FCC SAR TEST REPORT

FCC ID	:	**IHDT56YJ1**
Equipment	:	**Mobile Cellular Phone**
Brand Name	:	**Motorola**
Model Name	:	**XT2061-1**
Applicant	:	**Motorola Mobility, LLC 222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States**
Standard	:	**FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013**

The product was received on Jul. 31, 2020 and testing was started from Aug. 18, 2020 and completed on Sep. 12, 2020. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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

Rose Wang

Reviewed by: Rose Wang / Supervisor

Kat Yin

Approved by: Kat Yin / Manager

ACCREDITED Cert #5145.02

Sporton International (Kunshan) Inc.
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

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History of this test report

Report No.	Version	Description	Issued Date
FA073101	01	Initial issue of report	Sep. 18, 2020
FA073101	02	Updated Bands and Antenna information on ASDiv on page 59.	Feb. 01, 2021

1. Statement of Compliance

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

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 5mm)	Hotspot (Separation 5mm)	Product Specific (Separation 0mm)	
		1g SAR (W/kg)			10g SAR	
Licensed	LTE Band 5	0.43	0.32	0.32		1.58
	LTE Band 13	0.30	0.33	0.33		
	LTE Band 2	0.68	0.69	0.71	1.67	
	LTE Band 66	0.80	0.69	0.80	1.63	
	n2	0.80	**1.10**	**1.21**	**3.20**	
	n5	0.46	0.81	0.81		
	n66	**0.90**	0.90	1.18	3.19	
DTS	2.4GHz WLAN	0.07	0.66	0.36	2.06	1.58
NII	5GHz WLAN	0.44	0.62	0.31	1.13	1.58
DSS	Bluetooth	0.01	0.21	0.21		1.49
Date of Testing:		2020/8/18 ~ 2020/9/12				

Note:
1. This is a variant report for XT2061-1, based on the similarity between two models, open the new WWAN bands LTE B2/ B5/ B13/ B66 and 5GNR FR1 n2/ n5 / n66 via software.
2. Above WLAN/Bluetooth SAR value come from the original report with Sporton Report Number FA9D0635A.

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

Testing Laboratory		
Test Firm	Sporton International (Kunshan) Inc.	
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.	FCC Designation No.	FCC Test Firm Registration No.
	CN1257	314309

Applicant	
Company Name	Motorola Mobility, LLC
Address	222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

Manufacturer	
Company Name	Motorola Mobility, LLC
Address	222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

3. Guidance Applied

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01
- FCC KDB 941225 D07 UMPC Mini Tablet v01r02

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2061-1
FCC ID	IHDT56YJ1
IMEI Code	359120100029472
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 48: 3552.5 MHz ~ 3697.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz 5G NR n2 : 1852.5 MHz ~ 1907.5 MHz 5G NR n5 : 826.5 MHz ~ 846.5 MHz 5G NR n66 : 1712.5 MHz ~ 1777.5 MHz 5G NR n260: 37GHz~40GHz 5G NR n261: 27.5GHz~28.35GHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) LTE: QPSK, 16QAM, 64QAM FR2: 5GNR: DFT-s-OFDM/CP-OFDM, QPSK / 16QAM / 64QAM FR1: 5G NR : DFT-s-OFDM/CP-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN: 802.11a/b/g/n/ac/ax HT20 / HT40 / VHT20 / VHT40 / VHT80 / HE20 / HE40 / HE80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	DVT2
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: 1. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications. 2. The device implements the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the smart transmit will manage to ensure the averaged power level not exceeding the associated power table. Proximity sensors are used to detect the exposure conditions and the verification is illustrated in section 5. Details about the power management decision are provided in the operational description. 3. The device is used earpiece receiver to detect user head usage scenarios, when the receiver worked mean head condition	

is detected and reduced power trigger for LTE B2 / B66, 5GNR n2 / n66.
4. This device supports 5GNR FR1 bands as following table.
5. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
6. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
7. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary
8. This is a variant report for XT2061-1, based on the similarity between two models, open the new WWAN bands LTE B2/ B5/ B13/ B66 of the top antenna, and FR1 n2/ n5 / n66 of the top/ bottom antenna via software, for new added WWAN bands perform full SAR testing, all the other test cases were leveraged from original report which can be referred to Sporton Report Number FA9D0635A.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n2	FDD	15	5, 10, 15, 20
	n5	FDD	15	5, 10, 15, 20
	n66	FDD	15	5, 10, 15, 20

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	IHDT56YJ1
Equipment Name	Mobile Cellular Phone
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 48: 3552.5 MHz ~ 3697.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz
Channel Bandwidth	LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 07: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM / 64QAM
LTE Voice / Data requirements	Voice and Data
LTE MPR permanently built-in by design	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
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 hotspot/body-worn/extremity mode that LTE B2 / B4 / B7 / B66 / B48 power reduction applied to satisfy SAR compliance.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to original report.
LTE Carrier Aggregation Additional Information	This device supports maximum of 7 carriers in the downlink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

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

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

LTE Band 2

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

LTE Band 4

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

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

LTE Band 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560

LTE Band 12								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711

LTE Band 13				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		

LTE Band 17				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq. (MHz)
L	23755	706.5	23780	709
M	23790	710	23790	710
H	23825	713.5	23800	711

LTE Band 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

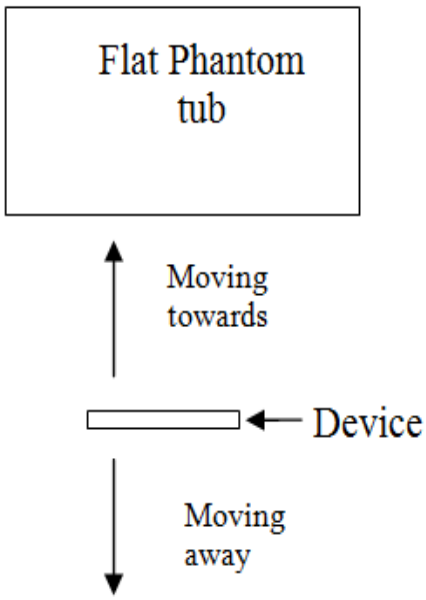
LTE Band 48								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	55265	3552.5	55290	3555	55315	3557.5	55340	3560
L M	55810	3607	55815	3607.5	55820	3608	55830	3609
M H	56170	3643	56165	3642.5	56160	3642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

5. Proximity Sensor Triggering Test

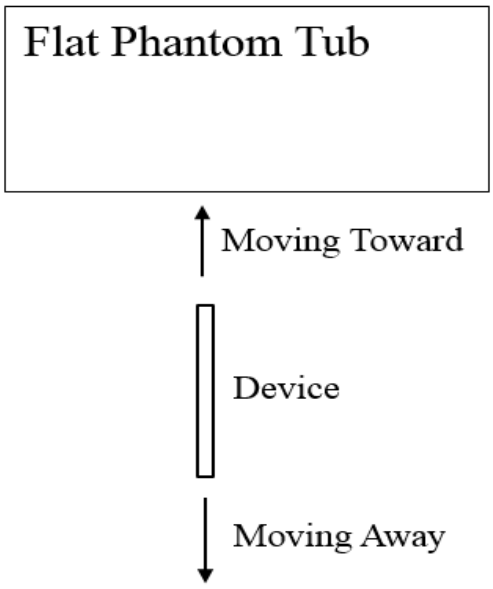
<Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5850MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements 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. When the sensor is active, the device will reduce maximum output powers on the GSM1900, WCDMA B2, CDMA BC1, LTE B2 / B4 / B7 / B66 / B48, 5GNR n2 / n66 and WLAN2.4GHz / WLAN5GHz transmitter.
4. Body-worn/Hotspot SAR was tested at 5mm separation and extremity SAR was tested at 0mm separation, at the reduced power level in each associated power table. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
   a. For Body-worn:
      For LTE B2/ B66, 5GNR n2 / n66
      Front: 18 mm
      Back: 19 mm

      For other bands
      Front: 14 mm
      Back: 18 mm
   b. For Extremity:
      Front: 5 mm
      Back: 8 mm
      Bottom: 7 mm

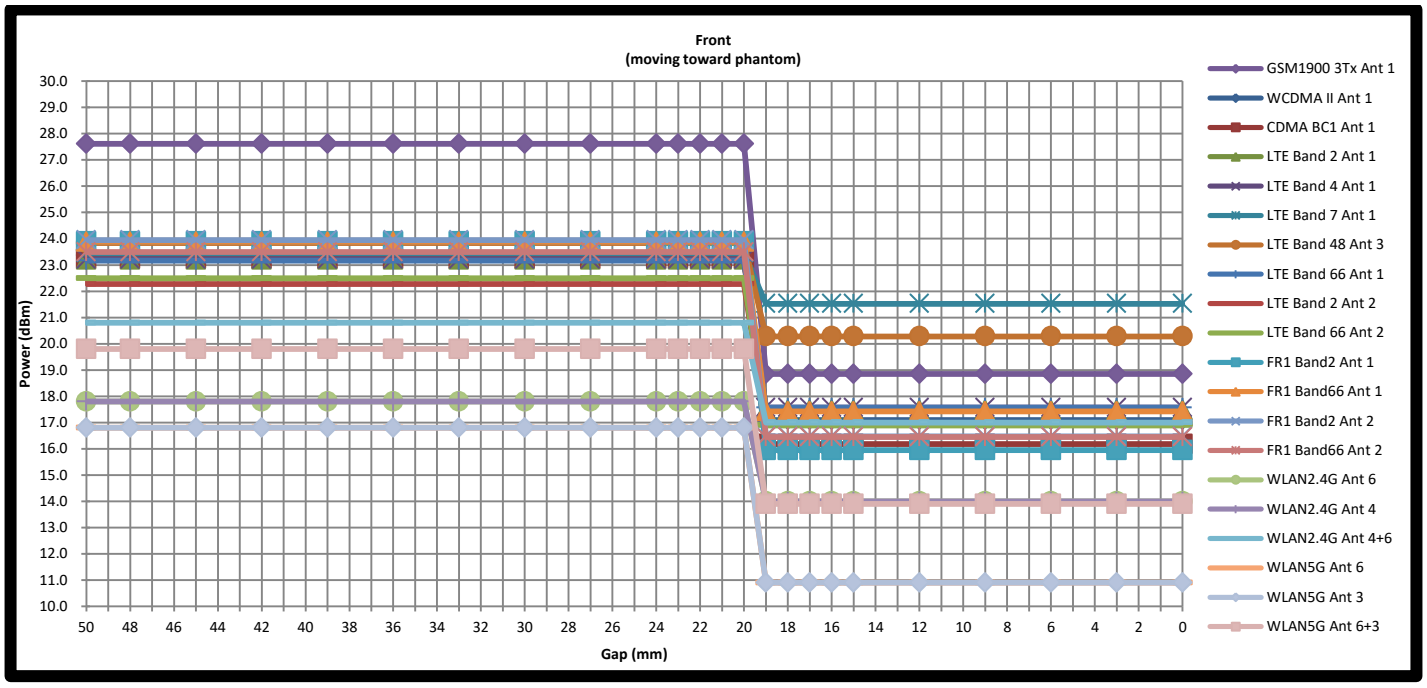


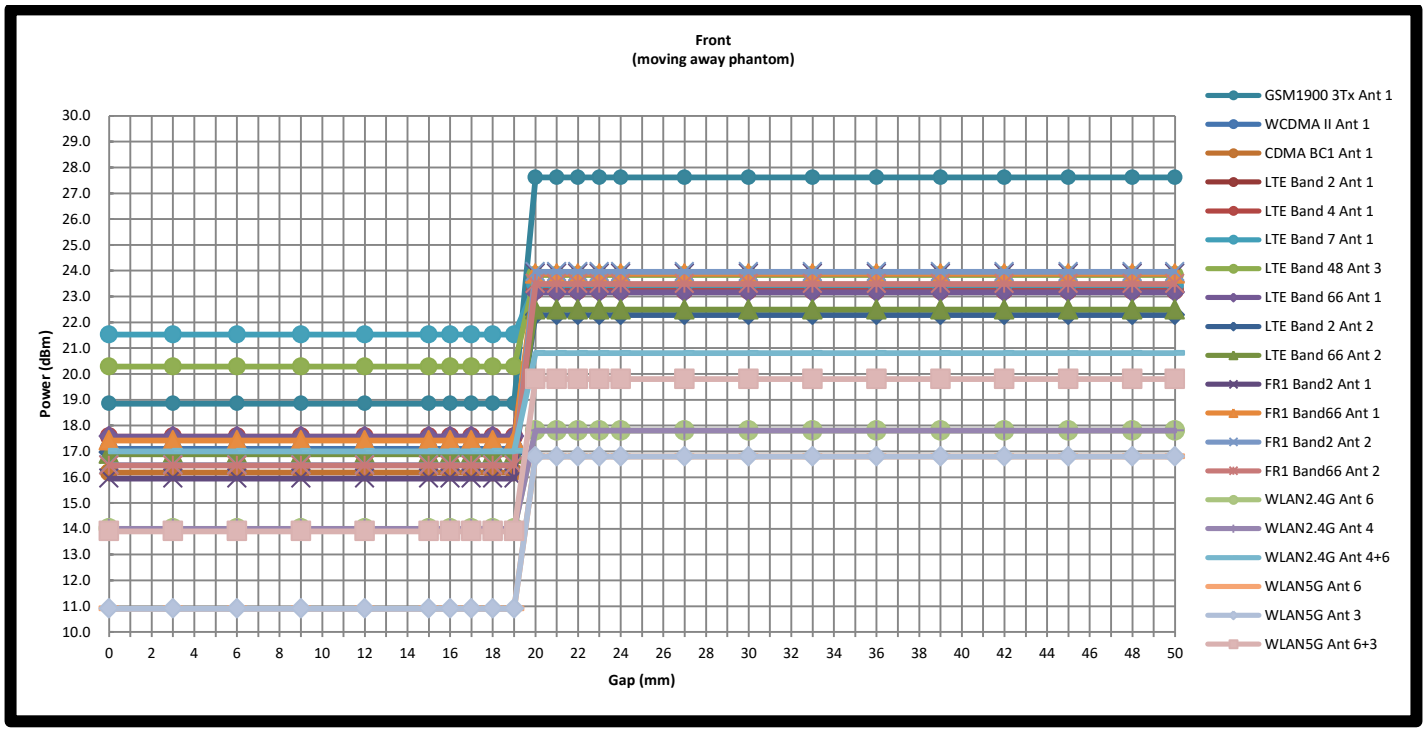
Sensor detection test set-up, front and back faces

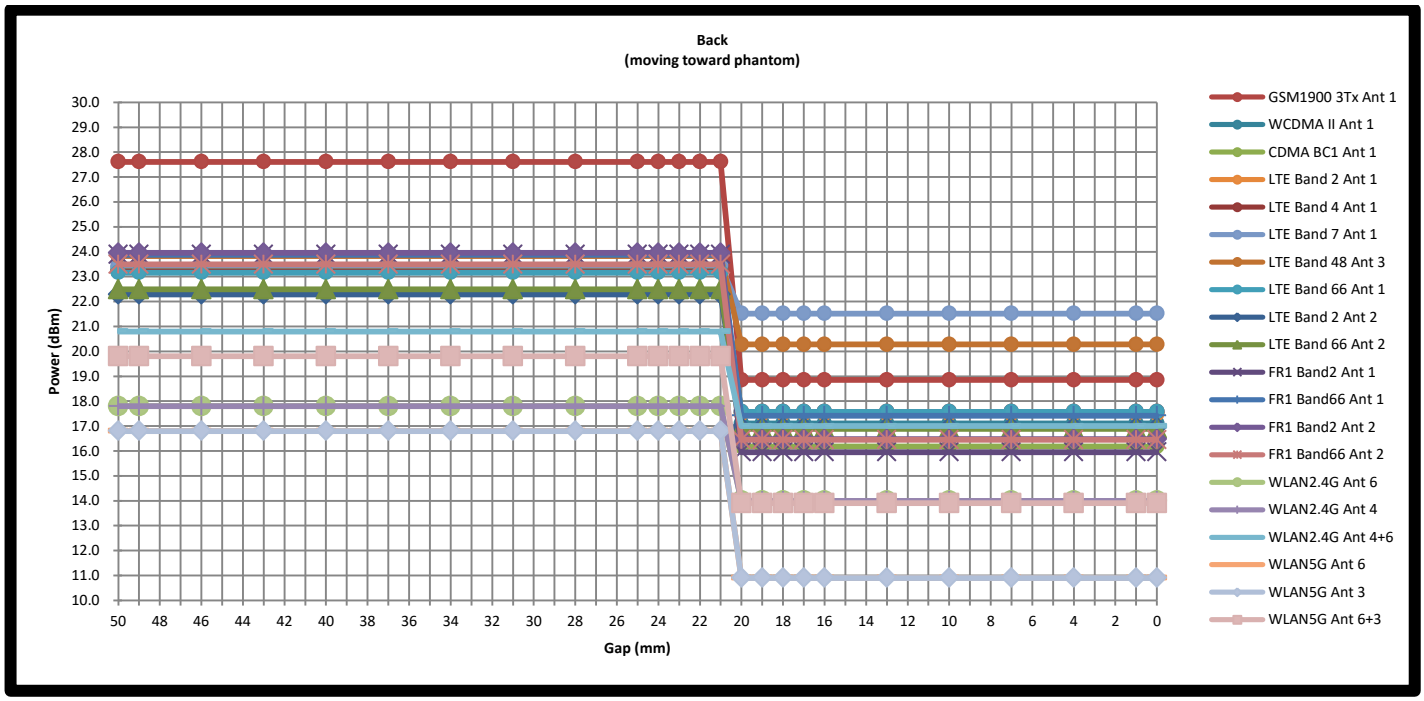


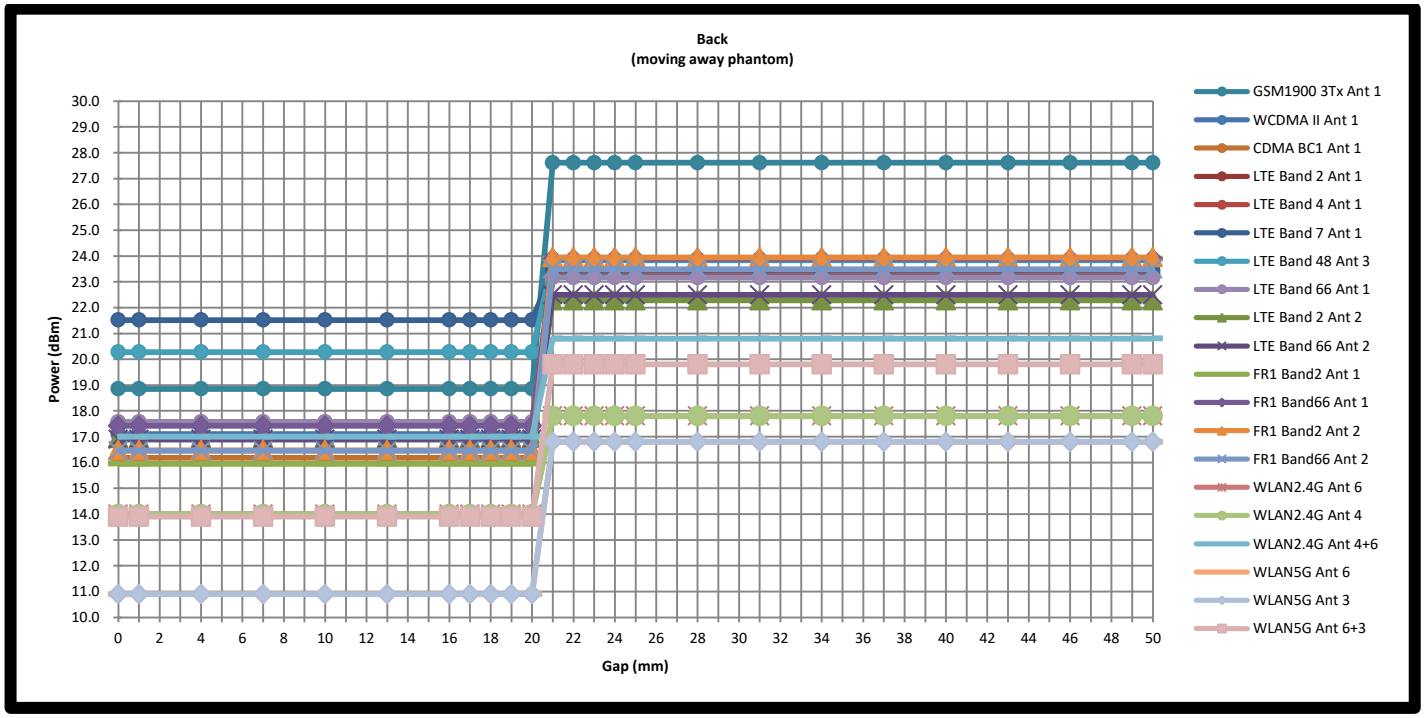
Sensor detection test set-up, bottom face

Proximity Top+ Bottom Sensor Trigger Distance for Body-worn(mm)				
Position	Front		Back	
Position	Moving towards	Moving away	Moving towards	Moving away
Minimum	19	19	20	20

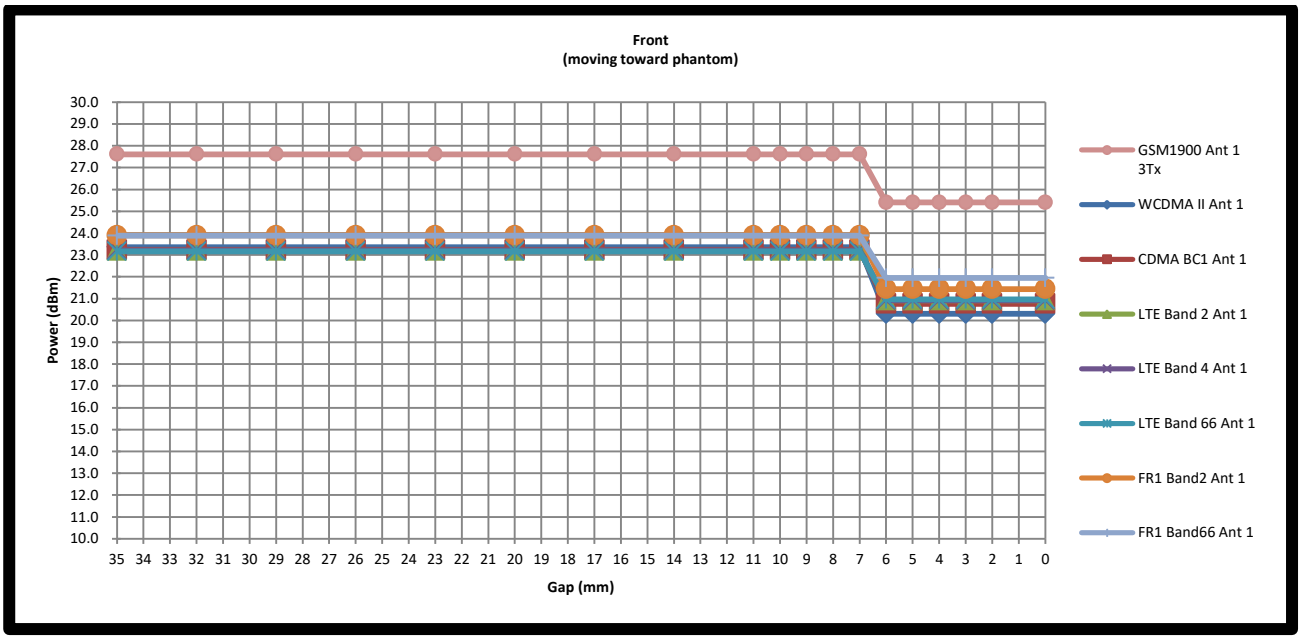


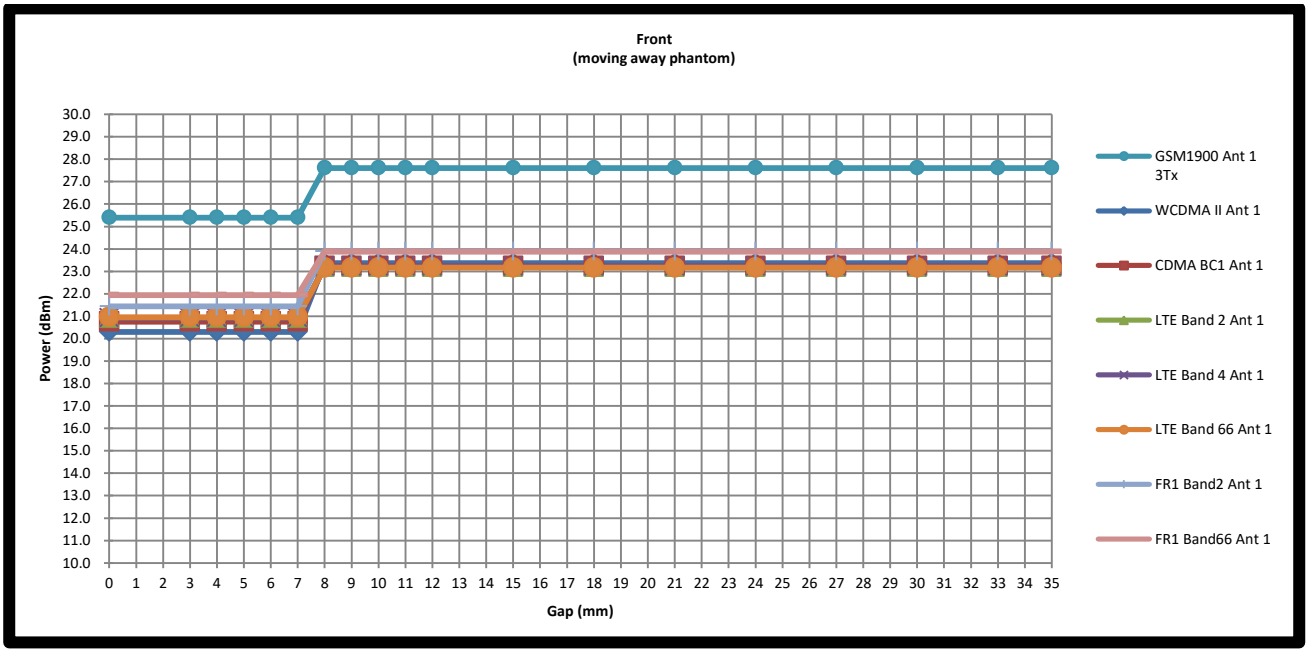


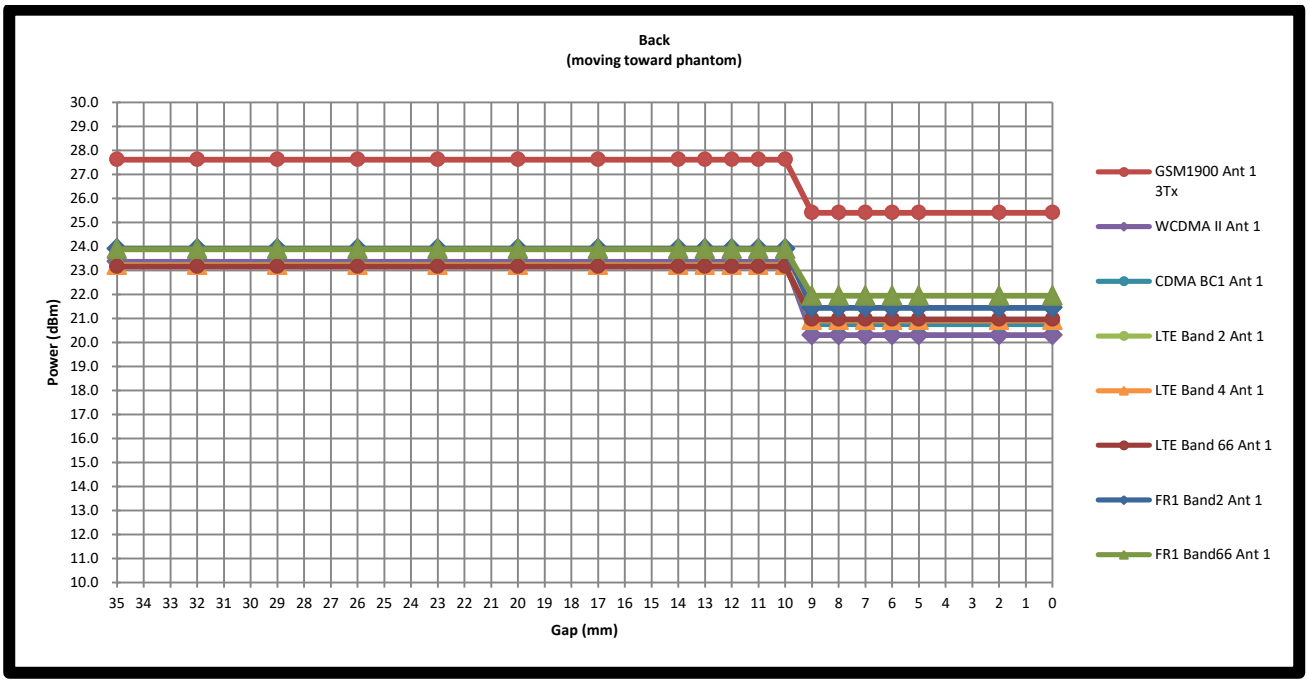

Back
(moving toward phantom)
Power (dBm)
Gap (mm)
GSM1900 3Tx Ant 1
WCDMA II Ant 1
CDMA BC1 Ant 1
LTE Band 2 Ant 1
LTE Band 4 Ant 1
LTE Band 7 Ant 1
LTE Band 48 Ant 3
LTE Band 66 Ant 1
LTE Band 2 Ant 2
LTE Band 66 Ant 2
FR1 Band2 Ant 1
FR1 Band66 Ant 1
FR1 Band2 Ant 2
FR1 Band66 Ant 2
WLAN2.4G Ant 6
WLAN2.4G Ant 4
WLAN2.4G Ant 4+6
WLAN5G Ant 6
WLAN5G Ant 3
WLAN5G Ant 6+3

