



## SAR EVALUATION REPORT

**Applicant Name:**  
 Samsung Electronics Co., Ltd.  
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 Gyeonggi-do, 16677, Korea

**Date of Testing:**  
 06/10/2024 - 07/22/2024  
**Test Site/Location:**  
 Element, Columbia, MD, USA  
**Document Serial No.:**  
 1M2405140039-20.A3L

**FCC ID:** **A3LSMX828U**

**APPLICANT:** **SAMSUNG ELECTRONICS CO., LTD.**

**DUT Type:** Portable Computing Device  
**Application Type:** Certification  
**FCC Rule Part(s):** CFR §2.1093  
**Model(s):** SM-X828U

Equipment Class	Band & Mode	Tx Frequency	SAR		
			1g Laptop SAR (W/kg)	1g Tablet SAR (W/kg)	
PCB	UMTS 850	826.40 - 846.60 MHz	<0.1	0.80	
PCB	UMTS 1700	1712.4 - 1728.4 MHz	<0.1	0.82	
PCB	UMTS 1900	1852.4 - 1907.6 MHz	0.17	0.48	
PCB	LTE Band 71	665.5 - 695.5 MHz	<0.1	0.58	
PCB	LTE Band 12	692.7 - 715.3 MHz	0.11	0.54	
PCB	LTE Band 13	779.5 - 784.5 MHz	<0.1	0.83	
PCB	LTE Band 14	753 - 766 MHz	<0.1	0.77	
PCB	LTE Band 26	814.7 - 848.3 MHz	0.10	0.78	
PCB	LTE Band 6	824.7 - 848.3 MHz	N/A	N/A	
PCB	LTE Band 66	1710.7 - 1779.3 MHz	0.17	0.76	
PCB	LTE Band 4	1710.7 - 1754.3 MHz	N/A	N/A	
PCB	LTE Band 25	1850.7 - 1914.3 MHz	0.21	0.77	
PCB	LTE Band 2	1850.7 - 1909.3 MHz	N/A	N/A	
PCB	LTE Band 30	2307.5 - 2319.5 MHz	0.21	0.80	
PCB	LTE Band 7	2502.5 - 2557.5 MHz	0.28	0.82	
PCB	LTE Band 41	2486.5 - 2687.5 MHz	0.18	0.54	
PCB	LTE Band 38	2522.5 - 2617.5 MHz	N/A	N/A	
CBE	LTE Band 48	3552.5 - 3697.5 MHz	0.40	0.81	
PCB	NR Band n71	665.5 - 695.5 MHz	<0.1	0.51	
PCB	NR Band n12	701.5 - 713.5 MHz	<0.1	0.48	
PCB	NR Band n26	816.5 - 846.5 MHz	0.13	0.87	
PCB	NR Band n6	825.5 - 846.5 MHz	N/A	N/A	
PCB	NR Band n70	1697.5 - 1707.5 MHz	0.14	0.63	
PCB	NR Band n66	1712.5 - 1777.5 MHz	0.17	0.71	
PCB	NR Band n25	1852.5 - 1917.5 MHz	0.26	0.50	
PCB	NR Band n2	1852.5 - 1907.5 MHz	N/A	N/A	
PCB	NR Band n30	2307.5 - 2317.5 MHz	0.16	0.66	
PCB	NR Band n7	2502.5 - 2557.5 MHz	0.18	0.67	
PCB	NR Band n41	2501.01 - 2685 MHz	<0.1	0.73	
PCB	NR Band n38	2575 - 2615 MHz	N/A	N/A	
CBE	NR Band n48	3555 - 3694.98 MHz	0.26	0.89	
PCB	NR Band n77	3455.01 - 3544.98 MHz	0.24	0.54	
DTS	2.4 GHz WiFi	2412 - 2472 MHz	0.16	0.47	
NI	5 GHz WiFi	U-NB-1: 5180 - 5240 MHz U-NB-2A: 5260 - 5300 MHz U-NB-2C: 5500 - 5720 MHz U-NB-3: 5745 - 5825 MHz U-NB-4: 5845 - 5885 MHz	0.37	0.65	
ICD	6 GHz WiFi	U-NB-5: 6045 - 6415 MHz U-NB-6: 6435 - 6515 MHz U-NB-7: 6535 - 6875 MHz U-NB-8: 6905 - 7115 MHz	0.16	0.71	
DSS	2.4 GHz Bluetooth	2402 - 2480 MHz	<0.1	0.15	
Simultaneous SAR per KDB 690782 DO-16103:					
Equipment Class	Band & Mode	Tx Frequency	APD (W/kg)		Reference PO (W/m²)
			Laptop	Tablet	
ICD	6 GHz WiFi	U-NB-5: 6045 - 6415 MHz U-NB-6: 6435 - 6515 MHz U-NB-7: 6535 - 6875 MHz U-NB-8: 6905 - 7115 MHz	0.85	3.33	2.24

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.9 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.

RJ Ortanez  
 Executive Vice President



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# 1 DEVICE UNDER TEST

## 1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
UMTS 850	Data	826.40 - 846.60 MHz
UMTS 1750	Data	1712.4 - 1752.6 MHz
UMTS 1900	Data	1852.4 - 1907.6 MHz
LTE Band 71	Data	665.5 - 695.5 MHz
LTE Band 12	Data	699.7 - 715.3 MHz
LTE Band 13	Data	779.5 - 784.5 MHz
LTE Band 14	Data	790.5 - 795.5 MHz
LTE Band 26	Data	814.7 - 848.3 MHz
LTE Band 5	Data	824.7 - 848.3 MHz
LTE Band 66	Data	1710.7 - 1779.3 MHz
LTE Band 4	Data	1710.7 - 1754.3 MHz
LTE Band 25	Data	1850.7 - 1914.3 MHz
LTE Band 2	Data	1850.7 - 1909.3 MHz
LTE Band 30	Data	2307.5 - 2312.5 MHz
LTE Band 7	Data	2502.5 - 2567.5 MHz
LTE Band 41	Data	2498.5 - 2687.5 MHz
LTE Band 38	Data	2572.5 - 2617.5 MHz
LTE Band 48	Data	3552.5 - 3697.5 MHz
NR Band n71	Data	665.5 - 695.5 MHz
NR Band n12	Data	701.5 - 713.5 MHz
NR Band n26	Data	816.5 - 846.5 MHz
NR Band n5	Data	826.5 - 846.5 MHz
NR Band n70	Data	1697.5 - 1707.5 MHz
NR Band n66	Data	1712.5 - 1777.5 MHz
NR Band n25	Data	1852.5 - 1912.5 MHz
NR Band n2	Data	1852.5 - 1907.5 MHz
NR Band n30	Data	2307.5 - 2312.5 MHz
NR Band n7	Data	2502.5 - 2567.5 MHz
NR Band n41	Data	2501.01 - 2685 MHz
NR Band n38	Data	2575 - 2615 MHz
NR Band n48	Data	3555 - 3694.98 MHz
NR Band n77	Data	3455.01 - 3544.98 MHz; 3705 - 3975 MHz
NR Band n258	Data	24250 - 24450 MHz; 24750 - 25250 MHz
NR Band n260	Data	37000 - 40000 MHz
NR Band n261	Data	27500 - 28350 MHz
2.4 GHz WIFI	Data	2412 - 2472 MHz
5 GHz WIFI	Data	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz U-NII-4: 5845 - 5885 MHz
6 GHz WIFI	Data	U-NII-5: 5945 - 6415 MHz U-NII-6: 6435 - 6515 MHz U-NII-7: 6535 - 6875 MHz U-NII-8: 6895 - 7115 MHz
2.4 GHz Bluetooth	Data	2402 - 2480 MHz

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## 1.2 Time-Averaging Algorithm for RF Exposure Compliance

This Device is enabled with MediaTek TAS feature for WWAN modes technologies. These features perform time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. Refer to Compliance Summary document for detailed description of MediaTek TAS feature (report SN could be found in Section 1.11 – Bibliography).

Note that WLAN, and Bluetooth operations are not enabled with TAS.

The TAS algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR\_design\_target, below the predefined time-averaged power limit (i.e., Plimit for WWAN sub-6), for each characterized technology and band. Characterization is achieved by determining Plimit for WWAN sub-6 that corresponds to the exposure design targets after accounting for all device design related uncertainties, i.e., SAR\_design\_target (<FCC SAR Limit) for sub-6 radio. The SAR characterization is denoted as SAR char in this report (see RF Exposure Part 0 Test Report, report SN could be found in Section 1.10 - Bibliography).

TAS 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 Final Plimit settings and maximum tune up output power Pmax configured for this EUT for various transmit conditions (Exposure Condition Index ECI for MediaTek). Note that the device uncertainty for sub-6GHz WWAN is 1.0dB for this EUT.

Exposure Scenario		Maximum Tune-Up Output Power*	Free	Grip Sensor	Grip Sensor #3
Averaging Volume			1g	1g	1g
Spacing			0, 15, 19 mm	0 mm	0 mm
ECI			0	1	2
Technology/Band	Antenna	Pmax			
UMTS 850	M1	24.0	23.0	15.0	23.0
UMTS 1750	M1	24.0	29.4	13.5	22.5
UMTS 1900	M1	24.0	28.4	11.5	17.5
LTE Band 71	M1	24.0	23.5	15.5	23.5
LTE Band 12	M1	24.0	28.1	15.5	28.1
LTE Band 13	M1	24.0	25.4	14.0	25.4
LTE Band 14	M1	24.0	23.5	14.0	23.5
LTE Band 26/5	M1	24.0	25.5	14.0	25.5
LTE Band 66/4	M1	24.0	29.4	14.5	22.5
LTE Band 66	S2	24.0	28.1	12.5	N/A
LTE Band 4	S2	23.0	28.1	12.5	N/A
LTE Band 25/2	M1	24.0	27.8	12.0	17.5
LTE Band 25/2	S2	23.0	29.5	12.5	N/A
LTE Band 30	M1	23.0	27.8	12.0	20.0
LTE Band 30	S2	23.0	29.2	12.0	N/A
LTE Band 7	M1	24.0	25.4	11.0	20.0
LTE Band 7	S2	23.0	27.2	10.5	N/A
LTE Band 41/38 PC3	M1	22.0	26.4	10.0	19.4
LTE Band 41 PC2	M1	22.4	26.4	10.0	19.4
LTE Band 48	S4	21.0	23.2	10.5	N/A
NR Band n71	M1	24.0	27.9	16.0	27.9
NR Band n12	M1	24.0	28.5	16.0	28.5
NR Band n26/n5	M1	24.0	25.6	13.5	25.6
NR Band n70	M1	24.0	22.5	12.5	21.5
NR Band n66	M1	24.0	23.5	13.5	22.5
NR Band n25/n2	M1	24.0	23.0	11.0	17.5
NR Band n30	M1	23.0	28.1	10.5	20.0
NR Band n7	M1	24.0	23.0	9.5	19.0
NR Band n41/38 PC3	M1	24.0	18.0	11.0	18.0
NR Band n41 PC3	S2	21.5	16.0	11.0	N/A
NR Band n41 PC3	S4	23.5	17.5	11.0	N/A
NR Band n41 PC3	S1	20.0	14.0	11.5	N/A
NR Band n41 PC2	M1	27.0	18.0	11.0	18.0
NR Band n41 PC2	S2	21.5	16.0	11.0	N/A
NR Band n41 PC2	S4	23.5	17.5	11.0	N/A
NR Band n41 PC2	S1	20.0	14.0	11.5	N/A
NR Band n48	S4	23.0	17.0	10.0	N/A
NR Band n48	S2	19.0	13.0	9.5	N/A
NR Band n48	M2	20.0	14.0	7.0	N/A
NR Band n48	S3	22.5	16.5	9.5	N/A
NR Band n77 PC3	M2	24.0	18.0	9.0	N/A
NR Band n77 PC3	S2	21.5	15.5	8.0	N/A
NR Band n77 PC3	S4	21.5	15.5	6.5	N/A
NR Band n77 PC3	S3	21.5	15.5	6.5	N/A
NR Band n77 PC2	M2	27.0	18.0	9.0	N/A
NR Band n77 PC2	S2	21.5	15.5	8.0	N/A
NR Band n77 PC2	S4	21.5	15.5	6.5	N/A
NR Band n77 PC2	S3	21.5	15.5	6.5	N/A

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\*Maximum tune up output power  $P_{max}$  is used to configure EUT during RF tune up procedure. The maximum allowed output power is equal to maximum Tune up output power + 1dB device design uncertainty.

The maximum time-averaged output power (dBm) for any WWAN sub-6 technology, band, and ECI is the minimum of ("Plimit " and "Maximum tune up output power Pmax") + 1dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D01v06.

### 1.3 Power Reduction for SAR

This device uses a power reduction mechanism for SAR compliance. The power reduction mechanism is activated when the device is used in close proximity to the user's body. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device. Detailed descriptions of the power reduction mechanism are included in the operational description.

This device uses an independent fixed level power reduction mechanism for WLAN/BT operations when 5G NR is active. Detailed descriptions of the power reduction mechanism are included in the operational description.

### 1.4 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D04v01.

Note: Targets for 802.11ax RU operations can be found in 802.11ax RU SAR Exclusion Appendix.

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### 1.4.1 Licensed Output Power

UMTS Band 5 (850 MHz)					
Antenna M1					
Power Level		Modulated Average Output Power			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Pmax	Max Allowed Power	25.0	24.0	23.0	24.0
	Nominal	24.0	23.0	22.0	23.0
ECI = 0 (Free)	Max Allowed Power	24.0	23.0	22.0	23.0
	Nominal	23.0	22.0	21.0	22.0
ECI = 1 (Grip Sensor)	Max Allowed Power	16.0	16.0	16.0	16.0
	Nominal	15.0	15.0	15.0	15.0
ECI = 2 (Grip Sensor #3)	Max Allowed Power	24.0	23.0	22.0	23.0
	Nominal	23.0	22.0	21.0	22.0
UMTS Band 4 (1750 MHz)					
Antenna M1					
Power Level		Modulated Average Output Power			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Pmax	Max Allowed Power	25.0	24.0	23.0	24.0
	Nominal	24.0	23.0	22.0	23.0
ECI = 0 (Free)	Max Allowed Power	25.0	24.0	23.0	24.0
	Nominal	24.0	23.0	22.0	23.0
ECI = 1 (Grip Sensor)	Max Allowed Power	14.5	14.5	14.5	14.5
	Nominal	13.5	13.5	13.5	13.5
ECI = 2 (Grip Sensor #3)	Max Allowed Power	23.5	23.5	23.0	23.5
	Nominal	22.5	22.5	22.0	22.5
UMTS Band 2 (1900 MHz)					
Antenna M1					
Power Level		Modulated Average Output Power			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Pmax	Max Allowed Power	25.0	24.0	23.0	24.0
	Nominal	24.0	23.0	22.0	23.0
ECI = 0 (Free)	Max Allowed Power	25.0	24.0	23.0	24.0
	Nominal	24.0	23.0	22.0	23.0
ECI = 1 (Grip Sensor)	Max Allowed Power	12.5	12.5	12.5	12.5
	Nominal	11.5	11.5	11.5	11.5
ECI = 2 (Grip Sensor #3)	Max Allowed Power	18.5	18.5	18.5	18.5
	Nominal	17.5	17.5	17.5	17.5

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Mode / Band	Antenna		Modulated Average Output Power (in dBm)			
			Pmax	EI = 0 (Free)	EI = 1 (Grip Sensor)	EI = 2 (Grip Sensor #3)
LTE Band 71	M1	Max Allowed Power	25.0	24.5	16.5	24.5
		Nominal	24.0	23.5	15.5	23.5
LTE Band 12	M1	Max Allowed Power	25.0	25.0	16.5	25.0
		Nominal	24.0	24.0	15.5	24.0
LTE Band 13	M1	Max Allowed Power	25.0	25.0	15.0	25.0
		Nominal	24.0	24.0	14.0	24.0
LTE Band 14	M1	Max Allowed Power	25.0	24.5	15.0	24.5
		Nominal	24.0	23.5	14.0	23.5
LTE Band 26/5	M1	Max Allowed Power	25.0	25.0	15.0	25.0
		Nominal	24.0	24.0	14.0	24.0
LTE Band 66/4	M1	Max Allowed Power	25.0	25.0	15.5	23.5
		Nominal	24.0	24.0	14.5	22.5
LTE Band 66	S2	Max Allowed Power	25.0	25.0	13.5	N/A
		Nominal	24.0	24.0	12.5	N/A
LTE Band 4	S2	Max Allowed Power	24.0	24.0	13.5	N/A
		Nominal	23.0	23.0	12.5	N/A
LTE Band 25/2	M1	Max Allowed Power	25.0	25.0	13.0	18.5
		Nominal	24.0	24.0	12.0	17.5
LTE Band 25/2	S2	Max Allowed Power	24.0	24.0	13.5	N/A
		Nominal	23.0	23.0	12.5	N/A
LTE Band 30	M1	Max Allowed Power	24.0	24.0	13.0	21.0
		Nominal	23.0	23.0	12.0	20.0
LTE Band 30	S2	Max Allowed Power	24.0	24.0	13.0	N/A
		Nominal	23.0	23.0	12.0	N/A
LTE Band 7	M1	Max Allowed Power	25.0	25.0	12.0	21.0
		Nominal	24.0	24.0	11.0	20.0
LTE Band 7	S2	Max Allowed Power	24.0	24.0	11.5	N/A
		Nominal	23.0	23.0	10.5	N/A
LTE Band 41/38 PC3	M1	Max Allowed Power	25.0	25.0	13.0	22.4
		Nominal	24.0	24.0	12.0	21.4
LTE Band 41 PC2	M1	Max Allowed Power	27.0	27.0	14.6	24.0
		Nominal	26.0	26.0	13.6	23.0
LTE Band 48	S4	Max Allowed Power	24.0	24.0	13.5	N/A
		Nominal	23.0	23.0	12.5	N/A

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Mode / Band	Antenna		Modulated Average Output Power (in dBm)			
			Pmax	EI = 0 (Free)	EI = 1 (Grip Sensor)	EI = 2 (Grip Sensor #3)
NR Band n71	M1	Max Allowed Power	25.0	25.0	17.0	25.0
		Nominal	24.0	24.0	16.0	24.0
NR Band n12	M1	Max Allowed Power	25.0	25.0	17.0	25.0
		Nominal	24.0	24.0	16.0	24.0
NR Band n26/n5	M1	Max Allowed Power	25.0	25.0	14.5	25.0
		Nominal	24.0	24.0	13.5	24.0
NR Band n70	M1	Max Allowed Power	25.0	23.5	13.5	22.5
		Nominal	24.0	22.5	12.5	21.5
NR Band n66	M1	Max Allowed Power	25.0	24.5	14.5	23.5
		Nominal	24.0	23.5	13.5	22.5
NR Band n25/n2	M1	Max Allowed Power	25.0	24.0	12.0	18.5
		Nominal	24.0	23.0	11.0	17.5
NR Band n30	M1	Max Allowed Power	24.0	24.0	11.5	21.0
		Nominal	23.0	23.0	10.5	20.0
NR Band n7	M1	Max Allowed Power	25.0	24.0	10.5	20.0
		Nominal	24.0	23.0	9.5	19.0
NR Band n41/38 PC3	M1	Max Allowed Power	25.0	19.0	12.0	19.0
		Nominal	24.0	18.0	11.0	18.0
NR Band n41 PC3	S2	Max Allowed Power	22.5	17.0	12.0	N/A
		Nominal	21.5	16.0	11.0	N/A
NR Band n41 PC3	S4	Max Allowed Power	24.5	18.5	12.0	N/A
		Nominal	23.5	17.5	11.0	N/A
NR Band n41 PC3	S1	Max Allowed Power	21.0	15.0	12.5	N/A
		Nominal	20.0	14.0	11.5	N/A
NR Band n41 PC2	M1	Max Allowed Power	28.0	19.0	12.0	19.0
		Nominal	27.0	18.0	11.0	18.0
NR Band n41 PC2	S2	Max Allowed Power	22.5	17.0	12.0	N/A
		Nominal	21.5	16.0	11.0	N/A
NR Band n41 PC2	S4	Max Allowed Power	24.5	18.5	12.0	N/A
		Nominal	23.5	17.5	11.0	N/A
NR Band n41 PC2	S1	Max Allowed Power	21.0	15.0	12.5	N/A
		Nominal	20.0	14.0	11.5	N/A
NR Band n48	S4	Max Allowed Power	24.0	18.0	11.0	N/A
		Nominal	23.0	17.0	10.0	N/A
NR Band n48	S2	Max Allowed Power	20.0	14.0	10.5	N/A
		Nominal	19.0	13.0	9.5	N/A
NR Band n48	M2	Max Allowed Power	21.0	15.0	8.0	N/A
		Nominal	20.0	14.0	7.0	N/A
NR Band n48	S3	Max Allowed Power	23.5	17.5	10.5	N/A
		Nominal	22.5	16.5	9.5	N/A
NR Band n77 PC3	M2	Max Allowed Power	25.0	19.0	10.0	N/A
		Nominal	24.0	18.0	9.0	N/A
NR Band n77 PC3	S2	Max Allowed Power	22.5	16.5	9.0	N/A
		Nominal	21.5	15.5	8.0	N/A
NR Band n77 PC3	S4	Max Allowed Power	22.5	16.5	7.5	N/A
		Nominal	21.5	15.5	6.5	N/A
NR Band n77 PC3	S3	Max Allowed Power	22.5	16.5	7.5	N/A
		Nominal	21.5	15.5	6.5	N/A
NR Band n77 PC2	M2	Max Allowed Power	28.0	19.0	10.0	N/A
		Nominal	27.0	18.0	9.0	N/A
NR Band n77 PC2	S2	Max Allowed Power	22.5	16.5	9.0	N/A
		Nominal	21.5	15.5	8.0	N/A
NR Band n77 PC2	S4	Max Allowed Power	22.5	16.5	7.5	N/A
		Nominal	21.5	15.5	6.5	N/A
NR Band n77 PC2	S3	Max Allowed Power	22.5	16.5	7.5	N/A
		Nominal	21.5	15.5	6.5	N/A

For LTE TDD and NR TDD, the above powers listed are TDD burst average values.

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## 1.4.2 2.4 GHz SISO/MIMO WLAN Output Power

The below table is applicable in the following conditions:

- Maximum Power

Power Level	IEEE 802.11 Modulated Output Power (in dBm)							
	Antenna WIFI 0, Antenna WIFI 1, and SISO in MIMO							
	MIMO							
	b (CDD + STBC)		g (CDD + STBC)		n (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.45 GHz	19.0	18.0	18.0	17.0	18.0 ch. 1: 16.5 ch. 11: 17.0	17.0 15.5 16.0	15.0	14.0

The below table is applicable in the following conditions:

- Grip Sensor Active

Power Level	IEEE 802.11 Modulated Output Power (in dBm)							
	Antenna WIFI 0, Antenna WIFI 1, and SISO in MIMO							
	MIMO							
	b (CDD + STBC)		g (CDD + STBC)		n (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.45 GHz	12.0	11.0	12.0	11.0	12.0	11.0	12.0	11.0

The below table is applicable in the following conditions:

- Simultaneous conditions with 5/6 GHz WLAN and/or 5G FR1/FR2

Power Level	IEEE 802.11 Modulated Output Power (in dBm)							
	Antenna WIFI 0, Antenna WIFI 1, and SISO in MIMO							
	MIMO							
	b (CDD + STBC)		g (CDD + STBC)		n (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.45 GHz	10.0	9.0	10.0	9.0	10.0	9.0	10.0	9.0

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### 1.4.3 5 GHz SISO/MIMO WLAN Output Power

The below table is applicable in the following conditions:

- Maximum Power

		IEEE 802.11 Modulated Output Power (in dBm)							
		Antenna WIFI 0, Antenna WIFI 1, and SISO in MIMO							
Mode	Band	MIMO							
		a (CDD + STBC)		n (CDD + STBC, SDM)		ac (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	UNII-1	17.0	16.0	17.0	16.0	17.0	16.0	11.0	10.0
		ch. 48: 13.0	12.0	ch. 48: 13.0	12.0	ch. 48: 13.0	12.0		
	UNII-2A	17.0	16.0	17.0	16.0	17.0	16.0	11.0	10.0
	UNII-2C	17.0	16.0	17.0	16.0	17.0	16.0	11.0	10.0
	UNII-3	17.0	16.0	17.0	16.0	17.0	16.0	11.0	10.0
	UNII-4	16.0	15.0	16.0	15.0	16.0	15.0	11.0	10.0
5 GHz WIFI (40MHz BW)	UNII-1			17.0	16.0	17.0	16.0	11.0	10.0
				ch. 46: 13.0	12.0	ch. 38: 15.0 ch. 46: 13.0	14.0 12.0		
	UNII-2A			17.0	16.0	17.0	16.0	11.0	10.0
	UNII-2C			17.0	16.0	17.0	16.0	11.0	10.0
	UNII-3			17.0	16.0	17.0	16.0	11.0	10.0
	UNII-4			16.0	15.0	16.0	15.0	11.0	10.0
5 GHz WIFI (80MHz BW)	UNII-1					12.5	11.5	11.0	10.0
	UNII-2A					16.0	15.0	11.0	10.0
	UNII-2C					16.0	15.0	11.0	10.0
	UNII-3					16.0	15.0	11.0	10.0
	UNII-4					16.0	15.0	11.0	10.0
5 GHz WIFI (160MHz BW)	UNII-1/2A					9.5	8.5	10.0	9.0
	UNII-2C					11.5	10.5	11.0	10.0
	UNII-3/4					15.0	14.0	11.0	10.0

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The below table is applicable in the following conditions:

- Grip Sensor Active

Mode	Band	IEEE 802.11 Modulated Output Power (in dBm)							
		Antenna WIFI 0, Antenna WIFI 1, and SISO in MIMO							
		MIMO							
		a (CDD + STBC)		n (CDD + STBC, SDM)		ac (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	UNII-1	8.0	7.0	8.0	7.0	8.0	7.0	8.0	7.0
	UNII-2A	8.0	7.0	8.0	7.0	8.0	7.0	8.0	7.0
	UNII-2C	8.0	7.0	8.0	7.0	8.0	7.0	8.0	7.0
	UNII-3	8.0	7.0	8.0	7.0	8.0	7.0	8.0	7.0
	UNII-4	7.5	6.5	7.5	6.5	7.5	6.5	7.5	6.5
5 GHz WIFI (40MHz BW)	UNII-1			8.0	7.0	8.0	7.0	8.0	7.0
	UNII-2A			8.0	7.0	8.0	7.0	8.0	7.0
	UNII-2C			8.0	7.0	8.0	7.0	8.0	7.0
	UNII-3			8.0	7.0	8.0	7.0	8.0	7.0
	UNII-4			7.5	6.5	7.5	6.5	7.5	6.5
5 GHz WIFI (80MHz BW)	UNII-1					8.0	7.0	8.0	7.0
	UNII-2A					8.0	7.0	8.0	7.0
	UNII-2C					8.0	7.0	8.0	7.0
	UNII-3					8.0	7.0	8.0	7.0
	UNII-4					7.5	6.5	7.5	6.5
5 GHz WIFI (160MHz BW)	UNII-1/2A					8.0	7.0	8.0	7.0
	UNII-2C					8.0	7.0	8.0	7.0
	UNII-3/4					7.5	6.5	7.5	6.5

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The below table is applicable in the following conditions:

- Simultaneous conditions with 2.4 GHz WLAN and/or 5G FR1/FR2

Mode	Band	IEEE 802.11 Modulated Output Power (in dBm)							
		Antenna WIFI 0, Antenna WIFI 1, and SISO in MIMO							
		MIMO							
Maximum / Nominal Power		a (CDD + STBC)		n (CDD + STBC, SDM)		ac (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	UNII-1	6.5	5.5	6.5	5.5	6.5	5.5	6.5	5.5
	UNII-2A	6.5	5.5	6.5	5.5	6.5	5.5	6.5	5.5
	UNII-2C	6.5	5.5	6.5	5.5	6.5	5.5	6.5	5.5
	UNII-3	6.5	5.5	6.5	5.5	6.5	5.5	6.5	5.5
	UNII-4	6.0	5.0	6.0	5.0	6.0	5.0	6.0	5.0
5 GHz WIFI (40MHz BW)	UNII-1			6.5	5.5	6.5	5.5	6.5	5.5
	UNII-2A			6.5	5.5	6.5	5.5	6.5	5.5
	UNII-2C			6.5	5.5	6.5	5.5	6.5	5.5
	UNII-3			6.5	5.5	6.5	5.5	6.5	5.5
	UNII-4			6.0	5.0	6.0	5.0	6.0	5.0
5 GHz WIFI (80MHz BW)	UNII-1					6.5	5.5	6.5	5.5
	UNII-2A					6.5	5.5	6.5	5.5
	UNII-2C					6.5	5.5	6.5	5.5
	UNII-3					6.5	5.5	6.5	5.5
	UNII-4					6.0	5.0	6.0	5.0
5 GHz WIFI (160MHz BW)	UNII-1/2A					6.5	5.5	6.5	5.5
	UNII-2C					6.5	5.5	6.5	5.5
	UNII-3/4					6.0	5.0	6.0	5.0

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### 1.4.4 6 GHz SISO/MIMO WLAN Output Power

Note: Targets for 6GHz are applicable for both SP and LPI.

The below table is applicable in the following conditions:

- Maximum

Mode	Band	IEEE 802.11 Modulated Output Power (in dBm)			
		Antenna WIFI 0, Antenna WIFI 1, and SISO in MIMO			
		MIMO			
		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.
6 GHz WIFI (20MHz BW)	UNII-5	10.0	9.0	10.0	9.0
	UNII-6	10.0	9.0	10.0	9.0
	UNII-7	10.0	9.0	10.0	9.0
	UNII-8	10.0	9.0	10.0	9.0
6 GHz WIFI (40MHz BW)	UNII-5			10.0	9.0
	UNII-6			10.0	9.0
	UNII-7			10.0	9.0
	UNII-8			10.0	9.0
6 GHz WIFI (80MHz BW)	UNII-5			10.0	9.0
	UNII-6			10.0	9.0
	UNII-7			10.0	9.0
	UNII-8			10.0	9.0
6 GHz WIFI (160MHz BW)	UNII-5			10.0	9.0
	UNII-6			10.0	9.0
	UNII-7			10.0	9.0
	UNII-8			10.0	9.0

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The below table is applicable in the following conditions:

- Grip Sensor Active

Mode	Band	IEEE 802.11 Modulated Output Power (in dBm)			
		Antenna WIFI 0, Antenna WIFI 1, and SISO in MIMO			
		MIMO			
		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.
6 GHz WIFI (20MHz BW)	UNII-5	6.5	5.5	6.5	5.5
	UNII-6	6.5	5.5	6.5	5.5
	UNII-7	6.5	5.5	6.5	5.5
	UNII-8	6.5	5.5	6.5	5.5
6 GHz WIFI (40MHz BW)	UNII-5			6.5	5.5
	UNII-6			6.5	5.5
	UNII-7			6.5	5.5
	UNII-8			6.5	5.5
6 GHz WIFI (80MHz BW)	UNII-5			6.5	5.5
	UNII-6			6.5	5.5
	UNII-7			6.5	5.5
	UNII-8			6.5	5.5
6 GHz WIFI (160MHz BW)	UNII-5			6.5	5.5
	UNII-6			6.5	5.5
	UNII-7			6.5	5.5
	UNII-8			6.5	5.5

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The below table is applicable in the following conditions:

- Simultaneous conditions with 2.4 GHz WLAN and/or 5G FR1/FR2 NR

Mode	Band	IEEE 802.11 Modulated Output Power (in dBm)			
		Antenna WIFI 0, Antenna WIFI 1, and SISO in MIMO			
		MIMO			
		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.
6 GHz WIFI (20MHz BW)	UNII-5	2.5	1.5	2.5	1.5
	UNII-6	2.5	1.5	2.5	1.5
	UNII-7	2.5	1.5	2.5	1.5
	UNII-8	2.5	1.5	2.5	1.5
6 GHz WIFI (40MHz BW)	UNII-5			2.5	1.5
	UNII-6			2.5	1.5
	UNII-7			2.5	1.5
	UNII-8			2.5	1.5
6 GHz WIFI (80MHz BW)	UNII-5			2.5	1.5
	UNII-6			2.5	1.5
	UNII-7			2.5	1.5
	UNII-8			2.5	1.5
6 GHz WIFI (160MHz BW)	UNII-5			2.5	1.5
	UNII-6			2.5	1.5
	UNII-7			2.5	1.5
	UNII-8			2.5	1.5

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### 1.4.5 2.4 GHz Bluetooth Output Power

The below table is applicable in the following conditions:

- Maximum

Mode	Data Rate	Modulated Output Power (in dBm)			
		Single Antenna			
		Antenna WIFI 0		Antenna WIFI 1	
Maximum / Nominal Power		Max	Nom.	Max	Nom.
Bluetooth	1Mbps	15.0	14.0	15.0	14.0
Bluetooth EDR	2Mbps	15.0	14.0	15.0	14.0
Bluetooth EDR	3Mbps	15.0	14.0	15.0	14.0
Bluetooth LE	1Mbps	15.0	14.0	15.0	14.0
Bluetooth LE	2Mbps	15.0	14.0	15.0	14.0
Bluetooth LE	125kbps	13.0	12.0	13.0	12.0
Bluetooth LE	500kbps	13.0	12.0	13.0	12.0

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The below table is applicable in the following conditions:

- Grip Sensor Active
- Grip Sensor Active with 5/6 GHz WLAN and/or 5G FR1/FR2 Active
- 5/6 GHz WLAN and/or 5G FR1/FR2 Active

Mode	Data Rate	Modulated Output Power (in dBm)			
		Single Antenna			
		Antenna WIFI 0		Antenna WIFI 1	
Maximum / Nominal Power		Max	Nom.	Max	Nom.
Bluetooth	1Mbps	7.5	6.5	7.5	6.5
Bluetooth EDR	2Mbps	7.5	6.5	7.5	6.5
Bluetooth EDR	3Mbps	7.5	6.5	7.5	6.5
Bluetooth LE	1Mbps	7.5	6.5	7.5	6.5
Bluetooth LE	2Mbps	7.5	6.5	7.5	6.5
Bluetooth LE	125kbps	7.5	6.5	7.5	6.5
Bluetooth LE	500kbps	7.5	6.5	7.5	6.5

## 1.5 DUT Antenna Locations

The overall dimensions of this device is > 200 mm. A diagram showing the location of the device antennas can be found in the DUT Antenna Diagram and SAR Test Setup Photographs Appendix. Exact dimensions and separation distances are shown in the Technical Descriptions in the FCC filings.

**Table 1-1  
Device Edges/Sides for SAR Testing Tablet Mode**

Antenna	Back	Front	Top	Bottom	Right	Left
M1	Yes	No	Yes	No	Yes	Yes
S2	Yes	No	No	Yes	Yes	Yes
S4	Yes	No	No	Yes	Yes	Yes
M2	Yes	No	No	Yes	No	Yes
S3	Yes	No	Yes	Yes	Yes	Yes
WIFI 0	Yes	No	Yes	Yes	Yes	Yes
WIFI 1	Yes	No	Yes	Yes	Yes	Yes
MIMO	Yes	No	Yes	No	Yes	Yes

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**Table 1-2  
Device Edges/Sides for SAR Testing Laptop Mode**

Antenna	Back	Front	Top	Bottom	Right	Left
M1	No	No	No	Yes	No	No
S2	No	No	No	Yes	No	No
S4	No	No	No	Yes	No	No
S1	No	No	No	Yes	No	No
M2	No	No	No	Yes	No	No
S3	No	No	No	Yes	No	No
WIFI 0	No	No	No	Yes	No	No
WIFI 1	No	No	No	Yes	No	No
MIMO	No	No	No	Yes	No	No

Note: Note: Per FCC KDB Publication 616217 D04v01r01, particular edges were not required to be evaluated for SAR based on the SAR exclusion threshold in KDB 447498 D04v01. Additional edges may have been evaluated for simultaneous transmission analysis.

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## 1.6 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D04v01, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D04v01 4.3.2 procedures.

**Table 1-3  
Simultaneous Transmission Scenarios**

No.	Capable Transmit Configuration	Tablet/Laptop	Notes
1	UMTS + 2.4 GHz Bluetooth WiFi 1	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
2	UMTS + 2.4 GHz Bluetooth WiFi 1 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
3	UMTS + 2.4 GHz Bluetooth WiFi 1 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
4	UMTS + 2.4 GHz Bluetooth WiFi 0	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
5	UMTS + 2.4 GHz Bluetooth WiFi 0 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
6	UMTS + 2.4 GHz Bluetooth WiFi 0 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
7	UMTS + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	Yes	
8	UMTS + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	
9	UMTS + 2.4 GHz WLAN MIMO	Yes	
10	UMTS + 5 GHz WLAN MIMO	Yes	
11	UMTS + 6 GHz WLAN MIMO	Yes	
12	UMTS + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
13	UMTS + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
14	UMTS + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
15	UMTS + 2.4 GHz WLAN WiFi 0	Yes	
16	UMTS + 2.4 GHz WLAN WiFi 1	Yes	
17	UMTS + 5 GHz WLAN WiFi 0	Yes	
18	UMTS + 5 GHz WLAN WiFi 1	Yes	
19	UMTS + 6 GHz WLAN WiFi 0	Yes	
20	UMTS + 6 GHz WLAN WiFi 1	Yes	
21	LTE + 2.4 GHz Bluetooth WiFi 1	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
22	LTE + 2.4 GHz Bluetooth WiFi 1 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
23	LTE + 2.4 GHz Bluetooth WiFi 1 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
24	LTE + 2.4 GHz Bluetooth WiFi 0	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
25	LTE + 2.4 GHz Bluetooth WiFi 0 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
26	LTE + 2.4 GHz Bluetooth WiFi 0 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
27	LTE + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	Yes	
28	LTE + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	
29	LTE + 2.4 GHz WLAN MIMO	Yes	
30	LTE + 5 GHz WLAN MIMO	Yes	
31	LTE + 6 GHz WLAN MIMO	Yes	
32	LTE + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
33	LTE + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
34	LTE + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
35	LTE + 2.4 GHz WLAN WiFi 0	Yes	
36	LTE + 2.4 GHz WLAN WiFi 1	Yes	
37	LTE + 5 GHz WLAN WiFi 0	Yes	
38	LTE + 5 GHz WLAN WiFi 1	Yes	
39	LTE + 6 GHz WLAN WiFi 0	Yes	
40	LTE + 6 GHz WLAN WiFi 1	Yes	
41	LTE + NR	Yes	
42	LTE + NR + 2.4 GHz Bluetooth WiFi 1	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
43	LTE + NR + 2.4 GHz Bluetooth WiFi 1 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
44	LTE + NR + 2.4 GHz Bluetooth WiFi 1 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
45	LTE + NR + 2.4 GHz Bluetooth WiFi 0	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
46	LTE + NR + 2.4 GHz Bluetooth WiFi 0 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
47	LTE + NR + 2.4 GHz Bluetooth WiFi 0 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
48	LTE + NR + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	Yes	
49	LTE + NR + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	
50	LTE + NR + 2.4 GHz WLAN MIMO	Yes	
51	LTE + NR + 5 GHz WLAN MIMO	Yes	
52	LTE + NR + 6 GHz WLAN MIMO	Yes	
53	LTE + NR + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
54	LTE + NR + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
55	LTE + NR + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
56	LTE + NR + 2.4 GHz WLAN WiFi 0	Yes	
57	LTE + NR + 2.4 GHz WLAN WiFi 1	Yes	
58	LTE + NR + 5 GHz WLAN WiFi 0	Yes	
59	LTE + NR + 5 GHz WLAN WiFi 1	Yes	
60	LTE + NR + 6 GHz WLAN WiFi 0	Yes	
61	LTE + NR + 6 GHz WLAN WiFi 1	Yes	
62	NR + 2.4 GHz Bluetooth WiFi 1	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
63	NR + 2.4 GHz Bluetooth WiFi 1 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
64	NR + 2.4 GHz Bluetooth WiFi 1 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
65	NR + 2.4 GHz Bluetooth WiFi 0	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
66	NR + 2.4 GHz Bluetooth WiFi 0 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
67	NR + 2.4 GHz Bluetooth WiFi 0 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
68	NR + 2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	Yes	
69	NR + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	
70	NR + 2.4 GHz WLAN MIMO	Yes	
71	NR + 5 GHz WLAN MIMO	Yes	
72	NR + 6 GHz WLAN MIMO	Yes	
73	NR + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1 + 5 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
74	NR + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1 + 6 GHz WLAN MIMO	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
75	NR + 2.4 GHz Bluetooth WiFi 0 + 2.4 GHz WLAN WiFi 1	Yes <sup>A</sup>	<sup>A</sup> Bluetooth Tethering is considered
76	NR + 2.4 GHz WLAN WiFi 0	Yes	
77	NR + 2.4 GHz WLAN WiFi 1	Yes	
78	NR + 5 GHz WLAN WiFi 0	Yes	
79	NR + 5 GHz WLAN WiFi 1	Yes	
80	NR + 6 GHz WLAN WiFi 0	Yes	
81	NR + 6 GHz WLAN WiFi 1	Yes	

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1. This device supports 2x2 MIMO Tx for WLAN 802.11b/a/g/n/ac/ax. 802.11b/a/g/n/ac/ax supports CDD and STBC and 802.11n/ac/ax additionally supports SDM.
2. This device supports Bluetooth Tethering.
3. 2.4 GHz WLAN Antenna WIFI 0 and 2.4 GHz Bluetooth Ant WIFI 0 share the same antenna path and cannot transmit simultaneously.
4. 2.4 GHz WLAN Antenna WIFI 1 and 2.4 GHz Bluetooth Ant WIFI 1 share the same antenna path and cannot transmit simultaneously.
5. 5 GHz WLAN and 6 GHz WLAN share the same antenna path and cannot transmit simultaneously.
6. LTE + 5G NR FR1 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR1 checklist.

## 1.7 Miscellaneous SAR Test Considerations

### (A) WIFI/BT

Since U-NII-1 and U-NII-2A bands have the same maximum output power and the highest reported SAR for U-NII-2A is less than 1.2 W/kg, SAR is not required for U-NII-1 band according to FCC KDB Publication 248227 D01v02r02.

This device supports IEEE 802.11ac with the following features:

- a) Up to 160 MHz Bandwidth only
- b) No aggregate channel configurations
- c) 2 Tx antenna output
- d) 256 QAM is supported
- e) TDWR and Band gap channels are supported

This device supports IEEE 802.11ax with the following features:

- a) Up to 160 MHz Bandwidth only for 5/6 GHz
- b) Up to 20 MHz Bandwidth only for 2.4 GHz
- c) 2 Tx antenna output
- d) Up to 1024 QAM is supported
- e) TDWR and Band gap channels are supported for 5/6 GHz
- f) MU-MIMO UL Operations are not supported

Per FCC Guidance, 802.11ax RU was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 D01v02r02 for OFDM mode selection. Therefore, SAR tests were not required for 802.11ax/be RU based on the maximum allowed output powers of OFDM modes and the reported SAR values. Per FCC Guidance, maximum conducted powers were performed for each RU size to demonstrate that the output powers would not be higher than the other OFDM 802.11 modes. Please see Measurement Reports SNs: 1M2405140039-11.A3L, and 1M2405140039-13.A3L for 802.11ax RU output powers.

Per FCC guidance, SAR was performed using 6.5 GHz SAR probe calibration factors. FCC KDB 648474 and FCC KDB 248227 were followed for test positions, distances, and modes. Per TCB workshop October 2020 notes, 5 channels were tested. Absorbed power density (APD) using a 4cm<sup>2</sup> averaging area is reported based on SAR measurements. Incident power density is evaluated at 2mm ensuring that the resolution is sufficient such that integrated power density (IPD) between d=2mm and d=λ/5mm is ≥ -1dB per equipment manufacturer guidance. Power density results are scaled up for uncertainty above 30%.

### (B) Licensed Transmitter(s)

This device is only capable of QPSK HSUPA in the uplink. Therefore, no additional SAR tests are required beyond that described for devices with HSUPA in KDB 941225 D01v03r01.

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LTE SAR for the higher modulations and lower bandwidths were not tested since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth; and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05v02r04.

