	0.318	0.346
	LTE Band 4	20M	QPSK	50	0	-	Front	10mm	Ant 4	ECI 3	20175	1732.5	20.86	21.25	1.094	-	-	-0.15	0.115	0.126
	LTE Band 4	20M	QPSK	50	0	-	Back	10mm	Ant 4	ECI 3	20175	1732.5	20.86	21.25	1.094	-	-	-0.14	0.345	0.377
	LTE Band 4	20M	QPSK	50	0	-	Right Side	10mm	Ant 4	ECI 3	20175	1732.5	20.86	21.25	1.094	-	-	-0.18	0.061	0.067
	LTE Band 4	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 4	ECI 3	20175	1732.5	20.86	21.25	1.094	-	-	0.05	0.315	0.345
	LTE Band 4	20M	QPSK	1	0	-	Front	10mm	Ant 5	ECI 3	20175	1732.5	21.69	22.25	1.138	-	-	-	n/a	n/a
	LTE Band 4	20M	QPSK	1	0	-	Back	10mm	Ant 5	ECI 3	20175	1732.5	21.69	22.25	1.138	-	-	0.14	0.030	0.034
	LTE Band 4	20M	QPSK	1	0	-	Left Side	10mm	Ant 5	ECI 3	20175	1732.5	21.69	22.25	1.138	-	-	-0.11	0.049	0.056
	LTE Band 4	20M	QPSK	1	0	-	Top Side	10mm	Ant 5	ECI 3	20175	1732.5	21.69	22.25	1.138	-	-	-	n/a	n/a
	LTE Band 4	20M	QPSK	50	0	-	Front	10mm	Ant 5	ECI 3	20175	1732.5	21.65	22.25	1.148	-	-	-	n/a	n/a
	LTE Band 4	20M	QPSK	50	0	-	Back	10mm	Ant 5	ECI 3	20175	1732.5	21.65	22.25	1.148	-	-	-0.05	0.028	0.032
	LTE Band 4	20M	QPSK	50	0	-	Left Side	10mm	Ant 5	ECI 3	20175	1732.5	21.65	22.25	1.148	-	-	0.18	0.047	0.054
	LTE Band 4	20M	QPSK	50	0	-	Top Side	10mm	Ant 5	ECI 3	20175	1732.5	21.65	22.25	1.148	-	-	-	n/a	n/a
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 1	ECI 3	132322	1745	23.51	24.00	1.119	-	-	-0.03	0.272	0.304
	LTE Band 66	20M	QPSK	1	0	-	Back	10mm	Ant 1	ECI 3	132322	1745	23.51	24.00	1.119	-	-	0.04	0.292	0.327
	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECI 3	132322	1745	23.51	24.00	1.119	-	-	0.14	0.143	0.160
	LTE Band 66	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	ECI 3	132322	1745	23.51	24.00	1.119	-	-	-0.1	0.387	0.433
	LTE Band 66	20M	QPSK	50	0	-	Front	10mm	Ant 1	ECI 3	132322	1745	22.45	23.00	1.135	-	-	-0.13	0.243	0.276
	LTE Band 66	20M	QPSK	50	0	-	Back	10mm	Ant 1	ECI 3	132322	1745	22.45	23.00	1.135	-	-	-0.07	0.251	0.285
	LTE Band 66	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	ECI 3	132322	1745	22.45	23.00	1.135	-	-	0.16	0.119	0.135
	LTE Band 66	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	ECI 3	132322	1745	22.45	23.00	1.135	-	-	-0.15	0.372	0.422
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 4	ECI 3	132322	1745	21.51	21.75	1.057	-	-	-0.1	0.110	0.116
35	LTE Band 66	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 3	132322	1745	21.51	21.75	1.057	-	-	0.11	0.458	0.484
	LTE Band 66	20M	QPSK	1	0	-	Right Side	10mm	Ant 4	ECI 3	132322	1745	21.51	21.75	1.057	-	-	0.05	0.102	0.108
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 4	ECI 3	132322	1745	21.51	21.75	1.057	-	-	-0.09	0.342	0.361
	LTE Band 66	20M	QPSK	50	0	-	Front	10mm	Ant 4	ECI 3	132322	1745	21.49	21.75	1.062	-	-	0.12	0.117	0.124
	LTE Band 66	20M	QPSK	50	0	-	Back	10mm	Ant 4	ECI 3	132322	1745	21.49	21.75	1.062	-	-	-0.16	0.453	0.481
	LTE Band 66	20M	QPSK	50	0	-	Right Side	10mm	Ant 4	ECI 3	132322	1745	21.49	21.75	1.062	-	-	0.14	0.083	0.088
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 4	ECI 3	132322	1745	21.49	21.75	1.062	-	-	-0.11	0.365	0.388
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 5	ECI 3	132322	1745	22.77	23.00	1.054	-	-	-	n/a	n/a
	LTE Band 66	20M	QPSK	1	0	-	Back	10mm	Ant 5	ECI 3	132322	1745	22.77	23.00	1.054	-	-	0	0.033	0.035
	LTE Band 66	20M	QPSK	1	0	-	Left Side	10mm	Ant 5	ECI 3	132322	1745	22.77	23.00	1.054	-	-	0.15	0.062	0.065
	LTE Band 66	20M	QPSK	1	0	-	Top Side	10mm	Ant 5	ECI 3	132322	1745	22.77	23.00	1.054	-	-	-	n/a	n/a
	LTE Band 66	20M	QPSK	50	0	-	Front	10mm	Ant 5	ECI 3	132322	1745	22.72	23.00	1.067	-	-	-	n/a	n/a
	LTE Band 66	20M	QPSK	50	0	-	Back	10mm	Ant 5	ECI 3	132322	1745	22.72	23.00	1.067	-	-	0.03	0.031	0.033
	LTE Band 66	20M	QPSK	50	0	-	Left Side	10mm	Ant 5	ECI 3	132322	1745	22.72	23.00	1.067	-	-	0.16	0.063	0.067
	LTE Band 66	20M	QPSK	50	0	-	Top Side	10mm	Ant 5	ECI 3	132322	1745	22.72	23.00	1.067	-	-	-	n/a	n/a
	FR1 n66	40M	QPSK	1	108	DFT-15	Front	10mm	Ant 1	ECI 3	349000	1745	23.50	24.20	1.175	-	-	0.04	0.245	0.288
	FR1 n66	40M	QPSK	1	108	DFT-15	Back	10mm	Ant 1	ECI 3	349000	1745	23.50	24.20	1.175	-	-	0.07	0.295	0.347
	FR1 n66	40M	QPSK	1	108	DFT-15	Left Side	10mm	Ant 1	ECI 3	349000	1745	23.50	24.20	1.175	-	-	0.11	0.134	0.157
	FR1 n66	40M	QPSK	1	108	DFT-15	Top Side	10mm	Ant 1	ECI 3	349000	1745	23.50	24.20	1.175	-	-	0.03	0.331	0.389
	FR1 n66	40M	QPSK	108	54	DFT-15	Front	10mm	Ant 1	ECI 3	349000	1745	23.45	24.20	1.189	-	-	0.08	0.299	0.355
	FR1 n66	40M	QPSK	108	54	DFT-15	Back	10mm	Ant 1	ECI 3	349000	1745	23.45	24.20	1.189	-	-	-0.03	0.318	0.378
	FR1 n66	40M	QPSK	108	54	DFT-15	Left Side	10mm	Ant 1	ECI 3	349000	1745	23.45	24.20	1.189	-	-	0.02	0.162	0.193
36	FR1 n66	40M	QPSK	108	54	DFT-15	Top Side	10mm	Ant 1	ECI 3	349000	1745	23.45	24.20	1.189	-	-	0.14	0.410	0.487
	FR1 n66	40M	QPSK	1	108	DFT-15	Front	10mm	Ant 4	ECI 3	349000	1745	20.68	21.70	1.265	-	-	0.07	0.091	0.115
	FR1 n66	40M	QPSK	1	108	DFT-15	Back	10mm	Ant 4	ECI 3	349000	1745	20.68	21.70	1.265	-	-	-0.11	0.311	0.393
	FR1 n66	40M	QPSK	1	108	DFT-15	Right Side	10mm	Ant 4	ECI 3	349000	1745	20.68	21.70	1.265	-	-	-0.16	0.063	0.080
	FR1 n66	40M	QPSK	1	108	DFT-15	Bottom Side	10mm	Ant 4	ECI 3	349000	1745	20.68	21.70	1.265	-	-	0.17	0.304	0.384