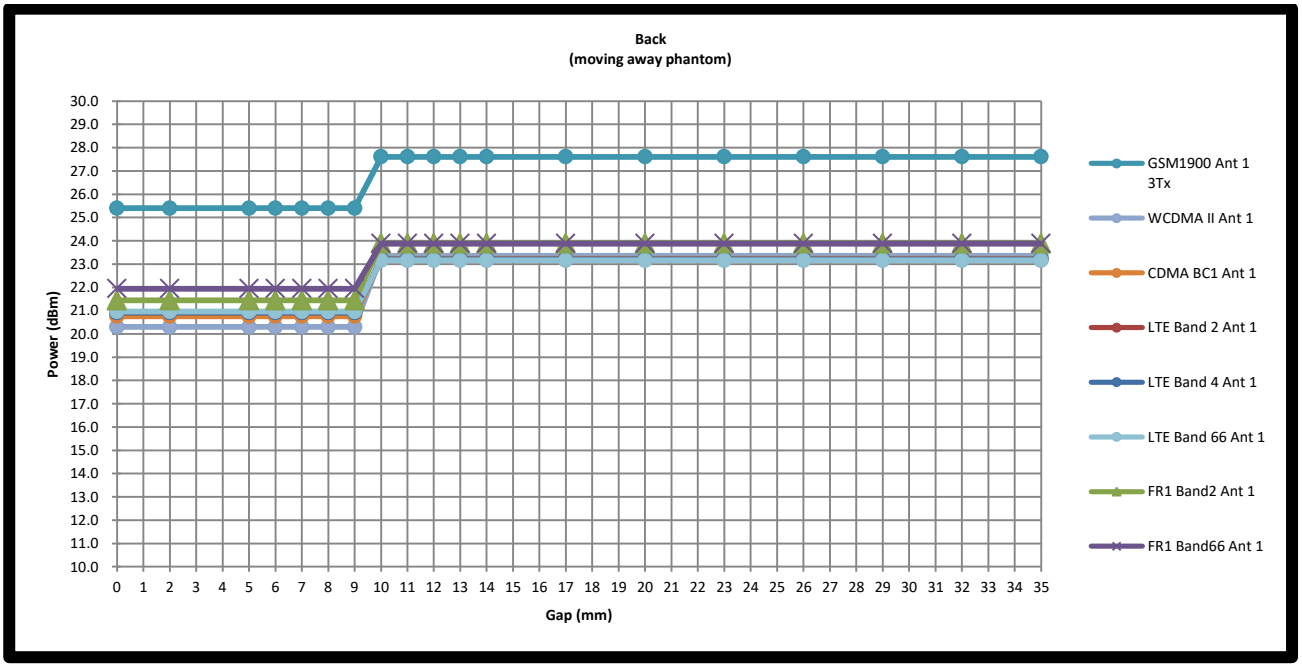

Back
(moving away phantom)
Power (dBm)
Gap (mm)
GSM1900 3Tx Ant 1
WCDMA II Ant 1
CDMA BC1 Ant 1
LTE Band 2 Ant 1
LTE Band 4 Ant 1
LTE Band 7 Ant 1
LTE Band 48 Ant 3
LTE Band 66 Ant 1
LTE Band 2 Ant 2
LTE Band 66 Ant 2
FR1 Band2 Ant 1
FR1 Band66 Ant 1
FR1 Band2 Ant 2
FR1 Band66 Ant 2
WLAN2.4G Ant 6
WLAN2.4G Ant 4
WLAN2.4G Ant 4+6
WLAN5G Ant 6
WLAN5G Ant 3
WLAN5G Ant 6+3

Proximity Bottom Sensor Trigger Distance (mm) for Extremity						
Position	Front		Back		Bottom Side	
Position	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	7	9	9	8	8






Back
(moving toward phantom)
Power (dBm)
Gap (mm)
GSM1900 Ant 1 3Tx
WCDMA II Ant 1
CDMA BC1 Ant 1
LTE Band 2 Ant 1
LTE Band 4 Ant 1
LTE Band 66 Ant 1
FR1 Band2 Ant 1
FR1 Band66 Ant 1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GSM1900 Ant 1 3Tx
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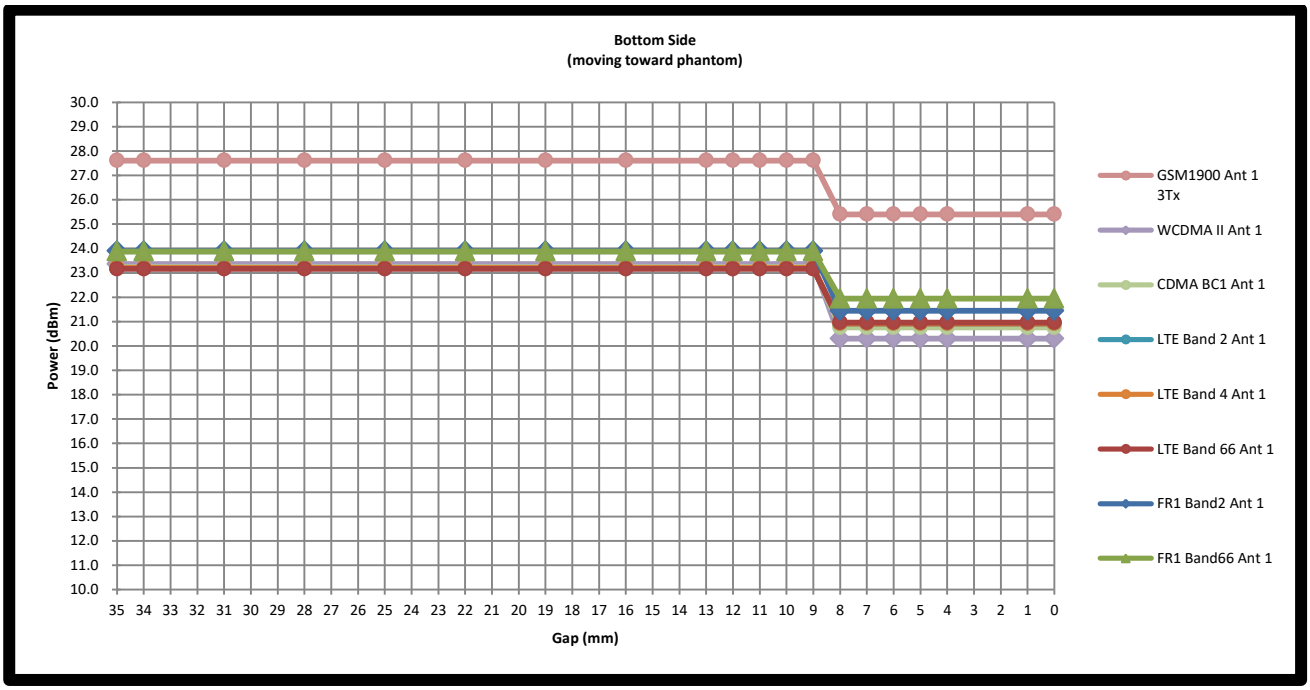
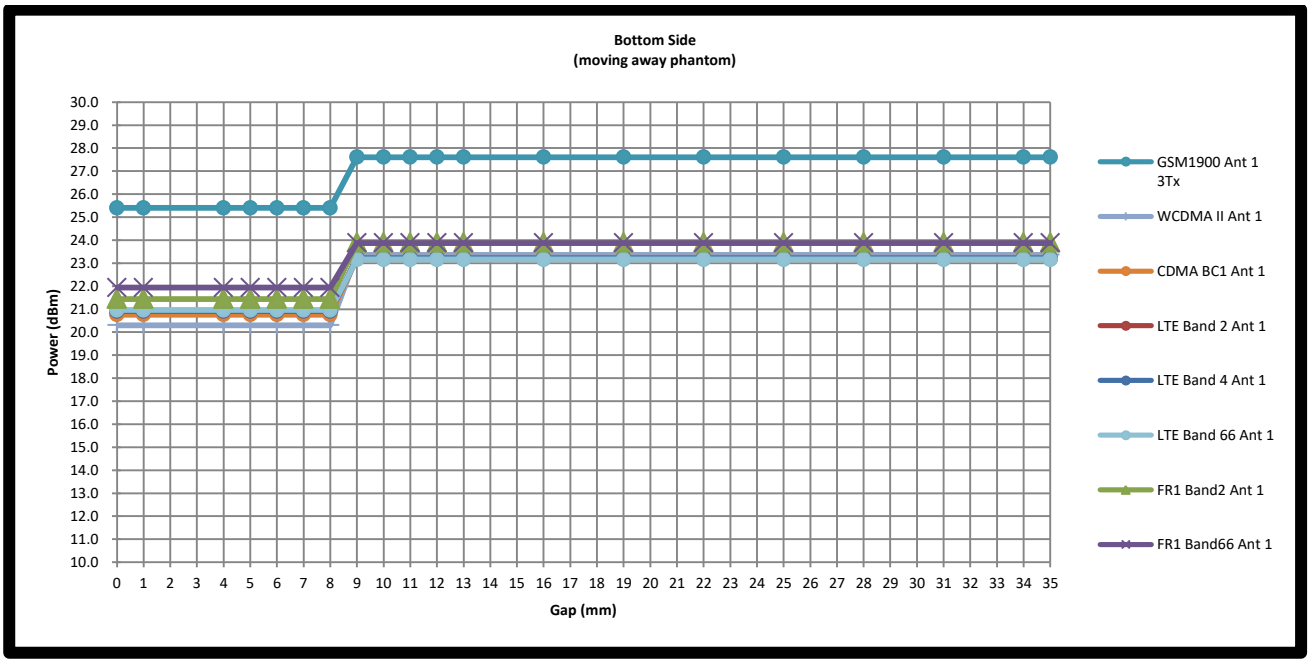
LTE Band 66 Ant 1
FR1 Band2 Ant 1
FR1 Band66 Ant 1


Bottom Side
(moving toward phantom)
Power (dBm)
Gap (mm)
GSM1900 Ant 1 3Tx
WCDMA II Ant 1
CDMA BC1 Ant 1
LTE Band 2 Ant 1
LTE Band 4 Ant 1
LTE Band 66 Ant 1
FR1 Band2 Ant 1
FR1 Band66 Ant 1


Bottom Side
(moving away phantom)
Power (dBm)
Gap (mm)
GSM1900 Ant 1 3Tx
WCDMA II Ant 1
CDMA BC1 Ant 1
LTE Band 2 Ant 1
LTE Band 4 Ant 1
LTE Band 66 Ant 1
FR1 Band2 Ant 1
FR1 Band66 Ant 1

6. Smart Transmit feature for RF Exposure compliance

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target or PD_design_target, below the predefined time-averaged power limit (i.e., input.power.limit for 5G mmW NR), for each characterized technology and band (refer to RF exposure part0 report).

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)>

Tech/Band	Antenna	DSI 2 Head	DSI 3 Body worn/ Hotspot	DSI 6 Extremity	P_{max}*
LTE B2	Ant2 (Top)	22.3	17.1	24.2	22.5
LTE B66	Ant2 (Top)	20.8	17.3	24.6	22.5
LTE B5	Ant2 (Top)	25	27.7	32	23
LTE B13	Ant2 (Top)	24.8	27.4	32.7	23
n5	Ant1 (Bottom)	31.3	24.8	29.7	23
n5	Ant2 (Top)	26.1	28.7	32.2	23
n2	Ant1 (Bottom)	34.2	15.7	21.7	23
n2	Ant2 (Top)	21.7	17.1	24.2	23
n66	Ant1 (Bottom)	34.6	17.9	22.2	23
n66	Ant2 (Top)	20.5	16.3	24.4	23

*P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + 1dB uncertainty.

The max allowed output power is the P_{limit} + 1dB device uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.

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

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

8. Specific Absorption Rate (SAR)

8.1 Introduction

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

8.2 SAR Definition

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

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

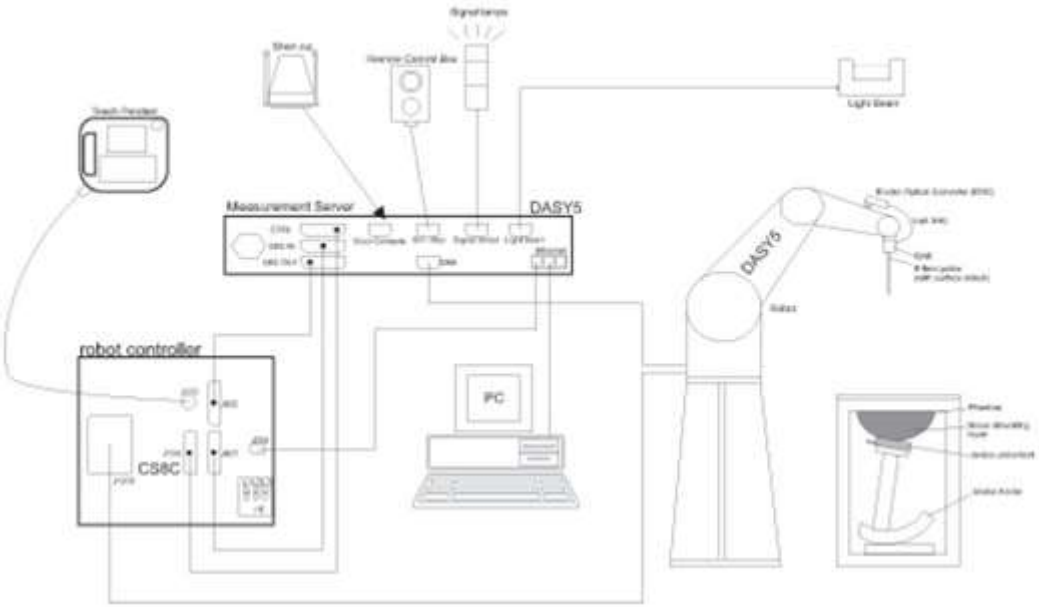
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

9. System Description and Setup

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



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

9.1 E-Field Probe

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

<EX3DV4 Probe>

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

9.2 Data Acquisition Electronics (DAE)

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

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

Fig 5.1 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 form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

10.2 Power Reference Measurement

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

10.3 Area Scan

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

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

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

10.4 Zoom Scan

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

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

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

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

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

10.5 Volume Scan Procedures

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

10.6 Power Drift Monitoring

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

11. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1087	2019/3/27	2022/3/26
SPEAG	835MHz System Validation Kit	D835V2	4d151	2019/3/27	2022/3/26
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2019/3/27	2022/3/26
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2019/3/26	2022/3/25
SPEAG	Data Acquisition Electronics	DAE4	656	2019/12/17	2020/12/16
SPEAG	Dosimetric E-Field Probe	EX3DV4	7592	2020/5/22	2021/5/21
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1697	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6201432831	2020/4/14	2021/4/13
Agilent	Wireless Communication Test Set	E5515C	MY52102706	2020/5/19	2021/5/18
Agilent	ENA Series Network Analyzer	E5071C	MY46106933	2020/8/1	2021/7/31
SPEAG	Dielectric Probe Kit	DAK-3.5	1138	2020/5/19	2021/5/18
Anritsu	Vector Signal Generator	MG3710A	6201682672	2020/1/8	2021/1/7
Rohde & Schwarz	Power Meter	NRVD	102081	2020/8/13	2021/8/12
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2020/8/13	2021/8/12
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2020/8/13	2021/8/12
R&S	CBT BLUETOOTH TESTER	CBT	101246	2020/4/14	2021/4/13
EXA	Spectrum Analyzer	FSV7	101631	2020/1/8	2021/1/7
Testo	Hygrometer	608-H1	1241332088	2020/1/8	2021/1/7
FLUKE	DIGITAC THERMOMETER	51II	97240029	2020/8/14	2021/8/13
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
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	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. 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. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.

Fig 10.1Photo of Liquid Height for Head SAR

Fig 10.2 Photo of Liquid Height for Body SAR

12.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.8	0.884	41.369	0.89	41.90	-0.67	-1.27	±5	2020/8/18
835	Head	22.9	0.925	41.889	0.90	41.50	2.78	0.94	±5	2020/8/20
1750	Head	22.7	1.386	38.886	1.37	40.10	1.17	-3.03	±5	2020/8/23
1900	Head	22.6	1.402	38.352	1.40	40.00	0.14	-4.12	±5	2020/8/27
750	Head	22.7	0.914	43.152	0.89	41.90	2.70	2.99	±5	2020/9/3
835	Head	22.6	0.945	42.914	0.90	41.50	5.00	3.41	±5	2020/9/7
1750	Head	22.9	1.351	39.350	1.37	40.10	-1.39	-1.87	±5	2020/9/9
1900	Head	22.8	1.433	39.092	1.40	40.00	2.36	-2.27	±5	2020/9/12

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 (%)
2020/8/18	750	Head	250	1087	7592	656	2.13	8.36	8.52	1.91
2020/8/20	835	Head	250	4d151	7592	656	2.50	9.30	10.00	7.53
2020/8/23	1750	Head	250	1090	7592	656	9.77	36.40	39.08	7.36
2020/8/27	1900	Head	250	5d170	7592	656	10.50	39.00	42.00	7.69
2020/9/3	750	Head	250	1087	7592	656	2.06	8.36	8.24	-1.44
2020/9/7	835	Head	250	4d151	7592	656	2.54	9.30	10.16	9.25
2020/9/9	1750	Head	250	1090	7592	656	9.48	36.40	37.92	4.18
2020/9/12	1900	Head	250	5d170	7592	656	9.14	39.00	36.56	-6.26

<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 (%)
2020/9/9	1750	Head	250	1090	7592	656	5.19	19.20	20.76	8.13
2020/9/12	1900	Head	250	5d170	7592	656	4.85	20.30	19.40	-4.43

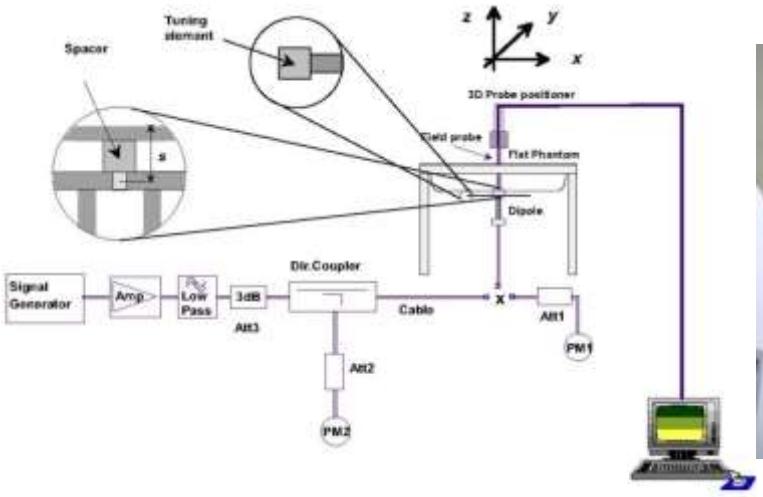


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

13. RF Exposure Positions

13.1 Ear and handset reference point

Figure 9.1.1 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 9.1.2 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 9.1.3). 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 9.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

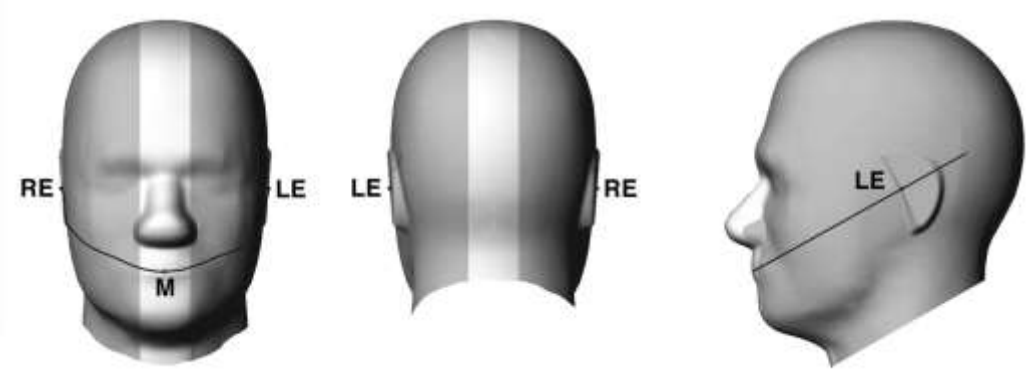


Fig 9.1.1 Front, back, and side views of SAM twin phantom

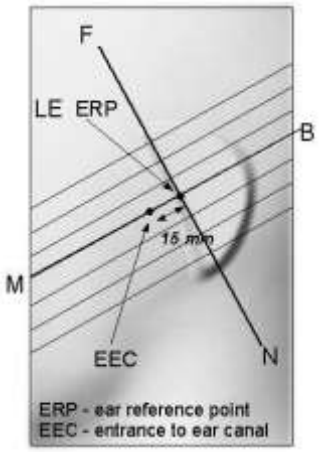


Fig 9.1.2 Close-up side view of phantom showing the ear region.

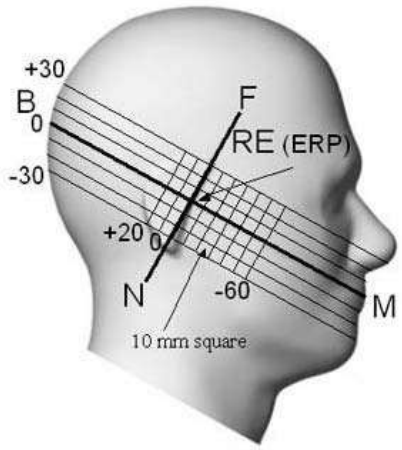


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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 wt of the handset at the level of the acoustic output (point A in Figure 9.2.1 and Figure 9.2.2), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 9.2.1). 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 9.2.2), 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 9.2.3), 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 9.2.3. The actual rotation angles should be documented in the test report.

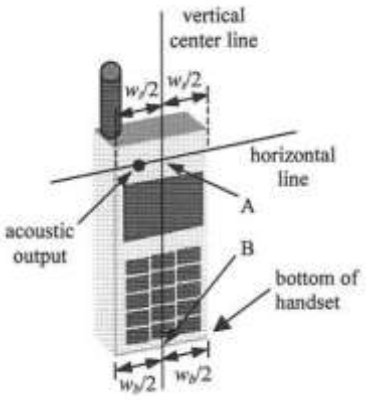


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

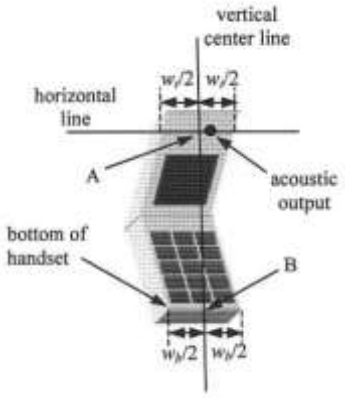


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

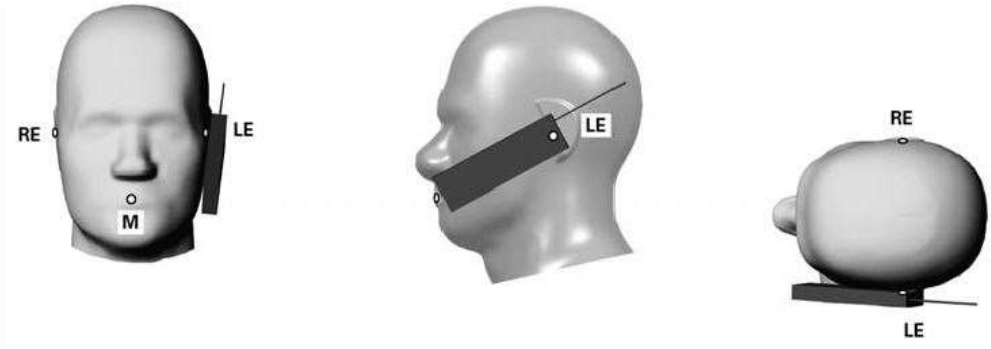


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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 9.3.1. 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

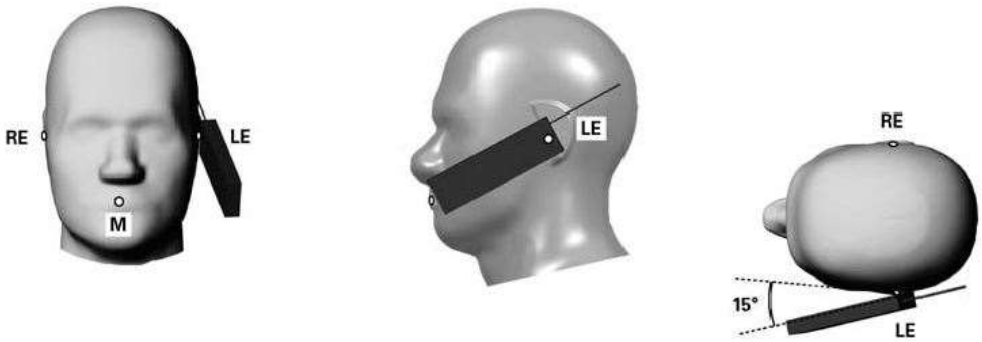


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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

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

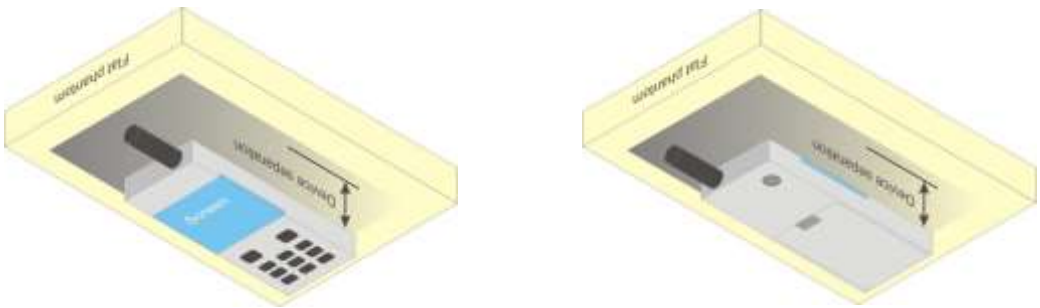


Fig 9.4 Body Worn Position

13.5 Extremity 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 form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

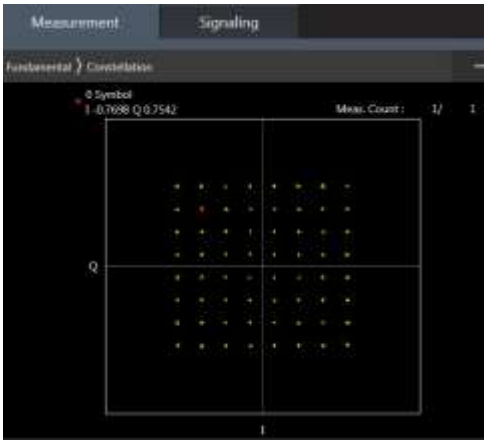
When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for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

14. Conducted RF Output Power (Unit: dBm)

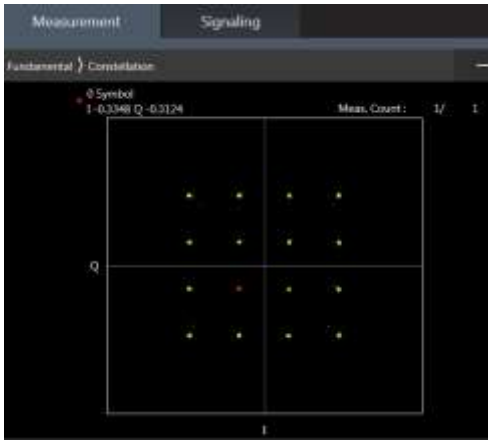
<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 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 band 4 / 17 SAR test was covered by Band 66 / 12; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
    a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
    b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct


Measurement
Signaling
Fundamental ⟩ Constellation
Q
I

64QAM


Measurement
Signaling
Fundamental ⟩ Constellation
Q
I

16QAM

<Default Power Mode>

<LTE Band 2 ANT2 >

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	22.19	22.28	22.19	23.5	0
20	QPSK	1	49	22.05	22.11	22.01		
20	QPSK	1	99	22.00	22.10	22.03		
20	QPSK	50	0	21.24	21.32	21.21	22.5	1
20	QPSK	50	24	21.21	21.23	21.26		
20	QPSK	50	50	21.21	21.20	21.31		
20	QPSK	100	0	21.26	21.58	21.20		
20	16QAM	1	0	21.53	21.45	21.55	22.5	1
20	16QAM	1	49	21.44	21.37	21.50		
20	16QAM	1	99	21.28	21.34	21.49		
20	16QAM	50	0	20.27	20.14	20.25	21.5	2
20	16QAM	50	24	20.29	20.25	20.26		
20	16QAM	50	50	20.24	20.22	20.32		
20	16QAM	100	0	20.28	20.20	20.22		
20	64QAM	1	0	20.72	20.50	20.61	21.5	2
20	64QAM	1	49	20.50	20.41	20.45		
20	64QAM	1	99	20.35	20.45	20.53		
20	64QAM	50	0	19.45	19.33	19.39	20.5	3
20	64QAM	50	24	19.46	19.42	19.43		
20	64QAM	50	50	19.43	19.41	19.52		
20	64QAM	100	0	19.45	19.44	19.43		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.16	22.09	22.22	23.5	0
15	QPSK	1	37	22.09	22.04	22.15		
15	QPSK	1	74	22.08	22.02	22.11		
15	QPSK	36	0	21.25	21.10	21.20	22.5	1
15	QPSK	36	20	21.27	21.19	21.24		
15	QPSK	36	39	21.20	21.19	21.32		
15	QPSK	75	0	21.25	21.18	21.23		
15	16QAM	1	0	21.46	21.41	21.48	22.5	1
15	16QAM	1	37	21.46	21.34	21.43		
15	16QAM	1	74	21.39	21.31	21.49		
15	16QAM	36	0	20.26	20.09	20.21	21.5	2
15	16QAM	36	20	20.25	20.21	20.24		
15	16QAM	36	39	20.24	20.19	20.31		
15	16QAM	75	0	20.27	20.21	20.23		
15	64QAM	1	0	20.60	20.46	20.58	21.5	2
15	64QAM	1	37	20.59	20.44	20.55		
15	64QAM	1	74	20.53	20.51	20.57		
15	64QAM	36	0	19.47	19.31	19.41	20.5	3
15	64QAM	36	20	19.48	19.41	19.43		
15	64QAM	36	39	19.43	19.41	19.50		
15	64QAM	75	0	19.46	19.43	19.43		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.06	22.00	22.12	23.5	0
10	QPSK	1	25	22.13	22.07	22.12		
10	QPSK	1	49	22.03	22.03	22.07		
10	QPSK	25	0	21.20	21.13	21.17	22.5	1
10	QPSK	25	12	21.24	21.14	21.22		
10	QPSK	25	25	21.23	21.14	21.29		
10	QPSK	50	0	21.20	21.16	21.18		
10	16QAM	1	0	21.49	21.41	21.51	22.5	1
10	16QAM	1	25	21.45	21.44	21.51		
10	16QAM	1	49	21.42	21.43	21.47		
10	16QAM	25	0	20.20	20.15	20.17	21.5	2
10	16QAM	25	12	20.25	20.19	20.24		
10	16QAM	25	25	20.20	20.16	20.24		
10	16QAM	50	0	20.22	20.15	20.18		
10	64QAM	1	0	20.51	20.44	20.47	21.5	2
10	64QAM	1	25	20.56	20.40	20.58		
10	64QAM	1	49	20.45	20.45	20.57		
10	64QAM	25	0	19.22	19.14	19.19	20.5	3
10	64QAM	25	12	19.25	19.19	19.20		
10	64QAM	25	25	19.21	19.13	19.28		
10	64QAM	50	0	19.23	19.16	19.18		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.11	22.20	22.13	23.5	0
5	QPSK	1	12	22.16	22.01	22.18		
5	QPSK	1	24	22.14	22.05	22.18		
5	QPSK	12	0	21.18	21.08	21.20	22.5	1
5	QPSK	12	7	21.24	21.15	21.25		
5	QPSK	12	13	21.19	21.14	21.23		
5	QPSK	25	0	21.19	21.09	21.24		
5	16QAM	1	0	21.46	21.35	21.44	22.5	1
5	16QAM	1	12	21.42	21.39	21.48		
5	16QAM	1	24	21.41	21.41	21.50		
5	16QAM	12	0	20.24	20.15	20.23	21.5	2
5	16QAM	12	7	20.24	20.16	20.28		
5	16QAM	12	13	20.23	20.17	20.27		
5	16QAM	25	0	20.21	20.13	20.26		
5	64QAM	1	0	20.38	20.28	20.42	21.5	2
5	64QAM	1	12	20.31	20.24	20.39		
5	64QAM	1	24	20.37	20.29	20.38		
5	64QAM	12	0	19.19	19.09	19.23	20.5	3
5	64QAM	12	7	19.22	19.14	19.27		
5	64QAM	12	13	19.22	19.12	19.26		
5	64QAM	25	0	19.20	19.11	19.23		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.21	22.05	22.07	23.5	0
3	QPSK	1	8	22.03	22.07	22.18		
3	QPSK	1	14	22.03	22.02	22.11		
3	QPSK	8	0	21.08	21.10	21.16	22.5	1
3	QPSK	8	4	21.07	21.12	21.25		
3	QPSK	8	7	21.10	21.08	21.22		
3	QPSK	15	0	21.08	21.09	21.19		
3	16QAM	1	0	21.37	21.32	21.44	22.5	1
3	16QAM	1	8	21.30	21.43	21.53		
3	16QAM	1	14	21.30	21.34	21.50		
3	16QAM	8	0	20.18	20.17	20.27	21.5	2
3	16QAM	8	4	20.16	20.20	20.32		
3	16QAM	8	7	20.15	20.17	20.26		
3	16QAM	15	0	20.18	20.15	20.24		
3	64QAM	1	0	20.31	20.27	20.33	21.5	2
3	64QAM	1	8	20.29	20.34	20.43		
3	64QAM	1	14	20.31	20.31	20.37		
3	64QAM	8	0	19.10	19.13	19.19	20.5	3
3	64QAM	8	4	19.10	19.14	19.25		
3	64QAM	8	7	19.09	19.14	19.24		
3	64QAM	15	0	19.08	19.11	19.20		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.02	22.05	22.00	23.5	0
1.4	QPSK	1	3	22.09	22.07	22.10		
1.4	QPSK	1	5	22.09	22.09	22.02		
1.4	QPSK	3	0	22.06	22.08	22.02		
1.4	QPSK	3	1	22.03	22.05	22.08		
1.4	QPSK	3	3	22.05	22.03	22.03		
1.4	QPSK	6	0	21.08	21.07	21.12	22.5	1
1.4	16QAM	1	0	21.33	21.25	21.36	22.5	1
1.4	16QAM	1	3	21.39	21.32	21.41		
1.4	16QAM	1	5	21.36	21.26	21.39		
1.4	16QAM	3	0	21.15	21.08	21.13		
1.4	16QAM	3	1	21.18	21.09	21.17		
1.4	16QAM	3	3	21.12	21.02	21.12		
1.4	16QAM	6	0	20.18	20.11	20.17	21.5	2
1.4	64QAM	1	0	20.24	20.20	20.29	21.5	2
1.4	64QAM	1	3	20.31	20.23	20.28		
1.4	64QAM	1	5	20.29	20.17	20.24		
1.4	64QAM	3	0	20.17	20.09	20.15		
1.4	64QAM	3	1	20.25	20.12	20.20		
1.4	64QAM	3	3	20.16	20.05	20.16		
1.4	64QAM	6	0	19.11	19.01	19.13	20.5	3

<LTE Band 5 ANT2 >

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	22.47	22.64	22.50	24	0
10	QPSK	1	25	22.52	22.58	22.50		
10	QPSK	1	49	22.46	22.52	22.40		
10	QPSK	25	0	21.55	21.68	21.59	23	1
10	QPSK	25	12	21.61	21.63	21.55		
10	QPSK	25	25	21.54	21.67	21.58		
10	QPSK	50	0	21.58	21.87	21.52		
10	16QAM	1	0	21.85	21.84	21.88	23	1
10	16QAM	1	25	21.82	21.85	21.87		
10	16QAM	1	49	21.80	21.84	21.82		
10	16QAM	25	0	20.50	20.62	20.60	22	2
10	16QAM	25	12	20.57	20.62	20.56		
10	16QAM	25	25	20.55	20.61	20.58		
10	16QAM	50	0	20.62	20.60	20.62		
10	64QAM	1	0	20.90	20.89	20.94	22	2
10	64QAM	1	25	20.85	20.95	20.91		
10	64QAM	1	49	20.87	20.84	20.55		
10	64QAM	25	0	19.48	19.62	19.54	21	3
10	64QAM	25	12	19.63	19.63	19.60		
10	64QAM	25	25	19.54	19.67	19.58		
10	64QAM	50	0	19.62	19.63	19.58		
Channel				20425	20525	20625	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	22.54	22.56	22.52	24	0
5	QPSK	1	12	22.44	22.60	22.52		
5	QPSK	1	24	22.44	22.55	22.50		
5	QPSK	12	0	21.58	21.65	21.62	23	1
5	QPSK	12	7	21.59	21.63	21.58		
5	QPSK	12	13	21.51	21.63	21.59		
5	QPSK	25	0	21.59	21.62	21.57		
5	16QAM	1	0	21.89	21.92	21.85	23	1
5	16QAM	1	12	21.74	21.86	21.89		
5	16QAM	1	24	21.78	21.84	21.77		
5	16QAM	12	0	20.65	20.68	20.66	22	2
5	16QAM	12	7	20.59	20.64	20.58		
5	16QAM	12	13	20.51	20.63	20.57		
5	16QAM	25	0	20.56	20.64	20.61		
5	64QAM	1	0	20.77	20.81	20.80	22	2
5	64QAM	1	12	20.67	20.77	20.70		
5	64QAM	1	24	20.71	20.73	20.68		
5	64QAM	12	0	19.62	19.64	19.62	21	3
5	64QAM	12	7	19.57	19.65	19.55		
5	64QAM	12	13	19.54	19.64	19.56		
5	64QAM	25	0	19.57	19.63	19.57		

Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	22.52	22.56	22.58	24	0
3	QPSK	1	8	22.52	22.60	22.54		
3	QPSK	1	14	22.42	22.54	22.41		
3	QPSK	8	0	21.61	21.66	21.58	23	1
3	QPSK	8	4	21.54	21.63	21.63		
3	QPSK	8	7	21.53	21.66	21.54		
3	QPSK	15	0	21.53	21.62	21.58		
3	16QAM	1	0	21.86	21.89	21.87	23	1
3	16QAM	1	8	21.84	21.94	21.85		
3	16QAM	1	14	21.76	21.89	21.71		
3	16QAM	8	0	20.65	20.71	20.67	22	2
3	16QAM	8	4	20.62	20.70	20.65		
3	16QAM	8	7	20.60	20.67	20.62		
3	16QAM	15	0	20.58	20.66	20.62		
3	64QAM	1	0	20.76	20.75	20.79	22	2
3	64QAM	1	8	20.77	20.90	20.77		
3	64QAM	1	14	20.68	20.73	20.70		
3	64QAM	8	0	19.57	19.68	19.56	21	3
3	64QAM	8	4	19.58	19.63	19.54		
3	64QAM	8	7	19.56	19.64	19.56		
3	64QAM	15	0	19.56	19.63	19.60		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	22.44	22.48	22.41	24	0
1.4	QPSK	1	3	22.49	22.55	22.43		
1.4	QPSK	1	5	22.39	22.46	22.41		
1.4	QPSK	3	0	22.44	22.50	22.43		
1.4	QPSK	3	1	22.48	22.52	22.47		
1.4	QPSK	3	3	22.41	22.49	22.40		
1.4	QPSK	6	0	21.49	21.53	21.49	23	1
1.4	16QAM	1	0	21.79	21.77	21.74	23	1
1.4	16QAM	1	3	21.82	21.90	21.80		
1.4	16QAM	1	5	21.72	21.85	21.70		
1.4	16QAM	3	0	21.55	21.58	21.63		
1.4	16QAM	3	1	21.58	21.64	21.66		
1.4	16QAM	3	3	21.52	21.60	21.59		
1.4	16QAM	6	0	20.55	20.62	20.56	22	2
1.4	64QAM	1	0	20.67	20.68	20.62	22	2
1.4	64QAM	1	3	20.72	20.76	20.68		
1.4	64QAM	1	5	20.61	20.68	20.60		
1.4	64QAM	3	0	20.59	20.63	20.53		
1.4	64QAM	3	1	20.63	20.65	20.60		
1.4	64QAM	3	3	20.56	20.61	20.53		
1.4	64QAM	6	0	19.48	19.59	19.57	21	3

<LTE Band 13 ANT2 >

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel					23230			
Frequency (MHz)					782			
10	QPSK	1	0		22.85		24	0
10	QPSK	1	25		22.75			
10	QPSK	1	49		22.74			
10	QPSK	25	0		21.94		23	1
10	QPSK	25	12		21.87			
10	QPSK	25	25		21.93			
10	QPSK	50	0		22.15			
10	16QAM	1	0		22.12		23	1
10	16QAM	1	25		22.13			
10	16QAM	1	49		22.07			
10	16QAM	25	0		20.85		22	2
10	16QAM	25	12		20.87			
10	16QAM	25	25		20.88			
10	16QAM	50	0		20.85			
10	64QAM	1	0		20.98		22	2
10	64QAM	1	25		20.96			
10	64QAM	1	49		20.95			
10	64QAM	25	0		19.90		21	3
10	64QAM	25	12		19.87			
10	64QAM	25	25		19.91			
10	64QAM	50	0		19.84			
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	22.77	22.73	22.74	24	0
5	QPSK	1	12	22.78	22.82	22.75		
5	QPSK	1	24	22.83	22.79	22.68		
5	QPSK	12	0	21.92	21.87	21.92	23	1
5	QPSK	12	7	21.95	21.85	21.87		
5	QPSK	12	13	21.90	21.90	21.82		
5	QPSK	25	0	21.96	21.83	21.88		
5	16QAM	1	0	22.19	22.11	22.08	23	1
5	16QAM	1	12	22.16	22.21	22.09		
5	16QAM	1	24	22.20	22.13	21.97		
5	16QAM	12	0	20.99	20.90	20.91	22	2
5	16QAM	12	7	20.98	20.89	20.90		
5	16QAM	12	13	20.96	20.88	20.86		
5	16QAM	25	0	20.97	20.84	20.86		
5	64QAM	1	0	20.95	20.98	21.00	22	2
5	64QAM	1	12	20.91	21.00	21.03		
5	64QAM	1	24	21.04	20.97	20.93		
5	64QAM	12	0	19.94	19.86	19.88	21	3
5	64QAM	12	7	19.94	19.81	19.85		
5	64QAM	12	13	19.94	19.88	19.81		
5	64QAM	25	0	19.95	19.86	19.85		

<LTE Band 66 ANT2 >

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	22.41	22.49	22.40	23.5	0
20	QPSK	1	49	22.33	22.38	22.35		
20	QPSK	1	99	22.34	22.37	22.24		
20	QPSK	50	0	21.13	21.22	21.17	22.5	1
20	QPSK	50	24	21.20	21.03	21.13		
20	QPSK	50	50	21.10	21.22	21.14		
20	QPSK	100	0	21.15	21.42	21.06		
20	16QAM	1	0	21.39	21.27	21.33	22.5	1
20	16QAM	1	49	21.37	21.02	21.08		
20	16QAM	1	99	21.27	21.34	21.24		
20	16QAM	50	0	20.15	20.31	20.19	21.5	2
20	16QAM	50	24	20.19	20.32	20.16		
20	16QAM	50	50	20.11	20.25	20.15		
20	16QAM	100	0	20.14	20.27	20.13		
20	64QAM	1	0	20.57	20.42	20.38	21.5	2
20	64QAM	1	49	20.36	20.23	20.22		
20	64QAM	1	99	20.34	20.26	20.29		
20	64QAM	50	0	19.32	19.19	19.08	20.5	3
20	64QAM	50	24	19.35	19.21	19.05		
20	64QAM	50	50	19.32	19.12	19.03		
20	64QAM	100	0	19.33	19.18	19.04		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	22.33	22.39	22.26	23.5	0
15	QPSK	1	37	22.32	22.23	22.32		
15	QPSK	1	74	22.26	22.27	22.46		
15	QPSK	36	0	21.19	21.22	21.13	22.5	1
15	QPSK	36	20	21.20	21.31	21.14		
15	QPSK	36	39	21.11	21.23	21.15		
15	QPSK	75	0	21.14	21.26	21.11		
15	16QAM	1	0	21.38	21.19	21.16	22.5	1
15	16QAM	1	37	21.29	21.14	21.07		
15	16QAM	1	74	21.27	21.04	21.10		
15	16QAM	36	0	20.19	20.23	20.13	21.5	2
15	16QAM	36	20	20.19	20.30	20.11		
15	16QAM	36	39	20.11	20.23	20.12		
15	16QAM	75	0	20.16	20.27	20.11		
15	64QAM	1	0	20.29	20.10	20.11	21.5	2
15	64QAM	1	37	20.18	20.03	20.06		
15	64QAM	1	74	20.07	20.39	20.05		
15	64QAM	36	0	19.23	19.29	19.28	20.5	3
15	64QAM	36	20	19.17	19.21	19.02		
15	64QAM	36	39	19.13	19.12	19.02		
15	64QAM	75	0	19.20	19.20	19.03		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	22.40	22.14	22.09	23.5	0
10	QPSK	1	25	22.37	22.18	22.02		
10	QPSK	1	49	22.24	22.04	22.22		
10	QPSK	25	0	21.50	21.23	21.13	22.5	1
10	QPSK	25	12	21.49	21.31	21.13		
10	QPSK	25	25	21.42	21.25	21.13		
10	QPSK	50	0	21.49	21.31	21.13		
10	16QAM	1	0	21.71	21.57	21.51	22.5	1
10	16QAM	1	25	21.69	21.53	21.42		
10	16QAM	1	49	21.66	21.48	21.31		
10	16QAM	25	0	20.51	20.26	20.15	21.5	2
10	16QAM	25	12	20.51	20.30	20.15		
10	16QAM	25	25	20.46	20.23	20.16		
10	16QAM	50	0	20.49	20.31	20.10		
10	64QAM	1	0	20.40	20.58	20.42	21.5	2
10	64QAM	1	25	20.38	20.58	20.45		
10	64QAM	1	49	20.36	20.43	20.33		
10	64QAM	25	0	19.17	19.25	19.12	20.5	3
10	64QAM	25	12	19.20	19.34	19.13		
10	64QAM	25	25	19.19	19.21	19.13		
10	64QAM	50	0	19.15	19.27	19.08		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	22.40	22.11	22.04	23.5	0
5	QPSK	1	12	22.35	22.12	22.04		
5	QPSK	1	24	22.40	22.07	22.21		
5	QPSK	12	0	21.49	21.20	21.15	22.5	1
5	QPSK	12	7	21.48	21.58	21.19		
5	QPSK	12	13	21.44	21.50	21.13		
5	QPSK	25	0	21.44	21.23	21.12		
5	16QAM	1	0	21.70	21.40	21.36	22.5	1
5	16QAM	1	12	21.72	21.53	21.40		
5	16QAM	1	24	21.60	21.40	21.29		
5	16QAM	12	0	20.49	20.25	20.20	21.5	2
5	16QAM	12	7	20.53	20.30	20.20		
5	16QAM	12	13	20.49	20.24	20.14		
5	16QAM	25	0	20.47	20.26	20.17		
5	64QAM	1	0	20.64	20.40	20.29	21.5	2
5	64QAM	1	12	20.63	20.43	20.28		
5	64QAM	1	24	20.58	20.38	20.20		
5	64QAM	12	0	19.51	19.08	19.16	20.5	3
5	64QAM	12	7	19.48	19.28	19.17		
5	64QAM	12	13	19.45	19.22	19.13		
5	64QAM	25	0	19.48	19.25	19.20		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	22.39	22.16	22.03	23.5	0
3	QPSK	1	8	22.37	22.22	22.07		
3	QPSK	1	14	22.10	22.12	22.02		
3	QPSK	8	0	21.25	21.27	21.14	22.5	1
3	QPSK	8	4	21.50	21.30	21.15		
3	QPSK	8	7	21.46	21.25	21.12		
3	QPSK	15	0	21.49	21.29	21.12		
3	16QAM	1	0	21.74	21.47	21.38	22.5	1
3	16QAM	1	8	21.78	21.47	21.44		
3	16QAM	1	14	21.62	21.48	21.34		
3	16QAM	8	0	20.56	20.30	20.21	21.5	2
3	16QAM	8	4	20.60	20.33	20.22		
3	16QAM	8	7	20.52	20.32	20.18		
3	16QAM	15	0	20.52	20.32	20.19		
3	64QAM	1	0	20.66	20.43	20.30	21.5	2
3	64QAM	1	8	20.66	20.45	20.34		
3	64QAM	1	14	20.57	20.38	20.21		
3	64QAM	8	0	19.53	19.27	19.19	20.5	3
3	64QAM	8	4	19.52	19.30	19.19		
3	64QAM	8	7	19.39	19.27	19.14		
3	64QAM	15	0	19.21	19.24	19.15		
Channel				131979	132322	#VALUE!	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	SSSSSS		
1.4	QPSK	1	0	22.27	22.10	22.15	23.5	0
1.4	QPSK	1	3	22.30	22.12	22.19		
1.4	QPSK	1	5	22.25	22.05	22.18		
1.4	QPSK	3	0	22.34	22.08	22.17		
1.4	QPSK	3	1	22.36	22.15	22.22		
1.4	QPSK	3	3	22.33	22.12	22.17		
1.4	QPSK	6	0	21.41	21.19	21.08	22.5	1
1.4	16QAM	1	0	21.31	21.36	21.25	22.5	1
1.4	16QAM	1	3	21.70	21.47	21.36		
1.4	16QAM	1	5	21.62	21.38	21.31		
1.4	16QAM	3	0	21.38	21.20	21.08		
1.4	16QAM	3	1	21.44	21.29	21.15		
1.4	16QAM	3	3	21.38	21.18	21.06		
1.4	16QAM	6	0	20.48	20.26	20.16	21.5	2
1.4	64QAM	1	0	20.54	20.35	20.17	21.5	2
1.4	64QAM	1	3	20.57	20.36	20.20		
1.4	64QAM	1	5	20.53	20.27	20.14		
1.4	64QAM	3	0	20.44	20.23	20.10		
1.4	64QAM	3	1	20.50	20.28	20.20		
1.4	64QAM	3	3	20.40	20.20	20.09		
1.4	64QAM	6	0	19.39	19.17	19.08	20.5	3

<Reduced Power on Head Mode>

<LTE Band 2 ANT2 >

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	21.65	21.73	21.55	23.3	0
20	QPSK	1	49	21.48	21.41	21.47		
20	QPSK	1	99	21.43	21.42	21.44		
20	QPSK	50	0	21.19	21.40	21.26	22.5	0.8
20	QPSK	50	24	21.39	21.30	21.26		
20	QPSK	50	50	21.34	21.26	21.33		
20	QPSK	100	0	21.37	21.44	21.26		
20	16QAM	1	0	21.63	21.55	21.54	22.5	0.8
20	16QAM	1	49	21.51	21.44	21.49		
20	16QAM	1	99	21.34	21.44	21.50		
20	16QAM	50	0	20.41	20.23	20.28	21.5	1.8
20	16QAM	50	24	20.39	20.31	20.28		
20	16QAM	50	50	20.35	20.27	20.33		
20	16QAM	100	0	20.37	20.29	20.25		
20	64QAM	1	0	20.50	20.45	20.50	21.5	1.8
20	64QAM	1	49	20.44	20.28	20.35		
20	64QAM	1	99	20.21	20.35	20.34		
20	64QAM	50	0	19.37	19.23	19.27	20.5	2.8
20	64QAM	50	24	19.40	19.30	19.30		
20	64QAM	50	50	19.32	19.28	19.29		
20	64QAM	100	0	19.40	19.30	19.23		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.69	21.62	21.63	23.3	0
15	QPSK	1	37	21.62	21.54	21.59		
15	QPSK	1	74	21.56	21.49	21.57		
15	QPSK	36	0	21.48	21.27	21.33	22.5	0.8
15	QPSK	36	20	21.48	21.39	21.37		
15	QPSK	36	39	21.42	21.35	21.41		
15	QPSK	75	0	21.48	21.35	21.35		
15	16QAM	1	0	21.62	21.60	21.64	22.5	0.8
15	16QAM	1	37	21.65	21.55	21.58		
15	16QAM	1	74	21.58	21.58	21.60		
15	16QAM	36	0	20.48	20.29	20.35	21.5	1.8
15	16QAM	36	20	20.49	20.39	20.37		
15	16QAM	36	39	20.44	20.36	20.43		
15	16QAM	75	0	20.48	20.39	20.36		
15	64QAM	1	0	20.54	20.51	20.54	21.5	1.8
15	64QAM	1	37	20.56	20.41	20.48		
15	64QAM	1	74	20.48	20.58	20.49		
15	64QAM	36	0	19.47	19.31	19.35	20.5	2.8
15	64QAM	36	20	19.46	19.37	19.36		
15	64QAM	36	39	19.44	19.37	19.43		
15	64QAM	75	0	19.49	19.35	19.37		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.69	21.48	21.53	23.3	0
10	QPSK	1	25	21.58	21.42	21.52		
10	QPSK	1	49	21.56	21.44	21.57		
10	QPSK	25	0	21.44	21.30	21.30	22.5	0.8
10	QPSK	25	12	21.46	21.35	21.34		
10	QPSK	25	25	21.45	21.34	21.42		
10	QPSK	50	0	21.45	21.35	21.34		
10	16QAM	1	0	21.62	21.65	21.65	22.5	0.8
10	16QAM	1	25	21.67	21.58	21.67		
10	16QAM	1	49	21.67	21.58	21.66		
10	16QAM	25	0	20.44	20.31	20.34	21.5	1.8
10	16QAM	25	12	20.49	20.35	20.34		
10	16QAM	25	25	20.47	20.34	20.41		
10	16QAM	50	0	20.46	20.39	20.33		
10	64QAM	1	0	20.71	20.66	20.76	21.5	1.8
10	64QAM	1	25	20.69	20.56	20.60		
10	64QAM	1	49	20.68	20.62	20.67		
10	64QAM	25	0	19.45	19.35	19.32	20.5	2.8
10	64QAM	25	12	19.50	19.38	19.39		
10	64QAM	25	25	19.45	19.36	19.43		
10	64QAM	50	0	19.47	19.34	19.32		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	21.64	21.47	21.60	23.3	0
5	QPSK	1	12	21.70	21.55	21.62		
5	QPSK	1	24	21.67	21.54	21.60		
5	QPSK	12	0	21.47	21.29	21.39	22.5	0.8
5	QPSK	12	7	21.47	21.32	21.41		
5	QPSK	12	13	21.44	21.33	21.40		
5	QPSK	25	0	21.44	21.29	21.35		
5	16QAM	1	0	21.68	21.55	21.61	22.5	0.8
5	16QAM	1	12	21.66	21.58	21.66		
5	16QAM	1	24	21.62	21.57	21.65		
5	16QAM	12	0	20.47	20.35	20.38	21.5	1.8
5	16QAM	12	7	20.48	20.37	20.44		
5	16QAM	12	13	20.46	20.33	20.40		
5	16QAM	25	0	20.49	20.33	20.37		
5	64QAM	1	0	20.63	20.50	20.55	21.5	1.8
5	64QAM	1	12	20.58	20.42	20.50		
5	64QAM	1	24	20.63	20.49	20.60		
5	64QAM	12	0	19.41	19.30	19.45	20.5	2.8
5	64QAM	12	7	19.47	19.50	19.40		
5	64QAM	12	13	19.45	19.49	19.38		
5	64QAM	25	0	19.46	19.53	19.37		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	21.64	21.51	21.56	23.3	0
3	QPSK	1	8	21.53	21.58	21.65		
3	QPSK	1	14	21.55	21.53	21.59		
3	QPSK	8	0	21.67	21.32	21.35	22.5	0.8
3	QPSK	8	4	21.44	21.34	21.36		
3	QPSK	8	7	21.45	21.31	21.37		
3	QPSK	15	0	21.47	21.32	21.38		
3	16QAM	1	0	21.68	21.53	21.57	22.5	0.8
3	16QAM	1	8	21.61	21.61	21.72		
3	16QAM	1	14	21.70	21.51	21.65		
3	16QAM	8	0	20.53	20.35	20.40	21.5	1.8
3	16QAM	8	4	20.55	20.42	20.43		
3	16QAM	8	7	20.54	20.38	20.33		
3	16QAM	15	0	20.47	20.37	20.42		
3	64QAM	1	0	20.63	20.49	20.57	21.5	1.8
3	64QAM	1	8	20.68	20.59	20.66		
3	64QAM	1	14	20.62	20.50	20.60		
3	64QAM	8	0	19.46	19.34	19.38	20.5	2.8
3	64QAM	8	4	19.49	19.38	19.44		
3	64QAM	8	7	19.48	19.40	19.39		
3	64QAM	15	0	19.48	19.32	19.38		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	21.50	21.55	21.59	23.3	0
1.4	QPSK	1	3	21.56	21.54	21.56		
1.4	QPSK	1	5	21.61	21.57	21.53		
1.4	QPSK	3	0	21.60	21.58	21.55		
1.4	QPSK	3	1	21.54	21.53	21.53		
1.4	QPSK	3	3	21.57	21.58	21.61		
1.4	QPSK	6	0	21.18	21.04	21.06	22.5	0.8
1.4	16QAM	1	0	21.44	21.29	21.32	22.5	0.8
1.4	16QAM	1	3	21.52	21.37	21.40		
1.4	16QAM	1	5	21.41	21.30	21.35		
1.4	16QAM	3	0	21.11	21.06	21.11		
1.4	16QAM	3	1	21.22	21.13	21.16		
1.4	16QAM	3	3	21.16	21.07	21.11		
1.4	16QAM	6	0	20.26	20.14	20.15	21.5	1.8
1.4	64QAM	1	0	20.60	20.45	20.47	21.5	1.8
1.4	64QAM	1	3	20.62	20.50	20.49		
1.4	64QAM	1	5	20.52	20.58	20.41		
1.4	64QAM	3	0	20.49	20.45	20.58		
1.4	64QAM	3	1	20.36	20.39	20.43		
1.4	64QAM	3	3	20.46	20.34	20.37		
1.4	64QAM	6	0	19.45	19.25	19.28	20.5	2.8

