



## SAR EVALUATION REPORT

**Applicant Name:**  
Microsoft Corporation  
One Microsoft Way  
Redmond, WA 98052 USA

**Date of Testing:**  
03/17/22 - 06/28/22  
**Test Site/Location:**  
Element, Columbia, MD, USA  
**Document Serial No.:**  
1M2204040049-02.C3K (Rev1)

**FCC ID:** C3K1997

**APPLICANT:** MICROSOFT CORPORATION

**DUT Type:** Portable Computing Device  
**Application Type:** Certification  
**FCC Rule Part(s):** CFR §2.1093  
**Model(s):** 1997

Equipment Class	Band & Mode	Tx Frequency	SAR	
			1g Body (W/kg) - Tablet	1g Body (W/kg) - Laptop
PCB	UMTS 850	826.40 - 846.60 MHz	0.78	0.12
PCB	UMTS 1900	1852.4 - 1907.6 MHz	1.04	<0.1
PCB	LTE Band 71	665.5 - 695.5 MHz	0.59	<0.1
PCB	LTE Band 12	699.7 - 715.3 MHz	0.76	<0.1
PCB	LTE Band 13	779.5 - 784.5 MHz	0.71	<0.1
PCB	LTE Band 14	790.5 - 795.5 MHz	0.70	<0.1
PCB	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.84	<0.1
PCB	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.62	0.16
PCB	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	1.16	0.15
PCB	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A
PCB	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	1.12	<0.1
PCB	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A
PCB	LTE Band 30	2307.5 - 2312.5 MHz	1.16	<0.1
PCB	LTE Band 7	2502.5 - 2567.5 MHz	1.01	<0.1
PCB	LTE Band 41	2498.5 - 2687.5 MHz	1.13	<0.1
CBE	LTE Band 48	3552.5 - 3697.5 MHz	1.14	<0.1
PCB	NR Band n71	665.5 - 695.5 MHz	0.73	<0.1
PCB	NR Band n5 (Cell)	826.5 - 846.5 MHz	0.82	0.10
PCB	NR Band n66 (AWS)	1712.5 - 1777.5 MHz	1.13	0.16
PCB	NR Band n25 (PCS)	1852.5 - 1912.5 MHz	1.19	<0.1
PCB	NR Band n2 (PCS)	1852.5 - 1907.5 MHz	N/A	N/A
PCB	NR Band n41	2506.02 - 2679.99 MHz	1.02	<0.1
PCB	NR Band n77	3710.01 - 3969.99 MHz	0.86	0.14
DTS	2.4 GHz WLAN	2412 - 2472 MHz	0.75	<0.1
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	1.14	<0.1
NII	U-NII-2C	5500 - 5720 MHz	0.72	0.10
NII	U-NII-3	5745 - 5825 MHz	1.05	0.14
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.26	<0.1
<b>Simultaneous SAR per KDB 690783 D01v01r03:</b>			1.40	0.45

Note: This revised Test Report (S/N: 1M2204040049-02.C3K (Rev1)) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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 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 (Cell)	Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	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 48	Data	3552.5 - 3697.5 MHz
NR Band n71	Data	665.5 - 695.5 MHz
NR Band n5 (Cell)	Data	826.5 - 846.5 MHz
NR Band n66 (AWS)	Data	1712.5 - 1777.5 MHz
NR Band n25 (PCS)	Data	1852.5 - 1912.5 MHz
NR Band n2 (PCS)	Data	1852.5 - 1907.5 MHz
NR Band n41	Data	2506.02 - 2679.99 MHz
NR Band n77	Data	3710.01 - 3969.99 MHz
2.4 GHz WLAN	Data	2412 - 2472 MHz
U-NII-1	Data	5180 - 5240 MHz
U-NII-2A	Data	5260 - 5320 MHz
U-NII-2C	Data	5500 - 5720 MHz
U-NII-3	Data	5745 - 5825 MHz
U-NII-5	Data	5935 - 6415 MHz
U-NII-6	Data	6435 - 6515 MHz
U-NII-7	Data	6535 - 6875 MHz
U-NII-8	Data	6895 - 7115 MHz
Bluetooth	Data	2402 - 2480 MHz
NR Band n260	Data	37000 - 40000 MHz
NR Band n261	Data	27500 - 28350 MHz