	FR1 n66	40M	QPSK	108	54	DFT-15	Front	10mm	Ant 4	ECl 3	349000	1745	20.58	21.70	1.294	-	-	-0.09	0.088	0.114
	FR1 n66	40M	QPSK	108	54	DFT-15	Back	10mm	Ant 4	ECl 3	349000	1745	20.58	21.70	1.294	-	-	-0.06	0.308	0.399
	FR1 n66	40M	QPSK	108	54	DFT-15	Right Side	10mm	Ant 4	ECl 3	349000	1745	20.58	21.70	1.294	-	-	-0.06	0.062	0.080
	FR1 n66	40M	QPSK	108	54	DFT-15	Bottom Side	10mm	Ant 4	ECl 3	349000	1745	20.58	21.70	1.294	-	-	0.17	0.286	0.370
	FR1 n66	40M	QPSK	1	108	DFT-15	Front	10mm	Ant 5	ECl 3	349000	1745	22.07	23.20	1.297	-	-	-	n/a	n/a
	FR1 n66	40M	QPSK	1	108	DFT-15	Back	10mm	Ant 5	ECl 3	349000	1745	22.07	23.20	1.297	-	-	0.05	0.032	0.042
	FR1 n66	40M	QPSK	1	108	DFT-15	Left Side	10mm	Ant 5	ECl 3	349000	1745	22.07	23.20	1.297	-	-	0.02	0.059	0.077
	FR1 n66	40M	QPSK	1	108	DFT-15	Top Side	10mm	Ant 5	ECl 3	349000	1745	22.07	23.20	1.297	-	-	-	n/a	n/a
	FR1 n66	40M	QPSK	108	54	DFT-15	Front	10mm	Ant 5	ECl 3	349000	1745	22.05	23.20	1.303	-	-	-	n/a	n/a
	FR1 n66	40M	QPSK	108	54	DFT-15	Back	10mm	Ant 5	ECl 3	349000	1745	22.05	23.20	1.303	-	-	0.07	0.029	0.038
	FR1 n66	40M	QPSK	108	54	DFT-15	Left Side	10mm	Ant 5	ECl 3	349000	1745	22.05	23.20	1.303	-	-	-0.01	0.059	0.077
	FR1 n66	40M	QPSK	108	54	DFT-15	Top Side	10mm	Ant 5	ECl 3	349000	1745	22.05	23.20	1.303	-	-	-	n/a	n/a
1900MHz																				
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Front	10mm	Ant 1	ECl 3	661	1880	27.75	28.50	1.189	-	-	0.08	0.217	0.258
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Back	10mm	Ant 1	ECl 3	661	1880	27.75	28.50	1.189	-	-	0.12	0.300	0.357
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Left Side	10mm	Ant 1	ECl 3	661	1880	27.75	28.50	1.189	-	-	0.19	0.175	0.208
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Top Side	10mm	Ant 1	ECl 3	661	1880	27.75	28.50	1.189	-	-	0.16	0.248	0.295
	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Front	10mm	Ant 4	ECl 3	661	1880	26.48	27.50	1.265	-	-	0.18	0.097	0.123
37	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Back	10mm	Ant 4	ECl 3	661	1880	26.48	27.50	1.265	-	-	-0.12	0.311	0.393
	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Right Side	10mm	Ant 4	ECl 3	661	1880	26.48	27.50	1.265	-	-	-0.19	0.071	0.090
	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Bottom Side	10mm	Ant 4	ECl 3	661	1880	26.48	27.50	1.265	-	-	-0.09	0.309	0.391
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 1	ECl 3	9538	1907.6	23.24	24.00	1.191	-	-	0.1	0.274	0.326
38	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 1	ECl 3	9538	1907.6	23.24	24.00	1.191	-	-	0.16	0.415	0.494
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 1	ECl 3	9538	1907.6	23.24	24.00	1.191	-	-	0.01	0.204	0.243
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 1	ECl 3	9538	1907.6	23.24	24.00	1.191	-	-	0.18	0.365	0.435
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 4	ECl 3	9538	1907.6	21.97	22.00	1.007	-	-	-0.05	0.099	0.100
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 4	ECl 3	9538	1907.6	21.97	22.00	1.007	-	-	-0.16	0.320	0.322
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 4	ECl 3	9538	1907.6	21.97	22.00	1.007	-	-	0.02	0.079	0.080
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 4	ECl 3	9538	1907.6	21.97	22.00	1.007	-	-	-0.01	0.295	0.297
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 1	ECl 3	18900	1880	22.79	23.50	1.178	-	-	-0.16	0.225	0.265
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 1	ECl 3	18900	1880	22.79	23.50	1.178	-	-	-0.11	0.304	0.358
	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECl 3	18900	1880	22.79	23.50	1.178	-	-	0.06	0.203	0.239
	LTE Band 2	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	ECl 3	18900	1880	22.79	23.50	1.178	-	-	-0.05	0.277	0.326
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 1	ECl 3	18900	1880	21.78	22.50	1.180	-	-	-0.14	0.179	0.211
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 1	ECl 3	18900	1880	21.78	22.50	1.180	-	-	-0.04	0.259	0.306
	LTE Band 2	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	ECl 3	18900	1880	21.78	22.50	1.180	-	-	0.19	0.155	0.183
	LTE Band 2	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	ECl 3	18900	1880	21.78	22.50	1.180	-	-	0.18	0.282	0.333
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 4	ECl 3	18900	1880	22.06	23.50	1.393	-	-	-0.01	0.110	0.153
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECl 3	18900	1880	22.06	23.50	1.393	-	-	0.08	0.354	0.493
	LTE Band 2	20M	QPSK	1	0	-	Right Side	10mm	Ant 4	ECl 3	18900	1880	22.06	23.50	1.393	-	-	0.12	0.072	0.100
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 4	ECl 3	18900	1880	22.06	23.50	1.393	-	-	-0.18	0.235	0.327
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 4	ECl 3	18900	1880	22.05	23.50	1.396	-	-	0.03	0.115	0.161
39	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 4	ECl 3	18900	1880	22.05	23.50	1.396	-	-	-0.13	0.393	0.549
	LTE Band 2	20M	QPSK	50	0	-	Right Side	10mm	Ant 4	ECl 3	18900	1880	22.05	23.50	1.396	-	-	0.19	0.081	0.113
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 4	ECl 3	18900	1880	22.05	23.50	1.396	-	-	0.18	0.246	0.344
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 1	ECl 3	21100	2535	21.58	21.75	1.040	-	-	0.06	0.174	0.181
	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 1	ECl 3	21100	2535	21.58	21.75	1.040	-	-	-0.19	0.325	0.338
	LTE Band 7	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECl 3	21100	2535	21.58	21.75	1.040	-	-	-0.15	0.644	0.670
	LTE Band 7	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	ECl 3	21100	2535	21.58	21.75	1.040	-	-	0.16	0.303	0.315
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 1	ECl 3	21100	2535	21.53	21.75	1.052	-	-	-0.17	0.180	0.189
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 1	ECl 3	21100	2535	21.53	21.75	1.052	-	-	0.18	0.341	0.359
	LTE Band 7	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	ECl 3	21100	2535	21.53	21.75	1.052	-	-	-0.03	0.778	0.818
	LTE Band 7	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	ECl 3	21100	2535	21.53	21.75	1.052	-	-	-0.11	0.325	0.342
	LTE Band 7	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	ECl 3	20850	2510	21.09	21.75	1.164	-	-	0.07	0.596	0.694
40	LTE Band 7	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	ECl 3	21350	2560	21.47	21.75	1.067	-	-	0.09	0.795	0.848



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	LTE Band 7C	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECI 3	21350+21152	2560+2540.2	21.46	21.75	1.069	-	-	0.09	0.766	0.819
	LTE Band 7	20M	QPSK	100	0	-	Left Side	10mm	Ant 1	ECI 3	21100	2535	21.52	21.75	1.054	-	-	-0.05	0.623	0.657
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 4	ECI 3	21100	2535	22.23	23.00	1.194	-	-	-0.01	0.274	0.327
	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 3	21100	2535	22.23	23.00	1.194	-	-	0.04	0.601	0.718
	LTE Band 7C	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 3	21100+21298	2535+2554.8	22.21	23.00	1.199	-	-	0.04	0.582	0.698
	LTE Band 7	20M	QPSK	1	0	-	Right Side	10mm	Ant 4	ECI 3	21100	2535	22.23	23.00	1.194	-	-	-0.1	0.400	0.478
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 4	ECI 3	21100	2535	22.23	23.00	1.194	-	-	-0.06	0.193	0.230
	LTE Band 7 ENDC	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 3	21100	2535	19.18	20.00	1.208	-	-	0.03	0.301	0.364
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 4	ECI 3	21100	2535	22.21	23.00	1.199	-	-	0.13	0.275	0.330
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 4	ECI 3	21100	2535	22.21	23.00	1.199	-	-	0.06	0.596	0.715
	LTE Band 7	20M	QPSK	50	0	-	Right Side	10mm	Ant 4	ECI 3	21100	2535	22.21	23.00	1.199	-	-	-0.19	0.409	0.491
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 4	ECI 3	21100	2535	22.21	23.00	1.199	-	-	0.11	0.189	0.227
	LTE Band 7 ENDC	20M	QPSK	50	0	-	Back	10mm	Ant 4	ECI 3	21100	2535	19.13	20.00	1.222	-	-	0.01	0.285	0.348
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 5	ECI 3	21100	2535	19.54	20.25	1.178	-	-	-0.08	0.162	0.191
	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 5	ECI 3	21100	2535	19.54	20.25	1.178	-	-	-0.13	0.232	0.273
	LTE Band 7	20M	QPSK	1	0	-	Left Side	10mm	Ant 5	ECI 3	21100	2535	19.54	20.25	1.178	-	-	-0.06	0.307	0.362
	LTE Band 7C	20M	QPSK	1	0	-	Left Side	10mm	Ant 5	ECI 3	21100+21298	2535+2554.8	19.53	20.25	1.180	-	-	-0.06	0.285	0.336
	LTE Band 7	20M	QPSK	1	0	-	Top Side	10mm	Ant 5	ECI 3	21100	2535	19.54	20.25	1.178	-	-	0.05	0.060	0.071
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 5	ECI 3	21100	2535	19.53	20.25	1.180	-	-	-0.18	0.167	0.197
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 5	ECI 3	21100	2535	19.53	20.25	1.180	-	-	-0.01	0.237	0.280
	LTE Band 7	20M	QPSK	50	0	-	Left Side	10mm	Ant 5	ECI 3	21100	2535	19.53	20.25	1.180	-	-	0.15	0.307	0.362
	LTE Band 7	20M	QPSK	50	0	-	Top Side	10mm	Ant 5	ECI 3	21100	2535	19.53	20.25	1.180	-	-	-0.01	0.058	0.068
	LTE Band 38	20M	QPSK	1	0	-	Front	10mm	Ant 1	ECI 3	38000	2595	21.44	22.00	1.138	62.9	1.006	-0.12	0.154	0.176
	LTE Band 38	20M	QPSK	1	0	-	Back	10mm	Ant 1	ECI 3	38000	2595	21.44	22.00	1.138	62.9	1.006	0.13	0.340	0.389
	LTE Band 38	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECI 3	38000	2595	21.44	22.00	1.138	62.9	1.006	-0.09	0.581	0.665
	LTE Band 38	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	ECI 3	38000	2595	21.44	22.00	1.138	62.9	1.006	0	0.391	0.447
	LTE Band 38	20M	QPSK	50	0	-	Front	10mm	Ant 1	ECI 3	38000	2595	21.41	22.00	1.146	62.9	1.006	-0.14	0.165	0.190
	LTE Band 38	20M	QPSK	50	0	-	Back	10mm	Ant 1	ECI 3	38000	2595	21.41	22.00	1.146	62.9	1.006	0.07	0.343	0.395
41	LTE Band 38	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	ECI 3	38000	2595	21.41	22.00	1.146	62.9	1.006	-0.19	0.618	0.712
	LTE Band 38C	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECI 3	37901+38099	2585.1+2604.9	21.32	22.00	1.169	62.9	1.006	-0.19	0.529	0.622
	LTE Band 38	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	ECI 3	38000	2595	21.41	22.00	1.146	62.9	1.006	-0.06	0.392	0.452
	LTE Band 38	20M	QPSK	1	0	-	Front	10mm	Ant 4	ECI 3	38000	2595	23.43	24.00	1.140	62.9	1.006	-0.18	0.414	0.475
	LTE Band 38	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 3	38000	2595	23.43	24.00	1.140	62.9	1.006	0.18	0.571	0.655
	LTE Band 38C	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 3	37901+38099	2585.1+2604.9	23.40	24.00	1.148	62.9	1.006	0.18	0.526	0.608
	LTE Band 38	20M	QPSK	1	0	-	Right Side	10mm	Ant 4	ECI 3	38000	2595	23.43	24.00	1.140	62.9	1.006	0.02	0.508	0.583
	LTE Band 38	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 4	ECI 3	38000	2595	23.43	24.00	1.140	62.9	1.006	0.06	0.352	0.404
	LTE Band 38 ENDC	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECI 3	38000	2595	19.94	20.50	1.138	62.9	1.006	0.05	0.301	0.344
	LTE Band 38	20M	QPSK	50	0	-	Front	10mm	Ant 4	ECI 3	38000	2595	22.53	24.00	1.403	62.9	1.006	-0.11	0.325	0.459
	LTE Band 38	20M	QPSK	50	0	-	Back	10mm	Ant 4	ECI 3	38000	2595	22.53	24.00	1.403	62.9	1.006	-0.07	0.464	0.655
	LTE Band 38	20M	QPSK	50	0	-	Right Side	10mm	Ant 4	ECI 3	38000	2595	22.53	24.00	1.403	62.9	1.006	-0.08	0.406	0.573
	LTE Band 38	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 4	ECI 3	38000	2595	22.53	24.00	1.403	62.9	1.006	-0.09	0.279	0.394
	LTE Band 38 ENDC	20M	QPSK	50	0	-	Back	10mm	Ant 4	ECI 3	38000	2595	19.88	20.50	1.153	62.9	1.006	0.03	0.285	0.331
	LTE Band 38	20M	QPSK	1	0	-	Front	10mm	Ant 5	ECI 3	38000	2595	23.36	24.00	1.159	62.9	1.006	-0.06	0.268	0.312
	LTE Band 38	20M	QPSK	1	0	-	Back	10mm	Ant 5	ECI 3	38000	2595	23.36	24.00	1.159	62.9	1.006	0.01	0.413	0.481
	LTE Band 38	20M	QPSK	1	0	-	Left Side	10mm	Ant 5	ECI 3	38000	2595	23.36	24.00	1.159	62.9	1.006	0.16	0.533	0.621
	LTE Band 38C	20M	QPSK	1	0	-	Left Side	10mm	Ant 5	ECI 3	37901+38099	2585.1+2604.9	23.04	24.00	1.247	62.9	1.006	0.16	0.466	0.585
	LTE Band 38	20M	QPSK	1	0	-	Top Side	10mm	Ant 5	ECI 3	38000	2595	23.36	24.00	1.159	62.9	1.006	0.05	0.078	0.091
	LTE Band 38	20M	QPSK	50	0	-	Front	10mm	Ant 5	ECI 3	38000	2595	22.39	23.00	1.151	62.9	1.006	0.19	0.215	0.249
	LTE Band 38	20M	QPSK	50	0	-	Back	10mm	Ant 5	ECI 3	38000	2595	22.39	23.00	1.151	62.9	1.006	0.14	0.330	0.382
	LTE Band 38	20M	QPSK	50	0	-	Left Side	10mm	Ant 5	ECI 3	38000	2595	22.39	23.00	1.151	62.9	1.006	0.11	0.404	0.468
	LTE Band 38	20M	QPSK	50	0	-	Top Side	10mm	Ant 5	ECI 3	38000	2595	22.39	23.00	1.151	62.9	1.006	0.02	0.073	0.085
	LTE Band 41	20M	QPSK	1	99	-	Front	10mm	Ant 1	ECI 3	40620	2593	21.29	21.75	1.112	62.9	1.006	0.09	0.151	0.169
	LTE Band 41	20M	QPSK	1	99	-	Back	10mm	Ant 1	ECI 3	40620	2593	21.29	21.75	1.112	62.9	1.006	-0.08	0.326	0.365
42	LTE Band 41	20M	QPSK	1	99	-	Left Side	10mm	Ant 1	ECI 3	40620	2593	21.29	21.75	1.112	62.9	1.006	0.17	0.602	0.673