<LTE Band 66 ANT2 >

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	20.20	20.25	20.16	21.8	0
20	QPSK	1	49	20.03	20.22	20.06		
20	QPSK	1	99	20.10	20.12	20.07		
20	QPSK	50	0	20.06	20.18	19.96	21.8	0
20	QPSK	50	24	20.18	20.04	19.92		
20	QPSK	50	50	20.11	19.98	19.90		
20	QPSK	100	0	20.08	20.15	19.94		
20	16QAM	1	0	20.17	20.24	20.19	21.8	0
20	16QAM	1	49	20.14	20.22	20.19		
20	16QAM	1	99	20.24	20.10	20.23		
20	16QAM	50	0	20.18	20.02	19.99	21.5	0.3
20	16QAM	50	24	20.20	20.06	19.95		
20	16QAM	50	50	20.13	19.98	19.94		
20	16QAM	100	0	20.18	20.03	19.94		
20	64QAM	1	0	20.22	20.15	20.22	21.5	0.3
20	64QAM	1	49	20.06	20.09	20.08		
20	64QAM	1	99	20.02	20.07	20.04		
20	64QAM	50	0	19.39	19.22	19.19	20.5	1.3
20	64QAM	50	24	19.41	19.25	19.16		
20	64QAM	50	50	19.32	19.17	19.11		
20	64QAM	100	0	19.22	19.23	19.14		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	20.23	20.09	20.05	21.8	0
15	QPSK	1	37	20.14	19.99	19.90		
15	QPSK	1	74	20.10	19.91	19.87		
15	QPSK	36	0	20.19	20.09	20.05	21.8	0
15	QPSK	36	20	20.13	20.18	20.01		
15	QPSK	36	39	20.24	20.06	19.98		
15	QPSK	75	0	20.13	20.10	20.07		
15	16QAM	1	0	20.24	20.13	20.23	21.8	0
15	16QAM	1	37	20.24	20.16	20.15		
15	16QAM	1	74	20.14	20.17	20.13		
15	16QAM	36	0	20.11	20.09	20.04	21.5	0.3
15	16QAM	36	20	20.10	20.16	20.01		
15	16QAM	36	39	20.23	20.09	19.99		
15	16QAM	75	0	20.16	20.13	19.99		
15	64QAM	1	0	20.15	20.19	20.12	21.5	0.3
15	64QAM	1	37	20.23	20.17	20.10		
15	64QAM	1	74	20.18	20.12	20.05		
15	64QAM	36	0	19.25	19.21	19.14	20.5	1.3
15	64QAM	36	20	19.28	19.24	19.09		
15	64QAM	36	39	19.25	19.18	19.11		
15	64QAM	75	0	19.21	19.21	19.10		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	20.10	19.92	19.82	21.8	0
10	QPSK	1	25	20.01	19.85	19.93		
10	QPSK	1	49	19.87	19.85	19.86		
10	QPSK	25	0	20.18	19.95	19.85	21.8	0
10	QPSK	25	12	20.18	20.01	19.84		
10	QPSK	25	25	20.11	19.94	19.87		
10	QPSK	50	0	20.20	20.00	19.85		
10	16QAM	1	0	20.21	20.21	20.20	21.8	0
10	16QAM	1	25	20.18	20.23	20.15		
10	16QAM	1	49	20.22	20.22	20.06		
10	16QAM	25	0	20.21	19.95	19.84	21.5	0.3
10	16QAM	25	12	20.18	20.03	19.87		
10	16QAM	25	25	20.13	19.95	19.89		
10	16QAM	50	0	20.19	20.04	19.82		
10	64QAM	1	0	20.19	20.18	20.17	21.5	0.3
10	64QAM	1	25	20.23	20.13	20.20		
10	64QAM	1	49	20.13	20.21	20.14		
10	64QAM	25	0	19.40	19.15	19.05	20.5	1.3
10	64QAM	25	12	19.26	19.24	19.30		
10	64QAM	25	25	19.34	19.12	19.07		
10	64QAM	50	0	19.36	19.19	19.05		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	20.10	19.84	19.82	21.8	0
5	QPSK	1	12	20.08	19.95	19.81		
5	QPSK	1	24	20.01	19.89	19.94		
5	QPSK	12	0	20.17	19.87	19.90	21.8	0
5	QPSK	12	7	20.18	20.05	19.96		
5	QPSK	12	13	20.13	19.98	20.03		
5	QPSK	25	0	20.13	19.96	19.82		
5	16QAM	1	0	20.22	20.19	20.17	21.8	0
5	16QAM	1	12	20.21	20.19	20.14		
5	16QAM	1	24	20.16	20.18	20.06		
5	16QAM	12	0	20.21	19.96	19.93	21.5	0.3
5	16QAM	12	7	20.23	20.04	19.95		
5	16QAM	12	13	20.18	20.00	19.89		
5	16QAM	25	0	20.17	19.98	19.91		
5	64QAM	1	0	20.13	20.11	20.08	21.5	0.3
5	64QAM	1	12	20.21	20.11	19.99		
5	64QAM	1	24	20.23	20.10	19.95		
5	64QAM	12	0	19.32	19.06	19.01	20.5	1.3
5	64QAM	12	7	19.29	18.92	19.03		
5	64QAM	12	13	19.26	19.15	18.98		
5	64QAM	25	0	19.29	19.01	19.02		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	20.15	19.89	19.95	21.8	0
3	QPSK	1	8	20.14	19.94	20.07		
3	QPSK	1	14	20.04	19.98	19.98		
3	QPSK	8	0	20.17	19.94	19.88	21.8	0
3	QPSK	8	4	20.21	20.04	19.89		
3	QPSK	8	7	20.13	19.96	19.85		
3	QPSK	15	0	20.15	19.98	19.87		
3	16QAM	1	0	20.24	20.14	20.18	21.8	0
3	16QAM	1	8	20.21	20.17	20.20		
3	16QAM	1	14	20.17	20.22	20.11		
3	16QAM	8	0	20.16	20.05	19.95	21.5	0.3
3	16QAM	8	4	20.21	20.09	19.99		
3	16QAM	8	7	20.20	20.04	19.89		
3	16QAM	15	0	20.20	20.02	19.94		
3	64QAM	1	0	19.96	20.12	20.04	21.5	0.3
3	64QAM	1	8	20.01	20.19	20.07		
3	64QAM	1	14	20.09	20.13	19.97		
3	64QAM	8	0	19.24	19.13	19.01	20.5	1.3
3	64QAM	8	4	19.32	19.20	19.03		
3	64QAM	8	7	19.29	19.23	18.97		
3	64QAM	15	0	19.29	19.16	18.96		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	19.99	20.02	20.15	21.8	0
1.4	QPSK	1	3	20.06	20.04	19.95		
1.4	QPSK	1	5	20.01	19.99	19.87		
1.4	QPSK	3	0	20.04	20.06	19.92		
1.4	QPSK	3	1	20.08	20.10	19.94		
1.4	QPSK	3	3	20.05	20.05	19.90		
1.4	QPSK	6	0	20.12	19.91	19.81	21.8	0
1.4	16QAM	1	0	20.23	20.15	20.03	21.8	0
1.4	16QAM	1	3	20.21	20.18	20.09		
1.4	16QAM	1	5	20.21	20.13	20.02		
1.4	16QAM	3	0	20.15	19.93	19.83		
1.4	16QAM	3	1	20.18	19.95	19.87		
1.4	16QAM	3	3	20.12	19.89	19.82		
1.4	16QAM	6	0	20.15	19.94	19.89	21.5	0.3
1.4	64QAM	1	0	20.18	20.04	19.87	21.5	0.3
1.4	64QAM	1	3	20.20	20.14	20.09		
1.4	64QAM	1	5	19.97	20.10	19.93		
1.4	64QAM	3	0	20.02	19.90	19.86		
1.4	64QAM	3	1	20.20	19.99	19.89		
1.4	64QAM	3	3	20.00	19.91	19.86		
1.4	64QAM	6	0	19.20	19.01	19.20	20.5	1.3

<Reduced Power on Hotspot / Body-worn Mode>

<LTE Band 2 ANT2 >

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	16.60	16.95	16.51	18.1	0
20	QPSK	1	49	16.52	16.55	16.48		
20	QPSK	1	99	16.58	16.53	16.49		
20	QPSK	50	0	16.44	16.66	16.51	18.1	0
20	QPSK	50	24	16.63	16.57	16.53		
20	QPSK	50	50	16.57	16.54	16.57		
20	QPSK	100	0	16.51	16.67	16.52		
20	16QAM	1	0	16.86	16.81	16.86	18.1	0
20	16QAM	1	49	16.82	16.69	16.75		
20	16QAM	1	99	16.69	16.72	16.75		
20	16QAM	50	0	16.69	16.50	16.53	18.1	0
20	16QAM	50	24	16.67	16.60	16.55		
20	16QAM	50	50	16.62	16.55	16.60		
20	16QAM	100	0	16.64	16.55	16.52		
20	64QAM	1	0	16.69	16.77	16.80	18.1	0
20	64QAM	1	49	16.61	16.57	16.60		
20	64QAM	1	99	16.50	16.56	16.52		
20	64QAM	50	0	16.50	16.52	16.55	18.1	0
20	64QAM	50	24	16.64	16.58	16.53		
20	64QAM	50	50	16.59	16.53	16.59		
20	64QAM	100	0	16.65	16.56	16.31		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	16.53	16.44	16.48	18.1	0
15	QPSK	1	37	16.47	16.39	16.47		
15	QPSK	1	74	16.49	16.36	16.45		
15	QPSK	36	0	16.64	16.44	16.51	18.1	0
15	QPSK	36	20	16.63	16.55	16.55		
15	QPSK	36	39	16.63	16.53	16.59		
15	QPSK	75	0	16.62	16.54	16.51		
15	16QAM	1	0	16.92	16.80	16.88	18.1	0
15	16QAM	1	37	16.86	16.77	16.75		
15	16QAM	1	74	16.83	16.68	16.79		
15	16QAM	36	0	16.67	16.46	16.54	18.1	0
15	16QAM	36	20	16.59	16.58	16.55		
15	16QAM	36	39	16.62	16.55	16.61		
15	16QAM	75	0	16.64	16.57	16.55		
15	64QAM	1	0	16.57	16.74	16.77	18.1	0
15	64QAM	1	37	16.67	16.65	16.62		
15	64QAM	1	74	16.83	16.81	16.71		
15	64QAM	36	0	16.65	16.47	16.54	18.1	0
15	64QAM	36	20	16.54	16.57	16.55		
15	64QAM	36	39	16.57	16.56	16.59		
15	64QAM	75	0	16.68	16.57	16.54		

Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	16.53	16.38	16.45	18.1	0
10	QPSK	1	25	16.49	16.32	16.42		
10	QPSK	1	49	16.45	16.43	16.45		
10	QPSK	25	0	16.59	16.48	16.47	18.1	0
10	QPSK	25	12	16.63	16.50	16.51		
10	QPSK	25	25	16.66	16.50	16.60		
10	QPSK	50	0	16.63	16.52	16.53		
10	16QAM	1	0	16.86	16.82	16.86	18.1	0
10	16QAM	1	25	16.86	16.73	16.81		
10	16QAM	1	49	16.86	16.75	16.81		
10	16QAM	25	0	16.65	16.53	16.49	18.1	0
10	16QAM	25	12	16.69	16.54	16.58		
10	16QAM	25	25	16.60	16.51	16.63		
10	16QAM	50	0	16.65	16.57	16.53		
10	64QAM	1	0	16.87	16.84	16.89	18.1	0
10	64QAM	1	25	16.58	16.91	16.91		
10	64QAM	1	49	16.66	16.87	16.77		
10	64QAM	25	0	16.67	16.58	16.55	18.1	0
10	64QAM	25	12	16.68	16.58	16.57		
10	64QAM	25	25	16.55	16.55	16.62		
10	64QAM	50	0	16.69	16.53	16.52		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	16.50	16.37	16.24	18.1	0
5	QPSK	1	12	16.56	16.41	16.49		
5	QPSK	1	24	16.56	16.42	16.38		
5	QPSK	12	0	16.42	16.46	16.46	18.1	0
5	QPSK	12	7	16.65	16.52	16.60		
5	QPSK	12	13	16.60	16.50	16.56		
5	QPSK	25	0	16.60	16.46	16.55		
5	16QAM	1	0	16.83	16.71	16.78	18.1	0
5	16QAM	1	12	16.93	16.62	16.72		
5	16QAM	1	24	16.84	16.71	16.81		
5	16QAM	12	0	16.67	16.53	16.57	18.1	0
5	16QAM	12	7	16.66	16.56	16.60		
5	16QAM	12	13	16.64	16.54	16.59		
5	16QAM	25	0	16.66	16.51	16.59		
5	64QAM	1	0	16.73	16.63	16.74	18.1	0
5	64QAM	1	12	16.52	16.60	16.36		
5	64QAM	1	24	16.77	16.67	16.64		
5	64QAM	12	0	16.63	16.68	16.57	18.1	0
5	64QAM	12	7	16.66	16.62	16.61		
5	64QAM	12	13	16.62	16.57	16.38		
5	64QAM	25	0	16.64	16.54	16.56		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	16.36	16.40	16.42	18.1	0
3	QPSK	1	8	16.39	16.46	16.52		
3	QPSK	1	14	16.60	16.43	16.46		
3	QPSK	8	0	16.68	16.48	16.53	18.1	0
3	QPSK	8	4	16.71	16.57	16.60		
3	QPSK	8	7	16.60	16.51	16.55		
3	QPSK	15	0	16.64	16.51	16.54		
3	16QAM	1	0	16.86	16.73	16.81	18.1	0
3	16QAM	1	8	16.86	16.75	16.87		
3	16QAM	1	14	16.90	16.77	16.85		
3	16QAM	8	0	16.69	16.56	16.61	18.1	0
3	16QAM	8	4	16.74	16.59	16.65		
3	16QAM	8	7	16.69	16.58	16.63		
3	16QAM	15	0	16.69	16.56	16.60		
3	64QAM	1	0	16.59	16.67	16.71	18.1	0
3	64QAM	1	8	16.66	16.69	16.79		
3	64QAM	1	14	16.58	16.73	16.73		
3	64QAM	8	0	16.50	16.56	16.60	18.1	0
3	64QAM	8	4	16.55	16.57	16.62		
3	64QAM	8	7	16.49	16.55	16.59		
3	64QAM	15	0	16.51	16.52	16.58		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	16.37	16.32	16.36	18.1	0
1.4	QPSK	1	3	16.47	16.37	16.44		
1.4	QPSK	1	5	16.44	16.30	16.34		
1.4	QPSK	3	0	16.54	16.35	16.36		
1.4	QPSK	3	1	16.59	16.39	16.38		
1.4	QPSK	3	3	16.49	16.36	16.41		
1.4	QPSK	6	0	16.53	16.39	16.47	18.1	0
1.4	16QAM	1	0	16.76	16.62	16.72	18.1	0
1.4	16QAM	1	3	16.88	16.67	16.77		
1.4	16QAM	1	5	16.84	16.66	16.70		
1.4	16QAM	3	0	16.60	16.41	16.50		
1.4	16QAM	3	1	16.63	16.45	16.51		
1.4	16QAM	3	3	16.53	16.44	16.46		
1.4	16QAM	6	0	16.64	16.51	16.61	18.1	0
1.4	64QAM	1	0	16.75	16.61	16.62	18.1	0
1.4	64QAM	1	3	16.81	16.62	16.63		
1.4	64QAM	1	5	16.58	16.59	16.54		
1.4	64QAM	3	0	16.48	16.43	16.53		
1.4	64QAM	3	1	16.62	16.54	16.58		
1.4	64QAM	3	3	16.57	16.43	16.49		
1.4	64QAM	6	0	16.33	16.42	16.40	18.1	0

<LTE Band 66 ANT2 >

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				132072	132322	132572		
Frequency (MHz)				1720	1745	1770		
20	QPSK	1	0	16.69	16.89	16.46	18.3	0
20	QPSK	1	49	16.48	16.45	16.49		
20	QPSK	1	99	16.42	16.49	16.58		
20	QPSK	50	0	16.67	16.69	16.66	18.3	0
20	QPSK	50	24	16.52	16.56	16.43		
20	QPSK	50	50	16.61	16.45	16.40		
20	QPSK	100	0	16.54	16.62	16.44		
20	16QAM	1	0	16.87	16.80	16.83	18.3	0
20	16QAM	1	49	16.85	16.70	16.66		
20	16QAM	1	99	16.76	16.57	16.53		
20	16QAM	50	0	16.69	16.53	16.49	18.3	0
20	16QAM	50	24	16.71	16.57	16.45		
20	16QAM	50	50	16.65	16.47	16.43		
20	16QAM	100	0	16.70	16.53	16.46		
20	64QAM	1	0	16.73	16.80	16.60	18.3	0
20	64QAM	1	49	16.54	16.66	16.63		
20	64QAM	1	99	16.61	16.49	16.47		
20	64QAM	50	0	16.68	16.59	16.51	18.3	0
20	64QAM	50	24	16.72	16.54	16.47		
20	64QAM	50	50	16.64	16.43	16.55		
20	64QAM	100	0	16.52	16.50	16.47		
Channel				132047	132322	132597	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	0	16.65	16.53	16.37	18.3	0
15	QPSK	1	37	16.47	16.44	16.31		
15	QPSK	1	74	16.51	16.37	16.52		
15	QPSK	36	0	16.72	16.61	16.45	18.3	0
15	QPSK	36	20	16.70	16.52	16.41		
15	QPSK	36	39	16.63	16.46	16.38		
15	QPSK	75	0	16.66	16.52	16.38		
15	16QAM	1	0	16.69	16.77	16.76	18.3	0
15	16QAM	1	37	16.84	16.74	16.62		
15	16QAM	1	74	16.68	16.57	16.47		
15	16QAM	36	0	16.74	16.50	16.42	18.3	0
15	16QAM	36	20	16.73	16.53	16.37		
15	16QAM	36	39	16.64	16.49	16.41		
15	16QAM	75	0	16.69	16.53	16.36		
15	64QAM	1	0	16.80	16.75	16.70	18.3	0
15	64QAM	1	37	16.74	16.63	16.34		
15	64QAM	1	74	16.36	16.37	16.39		
15	64QAM	36	0	16.73	16.50	16.41	18.3	0
15	64QAM	36	20	16.71	16.65	16.43		
15	64QAM	36	39	16.64	16.45	16.53		
15	64QAM	75	0	16.70	16.52	16.40		

Channel				132022	132322	132622	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	0	16.65	16.47	16.34	18.3	0
10	QPSK	1	25	16.30	16.36	16.39		
10	QPSK	1	49	16.46	16.30	16.38		
10	QPSK	25	0	16.74	16.49	16.39	18.3	0
10	QPSK	25	12	16.72	16.53	16.36		
10	QPSK	25	25	16.64	16.50	16.38		
10	QPSK	50	0	16.72	16.54	16.37		
10	16QAM	1	0	16.78	16.84	16.73	18.3	0
10	16QAM	1	25	16.71	16.72	16.63		
10	16QAM	1	49	16.81	16.67	16.61		
10	16QAM	25	0	16.69	16.45	16.38	18.3	0
10	16QAM	25	12	16.66	16.50	16.39		
10	16QAM	25	25	16.59	16.45	16.37		
10	16QAM	50	0	16.65	16.50	16.39		
10	64QAM	1	0	16.66	16.76	16.73	18.3	0
10	64QAM	1	25	16.70	16.72	16.66		
10	64QAM	1	49	16.71	16.59	16.56		
10	64QAM	25	0	16.72	16.45	16.35	18.3	0
10	64QAM	25	12	16.70	16.53	16.38		
10	64QAM	25	25	16.61	16.45	16.34		
10	64QAM	50	0	16.65	16.46	16.39		
Channel				131997	132322	132647	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	0	16.63	16.39	16.35	18.3	0
5	QPSK	1	12	16.67	16.55	16.33		
5	QPSK	1	24	16.59	16.38	16.39		
5	QPSK	12	0	16.39	16.48	16.44	18.3	0
5	QPSK	12	7	16.74	16.55	16.46		
5	QPSK	12	13	16.68	16.48	16.40		
5	QPSK	25	0	16.70	16.48	16.41		
5	16QAM	1	0	16.64	16.67	16.65	18.3	0
5	16QAM	1	12	16.65	16.70	16.58		
5	16QAM	1	24	16.84	16.67	16.57		
5	16QAM	12	0	16.72	16.50	16.44	18.3	0
5	16QAM	12	7	16.74	16.55	16.44		
5	16QAM	12	13	16.68	16.50	16.38		
5	16QAM	25	0	16.71	16.50	16.41		
5	64QAM	1	0	16.57	16.62	16.61	18.3	0
5	64QAM	1	12	16.55	16.63	16.49		
5	64QAM	1	24	16.63	16.54	16.47		
5	64QAM	12	0	16.70	16.43	16.62	18.3	0
5	64QAM	12	7	16.49	16.53	16.65		
5	64QAM	12	13	16.50	16.44	16.48		
5	64QAM	25	0	16.40	16.48	16.42		

Channel				131987	132322	132657	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1745	1778.5		
3	QPSK	1	0	16.63	16.41	16.32	18.3	0
3	QPSK	1	8	16.69	16.58	16.37		
3	QPSK	1	14	16.59	16.60	16.54		
3	QPSK	8	0	16.70	16.55	16.31	18.3	0
3	QPSK	8	4	16.70	16.53	16.45		
3	QPSK	8	7	16.53	16.49	16.40		
3	QPSK	15	0	16.67	16.49	16.40		
3	16QAM	1	0	16.84	16.76	16.62	18.3	0
3	16QAM	1	8	16.69	16.76	16.67		
3	16QAM	1	14	16.82	16.67	16.56		
3	16QAM	8	0	16.79	16.56	16.44	18.3	0
3	16QAM	8	4	16.79	16.59	16.46		
3	16QAM	8	7	16.77	16.52	16.38		
3	16QAM	15	0	16.69	16.52	16.41		
3	64QAM	1	0	16.62	16.40	16.53	18.3	0
3	64QAM	1	8	16.44	16.58	16.54		
3	64QAM	1	14	16.48	16.61	16.52		
3	64QAM	8	0	16.47	16.50	16.44	18.3	0
3	64QAM	8	4	16.50	16.56	16.41		
3	64QAM	8	7	16.66	16.43	16.38		
3	64QAM	15	0	16.70	16.48	16.40		
Channel				131979	132322	132665	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1745	1779.3		
1.4	QPSK	1	0	16.54	16.38	16.39	18.3	0
1.4	QPSK	1	3	16.57	16.34	16.32		
1.4	QPSK	1	5	16.53	16.31	16.42		
1.4	QPSK	3	0	16.43	16.38	16.49		
1.4	QPSK	3	1	16.36	16.38	16.39		
1.4	QPSK	3	3	16.57	16.34	16.39		
1.4	QPSK	6	0	16.65	16.40	16.35	18.3	0
1.4	16QAM	1	0	16.87	16.65	16.55	18.3	0
1.4	16QAM	1	3	16.74	16.68	16.59		
1.4	16QAM	1	5	16.81	16.61	16.55		
1.4	16QAM	3	0	16.65	16.44	16.33		
1.4	16QAM	3	1	16.70	16.48	16.37		
1.4	16QAM	3	3	16.62	16.41	16.31		
1.4	16QAM	6	0	16.69	16.50	16.44	18.3	0
1.4	64QAM	1	0	16.78	16.40	16.45	18.3	0
1.4	64QAM	1	3	16.80	16.66	16.42		
1.4	64QAM	1	5	16.30	16.48	16.42		
1.4	64QAM	3	0	16.65	16.54	16.35		
1.4	64QAM	3	1	16.70	16.47	16.37		
1.4	64QAM	3	3	16.64	16.55	16.31		
1.4	64QAM	6	0	16.57	16.49	16.55	18.3	0

5G NR Output Power (Unit: dBm)

General Note:

1. NR implementation of n2, n5, n66 is limited to EN-DC operations only (NSA), with LTE Bands 2/5/13/48/66 acting as anchor bands, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.
2. Following 5G NR n2/n5 /n66 support SCS 15KHz DFT/CP-OFDM, PI/2 BPSK/QPSK/16QAM/64QAM/ 256QAM, Bandwidth 5M/10M/15M/20M.
3. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-QPSK and the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
   b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, for 16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM/64QMA/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 PI/2 BPSK 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 PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure
   e. PI/2 BPSK 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. QPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/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. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.

<3GPP 38.101 MPR for EN-DC>

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

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

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

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

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

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

EN-DC configuration	LTE TX Ant	NR TX Ant
DC_2A_n66A	Ant1(Bottom)	Ant2(Top)
	Ant2(Top)	Ant1(Bottom)
DC_5A_n2A	Ant1(Bottom)	Ant2(Top)
	Ant2(Top)	Ant1(Bottom)
DC_5A_n66A	Ant1(Bottom)	Ant2(Top)
	Ant2(Top)	Ant1(Bottom)
DC_13A_n2A	Ant1(Bottom)	Ant2(Top)
	Ant2(Top)	Ant1(Bottom)
DC_13A_n66A	Ant1(Bottom)	Ant2(Top)
	Ant2(Top)	Ant1(Bottom)
DC_48A_n5A	Ant3(Top)	Ant2(Top)
	Ant3(Top)	Ant1(Bottom)
DC_48A_n66A	Ant3(Top)	Ant2(Top)
	Ant3(Top)	Ant1(Bottom)
DC_66A_n2A	Ant1(Bottom)	Ant2(Top)
	Ant2(Top)	Ant1(Bottom)
DC_66A_n5A	Ant1(Bottom)	Ant2(Top)
	Ant2(Top)	Ant1(Bottom)
DC_2A_n5A	Ant1(Bottom)	Ant2(Top)
	Ant2(Top)	Ant1(Bottom)

Bands and Antenna information on ASDiv		
Mode	**TX Ant - Path Through**	**TX Ant - Swap**
LTE Stand Alone		
LTE B13	Ant1	Ant2
LTE B5	Ant1	Ant2
LTE B2	Ant1	Ant2
LTE B66	Ant1	Ant2

Note:
The device enabled Asdiv function on LTE Band2/5/13/66 and EN-DC FR1 combinations via software, and applies C2PC filing. In Part 2 report only validate and demonstrate smart transmit behavior of EN-DC FR1 combinations. The antenna switch validation covered by LTE Band 2 (Ant 1) to LTE Band 48 (Ant 3) from initial filing.