This device supports LTE Carrier Aggregation (CA) in the downlink. All uplink communications are identical to Release 8 specifications. Per FCC KDB Publication 941225 D05A v01r02, SAR for LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive. The downlink carrier aggregation exclusion analysis can be found in the Downlink LTE CA RF Conducted Powers Appendix.

This device supports downlink 4x4 MIMO operations for some LTE Bands. Per May 2017 TCB Workshop Notes, SAR for 4x4 DL MIMO was not needed since the maximum average output power in 4x4 DL MIMO mode was not more than 0.25 dB higher than the maximum output power with 4x4 DL MIMO inactive. Additionally, SAR for 4x4 MIMO Downlink Carrier Aggregation was not needed since the maximum average output power in 4x4 MIMO Downlink Carrier Aggregation mode was not more than 0.25 dB higher than the maximum output power with 4x4 MIMO Downlink and downlink carrier aggregation inactive.

This device supports LTE/NR capabilities with overlapping transmission frequency ranges. When the supported frequency range of an LTE/NR Band falls completely within an LTE/NR band with a larger transmission frequency range, both LTE/NR bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and both LTE/NR bands share the same transmission path and signal characteristics, SAR was only assessed for the band with the larger transmission frequency range.

This device supports both Power Class 2 (PC2) and Power Class 3 (PC3) for LTE Band 41. Per May 2017 TCB Workshop Notes, SAR tests were performed with Power Class 3 (given the specific UL/DL limitations for Power Class 2). Additionally, SAR testing for the power class 2 condition was evaluated for the highest configuration in Power Class 3 for each test configuration to confirm the results were scalable linearly (See Section 12)

This device supports LTE Carrier Aggregation (CA) for LTE Band 7, LTE Band 66, LTE Band 41, and LTE Band 48 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

NR implementation supports SA and NSA mode. In EN-DC mode, NR operates with the LTE Bands shown in the NR FR1 checklist acting as anchor bands. Per FCC guidance, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.

Per MTK guidance, SRS was tested with modulated signal. DFT-s-OFDM QPSK was used as the lowest order modulation and RB Size/Offset was selected to resemble continuous wave signal.

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## 1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r05, D05Av01r02 (3G/4G)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D04v01 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO, LTE Band 41 Power Class 2/3)
- November 2017, April 2018, October 2018 TCB Workshop Notes (LTE Carrier Aggregation)
- April 2019 TCB Workshop Notes (IEEE 802.11ax)
- FCC KDB 648474 D04 (Accessories)
- FCC KDB Publication 616217 D04v01r02 (Tablet/Laptop)
- IEC 62479:2010
- SPEAG DASY6 System Handbook
- IEC/IEEE 63195-1:2022
- SPEAG DASY6 Application Note (Interim Procedures for Devices Operating at 6-10 GHz) (Nov 2021)

## 1.9 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 10 and Section 11.

## 1.10 Bibliography

Report Type	Report Serial Number
RF Exposure Part 2 Test Report	TESA2406000425ES
RF Exposure Compliance Summary Report	1M2405140039-21.A3L
RF Exposure Part 0 Test Report	1M2405140039-22.A3L
PD Evaluation Report (Part 0)	
Near Field PD Report (Part 1)	1M2405140039-23.A3L

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# 2 LTE AND NR INFORMATION

LTE Information				
Form Factor	Portable Computing Device			
Frequency Range of each LTE transmission band	LTE Band 71: 665.5 - 695.5 MHz LTE Band 12: 699.7 - 715.3 MHz LTE Band 13: 779.5 - 794.5 MHz LTE Band 14: 790.5 - 795.5 MHz LTE Band 26: 814.7 - 848.3 MHz LTE Band 5: 824.7 - 848.3 MHz LTE Band 66: 1710.7 - 1779.3 MHz LTE Band 4: 1710.7 - 1754.3 MHz LTE Band 25: 1850.7 - 1914.3 MHz LTE Band 2: 1850.7 - 1909.3 MHz LTE Band 30: 2307.5 - 2312.5 MHz LTE Band 7: 2502.5 - 2597.5 MHz LTE Band 41: 2498.5 - 2597.5 MHz LTE Band 38: 2572.5 - 2617.5 MHz LTE Band 48: 3552.5 - 3697.5 MHz			
Channel Bandwidths	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 13: 5 MHz, 10 MHz LTE Band 14: 5 MHz, 10 MHz LTE Band 26: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz LTE Band 5: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 66: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 4: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 25: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 2: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 30: 5 MHz, 10 MHz LTE Band 7: 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 38: 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 48: 5 MHz, 10 MHz, 15 MHz, 20 MHz			
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)	680.5 (133297)	685.5 (133447)	
LTE Band 71: 10 MHz	668 (133172)	680.5 (133297)	693 (133422)	
LTE Band 71: 15 MHz	670.5 (133197)	680.5 (133297)	690.5 (133397)	
LTE Band 71: 20 MHz	673 (133222)	680.5 (133297)	688 (133372)	
LTE Band 12: 1.4 MHz	699.7 (23017)	707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)	707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)	707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)	707.5 (23095)	711 (23130)	
LTE Band 13: 5 MHz	779.5 (23205)	782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	(N/A)	782 (23230)	(N/A)	
LTE Band 14: 5 MHz	790.5 (23305)	793 (23330)	795.5 (23355)	
LTE Band 14: 10 MHz	(N/A)	793 (23330)	(N/A)	
LTE Band 26: 1.4 MHz	814.7 (26697)	831.5 (26865)	848.3 (27033)	
LTE Band 26: 3 MHz	815.5 (26705)	831.5 (26865)	847.5 (27025)	
LTE Band 26: 5 MHz	816.5 (26715)	831.5 (26865)	846.5 (27015)	
LTE Band 26: 10 MHz	819 (26740)	831.5 (26865)	844 (26990)	
LTE Band 26: 15 MHz	821.5 (26765)	831.5 (26865)	841.5 (26965)	
LTE Band 5: 1.4 MHz	824.7 (20407)	836.5 (20525)	848.3 (20643)	
LTE Band 5: 3 MHz	825.5 (20415)	836.5 (20525)	847.5 (20635)	
LTE Band 5: 5 MHz	826.5 (20425)	836.5 (20525)	846.5 (20625)	
LTE Band 5: 10 MHz	829 (20450)	836.5 (20525)	844 (20600)	
LTE Band 66: 1.4 MHz	1710.7 (131979)	1745 (132322)	1779.3 (132665)	
LTE Band 66: 3 MHz	1711.5 (131987)	1745 (132322)	1778.5 (132657)	
LTE Band 66: 5 MHz	1712.5 (131997)	1745 (132322)	1777.5 (132647)	
LTE Band 66: 10 MHz	1715 (132022)	1745 (132322)	1775 (132622)	
LTE Band 66: 15 MHz	1717.5 (132047)	1745 (132322)	1772.5 (132597)	
LTE Band 66: 20 MHz	1720 (132072)	1745 (132322)	1770 (132572)	
LTE Band 4: 1.4 MHz	1710.7 (19957)	1732.5 (20175)	1754.3 (20393)	
LTE Band 4: 3 MHz	1711.5 (19965)	1732.5 (20175)	1753.5 (20385)	
LTE Band 4: 5 MHz	1712.5 (19975)	1732.5 (20175)	1752.5 (20375)	
LTE Band 4: 10 MHz	1715 (20000)	1732.5 (20175)	1750 (20350)	
LTE Band 4: 15 MHz	1717.5 (20025)	1732.5 (20175)	1747.5 (20325)	
LTE Band 4: 20 MHz	1720 (20050)	1732.5 (20175)	1745 (20300)	
LTE Band 25: 1.4 MHz	1850.7 (26047)	1882.5 (26365)	1914.3 (26683)	
LTE Band 25: 3 MHz	1851.5 (26055)	1882.5 (26365)	1913.5 (26675)	
LTE Band 25: 5 MHz	1852.5 (26065)	1882.5 (26365)	1912.5 (26665)	
LTE Band 25: 10 MHz	1855 (26090)	1882.5 (26365)	1910 (26640)	
LTE Band 25: 15 MHz	1857.5 (26115)	1882.5 (26365)	1907.5 (26615)	
LTE Band 25: 20 MHz	1860 (26140)	1882.5 (26365)	1905 (26590)	
LTE Band 2: 1.4 MHz	1850.7 (18607)	1880 (18900)	1909.3 (19193)	
LTE Band 2: 3 MHz	1851.5 (18615)	1880 (18900)	1908.5 (19185)	
LTE Band 2: 5 MHz	1852.5 (18625)	1880 (18900)	1907.5 (19175)	
LTE Band 2: 10 MHz	1855 (18650)	1880 (18900)	1905 (19150)	
LTE Band 2: 15 MHz	1857.5 (18675)	1880 (18900)	1902.5 (19125)	
LTE Band 2: 20 MHz	1860 (18700)	1880 (18900)	1900 (19100)	
LTE Band 30: 5 MHz	2307.5 (27985)	2310 (27710)	2312.5 (27735)	
LTE Band 30: 10 MHz	(N/A)	2310 (27710)	(N/A)	
LTE Band 7: 5 MHz	2502.5 (20775)	2535 (21100)	2567.5 (21425)	
LTE Band 7: 10 MHz	2505 (20800)	2535 (21100)	2565 (21400)	
LTE Band 7: 15 MHz	2507.5 (20825)	2535 (21100)	2562.5 (21375)	
LTE Band 7: 20 MHz	2510 (20850)	2535 (21100)	2560 (21350)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 38: 5 MHz	2572.5 (37775)	2595 (38000)	2617.5 (38225)	
LTE Band 38: 10 MHz	2575 (37800)	2595 (38000)	2615 (38200)	
LTE Band 38: 15 MHz	2577.5 (37825)	2595 (38000)	2612.5 (38175)	
LTE Band 38: 20 MHz	2580 (37850)	2595 (38000)	2610 (38150)	
LTE Band 48: 5 MHz	3552.5 (55265)	3600.8 (55748)	(N/A)	3649.2 (56232)
LTE Band 48: 10 MHz	3555 (55290)	3601.7 (55757)	(N/A)	3648.3 (56223)
LTE Band 48: 15 MHz	3557.5 (55315)	3602.5 (55765)	(N/A)	3647.5 (56215)
LTE Band 48: 20 MHz	3560 (55340)	3603.3 (55773)	(N/A)	3646.7 (56207)
UE Category	UL UE Cat 16, DL UE Cat 19			
Modulations Supported in UL	QPSK, 16QAM, 64QAM, 256QAM			
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3-6.2.57 (manufacturer attestation to be provided)	YES			
A-MPR (Additional MPR) disabled for SAR Testing?	YES			
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations			
LTE Additional Information	This device does not support full CA features on 3GPP Release 15. It supports carrier aggregation, downlink MIMO features as shown in the RF Conducted Powers section of this report and the Downlink LTE CA RF Conducted Powers Appendix. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 15 Features are not supported: Relay, HetNet, Enhanced MIMO, eICG, eMBMS, WII Offloading, Cross-Carrier Scheduling, Enhanced SC-FDMA.			

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### 3 INTRODUCTION

The FCC and Innovation, Science, and Economic Development Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

#### 3.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 3-1).

**Equation 3-1**  
**SAR Mathematical Equation**

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

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

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

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m<sup>3</sup>)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

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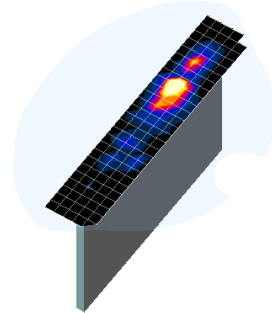
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## 4 DOSIMETRIC ASSESSMENT

### 4.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
  - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
  - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
  - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.



**Figure 4-1**  
Sample SAR Area Scan

**Table 4-1**  
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04\*

Frequency	Maximum Area Scan Resolution (mm) ( $\Delta x_{\text{area}}, \Delta y_{\text{area}}$ )	Maximum Zoom Scan Resolution (mm) ( $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$ )	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x, y, z)
			Uniform Grid	Graded Grid		
			$\Delta z_{\text{zoom}}(n)$	$\Delta z_{\text{zoom}}(1)^*$	$\Delta z_{\text{zoom}}(n>1)^*$	
≤ 2 GHz	≤ 15	≤ 8	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
2-3 GHz	≤ 12	≤ 5	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤ 5	≤ 4	≤ 3	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤ 4	≤ 3	≤ 2.5	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤ 2	≤ 2	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 22

\*Also compliant to IEEE 1528-2013 Table 6

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## 5 TEST CONFIGURATION POSITIONS

### 5.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity  $\epsilon = 3$  and loss tangent  $\delta = 0.02$ .

### 5.2 SAR Testing for Tablet per KDB Publication 616217 D04v01r02

Per FCC KDB Publication 616217 D04v01r02, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR Exclusion Threshold in KDB 447498 D04v01 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

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## 6 RF EXPOSURE LIMITS

### 6.1 Uncontrolled Environment

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

### 6.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This 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.

**Table 6-1**  
**SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6**

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (W/kg) or (mW/g)
<b>Peak Spatial Average SAR</b> Head	1.6	8.0
<b>Whole Body SAR</b>	0.08	0.4
<b>Peak Spatial Average SAR</b> Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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### 6.3 RF Exposure Limits for Frequencies above 6 GHz

Per §1.1310 (d)(3), the MPE limits are applied for frequencies above 6 GHz. Power Density is expressed in units of W/m<sup>2</sup> or mW/cm<sup>2</sup>.

Peak Spatially Averaged Power Density was evaluated over a circular area of 4 cm<sup>2</sup> per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

**Table 6-2  
Human Exposure Limits Specified in FCC 47 CFR §1.1310**

Human Exposure to Radiofrequency (RF) Radiation Limits		
Frequency Range [MHz]	Power Density [mW/cm <sup>2</sup> ]	Average Time [Minutes]
(A) Limits For Occupational / Controlled Environments		
1,500 – 100,000	5.0	6
(B) Limits For General Population / Uncontrolled Environments		
1,500 – 100,000	1.0	30

Note: 1.0 mW/cm<sup>2</sup> is 10 W/m<sup>2</sup>

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## 7 FCC MEASUREMENT PROCEDURES

Power measurements for licensed transmitters are performed using a base station simulator under digital average power.

### 7.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D04v01, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

### 7.2 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01v03r01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is  $\leq 0.25$  dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is  $\leq 1.2$  W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

### 7.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03r01 “3G SAR Measurement Procedures.”

The device is placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test are evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device is tested throughout the SAR test at maximum output power, the SAR measurement system measures a “point SAR” at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviates by more than 5%, the SAR test and drift measurements are repeated.

### 7.4 SAR Measurement Conditions for UMTS

#### 7.4.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC with TPC (transmit power control) set to all “1s” or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

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## 7.4.2 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all “1s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCH<sub>n</sub> configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or DPDCH<sub>n</sub>, for the highest reported SAR configuration in 12.2 kbps RMC.

## 7.4.3 SAR Measurements with Rel 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

## 7.4.4 SAR Measurements with Rel 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

## 7.4.5 SAR Measurement Conditions for DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

## 7.5 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r04 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

### 7.5.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

### 7.5.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

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### 7.5.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

### 7.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

- a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
  - i. The required channel and offset combination with the highest maximum output power is required for SAR.
  - ii. When the reported SAR is  $\leq 0.8$  W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
  - iii. When the reported SAR for a required test channel is  $> 1.45$  W/kg, SAR is required for all RB offset configurations for that channel.
- b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
- c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is  $< 0.8$  W/kg.
- d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to  $\frac{1}{2}$  dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is  $< 1.45$  W/kg.

### 7.5.5 TDD

LTE TDD testing is performed using the SAR test guidance provided in FCC KDB 941225 D05v02r04. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05v02r04. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211 Section 4.

### 7.5.6 Downlink Only Carrier Aggregation

Conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. Additional conducted output powers are measured with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band. Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for downlink only carrier aggregation configurations when the average output power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive.

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## 7.6 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

### 7.6.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

### 7.6.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is  $> 1.2$  W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is  $> 1.2$  W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

### 7.6.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 – 5.65 GHz in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification. Unless band gap channels are permanently disabled, SAR must be considered for these channels. Each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

### 7.6.4 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is  $\leq 0.8$  W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) When the reported SAR is  $> 0.8$  W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is  $> 1.2$  W/kg, SAR is required for the third channel; i.e., all channels require testing.

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2.4 GHz 802.11 g/n/ax OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

### 7.6.5 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. Per April 2019 TCB Workshop guidance, 802.11ax was considered the highest order 802.11 mode. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

### 7.6.6 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is  $\leq 1.2$  W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

### 7.6.7 MIMO SAR considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB Publication 447498 D04v01 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is <1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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## 8 RF CONDUCTED POWERS

### 8.1 UMTS Conducted Powers

#### 8.1.1 UMTS Antenna M1

**Table 8-1**  
**UMTS Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free)**  
**UMTS 850 Antenna M1 Measured  $P_{Max}$  for ECI = 2 (Grip Sensor #3 Active)**

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.50	23.49	<b>23.73</b>	23.50	23.57	<b>23.58</b>	<b>23.60</b>	23.54	23.59	-
6	HSDPA	Subtest 1	22.11	22.39	22.50	22.47	22.48	22.49	22.39	22.31	22.28	0
6		Subtest 2	22.09	22.37	22.54	22.52	22.53	22.52	22.40	22.27	22.26	0
6		Subtest 3	21.72	21.92	22.06	22.00	22.10	22.08	21.92	21.82	21.78	0.5
6		Subtest 4	21.67	21.88	21.97	21.92	21.97	21.99	21.86	21.74	21.74	0.5
6	HSUPA	Subtest 1	22.59	22.37	22.52	22.51	22.50	22.52	22.40	22.31	22.27	0
6		Subtest 2	22.11	22.43	22.55	22.54	22.52	22.56	22.41	22.32	22.30	2
6		Subtest 3	21.70	21.91	22.02	21.98	22.00	22.01	21.90	21.80	21.81	1
6		Subtest 4	22.17	22.45	22.55	22.56	22.59	22.60	22.45	22.37	22.32	2
6		Subtest 5	21.50	21.57	21.68	21.55	21.61	21.57	21.44	21.35	21.31	0
8	DC-HSDPA	Subtest 1	22.43	22.52	22.67	22.56	22.75	22.87	22.57	22.55	22.70	0
8		Subtest 2	22.45	22.52	22.57	22.43	22.65	22.86	22.26	22.52	22.54	0
8		Subtest 3	21.92	22.00	22.02	22.04	22.22	22.33	22.08	22.03	22.07	0.5
8		Subtest 4	21.90	22.01	22.15	22.09	22.19	22.37	22.09	22.04	22.15	0.5

**Table 8-2**  
**UMTS Antenna M1 Measured  $P_{limit}$  for ECI = 1 (Grip Sensor Active)**

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	15.40	15.57	15.63	13.23	13.24	13.22	11.24	11.16	11.15	-
6	HSDPA	Subtest 1	14.95	15.25	15.41	14.09	14.14	14.13	11.30	11.32	11.26	0
6		Subtest 2	14.93	15.20	15.36	14.07	14.06	14.10	11.27	11.28	11.20	0
6		Subtest 3	14.97	15.27	15.41	14.09	14.10	14.13	11.26	11.32	11.29	0
6		Subtest 4	14.93	15.21	15.36	14.05	14.09	14.07	11.26	11.27	11.23	0
6	HSUPA	Subtest 1	15.01	15.28	15.43	14.16	14.25	14.22	11.41	11.38	11.35	0
6		Subtest 2	14.93	15.25	15.39	14.19	14.22	14.18	11.38	11.39	11.35	0
6		Subtest 3	14.93	15.22	15.38	14.18	14.17	14.21	11.38	11.38	11.33	0
6		Subtest 4	14.95	15.24	15.41	14.18	14.18	14.21	11.39	11.40	11.35	0
6		Subtest 5	14.95	15.26	15.40	14.17	14.24	14.24	11.45	11.42	11.36	0
8	DC-HSDPA	Subtest 1	14.98	15.25	15.38	14.16	14.21	14.21	11.36	11.40	11.36	0
8		Subtest 2	14.92	15.27	15.37	14.21	14.20	14.22	11.36	11.37	11.35	0
8		Subtest 3	14.93	15.24	15.43	14.18	14.17	14.21	11.36	11.36	11.34	0
8		Subtest 4	14.94	15.27	15.37	14.17	14.21	14.25	11.37	11.36	11.32	0

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**Table 8-3**  
**UMTS 1750 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3)**

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]			MPR [dB]
			1312	1412	1513	
99	WCDMA	12.2 kbps RMC	22.00	21.96	21.99	-
6	HSDPA	Subtest 1	22.34	22.38	22.36	0
6		Subtest 2	22.31	22.34	22.31	0
6		Subtest 3	22.34	22.37	22.35	0
6		Subtest 4	22.30	22.32	22.30	0
6	HSUPA	Subtest 1	21.28	21.30	21.10	1
6		Subtest 2	21.09	21.09	21.09	1
6		Subtest 3	22.09	22.14	22.15	0
6		Subtest 4	20.59	20.63	20.58	1.5
6		Subtest 5	22.11	22.13	22.12	0
8	DC-HSDPA	Subtest 1	22.34	22.31	22.34	0
8		Subtest 2	22.29	22.33	22.32	0
8		Subtest 3	22.32	22.30	22.34	0
8		Subtest 4	22.33	22.34	22.35	0

**Table 8-4**  
**UMTS 1900 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3)**

3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]			MPR [dB]
			9262	9400	9538	
99	WCDMA	12.2 kbps RMC	17.27	17.16	17.19	-
6	HSDPA	Subtest 1	17.49	17.48	17.43	0
6		Subtest 2	17.42	17.44	17.40	0
6		Subtest 3	17.48	17.48	17.42	0
6		Subtest 4	17.45	17.45	17.41	0
6	HSUPA	Subtest 1	17.44	17.46	17.39	0
6		Subtest 2	17.42	17.45	17.38	0
6		Subtest 3	17.46	17.41	17.41	0
6		Subtest 4	17.42	17.43	17.37	0
6		Subtest 5	17.47	17.45	17.42	0
8	DC-HSDPA	Subtest 1	17.42	17.44	17.39	0
8		Subtest 2	17.40	17.41	17.39	0
8		Subtest 3	17.36	17.41	17.42	0
8		Subtest 4	17.40	17.40	17.34	0

DC-HSDPA considerations

- 3GPP Specification 34.121-1 Release 8 Ver 8.10.0 was used for DC-HSDPA guidance
- H-Set 12 (QPSK) was confirmed to be used during DC-HSDPA measurements
- The DUT supports UE category 24 for HSDPA



**Figure 8-1**  
**Power Measurement Setup**

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## 8.2 LTE Conducted Powers

Note: Per FCC KDB Publication 941225 D05v02r05, LTE SAR for the lower bandwidths was not required for testing since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg. Lower bandwidth conducted powers for all LTE bands can be found in the LTE and NR Lower Bandwidth Conducted Power Appendix.

Note: Some bands do not support three non-overlapping channels. Per KDB Publication 941225 D05v02, 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.

### LTE Carrier Aggregation Notes:

1. This device supports uplink carrier aggregation for LTE CA\_66B, LTE CA\_7C, LTE CA\_66C, LTE CA\_48C, and LTE CA\_41C with a maximum of two component carriers. For intraband contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when non-contiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.
2. Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

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## 8.2.1 LTE Band 71 Antenna M1

**Table 8-5**  
**LTE Band 71 Antenna M1 Measured  $P_{limit}$  for ECI = 0 (Free), ECI = 2 (Grip Sensor #3 Active) - 20 MHz Bandwidth**

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz) Conducted Power [dBm]		
QPSK	1	0	23.57	0	0
	1	50	23.43		0
	1	99	23.47		0
	50	0	22.64	0-1	0.5
	50	25	22.40		0.5
	50	50	22.52		0.5
100	0	22.58	0.5		
16QAM	1	0	22.85	0-1	0.5
	1	50	22.73		0.5
	1	99	22.82		0.5
	50	0	21.61	0-2	1.5
	50	25	21.36		1.5
	50	50	21.48		1.5
100	0	21.58	1.5		
64QAM	1	0	21.55	0-2	1.5
	1	50	21.39		1.5
	1	99	21.46		1.5
	50	0	20.99	0-3	2.5
	50	25	20.80		2.5
	50	50	20.86		2.5
100	0	20.95	2.5		
256QAM	1	0	18.94	0-5	4.5
	1	50	18.84		4.5
	1	99	18.88		4.5
	50	0	18.91		4.5
	50	25	18.76		4.5
	50	50	18.86		4.5
100	0	18.86	4.5		

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**Table 8-6**  
**LTE Band 71 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz) Conducted Power [dBm]		
QPSK	1	0	15.52	0	0
	1	50	15.23		0
	1	99	15.26		0
	50	0	15.55	0-1	0
	50	25	15.37		0
	50	50	15.50		0
16QAM	100	0	15.51	0-1	0
	1	0	15.40		0
	1	50	15.27		0
	1	99	15.29	0-2	0
	50	0	15.30		0
	50	25	15.04		0
64QAM	50	50	15.13	0-2	0
	100	0	15.19		0
	1	0	15.33		0-3
	1	50	15.13	0	
	1	99	15.16	0	
	256QAM	50	0	15.34	0-3
50		25	15.01	0	
50		50	15.14	0	
100		0	15.19	0-5	0
1		0	15.30		0
1		50	15.11		0
256QAM	1	99	14.99	0-5	0
	50	0	15.36		0
	50	25	15.03		0
	50	50	15.21	0-5	0
	100	0	15.19		0

## 8.2.2 LTE Band 12 Antenna M1

**Table 8-7**  
**LTE Band 12 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free), ECI = 2 (Grip Sensor #3 Active) - 10 MHz Bandwidth**

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz) Conducted Power [dBm]		
QPSK	1	0	23.99	0	0
	1	25	24.05		0
	1	49	23.63		0
	25	0	23.10	0-1	1
	25	12	23.03		1
	25	25	22.76		1
16QAM	50	0	22.97	0-1	1
	1	0	23.27		1
	1	25	23.31		1
	1	49	22.96	0-2	1
	25	0	22.19		2
	25	12	22.11		2
64QAM	25	25	21.84	0-2	2
	50	0	21.88		2
	1	0	22.25		0-2
	1	25	22.26	2	
	1	49	21.94	0-3	
	25	0	21.42		3
25	12	21.35	3		
256QAM	25	25	21.09	0-3	3
	50	0	21.23		3
	1	0	19.01		0-5
	1	25	19.04	5	
	1	49	19.18	5	
	25	0	19.35	5	
25	12	19.31	5		
25	25	19.06	5		
				5	
					5

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**Table 8-8**  
**LTE Band 12 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 10 MHz Bandwidth**

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	15.81	0	0
	1	25	<b>16.20</b>		0
	1	49	15.89		0
	25	0	<b>16.17</b>	0-1	0
	25	12	15.76		0
	25	25	15.78		0
	50	0	15.79		0
16QAM	1	0	16.15	0-1	0
	1	25	16.19		0
	1	49	16.23		0
	25	0	15.76	0-2	0
	25	12	15.90		0
	25	25	15.78		0
	50	0	15.80		0
64QAM	1	0	15.95	0-2	0
	1	25	16.04		0
	1	49	16.01		0
	25	0	15.81	0-3	0
	25	12	15.91		0
	25	25	15.78		0
	50	0	15.72		0
256QAM	1	0	15.91	0-5	0
	1	25	15.98		0
	1	49	16.02		0
	25	0	15.82		0
	25	12	15.89		0
	25	25	15.76		0
	50	0	15.78		0

### 8.2.3 LTE Band 13 Antenna M1

**Table 8-9**  
**LTE Band 13 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free), ECI = 2 (Grip Sensor #3 Active) - 10 MHz Bandwidth**

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.87	0	0
	1	25	<b>23.89</b>		0
	1	49	23.82		0
	25	0	22.81	0-1	1
	25	12	22.92		1
	25	25	<b>22.95</b>		1
	50	0	22.90		1
16QAM	1	0	23.27	0-1	1
	1	25	23.35		1
	1	49	23.25		1
	25	0	21.83	0-2	2
	25	12	21.95		2
	25	25	21.97		2
	50	0	21.82		2
64QAM	1	0	21.96	0-2	2
	1	25	22.05		2
	1	49	21.96		2
	25	0	20.79	0-3	3
	25	12	20.89		3
	25	25	20.91		3
	50	0	20.87		3
256QAM	1	0	19.30	0-5	5
	1	25	19.47		5
	1	49	19.41		5
	25	0	19.12		5
	25	12	19.30		5
	25	25	19.31		5
	50	0	19.17		5

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**Table 8-10**  
**LTE Band 13 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 10 MHz Bandwidth**

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz) Conducted Power [dBm]		
QPSK	1	0	13.64	0	0
	1	25	13.87		0
	1	49	13.54		0
	25	0	13.65	0-1	0
	25	12	13.59		0
	25	25	13.67		0
	50	0	13.59		0
16QAM	1	0	14.19	0-1	0
	1	25	14.00		0
	1	49	13.84		0
	25	0	13.58	0-2	0
	25	12	13.63		0
	25	25	13.56		0
	50	0	13.52		0
64QAM	1	0	14.07	0-2	0
	1	25	13.74		0
	1	49	13.71		0
	25	0	13.55	0-3	0
	25	12	13.61		0
	25	25	13.54		0
	50	0	13.55		0
256QAM	1	0	13.81	0-5	0
	1	25	13.67		0
	1	49	13.65		0
	25	0	13.54		0
	25	12	13.61		0
	25	25	13.56		0
	50	0	13.54		0

## 8.2.4 LTE Band 14 Antenna M1

**Table 8-11**  
**LTE Band 14 Antenna M1 Measured  $P_{limit}$  for ECI = 0 (Free), ECI = 2 (Grip Sensor #3 Active) - 10 MHz Bandwidth**

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz) Conducted Power [dBm]		
QPSK	1	0	23.90	0	0
	1	25	23.84		0
	1	49	23.76		0
	25	0	22.94	0-1	0.5
	25	12	22.88		0.5
	25	25	22.87		0.5
	50	0	22.89		0.5
16QAM	1	0	23.21	0-1	0.5
	1	25	23.19		0.5
	1	49	23.09		0.5
	25	0	22.00	0-2	1.5
	25	12	21.94		1.5
	25	25	21.96		1.5
	50	0	21.84		1.5
64QAM	1	0	22.18	0-2	1.5
	1	25	22.17		1.5
	1	49	22.03		1.5
	25	0	20.94	0-3	2.5
	25	12	20.86		2.5
	25	25	20.86		2.5
	50	0	20.87		2.5
256QAM	1	0	18.86	0-5	4.5
	1	25	18.78		4.5
	1	49	18.66		4.5
	25	0	19.18		4.5
	25	12	19.17		4.5
	25	25	19.12		4.5
	50	0	19.10		4.5

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**Table 8-12**  
**LTE Band 14 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 10 MHz Bandwidth**

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz) Conducted Power [dBm]		
QPSK	1	0	13.62	0	0
	1	25	13.56		0
	1	49	13.52		0
	25	0	13.64	0-1	0
	25	12	13.55		0
	25	25	13.56		0
16QAM	50	0	13.55	0-1	0
	1	0	13.92		0
	1	25	13.92		0
	1	49	13.98	0-2	0
	25	0	13.59		0
	25	12	13.59		0
64QAM	25	25	13.59	0-2	0
	50	0	13.54		0
	1	0	13.84		0-2
	1	25	13.76	0	
	1	49	13.78	0	
	256QAM	25	0	13.58	0-3
25		12	13.58	0	
25		25	13.55	0	
50		0	13.55	0-5	0
1		0	13.74		0
1		25	13.66		0
256QAM	1	49	13.71	0-5	0
	25	0	13.59		0
	25	12	13.60		0
	25	25	13.58	0-5	0
	50	0	13.54		0
	50	0	13.54		0

### 8.2.5 LTE Band 26 Antenna M1

**Table 8-13**  
**LTE Band 26 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free), ECI = 2 (Grip Sensor #3 Active) - 15 MHz Bandwidth**

LTE Band 26 (Cell) 15 MHz Bandwidth						
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			26865 (831.5 MHz) Conducted Power [dBm]			
QPSK	1	0	23.84	0	0	
	1	36	23.92		0	
	1	74	24.25		0	
	36	0	22.84	0-1	1	
	36	18	22.90		1	
	36	37	23.20		1	
16QAM	75	0	22.90	0-1	1	
	1	0	22.76		1	
	1	36	22.90		1	
	1	74	23.00	0-2	1	
	36	0	21.40		2	
	36	18	21.46		2	
64QAM	36	37	21.58	0-2	2	
	75	0	21.52		2	
	1	0	21.39		2	
	1	36	21.53	0-2	2	
	1	74	21.73		2	
	36	0	20.39		0-3	3
36	18	20.47	3			
36	37	20.56	3			
256QAM	75	0	20.52	0-3	3	
	1	0	18.93		0-5	5
	1	36	18.94			5
	1	74	18.97	0-5		5
	36	0	18.66		5	
	36	18	18.77		5	
256QAM	36	37	18.87	0-5	5	
	75	0	18.85		5	
	75	0	18.85		5	

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**Table 8-14**  
**LTE Band 26 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 15 MHz Bandwidth**

LTE Band 26 (Cell) 15 MHz Bandwidth						
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			26865 (831.5 MHz) Conducted Power [dBm]			
QPSK	1	0	13.42	0	0	
	1	36	13.48		0	
	1	74	<b>13.85</b>		0	
	36	0	13.50	0-1	0	
	36	18	13.41		0	
	36	37	<b>13.74</b>		0	
16QAM	75	0	13.53	0-1	0	
	1	0	13.66		0	
	1	36	13.81		0	
	1	74	14.04	0-2	0	
	36	0	13.54		0	
	36	18	13.48		0	
64QAM	36	37	13.54	0-2	0	
	75	0	13.55		0	
	1	0	13.55		0	
	1	36	13.66	0-3	0	
	1	74	13.85		0	
	36	0	13.56		0	
256QAM	36	18	13.42	0-3	0	
	36	37	13.59		0	
	75	0	13.51		0	
	1	0	13.45	0-5	0	
	1	36	13.53		0	
	1	74	13.78		0	
256QAM	36	0	13.51	0-5	0	
	36	18	13.43		0	
	36	37	13.52		0	
	75	0	13.54	0		
						0

## 8.2.6 LTE Band 66 Antenna M1

**Table 8-15**  
**LTE Band 66 (AWS) Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 20 MHz Bandwidth**

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	23.84	23.77	23.56	0	0
	1	50	23.82	23.83	23.68		0
	1	99	<b>23.85</b>	23.76	23.69		0
	50	0	22.90	22.85	22.61	0-1	1
	50	25	22.87	22.84	22.73		1
	50	50	<b>22.93</b>	22.74	22.72		1
16QAM	100	0	22.89	22.79	22.76	0-1	1
	1	0	23.14	23.01	22.97		1
	1	50	23.17	23.21	23.09		1
	1	99	23.19	22.97	23.09	0-2	1
	50	0	21.81	21.73	21.59		2
	50	25	21.79	21.79	21.67		2
64QAM	50	50	21.87	21.72	21.67	0-2	2
	100	0	21.80	21.74	21.68		2
	1	0	21.98	21.82	21.82		0-2
	1	50	22.05	21.93	21.76	2	
	1	99	21.96	21.97	21.88	2	
	256QAM	50	0	21.13	21.10	20.88	0-3
50		25	21.08	21.09	20.99	3	
50		50	21.14	21.03	21.04	3	
100		0	21.16	21.06	20.97	0-5	3
1		0	19.14	19.01	19.00		5
1		50	19.15	19.23	19.10		5
256QAM	1	99	19.14	19.13	19.08	0-5	5
	50	0	19.17	19.04	18.86		5
	50	25	19.04	19.09	18.94		5
	50	50	19.10	19.05	18.99	5	
	100	0	19.14	19.04	18.96	5	

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**Table 8-16**  
**LTE Band 66 (AWS) Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 10 MHz Bandwidth**

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	23.64	23.63	23.62	0	0
	1	25	23.63	23.67	23.65		0
	1	49	23.65	23.57	23.52		0
	25	0	22.69	22.64	22.73	0-1	1
	25	12	22.68	22.70	22.70		1
	25	25	22.59	22.60	22.58		1
16QAM	50	0	22.63	22.63	22.67	0-1	1
	1	0	22.96	22.83	22.79		1
	1	25	22.93	22.81	22.97		1
	1	49	22.90	22.93	22.94	0-2	1
	25	0	21.61	21.61	21.61		2
	25	12	21.61	21.64	21.59		2
64QAM	25	25	21.55	21.58	21.54	0-2	2
	50	0	21.57	21.55	21.61		2
	1	0	21.88	21.79	21.73		0-2
	1	25	21.91	21.89	21.79	2	
	1	49	21.83	21.78	21.78	2	
	256QAM	25	0	20.91	20.95	20.91	0-3
25		12	20.95	20.96	20.97	3	
25		25	20.91	20.92	20.90	3	
50		0	20.89	20.89	20.92	0-5	3
1		0	19.03	18.94	18.94		5
1		25	19.08	18.99	19.00		5
256QAM	1	49	19.07	19.07	19.04	0-5	5
	25	0	18.89	18.86	18.86		5
	25	12	18.95	18.86	18.88		5
	25	25	18.89	18.89	18.92	5	
	50	0	18.87	18.88	18.89	5	

**Table 8-17**  
**LTE Band 66 (AWS) Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	14.28	14.24	14.35	0	0
	1	50	14.24	14.23	14.18		0
	1	99	14.13	14.20	14.20		0
	50	0	14.34	14.38	14.39	0-1	0
	50	25	14.28	14.31	14.25		0
	50	50	14.18	14.20	14.25		0
16QAM	100	0	14.30	14.25	14.32	0-1	0
	1	0	14.50	14.53	14.60		0
	1	50	14.54	14.53	14.49		0
	1	99	14.50	14.45	14.47	0-2	0
	50	0	14.33	14.30	14.32		0
	50	25	14.26	14.24	14.27		0
64QAM	50	50	14.20	14.24	14.28	0-2	0
	100	0	14.33	14.27	14.34		0
	1	0	14.44	14.44	14.48		0-2
	1	50	14.39	14.45	14.34	0	
	1	99	14.38	14.39	14.38	0	
	256QAM	50	0	14.32	14.33	14.32	0-3
50		25	14.29	14.25	14.27	0	
50		50	14.27	14.23	14.25	0	
100		0	14.25	14.26	14.29	0-5	0
1		0	14.38	14.38	14.44		0
1		50	14.21	14.31	14.44		0
256QAM	1	99	14.21	14.29	14.30	0-5	0
	50	0	14.32	14.37	14.33		0
	50	25	14.26	14.26	14.29		0
	50	50	14.20	14.21	14.29	0	
	100	0	14.26	14.27	14.28	0	

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**Table 8-18**

**LTE Band 66 (AWS) Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 10 MHz Bandwidth**

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	14.10	14.28	14.51	0	0
	1	25	14.13	14.40	14.58		0
	1	49	14.15	14.39	14.70		0
	25	0	14.21	14.39	14.56	0-1	0
	25	12	14.19	14.41	14.62		0
	25	25	14.16	14.40	14.58		0
16QAM	50	0	14.19	14.39	14.61	0-1	0
	1	0	14.43	14.63	14.84		0
	1	25	14.42	14.75	14.82		0
	1	49	14.49	14.69	14.80	0-2	0
	25	0	14.13	14.33	14.59		0
	25	12	14.15	14.38	14.61		0
64QAM	25	25	14.18	14.40	14.61	0-2	0
	50	0	14.17	14.36	14.58		0
	1	0	14.26	14.49	14.78		0-2
	1	25	14.35	14.50	14.78	0	
	1	49	14.35	14.58	14.75	0	
	256QAM	25	0	14.11	14.34	14.60	0-3
25		12	14.10	14.39	14.63	0	
25		25	14.17	14.34	14.63	0	
50		0	14.20	14.37	14.56	0-5	0
1		0	14.22	14.36	14.67		0
1		25	14.31	14.41	14.74		0
256QAM	1	49	14.23	14.52	14.80	0-5	0
	25	0	14.15	14.37	14.60		0
	25	12	14.14	14.40	14.65		0
	25	25	14.18	14.35	14.63	0	
	50	0	14.14	14.35	14.60	0	

**Table 8-19**

**LTE Band 66 (AWS) Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3 Active) - 20 MHz Bandwidth**

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	22.00	21.84	22.05	0	0
	1	50	21.99	21.91	22.06		0
	1	99	21.98	21.87	22.04		0
	50	0	21.96	21.85	21.90	0-1	0
	50	25	21.96	21.88	21.98		0
	50	50	21.96	21.87	21.90		0
16QAM	100	0	21.93	21.86	21.92	0-1	0
	1	0	22.32	22.14	22.00		0
	1	50	22.25	22.19	21.97		0
	1	99	22.11	22.17	22.01	0-2	0
	50	0	22.10	21.83	21.65		0.5
	50	25	21.89	21.84	21.69		0.5
64QAM	50	50	21.88	21.79	21.73	0-2	0.5
	100	0	21.95	21.75	21.70		0.5
	1	0	22.12	21.98	21.83		0-2
	1	50	22.12	22.09	21.87	0.5	
	1	99	22.15	22.10	22.20	0.5	
	256QAM	50	0	21.32	21.26	21.09	0-3
50		25	21.36	21.29	21.05	1.5	
50		50	21.43	21.24	21.19	1.5	
100		0	21.37	21.21	21.14	0-5	1.5
1		0	19.42	19.24	19.05		3.5
1		50	19.42	19.34	19.21		3.5
256QAM	1	99	19.42	19.27	19.27	0-5	3.5
	50	0	19.32	19.26	19.05		3.5
	50	25	19.35	19.23	19.08		3.5
	50	50	19.39	19.18	19.10	3.5	
	100	0	19.34	19.20	19.11	3.5	

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**Table 8-20**

**LTE Band 66 (AWS) Antenna M1 Uplink Carrier Aggregation Measured  $P_{Max}$  for ECI = 0 (Free)**

Combination	PCC									SCC									Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC DL Channel	PCC DL Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_66C	LTE B66	20	132072	1720.0	66536	2120.0	QPSK	1	99	LTE B66	20	132270	1739.8	66734	2139.8	QPSK	1	0	23.09	23.85
CA_66B	LTE B66	10	132022	1715.0	66486	2115.0	QPSK	1	49	LTE B66	10	132121	1724.9	66585	2124.9	QPSK	1	0	23.34	23.65

**Table 8-21**

**LTE Band 66 (AWS) Antenna M1 Uplink Carrier Aggregation Measured  $P_{Max}$  for ECI = 1 (Grip Sensor Active)**

Combination	PCC									SCC									Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	PCC DL Channel	PCC DL Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_66C	LTE B66	20	132572	1770.0	67036	2170.0	QPSK	1	0	LTE B66	20	132374	1750.2	66838	2150.2	QPSK	1	99	14.00	14.35
CA_66B	LTE B66	10	132622	1775.0	67086	2175.0	QPSK	1	0	LTE B66	10	132523	1765.1	66987	2165.1	QPSK	1	49	13.98	14.31

**8.2.7 LTE Band 66 Antenna S2**

**Table 8-22**

**LTE Band 66 (AWS) Antenna S2 Measured  $P_{Max}$  for ECI = 0 (Free) - 20 MHz Bandwidth**

LTE Band 66 (AWS) 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]		
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)				
Conducted Power [dBm]									
QPSK	1	0	23.89	24.02	24.19	0	0		
	1	50	23.96	24.20	24.23		0		
	1	99	24.15	24.22	24.26		0		
	16QAM	50	0	22.94	23.17	23.21	0-1	1	
		50	25	23.01	23.18	23.33		1	
		50	50	23.24	23.28	23.30		1	
		64QAM	100	0	23.09	23.23	23.32	0-1	1
1			0	23.29	23.19	23.54	1		
1			50	23.38	23.60	23.33	1		
256QAM			1	99	23.42	23.59	23.58	0-2	1
	50		0	22.42	22.65	22.64	2		
	50		25	22.46	22.65	22.70	2		
	256QAM		50	50	22.62	22.73	22.74	0-2	2
		100	0	22.57	22.70	22.70	2		
		1	0	22.60	22.72	22.85	0-2		2
		1	50	22.69	22.93	22.93		2	
1		99	22.79	22.93	23.00	2			
256QAM		50	0	21.40	21.65	21.62	0-3	3	
		50	25	21.49	21.68	21.75		3	
	50	50	21.65	21.69	21.73	3			
	256QAM	100	0	21.51	21.66	21.65	0-3	3	
		1	0	19.36	19.57	19.60		0-5	5
		1	50	19.55	19.73	19.79			5
		1	99	19.66	19.70	19.79	5		
50		0	19.35	19.63	19.58	5			
50		25	19.45	19.58	19.67	5			
50		50	19.60	19.60	19.69	5			
100	0	19.47	19.67	19.66	5				