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	LTE Band 41C	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	ECl 3	40620+40422	2593+2573.2	21.26	21.75	1.119	62.9	1.006	0.17	0.567	0.639
	LTE Band 41	20M	QPSK	1	99	-	Top Side	10mm	Ant 1	ECl 3	40620	2593	21.29	21.75	1.112	62.9	1.006	0.12	0.368	0.412
	LTE Band 41	20M	QPSK	1	99	-	Left Side	10mm	Ant 1	ECl 3	39750	2506	21.05	21.75	1.175	62.9	1.006	-0.01	0.276	0.326
	LTE Band 41	20M	QPSK	1	99	-	Left Side	10mm	Ant 1	ECl 3	40185	2549.5	21.27	21.75	1.117	62.9	1.006	-0.18	0.454	0.510
	LTE Band 41	20M	QPSK	1	99	-	Left Side	10mm	Ant 1	ECl 3	41055	2636.5	21.13	21.75	1.153	62.9	1.006	-0.09	0.480	0.557
	LTE Band 41	20M	QPSK	1	99	-	Left Side	10mm	Ant 1	ECl 3	41490	2680	21.24	21.75	1.125	62.9	1.006	-0.17	0.337	0.381
	LTE Band 41	20M	QPSK	50	50	-	Front	10mm	Ant 1	ECl 3	40620	2593	21.27	21.75	1.117	62.9	1.006	-0.14	0.155	0.174
	LTE Band 41	20M	QPSK	50	50	-	Back	10mm	Ant 1	ECl 3	40620	2593	21.27	21.75	1.117	62.9	1.006	0.13	0.325	0.365
	LTE Band 41	20M	QPSK	50	50	-	Left Side	10mm	Ant 1	ECl 3	40620	2593	21.27	21.75	1.117	62.9	1.006	-0.1	0.568	0.638
	LTE Band 41	20M	QPSK	50	50	-	Top Side	10mm	Ant 1	ECl 3	40620	2593	21.27	21.75	1.117	62.9	1.006	-0.11	0.369	0.415
	LTE Band 41	20M	QPSK	50	50	-	Left Side	10mm	Ant 1	ECl 3	39750	2506	20.99	21.75	1.191	62.9	1.006	-0.01	0.265	0.318
	LTE Band 41	20M	QPSK	50	50	-	Left Side	10mm	Ant 1	ECl 3	40185	2549.5	21.19	21.75	1.138	62.9	1.006	0.12	0.438	0.501
	LTE Band 41	20M	QPSK	50	50	-	Left Side	10mm	Ant 1	ECl 3	41055	2636.5	21.03	21.75	1.180	62.9	1.006	0	0.505	0.600
	LTE Band 41	20M	QPSK	50	50	-	Left Side	10mm	Ant 1	ECl 3	41490	2680	21.22	21.75	1.130	62.9	1.006	-0.1	0.353	0.401
	LTE Band 41	20M	QPSK	100	0	-	Left Side	10mm	Ant 1	ECl 3	40620	2593	21.25	21.75	1.122	62.9	1.006	-0.06	0.559	0.631
	LTE Band 41	20M	QPSK	1	99	-	Front	10mm	Ant 4	ECl 3	39750	2506	23.37	23.75	1.091	62.9	1.006	-0.05	0.234	0.257
	LTE Band 41	20M	QPSK	1	99	-	Back	10mm	Ant 4	ECl 3	39750	2506	23.37	23.75	1.091	62.9	1.006	-0.03	0.330	0.362
	LTE Band 41C	20M	QPSK	1	0	-	Back	10mm	Ant 4	ECl 3	39750+39948	2506+2525.8	23.35	23.75	1.096	62.9	1.006	-0.03	0.269	0.297
	LTE Band 41	20M	QPSK	1	99	-	Right Side	10mm	Ant 4	ECl 3	39750	2506	23.37	23.75	1.091	62.9	1.006	0.08	0.220	0.242
	LTE Band 41	20M	QPSK	1	99	-	Bottom Side	10mm	Ant 4	ECl 3	39750	2506	23.37	23.75	1.091	62.9	1.006	0.15	0.175	0.192
	LTE Band 41	20M	QPSK	50	50	-	Front	10mm	Ant 4	ECl 3	39750	2506	23.34	23.75	1.099	62.9	1.006	-0.02	0.225	0.249
	LTE Band 41	20M	QPSK	50	50	-	Back	10mm	Ant 4	ECl 3	39750	2506	23.34	23.75	1.099	62.9	1.006	0.04	0.318	0.352
	LTE Band 41	20M	QPSK	50	50	-	Right Side	10mm	Ant 4	ECl 3	39750	2506	23.34	23.75	1.099	62.9	1.006	-0.09	0.246	0.272
	LTE Band 41	20M	QPSK	50	50	-	Bottom Side	10mm	Ant 4	ECl 3	39750	2506	23.34	23.75	1.099	62.9	1.006	0.07	0.178	0.197
	LTE Band 41	20M	QPSK	1	99	-	Front	10mm	Ant 5	ECl 3	41490	2680	23.71	24.00	1.069	62.9	1.006	0.07	0.139	0.149
	LTE Band 41	20M	QPSK	1	99	-	Back	10mm	Ant 5	ECl 3	41490	2680	23.71	24.00	1.069	62.9	1.006	0.04	0.226	0.243
	LTE Band 41	20M	QPSK	1	99	-	Left Side	10mm	Ant 5	ECl 3	41490	2680	23.71	24.00	1.069	62.9	1.006	0.15	0.315	0.339
	LTE Band 41	20M	QPSK	1	99	-	Top Side	10mm	Ant 5	ECl 3	41490	2680	23.71	24.00	1.069	62.9	1.006	0.02	0.063	0.068
	LTE Band 41	20M	QPSK	50	50	-	Front	10mm	Ant 5	ECl 3	41490	2680	23.63	24.00	1.089	62.9	1.006	0.16	0.144	0.158
	LTE Band 41	20M	QPSK	50	50	-	Back	10mm	Ant 5	ECl 3	41490	2680	23.63	24.00	1.089	62.9	1.006	0.06	0.237	0.260
	LTE Band 41	20M	QPSK	50	50	-	Left Side	10mm	Ant 5	ECl 3	41490	2680	23.63	24.00	1.089	62.9	1.006	-0.14	0.325	0.356
	LTE Band 41C	20M	QPSK	1	0	-	Left Side	10mm	Ant 5	ECl 3	41490+41292	2680+2660.2	23.17	24.00	1.211	62.9	1.006	-0.14	0.265	0.323
	LTE Band 41	20M	QPSK	50	50	-	Top Side	10mm	Ant 5	ECl 3	41490	2680	23.63	24.00	1.089	62.9	1.006	-0.05	0.060	0.066
	FR1 n7	50M	QPSK	1	135	DFT-15	Front	10mm	Ant 1	ECl 3	507000	2535	18.47	18.70	1.054	-	-	0.17	0.096	0.101
	FR1 n7	50M	QPSK	1	135	DFT-15	Back	10mm	Ant 1	ECl 3	507000	2535	18.47	18.70	1.054	-	-	0.14	0.132	0.139
	FR1 n7	50M	QPSK	1	135	DFT-15	Left Side	10mm	Ant 1	ECl 3	507000	2535	18.47	18.70	1.054	-	-	-0.04	0.228	0.240
	FR1 n7	50M	QPSK	1	135	DFT-15	Top Side	10mm	Ant 1	ECl 3	507000	2535	18.47	18.70	1.054	-	-	0.12	0.139	0.147
	FR1 n7	50M	QPSK	135	68	DFT-15	Front	10mm	Ant 1	ECl 3	507000	2535	18.39	18.70	1.074	-	-	0.04	0.065	0.070
	FR1 n7	50M	QPSK	135	68	DFT-15	Back	10mm	Ant 1	ECl 3	507000	2535	18.39	18.70	1.074	-	-	0.13	0.124	0.133
	FR1 n7	50M	QPSK	135	68	DFT-15	Left Side	10mm	Ant 1	ECl 3	507000	2535	18.39	18.70	1.074	-	-	0.17	0.231	0.248
	FR1 n7	50M	QPSK	135	68	DFT-15	Top Side	10mm	Ant 1	ECl 3	507000	2535	18.39	18.70	1.074	-	-	0.18	0.141	0.151
	FR1 n7	50M	QPSK	1	135	DFT-15	Front	10mm	Ant 4	ECl 3	507000	2535	19.78	20.95	1.309	-	-	0.08	0.055	0.072
	FR1 n7	50M	QPSK	1	135	DFT-15	Back	10mm	Ant 4	ECl 3	507000	2535	19.78	20.95	1.309	-	-	-0.15	0.061	0.080
43	FR1 n7	50M	QPSK	1	135	DFT-15	Right Side	10mm	Ant 4	ECl 3	507000	2535	19.78	20.95	1.309	-	-	0.04	0.265	0.347
	FR1 n7	50M	QPSK	1	135	DFT-15	Bottom Side	10mm	Ant 4	ECl 3	507000	2535	19.78	20.95	1.309	-	-	0.12	0.156	0.204
	FR1 n7	50M	QPSK	135	68	DFT-15	Front	10mm	Ant 4	ECl 3	507000	2535	19.65	20.95	1.349	-	-	0	0.055	0.074
	FR1 n7	50M	QPSK	135	68	DFT-15	Back	10mm	Ant 4	ECl 3	507000	2535	19.65	20.95	1.349	-	-	-0.13	0.059	0.080
	FR1 n7	50M	QPSK	135	68	DFT-15	Right Side	10mm	Ant 4	ECl 3	507000	2535	19.65	20.95	1.349	-	-	0.11	0.255	0.344
	FR1 n7	50M	QPSK	135	68	DFT-15	Bottom Side	10mm	Ant 4	ECl 3	507000	2535	19.65	20.95	1.349	-	-	-0.05	0.152	0.205
	FR1 n7	50M	QPSK	1	135	DFT-15	Front	10mm	Ant 5	ECl 3	507000	2535	19.60	20.45	1.216	-	-	0.15	0.137	0.167
	FR1 n7	50M	QPSK	1	135	DFT-15	Back	10mm	Ant 5	ECl 3	507000	2535	19.60	20.45	1.216	-	-	-0.13	0.172	0.209
	FR1 n7	50M	QPSK	1	135	DFT-15	Left Side	10mm	Ant 5	ECl 3	507000	2535	19.60	20.45	1.216	-	-	0.17	0.239	0.291
	FR1 n7	50M	QPSK	1	135	DFT-15	Top Side	10mm	Ant 5	ECl 3	507000	2535	19.60	20.45	1.216	-	-	0.12	0.059	0.072
	FR1 n7	50M	QPSK	135	68	DFT-15	Front	10mm	Ant 5	ECl 3	507000	2535	19.58	20.45	1.222	-	-	-0.12	0.135	0.165
	FR1 n7	50M	QPSK	135	68	DFT-15	Back	10mm	Ant 5	ECl 3	507000	2535	19.58	20.45	1.222	-	-	-0.05	0.192	0.235



