

FCC SAR Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2241-2
FCC ID : IHDT56AF6
STANDARD : FCC 47 CFR Part 2 (2.1093)

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

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



Approved by: Si Zhang

Sporton International Inc. (Kunshan)

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People's Republic of China



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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA252601	Rev. 01	Initial issue of report.	Jul. 18, 2022



1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2241-2**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	1.24	1.28	1.28	1.59
		GSM1900	1.15	1.27	1.29	
	WCDMA	WCDMA II	1.24	1.24	1.25	
		WCDMA IV	1.25	1.26	1.26	
		WCDMA V	1.26	1.21	1.21	
	LTE	LTE Band 7	1.23	1.23	1.23	
		LTE Band 12/17	1.29	1.09	1.12	
		LTE Band 13	1.17	0.94	0.94	
		LTE Band 25/2	1.24	1.24	1.28	
		LTE Band 26/5	1.23	1.14	1.13	
		LTE Band 41/38	1.25	1.26	1.28	
		LTE Band 42	1.25	1.00	1.21	
		LTE Band 48/43/42	1.24	0.91	1.03	
	5G NR	LTE Band 66/4	1.26	1.24	1.25	
		FR1 n2	1.25	1.23	1.24	
		FR1 n5	1.26	0.94	0.94	
		FR1 n7	1.26	1.26	1.24	
		FR1 n66	1.25	1.23	1.24	
		FR1 n41	1.25	1.25	1.24	
		FR1 n77/n78	1.24	1.25	1.26	
DTS	WLAN	2.4GHz WLAN	1.37	0.35	1.22	1.59
NII		5GHz WLAN	1.18	0.39	1.18	1.59
DSS	Bluetooth	2.4GHz Bluetooth	0.18	0.20	0.16	1.59



Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	GSM	GSM850	1.63	3.56
		GSM1900	2.60	
	WCDMA	WCDMA II	2.75	
		WCDMA IV	2.74	
		WCDMA V	1.77	
	LTE	LTE Band 7	2.72	
		LTE Band 12/17	2.57	
		LTE Band 25/2	2.76	
		LTE Band 26/5	1.29	
		LTE Band 41/38	2.71	
		LTE Band 42	2.64	
		LTE Band 48/43/42	2.45	
	5G NR	LTE Band 66/4	2.73	
		FR1 n2	2.78	
		FR1 n7	2.72	
FR1 n66		2.76		
FR1 n41		2.76		
DTS	WLAN	FR1 n77/n78	2.75	
		2.4GHz WLAN	2.09	
NII	5GHz WLAN	2.94	3.56	
Date of Testing:			2022/6/1 ~ 2022/6/18	

Remark:

- This device supports LTE B2 / B4 / B5 / B17 / B38 and B25 / B66 / B26 / B12 / B41. Since the supported frequency span for LTE B2 / B4 / B5 / B17 / B38 falls completely within the supports frequency span for LTE B25 / B66 / B26 / B12 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B25 / B66 / B26 / B12 / B41.
- LTE B42(3550 MHz ~ 3600MHz) / B43 SAR test was covered by LTE B48, due to the output power level and have duplicate frequency range.
- This device supports 5GNR n78 and n77. Since the supported frequency span for 5GNR n78 falls completely within the supports frequency span for n77, both 5GNR bands have the same target power, and both 5GNR bands share the same transmission path; therefore, SAR was only assessed for n77.

Declaration of Conformity:

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

Comments and Explanations:

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

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



2. Administration Data

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

Testing Laboratory			
Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR02-KS	CN1257	314309

Applicant	
Company Name	Motorola Mobility LLC
Address	222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

Manufacturer	
Company Name	Motorola Mobility LLC
Address	222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

3. Guidance Applied

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01
- FCC KDB 447498 D04 Interim General RF Exposure Guidance v01



4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2241-2
FCC ID	IHDT56AF6
IMEI Code	Sample1: IMEI 1 : 355222700012611 IMEI 2 : 355222700012629 Sample3: IMEI 1 : 355222700019376 IMEI 2 : 355222700019384
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 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550MHz, 3550 MHz ~ 3600MHz LTE Band 43: 3600 MHz ~ 3700MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz WLAN 6E U-NII-5: 5925 MHz ~ 6425 MHz WLAN 6E U-NII-6: 6425 MHz ~ 6525 MHz WLAN 6E U-NII-7: 6525 MHz ~ 6875 MHz WLAN 6E U-NII-8: 6875 MHz ~ 7125 MHz Bluetooth: 2402 MHz ~ 2480 MHz WPT: 113 kHz ~ 148 kHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM, 256QAM



	5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ax HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac/ax VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 WLAN 6GHz 802.11a WLAN 6GHz 802.11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE WPT: ASK NFC: ASK
HW Version	DVT2
SW Version	SSQ32.54
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

- This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- 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). WIFI 6E has no hotspot function.
- This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
- 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.
- There are three samples, the different between them refer to the XT2241-2_Operational Description of Product Equality Declaration which is exhibit separately. According to the differences, we choose sample 1 to perform full SAR testing and sample 3 to verify the worst case of sample 1. For sample 2 differences do not affect the test, so sample 3 are not tested.
- The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
- The device has two headsets, only supplier is different, so we chose one headset to perform full SAR testing.
- For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head. For WLAN when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn and Handheld.
- For some WWAN bands, sensor on reduced power level is higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
- This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, these techniques are employed in the WCDMA, LTE and 5G NR modes. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner and supplemental data for additional information can be referred to section 18 and appendix F.
- This device supports HPUE for LTE Band 38/41 with class 2 level, HPUE power has been measured separately. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR.
- For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
- 5G NR n41/n77/n78 supports HPUE, HPUE power and SAR testing performed separately, n41/n77/n78 HPUE SAR can represent power class 3 level SAR.
- 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.
- 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.
- 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.
- 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.
19. This device supports 5G NR FR1 bands as following table, including NSA mode and SA mode. NSA and SA mode performed SAR separately.
 20. 5G NR n41 supports UL MIMO at Antenna 0 and Antenna 1.
 21. SAR Power density test report for WIFI 6E U-NII-5/6/7/8 will be separately submitted. About co-located SAR with WWAN/Bluetooth, always chose higher SAR of WLAN5G U-NII-1/2A/2C/3 and U-NII-5/6/7/8.
 22. RF exposure report for WPC (Wireless power charging) will be separately submitted.
 23. This device has NFC function and the NFC SAR report will be separately submitted.
 24. The device support DBS (Dual Band Simultaneous) function, when the device 2.4GHz and 5GHz or 6GHz transmit at the same time the module will limit different output power for simultaneous transmission compliance.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n2	FDD	15	5, 10, 15, 20
	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 40
	n66	FDD	15	5, 10, 15, 20, 30, 40
	n77	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100
	n78	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100
SA	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 40
	n66	FDD	15	5, 10, 15, 20, 30, 40
	n41	TDD	30	20, 30, 40, 50, 60, 70, 80, 90, 100
	n77	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100
	n78	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100



4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																															
FCC ID	IHDT56AF6																																																														
Equipment Name	Mobile Cellular Phone																																																														
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550MHz, 3550 MHz ~ 3600MHz LTE Band 43: 3600 MHz ~ 3700MHz LTE Band 48: 3550 MHz ~ 3700 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 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz 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 42: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 43: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz																																																														
uplink modulations used	QPSK / 16QAM / 64QAM / 256QAM																																																														
LTE Voice / Data requirements	Voice and Data																																																														
LTE Release Version	R16, Cat18																																																														
CA Support	Supported, Uplink and Downlink																																																														
LTE MPR permanently built-in by design	<p>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table>	Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
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256 QAM	≥ 1						≤ 5																																																								
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																														
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																														
Power reduction applied to satisfy SAR compliance	Yes, when operating in Proximity sensors/receiver/hotspot detect mechanism, head/body-worn /hotspot/extremity will trigger reduced power for some bands applied to satisfy SAR compliance, the detail please referred to section 14.																																																														
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 14.																																																														
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for intra-band with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 5 carriers in the downlink and 2 carriers in the uplink.																																																														



Transmission (H, M, L) channel numbers and frequencies in each LTE band													
LTE Band 2													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860	
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900	
LTE Band 4													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720	
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745	
LTE Band 5													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	20407	824.7	20415	825.5	20425	826.5	20450	829	20450	829	20450	829	
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	
H	20643	848.3	20635	847.5	20625	846.5	20600	844	20600	844	20600	844	
LTE Band 7													
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510	20850	2510	20850	2510	
M	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535	
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560	21350	2560	21350	2560	
LTE Band 12													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	23017	699.7	23025	700.5	23035	701.5	23060	704	23060	704	23060	704	
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	
H	23173	715.3	23165	714.5	23155	713.5	23130	711	23130	711	23130	711	
LTE Band 13													
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #
L	23205		779.5		23230		782		23230		782		23230
M	23230		782		23230		782		23230		782		23230
H	23255		784.5		23230		782		23230		782		23230
LTE Band 17													
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #
L	23755		706.5		23780		709		23780		709		23780
M	23790		710		23790		710		23790		710		23790
H	23825		713.5		23800		711		23800		711		23800
LTE Band 25													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860	
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905	
LTE Band 26													
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5	26790	824.5	
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5	26940	838.5	



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

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

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

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

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

LTE Band 43								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	43615	3602.5	43640	3605	43665	3607.5	43690	3610
M	44090	3650	44090	3650	44090	3650	44090	3650
H	44565	3697.5	44540	3695	44515	3692.5	44490	3690

LTE Band 48								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	55265	3552.5	55290	3555	55315	3557.5	55340	3560
LM	55810	3607	55815	3607.5	55820	3608	55830	3609
MH	56170	3643	56165	3642.5	56160	3642	56150	3641
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690

3450 MHz ~ 3550 MHz

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

<For LTE Overlap Bands Description>

1) LTE Bands BW

Band	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz
LTE Band 2	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 25	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 4	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 66	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 12	Yes	Yes	Yes	Yes		
LTE Band 17			Yes	Yes		
LTE Band 5	Yes	Yes	Yes	Yes		
LTE Band 26	Yes	Yes	Yes	Yes	Yes	
LTE Band 38			Yes	Yes	Yes	Yes
LTE Band 41			Yes	Yes	Yes	Yes
LTE Band 42			Yes	Yes	Yes	Yes
LTE Band 43			Yes	Yes	Yes	Yes
LTE Band 48			Yes	Yes	Yes	Yes

2) LTE Bands Tune up Limit

Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
LTE Band 12	Ant 0	24.00	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 17	Ant 0	24.00	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 25	Ant 0	24.00	24.00	21.20	19.50	22.80	24.00	24.00
LTE Band 2	Ant 0	24.00	24.00	21.20	19.50	22.80	24.00	24.00
LTE Band 5	Ant 0	24.00	24.00	23.50	23.50	24.00	24.00	24.00
LTE Band 26	Ant 0	24.00	24.00	23.50	23.50	24.00	24.00	24.00
LTE Band 4	Ant 0	24.00	24.00	20.00	17.30	22.30	24.00	24.00
LTE Band 66	Ant 0	24.00	24.00	20.00	17.30	22.30	24.00	24.00

Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
LTE Band 12	Ant 1	24.00	22.40	23.50	23.50	24.00	24.00	24.00
LTE Band 17	Ant 1	24.00	22.40	23.50	23.50	24.00	24.00	24.00
LTE Band 25	Ant 1	16.90	15.60	17.70	17.00	21.50	23.00	23.00
LTE Band 2	Ant 1	16.90	15.60	17.70	17.00	21.50	23.00	23.00
LTE Band 5	Ant 1	23.50	22.20	24.00	24.00	24.00	24.00	24.00
LTE Band 26	Ant 1	23.50	22.20	24.00	24.00	24.00	24.00	24.00
LTE Band 4	Ant 1	18.00	16.70	18.40	16.90	22.20	23.00	23.00
LTE Band 66	Ant 1	18.00	16.70	18.40	16.90	22.20	23.00	23.00

Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
LTE Band 38	Ant 0	24.00	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 38 HPUE	Ant 0	27.00	27.00	27.00	26.10	27.00	27.00	27.00
LTE Band 41	Ant 0	24.00	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band 41 HPUE	Ant 0	27.00	27.00	27.00	26.10	27.00	27.00	27.00



Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
LTE Band 38	Ant 1	19.60	18.30	22.20	21.00	23.00	23.00	23.00
LTE Band 38 HPUE	Ant 1	19.60	18.30	22.20	21.00	23.00	23.00	23.00
LTE Band 41	Ant 1	21.20	19.90	23.80	22.60	26.00	26.00	26.00
LTE Band 41 HPUE	Ant 1	21.20	19.90	23.80	22.60	26.00	26.00	26.00

Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
LTE Band 42	Ant 2	22.40	21.10	22.50	19.20	23.00	22.50	23.00
LTE Band 43	Ant 2	22.40	21.10	22.50	19.20	23.00	22.50	23.00
LTE Band 48	Ant 2	22.40	21.10	22.50	19.20	23.00	22.50	23.00



4.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz
Channel Bandwidth	The detail please refers to section 4.1 5GNR FR1 bands table.
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n2	LTE B7
LTE Anchor Bands for n5	LTE B7
LTE Anchor Bands for n7	LTE B2/4/5/66
LTE Anchor Bands for n66	LTE B2/5/7
LTE Anchor Bands for n77	LTE B41
LTE Anchor Bands for n78	LTE B2/4/5/7/38/41/66

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band																		
NR Band 2																		
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz											
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860										
M	376000	1880	376000	1880	376000	1880	376000	1880										
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900										
NR Band 5																		
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz											
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	165300	826.5	165800	829	166300	831.5	166800	834										
M	167300	836.5	167300	836.5	167300	836.5	167300	836.5										
H	169300	846.5	168800	844	168300	841.5	167800	839										
NR Band 7																		
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	504000	2520				
M	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535				
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560	511500	2557.5	511000	2555	510000	2550				
NR Band 66																		
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720	345000	1725	346000	1730						
M	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745						
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770	353000	1765	352000	1760						
NR Band 41																		
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	501204	2506.02	502200	2511	503202	2516.01	504204	2521.02	505200	2526	500202	2501.01	507204	2536.02	508200	2541	509202	2546.01
M	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99
H	535998	2679.99	534996	2674.98	534000	2670	532998	2664.99	531996	2659.98	537000	2685	529998	2649.99	528996	2644.98	528000	2640



NR Band 77																						
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz		
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	647000	3705	647168	3707.52	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664834	3972.51	664666	3970.02	664332	3965.01	664000	3960	663668	3955.02	663332	3950.01	663000	3945	662666	3940.02	662332	3935.01	662000	3930

NR Band 78																						
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz		
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	647000	3705	647168	3707.52	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	653000	3795	652834	3792.51	652666	3790.02	652334	3785.01	652000	3780	651668	3775.02	651334	3770.01	651000	3765	650668	3760.02	650334	3755.01		

For <3450 MHz ~ 3550 MHz >

NR Band 77																						
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz		
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	630334	3455.01	630500	3457.5	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H	636334	3545.01	636168	3542.52	636000	3540	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634334	3515.01	634000	3510	633668	3505.02		

NR Band 78																						
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz		
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	630334	3455.01	630500	3457.5	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H	636334	3545.01	636168	3542.52	636000	3540	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634334	3515.01	634000	3510	633668	3505.02		

<For NR Overlap Bands Description>

1) NR Bands BW

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

2) NR Bands Tune up Limit

Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
5G NR n2	Ant 0	24.00	24.00	21.10	20.30	23.40	24.00	24.00
5G NR n5	Ant 0	24.00	24.00	24.00	24.00	24.00	24.00	24.00



Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
5G NR n2	Ant 1	16.30	15.00	18.70	17.50	20.40	24.00	24.00
5G NR n5	Ant 1	24.00	22.30	24.00	24.00	24.00	24.00	24.00

Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
5G NR n77	Ant 2	21.40	20.10	22.40	20.50	24.00	24.00	24.00
5G NR n77 HPUE	Ant 2	21.40	20.10	22.40	20.50	27.00	24.00	27.00
5G NR n78	Ant 2	21.40	20.10	22.40	20.50	24.00	24.00	24.00
5G NR n78 HPUE	Ant 2	21.40	20.10	22.40	20.50	27.00	24.00	27.00

Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
5G NR n77	Ant 5	17.90	16.60	18.80	18.10	21.30	24.00	24.00
5G NR n77 HPUE	Ant 5	17.90	16.60	18.80	18.10	21.30	27.00	27.00
5G NR n78	Ant 5	17.90	16.60	18.80	18.10	21.30	24.00	24.00
5G NR n78 HPUE	Ant 5	17.90	16.60	18.80	18.10	21.30	27.00	27.00

Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
5G NR n77	Ant 3	24.00	24.00	24.00	24.00	24.00	24.00	24.00
5G NR n77 HPUE	Ant 3	27.00	27.00	25.90	25.40	27.00	24.00	27.00
5G NR n78	Ant 3	24.00	24.00	24.00	24.00	24.00	24.00	24.00
5G NR n78 HPUE	Ant 3	27.00	27.00	25.90	25.40	27.00	24.00	27.00

Band	Antenna	Head DSI 2 Standalone Tune-up Limit	Head DSI 2 Simultaneous Tune-up Limit	Body Worn DSI 3 Standalone Tune-up Limit	Body Worn & Hotspot DSI 3 Simultaneous Tune-up Limit	Extremely DSI 6 Standalone Tune-up Limit	Sensor Off DSI 4 Tune-up Limit	Default Tune-up Limit
5G NR n77	Ant 7	24.00	24.00	15.70	14.50	20.70	24.00	24.00
5G NR n77 HPUE	Ant 7	27.00	27.00	15.70	14.50	20.70	27.00	27.00
5G NR n78	Ant 7	24.00	24.00	15.70	14.50	20.70	24.00	24.00
5G NR n78 HPUE	Ant 7	26.50	26.50	15.70	14.50	20.70	26.50	26.50

5. Smart Transmit feature for RF Exposure compliance

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

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

<Terminologies in this report>

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

<SAR Characterization>

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

<SAR design target and uncertainty>

	Uncertainty dB (k=2)
Total uncertainty	1.5

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

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



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

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

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

Band	Antenna	Head DSI 2 Standalone	Head DSI 2 Simultaneous	Body Worn DSI 3 Standalone	Body Worn & Hotspot DSI 3 Simultaneous	Extremely DSI6 Standalone	Sensor Off DSI4	Pmax*
GSM850	Ant 0	33.1	33.1	24.0	24.0	26.2	24.0	24.0
GSM850	Ant 1	23.5	22.2	24.7	24.1	24.0	24.0	24.0
GSM1900	Ant 0	36.3	36.3	20.0	18.7	20.5	20.5	20.5
GSM1900	Ant 1	16.9	15.6	18.4	15.3	21.5	20.5	20.5
WCDMA II	Ant 0	35.4	35.4	19.7	17.1	21.9	23.0	23.0
WCDMA II	Ant 1	17.8	16.5	17.0	15.7	20.2	22.0	22.0
WCDMA IV	Ant 0	31.2	31.2	18.5	16.8	21.7	23.0	23.0
WCDMA IV	Ant 1	16.8	15.5	17.7	15.9	20.1	22.0	22.0
WCDMA V	Ant 0	30.3	30.3	23.1	23.1	24.9	23.0	23.0
WCDMA V	Ant 1	22.2	20.9	23.0	22.3	27.0	23.0	23.0
LTE Band 2	Ant 0	33.8	33.8	20.2	18.5	21.8	23.0	23.0
LTE Band 2	Ant 1	15.9	14.6	16.7	16.0	20.5	22.0	22.0
LTE Band 4	Ant 0	32.3	32.3	19.0	16.3	21.3	23.0	23.0
LTE Band 4	Ant 1	17.0	15.7	17.4	15.9	21.2	22.0	22.0
LTE Band 5	Ant 0	32.5	31.5	22.5	22.5	26.2	23.0	23.0
LTE Band 5	Ant 1	22.5	21.2	24.1	23.1	23.0	23.0	23.0
LTE Band 7	Ant 0	32.7	32.7	22.5	20.7	23.2	23.0	23.0
LTE Band 7	Ant 1	15.7	14.4	18.6	16.6	20.7	22.0	22.0
LTE Band 12	Ant 0	29.6	29.6	23.6	23.6	23.0	23.0	23.0
LTE Band 12	Ant 1	23.5	21.4	22.5	22.5	23.3	23.0	23.0
LTE Band 13	Ant 0	33.8	33.8	25.1	25.1	23.0	23.0	23.0
LTE Band 13	Ant 1	22.0	21.0	23.7	22.7	22.5	22.5	22.5
LTE Band 17	Ant 0	29.6	29.6	23.6	23.6	23.0	23.0	23.0
LTE Band 17	Ant 1	23.5	21.4	22.5	22.5	23.3	23.0	23.0
LTE Band 25	Ant 0	33.8	33.8	20.2	18.5	21.8	23.0	23.0
LTE Band 25	Ant 1	15.9	14.6	16.7	16.0	20.5	22.0	22.0
LTE Band 26	Ant 0	32.5	31.5	22.5	22.5	26.2	23.0	23.0
LTE Band 26	Ant 1	22.5	21.2	24.1	23.1	23.0	23.0	23.0
LTE Band 66	Ant 0	32.3	31.3	19.0	16.3	21.3	23.0	23.0
LTE Band 66	Ant 1	17.0	15.7	17.4	15.9	21.2	22.0	22.0
LTE Band 38	Ant 0	30.5	30.5	23.3	21.5	23.4	22.4	21.0
LTE Band 38	Ant 1	16.6	15.3	19.2	18.0	21.5	21.4	20.0
LTE Band 41	Ant 0	30.5	30.5	23.3	21.5	23.4	22.4	21.0
LTE Band 41	Ant 1	16.6	15.3	19.2	18.0	21.5	21.4	20.0
LTE Band 38 HPUE	Ant 0	30.5	30.5	23.3	21.5	23.4	22.4	22.4
LTE Band 38 HPUE	Ant 1	16.6	15.3	19.2	18.0	21.5	21.4	21.4
LTE Band 41 HPUE	Ant 0	30.5	30.5	23.3	21.5	23.4	22.4	22.4
LTE Band 41 HPUE	Ant 1	16.6	15.3	19.2	18.0	21.5	21.4	21.4
LTE Band 42	Ant 2	19.4	18.1	19.5	16.2	19.5	19.5	20.0
LTE Band 43	Ant 2	19.4	18.1	19.5	16.2	19.5	19.5	20.0
LTE Band 48	Ant 2	19.4	18.1	19.5	16.2	19.5	19.5	20.0
5G NR n2	Ant 0	35.5	35.5	20.1	19.3	22.4	23.0	23.0
5G NR n2	Ant 1	15.3	14.0	17.7	16.5	19.4	23.0	23.0
5G NR n5	Ant 0	32.3	32.3	24.2	24.2	23.0	23.0	23.0
5G NR n5	Ant 1	23.0	21.3	24.5	23.5	23.0	23.0	23.0
5G NR n7	Ant 0	36.5	36.5	22.5	21.1	24.1	23.0	23.0



5G NR n7	Ant 1	16.5	15.2	17.9	16.4	19.6	23.0	23.0
5G NR n66	Ant 0	32.4	32.4	19.7	17.8	22.4	23.0	23.0
5G NR n66	Ant 1	17.9	16.6	17.7	15.8	19.6	23.0	23.0
5G NR n41	Ant 0	35.4	35.4	22.1	21.2	23.7	26.0	23.0
5G NR n41	Ant 1	16.2	14.9	18.0	16.7	20.3	26.0	23.0
5G NR n41	Ant 3	30.1	30.1	19.8	19.8	19.8	19.8	22.0
5G NR n41	Ant 4	16.4	15.1	17.8	16.1	19.2	25.0	22.0
5G NR n41 HPUE	Ant 0	35.4	35.4	22.1	21.2	23.7	26.0	26.0
5G NR n41 HPUE	Ant 1	16.2	14.9	18.0	16.7	20.3	26.0	26.0
5G NR n41 HPUE	Ant 3	30.1	30.1	19.8	19.8	19.8	19.8	25.0
5G NR n41 HPUE	Ant 4	16.4	15.1	17.8	16.1	19.2	25.0	25.0
5G NR n77	Ant 2	20.4	19.1	21.4	19.5	23.0	23.0	23.0
5G NR n77	Ant 5	16.9	15.6	17.8	17.1	20.3	26.0	23.0
5G NR n77	Ant 3	34.5	34.5	23.0	23.0	23.0	23.0	23.0
5G NR n77	Ant 7	37.5	37.5	14.7	13.5	19.7	26.0	23.0
5G NR n77 HPUE	Ant 2	20.4	19.1	21.4	19.5	23.0	23.0	26.0
5G NR n77 HPUE	Ant 5	16.9	15.6	17.8	17.1	20.3	26.0	26.0
5G NR n77 HPUE	Ant 3	34.5	34.5	23.0	23.0	23.0	23.0	26.0
5G NR n77 HPUE	Ant 7	37.5	37.5	14.7	13.5	19.7	26.0	26.0
5G NR n78	Ant 2	20.4	19.1	21.4	19.5	23.0	23.0	23.0
5G NR n78	Ant 5	16.9	15.6	17.8	17.1	20.3	26.0	23.0
5G NR n78	Ant 3	34.5	34.5	23.0	23.0	23.0	23.0	23.0
5G NR n78	Ant 7	37.5	37.5	14.7	13.5	19.7	25.5	23.0
5G NR n78 HPUE	Ant 2	20.4	19.1	21.4	19.5	23.0	23.0	26.0
5G NR n78 HPUE	Ant 5	16.9	15.6	17.8	17.1	20.3	26.0	26.0
5G NR n78 HPUE	Ant 3	34.5	34.5	23.0	23.0	23.0	23.0	26.0
5G NR n78 HPUE	Ant 7	37.5	37.5	14.7	13.5	19.7	25.5	25.5

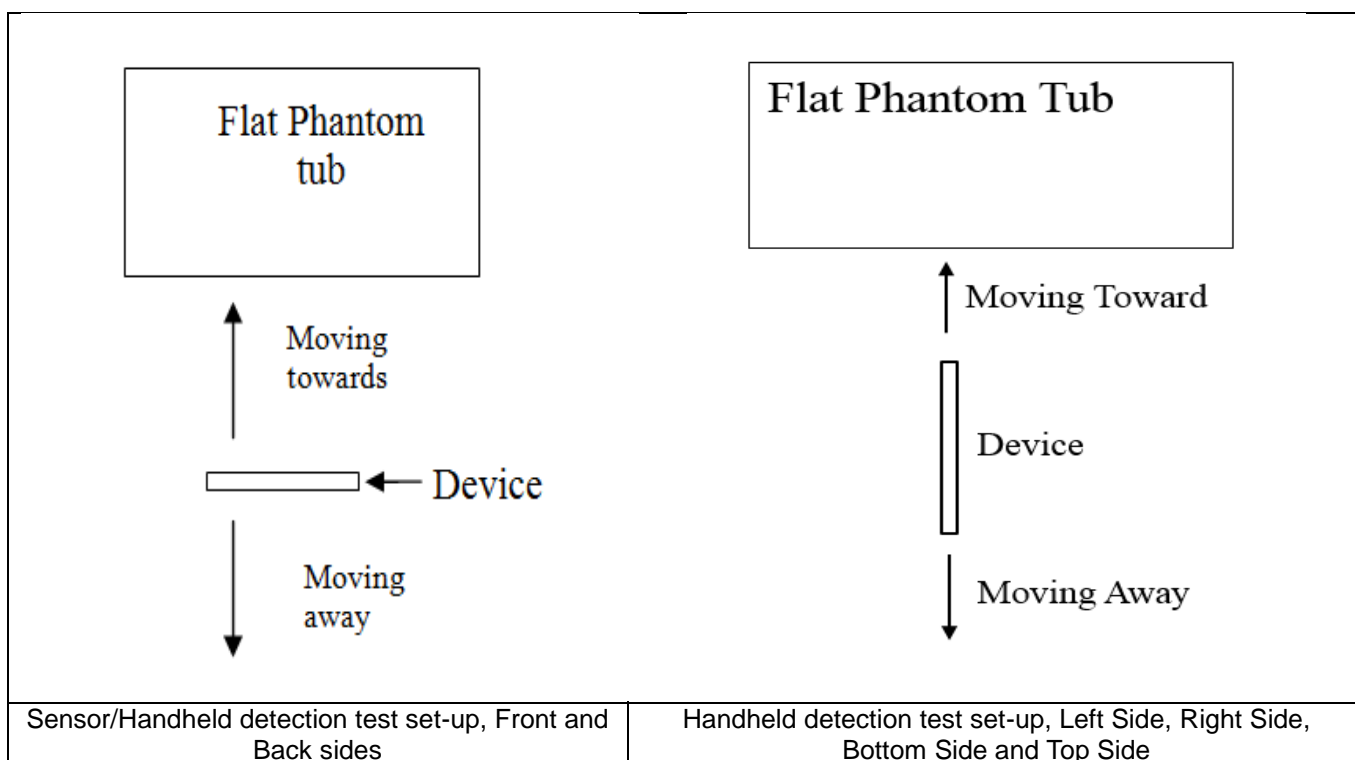
Note:

- 1) *P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to P_{max} + 1.0 dB device uncertainty.
- 2) All P_{limit} power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD).
- 3) The max allowed output power is the P_{limit} + 1.0 dB device uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.

6. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5825MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s). When front or back body worn condition is detected reduced power will be active.
5. The device employs proximity sensors also can detect the presence of the user's a finger or hand when handheld state at the front/back/top/bottom/left/right sides of the device. When front/back/top/bottom/left/right sides of handheld condition is detected reduced power will be active.
6. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed:



<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	17	16	24	20

<Handheld for ANT0>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	13	11	18	17	14	14

<Handheld for ANT 1>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	13	12	20	17	13	13	17	16

<Handheld for ANT 2>

Proximity Sensor Triggering Distance (mm)		
Position	Back	
	Moving towards	Moving away
Minimum	8	6

<Handheld for ANT 7>

Proximity Sensor Triggering Distance (mm)		
Position	Back	
	Moving towards	Moving away
Minimum	7	6

<Handheld for ANT 4/5>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Right Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	12	19	17	22	11	8	16	28



7. RF Exposure Limits

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

8. Specific Absorption Rate (SAR)

8.1 Introduction

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

8.2 SAR Definition

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

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

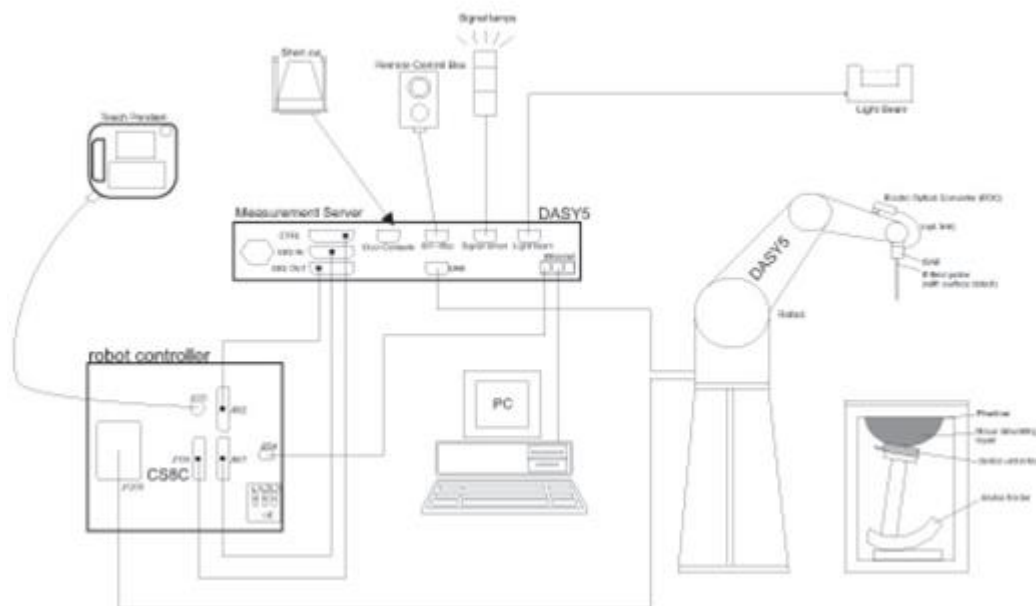
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

9. System Description and Setup

The DASY5 system used for performing compliance tests consists of the following items:




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


9.1 E-Field Probe

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

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ±0.2 dB (30 MHz – 4 GHz)	
Directivity	±0.2 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 µW/g – >100 mW/g; Linearity: ±0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

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

9.2 Data Acquisition Electronics (DAE)

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


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



Photo of DAE

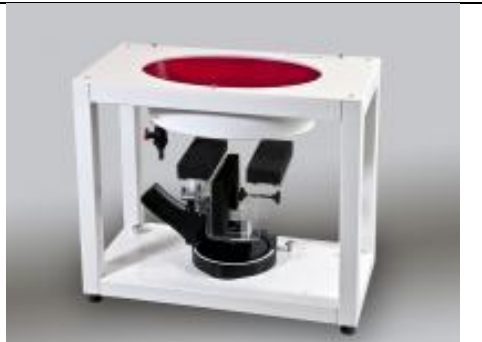
9.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

9.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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



Mounting Device for Laptops

10. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

10.1 Spatial Peak SAR Evaluation

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

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

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

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

10.2 Power Reference Measurement

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

10.3 Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$	≤ 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.	

10.4 Zoom Scan

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

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

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

10.5 Volume Scan Procedures

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

10.6 Power Drift Monitoring

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

11. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1087	2022/2/24	2023/2/23
SPEAG	835MHz System Validation Kit	D835V2	4d162	2021/12/17	2022/12/16
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2022/2/24	2023/2/23
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	2021/12/20	2022/12/19
SPEAG	2450MHz System Validation Kit	D2450V2	924	2020/9/2	2023/9/1
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2020/11/26	2023/11/25
SPEAG	3500MHz System Validation Kit	D3500V2	1037	2020/11/25	2023/11/24
SPEAG	3700MHz System Validation Kit	D3700V2	1008	2020/11/25	2023/11/24
SPEAG	3900MHz System Validation Kit	D3900V2	1048	2020/5/14	2023/5/12
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2022/9/22
SPEAG	Data Acquisition Electronics	DAE4	1338	2021/12/1	2022/11/30
SPEAG	Dosimetric E-Field Probe	ES3DV3	3279	2021/8/24	2022/8/23
SPEAG	Dosimetric E-Field Probe	EX3DV4	3887	2021/10/22	2022/10/21
SPEAG	SAM Twin Phantom	SAM Twin	TP-1842	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6262306173	2021/7/15	2022/7/14
Agilent	ENA Series Network Analyzer	E5071C	MY46106933	2021/7/31	2022/7/30
SPEAG	Dielectric Probe Kit	DAK-3.5	1071	2022/1/24	2023/1/23
Anritsu	Vector Signal Generator	MG3710A	6201682672	2022/1/6	2023/1/5
Rohde & Schwarz	Power Meter	NRVD	102081	2021/8/12	2022/8/11
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2021/8/12	2022/8/11
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2021/8/12	2022/8/11
R&S	CBT BLUETOOTH TESTER	CBT	100641	2022/1/5	2023/1/4
EXA	Spectrum Analyzer	FSV7	101631	2021/10/14	2022/10/13
FLUKE	DIGITAC THERMOMETER	51II	97240029	2021/10/23	2022/10/22
Testo	Thermo-Hygrometer	608-H1	1241332088	2022/1/6	2023/1/5
ARRA	Power Divider	A3200-2	N/A	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	

Note:

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

12. System Verification

12.1 Tissue Simulating Liquids

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

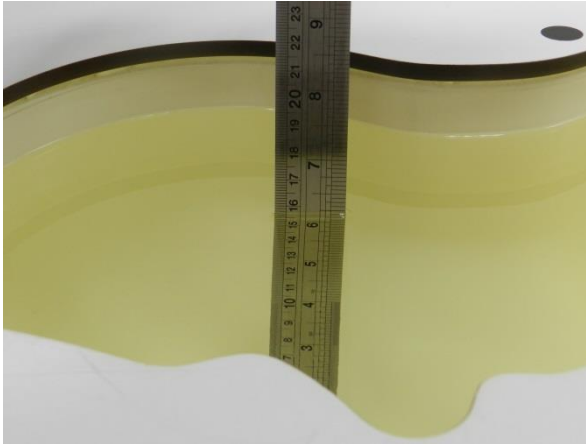


Fig 11.1 Photo of Liquid Height for Head SAR

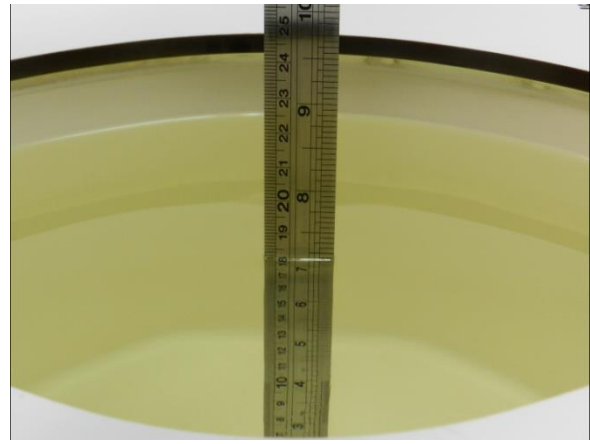


Fig 11.2 Photo of Liquid Height for Body SAR



12.2 Tissue Verification

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

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

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ε _r)	Conductivity Target (σ)	Permittivity Target (ε _r)	Delta (σ) (%)	Delta (ε _r) (%)	Limit (%)	Date
750	Head	22.7	0.900	41.184	0.89	41.90	1.12	-1.71	±5	2022/6/1
835	Head	22.8	0.930	40.910	0.90	41.50	3.33	-1.42	±5	2022/6/3
1750	Head	22.6	1.410	40.671	1.37	40.10	2.92	1.42	±5	2022/6/5
1900	Head	22.7	1.398	41.444	1.40	40.00	-0.14	3.61	±5	2022/6/7
2450	Head	22.6	1.824	39.239	1.80	39.20	1.33	0.10	±5	2022/6/9
2600	Head	22.8	1.935	37.335	1.96	39.00	-1.28	-4.27	±5	2022/6/11
3500	Head	22.6	2.879	38.500	2.91	37.90	-1.07	1.58	±5	2022/6/13
3700	Head	22.6	3.078	38.038	3.12	37.70	-1.35	0.90	±5	2022/6/14
3900	Head	22.7	3.282	37.613	3.32	37.50	-1.14	0.30	±5	2022/6/15
5250	Head	22.9	4.566	35.456	4.71	35.90	-3.06	-1.24	±5	2022/6/16
5600	Head	22.9	4.950	34.842	5.07	35.50	-2.37	-1.85	±5	2022/6/17
5750	Head	22.6	5.131	34.570	5.22	35.40	-1.70	-2.34	±5	2022/6/18
750	Head	22.8	0.916	43.396	0.89	41.90	2.92	3.57	±5	2022/6/2
835	Head	22.5	0.902	41.239	0.90	41.50	0.22	-0.63	±5	2022/6/4
1750	Head	22.6	1.394	40.500	1.37	40.10	1.75	1.00	±5	2022/6/6
1900	Head	22.5	1.451	39.635	1.40	40.00	3.64	-0.91	±5	2022/6/8
2450	Head	22.7	1.768	39.330	1.80	39.20	-1.78	0.33	±5	2022/6/10
2600	Head	22.7	2.010	40.589	1.96	39.00	2.55	4.07	±5	2022/6/12

12.3 System Performance Check Results

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

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2022/6/1	750	Head	50	1087	3279	1338	0.413	8.58	8.26	-3.73
2022/6/3	835	Head	50	4d162	3279	1338	0.505	9.64	10.1	4.77
2022/6/5	1750	Head	50	1090	3279	1338	1.820	37.00	36.4	-1.62
2022/6/7	1900	Head	50	5d182	3279	1338	1.930	39.60	38.6	-2.53
2022/6/9	2450	Head	50	924	3279	1338	2.580	51.40	51.6	0.39
2022/6/11	2600	Head	50	1061	3279	1338	2.670	56.60	53.4	-5.65
2022/6/13	3500	Head	50	1037	3887	1338	3.130	68.00	62.6	-7.94
2022/6/14	3700	Head	50	1008	3887	1338	3.130	67.60	62.6	-7.40
2022/6/15	3900	Head	50	1048	3887	1338	3.420	70.20	68.4	-2.56
2022/6/16	5250	Head	50	1113	3887	1338	3.760	80.50	75.2	-6.58
2022/6/17	5600	Head	50	1113	3887	1338	3.920	83.40	78.4	-6.00
2022/6/18	5750	Head	50	1113	3887	1338	3.820	80.00	76.4	-4.50
2022/6/2	750	Head	50	1087	3279	1338	0.417	8.58	8.34	-2.80
2022/6/4	835	Head	50	4d162	3279	1338	0.490	9.64	9.8	1.66
2022/6/6	1750	Head	50	1090	3279	1338	1.820	37.00	36.4	-1.62
2022/6/8	1900	Head	50	5d182	3279	1338	2.030	39.60	40.6	2.53
2022/6/10	2450	Head	50	924	3279	1338	2.510	51.40	50.2	-2.33
2022/6/12	2600	Head	50	1061	3279	1338	2.790	56.60	55.8	-1.41

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2022/6/1	750	Head	50	1087	3279	1338	0.278	5.65	5.56	-1.59
2022/6/3	835	Head	50	4d162	3279	1338	0.318	6.26	6.36	1.60
2022/6/5	1750	Head	50	1090	3279	1338	0.988	19.50	19.76	1.33
2022/6/7	1900	Head	50	5d182	3279	1338	1.020	20.20	20.4	0.99
2022/6/9	2450	Head	50	924	3279	1338	1.240	24.00	24.8	3.33
2022/6/11	2600	Head	50	1061	3279	1338	1.230	25.10	24.6	-1.99
2022/6/13	3500	Head	50	1037	3887	1338	1.220	25.40	24.4	-3.94
2022/6/14	3700	Head	50	1008	3887	1338	1.170	24.40	23.4	-4.10
2022/6/15	3900	Head	50	1048	3887	1338	1.290	24.40	25.8	5.74
2022/6/16	5250	Head	50	1113	3887	1338	1.150	23.10	23	-0.43
2022/6/17	5600	Head	50	1113	3887	1338	1.250	23.80	25	5.04
2022/6/18	5750	Head	50	1113	3887	1338	1.130	22.80	22.6	-0.88
2022/6/2	750	Head	50	1087	3279	1338	0.281	5.65	5.62	-0.53
2022/6/4	835	Head	50	4d162	3279	1338	0.327	6.26	6.54	4.47
2022/6/6	1750	Head	50	1090	3279	1338	0.992	19.50	19.84	1.74
2022/6/8	1900	Head	50	5d182	3279	1338	1.080	20.20	21.6	6.93
2022/6/10	2450	Head	50	924	3279	1338	1.210	24.00	24.2	0.83
2022/6/12	2600	Head	50	1061	3279	1338	1.300	25.10	26	3.59

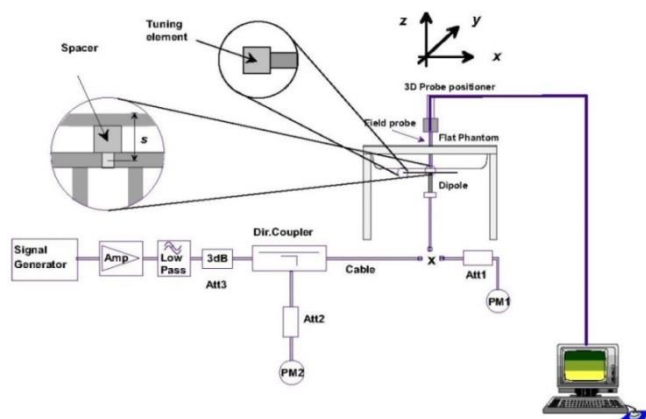


Fig 11.3.1 System Performance Check Setup



Fig 11.3.2 Setup Photo

13. RF Exposure Positions

13.1 Ear and handset reference point

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

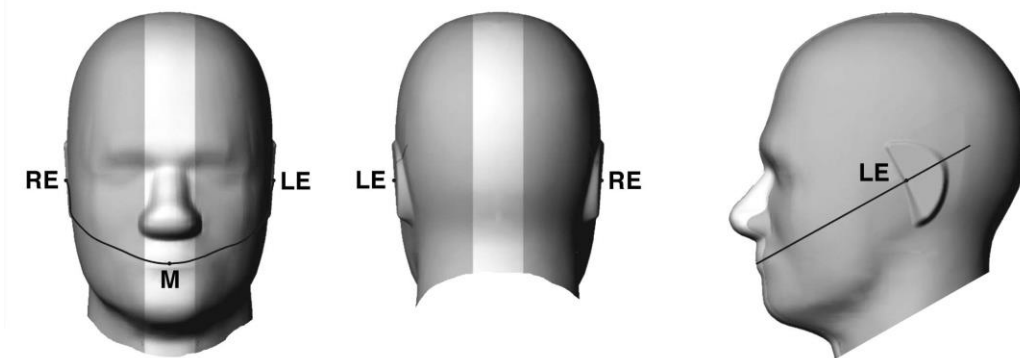


Fig 12.1.1 Front, back, and side views of SAM twin phantom

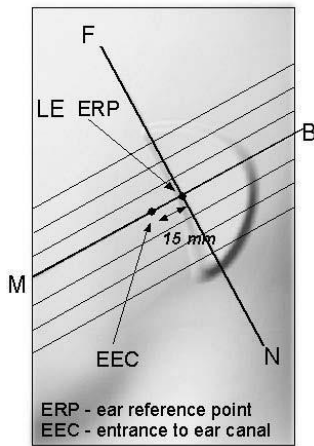


Fig 12.1.2 Close-up side view of phantom showing the ear region.

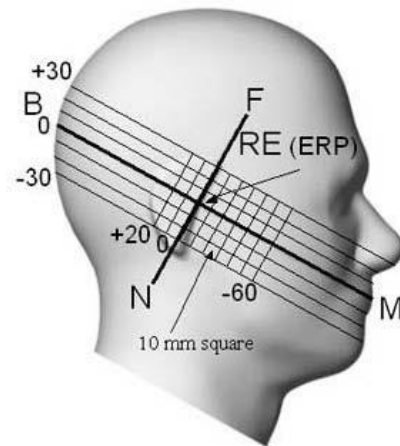


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

13.2 Definition of the cheek position

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

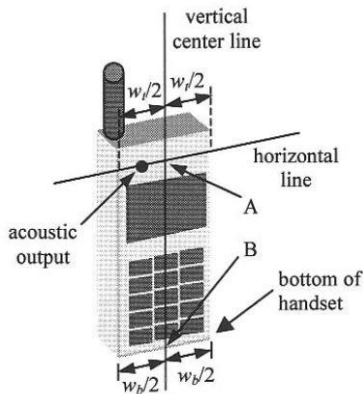


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

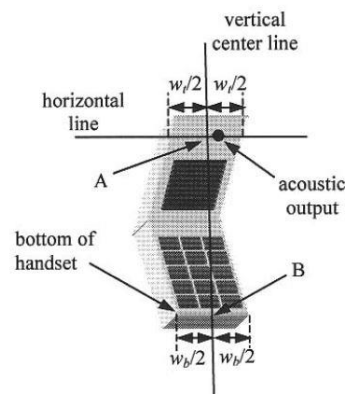


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

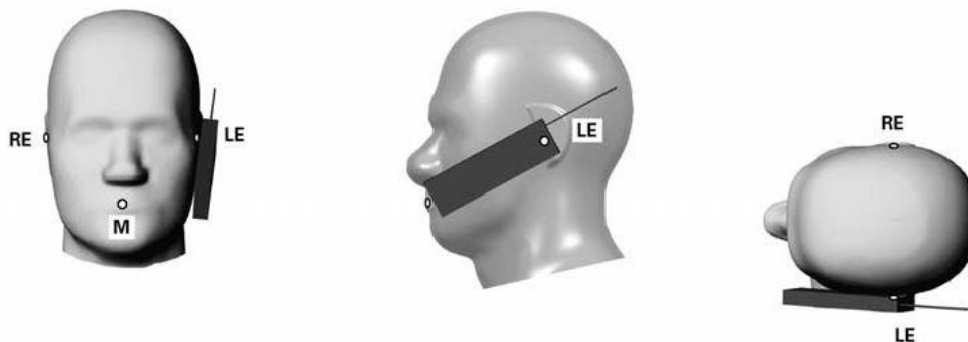


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

13.3 Definition of the tilt position

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

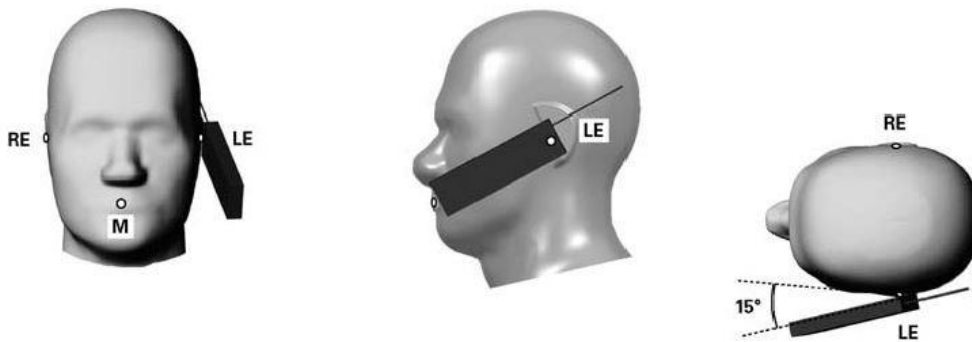


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

13.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 12.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D04 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 tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

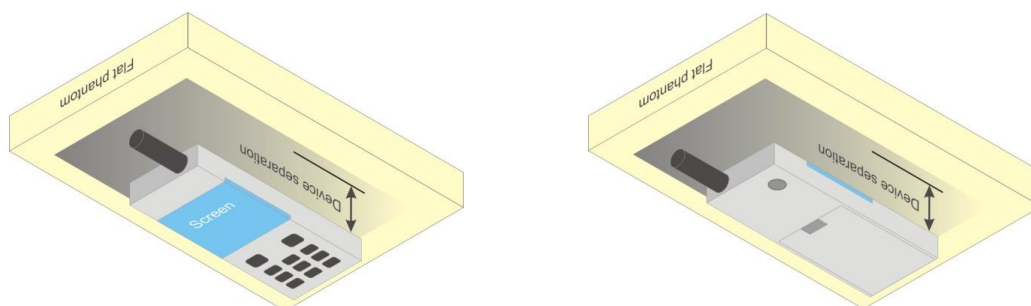


Fig 12.4 Body Worn Position



13.5 Product Specific 10g SAR Exposure

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

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

13.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined 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 D04 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

14. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

1. Per KDB 447498 D04, 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 $\leq 1/4$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_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.		

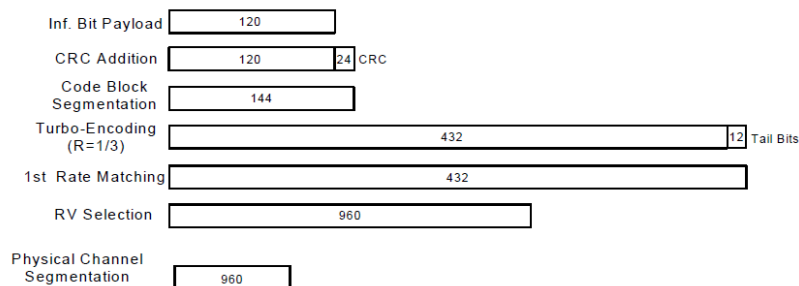


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK) Setup Configuration



<WCDMA Conducted Power>

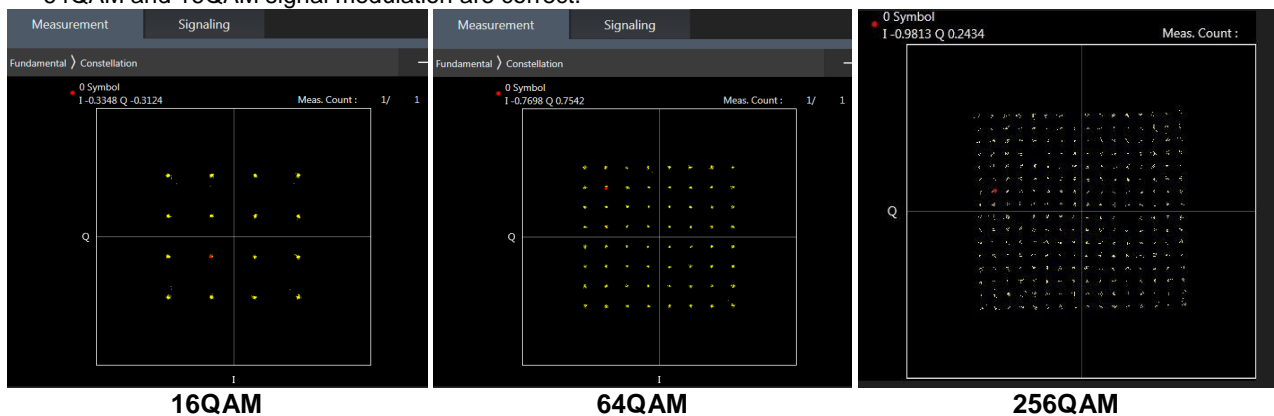
General Note:

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

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B2 / B4 /B5 / B17 / B38 SAR test was covered by B25 / B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is \leq the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 16QAM and 64QAM, 256QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 256QAM, 64QAM and 16QAM signal modulation are correct.



<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

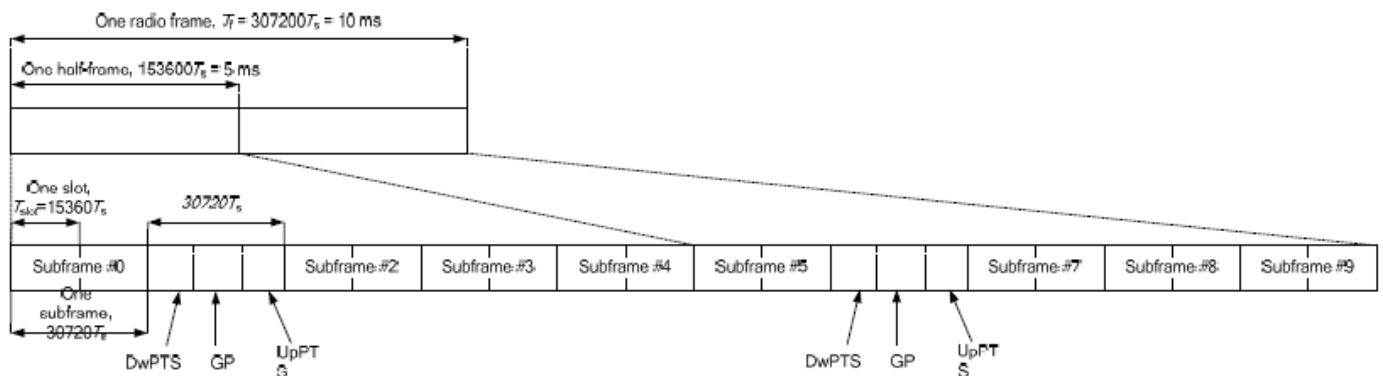


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

For Power class 2

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

For Power class 3

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

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

LTE TDD Band	Power Class level	support uplink/downlink configuration
LTE Band 38/41	> 23	1,2,3,4,5
	=23	0,1,2,3,4,5,6
	< 23	0,1,2,3,4,5,6



<LTE Carrier Aggregation>

General Note:

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

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation			4CC Downlink Carrier Aggregation			5CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
1	CA_2C		1	CA_2A-4A-5A		1	CA_5A-7C-66A		1	CA_5A-7C-66A-66A	
2	CA_2A-4A		2	CA_2A-4A-7A		2	CA_5A-7A-66A-66A				
3	CA_2A-5A		3	CA_2A-5A-7A		3	CA_7C-66A-66A				
4	CA_2A-7A		4	CA_2A-5A-66A							
5	CA_2A-66A		5	CA_2A-7C							
6	CA_4A-5A		6	CA_2A-7A-7A							
7	CA_4A-7A		7	CA_2A-7A-66A							
8	CA_5A-7A	3CC#10	8	CA_4A-7C							
9	CA_5A-41A		9	CA_5A-7C							
10	CA_5A-66A		10	CA_5A-7A-66A							
11	CA_7B		11	CA_5A-66A-66A							
12	CA_7C		12	CA_7C-66A	4CC#3						
13	CA_7A-7A		13	CA_7A-66A-66A							
14	CA_7A-26A		14	CA_26A-41C							
15	CA_7A-32A		15	CA_41D							
16	CA_7A-42A										
17	CA_7A-66A										
18	CA_26A-41A										
19	CA_38C										
20	CA_41C										
21	CA_41A-41A										
22	CA_41A-42A										
23	CA_42C										
24	CA_66B										
25	CA_66C										
26	CA_66A-66A										

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 five 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 4/7/38/41/42/43/48/66 only. Uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

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

4X4 MIMO	Band
	LTE Band 4/7/38/41/42/43/48/66

LTE Carrier Aggregation Conducted Power (Uplink)

2CC Uplink Carrier Aggregation		
Number	Combination	Ant No.
1	CA_7C	ANT0/1
2	CA_38C	ANT0/1
3	CA_41C	ANT0/1

<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 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.

<Inter-band uplink carrier aggregation consideration>

LTE Uplink CA	Main Antenna Tx	ASDiv Antenna Tx
CA_4A-5A	Ant 1/0	Ant 0/1
CA_4A-7A	Ant 0/1	Ant 1/0
CA_5A-7A	Ant 0/1	Ant 1/0
CA_2A-66A	Ant 0/1	Ant 1/0
CA_2A-4A	Ant 0/1	Ant 1/0
CA_2A-7A	Ant 0/1	Ant 1/0

General Note:

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

5G NR Output Power (Unit: dBm)

General Note:

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

<3GPP 38.101 MPR for EN-DC>

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

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0 ²
	QPSK		≤ 1	0
	16 QAM		≤ 2	≤ 1
	64 QAM			
CP-OFDM	256 QAM		≤ 2.5	
	QPSK		≤ 4.5	
	16 QAM	≤ 3		≤ 1.5
	64 QAM	≤ 3		≤ 2
	256 QAM		≤ 3.5	
NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability <i>powerBoosting-pi2BPSK</i> and if the IE <i>powerBoostPi2BPSK</i> 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 <i>powerBoostPi2BPSK</i> is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.				