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**Table 8-23**

**LTE Band 66 (AWS) Antenna S2 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

LTE Band 66 (AWS) 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]		
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)				
Conducted Power [dBm]									
QPSK	1	0	12.19	12.36	12.43	0	0		
	1	50	12.34	12.53	12.48		0		
	1	99	12.41	12.49	12.58		0		
	QPSK	50	0	12.22	12.51	12.44	0-1	0	
		50	25	12.35	12.48	12.58		0	
		50	50	12.50	12.55	12.53		0	
		100	0	12.39	12.54	12.47		0	
16QAM		1	0	12.50	12.59	12.73		0-1	0
		1	50	12.62	12.77	12.76			0
	1	99	12.63	12.88	12.92	0			
	16QAM	50	0	12.17	12.51	12.41	0-2	0	
		50	25	12.32	12.44	12.55		0	
		50	50	12.53	12.49	12.47		0	
		100	0	12.35	12.52	12.47		0	
64QAM		1	0	12.36	12.55	12.67		0-2	0
	1	50	12.42	12.69	12.65	0			
	1	99	12.65	12.73	12.71	0			
	64QAM	50	0	12.19	12.50	12.41	0-3	0	
		50	25	12.30	12.50	12.55		0	
		50	50	12.51	12.52	12.52		0	
		100	0	12.36	12.50	12.46		0	
256QAM		1	0	12.32	12.50	12.54		0-5	0
	1	50	12.46	12.54	12.52	0			
	1	99	12.46	12.59	12.67	0			
	50	0	12.23	12.51	12.41	0			
	50	25	12.34	12.50	12.56	0			
	50	50	12.50	12.52	12.51	0			
	100	0	12.43	12.42	12.47	0			

**8.2.8 LTE Band 25 Antenna M1**

**Table 8-24**

**LTE Band 25 (PCS) Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 20 MHz Bandwidth**

LTE Band 25 (PCS) 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)			
Conducted Power [dBm]								
QPSK	1	0	23.84	23.86	23.82	0	0	
	1	50	23.85	23.83	23.75		0	
	1	99	23.89	23.80	23.85		0	
	QPSK	50	0	22.85	22.90	22.86	0-1	1
		50	25	22.87	22.84	22.82		1
		50	50	22.91	22.83	22.72		1
		100	0	22.90	22.86	22.81		1
16QAM		1	0	23.10	23.23	23.32		0-1
	1	50	23.02	23.22	23.26	1		
	1	99	23.04	23.21	23.24	1		
	16QAM	50	0	21.91	21.87	21.81	0-2	2
		50	25	21.84	21.79	21.76		2
		50	50	21.90	21.81	21.64		2
		100	0	21.87	21.86	21.77		2
64QAM		1	0	22.05	21.92	21.79		0-2
	1	50	21.99	21.93	21.75	2		
	1	99	22.06	21.89	21.76	2		
	64QAM	50	0	20.87	20.88	20.83	0-3	3
		50	25	20.80	20.81	20.79		3
		50	50	20.85	20.83	20.73		3
		100	0	20.79	20.84	20.78		3
256QAM		1	0	19.24	19.26	19.01		0-5
	1	50	19.19	19.30	18.96	5		
	1	99	19.23	19.23	18.98	5		
	50	0	19.15	19.10	19.12	5		
	50	25	19.09	19.09	19.05	5		
	50	50	19.13	19.09	18.99	5		
	100	0	19.08	19.08	19.06	5		

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**Table 8-25**

**LTE Band 25 (PCS) Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	12.06	12.09	12.10	0	0
	1	50	12.10	12.14	12.09		0
	1	99	12.18	12.10	12.19		0
	50	0	12.17	12.11	12.15	0-1	0
	50	25	12.13	12.17	12.20		0
	50	50	12.17	12.14	12.05		0
16QAM	100	0	12.14	12.14	12.18	0-1	0
	1	0	12.22	12.41	12.29		0
	1	50	12.49	12.45	12.41		0
	1	99	12.49	12.34	12.34	0-2	0
	50	0	12.17	12.13	12.17		0
	50	25	12.17	12.12	12.14		0
64QAM	50	50	12.23	12.11	12.10	0-2	0
	100	0	12.13	12.16	12.15		0
	1	0	12.23	12.34	12.30		0
	1	50	12.31	12.29	12.32	0-3	0
	1	99	12.33	12.38	12.28		0
	50	0	12.17	12.11	12.20		0
256QAM	50	25	12.19	12.18	12.19	0-3	0
	50	50	12.17	12.16	12.07		0
	100	0	12.13	12.13	12.15		0
	1	0	12.16	12.17	12.22	0-5	0
	1	50	12.28	12.28	12.22		0
	1	99	12.28	12.27	12.20		0
50	0	12.20	12.16	12.15	0		
50	25	12.20	12.16	12.16	0		
50	50	12.23	12.14	12.04	0		
100	0	12.17	12.17	12.15	0		

**Table 8-26**

**LTE Band 25 (PCS) Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3 Active) - 20 MHz Bandwidth**

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	17.25	17.11	17.10	0	0
	1	50	17.26	17.15	17.06		0
	1	99	17.21	17.18	17.11		0
	50	0	17.26	17.23	17.21	0-1	0
	50	25	17.19	17.19	17.14		0
	50	50	17.27	17.20	17.08		0
16QAM	100	0	17.22	17.17	17.16	0-1	0
	1	0	17.39	17.43	17.41		0
	1	50	17.48	17.47	17.28		0
	1	99	17.50	17.39	17.41	0-2	0
	50	0	17.22	17.17	17.20		0
	50	25	17.16	17.11	17.11		0
64QAM	50	50	17.28	17.13	17.02	0-2	0
	100	0	17.25	17.20	17.15		0
	1	0	17.39	17.29	17.32		0-3
	1	50	17.39	17.30	17.30	0	
	1	99	17.37	17.27	17.26	0	
	256QAM	50	0	17.25	17.21	17.18	0-3
50		25	17.22	17.12	17.10	0	
50		50	17.24	17.13	17.09	0	
100		0	17.22	17.16	17.16	0-5	0
1		0	17.24	17.28	17.28		0
1		50	17.29	17.25	17.18		0
1	99	17.28	17.22	17.25	0		
50	0	17.22	17.20	17.18	0		
50	25	17.15	17.14	17.10	0		
50	50	17.21	17.18	17.10	0		
100	0	17.19	17.16	17.17	0		

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## 8.2.9 LTE Band 25 Antenna S2

Table 8-27

LTE Band 25 (PCS) Antenna S2 Measured  $P_{Max}$  for ECI = 0 (Free) - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	22.81	22.74	22.82	0	0
	1	50	22.90	22.81	22.96		0
	1	99	22.85	22.89	22.97		0
	50	0	22.36	22.10	22.14	0-1	1
	50	25	22.28	22.14	22.37		1
	50	50	22.22	22.13	22.21		1
100	0	22.27	22.10	22.16	1		
16QAM	1	0	22.39	22.32	22.42	0-1	1
	1	50	22.47	22.33	22.59		1
	1	99	22.41	22.56	22.47		1
	50	0	21.25	21.09	21.14	0-2	2
	50	25	21.20	21.12	21.23		2
	50	50	21.23	21.09	21.09		2
100	0	21.25	21.06	21.15	2		
64QAM	1	0	21.32	21.22	21.28	0-2	2
	1	50	21.34	21.33	21.47		2
	1	99	21.33	21.42	21.46		2
	50	0	20.23	20.08	20.02	0-3	3
	50	25	20.20	20.13	20.16		3
	50	50	20.18	20.06	20.06		3
100	0	20.21	20.06	20.07	3		
256QAM	1	0	18.29	18.02	18.23	0-5	5
	1	50	18.25	18.18	18.13		5
	1	99	18.19	18.21	18.13		5
	50	0	18.18	18.03	18.01	0-5	5
	50	25	18.15	18.12	18.23		5
	50	50	18.14	18.09	18.07		5
100	0	18.18	17.99	18.03	5		

Table 8-28

LTE Band 25 (PCS) Antenna S2 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	12.19	12.36	12.43	0	0
	1	50	12.34	12.53	12.48		0
	1	99	12.41	12.49	12.58		0
	50	0	12.22	12.51	12.44	0-1	0
	50	25	12.35	12.48	12.58		0
	50	50	12.50	12.55	12.53		0
100	0	12.39	12.54	12.47	0		
16QAM	1	0	12.50	12.59	12.73	0-1	0
	1	50	12.62	12.77	12.76		0
	1	99	12.63	12.88	12.92		0
	50	0	12.17	12.51	12.41	0-2	0
	50	25	12.32	12.44	12.55		0
	50	50	12.53	12.49	12.47		0
100	0	12.35	12.52	12.47	0		
64QAM	1	0	12.36	12.55	12.67	0-2	0
	1	50	12.42	12.69	12.65		0
	1	99	12.65	12.73	12.71		0
	50	0	12.19	12.50	12.41	0-3	0
	50	25	12.30	12.50	12.55		0
	50	50	12.51	12.52	12.52		0
100	0	12.36	12.50	12.46	0		
256QAM	1	0	12.32	12.50	12.54	0-5	0
	1	50	12.46	12.54	12.52		0
	1	99	12.46	12.59	12.67		0
	50	0	12.23	12.51	12.41	0-5	0
	50	25	12.34	12.50	12.56		0
	50	50	12.50	12.52	12.51		0
100	0	12.43	12.42	12.47	0		

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### 8.2.10 LTE Band 30 Antenna M1

**Table 8-29**  
**LTE Band 30 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 10 MHz Bandwidth**

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	22.77	0	0
	1	25	<b>22.80</b>		0
	1	49	22.71		0
	25	0	21.72	0-1	1
	25	12	21.77		1
	25	25	<b>21.78</b>		1
16QAM	50	0	21.72	0-1	1
	1	0	22.29		1
	1	25	22.29		1
	1	49	22.21	0-2	1
	25	0	20.72		2
	25	12	20.79		2
64QAM	25	25	20.79	0-2	2
	25	25	20.79		2
	50	0	20.67		2
	1	0	20.76	0-2	2
	1	25	20.76		2
	1	49	20.68		2
256QAM	25	0	19.98	0-3	3
	25	12	20.08		3
	25	25	20.12		3
	50	0	20.03	0-5	3
	1	0	18.43		5
	1	25	18.41		5
256QAM	1	49	18.37	0-5	5
	25	0	18.00		5
	25	12	18.08		5
	25	25	18.08	5	
	50	0	18.06	5	

**Table 8-30**  
**LTE Band 30 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 10 MHz Bandwidth**

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	11.88	0	0
	1	25	<b>11.89</b>		0
	1	49	11.86		0
	25	0	11.89	0-1	0
	25	12	<b>11.96</b>		0
	25	25	11.90		0
16QAM	50	0	11.85	0-1	0
	1	0	11.92		0
	1	25	11.92		0
	1	49	11.89	0-2	0
	25	0	11.92		0
	25	12	12.00		0
64QAM	25	25	11.97	0-2	0
	25	25	11.97		0
	50	0	11.89		0
	1	0	11.83	0-2	0
	1	25	11.86		0
	1	49	11.82		0
256QAM	25	0	11.92	0-3	0
	25	12	11.99		0
	25	25	12.00		0
	50	0	11.90	0-5	0
	1	0	12.17		0
	1	25	12.18		0
256QAM	1	49	12.14	0-5	0
	25	0	11.94		0
	25	12	12.01		0
	25	25	11.99	0	
	50	0	11.94	0	

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**Table 8-31**  
**LTE Band 30 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3 Active) - 10 MHz Bandwidth**

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	19.57	0	0
	1	25	<b>19.66</b>		0
	1	49	19.56		0
	25	0	19.49	0-1	0
	25	12	19.56		0
	25	25	<b>19.57</b>		0
16QAM	50	0	19.56	0-1	0
	1	0	19.82		0
	1	25	19.90		0
	1	49	19.81	0-2	0
	25	0	19.51		0
	25	12	19.57		0
64QAM	25	25	19.57	0-2	0
	25	0	19.54		0
	50	0	19.54		0
	1	0	19.75	0-2	0
	1	25	19.75		0
	1	49	19.79		0
256QAM	25	0	19.43	0-3	0
	25	12	19.59		0
	25	25	19.58		0
	50	0	19.53	0	
	1	0	18.20	0-5	2
	1	25	18.18		2
1	49	18.13	2		
25	0	17.93	2		
25	12	18.04	2		
25	25	18.14	2		
50	0	18.06	2		

## 8.2.11 LTE Band 30 Antenna S2

**Table 8-32**  
**LTE Band 30 Antenna S2 Measured  $P_{Max}$  for ECI = 0 (Free) - 10 MHz Bandwidth**

LTE Band 30 10 MHz Bandwidth						
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			27710 (2310.0 MHz) Conducted Power [dBm]			
QPSK	1	0	23.12	0	0	
	1	25	<b>23.25</b>		0	
	1	49	23.19		0	
	25	0	22.23	0-1	1	
	25	12	<b>22.30</b>		1	
	25	25	22.26		1	
16QAM	50	0	22.24	0-1	1	
	1	0	22.52		1	
	1	25	22.66		1	
	1	49	22.57	0-2	1	
	25	0	21.21		2	
	25	12	21.24		2	
64QAM	25	25	21.28	0-2	2	
	50	0	21.26		2	
	1	0	21.40		2	
	1	25	21.42	0-2	2	
	1	49	21.41		2	
	25	0	20.19		0-3	3
25	12	20.27	3			
25	25	20.23	3			
256QAM	50	0	20.22	0-3	3	
	1	0	18.23		0-5	5
	1	25	18.31			5
	1	49	18.28	5		
	25	0	18.17	5		
	25	12	18.20	5		
25	25	18.17	5			
50	0	18.20	5			

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**Table 8-33**  
**LTE Band 30 Antenna S2 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 10 MHz Bandwidth**

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	11.72	0	0
	1	25	11.60		0
	1	49	11.71		0
	25	0	11.59	0-1	0
	25	12	11.59		0
	25	25	11.70		0
16QAM	50	0	11.53	0-1	0
	1	0	11.89		0
	1	25	11.94		0
	1	49	11.95	0-2	0
	25	0	11.53		0
	25	12	11.58		0
64QAM	25	25	11.53	0-2	0
	50	0	11.53		0
	1	0	11.68		0-3
	1	25	11.82	0	
	1	49	11.82	0	
	256QAM	25	0	11.52	0-3
25		12	11.60	0	
25		25	11.58	0	
50		0	11.56	0-5	0
1		0	11.67		0
1		25	11.74		0
256QAM	1	49	11.74	0-5	0
	25	0	11.57		0
	25	12	11.60		0
	25	25	11.56	0-5	0
	50	0	11.67		0
	50	0	11.63		0

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### 8.2.12 LTE Band 7 Antenna M1

**Table 8-34**  
**LTE Band 7 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 20 MHz Bandwidth**

LTE Band 7 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]		
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)				
			Conducted Power [dBm]						
QPSK	1	0	23.90	23.96	23.91	0	0		
	1	50	23.89	23.90	23.83		0		
	1	99	23.91	23.84	23.76		0		
	0-1	50	0	22.88	22.88	22.82	0-1	1	
		50	25	22.87	22.90	22.77		1	
		50	50	22.89	22.87	22.76		1	
		100	0	22.85	22.89	22.80		1	
1		0	23.36	23.13	23.29	0-1		1	
1	50	23.34	23.13	23.16	1				
1	99	23.36	23.08	23.07	1				
50	0	21.83	21.87	21.82	0-2		2		
50	25	21.84	21.90	21.74			2		
50	50	21.82	21.88	21.76		2			
16QAM	100	0	21.89	21.86	21.76	0-2	2		
	1	0	21.84	22.10	21.98		0-2	2	
	1	50	21.81	22.12	21.88			2	
	1	99	21.86	22.09	21.76			2	
	0-3	50	0	20.83	20.82		20.80	0-3	3
		50	25	20.86	20.85		20.74		3
		50	50	20.84	20.78		20.75		3
100		0	20.85	20.78	20.76	3			
256QAM	1	0	19.10	19.23	19.36	0-5	5		
	1	50	19.10	19.27	19.24		5		
	1	99	19.08	19.27	19.13		5		
	50	0	19.14	19.10	19.04		5		
	50	25	19.13	19.14	19.07		5		
	50	50	19.17	19.17	19.07		5		
	100	0	19.16	19.12	19.06		5		

**Table 8-35**  
**LTE Band 7 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

LTE Band 7 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]		
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)				
			Conducted Power [dBm]						
QPSK	1	0	10.99	11.08	11.05	0	0		
	1	50	10.99	10.97	10.98		0		
	1	99	10.95	10.96	10.88		0		
	0-1	50	0	11.04	11.00	10.98	0-1	0	
		50	25	11.00	11.04	10.97		0	
		50	50	11.06	11.08	10.99		0	
		100	0	11.01	11.02	10.99		0	
1		0	11.18	11.14	11.39	0-1		0	
1	50	11.18	11.19	11.30	0				
1	99	11.16	11.17	11.21	0				
50	0	11.01	10.98	10.95	0-2		0		
50	25	10.98	11.09	10.98			0		
50	50	11.01	11.06	10.94		0			
16QAM	100	0	11.04	11.01	10.97	0-2	0		
	1	0	11.01	11.16	11.12		0-2	0	
	1	50	11.00	11.18	10.99			0	
	1	99	10.96	11.20	10.93			0	
	0-3	50	0	11.10	11.00		11.03	0-3	0
		50	25	11.09	11.06		11.01		0
		50	50	11.09	11.06		11.02		0
100		0	11.02	10.98	10.99	0			
256QAM	1	0	11.00	11.14	11.23	0-5	0		
	1	50	10.98	11.18	11.11		0		
	1	99	10.96	11.18	11.02		0		
	50	0	11.05	10.96	11.00		0		
	50	25	11.07	11.05	10.97		0		
	50	50	11.10	11.06	10.98		0		
	100	0	11.06	11.02	10.98		0		

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**Table 8-36**  
**LTE Band 7 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3 Active) - 20 MHz Bandwidth**

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	19.41	19.44	19.50	0	0
	1	50	19.48	19.48	19.38		0
	1	99	19.50	19.52	19.53		0
	50	0	19.47	19.46	19.41	0-1	0
	50	25	19.41	19.51	19.43		0
	50	50	19.52	19.53	19.54		0
	100	0	19.41	19.51	19.40		0
16QAM	1	0	19.69	19.80	19.81	0-1	0
	1	50	19.78	19.87	19.65		0
	1	99	19.76	19.78	19.48		0
	50	0	19.45	19.48	19.41	0-2	0
	50	25	19.43	19.50	19.38		0
	50	50	19.52	19.57	19.40		0
	100	0	19.48	19.55	19.39		0
64QAM	1	0	19.56	19.66	19.68	0-2	0
	1	50	19.67	19.70	19.52		0
	1	99	19.59	19.63	19.45		0
	50	0	19.42	19.43	19.42	0-3	0
	50	25	19.48	19.50	19.43		0
	50	50	19.52	19.60	19.39		0
	100	0	19.48	19.54	19.47		0
256QAM	1	0	19.03	19.05	19.07	0-5	1
	1	50	19.13	19.12	18.93		1
	1	99	19.03	19.15	18.86		1
	50	0	18.91	18.98	18.92		1
	50	25	18.92	18.98	18.88		1
	50	50	19.00	19.11	18.90		1
	100	0	18.97	18.97	18.95		1

**Table 8-37**  
**LTE Band 7 Antenna M1 Uplink Carrier Aggregation Measured  $P_{Max}$  for ECI = 0 (Free) - 20 MHz Bandwidth**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC UL Channel	PCC			Modulation	PCC UL# RB	PCC UL RB Offset	SCC					Modulation	SCC UL# RB	SCC UL RB Offset	Power		
				PCC UL Frequency [MHz]	PCC DL Channel	PCC DL Frequency [MHz]				SCC Band	SCC Bandwidth [MHz]	SCC UL Channel	SCC UL Frequency [MHz]	SCC DL Channel				SCC DL Frequency [MHz]	LTE Tx Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_7C	LTE B7	20	21100	2535.0	3100	2655.0	QPSK	1	0	LTE B7	20	20902	2515.2	2902	2635.2	QPSK	1	99	23.06	23.96

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### 8.2.13 LTE Band 7 Antenna S2

**Table 8-38**  
**LTE Band 7 Antenna S2 Measured  $P_{Max}$  for ECI = 0 (Free) - 20 MHz Bandwidth**

LTE Band 7 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	22.86	22.67	22.80	0	0	
	1	50	22.78	22.69	22.88		0	
	1	99	22.77	22.86	23.06		0	
	QPSK	50	0	21.94	21.91	21.93	0-1	1
		50	25	21.80	21.84	21.99		1
		50	50	22.00	21.87	22.01		1
		100	0	21.93	21.87	21.93		1
16QAM	1	0	22.16	22.07	22.17	0-1	1	
	1	50	22.09	22.09	22.16		1	
	1	99	21.99	22.18	22.44		1	
	16QAM	50	0	20.92	20.91	20.83	0-2	2
		50	25	20.77	20.81	20.96		2
		50	50	20.97	20.81	20.97		2
		100	0	20.92	20.86	20.94		2
64QAM	1	0	20.95	20.84	21.02	0-2	2	
	1	50	20.96	21.02	20.93		2	
	1	99	20.96	21.04	21.14		2	
	64QAM	50	0	19.90	19.86	19.87	0-3	3
		50	25	19.73	19.83	19.94		3
		50	50	19.98	19.77	19.94		3
		100	0	19.90	19.79	19.89		3
256QAM	1	0	17.89	17.72	17.86	0-5	5	
	1	50	17.73	17.76	17.81		5	
	1	99	17.65	17.84	18.14		5	
	256QAM	50	0	17.83	17.86	17.74	0-5	5
		50	25	17.75	17.72	17.87		5
		50	50	17.85	17.67	17.90		5
		100	0	17.84	17.76	17.85		5

**Table 8-39**  
**LTE Band 7 Antenna S2 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

LTE Band 7 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	9.85	9.72	9.81	0	0	
	1	50	9.78	9.76	9.80		0	
	1	99	9.71	9.85	10.04		0	
	QPSK	50	0	9.90	9.82	9.75	0-1	0
		50	25	9.79	9.81	9.84		0
		50	50	9.92	9.76	9.95		0
		100	0	9.88	9.82	9.89		0
16QAM	1	0	9.98	10.09	10.21	0-1	0	
	1	50	9.97	10.21	10.27		0	
	1	99	9.99	10.16	10.40		0	
	16QAM	50	0	9.86	9.83	9.75	0-2	0
		50	25	9.83	9.81	9.88		0
		50	50	9.90	9.77	9.94		0
		100	0	9.82	9.80	9.88		0
64QAM	1	0	10.05	9.82	9.85	0-2	0	
	1	50	9.93	9.95	9.99		0	
	1	99	9.81	9.90	10.20		0	
	64QAM	50	0	9.86	9.86	9.80	0-3	0
		50	25	9.80	9.83	9.90		0
		50	50	9.91	9.78	9.93		0
		100	0	9.85	9.83	9.80		0
256QAM	1	0	10.00	9.84	9.87	0-5	0	
	1	50	9.81	9.85	10.01		0	
	1	99	9.76	9.86	10.15		0	
	256QAM	50	0	9.87	9.84	9.74	0-5	0
		50	25	9.80	9.82	9.85		0
		50	50	9.92	9.72	9.95		0
		100	0	9.88	9.82	9.83		0

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## 8.2.14 LTE Band 41 Antenna M1

Table 8-40

LTE Band 41 PC3 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
Conducted Power [dBm]									
QPSK	1	0	23.86	23.85	23.62	23.71	23.82	0	0
	1	50	23.84	23.79	23.51	23.71	23.81		0
	1	99	23.84	23.78	23.52	23.75	23.90		0
	50	0	22.76	22.82	22.59	22.71	22.85		1
	50	25	22.86	22.77	22.54	22.72	22.86		1
16QAM	50	50	22.85	22.85	22.53	22.71	22.89	0-1	1
	100	0	22.83	22.79	22.53	22.73	22.85	1	
	1	0	23.13	22.88	23.00	23.00	22.91	0-1	1
	1	50	23.12	22.81	22.89	22.97	22.87		1
	1	99	23.12	22.81	22.95	23.06	22.95		1
50	0	21.73	21.84	21.50	21.61	21.86	2		
50	25	21.74	21.75	21.52	21.65	21.85	2		
64QAM	50	50	21.82	21.75	21.49	21.69	21.84	0-2	2
	100	0	21.78	21.80	21.51	21.66	21.85	2	
	1	0	22.09	21.83	21.05	21.82	21.84	0-2	2
	1	50	21.96	21.76	21.00	21.88	21.80		2
	1	99	21.93	21.76	21.02	21.89	21.85		2
50	0	20.70	20.83	20.48	20.58	20.86	3		
50	25	20.75	20.81	20.45	20.58	20.83	3		
256QAM	50	50	20.78	20.82	20.46	20.64	20.87	0-3	3
	100	0	20.71	20.79	20.52	20.62	20.86	3	
	1	0	19.10	19.13	18.77	18.84	19.15	0-5	5
	1	50	19.07	19.04	18.73	18.87	19.17		5
	1	99	18.99	19.01	18.72	18.92	19.20		5
50	0	18.00	19.08	18.82	18.87	19.09	5		
50	25	19.10	19.02	18.76	18.83	19.09	5		
256QAM	50	50	19.03	19.01	18.77	18.91	19.16	5	
	100	0	19.03	19.05	18.86	18.86	19.16	5	

Table 8-41

LTE Band 41 PC3 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
QPSK	1	0	12.70	12.44	12.36	12.59	12.73	0	0
	1	50	12.63	12.35	12.26	12.74	12.86		0
	1	99	12.50	12.23	12.23	12.75	12.80		0
	50	0	12.76	12.39	12.31	12.70	12.97		0
	50	25	12.75	12.36	12.31	12.79	12.84		0
16QAM	50	50	12.72	12.35	12.25	12.78	12.81	0-1	0
	100	0	12.68	12.38	12.25	12.72	12.74	0	
	1	0	12.79	12.46	12.31	12.63	12.75	0-1	0
	1	50	12.74	12.37	12.23	12.72	12.74		0
	1	99	12.58	12.28	12.28	12.76	12.88		0
50	0	12.72	12.46	12.26	12.76	12.85	0		
50	25	12.72	12.45	12.29	12.81	12.76	0		
64QAM	50	50	12.72	12.38	12.27	12.83	12.75	0-2	0
	100	0	12.75	12.42	12.29	12.74	12.81	0	
	1	0	12.51	12.16	12.05	12.33	12.51	0-2	0
	1	50	12.46	12.11	11.96	12.45	12.47		0
	1	99	12.31	11.95	11.95	12.47	12.38		0
50	0	12.83	12.45	12.36	12.75	12.81	0		
50	25	12.80	12.40	12.36	12.84	12.84	0		
256QAM	50	50	12.81	12.41	12.30	12.81	12.74	0-3	0
	100	0	12.77	12.42	12.26	12.74	12.74	0	
	1	0	12.74	12.43	12.26	12.54	12.68	0-5	0
	1	50	12.62	12.26	12.11	12.60	12.63		0
	1	99	12.47	12.22	12.15	12.65	12.59		0
50	0	12.76	12.54	12.31	12.81	12.83	0		
50	25	12.74	12.44	12.33	12.86	12.84	0		
256QAM	50	50	12.78	12.43	12.40	12.87	12.82	0-5	0
	100	0	12.75	12.41	12.26	12.75	12.82	0	

Table 8-42

LTE Band 41 PC2 Antenna M1 Measured  $P_{max}$  for ECI = 0 (Free) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
Conducted Power [dBm]										
QPSK	1	0	25.91	25.85	25.57	25.75	25.84	0	0	
	1	50	25.85	25.83	25.52	25.77	25.83		0	
	1	99	25.92	25.77	25.50	25.77	25.90		0	
	50	0	24.82	24.87	24.63	24.69	24.92		0-1	1
	50	25	24.83	24.86	24.56	24.70	24.87		1	
	50	50	24.94	24.86	24.62	24.78	24.88		1	
	100	0	24.90	24.81	24.60	24.70	24.88		1	

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**Table 8-43**

**LTE Band 41 PC2 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
Conducted Power [dBm]									
QPSK	1	0	14.13	14.07	13.72	13.83	13.95	0	0
	1	50	14.03	13.93	13.64	13.78	13.96		0
	1	99	14.10	14.01	13.67	13.91	13.85		0
	0-1	50	0	13.93	14.03	13.74	13.73	13.96	0
		50	25	14.11	14.08	13.79	13.82	13.92	0
		50	50	14.08	14.07	13.83	13.78	13.98	0
		100	0	14.00	14.02	13.80	13.73	13.94	0

**Table 8-44**

**LTE Band 41 PC3 Antenna M1 Uplink Carrier Aggregation Measured  $P_{Max}$  for ECI = 0 (Free)**

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	41490	2680.0	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	23.24	23.82

**Table 8-45**

**LTE Band 41 PC2 Antenna M1 Uplink Carrier Aggregation Measured  $P_{max}$  for ECI = 0 (Free)**

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41 PC2	20	41490	2680.0	QPSK	1	0	LTE B41 PC2	20	41292	2660.2	QPSK	1	99	25.20	25.84

**Table 8-46**

**LTE Band 41 PC3 Antenna M1 Uplink Carrier Aggregation Measured  $P_{limit}$  for ECI = 1 (Grip Sensor Active)**

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	41490	2680.0	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	11.80	12.73

**Table 8-47**

**LTE Band 41 PC2 Antenna M1 Uplink Carrier Aggregation Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active)**

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41 PC2	20	41490	2680.0	QPSK	1	0	LTE B41 PC2	20	41292	2660.2	QPSK	1	99	13.66	13.95

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**Table 8-48**

**LTE Band 41 PC3 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3) - 20 MHz Bandwidth**

LTE Band 41 20 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
			Conducted Power [dBm]							
QPSK	1	0	21.94	21.84	21.79	21.82	21.80	0	0	
	1	50	21.98	21.83	21.72	21.82	21.81		0	
	1	99	21.97	21.70	21.70	21.82	21.81		0	
	16QAM	50	0	21.94	21.92	21.77	21.81	21.86	0-1	0
		50	25	21.90	21.89	21.77	21.83	21.82		0
		50	50	21.88	21.87	21.77	21.84	21.83		0
		64QAM	100	0	21.87	21.87	21.77	21.80	21.79	0-1
1			0	22.00	21.86	21.76	21.81	21.77	0	
1			50	22.02	21.85	21.69	21.81	21.78	0	
256QAM	1		99	21.99	21.78	21.74	21.83	21.80	0-2	0
	50		0	21.48	21.68	21.28	21.49	21.59		0
	50		25	21.55	21.59	21.27	21.46	21.54		0
	64QAM		50	50	21.64	21.58	21.31	21.47	21.58	0-2
		100	0	21.58	21.62	21.31	21.46	21.55	0	
		1	0	21.16	21.27	21.00	21.09	21.17	0-3	
		1	50	21.14	21.24	20.89	21.09	21.18		0
1		99	21.23	21.14	20.92	21.09	21.22	0		
50		0	20.75	20.66	20.48	20.49	20.61	0.4		
256QAM		50	25	20.80	20.62	20.47	20.47	20.58	0-5	0.4
	50	50	20.67	20.59	20.54	20.53	20.53	0.4		
	100	0	20.77	20.55	20.48	20.50	20.46	0.4		
	256QAM	1	0	18.73	18.65	18.56	18.63	18.65	0-5	2.4
		1	50	18.64	18.69	18.60	18.61	18.64		2.4
		1	99	18.64	18.58	18.60	18.67	18.69		2.4
		256QAM	50	0	18.83	18.91	18.90	18.81	18.97	0-5
50			25	18.99	18.97	18.81	18.78	18.96	2.4	
50			50	18.95	18.95	18.88	18.78	18.92	2.4	
100			0	18.90	18.89	18.84	18.77	18.93	2.4	

**8.2.15 LTE Band 48 Antenna S4**

**Table 8-49**

**LTE Band 48 Antenna S4 Measured  $P_{Max}$  for ECI = 0 (Free) - 20 MHz Bandwidth**

LTE Band 48 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			55340 (3560.0 MHz)	55773 (3603.3 MHz)	56207 (3646.7 MHz)	56640 (3690.0 MHz)			
			Conducted Power [dBm]						
QPSK	1	0	22.61	22.84	22.99	22.72	0	0	
	1	50	22.70	22.92	22.91	22.66		0	
	1	99	22.68	23.01	22.84	22.58		0	
	16QAM	50	0	21.64	21.85	22.00	21.76	0-1	1
		50	25	21.66	21.92	21.93	21.66		1
		50	50	21.72	22.05	21.96	21.65	0-1	1
		100	0	21.74	21.95	21.92	21.71		1
64QAM	1	0	21.85	21.81	22.37	22.00	0-1	1	
	1	50	21.92	21.90	22.36	21.94		1	
	1	99	21.95	21.93	22.17	21.75		1	
	16QAM	50	0	20.63	20.88	20.95	20.66	0-2	2
		50	25	20.67	20.95	20.91	20.62		2
		50	50	20.69	20.99	20.93	20.61	0-2	2
		100	0	20.69	20.89	20.91	20.68		2
64QAM		1	0	20.81	20.76	20.55	20.94	0-2	2
	1	50	20.88	20.87	20.53	20.91	2		
	1	99	20.93	20.91	20.42	20.73	2		
	256QAM	50	0	19.59	19.89	19.96	19.70	0-3	3
		50	25	19.62	19.95	19.89	19.65		3
		50	50	19.70	20.03	19.91	19.62		3
		100	0	19.61	19.92	19.92	19.66		3
256QAM	1	0	17.53	17.83	17.88	17.67	0-5	5	
	1	50	17.60	17.92	17.79	17.62		5	
	1	99	17.70	18.00	17.67	17.45		5	
	256QAM	50	0	17.59	17.77	17.95	17.62	0-5	5
		50	25	17.63	17.83	17.91	17.61		5
		50	50	17.65	17.89	17.89	17.54		5
		100	0	17.58	17.83	17.91	17.59		5

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**Table 8-50**  
**LTE Band 48 Antenna S4 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

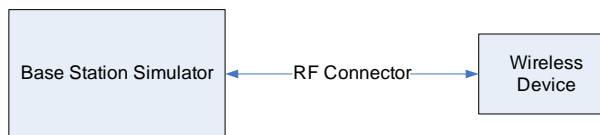
LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55340 (3560.0 MHz)	55773 (3603.3 MHz)	56207 (3646.7 MHz)	56640 (3690.0 MHz)		
			Conducted Power [dBm]					
QPSK	1	0	12.00	12.56	12.66	12.06	0	0
	1	50	12.11	12.57	12.53	11.98		0
	1	99	12.25	12.67	12.36	11.90		0
	50	0	12.06	12.58	12.56	12.09	0-1	0
	50	25	12.11	12.54	12.52	11.94		0
	50	50	12.17	12.66	12.45	11.95		0
16QAM	100	0	12.06	12.58	12.53	11.96	0-1	0
	1	0	12.19	12.73	12.85	12.22		0
	1	50	12.36	12.79	12.69	12.21		0
	1	99	12.44	12.88	12.61	12.12	0-2	0
	50	0	12.06	12.63	12.64	12.03		0
	50	25	12.13	12.66	12.58	11.99		0
64QAM	50	50	12.20	12.63	12.48	11.93	0-2	0
	100	0	12.16	12.63	12.54	11.95		0
	1	0	11.90	12.47	12.58	12.03		0-3
	1	50	12.09	12.54	12.50	11.94	0	
	1	99	12.19	12.62	12.38	11.87	0	
	256QAM	50	0	12.11	12.57	12.62	11.99	0-3
50		25	12.14	12.66	12.53	12.02	0	
50		50	12.23	12.68	12.49	11.96	0	
100		0	12.14	12.60	12.53	11.93	0-5	0
1		0	11.93	12.51	12.67	11.99		0
1		50	12.11	12.55	12.53	11.93		0
256QAM	1	99	12.22	12.69	12.40	11.88	0-5	0
	50	0	12.07	12.66	12.69	12.05		0
	50	25	12.17	12.66	12.55	11.99		0
	50	50	12.20	12.74	12.52	11.98	0	
	100	0	12.16	12.64	12.53	11.97	0	

**Table 8-51**  
**LTE Band 48 Antenna S4 Uplink Carrier Aggregation Measured  $P_{Max}$  for ECI = 0 (Free)**

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_48C	LTE B48	20	55773	3603.3	QPSK	1	99	LTE B48	20	55971	3623.1	QPSK	1	0	22.16	23.01

**Table 8-52**  
**LTE Band 48 Antenna S4 Uplink Carrier Aggregation Measured  $P_{Max}$  for ECI = 1 (Grip Sensor Active)**

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_48C	LTE B48	20	56640	3690.0	QPSK	50	0	LTE B48	20	56442	3670.2	QPSK	50	50	12.06	12.09



**Figure 8-2**  
**Power Measurement Setup**

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### 8.3 NR Conducted Powers

Per October 2020 TCB Workshop Guidance, NR FR1 SAR evaluations are being generally based on adapting the existing LTE SAR procedures (FCC KDB Publication 941225 D05v02r05). Therefore, NR SAR for the lower bandwidths was not required for testing based on the measured output power and the reported NR SAR for the highest bandwidth. Lower bandwidth conducted powers for all NR bands can be found in the LTE and NR Lower Bandwidth Conducted Powers Appendix.

Note: Some bands do not support non-overlapping channels. Per FCC Guidance, 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.