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Table with columns for frequency, power, modulation, bandwidth, channel number, polarization, antenna, distance, SAR, and other parameters. Includes rows for FR1 n7, FR1 n38, and FR1 n41.



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	Bluetooth	DH5 1Mbps	Front	10mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	-0.14	0.073	0.104
46	Bluetooth	DH5 1Mbps	Back	10mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	-0.03	0.206	0.294
	Bluetooth	DH5 1Mbps	Right Side	10mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	-0.1	0.082	0.117
	Bluetooth	DH5 1Mbps	Top Side	10mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	0.09	0.092	0.131
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 10	Hotspot on	11	2462	14.70	16.00	1.349	99.52	1.005	0.04	0.088	0.119
47	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 10	Hotspot on	11	2462	14.70	16.00	1.349	99.52	1.005	-0.01	0.155	0.210
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 10	Hotspot on	11	2462	14.70	16.00	1.349	99.52	1.005	-0.1	0.083	0.113
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 10	Hotspot on	11	2462	14.70	16.00	1.349	99.52	1.005	0.06	0.118	0.160
5000MHz																
	WLAN5.2GHz	802.11n-HT40 MCS0	Front	10mm	Ant 10	Hotspot on	38	5190	12.67	14.50	1.524	93.1	1.074	0.02	0.070	0.115
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	10mm	Ant 10	Hotspot on	38	5190	12.67	14.50	1.524	93.1	1.074	-0.03	0.155	0.254
	WLAN5.2GHz	802.11n-HT40 MCS0	Right Side	10mm	Ant 10	Hotspot on	38	5190	12.67	14.50	1.524	93.1	1.074	0.05	0.093	0.152
48	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 10	Hotspot on	38	5190	12.67	14.50	1.524	93.1	1.074	-0.15	0.182	0.298
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 10	Hotspot on	155	5775	12.85	14.50	1.462	87.88	1.138	0.02	0.056	0.093
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 10	Hotspot on	155	5775	12.85	14.50	1.462	87.88	1.138	0.08	0.173	0.288
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 10	Hotspot on	155	5775	12.85	14.50	1.462	87.88	1.138	0.12	0.123	0.205
49	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 10	Hotspot on	155	5775	12.85	14.50	1.462	87.88	1.138	-0.07	0.267	0.444



14.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
	LTE Band 12	10M	QPSK	1	0	-	Front	15mm	Ant 0	ECl 1	23095	707.5	24.09	25.00	1.233	-	-	-0.12	0.072	0.089
50	LTE Band 12	10M	QPSK	1	0	-	Back	15mm	Ant 0	ECl 1	23095	707.5	24.09	25.00	1.233	-	-	-0.08	0.175	0.216
	LTE Band 12	10M	QPSK	25	0	-	Front	15mm	Ant 0	ECl 1	23095	707.5	23.04	24.00	1.247	-	-	0.17	0.060	0.075
	LTE Band 12	10M	QPSK	25	0	-	Back	15mm	Ant 0	ECl 1	23095	707.5	23.04	24.00	1.247	-	-	-0.19	0.103	0.128
	LTE Band 12	10M	QPSK	1	0	-	Front	15mm	Ant 1	ECl 1	23095	707.5	24.06	24.50	1.107	-	-	0.06	0.019	0.021
	LTE Band 12	10M	QPSK	1	0	-	Back	15mm	Ant 1	ECl 1	23095	707.5	24.06	24.50	1.107	-	-	0.05	0.037	0.041
	LTE Band 12	10M	QPSK	25	0	-	Front	15mm	Ant 1	ECl 1	23095	707.5	23.03	23.50	1.114	-	-	0.01	0.013	0.014
	LTE Band 12	10M	QPSK	25	0	-	Back	15mm	Ant 1	ECl 1	23095	707.5	23.03	23.50	1.114	-	-	0.06	0.031	0.035
	LTE Band 13	10M	QPSK	1	0	-	Front	15mm	Ant 0	ECl 1	23230	782	23.99	25.00	1.262	-	-	0.12	0.051	0.064
	LTE Band 13	10M	QPSK	1	0	-	Back	15mm	Ant 0	ECl 1	23230	782	23.99	25.00	1.262	-	-	-0.16	0.097	0.122
	LTE Band 13	10M	QPSK	25	0	-	Front	15mm	Ant 0	ECl 1	23230	782	23.10	24.00	1.230	-	-	0.02	0.040	0.049
	LTE Band 13	10M	QPSK	25	0	-	Back	15mm	Ant 0	ECl 1	23230	782	23.10	24.00	1.230	-	-	-0.16	0.079	0.097
	LTE Band 13	10M	QPSK	1	0	-	Front	15mm	Ant 1	ECl 1	23230	782	23.93	24.50	1.140	-	-	0	0.053	0.060
51	LTE Band 13	10M	QPSK	1	0	-	Back	15mm	Ant 1	ECl 1	23230	782	23.93	24.50	1.140	-	-	-0.11	0.109	0.124
	LTE Band 13	10M	QPSK	25	0	-	Front	15mm	Ant 1	ECl 1	23230	782	22.89	23.50	1.151	-	-	0.01	0.045	0.052
	LTE Band 13	10M	QPSK	25	0	-	Back	15mm	Ant 1	ECl 1	23230	782	22.89	23.50	1.151	-	-	0.1	0.088	0.101
835MHz																				
	GSM850	-	-	-	-	GPRS(3 Tx slots)	Front	15mm	Ant 0	ECl 1	189	836.4	29.08	30.50	1.387	-	-	0.19	0.093	0.129
52	GSM850	-	-	-	-	GPRS(3 Tx slots)	Back	15mm	Ant 0	ECl 1	189	836.4	29.08	30.50	1.387	-	-	-0.03	0.180	0.250
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 0	ECl 1	4182	836.4	25.20	25.50	1.072	-	-	0.13	0.136	0.146
53	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	ECl 1	4182	836.4	25.20	25.50	1.072	-	-	0.08	0.266	0.285
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 1	ECl 1	4182	836.4	24.60	25.00	1.096	-	-	0.06	0.065	0.071
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 1	ECl 1	4182	836.4	24.60	25.00	1.096	-	-	-0.13	0.152	0.167
	LTE Band 26	15M	QPSK	1	0	-	Front	15mm	Ant 0	ECl 1	26865	831.5	24.07	25.00	1.239	-	-	0.16	0.094	0.116
54	LTE Band 26	15M	QPSK	1	0	-	Back	15mm	Ant 0	ECl 1	26865	831.5	24.07	25.00	1.239	-	-	0.01	0.196	0.243
	LTE Band 26	15M	QPSK	36	0	-	Front	15mm	Ant 0	ECl 1	26865	831.5	23.00	24.00	1.259	-	-	-0.16	0.076	0.096
	LTE Band 26	15M	QPSK	36	0	-	Back	15mm	Ant 0	ECl 1	26865	831.5	23.00	24.00	1.259	-	-	-0.07	0.129	0.162
	LTE Band 26	15M	QPSK	1	0	-	Front	15mm	Ant 1	ECl 1	26865	831.5	23.98	24.50	1.127	-	-	0.03	0.048	0.054
	LTE Band 26	15M	QPSK	1	0	-	Back	15mm	Ant 1	ECl 1	26865	831.5	23.98	24.50	1.127	-	-	-0.09	0.090	0.101
	LTE Band 26	15M	QPSK	36	0	-	Front	15mm	Ant 1	ECl 1	26865	831.5	22.94	23.50	1.138	-	-	0.02	0.041	0.047
	LTE Band 26	15M	QPSK	36	0	-	Back	15mm	Ant 1	ECl 1	26865	831.5	22.94	23.50	1.138	-	-	0.02	0.075	0.085
	LTE Band 5	10M	QPSK	1	0	-	Front	15mm	Ant 0	ECl 1	20525	836.5	23.97	25.00	1.268	-	-	0.17	0.098	0.124
55	LTE Band 5	10M	QPSK	1	0	-	Back	15mm	Ant 0	ECl 1	20525	836.5	23.97	25.00	1.268	-	-	-0.07	0.196	0.248
	LTE Band 5	10M	QPSK	25	0	-	Front	15mm	Ant 0	ECl 1	20525	836.5	22.95	24.00	1.274	-	-	0.16	0.081	0.103
	LTE Band 5	10M	QPSK	25	0	-	Back	15mm	Ant 0	ECl 1	20525	836.5	22.95	24.00	1.274	-	-	0.11	0.130	0.166
	LTE Band 5	10M	QPSK	1	0	-	Front	15mm	Ant 1	ECl 1	20525	836.5	23.89	25.00	1.291	-	-	-0.04	0.052	0.067
	LTE Band 5	10M	QPSK	1	0	-	Back	15mm	Ant 1	ECl 1	20525	836.5	23.89	25.00	1.291	-	-	0.12	0.114	0.147
	LTE Band 5	10M	QPSK	25	0	-	Front	15mm	Ant 1	ECl 1	20525	836.5	22.87	24.00	1.297	-	-	-0.15	0.043	0.056
	LTE Band 5	10M	QPSK	25	0	-	Back	15mm	Ant 1	ECl 1	20525	836.5	22.87	24.00	1.297	-	-	-0.01	0.092	0.119
	FR1 n5	20M	QPSK	1	53	DFT-15	Front	15mm	Ant 0	ECl 1	167300	836.5	23.35	24.70	1.365	-	-	0.16	0.091	0.124
	FR1 n5	20M	QPSK	1	53	DFT-15	Back	15mm	Ant 0	ECl 1	167300	836.5	23.35	24.70	1.365	-	-	0.16	0.145	0.198
	FR1 n5	20M	QPSK	50	28	DFT-15	Front	15mm	Ant 0	ECl 1	167300	836.5	23.25	24.70	1.396	-	-	-0.02	0.090	0.126
56	FR1 n5	20M	QPSK	50	28	DFT-15	Back	15mm	Ant 0	ECl 1	167300	836.5	23.25	24.70	1.396	-	-	-0.09	0.184	0.257
	FR1 n5	20M	QPSK	1	53	DFT-15	Front	15mm	Ant 1	ECl 1	167300	836.5	23.91	24.70	1.199	-	-	0.01	0.030	0.036
	FR1 n5	20M	QPSK	1	53	DFT-15	Back	15mm	Ant 1	ECl 1	167300	836.5	23.91	24.70	1.199	-	-	0.04	0.057	0.068
	FR1 n5	20M	QPSK	50	28	DFT-15	Front	15mm	Ant 1	ECl 1	167300	836.5	23.79	24.70	1.233	-	-	0.03	0.028	0.035
	FR1 n5	20M	QPSK	50	28	DFT-15	Back	15mm	Ant 1	ECl 1	167300	836.5	23.79	24.70	1.233	-	-	-0.12	0.054	0.067
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 1	ECl 1	1513	1752.6	23.51	24.00	1.119	-	-	-0.03	0.154	0.172
57	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 1	ECl 1	1513	1752.6	23.51	24.00	1.119	-	-	0.02	0.234	0.262