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

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

ENDC	Main Antenna Tx		ASDiv Tx	
	LTE TX	NR TX	LTE TX	NR TX
DC_7A_n2A	Ant 0	Ant 1	Ant 1	Ant 0
DC_7A_n5A	Ant 1	Ant 0	Ant 0	Ant 1
DC_2A_n7A	Ant 0	Ant 1	Ant 1	Ant 0
DC_4A_n7A	Ant 0	Ant 1	Ant 1	Ant 0
DC_5A_n7A	Ant 0	Ant 1	Ant 1	Ant 0
DC_66A_n7A	Ant 0	Ant 1	Ant 1	Ant 0
DC_2A_n66A	Ant 0	Ant 1	Ant 1	Ant 0
DC_5A_n66A	Ant 0	Ant 1	Ant 1	Ant 0
DC_7A_n66A	Ant 0	Ant 1	Ant 1	Ant 0
DC_41A_n77A	Ant 0	Ant 2/Ant 3/Ant 7	Ant 1	Ant 5/Ant 3/Ant 7
DC_2A_n78A	Ant 0	Ant 2/Ant 3/Ant 7	Ant 1	Ant 5/Ant 3/Ant 7
DC_4A_n78A	Ant 0	Ant 2/Ant 3/Ant 7	Ant 1	Ant 5/Ant 3/Ant 7
DC_5A_n78A	Ant 0	Ant 2/Ant 3/Ant 7	Ant 1	Ant 5/Ant 3/Ant 7
DC_7A_n78A	Ant 0	Ant 2/Ant 3/Ant 7	Ant 1	Ant 5/Ant 3/Ant 7
DC_38A_n78A	Ant 0	Ant 2/Ant 3/Ant 7	Ant 1	Ant 5/Ant 3/Ant 7
DC_41A_n78A	Ant 0	Ant 2/Ant 3/Ant 7	Ant 1	Ant 5/Ant 3/Ant 7
DC_66A_n78A	Ant 0	Ant 2/Ant 3/Ant 7	Ant 1	Ant 5/Ant 3/Ant 7

<WLAN Conducted Power>

General Note:

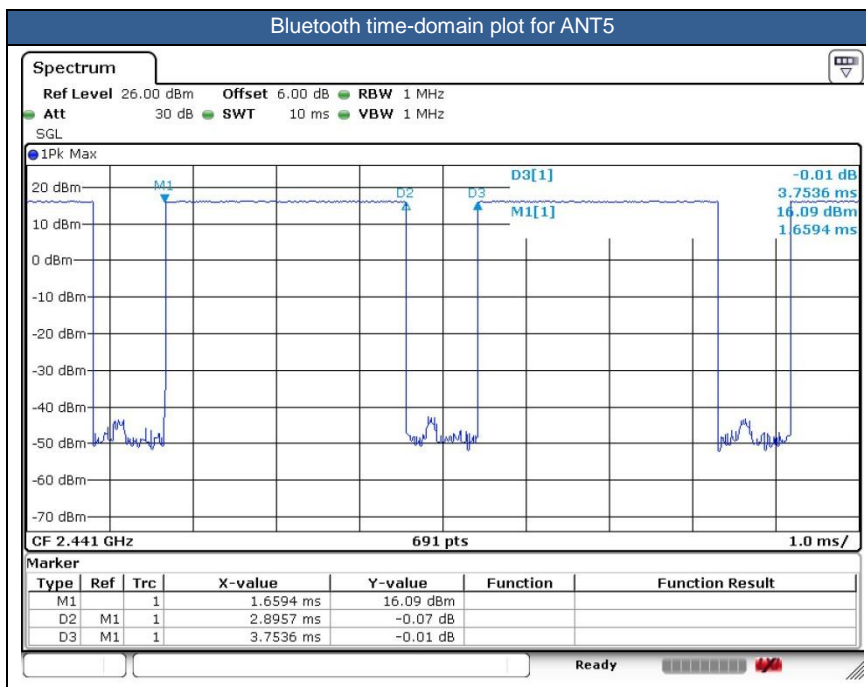
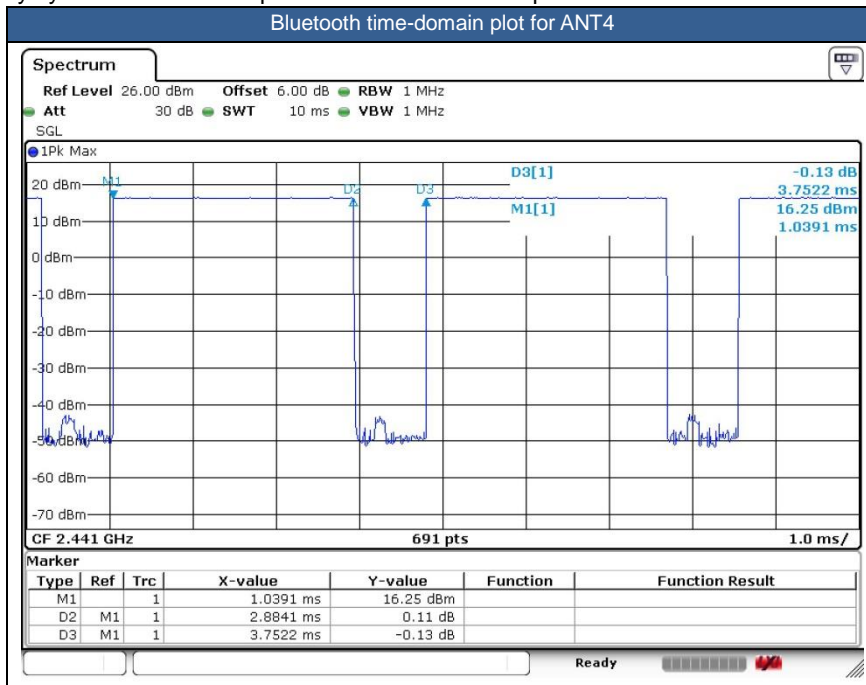
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
 - a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
 - b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
 - c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. 802.11ax full tone and partial tone supported for WLAN2.4GHz/WLAN5GHz, after verification for the partial tone power level is far less than full tone power level, so we chose full tone power to be measured in this report.
6. The 2.4GHz/5GHz/6GHz WLAN can transmit in MIMO antenna mode only and it has no SISO antenna mode.



<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle are 76.86% for ANT4, 77.14% for ANT6 as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation





15. Antenna Location

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

16. SAR Test Results

General Note:

1. Per KDB 447498 D04, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of BT/WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - e. For TDD LTE SAR measurement of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = Measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
 - f. For TDD LTE SAR measurement of power class 2, the duty cycle 1:2.33 (42.9 %) was used perform testing and considering the theoretical duty cycle of 43.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 42.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 43.3%/42.9% = 1.009 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D04, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
5. There are three samples, the different between them refer to the XT2241-2_Operational Description of Product Equality Declaration which is exhibit separately. According to the differences, we choose sample 1 to perform full SAR testing and sample 2 to verify the worst case of sample 1. For sample 3 differences do not affect the test, so sample 3 are not tested.
6. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
7. The device has two headsets, only supplier is different, so we chose one headset to perform full SAR testing.
8. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head. For WLAN when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn and Handheld.
9. For some WWAN bands, sensor on reduced power level is higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
10. This device supports HPUE for LTE Band 38/41 with class 2 level, HPUE power has been measured separately. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR.
11. 5G NR n41/n77/n78 supports HPUE, HPUE power and SAR testing performed separately, n41/n77/n78 HPUE SAR can represent power class 3 level SAR.
12. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
13. 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.



14. 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.
15. 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.
16. 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.
17. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
 - a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM850/1900, WCDMA Band II/IV/V, LTE Band 2/4/5/7/12/17/25/26/66/38/41/42/43/48, 5G NR n2/n7/n66/n41/n77/n78, WLAN2.4/5.2/5.8GHz, therefore product specific 10g SAR is necessary.
 - b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
 - c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
18. For distance SAR and non-distance SAR in body-worn, always chose higher SAR to do co-located analysis.
19. The 5G NR n7/n41/n66 ant0/1 support different PAs, and the maximum power of different PAs is same for same exposure conditions, for RF exposure, after verification all PAs in a same position, we choose the main PA to perform full SAR tested to ensure the RF exposure is compliance and other PA verify the worst case.

GSM Note:

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

WCDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are \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 B2 / B4 / B5 / B17 / B38 SAR test was covered by LTE B25 / B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is \leq the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
 - b. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
 - c. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are \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 $\frac{1}{2}$ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK /16QAM/64QAM/256QAM SAR testing are not required.
 - e. Smaller bandwidth output power for each RB allocation configuration for this device will not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is \leq 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
 - f. For 5G FR1 n5 /n7/n41/n66/n77 the maximum bandwidth does not support three non-overlapping channels, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WLAN/Bluetooth Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is \leq 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 \leq 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 \leq 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 \leq 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.



FCC SAR Test Report

Report No. : FA252601

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 25	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI 2	26340	1880	1	16.02	16.90	1.225	-0.09	0.598	0.732		
	LTE Band 25	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 1	DSI 2	26340	1880	1	16.00	16.90	1.230	-0.08	0.610	0.750		
	LTE Band 25	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	26340	1880	1	16.09	16.90	1.205	0.07	0.464	0.559		
	LTE Band 25	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI 2	26340	1880	1	16.02	16.90	1.225	0.18	0.368	0.451		
	LTE Band 25	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI 2	26340	1880	1	16.09	16.90	1.205	-0.14	0.535	0.645		
	LTE Band 25	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI 2	26340	1880	1	16.02	16.90	1.225	-0.16	0.433	0.530		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI 2	376000	1880	1	23.23	24.00	1.194	0.11	0.058	0.069		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI 2	376000	1880	1	23.22	24.00	1.197	-0.15	0.056	0.067		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	DSI 2	376000	1880	1	23.23	24.00	1.194	0.14	0.001	0.001		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	DSI 2	376000	1880	1	23.22	24.00	1.197	-0.18	0.001	0.001		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	DSI 2	376000	1880	1	23.23	24.00	1.194	-0.18	0.053	0.063		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	DSI 2	376000	1880	1	23.22	24.00	1.197	-0.09	0.052	0.062		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	DSI 2	376000	1880	1	23.23	24.00	1.194	0.19	0.059	0.070		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	DSI 2	376000	1880	1	23.22	24.00	1.197	-0.06	0.056	0.067		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI 2	376000	1880	1	15.33	16.30	1.250	0.05	0.909	1.136		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI 2	372000	1860	1	15.23	16.30	1.279	-0.19	0.975	1.247		
13	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI 2	380000	1900	1	15.32	16.30	1.253	0.05	1.000	1.253		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant1	DSI 2 Simultaneous	380000	1900	1	14.46	15.00	1.132	-0.05	0.787	0.891		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI 2	376000	1880	1	15.27	16.30	1.268	0.05	0.900	1.141		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI 2	372000	1860	1	15.13	16.30	1.309	-0.13	0.918	1.202		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI 2	380000	1900	1	15.23	16.30	1.279	0.16	0.961	1.229		
	FR1 n2	20M	QPSK	100	0	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI 2	376000	1880	1	15.21	16.30	1.285	0.13	0.903	1.161		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DSI 2	376000	1880	1	15.33	16.30	1.250	0.07	0.766	0.958		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DSI 2	372000	1860	1	15.23	16.30	1.279	0.08	0.875	1.119		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DSI 2	380000	1900	1	15.32	16.30	1.253	-0.06	0.863	1.081		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DSI 2	376000	1880	1	15.27	16.30	1.268	0.06	0.766	0.971		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DSI 2	372000	1860	1	15.13	16.30	1.309	-0.18	0.865	1.132		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DSI 2	380000	1900	1	15.23	16.30	1.279	-0.02	0.859	1.099		
	FR1 n2	20M	QPSK	100	0	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	DSI 2	376000	1880	1	15.21	16.30	1.285	-0.09	0.764	0.982		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI 2	376000	1880	1	15.33	16.30	1.250	0.07	0.432	0.540		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI 2	376000	1880	1	15.27	16.30	1.268	-0.03	0.425	0.539		
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	DSI 2	376000	1880	1	15.33	16.30	1.250	0.08	0.511	0.639		
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	DSI 2	376000	1880	1	15.27	16.30	1.268	-0.02	0.506	0.641		

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																					
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	21100	2535	1	23.04	24.00	1.247	-	-	0.11	0.106	0.132
	LTE Band 7C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 0	DSI 2	21100+21298	2535+2554.8	1	22.94	24.00	1.276	-	-	0.18	0.099	0.126
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 2	21100	2535	1	22.77	24.00	1.327	-	-	0.02	0.086	0.114
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 2	21100	2535	1	23.04	24.00	1.247	-	-	0.05	0.039	0.049
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI 2	21100	2535	1	22.77	24.00	1.327	-	-	-0.08	0.031	0.041
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 2	21100	2535	1	23.04	24.00	1.247	-	-	0.15	0.073	0.091
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 2	21100	2535	1	22.77	24.00	1.327	-	-	-0.04	0.061	0.081
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 2	21100	2535	1	23.04	24.00	1.247	-	-	-0.13	0.048	0.060
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI 2	21100	2535	1	22.77	24.00	1.327	-	-	-0.15	0.036	0.048
14	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	21100	2535	1	15.76	16.70	1.242	-	-	-0.15	0.994	1.234
	LTE Band 7C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	DSI 2	21100+21298	2535+2554.8	1	15.61	16.70	1.285	-	-	-0.09	0.939	1.207
	LTE Band 7C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	DSI 2	20850+21048	2510+2529.8	1	15.55	16.70	1.303	-	-	-0.12	0.928	1.209
	LTE Band 7C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	21350+21152	2560+2540.2	1	15.43	16.70	1.340	-	-	0.18	0.901	1.207
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant1	DSI 2 Simultaneous	21100	2535	1	14.23	15.40	1.309	-	-	-0.06	0.613	0.803
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	20850	2510	1	15.61	16.70	1.285	-	-	-0.07	0.902	1.159
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	21350	2560	1	15.58	16.70	1.294	-	-	-0.12	0.871	1.127



	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 2	21100	2535	1	15.69	16.70	1.262	-	-	-0.13	0.792	0.999
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 2	20850	2510	1	15.60	16.70	1.288	-	-	-0.15	0.749	0.965
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 2	21350	2560	1	15.51	16.70	1.315	-	-	0.02	0.726	0.955
	LTE Band 7	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	DSI 2	21100	2535	1	15.59	16.70	1.291	-	-	0.19	0.777	1.003
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI 2	21100	2535	1	15.76	16.70	1.242	-	-	0.07	0.930	1.155
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI 2	20850	2510	1	15.61	16.70	1.285	-	-	0.01	0.909	1.168
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI 2	21350	2560	1	15.58	16.70	1.294	-	-	-0.04	0.828	1.072
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI 2	21100	2535	1	15.69	16.70	1.262	-	-	0.08	0.741	0.935
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI 2	20850	2510	1	15.60	16.70	1.288	-	-	0.09	0.711	0.916
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI 2	21350	2560	1	15.51	16.70	1.315	-	-	-0.05	0.677	0.890
	LTE Band 7	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 1	DSI 2	21100	2535	1	15.59	16.70	1.291	-	-	-0.15	0.734	0.948
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	21100	2535	1	15.76	16.70	1.242	-	-	-0.14	0.717	0.890
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	20850	2510	1	15.61	16.70	1.285	-	-	-0.04	0.715	0.919
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	21350	2560	1	15.58	16.70	1.294	-	-	0.07	0.622	0.805
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI 2	21100	2535	1	15.69	16.70	1.262	-	-	0.11	0.562	0.709
	LTE Band 7	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 1	DSI 2	21100	2535	1	15.59	16.70	1.291	-	-	0.12	0.562	0.726
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI 2	21100	2535	1	15.76	16.70	1.242	-	-	0.15	0.698	0.867
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI 2	20850	2510	1	15.61	16.70	1.285	-	-	-0.18	0.715	0.919
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI 2	21350	2560	1	15.58	16.70	1.294	-	-	0.02	0.598	0.774
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI 2	21100	2535	1	15.69	16.70	1.262	-	-	-0.17	0.551	0.695
	LTE Band 7	20M	QPSK	100	0	-	Left Tilted	0mm	Ant 1	DSI 2	21100	2535	1	15.59	16.70	1.291	-	-	0.09	0.543	0.701
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	40620	2593	1	23.20	24.00	1.202	62.9	1.006	0.09	0.082	0.099
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 2	40620	2593	1	23.17	24.00	1.211	62.9	1.006	0.17	0.105	0.128
	LTE Band 41C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 0	DSI 2	40620+40818	2593+2612.8	1	22.89	24.00	1.291	62.9	1.006	-0.16	0.052	0.068
	LTE Band 41 HPUE	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 2	40620	2593	1	25.63	27.00	1.371	42.9	1.009	0.02	0.139	0.192
	LTE Band 41C HPUE	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 0	DSI 2	40620+40818	2593+2612.8	1	25.46	27.00	1.426	42.9	1.009	-0.14	0.110	0.158
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 2	40620	2593	1	23.20	24.00	1.202	62.9	1.006	0.07	0.061	0.074
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI 2	40620	2593	1	23.17	24.00	1.211	62.9	1.006	-0.02	0.001	0.001
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 2	40620	2593	1	23.20	24.00	1.202	62.9	1.006	-0.16	0.048	0.058
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 2	40620	2593	1	23.17	24.00	1.211	62.9	1.006	-0.15	0.053	0.065
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 2	40620	2593	1	23.20	24.00	1.202	62.9	1.006	-0.11	0.001	0.001
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI 2	40620	2593	1	23.17	24.00	1.211	62.9	1.006	0.17	0.001	0.001
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	40620	2593	1	18.25	19.60	1.365	62.9	1.006	0.02	0.875	1.201
	LTE Band 41C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	DSI 2	40620+40818	2593+2612.8	1	18.11	19.60	1.409	62.9	1.006	-0.06	0.798	1.131
	LTE Band 41C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	DSI 2	39750+39948	2506+2525.8	1	17.98	19.60	1.452	62.9	1.006	0.06	0.805	1.176
	LTE Band 41C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	DSI 2	40185+40383	2549.5+2569.3	1	18.06	19.60	1.426	62.9	1.006	0.05	0.837	1.200
	LTE Band 41C	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	DSI 2	41055+41253	2636.5+2656.3	1	18.08	19.60	1.419	62.9	1.006	-0.09	0.752	1.074
	LTE Band 41C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	41490+41292	2680+2660.2	1	17.86	19.60	1.493	62.9	1.006	-0.05	0.794	1.192
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant1	DSI 2 Simultaneous	40620	2593	1	16.73	18.30	1.435	62.9	1.006	0.05	0.610	0.881
15	LTE Band 41 HPUE	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	40620	2593	1	19.38	21.20	1.521	42.9	1.009	0.01	0.812	1.246
	LTE Band 41C HPUE	20M	QPSK	1	99	-	Right Cheek	0mm	Ant 1	DSI 2	40620+40818	2593+2612.8	1	19.78	21.20	1.387	42.9	1.009	-0.15	0.711	0.995
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Right Cheek	0mm	Ant1	DSI 2 Simultaneous	40620	2593	1	18.20	19.90	1.479	42.9	1.009	0.06	0.593	0.885
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	39750	2506	1	18.01	19.60	1.442	62.9	1.006	-0.14	0.730	1.059
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	40185	2549.5	1	17.91	19.60	1.476	62.9	1.006	0.15	0.733	1.088
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	41055	2636.5	1	17.92	19.60	1.472	62.9	1.006	0.12	0.810	1.200
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	41490	2680	1	17.88	19.60	1.486	62.9	1.006	-0.17	0.782	1.169
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 2	40620	2593	1	18.21	19.60	1.377	62.9	1.006	0.09	0.822	1.139
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 2	39750	2506	1	18.12	19.60	1.406	62.9	1.006	0.05	0.735	1.040
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 2	40185	2549.5	1	17.94	19.60	1.466	62.9	1.006	0.03	0.738	1.088
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 2	41055	2636.5	1	17.98	19.60	1.452	62.9	1.006	-0.14	0.811	1.185
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 2	41490	2680	1	17.93	19.60	1.469	62.9	1.006	-0.16	0.805	1.190
	LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	DSI 2	40620	2593	1	18.10	19.60	1.413	62.9	1.006	0.06	0.811	1.152
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI 2	40620	2593	1	18.25	19.60	1.365	62.9	1.006	0.04	0.706	0.969
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI 2	39750	2506	1	18.01	19.60	1.442	62.9	1.006	-0.08	0.701	1.017



FCC SAR Test Report

Report No. : FA252601

Table with columns for Band, Modulation, Power, Frequency, SAR, etc. Includes rows for LTE Band 41 and FR1 n7 with various test configurations.



FCC SAR Test Report

Report No. : FA252601

	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 0	DSI 2	518598	2592.99	1	26.63	27.00	1.089	-	-	0.15	0.108	0.118
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 0	DSI 2	518598	2592.99	1	26.57	27.00	1.104	-	-	-0.01	0.125	0.138
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 0	DSI 2	518598	2592.99	1	26.63	27.00	1.089	-	-	0.02	0.089	0.097
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 0	DSI 2	518598	2592.99	1	26.57	27.00	1.104	-	-	0.09	0.083	0.092
17	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSI 2	518598	2592.99	1	16.48	17.20	1.180	-	-	-0.08	1.060	1.251
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSI 2 Simultaneous	518598	2592.99	1	14.85	15.90	1.274	-	-	0.11	0.701	0.893
	FR1 n41 HPUE Other PA	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSI 2	518598	2592.99	1	16.48	17.20	1.180	-	-	-0.08	0.841	0.993
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSI 2	518598	2592.99	1	16.41	17.20	1.199	-	-	-0.03	1.020	1.223
	FR1 n41 HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSI 2	518598	2592.99	1	16.30	17.20	1.230	-	-	-0.14	0.955	1.175
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 1	DSI 2	518598	2592.99	1	16.48	17.20	1.180	-	-	0.01	1.010	1.192
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 1	DSI 2	518598	2592.99	1	16.41	17.20	1.199	-	-	0.01	0.936	1.123
	FR1 n41 HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Right Tilted	0mm	Ant 1	DSI 2	518598	2592.99	1	16.30	17.20	1.230	-	-	-0.15	0.825	1.015
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSI 2	518598	2592.99	1	16.48	17.20	1.180	-	-	-0.18	0.680	0.803
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSI 2	518598	2592.99	1	16.41	17.20	1.199	-	-	-0.11	0.602	0.722
	FR1 n41 HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSI 2	518598	2592.99	1	16.30	17.20	1.230	-	-	-0.13	0.522	0.642
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 1	DSI 2	518598	2592.99	1	16.48	17.20	1.180	-	-	0.12	0.640	0.755
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 1	DSI 2	518598	2592.99	1	16.41	17.20	1.199	-	-	-0.11	0.590	0.708
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI 2	518598	2592.99	1	24.96	26.00	1.271	-	-	-0.02	0.187	0.238
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI 2	518598	2592.99	1	24.92	25.50	1.143	-	-	0.07	0.177	0.202
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI 2	518598	2592.99	1	24.96	26.00	1.271	-	-	0.12	0.169	0.215
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI 2	518598	2592.99	1	24.92	25.50	1.143	-	-	-0.03	0.166	0.190
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DSI 2	518598	2592.99	1	24.96	26.00	1.271	-	-	0.15	0.300	0.381
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DSI 2	518598	2592.99	1	24.92	25.50	1.143	-	-	-0.01	0.269	0.307
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DSI 2	518598	2592.99	1	24.96	26.00	1.271	-	-	0.02	0.098	0.125
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DSI 2	518598	2592.99	1	24.92	25.50	1.143	-	-	0.09	0.116	0.133
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 4	DSI 2	518598	2592.99	1	16.74	17.40	1.164	-	-	-0.02	0.435	0.506
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 4	DSI 2	518598	2592.99	1	16.69	17.40	1.178	-	-	0.07	0.475	0.559
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 4	DSI 2	518598	2592.99	1	16.74	17.40	1.164	-	-	0.12	0.433	0.504
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 4	DSI 2	518598	2592.99	1	16.69	17.40	1.178	-	-	-0.03	0.547	0.644
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 4	DSI 2	518598	2592.99	1	16.74	17.40	1.164	-	-	0.15	0.866	1.008
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 4	DSI 2	518598	2592.99	1	16.69	17.40	1.178	-	-	-0.01	0.899	1.059
	FR1 n41 HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 4	DSI 2	518598	2592.99	1	16.25	17.40	1.303	-	-	-0.09	0.900	1.173
	FR1 n41 HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 4	DSI 2 Simultaneous	518598	2592.99	1	15.23	16.10	1.222	-	-	0.09	0.727	0.888
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 4	DSI 2	518598	2592.99	1	16.74	17.40	1.164	-	-	0.02	0.763	0.888
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 4	DSI 2	518598	2592.99	1	16.69	17.40	1.178	-	-	0.09	0.883	1.040
	FR1 n41 HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Tilted	0mm	Ant 4	DSI 2	518598	2592.99	1	16.25	17.40	1.303	-	-	0.09	0.730	0.951



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
3400MHz~3900MHz																					
18	LTE Band 42	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI 2	42590	3500	1	21.65	22.40	1.189	62.9	1.006	0.02	0.938	1.122
	LTE Band 42	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI 2	42190	3460	1	21.45	22.40	1.245	62.9	1.006	0.06	0.998	1.249
	LTE Band 42	20M	QPSK	1	0		Right Cheek	0mm	Ant2	DSI 2 Simultaneous	42190	3460	1	20.38	21.10	1.180	62.9	1.006	-0.12	0.787	0.934
	LTE Band 42	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI 2	42190	3460	3	21.45	22.40	1.245	62.9	1.006	-0.07	0.982	1.229
	LTE Band 42	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI 2	42990	3540	1	21.39	22.40	1.262	62.9	1.006	0.04	0.898	1.140
	LTE Band 42	20M	QPSK	50	0		Right Cheek	0mm	Ant 2	DSI 2	42590	3500	1	21.54	22.00	1.112	62.9	1.006	-0.02	0.785	0.878
	LTE Band 42	20M	QPSK	50	0		Right Cheek	0mm	Ant 2	DSI 2	42190	3460	1	21.43	22.00	1.140	62.9	1.006	-0.1	0.792	0.908
	LTE Band 42	20M	QPSK	50	0		Right Cheek	0mm	Ant 2	DSI 2	42990	3540	1	21.42	22.00	1.143	62.9	1.006	0.03	0.719	0.827
	LTE Band 42	20M	QPSK	100	0		Right Cheek	0mm	Ant 2	DSI 2	42590	3500	1	20.51	22.00	1.409	62.9	1.006	-0.06	0.778	1.103
	LTE Band 42	20M	QPSK	1	0		Right Tilted	0mm	Ant 2	DSI 2	42590	3500	1	21.65	22.40	1.189	62.9	1.006	0.05	0.725	0.867
	LTE Band 42	20M	QPSK	1	0		Right Tilted	0mm	Ant 2	DSI 2	42190	3460	1	21.45	22.40	1.245	62.9	1.006	-0.11	0.712	0.891
	LTE Band 42	20M	QPSK	1	0		Right Tilted	0mm	Ant 2	DSI 2	42990	3540	1	21.39	22.40	1.262	62.9	1.006	0.07	0.705	0.895
	LTE Band 42	20M	QPSK	50	0		Right Tilted	0mm	Ant 2	DSI 2	42590	3500	1	21.54	22.00	1.112	62.9	1.006	0.09	0.595	0.665
	LTE Band 42	20M	QPSK	50	0		Right Tilted	0mm	Ant 2	DSI 2	42190	3460	1	21.43	22.00	1.140	62.9	1.006	-0.12	0.581	0.666
	LTE Band 42	20M	QPSK	50	0		Right Tilted	0mm	Ant 2	DSI 2	42990	3540	1	21.42	22.00	1.143	62.9	1.006	-0.06	0.591	0.679
	LTE Band 42	20M	QPSK	100	0		Right Tilted	0mm	Ant 2	DSI 2	42590	3500	1	20.51	22.00	1.409	62.9	1.006	0.03	0.590	0.836
	LTE Band 42	20M	QPSK	1	0		Left Cheek	0mm	Ant 2	DSI 2	42590	3500	1	21.65	22.40	1.189	62.9	1.006	-0.18	0.440	0.526
	LTE Band 42	20M	QPSK	50	0		Left Cheek	0mm	Ant 2	DSI 2	42590	3500	1	21.54	22.00	1.112	62.9	1.006	-0.11	0.355	0.397
	LTE Band 42	20M	QPSK	1	0		Left Tilted	0mm	Ant 2	DSI 2	42590	3500	1	21.65	22.40	1.189	62.9	1.006	0.18	0.317	0.379
	LTE Band 42	20M	QPSK	50	0		Left Tilted	0mm	Ant 2	DSI 2	42590	3500	1	21.54	22.00	1.112	62.9	1.006	-0.08	0.253	0.283
	LTE Band 48	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI 2	56150	3641	1	21.64	22.40	1.191	62.9	1.006	0.15	0.765	0.917
19	LTE Band 48	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI 2	55340	3560	1	21.83	22.40	1.140	62.9	1.006	0.01	1.080	1.239
	LTE Band 48	20M	QPSK	1	0		Right Cheek	0mm	Ant2	DSI 2 Simultaneous	55340	3560	1	20.63	21.10	1.114	62.9	1.006	-0.02	0.756	0.847
	LTE Band 48	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI 2	55340	3560	3	21.83	22.40	1.140	62.9	1.006	0.05	1.000	1.147
	LTE Band 48	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI 2	55830	3609	1	21.85	22.40	1.135	62.9	1.006	0.04	0.840	0.959
	LTE Band 48	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI 2	56640	3690	1	21.72	22.40	1.169	62.9	1.006	-0.04	0.672	0.791
	LTE Band 48	20M	QPSK	50	0		Right Cheek	0mm	Ant 2	DSI 2	56150	3641	1	21.69	22.00	1.074	62.9	1.006	-0.09	0.611	0.660
	LTE Band 48	20M	QPSK	50	0		Right Cheek	0mm	Ant 2	DSI 2	55340	3560	1	21.65	22.00	1.084	62.9	1.006	-0.15	0.548	0.598
	LTE Band 48	20M	QPSK	50	0		Right Cheek	0mm	Ant 2	DSI 2	55830	3609	1	21.75	22.00	1.059	62.9	1.006	-0.12	0.572	0.610
	LTE Band 48	20M	QPSK	50	0		Right Cheek	0mm	Ant 2	DSI 2	56640	3690	1	21.64	22.00	1.086	62.9	1.006	-0.11	0.591	0.646
	LTE Band 48	20M	QPSK	100	0		Right Cheek	0mm	Ant 2	DSI 2	56150	3641	1	20.69	22.00	1.352	62.9	1.006	0.07	0.612	0.832
	LTE Band 48	20M	QPSK	1	0		Right Tilted	0mm	Ant 2	DSI 2	56150	3641	1	21.64	22.40	1.191	62.9	1.006	-0.07	0.641	0.768
	LTE Band 48	20M	QPSK	1	0		Right Tilted	0mm	Ant 2	DSI 2	55340	3560	1	21.83	22.40	1.140	62.9	1.006	0.01	0.601	0.689
	LTE Band 48	20M	QPSK	1	0		Right Tilted	0mm	Ant 2	DSI 2	55830	3609	1	21.85	22.40	1.135	62.9	1.006	0.03	0.595	0.679
	LTE Band 48	20M	QPSK	1	0		Right Tilted	0mm	Ant 2	DSI 2	56640	3690	1	21.72	22.40	1.169	62.9	1.006	0.09	0.554	0.652
	LTE Band 48	20M	QPSK	50	0		Right Tilted	0mm	Ant 2	DSI 2	56150	3641	1	21.69	22.00	1.074	62.9	1.006	0.18	0.513	0.554
	LTE Band 48	20M	QPSK	100	0		Right Tilted	0mm	Ant 2	DSI 2	56150	3641	1	20.69	22.00	1.352	62.9	1.006	-0.12	0.441	0.600
	LTE Band 48	20M	QPSK	1	0		Left Cheek	0mm	Ant 2	DSI 2	56150	3641	1	21.64	22.40	1.191	62.9	1.006	0.15	0.255	0.306
	LTE Band 48	20M	QPSK	50	0		Left Cheek	0mm	Ant 2	DSI 2	56150	3641	1	21.69	22.00	1.074	62.9	1.006	-0.13	0.224	0.242
	LTE Band 48	20M	QPSK	1	0		Left Tilted	0mm	Ant 2	DSI 2	56150	3641	1	21.64	22.40	1.191	62.9	1.006	-0.1	0.272	0.326
	LTE Band 48	20M	QPSK	50	0		Left Tilted	0mm	Ant 2	DSI 2	56150	3641	1	21.69	22.00	1.074	62.9	1.006	0.05	0.221	0.239
	FR1 n77 Part 270_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	DSI 2	656000	3840	1	20.55	21.40	1.216	-	-	0.09	0.749	0.911
	FR1 n77 Part 270_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	DSI 2	656000	3840	1	20.48	21.40	1.236	-	-	-0.03	0.809	1.000
	FR1 n77 Part 270_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant2	DSI 2 Simultaneous	656000	3840	1	19.25	20.10	1.216	-	-	-0.05	0.563	0.685
	FR1 n77 Part 270_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	DSI 2	656000	3840	3	20.48	21.40	1.236	-	-	0.18	0.785	0.970
	FR1 n77 Part 270_HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	DSI 2	656000	3840	1	20.31	21.40	1.285	-	-	-0.11	0.680	0.874
	FR1 n77 Part 270_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	DSI 2	656000	3840	1	20.55	21.40	1.216	-	-	0.09	0.559	0.680
	FR1 n77 Part 270_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	DSI 2	656000	3840	1	20.48	21.40	1.236	-	-	-0.06	0.623	0.770
	FR1 n77 Part 270_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	DSI 2	656000	3840	1	20.55	21.40	1.216	-	-	-0.01	0.247	0.300
	FR1 n77 Part 270_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	DSI 2	656000	3840	1	20.48	21.40	1.236	-	-	0.18	0.291	0.360
	FR1 n77 Part 270_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	DSI 2	656000	3840	1	20.55	21.40	1.216	-	-	0.19	0.218	0.265