#### 8.3.1 NR Band n71 Antenna M1

**Table 8-53**  
**NR Band n71 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free), ECI = 2 (Grip Sensor #3 Active) - 20 MHz Bandwidth**

NR Band n71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			136100 (680.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	24.14	0	0.0
	1	53	24.09		0.0
	1	104	23.71		0.0
	50	0	23.61	0-1	1.0
	50	28	24.03	0	0.0
	50	56	23.55	0-1	1.0
	100	0	23.50		1.0
DFT-s-OFDM 16QAM	1	1	22.82	0-1	1.0
CP-OFDM QPSK	1	1	23.10	0-1.5	1.5

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**Table 8-54**  
**NR Band n71 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

NR Band n71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			136100 (680.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	15.79	0	0.0
	1	53	15.78		0.0
	1	104	15.43		0.0
	50	0	16.16	0-1	0.0
	50	28	15.82	0	0.0
	50	56	15.94	0-1	0.0
	100	0	15.74		0.0
DFT-s-OFDM 16QAM	1	1	15.76	0-1	0.0
CP-OFDM QPSK	1	1	16.02	0-1.5	0.0

### 8.3.2 NR Band n12 Antenna M1

**Table 8-55**  
**NR Band n12 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free), ECI = 2 (Grip Sensor #3 Active) – 15 MHz Bandwidth**

NR Band n12 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			141500 (707.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	24.01	0	0.0
	1	40	24.00		0.0
	1	77	23.79		0.0
	36	0	22.95	0-1	1.0
	36	22	24.04	0	0.0
	36	43	22.83	0-1	1.0
	75	0	22.94		1.0
DFT-s-OFDM 16QAM	1	1	23.06	0-1	1.0
CP-OFDM QPSK	1	1	22.51	0-1.5	1.5

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**Table 8-56**  
**NR Band n12 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 15 MHz Bandwidth**

NR Band n12 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			141500 (707.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	15.95	0	0.0
	1	40	15.88		0.0
	1	77	15.90		0.0
	36	0	15.92	0-1	0.0
	36	22	16.01	0	0.0
	36	43	15.97	0-1	0.0
	75	0	15.93		0.0
DFT-s-OFDM 16QAM	1	1	15.92	0-1	0.0
CP-OFDM QPSK	1	1	16.13	0-1.5	0.0

### 8.3.3 NR Band n26 Antenna M1

**Table 8-57**  
**NR Band n26 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free), ECI = 2 (Grip Sensor #3 Active) - 20 MHz Bandwidth**

NR Band n26 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			166300 (831.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.11	0	0.0
	1	53	23.30		0.0
	1	104	23.58		0.0
	50	0	22.50	0-1	1.0
	50	28	23.57	0	0.0
	50	56	22.77	0-1	1.0
	100	0	22.65		1.0
DFT-s-OFDM 16QAM	1	1	22.26	0-1	1.0
CP-OFDM QPSK	1	1	21.85	0-1.5	1.5

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**Table 8-58**  
**NR Band n26 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 20 MHz Bandwidth**

NR Band n26 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			166300 (831.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	13.50	0	0.0
	1	53	13.79		0.0
	1	104	<b>13.97</b>		0.0
	50	0	13.93	0-1	0.0
	50	28	13.87	0	0.0
	50	56	<b>14.18</b>	0-1	0.0
	100	0	13.95		0.0
DFT-s-OFDM 16QAM	1	1	13.62	0-1	0.0
CP-OFDM QPSK	1	1	13.79	0-1.5	0.0

### 8.3.4 NR Band n70 Antenna M1

**Table 8-59**  
**NR Band n70 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) – 15 MHz Bandwidth**

NR Band n70 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			340500 (1702.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	22.73	0	0.0
	1	40	22.83		0.0
	1	77	<b>22.85</b>		0.0
	36	0	22.35	0-1	0.0
	36	22	<b>22.96</b>	0	0.0
	36	43	22.37	0-1	0.0
	75	0	22.35		0.0
DFT-s-OFDM 16QAM	1	1	22.24	0-1	0.0
CP-OFDM QPSK	1	1	22.00	0-1.5	0.0

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**Table 8-60**  
**NR Band n70 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 15 MHz Bandwidth**

NR Band n70 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			340500 (1702.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	12.83	0	0.0
	1	40	<b>12.90</b>		0.0
	1	77	12.83		0.0
	36	0	12.94	0-1	0.0
	36	22	<b>12.98</b>	0	0.0
	36	43	12.97	0-1	0.0
	75	0	12.89		0.0
DFT-s-OFDM 16QAM	1	1	12.85	0-1	0.0
CP-OFDM QPSK	1	1	12.83	0-1.5	0.0

**Table 8-61**  
**NR Band n70 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3 Active) - 15 MHz Bandwidth**

NR Band n70 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			340500 (1702.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.72	0	0.0
	1	40	<b>21.77</b>		0.0
	1	77	21.74		0.0
	36	0	21.71	0-1	0.0
	36	22	<b>21.76</b>	0	0.0
	36	43	21.70	0-1	0.0
	75	0	21.69		0.0
DFT-s-OFDM 16QAM	1	1	21.21	0-1	0.0
CP-OFDM QPSK	1	1	20.82	0-1.5	0.0

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### 8.3.5 NR Band n66 Antenna M1

**Table 8-62**  
NR Band n66 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 40 MHz Bandwidth

NR Band n66 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.41	0	0.0
	1	108	<b>23.51</b>		0.0
	1	214	23.11		0.0
	108	0	22.91	0-1	0.5
	108	54	<b>23.43</b>	0	0.0
	108	108	22.72	0-1	0.5
	216	0	22.82		0.5
DFT-s-OFDM 16QAM	1	1	22.86	0-1	0.5
CP-OFDM QPSK	1	1	22.46	0-1.5	1.0

**Table 8-63**  
NR Band n66 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 40 MHz Bandwidth

NR Band n66 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	14.18	0	0.0
	1	108	<b>14.20</b>		0.0
	1	214	13.96		0.0
	108	0	14.07	0-1	0.0
	108	54	<b>14.16</b>	0	0.0
	108	108	13.96	0-1	0.0
	216	0	14.02		0.0
DFT-s-OFDM 16QAM	1	1	14.05	0-1	0.0
CP-OFDM QPSK	1	1	14.22	0-1.5	0.0

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**Table 8-64**  
**NR Band n66 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3 Active) - 40 MHz Bandwidth**

NR Band n66 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.90	0	0.0
	1	108	<b>22.06</b>		0.0
	1	214	21.64		0.0
	108	0	21.91	0-1	0.0
	108	54	<b>21.94</b>	0	0.0
	108	108	21.72	0-1	0.0
	216	0	21.82		0.0
DFT-s-OFDM 16QAM	1	1	21.56	0-1	0.0
CP-OFDM QPSK	1	1	22.00	0-1.5	0.0

### 8.3.6 NR Band n25 Antenna M1

**Table 8-65**  
**NR Band n25 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 40 MHz Bandwidth**

NR Band n25 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			376500 (1882.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.45	0	0.0
	1	108	<b>23.58</b>		0.0
	1	214	23.41		0.0
	108	0	22.92	0-1	0.0
	108	54	<b>23.53</b>	0	0.0
	108	108	22.91	0-1	0.0
	216	0	22.95		0.0
DFT-s-OFDM 16QAM	1	1	22.93	0-1	0.0
CP-OFDM QPSK	1	1	22.33	0-1.5	0.5

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**Table 8-66**  
**NR Band n25 Antenna M11 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 40 MHz Bandwidth**

NR Band n25 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			376500 (1882.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	11.39	0	0.0
	1	108	<b>11.42</b>		0.0
	1	214	11.28		0.0
	108	0	11.40	0-1	0.0
	108	54	<b>11.49</b>	0	0.0
	108	108	11.36	0-1	0.0
	216	0	11.38		0.0
DFT-s-OFDM 16QAM	1	1	11.38	0-1	0.0
CP-OFDM QPSK	1	1	11.44	0-1.5	0.0

**Table 8-67**  
**NR Band n25 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3 Active) - 40 MHz Bandwidth**

NR Band n25 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			376500 (1882.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	17.43	0	0.0
	1	108	<b>17.52</b>		0.0
	1	214	17.38		0.0
	108	0	17.42	0-1	0.0
	108	54	<b>17.50</b>	0	0.0
	108	108	17.33	0-1	0.0
	216	0	17.42		0.0
DFT-s-OFDM 16QAM	1	1	17.69	0-1	0.0
CP-OFDM QPSK	1	1	17.45	0-1.5	0.0

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### 8.3.7 NR Band n30 Antenna M1

**Table 8-68**  
NR Band n30 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 10 MHz Bandwidth

NR Band n30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			462000 (2310 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	22.50	0	0.0
	1	26	<b>22.56</b>		0.0
	1	50	22.51		0.0
	25	0	22.04	0-1	1.0
	25	14	<b>22.66</b>	0	0.0
	25	27	22.12	0-1	1.0
	50	0	22.11		1.0
DFT-s-OFDM 16QAM	1	1	22.05	0-1	1.0
CP-OFDM QPSK	1	1	21.52	0-1.5	1.5

**Table 8-69**  
NR Band n30 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 10 MHz Bandwidth

NR Band n30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			462000 (2310 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	10.00	0	0.0
	1	26	<b>10.15</b>		0.0
	1	50	10.01		0.0
	25	0	10.04	0-1	0.0
	25	14	10.22	0	0.0
	25	27	<b>10.23</b>	0-1	0.0
	50	0	10.13		0.0
DFT-s-OFDM 16QAM	1	1	10.09	0-1	0.0
CP-OFDM QPSK	1	1	10.32	0-1.5	0.0

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**Table 8-70**  
**NR Band n30 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3 Active) - 10 MHz Bandwidth**

NR Band n30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			462000 (2310 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.80	0	0.0
	1	26	<b>19.91</b>		0.0
	1	50	19.83		0.0
	25	0	19.77	0-1	0.0
	25	14	19.89	0	0.0
	25	27	<b>19.90</b>	0-1	0.0
	50	0	19.87		0.0
DFT-s-OFDM 16QAM	1	1	19.36	0-1	0.0
CP-OFDM QPSK	1	1	19.78	0-1.5	0.0

### 8.3.8 NR Band n7 Antenna M1

**Table 8-71**  
**NR Band n7 Antenna M1 Measured  $P_{Max}$  for ECI = 0 (Free) - 40 MHz Bandwidth**

NR Band n7 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			507000 (2535 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.00	0	0.0
	1	108	23.15		0.0
	1	214	<b>23.21</b>		0.0
	108	0	22.54	0-1	0.0
	108	54	<b>23.19</b>	0	0.0
	108	108	22.41	0-1	0.0
	216	0	22.53		0.0
DFT-s-OFDM 16QAM	1	1	22.71	0-1	0.0
CP-OFDM QPSK	1	1	22.18	0-1.5	0.5

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**Table 8-72**  
**NR Band n7 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 40 MHz Bandwidth**

NR Band n7 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			507000 (2535 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	9.66	0	0.0
	1	108	9.70		0.0
	1	214	<b>9.90</b>		0.0
	108	0	9.62	0-1	0.0
	108	54	<b>9.69</b>	0	0.0
	108	108	9.49	0-1	0.0
	216	0	9.56		0.0
DFT-s-OFDM 16QAM	1	1	9.88	0-1	0.0
CP-OFDM QPSK	1	1	9.93	0-1.5	0.0

**Table 8-73**  
**NR Band n7 Antenna M1 Measured  $P_{Limit}$  for ECI = 2 (Grip Sensor #3 Active) - 40 MHz Bandwidth**

NR Band n7 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			507000 (2535 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	<b>19.00</b>	0	0.0
	1	108	18.82		0.0
	1	214	18.72		0.0
	108	0	18.70	0-1	0.0
	108	54	<b>18.85</b>	0	0.0
	108	108	18.65	0-1	0.0
	216	0	18.69		0.0
DFT-s-OFDM 16QAM	1	1	18.56	0-1	0.0
CP-OFDM QPSK	1	1	18.82	0-1.5	0.0

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### 8.3.9 NR Band n41 Antenna M1

**Table 8-74**  
NR Band n41 Antenna M1 Measured  $P_{Limit}$  for ECI = 0 (Free) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	<b>18.67</b>	0	0.0
	1	137	18.48		0.0
	1	271	18.64		0.0
	135	0	<b>18.73</b>	0-1	0.0
	135	69	18.63	0	0.0
	135	138	18.58	0-1	0.0
	270	0	18.63		0.0
DFT-s-OFDM 16QAM	1	1	18.68	0-1	0.0
CP-OFDM QPSK	1	1	18.69	0-1.5	0.0

**Table 8-75**  
NR Band n41 Antenna M1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	11.09	0	0.0
	1	137	11.29		0.0
	1	271	<b>11.68</b>		0.0
	135	0	11.19	0-1	0.0
	135	69	11.39	0	0.0
	135	138	<b>11.53</b>	0-1	0.0
	270	0	11.37		0.0
DFT-s-OFDM 16QAM	1	1	10.75	0-1	0.0
CP-OFDM QPSK	1	1	11.11	0-1.5	0.0

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### 8.3.10 NR Band n41 SRS Antennas S2, S4, & S1

Table 8-76

NR Band n41 Antennas S2, S4, & S1 Measured  $P_{Limit}$  for ECI = 0 (Free) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth	
Channel	
Antenna	518598 (2592.99 MHz)
	Conducted Power [dBm]
SRS #2 Ant S2	16.30
SRS #3 Ant S4	17.55
SRS #4 Ant S1	14.44

Table 8-77

NR Band n41 Antennas S2, S4, & S1 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth	
Channel	
Antenna	518598 (2592.99 MHz)
	Conducted Power [dBm]
SRS #2 Ant S2	10.99
SRS #3 Ant S4	10.96
SRS #4 Ant S1	11.50

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### 8.3.11 NR Band n48 Antenna S4

**Table 8-78**  
NR Band n48 Antenna S4 Measured  $P_{Limit}$  for ECI = 0 (Free) - 40 MHz Bandwidth

NR Band n48 40 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			638000 (3570 MHz)	641666 (3624.99 MHz)	645332 (3679.98 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM QPSK	1	1	17.55	<b>17.91</b>	17.42	0	0.0
	1	53	17.49	17.83	17.28		0.0
	1	104	17.53	17.62	17.26		0.0
	50	0	17.51	<b>17.92</b>	17.35	0-1	0.0
	50	28	17.49	17.90	17.28	0	0.0
	50	56	17.44	17.67	17.23	0-1	0.0
	100	0	17.49	17.86	17.24		0.0
DFT-s-OFDM 16QAM	1	1	17.35	17.68	17.21	0-1	0.0
CP-OFDM QPSK	1	1	17.60	17.70	17.34	0-1.5	0.0

**Table 8-79**  
NR Band n48 Antenna S4 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 40 MHz Bandwidth

NR Band n48 40 MHz Bandwidth							
Modulation	RB Size	RB Offset	Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
			638000 (3570 MHz)	641666 (3624.99 MHz)	645332 (3679.98 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM QPSK	1	1	9.90	<b>10.72</b>	10.53	0	0.0
	1	53	9.94	10.62	10.27		0.0
	1	104	9.97	10.61	10.27		0.0
	50	0	9.92	<b>10.68</b>	10.51	0-1	0.0
	50	28	9.99	10.59	10.38	0	0.0
	50	56	9.90	10.64	10.32	0-1	0.0
	100	0	9.97	10.57	10.45		0.0
DFT-s-OFDM 16QAM	1	1	9.68	10.38	10.48	0-1	0.0
CP-OFDM QPSK	1	1	9.95	10.62	10.70	0-1.5	0.0

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### 8.3.12 NR Band n48 SRS Antennas S2, M2, & S3

Table 8-80  
NR Band n48 Antennas S2, M2, & S3 Measured  $P_{Limit}$  for ECI = 0 (Free) - 40 MHz Bandwidth

NR Band n48 40 MHz Bandwidth			
Channel			
Antenna	638000 (3570 MHz)	641666 (3624.99 MHz)	645332 (3679.98 MHz)
	Conducted Power [dBm]		
SRS #2 Ant S2	12.63	13.64	<b>13.95</b>
SRS #3 Ant M2	13.40	<b>14.26</b>	13.94
SRS #4 Ant S3	16.02	<b>17.04</b>	16.83

Table 8-81  
NR Band n48 Antennas S2, M2, & S3 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 40 MHz Bandwidth

NR Band n48 40 MHz Bandwidth			
Channel			
Antenna	638000 (3570 MHz)	641666 (3624.99 MHz)	645332 (3679.98 MHz)
	Conducted Power [dBm]		
SRS #2 Ant S2	9.14	10.40	10.12
SRS #3 Ant M2	6.94	7.44	7.75
SRS #4 Ant S3	9.61	10.49	10.30

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### 8.3.13 NR Band n77 Antenna M2

**Table 8-82**  
NR Band n77 Antenna M2 Measured  $P_{Limit}$  for ECI = 0 (Free) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
Modulation	RB Size	RB Offset	Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
			650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM QPSK	1	1	18.07	17.55	0	0.0
	1	137	<b>18.97</b>	18.04		0.0
	1	271	18.66	17.94		0.0
	135	0	18.52	17.87	0-1	0.0
	135	69	<b>18.83</b>	17.99	0	0.0
	135	138	18.77	17.97	0-1	0.0
	270	0	18.64	17.92		0.0
DFT-s-OFDM 16QAM	1	1	17.82	17.36	0-1	0.5
CP-OFDM QPSK	1	1	18.05	17.71	0-1.5	0.0

**Table 8-83**  
NR Band n77 Antenna M2 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
Modulation	RB Size	RB Offset	Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
			650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM QPSK	1	1	9.08	8.46	0	0.0
	1	137	<b>9.97</b>	8.97		0.0
	1	271	9.65	8.84		0.0
	135	0	9.51	8.67	0-1	0.0
	135	69	<b>9.83</b>	8.88	0	0.0
	135	138	9.70	8.91	0-1	0.0
	270	0	9.65	8.78		0.0
DFT-s-OFDM 16QAM	1	1	8.77	8.25	0-1	0.5
CP-OFDM QPSK	1	1	9.18	8.56	0-1.5	0.0

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**Table 8-84**  
**NR Band n77 Antenna M2 DoD Measured  $P_{Limit}$  for ECI = 0 (Free) - 100 MHz Bandwidth**

NR Band n77 DoD 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			633334 (3500.01 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	17.38	0	0.0
	1	137	<b>17.75</b>		0.0
	1	271	17.65		0.0
	135	0	17.63	0-1	0.0
	135	69	<b>17.71</b>	0	0.0
	135	138	17.7	0-1	0.0
	270	0	17.66		0.0
DFT-s-OFDM 16QAM	1	1	17.18	0-1	0.0
CP-OFDM QPSK	1	1	17.31	0-1.5	0.0

**Table 8-85**  
**NR Band n77 Antenna M2 DoD Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 100 MHz Bandwidth**

NR Band n77 DoD 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			633334 (3500.01 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	8.79	0	0.0
	1	137	<b>9.16</b>		0.0
	1	271	9.12		0.0
	135	0	9.04	0-1	0.0
	135	69	<b>9.13</b>	0	0.0
	135	138	9.11	0-1	0.0
	270	0	9.06		0.0
DFT-s-OFDM 16QAM	1	1	8.58	0-1	0.0
CP-OFDM QPSK	1	1	8.80	0-1.5	0.0

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### 8.3.14 NR Band n77 SRS Antennas S2, S3, & S4

Table 8-86  
NR Band n77 Antennas S2, S3, & S4 Measured  $P_{Limit}$  for ECI = 0 (Free) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth		
Channel		
Antenna	650000 (3750 MHz)	662000 (3930 MHz)
	Conducted Power [dBm]	
SRS #2 Ant S2	15.30	<b>16.00</b>
SRS #3 Ant S4	<b>15.77</b>	15.71
SRS #4 Ant S3	<b>15.42</b>	15.01

Table 8-87  
NR Band n77 Antennas S2, S3, & S4 Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth		
Channel		
Antenna	650000 (3750 MHz)	662000 (3930 MHz)
	Conducted Power [dBm]	
SRS #2 Ant S2	<b>8.35</b>	7.75
SRS #3 Ant S4	<b>6.75</b>	6.72
SRS #4 Ant S3	<b>6.27</b>	6.15

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**Table 8-88**  
**NR Band n77 Antennas S2, S3, & S4 DoD Measured  $P_{Limit}$  for ECI = 0 (Free) - 100 MHz Bandwidth**

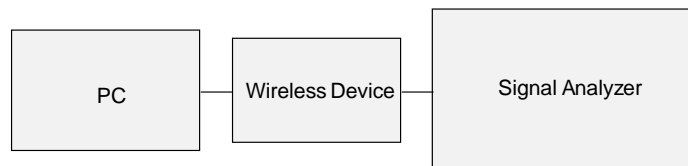
NR Band n77 DoD 100 MHz Bandwidth	
Channel	
Antenna	633334 (3500.01 MHz)
	Conducted Power [dBm]
SRS #2 Ant S2	15.72
SRS #3 Ant S4	15.70
SRS #4 Ant S3	15.47

**Table 8-89**  
**NR Band n77 Antennas S2, S3, & S4 DoD Measured  $P_{Limit}$  for ECI = 1 (Grip Sensor Active) - 100 MHz Bandwidth**

NR Band n77 DoD 100 MHz Bandwidth	
Channel	
Antenna	633334 (3500.01 MHz)
	Conducted Power [dBm]
SRS #2 Ant S2	7.30
SRS #3 Ant S4	7.24
SRS #4 Ant S3	7.23



**Figure 8-3**  
**Power Measurement Setup – NR Online**



**Figure 8-4**  
**Power Measurement Setup – NR FTM**

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## 8.4 WLAN Conducted Powers

**Table 8-90**  
**2.4 GHz WLAN Maximum Average RF Power – Antenna WIFI 0**

2.4GHz WIFI (20MHz 802.11b SISO ANT WIFI 0)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	18.41
2437	6		18.53
2462	11		18.64
2.4GHz WIFI (20MHz 802.11g SISO Ant WIFI 0)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.69
2437	6		17.43
2462	11		17.64
2.4GHz WIFI (20MHz 802.11n SISO Ant WIFI 0)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	15.91
2417	2		17.39
2437	6		17.39
2457	10		17.59
2462	11		16.61
2.4GHz WIFI (20MHz 802.11ax SISO Ant WIFI 0)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	14.42
2437	6		14.39
2462	11		14.46

**Table 8-91**  
**2.4 GHz WLAN Maximum Average RF Power – Antenna WIFI 1**

2.4GHz WIFI (20MHz 802.11b SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	18.76
2437	6		18.45
2462	11		18.46
2.4GHz WIFI (20MHz 802.11g SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.77
2437	6		17.52
2462	11		17.57
2.4GHz WIFI (20MHz 802.11n SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	15.69
2417	2		17.42
2437	6		17.32
2457	10		17.63
2462	11		16.49
2.4GHz WIFI (20MHz 802.11ax SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	14.72
2437	6		14.42
2462	11		14.53

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**Table 8-92**  
**2.4 GHz WLAN Reduced Average RF Power with Grip Sensor Active – Antenna WIFI 0**

2.4GHz WIFI (20MHz 802.11b SISO Ant WIFI 0)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	11.93
2437	6		11.47
2462	11		11.94
2.4GHz WIFI (20MHz 802.11g SISO Ant WIFI 0)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	11.55
2437	6		11.92
2462	11		11.59
2.4GHz WIFI (20MHz 802.11n SISO Ant WIFI 0)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	11.70
2437	6		11.75
2462	11		11.75
2.4GHz WIFI (20MHz 802.11ax SISO Ant WIFI 0)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	11.65
2437	6		11.75
2462	11		11.80

**Table 8-93**  
**2.4 GHz WLAN Reduced Average RF Power with Grip Sensor Active – Antenna WIFI 1**

2.4GHz WIFI (20MHz 802.11b SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	11.97
2437	6		11.76
2462	11		11.98
2.4GHz WIFI (20MHz 802.11g SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	11.80
2437	6		11.90
2462	11		11.60
2.4GHz WIFI (20MHz 802.11n SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	11.80
2437	6		11.77
2462	11		11.63
2.4GHz WIFI (20MHz 802.11ax SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	11.80
2437	6		11.94
2462	11		11.80

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**Table 8-94**

**2.4 GHz WLAN Reduced Average RF Power with 5/6 GHz WLAN Active and/or NR Active – Antenna WIFI 1**

2.4GHz WIFI (20MHz 802.11b SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	9.86
2437	6		9.74
2462	11		9.82
2.4GHz WIFI (20MHz 802.11g SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	9.27
2437	6		9.42
2462	11		9.33
2.4GHz WIFI (20MHz 802.11n SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	9.63
2437	6		9.85
2462	11		9.99
2.4GHz WIFI (20MHz 802.11ax SISO Ant WIFI 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	9.99
2437	6		9.57
2462	11		9.43

**Table 8-95**

**2.4 GHz WLAN Maximum Average RF Power – MIMO**

2.4GHz WIFI (20MHz 802.11b MIMO)					
Freq [MHz]	Channel	Detector	Conducted Power [dBm]		
			ANT1	ANT2	MIMO
2412	1	Average	18.42	18.87	21.66
2437	6		18.47	18.41	21.45
2462	11		18.63	18.49	21.57

**Table 8-96**

**2.4 GHz WLAN Reduced Average RF Power with Grip Sensor Active – MIMO**

2.4GHz WIFI (20MHz 802.11b MIMO)					
Freq [MHz]	Channel	Detector	Conducted Power [dBm]		
			ANT1	ANT2	MIMO
2412	1	Average	11.32	11.62	14.48
2437	6		11.62	11.89	14.77
2462	11		11.71	11.98	14.86

**Table 8-97**

**2.4 GHz WLAN Reduced Average RF Power with 5/6 GHz WLAN Active and/or NR Active – MIMO**

2.4GHz WIFI (20MHz 802.11b MIMO)					
Freq [MHz]	Channel	Detector	Conducted Power [dBm]		
			ANT1	ANT2	MIMO
2412	1	Average	9.55	9.80	12.69
2437	6		9.82	9.80	12.82
2462	11		9.84	9.80	12.83

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**Table 8-98**  
**5 GHz WLAN Maximum Average RF Power – Antenna WIFI 0**

<b>5GHz WIFI (40MHz 802.11n SISO Ant WIFI 0)</b>			
<b>Band</b>	<b>Freq. [MHz]</b>	<b>Channel</b>	<b>Avg. Conducted Power [dBm]</b>
UNII-1	5190	38	16.24
	5230	46	12.82
UNII-2A	5270	54	16.34
	5310	62	16.37
UNII-2C	5510	102	16.42
	5590	118	16.46
	5630	126	16.38
UNII-3	5710	142	16.88
	5755	151	16.46
UNII-4	5795	159	16.48
	5835	167	15.17
UNII-4	5875	175	15.12
	<b>5GHz WIFI (40MHz 802.11ac SISO Ant WIFI 0)</b>		
<b>Band</b>	<b>Freq. [MHz]</b>	<b>Channel</b>	<b>Avg. Conducted Power [dBm]</b>
UNII-1	5190	38	14.51
	5230	46	12.83
UNII-2A	5270	54	16.42
	5310	62	16.45
UNII-2C	5510	102	16.50
	5590	118	16.60
	5630	126	16.35
UNII-3	5710	142	16.81
	5755	151	16.45
UNII-4	5795	159	16.58
	5835	167	15.36
UNII-4	5875	175	15.21
	<b>5GHz WIFI (40MHz 802.11ax SISO Ant WIFI 0)</b>		
<b>Band</b>	<b>Freq. [MHz]</b>	<b>Channel</b>	<b>Avg. Conducted Power [dBm]</b>
UNII-1	5190	38	10.84
	5230	46	10.78
UNII-2A	5270	54	10.51
	5310	62	10.64
UNII-2C	5510	102	10.66
	5590	118	10.69
	5630	126	10.61
UNII-3	5710	142	10.58
	5755	151	10.79
UNII-4	5795	159	10.86
	5835	167	10.40
UNII-4	5875	175	10.26

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**Table 8-99**  
**5 GHz WLAN Maximum Average RF Power – Antenna WIFI 1**

<b>5GHz WIFI (40MHz 802.11n SISO Ant WIFI 1)</b>			
<b>Band</b>	<b>Freq. [MHz]</b>	<b>Channel</b>	<b>Avg. Conducted Power [dBm]</b>
UNII-1	5190	38	16.51
	5230	46	12.59
UNII-2A	5270	54	16.56
	5310	62	16.47
UNII-2C	5510	102	16.65
	5590	118	16.84
	5630	126	16.44
	5710	142	16.65
UNII-3	5755	151	16.76
	5795	159	16.76
UNII-4	5835	167	15.22
	5875	175	15.16
<b>5GHz WIFI (40MHz 802.11ac SISO Ant WIFI 1)</b>			
<b>Band</b>	<b>Freq. [MHz]</b>	<b>Channel</b>	<b>Avg. Conducted Power [dBm]</b>
UNII-1	5190	38	14.24
	5230	46	12.32
UNII-2A	5270	54	16.37
	5310	62	16.54
UNII-2C	5510	102	16.69
	5590	118	16.83
	5630	126	16.43
	5710	142	16.63
UNII-3	5755	151	16.80
	5795	159	16.75
UNII-4	5835	167	15.47
	5875	175	15.22
<b>5GHz WIFI (40MHz 802.11ax SISO Ant WIFI 1)</b>			
<b>Band</b>	<b>Freq. [MHz]</b>	<b>Channel</b>	<b>Avg. Conducted Power [dBm]</b>
UNII-1	5190	38	10.69
	5230	46	10.75
UNII-2A	5270	54	10.69
	5310	62	10.60
UNII-2C	5510	102	10.70
	5590	118	10.84
	5630	126	10.78
	5710	142	10.71
UNII-3	5755	151	10.89
	5795	159	10.79
UNII-4	5835	167	10.10
	5875	175	10.36

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**Table 8-100**  
**5 GHz WLAN Reduced Average RF Power with Grip Sensor Active – Antenna WIFI 0**

5GHz WIFI (80MHz 802.11ac SISO Ant WIFI 0)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	7.23
UNII-2A	5290	58	7.36
UNII-2C	5530	106	7.58
	5610	122	7.98
	5690	138	7.62
UNII-3	5775	155	7.66
UNII-4	5855	171	6.95
5GHz WIFI (80MHz 802.11ax SISO Ant WIFI 0)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	7.13
UNII-2A	5290	58	7.01
UNII-2C	5530	106	7.33
	5610	122	7.42
	5690	138	7.55
UNII-3	5775	155	7.73
UNII-4	5855	171	6.67

**Table 8-101**  
**5 GHz WLAN Reduced Average RF Power with Grip Sensor Active – Antenna WIFI 1**

5GHz WIFI (80MHz 802.11ac SISO Ant WIFI 1)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	7.58
UNII-2A	5290	58	7.78
UNII-2C	5530	106	7.87
	5610	122	7.95
	5690	138	7.87
UNII-3	5775	155	7.83
UNII-4	5855	171	7.12
5GHz WIFI (80MHz 802.11ax SISO Ant WIFI 1)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	7.46
UNII-2A	5290	58	7.36
UNII-2C	5530	106	7.30
	5610	122	7.47
	5690	138	7.04
UNII-3	5775	155	7.60
UNII-4	5855	171	6.82

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**Table 8-102**  
**5 GHz WLAN Maximum Average RF Power – MIMO**  
**5GHz WIFI (40MHz 802.11n MIMO)**

Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-1	5190	38	16.77	16.70	19.75
	5230	46	12.42	12.82	15.63
UNII-2A	5270	54	16.79	16.75	19.78
	5310	62	16.82	16.66	19.75
UNII-2C	5510	102	16.15	16.61	19.40
	5590	118	16.53	16.76	19.66
	5630	126	16.38	16.47	19.44
	5710	142	16.82	16.62	19.73
UNII-3	5755	151	16.49	16.77	19.64
	5795	159	16.38	16.61	19.51
UNII-4	5835	167	15.52	15.55	18.55
	5875	175	15.63	15.92	18.79

**Table 8-103**  
**5 GHz WLAN Reduced Average RF Power with Grip Sensor Active – MIMO**  
**5GHz WIFI (80MHz 802.11ac MIMO)**

Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-1	5210	42	7.51	7.48	10.51
UNII-2A	5290	58	7.39	7.42	10.42
UNII-2C	5530	106	7.42	7.81	10.63
	5610	122	7.56	7.37	10.48
	5690	138	7.89	7.67	10.79
UNII-3	5775	155	7.56	7.52	10.55
UNII-4	5885	171	6.58	6.81	9.71

**Table 8-104**  
**5 GHz WLAN Reduced Average RF Power with 2.4 GHz WLAN Active and/or NR Active – MIMO**  
**5GHz WIFI (80MHz 802.11ac MIMO)**

Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-1	5210	42	6.11	6.40	9.27
UNII-2A	5290	58	5.90	6.11	9.02
UNII-2C	5530	106	5.80	6.47	9.16
	5610	122	6.25	6.23	9.25
	5690	138	6.30	6.25	9.29
UNII-3	5775	155	5.89	6.31	9.12
UNII-4	5885	171	5.21	5.53	8.38

**Table 8-105**  
**6 GHz WLAN Maximum Average RF Power – Ant WIFI 0**  
**6GHz WIFI (80MHz 802.11ax SISO ANT WIFI 0)**

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5985	7	9.33
	6305	71	9.44
UNII-6	6465	103	9.20
UNII-7	6705	151	9.42
UNII-8	7025	215	9.23

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**Table 8-106**  
**6 GHz WLAN Maximum Average RF Power – Ant WIFI 1**

6GHz WIFI (80MHz 802.11ax SISO ANT WIFI 1)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5985	7	9.31
	6305	71	9.23
UNII-6	6465	103	9.41
UNII-7	6705	151	9.38
UNII-8	7025	215	9.49

**Table 8-107**  
**6 GHz WLAN Reduced Average RF Power with Grip Sensor Active – Ant WIFI 0**

6GHz WIFI (80MHz 802.11ax SISO ANT WIFI 0)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5985	7	6.13
	6305	71	6.02
UNII-6	6465	103	6.32
UNII-7	6705	151	6.29
UNII-8	7025	215	6.14

**Table 8-108**  
**6 GHz WLAN Reduced Average RF Power with Grip Sensor Active – Ant WIFI 1**

6GHz WIFI (80MHz 802.11ax SISO ANT WIFI 1)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5985	7	6.47
	6305	71	6.47
UNII-6	6465	103	6.02
UNII-7	6705	151	6.30
UNII-8	7025	215	6.39

**Table 8-109**  
**6 GHz WLAN Maximum Average RF Power – MIMO**

6GHz WIFI (80MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-5	5985	7	9.78	9.76	12.78
	6305	71	9.20	9.83	12.54
UNII-6	6465	103	9.88	9.84	12.87
UNII-7	6705	151	9.63	9.72	12.69
UNII-8	7025	215	9.43	9.87	12.67

**Table 8-110**  
**6 GHz WLAN Reduced Average RF Power with Grip Sensor Active – MIMO**

6GHz WIFI (80MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-5	5985	7	6.33	6.30	9.33
	6305	71	6.39	6.24	9.33
UNII-6	6465	103	6.48	6.14	9.32
UNII-7	6705	151	6.42	6.03	9.24
UNII-8	7025	215	6.21	6.41	9.32

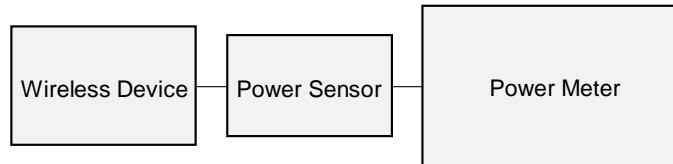
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**Table 8-111**  
**6 GHz WLAN Reduced Average RF Power with 2.4 GHz WLAN Active and/or NR Active – MIMO**

6GHz WIFI (80MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-5	5985	7	2.15	1.88	5.03
	6305	71	1.74	2.32	5.05
UNII-6	6465	103	2.20	1.78	5.01
UNII-7	6705	151	1.63	1.44	4.55
UNII-8	7025	215	1.34	2.19	4.80

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.



**Figure 8-5**  
**Power Measurement Setup**

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## 8.5 Bluetooth Conducted Powers

**Table 8-112**  
**Bluetooth Maximum Average RF Power – Ant WIFI 0**

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	13.55	22.662
2441	1.0	39	13.83	24.143
2480	1.0	78	13.87	24.384
2402	2.0	0	14.39	27.460
2441	2.0	39	14.79	30.102
2480	2.0	78	13.52	22.465
2402	3.0	0	14.45	27.855
2441	3.0	39	14.80	30.186
2480	3.0	78	13.52	22.465

**Table 8-113**  
**Bluetooth Maximum Average RF Power – Ant WIFI 1**

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	14.12	25.793
2441	1.0	39	13.91	24.575
2480	1.0	78	14.24	26.540
2402	2.0	0	14.01	25.183
2441	2.0	39	14.41	27.631
2480	2.0	78	13.31	21.434
2402	3.0	0	14.05	25.398
2441	3.0	39	14.45	27.868
2480	3.0	78	13.34	21.553

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**Table 8-114**

**Bluetooth Reduced Average RF Power with Grip sensor active, 5/6 GHz WLAN active, and/or NR Active – Ant WIFI 0**

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	6.03	4.009
2441	1.0	39	6.22	4.188
2480	1.0	78	5.91	3.899

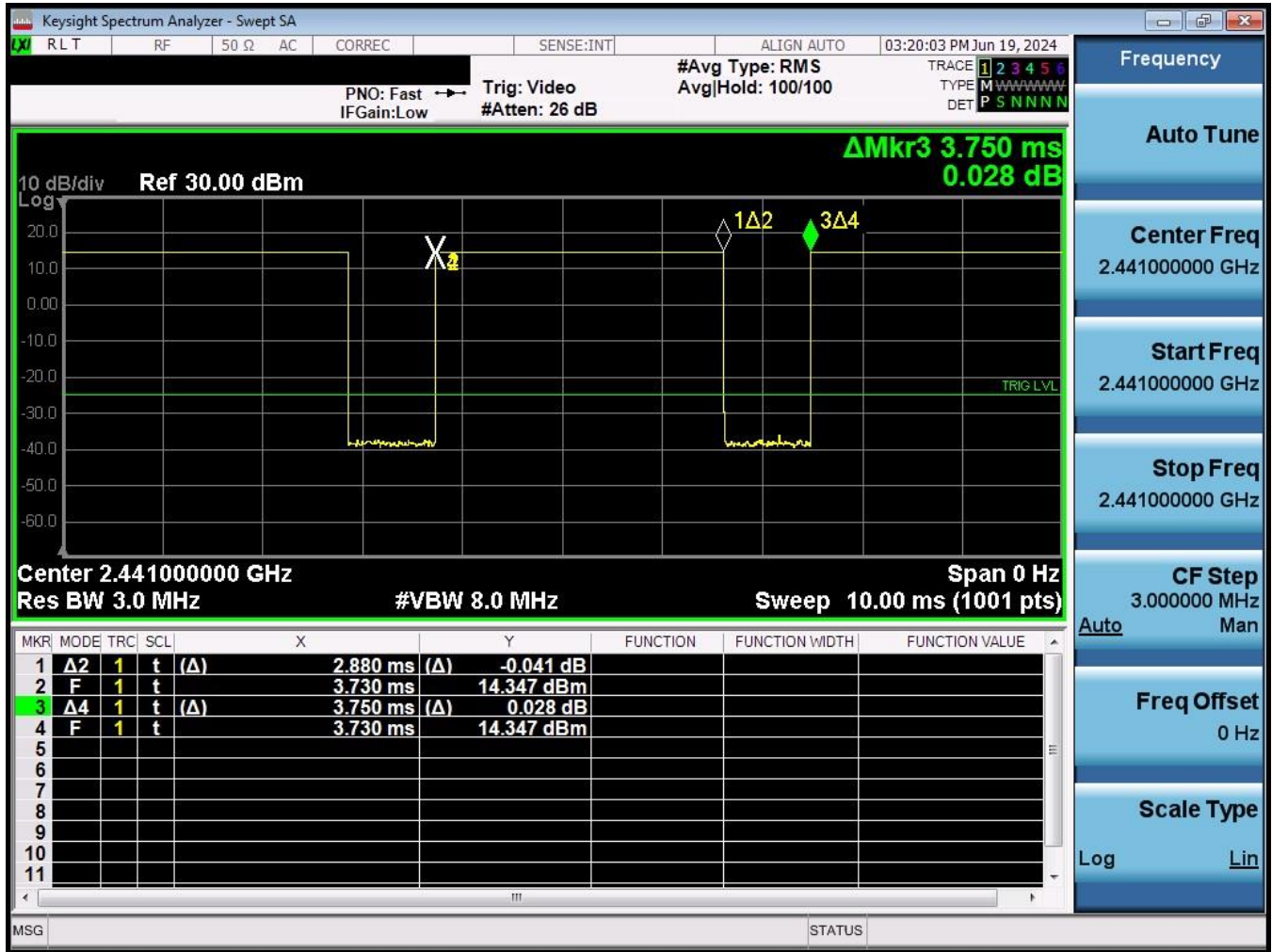
**Table 8-115**

**Bluetooth Reduced Average RF Power with Grip sensor active, 5/6 GHz WLAN active, and/or NR Active – Ant WIFI 1**

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	6.06	4.036
2441	1.0	39	6.31	4.276
2480	1.0	78	5.88	3.873

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**Figure 8-6  
Bluetooth Transmission Plot – Ant WIFI 0**

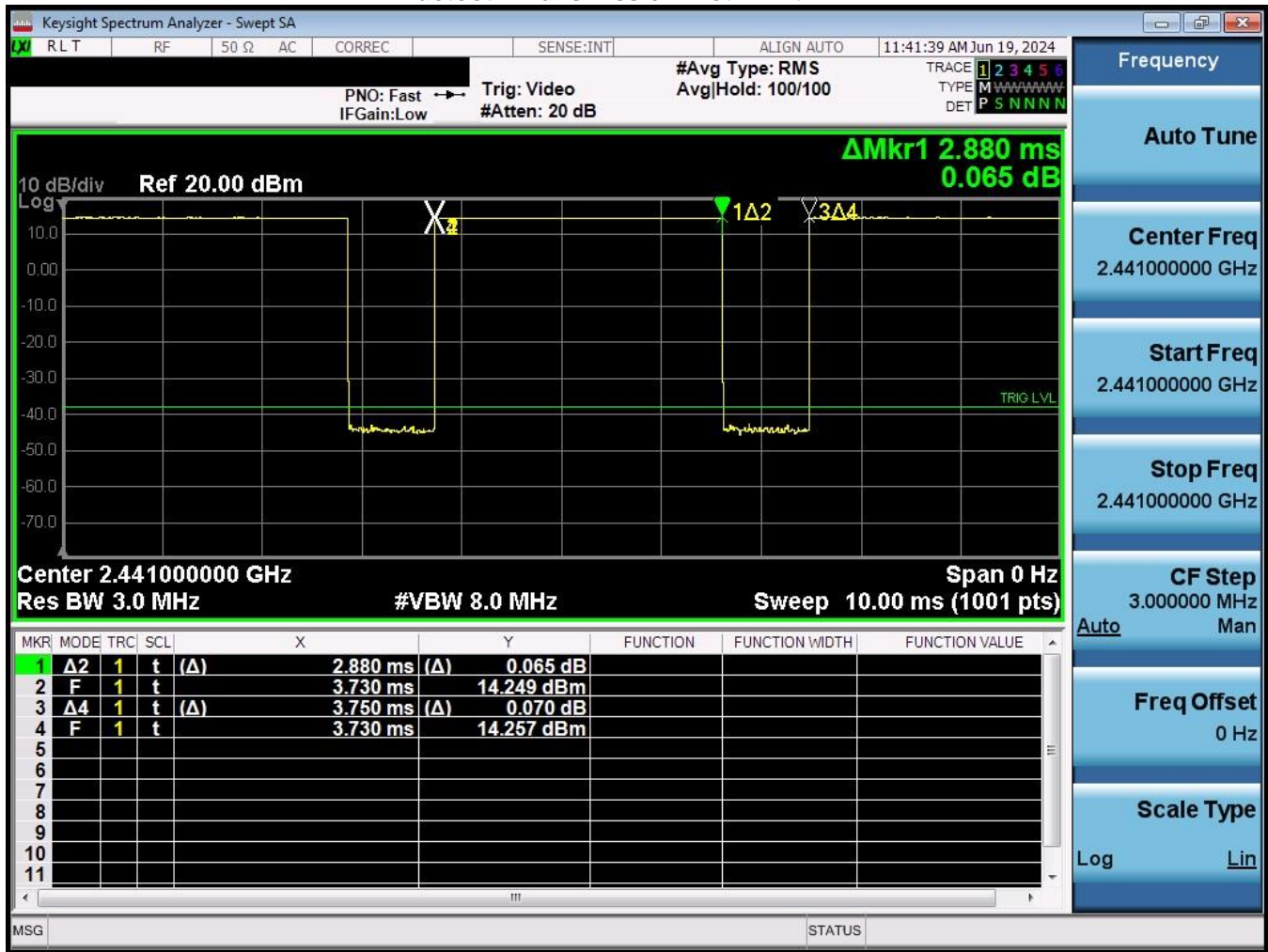


**Equation 8-1  
Bluetooth Antenna WIFI 0 Duty Cycle Calculation**

$$Duty Cycle = \frac{Pulse Width}{Period} * 100\% = \frac{2.88ms}{3.75ms} * 100\% = 76.8\%$$

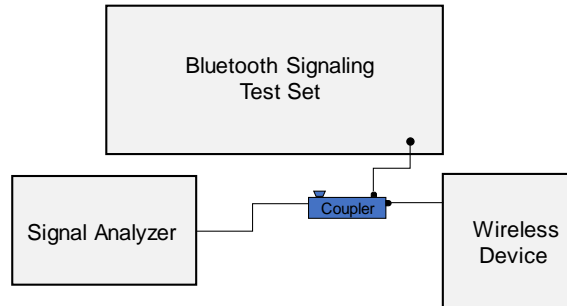
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**Figure 8-7**  
**Bluetooth Transmission Plot – Ant WIFI 1**



**Equation 8-2**  
**Bluetooth Antenna WIFI 1 Duty Cycle Calculation**

$$Duty Cycle = \frac{Pulse Width}{Period} * 100\% = \frac{2.88ms}{3.75ms} * 100\% = 76.8\%$$



**Figure 8-8**  
**Power Measurement Setup**

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# 9 SYSTEM VERIFICATION

## 9.1 Tissue Verification

**Table 9-1  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
06/12/2024	750 Head	21.8	680	0.847	40.950	0.888	42.305	-4.62%	-3.20%
			695	0.851	40.894	0.889	42.227	-4.27%	-3.16%
			710	0.856	40.820	0.890	42.149	-3.82%	-3.15%
			725	0.860	40.750	0.891	42.071	-3.48%	-3.14%
			750	0.868	40.679	0.894	41.942	-2.91%	-3.01%
			770	0.874	40.659	0.895	41.838	-2.35%	-2.82%
			785	0.879	40.632	0.896	41.760	-1.90%	-2.70%
			800	0.884	40.581	0.897	41.682	-1.45%	-2.64%
06/17/2024	750 Head	22.6	680	0.861	41.588	0.888	42.305	-3.04%	-1.69%
			695	0.867	41.557	0.889	42.227	-2.47%	-1.59%
			710	0.873	41.524	0.890	42.149	-1.91%	-1.48%
			725	0.879	41.476	0.891	42.071	-1.35%	-1.41%
			750	0.888	41.377	0.894	41.942	-0.67%	-1.35%
			770	0.894	41.300	0.895	41.838	-0.11%	-1.29%
			785	0.899	41.246	0.896	41.760	0.33%	-1.23%
			800	0.905	41.200	0.897	41.682	0.89%	-1.16%
07/04/2024	750 Head	20.9	680	0.862	42.399	0.888	42.305	-2.93%	0.22%
			695	0.867	42.373	0.889	42.227	-2.47%	0.35%
			710	0.872	42.337	0.890	42.149	-2.02%	0.45%
			725	0.877	42.280	0.891	42.071	-1.57%	0.50%
			750	0.886	42.163	0.894	41.942	-0.89%	0.53%
			770	0.892	42.090	0.895	41.838	-0.34%	0.60%
			785	0.898	42.043	0.896	41.760	0.22%	0.68%
			800	0.904	42.006	0.897	41.682	0.78%	0.78%
07/08/2024	750 Head	22.1	680	0.874	40.567	0.888	42.305	-1.58%	-4.11%
			695	0.879	40.541	0.889	42.227	-1.12%	-3.99%
			700	0.881	40.532	0.889	42.201	-0.90%	-3.95%
			710	0.885	40.510	0.890	42.149	-0.56%	-3.89%
			725	0.890	40.471	0.891	42.071	-0.11%	-3.80%
			750	0.900	40.388	0.894	41.942	0.67%	-3.71%
			770	0.906	40.331	0.895	41.838	1.23%	-3.60%
			785	0.912	40.292	0.896	41.760	1.79%	-3.52%
07/10/2024	750 Head	22.3	800	0.917	40.251	0.897	41.682	2.23%	-3.43%
			680	0.850	41.791	0.888	42.305	-4.28%	-1.21%
			695	0.855	41.754	0.889	42.227	-3.82%	-1.12%
			710	0.861	41.704	0.890	42.149	-3.26%	-1.06%
			725	0.866	41.651	0.891	42.071	-2.81%	-1.00%
			750	0.874	41.584	0.894	41.942	-2.24%	-0.85%
			770	0.880	41.538	0.895	41.838	-1.68%	-0.72%
			785	0.886	41.503	0.896	41.760	-1.12%	-0.62%
07/15/2024	750 Head	22.2	800	0.892	41.461	0.897	41.682	-0.56%	-0.53%
			680	0.847	41.232	0.888	42.305	-4.62%	-2.54%
			695	0.851	41.186	0.889	42.227	-4.27%	-2.47%
			700	0.853	41.166	0.889	42.201	-4.05%	-2.45%
			710	0.856	41.128	0.890	42.149	-3.82%	-2.42%
			725	0.862	41.071	0.891	42.071	-3.25%	-2.38%
			750	0.870	41.000	0.894	41.942	-2.68%	-2.25%
			770	0.876	40.960	0.895	41.838	-2.12%	-2.10%
06/12/2024	835 Head	21.8	785	0.882	40.919	0.896	41.760	-1.56%	-2.01%
			800	0.887	40.868	0.897	41.682	-1.11%	-1.95%
			815	0.890	40.512	0.898	41.594	-0.80%	-2.60%
			820	0.892	40.488	0.899	41.578	-0.78%	-2.62%
			835	0.897	40.418	0.900	41.500	-0.33%	-2.61%
			850	0.902	40.367	0.916	41.500	-1.53%	-2.73%
			815	0.911	41.158	0.898	41.594	1.45%	-1.05%
			820	0.913	41.143	0.899	41.578	1.56%	-1.05%
06/17/2024	835 Head	22.6	835	0.918	41.089	0.900	41.500	2.00%	-0.99%
			850	0.923	41.036	0.916	41.500	0.76%	-1.12%
			815	0.895	41.032	0.898	41.594	-0.33%	-1.35%
			820	0.897	41.018	0.899	41.578	-0.22%	-1.35%
06/18/2024	835 Head	22.3	835	0.901	40.969	0.900	41.500	0.11%	-1.28%
			850	0.906	40.921	0.916	41.500	-1.09%	-1.40%
			815	0.899	41.876	0.898	41.594	0.11%	0.68%
			820	0.900	41.864	0.899	41.578	0.11%	0.69%
07/10/2024	835 Head	22.9	835	0.905	41.823	0.900	41.500	0.56%	0.78%
			850	0.911	41.776	0.916	41.500	-0.55%	0.67%
			815	0.898	41.408	0.898	41.594	0.00%	-0.45%
			820	0.900	41.390	0.899	41.578	0.11%	-0.45%
07/10/2024	835 Head	22.3	835	0.905	41.337	0.900	41.500	0.56%	-0.39%
			850	0.910	41.290	0.916	41.500	-0.66%	-0.51%
			815	0.893	40.810	0.898	41.594	-0.56%	-1.88%
			820	0.895	40.789	0.899	41.578	-0.44%	-1.90%
07/15/2024	835 Head	22.2	835	0.900	40.743	0.900	41.500	0.00%	-1.82%
			850	0.906	40.706	0.916	41.500	-1.09%	-1.91%