<Default Power Mode>

<5G NR n2 ANT1>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				372000	376000	380000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	23.69	23.82	23.70	24.0	0.0
20	PI/2 BPSK	1	53	23.69	23.83	23.75		
20	PI/2 BPSK	1	104	23.77	23.85	23.82		
20	PI/2 BPSK	50	0	23.12	23.25	23.13	24.0	0.0
20	PI/2 BPSK	50	28	23.64	23.79	23.70		
20	PI/2 BPSK	50	56	23.26	23.37	23.31		
20	PI/2 BPSK	100	0	23.22	23.35	23.23	23.5	0.5
20	QPSK	1	1	23.68	23.89	23.74	24.0	0.0
20	QPSK	1	53	23.70	23.81	23.75		
20	QPSK	1	104	23.72	23.85	23.73		
20	QPSK	50	0	22.66	22.81	22.72	24.0	0.5
20	QPSK	50	28	23.76	23.87	23.81		0.0
20	QPSK	50	56	22.83	22.96	22.84		0.5
20	QPSK	100	0	22.82	22.97	22.88	23.0	1.0
20	16QAM	1	1	22.81	22.92	22.86	23.0	1.0
20	64QAM	1	1	21.32	21.45	21.33	21.5	2.5
20	256QAM	1	1	18.90	19.05	18.96	19.5	4.5
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	1	23.74	23.73	23.71	24.0	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	1	23.65	23.67	23.69	24.0	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	1	23.64	23.68	23.62	24.0	0.0

<5G NR n5 ANT1>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				166800	167300	167800	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				834	836.5	839		
20	PI/2 BPSK	1	1	23.69	23.80	23.71	24.0	0.0
20	PI/2 BPSK	1	53	23.60	23.69	23.64		
20	PI/2 BPSK	1	104	23.44	23.57	23.50		
20	PI/2 BPSK	50	0	23.03	23.15	23.06	24.0	0.0
20	PI/2 BPSK	50	28	23.52	23.63	23.58		
20	PI/2 BPSK	50	56	22.96	23.05	22.98		
20	PI/2 BPSK	100	0	22.98	23.11	23.02	23.5	0.5
20	QPSK	1	1	23.67	23.84	23.74	24.0	0.0
20	QPSK	1	53	23.60	23.71	23.64		
20	QPSK	1	104	23.53	23.62	23.53		
20	QPSK	50	0	22.60	22.73	22.68	24.0	0.5
20	QPSK	50	28	23.50	23.62	23.55		0.0
20	QPSK	50	56	22.48	22.59	22.50		0.5
20	QPSK	100	0	22.60	22.69	22.64	23.0	1.0
20	16QAM	1	1	22.48	22.61	22.54	23.0	1.0
20	64QAM	1	1	21.23	21.32	21.23	21.5	2.5
20	256QAM	1	1	18.93	19.04	18.99	19.5	4.5
Channel				166300	167300	168300	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				831.5	836.5	841.5		
15	QPSK	1	1	23.68	23.74	23.62	24.0	0.0
Channel				165800	167300	168800	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				829	836.5	844		
10	QPSK	1	1	23.61	23.67	23.69	24.0	0.0
Channel				165300	167300	169300	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	1	23.67	23.65	23.61	24.0	0.0

<5G NR n66 ANT1>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				344000	349000	354000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	23.77	23.81	23.82	24.0	0.0
20	PI/2 BPSK	1	53	23.68	23.81	23.76		
20	PI/2 BPSK	1	104	23.75	23.76	23.79		
20	PI/2 BPSK	50	0	23.22	23.31	23.22	24.0	0.0
20	PI/2 BPSK	50	28	23.67	23.81	23.76		
20	PI/2 BPSK	50	56	23.18	23.31	23.24		
20	PI/2 BPSK	100	0	23.22	23.33	23.24	23.5	0.5
20	QPSK	1	1	23.74	23.88	23.78	24.0	0.0
20	QPSK	1	53	23.67	23.81	23.74		
20	QPSK	1	104	23.75	23.88	23.79		
20	QPSK	50	0	22.91	23.02	22.97	24.0	0.5
20	QPSK	50	28	23.76	23.82	23.78		0.0
20	QPSK	50	56	22.77	22.91	22.82		0.5
20	QPSK	100	0	22.89	22.92	22.87	23.0	1.0
20	16QAM	1	1	22.93	22.94	22.89	23.0	1.0
20	64QAM	1	1	21.40	21.42	21.38	21.5	2.5
20	256QAM	1	1	19.34	19.48	19.39	19.5	4.5
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	1	23.69	23.73	23.75	24.0	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	1	23.66	23.65	23.69	24.0	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	1	23.64	23.68	23.63	24.0	0.0

<5G NR n2 ANT2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				372000	376000	380000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	23.83	23.86	23.84	24.0	0.0
20	PI/2 BPSK	1	53	23.77	23.81	23.79		
20	PI/2 BPSK	1	104	23.69	23.74	23.71		
20	PI/2 BPSK	50	0	23.19	23.26	23.23	24.0	0.0
20	PI/2 BPSK	50	28	23.67	23.75	23.71		
20	PI/2 BPSK	50	56	23,21	23.28	23.25		
20	PI/2 BPSK	100	0	23.19	23.26	23.22	23.5	0.5
20	QPSK	1	1	23.79	23.95	23.84	24.0	0.0
20	QPSK	1	53	23.88	23.95	23.93		
20	QPSK	1	104	23.81	23.81	23.86		
20	QPSK	50	0	22.72	22.79	22.75	24.0	0.5
20	QPSK	50	28	23.71	23.81	23.77		0.0
20	QPSK	50	56	22.75	22.83	22.79		0.5
20	QPSK	100	0	22.71	22.82	22.79	23.0	1.0
20	16QAM	1	1	22.51	22.62	22.59	23.0	1.0
20	64QAM	1	1	21.31	21.39	21.36	21.5	2.5
20	256QAM	1	1	19,19	19.24	19.21	19.5	4.5
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	1	23.68	23.70	23.73	24.0	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	1	23.71	23.73	23.72	24.0	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	1	23.64	23.68	23.69	24.0	0.0

<5G NR n5 ANT2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				166800	167300	167800	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				834	836.5	839		
20	PI/2 BPSK	1	1	23.45	23.53	23.46	24.0	0.0
20	PI/2 BPSK	1	53	23.36	23.44	23.37		
20	PI/2 BPSK	1	104	23.20	23.28	23.21		
20	PI/2 BPSK	50	0	22.91	22.99	22.92	24.0	0.0
20	PI/2 BPSK	50	28	23.34	23.42	23.35		
20	PI/2 BPSK	50	56	22.73	22.81	22.74		
20	PI/2 BPSK	100	0	22.78	22.85	22.78	23.5	0.5
20	QPSK	1	1	23.53	23.60	23.55	24.0	0.0
20	QPSK	1	53	23.48	23.55	23.50		
20	QPSK	1	104	22.83	22.90	22.85		
20	QPSK	50	0	22.42	22.49	22.44	24.0	0.5
20	QPSK	50	28	23.35	23.42	23.37		0.0
20	QPSK	50	56	22.30	22.37	22.32		0.5
20	QPSK	100	0	22.34	22.41	22.36	23.0	1.0
20	16QAM	1	1	22.50	22.57	22.52	23.0	1.0
20	64QAM	1	1	21.05	21.10	21.07	21.5	2.5
20	256QAM	1	1	18.86	18.91	18.88	19.5	4.5
Channel				166300	167300	168300	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				831.5	836.5	841.5		
15	QPSK	1	1	23.64	23.69	23.73	24.0	0.0
Channel				165800	167300	168800	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				829	836.5	844		
10	QPSK	1	1	23.68	23.67	23.64	24.0	0.0
Channel				165300	167300	169300	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	1	23.62	23.65	23.69	24.0	0.0

<5G NR n66 ANT2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				344000	349000	354000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	23.34	23.45	23.36	24.0	0.0
20	PI/2 BPSK	1	53	23.09	23.21	23.14		
20	PI/2 BPSK	1	104	23.18	23.29	23.24		
20	PI/2 BPSK	50	0	22.73	22.85	22.76	24.0	0.0
20	PI/2 BPSK	50	28	23.20	23.31	23.24		
20	PI/2 BPSK	50	56	22.67	22.79	22.74		
20	PI/2 BPSK	100	0	22.74	22.85	22.76	23.5	0.5
20	QPSK	1	1	23.40	23.49	23.45	24.0	0.0
20	QPSK	1	53	23.28	23.39	23.34		
20	QPSK	1	104	23.27	23.39	23.30		
20	QPSK	50	0	22.39	22.50	22.43	24.0	0.5
20	QPSK	50	28	23.29	23.41	23.36		0.0
20	QPSK	50	56	22.40	22.51	22.42		0.5
20	QPSK	100	0	22.37	22.49	22.42	23.0	1.0
20	16QAM	1	1	21.67	21.78	21.73	23.0	1.0
20	64QAM	1	1	20.99	21.11	21.02	21.5	2.5
20	256QAM	1	1	18.70	18.81	18.74	19.5	4.5
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	1	23.44	23.45	23.41	24.0	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	1	23.46	23.48	23.37	24.0	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	1	23.35	23.39	23.41	24.0	0.0

<Reduced Power on Head Mode>

<5G NR n2 ANT2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				372000	376000	380000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	22.13	22.16	22.14	22.7	0.0
20	PI/2 BPSK	1	53	22.12	22.15	22.10		
20	PI/2 BPSK	1	104	22.01	22.14	22.09		
20	PI/2 BPSK	50	0	22.07	22.12	22.05	22.7	0.0
20	PI/2 BPSK	50	28	22.01	22.09	22.04		
20	PI/2 BPSK	50	56	22.03	22.11	22.06		
20	PI/2 BPSK	100	0	22.04	22.07	22.01	22.7	0.0
20	QPSK	1	1	22.24	22.30	22.28	22.7	0.0
20	QPSK	1	53	22.07	22.05	22.14		
20	QPSK	1	104	22.01	22.07	22.05		
20	QPSK	50	0	22.16	22.16	22.15	22.7	0.0
20	QPSK	50	28	22.13	22.18	22.14		
20	QPSK	50	56	22.11	22.15	22.13		
20	QPSK	100	0	22.08	22.12	22.01	22.7	0.0
20	16QAM	1	1	21.83	21.89	21.85	22.7	0.0
20	64QAM	1	1	21.19	21.24	21.21	21.5	1.2
20	256QAM	1	1	19.05	19.08	19.07	19.5	3.2
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	1	22.14	22.17	22.16	22.7	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	1	22.15	22.17	22.13	22.7	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	1	22.13	22.17	22.15	22.7	0.0

<5G NR n66 ANT2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				344000	349000	354000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	20.43	20.48	20.45	21.5	0.0
20	PI/2 BPSK	1	53	20.33	20.35	20.34		
20	PI/2 BPSK	1	104	20.41	20.43	20.36		
20	PI/2 BPSK	50	0	20.38	20.40	20.35	21.5	0.0
20	PI/2 BPSK	50	28	20.35	20.39	20.33		
20	PI/2 BPSK	50	56	20.37	20.41	20.39		
20	PI/2 BPSK	100	0	20.37	20.42	20.40	21.5	0.0
20	QPSK	1	1	20.48	20.56	20.51	21.5	0.0
20	QPSK	1	53	20.37	20.45	20.42		
20	QPSK	1	104	20.48	20.52	20.46		
20	QPSK	50	0	20.39	20.41	20.34	21.5	0.0
20	QPSK	50	28	20.33	20.42	20.40		
20	QPSK	50	56	20.38	20.40	20.38		
20	QPSK	100	0	20.36	20.40	20.33	21.5	0.0
20	16QAM	1	1	20.39	20.41	20.35	21.5	0.0
20	64QAM	1	1	20.35	20.39	20.33	21.5	0.0
20	256QAM	1	1	18.66	18.70	18.62	19.5	2.0
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	1	20.35	20.39	20.37	21.5	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	1	20.34	20.41	20.37	21.5	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	1	20.33	20.38	20.41	21.5	0.0

<Reduced Power on Hotspot / Body-worn Mode>

<5G NR n2 ANT1>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				372000	376000	380000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	15.84	15.87	15.79	16.7	0.0
20	PI/2 BPSK	1	53	15.87	15.91	15.84		
20	PI/2 BPSK	1	104	15.93	15.88	15.88		
20	PI/2 BPSK	50	0	15.86	15.89	15.86	16.7	0.0
20	PI/2 BPSK	50	28	15.88	15.90	15.86		
20	PI/2 BPSK	50	56	15.88	15.91	15.88		
20	PI/2 BPSK	100	0	15.87	15.92	15.88	16.7	0.0
20	QPSK	1	1	15.90	15.95	15.86	16.7	0.0
20	QPSK	1	53	15.93	15.92	15.89		
20	QPSK	1	104	15.94	15.91	15.91		
20	QPSK	50	0	15.88	15.92	15.92	16.7	0.0
20	QPSK	50	28	15.91	15.93	15.88		
20	QPSK	50	56	15.90	15.91	15.87		
20	QPSK	100	0	15.79	15.84	15.81	16.7	0.0
20	16QAM	1	1	15.66	15.68	15.64	16.7	0.0
20	64QAM	1	1	15.93	15.93	15.92	16.7	0.0
20	256QAM	1	1	15.72	15.74	15.69	16.7	0.0
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	1	15.91	15.92	15.86	16.7	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	1	15.94	15.92	15.88	16.7	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	1	15.72	15.74	15.69	16.7	0.0

<5G NR n66 ANT1>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				344000	349000	354000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	17.37	17.41	17.40	18.9	0.0
20	PI/2 BPSK	1	53	17.22	17.38	17.36		
20	PI/2 BPSK	1	104	17.25	17.41	17.28		
20	PI/2 BPSK	50	0	17.27	17.30	17.31	18.9	0.0
20	PI/2 BPSK	50	28	17.22	17.27	17.25		
20	PI/2 BPSK	50	56	17.26	17.31	17.25		
20	PI/2 BPSK	100	0	17.27	17.30	17.25	18.9	0.0
20	QPSK	1	1	17.39	17.42	17.36	18.9	0.0
20	QPSK	1	53	17.26	17.29	17.23		
20	QPSK	1	104	17.28	17.31	17.23		
20	QPSK	50	0	17.26	17.28	17.20	18.9	0.0
20	QPSK	50	28	17.29	17.31	17.25		
20	QPSK	50	56	17.22	17.27	17.25		
20	QPSK	100	0	17.25	17.31	17.30	18.9	0.0
20	16QAM	1	1	17.30	17.41	17.35	18.9	0.0
20	64QAM	1	1	17.21	17.42	17.25	18.9	0.0
20	256QAM	1	1	17.29	17.34	17.32	18.9	0.0
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	1	17.36	17.41	17.38	18.9	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	1	17.35	17.33	17.38	18.9	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	1	17.39	17.39	17.35	18.9	0.0

<5G NR n2 ANT2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				372000	376000	380000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	16.37	16.41	16.35	18.1	0.0
20	PI/2 BPSK	1	53	16.42	16.44	16.44		
20	PI/2 BPSK	1	104	16.33	16.37	16.35		
20	PI/2 BPSK	50	0	16.39	16.43	16.33	18.1	0.0
20	PI/2 BPSK	50	28	16.41	16.44	16.39		
20	PI/2 BPSK	50	56	16.40	16.43	16.35		
20	PI/2 BPSK	100	0	16.33	16.38	16.30	18.1	0.0
20	QPSK	1	1	16.43	16.47	16.44	18.1	0.0
20	QPSK	1	53	16.42	16.40	16.44		
20	QPSK	1	104	16.38	16.38	16.43		
20	QPSK	50	0	16.36	16.42	16.39	18.1	0.0
20	QPSK	50	28	16.39	16.44	16.41		
20	QPSK	50	56	16.38	16.43	16.35		
20	QPSK	100	0	16.37	16.41	16.39	18.1	0.0
20	16QAM	1	1	16.40	16.43	16.42	18.1	0.0
20	64QAM	1	1	16.39	16.43	16.42	18.1	0.0
20	256QAM	1	1	16.33	16.37	16.35	18.1	0.0
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	1	16.44	16.45	16.46	18.1	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	1	16.42	16.44	16.47	18.1	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	1	16.22	16.26	16.28	18.1	0.0

<5G NR n66 ANT2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				344000	349000	354000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	16.40	16.43	16.42	17.3	0.0
20	PI/2 BPSK	1	53	16.28	16.29	16.25		
20	PI/2 BPSK	1	104	16.36	16.36	16.33		
20	PI/2 BPSK	50	0	16.32	16.35	16.30	17.3	0.0
20	PI/2 BPSK	50	28	16.33	16.30	16.34		
20	PI/2 BPSK	50	56	16.25	16.27	16.33		
20	PI/2 BPSK	100	0	16.30	16.33	16.31	17.3	0.0
20	QPSK	1	1	16.43	16.45	16.44	17.3	0.0
20	QPSK	1	53	16.30	16.33	16.36		
20	QPSK	1	104	16.34	16.37	16.34		
20	QPSK	50	0	16.30	16.29	16.26	17.3	0.0
20	QPSK	50	28	16.25	16.38	16.27		
20	QPSK	50	56	16.34	16.35	16.37		
20	QPSK	100	0	16.35	16.37	16.32	17.3	0.0
20	16QAM	1	1	16.40	16.42	16.44	17.3	0.0
20	64QAM	1	1	16.31	16.38	16.35	17.3	0.0
20	256QAM	1	1	16.30	16.31	16.33	17.3	0.0
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	1	16.25	16.23	16.28	17.3	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	1	16.35	16.37	16.30	17.3	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	1	16.25	16.34	16.29	17.3	0.0

<Reduced Power on Product Specific Mode>

<5G NR n2 ANT1>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				372000	376000	380000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1860	1880	1900		
20	PI/2 BPSK	1	1	21.30	21.34	21.37	22.7	0.0
20	PI/2 BPSK	1	53	21.32	21.36	21.35		
20	PI/2 BPSK	1	104	21.27	21.31	21.24		
20	PI/2 BPSK	50	0	21.30	21.36	21.35	22.7	0.0
20	PI/2 BPSK	50	28	21.31	21.37	21.30		
20	PI/2 BPSK	50	56	21.30	21.34	21.35		
20	PI/2 BPSK	100	0	21.29	21.37	21.24	22.7	0.0
20	QPSK	1	1	21.42	21.44	21.43	22.7	0.0
20	QPSK	1	53	21.40	21.41	21.43		
20	QPSK	1	104	21.37	21.41	21.39		
20	QPSK	50	0	21.32	21.35	21.34	22.7	0.0
20	QPSK	50	28	21.38	21.38	21.33		
20	QPSK	50	56	21.35	21.32	21.33		
20	QPSK	100	0	21.33	21.39	21.36	22.7	0.0
20	16QAM	1	1	21.19	21.21	21.26	22.7	0.0
20	64QAM	1	1	21.40	21.40	21.42	21.5	1.2
20	256QAM	1	1	19.13	19.16	19.17	19.5	3.2
Channel				371500	376000	380500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	1	21.33	21.36	21.34	22.7	0.0
Channel				371000	376000	381000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	1	21.41	21.42	21.38	22.7	0.0
Channel				370500	376000	381500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	1	21.30	21.37	21.33	22.7	0.0

<5G NR n66 ANT1>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				344000	349000	354000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1720	1745	1770		
20	PI/2 BPSK	1	1	21.88	21.89	21.87	23.2	0.0
20	PI/2 BPSK	1	53	21.85	21.83	21.78		
20	PI/2 BPSK	1	104	21.85	21.88	21.88		
20	PI/2 BPSK	50	0	21.82	21.82	21.74	23.2	0.0
20	PI/2 BPSK	50	28	21.70	21.78	21.74		
20	PI/2 BPSK	50	56	21.72	21.79	21.80		
20	PI/2 BPSK	100	0	21.71	21.77	21.73	23.2	0.0
20	QPSK	1	1	21.80	21.94	21.88	23.2	0.0
20	QPSK	1	53	21.84	21.91	21.78		
20	QPSK	1	104	21.88	21.93	21.82		
20	QPSK	50	0	21.80	21.78	21.79	23.2	0.0
20	QPSK	50	28	21.73	21.82	21.72		
20	QPSK	50	56	21.74	21.81	21.78		
20	QPSK	100	0	21.73	21.78	21.76	23.0	0.2
20	16QAM	1	1	21.77	21.80	21.79	23.0	0.2
20	64QAM	1	1	21.33	21.48	21.46	21.5	1.7
20	256QAM	1	1	19.20	19.25	19.23	19.5	3.7
Channel				343500	349000	354500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1745	1772.5		
15	QPSK	1	1	21.84	21.88	21.84	23.2	0.0
Channel				343000	349000	355000	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1745	1775		
10	QPSK	1	1	21.75	21.86	21.82	23.2	0.0
Channel				342500	349000	355500	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1745	1777.5		
5	QPSK	1	1	21.74	21.81	21.83	23.2	0.0

15. Antenna Location

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

<Mobile Phone>

Antenna	Support Bands
1	GSM850/1900, WCDMA B2/5, CDMA BC0/1, LTE B2/4/5/7/12/13/17/66 5G NR NSA: n2/ n5 / n66
2	LTE B2/5/13/66 5G NR NSA: n2/ n5 / n66
3	LTE B48, 5GHz WLAN
4	2.4GHz WLAN
6	2.4GHz WLAN, Bluetooth, 5GHz WLAN

16. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   · ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   · ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   · ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. 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 product specific 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, for this device WWAN transmitter scaled to maximum output power is higher than 1.2W/kg of LTE B2 /B66 and 5GNR n2 /n66, therefore product specific SAR is necessary.
6. The device additionally employs proximity sensors that detect the presence of tissue near the currently active transmit antenna (if that antenna may require reduced power relative the Default power table in order to meet extremity SAR limits). The control logic is such that, if the Body-Worn, At-Head or WiFi Hotspot conditions are not detected, but tissue (as a finger or hand, for example) is detected near the transmitting antenna, the Handheld power table will be applied
7. When the sensor is active, the device will reduced maximum output powers on the LTE B2 / B66, 5GNR n2 / n66 transmitter.
8. The device is used earpiece receiver to detect user head usage scenarios, when the receiver worked mean head condition is detected and reduced power trigger for LTE B2 / B66, 5GNR n2 / n66.
9. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
   a. For Body-worn:
      Front: 18 mm
      Back: 19 mm
   b. For Extremity::
      Front: 5 mm
      Back: 8 mm
      Bottom: 7 mm

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B5 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.

16.1 Head SAR

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	LTE Band 5	10M	QPSK	1	0	Right Cheek	0mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	-0.04	0.312	**0.427**
	LTE Band 5	10M	QPSK	25	0	Right Cheek	0mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.01	0.286	0.388
	LTE Band 5	10M	QPSK	1	0	Right Tilted	0mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	0.02	0.257	0.352
	LTE Band 5	10M	QPSK	25	0	Right Tilted	0mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.06	0.175	0.237
	LTE Band 5	10M	QPSK	1	0	Left Cheek	0mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	0.06	0.302	0.413
	LTE Band 5	10M	QPSK	25	0	Left Cheek	0mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.05	0.240	0.325
	LTE Band 5	10M	QPSK	1	0	Left Tilted	0mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	0.04	0.228	0.312
	LTE Band 5	10M	QPSK	25	0	Left Tilted	0mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.06	0.133	0.180
02	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	ANT2	OFF	23230	782	22.85	24.00	1.303	-0.07	0.233	**0.304**
	LTE Band 13	10M	QPSK	25	0	Right Cheek	0mm	ANT2	OFF	23230	782	21.94	23.00	1.276	0.11	0.111	0.142
	LTE Band 13	10M	QPSK	1	0	Right Tilted	0mm	ANT2	OFF	23230	782	22.85	24.00	1.303	0.02	0.199	0.259
	LTE Band 13	10M	QPSK	25	0	Right Tilted	0mm	ANT2	OFF	23230	782	21.94	23.00	1.276	0.11	0.112	0.143
	LTE Band 13	10M	QPSK	1	0	Left Cheek	0mm	ANT2	OFF	23230	782	22.85	24.00	1.303	0.05	0.171	0.223
	LTE Band 13	10M	QPSK	25	0	Left Cheek	0mm	ANT2	OFF	23230	782	21.94	23.00	1.276	-0.08	0.088	0.112
	LTE Band 13	10M	QPSK	1	0	Left Tilted	0mm	ANT2	OFF	23230	782	22.85	24.00	1.303	0.02	0.147	0.192
	LTE Band 13	10M	QPSK	25	0	Left Tilted	0mm	ANT2	OFF	23230	782	21.94	23.00	1.276	0.14	0.078	0.100
	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	ANT2	ON	18900	1880	21.73	23.30	1.435	0.01	0.448	0.643
	LTE Band 2	20M	QPSK	50	0	Right Cheek	0mm	ANT2	ON	18900	1880	21.40	22.50	1.288	-0.03	0.411	0.529
03	LTE Band 2	20M	QPSK	1	0	Right Tilted	0mm	ANT2	ON	18900	1880	21.73	23.30	1.435	0.02	0.471	**0.676**
	LTE Band 2	20M	QPSK	50	0	Right Tilted	0mm	ANT2	ON	18900	1880	21.40	22.50	1.288	0.05	0.426	0.549
	LTE Band 2	20M	QPSK	1	0	Left Cheek	0mm	ANT2	ON	18900	1880	21.73	23.30	1.435	-0.01	0.388	0.557
	LTE Band 2	20M	QPSK	50	0	Left Cheek	0mm	ANT2	ON	18900	1880	21.40	22.50	1.288	0.03	0.338	0.435
	LTE Band 2	20M	QPSK	1	0	Left Tilted	0mm	ANT2	ON	18900	1880	21.73	23.30	1.435	0.02	0.418	0.600
	LTE Band 2	20M	QPSK	50	0	Left Tilted	0mm	ANT2	ON	18900	1880	21.40	22.50	1.288	0.05	0.467	0.602
	LTE Band 66	20M	QPSK	1	0	Right Cheek	0mm	ANT2	ON	132322	1745	20.25	21.80	1.429	0.03	0.502	0.717
	LTE Band 66	20M	QPSK	50	0	Right Cheek	0mm	ANT2	ON	132322	1745	20.18	21.80	1.452	-0.16	0.454	0.659
	LTE Band 66	20M	QPSK	1	0	Right Tilted	0mm	ANT2	ON	132322	1745	20.25	21.80	1.429	0.06	0.493	0.704
	LTE Band 66	20M	QPSK	50	0	Right Tilted	0mm	ANT2	ON	132322	1745	20.18	21.80	1.452	0.05	0.503	0.730
	LTE Band 66	20M	QPSK	1	0	Left Cheek	0mm	ANT2	ON	132322	1745	20.25	21.80	1.429	0.06	0.431	0.616
	LTE Band 66	20M	QPSK	50	0	Left Cheek	0mm	ANT2	ON	132322	1745	20.18	21.80	1.452	0.03	0.445	0.646
	LTE Band 66	20M	QPSK	1	0	Left Tilted	0mm	ANT2	ON	132322	1745	20.25	21.80	1.429	-0.02	0.529	0.756
	LTE Band 66	20M	QPSK	1	0	Left Tilted	0mm	ANT2	ON	132072	1720	20.20	21.80	1.445	-0.03	0.374	0.541
	LTE Band 66	20M	QPSK	1	0	Left Tilted	0mm	ANT2	ON	132572	1770	20.16	21.80	1.459	0.02	0.464	0.677
04	LTE Band 66	20M	QPSK	50	0	Left Tilted	0mm	ANT2	ON	132322	1745	20.18	21.80	1.452	-0.07	0.552	**0.802**
	LTE Band 66	20M	QPSK	50	0	Left Tilted	0mm	ANT2	ON	132072	1720	20.06	21.80	1.493	0.01	0.433	0.646
	LTE Band 66	20M	QPSK	50	0	Left Tilted	0mm	ANT2	ON	132572	1770	19.96	21.80	1.528	0.03	0.451	0.689
	LTE Band 66	20M	QPSK	100	0	Left Tilted	0mm	ANT2	ON	132322	1745	20.15	21.80	1.462	0.04	0.492	0.719