	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 4	E1	1513	1752.6	21.86	22.00	1.033	-	-	-0.14	0.064	0.066
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 4	E1	1513	1752.6	21.86	22.00	1.033	-	-	0.06	0.178	0.184
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 1	E1	20175	1732.5	22.94	24.00	1.276	-	-	-0.19	0.152	0.194
	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 1	E1	20175	1732.5	22.94	24.00	1.276	-	-	0.03	0.153	0.195
	LTE Band 4	20M	QPSK	50	0	-	Front	15mm	Ant 1	E1	20175	1732.5	21.80	23.00	1.318	-	-	-0.04	0.123	0.162
	LTE Band 4	20M	QPSK	50	0	-	Back	15mm	Ant 1	E1	20175	1732.5	21.80	23.00	1.318	-	-	-0.16	0.116	0.153
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 4	E1	20175	1732.5	20.88	21.25	1.089	-	-	0.06	0.074	0.081
58	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 4	E1	20175	1732.5	20.88	21.25	1.089	-	-	0.16	0.181	0.197
	LTE Band 4	20M	QPSK	50	0	-	Front	15mm	Ant 4	E1	20175	1732.5	20.86	21.25	1.094	-	-	0.05	0.067	0.073
	LTE Band 4	20M	QPSK	50	0	-	Back	15mm	Ant 4	E1	20175	1732.5	20.86	21.25	1.094	-	-	-0.15	0.167	0.183
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 5	E1	20175	1732.5	21.69	22.25	1.138	-	-	0.05	0.011	0.013
	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 5	E1	20175	1732.5	21.69	22.25	1.138	-	-	0.08	0.020	0.023
	LTE Band 4	20M	QPSK	50	0	-	Front	15mm	Ant 5	E1	20175	1732.5	21.65	22.25	1.148	-	-	0.06	0.009	0.010
	LTE Band 4	20M	QPSK	50	0	-	Back	15mm	Ant 5	E1	20175	1732.5	21.65	22.25	1.148	-	-	0.1	0.018	0.021
	LTE Band 66	20M	QPSK	1	0	-	Front	15mm	Ant 1	E1	132322	1745	23.51	24.00	1.119	-	-	-0.14	0.167	0.187
	LTE Band 66	20M	QPSK	1	0	-	Back	15mm	Ant 1	E1	132322	1745	23.51	24.00	1.119	-	-	0.1	0.152	0.170
	LTE Band 66	20M	QPSK	50	0	-	Front	15mm	Ant 1	E1	132322	1745	22.45	23.00	1.135	-	-	-0.16	0.133	0.151
	LTE Band 66	20M	QPSK	50	0	-	Back	15mm	Ant 1	E1	132322	1745	22.45	23.00	1.135	-	-	-0.05	0.118	0.134
	LTE Band 66	20M	QPSK	1	0	-	Front	15mm	Ant 4	E1	132322	1745	21.51	21.75	1.057	-	-	-0.01	0.072	0.076
	LTE Band 66	20M	QPSK	1	0	-	Back	15mm	Ant 4	E1	132322	1745	21.51	21.75	1.057	-	-	-0.13	0.179	0.189
	LTE Band 66	20M	QPSK	50	0	-	Front	15mm	Ant 4	E1	132322	1745	21.49	21.75	1.062	-	-	0.16	0.076	0.081
59	LTE Band 66	20M	QPSK	50	0	-	Back	15mm	Ant 4	E1	132322	1745	21.49	21.75	1.062	-	-	0.03	0.188	0.200
	LTE Band 66	20M	QPSK	1	0	-	Front	15mm	Ant 5	E1	132322	1745	22.77	23.00	1.054	-	-	0.05	0.010	0.011
	LTE Band 66	20M	QPSK	1	0	-	Back	15mm	Ant 5	E1	132322	1745	22.77	23.00	1.054	-	-	-0.15	0.021	0.022
	LTE Band 66	20M	QPSK	50	0	-	Front	15mm	Ant 5	E1	132322	1745	22.72	23.00	1.067	-	-	0.03	0.009	0.010
	LTE Band 66	20M	QPSK	50	0	-	Back	15mm	Ant 5	E1	132322	1745	22.72	23.00	1.067	-	-	0.11	0.019	0.020
	FR1 n66	40M	QPSK	1	108	DFT-15	Front	15mm	Ant 1	E1	349000	1745	23.50	24.20	1.175	-	-	-0.02	0.144	0.169
	FR1 n66	40M	QPSK	1	108	DFT-15	Back	15mm	Ant 1	E1	349000	1745	23.50	24.20	1.175	-	-	0.09	0.183	0.215
	FR1 n66	40M	QPSK	108	54	DFT-15	Front	15mm	Ant 1	E1	349000	1745	23.45	24.20	1.189	-	-	-0.19	0.170	0.202
	FR1 n66	40M	QPSK	108	54	DFT-15	Back	15mm	Ant 1	E1	349000	1745	23.45	24.20	1.189	-	-	-0.11	0.173	0.206
	FR1 n66	40M	QPSK	1	108	DFT-15	Front	15mm	Ant 4	E1	349000	1745	20.68	21.70	1.265	-	-	-0.16	0.057	0.072
60	FR1 n66	40M	QPSK	1	108	DFT-15	Back	15mm	Ant 4	E1	349000	1745	20.68	21.70	1.265	-	-	0.18	0.172	0.218
	FR1 n66	40M	QPSK	108	54	DFT-15	Front	15mm	Ant 4	E1	349000	1745	20.58	21.70	1.294	-	-	0.11	0.054	0.070
	FR1 n66	40M	QPSK	108	54	DFT-15	Back	15mm	Ant 4	E1	349000	1745	20.58	21.70	1.294	-	-	0.15	0.164	0.212
	FR1 n66	40M	QPSK	1	108	DFT-15	Front	15mm	Ant 5	E1	349000	1745	22.07	23.20	1.297	-	-	0.02	0.009	0.012
	FR1 n66	40M	QPSK	1	108	DFT-15	Back	15mm	Ant 5	E1	349000	1745	22.07	23.20	1.297	-	-	0.18	0.020	0.026
	FR1 n66	40M	QPSK	108	54	DFT-15	Front	15mm	Ant 5	E1	349000	1745	22.05	23.20	1.303	-	-	0.03	0.008	0.010
	FR1 n66	40M	QPSK	108	54	DFT-15	Back	15mm	Ant 5	E1	349000	1745	22.05	23.20	1.303	-	-	0.04	0.018	0.023
1900MHz																				
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Front	15mm	Ant 1	E1	661	1880	27.75	28.50	1.189	-	-	-0.03	0.111	0.132
	GSM1900	-	-	-	-	GPRS(2 Tx slots)	Back	15mm	Ant 1	E1	661	1880	27.75	28.50	1.189	-	-	0.1	0.156	0.185
	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Front	15mm	Ant 4	E1	661	1880	26.48	27.50	1.265	-	-	-0.01	0.058	0.073
61	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Back	15mm	Ant 4	E1	661	1880	26.48	27.50	1.265	-	-	0.14	0.147	0.186
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 1	E1	9538	1907.6	23.24	24.00	1.191	-	-	0.17	0.148	0.176
62	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 1	E1	9538	1907.6	23.24	24.00	1.191	-	-	-0.09	0.190	0.226
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 4	E1	9538	1907.6	21.97	22.00	1.007	-	-	0.01	0.055	0.055
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 4	E1	9538	1907.6	21.97	22.00	1.007	-	-	-0.19	0.158	0.159
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 1	E1	18900	1880	22.79	23.50	1.178	-	-	-0.02	0.130	0.153
	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 1	E1	18900	1880	22.79	23.50	1.178	-	-	-0.16	0.149	0.175
	LTE Band 2	20M	QPSK	50	0	-	Front	15mm	Ant 1	E1	18900	1880	21.78	22.50	1.180	-	-	-0.08	0.105	0.124
	LTE Band 2	20M	QPSK	50	0	-	Back	15mm	Ant 1	E1	18900	1880	21.78	22.50	1.180	-	-	0.01	0.121	0.143
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 4	E1	18900	1880	22.06	23.50	1.393	-	-	0.17	0.063	0.088
	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 4	E1	18900	1880	22.06	23.50	1.393	-	-	0.18	0.160	0.223
	LTE Band 2	20M	QPSK	50	0	-	Front	15mm	Ant 4	E1	18900	1880	22.05	23.50	1.396	-	-	-0.01	0.063	0.088
63	LTE Band 2	20M	QPSK	50	0	-	Back	15mm	Ant 4	E1	18900	1880	22.05	23.50	1.396	-	-	0.05	0.196	0.274
2600MHz																				