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**Table 9-2  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
06/19/2024	1750 Head	20.1	1700	1.324	39.997	1.343	40.145	-1.41%	-0.37%
			1705	1.327	39.990	1.345	40.141	-1.34%	-0.38%
			1710	1.329	39.984	1.348	40.136	-1.41%	-0.38%
			1720	1.335	39.972	1.354	40.126	-1.40%	-0.38%
			1745	1.354	39.934	1.368	40.087	-1.02%	-0.38%
			1750	1.357	39.922	1.371	40.079	-1.02%	-0.39%
			1770	1.370	39.877	1.383	40.047	-0.94%	-0.42%
06/27/2024	1750 Head	22.3	1700	1.287	40.427	1.343	40.145	-4.17%	0.70%
			1705	1.290	40.421	1.345	40.141	-4.09%	0.70%
			1710	1.292	40.414	1.348	40.136	-4.15%	0.69%
			1720	1.298	40.401	1.354	40.126	-4.14%	0.69%
			1745	1.312	40.367	1.368	40.087	-4.09%	0.70%
			1750	1.315	40.360	1.371	40.079	-4.08%	0.70%
			1770	1.326	40.347	1.383	40.047	-4.12%	0.75%
07/01/2024	1750 Head	22.4	1700	1.281	39.478	1.343	40.145	-4.62%	-1.66%
			1705	1.284	39.469	1.345	40.141	-4.54%	-1.67%
			1710	1.287	39.461	1.348	40.136	-4.53%	-1.68%
			1720	1.292	39.443	1.354	40.126	-4.58%	-1.70%
			1745	1.308	39.404	1.368	40.087	-4.39%	-1.70%
			1750	1.311	39.396	1.371	40.079	-4.38%	-1.70%
			1770	1.323	39.374	1.383	40.047	-4.34%	-1.68%
07/10/2024	1750 Head	22.9	1700	1.289	40.180	1.343	40.145	-4.02%	0.09%
			1705	1.291	40.175	1.345	40.141	-4.01%	0.08%
			1710	1.293	40.169	1.348	40.136	-4.08%	0.08%
			1720	1.298	40.159	1.354	40.126	-4.14%	0.08%
			1745	1.313	40.129	1.368	40.087	-4.02%	0.10%
			1750	1.316	40.124	1.371	40.079	-4.01%	0.11%
			1770	1.328	40.105	1.383	40.047	-3.98%	0.14%
07/10/2024	1750 Head	22.6	1700	1.333	41.722	1.343	40.145	-0.74%	3.93%
			1705	1.335	41.714	1.345	40.141	-0.74%	3.92%
			1710	1.338	41.704	1.348	40.136	-0.74%	3.91%
			1720	1.343	41.681	1.354	40.126	-0.81%	3.88%
			1745	1.357	41.624	1.368	40.087	-0.80%	3.83%
			1750	1.360	41.613	1.371	40.079	-0.80%	3.83%
			1770	1.372	41.583	1.383	40.047	-0.80%	3.84%
07/17/2024	1750 Head	22.2	1700	1.317	40.809	1.343	40.145	-1.94%	1.65%
			1705	1.320	40.798	1.345	40.141	-1.86%	1.64%
			1710	1.323	40.788	1.348	40.136	-1.85%	1.62%
			1720	1.328	40.764	1.354	40.126	-1.92%	1.59%
			1745	1.343	40.720	1.368	40.087	-1.83%	1.58%
			1750	1.346	40.713	1.371	40.079	-1.82%	1.58%
			1770	1.358	40.692	1.383	40.047	-1.81%	1.61%
07/17/2024	1750 Head	22.2	1790	1.368	40.679	1.394	40.016	-1.87%	1.66%

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**Table 9-3  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
06/18/2024	1900 Head	22.3	1850	1.375	39.008	1.400	40.000	-1.79%	-2.48%
			1860	1.379	38.998	1.400	40.000	-1.50%	-2.51%
			1880	1.388	38.978	1.400	40.000	-0.86%	-2.56%
			1900	1.402	38.938	1.400	40.000	0.14%	-2.65%
			1905	1.405	38.927	1.400	40.000	0.36%	-2.68%
			1910	1.409	38.916	1.400	40.000	0.64%	-2.71%
			1920	1.415	38.897	1.400	40.000	1.07%	-2.76%
06/19/2024	1900 Head	20.1	1850	1.416	39.766	1.400	40.000	1.14%	-0.59%
			1860	1.423	39.742	1.400	40.000	1.64%	-0.65%
			1880	1.437	39.695	1.400	40.000	2.64%	-0.76%
			1900	1.450	39.659	1.400	40.000	3.57%	-0.85%
			1905	1.453	39.655	1.400	40.000	3.79%	-0.86%
			1910	1.456	39.649	1.400	40.000	4.00%	-0.88%
			1920	1.461	39.638	1.400	40.000	4.36%	-0.91%
07/01/2024	1900 Head	22.4	1850	1.369	39.231	1.400	40.000	-2.21%	-1.92%
			1860	1.375	39.221	1.400	40.000	-1.79%	-1.95%
			1880	1.385	39.194	1.400	40.000	-1.07%	-2.01%
			1900	1.395	39.161	1.400	40.000	-0.36%	-2.10%
			1905	1.399	39.154	1.400	40.000	-0.07%	-2.11%
			1910	1.402	39.148	1.400	40.000	0.14%	-2.13%
			1920	1.409	39.139	1.400	40.000	0.64%	-2.15%
07/10/2024	1900 Head	22.9	1850	1.375	39.998	1.400	40.000	-1.79%	-0.01%
			1860	1.381	39.986	1.400	40.000	-1.36%	-0.04%
			1880	1.392	39.963	1.400	40.000	-0.57%	-0.09%
			1900	1.404	39.934	1.400	40.000	0.29%	-0.17%
			1905	1.407	39.927	1.400	40.000	0.50%	-0.18%
			1910	1.410	39.920	1.400	40.000	0.71%	-0.20%
			1920	1.417	39.906	1.400	40.000	1.21%	-0.24%
07/10/2024	1900 Head	22.6	1850	1.418	41.480	1.400	40.000	1.29%	3.70%
			1860	1.424	41.462	1.400	40.000	1.71%	3.66%
			1880	1.437	41.432	1.400	40.000	2.64%	3.58%
			1900	1.449	41.415	1.400	40.000	3.50%	3.54%
			1905	1.453	41.411	1.400	40.000	3.79%	3.53%
			1910	1.456	41.408	1.400	40.000	4.00%	3.52%
			1920	1.462	41.399	1.400	40.000	4.43%	3.50%
07/17/2024	1900 Head	22.2	1850	1.402	40.590	1.400	40.000	0.14%	1.48%
			1860	1.409	40.579	1.400	40.000	0.64%	1.45%
			1880	1.423	40.568	1.400	40.000	1.64%	1.42%
			1900	1.436	40.559	1.400	40.000	2.57%	1.40%
			1905	1.439	40.554	1.400	40.000	2.79%	1.39%
			1910	1.442	40.549	1.400	40.000	3.00%	1.37%
			1920	1.447	40.534	1.400	40.000	3.36%	1.34%

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**Table 9-4  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$			
06/10/2024	2450 Head	20.5	2300	1.699	38.082	1.670	39.500	1.74%	-3.59%			
			2310	1.706	38.071	1.679	39.480	1.61%	-3.57%			
			2320	1.713	38.059	1.687	39.460	1.54%	-3.55%			
			2400	1.772	37.954	1.756	39.289	0.91%	-3.40%			
			2450	1.812	37.888	1.800	39.200	0.67%	-3.35%			
			2480	1.834	37.838	1.833	39.162	0.05%	-3.38%			
			2500	1.850	37.797	1.855	39.136	-0.27%	-3.42%			
			2510	1.859	37.781	1.866	39.123	-0.38%	-3.43%			
			2535	1.880	37.744	1.893	39.092	-0.69%	-3.45%			
			2550	1.892	37.722	1.909	39.073	-0.89%	-3.46%			
			2560	1.900	37.706	1.920	39.060	-1.04%	-3.47%			
			2600	1.932	37.623	1.964	39.009	-1.63%	-3.55%			
			2650	1.973	37.524	2.018	38.945	-2.23%	-3.65%			
			2680	1.996	37.468	2.051	38.907	-2.68%	-3.70%			
			2700	2.012	37.425	2.073	38.882	-2.94%	-3.75%			
			06/17/2024	2450 Head	20.6	2300	1.698	37.767	1.670	39.500	1.68%	-4.39%
						2310	1.705	37.759	1.679	39.480	1.55%	-4.36%
2320	1.712	37.747				1.687	39.460	1.48%	-4.34%			
2400	1.773	37.602				1.756	39.289	0.97%	-4.29%			
2450	1.813	37.542				1.800	39.200	0.72%	-4.23%			
2480	1.835	37.477				1.833	39.162	0.11%	-4.30%			
2500	1.850	37.438				1.855	39.136	-0.27%	-4.34%			
2510	1.858	37.422				1.866	39.123	-0.43%	-4.35%			
2535	1.879	37.385				1.893	39.092	-0.74%	-4.37%			
2550	1.892	37.366				1.909	39.073	-0.89%	-4.37%			
2560	1.900	37.351				1.920	39.060	-1.04%	-4.38%			
2600	1.932	37.272				1.964	39.009	-1.63%	-4.45%			
2650	1.972	37.164				2.018	38.945	-2.28%	-4.57%			
2680	1.997	37.122				2.051	38.907	-2.63%	-4.59%			
2700	2.013	37.089				2.073	38.882	-2.89%	-4.61%			
06/19/2024	2450 Head	21.3				2300	1.699	38.074	1.670	39.500	1.74%	-3.61%
						2310	1.706	38.063	1.679	39.480	1.61%	-3.59%
			2320	1.712	38.043	1.687	39.460	1.48%	-3.59%			
			2400	1.774	37.917	1.756	39.289	1.03%	-3.49%			
			2450	1.812	37.806	1.800	39.200	0.67%	-3.56%			
			2480	1.838	37.772	1.833	39.162	0.27%	-3.55%			
			2500	1.851	37.736	1.855	39.136	-0.22%	-3.58%			
			2510	1.857	37.713	1.866	39.123	-0.48%	-3.60%			
			2535	1.878	37.659	1.893	39.092	-0.79%	-3.67%			
			2550	1.892	37.636	1.909	39.073	-0.89%	-3.68%			
			2560	1.901	37.626	1.920	39.060	-0.99%	-3.67%			
			2600	1.929	37.555	1.964	39.009	-1.78%	-3.73%			
			2650	1.970	37.462	2.018	38.945	-2.38%	-3.81%			
			2680	1.991	37.420	2.051	38.907	-2.93%	-3.82%			
			2700	2.005	37.377	2.073	38.882	-3.28%	-3.87%			
			06/20/2024	2450 Head	21.3	2300	1.693	37.696	1.670	39.500	1.38%	-4.57%
						2310	1.699	37.681	1.679	39.480	1.19%	-4.56%
2320	1.705	37.657				1.687	39.460	1.07%	-4.57%			
2400	1.766	37.521				1.756	39.289	0.57%	-4.50%			
2450	1.801	37.407				1.800	39.200	0.06%	-4.57%			
2480	1.824	37.389				1.833	39.162	-0.49%	-4.53%			
2500	1.838	37.354				1.855	39.136	-0.92%	-4.55%			
2510	1.844	37.329				1.866	39.123	-1.18%	-4.59%			
2535	1.863	37.274				1.893	39.092	-1.58%	-4.65%			
2550	1.875	37.254				1.909	39.073	-1.78%	-4.66%			
2560	1.883	37.246				1.920	39.060	-1.93%	-4.64%			
2600	1.911	37.194				1.964	39.009	-2.70%	-4.65%			
2650	1.951	37.106				2.018	38.945	-3.32%	-4.72%			
2680	1.973	37.073				2.051	38.907	-3.80%	-4.71%			
2700	1.987	37.029				2.073	38.882	-4.15%	-4.77%			
07/01/2024	2450 Head	19.7				2300	1.654	40.356	1.670	39.500	-0.96%	2.17%
						2310	1.662	40.345	1.679	39.480	-1.01%	2.19%
			2320	1.670	40.334	1.687	39.460	-1.01%	2.21%			
			2400	1.732	40.214	1.756	39.289	-1.37%	2.35%			
			2450	1.772	40.139	1.800	39.200	-1.56%	2.40%			
			2480	1.795	40.080	1.833	39.162	-2.07%	2.34%			
			2500	1.811	40.050	1.855	39.136	-2.37%	2.34%			
			2510	1.819	40.035	1.866	39.123	-2.52%	2.33%			
			2535	1.839	39.998	1.893	39.092	-2.85%	2.32%			
			2550	1.852	39.975	1.909	39.073	-2.99%	2.31%			
			2560	1.860	39.956	1.920	39.060	-3.12%	2.29%			
			2600	1.892	39.893	1.964	39.009	-3.67%	2.27%			
			2650	1.931	39.796	2.018	38.945	-4.31%	2.19%			
			2680	1.955	39.752	2.051	38.907	-4.68%	2.17%			
			2700	1.970	39.735	2.073	38.882	-4.97%	2.19%			

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**Table 9-5  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$			
07/01/2024	2450 Head	21.0	2300	1.695	38.033	1.670	39.500	1.50%	-3.71%			
			2310	1.702	38.018	1.679	39.480	1.37%	-3.70%			
			2320	1.710	38.006	1.687	39.460	1.36%	-3.68%			
			2400	1.766	37.877	1.756	39.289	0.57%	-3.59%			
			2450	1.803	37.802	1.800	39.200	0.17%	-3.57%			
			2480	1.825	37.766	1.833	39.162	-0.44%	-3.56%			
			2500	1.841	37.735	1.855	39.136	-0.75%	-3.58%			
			2510	1.849	37.719	1.866	39.123	-0.91%	-3.59%			
			2535	1.866	37.677	1.893	39.092	-1.43%	-3.62%			
			2550	1.877	37.657	1.909	39.073	-1.68%	-3.62%			
			2560	1.885	37.645	1.920	39.060	-1.82%	-3.62%			
			2600	1.918	37.589	1.964	39.009	-2.34%	-3.64%			
			2650	1.958	37.507	2.018	38.945	-2.97%	-3.69%			
			2680	1.981	37.465	2.051	38.907	-3.41%	-3.71%			
			2700	1.998	37.435	2.073	38.882	-3.62%	-3.72%			
			07/03/2024	2450 Head	20.1	2300	1.704	37.744	1.670	39.500	2.04%	-4.45%
						2310	1.712	37.728	1.679	39.480	1.97%	-4.44%
2320	1.720	37.711				1.687	39.460	1.96%	-4.43%			
2400	1.777	37.582				1.756	39.289	1.20%	-4.34%			
2450	1.815	37.499				1.800	39.200	0.83%	-4.34%			
2480	1.837	37.448				1.833	39.162	0.22%	-4.38%			
2500	1.851	37.408				1.855	39.136	-0.22%	-4.42%			
2510	1.859	37.390				1.866	39.123	-0.38%	-4.43%			
2535	1.880	37.348				1.893	39.092	-0.69%	-4.46%			
2550	1.893	37.326				1.909	39.073	-0.84%	-4.47%			
2560	1.901	37.314				1.920	39.060	-0.99%	-4.47%			
2600	1.931	37.250				1.964	39.009	-1.68%	-4.51%			
2650	1.971	37.154				2.018	38.945	-2.33%	-4.60%			
2680	1.996	37.105				2.051	38.907	-2.68%	-4.63%			
2700	2.012	37.075				2.073	38.882	-2.94%	-4.65%			
07/08/2024	2450 Head	21.9				2300	1.720	40.900	1.670	39.500	2.99%	3.54%
						2310	1.727	40.884	1.679	39.480	2.86%	3.56%
			2320	1.734	40.870	1.687	39.460	2.79%	3.57%			
			2400	1.793	40.761	1.756	39.289	2.11%	3.75%			
			2450	1.831	40.685	1.800	39.200	1.72%	3.79%			
			2480	1.855	40.646	1.833	39.162	1.20%	3.79%			
			2500	1.870	40.622	1.855	39.136	0.81%	3.80%			
			2510	1.877	40.606	1.866	39.123	0.59%	3.79%			
			2535	1.897	40.559	1.893	39.092	0.21%	3.75%			
			2550	1.910	40.530	1.909	39.073	0.05%	3.73%			
			2560	1.919	40.511	1.920	39.060	-0.05%	3.71%			
			2600	1.951	40.466	1.964	39.009	-0.66%	3.74%			
			2650	1.991	40.357	2.018	38.945	-1.34%	3.63%			
			2680	2.017	40.313	2.051	38.907	-1.66%	3.61%			
			2700	2.033	40.297	2.073	38.882	-1.93%	3.64%			
			07/08/2024	2450 Head	20.3	2300	1.728	40.386	1.670	39.500	3.47%	2.24%
						2310	1.737	40.367	1.679	39.480	3.45%	2.25%
2320	1.745	40.330				1.687	39.460	3.44%	2.20%			
2400	1.808	40.231				1.756	39.289	2.96%	2.40%			
2450	1.841	40.133				1.800	39.200	2.28%	2.38%			
2480	1.867	40.054				1.833	39.162	1.85%	2.28%			
2500	1.888	40.025				1.855	39.136	1.78%	2.27%			
2510	1.898	40.009				1.866	39.123	1.71%	2.26%			
2535	1.915	40.000				1.893	39.092	1.16%	2.32%			
2550	1.925	39.998				1.909	39.073	0.84%	2.37%			
2560	1.933	39.979				1.920	39.060	0.68%	2.35%			
2600	1.966	39.850				1.964	39.009	0.10%	2.16%			
2650	2.011	39.789				2.018	38.945	-0.35%	2.17%			
2680	2.030	39.786				2.051	38.907	-1.02%	2.26%			
2700	2.046	39.733				2.073	38.882	-1.30%	2.19%			
07/10/2024	2450 Head	20.2				2300	1.701	38.684	1.670	39.500	1.96%	-2.07%
						2310	1.708	38.671	1.679	39.480	1.73%	-2.05%
			2320	1.715	38.655	1.687	39.460	1.66%	-2.04%			
			2400	1.774	38.503	1.756	39.289	1.03%	-2.00%			
			2450	1.811	38.446	1.800	39.200	0.61%	-1.92%			
			2480	1.834	38.387	1.833	39.162	0.05%	-1.98%			
			2500	1.850	38.349	1.855	39.136	-0.27%	-2.01%			
			2510	1.859	38.334	1.866	39.123	-0.38%	-2.02%			
			2535	1.881	38.306	1.893	39.092	-0.63%	-2.01%			
			2550	1.893	38.294	1.909	39.073	-0.84%	-1.99%			
			2560	1.902	38.285	1.920	39.060	-0.94%	-1.98%			
			2600	1.935	38.215	1.964	39.009	-1.48%	-2.04%			
			2650	1.979	38.119	2.018	38.945	-1.93%	-2.12%			
			2680	2.005	38.086	2.051	38.907	-2.24%	-2.11%			
			2700	2.021	38.055	2.073	38.882	-2.51%	-2.13%			

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**Table 9-6  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$			
07/11/2024	2450 Head	22.6	2300	1.707	40.027	1.670	39.500	2.22%	1.33%			
			2310	1.715	40.013	1.679	39.480	2.14%	1.35%			
			2320	1.722	40.001	1.687	39.460	2.07%	1.37%			
			2400	1.783	39.878	1.756	39.289	1.54%	1.50%			
			2450	1.821	39.799	1.800	39.200	1.17%	1.53%			
			2480	1.843	39.759	1.833	39.162	0.95%	1.52%			
			2500	1.858	39.722	1.855	39.136	0.16%	1.50%			
			2510	1.866	39.703	1.866	39.123	0.00%	1.48%			
			2535	1.887	39.661	1.893	39.092	-0.32%	1.46%			
			2550	1.899	39.642	1.909	39.073	-0.52%	1.46%			
			2560	1.907	39.630	1.920	39.060	-0.68%	1.46%			
			2600	1.938	39.557	1.964	39.009	-1.32%	1.40%			
			2650	1.980	39.479	2.018	38.945	-1.88%	1.37%			
			2680	2.004	39.423	2.051	38.907	-2.29%	1.33%			
			2700	2.020	39.383	2.073	38.882	-2.56%	1.29%			
			07/15/2024	2450 Head	21.7	2300	1.662	39.152	1.670	39.500	-0.48%	-0.88%
						2310	1.670	39.143	1.679	39.480	-0.54%	-0.85%
2320	1.678	39.135				1.687	39.460	-0.53%	-0.82%			
2400	1.740	39.022				1.756	39.289	-0.91%	-0.68%			
2450	1.777	38.937				1.800	39.200	-1.28%	-0.67%			
2480	1.801	38.892				1.833	39.162	-1.75%	-0.69%			
2500	1.816	38.858				1.855	39.136	-2.10%	-0.71%			
2510	1.824	38.840				1.866	39.123	-2.25%	-0.72%			
2535	1.844	38.803				1.893	39.092	-2.59%	-0.74%			
2550	1.856	38.783				1.909	39.073	-2.78%	-0.74%			
2560	1.864	38.769				1.920	39.060	-2.92%	-0.75%			
2600	1.895	38.693				1.964	39.009	-3.51%	-0.81%			
2650	1.936	38.611				2.018	38.945	-4.06%	-0.86%			
2680	1.960	38.558				2.051	38.907	-4.44%	-0.90%			
2700	1.975	38.523				2.073	38.882	-4.73%	-0.92%			
07/15/2024	2450 Head	23.4				2300	1.740	40.159	1.670	39.500	4.19%	1.67%
						2310	1.748	40.149	1.679	39.480	4.11%	1.69%
			2320	1.755	40.139	1.687	39.460	4.03%	1.72%			
			2400	1.817	40.032	1.756	39.289	3.47%	1.89%			
			2450	1.856	39.953	1.800	39.200	3.11%	1.92%			
			2480	1.880	39.905	1.833	39.162	2.56%	1.90%			
			2500	1.896	39.871	1.855	39.136	2.21%	1.88%			
			2510	1.904	39.854	1.866	39.123	2.04%	1.87%			
			2535	1.924	39.820	1.893	39.092	1.64%	1.86%			
			2550	1.937	39.800	1.909	39.073	1.47%	1.86%			
			2560	1.945	39.786	1.920	39.060	1.30%	1.86%			
			2600	1.978	39.706	1.964	39.009	0.71%	1.79%			
			2650	2.021	39.610	2.018	38.945	0.15%	1.71%			
			2680	2.046	39.553	2.051	38.907	-0.24%	1.66%			
			2700	2.064	39.518	2.073	38.882	-0.43%	1.64%			
			07/17/2024	2450 Head	19.9	2300	1.684	39.636	1.670	39.500	0.84%	0.34%
						2310	1.693	39.623	1.679	39.480	0.83%	0.36%
2320	1.702	39.619				1.687	39.460	0.89%	0.40%			
2400	1.760	39.489				1.756	39.289	0.23%	0.51%			
2450	1.805	39.439				1.800	39.200	0.28%	0.61%			
2480	1.826	39.400				1.833	39.162	-0.36%	0.61%			
2500	1.839	39.334				1.855	39.136	-0.86%	0.51%			
2510	1.847	39.300				1.866	39.123	-1.02%	0.45%			
2535	1.871	39.244				1.893	39.092	-1.16%	0.39%			
2550	1.886	39.233				1.909	39.073	-1.20%	0.41%			
2560	1.895	39.233				1.920	39.060	-1.30%	0.44%			
2600	1.923	39.177				1.964	39.009	-2.09%	0.43%			
2650	1.966	39.045				2.018	38.945	-2.58%	0.26%			
2680	1.997	39.037				2.051	38.907	-2.63%	0.33%			
2700	2.011	39.009				2.073	38.882	-2.99%	0.33%			
06/18/2024	3600 Head	21.7				3300	2.618	39.956	2.708	38.157	-3.32%	4.71%
						3350	2.662	39.873	2.759	38.100	-3.52%	4.65%
			3450	2.751	39.688	2.861	37.986	-3.84%	4.48%			
			3500	2.794	39.588	2.913	37.929	-4.09%	4.37%			
			3550	2.841	39.513	2.964	37.871	-4.15%	4.34%			
			3560	2.849	39.491	2.974	37.860	-4.20%	4.31%			
			3600	2.887	39.425	3.015	37.814	-4.25%	4.26%			
			3650	2.935	39.345	3.066	37.757	-4.27%	4.21%			
			3690	2.970	39.283	3.107	37.711	-4.41%	4.17%			
			3700	2.979	39.267	3.117	37.700	-4.43%	4.16%			
			3750	3.031	39.185	3.169	37.643	-4.35%	4.10%			
			3900	3.179	38.941	3.323	37.471	-4.33%	3.92%			
			3930	3.210	38.894	3.353	37.437	-4.26%	3.89%			
			4100	3.384	38.609	3.528	37.243	-4.08%	3.67%			
			4150	3.436	38.519	3.579	37.186	-4.00%	3.58%			

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**Table 9-7  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
06/28/2024	3600 Head	20.2	3300	2.604	39.111	2.708	38.157	-3.84%	2.50%
			3350	2.654	39.029	2.759	38.100	-3.81%	2.44%
			3450	2.746	38.846	2.861	37.986	-4.02%	2.26%
			3500	2.790	38.763	2.913	37.929	-4.22%	2.20%
			3550	2.840	38.672	2.964	37.871	-4.18%	2.12%
			3560	2.849	38.658	2.974	37.860	-4.20%	2.11%
			3600	2.882	38.593	3.015	37.814	-4.41%	2.06%
			3650	2.930	38.512	3.066	37.757	-4.44%	2.00%
			3690	2.968	38.422	3.107	37.711	-4.47%	1.89%
			3700	2.978	38.409	3.117	37.700	-4.46%	1.88%
			3750	3.022	38.338	3.169	37.643	-4.64%	1.85%
			3900	3.181	38.115	3.323	37.471	-4.27%	1.72%
			3930	3.214	38.042	3.353	37.437	-4.15%	1.62%
			4100	3.389	37.792	3.528	37.243	-3.94%	1.47%
			4150	3.444	37.700	3.579	37.186	-3.77%	1.38%
07/03/2024	3600 Head	19.0	3300	2.610	38.854	2.708	38.157	-3.62%	1.83%
			3350	2.655	38.783	2.759	38.100	-3.77%	1.79%
			3450	2.749	38.590	2.861	37.986	-3.91%	1.59%
			3500	2.792	38.511	2.913	37.929	-4.15%	1.53%
			3550	2.841	38.415	2.964	37.871	-4.15%	1.44%
			3560	2.851	38.403	2.974	37.860	-4.14%	1.43%
			3600	2.888	38.349	3.015	37.814	-4.21%	1.41%
			3650	2.935	38.254	3.066	37.757	-4.27%	1.32%
			3690	2.973	38.178	3.107	37.711	-4.31%	1.24%
			3700	2.983	38.161	3.117	37.700	-4.30%	1.22%
			3750	3.032	38.071	3.169	37.643	-4.32%	1.14%
			3900	3.182	37.820	3.323	37.471	-4.24%	0.93%
			3930	3.213	37.768	3.353	37.437	-4.18%	0.88%
			4100	3.387	37.483	3.528	37.243	-4.00%	0.64%
			4150	3.442	37.389	3.579	37.186	-3.83%	0.55%
07/15/2024	3600 Head	20.4	3300	2.604	38.864	2.708	38.157	-3.84%	1.85%
			3350	2.644	38.752	2.759	38.100	-4.17%	1.71%
			3450	2.739	38.590	2.861	37.986	-4.26%	1.59%
			3500	2.786	38.515	2.913	37.929	-4.36%	1.54%
			3550	2.831	38.429	2.964	37.871	-4.49%	1.47%
			3560	2.841	38.418	2.974	37.860	-4.47%	1.47%
			3600	2.881	38.350	3.015	37.814	-4.44%	1.42%
			3650	2.926	38.252	3.066	37.757	-4.57%	1.31%
			3690	2.962	38.184	3.107	37.711	-4.67%	1.25%
			3700	2.972	38.173	3.117	37.700	-4.65%	1.25%
			3750	3.015	38.048	3.169	37.643	-4.86%	1.08%
			3900	3.164	37.789	3.323	37.471	-4.78%	0.85%
			3930	3.196	37.709	3.353	37.437	-4.68%	0.73%
			4100	3.367	37.382	3.528	37.243	-4.56%	0.37%
			4150	3.427	37.271	3.579	37.186	-4.25%	0.23%
07/18/2024	3600 Head	20.5	3300	2.607	39.142	2.708	38.157	-3.73%	2.58%
			3350	2.659	39.050	2.759	38.100	-3.62%	2.49%
			3450	2.746	38.851	2.861	37.986	-4.02%	2.28%
			3500	2.795	38.715	2.913	37.929	-4.05%	2.07%
			3550	2.838	38.648	2.964	37.871	-4.25%	2.05%
			3560	2.846	38.612	2.974	37.860	-4.30%	1.99%
			3600	2.889	38.491	3.015	37.814	-4.18%	1.79%
			3650	2.935	38.478	3.066	37.757	-4.27%	1.91%
			3690	2.985	38.358	3.107	37.711	-3.93%	1.72%
			3700	2.990	38.327	3.117	37.700	-4.07%	1.66%
			3750	3.045	38.295	3.169	37.643	-3.91%	1.73%
			3900	3.213	37.987	3.323	37.471	-3.31%	1.38%
			3930	3.245	37.922	3.353	37.437	-3.22%	1.30%
			4100	3.446	37.776	3.528	37.243	-2.32%	1.43%
			4150	3.482	37.628	3.579	37.186	-2.71%	1.19%
07/18/2024	3600 Head	19.0	3300	2.627	38.891	2.708	38.157	-2.99%	1.92%
			3350	2.677	38.802	2.759	38.100	-2.97%	1.84%
			3450	2.767	38.609	2.861	37.986	-3.29%	1.64%
			3500	2.811	38.531	2.913	37.929	-3.50%	1.59%
			3550	2.865	38.430	2.964	37.871	-3.34%	1.48%
			3560	2.872	38.410	2.974	37.860	-3.43%	1.45%
			3600	2.906	38.351	3.015	37.814	-3.62%	1.42%
			3650	2.957	38.273	3.066	37.757	-3.56%	1.37%
			3690	2.998	38.192	3.107	37.711	-3.51%	1.28%
			3700	3.006	38.174	3.117	37.700	-3.56%	1.26%
			3750	3.059	38.075	3.169	37.643	-3.47%	1.15%
			3900	3.215	37.818	3.323	37.471	-3.25%	0.93%
			3930	3.246	37.762	3.353	37.437	-3.19%	0.87%
			4100	3.431	37.468	3.528	37.243	-2.75%	0.60%
			4150	3.481	37.384	3.579	37.186	-2.74%	0.53%

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**Table 9-8  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
07/08/2024	5200-5800 Head	21.2	5180	4.471	35.108	4.635	36.009	-3.54%	-2.50%
			5190	4.483	35.092	4.645	35.998	-3.49%	-2.52%
			5200	4.497	35.066	4.655	35.986	-3.39%	-2.56%
			5210	4.510	35.036	4.666	35.975	-3.34%	-2.61%
			5220	4.519	35.010	4.676	35.963	-3.36%	-2.65%
			5240	4.540	34.970	4.696	35.940	-3.32%	-2.70%
			5250	4.551	34.944	4.706	35.929	-3.29%	-2.74%
			5260	4.561	34.914	4.717	35.917	-3.31%	-2.79%
			5270	4.568	34.896	4.727	35.906	-3.36%	-2.81%
			5280	4.576	34.885	4.737	35.894	-3.40%	-2.81%
			5290	4.587	34.876	4.748	35.883	-3.39%	-2.81%
			5300	4.597	34.851	4.758	35.871	-3.38%	-2.84%
			5310	4.604	34.827	4.768	35.860	-3.44%	-2.88%
			5320	4.612	34.806	4.778	35.849	-3.47%	-2.91%
			5500	4.810	34.428	4.963	35.643	-3.08%	-3.41%
			5510	4.820	34.413	4.973	35.632	-3.08%	-3.42%
			5520	4.834	34.411	4.983	35.620	-2.99%	-3.39%
			5530	4.851	34.403	4.994	35.609	-2.86%	-3.39%
			5540	4.862	34.373	5.004	35.597	-2.84%	-3.44%
			5550	4.871	34.334	5.014	35.586	-2.85%	-3.52%
			5560	4.880	34.317	5.024	35.574	-2.87%	-3.53%
			5580	4.903	34.293	5.045	35.551	-2.81%	-3.54%
			5600	4.923	34.239	5.065	35.529	-2.80%	-3.63%
			5610	4.934	34.226	5.076	35.518	-2.80%	-3.64%
			5620	4.948	34.222	5.086	35.506	-2.71%	-3.62%
			5640	4.984	34.190	5.106	35.483	-2.39%	-3.64%
			5660	5.004	34.157	5.127	35.460	-2.40%	-3.67%
			5670	5.018	34.143	5.137	35.449	-2.32%	-3.68%
			5680	5.028	34.117	5.147	35.437	-2.31%	-3.72%
			5690	5.038	34.088	5.158	35.426	-2.33%	-3.78%
			5700	5.044	34.076	5.168	35.414	-2.40%	-3.78%
			5710	5.054	34.069	5.178	35.403	-2.39%	-3.77%
			5720	5.070	34.050	5.188	35.391	-2.27%	-3.79%
			5745	5.104	33.980	5.214	35.363	-2.11%	-3.91%
			5750	5.111	33.975	5.219	35.357	-2.07%	-3.91%
			5755	5.115	33.970	5.224	35.351	-2.09%	-3.91%
			5765	5.128	33.961	5.234	35.340	-2.03%	-3.90%
			5775	5.140	33.946	5.245	35.329	-2.00%	-3.91%
			5785	5.149	33.927	5.255	35.317	-2.02%	-3.94%
			5795	5.156	33.911	5.265	35.305	-2.07%	-3.95%
5800	5.160	33.906	5.270	35.300	-2.09%	-3.95%			
5800	5.160	33.906	5.270	35.300	-2.09%	-3.95%			
5805	5.164	33.905	5.275	35.294	-2.10%	-3.94%			
5825	5.189	33.877	5.296	35.271	-2.02%	-3.95%			
5835	5.199	33.857	5.305	35.230	-2.00%	-3.90%			
5845	5.210	33.840	5.315	35.210	-1.98%	-3.89%			
5850	5.216	33.832	5.320	35.200	-1.95%	-3.89%			
5855	5.224	33.827	5.325	35.197	-1.90%	-3.89%			
5865	5.241	33.807	5.336	35.190	-1.78%	-3.93%			
5865	5.241	33.807	5.336	35.190	-1.78%	-3.93%			
5865	5.241	33.807	5.336	35.190	-1.78%	-3.93%			
5875	5.254	33.773	5.347	35.183	-1.74%	-4.01%			
5885	5.261	33.746	5.357	35.177	-1.79%	-4.07%			
5905	5.281	33.724	5.379	35.163	-1.82%	-4.09%			

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**Table 9-9  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
07/22/2024	5200-5800 Head	21.8	5180	4.434	36.398	4.635	36.009	-4.34%	1.08%
			5190	4.445	36.373	4.645	35.998	-4.31%	1.04%
			5200	4.458	36.353	4.655	35.986	-4.23%	1.02%
			5210	4.472	36.337	4.666	35.975	-4.16%	1.01%
			5220	4.484	36.324	4.676	35.963	-4.11%	1.00%
			5240	4.505	36.286	4.696	35.940	-4.07%	0.96%
			5250	4.512	36.264	4.706	35.929	-4.12%	0.93%
			5260	4.519	36.253	4.717	35.917	-4.20%	0.94%
			5270	4.530	36.236	4.727	35.906	-4.17%	0.92%
			5280	4.542	36.218	4.737	35.894	-4.12%	0.90%
			5290	4.554	36.195	4.748	35.883	-4.09%	0.87%
			5300	4.569	36.175	4.758	35.871	-3.97%	0.85%
			5310	4.580	36.160	4.768	35.860	-3.94%	0.84%
			5320	4.591	36.147	4.778	35.849	-3.91%	0.83%
			5500	4.787	35.840	4.963	35.643	-3.55%	0.55%
			5510	4.797	35.831	4.973	35.632	-3.54%	0.56%
			5520	4.807	35.814	4.983	35.620	-3.53%	0.54%
			5530	4.816	35.793	4.994	35.609	-3.56%	0.52%
			5540	4.827	35.757	5.004	35.597	-3.54%	0.45%
			5550	4.839	35.735	5.014	35.586	-3.49%	0.42%
			5560	4.852	35.726	5.024	35.574	-3.42%	0.43%
			5580	4.881	35.719	5.045	35.551	-3.25%	0.47%
			5600	4.903	35.678	5.065	35.529	-3.20%	0.42%
			5610	4.912	35.671	5.076	35.518	-3.23%	0.43%
			5620	4.923	35.656	5.086	35.506	-3.20%	0.42%
			5640	4.942	35.601	5.106	35.483	-3.21%	0.33%
			5660	4.970	35.576	5.127	35.460	-3.06%	0.33%
			5670	4.984	35.562	5.137	35.449	-2.98%	0.32%
			5680	4.997	35.550	5.147	35.437	-2.91%	0.32%
			5690	5.008	35.541	5.158	35.426	-2.91%	0.32%
			5700	5.018	35.535	5.168	35.414	-2.90%	0.34%
			5710	5.026	35.509	5.178	35.403	-2.94%	0.30%
			5720	5.037	35.485	5.188	35.391	-2.91%	0.27%
			5745	5.068	35.456	5.214	35.363	-2.80%	0.26%
			5750	5.074	35.448	5.219	35.357	-2.78%	0.26%
			5755	5.080	35.441	5.224	35.351	-2.76%	0.25%
			5765	5.087	35.422	5.234	35.340	-2.81%	0.23%
			5775	5.096	35.411	5.245	35.329	-2.84%	0.23%
			5785	5.107	35.390	5.255	35.317	-2.82%	0.21%
			5795	5.122	35.366	5.265	35.305	-2.72%	0.17%
5805	5.132	35.347	5.275	35.294	-2.71%	0.15%			
5825	5.152	35.308	5.296	35.271	-2.72%	0.10%			
5835	5.168	35.287	5.305	35.230	-2.58%	0.16%			
5845	5.183	35.269	5.315	35.210	-2.48%	0.17%			
5850	5.187	35.266	5.320	35.200	-2.50%	0.19%			
5855	5.191	35.257	5.325	35.197	-2.52%	0.17%			
5875	5.209	35.226	5.347	35.183	-2.58%	0.12%			
5885	5.221	35.209	5.357	35.177	-2.54%	0.09%			
5905	5.239	35.174	5.379	35.163	-2.60%	0.03%			

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**Table 9-10  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
06/24/2024	6000 Head	22.3	5935	5.366	34.863	5.411	35.143	-0.83%	-0.80%
			5970	5.406	34.769	5.448	35.120	-0.77%	-1.00%
			5985	5.426	34.726	5.464	35.110	-0.70%	-1.09%
			6000	5.459	34.690	5.480	35.100	-0.38%	-1.17%
			6025	5.537	34.763	5.510	35.070	0.49%	-0.88%
			6065	5.541	34.689	5.557	35.022	-0.29%	-0.95%
			6075	5.534	34.631	5.569	35.010	-0.63%	-1.08%
			6085	5.546	34.594	5.580	34.998	-0.61%	-1.15%
			6185	5.685	34.464	5.698	34.878	-0.23%	-1.19%
			6275	5.827	34.274	5.805	34.770	0.38%	-1.43%
			6285	5.819	34.282	5.816	34.758	0.05%	-1.37%
			6305	5.832	34.225	5.840	34.734	-0.14%	-1.47%
			6345	5.916	34.105	5.887	34.686	0.49%	-1.68%
			6475	6.084	33.903	6.041	34.530	0.71%	-1.82%
			6485	6.113	33.924	6.052	34.518	1.01%	-1.72%
			6500	6.106	33.915	6.070	34.500	0.59%	-1.70%
			6505	6.096	33.913	6.076	34.494	0.33%	-1.68%
			6545	6.139	33.720	6.122	34.446	0.28%	-2.11%
			6665	6.256	33.574	6.265	34.302	-0.14%	-2.12%
			6675	6.288	33.523	6.273	34.290	0.24%	-2.24%
			6685	6.310	33.480	6.285	34.278	0.40%	-2.33%
			6715	6.351	33.549	6.319	34.242	0.51%	-2.02%
			6785	6.404	33.319	6.400	34.158	0.06%	-2.46%
			6825	6.468	33.300	6.447	34.110	0.33%	-2.37%
6985	6.625	33.100	6.633	33.918	-0.12%	-2.41%			
6995	6.615	33.062	6.644	33.906	-0.44%	-2.49%			
7000	6.620	33.037	6.650	33.900	-0.45%	-2.55%			
7005	6.625	33.004	6.656	33.894	-0.47%	-2.63%			
7025	6.667	32.891	6.680	33.870	-0.19%	-2.89%			
06/30/2024	6000 Head	21.0	5935	5.227	35.982	5.411	35.143	-3.40%	2.39%
			5970	5.198	36.024	5.448	35.120	-4.59%	2.57%
			5985	5.207	35.908	5.464	35.110	-4.70%	2.27%
			6000	5.210	35.679	5.480	35.100	-4.93%	1.65%
			6025	5.264	35.636	5.510	35.070	-4.46%	1.61%
			6065	5.296	35.670	5.557	35.022	-4.70%	1.85%
			6085	5.302	35.612	5.580	34.998	-4.98%	1.75%
			6185	5.447	35.512	5.698	34.878	-4.41%	1.82%
			6275	5.577	35.346	5.805	34.770	-3.93%	1.66%
			6285	5.577	35.361	5.816	34.758	-4.11%	1.73%
			6305	5.601	35.331	5.840	34.734	-4.09%	1.72%
			6345	5.662	35.242	5.887	34.686	-3.82%	1.60%
			6475	5.823	35.051	6.041	34.530	-3.61%	1.51%
			6485	5.845	35.052	6.052	34.518	-3.42%	1.55%
			6500	5.849	35.014	6.070	34.500	-3.64%	1.49%
			6505	5.845	35.005	6.076	34.494	-3.80%	1.48%
			6545	5.886	34.873	6.122	34.446	-3.85%	1.24%
			6665	6.008	34.719	6.265	34.302	-4.10%	1.22%
			6675	6.038	34.670	6.273	34.290	-3.75%	1.11%
			6685	6.059	34.642	6.285	34.278	-3.60%	1.06%
			6715	6.099	34.701	6.319	34.242	-3.48%	1.34%
			6785	6.153	34.446	6.400	34.158	-3.86%	0.84%
			6825	6.240	34.479	6.447	34.110	-3.21%	1.08%
			6985	6.376	34.289	6.633	33.918	-3.87%	1.09%
6995	6.361	34.222	6.644	33.906	-4.26%	0.93%			
7000	6.362	34.177	6.650	33.900	-4.33%	0.82%			
7005	6.372	34.139	6.656	33.894	-4.27%	0.72%			
7025	6.439	34.047	6.680	33.870	-3.61%	0.52%			

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**Table 9-11  
Measured Head Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
07/01/2024	6000 Head	21.9	5935	5.353	34.181	5.411	35.143	-1.07%	-2.74%
			5970	5.404	34.111	5.448	35.120	-0.81%	-2.87%
			5985	5.415	34.096	5.464	35.110	-0.90%	-2.89%
			6000	5.442	34.074	5.480	35.100	-0.69%	-2.92%
			6025	5.523	34.121	5.510	35.070	0.24%	-2.71%
			6065	5.537	34.026	5.557	35.022	-0.36%	-2.84%
			6075	5.535	33.973	5.569	35.010	-0.61%	-2.96%
			6085	5.552	33.944	5.580	34.998	-0.50%	-3.01%
			6185	5.672	33.811	5.698	34.878	-0.46%	-3.06%
			6275	5.809	33.634	5.805	34.770	0.07%	-3.27%
			6285	5.803	33.643	5.816	34.758	-0.22%	-3.21%
			6305	5.821	33.584	5.840	34.734	-0.33%	-3.31%
			6345	5.893	33.475	5.887	34.686	0.10%	-3.49%
			6475	6.056	33.263	6.041	34.530	0.25%	-3.67%
			6485	6.078	33.264	6.052	34.518	0.43%	-3.63%
			6500	6.082	33.266	6.070	34.500	0.20%	-3.58%
			6505	6.076	33.268	6.076	34.494	0.00%	-3.55%
			6545	6.112	33.067	6.122	34.446	-0.16%	-4.00%
			6665	6.236	32.922	6.265	34.302	-0.46%	-4.02%
			6675	6.261	32.866	6.273	34.290	-0.19%	-4.15%
			6685	6.279	32.823	6.285	34.278	-0.10%	-4.24%
			6715	6.314	32.885	6.319	34.242	-0.08%	-3.96%
			6785	6.389	32.661	6.400	34.158	-0.17%	-4.38%
			6825	6.446	32.658	6.447	34.110	-0.02%	-4.26%
6985	6.597	32.468	6.633	33.918	-0.54%	-4.28%			
6995	6.596	32.423	6.644	33.906	-0.72%	-4.37%			
7000	6.601	32.390	6.650	33.900	-0.74%	-4.45%			
7005	6.607	32.356	6.656	33.894	-0.74%	-4.54%			
7025	6.649	32.253	6.680	33.870	-0.46%	-4.77%			

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2. The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

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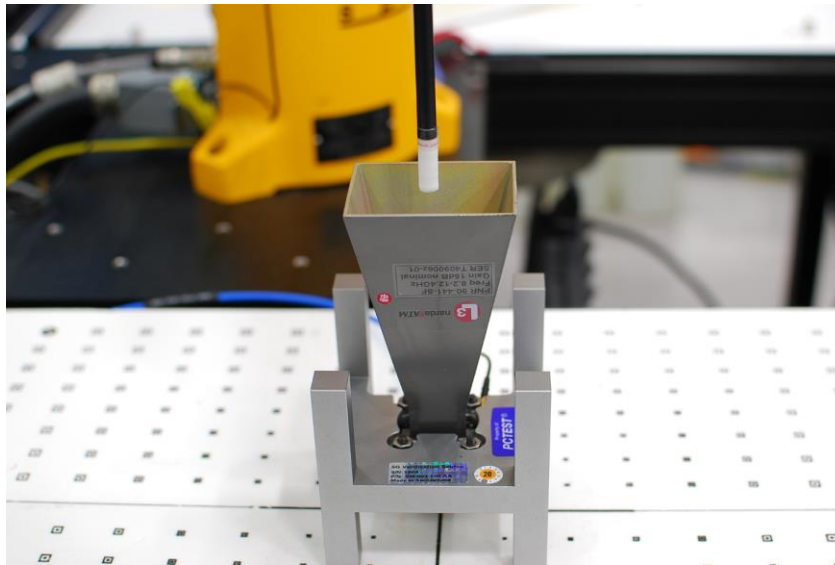




### 9.3 Power Density Test System Verification

The system was verified to be within  $\pm 0.66$  dB of the power density targets on the calibration certificate according to the test system specification in the user’s manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG’s mmWave verification sources. The same spatial resolution and measurement region used in the source calibration was applied during the system check.