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 N2_Ant1	20M	QPSK	1	1	Right Cheek	0mm	ANT1	OFF	376000	1880	23.89	24.00	1.026	-0.02	0.068	0.070
	FR1 N2_Ant1	20M	QPSK	50	28	Right Cheek	0mm	ANT1	OFF	376000	1880	23.87	24.00	1.030	0.06	0.065	0.067
	FR1 N2_Ant1	20M	QPSK	1	1	Right Tilted	0mm	ANT1	OFF	376000	1880	23.89	24.00	1.026	0.08	0.077	0.079
	FR1 N2_Ant1	20M	QPSK	50	28	Right Tilted	0mm	ANT1	OFF	376000	1880	23.87	24.00	1.030	0.01	0.073	0.075
	FR1 N2_Ant1	20M	QPSK	1	1	Left Cheek	0mm	ANT1	OFF	376000	1880	23.89	24.00	1.026	0.04	0.092	0.095
05	FR1 N2_Ant1	20M	QPSK	50	28	Left Cheek	0mm	ANT1	OFF	376000	1880	23.87	24.00	1.030	0.06	0.103	**0.106**
	FR1 N2_Ant1	20M	QPSK	1	1	Left Tilted	0mm	ANT1	OFF	376000	1880	23.89	24.00	1.026	-0.02	0.059	0.061
	FR1 N2_Ant1	20M	QPSK	50	28	Left Tilted	0mm	ANT1	OFF	376000	1880	23.87	24.00	1.030	0.03	0.050	0.052
	FR1 N5_Ant1	20M	QPSK	1	1	Right Cheek	0mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.08	0.121	0.126
06	FR1 N5_Ant1	20M	QPSK	50	28	Right Cheek	0mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	0.04	0.157	**0.171**
	FR1 N5_Ant1	20M	QPSK	1	1	Right Tilted	0mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.04	0.079	0.082
	FR1 N5_Ant1	20M	QPSK	50	28	Right Tilted	0mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	0.05	0.074	0.080
	FR1 N5_Ant1	20M	QPSK	1	1	Left Cheek	0mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.11	0.097	0.101
	FR1 N5_Ant1	20M	QPSK	50	28	Left Cheek	0mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	0.06	0.102	0.111
	FR1 N5_Ant1	20M	QPSK	1	1	Left Tilted	0mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.03	0.061	0.063
	FR1 N5_Ant1	20M	QPSK	50	28	Left Tilted	0mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	0.09	0.068	0.075
	FR1 N66_Ant1	20M	QPSK	1	1	Right Cheek	0mm	ANT1	OFF	349000	1745	23.88	24.00	1.028	0.06	0.064	0.065
	FR1 N66_Ant1	20M	QPSK	50	28	Right Cheek	0mm	ANT1	OFF	349000	1745	23.82	24.00	1.042	0.03	0.055	0.057
	FR1 N66_Ant1	20M	QPSK	1	1	Right Tilted	0mm	ANT1	OFF	349000	1745	23.88	24.00	1.028	0.08	0.052	0.053
	FR1 N66_Ant1	20M	QPSK	50	28	Right Tilted	0mm	ANT1	OFF	349000	1745	23.82	24.00	1.042	0.09	0.053	0.055
	FR1 N66_Ant1	20M	QPSK	1	1	Left Cheek	0mm	ANT1	OFF	349000	1745	23.88	24.00	1.028	0.11	0.071	0.073
07	FR1 N66_Ant1	20M	QPSK	50	28	Left Cheek	0mm	ANT1	OFF	349000	1745	23.82	24.00	1.042	-0.04	0.084	**0.087**
	FR1 N66_Ant1	20M	QPSK	1	1	Left Tilted	0mm	ANT1	OFF	349000	1745	23.88	24.00	1.028	0.06	0.052	0.053
	FR1 N66_Ant1	20M	QPSK	50	28	Left Tilted	0mm	ANT1	OFF	349000	1745	23.82	24.00	1.042	0.11	0.058	0.061

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 N2_Ant2	20M	QPSK	1	1	Right Cheek	0mm	ANT2	ON	376000	1880	22.30	22.70	1.096	-0.12	0.636	0.697
08	FR1 N2_Ant2	20M	QPSK	1	1	Right Cheek	0mm	ANT2	ON	372000	1860	22.24	22.70	1.112	-0.04	0.716	**0.796**
	FR1 N2_Ant2	20M	QPSK	1	1	Right Cheek	0mm	ANT2	ON	380000	1900	22.28	22.70	1.102	0.06	0.457	0.503
	FR1 N2_Ant2	20M	QPSK	50	28	Right Cheek	0mm	ANT2	ON	376000	1880	22.18	22.70	1.127	0.05	0.628	0.708
	FR1 N2_Ant2	20M	QPSK	50	28	Right Cheek	0mm	ANT2	ON	372000	1860	22.13	22.70	1.140	0.01	0.688	0.784
	FR1 N2_Ant2	20M	QPSK	50	28	Right Cheek	0mm	ANT2	ON	380000	1900	22.14	22.70	1.138	0.03	0.343	0.390
	FR1 N2_Ant2	20M	QPSK	100	0	Right Cheek	0mm	ANT2	ON	376000	1880	22.12	22.70	1.143	0.09	0.677	0.774
	FR1 N2_Ant2	20M	QPSK	1	1	Right Tilted	0mm	ANT2	ON	376000	1880	22.30	22.70	1.096	0.09	0.658	0.721
	FR1 N2_Ant2	20M	QPSK	1	1	Right Tilted	0mm	ANT2	ON	372000	1860	22.24	22.70	1.112	0.01	0.688	0.765
	FR1 N2_Ant2	20M	QPSK	1	1	Right Tilted	0mm	ANT2	ON	380000	1900	22.28	22.70	1.102	-0.03	0.343	0.378
	FR1 N2_Ant2	20M	QPSK	50	28	Right Tilted	0mm	ANT2	ON	376000	1880	22.18	22.70	1.127	-0.03	0.593	0.668
	FR1 N2_Ant2	20M	QPSK	50	28	Right Tilted	0mm	ANT2	ON	372000	1860	22.13	22.70	1.140	0.03	0.628	0.716
	FR1 N2_Ant2	20M	QPSK	50	28	Right Tilted	0mm	ANT2	ON	380000	1900	22.14	22.70	1.138	0.12	0.410	0.466
	FR1 N2_Ant2	20M	QPSK	100	0	Right Tilted	0mm	ANT2	ON	376000	1880	22.12	22.70	1.143	0.06	0.656	0.750
	FR1 N2_Ant2	20M	QPSK	1	1	Left Cheek	0mm	ANT2	ON	376000	1880	22.30	22.70	1.096	0.06	0.533	0.584
	FR1 N2_Ant2	20M	QPSK	1	1	Left Cheek	0mm	ANT2	ON	372000	1860	22.24	22.70	1.112	-0.03	0.705	0.784
	FR1 N2_Ant2	20M	QPSK	1	1	Left Cheek	0mm	ANT2	ON	380000	1900	22.28	22.70	1.102	0.05	0.312	0.344
	FR1 N2_Ant2	20M	QPSK	50	28	Left Cheek	0mm	ANT2	ON	376000	1880	22.18	22.70	1.127	0.19	0.589	0.664
	FR1 N2_Ant2	20M	QPSK	50	28	Left Cheek	0mm	ANT2	ON	372000	1860	22.13	22.70	1.140	0.01	0.683	0.779
	FR1 N2_Ant2	20M	QPSK	50	28	Left Cheek	0mm	ANT2	ON	380000	1900	22.14	22.70	1.138	-0.03	0.374	0.425
	FR1 N2_Ant2	20M	QPSK	100	0	Left Cheek	0mm	ANT2	ON	376000	1880	22.12	22.70	1.143	0.02	0.589	0.673
	FR1 N2_Ant2	20M	QPSK	1	1	Left Tilted	0mm	ANT2	ON	376000	1880	22.30	22.70	1.096	-0.05	0.680	0.746
	FR1 N2_Ant2	20M	QPSK	1	1	Left Tilted	0mm	ANT2	ON	372000	1860	22.24	22.70	1.112	0.11	0.682	0.758
	FR1 N2_Ant2	20M	QPSK	1	1	Left Tilted	0mm	ANT2	ON	380000	1900	22.28	22.70	1.102	0.03	0.281	0.310
	FR1 N2_Ant2	20M	QPSK	50	28	Left Tilted	0mm	ANT2	ON	376000	1880	22.18	22.70	1.127	0.04	0.609	0.686
	FR1 N2_Ant2	20M	QPSK	50	28	Left Tilted	0mm	ANT2	ON	372000	1860	22.13	22.70	1.140	0.09	0.652	0.743
	FR1 N2_Ant2	20M	QPSK	50	28	Left Tilted	0mm	ANT2	ON	380000	1900	22.14	22.70	1.138	-0.01	0.255	0.290
	FR1 N2_Ant2	20M	QPSK	100	0	Left Tilted	0mm	ANT2	ON	376000	1880	22.12	22.70	1.143	0.03	0.667	0.762
	FR1 N5_Ant2	20M	QPSK	1	1	Right Cheek	0mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	0.01	0.367	0.402
09	FR1 N5_Ant2	20M	QPSK	50	28	Right Cheek	0mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.07	0.399	**0.456**
	FR1 N5_Ant2	20M	QPSK	1	1	Right Tilted	0mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	-0.06	0.313	0.343
	FR1 N5_Ant2	20M	QPSK	50	28	Right Tilted	0mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.06	0.285	0.326
	FR1 N5_Ant2	20M	QPSK	1	1	Left Cheek	0mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	-0.07	0.304	0.333
	FR1 N5_Ant2	20M	QPSK	50	28	Left Cheek	0mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	-0.11	0.389	0.445
	FR1 N5_Ant2	20M	QPSK	1	1	Left Tilted	0mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	-0.05	0.187	0.205
	FR1 N5_Ant2	20M	QPSK	50	28	Left Tilted	0mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.06	0.296	0.338
	FR1 N66_Ant2	20M	QPSK	1	1	Right Cheek	0mm	ANT2	ON	349000	1745	20.56	21.50	1.242	-0.09	0.494	0.613
	FR1 N66_Ant2	20M	QPSK	50	28	Right Cheek	0mm	ANT2	ON	349000	1745	20.42	21.50	1.282	0.01	0.549	0.704
	FR1 N66_Ant2	20M	QPSK	1	1	Right Tilted	0mm	ANT2	ON	349000	1745	20.56	21.50	1.242	0.06	0.621	0.771
	FR1 N66_Ant2	20M	QPSK	50	28	Right Tilted	0mm	ANT2	ON	349000	1745	20.42	21.50	1.282	0.05	0.630	0.808
	FR1 N66_Ant2	20M	QPSK	50	28	Right Tilted	0mm	ANT2	ON	344000	1720	20.33	21.50	1.309	0.02	0.550	0.720
	FR1 N66_Ant2	20M	QPSK	50	28	Right Tilted	0mm	ANT2	ON	354000	1770	20.40	21.50	1.288	0.03	0.597	0.769
	FR1 N66_Ant2	20M	QPSK	100	0	Right Tilted	0mm	ANT2	ON	349000	1745	20.40	21.50	1.288	-0.02	0.580	0.747
	FR1 N66_Ant2	20M	QPSK	1	1	Left Cheek	0mm	ANT2	ON	349000	1745	20.56	21.50	1.242	0.01	0.576	0.715
	FR1 N66_Ant2	20M	QPSK	50	28	Left Cheek	0mm	ANT2	ON	349000	1745	20.42	21.50	1.282	-0.16	0.559	0.717
	FR1 N66_Ant2	20M	QPSK	1	1	Left Tilted	0mm	ANT2	ON	349000	1745	20.56	21.50	1.242	0.07	0.603	0.749
	FR1 N66_Ant2	20M	QPSK	50	28	Left Tilted	0mm	ANT2	ON	349000	1745	20.42	21.50	1.282	0.11	0.665	0.853
	FR1 N66_Ant2	20M	QPSK	50	28	Left Tilted	0mm	ANT2	ON	344000	1720	20.33	21.50	1.309	0.01	0.545	0.714
10	FR1 N66_Ant2	20M	QPSK	50	28	Left Tilted	0mm	ANT2	ON	354000	1770	20.40	21.50	1.288	0.06	0.699	**0.900**
	FR1 N66_Ant2	20M	QPSK	100	0	Left Tilted	0mm	ANT2	ON	349000	1745	20.40	21.50	1.288	0.03	0.580	0.747

16.2 Hotspot SAR

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 5	10M	QPSK	1	0	Front	5mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	-0.07	0.122	0.167
	LTE Band 5	10M	QPSK	25	0	Front	5mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.06	0.092	0.125
11	LTE Band 5	10M	QPSK	1	0	Back	5mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	-0.08	0.230	**0.315**
	LTE Band 5	10M	QPSK	25	0	Back	5mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.09	0.148	0.201
	LTE Band 5	10M	QPSK	1	0	Left Side	5mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	-0.03	0.072	0.099
	LTE Band 5	10M	QPSK	25	0	Left Side	5mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.07	0.041	0.055
	LTE Band 5	10M	QPSK	1	0	Right Side	5mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	0.01	0.181	0.248
	LTE Band 5	10M	QPSK	25	0	Right Side	5mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.06	0.102	0.138
	LTE Band 5	10M	QPSK	1	0	Top Side	5mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	0.06	0.153	0.209
	LTE Band 5	10M	QPSK	25	0	Top Side	5mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.07	0.115	0.156
	LTE Band 13	10M	QPSK	1	0	Front	5mm	ANT2	OFF	23230	782	22.85	24.00	1.303	0.09	0.136	0.177
	LTE Band 13	10M	QPSK	25	0	Front	5mm	ANT2	OFF	23230	782	21.94	23.00	1.276	-0.03	0.081	0.103
12	LTE Band 13	10M	QPSK	1	0	Back	5mm	ANT2	OFF	23230	782	22.85	24.00	1.303	0.01	0.255	**0.332**
	LTE Band 13	10M	QPSK	25	0	Back	5mm	ANT2	OFF	23230	782	21.94	23.00	1.276	0.05	0.136	0.174
	LTE Band 13	10M	QPSK	1	0	Left Side	5mm	ANT2	OFF	23230	782	22.85	24.00	1.303	-0.06	0.044	0.058
	LTE Band 13	10M	QPSK	25	0	Left Side	5mm	ANT2	OFF	23230	782	21.94	23.00	1.276	-0.02	0.025	0.032
	LTE Band 13	10M	QPSK	1	0	Right Side	5mm	ANT2	OFF	23230	782	22.85	24.00	1.303	0.01	0.119	0.155
	LTE Band 13	10M	QPSK	25	0	Right Side	5mm	ANT2	OFF	23230	782	21.94	23.00	1.276	0.06	0.062	0.079
	LTE Band 13	10M	QPSK	1	0	Top Side	5mm	ANT2	OFF	23230	782	22.85	24.00	1.303	0.05	0.131	0.171
	LTE Band 13	10M	QPSK	25	0	Top Side	5mm	ANT2	OFF	23230	782	21.94	23.00	1.276	0.08	0.114	0.146
	LTE Band 2	20M	QPSK	1	0	Front	5mm	ANT2	ON	18900	1880	16.95	18.10	1.303	-0.07	0.100	0.130
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ANT2	ON	18900	1880	16.66	18.10	1.393	-0.11	0.098	0.137
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ANT2	ON	18900	1880	16.95	18.10	1.303	-0.05	0.507	0.661
	LTE Band 2	20M	QPSK	50	0	Back	5mm	ANT2	ON	18900	1880	16.66	18.10	1.393	0.05	0.493	0.687
	LTE Band 2	20M	QPSK	1	0	Left Side	5mm	ANT2	ON	18900	1880	16.95	18.10	1.303	0.02	0.061	0.079
	LTE Band 2	20M	QPSK	50	0	Left Side	5mm	ANT2	ON	18900	1880	16.66	18.10	1.393	0.03	0.043	0.060
	LTE Band 2	20M	QPSK	1	0	Right Side	5mm	ANT2	ON	18900	1880	16.95	18.10	1.303	0.01	0.048	0.063
	LTE Band 2	20M	QPSK	50	0	Right Side	5mm	ANT2	ON	18900	1880	16.66	18.10	1.393	0.06	0.033	0.046
	LTE Band 2	20M	QPSK	1	0	Top Side	5mm	ANT2	ON	18900	1880	16.95	18.10	1.303	0.05	0.517	0.674
13	LTE Band 2	20M	QPSK	50	0	Top Side	5mm	ANT2	ON	18900	1880	16.66	18.10	1.393	0.02	0.510	**0.711**
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ANT2	ON	132322	1745	16.89	18.30	1.384	0.11	0.125	0.173
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ANT2	ON	132322	1745	16.69	18.30	1.449	0.01	0.134	0.194
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ANT2	ON	132322	1745	16.89	18.30	1.384	0.06	0.451	0.624
	LTE Band 66	20M	QPSK	50	0	Back	5mm	ANT2	ON	132322	1745	16.69	18.30	1.449	0.04	0.478	0.693
	LTE Band 66	20M	QPSK	1	0	Left Side	5mm	ANT2	ON	132322	1745	16.89	18.30	1.384	-0.04	0.040	0.055
	LTE Band 66	20M	QPSK	50	0	Left Side	5mm	ANT2	ON	132322	1745	16.69	18.30	1.449	0.06	0.029	0.042
	LTE Band 66	20M	QPSK	1	0	Right Side	5mm	ANT2	ON	132322	1745	16.89	18.30	1.384	0.18	0.101	0.140
	LTE Band 66	20M	QPSK	50	0	Right Side	5mm	ANT2	ON	132322	1745	16.69	18.30	1.449	-0.04	0.069	0.100
	LTE Band 66	20M	QPSK	1	0	Top Side	5mm	ANT2	ON	132322	1745	16.89	18.30	1.384	0.14	0.480	0.664
14	LTE Band 66	20M	QPSK	50	0	Top Side	5mm	ANT2	ON	132322	1745	16.69	18.30	1.449	-0.04	0.554	**0.803**
	LTE Band 66	20M	QPSK	50	0	Top Side	5mm	ANT2	ON	132072	1720	16.67	18.30	1.455	-0.04	0.333	0.485
	LTE Band 66	20M	QPSK	50	0	Top Side	5mm	ANT2	ON	132572	1770	16.66	18.30	1.459	-0.04	0.467	0.681
	LTE Band 66	20M	QPSK	100	0	Top Side	5mm	ANT2	ON	132322	1745	16.62	18.30	1.472	-0.04	0.408	0.601

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 N2_Ant1	20M	QPSK	1	1	Front	5mm	ANT1	ON	376000	1880	15.95	16.70	1.189	0.02	0.666	0.792
	FR1 N2_Ant1	20M	QPSK	50	28	Front	5mm	ANT1	ON	376000	1880	15.93	16.70	1.194	-0.01	0.534	0.638
	FR1 N2_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	ON	376000	1880	15.95	16.70	1.189	-0.03	0.922	1.096
	FR1 N2_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	ON	372000	1860	15.90	16.70	1.202	-0.04	0.881	1.059
	FR1 N2_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	ON	380000	1900	15.86	16.70	1.213	0.01	0.903	1.096
	FR1 N2_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	376000	1880	15.93	16.70	1.194	0.05	0.867	1.035
	FR1 N2_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	372000	1860	15.91	16.70	1.199	-0.15	0.854	1.024
	FR1 N2_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	380000	1900	15.88	16.70	1.208	-0.02	0.888	1.073
	FR1 N2_Ant1	20M	QPSK	100	0	Back	5mm	ANT1	ON	376000	1880	15.84	16.70	1.219	-0.05	0.871	1.062
	FR1 N2_Ant1	20M	QPSK	1	1	Left Side	5mm	ANT1	ON	376000	1880	15.95	16.70	1.189	-0.13	0.041	0.049
	FR1 N2_Ant1	20M	QPSK	50	28	Left Side	5mm	ANT1	ON	376000	1880	15.93	16.70	1.194	-0.07	0.039	0.047
	FR1 N2_Ant1	20M	QPSK	1	1	Right Side	5mm	ANT1	ON	376000	1880	15.95	16.70	1.189	-0.01	0.043	0.051
	FR1 N2_Ant1	20M	QPSK	50	28	Right Side	5mm	ANT1	ON	376000	1880	15.93	16.70	1.194	0.04	0.043	0.051
	FR1 N2_Ant1	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	376000	1880	15.95	16.70	1.189	0.13	0.920	1.093
	FR1 N2_Ant1	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	372000	1860	15.90	16.70	1.202	0.15	0.895	1.076
15	FR1 N2_Ant1	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	380000	1900	15.86	16.70	1.213	0.03	1.000	**1.213**
	FR1 N2_Ant1	20M	QPSK	50	28	Bottom Side	5mm	ANT1	ON	376000	1880	15.93	16.70	1.194	0.01	0.963	1.150
	FR1 N2_Ant1	20M	QPSK	50	28	Bottom Side	5mm	ANT1	ON	372000	1860	15.91	16.70	1.199	0.07	0.938	1.125
	FR1 N2_Ant1	20M	QPSK	50	28	Bottom Side	5mm	ANT1	ON	380000	1900	15.88	16.70	1.208	-0.01	0.970	1.172
	FR1 N2_Ant1	20M	QPSK	100	0	Bottom Side	5mm	ANT1	ON	376000	1880	15.84	16.70	1.219	-0.1	0.984	1.199
	FR1 N5_Ant1	20M	QPSK	1	1	Front	5mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.02	0.357	0.370
	FR1 N5_Ant1	20M	QPSK	50	28	Front	5mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	0.01	0.520	0.568
	FR1 N5_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.06	0.518	0.537
16	FR1 N5_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	0.03	0.745	**0.813**
	FR1 N5_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	OFF	166800	834	23.50	24.00	1.122	0.12	0.593	0.665
	FR1 N5_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	OFF	167800	839	23.55	24.00	1.109	0.1	0.476	0.528
	FR1 N5_Ant1	20M	QPSK	100	0	Back	5mm	ANT1	OFF	167300	836.5	22.69	23.00	1.074	0.03	0.396	0.425
	FR1 N5_Ant1	20M	QPSK	1	1	Left Side	5mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.16	0.084	0.087
	FR1 N5_Ant1	20M	QPSK	50	28	Left Side	5mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	-0.09	0.152	0.166
	FR1 N5_Ant1	20M	QPSK	1	1	Right Side	5mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	-0.04	0.214	0.222
	FR1 N5_Ant1	20M	QPSK	50	28	Right Side	5mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	-0.05	0.246	0.268
	FR1 N5_Ant1	20M	QPSK	1	1	Bottom Side	5mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.11	0.448	0.465
	FR1 N5_Ant1	20M	QPSK	50	28	Bottom Side	5mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	0.05	0.491	0.536
	FR1 N66_Ant1	20M	QPSK	1	1	Front	5mm	ANT1	ON	349000	1745	17.42	18.90	1.406	-0.02	0.510	0.717
	FR1 N66_Ant1	20M	QPSK	50	28	Front	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	-0.01	0.434	0.626
	FR1 N66_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	ON	349000	1745	17.42	18.90	1.406	0.08	0.412	0.579
	FR1 N66_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	-0.08	0.613	0.884
	FR1 N66_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	344000	1720	17.29	18.90	1.449	0.05	0.534	0.774
	FR1 N66_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	354000	1770	17.25	18.90	1.462	0.02	0.570	0.833
	FR1 N66_Ant1	20M	QPSK	100	0	Back	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	-0.07	0.608	0.877
	FR1 N66_Ant1	20M	QPSK	1	1	Left Side	5mm	ANT1	ON	349000	1745	17.42	18.90	1.406	0.08	0.031	0.044
	FR1 N66_Ant1	20M	QPSK	50	28	Left Side	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	0.01	0.030	0.043
	FR1 N66_Ant1	20M	QPSK	1	1	Right Side	5mm	ANT1	ON	349000	1745	17.42	18.90	1.406	0.02	0.048	0.067
	FR1 N66_Ant1	20M	QPSK	50	28	Right Side	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	0.11	0.030	0.043
	FR1 N66_Ant1	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	349000	1745	17.42	18.90	1.406	0.03	0.821	1.154
	FR1 N66_Ant1	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	344000	1720	17.39	18.90	1.416	0.01	0.753	1.066
	FR1 N66_Ant1	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	354000	1770	17.36	18.90	1.426	0.08	0.830	1.183
17	FR1 N66_Ant1	20M	QPSK	50	28	Bottom Side	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	-0.01	0.821	**1.184**
	FR1 N66_Ant1	20M	QPSK	50	28	Bottom Side	5mm	ANT1	ON	344000	1720	17.29	18.90	1.449	-0.02	0.790	1.145
	FR1 N66_Ant1	20M	QPSK	50	28	Bottom Side	5mm	ANT1	ON	354000	1770	17.25	18.90	1.462	0.06	0.749	1.095
	FR1 N66_Ant1	20M	QPSK	100	0	Bottom Side	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	0.01	0.791	1.141

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 N2_Ant2	20M	QPSK	1	1	Front	5mm	ANT2	ON	376000	1880	16.47	18.10	1.455	0.08	0.142	0.207
	FR1 N2_Ant2	20M	QPSK	50	28	Front	5mm	ANT2	ON	376000	1880	16.44	18.10	1.466	-0.07	0.132	0.193
	FR1 N2_Ant2	20M	QPSK	1	1	Back	5mm	ANT2	ON	376000	1880	16.47	18.10	1.455	-0.01	0.457	0.665
	FR1 N2_Ant2	20M	QPSK	50	28	Back	5mm	ANT2	ON	376000	1880	16.44	18.10	1.466	-0.05	0.444	0.651
	FR1 N2_Ant2	20M	QPSK	1	1	Left Side	5mm	ANT2	ON	376000	1880	16.47	18.10	1.455	0.03	0.021	0.031
	FR1 N2_Ant2	20M	QPSK	50	28	Left Side	5mm	ANT2	ON	376000	1880	16.44	18.10	1.466	0.05	0.019	0.028
	FR1 N2_Ant2	20M	QPSK	1	1	Right Side	5mm	ANT2	ON	376000	1880	16.47	18.10	1.455	-0.02	0.018	0.026
	FR1 N2_Ant2	20M	QPSK	50	28	Right Side	5mm	ANT2	ON	376000	1880	16.44	18.10	1.466	0.01	0.018	0.026
	FR1 N2_Ant2	20M	QPSK	1	1	Top Side	5mm	ANT2	ON	376000	1880	16.47	18.10	1.455	0.09	0.612	0.891
18	FR1 N2_Ant2	20M	QPSK	1	1	Top Side	5mm	ANT2	ON	372000	1860	16.43	18.10	1.469	0.03	0.625	**0.918**
	FR1 N2_Ant2	20M	QPSK	1	1	Top Side	5mm	ANT2	ON	380000	1900	16.44	18.10	1.466	0.01	0.570	0.835
	FR1 N2_Ant2	20M	QPSK	50	28	Top Side	5mm	ANT2	ON	376000	1880	16.44	18.10	1.466	0.03	0.620	0.909
	FR1 N2_Ant2	20M	QPSK	50	28	Top Side	5mm	ANT2	ON	372000	1860	16.39	18.10	1.483	-0.13	0.618	0.916
	FR1 N2_Ant2	20M	QPSK	50	28	Top Side	5mm	ANT2	ON	380000	1900	16.41	18.10	1.476	0.03	0.550	0.812
	FR1 N2_Ant2	20M	QPSK	100	0	Top Side	5mm	ANT2	ON	376000	1880	16.41	18.10	1.476	0.08	0.616	0.909
	FR1 N5_Ant2	20M	QPSK	1	1	Front	5mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	-0.07	0.132	0.145
	FR1 N5_Ant2	20M	QPSK	50	28	Front	5mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.08	0.150	0.171
	FR1 N5_Ant2	20M	QPSK	1	1	Back	5mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	0.01	0.188	0.206
19	FR1 N5_Ant2	20M	QPSK	50	28	Back	5mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.11	0.202	**0.231**
	FR1 N5_Ant2	20M	QPSK	1	1	Left Side	5mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	0.03	0.072	0.079
	FR1 N5_Ant2	20M	QPSK	50	28	Left Side	5mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.01	0.060	0.068
	FR1 N5_Ant2	20M	QPSK	1	1	Right Side	5mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	0.08	0.183	0.201
	FR1 N5_Ant2	20M	QPSK	50	28	Right Side	5mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.03	0.149	0.170
	FR1 N5_Ant2	20M	QPSK	1	1	Top Side	5mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	-0.02	0.169	0.185
	FR1 N5_Ant2	20M	QPSK	50	28	Top Side	5mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.06	0.168	0.192
	FR1 N66_Ant2	20M	QPSK	1	1	Front	5mm	ANT2	ON	349000	1745	16.45	17.30	1.216	-0.13	0.188	0.229
	FR1 N66_Ant2	20M	QPSK	50	28	Front	5mm	ANT2	ON	349000	1745	16.38	17.30	1.236	-0.07	0.189	0.234
	FR1 N66_Ant2	20M	QPSK	1	1	Back	5mm	ANT2	ON	349000	1745	16.45	17.30	1.216	-0.01	0.518	0.630
	FR1 N66_Ant2	20M	QPSK	50	28	Back	5mm	ANT2	ON	349000	1745	16.38	17.30	1.236	0.04	0.524	0.648
	FR1 N66_Ant2	20M	QPSK	1	1	Left Side	5mm	ANT2	ON	349000	1745	16.45	17.30	1.216	0.15	0.008	0.010
	FR1 N66_Ant2	20M	QPSK	50	28	Left Side	5mm	ANT2	ON	349000	1745	16.38	17.30	1.236	0.03	0.016	0.019
	FR1 N66_Ant2	20M	QPSK	1	1	Right Side	5mm	ANT2	ON	349000	1745	16.45	17.30	1.216	0.01	0.031	0.037
	FR1 N66_Ant2	20M	QPSK	50	28	Right Side	5mm	ANT2	ON	349000	1745	16.38	17.30	1.236	0.07	0.024	0.029
	FR1 N66_Ant2	20M	QPSK	1	1	Top Side	5mm	ANT2	ON	349000	1745	16.45	17.30	1.216	-0.01	0.574	0.698
	FR1 N66_Ant2	20M	QPSK	50	28	Top Side	5mm	ANT2	ON	349000	1745	16.38	17.30	1.236	0.04	0.706	0.873
	FR1 N66_Ant2	20M	QPSK	50	28	Top Side	5mm	ANT2	ON	344000	1720	16.25	17.30	1.274	-0.05	0.612	0.779
20	FR1 N66_Ant2	20M	QPSK	50	28	Top Side	5mm	ANT2	ON	354000	1770	16.27	17.30	1.268	0.03	0.725	**0.919**