	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 1	ECI 1	21100	2535	21.58	21.75	1.040	-	-	-0.02	0.078	0.081
	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 1	21100	2535	21.58	21.75	1.040	-	-	0.16	0.151	0.157
	LTE Band 7	20M	QPSK	50	0	-	Front	15mm	Ant 1	ECI 1	21100	2535	21.53	21.75	1.052	-	-	-0.03	0.083	0.087
	LTE Band 7	20M	QPSK	50	0	-	Back	15mm	Ant 1	ECI 1	21100	2535	21.53	21.75	1.052	-	-	-0.1	0.158	0.166
	LTE Band 7C	20M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 1	21100+	2535+	21.57	21.75	1.042	-	-	-0.1	0.135	0.141
	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 4	ECI 1	21100	2535	22.23	23.00	1.194	-	-	-0.06	0.145	0.173
64	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 1	21100	2535	22.23	23.00	1.194	-	-	-0.12	0.369	0.441
	LTE Band 7C	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 1	21100+	2535+	22.21	23.00	1.199	-	-	-0.12	0.324	0.389
	LTE Band 7	20M	QPSK	50	0	-	Front	15mm	Ant 4	ECI 1	21100	2535	22.21	23.00	1.199	-	-	-0.01	0.142	0.170
	LTE Band 7	20M	QPSK	50	0	-	Back	15mm	Ant 4	ECI 1	21100	2535	22.21	23.00	1.199	-	-	0.03	0.339	0.407
	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 5	ECI 1	21100	2535	19.54	20.25	1.178	-	-	-0.17	0.078	0.092
	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 1	21100	2535	19.54	20.25	1.178	-	-	0.07	0.104	0.122
	LTE Band 7	20M	QPSK	50	0	-	Front	15mm	Ant 5	ECI 1	21100	2535	19.53	20.25	1.180	-	-	-0.16	0.078	0.092
	LTE Band 7	20M	QPSK	50	0	-	Back	15mm	Ant 5	ECI 1	21100	2535	19.53	20.25	1.180	-	-	-0.18	0.106	0.125
	LTE Band 7C	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 1	21100+	2535+	19.53	20.25	1.180	-	-	-0.18	0.095	0.112
	LTE Band 38	20M	QPSK	1	0	-	Front	15mm	Ant 1	ECI 1	38000	2595	21.44	22.00	1.138	62.9	1.006	-0.09	0.087	0.100
	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 1	38000	2595	21.44	22.00	1.138	62.9	1.006	-0.11	0.171	0.196
	LTE Band 38C	20M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 1	37901	2585.1	21.32	22.00	1.169	62.9	1.006	-0.11	0.155	0.182
	LTE Band 38	20M	QPSK	50	0	-	Front	15mm	Ant 1	ECI 1	38000	2595	21.41	22.00	1.146	62.9	1.006	-0.03	0.088	0.101
	LTE Band 38	20M	QPSK	50	0	-	Back	15mm	Ant 1	ECI 1	38000	2595	21.41	22.00	1.146	62.9	1.006	-0.03	0.169	0.195
	LTE Band 38	20M	QPSK	1	0	-	Front	15mm	Ant 4	ECI 1	38000	2595	23.43	24.00	1.140	62.9	1.006	-0.1	0.260	0.298
65	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 1	38000	2595	23.43	24.00	1.140	62.9	1.006	0.09	0.342	0.392
	LTE Band 38C	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 1	37901+	2585.1+	23.40	24.00	1.148	62.9	1.006	0.09	0.274	0.316
	LTE Band 38	20M	QPSK	50	0	-	Front	15mm	Ant 4	ECI 1	38000	2595	22.53	23.00	1.114	62.9	1.006	-0.12	0.204	0.229
	LTE Band 38	20M	QPSK	50	0	-	Back	15mm	Ant 4	ECI 1	38000	2595	22.53	23.00	1.114	62.9	1.006	-0.01	0.246	0.276
	LTE Band 38	20M	QPSK	1	0	-	Front	15mm	Ant 5	ECI 1	38000	2595	23.36	24.00	1.159	62.9	1.006	0.08	0.139	0.162
	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 1	38000	2595	23.36	24.00	1.159	62.9	1.006	0.05	0.200	0.233
	LTE Band 38C	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 1	37901+	2585.1+	23.04	24.00	1.247	62.9	1.006	0.05	0.184	0.231
	LTE Band 38	20M	QPSK	50	0	-	Front	15mm	Ant 5	ECI 1	38000	2595	22.39	23.00	1.151	62.9	1.006	-0.11	0.111	0.129
	LTE Band 38	20M	QPSK	50	0	-	Back	15mm	Ant 5	ECI 1	38000	2595	22.39	23.00	1.151	62.9	1.006	0.07	0.161	0.186
	LTE Band 41	20M	QPSK	1	99	-	Front	15mm	Ant 1	ECI 1	40620	2593	21.29	21.75	1.112	62.9	1.006	-0.11	0.082	0.092
	LTE Band 41	20M	QPSK	1	99	-	Back	15mm	Ant 1	ECI 1	40620	2593	21.29	21.75	1.112	62.9	1.006	0.02	0.150	0.168
	LTE Band 41	20M	QPSK	50	50	-	Front	15mm	Ant 1	ECI 1	40620	2593	21.27	21.75	1.117	62.9	1.006	0.07	0.082	0.092
	LTE Band 41	20M	QPSK	50	50	-	Back	15mm	Ant 1	ECI 1	40620	2593	21.27	21.75	1.117	62.9	1.006	-0.07	0.148	0.166
	LTE Band 41C	20M	QPSK	1	0	-	Back	15mm	Ant 1	ECI 1	40620+	2593+	21.26	21.75	1.119	62.9	1.006	-0.07	0.126	0.142
	LTE Band 41	20M	QPSK	1	99	-	Front	15mm	Ant 4	ECI 1	39750	2506	23.37	23.75	1.091	62.9	1.006	-0.11	0.129	0.142
66	LTE Band 41	20M	QPSK	1	99	-	Back	15mm	Ant 4	ECI 1	39750	2506	23.37	23.75	1.091	62.9	1.006	-0.12	0.283	0.311
	LTE Band 41C	20M	QPSK	1	0	-	Back	15mm	Ant 4	ECI 1	39750+	2506+	23.35	23.75	1.096	62.9	1.006	-0.12	0.262	0.289
	LTE Band 41	20M	QPSK	50	50	-	Front	15mm	Ant 4	ECI 1	39750	2506	23.34	23.75	1.099	62.9	1.006	-0.15	0.125	0.138
	LTE Band 41	20M	QPSK	50	50	-	Back	15mm	Ant 4	ECI 1	39750	2506	23.34	23.75	1.099	62.9	1.006	-0.08	0.261	0.289
	LTE Band 41	20M	QPSK	1	99	-	Front	15mm	Ant 5	ECI 1	41490	2680	23.71	24.00	1.069	62.9	1.006	-0.1	0.075	0.081
	LTE Band 41	20M	QPSK	1	99	-	Back	15mm	Ant 5	ECI 1	41490	2680	23.71	24.00	1.069	62.9	1.006	-0.09	0.115	0.124
	LTE Band 41	20M	QPSK	50	50	-	Front	15mm	Ant 5	ECI 1	41490	2680	23.63	24.00	1.089	62.9	1.006	0.15	0.078	0.085
	LTE Band 41	20M	QPSK	50	50	-	Back	15mm	Ant 5	ECI 1	41490	2680	23.63	24.00	1.089	62.9	1.006	0.04	0.118	0.129
	LTE Band 41C	20M	QPSK	1	0	-	Back	15mm	Ant 5	ECI 1	41490+	2680+	23.17	24.00	1.211	62.9	1.006	0.04	0.102	0.124
	FR1 n7	50M	QPSK	1	135	DFT-15	Front	15mm	Ant 1	ECI 1	507000	2535	18.47	18.70	1.054	-	-	0.09	0.039	0.041
	FR1 n7	50M	QPSK	1	135	DFT-15	Back	15mm	Ant 1	ECI 1	507000	2535	18.47	18.70	1.054	-	-	0.04	0.059	0.062
	FR1 n7	50M	QPSK	135	68	DFT-15	Front	15mm	Ant 1	ECI 1	507000	2535	18.39	18.70	1.074	-	-	-0.1	0.036	0.039
	FR1 n7	50M	QPSK	135	68	DFT-15	Back	15mm	Ant 1	ECI 1	507000	2535	18.39	18.70	1.074	-	-	0.19	0.056	0.060
	FR1 n7	50M	QPSK	1	135	DFT-15	Front	15mm	Ant 4	ECI 1	507000	2535	19.78	20.95	1.309	-	-	0.14	0.101	0.132
67	FR1 n7	50M	QPSK	1	135	DFT-15	Back	15mm	Ant 4	ECI 1	507000	2535	19.78	20.95	1.309	-	-	-0.03	0.222	0.291
	FR1 n7	50M	QPSK	135	68	DFT-15	Front	15mm	Ant 4	ECI 1	507000	2535	19.65	20.95	1.349	-	-	-0.1	0.100	0.135



	FR1 n7	50M	QPSK	135	68	DFT-15	Back	15mm	Ant 4	ECl 1	507000	2535	19.65	20.95	1.349	-	-	0.05	0.215	0.290
	FR1 n7	50M	QPSK	1	135	DFT-15	Front	15mm	Ant 5	ECl 1	507000	2535	19.60	20.45	1.216	-	-	-0.02	0.059	0.072
	FR1 n7	50M	QPSK	1	135	DFT-15	Back	15mm	Ant 5	ECl 1	507000	2535	19.60	20.45	1.216	-	-	0.19	0.086	0.105
	FR1 n7	50M	QPSK	135	68	DFT-15	Front	15mm	Ant 5	ECl 1	507000	2535	19.58	20.45	1.222	-	-	-0.14	0.060	0.073
	FR1 n7	50M	QPSK	135	68	DFT-15	Back	15mm	Ant 5	ECl 1	507000	2535	19.58	20.45	1.222	-	-	0.14	0.088	0.108
	FR1 n38	40M	QPSK	1	1	DFT-30	Front	15mm	Ant 1	ECl 1	519000	2595	20.39	20.45	1.014	-	-	-0.19	0.063	0.064
	FR1 n38	40M	QPSK	1	1	DFT-30	Back	15mm	Ant 1	ECl 1	519000	2595	20.39	20.45	1.014	-	-	0.18	0.154	0.156
	FR1 n38	40M	QPSK	50	28	DFT-30	Front	15mm	Ant 1	ECl 1	519000	2595	20.18	20.45	1.064	-	-	0.14	0.101	0.107
	FR1 n38	40M	QPSK	50	28	DFT-30	Back	15mm	Ant 1	ECl 1	519000	2595	20.18	20.45	1.064	-	-	-0.05	0.156	0.166
	FR1 n38	40M	QPSK	1	1	DFT-30	Front	15mm	Ant 4	ECl 1	519000	2595	21.72	23.20	1.406	-	-	0.01	0.218	0.307
68	FR1 n38	40M	QPSK	1	1	DFT-30	Back	15mm	Ant 4	ECl 1	519000	2595	21.72	23.20	1.406	-	-	-0.08	0.409	0.575
	FR1 n38	40M	QPSK	50	28	DFT-30	Front	15mm	Ant 4	ECl 1	519000	2595	21.70	23.20	1.413	-	-	-0.18	0.215	0.304
	FR1 n38	40M	QPSK	50	28	DFT-30	Back	15mm	Ant 4	ECl 1	519000	2595	21.70	23.20	1.413	-	-	-0.01	0.385	0.544
	FR1 n38	40M	QPSK	1	1	DFT-30	Front	15mm	Ant 5	ECl 1	519000	2595	21.09	21.95	1.219	-	-	0.04	0.111	0.135
	FR1 n38	40M	QPSK	1	1	DFT-30	Back	15mm	Ant 5	ECl 1	519000	2595	21.09	21.95	1.219	-	-	-0.16	0.148	0.180
	FR1 n38	40M	QPSK	50	28	DFT-30	Front	15mm	Ant 5	ECl 1	519000	2595	21.05	21.95	1.230	-	-	-0.09	0.129	0.159
	FR1 n38	40M	QPSK	50	28	DFT-30	Back	15mm	Ant 5	ECl 1	519000	2595	21.05	21.95	1.230	-	-	-0.19	0.164	0.202
	FR1 n41	100M	QPSK	1	137	DFT-30	Front	15mm	Ant 1	ECl 1	518598	2592.99	18.42	18.70	1.067	-	-	-0.12	0.044	0.047
	FR1 n41	100M	QPSK	1	137	DFT-30	Back	15mm	Ant 1	ECl 1	518598	2592.99	18.42	18.70	1.067	-	-	-0.08	0.095	0.101
	FR1 n41	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 1	ECl 1	518598	2592.99	18.33	18.70	1.089	-	-	-0.18	0.048	0.052
	FR1 n41	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 1	ECl 1	518598	2592.99	18.33	18.70	1.089	-	-	-0.17	0.102	0.111
	FR1 n41	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 4	ECl 1	518598	2592.99	19.50	20.20	1.175	-	-	-0.12	0.098	0.115
69	FR1 n41	100M	QPSK	1	1	DFT-30	Back	15mm	Ant 4	ECl 1	518598	2592.99	19.50	20.20	1.175	-	-	0.19	0.198	0.233
	FR1 n41	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 4	ECl 1	518598	2592.99	19.40	20.20	1.202	-	-	0	0.095	0.114
	FR1 n41	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 4	ECl 1	518598	2592.99	19.40	20.20	1.202	-	-	-0.07	0.192	0.231
	FR1 n41	100M	QPSK	1	271	DFT-30	Front	15mm	Ant 5	ECl 1	518598	2592.99	19.70	20.70	1.259	-	-	-0.06	0.085	0.107
	FR1 n41	100M	QPSK	1	271	DFT-30	Back	15mm	Ant 5	ECl 1	518598	2592.99	19.70	20.70	1.259	-	-	-0.08	0.114	0.144
	FR1 n41	100M	QPSK	135	69	DFT-30	Front	15mm	Ant 5	ECl 1	518598	2592.99	19.41	20.70	1.346	-	-	0.06	0.084	0.113
	FR1 n41	100M	QPSK	135	69	DFT-30	Back	15mm	Ant 5	ECl 1	518598	2592.99	19.41	20.70	1.346	-	-	-0.12	0.121	0.163