	FR1 n77 Part 270_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	DSI 2	656000	3840	1	20.48	21.40	1.236	-	-	0.01	0.250	0.309
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	DSI 2	633334	3500.01	1	20.61	21.40	1.199	-	-	-0.19	0.915	1.098
20	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	DSI 2	633334	3500.01	1	20.55	21.40	1.216	-	-	0.17	1.020	1.241
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant2	DSI 2 Simultaneous	633334	3500.01	1	19.28	20.10	1.208	-	-	0.05	0.730	0.882
	FR1 n77 Part 27Q_HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	DSI 2	633334	3500.01	1	20.46	21.40	1.242	-	-	-0.14	0.815	1.012
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	DSI 2	633334	3500.01	1	20.61	21.40	1.199	-	-	0.14	0.604	0.724
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	DSI 2	633334	3500.01	1	20.55	21.40	1.216	-	-	0.02	0.698	0.849
	FR1 n77 Part 27Q_HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	DSI 2	633334	3500.01	1	20.46	21.40	1.242	-	-	-0.08	0.569	0.707
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	DSI 2	633334	3500.01	1	20.61	21.40	1.199	-	-	-0.06	0.454	0.545
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	DSI 2	633334	3500.01	1	20.55	21.40	1.216	-	-	0.09	0.432	0.525
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	DSI 2	633334	3500.01	1	20.61	21.40	1.199	-	-	-0.11	0.253	0.303
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	DSI 2	633334	3500.01	1	20.55	21.40	1.216	-	-	0.09	0.272	0.331
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 5	DSI 2	656000	3840	1	16.65	17.90	1.334	-	-	-0.15	0.265	0.353
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 5	DSI 2	656000	3840	1	16.51	17.90	1.377	-	-	0.03	0.261	0.359
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 5	DSI 2	656000	3840	1	16.65	17.90	1.334	-	-	0.04	0.302	0.403
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 5	DSI 2	656000	3840	1	16.51	17.90	1.377	-	-	0.07	0.275	0.379
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DSI 2	656000	3840	1	16.65	17.90	1.334	-	-	-0.07	0.742	0.989
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DSI 2	656000	3840	1	16.51	17.90	1.377	-	-	-0.15	0.631	0.869
	FR1 n77 Part 27Q_HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DSI 2	656000	3840	1	16.48	17.90	1.387	-	-	0.1	0.608	0.843
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	656000	3840	1	16.65	17.90	1.334	-	-	-0.02	0.840	1.120
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant5	DSI 2 Simultaneous	656000	3840	1	15.45	16.60	1.303	-	-	-0.15	0.608	0.792
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	656000	3840	1	16.51	17.90	1.377	-	-	0.08	0.672	0.925
	FR1 n77 Part 27Q_HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	656000	3840	1	16.48	17.90	1.387	-	-	0.15	0.646	0.896
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1		Right Cheek	0mm	Ant 5	DSI 2	633334	3500.01	1	16.88	17.90	1.265	-	-	0.1	0.424	0.536
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 5	DSI 2	633334	3500.01	1	16.85	17.90	1.274	-	-	-0.17	0.389	0.495
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 5	DSI 2	633334	3500.01	1	16.88	17.90	1.265	-	-	0.18	0.505	0.639
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 5	DSI 2	633334	3500.01	1	16.85	17.90	1.274	-	-	0.18	0.472	0.601
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DSI 2	633334	3500.01	1	16.88	17.90	1.265	-	-	-0.13	0.745	0.942
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DSI 2	633334	3500.01	1	16.85	17.90	1.274	-	-	-0.16	0.710	0.904
	FR1 n77 Part 27Q_HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DSI 2	633334	3500.01	1	16.70	17.90	1.318	-	-	0.07	0.785	1.035
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	633334	3500.01	1	16.88	17.90	1.265	-	-	0.14	0.906	1.146
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	633334	3500.01	1	16.85	17.90	1.274	-	-	-0.17	0.896	1.141
	FR1 n77 Part 27Q_HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	633334	3500.01	1	16.70	17.90	1.318	-	-	-0.16	0.937	1.235
	FR1 n77 Part 27Q_HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Tilted	0mm	Ant5	DSI 2 Simultaneous	633334	3500.01	1	15.75	16.60	1.216	-	-	-0.07	0.790	0.961
	FR1 n77 Part 27Q_HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	633334	3500.01	3	16.70	17.90	1.318	-	-	0.17	0.922	1.215
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI 2	656000	3840	1	25.98	27.00	1.265	-	-	-0.15	0.063	0.080
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI 2	656000	3840	1	25.85	27.00	1.303	-	-	0.17	0.059	0.077
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI 2	656000	3840	1	25.98	27.00	1.265	-	-	0.08	0.063	0.080
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI 2	656000	3840	1	25.85	27.00	1.303	-	-	0.06	0.058	0.076
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DSI 2	656000	3840	1	25.98	27.00	1.265	-	-	-0.09	0.092	0.116
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DSI 2	656000	3840	1	25.85	27.00	1.303	-	-	-0.03	0.086	0.112
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DSI 2	656000	3840	1	25.98	27.00	1.265	-	-	-0.11	0.041	0.052
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DSI 2	656000	3840	1	25.85	27.00	1.303	-	-	0.12	0.039	0.051
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI 2	633334	3500.01	1	25.60	27.00	1.380	-	-	0.09	0.069	0.095
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI 2	633334	3500.01	1	25.57	27.00	1.390	-	-	-0.01	0.061	0.085
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI 2	633334	3500.01	1	25.60	27.00	1.380	-	-	0.1	0.092	0.127
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI 2	633334	3500.01	1	25.57	27.00	1.390	-	-	-0.17	0.077	0.107
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DSI 2	633334	3500.01	1	25.60	27.00	1.380	-	-	0.01	0.127	0.175
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DSI 2	633334	3500.01	1	25.57	27.00	1.390	-	-	0.16	0.108	0.150
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DSI 2	633334	3500.01	1	25.60	27.00	1.380	-	-	-0.13	0.053	0.073
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DSI 2	633334	3500.01	1	25.57	27.00	1.390	-	-	0.04	0.040	0.056
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DSI 2	656000	3840	1	25.72	27.00	1.343	-	-	-0.11	0.065	0.087
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DSI 2	656000	3840	1	25.68	27.00	1.355	-	-	0.12	0.063	0.085
	FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DSI 2	656000	3840	1	25.72	27.00	1.343	-	-	-0.15	0.044	0.059
	FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DSI 2	656000	3840									



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FR1 n77 Part 27O_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DSI 2	656000	3840	1	25.72	27.00	1.343	-	-	0.12	0.046	0.062
FR1 n77 Part 27O_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DSI 2	656000	3840	1	25.68	27.00	1.355	-	-	0.06	0.055	0.075
FR1 n77 Part 27O_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DSI 2	656000	3840	1	25.72	27.00	1.343	-	-	-0.09	0.066	0.089
FR1 n77 Part 27O_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DSI 2	656000	3840	1	25.68	27.00	1.355	-	-	-0.06	0.065	0.088
FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DSI 2	633334	3500.01	1	25.63	27.00	1.371	-	-	-0.06	0.010	0.014
FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 7	DSI 2	633334	3500.01	1	25.56	27.00	1.393	-	-	-0.17	0.030	0.042
FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DSI 2	633334	3500.01	1	25.63	27.00	1.371	-	-	-0.11	0.031	0.042
FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 7	DSI 2	633334	3500.01	1	25.56	27.00	1.393	-	-	0.16	0.010	0.014
FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DSI 2	633334	3500.01	1	25.63	27.00	1.371	-	-	0.11	0.037	0.051
FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 7	DSI 2	633334	3500.01	1	25.56	27.00	1.393	-	-	-0.12	0.010	0.014
FR1 n77 Part 27Q_HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DSI 2	633334	3500.01	1	25.63	27.00	1.371	-	-	0.02	0.050	0.069
FR1 n77 Part 27Q_HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 7	DSI 2	633334	3500.01	1	25.56	27.00	1.393	-	-	0.11	0.030	0.042



Table with columns: Plot No., Band, Mode, Test Position, Gap (mm), Antenna, Power Reduction, Ch., Freq. (MHz), Sample, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Duty Cycle %, Duty Cycle Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Includes sub-section 'WIFI & Bluetooth' and rows for various frequencies and modes.



16.2 Hotspot SAR

Table with 20 columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB offset, Mode, Test Position, Gap (mm), Antenna, Power Reduction, Ch., Freq. (MHz), Power Setting, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Rows include 750MHz and 835MHz test data.



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Table with columns for test parameters (FR1 n5, 20M, QPSK, 100, 0, DFT-SCS-15KHz, Back, 5mm, Ant 0, DSI3 Simultaneous, 167300, 836.5, 1, 23.26, 24.00, 1.186, -0.01, 0.773, 0.917) and a 1750MHz section with WCDMA IV parameters.



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Table with columns: LTE Band 25, 20M, QPSK, 50, 0, -, Right Side, 5mm, Ant 1, DSI3 Simultaneous, 26340, 1880, 1, 16.10, 17.00, 1.230, 0.18, 0.028, 0.034. Includes a highlighted cell with value 1.232.



Table with columns for Band, Power, Modulation, Frequency, Power Density, and SAR values. Includes rows for LTE Bands 41 and 41C from various perspectives (Front, Back, Left Side, Right Side, Bottom Side).



Table with columns for LTE Band, Modulation, Power, Frequency, etc. Row 41 is highlighted in yellow.



Table with columns for Frequency, Power, Modulation, etc. Row 42 is highlighted with a yellow background.



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Table with columns for test parameters (FR1 n41 HPUE, 100M, QPSK, 135, 69, DFT-SCS-30KHz) and SAR results (0.045, 0.218, 0.159, 0.675, 0.991, 0.869, 0.009, 0.009). Includes a section for 3400MHz ~3900MHz with LTE Bands 42 and 48.



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FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant 3	DSI3 Simultaneous	633334	3500.01	1	22.91	24.00	1.285	-	-	-0.15	0.691	0.888
FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Side	5mm	Ant 3	DSI3 Simultaneous	633334	3500.01	1	22.85	24.00	1.303	-	-	-0.12	0.865	1.127
FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 3	DSI3 Simultaneous	633334	3500.01	1	22.98	24.00	1.265	-	-	-0.17	0.010	0.013
FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant 3	DSI3 Simultaneous	633334	3500.01	1	22.91	24.00	1.285	-	-	0.1	0.025	0.032
FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	5mm	Ant 3	DSI3 Simultaneous	633334	3500.01	1	22.98	24.00	1.265	-	-	-0.1	0.392	0.496
FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	5mm	Ant 3	DSI3 Simultaneous	633334	3500.01	1	22.91	24.00	1.285	-	-	-0.18	0.401	0.515
FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.98	14.50	1.419	-	-	-0.14	0.003	0.004
FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.88	14.50	1.452	-	-	0.11	0.003	0.004
FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.98	14.50	1.419	-	-	0.17	0.700	0.993
FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.88	14.50	1.452	-	-	-0.07	0.535	0.777
FR1 n77 Par27O HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.85	14.50	1.462	-	-	-0.11	0.552	0.807
FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.98	14.50	1.419	-	-	-0.18	0.004	0.006
FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.88	14.50	1.452	-	-	-0.12	0.004	0.006
FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.98	14.50	1.419	-	-	0.01	0.018	0.026
FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.88	14.50	1.452	-	-	0.06	0.017	0.025
FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.98	14.50	1.419	-	-	0.17	0.007	0.010
FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.88	14.50	1.452	-	-	-0.11	0.007	0.010
FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.98	14.50	1.419	-	-	0.15	0.003	0.004
FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	5mm	Ant 7	DSI3 Simultaneous	656000	3840	1	12.88	14.50	1.452	-	-	-0.01	0.004	0.006
FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.88	14.50	1.452	-	-	-0.12	0.003	0.004
FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.78	14.50	1.486	-	-	-0.17	0.003	0.004
FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.88	14.50	1.452	-	-	0.06	0.750	1.089
FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.78	14.50	1.486	-	-	-0.06	0.520	0.773
FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.74	14.50	1.500	-	-	-0.1	0.701	1.051
FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.88	14.50	1.452	-	-	0.09	0.003	0.004
FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.78	14.50	1.486	-	-	-0.05	0.003	0.004
FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.88	14.50	1.452	-	-	-0.03	0.009	0.013
FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.78	14.50	1.486	-	-	-0.1	0.007	0.010
FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.88	14.50	1.452	-	-	0.06	0.005	0.007
FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.78	14.50	1.486	-	-	-0.09	0.004	0.006
FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.88	14.50	1.452	-	-	-0.09	0.003	0.004
FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	5mm	Ant 7	DSI3 Simultaneous	633334	3500.01	1	12.78	14.50	1.486	-	-	0.09	0.003	0.004



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
WLAN&BT																		
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 4+6	WWAN +non DBS	6	2437	1	15.05	16.50	1.396	100	1.000	0.07	0.092	0.128	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 4+6	WWAN +non DBS	6	2437	1	15.05	16.50	1.396	100	1.000	0.08	0.163	0.228	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 4+6	WWAN + DBS	6	2437	1	12.06	13.50	1.393	100	1.000	0.11	0.080	0.111	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 4+6	WWAN +non DBS	1	2412	1	14.95	16.50	1.429	100	1.000	0.09	0.149	0.213	
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant 4+6	WWAN +non DBS	6	2437	1	15.05	16.50	1.396	100	1.000	0.19	0.010	0.014	
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant 4+6	WWAN + DBS	6	2437	1	12.06	13.50	1.393	100	1.000	0.19	0.005	0.007	
46	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 4+6	WWAN +non DBS	6	2437	1	15.05	16.50	1.396	100	1.000	0.01	0.253	0.353	
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 4+6	WWAN + DBS	6	2437	1	12.06	13.50	1.393	100	1.000	0.09	0.133	0.185	
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 4+6	WWAN +non DBS	1	2412	1	14.95	16.50	1.429	100	1.000	-0.13	0.234	0.334	
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 4+6	WWAN +non DBS	6	2437	1	15.05	16.50	1.396	100	1.000	-0.09	0.026	0.036	
	Bluetooth	1Mbps	Front	5mm	Ant 4	Full	39	2441	1	11.16	12.00	1.213	76.86	1.301	-0.12	0.036	0.057	
	Bluetooth	1Mbps	Back	5mm	Ant 4	Full	39	2441	1	11.16	12.00	1.213	76.86	1.301	-0.1	0.101	0.159	
	Bluetooth	1Mbps	Left Side	5mm	Ant 4	Full	39	2441	1	11.16	12.00	1.213	76.86	1.301	0.08	0.001	0.002	
	Bluetooth	1Mbps	Right Side	5mm	Ant 4	Full	39	2441	1	11.16	12.00	1.213	76.86	1.301	0.02	0.012	0.019	
	Bluetooth	1Mbps	Top Side	5mm	Ant 4	Full	39	2441	1	11.16	12.00	1.213	76.86	1.301	0.04	0.037	0.058	
	Bluetooth	1Mbps	Front	5mm	Ant 6	Full	0	2402	1	10.65	11.00	1.084	77.14	1.296	0.11	0.055	0.077	
	Bluetooth	1Mbps	Back	5mm	Ant 6	Full	0	2402	1	10.65	11.00	1.084	77.14	1.296	0.05	0.075	0.105	
	Bluetooth	1Mbps	Left Side	5mm	Ant 6	Full	0	2402	1	10.65	11.00	1.084	77.14	1.296	-0.07	0.002	0.002	
47	Bluetooth	1Mbps	Right Side	5mm	Ant 6	Full	0	2402	1	10.65	11.00	1.084	77.14	1.296	0.08	0.140	0.196	
	Bluetooth	1Mbps	Top Side	5mm	Ant 6	Full	0	2402	1	10.65	11.00	1.084	77.14	1.296	0.02	0.009	0.013	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 2+6	WWAN +non DBS	42	5210	1	13.33	15.00	1.469	100	1.000	0.1	0.122	0.179	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 2+6	WWAN +non DBS	42	5210	1	13.33	15.00	1.469	100	1.000	-0.01	0.183	0.269	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 2+6	WWAN + DBS	42	5210	1	10.36	12.00	1.459	100	1.000	0.01	0.090	0.131	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 2+6	WWAN +non DBS	42	5210	1	13.33	15.00	1.469	100	1.000	0.02	0.254	0.373	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 2+6	WWAN + DBS	42	5210	1	10.36	12.00	1.459	100	1.000	0.09	0.131	0.191	
48	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 2+6	WWAN +non DBS	42	5210	1	13.33	15.00	1.469	100	1.000	0.05	0.266	0.391	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 2+6	WWAN + DBS	42	5210	1	10.36	12.00	1.459	100	1.000	-0.02	0.132	0.193	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 2+6	WWAN +non DBS	42	5210	1	13.33	15.00	1.469	100	1.000	-0.15	0.040	0.059	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 2+6	WWAN +non DBS	155	5775	1	15.89	17.50	1.449	100	1.000	0.17	0.116	0.168	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 2+6	WWAN +non DBS	155	5775	1	15.89	17.50	1.449	100	1.000	0.02	0.211	0.306	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 2+6	WWAN + DBS	155	5775	1	12.36	14.00	1.459	100	1.000	-0.12	0.092	0.134	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 2+6	WWAN +non DBS	155	5775	1	15.89	17.50	1.449	100	1.000	0.04	0.184	0.267	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 2+6	WWAN + DBS	155	5775	1	12.36	14.00	1.459	100	1.000	0.09	0.081	0.118	
49	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 2+6	WWAN +non DBS	155	5775	1	15.89	17.50	1.449	100	1.000	0.02	0.263	0.381	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 2+6	WWAN + DBS	155	5775	1	12.36	14.00	1.459	100	1.000	-0.09	0.127	0.185	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 2+6	WWAN +non DBS	155	5775	1	15.89	17.50	1.449	100	1.000	-0.17	0.084	0.122	



16.3 Body Worn Accessory SAR

Table with columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB offset, Mode, Test Position, Gap (mm), Antenna, Headset, Power State, Ch., Freq. (MHz), Sample, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Rows are grouped by frequency (750MHz, 835MHz, WCDMA V, LTE Band 26).



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Table with 20 columns: LTE Band, Modulation, RB Size, RB Offset, Mode, Test Position, Gap, Antenna, Headset, Power State, Ch., Freq., Sample, Average Power, Tune-Up Limit, Tune-up Scaling Factor, Power Drift, Measured 1g SAR, Reported 1g SAR. Includes rows for LTE Band 26 and FR1 n5.

Table with 20 columns: Plot No., Band, BW, Modulation, RB Size, RB Offset, Mode, Test Position, Gap, Antenna, Headset, Power State, Ch., Freq., Sample, Average Power, Tune-Up Limit, Tune-up Scaling Factor, Power Drift, Measured 1g SAR, Reported 1g SAR. Includes a section for 1750MHz WCDMA IV and LTE Band 66.



Table with columns: Band, Power, Modulation, Channels, Frequency, Location, Antenna, Type, Exposure, SAR, etc. Includes rows for LTE Band 66 and FR1 n66, and a section for 1900MHz GSM.



	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant1	-	DSI 3 Simultaneous	26590	1905	1	15.92	17.00	1.282	-0.01	0.759	0.973
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 1	Headset	DSI 3	26590	1905	1	16.32	17.70	1.374	0.04	0.878	1.206
	LTE Band 25	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	DSI 3	26340	1880	1	16.45	17.70	1.334	-0.13	0.664	0.885
	LTE Band 25	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	DSI 3	26140	1860	1	16.31	17.70	1.377	0.01	0.725	0.998
	LTE Band 25	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	DSI 3	26590	1905	1	16.26	17.70	1.393	-0.18	0.730	1.017
	LTE Band 25	20M	QPSK	100	0	-	Back	5mm	Ant 1	-	DSI 3	26340	1880	1	16.40	17.70	1.349	-0.19	0.673	0.908
	LTE Band 25	20M	QPSK	1	0	-	Front	15mm	Ant 1	-	DSI 4	26590	1905	1	21.44	23.00	1.432	-0.18	0.263	0.377
	LTE Band 25	20M	QPSK	1	0	-	Back	19mm	Ant 1	-	DSI 4	26590	1905	1	21.44	23.00	1.432	-0.03	0.250	0.358
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 0	-	DSI 3	376000	1880	1	20.30	21.10	1.202	0.17	0.645	0.775
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	5mm	Ant 0	-	DSI 3	376000	1880	1	20.28	21.10	1.208	0.04	0.614	0.742
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	-	DSI 3	376000	1880	1	20.30	21.10	1.202	-0.06	0.979	1.177
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	-	DSI 3	372000	1860	1	20.21	21.10	1.227	0.02	0.924	1.134
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	-	DSI 3	380000	1900	1	20.16	21.10	1.242	0.02	0.884	1.098
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 0	-	DSI 3	376000	1880	1	20.28	21.10	1.208	-0.12	0.964	1.164
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 0	-	DSI 3	372000	1860	1	20.13	21.10	1.250	0.17	0.968	1.210
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 0	-	DSI 3	380000	1900	1	20.01	21.10	1.285	-0.03	0.944	1.213
	FR1 n2	20M	QPSK	100	0	DFT-SCS-15KHz	Back	5mm	Ant 0	-	DSI 3	376000	1880	1	20.26	21.10	1.213	-0.08	1.010	1.226
	FR1 n2	20M	QPSK	100	0	DFT-SCS-15KHz	Back	5mm	Ant 0	Headset	DSI 3	376000	1880	1	20.26	21.10	1.213	-0.11	0.985	1.195
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	15mm	Ant 0	-	DSI 4	376000	1880	1	23.23	24.00	1.194	-0.08	0.122	0.146
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	19mm	Ant 0	-	DSI 4	376000	1880	1	23.23	24.00	1.194	0.02	0.101	0.121
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 1	-	DSI 3	376000	1880	1	17.74	18.70	1.247	0.07	0.667	0.832
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 1	-	DSI 3	372000	1860	1	17.72	18.70	1.253	0.14	0.660	0.827
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 1	-	DSI 3	380000	1900	1	17.66	18.70	1.271	0.11	0.649	0.825
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	5mm	Ant 1	-	DSI 3	376000	1880	1	17.65	18.70	1.274	0.12	0.658	0.838
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	5mm	Ant 1	-	DSI 3	372000	1860	1	17.64	18.70	1.276	0.03	0.653	0.834
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	5mm	Ant 1	-	DSI 3	380000	1900	1	17.60	18.70	1.288	0.07	0.629	0.810
	FR1 n2	20M	QPSK	100	0	DFT-SCS-15KHz	Front	5mm	Ant 1	-	DSI 3	376000	1880	1	17.61	18.70	1.285	0.07	0.662	0.851
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	-	DSI 3	376000	1880	1	17.74	18.70	1.247	-0.07	0.909	1.134
62	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	-	DSI 3	372000	1860	1	17.72	18.70	1.253	-0.02	0.991	1.242
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant1	-	DSI 3 Simultaneous	372000	1860	1	16.29	17.50	1.321	-0.01	0.742	0.980
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	Headset	DSI 3	372000	1860	1	17.72	18.70	1.253	-0.01	0.987	1.237
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	-	DSI 3	380000	1900	1	17.66	18.70	1.271	-0.12	0.909	1.155
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 1	-	DSI 3	376000	1880	1	17.65	18.70	1.274	0.05	0.947	1.206
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 1	-	DSI 3	372000	1860	1	17.64	18.70	1.276	0.15	0.918	1.172
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 1	-	DSI 3	380000	1900	1	17.60	18.70	1.288	0.02	0.895	1.153
	FR1 n2	20M	QPSK	100	0	DFT-SCS-15KHz	Back	5mm	Ant 1	-	DSI 3	376000	1880	1	17.61	18.70	1.285	0.09	0.887	1.140
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	15mm	Ant 1	-	DSI 4	376000	1880	1	22.38	24.00	1.452	-0.05	0.178	0.258
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	19mm	Ant 1	-	DSI 4	372000	1860	1	22.24	24.00	1.500	-0.05	0.173	0.259



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	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 3	-	DSI 3	518598	2592.99	1	19.44	20.80	1.368	-	-	-0.15	0.571	0.781
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 3	-	DSI 3	518598	2592.99	1	19.38	20.80	1.387	-	-	0.05	0.663	0.919
	FR1 n41 HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Back	5mm	Ant 3	-	DSI 3	518598	2592.99	1	19.31	20.80	1.409	-	-	0.07	0.531	0.748
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 4	-	DSI 3	518598	2592.99	1	17.75	18.80	1.274	-	-	0.12	0.352	0.448
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant 4	-	DSI 3	518598	2592.99	1	17.54	18.80	1.337	-	-	-0.07	0.428	0.572
	FR1 n41 HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Front	5mm	Ant 4	-	DSI 3	518598	2592.99	1	17.50	18.80	1.349	-	-	0.06	0.359	0.484
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 4	-	DSI 3	518598	2592.99	1	17.75	18.80	1.274	-	-	0.07	0.820	1.044
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 4	-	DSI 3	518598	2592.99	1	17.54	18.80	1.337	-	-	0.03	0.922	1.232
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 4	-	DSI 3 Simultaneous	518598	2592.99	1	15.98	17.10	1.294	-	-	0.03	0.729	0.943
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 4	-	DSI 3	518598	2592.99	3	17.54	18.80	1.337	-	-	-0.15	0.904	1.208
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 4	Headset	DSI 3	518598	2592.99	1	17.54	18.80	1.337	-	-	-0.09	0.901	1.204
	FR1 n41 HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Back	5mm	Ant 4	-	DSI 3	518598	2592.99	1	17.50	18.80	1.349	-	-	0.03	0.818	1.103
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 4	-	DSI 4	518598	2592.99	1	24.21	26.00	1.510	-	-	0.09	0.206	0.311
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	19mm	Ant 4	-	DSI 4	518598	2592.99	1	24.21	26.00	1.510	-	-	0.01	0.259	0.391



FCC SAR Test Report

Report No. : FA252601

Table with columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB offset, Mode, Test Position, Gap (mm), Antenna, Headset, Power State, Ch., Freq. (MHz), Sample, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Duty Cycle %, Duty Cycle Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Contains data for bands 42, 48, and n77/n77Q.



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Table with columns for LTE Band 66, 20M, QPSK, 1, 0, -, Back, 0mm, Ant 0, DSI 6, 132572, 1770, 1, 21.50, 22.30, 1.202, -0.18, 2.040, 2.453. Includes rows 80 and 81.



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Table with columns for test parameters (e.g., FR1 n66, 40M, QPSK, 108, 54, DFT-SCS-15KHz) and SAR values. Includes a section for 1900MHz with various GSM and WCDMA configurations. Two rows are highlighted in yellow (2.596 and 2.749).



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Table with columns for LTE Band 25, 20M, QPSK, power levels (1, 50, 100), antenna positions (Front, Back, Bottom Side), antenna types (DSI 4, DSI 6), and various SAR metrics.