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## 1.2 Time-Averaging Algorithm for RF Exposure Compliance

This Device is enabled with the Qualcomm® Smart Transmit feature. This feature performs 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 Qualcomm® Smart Transmit feature (report SN could be found in Section 1.11 – Bibliography).

Note that WLAN operations are not enabled with Smart Transmit.

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of *SAR\_design\_target* or *PD\_design\_target*, below the predefined time-averaged power limit (i.e.,  $P_{limit}$  for sub-6 radio, and *input.power.limit* for 5G mmW NR), for each characterized technology and band (see RF Exposure Part 0 Test Report, report SN can be found in Section 1.11 - Bibliography).

Smart Transmit allows the device to transmit at higher power instantaneously, as high as  $P_{max}$ , when needed, but enforces power limiting to maintain time-averaged transmit power to  $P_{limit}$ . Below table shows  $P_{limit}$  EFS settings and maximum tune up output power  $P_{max}$  configured for this EUT for various transmit conditions (Device State Index DSI). Note that the device uncertainty for sub-6GHz WWAN is 1.0dB for this EUT.

Exposure Scenario		Laptop Mode	Tablet Mode	Maximum Tune-Up Output Power*
Averaging Volume		1g	1g	
Spacing		0 mm	0 mm	
Configuration		Laptop	Tablet	
DSI		3	6	
Technology/Band	Antenna			Pmax
UMTS 850	4	30.0	16.7	24.4
UMTS 1900	1	30.0	12.6	24.4
LTE Band 71	4	30.0	14.7	24.0
LTE Band 12	4	30.0	16.3	24.3
LTE Band 13	4	30.0	16.4	24.0
LTE Band 14	4	30.0	16.5	24.0
LTE Band 26 (Cell)	4	30.0	16.7	24.5
LTE Band 5 (Cell)	4	30.0	16.7	24.5
LTE Band 66/4 (AWS)	1	30.0	13.9	24.5
LTE Band 25/2 (PCS)	1	30.0	12.6	24.4
LTE Band 30	1	30.0	11.8	23.0
LTE Band 7	1	30.0	11.3	24.0
LTE Band 48	2	30.0	9.0	22.0
LTE Band 41 (PC3)	1	30.0	11.3	22.0
LTE Band 41 (PC2)	1	30.0	11.3	22.9
NR Band n71	4	30.0	14.7	24.0
NR Band n5 (Cell)	4	30.0	16.7	24.2
NR Band n66 (AWS)	1	30.0	14.7	24.5
NR Band n66 (AWS)	4	30.0	14.2	24.5
NR Band n25/n2 (PCS)	1	30.0	12.6	24.2
NR Band n25/n2 (PCS)	4	30.0	13.5	24.2
NR Band n41	1	30.0	11.3	24.0
NR Band n41	4	30.0	13.5	24.0
NR Band n41	5	30.0	10.0	22.0
NR Band n41	8	30.0	10.0	22.0
NR Band n77	2	30.0	7.4	24.5
NR Band n77	3	30.0	7.0	24.5
NR Band n77	5	30.0	8.0	22.5
NR Band n77	8	30.0	8.0	22.5

\*Note all  $P_{limit}$  EFS and maximum tune up output power  $P_{max}$  levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (e.g. GSM and LTE TDD).

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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 3G/4G/5G Sub6 WWAN technology, band, and DSI = minimum of " $P_{limit}$  EFS" and "Maximum tune up output power  $P_{max}$ " + 1dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D04v01.