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	Bluetooth	DH5 1Mbps	Front	15mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	0.06	0.044	0.063
70	Bluetooth	DH5 1Mbps	Back	15mm	Ant 10	Full	78	2480	15.60	16.00	1.096	76.8	1.302	-0.02	0.085	0.122
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 10	Standalone	11	2462	14.70	16.00	1.349	99.52	1.005	0.11	0.048	0.065
71	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 10	Standalone	11	2462	14.70	16.00	1.349	99.52	1.005	0.02	0.066	0.089
5000MHz																
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	15mm	Ant 10	Standalone	54	5270	13.10	15.00	1.549	93.1	1.074	0.11	0.023	0.038
72	WLAN5.3GHz	802.11n-HT40 MCS0	Back	15mm	Ant 10	Standalone	54	5270	13.10	15.00	1.549	93.1	1.074	0.05	0.094	0.156
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 10	Standalone	122	5610	12.28	14.00	1.486	87.88	1.138	-0.07	0.025	0.042
73	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 10	Standalone	122	5610	12.28	14.00	1.486	87.88	1.138	-0.11	0.093	0.157
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 10	Standalone	155	5775	12.85	14.50	1.462	87.88	1.138	0.05	0.034	0.056
74	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 10	Standalone	155	5775	12.85	14.50	1.462	87.88	1.138	0.09	0.120	0.200



14.4 Product specific 10g SAR

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
5000MHz																
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	0mm	Ant 10	Standalone	54	5270	13.10	15.00	1.549	93.1	1.074	0.06	0.123	0.205
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	Ant 10	Standalone	54	5270	13.10	15.00	1.549	93.1	1.074	-0.1	0.174	0.289
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 10	Standalone	54	5270	13.10	15.00	1.549	93.1	1.074	0.12	0.177	0.294
75	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 10	Standalone	54	5270	13.10	15.00	1.549	93.1	1.074	0.11	0.477	0.793
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 10	Standalone	122	5610	12.28	14.00	1.486	87.88	1.138	-0.07	0.087	0.147
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 10	Standalone	122	5610	12.28	14.00	1.486	87.88	1.138	0.05	0.172	0.291
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 10	Standalone	122	5610	12.28	14.00	1.486	87.88	1.138	0.01	0.149	0.252
76	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 10	Standalone	122	5610	12.28	14.00	1.486	87.88	1.138	0.13	0.393	0.665



14.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECl 2	1312	1712.4	20.83	21.25	1.102	-	-	-0.12	0.895	1	0.986
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECl 2	1312	1712.4	20.83	21.25	1.102	-	-	-0.1	0.842	1.063	0.927
1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECl 2	9538	1907.6	20.94	21.50	1.138	-	-	-0.05	0.953	1.000	1.084
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	ECl 2	9538	1907.6	20.94	21.50	1.138	-	-	-0.02	0.926	1.029	1.053
1st	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECl 2	38000	2595	20.53	21.00	1.114	62.9	1.006	0.15	0.994	1.000	1.114
2nd	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECl 2	38000	2595	20.53	21.00	1.114	62.9	1.006	0.12	0.965	1.030	1.082

General Note:

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

15. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			Product specific 10g SAR
		Head	Body-worn	Hotspot	
1.	WWAN + WLAN2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN5GHz	Yes	Yes	Yes	Yes
3.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
4.	WLAN 5GHz + Bluetooth	Yes	Yes	Yes	Yes
5.	WWAN + WLAN 5GHz + Bluetooth	Yes	Yes	Yes	Yes
6.	WWAN + WLAN2.4GHz+NFC				Yes
7.	WWAN + WLAN5GHz+NFC				Yes
8.	WWAN + Bluetooth+NFC				Yes
9.	WLAN 5GHz + Bluetooth+NFC				Yes
10.	WWAN + WLAN 5GHz + Bluetooth+NFC				Yes

General Note:

- This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5GNR (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
- WWAN above includes 5G NR bands and EN-DC combination.
- EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- For 5GNR EN-DC mode, standalone SAR performed for 5GNR NSA band with the maximum power, EN-DC SAR summed EN-DC mode 5GNR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- According to the EUT characteristic, WLAN 2.4GHz and Bluetooth cannot transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz and Bluetooth can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz and WLAN 2.4GHz cannot transmit simultaneously.
- NFC can transmit simultaneously with other Radios in extremity exposure condition.
- When stand-alone SAR is not required for a transmitter or antenna, its SAR is considered zero in the SAR summing process to assess Multi-band transmission SAR compliance.
- The maximum SAR summation is calculated based on the same configuration and test position.
- For simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
- For standalone WWAN, always choose the highest SAR among the selected WWAN bands within the selected antenna for each exposure position to perform simultaneous transmission analysis with WLAN/BT. This is the worst co-located analysis and can represent each band.
- When EN-DC SAR co-located with WLAN/Bluetooth, chose the worst SAR among the selected LTE bands within the selected antenna per each test position and also the worst SAR of the selected 5GNR Bands within the selected antenna to do co-located with WLAN/Bluetooth. This is the worst co-located analysis and can represent each LTE bands and each 5GNR bands.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
 - $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR, simultaneously transmission SAR measurement is not necessary.
 - Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.



15.1 Head Exposure Conditions

Exposure Position	10	17	10+17
	WLAN5GHz Ant 10	Bluetooth Ant 10	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Right Cheek	0.301	0.146	0.45
Right Tilted	0.389	0.204	0.59
Left Cheek	0.363	0.504	0.87
Left Tilted	0.419	0.226	0.65

WWAN Band	Exposure Position	1	3	10	17	1+3	1+10+17
		WWAN	WLAN2.4GHz Ant 10	WLAN5GHz Ant 10	Bluetooth Ant 10	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Ant 0	Right Cheek	0.152	0.115	0.131	0.146	0.27	0.43
	Right Tilted	0.087	0.153	0.155	0.204	0.24	0.45
	Left Cheek	0.227	0.305	0.148	0.504	0.53	0.88
	Left Tilted	0.119	0.190	0.190	0.226	0.31	0.54
Ant 1	Right Cheek	1.114	0.115	0.131	0.146	1.23	1.39
	Right Tilted	0.737	0.153	0.155	0.204	0.89	1.10
	Left Cheek	0.657	0.305	0.148	0.504	0.96	1.31
	Left Tilted	0.627	0.190	0.190	0.226	0.82	1.04
Ant 4	Right Cheek	0.649	0.115	0.131	0.146	0.76	0.93
	Right Tilted	0.274	0.153	0.155	0.204	0.43	0.63
	Left Cheek	0.376	0.305	0.148	0.504	0.68	1.03
	Left Tilted	0.289	0.190	0.190	0.226	0.48	0.71
Ant 5	Right Cheek	1.172	0.115	0.131	0.146	1.29	1.45
	Right Tilted	0.304	0.153	0.155	0.204	0.46	0.66
	Left Cheek	0.683	0.305	0.148	0.504	0.99	1.34
	Left Tilted	0.203	0.190	0.190	0.226	0.39	0.62



For ENDC

WWAN Band	FR1 Band	Exposure Position	1	2	3	10	17	1+2+3	1+2+10+17
			WWAN	FR1	WLAN2.4GHz Ant 10	WLAN5GHz Ant 10	Bluetooth Ant 10	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
ALL Band LTE Ant 4	ALL Band FR1 Ant 1	Right Cheek	0.476	0.668	0.115	0.131	0.146	1.26	1.42
		Right Tilted	0.241	0.611	0.153	0.155	0.204	1.01	1.21
		Left Cheek	0.243	0.484	0.305	0.148	0.504	1.03	1.38
		Left Tilted	0.175	0.627	0.190	0.190	0.226	0.99	1.22
ALL Band LTE Ant 4	ALL Band FR1 Ant 5	Right Cheek	0.476	0.764	0.115	0.131	0.146	1.36	1.52
		Right Tilted	0.241	0.304	0.153	0.155	0.204	0.70	0.90
		Left Cheek	0.243	0.683	0.305	0.148	0.504	1.23	1.58
		Left Tilted	0.175	0.203	0.190	0.190	0.226	0.57	0.79
ALL Band LTE Ant 0	ALL Band FR1 Ant 1	Right Cheek	0.142	0.668	0.115	0.131	0.146	0.93	1.09
		Right Tilted	0.075	0.611	0.153	0.155	0.204	0.84	1.05
		Left Cheek	0.198	0.484	0.305	0.148	0.504	0.99	1.33
		Left Tilted	0.097	0.627	0.190	0.190	0.226	0.91	1.14
ALL Band LTE Ant 0	ALL Band FR1 Ant 4	Right Cheek	0.142	0.649	0.115	0.131	0.146	0.91	1.07
		Right Tilted	0.075	0.274	0.153	0.155	0.204	0.50	0.71
		Left Cheek	0.198	0.376	0.305	0.148	0.504	0.88	1.23
		Left Tilted	0.097	0.289	0.190	0.190	0.226	0.58	0.80
ALL Band LTE Ant 1	ALL Band FR1 Ant 4	Right Cheek	0.555	0.649	0.115	0.131	0.146	1.32	1.48
		Right Tilted	0.476	0.274	0.153	0.155	0.204	0.90	1.11
		Left Cheek	0.314	0.376	0.305	0.148	0.504	1.00	1.34
		Left Tilted	0.262	0.289	0.190	0.190	0.226	0.74	0.97
ALL Band LTE Ant 4	ALL Band FR1 Ant 0	Right Cheek	0.476	0.121	0.115	0.131	0.146	0.71	0.87
		Right Tilted	0.241	0.065	0.153	0.155	0.204	0.46	0.67
		Left Cheek	0.243	0.158	0.305	0.148	0.504	0.71	1.05
		Left Tilted	0.175	0.090	0.190	0.190	0.226	0.46	0.68
ALL Band LTE Ant 5	ALL Band FR1 Ant 0	Right Cheek	0.546	0.121	0.115	0.131	0.146	0.78	0.94
		Right Tilted	0.183	0.065	0.153	0.155	0.204	0.40	0.61
		Left Cheek	0.360	0.158	0.305	0.148	0.504	0.82	1.17
		Left Tilted	0.108	0.090	0.190	0.190	0.226	0.39	0.61
ALL Band LTE Ant 5	ALL Band FR1 Ant 1	Right Cheek	0.546	0.668	0.115	0.131	0.146	1.33	1.49
		Right Tilted	0.183	0.611	0.153	0.155	0.204	0.95	1.15
		Left Cheek	0.360	0.484	0.305	0.148	0.504	1.15	1.50
		Left Tilted	0.108	0.627	0.190	0.190	0.226	0.93	1.15