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	FR1 n2	20M	QPSK	100	0	DFT-SCS-15KHz	Bottom Side	0mm	Ant 0	DSI 6	376000	1880	1	22.19	23.40	1.321	0.12	1.310	1.731
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	10mm	Ant 0	DSI 4	372000	1860	1	23.19	24.00	1.205	0.09	0.188	0.227
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	10mm	Ant 0	DSI 4	372000	1860	1	23.12	24.00	1.225	0.05	0.222	0.272
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	16mm	Ant 0	DSI 4	380000	1900	1	23.08	24.00	1.236	0.01	0.121	0.150
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	16mm	Ant 0	DSI 4	380000	1900	1	23.10	24.00	1.230	0.05	0.150	0.185
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	13mm	Ant 0	DSI 4	380000	1900	1	23.08	24.00	1.236	-0.06	0.418	0.517
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	376000	1880	1	19.45	20.40	1.245	-0.09	1.860	2.315
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	372000	1860	1	19.41	20.40	1.256	-0.02	2.180	2.738
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	380000	1900	1	19.32	20.40	1.282	0.18	2.140	2.744
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	376000	1880	1	19.39	20.40	1.262	-0.08	1.850	2.334
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	372000	1860	1	19.24	20.40	1.306	-0.16	2.120	2.769
85	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	380000	1900	1	19.24	20.40	1.306	-0.13	2.130	2.782
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	380000	1900	3	19.24	20.40	1.306	-0.13	2.040	2.665
	FR1 n2	20M	QPSK	100	0	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	376000	1880	1	19.33	20.40	1.279	0.05	1.190	1.522
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant 1	DSI 6	376000	1880	1	19.45	20.40	1.245	0.1	1.180	1.469
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	0mm	Ant 1	DSI 6	376000	1880	1	19.39	20.40	1.262	-0.11	1.160	1.464
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Left Side	0mm	Ant 1	DSI 6	376000	1880	1	19.45	20.40	1.245	-0.06	1.200	1.493
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Left Side	0mm	Ant 1	DSI 6	376000	1880	1	19.39	20.40	1.262	-0.14	1.120	1.413
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	376000	1880	1	19.45	20.40	1.245	0.06	1.710	2.128
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	372000	1860	1	19.41	20.40	1.256	0.11	1.810	2.273
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	380000	1900	1	19.32	20.40	1.282	0.09	1.480	1.898
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	376000	1880	1	19.39	20.40	1.262	0.06	1.660	2.095
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	372000	1860	1	19.24	20.40	1.306	-0.02	1.750	2.286
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	380000	1900	1	19.24	20.40	1.306	0.04	1.960	2.560
	FR1 n2	20M	QPSK	100	0	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	376000	1880	1	19.33	20.40	1.279	0.16	1.270	1.625
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	11mm	Ant 1	DSI 4	380000	1900	1	22.32	24.00	1.472	0.06	0.239	0.352
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	11mm	Ant 1	DSI 4	380000	1900	1	22.32	24.00	1.472	0.06	0.239	0.352
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	16mm	Ant 1	DSI 4	376000	1880	1	22.38	24.00	1.452	0.04	0.176	0.256
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Left Side	12mm	Ant 1	DSI 4	376000	1880	1	22.38	24.00	1.452	0.01	0.114	0.166
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Top Side	15mm	Ant 1	DSI 4	380000	1900	1	22.32	24.00	1.472	0.05	0.133	0.196
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Top Side	15mm	Ant 1	DSI 4	380000	1900	1	22.32	24.00	1.472	-0.16	0.157	0.231



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	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	DSI 6	40620	2593	1	23.17	24.00	1.211	62.9	1.006	0.09	1.240	1.510
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	DSI 6	39750	2506	1	23.09	24.00	1.233	62.9	1.006	-0.11	0.943	1.170
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	DSI 6	41490	2680	1	23.00	24.00	1.259	62.9	1.006	-0.19	1.210	1.532
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	DSI 6	40185	2549.5	1	23.01	24.00	1.256	62.9	1.006	0.06	0.935	1.181
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	DSI 6	41055	2636.5	1	23.13	24.00	1.222	62.9	1.006	-0.09	1.200	1.475
	LTE Band 41	20M	QPSK	100	0	-	Bottom Side	0mm	Ant 0	DSI 6	40620	2593	1	23.16	24.00	1.213	62.9	1.006	-0.14	1.150	1.404
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	13mm	Ant 0	DSI 4	41055	2636.5	1	22.98	24.00	1.265	62.9	1.006	-0.16	0.206	0.262
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	DSI 6	40620	2593	1	22.09	23.00	1.233	62.9	1.006	0.08	1.690	2.096
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	DSI 6	39750	2506	1	21.88	23.00	1.294	62.9	1.006	-0.12	1.520	1.979
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	DSI 6	41490	2680	1	21.65	23.00	1.365	62.9	1.006	-0.16	1.550	2.128
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	DSI 6	40185	2549.5	1	21.95	23.00	1.274	62.9	1.006	0.03	1.540	1.973
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	DSI 6	41055	2636.5	1	21.92	23.00	1.282	62.9	1.006	0.06	1.620	2.090
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	DSI 6	40620	2593	1	22.07	23.00	1.239	62.9	1.006	0.01	1.740	2.168
	LTE Band 41C	20M	QPSK	1	99	-	Front	0mm	Ant 1	DSI 6	40620+40818	2593+2612.8	1	21.99	23.00	1.262	62.9	1.006	-0.19	1.660	2.107
	LTE Band 41C	20M	QPSK	1	99	-	Front	0mm	Ant 1	DSI 6	39750+39948	2506+2525.8	1	21.85	23.00	1.303	62.9	1.006	-0.16	1.650	2.163
	LTE Band 41C	20M	QPSK	1	99	-	Front	0mm	Ant 1	DSI 6	40185+40383	2549.5+2569.3	1	21.86	23.00	1.300	62.9	1.006	-0.15	1.610	2.106
	LTE Band 41C	20M	QPSK	1	99	-	Front	0mm	Ant 1	DSI 6	41055+41253	2636.5+2656.3	1	21.93	23.00	1.279	62.9	1.006	0.11	1.680	2.162
	LTE Band 41C	20M	QPSK	1	0	-	Front	0mm	Ant 1	DSI 6	41490+41292	2680+2660.2	1	21.97	23.00	1.268	62.9	1.006	-0.14	1.620	2.066
87	LTE Band 41HPUE	20M	QPSK	50	0	-	Front	0mm	Ant 1	DSI 6	40620	2593	1	24.48	26.00	1.419	42.9	1.009	0.01	1.890	2.706
	LTE Band 41C HPUE	20M	QPSK	1	99	-	Front	0mm	Ant 1	DSI 6	40620+40818	2593+2612.8	1	24.48	26.00	1.419	42.9	1.009	0.04	1.650	2.363
	LTE Band 41C HPUE	20M	QPSK	1	99	-	Front	0mm	Ant 1	DSI 6	39750+39948	2506+2525.8	1	24.36	26.00	1.459	42.9	1.009	0.07	1.560	2.296
	LTE Band 41C HPUE	20M	QPSK	1	99	-	Front	0mm	Ant 1	DSI 6	40185+40383	2549.5+2569.3	1	24.43	26.00	1.435	42.9	1.009	0.1	1.580	2.288
	LTE Band 41C HPUE	20M	QPSK	1	99	-	Front	0mm	Ant 1	DSI 6	41055+41253	2636.5+2656.3	1	24.31	26.00	1.476	42.9	1.009	-0.16	1.570	2.338
	LTE Band 41C HPUE	20M	QPSK	1	0	-	Front	0mm	Ant 1	DSI 6	41490+41292	2680+2660.2	1	24.23	26.00	1.503	42.9	1.009	-0.09	1.620	2.457
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	DSI 6	39750	2506	1	21.88	23.00	1.294	62.9	1.006	0.06	1.570	2.044
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	DSI 6	41490	2680	1	21.85	23.00	1.303	62.9	1.006	-0.06	1.630	2.137
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	DSI 6	40185	2549.5	1	21.85	23.00	1.303	62.9	1.006	0.02	1.630	2.137
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	DSI 6	41055	2636.5	1	21.92	23.00	1.282	62.9	1.006	-0.05	1.670	2.154
	LTE Band 41	20M	QPSK	100	0	-	Front	0mm	Ant 1	DSI 6	40620	2593	1	22.04	23.00	1.247	62.9	1.006	0.04	1.730	2.171
	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI 6	40620	2593	1	22.09	23.00	1.233	62.9	1.006	0.07	0.607	0.753
	LTE Band 41	20M	QPSK	50	0	-	Back	0mm	Ant 1	DSI 6	40620	2593	1	22.07	23.00	1.239	62.9	1.006	-0.01	0.623	0.776
	LTE Band 41	20M	QPSK	1	0	-	Top Side	0mm	Ant 1	DSI 6	40620	2593	1	22.09	23.00	1.233	62.9	1.006	0.02	1.310	1.625
	LTE Band 41	20M	QPSK	1	0	-	Top Side	0mm	Ant 1	DSI 6	39750	2506	1	21.88	23.00	1.294	62.9	1.006	0.02	1.270	1.653
	LTE Band 41	20M	QPSK	1	0	-	Top Side	0mm	Ant 1	DSI 6	41490	2680	1	21.65	23.00	1.365	62.9	1.006	-0.03	1.110	1.524
	LTE Band 41	20M	QPSK	1	0	-	Top Side	0mm	Ant 1	DSI 6	40185	2549.5	1	21.95	23.00	1.274	62.9	1.006	0.09	1.150	1.473
	LTE Band 41	20M	QPSK	1	0	-	Top Side	0mm	Ant 1	DSI 6	41055	2636.5	1	21.92	23.00	1.282	62.9	1.006	0.03	1.370	1.767
	LTE Band 41	20M	QPSK	50	0	-	Top Side	0mm	Ant 1	DSI 6	40620	2593	1	22.07	23.00	1.239	62.9	1.006	0.02	1.350	1.682
	LTE Band 41	20M	QPSK	50	0	-	Top Side	0mm	Ant 1	DSI 6	39750	2506	1	21.88	23.00	1.294	62.9	1.006	-0.06	1.330	1.732
	LTE Band 41	20M	QPSK	50	0	-	Top Side	0mm	Ant 1	DSI 6	41490	2680	1	21.85	23.00	1.303	62.9	1.006	0.03	1.130	1.481
	LTE Band 41	20M	QPSK	50	0	-	Top Side	0mm	Ant 1	DSI 6	40185	2549.5	1	21.85	23.00	1.303	62.9	1.006	0.05	1.200	1.573
	LTE Band 41	20M	QPSK	50	0	-	Top Side	0mm	Ant 1	DSI 6	41055	2636.5	1	21.92	23.00	1.282	62.9	1.006	0.07	1.340	1.729
	LTE Band 41	20M	QPSK	100	0	-	Top Side	0mm	Ant 1	DSI 6	40620	2593	1	22.04	23.00	1.247	62.9	1.006	-0.16	1.330	1.669
88	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	507000	2535	1	19.62	20.60	1.253	-	-	0.15	2.170	2.719
	FR1 n7 Other PA	40M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	507000	2535	1	19.62	20.60	1.253	-	-	0.15	1.950	2.444
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	507000	2535	1	19.54	20.60	1.276	-	-	-0.09	2.120	2.706
	FR1 n7	40M	QPSK	216	0	DFT-SCS-15KHz	Front	0mm	Ant 1	DSI 6	507000	2535	1	19.35	20.60	1.334	-	-	-0.18	2.010	2.680
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant 1	DSI 6	507000	2535	1	19.62	20.60	1.253	-	-	0.17	0.787	0.986
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	0mm	Ant 1	DSI 6	507000	2535	1	19.54	20.60	1.276	-	-	-0.07	0.765	0.976
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	507000	2535	1	19.62	20.60	1.253	-	-	0.11	2.010	2.519
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	507000	2535	1	19.54	20.60	1.276	-	-	-0.06	1.870	2.387
	FR1 n7	40M	QPSK	216	0	DFT-SCS-15KHz	Top Side	0mm	Ant 1	DSI 6	507000	2535	1	19.35	20.60	1.334	-	-	-0.01	1.920	2.560
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	11mm	Ant 1	DSI 4	507000	2535	1	22.66	24.00	1.361	-	-	0.08	0.206	0.280
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	16mm	Ant 1	DSI 4	507000	2535	1	22.66	24.00	1.361	-	-	0.01	0.291	0.396
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Top Side	15mm	Ant 1	DSI 4	507000	2535	1	22.66	24.00	1.361	-	-	0.02	0.272	0.370



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Table with columns for test parameters: FR1 n7, 40M, QPSK, 216, 0, DFT-SCS-15KHz, Top Side, 15mm, Ant 1, DSI 4, 507000, 2535, 1, 22.39, 24.00, 1.449, - , - , 0.02, 0.260, 0.377



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Table with columns: FR1 n41 HPUE, 100M, QPSK, 135/270, 69/0, DFT-SCS-30KHz, Top Side, 0mm, Ant 4, DSI 6, 518598, 2592.99, 1, 18.97, 20.20, 1.327, -, -, -0.14, 1.700, 2.257, etc.



	FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	11mm	Ant 5	DSI 4	656000	3840	1	25.50	27.00	1.413	-	-	0.05	0.225	0.318
	FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	16mm	Ant 5	DSI 4	656000	3840	1	25.50	27.00	1.413	-	-	0.01	0.107	0.151
	FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right side	7mm	Ant 5	DSI 4	656000	3840	1	25.50	27.00	1.413	-	-	-0.09	0.144	0.203
	FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	15mm	Ant 5	DSI 4	656000	3840	1	25.50	27.00	1.413	-	-	0.01	0.118	0.167
	FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	15mm	Ant 5	DSI 4	656000	3840	1	25.38	27.00	1.452	-	-	0.09	0.133	0.193
	FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	0mm	Ant 5	DSI 6	633334	3500.01	1	20.17	21.30	1.297	-	-	-0.03	1.580	2.050
	FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Front	0mm	Ant 5	DSI 6	633334	3500.01	1	20.15	21.30	1.303	-	-	-0.04	1.330	1.733
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Front	0mm	Ant 5	DSI 6	633334	3500.01	1	20.11	21.30	1.315	-	-	0.04	1.580	2.078
	FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	0mm	Ant 5	DSI 6	633334	3500.01	1	20.17	21.30	1.297	-	-	0.04	0.419	0.544
	FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant 5	DSI 6	633334	3500.01	1	20.15	21.30	1.303	-	-	-0.1	0.400	0.521
	FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant 5	DSI 6	633334	3500.01	1	20.17	21.30	1.297	-	-	0.11	1.890	2.452
	FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	0mm	Ant 5	DSI 6	633334	3500.01	1	20.15	21.30	1.303	-	-	0.06	1.990	2.593
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Top Side	0mm	Ant 5	DSI 6	633334	3500.01	1	20.11	21.30	1.315	-	-	0.07	2.070	2.723
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Top Side	0mm	Ant 5	DSI 6	633334	3500.01	2	20.11	21.30	1.315	-	-	0.17	1.990	2.617
	FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	11mm	Ant 5	DSI 4	633334	3500.01	1	25.74	27.00	1.337	-	-	0.09	0.181	0.242
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Front	11mm	Ant 5	DSI 4	633334	3500.01	1	25.16	26.00	1.213	-	-	0.01	0.175	0.212
	FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	16mm	Ant 5	DSI 4	633334	3500.01	1	25.74	27.00	1.337	-	-	-0.05	0.064	0.086
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Back	16mm	Ant 5	DSI 4	633334	3500.01	1	25.16	26.00	1.213	-	-	-0.19	0.081	0.098
	FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	15mm	Ant 5	DSI 4	633334	3500.01	1	25.74	27.00	1.337	-	-	0.1	0.211	0.282
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Top Side	15mm	Ant 5	DSI 4	633334	3500.01	1	25.16	26.00	1.213	-	-	0.16	0.214	0.260
	FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	0mm	Ant 3	DSI 4	656000	3840	1	23.08	24.00	1.236	-	-	-0.03	1.970	2.435
	FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Front	0mm	Ant 3	DSI 4	656000	3840	1	23.04	24.00	1.247	-	-	0.02	2.030	2.532
	FR1 n77 Par27O HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Front	0mm	Ant 3	DSI 4	656000	3840	1	22.98	24.00	1.265	-	-	0.06	1.750	2.213
	FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	0mm	Ant 3	DSI 4	656000	3840	1	23.08	24.00	1.236	-	-	0.04	0.741	0.916
	FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant 3	DSI 4	656000	3840	1	23.04	24.00	1.247	-	-	-0.1	0.791	0.987
	FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	0mm	Ant 3	DSI 4	656000	3840	1	23.08	24.00	1.236	-	-	-0.15	1.820	2.249
	FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	0mm	Ant 3	DSI 4	656000	3840	1	23.04	24.00	1.247	-	-	0.03	2.060	2.570
	FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	0mm	Ant 3	DSI 4	656000	3840	3	23.04	24.00	1.247	-	-	0.03	2.020	2.520
	FR1 n77 Par27O HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Side	0mm	Ant 3	DSI 4	656000	3840	1	22.98	24.00	1.265	-	-	-0.02	1.610	2.036
	FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	0mm	Ant 3	DSI 4	633334	3500.01	1	22.98	24.00	1.265	-	-	-0.14	2.100	2.656
92	FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	0mm	Ant 3	DSI 4	633334	3500.01	1	22.91	24.00	1.285	-	-	-0.01	2.140	2.751
	FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	0mm	Ant 3	DSI 4	633334	3500.01	3	22.91	24.00	1.285	-	-	-0.01	2.010	2.583
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Left Side	0mm	Ant 3	DSI 4	633334	3500.01	1	22.85	24.00	1.303	-	-	-0.13	2.100	2.737
	FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	0mm	Ant 7	DSI 6	656000	3840	1	19.44	20.70	1.337	-	-	-0.15	1.301	1.739
	FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant 7	DSI 6	656000	3840	1	19.41	20.70	1.346	-	-	0.11	1.373	1.848
	FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant 7	DSI 6	656000	3840	3	19.41	20.70	1.346	-	-	-0.11	1.366	1.838
	FR1 n77 Par27O HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Back	0mm	Ant 7	DSI 6	656000	3840	1	19.22	20.70	1.406	-	-	-0.13	1.239	1.742
	FR1 n77 Par27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI 4	656000	3840	1	25.72	27.00	1.343	-	-	0.02	0.354	0.475
	FR1 n77 Par27O HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI 4	656000	3840	1	25.68	27.00	1.355	-	-	-0.09	0.328	0.445
	FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	0mm	Ant 7	DSI 6	633334	3500.01	1	19.35	20.70	1.365	-	-	-0.13	1.800	2.456
	FR1 n77 Par27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant 7	DSI 6	633334	3500.01	1	19.32	20.70	1.374	-	-	0.16	1.740	2.391
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Back	0mm	Ant 7	DSI 6	633334	3500.01	1	19.28	20.70	1.387	-	-	0.01	1.980	2.746
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Back	0mm	Ant 7	DSI 6	633334	3500.01	3	19.28	20.70	1.387	-	-	0.14	1.920	2.663
	FR1 n77 Par27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI 4	633334	3500.01	1	25.63	27.00	1.371	-	-	0.08	0.385	0.528
	FR1 n77 Par27Q HPUE	100M	QPSK	270	0	DFT-SCS-30KHz	Back	5mm	Ant 7	DSI 4	633334	3500.01	1	25.24	26.00	1.191	-	-	-0.16	0.368	0.438



Plot	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	
WLAN&BT																		
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 4+6	Standalone	6	2437	1	23.04	24.50	1.400	100	1.000	0.07	0.540	0.756	
93	WLAN2.4GHz	802.11b 1Mbps	Right Side	0mm	Ant 4+6	Standalone	6	2437	1	23.04	24.50	1.400	100	1.000	0.08	1.490	2.087	
	WLAN2.4GHz	802.11b 1Mbps	Right Side	0mm	Ant 4+6	Standalone	6	2437	3	23.04	24.50	1.400	100	1.000	0.08	1.420	1.989	
	WLAN2.4GHz	802.11b 1Mbps	Right Side	0mm	Ant 4+6	DBS Only	6	2437	1	22.06	23.50	1.393	100	1.000	0.05	1.190	1.658	
	WLAN2.4GHz	802.11b 1Mbps	Right Side	0mm	Ant 4+6	WWAN +non DBS	6	2437	1	18.62	20.00	1.374	100	1.000	0.07	0.521	0.716	
	WLAN2.4GHz	802.11b 1Mbps	Right Side	0mm	Ant 4+6	WWAN + DBS	6	2437	1	15.61	17.00	1.377	100	1.000	0.05	0.267	0.368	
	WLAN2.4GHz	802.11b 1Mbps	Right Side	0mm	Ant 4+6	Standalone	1	2412	1	22.96	24.50	1.425	100	1.000	-0.05	1.320	1.881	
	WLAN5.2GHz	802.11ax-HE40 MCS0	Back	0mm	Ant 2+6	Standalone	46	5230	1	21.62	23.00	1.374	100	1.000	0.07	0.255	0.350	
	WLAN5.2GHz	802.11ax-HE40 MCS0	Left Side	0mm	Ant 2+6	Standalone	46	5230	1	21.62	23.00	1.374	100	1.000	-0.1	0.624	0.857	
94	WLAN5.2GHz	802.11ax-HE40 MCS0	Right Side	0mm	Ant 2+6	Standalone	46	5230	1	21.62	23.00	1.374	100	1.000	-0.07	2.020	2.775	
	WLAN5.2GHz	802.11ax-HE40 MCS0	Right Side	0mm	Ant 2+6	Standalone	46	5230	3	21.62	23.00	1.374	100	1.000	-0.07	1.970	2.706	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2+6	DBS Only	42	5210	1	17.81	19.50	1.476	100	1.000	0.06	1.160	1.712	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2+6	WWAN +non DBS	42	5210	1	14.79	16.50	1.483	100	1.000	-0.04	0.522	0.774	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2+6	WWAN + DBS	42	5210	1	11.82	13.50	1.472	100	1.000	0.05	0.266	0.392	
	WLAN5.3GHz	802.11ax-HE40 MCS0	Front	0mm	Ant 2+6	Standalone	54	5270	1	21.59	23.00	1.385	100	1.000	-0.02	0.844	1.169	
	WLAN5.3GHz	802.11ax-HE40 MCS0	Back	0mm	Ant 2+6	Standalone	54	5270	1	21.59	23.00	1.385	100	1.000	0.19	0.346	0.479	
	WLAN5.3GHz	802.11ax-HE40 MCS0	Left Side	0mm	Ant 2+6	Standalone	54	5270	1	21.59	23.00	1.385	100	1.000	0.08	1.870	2.590	
95	WLAN5.3GHz	802.11ax-HE40 MCS0	Right Side	0mm	Ant 2+6	Standalone	54	5270	1	21.59	23.00	1.385	100	1.000	0.04	2.120	2.936	
	WLAN5.3GHz	802.11ax-HE40 MCS0	Right Side	0mm	Ant 2+6	Standalone	54	5270	3	21.59	23.00	1.385	100	1.000	0.04	2.010	2.783	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2+6	DBS Only	58	5290	1	18.87	20.50	1.455	100	1.000	0.09	1.160	1.688	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2+6	WWAN +non DBS	58	5290	1	15.40	17.00	1.445	100	1.000	0.14	0.535	0.773	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2+6	WWAN + DBS	58	5290	1	12.37	14.00	1.455	100	1.000	0.14	0.255	0.371	
	WLAN5.3GHz	802.11ax-HE40 MCS0	Top Side	0mm	Ant 2+6	Standalone	54	5270	1	21.59	23.00	1.385	100	1.000	0.05	0.221	0.306	
	WLAN5.5GHz	802.11ax-HE80 MCS0	Front	0mm	Ant 2+6	Standalone	122	5610	1	21.28	23.00	1.486	100	1.000	-0.16	0.714	1.061	
	WLAN5.5GHz	802.11ax-HE80 MCS0	Back	0mm	Ant 2+6	Standalone	122	5610	1	21.28	23.00	1.486	100	1.000	0.11	0.311	0.462	
96	WLAN5.5GHz	802.11ax-HE80 MCS0	Left Side	0mm	Ant 2+6	Standalone	122	5610	1	21.28	23.00	1.486	100	1.000	0.08	1.480	2.199	
	WLAN5.5GHz	802.11ax-HE80 MCS0	Left Side	0mm	Ant 2+6	Standalone	122	5610	3	21.28	23.00	1.486	100	1.000	0.08	1.400	2.080	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 2+6	DBS Only	122	5610	1	20.06	21.50	1.393	100	1.000	0.05	1.060	1.477	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 2+6	WWAN +non DBS	106	5530	1	17.05	18.50	1.396	100	1.000	0.01	0.518	0.723	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 2+6	WWAN + DBS	106	5530	1	14.06	15.50	1.393	100	1.000	0.09	0.255	0.355	
	WLAN5.5GHz	802.11ax-HE80 MCS0	Left Side	0mm	Ant 2+6	Standalone	138	5690	1	21.16	23.00	1.526	100	1.000	0.07	1.310	2.000	
	WLAN5.5GHz	802.11ax-HE80 MCS0	Right Side	0mm	Ant 2+6	Standalone	122	5610	1	21.28	23.00	1.486	100	1.000	0.15	1.210	1.798	
	WLAN5.5GHz	802.11ax-HE80 MCS0	Top Side	0mm	Ant 2+6	Standalone	122	5610	1	21.28	23.00	1.486	100	1.000	0.05	0.346	0.514	
97	WLAN5.8GHz	802.11ax-HE80 MCS0	Right Side	0mm	Ant 2+6	Standalone	155	5775	1	21.18	23.00	1.522	100	1.000	-0.16	1.430	2.177	
	WLAN5.8GHz	802.11ax-HE80 MCS0	Right Side	0mm	Ant 2+6	Standalone	155	5775	3	21.18	23.00	1.522	100	1.000	-0.16	1.370	2.085	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2+6	DBS Only	155	5775	1	20.37	22.00	1.455	100	1.000	0.02	1.120	1.630	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2+6	WWAN +non DBS	155	5775	1	16.95	18.50	1.429	100	1.000	-0.03	0.522	0.746	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 2+6	WWAN + DBS	155	5775	1	13.86	15.50	1.459	100	1.000	0.02	0.238	0.347	



16.5 Repeated SAR Measurement

<1g>

Table with 19 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), Ratio, Reported 1g SAR (W/kg). Contains multiple rows of test data for various bands and modes.

<10g>

Table with 19 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 10g SAR (W/kg), Ratio, Reported 10g SAR (W/kg). Contains multiple rows of test data for various bands and modes.

General Note:

- 1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The ratio is the difference in percentage between original and repeated measured SAR.
5. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16.6 TDD B41 Linearity Data Analysis

General Note:

This device support Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 W/kg for 1g and < 3.5 W/kg for 10g, Separate SAR testing for Power Class 2 is not required

LTE Band 41(HPUE) Ant 0-Linearity Data for Head			LTE Band 41(HPUE) Ant 1-Linearity Data for Head		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)		LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	24.00	27.00	Maximum Tune up Power (dBm)	19.60	21.20
Reported 1g SAR (W/kg)	0.128	0.192	Reported 1g SAR (W/kg)	1.201	1.246
Duty Cycle	63.30%	43.30%	Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	159.00	217.01	Frame Averaged (mW)	57.73	57.08
Linearity SAR (W/kg)	0.175		Linearity SAR (W/kg)	1.187	
% deviation from expected linearity		9.90%	% deviation from expected linearity		4.93%
LTE Band 41(HPUE) Ant 0-Linearity Data for Hotspot			LTE Band 41(HPUE) Ant 1-Linearity Data for Hotspot		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)		LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	24.00	26.10	Maximum Tune up Power (dBm)	21.00	22.60
Reported 1g SAR (W/kg)	1.238	1.260	Reported 1g SAR (W/kg)	0.997	0.901
Duty Cycle	63.30%	43.30%	Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	159.00	176.40	Frame Averaged (mW)	79.69	78.79
Linearity SAR (W/kg)	1.373		Linearity SAR (W/kg)	0.986	
% deviation from expected linearity		-8.26%	% deviation from expected linearity		-8.60%
LTE Band 41(HPUE) Ant 0-Linearity Data for Body-worn			LTE Band 41(HPUE) Ant 1-Linearity Data for Body-worn		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)		LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	24.00	27.00	Maximum Tune up Power (dBm)	22.20	23.80
Reported 1g SAR (W/kg)	1.001	1.243	Reported 1g SAR (W/kg)	1.280	1.168
Duty Cycle	63.30%	43.30%	Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	159.00	217.01	Frame Averaged (mW)	105.05	103.87
Linearity SAR (W/kg)	1.366		Linearity SAR (W/kg)	1.266	
% deviation from expected linearity		-9.02%	% deviation from expected linearity		-7.71%
LTE Band 41(HPUE) Ant 0-Linearity Data for Extremity SAR			LTE Band 41(HPUE) Ant 1-Linearity Data for Extremity SAR		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)		LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	24.00	27.00	Maximum Tune up Power (dBm)	23.00	26.00
Reported 10g SAR (W/kg)	1.590	1.994	Reported 10g SAR (W/kg)	2.171	2.706
Duty Cycle	63.30%	43.30%	Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	159.00	217.01	Frame Averaged (mW)	126.30	172.38
Linearity SAR (W/kg)	2.170		Linearity SAR (W/kg)	2.963	
% deviation from expected linearity		-8.12%	% deviation from expected linearity		-8.68%

17. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	WWAN + WLAN2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN5GHz	Yes	Yes	Yes	Yes
3.	WWAN + WLAN6GHz	Yes	Yes	Yes	Yes
4.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
5.	WWAN + NFC				Yes
6.	WLAN2.4GHz + WLAN5GHz	Yes	Yes	Yes	Yes
7.	WLAN2.4GHz + WLAN6GHz	Yes	Yes	Yes	Yes
8.	WLAN5GHz+ Bluetooth	Yes	Yes	Yes	Yes
9.	WLAN6GHz+ Bluetooth	Yes	Yes	Yes	Yes
10.	NFC + Bluetooth				Yes
11.	NFC + WLAN2.4GHz				Yes
12.	NFC + WLAN5GHz				Yes
13.	NFC + WLAN6GHz				Yes
14.	WWAN + WLAN5GHz + NFC				Yes
15.	WWAN + WLAN6GHz + NFC				Yes
16.	WLAN2.4GHz + WLAN5GHz + NFC				Yes
17.	WLAN2.4GHz + WLAN6GHz + NFC				Yes
18.	WWAN + WLAN2.4GHz + WLAN5GHz	Yes	Yes	Yes	Yes
19.	WWAN + WLAN2.4GHz + WLAN6GHz	Yes	Yes	Yes	Yes
20.	WWAN + WLAN2.4GHz + WLAN5GHz + NFC				Yes
21.	WWAN + WLAN2.4GHz + WLAN6GHz + NFC				Yes
22.	WWAN + WLAN5GHz+ Bluetooth	Yes	Yes	Yes	Yes
23.	WWAN + WLAN6GHz+ Bluetooth	Yes	Yes	Yes	Yes
24.	WWAN + WLAN5GHz+ Bluetooth + NFC				Yes
25.	WWAN + WLAN6GHz+ Bluetooth + NFC				Yes

General Note:

- This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
- WWAN above includes 5G NR bands and EN-DC combination.
- The 2.4GHz/5GHz/6GHz WLAN can transmit in MIMO antenna mode only and it has no SISO antenna mode.
- EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- For EN-DC mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR to not exceed FCC limit. Therefore, simultaneous transmission compliance between 4G+5G NR operation is demonstrated in the Part 2 Report during algorithm validation. In Part 1 Report, simultaneous transmission compliance was evaluated individually with other Radios (WLAN or BT) using one of 4G or 5G NR.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- This device 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). WIFI 6E has no hotspot function.
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- WLAN 2.4GHz and Bluetooth share the same antenna, and they cannot transmit simultaneously each other.
- According to the EUT characteristic, WLAN 5GHz/6GHz and Bluetooth can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz/6GHz and WLAN 2.4GHz can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz and WLAN 6GHz can't transmit simultaneously.
- According to the EUT characteristic, NFC and WLAN 2.4GHz/5GHz/6GHz/Bluetooth can transmit simultaneously.
- The maximum SAR summation is calculated based on the same configuration and test position.
- For simultaneously analysis, since the SAR summation of 4 transmitters can cover others combination of 2/3 transmitters, therefore in this section did not additional to evaluate 2TX/3TX combination of simultaneously transmission.
- Per KDB 447498 D04, simultaneous transmission SAR is compliant if,

- i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
- ii) SPLSR = $(SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, 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.
- iii) If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR, simultaneously transmission SAR measurement is not necessary.
- iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.
- v) The SPLSR calculated results please refer to section 17.6.

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

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

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

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

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

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

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

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

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

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

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

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

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

Above analysis is also apply to LTE inter-band uplink, LTE1 + LTE2 + WLAN + BT simultaneous transmission, So inter-band CA uplink no need to do additional simultaneously analysis again. Only required comply with total exposure ratio (TER) of LTE + WLAN + BT < 1.

Above analysis is also apply to NR band UL MIMO, NR1 + NR2 + WLAN + BT simultaneous transmission, So UL MIMO no need to do additional simultaneously analysis again. Only required comply with total exposure ratio (TER) of NR + WLAN + BT < 1.