The purpose of this report (Part 1 test) is to demonstrate that the EUT meets FCC SAR limits when transmitting in static transmission scenario at maximum allowable time-averaged power levels.

**Measurement Condition: All conducted power and SAR measurements in this report (Part 1 test) were performed by setting *Reserve\_power\_margin* (Smart Transmit EFS entry) to 0dB.**

### 1.3 Power Reduction for SAR

This device used an independent fixed level power reduction mechanism for WLAN/BT when the device is used in tablet configuration. 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.

#### 1.4.1 Licensed Output Power

UMTS Band 5 (850 MHz)					
Power Level		Modulated Average Output Power (in dBm)			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Pmax	Max Allowed Power	25.6	25.6	25.6	25.6
	Nominal	24.4	24.4	24.4	24.4
DSI = 3 (Laptop Mode)	Max Allowed Power	25.6	25.6	25.6	25.6
	Nominal	24.4	24.4	24.4	24.4
DSI = 6 (Tablet Mode)	Max Allowed Power	17.9	17.9	17.9	17.9
	Nominal	16.7	16.7	16.7	16.7
UMTS Band 2 (1900 MHz)					
Power Level		Modulated Average Output Power (in dBm)			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
Pmax	Max Allowed Power	25.6	25.6	25.6	25.6
	Nominal	24.4	24.4	24.4	24.4
DSI = 3 (Laptop Mode)	Max Allowed Power	25.6	25.6	25.6	25.6
	Nominal	24.4	24.4	24.4	24.4
DSI = 6 (Tablet Mode)	Max Allowed Power	13.8	13.8	13.8	13.8
	Nominal	12.6	12.6	12.6	12.6

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Mode / Band	Antenna		Modulated Average Output Power (in dBm)		
			Pmax	DSI = 3 (Laptop Mode)	DSI = 6 (Tablet Mode)
LTE Band 71	4	Max Allowed Power	25.2	25.2	15.9
		Nominal	24.0	24.0	14.7
LTE Band 12	4	Max Allowed Power	25.5	25.5	17.5
		Nominal	24.3	24.3	16.3
LTE Band 13	4	Max Allowed Power	25.2	25.2	17.6
		Nominal	24.0	24.0	16.4
LTE Band 14	4	Max Allowed Power	25.2	25.2	17.7
		Nominal	24.0	24.0	16.5
LTE Band 26 (Cell)	4	Max Allowed Power	25.7	25.7	17.9
		Nominal	24.5	24.5	16.7
LTE Band 5 (Cell)	4	Max Allowed Power	25.7	25.7	17.9
		Nominal	24.5	24.5	16.7
LTE Band 66 (AWS)	1	Max Allowed Power	25.7	25.7	15.1
		Nominal	24.5	24.5	13.9
LTE Band 4 (AWS)	1	Max Allowed Power	25.7	25.7	15.1
		Nominal	24.5	24.5	13.9
LTE Band 25 (PCS)	1	Max Allowed Power	25.6	25.6	13.8
		Nominal	24.4	24.4	12.6
LTE Band 2 (PCS)	1	Max Allowed Power	25.6	25.6	13.8
		Nominal	24.4	24.4	12.6
LTE Band 30	1	Max Allowed Power	24.2	24.2	13.0
		Nominal	23.0	23.0	11.8
LTE Band 7	1	Max Allowed Power	25.2	25.2	12.5
		Nominal	24.0	24.0	11.3
LTE Band 48	2	Max Allowed Power	25.2	25.2	12.2
		Nominal	24.0	24.0	11.0
LTE Band 41 (PC3)	1	Max Allowed Power	25.2	25.2	14.5
		Nominal	24.0	24.0	13.3
LTE Band 41 (PC2)	1	Max Allowed Power	27.7	27.7	16.1
		Nominal	26.5	26.5	14.9