The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes.



**Figure 9-3  
System Verification Setup Photo**

**Table 9-13  
10 GHz Verifications**

System Verification											
System	Frequency (GHz)	Date	Source S/N	Probe S/N	Prad (mW)	Normal psPD (W/m <sup>2</sup> over 4 cm <sup>2</sup> )		Deviation (dB)	Total psPD (W/m <sup>2</sup> over 4 cm <sup>2</sup> )		Deviation (dB)
						Measured	Target		Measured	Target	
Q	10	06/18/2024	1002	9622	93.3	65.00	58.50	0.46	65.20	58.70	0.46
Q	10	06/23/2024	1002	9622	93.3	65.60	58.50	0.50	65.90	58.70	0.50

Note: A **10 mm distance spacing** was used from the reference horn antenna aperture to the probe element.

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# 10 SAR DATA SUMMARY

## 10.1 UMTS 850 Standalone SAR

**Table 10-1  
UMTS 850 Tablet Max Power**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	UMTS 850	RMC	M1	0377M	1:1	-0.08	846.60	4233	24.0	23.73	Back	19	0.466	1.064	0.496		27.0
Body	UMTS 850	RMC	M1	0377M	1:1	-0.01	826.40	4132	24.0	23.50	Top	19	0.385	1.122	0.432		27.6
Body	UMTS 850	RMC	M1	0377M	1:1	-0.05	836.60	4233	24.0	23.49	Top	19	0.471	1.125	0.530		26.7
Body	UMTS 850	RMC	M1	0377M	1:1	-0.01	846.60	4233	24.0	23.73	Top	19	0.536	1.064	0.560		25.5
Body	UMTS 850	RMC	M1	0377M	1:1	0.06	846.60	4233	24.0	23.73	Right	0	0.255	1.064	0.271		29.6
Body	UMTS 850	RMC	M1	0377M	1:1	-0.19	846.60	4233	24.0	23.73	Left	0	0.164	1.064	0.174		31.5
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram					

**Table 10-2  
UMTS 850 Tablet with Grip Sensor Active**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	UMTS 850	RMC	M1	0377M	1:1	0.06	826.40	4132	16.0	15.40	Back	0	N/A	0.409	1.148	0.470		19.2
Body	UMTS 850	RMC	M1	0377M	1:1	0.01	836.60	4183	16.0	15.57	Back	0	N/A	0.465	1.104	0.513		18.8
Body	UMTS 850	RMC	M1	0377M	1:1	-0.20	846.60	4233	16.0	15.63	Back	0	N/A	0.491	1.089	0.535		18.7
Body	UMTS 850	RMC	M1	0377M	1:1	-0.02	826.40	4132	16.0	15.40	Top	0	N/A	0.520	1.148	0.597		18.2
Body	UMTS 850	RMC	M1	0377M	1:1	0.01	826.40	4132	16.0	15.40	Top	0	Variant 1	0.498	1.148	0.572		18.4
Body	UMTS 850	RMC	M1	0377M	1:1	-0.03	826.40	4132	16.0	15.40	Top	0	Variant 2	0.498	1.148	0.572		18.4
Body	UMTS 850	RMC	M1	0377M	1:1	-0.04	836.60	4183	16.0	15.57	Top	0	N/A	0.541	1.104	0.597	A1	18.2
Body	UMTS 850	RMC	M1	0377M	1:1	0.00	846.60	4233	16.0	15.63	Top	0	N/A	0.523	1.089	0.570		18.4
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram						

**Table 10-3  
UMTS 850 Laptop**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	UMTS 850	RMC	M1	0505M	1:1	-0.18	846.60	4233	24.0	23.73	Bottom	0	Variant #1	0.037	1.064	0.039		38.0
Body	UMTS 850	RMC	M1	0505M	1:1	-0.09	846.60	4233	24.0	23.73	Bottom	0	Variant #2	0.057	1.064	0.061	A2	36.1
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram						

## 10.2 UMTS 1750 Standalone SAR

**Table 10-4  
UMTS 1750 Tablet Max Power**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	UMTS 1750	RMC	M1	0377M	1:1	-0.11	1752.60	1513	25.0	23.58	Back	19	0.258	1.387	0.358		29.4
Body	UMTS 1750	RMC	M1	0377M	1:1	-0.01	1752.60	1513	25.0	23.58	Top	19	0.252	1.387	0.350		29.5
Body	UMTS 1750	RMC	M1	0377M	1:1	-0.07	1752.60	1513	25.0	23.58	Right	15	0.063	1.387	0.087		35.5
Body	UMTS 1750	RMC	M1	0377M	1:1	0.01	1752.60	1513	25.0	23.58	Left	0	0.178	1.387	0.247		31.0
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram					

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**Table 10-5  
UMTS 1750 Tablet with Grip Sensor Active**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	UMTS 1750	RMC	M1	0377M	1:1	0.05	1732.40	1412	14.5	13.24	Back	0	N/A	0.242	1.337	0.324		19.4
Body	UMTS 1750	RMC	M1	0377M	1:1	-0.12	1732.40	1412	14.5	13.24	Top	0	N/A	0.493	1.337	0.659		16.3
Body	UMTS 1750	RMC	M1	0383M	1:1	-0.06	1712.40	1312	23.5	22.00	Right	0	N/A	0.530	1.413	0.749		24.7
Body	UMTS 1750	RMC	M1	0383M	1:1	0.05	1732.40	1412	23.5	21.96	Right	0	N/A	0.576	1.426	0.821	A3	24.3
Body	UMTS 1750	RMC	M1	0505M	1:1	-0.13	1732.40	1412	23.5	21.96	Right	0	Variant #1	0.295	1.426	0.421		27.2
Body	UMTS 1750	RMC	M1	0505M	1:1	0.00	1732.40	1412	23.5	21.96	Right	0	Variant #2	0.177	1.426	0.252		29.4
Body	UMTS 1750	RMC	M1	0383M	1:1	-0.07	1752.60	1513	23.5	21.99	Right	0	N/A	0.560	1.416	0.793		24.5
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram					

**Table 10-6  
UMTS 1750 Laptop**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	UMTS 1750	RMC	M1	0505M	1:1	-0.13	1752.60	1513	25.0	23.58	Bottom	0	Variant #1	0.042	1.387	0.058		37.3
Body	UMTS 1750	RMC	M1	0505M	1:1	0.08	1752.60	1513	25.0	23.58	Bottom	0	Variant #2	0.058	1.387	0.080	A4	35.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram					

### 10.3 UMTS 1900 Standalone SAR

**Table 10-7  
UMTS 1900 Tablet Max Power**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	UMTS 1900	RMC	M1	0377M	1:1	-0.13	1852.40	9262	25.0	23.60	Back	19		0.302	1.380	0.417		28.7
Body	UMTS 1900	RMC	M1	0377M	1:1	-0.06	1852.40	9262	25.0	23.60	Top	19		0.289	1.380	0.399		28.9
Body	UMTS 1900	RMC	M1	0377M	1:1	-0.03	1852.40	9262	25.0	23.60	Right	15		0.093	1.380	0.128		33.9
Body	UMTS 1900	RMC	M1	0377M	1:1	0.03	1852.40	9262	25.0	23.60	Left	0		0.328	1.380	0.453		28.4
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram					

**Table 10-8  
UMTS 1900 Tablet with Grip Sensor Active**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	UMTS 1900	RMC	M1	0377M	1:1	0.06	1852.40	9262	12.5	11.24	Back	0	N/A	0.206	1.337	0.275		18.1
Body	UMTS 1900	RMC	M1	0377M	1:1	-0.11	1852.40	9262	12.5	11.24	Top	0	N/A	0.357	1.337	0.477		15.7
Body	UMTS 1900	RMC	M1	0377M	1:1	-0.08	1852.40	9262	12.5	11.24	Top	0	Variant #1	0.232	1.337	0.310	A5	17.5
Body	UMTS 1900	RMC	M1	0377M	1:1	-0.11	1852.40	9262	12.5	11.24	Top	0	Variant #2	0.231	1.337	0.309		17.6
Body	UMTS 1900	RMC	M1	0383M	1:1	-0.03	1852.40	9262	18.5	17.27	Right	0	N/A	0.228	1.327	0.303		23.6
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram					

**Table 10-9  
UMTS 1900 Laptop**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	UMTS 1900	RMC	M1	0505M	1:1	-0.05	1852.40	9262	25.0	23.60	Bottom	0	Variant #1	0.091	1.380	0.126		34.0
Body	UMTS 1900	RMC	M1	0505M	1:1	-0.01	1852.40	9262	25.0	23.60	Bottom	0	Variant #2	0.126	1.380	0.174	A6	32.5
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram					

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**Table 10-20**  
**LTE Band 14 Tablet with Grip Sensor Active**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 14	10	QPSK	M1	0383M	1:1	0.01	793.00	23330	0.0	15.0	13.62	1	0	Back	0	0.320	1.374	0.440		18.5
Body	LTE Band 14	10	QPSK	M1	0383M	1:1	0.01	793.00	23330	0.0	15.0	13.64	25	0	Back	0	0.314	1.368	0.430		18.6
Body	LTE Band 14	10	QPSK	M1	0383M	1:1	0.01	793.00	23330	0.0	15.0	13.62	1	0	Top	0	0.471	1.374	0.647		16.8
Body	LTE Band 14	10	QPSK	M1	0383M	1:1	0.00	793.00	23330	0.0	15.0	13.64	25	0	Top	0	0.464	1.368	0.635		16.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																					
Spatial Peak																					
Uncontrolled Exposure/General Population																					
Body 1.6 W/kg (mW/g) averaged over 1 gram																					

**Table 10-21**  
**LTE Band 14 Laptop**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 14	10	QPSK	M1	0386M	1:1	0.13	793.00	23330	0.0	24.5	23.90	1	0	Bottom	0	Variant 1	0.033	1.148	0.037		38.8
Body	LTE Band 14	10	QPSK	M1	0386M	1:1	0.14	793.00	23330	0.0	24.5	23.90	1	0	Bottom	0	Variant 2	0.070	1.148	0.080	A14	35.4
Body	LTE Band 14	10	QPSK	M1	0386M	1:1	0.04	793.00	23330	0.5	24.0	22.94	25	0	Bottom	0	Variant 1	0.028	1.276	0.036		38.4
Body	LTE Band 14	10	QPSK	M1	0386M	1:1	0.04	793.00	23330	0.5	24.0	22.94	25	0	Bottom	0	Variant 2	0.061	1.276	0.078		35.0
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																						
Body 1.6 W/kg (mW/g) averaged over 1 gram																						

## 10.8 LTE Band 26 (Cell) Standalone SAR

**Table 10-22**  
**LTE Band 26 Tablet Max Power**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 26	15	QPSK	M1	0383M	1:1	0.03	831.50	26865	0.0	25.0	24.25	1	74	Back	19	N/A	0.520	1.189	0.618		27.0
Body	LTE Band 26	15	QPSK	M1	0383M	1:1	-0.19	831.50	26865	1.0	24.0	23.20	36	37	Back	19	N/A	0.404	1.202	0.486		27.1
Body	LTE Band 26	15	QPSK	M1	2085M	1:1	0.00	831.50	26865	0.0	25.0	24.25	1	74	Top	19	N/A	0.653	1.189	0.776	A15	26.1
Body	LTE Band 26	15	QPSK	M1	0366M	1:1	-0.02	831.50	26865	0.0	25.0	24.25	1	74	Top	19	Variant 1	0.429	1.189	0.510		27.0
Body	LTE Band 26	15	QPSK	M1	0366M	1:1	0.08	831.50	26865	0.0	25.0	24.25	1	74	Top	19	Variant 2	0.523	1.189	0.622		27.0
Body	LTE Band 26	15	QPSK	M1	2085M	1:1	0.00	831.50	26865	1.0	24.0	23.20	36	37	Top	19	N/A	0.506	1.202	0.608		26.1
Body	LTE Band 26	15	QPSK	M1	2085M	1:1	-0.06	831.50	26865	1.0	24.0	23.80	75	0	Top	19	N/A	0.316	1.318	0.706		25.5
Body	LTE Band 26	15	QPSK	M1	2085M	1:1	0.20	831.50	26865	0.0	25.0	24.25	1	74	Right	0	N/A	0.452	1.189	0.537		27.5
Body	LTE Band 26	15	QPSK	M1	2085M	1:1	-0.03	831.50	26865	1.0	24.0	23.20	36	37	Right	0	N/A	0.373	1.202	0.446		27.6
Body	LTE Band 26	15	QPSK	M1	2085M	1:1	-0.20	831.50	26865	0.0	25.0	24.25	1	74	Left	0	N/A	0.223	1.189	0.265		30.7
Body	LTE Band 26	15	QPSK	M1	2085M	1:1	0.03	831.50	26865	1.0	24.0	23.20	36	37	Left	0	N/A	0.363	1.202	0.396		31.0
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																						
Body 1.6 W/kg (mW/g) averaged over 1 gram																						

**Table 10-23**  
**LTE Band 26 Tablet with Grip Sensor Active**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 26	15	QPSK	M1	0383M	1:1	-0.12	831.50	26865	0.0	15.0	13.85	1	74	Back	0	0.398	1.303	0.519		17.8
Body	LTE Band 26	15	QPSK	M1	0383M	1:1	0.01	831.50	26865	0.0	15.0	13.74	36	37	Back	0	0.385	1.337	0.525		17.8
Body	LTE Band 26	15	QPSK	M1	0383M	1:1	0.00	831.50	26865	0.0	15.0	13.85	1	74	Top	0	0.384	1.303	0.500		18.0
Body	LTE Band 26	15	QPSK	M1	0383M	1:1	-0.01	831.50	26865	0.0	15.0	13.74	36	37	Top	0	0.381	1.337	0.509		17.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																					
Spatial Peak																					
Uncontrolled Exposure/General Population																					
Body 1.6 W/kg (mW/g) averaged over 1 gram																					

**Table 10-24**  
**LTE Band 26 Laptop**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 26	15	QPSK	M1	0386M	1:1	0.09	831.50	26865	0.0	25.0	24.25	1	74	Bottom	0	Variant 1	0.041	1.189	0.049		38.1
Body	LTE Band 26	15	QPSK	M1	0386M	1:1	0.04	831.50	26865	0.0	25.0	24.25	1	74	Bottom	0	Variant 2	0.081	1.189	0.096	A16	35.1
Body	LTE Band 26	15	QPSK	M1	0386M	1:1	0.20	831.50	26865	1.0	24.0	23.20	36	37	Bottom	0	Variant 1	0.044	1.202	0.059		36.7
Body	LTE Band 26	15	QPSK	M1	0386M	1:1	-0.17	831.50	26865	1.0	24.0	23.20	36	37	Bottom	0	Variant 2	0.080	1.202	0.096		34.1
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																						
Body 1.6 W/kg (mW/g) averaged over 1 gram																						

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### 10.11 LTE Band 30 Standalone SAR

Table 10-31  
LTE Band 30 Tablet Max Power

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.13	2310.00	27710	0.0	24.0	22.80	1	25	Back	19	0.134	1.318	0.177		31.5
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.07	2310.00	27710	1.0	23.0	21.78	25	25	Back	19	0.116	1.324	0.154		31.1
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	-0.05	2310.00	27710	0.0	24.0	22.80	1	25	Top	19	0.231	1.318	0.304		29.1
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	-0.03	2310.00	27710	1.0	23.0	21.78	25	25	Top	19	0.199	1.324	0.263		28.7
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.08	2310.00	27710	0.0	24.0	22.80	1	25	Right	0	0.232	1.318	0.306		29.1
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.01	2310.00	27710	1.0	23.0	21.78	25	25	Right	0	0.202	1.324	0.267		28.7
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.01	2310.00	27710	0.0	24.0	22.80	1	25	Left	0	0.272	1.318	0.358		28.4
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.01	2310.00	27710	1.0	23.0	21.78	25	25	Left	0	0.245	1.324	0.324		27.8
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram				
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 30	10	QPSK	S2	0905M	1:1	0.01	2310.00	27710	0.0	24.0	23.25	1	25	Back	19	0.081	1.189	0.096		34.1
Body	LTE Band 30	10	QPSK	S2	0905M	1:1	0.05	2310.00	27710	1.0	23.0	22.30	25	12	Back	19	0.066	1.189	0.078		34.1
Body	LTE Band 30	10	QPSK	S2	0905M	1:1	-0.06	2310.00	27710	0.0	24.0	23.25	1	25	Bottom	19	0.125	1.189	0.149		32.2
Body	LTE Band 30	10	QPSK	S2	0905M	1:1	-0.07	2310.00	27710	1.0	23.0	22.30	25	12	Bottom	19	0.097	1.175	0.114		32.4
Body	LTE Band 30	10	QPSK	S2	0383M	1:1	0.02	2310.00	27710	0.0	24.0	23.25	1	25	Right	0	0.227	1.189	0.270		29.6
Body	LTE Band 30	10	QPSK	S2	0383M	1:1	0.08	2310.00	27710	1.0	23.0	22.30	25	12	Right	0	0.202	1.175	0.237		29.2
Body	LTE Band 30	10	QPSK	S2	0383M	1:1	0.03	2310.00	27710	0.0	24.0	23.25	1	25	Left	0	0.040	1.189	0.048		37.2
Body	LTE Band 30	10	QPSK	S2	0383M	1:1	0.05	2310.00	27710	1.0	23.0	22.30	25	12	Left	0	0.034	1.175	0.040		36.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram				

Table 10-32  
LTE Band 30 Tablet with Grip Sensor Active

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.01	2310.00	27710	0.0	13.0	11.89	1	25	Back	0	N/A	0.309	1.291	0.399		16.9
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.01	2310.00	27710	0.0	13.0	11.96	25	12	Back	0	N/A	0.311	1.271	0.395		17.0
Body	LTE Band 30	10	QPSK	M1	0386M	1:1	-0.06	2310.00	27710	0.0	13.0	11.89	1	25	Top	0	N/A	0.564	1.291	0.728		14.3
Body	LTE Band 30	10	QPSK	M1	0386M	1:1	0.07	2310.00	27710	0.0	13.0	11.89	1	25	Top	0	Variant 1	0.424	1.291	0.547		15.6
Body	LTE Band 30	10	QPSK	M1	0386M	1:1	-0.05	2310.00	27710	0.0	13.0	11.89	1	25	Top	0	Variant 2	0.440	1.291	0.568		15.4
Body	LTE Band 30	10	QPSK	M1	0386M	1:1	-0.01	2310.00	27710	0.0	13.0	11.96	25	12	Top	0	N/A	0.566	1.271	0.719		14.4
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram					
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 30	10	QPSK	S2	0905M	1:1	0.08	2310.00	27710	0.0	13.0	11.72	1	0	Back	0	N/A	0.356	1.343	0.478		16.2
Body	LTE Band 30	10	QPSK	S2	0905M	1:1	0.07	2310.00	27710	0.0	13.0	11.70	25	25	Back	0	N/A	0.369	1.349	0.498		16.0
Body	LTE Band 30	10	QPSK	S2	0905M	1:1	-0.04	2310.00	27710	0.0	13.0	11.72	1	0	Bottom	0	N/A	0.576	1.343	0.774		14.1
Body	LTE Band 30	10	QPSK	S2	0905M	1:1	-0.05	2310.00	27710	0.0	13.0	11.70	25	25	Bottom	0	N/A	0.590	1.349	0.796	A21	13.9
Body	LTE Band 30	10	QPSK	S2	0377M	1:1	0.00	2310.00	27710	0.0	13.0	11.70	25	25	Bottom	0	Variant 2	0.355	1.349	0.479		16.1
Body	LTE Band 30	10	QPSK	S2	0377M	1:1	-0.08	2310.00	27710	0.0	13.0	11.70	25	25	Bottom	0	Variant 1	0.368	1.349	0.362		17.4
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram					

Table 10-33  
LTE Band 30 Laptop

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.00	2310.00	27710	0.0	24.0	22.80	1	25	Bottom	0	Variant 2	0.162	1.318	0.214	A22	30.7
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	0.00	2310.00	27710	0.0	24.0	22.80	1	25	Bottom	0	Variant 1	0.069	1.318	0.091		34.4
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	-0.02	2310.00	27710	1.0	23.0	21.78	25	25	Bottom	0	Variant 2	0.138	1.324	0.183		30.3
Body	LTE Band 30	10	QPSK	M1	0383M	1:1	-0.02	2310.00	27710	1.0	23.0	21.78	25	25	Bottom	0	Variant 1	0.061	1.324	0.081		33.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram					
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 30	10	QPSK	S2	0377M	1:1	0.03	2310.00	27710	0.0	24.0	23.25	1	25	Bottom	0	Variant 1	0.014	1.189	0.017		41.7
Body	LTE Band 30	10	QPSK	S2	0377M	1:1	0.03	2310.00	27710	0.0	24.0	23.25	1	25	Bottom	0	Variant 2	0.016	1.189	0.019		41.2
Body	LTE Band 30	10	QPSK	S2	0377M	1:1	0.14	2310.00	27710	1.0	23.0	22.30	25	12	Bottom	0	Variant 1	0.013	1.175	0.015		41.1
Body	LTE Band 30	10	QPSK	S2	0377M	1:1	0.03	2310.00	27710	1.0	23.0	22.30	25	12	Bottom	0	Variant 2	0.012	1.175	0.014		41.5
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram					

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# 10.12 LTE Band 7 Standalone SAR

## Table 10-34 LTE Band 7 Tablet Max Power

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	0.01	2535.00	21100	0.0	25.0	23.95	1	0	Back	19	N/A	0.334	1.271	0.425		28.7
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	0.09	2535.00	21100	1.0	24.0	22.90	50	25	Back	19	N/A	0.295	1.288	0.380		28.2
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	0.04	2510.00	20850	0.0	25.0	23.91	1	99	Top	19	N/A	0.601	1.285	0.772		26.1
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	-0.06	2535.00	21100	0.0	25.0	23.96	1	0	Top	19	N/A	0.643	1.271	0.817	A23	25.8
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	0.02	2535.00	21100	0.0	25.0	23.96	1	0	Top	19	Variant2	0.437	1.271	0.555		27.5
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	0.02	2535.00	21100	0.0	25.0	23.96	1	0	Top	19	Variant1	0.457	1.271	0.581		27.3
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	-0.12	2560.00	21350	0.0	25.0	23.91	1	0	Top	19	N/A	0.591	1.285	0.759		26.1
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	-0.06	2535.00	21100	1.0	24.0	22.90	50	25	Top	19	N/A	0.560	1.288	0.721		25.4
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	-0.14	2535.00	21100	1.0	24.0	22.89	100	0	Top	19	N/A	0.528	1.291	0.683		25.6
Body	LTE Band 7	20	QPSK	M1	0377M	1:1	-0.11	2535.00	21100	0.0	25.0	23.95	1	0	Right	15	N/A	0.107	1.271	0.136		33.6
Body	LTE Band 7	20	QPSK	M1	0377M	1:1	0.02	2535.00	21100	1.0	24.0	22.90	50	25	Right	15	N/A	0.100	1.288	0.129		32.8
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	0.02	2535.00	21100	0.0	25.0	23.96	1	0	Left	0	N/A	0.228	1.271	0.290		30.3
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	0.02	2535.00	21100	1.0	24.0	22.90	50	25	Left	0	N/A	0.208	1.288	0.268		29.7
Body	LTE Band 7	20	QPSK	M1	0377M	1:1	0.09	2515.20	20902	0.0	25.0	23.06	1	0	Top	19	ULCA 7C	0.517	1.363	0.808		25.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																						
Body																						
1.6 W/kg (mW/g) averaged over 1 gram																						

## Table 10-35 LTE Band 7 Tablet with Grip Sensor Active

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 7	20	QPSK	S2	0505M	1:1	0.11	2560.00	21350	0.0	24.0	23.06	1	99	Back	19	0	0.188	1.242	0.233		30.3
Body	LTE Band 7	20	QPSK	S2	0505M	1:1	0.01	2560.00	21350	1.0	23.0	22.01	50	50	Back	19	0	0.110	1.256	0.136		31.5
Body	LTE Band 7	20	QPSK	S2	0505M	1:1	-0.02	2560.00	21350	0.0	24.0	23.06	1	99	Bottom	19	0	0.362	1.242	0.450		27.4
Body	LTE Band 7	20	QPSK	S2	0505M	1:1	-0.10	2560.00	21350	1.0	23.0	22.01	50	50	Bottom	19	0	0.255	1.256	0.320		27.9
Body	LTE Band 7	20	QPSK	S2	0383M	1:1	0.01	2560.00	21350	0.0	24.0	23.06	1	99	Right	0	0	0.383	1.242	0.476		27.2
Body	LTE Band 7	20	QPSK	S2	0383M	1:1	0.01	2560.00	21350	1.0	23.0	22.01	50	50	Right	0	0	0.261	1.256	0.328		27.8
Body	LTE Band 7	20	QPSK	S2	0383M	1:1	-0.03	2560.00	21350	0.0	24.0	23.06	1	99	Left	0	0	0.119	1.242	0.148		32.3
Body	LTE Band 7	20	QPSK	S2	0383M	1:1	0.02	2560.00	21350	1.0	23.0	22.01	50	50	Left	0	0	0.101	1.256	0.127		31.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																						
Body																						
1.6 W/kg (mW/g) averaged over 1 gram																						

## Table 10-36 LTE Band 7 Laptop

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type   Add'l Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	0.13	2535.00	21100	0.0	25.0	23.96	1	0	Bottom	0	Variant 2	0.217	1.271	0.276	A24	30.5
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	0.13	2535.00	21100	0.0	25.0	23.96	1	0	Bottom	0	Variant 1	0.084	1.271	0.107		34.7
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	-0.06	2535.00	21100	1.0	24.0	22.90	50	25	Bottom	0	Variant 2	0.185	1.288	0.238		30.2
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	-0.06	2535.00	21100	1.0	24.0	22.90	50	25	Bottom	0	Variant 1	0.076	1.288	0.098		34.0
Body	LTE Band 7	20	QPSK	M1	0383M	1:1	-0.15	2535.00	21100	0.0	25.0	23.31	1	0	Bottom	0	Variant 2 & CA 7C	0.188	1.476	0.277		30.5
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																						
Body																						
1.6 W/kg (mW/g) averaged over 1 gram																						

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**Table 10-66  
NR Band n7 Laptop**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n7	40	QPSK	M1	0362M	1:1	-1.11	2535.00	507000	DFT-s-OFDM	0.0	24.0	23.21	1	214	Bottom	0	Variant 1	0.067	1.159	0.080		34.9
Body	NR Band n7	40	QPSK	M1	0362M	1:1	-0.07	2535.00	507000	DFT-s-OFDM	0.0	24.0	23.21	1	214	Bottom	0	Variant 2	0.163	1.199	0.171		31.6
Body	NR Band n7	40	QPSK	M1	0362M	1:1	0.04	2535.00	507000	DFT-s-OFDM	0.0	24.0	23.19	108	54	Bottom	0	Variant 1	0.072	1.205	0.087		34.6
Body	NR Band n7	40	QPSK	M1	0362M	1:1	-0.12	2535.00	507000	DFT-s-OFDM	0.0	24.0	23.19	108	54	Bottom	0	Variant 2	0.149	1.205	0.180	A44	31.4
Body	NR Band n7	40	QPSK	M1	0362M	1:1	-0.04	2535.00	507000	CP-OFDM	0.5	23.5	22.48	1	1	Bottom	0	Variant 1	0.061	1.355	0.083		34.3
Body	NR Band n7	40	QPSK	M1	0362M	1:1	0.05	2535.00	507000	CP-OFDM	0.5	23.5	22.48	1	1	Bottom	0	Variant 2	0.137	1.355	0.159		31.4
ANSI/IEEE CS5.1 1992 - SAFETY LIMIT																							
Spatial Peak																							
Uncontrolled Exposure/General Population																			Body 1.6 W/kg (mW/g) averaged over 1 gram				

## 10.2 NR Band n41 Standalone SAR

**Table 10-67  
NR Band n41 Tablet Max Power**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n41	100	QPSK	M1	2004M	1:1	0.12	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.67	1	1	Back	19	0.075	1.079	0.081		29.9
Body	NR Band n41	100	QPSK	M1	2004M	1:1	0.10	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.73	135	0	Back	19	0.069	1.064	0.073		30.3
Body	NR Band n41	100	QPSK	M1	2004M	1:1	-0.01	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.67	1	1	Top	19	0.143	1.079	0.154		27.1
Body	NR Band n41	100	QPSK	M1	2004M	1:1	-0.09	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.73	135	0	Top	19	0.133	1.064	0.142		27.4
Body	NR Band n41	100	QPSK	M1	2004M	1:1	0.09	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.67	1	1	Right	15	0.038	1.079	0.030		34.1
Body	NR Band n41	100	QPSK	M1	2004M	1:1	0.15	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.73	135	0	Right	15	0.032	1.064	0.034		33.6
Body	NR Band n41	100	QPSK	M1	2004M	1:1	0.03	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.67	1	1	Left	0	0.057	1.079	0.062		31.1
Body	NR Band n41	100	QPSK	M1	2004M	1:1	0.04	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.73	135	0	Left	0	0.061	1.064	0.065		30.8
ANSI/IEEE CS5.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																			Body 1.6 W/kg (mW/g) averaged over 1 gram			

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]				
Body	NR Band n41	100	S2	0374M	1:1	0.11	2592.99	518598	CW/SRS	17.0	16.30	Back	19	0.031	1.175	0.036		31.3				
Body	NR Band n41	100	S2	0374M	1:1	0.03	2592.99	518598	CW/SRS	17.0	16.30	Bottom	19	0.049	1.175	0.058		29.3				
Body	NR Band n41	100	S2	0374M	1:1	0.02	2592.99	518598	CW/SRS	17.0	16.30	Right	0	0.088	1.175	0.103		26.8				
Body	NR Band n41	100	S2	0374M	1:1	0.05	2592.99	518598	CW/SRS	17.0	16.30	Left	0	0.025	1.175	0.029		32.3				
ANSI/IEEE CS5.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																			Body 1.6 W/kg (mW/g) averaged over 1 gram			

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]				
Body	NR Band n41	100	S4	0374M	1:1	0.18	2592.99	518598	CW/SRS	18.5	17.55	Back	19	0.009	1.245	0.011		38.0				
Body	NR Band n41	100	S4	0374M	1:1	0.09	2592.99	518598	CW/SRS	18.5	17.55	Bottom	19	0.005	1.245	0.006		40.5				
Body	NR Band n41	100	S4	0374M	1:1	0.00	2592.99	518598	CW/SRS	18.5	17.55	Right	0	0.006	1.245	0.007		39.7				
Body	NR Band n41	100	S4	0374M	1:1	0.04	2592.99	518598	CW/SRS	18.5	17.55	Left	0	0.091	1.245	0.113		27.9				
ANSI/IEEE CS5.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																			Body 1.6 W/kg (mW/g) averaged over 1 gram			

Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]				
Body	NR Band n41	100	S1	0374M	1:1	-0.07	2592.99	518598	CW/SRS	15.0	14.44	Back	19	0.036	1.138	0.041		28.8				
Body	NR Band n41	100	S1	0374M	1:1	0.19	2592.99	518598	CW/SRS	15.0	14.44	Top	0	0.002	1.138	0.002		41.4				
Body	NR Band n41	100	S1	0374M	1:1	0.04	2592.99	518598	CW/SRS	15.0	14.44	Bottom	19	0.004	1.138	0.005		38.4				
Body	NR Band n41	100	S1	0374M	1:1	-0.21	2592.99	518598	CW/SRS	15.0	14.44	Right	15	0.009	1.138	0.010		34.8				
Body	NR Band n41	100	S1	0374M	1:1	-0.05	2592.99	518598	CW/SRS	15.0	14.44	Left	0	0.003	1.138	0.001		44.4				
ANSI/IEEE CS5.1 1992 - SAFETY LIMIT																						
Spatial Peak																						
Uncontrolled Exposure/General Population																			Body 1.6 W/kg (mW/g) averaged over 1 gram			

**Table 10-68  
NR Band n41 Tablet with Grip Sensor Active**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n41	100	QPSK	M1	0374M	1:1	-0.08	2592.99	518598	DFT-s-OFDM	0.0	12.0	11.68	1	271	Back	0	N/A	0.528	1.076	0.568		14.4
Body	NR Band n41	100	QPSK	M1	0374M	1:1	-0.01	2592.99	518598	DFT-s-OFDM	0.0	12.0	11.53	135	138	Back	0	N/A	0.528	1.114	0.588		14.3
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.00	2592.99	518598	DFT-s-OFDM	0.0	12.0	11.68	1	271	Top	0	N/A	0.528	1.076	0.600		14.2
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.02	2592.99	518598	DFT-s-OFDM	0.0	12.0	11.53	135	138	Top	0	N/A	0.540	1.114	0.602		14.2
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.00	2592.99	518598	DFT-s-OFDM	0.0	12.0	11.37	270	0	Top	0	N/A	0.538	1.156	0.622		14.0
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.01	2592.99	518598	CP-OFDM	0.0	12.0	11.11	1	1	Top	0	N/A	0.530	1.227	0.650		13.8
Body	NR Band n41	100	QPSK	M1	0374M	1:1	-0.01	2592.99	518598	CP-OFDM	0.0	12.0	11.11	1	1	Top	0	Variant 2	0.469	1.227	0.575		14.3
Body	NR Band n41	100	QPSK	M1	0374M	1:1	-0.05	2592.99	518598	CP-OFDM	0.0	12.0	11.11	1	1	Top	0	Variant 1	0.435	1.227	0.534		14.7
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.02	2592.99	518598	DFT-s-OFDM	0.0	12.0	11.68	1	271	Right	0	N/A	0.065	1.076	0.070		23.5
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.03	2592.99	518598	DFT-s-OFDM	0.0	12.0	11.53	135	138	Right	0	N/A	0.055	1.114	0.061		24.1
ANSI/IEEE CS5.1 1992 - SAFETY LIMIT																							
Spatial Peak																							
Uncontrolled Exposure/General Population																			Body 1.6 W/kg (mW/g) averaged over 1 gram				

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Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n41	100	S2	0374M	1:1	0.07	2592.99	518598	CW/SRS	12.0	10.99	Back	0	N/A	0.381	1.262	0.481		15.1
Body	NR Band n41	100	S2	0374M	1:1	0.01	2592.99	518598	CW/SRS	12.0	10.99	Bottom	0	N/A	0.382	1.262	0.734	A45	13.3
Body	NR Band n41	100	S2	0374M	1:1	0.01	2592.99	518598	CW/SRS	12.0	10.99	Bottom	0	Variant 2	0.391	1.262	0.499		15.0
Body	NR Band n41	100	S2	0374M	1:1	-0.02	2592.99	518598	CW/SRS	12.0	10.99	Bottom	0	Variant 1	0.333	1.262	0.420		15.7
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				
Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n41	100	S4	0374M	1:1	0.03	2592.99	518598	CW/SRS	12.0	10.96	Back	0	N/A	0.138	1.271	0.175		19.5
Body	NR Band n41	100	S4	0374M	1:1	0.07	2592.99	518598	CW/SRS	12.0	10.96	Back	0	Variant 1	0.004	1.271	0.005		34.9
Body	NR Band n41	100	S4	0374M	1:1	0.06	2592.99	518598	CW/SRS	12.0	10.96	Back	0	Variant 2	0.007	1.271	0.009		32.5
Body	NR Band n41	100	S4	0374M	1:1	0.03	2592.99	518598	CW/SRS	12.0	10.96	Bottom	0	N/A	0.110	1.271	0.140		20.5
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				
Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n41	100	S1	0374M	1:1	0.07	2592.99	518598	CW/SRS	12.5	11.50	Back	0	N/A	0.566	1.259	0.713		13.9
Body	NR Band n41	100	S1	0374M	1:1	-0.03	2592.99	518598	CW/SRS	12.5	11.50	Back	0	Variant 2	0.017	1.259	0.021		29.1
Body	NR Band n41	100	S1	0374M	1:1	-0.05	2592.99	518598	CW/SRS	12.5	11.50	Back	0	Variant 1	0.013	1.259	0.016		30.3
Body	NR Band n41	100	S1	0374M	1:1	-0.05	2592.99	518598	CW/SRS	12.5	11.50	Bottom	0	N/A	0.133	1.259	0.167		20.2
Body	NR Band n41	100	S1	0374M	1:1	0.00	2592.99	518598	CW/SRS	12.5	11.50	Right	0	N/A	0.273	1.259	0.344		17.1
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				

**Table 10-69  
NR Band n41 Laptop**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.10	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.07	1	1	Bottom	0	Variant 2	0.039	1.079	0.042		32.7
Body	NR Band n41	100	QPSK	M1	0374M	1:1	-0.04	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.07	1	1	Bottom	0	Variant 1	0.018	1.079	0.019		36.1
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.01	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.73	135	0	Bottom	0	Variant 2	0.065	1.064	0.068		32.1
Body	NR Band n41	100	QPSK	M1	0374M	1:1	-0.08	2592.99	518598	DFT-s-OFDM	0.0	19.0	18.73	135	0	Bottom	0	Variant 1	0.020	1.064	0.021		35.7
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.13	2592.99	518598	CP-OFDM	0.0	19.0	18.69	1	1	Bottom	0	Variant 2	0.040	1.074	0.043		32.6
Body	NR Band n41	100	QPSK	M1	0374M	1:1	0.21	2592.99	518598	CP-OFDM	0.0	19.0	18.69	1	1	Bottom	0	Variant 1	0.019	1.074	0.020		35.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram								
Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]				
Body	NR Band n41	100	S2	0374M	1:1	0.03	2592.99	518598	CW/SRS	17.0	16.30	Bottom	0	Variant 1	0.003	1.175	0.004		41.5				
Body	NR Band n41	100	S2	0374M	1:1	0.02	2592.99	518598	CW/SRS	17.0	16.30	Bottom	0	Variant 2	0.012	1.175	0.014		35.5				
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram								
Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]				
Body	NR Band n41	100	S4	0374M	1:1	0.01	2592.99	518598	CW/SRS	18.5	17.55	Bottom	0	Variant 1	0.015	1.245	0.019		35.7				
Body	NR Band n41	100	S4	0374M	1:1	-0.01	2592.99	518598	CW/SRS	18.5	17.55	Bottom	0	Variant 2	0.045	1.245	0.056	A46	31.0				
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram								
Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]				
Body	NR Band n41	100	S1	0374M	1:1	0.01	2592.99	518598	CW/SRS	15.0	14.44	Bottom	0	Variant 1	0.000	1.138	0.000		54.4				
Body	NR Band n41	100	S1	0374M	1:1	0.03	2592.99	518598	CW/SRS	15.0	14.44	Bottom	0	Variant 2	0.000	1.138	0.000		54.4				
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram								