17.2 Head Exposure Conditions

Exposure Position	1	2	3	1+2	1+3
	WLAN2.4GHz Ant4+6	WLAN5GHz Ant2+6	WLAN6GHz Ant 2+6	Summed	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Right Cheek	0.793	0.790	0.068	1.58	0.86
Right Tilted	0.793	0.790	0.075	1.58	0.87
Left Cheek	0.793	0.790	0.192	1.58	0.99
Left Tilted	0.793	0.790	0.054	1.58	0.85

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2	1+3+4	1+3+5	1+4+6	1+5+6
		WWAN Ant4+6	WLAN2.4GHz Ant4+6	WLAN5GHz Ant2+6	Bluetooth Ant 4	Bluetooth Ant 6	WLAN6GHz Ant 2+6	Summed	Summed	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM850 Ant 0	Right Cheek	0.079	0.394	0.399	0.093	0.180	0.068	0.47	0.48	0.66	0.24	0.33
	Right Tilted	0.066	0.394	0.399	0.093	0.180	0.075	0.46	0.47	0.65	0.23	0.32
	Left Cheek	0.151	0.394	0.399	0.093	0.180	0.192	0.55	0.55	0.73	0.44	0.52
	Left Tilted	0.073	0.394	0.399	0.093	0.180	0.054	0.47	0.47	0.65	0.22	0.31
GSM850 Ant 1	Right Cheek	0.996	0.394	0.399	0.093	0.180	0.068	1.39	1.40	1.58	1.16	1.24
	Right Tilted	0.996	0.394	0.399	0.093	0.180	0.075	1.39	1.40	1.58	1.16	1.25
	Left Cheek	0.996	0.394	0.399	0.093	0.180	0.192	1.39	1.40	1.58	1.28	1.37
	Left Tilted	0.996	0.394	0.399	0.093	0.180	0.054	1.39	1.40	1.58	1.14	1.23
GSM1900 Ant 0	Right Cheek	0.027	0.394	0.399	0.093	0.180	0.068	0.42	0.43	0.61	0.19	0.28
	Right Tilted	0.017	0.394	0.399	0.093	0.180	0.075	0.41	0.42	0.60	0.19	0.27
	Left Cheek	0.029	0.394	0.399	0.093	0.180	0.192	0.42	0.43	0.61	0.31	0.40
	Left Tilted	0.027	0.394	0.399	0.093	0.180	0.054	0.42	0.43	0.61	0.17	0.26
GSM1900 Ant 1	Right Cheek	0.828	0.394	0.399	0.093	0.180	0.068	1.22	1.23	1.41	0.99	1.08
	Right Tilted	0.828	0.394	0.399	0.093	0.180	0.075	1.22	1.23	1.41	1.00	1.08
	Left Cheek	0.828	0.394	0.399	0.093	0.180	0.192	1.22	1.23	1.41	1.11	1.20
	Left Tilted	0.828	0.394	0.399	0.093	0.180	0.054	1.22	1.23	1.41	0.98	1.06
WCDMA II Ant 0	Right Cheek	0.068	0.394	0.399	0.093	0.180	0.068	0.46	0.47	0.65	0.23	0.32
	Right Tilted	0.043	0.394	0.399	0.093	0.180	0.075	0.44	0.44	0.62	0.21	0.30
	Left Cheek	0.071	0.394	0.399	0.093	0.180	0.192	0.47	0.47	0.65	0.36	0.44
	Left Tilted	0.068	0.394	0.399	0.093	0.180	0.054	0.46	0.47	0.65	0.22	0.30
WCDMA II Ant 1	Right Cheek	0.974	0.394	0.399	0.093	0.180	0.068	1.37	1.37	1.55	1.14	1.22
	Right Tilted	0.974	0.394	0.399	0.093	0.180	0.075	1.37	1.37	1.55	1.14	1.23
	Left Cheek	0.974	0.394	0.399	0.093	0.180	0.192	1.37	1.37	1.55	1.26	1.35
	Left Tilted	0.974	0.394	0.399	0.093	0.180	0.054	1.37	1.37	1.55	1.12	1.21
WCDMA IV Ant 0	Right Cheek	0.187	0.394	0.399	0.093	0.180	0.068	0.58	0.59	0.77	0.35	0.44
	Right Tilted	0.097	0.394	0.399	0.093	0.180	0.075	0.49	0.50	0.68	0.27	0.35
	Left Cheek	0.156	0.394	0.399	0.093	0.180	0.192	0.55	0.56	0.74	0.44	0.53
	Left Tilted	0.114	0.394	0.399	0.093	0.180	0.054	0.51	0.51	0.69	0.26	0.35
WCDMA IV Ant 1	Right Cheek	0.831	0.394	0.399	0.093	0.180	0.068	1.23	1.23	1.41	0.99	1.08
	Right Tilted	0.831	0.394	0.399	0.093	0.180	0.075	1.23	1.23	1.41	1.00	1.09
	Left Cheek	0.831	0.394	0.399	0.093	0.180	0.192	1.23	1.23	1.41	1.12	1.20
	Left Tilted	0.831	0.394	0.399	0.093	0.180	0.054	1.23	1.23	1.41	0.98	1.07
WCDMA V Ant 0	Right Cheek	0.130	0.394	0.399	0.093	0.180	0.068	0.52	0.53	0.71	0.29	0.38
	Right Tilted	0.099	0.394	0.399	0.093	0.180	0.075	0.49	0.50	0.68	0.27	0.35
	Left Cheek	0.230	0.394	0.399	0.093	0.180	0.192	0.62	0.63	0.81	0.52	0.60
	Left Tilted	0.105	0.394	0.399	0.093	0.180	0.054	0.50	0.50	0.68	0.25	0.34
WCDMA V Ant 1	Right Cheek	0.964	0.394	0.399	0.093	0.180	0.068	1.36	1.36	1.54	1.13	1.21



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	Right Tilted	0.964	0.394	0.399	0.093	0.180	0.075	1.36	1.36	1.54	1.13	1.22
	Left Cheek	0.964	0.394	0.399	0.093	0.180	0.192	1.36	1.36	1.54	1.25	1.34
	Left Tilted	0.964	0.394	0.399	0.093	0.180	0.054	1.36	1.36	1.54	1.11	1.20
LTE Band 7 Ant 0	Right Cheek	0.132	0.394	0.399	0.093	0.180	0.068	0.53	0.53	0.71	0.29	0.38
	Right Tilted	0.049	0.394	0.399	0.093	0.180	0.075	0.44	0.45	0.63	0.22	0.30
	Left Cheek	0.091	0.394	0.399	0.093	0.180	0.192	0.49	0.49	0.67	0.38	0.46
	Left Tilted	0.060	0.394	0.399	0.093	0.180	0.054	0.45	0.46	0.64	0.21	0.29
LTE Band 7 Ant 1	Right Cheek	0.803	0.394	0.399	0.093	0.180	0.068	1.20	1.20	1.38	0.96	1.05
	Right Tilted	0.803	0.394	0.399	0.093	0.180	0.075	1.20	1.20	1.38	0.97	1.06
	Left Cheek	0.803	0.394	0.399	0.093	0.180	0.192	1.20	1.20	1.38	1.09	1.18
	Left Tilted	0.803	0.394	0.399	0.093	0.180	0.054	1.20	1.20	1.38	0.95	1.04
LTE Band 12 Ant 0	Right Cheek	0.197	0.394	0.399	0.093	0.180	0.068	0.59	0.60	0.78	0.36	0.45
	Right Tilted	0.153	0.394	0.399	0.093	0.180	0.075	0.55	0.55	0.73	0.32	0.41
	Left Cheek	0.272	0.394	0.399	0.093	0.180	0.192	0.67	0.67	0.85	0.56	0.64
	Left Tilted	0.153	0.394	0.399	0.093	0.180	0.054	0.55	0.55	0.73	0.30	0.39
LTE Band 12 Ant 1	Right Cheek	0.751	0.394	0.399	0.093	0.180	0.068	1.15	1.15	1.33	0.91	1.00
	Right Tilted	0.751	0.394	0.399	0.093	0.180	0.075	1.15	1.15	1.33	0.92	1.01
	Left Cheek	0.751	0.394	0.399	0.093	0.180	0.192	1.15	1.15	1.33	1.04	1.12
	Left Tilted	0.751	0.394	0.399	0.093	0.180	0.054	1.15	1.15	1.33	0.90	0.99
LTE Band 13 Ant 0	Right Cheek	0.089	0.394	0.399	0.093	0.180	0.068	0.48	0.49	0.67	0.25	0.34
	Right Tilted	0.053	0.394	0.399	0.093	0.180	0.075	0.45	0.45	0.63	0.22	0.31
	Left Cheek	0.104	0.394	0.399	0.093	0.180	0.192	0.50	0.50	0.68	0.39	0.48
	Left Tilted	0.060	0.394	0.399	0.093	0.180	0.054	0.45	0.46	0.64	0.21	0.29
LTE Band 13 Ant 1	Right Cheek	0.772	0.394	0.399	0.093	0.180	0.068	1.17	1.17	1.35	0.93	1.02
	Right Tilted	0.772	0.394	0.399	0.093	0.180	0.075	1.17	1.17	1.35	0.94	1.03
	Left Cheek	0.772	0.394	0.399	0.093	0.180	0.192	1.17	1.17	1.35	1.06	1.14
	Left Tilted	0.772	0.394	0.399	0.093	0.180	0.054	1.17	1.17	1.35	0.92	1.01
LTE Band 25 Ant 0	Right Cheek	0.100	0.394	0.399	0.093	0.180	0.068	0.49	0.50	0.68	0.26	0.35
	Right Tilted	0.067	0.394	0.399	0.093	0.180	0.075	0.46	0.47	0.65	0.24	0.32
	Left Cheek	0.100	0.394	0.399	0.093	0.180	0.192	0.49	0.50	0.68	0.39	0.47
	Left Tilted	0.104	0.394	0.399	0.093	0.180	0.054	0.50	0.50	0.68	0.25	0.34
LTE Band 25 Ant 1	Right Cheek	0.903	0.394	0.399	0.093	0.180	0.068	1.30	1.30	1.48	1.06	1.15
	Right Tilted	0.903	0.394	0.399	0.093	0.180	0.075	1.30	1.30	1.48	1.07	1.16
	Left Cheek	0.903	0.394	0.399	0.093	0.180	0.192	1.30	1.30	1.48	1.19	1.28
	Left Tilted	0.903	0.394	0.399	0.093	0.180	0.054	1.30	1.30	1.48	1.05	1.14
LTE Band 26 Ant 0	Right Cheek	0.088	0.394	0.399	0.093	0.180	0.068	0.48	0.49	0.67	0.25	0.34
	Right Tilted	0.055	0.394	0.399	0.093	0.180	0.075	0.45	0.45	0.63	0.22	0.31
	Left Cheek	0.140	0.394	0.399	0.093	0.180	0.192	0.53	0.54	0.72	0.43	0.51
	Left Tilted	0.064	0.394	0.399	0.093	0.180	0.054	0.46	0.46	0.64	0.21	0.30
LTE Band 26 Ant 1	Right Cheek	0.936	0.394	0.399	0.093	0.180	0.068	1.33	1.34	1.52	1.10	1.18
	Right Tilted	0.936	0.394	0.399	0.093	0.180	0.075	1.33	1.34	1.52	1.10	1.19
	Left Cheek	0.936	0.394	0.399	0.093	0.180	0.192	1.33	1.34	1.52	1.22	1.31
	Left Tilted	0.936	0.394	0.399	0.093	0.180	0.054	1.33	1.34	1.52	1.08	1.17
LTE Band 41 Ant 0	Right Cheek	0.128	0.394	0.399	0.093	0.180	0.068	0.52	0.53	0.71	0.29	0.38
	Right Tilted	0.074	0.394	0.399	0.093	0.180	0.075	0.47	0.47	0.65	0.24	0.33
	Left Cheek	0.065	0.394	0.399	0.093	0.180	0.192	0.46	0.46	0.64	0.35	0.44
	Left Tilted	0.001	0.394	0.399	0.093	0.180	0.054	0.40	0.40	0.58	0.15	0.24
LTE Band 41 Ant 1	Right Cheek	0.881	0.394	0.399	0.093	0.180	0.068	1.28	1.28	1.46	1.04	1.13
	Right Tilted	0.881	0.394	0.399	0.093	0.180	0.075	1.28	1.28	1.46	1.05	1.14
	Left Cheek	0.881	0.394	0.399	0.093	0.180	0.192	1.28	1.28	1.46	1.17	1.25
	Left Tilted	0.881	0.394	0.399	0.093	0.180	0.054	1.28	1.28	1.46	1.03	1.12
LTE Band 41_HPUE Ant 0	Right Cheek	0.192	0.394	0.399	0.093	0.180	0.068	0.59	0.59	0.77	0.35	0.44
	Right Tilted		0.394	0.399	0.093	0.180	0.075	0.39	0.40	0.58	0.17	0.26
	Left Cheek		0.394	0.399	0.093	0.180	0.192	0.39	0.40	0.58	0.29	0.37
	Left Tilted		0.394	0.399	0.093	0.180	0.054	0.39	0.40	0.58	0.15	0.23
LTE Band	Right Cheek	0.885	0.394	0.399	0.093	0.180	0.068	1.28	1.28	1.46	1.05	1.13



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41_HPUE Ant 1	Right Tilted	0.885	0.385	0.395	0.093	0.180	0.075	1.27	1.28	1.46	1.05	1.14
	Left Cheek	0.885	0.385	0.395	0.093	0.180	0.192	1.27	1.28	1.46	1.17	1.26
	Left Tilted	0.885	0.385	0.395	0.093	0.180	0.054	1.27	1.28	1.46	1.03	1.12
LTE Band 66 Ant 0	Right Cheek	0.146	0.385	0.395	0.093	0.180	0.068	0.53	0.54	0.72	0.31	0.39
	Right Tilted	0.069	0.385	0.395	0.093	0.180	0.075	0.45	0.46	0.64	0.24	0.32
	Left Cheek	0.099	0.385	0.395	0.093	0.180	0.192	0.48	0.49	0.67	0.38	0.47
LTE Band 66 Ant 1	Left Tilted	0.080	0.385	0.395	0.093	0.180	0.054	0.47	0.48	0.66	0.23	0.31
	Right Cheek	0.894	0.385	0.395	0.093	0.180	0.068	1.28	1.29	1.47	1.06	1.14
	Right Tilted	0.894	0.385	0.395	0.093	0.180	0.075	1.28	1.29	1.47	1.06	1.15
LTE Band 42 Ant 2	Left Cheek	0.894	0.385	0.395	0.093	0.180	0.192	1.28	1.29	1.47	1.18	1.27
	Left Tilted	0.894	0.385	0.395	0.093	0.180	0.054	1.28	1.29	1.47	1.04	1.13
	Right Cheek	0.934	0.385	0.395	0.093	0.180	0.068	1.32	1.33	1.51	1.10	1.18
LTE Band 48 Ant 2	Right Tilted	0.934	0.385	0.395	0.093	0.180	0.075	1.32	1.33	1.51	1.10	1.19
	Left Cheek	0.934	0.385	0.395	0.093	0.180	0.192	1.32	1.33	1.51	1.22	1.31
	Left Tilted	0.934	0.385	0.395	0.093	0.180	0.054	1.32	1.33	1.51	1.08	1.17
LTE Band 48 Ant 2	Right Cheek	0.847	0.385	0.395	0.093	0.180	0.068	1.23	1.24	1.42	1.01	1.10
	Right Tilted	0.847	0.385	0.395	0.093	0.180	0.075	1.23	1.24	1.42	1.02	1.10
	Left Cheek	0.847	0.385	0.395	0.093	0.180	0.192	1.23	1.24	1.42	1.13	1.22
LTE Band 48 Ant 2	Left Tilted	0.847	0.385	0.395	0.093	0.180	0.054	1.23	1.24	1.42	0.99	1.08

WWAN Band	Exposure Position	1	2	3	4	1+2+3	1+2+4
		WWAN	WLAN2.4GHz Ant 4+6 DBS	WLAN5GHz Ant 2+6 DBS	WLAN6GHz Ant 2+6	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)
GSM850 Ant 0	Right Cheek	0.079	0.198	0.193	0.068	0.47	0.35
	Right Tilted	0.066	0.198	0.193	0.075	0.46	0.34
	Left Cheek	0.151	0.198	0.193	0.192	0.54	0.54
	Left Tilted	0.073	0.198	0.193	0.054	0.46	0.33
GSM850 Ant 1	Right Cheek	0.996	0.198	0.193	0.068	1.39	1.26
	Right Tilted	0.996	0.198	0.193	0.075	1.39	1.27
	Left Cheek	0.996	0.198	0.193	0.192	1.39	1.39
	Left Tilted	0.996	0.198	0.193	0.054	1.39	1.25
GSM1900 Ant 0	Right Cheek	0.027	0.198	0.193	0.068	0.42	0.29
	Right Tilted	0.017	0.198	0.193	0.075	0.41	0.29
	Left Cheek	0.029	0.198	0.193	0.192	0.42	0.42
	Left Tilted	0.027	0.198	0.193	0.054	0.42	0.28
GSM1900 Ant 1	Right Cheek	0.828	0.198	0.193	0.068	1.22	1.09
	Right Tilted	0.828	0.198	0.193	0.075	1.22	1.10
	Left Cheek	0.828	0.198	0.193	0.192	1.22	1.22
	Left Tilted	0.828	0.198	0.193	0.054	1.22	1.08
WCDMA II Ant 0	Right Cheek	0.068	0.198	0.193	0.068	0.46	0.33
	Right Tilted	0.043	0.198	0.193	0.075	0.43	0.32
	Left Cheek	0.071	0.198	0.193	0.192	0.46	0.46
	Left Tilted	0.068	0.198	0.193	0.054	0.46	0.32
WCDMA II Ant 1	Right Cheek	0.974	0.198	0.193	0.068	1.37	1.24
	Right Tilted	0.974	0.198	0.193	0.075	1.37	1.25
	Left Cheek	0.974	0.198	0.193	0.192	1.37	1.36
	Left Tilted	0.974	0.198	0.193	0.054	1.37	1.23
WCDMA IV Ant 0	Right Cheek	0.187	0.198	0.193	0.068	0.58	0.45
	Right Tilted	0.097	0.198	0.193	0.075	0.49	0.37
	Left Cheek	0.156	0.198	0.193	0.192	0.55	0.55
	Left Tilted	0.114	0.198	0.193	0.054	0.51	0.37
WCDMA IV Ant 1	Right Cheek	0.831	0.198	0.193	0.068	1.22	1.10
	Right Tilted	0.831	0.198	0.193	0.075	1.22	1.10
	Left Cheek	0.831	0.198	0.193	0.192	1.22	1.22
	Left Tilted	0.831	0.198	0.193	0.054	1.22	1.08



WCDMA V Ant 0	Right Cheek	0.130	0.198	0.193	0.068	0.52	0.40
	Right Tilted	0.099	0.198	0.193	0.075	0.49	0.37
	Left Cheek	0.230	0.198	0.193	0.192	0.62	0.62
	Left Tilted	0.105	0.198	0.193	0.054	0.50	0.36
WCDMA V Ant 1	Right Cheek	0.964	0.198	0.193	0.068	1.36	1.23
	Right Tilted	0.964	0.198	0.193	0.075	1.36	1.24
	Left Cheek	0.964	0.198	0.193	0.192	1.36	1.35
	Left Tilted	0.964	0.198	0.193	0.054	1.36	1.22
LTE Band 7 Ant 0	Right Cheek	0.132	0.198	0.193	0.068	0.52	0.40
	Right Tilted	0.049	0.198	0.193	0.075	0.44	0.32
	Left Cheek	0.091	0.198	0.193	0.192	0.48	0.48
	Left Tilted	0.060	0.198	0.193	0.054	0.45	0.31
LTE Band 7 Ant 1	Right Cheek	0.803	0.198	0.193	0.068	1.19	1.07
	Right Tilted	0.803	0.198	0.193	0.075	1.19	1.08
	Left Cheek	0.803	0.198	0.193	0.192	1.19	1.19
	Left Tilted	0.803	0.198	0.193	0.054	1.19	1.06
LTE Band 12 Ant 0	Right Cheek	0.197	0.198	0.193	0.068	0.59	0.46
	Right Tilted	0.153	0.198	0.193	0.075	0.54	0.43
	Left Cheek	0.272	0.198	0.193	0.192	0.66	0.66
	Left Tilted	0.153	0.198	0.193	0.054	0.54	0.41
LTE Band 12 Ant 1	Right Cheek	0.751	0.198	0.193	0.068	1.14	1.02
	Right Tilted	0.751	0.198	0.193	0.075	1.14	1.02
	Left Cheek	0.751	0.198	0.193	0.192	1.14	1.14
	Left Tilted	0.751	0.198	0.193	0.054	1.14	1.00
LTE Band 13 Ant 0	Right Cheek	0.089	0.198	0.193	0.068	0.48	0.36
	Right Tilted	0.053	0.198	0.193	0.075	0.44	0.33
	Left Cheek	0.104	0.198	0.193	0.192	0.50	0.49
	Left Tilted	0.060	0.198	0.193	0.054	0.45	0.31
LTE Band 13 Ant 1	Right Cheek	0.772	0.198	0.193	0.068	1.16	1.04
	Right Tilted	0.772	0.198	0.193	0.075	1.16	1.05
	Left Cheek	0.772	0.198	0.193	0.192	1.16	1.16
	Left Tilted	0.772	0.198	0.193	0.054	1.16	1.02
LTE Band 25 Ant 0	Right Cheek	0.100	0.198	0.193	0.068	0.49	0.37
	Right Tilted	0.067	0.198	0.193	0.075	0.46	0.34
	Left Cheek	0.100	0.198	0.193	0.192	0.49	0.49
	Left Tilted	0.104	0.198	0.193	0.054	0.50	0.36
LTE Band 25 Ant 1	Right Cheek	0.903	0.198	0.193	0.068	1.29	1.17
	Right Tilted	0.903	0.198	0.193	0.075	1.29	1.18
	Left Cheek	0.903	0.198	0.193	0.192	1.29	1.29
	Left Tilted	0.903	0.198	0.193	0.054	1.29	1.16
LTE Band 26 Ant 0	Right Cheek	0.088	0.198	0.193	0.068	0.48	0.35
	Right Tilted	0.055	0.198	0.193	0.075	0.45	0.33
	Left Cheek	0.140	0.198	0.193	0.192	0.53	0.53
	Left Tilted	0.064	0.198	0.193	0.054	0.46	0.32
LTE Band 26 Ant 1	Right Cheek	0.936	0.198	0.193	0.068	1.33	1.20
	Right Tilted	0.936	0.198	0.193	0.075	1.33	1.21
	Left Cheek	0.936	0.198	0.193	0.192	1.33	1.33
	Left Tilted	0.936	0.198	0.193	0.054	1.33	1.19
LTE Band 41 Ant 0	Right Cheek	0.128	0.198	0.193	0.068	0.52	0.39
	Right Tilted	0.074	0.198	0.193	0.075	0.47	0.35
	Left Cheek	0.065	0.198	0.193	0.192	0.46	0.46
	Left Tilted	0.001	0.198	0.193	0.054	0.39	0.25
LTE Band 41 Ant 1	Right Cheek	0.881	0.198	0.193	0.068	1.27	1.15
	Right Tilted	0.881	0.198	0.193	0.075	1.27	1.15
	Left Cheek	0.881	0.198	0.193	0.192	1.27	1.27
	Left Tilted	0.881	0.198	0.193	0.054	1.27	1.13



LTE Band 41_HPUE Ant 0	Right Cheek	0.192	0.198	0.193	0.068	0.58	0.46
	Right Tilted		0.198	0.193	0.075	0.39	0.27
	Left Cheek		0.198	0.193	0.192	0.39	0.39
	Left Tilted		0.198	0.193	0.054	0.39	0.25
LTE Band 41_HPUE Ant 1	Right Cheek	0.885	0.198	0.193	0.068	1.28	1.15
	Right Tilted	0.885	0.198	0.193	0.075	1.28	1.16
	Left Cheek	0.885	0.198	0.193	0.192	1.28	1.28
	Left Tilted	0.885	0.198	0.193	0.054	1.28	1.14
LTE Band 66 Ant 0	Right Cheek	0.146	0.198	0.193	0.068	0.54	0.41
	Right Tilted	0.069	0.198	0.193	0.075	0.46	0.34
	Left Cheek	0.099	0.198	0.193	0.192	0.49	0.49
	Left Tilted	0.080	0.198	0.193	0.054	0.47	0.33
LTE Band 66 Ant 1	Right Cheek	0.894	0.198	0.193	0.068	1.29	1.16
	Right Tilted	0.894	0.198	0.193	0.075	1.29	1.17
	Left Cheek	0.894	0.198	0.193	0.192	1.29	1.28
	Left Tilted	0.894	0.198	0.193	0.054	1.29	1.15
LTE Band 42 Ant 2	Right Cheek	0.934	0.198	0.193	0.068	1.33	1.20
	Right Tilted	0.934	0.198	0.193	0.075	1.33	1.21
	Left Cheek	0.934	0.198	0.193	0.192	1.33	1.32
	Left Tilted	0.934	0.198	0.193	0.054	1.33	1.19
LTE Band 48 Ant 2	Right Cheek	0.847	0.198	0.193	0.068	1.24	1.11
	Right Tilted	0.847	0.198	0.193	0.075	1.24	1.12
	Left Cheek	0.847	0.198	0.193	0.192	1.24	1.24
	Left Tilted	0.847	0.198	0.193	0.054	1.24	1.10



WWAN Band	Exposure Position	1	2	3	4	5	6	1+2	1+3+4	1+3+5	1+4+6	1+5+6
		WWAN	WLAN2.4GHz Ant 4+6 non DBS	WLAN5GHz Ant 2+6 non DBS	Bluetooth Ant 4	Bluetooth Ant 6	WLAN6GHz Ant 2+6	Summed	Summed	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
FR1 n2 Ant 0	Right Cheek	0.069	0.394	0.399	0.093	0.180	0.068	0.46	0.47	0.65	0.23	0.32
	Right Tilted	0.001	0.394	0.399	0.093	0.180	0.075	0.40	0.40	0.58	0.17	0.26
	Left Cheek	0.063	0.394	0.399	0.093	0.180	0.192	0.46	0.46	0.64	0.35	0.44
	Left Tilted	0.070	0.394	0.399	0.093	0.180	0.054	0.46	0.47	0.65	0.22	0.30
FR1 n2 Ant 1	Right Cheek	0.891	0.394	0.399	0.093	0.180	0.068	1.29	1.29	1.47	1.05	1.14
	Right Tilted	0.891	0.394	0.399	0.093	0.180	0.075	1.29	1.29	1.47	1.06	1.15
	Left Cheek	0.891	0.394	0.399	0.093	0.180	0.192	1.29	1.29	1.47	1.18	1.26
	Left Tilted	0.891	0.394	0.399	0.093	0.180	0.054	1.29	1.29	1.47	1.04	1.13
FR1 n5 Ant 0	Right Cheek	0.089	0.394	0.399	0.093	0.180	0.068	0.48	0.49	0.67	0.25	0.34
	Right Tilted	0.076	0.394	0.399	0.093	0.180	0.075	0.47	0.48	0.66	0.24	0.33
	Left Cheek	0.146	0.394	0.399	0.093	0.180	0.192	0.54	0.55	0.73	0.43	0.52
	Left Tilted	0.079	0.394	0.399	0.093	0.180	0.054	0.47	0.48	0.66	0.23	0.31
FR1 n5 Ant 1	Right Cheek	0.984	0.394	0.399	0.093	0.180	0.068	1.38	1.38	1.56	1.15	1.23
	Right Tilted	0.984	0.394	0.399	0.093	0.180	0.075	1.38	1.38	1.56	1.15	1.24
	Left Cheek	0.984	0.394	0.399	0.093	0.180	0.192	1.38	1.38	1.56	1.27	1.36
	Left Tilted	0.984	0.394	0.399	0.093	0.180	0.054	1.38	1.38	1.56	1.13	1.22
FR1 n7 Ant 0	Right Cheek	0.012	0.394	0.399	0.093	0.180	0.068	0.41	0.41	0.59	0.17	0.26
	Right Tilted	0.012	0.394	0.399	0.093	0.180	0.075	0.41	0.41	0.59	0.18	0.27
	Left Cheek	0.012	0.394	0.399	0.093	0.180	0.192	0.41	0.41	0.59	0.30	0.38
	Left Tilted	0.056	0.394	0.399	0.093	0.180	0.054	0.45	0.46	0.64	0.20	0.29
FR1 n7 Ant 1	Right Cheek	0.931	0.394	0.399	0.093	0.180	0.068	1.33	1.33	1.51	1.09	1.18
	Right Tilted	0.931	0.394	0.399	0.093	0.180	0.075	1.33	1.33	1.51	1.10	1.19
	Left Cheek	0.931	0.394	0.399	0.093	0.180	0.192	1.33	1.33	1.51	1.22	1.30
	Left Tilted	0.931	0.394	0.399	0.093	0.180	0.054	1.33	1.33	1.51	1.08	1.17
FR1 n66 Ant 0	Right Cheek	0.143	0.394	0.399	0.093	0.180	0.068	0.54	0.54	0.72	0.30	0.39
	Right Tilted	0.067	0.394	0.399	0.093	0.180	0.075	0.46	0.47	0.65	0.24	0.32
	Left Cheek	0.097	0.394	0.399	0.093	0.180	0.192	0.49	0.50	0.68	0.38	0.47
	Left Tilted	0.079	0.394	0.399	0.093	0.180	0.054	0.47	0.48	0.66	0.23	0.31
FR1 n66 Ant 1	Right Cheek	0.987	0.394	0.399	0.093	0.180	0.068	1.38	1.39	1.57	1.15	1.24
	Right Tilted	0.987	0.394	0.399	0.093	0.180	0.075	1.38	1.39	1.57	1.16	1.24
	Left Cheek	0.987	0.394	0.399	0.093	0.180	0.192	1.38	1.39	1.57	1.27	1.36
	Left Tilted	0.987	0.394	0.399	0.093	0.180	0.054	1.38	1.39	1.57	1.13	1.22
FR1 n41 HPUE Ant 0	Right Cheek	0.143	0.394	0.399	0.093	0.180	0.068	0.54	0.54	0.72	0.30	0.39
	Right Tilted	0.082	0.394	0.399	0.093	0.180	0.075	0.48	0.48	0.66	0.25	0.34
	Left Cheek	0.138	0.394	0.399	0.093	0.180	0.192	0.53	0.54	0.72	0.42	0.51
	Left Tilted	0.097	0.394	0.399	0.093	0.180	0.054	0.49	0.50	0.68	0.24	0.33
FR1 n41 HPUE Ant 1	Right Cheek	0.893	0.394	0.399	0.093	0.180	0.068	1.29	1.29	1.47	1.05	1.14
	Right Tilted	0.893	0.394	0.399	0.093	0.180	0.075	1.29	1.29	1.47	1.06	1.15
	Left Cheek	0.893	0.394	0.399	0.093	0.180	0.192	1.29	1.29	1.47	1.18	1.27
	Left Tilted	0.893	0.394	0.399	0.093	0.180	0.054	1.29	1.29	1.47	1.04	1.13
FR1 n41 HPUE Ant 3	Right Cheek	0.238	0.394	0.399	0.093	0.180	0.068	0.63	0.64	0.82	0.40	0.49
	Right Tilted	0.215	0.394	0.399	0.093	0.180	0.075	0.61	0.61	0.79	0.38	0.47
	Left Cheek	0.381	0.394	0.399	0.093	0.180	0.192	0.78	0.78	0.96	0.67	0.75
	Left Tilted	0.133	0.394	0.399	0.093	0.180	0.054	0.53	0.53	0.71	0.28	0.37
FR1 n41 HPUE Ant 4	Right Cheek	0.888	0.394	0.399	0.093	0.180	0.068	1.28	1.29	1.47	1.05	1.14
	Right Tilted	0.888	0.394	0.399	0.093	0.180	0.075	1.28	1.29	1.47	1.06	1.14
	Left Cheek	0.888	0.394	0.399	0.093	0.180	0.192	1.28	1.29	1.47	1.17	1.26
	Left Tilted	0.888	0.394	0.399	0.093	0.180	0.054	1.28	1.29	1.47	1.04	1.12
FR1 n77 Part 270_HPUE Ant 2	Right Cheek	0.685	0.394	0.399	0.093	0.180	0.068	1.08	1.08	1.26	0.85	0.93
	Right Tilted	0.685	0.394	0.399	0.093	0.180	0.075	1.08	1.08	1.26	0.85	0.94
	Left Cheek	0.685	0.394	0.399	0.093	0.180	0.192	1.08	1.08	1.26	0.97	1.06