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Mode / Band	Antenna		Modulated Average Output Power (in dBm)		
			Pmax	DSI = 3 (Laptop Mode)	DSI = 6 (Tablet Mode)
NR Band n71	4	Max Allowed Power	25.2	25.2	15.9
		Nominal	24.0	24.0	14.7
NR Band n5 (Cell)	4	Max Allowed Power	25.4	25.4	17.9
		Nominal	24.2	24.2	16.7
NR Band n66 (AWS)	1	Max Allowed Power	25.7	25.7	15.9
		Nominal	24.5	24.5	14.7
NR Band n66 (AWS)	4	Max Allowed Power	25.7	25.7	15.4
		Nominal	24.5	24.5	14.2
NR Band n25 (PCS)	1	Max Allowed Power	25.4	25.4	13.8
		Nominal	24.2	24.2	12.6
NR Band n25 (PCS)	4	Max Allowed Power	25.4	25.4	14.7
		Nominal	24.2	24.2	13.5
NR Band n2 (PCS)	1	Max Allowed Power	25.4	25.4	13.8
		Nominal	24.2	24.2	12.6
NR Band n2 (PCS)	4	Max Allowed Power	25.4	25.4	14.7
		Nominal	24.2	24.2	13.5
NR Band n41	1	Max Allowed Power	25.2	25.2	12.5
		Nominal	24.0	24.0	11.3
NR Band n41	4	Max Allowed Power	25.2	25.2	14.7
		Nominal	24.0	24.0	13.5
NR Band n41	5	Max Allowed Power	23.2	23.2	11.2
		Nominal	22.0	22.0	10.0
NR Band n41	8	Max Allowed Power	23.2	23.2	11.2
		Nominal	22.0	22.0	10.0
NR Band n77	2	Max Allowed Power	25.7	25.7	8.6
		Nominal	24.5	24.5	7.4
NR Band n77	3	Max Allowed Power	25.7	25.7	8.2
		Nominal	24.5	24.5	7.0
NR Band n77	5	Max Allowed Power	23.7	23.7	9.2
		Nominal	22.5	22.5	8.0
NR Band n77	8	Max Allowed Power	23.7	23.7	9.2
		Nominal	22.5	22.5	8.0

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

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

### 1.4.2 2.4 GHz Maximum SISO/MIMO WLAN Output Power

Mode	Band	IEEE 802.11 (in dBm)																	
		SISO								MIMO									
		Antenna 1 & 2																	
		b		g		n		ax (SU)		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.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.		
2.4 GHz WIFI (20MHz BW)	2.45 GHz	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	24.0	22.0	24.0	22.0	24.0	22.0	24.0	22.0		
		ch. 1: 20.0	18.0	ch. 1: 17.5	15.5	ch. 1: 16.0	14.0	ch. 1: 16.0	14.0	ch. 1: 23.0	21.0	ch. 1: 20.5	18.5	ch. 1: 19.0	17.0	ch. 1: 19.0	17.0		
		ch. 2: 20.0	18.0	ch. 2: 19.0	17.0	ch. 2: 19.0	17.0	ch. 2: 19.0	17.0	ch. 2: 23.0	21.0	ch. 2: 22.0	20.0	ch. 2: 22.0	20.0	ch. 2: 22.0	20.0		
				ch. 3: 20.0	18.0	ch. 3: 20.0	18.0	ch. 3: 20.0	18.0	ch. 3: 20.0	18.0	ch. 3: 23.0	21.0	ch. 3: 23.0	21.0	ch. 3: 23.0	21.0	ch. 3: 23.0	21.0
						ch. 10: 20.0	18.0	ch. 10: 20.0	18.0	ch. 10: 20.0	18.0			ch. 10: 23.0	21.0	ch. 10: 23.0	21.0	ch. 10: 23.0	21.0
				ch. 11: 20.0	18.0	ch. 11: 19.0	17.0	ch. 11: 19.0	17.0	ch. 11: 19.0	17.0	ch. 11: 23.0	21.0	ch. 11: 22.0	20.0	ch. 11: 22.0	20.0	ch. 11: 22.0	20.0
				ch. 12: 18.0	16.0	ch. 12: 15.5	13.5	ch. 12: 16.5	14.5	ch. 12: 16.5	14.5	ch. 12: 21.0	19.0	ch. 12: 18.5	16.5	ch. 12: 19.5	17.5	ch. 12: 19.5	17.5
				ch. 13: 16.0	14.0	ch. 13: 8.0	6.0	ch. 13: 9.5	7.5	ch. 13: 9.5	7.5	ch. 13: 19.0	17.0	ch. 13: 11.0	9.0	ch. 13: 12.5	10.5	ch. 13: 12.5	10.5