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Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Keyboard Type	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n77 DoD	100	S2	0362M	1:1	0.08	3500.01	633334	CW/SRS	16.5	15.72	Bottom	0	Variant 1	0.000	1.197	0.000		55.7
Body	NR Band n77 DoD	100	S2	0362M	1:1	0.08	3500.01	633334	CW/SRS	16.5	15.72	Bottom	0	Variant 2	0.002	1.197	0.002		42.7
Body	NR Band n77	100	S2	0362M	1:1	0.04	3750.00	650000	CW/SRS	16.5	15.30	Bottom	0	Variant 1	0.000	1.318	0.000		55.2
Body	NR Band n77	100	S2	0362M	1:1	0.01	3750.00	650000	CW/SRS	16.5	15.30	Bottom	0	Variant 2	0.002	1.318	0.003		42.2
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				
Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n77 DoD	100	S3	0362M	1:1	0.17	3500.01	633334	CW/SRS	7.5	7.23	Bottom	0	Variant 1	0.010	1.064	0.011		27.2
Body	NR Band n77 DoD	100	S3	0362M	1:1	0.02	3500.01	633334	CW/SRS	7.5	7.23	Bottom	0	Variant 2	0.031	1.064	0.033		22.3
Body	NR Band n77	100	S3	0362M	1:1	0.06	3750.00	650000	CW/SRS	7.5	6.27	Bottom	0	Variant 2	0.033	1.327	0.044		21.0
Body	NR Band n77	100	S3	0362M	1:1	0.09	3750.00	650000	CW/SRS	7.5	6.27	Bottom	0	Variant 1	0.009	1.327	0.012		26.7
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				
Exposure	Band / Mode	Bandwidth [MHz]	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	NR Band n77 DoD	100	S4	0362M	1:1	0.01	3500.01	633334	CW/SRS	16.5	15.70	Bottom	0	Variant 1	0.002	1.202	0.002		42.6
Body	NR Band n77 DoD	100	S4	0362M	1:1	0.05	3500.01	633334	CW/SRS	16.5	15.70	Bottom	0	Variant 2	0.007	1.202	0.008		37.2
Body	NR Band n77	100	S4	0362M	1:1	0.06	3750.00	650000	CW/SRS	16.5	15.77	Bottom	0	Variant 1	0.000	1.183	0.000		55.7
Body	NR Band n77	100	S4	0362M	1:1	0.00	3750.00	650000	CW/SRS	16.5	15.77	Bottom	0	Variant 2	0.008	1.183	0.009		36.7
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				

## 10.5 2.4 GHz WLAN SISO Standalone SAR

Table 10-76  
2.4 GHz WLAN Ant WIFI 0 Tablet Max Power

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 0	0237M	98.59	0.11	2462.00	11	1	19.0	18.64	Back	19	0.072	1.086	1.014	0.079	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 0	0237M	98.59	0.04	2462.00	11	1	19.0	18.64	Top	19	0.046	1.086	1.014	0.051	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 0	0237M	98.59	0.02	2462.00	11	1	19.0	18.64	Bottom	0	0.040	1.086	1.014	0.044	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 0	0237M	98.59	0.03	2462.00	11	1	19.0	18.64	Right	0	0.008	1.086	1.014	0.009	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 0	0237M	98.59	0.00	2462.00	11	1	19.0	18.64	Left	15	0.133	1.086	1.014	0.146	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				

Table 10-77  
2.4 GHz WLAN Ant WIFI 1 Tablet Max Power

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 1	0237M	98.59	0.04	2412.00	1	1	19.0	18.76	Back	19	0.080	1.057	1.014	0.086	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 1	0237M	98.59	0.07	2412.00	1	1	19.0	18.76	Top	19	0.068	1.057	1.014	0.073	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 1	0237M	98.59	0.04	2412.00	1	1	19.0	18.76	Bottom	0	0.100	1.057	1.014	0.107	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 1	0237M	98.59	-0.02	2412.00	1	1	19.0	18.76	Right	15	0.193	1.057	1.014	0.207	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 1	0237M	98.59	-0.09	2412.00	1	1	19.0	18.76	Left	0	0.005	1.057	1.014	0.005	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				

Table 10-78  
2.4 GHz WLAN Ant WIFI 0 Tablet with Grip Sensor Active

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 0	0237M	98.59	0.14	2462.00	11	1	12.0	11.94	Back	0	0.409	1.014	1.014	0.421	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 0	0237M	98.59	0.04	2462.00	11	1	12.0	11.94	Top	0	0.203	1.014	1.014	0.209	
Body	2.4 GHz WiFi/ IEEE 802.11b	20	DSSS	WIFI 0	0237M	98.59	0.05	2462.00	11	1	12.0	11.94	Left	0	0.241	1.014	1.014	0.248	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				

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**Table 10-79**  
**2.4 GHz WLAN Ant WIFI 1 Tablet with Grip Sensor Active**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	WiFi 1	0237M	98.59	0.01	2462.00	11	1	12.0	11.98	Back	0	0.389	1.005	1.014	0.396	
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	WiFi 1	0237M	98.59	-0.06	2462.00	11	1	12.0	11.98	Top	0	0.298	1.005	1.014	0.213	
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	WiFi 1	0237M	98.59	0.07	2462.00	11	1	12.0	11.98	Right	0	0.462	1.005	1.014	0.471	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				

**Table 10-80**  
**2.4 GHz WLAN Ant WIFI 1 Tablet with 5 GHz WLAN Active and/or NR Active**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	WiFi 1	0237M	98.59	-0.07	2412.00	1	1	10.0	9.86	Back	0	0.247	1.033	1.014	0.259	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	WiFi 1	0237M	98.59	0.00	2412.00	1	1	10.0	9.86	Top	0	0.167	1.033	1.014	0.175	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	WiFi 1	0237M	98.59	0.08	2412.00	1	1	10.0	9.86	Right	0	0.262	1.033	1.014	0.274	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram				

**Table 10-81**  
**2.4 GHz WLAN Ant WIFI 0 Laptop**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	WiFi 0	0228M	98.59	0.00	2462.00	11	1	12.0	11.94	Bottom	0	Variant 1	0.068	1.014	1.014	0.070	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	WiFi 0	0228M	98.59	-0.08	2462.00	11	1	12.0	11.94	Bottom	0	Variant 2	0.153	1.014	1.014	0.157	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram					

**Table 10-82**  
**2.4 GHz WLAN Ant WIFI 1 Laptop**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	WiFi 1	0237M	98.59	0.05	2412.00	1	1	19.0	18.76	Bottom	0	Variant 1	0.005	1.057	1.014	0.005	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	WiFi 1	0237M	98.59	0.13	2412.00	1	1	19.0	18.76	Bottom	0	Variant 2	0.005	1.057	1.014	0.005	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram					

## 10.1 2.4 GHz WLAN MIMO Standalone SAR

**Table 10-83**  
**2.4 GHz WLAN MIMO Tablet Max Power**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Peak Number	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	1	0237M	98.59	0.01	2412.00	1	1	19.0	18.42	19.0	18.87	Back	19	N/A	0.091	1.143	1.014	0.105	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	2	0237M	98.59	-0.00	2462.00	11	1	19.0	18.42	19.0	18.87	Back	19	N/A	0.080	1.143	1.014	0.093	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	N/A	0237M	98.59	0.02	2412.00	1	1	19.0	18.42	19.0	18.87	Top	19	N/A	0.081	1.143	1.014	0.094	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	N/A	0237M	98.59	0.08	2412.00	1	1	19.0	18.42	19.0	18.87	Bottom	0	N/A	0.134	1.143	1.014	0.155	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	N/A	0237M	98.59	0.03	2412.00	1	1	19.0	18.42	19.0	18.87	Right	15	N/A	0.207	1.143	1.014	0.240	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	N/A	0237M	98.59	0.03	2412.00	1	1	19.0	18.42	19.0	18.87	Left	15	N/A	0.119	1.143	1.014	0.138	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram								

Note: To achieve the 19 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 19 dBm.

**Table 10-84**  
**2.4 GHz WLAN MIMO Tablet with Grip Sensor Active**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Peak Number	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	1	0237M	98.59	0.00	2462.00	11	1	12.0	11.71	12.0	11.98	Back	0	N/A	0.394	1.069	1.014	0.427	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	2	0237M	98.59	-0.00	2462.00	11	1	12.0	11.71	12.0	11.98	Back	0	N/A	0.385	1.069	1.014	0.417	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	N/A	0237M	98.59	0.21	2462.00	11	1	12.0	11.71	12.0	11.98	Top	0	N/A	0.217	1.069	1.014	0.225	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	N/A	0237M	98.59	0.01	2462.00	11	1	12.0	11.71	12.0	11.98	Right	0	N/A	0.527	1.069	1.014	0.571	AS1
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	N/A	0237M	98.59	-0.05	2462.00	11	1	12.0	11.71	12.0	11.98	Right	0	Variant 1	0.417	1.069	1.014	0.452	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	N/A	0237M	98.59	-0.04	2462.00	11	1	12.0	11.71	12.0	11.98	Right	0	Variant 2	0.509	1.069	1.014	0.545	
Body	2.4 GHz WiFi / IEEE 802.11b	20	DSSS	MIMO	N/A	0237M	98.59	-0.12	2462.00	11	1	12.0	11.71	12.0	11.98	Left	0	N/A	0.222	1.069	1.014	0.241	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram								

Note: To achieve the 15 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 12 dBm.

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### Table 10-89

## 5 GHz WLAN Ant WIFI 0 Tablet with Grip Sensor Active

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #			
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	0.06	5290.00	58	U-NII-2A	58.5	8.0	7.36	Back	0	0.526	1.159	1.059	0.646				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	-0.04	5610.00	122	U-NII-2C	58.5	8.0	7.98	Back	0	0.605	1.005	1.059	0.644	A53			
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	0.01	5775.00	155	U-NII-3	58.5	8.0	7.66	Back	0	0.517	1.081	1.059	0.592				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	0.11	5855.00	171	U-NII-4	58.5	7.5	6.95	Back	0	0.418	1.135	1.059	0.502				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	0.14	5290.00	58	U-NII-2A	58.5	8.0	7.36	Top	0	0.078	1.159	1.059	0.096				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	0.03	5610.00	122	U-NII-2C	58.5	8.0	7.98	Top	0	0.062	1.005	1.059	0.066				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	0.04	5775.00	155	U-NII-3	58.5	8.0	7.66	Top	0	0.046	1.081	1.059	0.053				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	0.20	5855.00	171	U-NII-4	58.5	7.5	6.95	Top	0	0.032	1.135	1.059	0.038				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	-0.12	5290.00	58	U-NII-2A	58.5	8.0	7.36	Left	0	0.497	1.159	1.059	0.610				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	-0.04	5610.00	122	U-NII-2C	58.5	8.0	7.98	Left	0	0.596	1.005	1.059	0.634				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	0.04	5775.00	155	U-NII-3	58.5	8.0	7.66	Left	0	0.542	1.081	1.059	0.520				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	0228M	94.43	-0.07	5855.00	171	U-NII-4	58.5	7.5	6.95	Left	0	0.387	1.135	1.059	0.465				
ANS/IEEE CS9.1.1 1992 - SAFETY LIMIT																Spatial Peak				Body			
Uncontrolled Exposure/General Population																1.6 W/kg (mW/g)				averaged over 1 gram			

### Table 10-90

## 5 GHz WLAN Ant WIFI 1 Tablet with Grip Sensor Active

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #			
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.08	5290.00	58	U-NII-2A	58.5	8.0	7.78	Back	0	0.277	1.052	1.055	0.307				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.04	5610.00	122	U-NII-2C	58.5	8.0	7.95	Back	0	0.175	1.012	1.055	0.187				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.05	5775.00	155	U-NII-3	58.5	8.0	7.83	Back	0	0.177	1.040	1.055	0.194				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	-0.15	5855.00	171	U-NII-4	58.5	7.5	7.12	Back	0	0.035	1.091	1.055	0.155				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	-0.02	5290.00	58	U-NII-2A	58.5	8.0	7.78	Top	0	0.111	1.052	1.055	0.123				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.01	5610.00	122	U-NII-2C	58.5	8.0	7.95	Top	0	0.041	1.012	1.055	0.044				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.05	5775.00	155	U-NII-3	58.5	8.0	7.83	Top	0	0.038	1.040	1.055	0.042				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.03	5855.00	171	U-NII-4	58.5	7.5	7.12	Top	0	0.019	1.091	1.055	0.017				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.11	5290.00	58	U-NII-2A	58.5	8.0	7.78	Right	0	0.431	1.052	1.055	0.478				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.17	5610.00	122	U-NII-2C	58.5	8.0	7.95	Right	0	0.364	1.012	1.055	0.389				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.09	5775.00	155	U-NII-3	58.5	8.0	7.83	Right	0	0.374	1.040	1.055	0.410				
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 1	0240M	94.75	0.02	5855.00	171	U-NII-4	58.5	7.5	7.12	Right	0	0.294	1.091	1.055	0.338				
ANS/IEEE CS9.1.1 1992 - SAFETY LIMIT																Spatial Peak				Body			
Uncontrolled Exposure/General Population																1.6 W/kg (mW/g)				averaged over 1 gram			

### Table 10-91

## 5 GHz WLAN Ant WIFI 0 Laptop

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #		
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	2285M	94.43	0.08	5290.00	58	U-NII-2A	58.5	8.0	7.36	Bottom	0	Variant 2	0.195	1.159	1.059	0.239			
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	2285M	94.43	-0.15	5290.00	58	U-NII-2A	58.5	8.0	7.36	Bottom	0	Variant 1	0.045	1.159	1.059	0.055			
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	2285M	94.43	0.07	5610.00	122	U-NII-2C	58.5	8.0	7.98	Bottom	0	Variant 2	0.280	1.005	1.059	0.273	A54		
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	2285M	94.43	0.04	5610.00	122	U-NII-2C	58.5	8.0	7.98	Bottom	0	Variant 1	0.035	1.005	1.059	0.037			
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	2285M	94.43	-0.05	5775.00	155	U-NII-3	58.5	8.0	7.66	Bottom	0	Variant 2	0.225	1.081	1.059	0.258			
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	2285M	94.43	0.03	5775.00	155	U-NII-3	58.5	8.0	7.66	Bottom	0	Variant 1	0.029	1.081	1.059	0.033			
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	2285M	94.43	0.02	5855.00	171	U-NII-4	58.5	7.5	6.95	Bottom	0	Variant 2	0.307	1.135	1.059	0.369			
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	WiFi 0	2285M	94.43	0.05	5855.00	171	U-NII-4	58.5	7.5	6.95	Bottom	0	Variant 1	0.028	1.135	1.059	0.031			
ANS/IEEE CS9.1.1 1992 - SAFETY LIMIT																Spatial Peak				Body			
Uncontrolled Exposure/General Population																1.6 W/kg (mW/g)				averaged over 1 gram			

### Table 10-92

## 5 GHz WLAN Ant WIFI 1 Laptop

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #		
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	WiFi 1	0237M	94.68	0.03	5270.00	54	13.5	17.0	16.56	Bottom	0	Variant 2	0.000	1.107	1.056	0.000				
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	WiFi 1	0237M	94.68	0.02	5270.00	54	13.5	17.0	16.56	Bottom	0	Variant 1	0.000	1.107	1.056	0.000				
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	WiFi 1	0237M	94.68	0.20	5590.00	118	13.5	17.0	16.84	Bottom	0	Variant 2	0.004	1.038	1.056	0.004				
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	WiFi 1	0237M	94.68	0.02	5590.00	118	13.5	17.0	16.84	Bottom	0	Variant 1	0.005	1.038	1.056	0.005				
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	WiFi 1	0237M	94.68	0.03	5755.00	151	13.5	17.0	16.76	Bottom	0	Variant 2	0.039	1.057	1.056	0.044				
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	WiFi 1	0237M	94.68	0.01	5755.00	151	13.5	17.0	16.76	Bottom	0	Variant 1	0.012	1.057	1.056	0.013				
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	WiFi 1	0237M	94.68	0.07	5835.00	167	13.5	16.0	15.22	Bottom	0	Variant 2	0.043	1.197	1.056	0.054				
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	WiFi 1	0237M	94.68	0.09	5835.00	167	13.5	16.0	15.22	Bottom	0	Variant 1	0.004	1.197	1.056	0.005				
ANS/IEEE CS9.1.1 1992 - SAFETY LIMIT																Spatial Peak				Body			
Uncontrolled Exposure/General Population																1.6 W/kg (mW/g)				averaged over 1 gram			

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**Table 10-99  
6 GHz WLAN Antenna WIFI 0 Tablet with Grip Sensors Active**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	0243M	94.03	0.10	5985.00	7	34	6.5	6.13	Back	0	0.578	1.089	1.063	0.646	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	0243M	94.03	0.16	6305.00	71	34	6.5	6.02	Back	0	0.597	1.117	1.063	0.709	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	0243M	94.03	0.00	6465.00	103	34	6.5	6.32	Back	0	0.473	1.042	1.063	0.524	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	0243M	94.03	-0.03	6705.00	151	34	6.5	6.29	Back	0	0.422	1.050	1.063	0.471	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	0243M	94.03	-0.06	7025.00	215	34	6.5	6.14	Back	0	0.401	1.086	1.063	0.463	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	0243M	94.03	0.01	6465.00	103	34	6.5	6.32	Top	0	0.023	1.042	1.063	0.025	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	0243M	94.03	0.13	6465.00	103	34	6.5	6.32	Left	0	0.151	1.042	1.063	0.167	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT															Body 1.6 W/kg (mW/g) averaged over 1 gram				
Spatial Peak Uncontrolled Exposure/General Population																			

**Table 10-100  
6 GHz WLAN Antenna WIFI 1 Tablet with Grip Sensors Active**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	0243M	94.37	-0.03	6305.00	71	34	6.5	6.47	Back	0	0.121	1.007	1.060	0.129	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	0243M	94.37	0.07	6305.00	71	34	6.5	6.47	Top	0	0.022	1.007	1.060	0.023	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	0243M	94.37	0.04	5985.00	7	34	6.5	6.47	Right	0	0.208	1.007	1.060	0.222	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	0243M	94.37	-0.06	6305.00	71	34	6.5	6.47	Right	0	0.155	1.007	1.060	0.165	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	0243M	94.37	-0.21	6465.00	103	34	6.5	6.02	Right	0	0.088	1.117	1.060	0.104	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	0243M	94.37	0.07	6705.00	151	34	6.5	6.30	Right	0	0.188	1.047	1.060	0.209	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	0243M	94.37	0.04	7025.00	215	34	6.5	6.39	Right	0	0.112	1.026	1.060	0.122	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT															Body 1.6 W/kg (mW/g) averaged over 1 gram				
Spatial Peak Uncontrolled Exposure/General Population																			

**Table 10-101  
6 GHz WLAN Antenna WIFI 0 Laptop**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	0.02	5985.00	7	34	6.5	6.13	Bottom	0	Variant 2	0.136	1.089	1.063	0.157	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	-0.16	5985.00	7	34	6.5	6.13	Bottom	0	Variant 1	0.004	1.089	1.063	0.005	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	0.09	6305.00	71	34	6.5	6.02	Bottom	0	Variant 2	0.057	1.117	1.063	0.068	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	0.14	6305.00	71	34	6.5	6.02	Bottom	0	Variant 2	0.045	1.117	1.063	0.048	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	-0.01	6465.00	103	34	6.5	6.32	Bottom	0	Variant 2	0.045	1.042	1.063	0.050	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	0.05	6465.00	103	34	6.5	6.32	Bottom	0	Variant 1	0.014	1.042	1.063	0.016	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	0.08	6705.00	151	34	6.5	6.29	Bottom	0	Variant 2	0.030	1.050	1.063	0.033	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	0.09	6705.00	151	34	6.5	6.29	Bottom	0	Variant 1	0.006	1.050	1.063	0.007	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	0.06	7025.00	215	34	6.5	6.14	Bottom	0	Variant 2	0.031	1.086	1.063	0.036	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 0	2063M	94.03	-0.10	7025.00	215	34	6.5	6.14	Bottom	0	Variant 1	0.004	1.086	1.063	0.005	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT															Body 1.6 W/kg (mW/g) averaged over 1 gram					
Spatial Peak Uncontrolled Exposure/General Population																				

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Table 10-102  
6 GHz WLAN Antenna WIFI 1 Laptop

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	P10 #
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.01	5985.00	7	34	10.0	9.31	Bottom	0	Variant 1	0.002	1.172	1.060	0.002	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.03	5985.00	7	34	10.0	9.31	Bottom	0	Variant 2	0.001	1.172	1.060	0.001	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.17	6305.00	71	34	10.0	9.23	Bottom	0	Variant 1	0.002	1.194	1.060	0.003	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.06	6305.00	71	34	10.0	9.23	Bottom	0	Variant 2	0.000	1.194	1.060	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.02	6465.00	103	34	10.0	9.41	Bottom	0	Variant 1	0.002	1.146	1.060	0.002	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.06	6465.00	103	34	10.0	9.41	Bottom	0	Variant 2	0.000	1.146	1.060	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.03	6705.00	151	34	10.0	9.38	Bottom	0	Variant 1	0.012	1.153	1.060	0.015	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.06	6705.00	151	34	10.0	9.38	Bottom	0	Variant 2	0.000	1.153	1.060	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.09	7025.00	215	34	10.0	9.49	Bottom	0	Variant 1	0.000	1.125	1.060	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.02	7025.00	215	34	10.0	9.49	Bottom	0	Variant 2	0.003	1.125	1.060	0.004	
ANSI/IEEE C95.1 B2 - SAFETY LIMIT																Body				
Spatial Peak																1.6 W/kg (mW/g)				
Uncontrolled Exposure/General Population																averaged over 1 gram				

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	P10 #
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.01	5985.00	7	34	10.0	9.31	Bottom	0	Variant 1	0.029	1.172	1.060	0.036	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.03	5985.00	7	34	10.0	9.31	Bottom	0	Variant 2	0.018	1.172	1.060	0.020	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.17	6305.00	71	34	10.0	9.23	Bottom	0	Variant 1	0.016	1.194	1.060	0.020	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.06	6305.00	71	34	10.0	9.23	Bottom	0	Variant 2	0.002	1.194	1.060	0.003	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.02	6465.00	103	34	10.0	9.41	Bottom	0	Variant 1	0.020	1.146	1.060	0.024	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.02	6465.00	103	34	10.0	9.41	Bottom	0	Variant 2	0.004	1.146	1.060	0.005	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.03	6705.00	151	34	10.0	9.38	Bottom	0	Variant 1	0.074	1.153	1.060	0.090	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.06	6705.00	151	34	10.0	9.38	Bottom	0	Variant 2	0.002	1.153	1.060	0.002	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.09	7025.00	215	34	10.0	9.49	Bottom	0	Variant 1	0.002	1.125	1.060	0.002	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	WiFi 1	2285M	94.37	0.02	7025.00	215	34	10.0	9.49	Bottom	0	Variant 2	0.009	1.125	1.060	0.011	

10.5 6 GHz MIMO Standalone SAR and APD

Table 10-103  
6 GHz WLAN MIMO Tablet Max Power

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Peak Number	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	P10 #
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1	0243M	90.00	0.02	5985.00	7	68.1	10.0	9.78	10.0	9.76	Back	19	0.011	1.057	1.111	0.013	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	2	0243M	90.00	0.03	5985.00	7	68.1	10.0	9.78	10.0	9.76	Back	19	0.000	1.057	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	2	0243M	90.00	0.04	6465.00	103	68.1	10.0	9.88	10.0	9.84	Back	19	0.007	1.038	1.111	0.008	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1	0243M	90.00	0.01	6465.00	103	68.1	10.0	9.88	10.0	9.84	Back	19	0.005	1.038	1.111	0.006	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.09	5985.00	7	68.1	10.0	9.78	10.0	9.76	Top	19	0.000	1.057	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.03	6465.00	103	68.1	10.0	9.88	10.0	9.84	Top	19	0.005	1.038	1.111	0.006	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.03	5985.00	7	68.1	10.0	9.78	10.0	9.76	Bottom	0	0.000	1.057	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.02	6465.00	103	68.1	10.0	9.88	10.0	9.84	Bottom	0	0.000	1.038	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.09	5985.00	7	68.1	10.0	9.78	10.0	9.76	Right	15	0.004	1.057	1.111	0.005	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.05	6465.00	103	68.1	10.0	9.88	10.0	9.84	Right	15	0.009	1.038	1.111	0.010	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.08	5985.00	7	68.1	10.0	9.78	10.0	9.76	Left	15	0.006	1.057	1.111	0.007	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.07	6305.00	71	68.1	10.0	9.20	10.0	9.83	Left	15	0.021	1.202	1.111	0.028	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.09	6465.00	103	68.1	10.0	9.88	10.0	9.84	Left	15	0.015	1.038	1.111	0.017	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.02	6705.00	151	68.1	10.0	9.63	10.0	9.72	Left	15	0.008	1.089	1.111	0.010	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.06	7025.00	215	68.1	10.0	9.43	10.0	9.87	Left	15	0.030	1.140	1.111	0.033	
ANSI/IEEE C95.1 B2 - SAFETY LIMIT																Body						
Spatial Peak																1.6 W/kg (mW/g)						
Uncontrolled Exposure/General Population																averaged over 1 gram						

Note: To achieve the 13 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 10 dBm.

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Peak Number	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	P10 #
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1	0243M	90.00	0.02	5985.00	7	68.1	10.0	9.78	10.0	9.76	Back	19	0.000	1.057	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	2	0243M	90.00	0.03	5985.00	7	68.1	10.0	9.78	10.0	9.76	Back	19	0.000	1.057	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	2	0243M	90.00	0.04	6465.00	103	68.1	10.0	9.88	10.0	9.84	Back	19	0.008	1.038	1.111	0.004	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1	0243M	90.00	0.01	6465.00	103	68.1	10.0	9.88	10.0	9.84	Back	19	0.005	1.038	1.111	0.003	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.09	5985.00	7	68.1	10.0	9.78	10.0	9.76	Top	19	0.000	1.057	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.03	6465.00	103	68.1	10.0	9.88	10.0	9.84	Top	19	0.007	1.038	1.111	0.003	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.03	5985.00	7	68.1	10.0	9.78	10.0	9.76	Bottom	0	0.000	1.057	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.02	6465.00	103	68.1	10.0	9.88	10.0	9.84	Bottom	0	0.000	1.038	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.09	5985.00	7	68.1	10.0	9.78	10.0	9.76	Right	15	0.000	1.057	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.05	6465.00	103	68.1	10.0	9.88	10.0	9.84	Right	15	0.067	1.038	1.111	0.077	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.08	5985.00	7	68.1	10.0	9.78	10.0	9.76	Left	15	0.000	1.057	1.111	0.000	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.07	6305.00	71	68.1	10.0	9.20	10.0	9.83	Left	15	0.156	1.202	1.111	0.268	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.09	6465.00	103	68.1	10.0	9.88	10.0	9.84	Left	15	0.117	1.038	1.111	0.135	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.02	6705.00	151	68.1	10.0	9.63	10.0	9.72	Left	15	0.043	1.089	1.111	0.052	
Body	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	N/A	0243M	90.00	0.06	7025.00	215	68.1	10.0	9.43	10.0	9.87	Left	15	0.069	1.140	1.111	0.087	

Note: To achieve the 13 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 10 dBm.

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Table 10-104

6 GHz WLAN MIMO Tablet with Grip Sensor Active

Table with 21 columns: Exposure, Band / Mode, Bandwidth [MHz], Service / Modulation, Ant., Peak Number, Serial Number, Duty Cycle [%], Power Drift [dB], Frequency [MHz], Channel #, Data Rate [Mbps], Max Allowed Power [dBm], Conducted Power [dBm], Max Allowed Power (2nd ant) [dBm], Conducted Power (2nd ant) [dBm], Test Position, Spacing [mm], Keyboard Type, Measured 1g SAR [W/kg], Power Scaling Factor, Reported 1g SAR [W/kg], Plot #. Includes spatial peak and uncontrolled exposure data.

Note: To achieve the 9.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 6.5 dBm.

Table with 21 columns: Exposure, Band / Mode, Bandwidth [MHz], Service / Modulation, Ant., Peak Number, Serial Number, Duty Cycle [%], Power Drift [dB], Frequency [MHz], Channel #, Data Rate [Mbps], Max Allowed Power [dBm], Conducted Power [dBm], Max Allowed Power (2nd ant) [dBm], Conducted Power (2nd ant) [dBm], Test Position, Spacing [mm], Keyboard Type, Measured APD [W/m^2 (cm^2)], Power Scaling Factor, Reported APD [W/m^2 (cm^2)], Plot #. Includes spatial peak and uncontrolled exposure data.

Note: To achieve the 9.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 6.5 dBm.

Table 10-105

6 GHz WLAN MIMO Tablet with 2.4 GHz WLAN Active and/or NR Active

Table with 21 columns: Exposure, Band / Mode, Bandwidth [MHz], Service / Modulation, Ant., Peak Number, Serial Number, Duty Cycle [%], Power Drift [dB], Frequency [MHz], Channel #, Data Rate [Mbps], Max Allowed Power [dBm], Conducted Power [dBm], Max Allowed Power (2nd ant) [dBm], Conducted Power (2nd ant) [dBm], Test Position, Spacing [mm], Measured 1g SAR [W/kg], Power Scaling Factor, Duty Cycle Scaling Factor, Reported 1g SAR [W/kg], Plot #. Includes spatial peak and uncontrolled exposure data.

Note: To achieve the 5.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 2.5 dBm.

Table with 21 columns: Exposure, Band / Mode, Bandwidth [MHz], Service / Modulation, Ant., Peak Number, Serial Number, Duty Cycle [%], Power Drift [dB], Frequency [MHz], Channel #, Data Rate [Mbps], Max Allowed Power [dBm], Conducted Power [dBm], Max Allowed Power (2nd ant) [dBm], Conducted Power (2nd ant) [dBm], Test Position, Spacing [mm], Measured APD [W/m^2 (cm^2)], Power Scaling Factor, Duty Cycle Scaling Factor, Reported APD [W/m^2 (cm^2)], Plot #. Includes spatial peak and uncontrolled exposure data.

Note: To achieve the 5.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 2.5 dBm.

Table with 3 columns: FCC ID: A3LSMX828U, SAR EVALUATION REPORT, Approved by: Technical Manager. Row 2: Document S/N: 1M2405140039-20.A3L, DUT Type: Portable Computing Device, Page 133 of 154.

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**Table 10-106  
6 GHz WLAN MIMO Laptop**

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	-0.11	5985.00	7	68.1	30.0	9.78	30.0	9.76	Bottom	0	Variant 1	0.055	1.057	1.111	0.065	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	0.07	5985.00	7	68.1	30.0	9.78	30.0	9.76	Bottom	0	Variant 2	0.343	1.057	1.111	0.385	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	0.08	6305.00	71	68.1	30.0	9.20	30.0	9.83	Bottom	0	Variant 1	0.080	1.202	1.111	0.107	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	0.12	6305.00	71	68.1	30.0	9.20	30.0	9.83	Bottom	0	Variant 2	0.311	1.202	1.111	0.415	A57
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	0.07	6465.00	303	68.1	30.0	9.88	30.0	9.84	Bottom	0	Variant 1	0.065	1.038	1.111	0.075	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	0.02	6465.00	303	68.1	30.0	9.88	30.0	9.84	Bottom	0	Variant 2	0.153	1.038	1.111	0.176	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	0.08	6705.00	151	68.1	30.0	9.63	30.0	9.72	Bottom	0	Variant 1	0.039	1.089	1.111	0.047	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	-0.04	6705.00	151	68.1	30.0	9.63	30.0	9.72	Bottom	0	Variant 2	0.089	1.089	1.111	0.108	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	0.04	7025.00	215	68.1	30.0	9.43	30.0	9.87	Bottom	0	Variant 1	0.028	1.140	1.111	0.035	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90.00	0.04	7025.00	215	68.1	30.0	9.43	30.0	9.87	Bottom	0	Variant 2	0.139	1.140	1.111	0.139	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																	Body					
Spatial Peak																	1.6 W/kg (mW/g)					
Uncontrolled Exposure/General Population																	averaged over 1 gram					

Note: To achieve the 13 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 10 dBm.

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured APD [W/m <sup>2</sup> (4cm <sup>2</sup> )]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m <sup>2</sup> (4cm <sup>2</sup> )]	Plot #
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	-0.11	5985.00	7	68.1	30.0	9.78	30.0	9.76	Bottom	0	Variant 1	0.391	1.057	1.111	0.459	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	0.07	5985.00	7	68.1	30.0	9.78	30.0	9.76	Bottom	0	Variant 2	1.610	1.057	1.111	1.891	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	0.08	6305.00	71	68.1	30.0	9.20	30.0	9.83	Bottom	0	Variant 1	0.614	1.202	1.111	0.820	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	0.12	6305.00	71	68.1	30.0	9.20	30.0	9.83	Bottom	0	Variant 2	2.040	1.202	1.111	2.724	A57
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	0.07	6465.00	303	68.1	30.0	9.88	30.0	9.84	Bottom	0	Variant 1	0.476	1.038	1.111	0.549	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	0.02	6465.00	303	68.1	30.0	9.88	30.0	9.84	Bottom	0	Variant 2	1.030	1.038	1.111	1.168	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	0.08	6705.00	151	68.1	30.0	9.63	30.0	9.72	Bottom	0	Variant 1	0.306	1.089	1.111	0.370	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	-0.04	6705.00	151	68.1	30.0	9.63	30.0	9.72	Bottom	0	Variant 2	0.554	1.089	1.111	0.670	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	0.04	7025.00	215	68.1	30.0	9.43	30.0	9.87	Bottom	0	Variant 1	0.234	1.140	1.111	0.296	
Body	6 GHz WiFi / IEEE 802.11aa	80	OFDM	MIMO	0263M	90	0.04	7025.00	215	68.1	30.0	9.43	30.0	9.87	Bottom	0	Variant 2	0.719	1.140	1.111	0.911	

## 10.6 Bluetooth SISO Standalone SAR

**Table 10-107  
Bluetooth Ant WIFI 0 Tablet Max Power**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	-0.16	2480.00	78	1	15.0	13.87	Back	19	0.015	1.297	1.016	0.020	
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	0.10	2480.00	78	1	15.0	13.87	Top	19	0.009	1.297	1.016	0.012	
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	0.10	2480.00	78	1	15.0	13.87	Bottom	0	0.013	1.297	1.016	0.017	
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	0.08	2480.00	78	1	15.0	13.87	Right	0	0.000	1.297	1.016	0.000	
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	0.13	2480.00	78	1	15.0	13.87	Left	15	0.030	1.297	1.016	0.040	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT													Body					
Spatial Peak													1.6 W/kg (mW/g)					
Uncontrolled Exposure/General Population													averaged over 1 gram					

**Table 10-108  
Bluetooth Ant WIFI 1 Tablet Max Power**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	-0.15	2480.00	78	1	15.0	14.24	Back	19	0.024	1.191	1.016	0.029	
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	-0.21	2480.00	78	1	15.0	14.24	Top	19	0.017	1.191	1.016	0.021	
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	-0.03	2480.00	78	1	15.0	14.24	Bottom	0	0.029	1.191	1.016	0.035	
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	0.00	2480.00	78	1	15.0	14.24	Right	15	0.065	1.191	1.016	0.079	
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	0.09	2480.00	78	1	15.0	14.24	Left	0	0.001	1.191	1.016	0.001	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT													Body					
Spatial Peak													1.6 W/kg (mW/g)					
Uncontrolled Exposure/General Population													averaged over 1 gram					

**Table 10-109  
Bluetooth Ant WIFI 0 Tablet with Grip Sensor Active**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	0.06	2441.00	39	1	7.5	6.22	Back	0	0.112	1.343	1.016	0.153	A58
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	-0.02	2441.00	39	1	7.5	6.22	Top	0	0.043	1.343	1.016	0.059	
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	0.18	2441.00	39	1	7.5	6.22	Left	0	0.059	1.343	1.016	0.081	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT													Body					
Spatial Peak													1.6 W/kg (mW/g)					
Uncontrolled Exposure/General Population													averaged over 1 gram					

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**Table 10-110  
Bluetooth Ant WIFI 1 Tablet with Grip Sensor Active**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	0.04	2441.00	39	1	7.5	6.31	Back	0	0.101	1.315	1.016	0.135	
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	0.01	2441.00	39	1	7.5	6.31	Top	0	0.050	1.315	1.016	0.067	
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	0.09	2441.00	39	1	7.5	6.31	Right	0	0.112	1.315	1.016	0.150	
ANSI/IEEE C95.1.1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram					

**Table 10-111  
Bluetooth Ant WIFI 0 Laptop**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	-0.09	2441.00	39	1	6.5	6.22	Bottom	0	Variant 1	0.034	1.067	1.016	0.037	
Body	2.4 GHz Bluetooth	FHSS	WIFI 0	0237M	76.80	0.01	2441.00	39	1	6.5	6.22	Bottom	0	Variant 2	0.069	1.067	1.016	0.075	A59
ANSI/IEEE C95.1.1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram						

**Table 10-112  
Bluetooth Ant WIFI 1 Laptop**

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Keyboard Type	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	0.09	2480.00	78	1	15.0	14.24	Bottom	0	Variant 1	0.000	1.191	1.016	0.000	
Body	2.4 GHz Bluetooth	FHSS	WIFI 1	0237M	76.80	0.01	2480.00	78	1	15.0	14.24	Bottom	0	Variant 2	0.000	1.191	1.016	0.000	
ANSI/IEEE C95.1.1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram						

## 10.7 SAR Test Notes

### General Notes:

- The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, FCC KDB Publication 447498 D04v01, and FCC KDB Publication 616217 D04v01r02.
- Batteries are fully charged at the beginning of the SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D04v01.
- Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 12 for variability analysis.
- This device uses MediaTek TAS for WWAN to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, compliance for was assessed at the minimum of the time averaged power and the maximum output power for each band/mode/exposure condition (ECI).
- FCC KDB Publication 616217 D04v01r02 Section 4.3, SAR tests are required for the back surface and edges of the tablet with the tablet touching the phantom. The SAR Exclusion Threshold in FCC KDB 447498 D04v01 was applied to determine SAR test exclusion for adjacent edge configurations.
- Per FCC KDB 616217 D04, SAR is evaluated for the bottom surface of a keyboard when it is attached to the DUT in laptop configuration.
- Per FCC KDB 648474 D04, highest reported SAR tablet configuration for a transmission band on an antenna was additionally evaluated with keyboard accessory attached and folded back at 360°
- The orange highlights throughout the report represent the highest scaled SAR per Equipment Class.

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**UMTS Notes:**

1. UMTS mode was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
2. Per FCC KDB Publication 447498 D04v01, if the reported (scaled) SAR measured at the highest output power channel for each test configuration is  $\leq 0.8$  W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s).

**LTE Notes:**

1. LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 7.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D04v01, when the reported LTE Band 41 or LTE Band 48 SAR measured at the highest output power channel in a given a test configuration was  $> 0.6$  W/kg for 1g evaluations, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not  $>0.25$  dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions. Please see Section 13 for linearity results.
8. For LTE Band 7, LTE Band 66, LTE Band 48, and LTE Band 41, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

**NR Notes:**

1. NR implementation supports SA and NSA mode. In EN-DC mode, NR operates with the LTE Bands shown in the NR FR1 checklist acting as anchor bands. Per FCC guidance, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.
2. Due to test setup limitations, SAR testing for NR was performed using test mode software to establish the connection.
3. Simultaneous transmission analysis for EN-DC operations is addressed in the Part 2 Test Report (Serial Number can be found in the bibliography).
4. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.
5. Per FCC Guidance, NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power were evaluated for SAR tests.

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6. Per FCC KDB Publication 447498 D04v01, when the reported NR Band n77 C-Band SAR measured at the highest output power channel in a given a test configuration was > 0.4 W/kg for 1g evaluations and > 1 W/kg for 10g evaluation, testing at the other channels was required for such test configurations.
7. Per FCC KDB Publication 447498 D04v01, when the reported NR Band n41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations and > 1 W/kg for 10g evaluation, testing at the other channels was required for such test configurations.
8. Per MTK guidance, SRS was tested with modulated signal. DFT-s-OFDM QPSK was used as the lowest order modulation and RB Size/Offset was selected to resemble continuous wave signal.

**WLAN Notes:**

1. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n/ax) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 7.6.4 for more information.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 7.6.5 for more information.
3. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D04v01 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see the Simultaneous Numerical Calculations Appendix for complete analysis.
4. When the maximum reported 1g averaged SAR is  $\leq 0.8$  W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was  $\leq 1.20$  W/kg for 1g evaluations or all test channels were measured.
5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
6. Per FCC guidance, SAR was performed using 6.5 GHz SAR probe calibration factors. Per October 2020 TCB Workshop notes, 5 channels were tested.

**Bluetooth Notes**

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 79% transmission duty factor for Bluetooth to determine compliance. See RF Conducted Power Section for the time domain plot and calculation for the duty factor of the device.