16.3 Body Worn Accessory SAR

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 5	10M	QPSK	1	0	Front	5mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	-0.07	0.122	0.167
	LTE Band 5	10M	QPSK	25	0	Front	5mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.06	0.092	0.125
21	LTE Band 5	10M	QPSK	1	0	Back	5mm	ANT2	OFF	20525	836.5	22.64	24.00	1.368	-0.08	0.230	**0.315**
	LTE Band 5	10M	QPSK	25	0	Back	5mm	ANT2	OFF	20525	836.5	21.68	23.00	1.355	0.09	0.148	0.201
	LTE Band 13	10M	QPSK	1	0	Front	5mm	ANT2	OFF	23230	782	22.85	24.00	1.303	0.09	0.136	0.177
	LTE Band 13	10M	QPSK	25	0	Front	5mm	ANT2	OFF	23230	782	21.94	23.00	1.276	-0.03	0.081	0.103
22	LTE Band 13	10M	QPSK	1	0	Back	5mm	ANT2	OFF	23230	782	22.85	24.00	1.303	0.01	0.255	**0.332**
	LTE Band 13	10M	QPSK	25	0	Back	5mm	ANT2	OFF	23230	782	21.94	23.00	1.276	0.05	0.136	0.174
	LTE Band 2	20M	QPSK	1	0	Front	5mm	ANT2	ON	18900	1880	16.95	18.10	1.303	-0.07	0.100	0.130
	LTE Band 2	20M	QPSK	50	0	Front	5mm	ANT2	ON	18900	1880	16.66	18.10	1.393	-0.11	0.098	0.137
	LTE Band 2	20M	QPSK	1	0	Back	5mm	ANT2	ON	18900	1880	16.95	18.10	1.303	-0.05	0.507	0.661
23	LTE Band 2	20M	QPSK	50	0	Back	5mm	ANT2	ON	18900	1880	16.66	18.10	1.393	0.05	0.493	**0.687**
	LTE Band 2	20M	QPSK	1	0	Front	18mm	ANT2	OFF	18900	1880	22.28	23.50	1.324	0.01	0.084	0.111
	LTE Band 2	20M	QPSK	50	0	Front	18mm	ANT2	OFF	18900	1880	21.32	22.50	1.312	-0.03	0.060	0.079
	LTE Band 2	20M	QPSK	1	0	Back	19mm	ANT2	OFF	18900	1880	22.28	23.50	1.324	0.03	0.185	0.245
	LTE Band 2	20M	QPSK	50	0	Back	19mm	ANT2	OFF	18900	1880	21.32	22.50	1.312	0.09	0.129	0.169
	LTE Band 66	20M	QPSK	1	0	Front	5mm	ANT2	ON	132322	1745	16.89	18.30	1.384	0.11	0.125	0.173
	LTE Band 66	20M	QPSK	50	0	Front	5mm	ANT2	ON	132322	1745	16.69	18.30	1.449	0.01	0.134	0.194
	LTE Band 66	20M	QPSK	1	0	Back	5mm	ANT2	ON	132322	1745	16.89	18.30	1.384	0.06	0.451	0.624
24	LTE Band 66	20M	QPSK	50	0	Back	5mm	ANT2	ON	132322	1745	16.69	18.30	1.449	0.04	0.478	**0.693**
	LTE Band 66	20M	QPSK	1	0	Front	18mm	ANT2	OFF	132322	1745	22.49	23.50	1.262	-0.01	0.086	0.109
	LTE Band 66	20M	QPSK	50	0	Front	18mm	ANT2	OFF	132322	1745	21.22	22.50	1.343	0.09	0.071	0.095
	LTE Band 66	20M	QPSK	1	0	Back	19mm	ANT2	OFF	132322	1745	22.49	23.50	1.262	-0.03	0.150	0.189
	LTE Band 66	20M	QPSK	50	0	Back	19mm	ANT2	OFF	132322	1745	21.22	22.50	1.343	0.07	0.146	0.196

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 N2_Ant1	20M	QPSK	1	1	Front	5mm	ANT1	ON	376000	1880	15.95	16.70	1.189	0.02	0.666	0.792
	FR1 N2_Ant1	20M	QPSK	50	28	Front	5mm	ANT1	ON	376000	1880	15.93	16.70	1.194	-0.01	0.534	0.638
	FR1 N2_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	ON	376000	1880	15.95	16.70	1.189	-0.03	0.922	1.096
	FR1 N2_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	ON	372000	1860	15.90	16.70	1.202	-0.04	0.881	1.059
25	FR1 N2_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	ON	380000	1900	15.86	16.70	1.213	0.01	0.903	**1.096**
	FR1 N2_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	376000	1880	15.93	16.70	1.194	0.05	0.867	1.035
	FR1 N2_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	372000	1860	15.91	16.70	1.199	-0.15	0.854	1.024
	FR1 N2_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	380000	1900	15.88	16.70	1.208	-0.02	0.888	1.073
	FR1 N2_Ant1	20M	QPSK	100	0	Back	5mm	ANT1	ON	376000	1880	15.84	16.70	1.219	-0.05	0.871	1.062
	FR1 N2_Ant1	20M	QPSK	1	1	Front	18mm	ANT1	OFF	376000	1880	23.89	24.00	1.026	-0.03	0.433	0.444
	FR1 N2_Ant1	20M	QPSK	50	28	Front	18mm	ANT1	OFF	376000	1880	23.87	24.00	1.030	0.02	0.435	0.448
	FR1 N2_Ant1	20M	QPSK	1	1	Back	19mm	ANT1	OFF	376000	1880	23.89	24.00	1.026	0.09	0.577	0.592
	FR1 N2_Ant1	20M	QPSK	50	28	Back	19mm	ANT1	OFF	376000	1880	23.87	24.00	1.030	-0.02	0.602	0.620
	FR1 N5_Ant1	20M	QPSK	1	1	Front	5mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.02	0.357	0.370
	FR1 N5_Ant1	20M	QPSK	50	28	Front	5mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	0.01	0.520	0.568
	FR1 N5_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	OFF	167300	836.5	23.84	24.00	1.038	0.06	0.518	0.537
26	FR1 N5_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	OFF	167300	836.5	23.62	24.00	1.091	0.03	0.745	**0.813**
	FR1 N5_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	OFF	166800	834	23.50	24.00	1.122	0.12	0.593	0.665
	FR1 N5_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	OFF	167800	839	23.55	24.00	1.109	0.1	0.476	0.528
	FR1 N5_Ant1	20M	QPSK	100	0	Back	5mm	ANT1	OFF	167300	836.5	22.69	24.00	1.352	0.03	0.396	0.535
	FR1 N66_Ant1	20M	QPSK	1	1	Front	5mm	ANT1	ON	349000	1745	17.42	18.90	1.406	-0.02	0.510	0.717
	FR1 N66_Ant1	20M	QPSK	50	28	Front	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	-0.01	0.434	0.626
	FR1 N66_Ant1	20M	QPSK	1	1	Back	5mm	ANT1	ON	349000	1745	17.42	18.90	1.406	0.08	0.412	0.579
27	FR1 N66_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	-0.07	0.625	**0.901**
	FR1 N66_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	344000	1720	17.29	18.90	1.449	-0.03	0.595	0.862
	FR1 N66_Ant1	20M	QPSK	50	28	Back	5mm	ANT1	ON	354000	1770	17.25	18.90	1.462	0.01	0.561	0.820
	FR1 N66_Ant1	20M	QPSK	100	0	Back	5mm	ANT1	ON	349000	1745	17.31	18.90	1.442	-0.07	0.608	0.877
	FR1 N66_Ant1	20M	QPSK	1	1	Front	18mm	ANT1	OFF	349000	1745	23.88	24.00	1.028	0.03	0.262	0.269
	FR1 N66_Ant1	20M	QPSK	50	28	Front	18mm	ANT1	OFF	349000	1745	23.82	24.00	1.042	0.09	0.388	0.404
	FR1 N66_Ant1	20M	QPSK	1	1	Back	19mm	ANT1	OFF	349000	1745	23.88	24.00	1.028	0.01	0.317	0.326
	FR1 N66_Ant1	20M	QPSK	50	28	Back	19mm	ANT1	OFF	349000	1745	23.82	24.00	1.042	0.08	0.504	0.525
	FR1 N2_Ant2	20M	QPSK	1	1	Front	5mm	ANT2	ON	376000	1880	16.47	18.10	1.455	0.08	0.142	0.207
	FR1 N2_Ant2	20M	QPSK	50	28	Front	5mm	ANT2	ON	376000	1880	16.44	18.10	1.466	-0.07	0.132	0.193
28	FR1 N2_Ant2	20M	QPSK	1	1	Back	5mm	ANT2	ON	376000	1880	16.47	18.10	1.455	-0.01	0.457	**0.665**
	FR1 N2_Ant2	20M	QPSK	50	28	Back	5mm	ANT2	ON	376000	1880	16.44	18.10	1.466	-0.05	0.444	0.651
	FR1 N2_Ant2	20M	QPSK	1	1	Front	18mm	ANT2	OFF	376000	1880	23.95	24.00	1.012	0.09	0.097	0.098
	FR1 N2_Ant2	20M	QPSK	50	28	Front	18mm	ANT2	OFF	376000	1880	23.81	24.00	1.045	-0.02	0.096	0.100
	FR1 N2_Ant2	20M	QPSK	1	1	Back	19mm	ANT2	OFF	376000	1880	23.95	24.00	1.012	-0.03	0.310	0.314
	FR1 N2_Ant2	20M	QPSK	50	28	Back	19mm	ANT2	OFF	376000	1880	23.81	24.00	1.045	0.02	0.311	0.325
	FR1 N5_Ant2	20M	QPSK	1	1	Front	5mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	-0.07	0.132	0.145
	FR1 N5_Ant2	20M	QPSK	50	28	Front	5mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.08	0.150	0.171
	FR1 N5_Ant2	20M	QPSK	1	1	Back	5mm	ANT2	OFF	167300	836.5	23.60	24.00	1.096	0.01	0.188	0.206
29	FR1 N5_Ant2	20M	QPSK	50	28	Back	5mm	ANT2	OFF	167300	836.5	23.42	24.00	1.143	0.11	0.202	**0.231**
	FR1 N66_Ant2	20M	QPSK	1	1	Front	5mm	ANT2	ON	349000	1745	16.45	17.30	1.216	-0.13	0.188	0.229
	FR1 N66_Ant2	20M	QPSK	50	28	Front	5mm	ANT2	ON	349000	1745	16.38	17.30	1.236	-0.07	0.189	0.234
	FR1 N66_Ant2	20M	QPSK	1	1	Back	5mm	ANT2	ON	349000	1745	16.45	17.30	1.216	-0.01	0.518	0.630
30	FR1 N66_Ant2	20M	QPSK	50	28	Back	5mm	ANT2	ON	349000	1745	16.38	17.30	1.236	0.04	0.524	**0.648**
	FR1 N66_Ant2	20M	QPSK	1	1	Front	18mm	ANT2	OFF	349000	1745	23.49	24.00	1.125	0.09	0.255	0.287
	FR1 N66_Ant2	20M	QPSK	50	28	Front	18mm	ANT2	OFF	349000	1745	23.41	24.00	1.146	-0.02	0.267	0.306
	FR1 N66_Ant2	20M	QPSK	1	1	Back	19mm	ANT2	OFF	349000	1745	23.49	24.00	1.125	-0.04	0.188	0.211
	FR1 N66_Ant2	20M	QPSK	50	28	Back	19mm	ANT2	OFF	349000	1745	23.41	24.00	1.146	0.03	0.205	0.235

16.4 Product Specific SAR

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
31	LTE Band 2	20M	QPSK	1	0	Back	0mm	ANT2	OFF	18900	1880	22.28	23.50	1.324	0.03	1.260	**1.669**
	LTE Band 2	20M	QPSK	50	0	Back	0mm	ANT2	OFF	18900	1880	21.32	22.50	1.312	-0.02	0.826	1.084
	LTE Band 2	20M	QPSK	1	0	Top Side	0mm	ANT2	OFF	18900	1880	22.28	23.50	1.324	0.01	0.545	0.722
	LTE Band 2	20M	QPSK	50	0	Top Side	0mm	ANT2	OFF	18900	1880	21.32	22.50	1.312	-0.16	0.380	0.499
32	LTE Band 66	20M	QPSK	1	0	Back	0mm	ANT2	OFF	132322	1745	22.49	23.50	1.262	0.03	1.290	**1.628**
	LTE Band 66	20M	QPSK	50	0	Back	0mm	ANT2	OFF	132322	1745	21.22	22.50	1.343	0.01	0.901	1.210
	LTE Band 66	20M	QPSK	1	0	Top Side	0mm	ANT2	OFF	132322	1745	22.49	23.50	1.262	-0.05	0.657	0.829
	LTE Band 66	20M	QPSK	50	0	Top Side	0mm	ANT2	OFF	132322	1745	21.22	22.50	1.343	0.02	0.442	0.594

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	FR1 N2_Ant1	20M	QPSK	1	1	Front	0mm	ANT1	ON	376000	1880	21.44	22.70	1.337	0.03	1.700	2.272
	FR1 N2_Ant1	20M	QPSK	1	1	Front	0mm	ANT1	ON	372000	1860	21.42	22.70	1.343	0.03	2.000	2.686
	FR1 N2_Ant1	20M	QPSK	1	1	Front	0mm	ANT1	ON	380000	1900	21.43	22.70	1.340	0.03	1.930	2.586
	FR1 N2_Ant1	20M	QPSK	50	28	Front	0mm	ANT1	ON	376000	1880	21.38	22.70	1.355	0.01	2.030	2.751
	FR1 N2_Ant1	20M	QPSK	50	28	Front	0mm	ANT1	ON	372000	1860	21.38	22.70	1.355	0.01	2.020	2.737
	FR1 N2_Ant1	20M	QPSK	50	28	Front	0mm	ANT1	ON	380000	1900	21.33	22.70	1.371	0.01	2.000	2.742
	FR1 N2_Ant1	20M	QPSK	100	0	Front	0mm	ANT1	ON	376000	1880	21.39	22.70	1.352	0.01	1.970	2.664
	FR1 N2_Ant1	20M	QPSK	1	1	Back	0mm	ANT1	ON	376000	1880	21.44	22.70	1.337	0.04	2.300	3.074
	FR1 N2_Ant1	20M	QPSK	1	1	Back	0mm	ANT1	ON	372000	1860	21.42	22.70	1.343	-0.04	2.360	3.169
	FR1 N2_Ant1	20M	QPSK	1	1	Back	0mm	ANT1	ON	380000	1900	21.43	22.70	1.340	0.06	2.340	3.135
33	FR1 N2_Ant1	20M	QPSK	50	28	Back	0mm	ANT1	ON	376000	1880	21.38	22.70	1.355	0.18	2.360	**3.198**
	FR1 N2_Ant1	20M	QPSK	50	28	Back	0mm	ANT1	ON	372000	1860	21.38	22.70	1.355	-0.04	2.340	3.171
	FR1 N2_Ant1	20M	QPSK	50	28	Back	0mm	ANT1	ON	380000	1900	21.33	22.70	1.371	0.14	2.250	3.084
	FR1 N2_Ant1	20M	QPSK	100	0	Back	0mm	ANT1	ON	376000	1880	21.39	22.70	1.352	0.07	2.350	3.177
	FR1 N2_Ant1	20M	QPSK	1	1	Bottom Side	0mm	ANT1	ON	376000	1880	21.44	22.70	1.337	0.02	1.130	1.510
	FR1 N2_Ant1	20M	QPSK	1	1	Bottom Side	0mm	ANT1	ON	372000	1860	21.42	22.70	1.343	0.14	1.500	2.014
	FR1 N2_Ant1	20M	QPSK	1	1	Bottom Side	0mm	ANT1	ON	380000	1900	21.43	22.70	1.340	0.09	1.320	1.768
	FR1 N2_Ant1	20M	QPSK	50	28	Bottom Side	0mm	ANT1	ON	376000	1880	21.38	22.70	1.355	0.03	1.230	1.667
	FR1 N2_Ant1	20M	QPSK	50	28	Bottom Side	0mm	ANT1	ON	372000	1860	21.38	22.70	1.355	0.03	1.490	2.019
	FR1 N2_Ant1	20M	QPSK	50	28	Bottom Side	0mm	ANT1	ON	380000	1900	21.33	22.70	1.371	0.05	1.450	1.988
	FR1 N2_Ant1	20M	QPSK	100	0	Bottom Side	0mm	ANT1	ON	376000	1880	21.39	22.70	1.352	0.05	1.220	1.650
	FR1 N2_Ant1	20M	QPSK	1	1	Front	5mm	ANT1	OFF	376000	1880	23.89	24.00	1.026	0.14	1.040	1.067
	FR1 N2_Ant1	20M	QPSK	50	28	Front	5mm	ANT1	OFF	376000	1880	23.87	24.00	1.030	0.09	1.120	1.154
	FR1 N2_Ant1	20M	QPSK	1	1	Back	8mm	ANT1	OFF	376000	1880	23.89	24.00	1.026	-0.03	0.928	0.952
	FR1 N2_Ant1	20M	QPSK	50	28	Back	8mm	ANT1	OFF	376000	1880	23.87	24.00	1.030	0.03	1.060	1.092
	FR1 N2_Ant1	20M	QPSK	1	1	Bottom Side	7mm	ANT1	OFF	376000	1880	23.89	24.00	1.026	0.09	1.720	1.764
	FR1 N2_Ant1	20M	QPSK	50	28	Bottom Side	7mm	ANT1	OFF	376000	1880	23.87	24.00	1.030	0.01	1.700	1.752

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	FR1 N66_Ant1	20M	QPSK	1	1	Front	0mm	ANT1	ON	349000	1745	21.94	23.20	1.337	0.19	1.330	1.778
	FR1 N66_Ant1	20M	QPSK	50	28	Front	0mm	ANT1	ON	349000	1745	21.82	23.20	1.374	-0.07	1.430	1.965
	FR1 N66_Ant1	20M	QPSK	1	1	Back	0mm	ANT1	ON	349000	1745	21.94	23.20	1.337	0.11	2.190	2.927
	FR1 N66_Ant1	20M	QPSK	1	1	Back	0mm	ANT1	ON	344000	1720	21.80	23.20	1.380	0.02	2.220	3.064
	FR1 N66_Ant1	20M	QPSK	1	1	Back	0mm	ANT1	ON	354000	1770	21.88	23.20	1.355	0.12	2.320	3.144
	FR1 N66_Ant1	20M	QPSK	50	28	Back	0mm	ANT1	ON	349000	1745	21.82	23.20	1.374	0.07	2.300	3.160
	FR1 N66_Ant1	20M	QPSK	50	28	Back	0mm	ANT1	ON	344000	1720	21.73	23.20	1.403	0.06	2.220	3.114
34	FR1 N66_Ant1	20M	QPSK	50	28	Back	0mm	ANT1	ON	354000	1770	21.72	23.20	1.406	0.01	2.270	**3.192**
	FR1 N66_Ant1	20M	QPSK	100	0	Back	0mm	ANT1	ON	349000	1745	21.78	23.00	1.324	0.08	2.280	3.019
	FR1 N66_Ant1	20M	QPSK	1	1	Bottom Side	0mm	ANT1	ON	349000	1745	21.94	23.20	1.337	0.01	1.770	2.366
	FR1 N66_Ant1	20M	QPSK	1	1	Bottom Side	0mm	ANT1	ON	344000	1720	21.80	23.20	1.380	0.13	2.000	2.761
	FR1 N66_Ant1	20M	QPSK	1	1	Bottom Side	0mm	ANT1	ON	354000	1770	21.88	23.20	1.355	0.19	2.130	2.887
	FR1 N66_Ant1	20M	QPSK	50	28	Bottom Side	0mm	ANT1	ON	349000	1745	21.82	23.20	1.374	-0.07	1.480	2.034
	FR1 N66_Ant1	20M	QPSK	50	28	Bottom Side	0mm	ANT1	ON	344000	1720	21.73	23.20	1.403	0.13	1.480	2.076
	FR1 N66_Ant1	20M	QPSK	50	28	Bottom Side	0mm	ANT1	ON	354000	1770	21.72	23.20	1.406	0.05	2.120	2.981
	FR1 N66_Ant1	20M	QPSK	100	0	Bottom Side	0mm	ANT1	ON	349000	1745	21.78	23.00	1.324	0.14	1.620	2.145
	FR1 N66_Ant1	20M	QPSK	1	1	Front	5mm	ANT1	OFF	349000	1745	23.88	24.00	1.028	0.06	1.150	1.182
	FR1 N66_Ant1	20M	QPSK	50	28	Front	5mm	ANT1	OFF	349000	1745	23.82	24.00	1.042	-0.02	1.210	1.261
	FR1 N66_Ant1	20M	QPSK	1	1	Back	8mm	ANT1	OFF	349000	1745	23.88	24.00	1.028	0.03	0.763	0.784
	FR1 N66_Ant1	20M	QPSK	50	28	Back	8mm	ANT1	OFF	349000	1745	23.82	24.00	1.042	-0.01	0.748	0.780
	FR1 N66_Ant1	20M	QPSK	1	1	Bottom Side	7mm	ANT1	OFF	349000	1745	23.88	24.00	1.028	0.03	1.270	1.306
	FR1 N66_Ant1	20M	QPSK	50	28	Bottom Side	7mm	ANT1	OFF	349000	1745	23.82	24.00	1.042	-0.01	1.230	1.282
35	FR1 N2_Ant2	20M	QPSK	1	1	Back	0mm	ANT2	OFF	376000	1880	23.95	24.00	1.012	0.01	1.880	**1.902**
	FR1 N2_Ant2	20M	QPSK	50	28	Back	0mm	ANT2	OFF	376000	1880	23.81	24.00	1.045	0.06	1.710	1.786
	FR1 N2_Ant2	20M	QPSK	1	1	Top Side	0mm	ANT2	OFF	376000	1880	23.95	24.00	1.012	0.05	0.797	0.806
	FR1 N2_Ant2	20M	QPSK	50	28	Top Side	0mm	ANT2	OFF	376000	1880	23.81	24.00	1.045	-0.17	0.553	0.578
	FR1 N66_Ant2	20M	QPSK	1	1	Back	0mm	ANT2	OFF	349000	1745	23.49	24.00	1.125	-0.04	1.620	1.822
	FR1 N66_Ant2	20M	QPSK	50	28	Back	0mm	ANT2	OFF	349000	1745	23.41	24.00	1.146	0.06	1.790	2.050
	FR1 N66_Ant2	20M	QPSK	50	28	Back	0mm	ANT2	OFF	344000	1720	23.29	24.00	1.178	0.06	1.480	1.743
36	FR1 N66_Ant2	20M	QPSK	50	28	Back	0mm	ANT2	OFF	354000	1770	23.36	24.00	1.159	0.06	2.130	**2.468**
	FR1 N66_Ant2	20M	QPSK	1	1	Top Side	0mm	ANT2	OFF	349000	1745	23.49	24.00	1.125	0.18	0.623	0.701
	FR1 N66_Ant2	20M	QPSK	50	28	Top Side	0mm	ANT2	OFF	349000	1745	23.41	24.00	1.146	-0.06	0.583	0.668

16.5 Repeated SAR Measurement

<1g>

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	FR1 N2	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	380000	1900	15.86	16.70	1.213	0.03	1.000	1	1.213
2nd	FR1 N2	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	380000	1900	15.86	16.70	1.213	-0.11	0.941	1.063	1.142
1st	FR1 N66	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	354000	1770	17.36	18.90	1.426	0.08	0.830	1	1.183
2nd	FR1 N66	20M	QPSK	1	1	Bottom Side	5mm	ANT1	ON	354000	1770	17.36	18.90	1.426	-0.12	0.819	1.013	1.168

<10g>

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	FR1 N2	20M	QPSK	50	28	Back	0mm	ANT1	ON	376000	1880	21.38	22.70	1.355	0.18	2.360	1	3.198
2nd	FR1 N2	20M	QPSK	50	28	Back	0mm	ANT1	ON	376000	1880	21.38	22.70	1.355	0.02	2.290	1.031	3.103
1st	FR1 N66	20M	QPSK	1	1	Back	0mm	ANT1	ON	354000	1770	21.88	23.20	1.355	0.12	2.320	1	3.144
2nd	FR1 N66	20M	QPSK	1	1	Back	0mm	ANT1	ON	354000	1770	21.88	23.20	1.355	0.09	2.260	1.027	3.063

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.

17. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Exposure Positions			
		Head	Hotspot	Body-worn	Product specific 10g SAR
1.	WWAN + 2.4GHz WLAN Ant 4+6	Yes	Yes	Yes	Yes
2.	WWAN + 2.4GHz WLAN Ant 4 + BT Ant 6	Yes	Yes	Yes	Yes
3.	WWAN + 5GHz WLAN Ant 3+6 + BT Ant 6	Yes	Yes	Yes	Yes
4.	WWAN Voice + 2.4GHz WLAN Ant 4+6 + 5GHz WLAN Ant 3+6	Yes	Yes	Yes	Yes
5.	5GHz WLAN Ant 3+6 + BT Ant 6	Yes	No	Yes	Yes

General Note:

1. This device WLAN 2.4GHz/5.2GHz/5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
2. For simultaneously transmission SAR analysis, SAR values only considered which we did perform SAR testing on FA073101, and other test results were leverage from the parent model which referred to the test report number FA9D0635A.
3. The Scaled SAR summation is calculated based on the same configuration and test position.
4. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg and 10g Scalar SAR summation < 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 ≤ 1.0,*

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

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

*x% * A + (100-x)% * B + C ≤ 1.0* (1)

x% * A + (100-x)% * B ≤ x% * max(A, B) + (100-x)% * max(A, B) ≤ max(A, B)

*x% * A + (100-x)% * B + C ≤ max(A, B) + C ≤ 1.0* (2)

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

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

Above analysis is also apply to LTE inter band uplink, LTE + LTE + 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.