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	Left Tilted	0.685	0.394	0.399	0.093	0.180	0.054	1.08	1.08	1.26	0.83	0.92
FR1 n77 Part 27Q_HPUE Ant 2	Right Cheek	0.882	0.394	0.399	0.093	0.180	0.068	1.28	1.28	1.46	1.04	1.13
	Right Tilted	0.882	0.394	0.399	0.093	0.180	0.075	1.28	1.28	1.46	1.05	1.14
	Left Cheek	0.882	0.394	0.399	0.093	0.180	0.192	1.28	1.28	1.46	1.17	1.25
	Left Tilted	0.882	0.394	0.399	0.093	0.180	0.054	1.28	1.28	1.46	1.03	1.12
FR1 n77 Part 27O_HPUE Ant 3	Right Cheek	0.080	0.394	0.399	0.093	0.180	0.068	0.47	0.48	0.66	0.24	0.33
	Right Tilted	0.080	0.394	0.399	0.093	0.180	0.075	0.47	0.48	0.66	0.25	0.34
	Left Cheek	0.116	0.394	0.399	0.093	0.180	0.192	0.51	0.52	0.70	0.40	0.49
	Left Tilted	0.052	0.394	0.399	0.093	0.180	0.054	0.45	0.45	0.63	0.20	0.29
FR1 n77 Part 27Q_HPUE Ant 3	Right Cheek	0.095	0.394	0.399	0.093	0.180	0.068	0.49	0.49	0.67	0.26	0.34
	Right Tilted	0.127	0.394	0.399	0.093	0.180	0.075	0.52	0.53	0.71	0.30	0.38
	Left Cheek	0.175	0.394	0.399	0.093	0.180	0.192	0.57	0.57	0.75	0.46	0.55
	Left Tilted	0.073	0.394	0.399	0.093	0.180	0.054	0.47	0.47	0.65	0.22	0.31
FR1 n77 Part 27O_HPUE Ant 5	Right Cheek	0.792	0.394	0.399	0.093	0.180	0.068	1.19	1.19	1.37	0.95	1.04
	Right Tilted	0.792	0.394	0.399	0.093	0.180	0.075	1.19	1.19	1.37	0.96	1.05
	Left Cheek	0.792	0.394	0.399	0.093	0.180	0.192	1.19	1.19	1.37	1.08	1.16
	Left Tilted	0.792	0.394	0.399	0.093	0.180	0.054	1.19	1.19	1.37	0.94	1.03
FR1 n77 Part 27Q_HPUE Ant 5	Right Cheek	0.961	0.394	0.399	0.093	0.180	0.068	1.36	1.36	1.54	1.12	1.21
	Right Tilted	0.961	0.394	0.399	0.093	0.180	0.075	1.36	1.36	1.54	1.13	1.22
	Left Cheek	0.961	0.394	0.399	0.093	0.180	0.192	1.36	1.36	1.54	1.25	1.33
	Left Tilted	0.961	0.394	0.399	0.093	0.180	0.054	1.36	1.36	1.54	1.11	1.20
FR1 n77 Part 27O_HPUE Ant 7	Right Cheek	0.087	0.394	0.399	0.093	0.180	0.068	0.48	0.49	0.67	0.25	0.34
	Right Tilted	0.065	0.394	0.399	0.093	0.180	0.075	0.46	0.46	0.64	0.23	0.32
	Left Cheek	0.075	0.394	0.399	0.093	0.180	0.192	0.47	0.47	0.65	0.36	0.45
	Left Tilted	0.089	0.394	0.399	0.093	0.180	0.054	0.48	0.49	0.67	0.24	0.32
FR1 n77 Part 27Q_HPUE Ant 7	Right Cheek	0.042	0.394	0.399	0.093	0.180	0.068	0.44	0.44	0.62	0.20	0.29
	Right Tilted	0.042	0.394	0.399	0.093	0.180	0.075	0.44	0.44	0.62	0.21	0.30
	Left Cheek	0.051	0.394	0.399	0.093	0.180	0.192	0.45	0.45	0.63	0.34	0.42
	Left Tilted	0.069	0.394	0.399	0.093	0.180	0.054	0.46	0.47	0.65	0.22	0.30



WWAN Band	Exposure Position	1	2	3	4	1+2+3	1+2+4
		WWAN	WLAN2.4GHz Ant 4+6 DBS	WLAN5GHz Ant 2+6 DBS	WLAN6GHz Ant 2+6	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)
FR1 n2 Ant 1	Right Cheek	0.069	0.198	0.193	0.068	0.46	0.34
	Right Tilted	0.001	0.198	0.193	0.075	0.39	0.27
	Left Cheek	0.063	0.198	0.193	0.192	0.45	0.45
	Left Tilted	0.070	0.198	0.193	0.054	0.46	0.32
FR1 n2 Ant 1	Right Cheek	0.891	0.198	0.193	0.068	1.28	1.16
	Right Tilted	0.891	0.198	0.193	0.075	1.28	1.16
	Left Cheek	0.891	0.198	0.193	0.192	1.28	1.28
	Left Tilted	0.891	0.198	0.193	0.054	1.28	1.14
FR1 n5 Ant 0	Right Cheek	0.089	0.198	0.193	0.068	0.48	0.36
	Right Tilted	0.076	0.198	0.193	0.075	0.47	0.35
	Left Cheek	0.146	0.198	0.193	0.192	0.54	0.54
	Left Tilted	0.079	0.198	0.193	0.054	0.47	0.33
FR1 n5 Ant 1	Right Cheek	0.984	0.198	0.193	0.068	1.38	1.25
	Right Tilted	0.984	0.198	0.193	0.075	1.38	1.26
	Left Cheek	0.984	0.198	0.193	0.192	1.38	1.37
	Left Tilted	0.984	0.198	0.193	0.054	1.38	1.24
FR1 n7 Ant 0	Right Cheek	0.012	0.198	0.193	0.068	0.40	0.28
	Right Tilted	0.012	0.198	0.193	0.075	0.40	0.29
	Left Cheek	0.012	0.198	0.193	0.192	0.40	0.40
	Left Tilted	0.056	0.198	0.193	0.054	0.45	0.31
FR1 n7 Ant 1	Right Cheek	0.931	0.198	0.193	0.068	1.32	1.20
	Right Tilted	0.931	0.198	0.193	0.075	1.32	1.20
	Left Cheek	0.931	0.198	0.193	0.192	1.32	1.32
	Left Tilted	0.931	0.198	0.193	0.054	1.32	1.18
FR1 n66 Ant 0	Right Cheek	0.143	0.198	0.193	0.068	0.53	0.41
	Right Tilted	0.067	0.198	0.193	0.075	0.46	0.34
	Left Cheek	0.097	0.198	0.193	0.192	0.49	0.49
	Left Tilted	0.079	0.198	0.193	0.054	0.47	0.33
FR1 n66 Ant 1	Right Cheek	0.987	0.198	0.193	0.068	1.38	1.25
	Right Tilted	0.987	0.198	0.193	0.075	1.38	1.26
	Left Cheek	0.987	0.198	0.193	0.192	1.38	1.38
	Left Tilted	0.987	0.198	0.193	0.054	1.38	1.24
FR1 n41 HPUE Ant 0	Right Cheek	0.143	0.198	0.193	0.068	0.53	0.41
	Right Tilted	0.082	0.198	0.193	0.075	0.47	0.36
	Left Cheek	0.138	0.198	0.193	0.192	0.53	0.53
	Left Tilted	0.097	0.198	0.193	0.054	0.49	0.35
FR1 n41 HPUE Ant 1	Right Cheek	0.893	0.198	0.193	0.068	1.28	1.16
	Right Tilted	0.893	0.198	0.193	0.075	1.28	1.17
	Left Cheek	0.893	0.198	0.193	0.192	1.28	1.28
	Left Tilted	0.893	0.198	0.193	0.054	1.28	1.15
FR1 n41 HPUE Ant 3	Right Cheek	0.238	0.198	0.193	0.068	0.63	0.50
	Right Tilted	0.215	0.198	0.193	0.075	0.61	0.49
	Left Cheek	0.381	0.198	0.193	0.192	0.77	0.77
	Left Tilted	0.133	0.198	0.193	0.054	0.52	0.39
FR1 n41 HPUE Ant 4	Right Cheek	0.888	0.198	0.193	0.068	1.28	1.15
	Right Tilted	0.888	0.198	0.193	0.075	1.28	1.16
	Left Cheek	0.888	0.198	0.193	0.192	1.28	1.28
	Left Tilted	0.888	0.198	0.193	0.054	1.28	1.14
FR1 n77 Part 270_HPUE Ant 2	Right Cheek	0.685	0.198	0.193	0.068	1.08	0.95
	Right Tilted	0.685	0.198	0.193	0.075	1.08	0.96
	Left Cheek	0.685	0.198	0.193	0.192	1.08	1.08



FR1 n77 Part 27Q_HPUE Ant 2	Left Tilted	0.685	0.198	0.193	0.054	1.08	0.94
	Right Cheek	0.882	0.198	0.193	0.068	1.27	1.15
	Right Tilted	0.882	0.198	0.193	0.075	1.27	1.16
	Left Cheek	0.882	0.198	0.193	0.192	1.27	1.27
	Left Tilted	0.882	0.198	0.193	0.054	1.27	1.13
FR1 n77 Part 27Q_HPUE Ant 3	Right Cheek	0.080	0.198	0.193	0.068	0.47	0.35
	Right Tilted	0.080	0.198	0.193	0.075	0.47	0.35
	Left Cheek	0.116	0.198	0.193	0.192	0.51	0.51
	Left Tilted	0.052	0.198	0.193	0.054	0.44	0.30
FR1 n77 Part 27Q_HPUE Ant 3	Right Cheek	0.095	0.198	0.193	0.068	0.49	0.36
	Right Tilted	0.127	0.198	0.193	0.075	0.52	0.40
	Left Cheek	0.175	0.198	0.193	0.192	0.57	0.57
	Left Tilted	0.073	0.198	0.193	0.054	0.46	0.33
FR1 n77 Part 27Q_HPUE Ant 5	Right Cheek	0.792	0.198	0.193	0.068	1.18	1.06
	Right Tilted	0.792	0.198	0.193	0.075	1.18	1.07
	Left Cheek	0.792	0.198	0.193	0.192	1.18	1.18
	Left Tilted	0.792	0.198	0.193	0.054	1.18	1.04
FR1 n77 Part 27Q_HPUE Ant 5	Right Cheek	0.961	0.198	0.193	0.068	1.35	1.23
	Right Tilted	0.961	0.198	0.193	0.075	1.35	1.23
	Left Cheek	0.961	0.198	0.193	0.192	1.35	1.35
	Left Tilted	0.961	0.198	0.193	0.054	1.35	1.21
FR1 n77 Part 27Q_HPUE Ant 7	Right Cheek	0.087	0.198	0.193	0.068	0.48	0.35
	Right Tilted	0.065	0.198	0.193	0.075	0.46	0.34
	Left Cheek	0.075	0.198	0.193	0.192	0.47	0.47
	Left Tilted	0.089	0.198	0.193	0.054	0.48	0.34
FR1 n77 Part 27Q_HPUE Ant 7	Right Cheek	0.042	0.198	0.193	0.068	0.43	0.31
	Right Tilted	0.042	0.198	0.193	0.075	0.43	0.32
	Left Cheek	0.051	0.198	0.193	0.192	0.44	0.44
	Left Tilted	0.069	0.198	0.193	0.054	0.46	0.32



17.3 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	5	1+2	1+3+4	1+3+5	Case No
		WWAN	WLAN2.4GHz Ant 2+6	WLAN5GHz Ant 2+6	Buletooth Ant 4	Buletooth Ant 6	Summed	Summed	Summed	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
GSM850 Ant 0	Front	0.617	0.128	0.179	0.057	0.077	0.75	0.85	0.87	
	Back	1.276	0.228	0.306	0.159	0.105	1.50	1.74	1.69	56&70
	Left side	0.161	0.014	0.373	0.002	0.002	0.18	0.54	0.54	
	Right side	0.106	0.353	0.391	0.019	0.196	0.46	0.52	0.69	
	Top side	0.025	0.036	0.122	0.058	0.013	0.06	0.21	0.16	
	Bottom side	0.584					0.58	0.58	0.58	
GSM850 Ant 1	Front	0.600	0.128	0.179	0.057	0.077	0.73	0.84	0.86	
	Back	0.953	0.228	0.306	0.159	0.105	1.18	1.42	1.36	
	Left side	0.431	0.014	0.373	0.002	0.002	0.45	0.81	0.81	
	Right side	0.186	0.353	0.391	0.019	0.196	0.54	0.60	0.77	
	Top side	0.952	0.036	0.122	0.058	0.013	0.99	1.13	1.09	
	Bottom side						0.00	0.00	0.00	
GSM1900 Ant 0	Front	0.616	0.128	0.179	0.057	0.077	0.74	0.85	0.87	
	Back	0.946	0.228	0.306	0.159	0.105	1.17	1.41	1.36	
	Left side	0.108	0.014	0.373	0.002	0.002	0.12	0.48	0.48	
	Right side	0.455	0.353	0.391	0.019	0.196	0.81	0.87	1.04	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.271					1.27	1.27	1.27	
GSM1900 Ant 1	Front	0.652	0.128	0.179	0.057	0.077	0.78	0.89	0.91	
	Back	0.940	0.228	0.306	0.159	0.105	1.17	1.41	1.35	
	Left side	0.745	0.014	0.373	0.002	0.002	0.76	1.12	1.12	
	Right side	0.041	0.353	0.391	0.019	0.196	0.39	0.45	0.63	
	Top side	0.839	0.036	0.122	0.058	0.013	0.88	1.02	0.97	
	Bottom side						0.00	0.00	0.00	
WCDMA II Ant 0	Front	0.558	0.128	0.179	0.057	0.077	0.69	0.79	0.81	
	Back	0.958	0.228	0.306	0.159	0.105	1.19	1.42	1.37	
	Left side	0.060	0.014	0.373	0.002	0.002	0.07	0.44	0.44	
	Right side	0.294	0.353	0.391	0.019	0.196	0.65	0.70	0.88	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.242					1.24	1.24	1.24	
WCDMA II Ant 1	Front	0.805	0.128	0.179	0.057	0.077	0.93	1.04	1.06	
	Back	0.991	0.228	0.306	0.159	0.105	1.22	1.46	1.40	
	Left side	0.664	0.014	0.373	0.002	0.002	0.68	1.04	1.04	
	Right side	0.044	0.353	0.391	0.019	0.196	0.40	0.45	0.63	
	Top side	0.620	0.036	0.122	0.058	0.013	0.66	0.80	0.76	
	Bottom side						0.00	0.00	0.00	
WCDMA IV Ant 0	Front	0.642	0.128	0.179	0.057	0.077	0.77	0.88	0.90	
	Back	0.883	0.228	0.306	0.159	0.105	1.11	1.35	1.29	
	Left side	0.104	0.014	0.373	0.002	0.002	0.12	0.48	0.48	
	Right side	0.132	0.353	0.391	0.019	0.196	0.49	0.54	0.72	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.258					1.26	1.26	1.26	
WCDMA IV Ant 1	Front	0.690	0.128	0.179	0.057	0.077	0.82	0.93	0.95	
	Back	0.988	0.228	0.306	0.159	0.105	1.22	1.45	1.40	
	Left side	0.814	0.014	0.373	0.002	0.002	0.83	1.19	1.19	
	Right side	0.187	0.353	0.391	0.019	0.196	0.54	0.60	0.77	
	Top side	0.933	0.036	0.122	0.058	0.013	0.97	1.11	1.07	
	Bottom side						0.00	0.00	0.00	
WCDMA V Ant	Front	0.738	0.128	0.179	0.057	0.077	0.87	0.97	0.99	



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0	Back	1.208	0.228	0.306	0.159	0.105	1.44	1.67	1.62	57&71
	Left side	0.163	0.014	0.373	0.002	0.002	0.18	0.54	0.54	
	Right side	0.142	0.353	0.391	0.019	0.196	0.50	0.55	0.73	
	Top side	0.012	0.036	0.122	0.058	0.013	0.05	0.19	0.15	
	Bottom side	0.315					0.32	0.32	0.32	
WCDMA V Ant 1	Front	0.424	0.128	0.179	0.057	0.077	0.55	0.66	0.68	
	Back	1.011	0.228	0.306	0.159	0.105	1.24	1.48	1.42	
	Left side	0.550	0.014	0.373	0.002	0.002	0.56	0.93	0.93	
	Right side	0.203	0.353	0.391	0.019	0.196	0.56	0.61	0.79	
	Top side	0.956	0.036	0.122	0.058	0.013	0.99	1.14	1.09	
	Bottom side						0.00	0.00	0.00	
LTE Band 7 Ant 0	Front	0.871	0.128	0.179	0.057	0.077	1.00	1.11	1.13	
	Back	0.865	0.228	0.306	0.159	0.105	1.09	1.33	1.28	
	Left side	0.136	0.014	0.373	0.002	0.002	0.15	0.51	0.51	
	Right side	0.494	0.353	0.391	0.019	0.196	0.85	0.90	1.08	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.232					1.23	1.23	1.23	
LTE Band 7 Ant 1	Front	0.816	0.128	0.179	0.057	0.077	0.94	1.05	1.07	
	Back	0.840	0.228	0.306	0.159	0.105	1.07	1.31	1.25	
	Left side	0.123	0.014	0.373	0.002	0.002	0.14	0.50	0.50	
	Right side	0.050	0.353	0.391	0.019	0.196	0.40	0.46	0.64	
	Top side	0.993	0.036	0.122	0.058	0.013	1.03	1.17	1.13	
	Bottom side						0.00	0.00	0.00	
LTE Band 12 Ant 0	Front	0.628	0.128	0.179	0.057	0.077	0.76	0.86	0.88	
	Back	1.085	0.228	0.306	0.159	0.105	1.31	1.55	1.50	
	Left side	0.289	0.014	0.373	0.002	0.002	0.30	0.66	0.66	
	Right side	0.303	0.353	0.391	0.019	0.196	0.66	0.71	0.89	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	0.544					0.54	0.54	0.54	
LTE Band 12 Ant 1	Front	0.422	0.128	0.179	0.057	0.077	0.55	0.66	0.68	
	Back	0.516	0.228	0.306	0.159	0.105	0.74	0.98	0.93	
	Left side	0.508	0.014	0.373	0.002	0.002	0.52	0.88	0.88	
	Right side	0.115	0.353	0.391	0.019	0.196	0.47	0.53	0.70	
	Top side	0.928	0.036	0.122	0.058	0.013	0.96	1.11	1.06	
	Bottom side						0.00	0.00	0.00	
LTE Band 13 Ant 0	Front	0.447	0.128	0.179	0.057	0.077	0.58	0.68	0.70	
	Back	0.765	0.228	0.306	0.159	0.105	0.99	1.23	1.18	
	Left side	0.302	0.014	0.373	0.002	0.002	0.32	0.68	0.68	
	Right side	0.207	0.353	0.391	0.019	0.196	0.56	0.62	0.79	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	0.346					0.35	0.35	0.35	
LTE Band 13 Ant 1	Front	0.470	0.128	0.179	0.057	0.077	0.60	0.71	0.73	
	Back	0.940	0.228	0.306	0.159	0.105	1.17	1.41	1.35	
	Left side	0.667	0.014	0.373	0.002	0.002	0.68	1.04	1.04	
	Right side	0.194	0.353	0.391	0.019	0.196	0.55	0.60	0.78	
	Top side	0.899	0.036	0.122	0.058	0.013	0.94	1.08	1.03	
	Bottom side						0.00	0.00	0.00	
LTE Band 25 Ant 0	Front	0.568	0.128	0.179	0.057	0.077	0.70	0.80	0.82	
	Back	0.865	0.228	0.306	0.159	0.105	1.09	1.33	1.28	
	Left side	0.055	0.014	0.373	0.002	0.002	0.07	0.43	0.43	
	Right side	0.293	0.353	0.391	0.019	0.196	0.65	0.70	0.88	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.235					1.24	1.24	1.24	
LTE Band 25 Ant 1	Front	0.635	0.128	0.179	0.057	0.077	0.76	0.87	0.89	
	Back	0.973	0.228	0.306	0.159	0.105	1.20	1.44	1.38	
	Left side	0.677	0.014	0.373	0.002	0.002	0.69	1.05	1.05	



	Right side	0.043	0.353	0.391	0.019	0.196	0.40	0.45	0.63	
	Top side	0.859	0.036	0.122	0.058	0.013	0.90	1.04	0.99	
	Bottom side						0.00	0.00	0.00	
LTE Band 26 Ant 0	Front	0.751	0.128	0.179	0.057	0.077	0.88	0.99	1.01	
	Back	1.140	0.228	0.306	0.159	0.105	1.37	1.61	1.55	58
	Left side	0.191	0.014	0.373	0.002	0.002	0.21	0.57	0.57	
	Right side	0.169	0.353	0.391	0.019	0.196	0.52	0.58	0.76	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	0.605					0.61	0.61	0.61	
LTE Band 26 Ant 1	Front	0.509	0.128	0.179	0.057	0.077	0.64	0.75	0.77	
	Back	0.959	0.228	0.306	0.159	0.105	1.19	1.42	1.37	
	Left side	0.416	0.014	0.373	0.002	0.002	0.43	0.79	0.79	
	Right side	0.126	0.353	0.391	0.019	0.196	0.48	0.54	0.71	
	Top side	0.902	0.036	0.122	0.058	0.013	0.94	1.08	1.04	
	Bottom side						0.00	0.00	0.00	
LTE Band 66 Ant 0	Front	0.524	0.128	0.179	0.057	0.077	0.65	0.76	0.78	
	Back	0.773	0.228	0.306	0.159	0.105	1.00	1.24	1.18	
	Left side	0.021	0.014	0.373	0.002	0.002	0.04	0.40	0.40	
	Right side	0.184	0.353	0.391	0.019	0.196	0.54	0.59	0.77	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.240					1.24	1.24	1.24	
LTE Band 66 Ant 1	Front	0.495	0.128	0.179	0.057	0.077	0.62	0.73	0.75	
	Back	0.961	0.228	0.306	0.159	0.105	1.19	1.43	1.37	
	Left side	0.269	0.014	0.373	0.002	0.002	0.28	0.64	0.64	
	Right side	0.136	0.353	0.391	0.019	0.196	0.49	0.55	0.72	
	Top side	0.374	0.036	0.122	0.058	0.013	0.41	0.55	0.51	
	Bottom side						0.00	0.00	0.00	
LTE Band 41 Ant 0	Front	0.907	0.128	0.179	0.057	0.077	1.04	1.14	1.16	
	Back	0.918	0.228	0.306	0.159	0.105	1.15	1.38	1.33	
	Left side	0.078	0.014	0.373	0.002	0.002	0.09	0.45	0.45	
	Right side	0.303	0.353	0.391	0.019	0.196	0.66	0.71	0.89	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.258					1.26	1.26	1.26	
LTE Band 41 Ant 1	Front	0.830	0.128	0.179	0.057	0.077	0.96	1.07	1.09	
	Back	0.862	0.228	0.306	0.159	0.105	1.09	1.33	1.27	
	Left side	0.168	0.014	0.373	0.002	0.002	0.18	0.54	0.54	
	Right side	0.054	0.353	0.391	0.019	0.196	0.41	0.46	0.64	
	Top side	0.997	0.036	0.122	0.058	0.013	1.03	1.18	1.13	
	Bottom side						0.00	0.00	0.00	
LTE Band 41_HPUE Ant 0	Front		0.128	0.179	0.057	0.077	0.13	0.24	0.26	
	Back		0.228	0.306	0.159	0.105	0.23	0.47	0.41	
	Left side		0.014	0.373	0.002	0.002	0.01	0.38	0.38	
	Right side		0.353	0.391	0.019	0.196	0.35	0.41	0.59	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.260					1.26	1.26	1.26	
LTE Band 41_HPUE Ant 1	Front		0.128	0.179	0.057	0.077	0.13	0.24	0.26	
	Back		0.228	0.306	0.159	0.105	0.23	0.47	0.41	
	Left side		0.014	0.373	0.002	0.002	0.01	0.38	0.38	
	Right side		0.353	0.391	0.019	0.196	0.35	0.41	0.59	
	Top side	0.901	0.036	0.122	0.058	0.013	0.94	1.08	1.04	
	Bottom side						0.00	0.00	0.00	
LTE Band 42 Ant 2	Front	0.465	0.128	0.179	0.057	0.077	0.593	0.701	0.72	
	Back	0.767	0.228	0.306	0.159	0.105	0.995	1.232	1.18	
	Left side	0.999	0.014	0.373	0.002	0.002	1.013	1.374	1.37	
	Right side	0.030	0.353	0.391	0.019	0.196	0.383	0.440	0.62	
	Top side	0.081	0.036	0.122	0.058	0.013	0.117	0.261	0.22	



	Bottom side	0.049					0.049	0.049	0.05	
LTE Band 48 Ant 2	Front	0.409	0.128	0.179	0.057	0.077	0.537	0.645	0.67	
	Back	0.596	0.228	0.306	0.159	0.105	0.824	1.061	1.01	
	Left side	0.911	0.014	0.373	0.002	0.002	0.925	1.286	1.29	
	Right side	0.023	0.353	0.391	0.019	0.196	0.376	0.433	0.61	
	Top side	0.062	0.036	0.122	0.058	0.013	0.098	0.242	0.20	
	Bottom side	0.026					0.026	0.026	0.03	

FR1 Band	Exposure Position	1	2	3	4	5	1+2	1+3+4	1+3+5	Case No
		FR1 1g SAR (W/kg)	WLAN2.4GHz Ant 2+6 1g SAR (W/kg)	WLAN5GHz Ant 2+6 1g SAR (W/kg)	Buletooth Ant 4 1g SAR (W/kg)	Buletooth Ant 6 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	
FR1 n2 Ant 0	Front	0.567	0.128	0.179	0.057	0.077	0.70	0.80	0.82	
	Back	0.916	0.228	0.306	0.159	0.105	1.14	1.38	1.33	
	Left side	0.054	0.014	0.373	0.002	0.002	0.07	0.43	0.43	
	Right side	0.276	0.353	0.391	0.019	0.196	0.63	0.69	0.86	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.232					1.23	1.23	1.23	
FR1 n2 Ant 1	Front	0.656	0.128	0.179	0.057	0.077	0.78	0.89	0.91	
	Back	0.980	0.228	0.306	0.159	0.105	1.21	1.45	1.39	
	Left side	0.725	0.014	0.373	0.002	0.002	0.74	1.10	1.10	
	Right side	0.117	0.353	0.391	0.019	0.196	0.47	0.53	0.70	
	Top side	0.723	0.036	0.122	0.058	0.013	0.76	0.90	0.86	
	Bottom side						0.00	0.00	0.00	
FR1 n5 Ant 0	Front	0.552	0.128	0.179	0.057	0.077	0.68	0.79	0.81	
	Back	0.944	0.228	0.306	0.159	0.105	1.17	1.41	1.36	
	Left side	0.140	0.014	0.373	0.002	0.002	0.15	0.52	0.52	
	Right side	0.107	0.353	0.391	0.019	0.196	0.46	0.52	0.69	
	Top side	0.012	0.036	0.122	0.058	0.013	0.05	0.19	0.15	
	Bottom side	0.478					0.48	0.48	0.48	
FR1 n5 Ant 1	Front	0.454	0.128	0.179	0.057	0.077	0.58	0.69	0.71	
	Back	0.876	0.228	0.306	0.159	0.105	1.10	1.34	1.29	
	Left side	0.391	0.014	0.373	0.002	0.002	0.41	0.77	0.77	
	Right side	0.126	0.353	0.391	0.019	0.196	0.48	0.54	0.71	
	Top side	0.865	0.036	0.122	0.058	0.013	0.90	1.05	1.00	
	Bottom side						0.00	0.00	0.00	
FR1 n7 Ant 0	Front	0.810	0.128	0.179	0.057	0.077	0.94	1.05	1.07	
	Back	0.788	0.228	0.306	0.159	0.105	1.02	1.25	1.20	
	Left side	0.084	0.014	0.373	0.002	0.002	0.10	0.46	0.46	
	Right side	0.440	0.353	0.391	0.019	0.196	0.79	0.85	1.03	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.258					1.26	1.26	1.26	
FR1 n7 Ant 1	Front	0.763	0.128	0.179	0.057	0.077	0.89	1.00	1.02	
	Back	0.788	0.228	0.306	0.159	0.105	1.02	1.25	1.20	
	Left side	0.121	0.014	0.373	0.002	0.002	0.14	0.50	0.50	
	Right side	0.243	0.353	0.391	0.019	0.196	0.60	0.65	0.83	
	Top side	0.976	0.036	0.122	0.058	0.013	1.01	1.16	1.11	
	Bottom side						0.00	0.00	0.00	
FR1 n66 Ant 0	Front	0.629	0.128	0.179	0.057	0.077	0.76	0.87	0.89	
	Back	0.840	0.228	0.306	0.159	0.105	1.07	1.31	1.25	
	Left side	0.027	0.014	0.373	0.002	0.002	0.04	0.40	0.40	
	Right side	0.209	0.353	0.391	0.019	0.196	0.56	0.62	0.80	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.231					1.23	1.23	1.23	
FR1 n66 Ant 1	Front	0.684	0.128	0.179	0.057	0.077	0.81	0.92	0.94	
	Back	0.987	0.228	0.306	0.159	0.105	1.22	1.45	1.40	