15.2 Hotspot Exposure Conditions

Exposure Position	10	17	10+17
	WLAN5GHz Ant 10	Bluetooth Ant 10	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Front	0.115	0.104	0.22
Back	0.288	0.294	0.58
Left side			0.00
Right side	0.205	0.117	0.32
Top side	0.444	0.131	0.58
Bottom side			0.00

WWAN Band	Exposure Position	1	3	10	17	1+3	1+10+17
		WWAN	WLAN2.4GHz Ant 10	WLAN5GHz Ant 10	Bluetooth Ant 10	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Ant 0	Front	0.233	0.119	0.115	0.104	0.35	0.45
	Back	0.432	0.210	0.288	0.294	0.64	1.01
	Left side	0.441				0.44	0.44
	Right side		0.113	0.205	0.117	0.11	0.32
	Top side		0.160	0.444	0.131	0.16	0.58
	Bottom side	0.131				0.13	0.13
Ant 1	Front	0.364	0.119	0.115	0.104	0.48	0.58
	Back	0.494	0.210	0.288	0.294	0.70	1.08
	Left side	0.848				0.85	0.85
	Right side		0.113	0.205	0.117	0.11	0.32
	Top side	0.487	0.160	0.444	0.131	0.65	1.06
	Bottom side					0.00	0.00
Ant 4	Front	0.475	0.119	0.115	0.104	0.59	0.69
	Back	1.000	0.210	0.288	0.294	1.21	1.58
	Left side					0.00	0.00
	Right side	0.974	0.113	0.205	0.117	1.09	1.30
	Top side		0.160	0.444	0.131	0.16	0.58
	Bottom side	0.494				0.49	0.49
Ant 5	Front	0.325	0.119	0.115	0.104	0.44	0.54
	Back	0.481	0.210	0.288	0.294	0.69	1.06
	Left side	0.787				0.79	0.79
	Right side		0.113	0.205	0.117	0.11	0.32
	Top side	0.177	0.160	0.444	0.131	0.34	0.75
	Bottom side					0.00	0.00



For ENDC

WWAN Band	FR1 Band	Exposure Position	1	2	3	10	17	1+2+3	1+2+10+17
			WWAN	FR1	WLAN2.4GHz Ant 10	WLAN5GHz Ant 10	Bluetooth Ant 10	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
ALL Band LTE Ant 4	ALL Band FR1 Ant 1	Front	0.475	0.355	0.119	0.115	0.104	0.95	1.05
		Back	0.549	0.378	0.210	0.288	0.294	1.14	1.51
		Left side		0.752				0.75	0.75
		Right side	0.583		0.113	0.205	0.117	0.70	0.91
		Top side		0.487	0.160	0.444	0.131	0.65	1.06
		Bottom side	0.404					0.40	0.40
ALL Band LTE Ant 4	ALL Band FR1 Ant 5	Front	0.475	0.325	0.119	0.115	0.104	0.92	1.02
		Back	0.549	0.449	0.210	0.288	0.294	1.21	1.58
		Left side		0.787				0.79	0.79
		Right side	0.583		0.113	0.205	0.117	0.70	0.91
		Top side		0.177	0.160	0.444	0.131	0.34	0.75
		Bottom side	0.404					0.40	0.40
ALL Band LTE Ant 0	ALL Band FR1 Ant 1	Front	0.228	0.355	0.119	0.115	0.104	0.70	0.80
		Back	0.396	0.378	0.210	0.288	0.294	0.98	1.36
		Left side	0.441	0.752				1.19	1.19
		Right side			0.113	0.205	0.117	0.11	0.32
		Top side		0.487	0.160	0.444	0.131	0.65	1.06
		Bottom side	0.118					0.12	0.12
ALL Band LTE Ant 0	ALL Band FR1 Ant 4	Front	0.228	0.470	0.119	0.115	0.104	0.82	0.92
		Back	0.396	0.447	0.210	0.288	0.294	1.05	1.43
		Left side	0.441					0.44	0.44
		Right side		0.974	0.113	0.205	0.117	1.09	1.30
		Top side			0.160	0.444	0.131	0.16	0.58
		Bottom side	0.118	0.494				0.61	0.61
ALL Band LTE Ant 1	ALL Band FR1 Ant 4	Front	0.146	0.470	0.119	0.115	0.104	0.74	0.84
		Back	0.271	0.447	0.210	0.288	0.294	0.93	1.30
		Left side	0.196					0.20	0.20
		Right side		0.974	0.113	0.205	0.117	1.09	1.30
		Top side	0.194		0.160	0.444	0.131	0.35	0.77
		Bottom side		0.494				0.49	0.49
ALL Band LTE Ant 4	ALL Band FR1 Ant 0	Front	0.475	0.204	0.119	0.115	0.104	0.80	0.90
		Back	0.549	0.416	0.210	0.288	0.294	1.18	1.55
		Left side		0.323				0.32	0.32
		Right side	0.583		0.113	0.205	0.117	0.70	0.91
		Top side			0.160	0.444	0.131	0.16	0.58
		Bottom side	0.404	0.110				0.51	0.51
ALL Band LTE Ant 5	ALL Band FR1 Ant 0	Front	0.197	0.204	0.119	0.115	0.104	0.52	0.62
		Back	0.280	0.416	0.210	0.288	0.294	0.91	1.28
		Left side	0.362	0.323				0.69	0.69



		Right side			0.113	0.205	0.117	0.11	0.32
		Top side	0.071		0.160	0.444	0.131	0.23	0.65
		Bottom side		0.110				0.11	0.11
ALL Band LTE Ant 5	ALL Band FR1 Ant 1	Front	0.197	0.355	0.119	0.115	0.104	0.67	0.77
		Back	0.280	0.378	0.210	0.288	0.294	0.87	1.24
		Left side	0.362	0.752				1.11	1.11
		Right side			0.113	0.205	0.117	0.11	0.32
		Top side	0.071	0.487	0.160	0.444	0.131	0.72	1.13
		Bottom side						0.00	0.00

15.3 Body-Worn Accessory Exposure Conditions

Exposure Position	10	17	10+17
	WLAN5GHz Ant 10	Bluetooth Ant 10	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Front	0.056	0.063	0.12
Back	0.200	0.122	0.32

WWAN Band	Exposure Position	1	3	10	17	1+3	1+10+17
		WWAN	WLAN2.4GHz Ant 10	WLAN5GHz Ant 10	Bluetooth Ant 10	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Ant 0	Front	0.146	0.065	0.056	0.063	0.21	0.27
	Back	0.285	0.089	0.200	0.122	0.37	0.61
Ant 1	Front	0.202	0.065	0.056	0.063	0.27	0.32
	Back	0.262	0.089	0.200	0.122	0.35	0.58
Ant 4	Front	0.307	0.065	0.056	0.063	0.37	0.43
	Back	0.575	0.089	0.200	0.122	0.66	0.90
Ant 5	Front	0.162	0.065	0.056	0.063	0.23	0.28
	Back	0.233	0.089	0.200	0.122	0.32	0.56



For ENDC

WWAN Band	FR1 Band	Exposure Position	1	2	3	10	17	1+2+3	1+2+10+17
			WWAN	FR1	WLAN2.4GHz Ant 10	WLAN5GHz Ant 10	Bluetooth Ant 10	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
ALL Band LTE Ant 4	ALL Band FR1 Ant 1	Front	0.298	0.202	0.065	0.056	0.063	0.57	0.62
		Back	0.441	0.215	0.089	0.200	0.122	0.75	0.98
ALL Band LTE Ant 4	ALL Band FR1 Ant 5	Front	0.298	0.159	0.065	0.056	0.063	0.52	0.58
		Back	0.441	0.202	0.089	0.200	0.122	0.73	0.97
ALL Band LTE Ant 0	ALL Band FR1 Ant 1	Front	0.124	0.202	0.065	0.056	0.063	0.39	0.45
		Back	0.248	0.215	0.089	0.200	0.122	0.55	0.79
ALL Band LTE Ant 0	ALL Band FR1 Ant 4	Front	0.124	0.307	0.065	0.056	0.063	0.50	0.55
		Back	0.248	0.575	0.089	0.200	0.122	0.91	1.15
ALL Band LTE Ant 1	ALL Band FR1 Ant 4	Front	0.151	0.307	0.065	0.056	0.063	0.52	0.58
		Back	0.147	0.575	0.089	0.200	0.122	0.81	1.04
ALL Band LTE Ant 4	ALL Band FR1 Ant 0	Front	0.298	0.126	0.065	0.056	0.063	0.49	0.54
		Back	0.441	0.257	0.089	0.200	0.122	0.79	1.02
ALL Band LTE Ant 5	ALL Band FR1 Ant 0	Front	0.092	0.126	0.065	0.056	0.063	0.28	0.34
		Back	0.129	0.257	0.089	0.200	0.122	0.48	0.71
ALL Band LTE Ant 5	ALL Band FR1 Ant 1	Front	0.092	0.202	0.065	0.056	0.063	0.36	0.41
		Back	0.129	0.215	0.089	0.200	0.122	0.43	0.67

15.4 Product specific 10g SAR Exposure Conditions

Remark:

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

WWAN Band	Exposure Position	10	19	10+19
		WLAN5GHz Ant 10	NFC	Summed
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
Ant 0	Front	0.205		0.21
	Back	0.291	0.008	0.30
	Left side			0.00
	Right side	0.294		0.29
	Top side	0.793		0.79
	Bottom side			0.00
Ant 1	Front	0.205		0.21
	Back	0.291	0.008	0.30
	Left side			0.00
	Right side	0.294		0.29
	Top side	0.793		0.79
	Bottom side			0.00
Ant 4	Front	0.205		0.21
	Back	0.291	0.008	0.30
	Left side			0.00
	Right side	0.294		0.29
	Top side	0.793		0.79
	Bottom side			0.00
Ant 5	Front	0.205		0.21
	Back	0.291	0.008	0.30
	Left side			0.00
	Right side	0.294		0.29
	Top side	0.793		0.79
	Bottom side			0.00

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16. Uncertainty Assessment

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

17. References

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

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