17.2 Head Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	6	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+2+4 Summed 1g SAR (W/kg)	1+3+4+6 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 4+6	2.4GHz WLAN Ant 4	5GHz WLAN Ant 3+6	Bluetooth Ant 6						
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)						
LTE	LTE Band 2	Right Cheek	0.643	0.070	0.035	0.321	0.001	0.713	0.964	0.679	0.965	1.034	1.000
		Right Tilted	0.676	0.031	0.022	0.399	0.001	0.707	1.075	0.699	1.076	1.106	1.098
		Left Cheek	0.557	0.051	0.030	0.228	0.001	0.608	0.785	0.588	0.786	0.836	0.816
		Left Tilted	0.602	0.035	0.017	0.236	0.001	0.637	0.838	0.620	0.839	0.873	0.856
	LTE Band 5	Right Cheek	0.427	0.070	0.035	0.321	0.001	0.497	0.748	0.463	0.749	0.818	0.784
		Right Tilted	0.352	0.031	0.022	0.399	0.001	0.383	0.751	0.375	0.752	0.782	0.774
		Left Cheek	0.413	0.051	0.030	0.228	0.001	0.464	0.641	0.444	0.642	0.692	0.672
		Left Tilted	0.312	0.035	0.017	0.236	0.001	0.347	0.548	0.330	0.549	0.583	0.566
	LTE Band 13	Right Cheek	0.304	0.070	0.035	0.321	0.001	0.374	0.625	0.340	0.626	0.695	0.661
		Right Tilted	0.259	0.031	0.022	0.399	0.001	0.290	0.658	0.282	0.659	0.689	0.681
		Left Cheek	0.223	0.051	0.030	0.228	0.001	0.274	0.451	0.254	0.452	0.502	0.482
		Left Tilted	0.192	0.035	0.017	0.236	0.001	0.227	0.428	0.210	0.429	0.463	0.446
	LTE Band 66	Right Cheek	0.717	0.070	0.035	0.321	0.001	0.787	1.038	0.753	1.039	1.108	1.074
		Right Tilted	0.730	0.031	0.022	0.399	0.001	0.761	1.129	0.753	1.130	1.160	1.152
		Left Cheek	0.646	0.051	0.030	0.228	0.001	0.697	0.874	0.677	0.875	0.925	0.905
		Left Tilted	0.802	0.035	0.017	0.236	0.001	0.837	1.038	0.820	1.039	1.073	1.056
FR1	FR1 N2_Ant1	Right Cheek	0.070	0.070	0.035	0.321	0.001	0.140	0.391	0.106	0.392	0.461	0.427
		Right Tilted	0.079	0.031	0.022	0.399	0.001	0.110	0.478	0.102	0.479	0.509	0.501
		Left Cheek	0.106	0.051	0.030	0.228	0.001	0.157	0.334	0.137	0.335	0.385	0.365
		Left Tilted	0.061	0.035	0.017	0.236	0.001	0.096	0.297	0.079	0.298	0.332	0.315
	FR1 N5_Ant1	Right Cheek	0.171	0.070	0.035	0.321	0.001	0.241	0.492	0.207	0.493	0.562	0.528
		Right Tilted	0.082	0.031	0.022	0.399	0.001	0.113	0.481	0.105	0.482	0.512	0.504
		Left Cheek	0.111	0.051	0.030	0.228	0.001	0.162	0.339	0.142	0.340	0.390	0.370
		Left Tilted	0.075	0.035	0.017	0.236	0.001	0.110	0.311	0.093	0.312	0.346	0.329
	FR1 N66_Ant1	Right Cheek	0.065	0.070	0.035	0.321	0.001	0.135	0.386	0.101	0.387	0.456	0.422
		Right Tilted	0.055	0.031	0.022	0.399	0.001	0.086	0.454	0.078	0.455	0.485	0.477
		Left Cheek	0.087	0.051	0.030	0.228	0.001	0.138	0.315	0.118	0.316	0.366	0.346
		Left Tilted	0.061	0.035	0.017	0.236	0.001	0.096	0.297	0.079	0.298	0.332	0.315
	FR1 N2_Ant2	Right Cheek	0.796	0.070	0.035	0.321	0.001	0.866	1.117	0.832	1.118	1.187	1.153
		Right Tilted	0.765	0.031	0.022	0.399	0.001	0.796	1.164	0.788	1.165	1.195	1.187
		Left Cheek	0.784	0.051	0.030	0.228	0.001	0.835	1.012	0.815	1.013	1.063	1.043
		Left Tilted	0.762	0.035	0.017	0.236	0.001	0.797	0.998	0.780	0.999	1.033	1.016
	FR1 N5_Ant2	Right Cheek	0.456	0.070	0.035	0.321	0.001	0.526	0.777	0.492	0.778	0.847	0.813
		Right Tilted	0.343	0.031	0.022	0.399	0.001	0.374	0.742	0.366	0.743	0.773	0.765
		Left Cheek	0.445	0.051	0.030	0.228	0.001	0.496	0.673	0.476	0.674	0.724	0.704
		Left Tilted	0.338	0.035	0.017	0.236	0.001	0.373	0.574	0.356	0.575	0.609	0.592
	FR1 N66_Ant2	Right Cheek	0.704	0.070	0.035	0.321	0.001	0.774	1.025	0.740	1.026	1.095	1.061
		Right Tilted	0.808	0.031	0.022	0.399	0.001	0.839	1.207	0.831	1.208	1.238	1.230
		Left Cheek	0.717	0.051	0.030	0.228	0.001	0.768	0.945	0.748	0.946	0.996	0.976
		Left Tilted	0.900	0.035	0.017	0.236	0.001	0.935	1.136	0.918	1.137	1.171	1.154

17.3 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	3 2.4GHz WLAN Ant 4 1g SAR (W/kg)	4 5GHz WLAN Ant 3+6 1g SAR (W/kg)	6 Bluetooth Ant 6 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	SPLSR	Case No	1+2+4 Summed 1g SAR (W/kg)	SPLSR	Case No	1+3+4+6 Summed 1g SAR (W/kg)	SPLSR	Case No
LTE	LTE Band 2	Front	0.137	0.001	0.001	0.019	0.002	0.138	0.156	0.140	0.158			0.157			0.159		
		Back	0.687	0.361	0.063	0.305	0.207	1.048	0.992	0.957	1.199			1.353			1.262		
		Left side	0.079	0.015	0.007	0.033		0.094	0.112	0.086	0.112			0.127			0.119		
		Right side	0.063	0.031	0.001	0.029	0.037	0.094	0.092	0.101	0.129			0.123			0.130		
		Top side	0.711	0.001	0.001	0.079	0.001	0.712	0.790	0.713	0.791			0.791			0.792		
		Bottom side						0.000	0.000	0.000	0.000			0.000			0.000		
	LTE Band 5	Front	0.167	0.001	0.001	0.019	0.002	0.168	0.186	0.170	0.188			0.187			0.189		
		Back	0.315	0.361	0.063	0.305	0.207	0.676	0.620	0.585	0.827			0.981			0.890		
		Left side	0.099	0.015	0.007	0.033		0.114	0.132	0.106	0.132			0.147			0.139		
		Right side	0.248	0.031	0.001	0.029	0.037	0.279	0.277	0.286	0.314			0.308			0.315		
		Top side	0.209	0.001	0.001	0.079	0.001	0.210	0.288	0.211	0.289			0.289			0.290		
		Bottom side						0.000	0.000	0.000	0.000			0.000			0.000		
	LTE Band 13	Front	0.177	0.001	0.001	0.019	0.002	0.178	0.196	0.180	0.198			0.197			0.199		
		Back	0.332	0.361	0.063	0.305	0.207	0.693	0.637	0.602	0.844			0.998			0.907		
		Left side	0.058	0.015	0.007	0.033		0.073	0.091	0.065	0.091			0.106			0.098		
		Right side	0.155	0.031	0.001	0.029	0.037	0.186	0.184	0.193	0.221			0.215			0.222		
		Top side	0.171	0.001	0.001	0.079	0.001	0.172	0.250	0.173	0.251			0.251			0.252		
		Bottom side						0.000	0.000	0.000	0.000			0.000			0.000		
	LTE Band 66	Front	0.194	0.001	0.001	0.019	0.002	0.195	0.213	0.197	0.215			0.214			0.216		
		Back	0.693	0.361	0.063	0.305	0.207	1.054	0.998	0.963	1.205			1.359			1.268		
		Left side	0.055	0.015	0.007	0.033		0.070	0.088	0.062	0.088			0.103			0.095		
		Right side	0.140	0.031	0.001	0.029	0.037	0.171	0.169	0.178	0.206			0.200			0.207		
		Top side	0.803	0.001	0.001	0.079	0.001	0.804	0.882	0.805	0.883			0.883			0.884		
		Bottom side						0.000	0.000	0.000	0.000			0.000			0.000		
FR1	FR1 N2_Ant1	Front	0.792	0.001	0.001	0.019	0.002	0.793	0.811	0.795	0.813			0.812			0.814		
		Back	1.096	0.361	0.063	0.305	0.207	1.457	1.401	1.366	**1.608**	**0.02**	**#01**	**1.762**	**0.03**	**#02**	**1.671**	**0.02**	**#03**
		Left side	0.049	0.015	0.007	0.033		0.064	0.082	0.056	0.082			0.097			0.089		
		Right side	0.051	0.031	0.001	0.029	0.037	0.082	0.080	0.089	0.117			0.111			0.118		
		Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080			0.080			0.081		
		Bottom side	1.213					1.213	1.213	1.213	1.213			1.213			1.213		
	FR1 N5_Ant1	Front	0.568	0.001	0.001	0.019	0.002	0.569	0.587	0.571	0.589			0.588			0.590		
		Back	0.813	0.361	0.063	0.305	0.207	1.174	1.118	1.083	1.325			1.479			1.388		
		Left side	0.166	0.015	0.007	0.033		0.181	0.199	0.173	0.199			0.214			0.206		
		Right side	0.268	0.031	0.001	0.029	0.037	0.299	0.297	0.306	0.334			0.328			0.335		
		Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080			0.080			0.081		
		Bottom side	0.536					0.536	0.536	0.536	0.536			0.536			0.536		
	FR1 N66_Ant1	Front	0.717	0.001	0.001	0.019	0.002	0.718	0.736	0.720	0.738			0.737			0.739		
		Back	0.884	0.361	0.063	0.305	0.207	1.245	1.189	1.154	1.396			1.550			1.459		
		Left side	0.044	0.015	0.007	0.033		0.059	0.077	0.051	0.077			0.92			0.084		
		Right side	0.067	0.031	0.001	0.029	0.037	0.098	0.096	0.105	0.133			0.127			0.134		
		Top side		0.001	0.001	0.079	0.001	0.001	0.079	0.002	0.080			0.080			0.081		
		Bottom side	1.184					1.184	1.184	1.184	1.184			1.184			1.184		
	FR1 N2_Ant2	Front	0.207	0.001	0.001	0.019	0.002	0.208	0.226	0.210	0.228			0.227			0.229		
		Back	0.665	0.361	0.063	0.305	0.207	1.026	0.970	0.935	1.177			1.331			1.240		
		Left side	0.031	0.015	0.007	0.033		0.046	0.064	0.038	0.064			0.079			0.071		
		Right side	0.026	0.031	0.001	0.029	0.037	0.057	0.055	0.064	0.092			0.086			0.093		
		Top side	0.918	0.001	0.001	0.079	0.001	0.919	0.997	0.920	0.998			0.998			0.999		
		Bottom side						0.000	0.000	0.000	0.000			0.000			0.000		

	FR1 N5_Ant2	Front	0.171	0.001	0.001	0.019	0.002	0.172	0.190	0.174	0.192			0.191			0.193		
		Back	0.231	0.361	0.063	0.305	0.207	0.592	0.536	0.501	0.743			0.897			0.806		
		Left side	0.079	0.015	0.007	0.033		0.094	0.112	0.086	0.112			0.127			0.119		
		Right side	0.201	0.031	0.001	0.029	0.037	0.232	0.230	0.239	0.267			0.261			0.268		
		Top side	0.192	0.001	0.001	0.079	0.001	0.193	0.271	0.194	0.272			0.272			0.273		
		Bottom side						0.000	0.000	0.000	0.000			0.000			0.000		
	FR1 N66_Ant2	Front	0.234	0.001	0.001	0.019	0.002	0.235	0.253	0.237	0.255			0.254			0.256		
		Back	0.648	0.361	0.063	0.305	0.207	1.009	0.953	0.918	1.160			1.314			1.223		
		Left side	0.019	0.015	0.007	0.033		0.034	0.052	0.026	0.052			0.067			0.059		
		Right side	0.037	0.031	0.001	0.029	0.037	0.068	0.066	0.075	0.103			0.097			0.104		
		Top side	0.919	0.001	0.001	0.079	0.001	0.920	0.998	0.921	0.999			0.999			1.000		
		Bottom side						0.000	0.000	0.000	0.000			0.000			0.000		

17.4 Body-Worn Accessory Exposure Conditions

<Sensor on>

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	3 2.4GHz WLAN Ant 4 1g SAR (W/kg)	4 5GHz WLAN Ant 3+6 1g SAR (W/kg)	6 Bluetooth Ant 6 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	SPLSR	Case No	1+2+4 Summed 1g SAR (W/kg)	SPLSR	Case No	1+3+4+6 Summed 1g SAR (W/kg)	SPLSR	Case No
LTE	LTE Band 2	Front at 5mm	0.137	0.001	0.001	0.018	0.002	0.138	0.155	0.140	0.157			0.156			0.158		
		Back at 5mm	0.687	0.361	0.063	0.321	0.207	1.048	1.008	0.957	1.215			1.369			1.278		
	LTE Band 5	Front at 5mm	0.167	0.001	0.001	0.018	0.002	0.168	0.185	0.170	0.187			0.186			0.188		
		Back at 5mm	0.315	0.361	0.063	0.321	0.207	0.676	0.636	0.585	0.843			0.997			0.906		
	LTE Band 13	Front at 5mm	0.177	0.001	0.001	0.018	0.002	0.178	0.195	0.180	0.197			0.196			0.198		
		Back at 5mm	0.332	0.361	0.063	0.321	0.207	0.693	0.653	0.602	0.860			1.014			0.923		
	LTE Band 66	Front at 5mm	0.194	0.001	0.001	0.018	0.002	0.195	0.212	0.197	0.214			0.213			0.215		
		Back at 5mm	0.693	0.361	0.063	0.321	0.207	1.054	1.014	0.963	1.221			1.375			1.284		
FR1	FR1 N2_Ant1	Front at 5mm	0.792	0.001	0.001	0.018	0.002	0.793	0.810	0.795	0.812			0.811			0.813		
		Back at 5mm	1.096	0.361	0.063	0.321	0.207	1.457	1.417	1.366	**1.624**	**0.02**	**#04**	**1.778**	**0.04**	**#05**	**1.687**	**0.02**	**#06**
	FR1 N5_Ant1	Front at 5mm	0.568	0.001	0.001	0.018	0.002	0.569	0.586	0.571	0.588			0.587			0.589		
		Back at 5mm	0.813	0.361	0.063	0.321	0.207	1.174	1.134	1.083	1.341			1.495			1.404		
	FR1 N66_Ant1	Front at 5mm	0.717	0.001	0.001	0.018	0.002	0.718	0.735	0.720	0.737			0.736			0.738		
		Back at 5mm	0.901	0.361	0.063	0.321	0.207	1.262	1.222	1.171	1.429			**1.583**			**1.492**		
	FR1 N2_Ant2	Front at 5mm	0.207	0.001	0.001	0.018	0.002	0.208	0.225	0.210	0.227			0.226			0.228		
		Back at 5mm	0.665	0.361	0.063	0.321	0.207	1.026	0.986	0.935	1.193			1.347			1.256		
	FR1 N5_Ant2	Front at 5mm	0.171	0.001	0.001	0.018	0.002	0.172	0.189	0.174	0.191			0.190			0.192		
		Back at 5mm	0.231	0.361	0.063	0.321	0.207	0.592	0.552	0.501	0.759			0.913			0.822		
	FR1 N66_Ant2	Front at 5mm	0.234	0.001	0.001	0.018	0.002	0.235	0.252	0.237	0.254			0.253			0.255		
		Back at 5mm	0.648	0.361	0.063	0.321	0.207	1.009	0.969	0.918	1.176			1.330			1.239		

<Sensor off>

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 4+6 1g SAR (W/kg)	3 2.4GHz WLAN Ant 4 1g SAR (W/kg)	4 5GHz WLAN Ant 3+6 1g SAR (W/kg)	6 Bluetooth Ant 6 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	1+3+6 Summed 1g SAR (W/kg)	1+4+6 Summed 1g SAR (W/kg)	1+2+4 Summed 1g SAR (W/kg)	1+3+4+6 Summed 1g SAR (W/kg)
LTE	LTE Band 2	Front at 18mm	0.111	0.019	0.003	0.095	0.001	0.130	0.206	0.115	0.207	0.225	0.210
		Back at 19mm	0.245	0.244	0.033	0.263	0.041	0.489	0.508	0.319	0.549	0.752	0.582
	LTE Band 66	Front at 18mm	0.109	0.019	0.003	0.095	0.001	0.128	0.204	0.113	0.205	0.223	0.208
		Back at 19mm	0.196	0.244	0.033	0.263	0.041	0.440	0.459	0.270	0.500	0.703	0.533
FR1	FR1 N2_Ant1	Front at 18mm	0.448	0.019	0.003	0.095	0.001	0.467	0.543	0.452	0.544	0.562	0.547
		Back at 19mm	0.620	0.244	0.033	0.263	0.041	0.864	0.883	0.694	0.924	1.127	0.957
	FR1 N66_Ant1	Front at 18mm	0.404	0.019	0.003	0.095	0.001	0.423	0.499	0.408	0.500	0.518	0.503
		Back at 19mm	0.525	0.244	0.033	0.263	0.041	0.769	0.788	0.599	0.829	1.032	0.862
	FR1 N2_Ant2	Front at 18mm	0.100	0.019	0.003	0.095	0.001	0.119	0.195	0.104	0.196	0.214	0.199
		Back at 19mm	0.325	0.244	0.033	0.263	0.041	0.569	0.588	0.399	0.629	0.832	0.662
	FR1 N66_Ant2	Front at 18mm	0.306	0.019	0.003	0.095	0.001	0.325	0.401	0.310	0.402	0.420	0.405
		Back at 19mm	0.235	0.244	0.033	0.263	0.041	0.479	0.498	0.309	0.539	0.742	0.572

17.5 Product Specific Exposure Conditions

<Sensor on>

WWAN Band		Exposure Position	1	2	3	4	6	1+2 Summed 10g SAR (W/kg)	1+4 Summed 10g SAR (W/kg)	1+3+6 Summed 10g SAR (W/kg)	1+4+6 Summed 10g SAR (W/kg)	1+2+4 Summed 10g SAR (W/kg)	1+3+4+6 Summed 10g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 4+6	2.4GHz WLAN Ant 4	5GHz WLAN Ant 3+6	Bluetooth Ant 6						
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	Estimated 10g SAR (W/kg)						
LTE	LTE Band 2	Front				0.092		0.000	0.092	0.000	0.092	0.092	0.092
		Back	1.669			0.431		1.669	2.100	1.669	2.100	2.100	2.100
		Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
		Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
		Top side	0.722			0.176		0.722	0.898	0.722	0.898	0.898	0.898
		Bottom side						0.000	0.000	0.000	0.000	0.000	0.000
	LTE Band 66	Front				0.092		0.000	0.092	0.000	0.092	0.092	0.092
		Back	1.628			0.431		1.628	2.059	1.628	2.059	2.059	2.059
		Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
		Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
		Top side	0.829			0.176		0.829	1.005	0.829	1.005	1.005	1.005
		Bottom side						0.000	0.000	0.000	0.000	0.000	0.000
FR1	FR1 N2_Ant1	Front	2.751			0.092		2.751	2.843	2.751	2.843	2.843	2.843
		Back	3.198			0.431		3.198	3.629	3.198	3.629	3.629	3.629
		Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
		Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
		Top side				0.176		0.000	0.176	0.000	0.176	0.176	0.176
		Bottom side	2.019					2.019	2.019	2.019	2.019	2.019	2.019
	FR1 N66_Ant1	Front	1.965			0.092		1.965	2.057	1.965	2.057	2.057	2.057
		Back	3.192			0.431		3.192	3.623	3.192	3.623	3.623	3.623
		Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
		Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
		Top side				0.176		0.000	0.176	0.000	0.176	0.176	0.176
		Bottom side	2.981					2.981	2.981	2.981	2.981	2.981	2.981
	FR1 N2_Ant2	Front				0.092		0.000	0.092	0.000	0.092	0.092	0.092
		Back	1.902			0.431		1.902	2.333	1.902	2.333	2.333	2.333
		Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
		Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
		Top side	0.806			0.176		0.806	0.982	0.806	0.982	0.982	0.982
		Bottom side						0.000	0.000	0.000	0.000	0.000	0.000
	FR1 N66_Ant2	Front				0.092		0.000	0.092	0.000	0.092	0.092	0.092
		Back	2.468			0.431		2.468	2.899	2.468	2.899	2.899	2.899
		Left side				0.110		0.000	0.110	0.000	0.110	0.110	0.110
		Right side				0.128		0.000	0.128	0.000	0.128	0.128	0.128
		Top side	0.701			0.176		0.701	0.877	0.701	0.877	0.877	0.877
		Bottom side						0.000	0.000	0.000	0.000	0.000	0.000

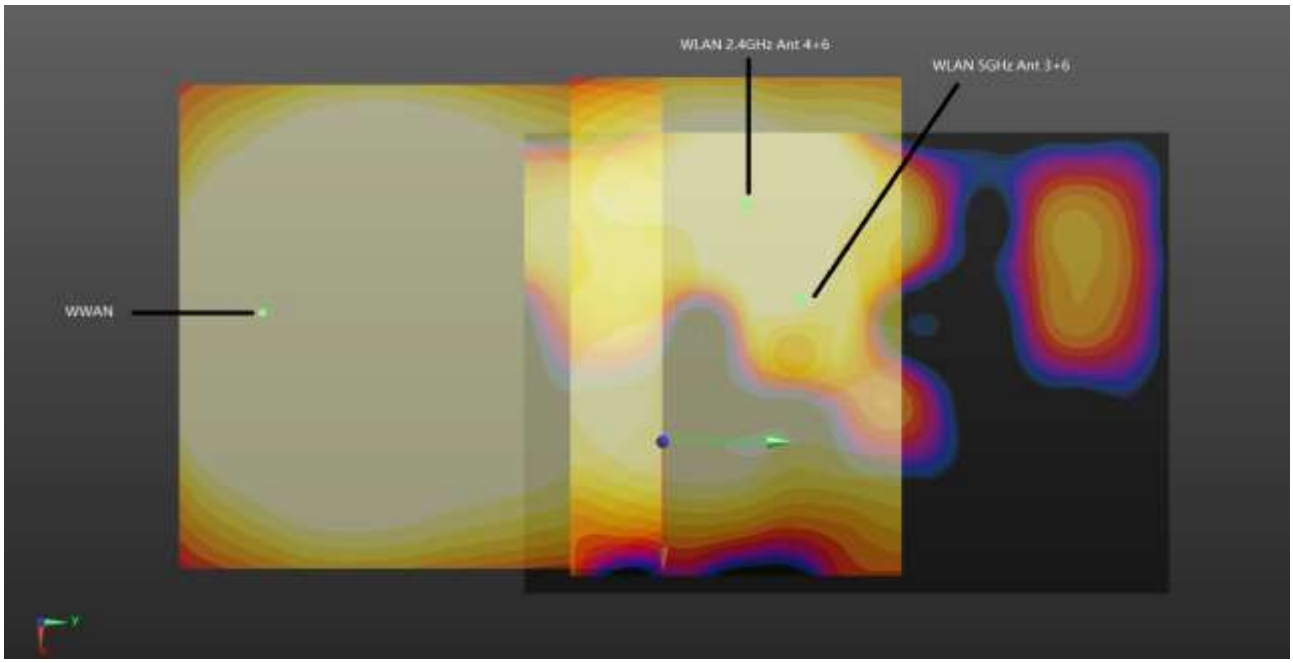
<Sensor off>

WWAN Band		Exposure Position	1	2	3	4	6	1+2 Summed 10g SAR (W/kg)	1+4 Summed 10g SAR (W/kg)	1+3+6 Summed 10g SAR (W/kg)	1+4+6 Summed 10g SAR (W/kg)	1+2+4 Summed 10g SAR (W/kg)	1+3+4+6 Summed 10g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 4+6	2.4GHz WLAN Ant 4	5GHz WLAN Ant 3+6	Bluetooth Ant 6						
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	Estimated 10g SAR (W/kg)						
FR1	FR1 N2_Ant1	Front at 5mm	1.154			0.092		1.154	1.246	1.154	1.246	1.246	1.246
		Back at 8mm	1.092			0.431		1.092	1.523	1.092	1.523	1.523	1.523
		Bottom side at 7mm	1.764					1.764	1.764	1.764	1.764	1.764	1.764
	FR1 N66_Ant1	Front at 5mm	1.261			0.092		1.261	1.353	1.261	1.353	1.353	1.353
		Back at 8mm	0.784			0.431		0.784	1.215	0.784	1.215	1.215	1.215
		Bottom side at 7mm	1.306					1.306	1.306	1.306	1.306	1.306	1.306

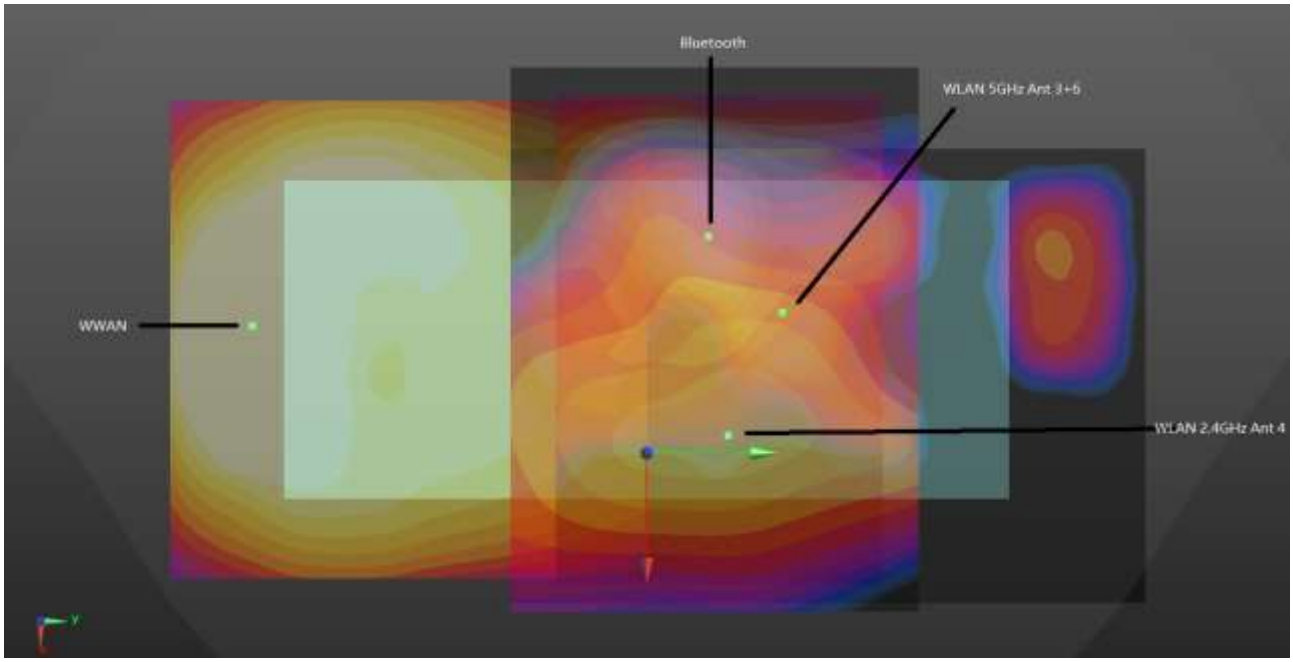
17.6 SPLSR Evaluation and Analysis

General Note:

1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of [(x1−x2)2 + (y1−y2)2 + (z1−z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. SPLSR = (SAR1 + SAR2)1.5 / (min. separation distance, mm). If SPLSR ≤ 0.04 for 1g SAR, simultaneously transmission SAR measurement is not necessary.



WWAN(5mm)+2.4GHz(5mm)+ 5GHz(5mm)



WWAN(5mm)+ 2.4G(5mm)+5GHz(5mm)+BT(5mm)

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 01	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	109.4	1.40	0.02	Not required
	WLAN5GHz		0.305	5mm	-10	25.6	-1.18				
	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	98.2	1.30	0.02	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				
	WLAN5GHz	Back	0.305	5mm	-10	25.6	-1.18	20.4	0.51	0.02	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 02	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	107.8	1.46	0.02	Not required
	WLAN2.4GHz		0.361	5mm	-25.4	21.4	-1.3				
	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	109.4	1.40	0.02	Not required
	WLAN5GHz		0.305	5mm	-10	25.6	-1.18				
	WLAN2.4GHz	Back	0.361	5mm	-25.4	21.4	-1.3	16.0	0.67	0.03	Not required
	WLAN5GHz		0.305	5mm	-10	25.6	-1.18				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 03	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	108.4	1.16	0.01	Not required
	WLAN2.4GHz		0.063	5mm	23	22.6	-0.95				
	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	109.4	1.40	0.02	Not required
	WLAN5GHz		0.305	5mm	-10	25.6	-1.18				
	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	98.2	1.30	0.02	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				
	WLAN2.4GHz	Back	0.063	5mm	23	22.6	-0.95	33.1	0.37	0.01	Not required
	WLAN5GHz		0.305	5mm	-10	25.6	-1.18				
	WLAN2.4GHz	Back	0.063	5mm	23	22.6	-0.95	49.1	0.27	0.00	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				
	WLAN5GHz	Back	0.305	5mm	-10	25.6	-1.18	20.4	0.51	0.02	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 04	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	111.7	1.42	0.02	Not required
	WLAN5GHz		0.321	5mm	-12.4	27.6	-1.13				
	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	98.2	1.30	0.02	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				
	WLAN5GHz	Back	0.321	5mm	-12.4	27.6	-1.13	20.2	0.53	0.02	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 05	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	107.8	1.46	0.02	Not required
	WLAN2.4GHz		0.361	5mm	-25.4	21.4	-1.3				
	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	111.7	1.42	0.02	Not required
	WLAN5GHz		0.321	5mm	-12.4	27.6	-1.13				
	WLAN2.4GHz	Back	0.361	5mm	-25.4	21.4	-1.3	14.4	0.68	0.04	Not required
	WLAN5GHz		0.321	5mm	-12.4	27.6	-1.13				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 06	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	108.4	1.16	0.01	Not required
	WLAN2.4GHz		0.063	5mm	23	22.6	-0.95				
	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	111.7	1.42	0.02	Not required
	WLAN5GHz		0.321	5mm	-12.4	27.6	-1.13				
	FR1 N2	Back	1.096	5mm	0.2	-83.3	2.28	98.2	1.30	0.02	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				
	WLAN2.4GHz	Back	0.063	5mm	23	22.6	-0.95	35.8	0.38	0.01	Not required
	WLAN5GHz		0.321	5mm	-12.4	27.6	-1.13				
	WLAN2.4GHz	Back	0.063	5mm	23	22.6	-0.95	49.1	0.27	0.00	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				
	WLAN5GHz	Back	0.321	5mm	-12.4	27.6	-1.13	20.2	0.53	0.02	Not required
	Bluetooth		0.207	5mm	-24.8	11.6	-1.2				

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18. Uncertainty Assessment

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

19. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

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

[7] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.

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

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

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

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

[12] FCC KDB 941225 D07 v01r02, " SAR Evaluation Procedures for UMPC Mini-Tablet Devices", Oct 2015.

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

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

------THE END------