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# 11 POWER DENSITY DATA SUMMARY

## 11.1 6 GHz WIFI Power Density Results

**Table 11-1  
6 GHz WLAN Tablet – Antenna WIFI 0**

MEASUREMENT RESULTS																								
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 1) (dBm)	Conducted Power (Ant 1) (dBm)	Power Drift (dB)	Spacing (mm)	Antenna Config.	Keyboard Type	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (λ)	IPD (W/m <sup>2</sup> )	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal psPD (W/m <sup>2</sup> )	Scaled Normal psPD (W/m <sup>2</sup> )	Total psPD (W/m <sup>2</sup> )	Scaled Total psPD (W/m <sup>2</sup> )	Plot #
5985.00	7	802.11ax	OFDM	80	10.00	9.33	-0.12	2	WiFi0	N/A	2063M	MCS0	Back	94.03	0.125	-	1.554	1.167	1.063	0.546	1.053	0.679	1.309	
6305.00	71	802.11ax	OFDM	80	10.00	9.44	-0.04	2	WiFi0	N/A	2063M	MCS0	Back	94.03	0.125	1.060	1.554	1.138	1.063	0.999	1.878	1.190	2.237	
6305.00	71	802.11ax	OFDM	80	10.00	9.44	-0.19	9.51	WiFi0	N/A	2063M	MCS0	Back	94.03	0.125	0.248	1.554	1.138	1.063	0.127	0.239	0.145	0.273	
6305.00	71	802.11ax	OFDM	80	10.00	9.44	-0.12	2	WiFi0	Keyboard Variant 1	2063M	MCS0	Back	94.03	0.125	-	1.554	1.138	1.063	0.335	0.630	0.463	0.870	
6305.00	71	802.11ax	OFDM	80	10.00	9.44	0.14	2	WiFi0	Keyboard Variant 2	2063M	MCS0	Back	94.03	0.125	-	1.554	1.138	1.063	0.463	0.870	0.634	1.192	
6465.00	103	802.11ax	OFDM	80	10.00	9.20	-0.11	2	WiFi0	N/A	2063M	MCS0	Back	94.03	0.125	-	1.554	1.202	1.063	0.559	1.110	0.660	1.310	
6705.00	151	802.11ax	OFDM	80	10.00	9.42	-0.01	2	WiFi0	N/A	2063M	MCS0	Back	94.03	0.125	-	1.554	1.143	1.063	0.367	0.693	0.449	0.848	
7025.00	215	802.11ax	OFDM	80	10.00	9.23	-0.02	2	WiFi0	N/A	2063M	MCS0	Back	94.03	0.125	-	1.554	1.194	1.063	0.361	0.712	0.481	0.949	
6305.00	71	802.11ax	OFDM	80	10.00	9.44	0.13	2	WiFi0	N/A	2063M	MCS0	Top	94.03	0.125	-	1.554	1.138	1.063	0.165	0.310	0.178	0.335	
6305.00	71	802.11ax	OFDM	80	10.00	9.44	-0.11	2	WiFi0	N/A	2063M	MCS0	Left	94.03	0.125	-	1.554	1.138	1.063	0.199	0.374	0.651	1.224	
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population										Power Density 10 W/m <sup>2</sup> averaged over 4 cm <sup>2</sup>														

**Table 11-2  
6 GHz WLAN Tablet – Antenna WIFI 1**

MEASUREMENT RESULTS																								
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 2) (dBm)	Conducted Power (Ant 2) (dBm)	Power Drift (dB)	Spacing (mm)	Antenna Config.	Keyboard Type	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (λ)	IPD (W/m <sup>2</sup> )	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal psPD (W/m <sup>2</sup> )	Scaled Normal psPD (W/m <sup>2</sup> )	Total psPD (W/m <sup>2</sup> )	Scaled Total psPD (W/m <sup>2</sup> )	Plot #
7025.00	215	802.11ax	OFDM	80	10.00	9.49	0.12	2	WiFi1	N/A	2063M	MCS0	Back	94.37	0.125	-	1.554	1.125	1.060	0.361	0.669	0.431	0.799	
7025.00	215	802.11ax	OFDM	80	10.00	9.49	-0.02	2	WiFi1	N/A	2063M	MCS0	Top	94.37	0.125	-	1.554	1.125	1.060	0.306	0.567	0.353	0.654	
5985.00	7	802.11ax	OFDM	80	10.00	9.31	-0.01	2	WiFi1	N/A	2063M	MCS0	Right	94.37	0.125	-	1.554	1.172	1.060	0.603	0.971	0.718	1.386	
5985.00	7	802.11ax	OFDM	80	10.00	9.31	0.15	2	WiFi1	Keyboard Variant 1	2063M	MCS0	Right	94.37	0.125	-	1.554	1.172	1.060	0.245	0.473	0.262	0.506	
5985.00	7	802.11ax	OFDM	80	10.00	9.31	0.11	2	WiFi1	Keyboard Variant 2	2063M	MCS0	Right	94.37	0.125	-	1.554	1.172	1.060	0.454	0.876	0.773	1.492	
6305.00	71	802.11ax	OFDM	80	10.00	9.23	0.08	2	WiFi1	N/A	2063M	MCS0	Right	94.37	0.125	-	1.554	1.194	1.060	0.326	0.641	0.403	0.793	
6465.00	103	802.11ax	OFDM	80	10.00	9.41	-0.02	2	WiFi1	N/A	2063M	MCS0	Right	94.37	0.125	0.930	1.554	1.146	1.060	0.149	0.281	0.162	0.306	
6705.00	151	802.11ax	OFDM	80	10.00	9.38	-0.09	2	WiFi1	N/A	2063M	MCS0	Right	94.37	0.125	0.230	1.554	1.153	1.060	0.136	0.258	0.191	0.363	
7025.00	215	802.11ax	OFDM	80	10.00	9.49	-0.10	2	WiFi1	N/A	2063M	MCS0	Right	94.37	0.125	-	1.554	1.125	1.060	0.484	0.897	0.533	0.988	
7025.00	215	802.11ax	OFDM	80	10.00	9.49	-0.16	8.54	WiFi1	N/A	2063M	MCS0	Right	94.37	0.125	-	1.554	1.125	1.060	0.115	0.213	0.131	0.243	
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population										Power Density 10 W/m <sup>2</sup> averaged over 4 cm <sup>2</sup>														

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**Table 11-3  
6 GHz WLAN Tablet – MIMO**

MEASUREMENT RESULTS																											
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 1) (dBm)	Conducted Power (Ant 1) (dBm)	Maximum Allowed Power (Ant 2) (dBm)	Conducted Power (Ant 2) (dBm)	Power DfR (dB)	Spacing (mm)	Antenna Config.	Peak	Keyboard Type	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (λ)	IPD (W/m²)	Scaling Factor (for Measurement Uncertainty per IEC 62479)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal µpPD (W/m²)	Scaled Normal µpPD (W/m²)	Total µpPD (W/m²)	Scaled Total µpPD (W/m²)	Plot #
5885.00	7	802.11ax	OFDM	80	10.00	9.78	10.00	9.76	-0.13	2	MIMO	1	N/A	1993M	MCS0	Back	90.00	0.125	1.630	1.554	1.067	1.111	1.730	3.157	1.880	3.431	A0
5885.00	7	802.11ax	OFDM	80	10.00	9.78	10.00	9.76	0.13	2	MIMO	2	N/A	1993M	MCS0	Back	90.00	0.125	-	1.554	1.067	1.111	0.682	1.246	0.979	1.787	
5885.00	7	802.11ax	OFDM	80	10.00	9.78	10.00	9.76	0.12	9.27	MIMO	1	N/A	1993M	MCS0	Back	90.00	0.125	0.328	1.554	1.067	1.111	0.175	0.316	0.228	0.416	
5885.00	7	802.11ax	OFDM	80	10.00	9.78	10.00	9.76	-1.50	2	MIMO	1	Keyboard Variant 1	1993M	MCS0	Back	90.00	0.125	-	1.554	1.067	1.111	0.338	0.613	0.346	0.631	
5885.00	7	802.11ax	OFDM	80	10.00	9.78	10.00	9.76	-0.13	2	MIMO	2	Keyboard Variant 2	1993M	MCS0	Back	90.00	0.125	-	1.554	1.067	1.111	0.382	0.697	0.462	0.826	
6305.00	71	802.11ax	OFDM	80	10.00	9.20	10.00	9.83	0.10	2	MIMO	1	N/A	1993M	MCS0	Back	90.00	0.125	-	1.554	1.202	1.111	0.574	1.191	0.895	1.857	
6305.00	71	802.11ax	OFDM	80	10.00	9.20	10.00	9.83	0.10	2	MIMO	2	N/A	1993M	MCS0	Back	90.00	0.125	-	1.554	1.202	1.111	0.283	0.587	0.453	0.899	
6465.00	103	802.11ax	OFDM	80	10.00	9.88	10.00	9.84	-0.13	2	MIMO	1	N/A	1993M	MCS0	Back	90.00	0.125	-	1.554	1.038	1.111	0.509	0.912	0.671	1.581	
6465.00	103	802.11ax	OFDM	80	10.00	9.88	10.00	9.84	-0.20	2	MIMO	2	N/A	1993M	MCS0	Back	90.00	0.125	-	1.554	1.038	1.111	0.404	0.724	0.471	0.844	
6705.00	151	802.11ax	OFDM	80	10.00	9.63	10.00	9.72	-0.13	2	MIMO	1	N/A	1993M	MCS0	Back	90.00	0.125	-	1.554	1.089	1.111	0.669	1.239	1.010	1.899	
6705.00	151	802.11ax	OFDM	80	10.00	9.63	10.00	9.72	-0.14	2	MIMO	2	N/A	1993M	MCS0	Back	90.00	0.125	-	1.554	1.089	1.111	0.403	0.758	0.607	1.141	
7025.00	215	802.11ax	OFDM	80	10.00	9.43	10.00	9.97	-0.14	2	MIMO	1	N/A	1993M	MCS0	Back	90.00	0.125	-	1.554	1.140	1.111	0.798	1.571	0.979	1.927	
7025.00	215	802.11ax	OFDM	80	10.00	9.43	10.00	9.97	-0.09	2	MIMO	2	N/A	1993M	MCS0	Back	90.00	0.125	-	1.554	1.140	1.111	0.333	0.655	0.468	0.901	
6465.00	103	802.11ax	OFDM	80	10.00	9.88	10.00	9.84	-0.12	2	MIMO	1	N/A	1993M	MCS0	Top	90.00	0.125	-	1.554	1.038	1.111	0.191	0.342	0.246	0.441	
6465.00	103	802.11ax	OFDM	80	10.00	9.88	10.00	9.84	0.16	2	MIMO	2	N/A	1993M	MCS0	Top	90.00	0.125	-	1.554	1.038	1.111	0.295	0.529	0.317	0.568	
6465.00	103	802.11ax	OFDM	80	10.00	9.88	10.00	9.84	0.15	2	MIMO	1	N/A	1993M	MCS0	Right	90.00	0.125	-	1.554	1.038	1.111	0.374	0.670	0.576	1.032	
6465.00	103	802.11ax	OFDM	80	10.00	9.88	10.00	9.84	0.20	2	MIMO	1	N/A	1993M	MCS0	Left	90.00	0.125	-	1.554	1.038	1.111	0.581	1.041	0.937	1.679	
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population												Power Density 10 W/m² averaged over 4 cm²															

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**Table 11-4  
6 GHz WLAN Laptop – Variant 1**

MEASUREMENT RESULTS																									
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 1) (dBm)	Conducted Power (Ant 1) (dBm)	Power Drift (dB)	Spacing (mm)	Antenna Config.	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (A)	IPD (W/m <sup>2</sup> )	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal psPD (W/m <sup>2</sup> )	Scaled Normal psPD (W/m <sup>2</sup> )	Total psPD (W/m <sup>2</sup> )	Scaled Total psPD (W/m <sup>2</sup> )	Plot #		
5985.00	7	802.11ax	OFDM	80	6.50	6.13	-0.21	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.089	1.004	0.230	0.391	0.249	0.423			
6305.00	71	802.11ax	OFDM	80	6.50	6.02	0.15	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.117	1.004	0.070	0.122	0.081	0.141			
6465.00	103	802.11ax	OFDM	80	6.50	6.32	-0.09	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.042	1.004	0.082	0.133	0.108	0.176			
6705.00	151	802.11ax	OFDM	80	6.50	6.29	0.17	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.050	1.004	0.167	0.274	0.181	0.297			
7025.00	215	802.11ax	OFDM	80	6.50	6.14	0.12	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.086	1.004	0.246	0.417	0.255	0.432			
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population										Power Density 10 W/m <sup>2</sup> averaged over 4 cm <sup>2</sup>															
MEASUREMENT RESULTS																									
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 2) (dBm)	Conducted Power (Ant 2) (dBm)	Power Drift (dB)	Spacing (mm)	Antenna Config.	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (A)	IPD (W/m <sup>2</sup> )	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal psPD (W/m <sup>2</sup> )	Scaled Normal psPD (W/m <sup>2</sup> )	Total psPD (W/m <sup>2</sup> )	Scaled Total psPD (W/m <sup>2</sup> )	Plot #		
5985.00	7	802.11ax	OFDM	80	10.00	9.31	0.00	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.117	1.004	0.083	0.015	0.148	0.027			
6305.00	71	802.11ax	OFDM	80	10.00	9.23	0.18	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.119	1.004	0.184	0.034	0.214	0.040			
6465.00	103	802.11ax	OFDM	80	10.00	9.41	0.13	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.115	1.004	0.128	0.023	0.155	0.028			
6705.00	151	802.11ax	OFDM	80	10.00	9.38	0.17	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.115	1.004	0.099	0.018	0.111	0.020			
7025.00	215	802.11ax	OFDM	80	10.00	9.49	-0.14	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.112	1.004	0.241	0.042	0.276	0.048			
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population										Power Density 10 W/m <sup>2</sup> averaged over 4 cm <sup>2</sup>															
MEASUREMENT RESULTS																									
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 1) (dBm)	Conducted Power (Ant 1) (dBm)	Maximum Allowed Power (Ant 2) (dBm)	Conducted Power (Ant 2) (dBm)	Power Drift (dB)	Spacing (mm)	Antenna Config.	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (A)	IPD (W/m <sup>2</sup> )	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal psPD (W/m <sup>2</sup> )	Scaled Normal psPD (W/m <sup>2</sup> )	Total psPD (W/m <sup>2</sup> )	Scaled Total psPD (W/m <sup>2</sup> )	Plot #
5985.00	7	802.11ax	OFDM	80	10.00	9.78	10.00	9.76	0.19	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.057	1.004	0.323	0.533	0.462	0.745	
6305.00	71	802.11ax	OFDM	80	10.00	9.20	10.00	9.83	-0.10	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.202	1.004	0.270	0.506	0.426	0.799	
6465.00	103	802.11ax	OFDM	80	10.00	9.88	10.00	9.84	-0.13	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.038	1.004	0.237	0.384	0.361	0.585	
6705.00	151	802.11ax	OFDM	80	10.00	9.63	10.00	9.72	-0.18	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.089	1.004	0.181	0.308	0.288	0.489	
7025.00	215	802.11ax	OFDM	80	10.00	9.43	10.00	9.87	0.18	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.140	1.004	0.399	0.710	0.496	0.882	
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population										Power Density 10 W/m <sup>2</sup> averaged over 4 cm <sup>2</sup>															

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**Table 11-5  
6 GHz WLAN Laptop – Variant 2**

MEASUREMENT RESULTS																									
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 1) (dBm)	Conducted Power (Ant 1) (dBm)	Power Drift (dB)	Spacing (mm)	Antenna Config.	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (A)	IPD (W/m <sup>2</sup> )	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal psPD (W/m <sup>2</sup> )	Scaled Normal psPD (W/m <sup>2</sup> )	Total psPD (W/m <sup>2</sup> )	Scaled Total psPD (W/m <sup>2</sup> )	Plot #		
5985.00	7	802.11ax	OFDM	80	6.50	6.13	0.14	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.089	1.004	0.335	0.569	0.538	0.914			
6305.00	71	802.11ax	OFDM	80	6.50	6.02	0.08	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.117	1.004	0.395	0.688	0.463	0.807			
6465.00	103	802.11ax	OFDM	80	6.50	6.32	-0.11	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.042	1.004	0.557	0.906	0.666	1.083			
6705.00	151	802.11ax	OFDM	80	6.50	6.29	-0.13	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.050	1.004	0.289	0.473	0.293	0.480			
7025.00	215	802.11ax	OFDM	80	6.50	6.14	-0.12	2	WiFi 0	2063M	MCS0	Bottom	99.60	0.125	-	1.554	1.086	1.004	0.325	0.551	0.343	0.581			
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population										Power Density 10 W/m <sup>2</sup> averaged over 4 cm <sup>2</sup>															
MEASUREMENT RESULTS																									
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 2) (dBm)	Conducted Power (Ant 2) (dBm)	Power Drift (dB)	Spacing (mm)	Antenna Config.	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (A)	IPD (W/m <sup>2</sup> )	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal psPD (W/m <sup>2</sup> )	Scaled Normal psPD (W/m <sup>2</sup> )	Total psPD (W/m <sup>2</sup> )	Scaled Total psPD (W/m <sup>2</sup> )	Plot #		
5985.00	7	802.11ax	OFDM	80	10.00	9.31	0.12	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.117	1.004	0.091	0.017	0.105	0.019			
6305.00	71	802.11ax	OFDM	80	10.00	9.23	0.15	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.119	1.004	0.276	0.051	0.323	0.060			
6465.00	103	802.11ax	OFDM	80	10.00	9.41	-0.12	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.115	1.004	0.172	0.031	0.183	0.033			
6705.00	151	802.11ax	OFDM	80	10.00	9.38	0.14	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.115	1.004	0.199	0.036	0.212	0.038			
7025.00	215	802.11ax	OFDM	80	10.00	9.49	0.18	2	WiFi 1	2063M	MCS0	Bottom	99.60	0.125	-	1.554	0.112	1.004	0.310	0.054	0.325	0.057			
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population										Power Density 10 W/m <sup>2</sup> averaged over 4 cm <sup>2</sup>															
MEASUREMENT RESULTS																									
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 1) (dBm)	Conducted Power (Ant 1) (dBm)	Maximum Allowed Power (Ant 2) (dBm)	Conducted Power (Ant 2) (dBm)	Power Drift (dB)	Spacing (mm)	Antenna Config.	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (A)	IPD (W/m <sup>2</sup> )	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal psPD (W/m <sup>2</sup> )	Scaled Normal psPD (W/m <sup>2</sup> )	Total psPD (W/m <sup>2</sup> )	Scaled Total psPD (W/m <sup>2</sup> )	Plot #
5985.00	7	802.11ax	OFDM	80	10.00	9.78	10.00	9.76	-0.14	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.057	1.004	0.748	1.234	1.040	1.715	A61
6305.00	71	802.11ax	OFDM	80	10.00	9.20	10.00	9.83	-0.12	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.202	1.004	0.295	0.553	0.689	1.292	
6465.00	103	802.11ax	OFDM	80	10.00	9.88	10.00	9.84	-0.14	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.038	1.004	0.614	0.994	0.771	1.249	
6705.00	151	802.11ax	OFDM	80	10.00	9.63	10.00	9.72	-0.14	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.089	1.004	0.185	0.314	0.202	0.343	
7025.00	215	802.11ax	OFDM	80	10.00	9.43	10.00	9.87	-0.17	2	MIMO	1993M	MCS0	Bottom	99.60	0.125	-	1.554	1.140	1.004	0.362	0.644	0.427	0.759	
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population										Power Density 10 W/m <sup>2</sup> averaged over 4 cm <sup>2</sup>															

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**Power Density General Notes**

1. The manufacturer has confirmed that the devices tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
2. Batteries are fully charged at the beginning of the measurements. The DUT was connected to a wall charger for some measurements due to the test duration. It was confirmed that the charger plugged into this DUT did not impact the near-field PD test results.
3. Power density was calculated by repeated E-field measurements on two measurement planes separated by  $\lambda/4$ .
4. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools.
5. Per FCC guidance and equipment manufacturer guidance, power density results were scaled according to IEC 62479:2010 for the portion of the measurement uncertainty > 30%. Total expanded uncertainty of 2.68 dB (85.4%) was used to determine the psPD measurement scaling factor.
6. Per equipment manufacturer guidance, power density was measured at  $d=2\text{mm}$  and  $d=\lambda/5\text{mm}$  using the same grid size and grid step size for some frequencies and surfaces. The integrated Power Density (iPD) was calculated based on these measurements. Since iPD ratio between the two distances is  $\geq -1\text{dB}$ , the grid step was sufficient for determining compliance at  $d=2\text{mm}$ .
7. PTP-PR algorithm was used during psPD measurement and calculations.
8. PD results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D04.

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## 12 SAR MEASUREMENT VARIABILITY

### 12.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, all measured 1 g SAR values were  $<0.8$  W/kg. Therefore, no SAR measurement variability analysis was required.

### 12.2 Measurement Uncertainty

The measured SAR was  $<1.5$  W/kg for 1g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

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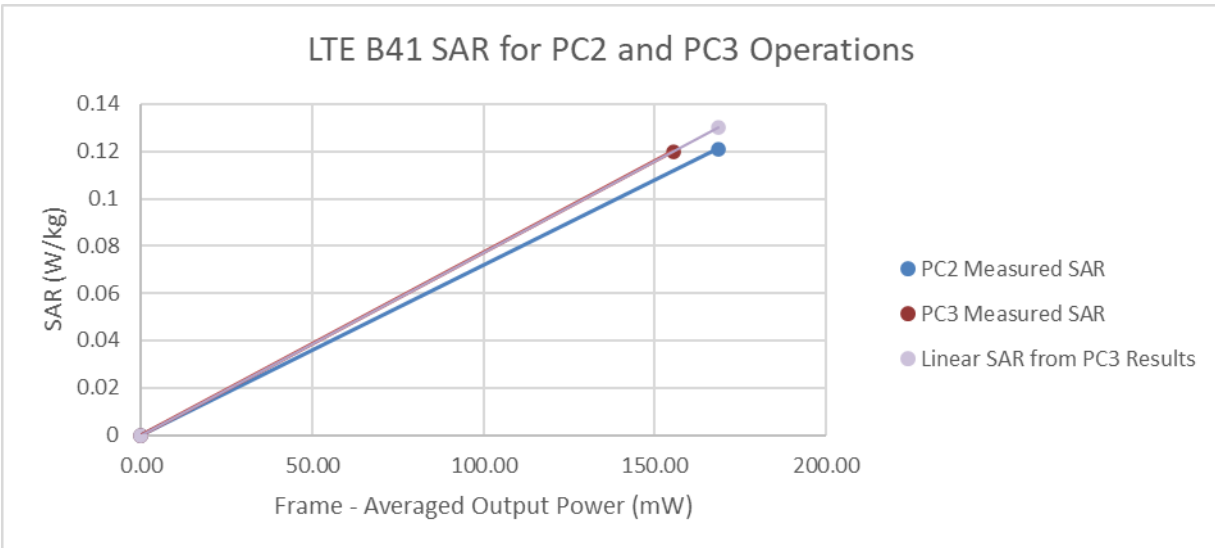
## 13 ADDITIONAL TESTING PER FCC GUIDANCE

### 13.1 LTE Band 41 Power Class 2 and Power Class 3 Linearity

This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per May 2017 TCB Workshop Notes based on the device behavior, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the highest power and available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR for each exposure condition. The linearity between the Power Class 2 and Power Class 3 SAR results and the respective frame averaged powers was calculated to determine that the results were linear. Per May 2017 TCB Workshop, no additional SAR measurements were required since the linearity between power classes was < 10% and all reported SAR values were < 1.4 W/kg for 1g and < 3.5 W/kg for 10g.

**Table 13-1  
LTE Band 41 Body Linearity Data - Laptop**

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.0	27.0
Measured Output Power (dBm)	23.90	25.90
Measured SAR (W/kg)	0.120	0.121
Measured Power (mW)	245.47	389.05
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	155.38	168.46
% deviation from expected linearity		-6.99%



**Figure 13-1  
LTE Band 41 Body Linearity – Laptop**

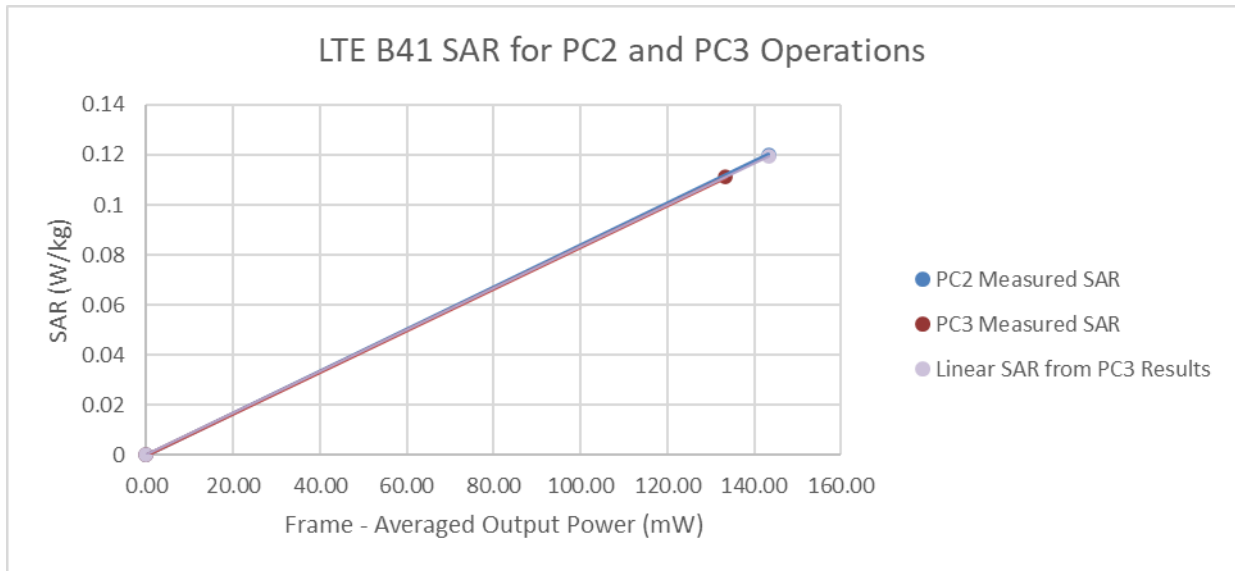
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**Table 13-2  
LTE Band 41 ULCA Body Linearity Data - Laptop**

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.0	27.0
Measured Output Power (dBm)	23.24	25.20
Measured SAR (W/kg)	0.111	0.120
Measured Power (mW)	210.86	331.13
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	133.48	143.38
% deviation from expected linearity		0.64%

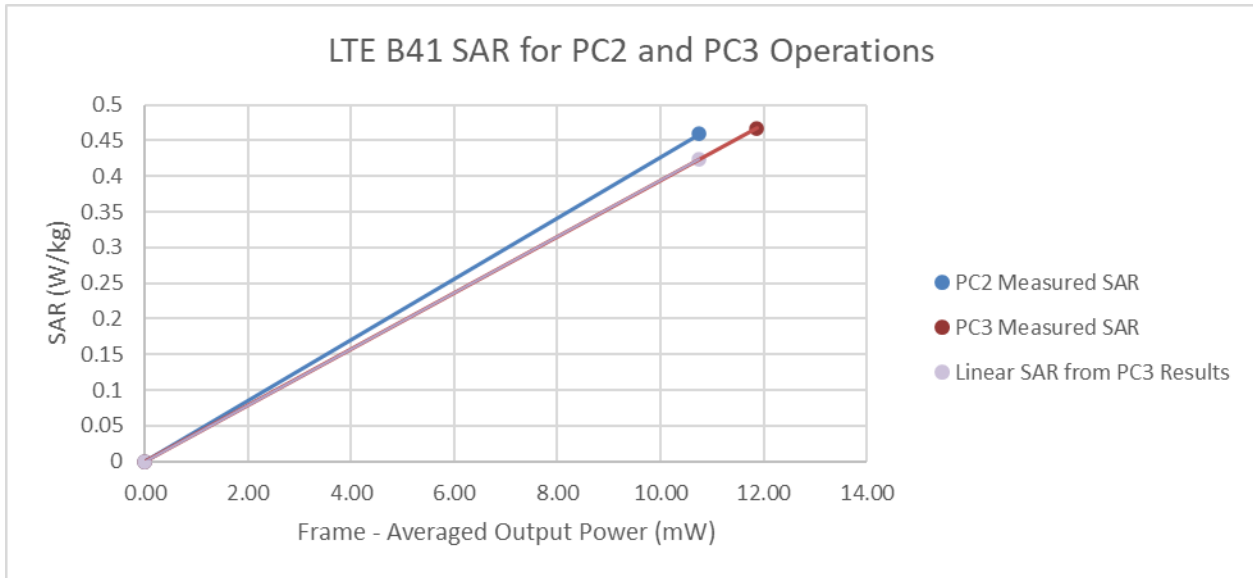


**Figure 13-2  
LTE Band 41 ULCA Body Linearity - Laptop**

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**Table 13-3**  
**LTE Band 41 Body Linearity Data - Tablet**

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	13.00	14.60
Measured Output Power (dBm)	12.73	13.95
Measured SAR (W/kg)	0.467	0.459
Measured Power (mW)	18.75	24.83
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	11.87	10.75
% deviation from expected linearity		8.50%

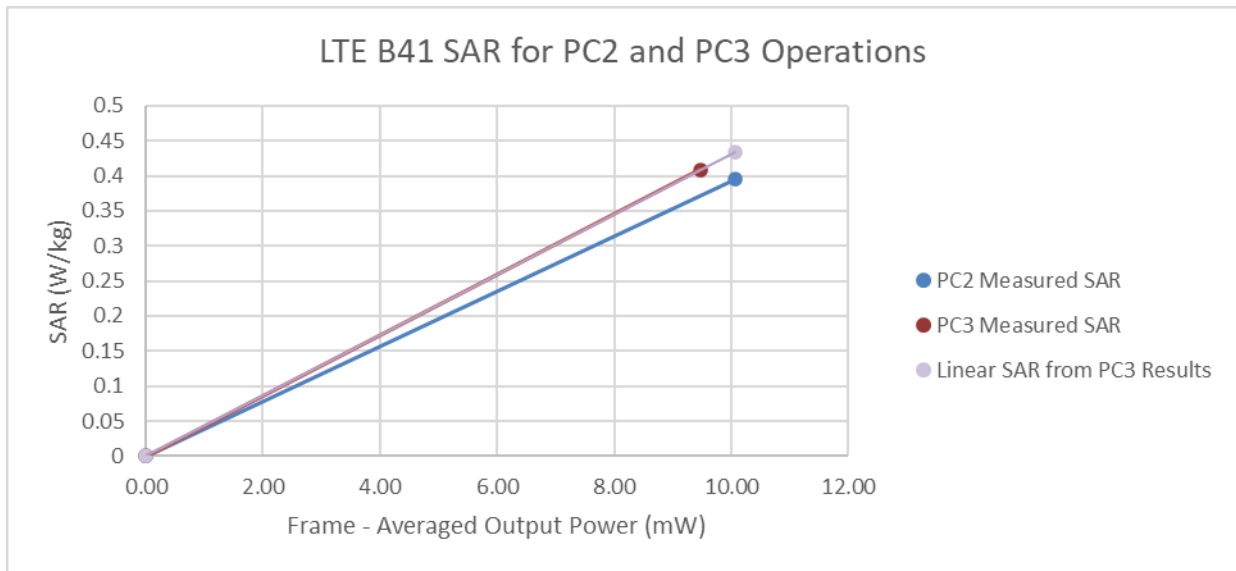


**Figure 13-3**  
**LTE Band 41 Body Linearity - Tablet**

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**Table 13-4  
LTE Band 41 ULCA Body Linearity Data - Tablet**

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	13.0	14.6
Measured Output Power (dBm)	11.75	13.66
Measured SAR (W/kg)	0.409	0.395
Measured Power (mW)	14.96	23.23
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	9.47	10.06
% deviation from expected linearity		-9.05%



**Figure 13-4  
LTE Band 41 ULCA Body Linearity - Tablet**

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# 14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E4404B	Spectrum Analyzer	N/A	N/A	N/A	MY4511292
Agilent	E4438C	ESG Vector Signal Generator	11/14/2023	Annual	11/14/2024	MY45093852
Agilent	E4438C	ESG Vector Signal Generator	11/15/2023	Annual	11/15/2024	MY45092078
Agilent	MS182A	MWG Vector Signal Generator	10/12/2023	Annual	10/12/2024	MY47400015
Agilent	MS182A	MWG Vector Signal Generator	3/7/2024	Annual	3/7/2025	MY47400683
Agilent	8753ES	S-Parameter Vector Network Analyzer	1/10/2024	Annual	1/10/2025	MY40001472
Agilent	8753ES	S-Parameter Vector Network Analyzer	7/21/2023	Annual	7/21/2024	US39170118
Agilent	E5515C	Wireless Communications Test Set	CBT	N/A	CBT	GB46310798
Agilent	E5515C	Wireless Communications Test Set	CBT	N/A	CBT	US41140256
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46310464
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433973
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433974
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Anritsu	MN3130B	I/Q Adapter	CBT	N/A	CBT	6261747881
Anritsu	ML2066A	Power Meter	6/24/2024	Annual	6/24/2025	1840005
Anritsu	ML2495A	Power Meter	7/8/2024	Annual	7/8/2025	1039008
Anritsu	MA2411B	Pulse Power Sensor	8/22/2023	Annual	8/22/2024	1726262
Anritsu	MA2411B	Pulse Power Sensor	11/8/2023	Annual	11/8/2024	1027299
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	12/15/2024	Annual	12/15/2024	6309010180
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	5/15/2024	Annual	5/15/2025	620250047
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	5/30/2024	Annual	5/30/2025	6362044715
Anritsu	MT8000A	Radio Communication Test Station	CBT	N/A	CBT	626196-7072
Anritsu	MT8000A	Radio Communication Test Station	4/10/2024	Annual	4/10/2025	6261987983
Anritsu	MT8000A	Radio Communication Test Station	5/12/2024	Annual	5/12/2025	627137436
Anritsu	MA24106A	USB Power Sensor	12/4/2023	Annual	12/4/2024	1520501
Anritsu	MA24106A	USB Power Sensor	4/15/2024	Annual	4/15/2025	1827528
Mini-Circuits	PWR-4GH5	USB Power Sensor	6/12/2024	Annual	6/12/2025	12001070013
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	240174346
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	24017096
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	240371059
Control Company	4040	Therm./ Clock/ Humidity Monitor	4/15/2024	Biennial	4/15/2026	240310280
Control Company	4040	Therm./ Clock/ Humidity Monitor	4/15/2024	Biennial	4/15/2026	240310282
Control Company	946279	Therm./ Clock/ Humidity Monitor	2/16/2024	Biennial	2/16/2026	240340265
Mitotac	500-198-30	CD-ROM Epoch Digital Caliper	2/16/2023	Triennial	2/16/2026	420338413
Keysight Technologies	N9020A	MXA Signal Analyzer	4/11/2024	Annual	4/11/2025	MY54500644
Agilent	N9020A	MXA Signal Analyzer	6/14/2024	Annual	6/14/2025	MY56470202
MCL	BW-N6W5+	5dB Attenuator	CBT	N/A	CBT	1139
Mini-Circuits	VL-F-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	VL-F-6000+	Low Pass Filter DC to 6000 MHz	7/5/2023	Annual	7/5/2024	31634
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1206
Mini-Circuits	ZUCD10-83-S+	Directional Coupler	CBT	N/A	CBT	2050
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-SW2	Attenuator (3dB)	CBT	N/A	CBT	120
Seslock	NC-100	Torque Wrench	CBT	N/A	CBT	22217
Seslock	NC-100	Torque Wrench	4/27/2024	Biennial	4/27/2026	1362
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	1/11/2024	Annual	1/11/2025	150517
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	1/30/2024	Annual	1/30/2025	131454
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	8/10/2023	Annual	8/10/2024	140344
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	8/29/2023	Annual	8/29/2024	162129
SPEAG	DAK-3.5	Dielectric Assessment Kit	11/13/2023	Annual	11/13/2024	1277
SPEAG	DAK-3.5	Portable Dielectric Assessment Kit	8/14/2023	Annual	8/14/2024	1041
SPEAG	MAA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1237
SPEAG	MAA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1331
SPEAG	MAA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1390
SPEAG	DAK-12	Dielectric Assessment Kit (MHz - 3GHz)	3/11/2024	Annual	3/11/2025	1102
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2021	Triennial	10/19/2024	1161
SPEAG	D750V3	750 MHz SAR Dipole	3/14/2022	Triennial	3/14/2025	1054
SPEAG	D835V2	835 MHz SAR Dipole	1/18/2024	Annual	1/18/2025	46432
SPEAG	D835V2	835 MHz SAR Dipole	3/11/2024	Annual	3/11/2025	46433
SPEAG	D835V2	835 MHz SAR Dipole	3/14/2022	Triennial	3/14/2025	46437
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2021	Triennial	10/22/2024	1150
SPEAG	D1750V2	1750 MHz SAR Dipole	1/18/2022	Triennial	1/18/2025	1148
SPEAG	D1900V2	1900 MHz SAR Dipole	8/29/2023	Biennial	8/29/2024	54690
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2022	Triennial	2/21/2025	56148
SPEAG	D2300V2	2300 MHz SAR Dipole	8/25/2022	Biennial	8/25/2024	1073
SPEAG	D2450V2	2450 MHz SAR Dipole	2/8/2024	Annual	2/8/2025	882
SPEAG	D2450V2	2450 MHz SAR Dipole	8/18/2023	Triennial	8/18/2024	749
SPEAG	D2450V2	2450 MHz SAR Dipole	11/25/2023	Triennial	11/25/2024	981
SPEAG	D2600V2	2600 MHz SAR Dipole	8/10/2023	Annual	8/10/2024	1126
SPEAG	D2600V2	2600 MHz SAR Dipole	4/8/2024	Annual	4/8/2025	1004
SPEAG	D2600V2	2600 MHz SAR Dipole	11/15/2022	Biennial	11/15/2024	1071
SPEAG	D3500V2	3500 MHz SAR Dipole	12/13/2023	Annual	12/13/2024	1068
SPEAG	D3500V2	3500 MHz SAR Dipole	1/10/2023	Biennial	1/10/2025	1097
SPEAG	D3700V2	3700 MHz SAR Dipole	12/13/2023	Annual	12/13/2024	1029
SPEAG	D3700V2	3700 MHz SAR Dipole	1/13/2023	Biennial	1/13/2025	1067
SPEAG	D3900V2	3900 MHz SAR Dipole	10/19/2023	Annual	10/19/2024	1056
SPEAG	D5G4HV2	5 GHz SAR Dipole	4/9/2024	Annual	4/9/2025	1217
SPEAG	D5G4HV2	5 GHz SAR Dipole	2/21/2024	Annual	2/21/2025	1057
SPEAG	D5G4HV2	5 GHz SAR Dipole	1/17/2024	Annual	1/17/2025	1191
SPEAG	D6.5GHV2	6.5 GHz SAR Dipole	2/22/2024	Annual	2/22/2025	1111
SPEAG	D6.5GHV2	6.5 GHz SAR Dipole	1/10/2024	Annual	1/10/2025	1028
SPEAG	SG Verification Source 10GHz	10GHz System Verification Antenna	3/5/2024	Annual	3/5/2025	1002
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/16/2024	Annual	1/16/2025	1530
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/8/2024	Annual	5/8/2025	728
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/27/2024	Annual	3/27/2025	1415
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/12/2024	Annual	3/12/2025	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/8/2024	Annual	5/8/2025	1678
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/12/2023	Annual	9/12/2024	1449
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/6/2023	Annual	9/6/2024	1364
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/16/2024	Annual	1/16/2025	1466
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/12/2024	Annual	3/12/2025	1272
SPEAG	DAE4ip	Dasy Data Acquisition Electronics	11/15/2023	Annual	11/15/2024	1639
SPEAG	DAE4ip	Dasy Data Acquisition Electronics	10/18/2023	Annual	10/18/2024	1638
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/18/2024	Annual	4/18/2025	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/18/2023	Annual	10/18/2024	8012
SPEAG	EX3DV4	SAR Probe	5/10/2024	Annual	5/10/2025	3814
SPEAG	EX3DV4	SAR Probe	3/8/2024	Annual	3/8/2025	7527
SPEAG	EX3DV4	SAR Probe	9/12/2023	Annual	9/12/2024	7518
SPEAG	EX3DV4	SAR Probe	4/17/2024	Annual	4/17/2025	7718
SPEAG	EX3DV4	SAR Probe	1/16/2024	Annual	1/16/2025	7545
SPEAG	EX3DV4	SAR Probe	10/16/2023	Annual	10/16/2024	7539
SPEAG	EX3DV4	SAR Probe	3/8/2024	Annual	3/8/2025	7488
SPEAG	EX3DV4	SAR Probe	9/22/2023	Annual	9/22/2024	7670
SPEAG	EX3DV4	SAR Probe	5/8/2024	Annual	5/8/2025	7660
SPEAG	EX3DV4	SAR Probe	1/17/2024	Annual	1/17/2025	7713
SPEAG	EX3DV4	SAR Probe	10/23/2023	Annual	10/23/2024	7547
SPEAG	EX3DV4	SAR Probe	4/17/2024	Annual	4/17/2025	7659
SPEAG	EX3DV4	SAR Probe	7/7/2023	Annual	7/7/2024	7410
SPEAG	E0mmMW4	E0mmMW4 Probe	2/2/2024	Annual	2/2/2025	9622

Note: 1) All equipment was used solely within its respective calibration period. 2) CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

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# 15 MEASUREMENT UNCERTAINTIES

Applicable for SAR Measurements < 6 GHz:

Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	f(d,k) Div.	c <sub>i</sub> 1gm	c <sub>i</sub> 10gms	c x f/e 1gm u <sub>i</sub> (± %)	c x g/e 10gms u <sub>i</sub> (± %)	v <sub>i</sub>
<b>Measurement System</b>									
Probe Calibration	E.2.1	7	N	1	1	1	7.0	7.0	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	E.2.3	2	R	1.73	1	1	1.2	1.2	∞
Linearity	E.2.4	0.3	N	1	1	1	0.3	0.3	∞
System Detection Limits	E.2.4	0.25	R	1.73	1	1	0.1	0.1	∞
Modulation Response	E.2.5	4.8	R	1.73	1	1	2.8	2.8	∞
Readout Electronics	E.2.6	0.3	N	1	1	1	0.3	0.3	∞
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E.6.1	3	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	3	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.73	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E.6.3	6.7	R	1.73	1	1	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	4	R	1.73	1	1	2.3	2.3	∞
<b>Test Sample Related</b>									
Test Sample Positioning	E.4.2	3.12	N	1	1	1	3.1	3.1	35
Device Holder Uncertainty	E.4.1	1.67	N	1	1	1	1.7	1.7	5
Output Power Variation - SAR drift measurement	E.2.9	5	R	1.73	1	1	2.9	2.9	∞
SAR Scaling	E.6.5	0	R	1.73	1	1	0.0	0.0	∞
<b>Phantom &amp; Tissue Parameters</b>									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	E.3.3	4.3	N	1	0.78	0.71	3.3	3.0	76
Liquid Permittivity - measurement uncertainty	E.3.3	4.2	N	1	0.23	0.26	1.0	1.1	75
Liquid Conductivity - Temperature Uncertainty	E.3.4	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	E.3.4	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
<b>Combined Standard Uncertainty (k=1)</b>	RSS						12.2	12.0	191
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>	k=2						24.4	24.0	

The above measurement uncertainties are according to IEEE Std. 1528-2013

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Applicable for SAR Measurements > 6 GHz:

Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	f(d,k) Div.	c <sub>i</sub> 1gm	c <sub>i</sub> 10 gms	c x f/e 1gm u <sub>i</sub> (± %)	c x g/e 10gms u <sub>i</sub> (± %)	v <sub>i</sub>
<b>Measurement System</b>									
Probe Calibration	E.2.1	9.3	N	1	1	1	9.3	9.3	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	E.2.3	2	R	1.73	1	1	1.2	1.2	∞
Linearity	E.2.4	0.3	N	1	1	1	0.3	0.3	∞
System Detection Limits	E.2.4	0.25	R	1.73	1	1	0.1	0.1	∞
Modulation Response	E.2.5	4.8	R	1.73	1	1	2.8	2.8	∞
Readout Electronics	E.2.6	0.3	N	1	1	1	0.3	0.3	∞
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E.6.1	3	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	3	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.73	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E.6.3	6.7	R	1.73	1	1	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	4	R	1.73	1	1	2.3	2.3	∞
<b>Test Sample Related</b>									
Test Sample Positioning	E.4.2	3.12	N	1	1	1	3.1	3.1	35
Device Holder Uncertainty	E.4.1	1.67	N	1	1	1	1.7	1.7	5
Output Power Variation - SAR drift measurement	E.2.9	5	R	1.73	1	1	2.9	2.9	∞
SAR Scaling	E.6.5	0	R	1.73	1	1	0.0	0.0	∞
<b>Phantom &amp; Tissue Parameters</b>									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	E.3.3	4.3	N	1	0.78	0.71	3.3	3.0	76
Liquid Permittivity - measurement uncertainty	E.3.3	4.2	N	1	0.23	0.26	1.0	1.1	75
Liquid Conductivity - Temperature Uncertainty	E.3.4	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	E.3.4	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
<b>Combined Standard Uncertainty (k=1)</b>	RSS						13.8	13.6	191
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>	k=2						27.6	27.1	

The above measurement uncertainties are according to IEEE Std. 1528-2013

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Applicable for Power Density Measurements:

a	b	c	d	e	f = c x f/e	g
Uncertainty Component	Unc. (± dB)	Prob. Dist.	Div.	c <sub>i</sub>	u <sub>i</sub> (± dB)	v <sub>i</sub>
<b>Measurement System</b>						
Calibration	0.49	N	1	1	0.49	∞
Probe Correction	0.00	R	1.73	1	0.00	∞
Frequency Response	0.20	R	1.73	1	0.12	∞
Sensor Cross Coupling	0.00	R	1.73	1	0.00	∞
Isotropy	0.50	R	1.73	1	0.29	∞
Linearity	0.20	R	1.73	1	0.12	∞
Probe Scattering	0.00	R	1.73	1	0.00	∞
Probe Positioning offset	0.30	R	1.73	1	0.17	∞
Probe Positioning Repeatability	0.04	R	1.73	1	0.02	∞
Sensor Mechanical Offset	0.00	R	1.73	1	0.00	∞
Probe Spatial Resolution	0.00	R	1.73	1	0.00	∞
Field Impedance Dependence	0.00	R	1.73	1	0.00	∞
Amplitude and Phase Drift	0.00	R	1.73	1	0.00	∞
Amplitude and Phase Noise	0.04	R	1.73	1	0.02	∞
Measurement Area Truncation	0.00	R	1.73	1	0.00	∞
Data Acquisition	0.03	N	1	1	0.03	∞
Sampling	0.00	R	1.73	1	0.00	∞
Field Reconstruction	2.00	R	1.73	1	1.15	∞
Forward Transformation	0.00	R	1.73	1	0.00	∞
Power Density Scaling	0.00	R	1.73	1	0.00	∞
Spatial Averaging	0.10	R	1.73	1	0.06	∞
System Detection Limit	0.04	R	1.73	1	0.02	∞
<b>Test Sample Related</b>						
Probe Coupling with DUT	0.00	R	1.73	1	0.00	∞
Modulation Response	0.40	R	1.73	1	0.23	∞
Integration Time	0.00	R	1.73	1	0.00	∞
Response Time	0.00	R	1.73	1	0.00	∞
Device Holder Influence	0.10	R	1.73	1	0.06	∞
DUT alignment	0.00	R	1.73	1	0.00	∞
RF Ambient Conditions	0.04	R	1.73	1	0.02	∞
Ambient Reflections	0.04	R	1.73	1	0.02	∞
Immunity/Secondary Reception	0.00	R	1.73	1	0.00	∞
Drift of DUT	0.21	R	1.73	1	0.12	∞
<b>Combined Standard Uncertainty (k=1)</b>	RSS				1.34	∞
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>	k=2					

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## 16 CONCLUSION

### 16.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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