Mode	Band	IEEE 802.11 (in dBm)							
		SISO				MIMO			
		Antenna 1 & 2							
		n		ax (SU)		n (CDD+STBC, SDM)		ax (SU) (CDD+STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (40MHz BW)	2.45 GHz	19.0	17.0	19.0	17.0	22.0	20.0	22.0	20.0
		ch. 3: 16.0	14.0	ch. 3: 16.0	14.0	ch. 3: 19.0	17.0	ch. 3: 19.0	17.0
		ch. 4: 18.0	16.0	ch. 4: 18.0	16.0	ch. 4: 21.0	19.0	ch. 4: 21.0	19.0
		ch. 10: 16.5	14.5	ch. 10: 16.5	14.5	ch. 10: 19.5	17.5	ch. 10: 19.5	17.5
		ch. 11: 10.0	8.0	ch. 11: 10.0	8.0	ch. 11: 13.0	11.0	ch. 11: 13.0	11.0

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### 1.4.3 2.4 GHz Reduced WLAN Output Powers

#### 2.4 GHz WLAN Reduced Level 1

The below table is applicable in the following conditions:

- Tablet mode active

Mode	Band	IEEE 802.11 (in dBm)															
		SISO								SISO							
		Antenna 1								Antenna 2							
		b		g		n		ax (SU)		b		g		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (20MHz BW)	2.45 GHz	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5
		ch. 13: 8.0 6.0		ch. 13: 9.5 7.5		ch. 13: 9.5 7.5		ch. 13: 8.0 6.0		ch. 13: 9.5 7.5		ch. 13: 9.5 7.5		ch. 13: 9.5 7.5		ch. 13: 9.5 7.5	

Mode	Band	IEEE 802.11 (in dBm)							
		SISO				SISO			
		Antenna 1				Antenna 2			
		n		ax (SU)		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (40MHz BW)	2.45 GHz	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5
		ch. 11: 10.0 8.0		ch. 11: 10.0 8.0		ch. 11: 10.0 8.0		ch. 11: 10.0 8.0	

Mode	Band	IEEE 802.11 (in dBm)															
		MIMO								MIMO							
		Antenna 1								Antenna 2							
		b		g		n		ax (SU)		b		g		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (20MHz BW)	2.45 GHz	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5
		ch. 13: 8.0 6.0		ch. 13: 9.5 7.5		ch. 13: 9.5 7.5		ch. 13: 8.0 6.0		ch. 13: 9.5 7.5		ch. 13: 9.5 7.5		ch. 13: 9.5 7.5		ch. 13: 9.5 7.5	

Mode	Band	IEEE 802.11 (in dBm)							
		MIMO				MIMO			
		Antenna 1				Antenna 2			
		n		ax (SU)		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (40MHz BW)	2.45 GHz	13.5	11.5	13.5	11.5	13.5	11.5	13.5	11.5
		ch. 11: 10.0 8.0		ch. 11: 10.0 8.0		ch. 11: 10.0 8.0		ch. 11: 10.0 8.0	

Note: In MIMO operations, each antenna transmits at the maximum allowed powers indicated above.