	Left side	0.776	0.014	0.373	0.002	0.002	0.79	1.15	1.15	
	Right side	0.161	0.353	0.391	0.019	0.196	0.51	0.57	0.75	
	Top side	0.912	0.036	0.122	0.058	0.013	0.95	1.09	1.05	
	Bottom side						0.00	0.00	0.00	
FR1 n41 HPUE Ant 0	Front	0.887	0.128	0.179	0.057	0.077	1.02	1.12	1.14	
	Back	0.776	0.228	0.306	0.159	0.105	1.00	1.24	1.19	
	Left side	0.127	0.014	0.373	0.002	0.002	0.14	0.50	0.50	
	Right side	0.563	0.353	0.391	0.019	0.196	0.92	0.97	1.15	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	1.247					1.25	1.25	1.25	
FR1 n41 HPUE Ant 1	Front	0.685	0.128	0.179	0.057	0.077	0.81	0.92	0.94	
	Back	0.678	0.228	0.306	0.159	0.105	0.91	1.14	1.09	
	Left side	0.138	0.014	0.373	0.002	0.002	0.15	0.51	0.51	
	Right side	0.049	0.353	0.391	0.019	0.196	0.40	0.46	0.64	
	Top side	0.972	0.036	0.122	0.058	0.013	1.01	1.15	1.11	
	Bottom side						0.00	0.00	0.00	
FR1 n41 HPUE Ant 3	Front	0.376	0.128	0.179	0.057	0.077	0.50	0.61	0.63	
	Back	0.667	0.228	0.306	0.159	0.105	0.90	1.13	1.08	
	Left side	1.221	0.014	0.373	0.002	0.002	1.24	1.60	1.60	59&72
	Right side	0.039	0.353	0.391	0.019	0.196	0.39	0.45	0.63	
	Top side	0.024	0.036	0.122	0.058	0.013	0.06	0.20	0.16	
	Bottom side	0.164	0.000	0.000	0.000	0.000	0.16	0.16	0.16	
FR1 n41 HPUE Ant 4	Front	0.437	0.128	0.179	0.057	0.077	0.57	0.67	0.69	
	Back	0.943	0.228	0.306	0.159	0.105	1.17	1.41	1.35	
	Left side	0.045	0.014	0.373	0.002	0.002	0.06	0.42	0.42	
	Right side	0.218	0.353	0.391	0.019	0.196	0.57	0.63	0.81	
	Top side	0.991	0.036	0.122	0.058	0.013	1.03	1.17	1.13	
	Bottom side	0.009					0.01	0.01	0.01	
FR1 n77 Par27Q HPUE Ant 2	Front	0.391	0.128	0.179	0.057	0.077	0.52	0.63	0.65	
	Back	0.438	0.228	0.306	0.159	0.105	0.67	0.90	0.85	
	Left side	0.696	0.014	0.373	0.002	0.002	0.71	1.07	1.07	
	Right side	0.012	0.353	0.391	0.019	0.196	0.37	0.42	0.60	
	Top side	0.063	0.036	0.122	0.058	0.013	0.10	0.24	0.20	
	Bottom side						0.00	0.00	0.00	
FR1 n77 Par27Q HPUE Ant 2	Front	0.496	0.128	0.179	0.057	0.077	0.62	0.73	0.75	
	Back	0.724	0.228	0.306	0.159	0.105	0.95	1.19	1.14	
	Left side	0.989	0.014	0.373	0.002	0.002	1.00	1.36	1.36	
	Right side	0.014	0.353	0.391	0.019	0.196	0.37	0.42	0.60	
	Top side	0.100	0.036	0.122	0.058	0.013	0.14	0.28	0.24	
	Bottom side						0.00	0.00	0.00	
FR1 n77 Par27Q HPUE Ant 5	Front	0.585	0.128	0.179	0.057	0.077	0.71	0.82	0.84	
	Back	0.985	0.228	0.306	0.159	0.105	1.21	1.45	1.40	
	Left side	0.019	0.014	0.373	0.002	0.002	0.03	0.39	0.39	
	Right side	0.373	0.353	0.391	0.019	0.196	0.73	0.78	0.96	
	Top side	0.916	0.036	0.122	0.058	0.013	0.95	1.10	1.05	
	Bottom side						0.00	0.00	0.00	
FR1 n77 Par27Q HPUE Ant 5	Front	0.415	0.128	0.179	0.057	0.077	0.54	0.65	0.67	
	Back	0.542	0.228	0.306	0.159	0.105	0.77	1.01	0.95	
	Left side	0.039	0.014	0.373	0.002	0.002	0.05	0.41	0.41	
	Right side	0.195	0.353	0.391	0.019	0.196	0.55	0.61	0.78	
	Top side	0.908	0.036	0.122	0.058	0.013	0.94	1.09	1.04	
	Bottom side						0.00	0.00	0.00	
FR1 n77 Par27Q HPUE Ant 3	Front	1.057	0.128	0.179	0.057	0.077	1.19	1.29	1.31	
	Back	0.820	0.228	0.306	0.159	0.105	1.05	1.29	1.23	
	Left side	1.235	0.014	0.373	0.002	0.002	1.25	1.61	1.61	60&73
	Right side	0.039	0.353	0.391	0.019	0.196	0.39	0.45	0.63	
	Bottom side									



	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	0.500					0.50	0.50	0.50	
FR1 n77 Par27Q HPUE Ant 3	Front	0.842	0.128	0.179	0.057	0.077	0.97	1.08	1.10	
	Back	0.678	0.228	0.306	0.159	0.105	0.91	1.14	1.09	
	Left side	1.253	0.014	0.373	0.002	0.002	1.27	1.63	1.63	61&74
	Right side	0.032	0.353	0.391	0.019	0.196	0.39	0.44	0.62	
	Top side		0.036	0.122	0.058	0.013	0.04	0.18	0.14	
	Bottom side	0.515					0.52	0.52	0.52	
FR1 n77 Par27Q HPUE Ant 7	Front	0.004	0.128	0.179	0.057	0.077	0.13	0.24	0.26	
	Back	0.993	0.228	0.306	0.159	0.105	1.22	1.46	1.40	
	Left side	0.006	0.014	0.373	0.002	0.002	0.02	0.38	0.38	
	Right side	0.026	0.353	0.391	0.019	0.196	0.38	0.44	0.61	
	Top side	0.010	0.036	0.122	0.058	0.013	0.05	0.19	0.15	
	Bottom side	0.006					0.01	0.01	0.01	
FR1 n77 Par27Q HPUE Ant 7	Front	0.004	0.128	0.179	0.057	0.077	0.13	0.24	0.26	
	Back	1.089	0.228	0.306	0.159	0.105	1.32	1.55	1.50	
	Left side	0.004	0.014	0.373	0.002	0.002	0.02	0.38	0.38	
	Right side	0.013	0.353	0.391	0.019	0.196	0.37	0.42	0.60	
	Top side	0.007	0.036	0.122	0.058	0.013	0.04	0.19	0.14	
	Bottom side	0.004					0.00	0.00	0.00	

WWAN Band	Exposure Position	1	2	3	1+2+3
		WWAN	WLAN2.4GHz Ant 2+6	WLAN5GHz Ant 2+6	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM850 Ant 0	Front	0.617	0.185	0.193	1.00
	Back	1.276	0.111	0.134	1.52
	Left side	0.161	0.185	0.193	0.54
	Right side	0.106	0.185	0.193	0.48
	Top side	0.025	0.185	0.193	0.40
	Bottom side	0.584			0.58
GSM850 Ant 1	Front	0.600	0.185	0.193	0.98
	Back	0.953	0.185	0.193	1.33
	Left side	0.431	0.185	0.193	0.81
	Right side	0.186	0.185	0.193	0.56
	Top side	0.952	0.185	0.193	1.33
	Bottom side				0.00
GSM1900 Ant 0	Front	0.616	0.185	0.193	0.99
	Back	0.946	0.185	0.193	1.32
	Left side	0.108	0.185	0.193	0.49
	Right side	0.455	0.185	0.193	0.83
	Top side		0.185	0.193	0.38
	Bottom side	1.271			1.27
GSM1900 Ant 1	Front	0.652	0.185	0.193	1.03
	Back	0.940	0.185	0.193	1.32
	Left side	0.745	0.185	0.193	1.12
	Right side	0.041	0.185	0.193	0.42
	Top side	0.839	0.185	0.193	1.22
	Bottom side				0.00
WCDMA II Ant 0	Front	0.558	0.185	0.193	0.94
	Back	0.958	0.185	0.193	1.34
	Left side	0.060	0.185	0.193	0.44
	Right side	0.294	0.185	0.193	0.67
	Top side		0.185	0.193	0.38
	Bottom side	1.242			1.24
WCDMA II Ant 1	Front	0.805	0.185	0.193	1.18



	Back	0.991	0.185	0.193	1.37
	Left side	0.664	0.185	0.193	1.04
	Right side	0.044	0.185	0.193	0.42
	Top side	0.620	0.185	0.193	1.00
	Bottom side				0.00
WCDMA IV Ant 0	Front	0.642	0.185	0.193	1.02
	Back	0.883	0.185	0.193	1.26
	Left side	0.104	0.185	0.193	0.48
	Right side	0.132	0.185	0.193	0.51
	Top side		0.185	0.193	0.38
	Bottom side	1.258			1.26
WCDMA IV Ant 1	Front	0.690	0.185	0.193	1.07
	Back	0.988	0.185	0.193	1.37
	Left side	0.814	0.185	0.193	1.19
	Right side	0.187	0.185	0.193	0.57
	Top side	0.933	0.185	0.193	1.31
	Bottom side				0.00
WCDMA V Ant 0	Front	0.738	0.185	0.193	1.12
	Back	1.208	0.185	0.193	1.59
	Left side	0.163	0.185	0.193	0.54
	Right side	0.142	0.185	0.193	0.52
	Top side	0.012	0.185	0.193	0.39
	Bottom side	0.315			0.32
WCDMA V Ant 1	Front	0.424	0.185	0.193	0.80
	Back	1.011	0.185	0.193	1.39
	Left side	0.550	0.185	0.193	0.93
	Right side	0.203	0.185	0.193	0.58
	Top side	0.956	0.185	0.193	1.33
	Bottom side				0.00
LTE Band 7 Ant 0	Front	0.871	0.185	0.193	1.25
	Back	0.865	0.185	0.193	1.24
	Left side	0.136	0.185	0.193	0.51
	Right side	0.494	0.185	0.193	0.87
	Top side		0.185	0.193	0.38
	Bottom side	1.232			1.23
LTE Band 7 Ant 1	Front	0.816	0.185	0.193	1.19
	Back	0.840	0.185	0.193	1.22
	Left side	0.123	0.185	0.193	0.50
	Right side	0.050	0.185	0.193	0.43
	Top side	0.993	0.185	0.193	1.37
	Bottom side				0.00
LTE Band 12 Ant 0	Front	0.628	0.185	0.193	1.01
	Back	1.085	0.185	0.193	1.46
	Left side	0.289	0.185	0.193	0.67
	Right side	0.303	0.185	0.193	0.68
	Top side		0.185	0.193	0.38
	Bottom side	0.544			0.54
LTE Band 12 Ant 1	Front	0.422	0.185	0.193	0.80
	Back	0.516	0.185	0.193	0.89
	Left side	0.508	0.185	0.193	0.89
	Right side	0.115	0.185	0.193	0.49
	Top side	0.928	0.185	0.193	1.31
	Bottom side				0.00
LTE Band 13 Ant 0	Front	0.447	0.185	0.193	0.83
	Back	0.765	0.185	0.193	1.14
	Left side	0.302	0.185	0.193	0.68



	Right side	0.207	0.185	0.193	0.59
	Top side		0.185	0.193	0.38
	Bottom side	0.346			0.35
LTE Band 13 Ant 1	Front	0.470	0.185	0.193	0.85
	Back	0.940	0.185	0.193	1.32
	Left side	0.667	0.185	0.193	1.05
	Right side	0.194	0.185	0.193	0.57
	Top side	0.899	0.185	0.193	1.28
	Bottom side				0.00
LTE Band 25 Ant 0	Front	0.568	0.185	0.193	0.95
	Back	0.865	0.185	0.193	1.24
	Left side	0.055	0.185	0.193	0.43
	Right side	0.293	0.185	0.193	0.67
	Top side		0.185	0.193	0.38
	Bottom side	1.235			1.24
LTE Band 25 Ant 1	Front	0.635	0.185	0.193	1.01
	Back	0.973	0.185	0.193	1.35
	Left side	0.677	0.185	0.193	1.06
	Right side	0.043	0.185	0.193	0.42
	Top side	0.859	0.185	0.193	1.24
	Bottom side				0.00
LTE Band 26 Ant 0	Front	0.751	0.185	0.193	1.13
	Back	1.140	0.185	0.193	1.52
	Left side	0.191	0.185	0.193	0.57
	Right side	0.169	0.185	0.193	0.55
	Top side		0.185	0.193	0.38
	Bottom side	0.605			0.61
LTE Band 26 Ant 1	Front	0.509	0.185	0.193	0.89
	Back	0.959	0.185	0.193	1.34
	Left side	0.416	0.185	0.193	0.79
	Right side	0.126	0.185	0.193	0.50
	Top side	0.902	0.185	0.193	1.28
	Bottom side				0.00
LTE Band 66 Ant 0	Front	0.524	0.185	0.193	0.90
	Back	0.773	0.185	0.193	1.15
	Left side	0.021	0.185	0.193	0.40
	Right side	0.184	0.185	0.193	0.56
	Top side		0.185	0.193	0.38
	Bottom side	1.240			1.24
LTE Band 66 Ant 1	Front	0.495	0.185	0.193	0.87
	Back	0.961	0.185	0.193	1.34
	Left side	0.269	0.185	0.193	0.65
	Right side	0.136	0.185	0.193	0.51
	Top side	0.374	0.185	0.193	0.75
	Bottom side				0.00
LTE Band 41 Ant 0	Front	0.907	0.185	0.193	1.29
	Back	0.918	0.185	0.193	1.30
	Left side	0.078	0.185	0.193	0.46
	Right side	0.303	0.185	0.193	0.68
	Top side		0.185	0.193	0.38
	Bottom side	1.258			1.26
LTE Band 41 Ant 1	Front	0.830	0.185	0.193	1.21
	Back	0.862	0.185	0.193	1.24
	Left side	0.168	0.185	0.193	0.55
	Right side	0.054	0.185	0.193	0.43
	Top side	0.997	0.185	0.193	1.38



	Bottom side				0.00	
LTE Band 41_HPUE Ant 0	Front		0.185	0.193	0.38	
	Back		0.185	0.193	0.38	
	Left side		0.185	0.193	0.38	
	Right side		0.185	0.193	0.38	
	Top side		0.185	0.193	0.38	
	Bottom side	1.260				1.26
LTE Band 41_HPUE Ant 1	Front		0.185	0.193	0.38	
	Back		0.185	0.193	0.38	
	Left side		0.185	0.193	0.38	
	Right side		0.185	0.193	0.38	
	Top side	0.901		0.185	0.193	1.28
	Bottom side					0.00
LTE Band 42 Ant 2	Front	0.465	0.185	0.193	0.84	
	Back	0.767	0.185	0.193	1.15	
	Left side	0.999	0.185	0.193	1.38	
	Right side	0.030	0.185	0.193	0.41	
	Top side	0.081	0.185	0.193	0.46	
	Bottom side	0.049				0.05
LTE Band 48 Ant 2	Front	0.409	0.185	0.193	0.79	
	Back	0.596	0.185	0.193	0.97	
	Left side	0.911	0.185	0.193	1.29	
	Right side	0.023	0.185	0.193	0.40	
	Top side	0.062	0.185	0.193	0.44	
	Bottom side	0.026				0.03

FR1 Band	Exposure Position	1	2	3	1+2+3
		FR1	WLAN2.4GHz Ant 2+6	WLAN5GHz Ant 2+6	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
FR1 n2 Ant 0	Front	0.567	0.185	0.193	0.95
	Back	0.916	0.185	0.193	1.29
	Left side	0.054	0.185	0.193	0.43
	Right side	0.276	0.185	0.193	0.65
	Top side		0.185	0.193	0.38
	Bottom side	1.232			1.23
FR1 n2 Ant 1	Front	0.656	0.185	0.193	1.03
	Back	0.980	0.185	0.193	1.36
	Left side	0.725	0.185	0.193	1.10
	Right side	0.117	0.185	0.193	0.50
	Top side	0.723	0.185	0.193	1.10
	Bottom side				0.00
FR1 n5 Ant 0	Front	0.552	0.185	0.193	0.93
	Back	0.944	0.185	0.193	1.32
	Left side	0.140	0.185	0.193	0.52
	Right side	0.107	0.185	0.193	0.49
	Top side	0.012	0.185	0.193	0.39
	Bottom side	0.478			0.48
FR1 n5 Ant 1	Front	0.454	0.185	0.193	0.83
	Back	0.876	0.185	0.193	1.25
	Left side	0.391	0.185	0.193	0.77
	Right side	0.126	0.185	0.193	0.50
	Top side	0.865	0.185	0.193	1.24
	Bottom side				0.00
FR1 n7 Ant 0	Front	0.810	0.185	0.193	1.19
	Back	0.788	0.185	0.193	1.17



	Left side	0.084	0.185	0.193	0.46
	Right side	0.440	0.185	0.193	0.82
	Top side		0.185	0.193	0.38
	Bottom side	1.258			1.26
FR1 n7 Ant 1	Front	0.763	0.185	0.193	1.14
	Back	0.788	0.185	0.193	1.17
	Left side	0.121	0.185	0.193	0.50
	Right side	0.243	0.185	0.193	0.62
	Top side	0.976	0.185	0.193	1.35
	Bottom side				0.00
FR1 n66 Ant 0	Front	0.629	0.185	0.193	1.01
	Back	0.840	0.185	0.193	1.22
	Left side	0.027	0.185	0.193	0.41
	Right side	0.209	0.185	0.193	0.59
	Top side		0.185	0.193	0.38
	Bottom side	1.231			1.23
FR1 n66 Ant 1	Front	0.684	0.185	0.193	1.06
	Back	0.987	0.185	0.193	1.37
	Left side	0.776	0.185	0.193	1.15
	Right side	0.161	0.185	0.193	0.54
	Top side	0.912	0.185	0.193	1.29
	Bottom side				0.00
FR1 n41 HPUE Ant 0	Front	0.887	0.185	0.193	1.27
	Back	0.776	0.185	0.193	1.15
	Left side	0.127	0.185	0.193	0.51
	Right side	0.563	0.185	0.193	0.94
	Top side		0.185	0.193	0.38
	Bottom side	1.247			1.25
FR1 n41 HPUE Ant 1	Front	0.685	0.185	0.193	1.06
	Back	0.678	0.185	0.193	1.06
	Left side	0.138	0.185	0.193	0.52
	Right side	0.049	0.185	0.193	0.43
	Top side	0.972	0.185	0.193	1.35
	Bottom side				0.00
FR1 n41 HPUE Ant 3	Front	0.376	0.185	0.193	0.75
	Back	0.667	0.185	0.193	1.05
	Left side	1.221	0.007	0.191	1.42
	Right side	0.039	0.185	0.193	0.42
	Top side	0.024	0.185	0.193	0.40
	Bottom side	0.164			0.16
FR1 n41 HPUE Ant 4	Front	0.437	0.185	0.193	0.82
	Back	0.943	0.185	0.193	1.32
	Left side	0.045	0.185	0.193	0.42
	Right side	0.218	0.185	0.193	0.60
	Top side	0.991	0.185	0.193	1.37
	Bottom side	0.009			0.01
FR1 n77 Par27O HPUE Ant 2	Front	0.391	0.185	0.193	0.77
	Back	0.438	0.185	0.193	0.82
	Left side	0.696	0.185	0.193	1.07
	Right side	0.012	0.185	0.193	0.39
	Top side	0.063	0.185	0.193	0.44
	Bottom side				0.00
FR1 n77 Par27Q HPUE Ant 2	Front	0.496	0.185	0.193	0.87
	Back	0.724	0.185	0.193	1.10
	Left side	0.989	0.185	0.193	1.37
	Right side	0.014	0.185	0.193	0.39



	Top side	0.100	0.185	0.193	0.48
	Bottom side				0.00
FR1 n77 Par270 HPUE Ant 5	Front	0.585	0.185	0.193	0.96
	Back	0.985	0.185	0.193	1.36
	Left side	0.019	0.185	0.193	0.40
	Right side	0.373	0.185	0.193	0.75
	Top side	0.916	0.185	0.193	1.29
	Bottom side				0.00
FR1 n77 Par27Q HPUE Ant 5	Front	0.415	0.185	0.193	0.79
	Back	0.542	0.185	0.193	0.92
	Left side	0.039	0.185	0.193	0.42
	Right side	0.195	0.185	0.193	0.57
	Top side	0.908	0.185	0.193	1.29
	Bottom side				0.00
FR1 n77 Par270 HPUE Ant 3	Front	1.057	0.185	0.193	1.44
	Back	0.820	0.185	0.193	1.20
	Left side	1.235	0.007	0.191	1.43
	Right side	0.039	0.185	0.193	0.42
	Top side		0.185	0.193	0.38
	Bottom side	0.500			0.50
FR1 n77 Par27Q HPUE Ant 3	Front	0.842	0.185	0.193	1.22
	Back	0.678	0.185	0.193	1.06
	Left side	1.253	0.007	0.191	1.45
	Right side	0.032	0.185	0.193	0.41
	Top side		0.185	0.193	0.38
	Bottom side	0.515			0.52
FR1 n77 Par270 HPUE Ant 7	Front	0.004	0.185	0.193	0.38
	Back	0.993	0.185	0.193	1.37
	Left side	0.006	0.185	0.193	0.38
	Right side	0.026	0.185	0.193	0.40
	Top side	0.010	0.185	0.193	0.39
	Bottom side	0.006			0.01
FR1 n77 Par27Q HPUE Ant 7	Front	0.004	0.185	0.193	0.38
	Back	1.089	0.185	0.193	1.47
	Left side	0.004	0.185	0.193	0.38
	Right side	0.013	0.185	0.193	0.39
	Top side	0.007	0.185	0.193	0.39
	Bottom side	0.004			0.00



17.4 Body-Worn Accessory Exposure Conditions

Exposure Position	1	2	3	1+2	1+3
	WLAN2.4GHz Ant 4+6	WLAN5GHz Ant 2+6	WLAN6GHz Ant 2+6	Summed	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Front	0.776	0.769	0.077	1.55	0.85
Back	0.776	0.769	0.155	1.55	0.93

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2	1+3+4	1+3+5	1+4+6	1+5+6	Case No
		WWAN	WLAN2.4GHz Ant 4+6	WLAN5GHz Ant 2+6	Bluetooth Ant 4	Bluetooth Ant 6	WLAN6GHz Ant 2+6	Summed	Summed	Summed	Summed	Summed	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
GSM850 Ant 0	Front	0.617	0.398	0.351	0.057	0.077	0.077	1.02	1.03	1.05	0.75	0.77	
	Back	1.276	0.398	0.351	0.159	0.105	0.155	1.67	1.79	1.73	1.59	1.54	1&2&3
GSM850 Ant 1	Front	0.600	0.398	0.351	0.057	0.077	0.077	1.00	1.01	1.03	0.73	0.75	
	Back	0.953	0.398	0.351	0.159	0.105	0.155	1.35	1.46	1.41	1.27	1.21	
GSM1900 Ant 0	Front	0.907	0.398	0.351	0.057	0.077	0.077	1.31	1.32	1.34	1.04	1.06	
	Back	1.281	0.398	0.351	0.159	0.105	0.155	1.68	1.79	1.74	1.60	1.54	4&5&6&36
GSM1900 Ant 1	Front	0.940	0.398	0.351	0.057	0.077	0.077	1.34	1.35	1.37	1.07	1.09	
	Back	0.940	0.398	0.351	0.159	0.105	0.155	1.34	1.45	1.40	1.25	1.20	
WCDMA II Ant 0	Front	0.783	0.398	0.351	0.057	0.077	0.077	1.18	1.19	1.21	0.92	0.94	
	Back	1.246	0.398	0.351	0.159	0.105	0.155	1.64	1.76	1.70	1.56	1.51	7&8&9
WCDMA II Ant 1	Front	0.991	0.398	0.351	0.057	0.077	0.077	1.39	1.40	1.42	1.13	1.15	
	Back	0.991	0.398	0.351	0.159	0.105	0.155	1.39	1.50	1.45	1.31	1.25	
WCDMA IV Ant 0	Front	0.914	0.398	0.351	0.057	0.077	0.077	1.31	1.32	1.34	1.05	1.07	
	Back	1.258	0.398	0.351	0.159	0.105	0.155	1.66	1.77	1.71	1.57	1.52	10&11&12
WCDMA IV Ant 1	Front	0.988	0.398	0.351	0.057	0.077	0.077	1.39	1.40	1.42	1.12	1.14	
	Back	0.988	0.398	0.351	0.159	0.105	0.155	1.39	1.50	1.44	1.30	1.25	
WCDMA V Ant 0	Front	0.738	0.398	0.351	0.057	0.077	0.077	1.14	1.15	1.17	0.87	0.89	
	Back	1.208	0.398	0.351	0.159	0.105	0.155	1.61	1.72	1.66	1.52	1.47	13&14&15
WCDMA V Ant 1	Front	0.983	0.398	0.351	0.057	0.077	0.077	1.38	1.39	1.41	1.12	1.14	
	Back	0.983	0.398	0.351	0.159	0.105	0.155	1.38	1.49	1.44	1.30	1.24	
LTE Band 7 Ant 0	Front	1.203	0.204	0.285	0.057	0.077	0.077	1.41	1.55	1.57	1.34	1.36	
	Back	1.195	0.398	0.351	0.159	0.105	0.155	1.59	1.71	1.65	1.51	1.46	19&20
LTE Band 7 Ant 1	Front	0.840	0.398	0.351	0.057	0.077	0.077	1.24	1.25	1.27	0.97	0.99	
	Back	0.840	0.398	0.351	0.159	0.105	0.155	1.24	1.35	1.30	1.15	1.10	
LTE Band 12 Ant 0	Front	0.628	0.398	0.351	0.057	0.077	0.077	1.03	1.04	1.06	0.76	0.78	
	Back	1.085	0.398	0.351	0.159	0.105	0.155	1.48	1.60	1.54	1.40	1.35	24
LTE Band 12 Ant 1	Front	0.516	0.398	0.351	0.057	0.077	0.077	0.91	0.92	0.94	0.65	0.67	
	Back	0.516	0.398	0.351	0.159	0.105	0.155	0.91	1.03	0.97	0.83	0.78	
LTE Band 13	Front	0.447	0.398	0.351	0.057	0.077	0.077	0.85	0.86	0.88	0.58	0.60	



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Ant 0	Back	0.765	0.398	0.351	0.159	0.105	0.155	1.16	1.28	1.22	1.08	1.03	
LTE Band 13 Ant 1	Front	0.470	0.398	0.351	0.057	0.077	0.077	0.87	0.88	0.90	0.60	0.62	
	Back	0.940	0.398	0.351	0.159	0.105	0.155	1.34	1.45	1.40	1.25	1.20	
LTE Band 25 Ant 0	Front	0.866	0.398	0.351	0.057	0.077	0.077	1.26	1.27	1.29	1.00	1.02	
	Back	1.277	0.398	0.351	0.159	0.105	0.155	1.68	1.79	1.73	1.59	1.54	21&22&23
LTE Band 25 Ant 1	Front	0.973	0.398	0.351	0.057	0.077	0.077	1.37	1.38	1.40	1.11	1.13	
	Back	0.973	0.398	0.351	0.159	0.105	0.155	1.37	1.48	1.43	1.29	1.23	
LTE Band 26 Ant 0	Front	0.760	0.398	0.351	0.057	0.077	0.077	1.16	1.17	1.19	0.89	0.91	
	Back	1.129	0.398	0.351	0.159	0.105	0.155	1.53	1.64	1.59	1.44	1.39	25
LTE Band 26 Ant 1	Front	0.509	0.398	0.351	0.057	0.077	0.077	0.91	0.92	0.94	0.64	0.66	
	Back	0.959	0.398	0.351	0.159	0.105	0.155	1.36	1.47	1.42	1.27	1.22	
LTE Band 41 Ant 0	Front	1.012	0.398	0.351	0.057	0.077	0.077	1.41	1.42	1.44	1.15	1.17	
	Back	0.975	0.398	0.351	0.159	0.105	0.155	1.37	1.49	1.43	1.29	1.24	
LTE Band 41 Ant 1	Front	0.880	0.398	0.351	0.057	0.077	0.077	1.28	1.29	1.31	1.01	1.03	
	Back	0.880	0.398	0.351	0.159	0.105	0.155	1.28	1.39	1.34	1.19	1.14	
LTE Band 41_HPUE Ant 0	Front	1.243	0.204	0.285	0.057	0.077	0.077	1.45	1.59	1.61	1.38	1.40	29
	Back		0.398	0.351	0.159	0.105	0.155	0.40	0.51	0.46	0.31	0.26	
LTE Band 41_HPUE Ant 1	Front	0.790	0.398	0.351	0.057	0.077	0.077	1.19	1.20	1.22	0.92	0.94	
	Back	0.790	0.398	0.351	0.159	0.105	0.155	1.19	1.30	1.25	1.10	1.05	
LTE Band 66 Ant 0	Front	0.973	0.398	0.351	0.057	0.077	0.077	1.37	1.38	1.40	1.11	1.13	
	Back	1.253	0.398	0.351	0.159	0.105	0.155	1.65	1.76	1.71	1.57	1.51	30&31&32
LTE Band 66 Ant 1	Front	0.961	0.398	0.351	0.057	0.077	0.077	1.36	1.37	1.39	1.10	1.12	
	Back	0.961	0.398	0.351	0.159	0.105	0.155	1.36	1.47	1.42	1.28	1.22	
LTE Band 42 Ant 2	Front	0.767	0.398	0.351	0.057	0.077	0.077	1.17	1.18	1.20	0.90	0.92	
	Back	0.767	0.398	0.351	0.159	0.105	0.155	1.17	1.28	1.22	1.08	1.03	
LTE Band 48 Ant 2	Front	0.562	0.398	0.351	0.057	0.077	0.077	0.96	0.97	0.99	0.70	0.72	
	Back	0.562	0.398	0.351	0.159	0.105	0.155	0.96	1.07	1.02	0.88	0.82	