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### 2.4 GHz WLAN Reduced Level 2

The below table is applicable in the following conditions:

- Tablet Mode Active with simultaneous conditions with 5/6 GHz WLAN
- Tablet Mode Active with simultaneous conditions with WWAN

Mode	Band	IEEE 802.11 (in dBm)															
		SISO								SISO							
		Antenna 1								Antenna 2							
		b		g		n		ax (SU)		b		g		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (20MHz BW)	2.45 GHz	9.5	7.5	9.5	7.5	9.5	7.5	9.5	7.5	9.0	7.0	9.0	7.0	9.0	7.0	9.0	7.0
		ch. 13: 8.0		6.0						ch. 13: 8.0		6.0					

Mode	Band	IEEE 802.11 (in dBm)							
		SISO				SISO			
		Antenna 1				Antenna 2			
		n		ax (SU)		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (40MHz BW)	2.45 GHz	9.5	7.5	9.5	7.5	9.0	7.0	9.0	7.0

Mode	Band	IEEE 802.11 (in dBm)															
		MIMO								MIMO							
		Antenna 1								Antenna 2							
		b		g		n		ax (SU)		b		g		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (20MHz BW)	2.45 GHz	9.5	7.5	9.5	7.5	9.5	7.5	9.5	7.5	9.0	7.0	9.0	7.0	9.0	7.0	9.0	7.0
		ch. 13: 8.0		6.0						ch. 13: 8.0		6.0					

Mode	Band	IEEE 802.11 (in dBm)							
		MIMO				MIMO			
		Antenna 1				Antenna 2			
		n		ax (SU)		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (40MHz BW)	2.45 GHz	9.5	7.5	9.5	7.5	9.0	7.0	9.0	7.0

Note: In MIMO operations, each antenna transmits at the maximum allowed powers indicated above.

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### 2.4 GHz WLAN Reduced Level 3

The below table is applicable in the following conditions:

- Tablet mode active with simultaneous conditions with 5 GHz WLAN and WWAN

Mode	Band	IEEE 802.11 (in dBm)															
		SISO								SISO							
		Antenna 1								Antenna 2							
		b		g		n		ax (SU)		b		g		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (20MHz BW)	2.45 GHz	7.0	5.0	7.0	5.0	7.0	5.0	7.0	5.0	6.5	4.5	6.5	4.5	6.5	4.5	6.5	4.5

Mode	Band	IEEE 802.11 (in dBm)							
		SISO				SISO			
		Antenna 1				Antenna 2			
		n		ax (SU)		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (40MHz BW)	2.45 GHz	7.0	5.0	7.0	5.0	6.5	4.5	6.5	4.5

Mode	Band	IEEE 802.11 (in dBm)															
		MIMO								MIMO							
		Antenna 1								Antenna 2							
		b		g		n		ax (SU)		b		g		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (20MHz BW)	2.45 GHz	7.0	5.0	7.0	5.0	7.0	5.0	7.0	5.0	6.5	4.5	6.5	4.5	6.5	4.5	6.5	4.5

Mode	Band	IEEE 802.11 (in dBm)							
		MIMO				MIMO			
		Antenna 1				Antenna 2			
		n		ax (SU)		n		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI (40MHz BW)	2.45 GHz	7.0	5.0	7.0	5.0	6.5	4.5	6.5	4.5

Note: In MIMO operations, each antenna transmits at the maximum allowed powers indicated above.

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## 1.4.4 5 GHz Maximum SISO/MIMO WLAN Output Power

Mode	Band	IEEE 802.11 (in dBm)																
		SISO								MIMO								
		Antenna 1 & 2																
		a		n		ac		ax (SU)		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.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.		
5 GHz WiFi (20MHz BW)	UNII-1	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	
	UNII-2A	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	
	UNII-2C	21.0 ch. 140: 18.0 ch. 144: 20.0	19.0 16.0 18.0	21.0 ch. 140: 18.0 ch. 144: 20.0	19.0 16.0 18.0	21.0 ch. 140: 18.0 ch. 144: 20.0	19.0 16.0 18.0	21.0 ch. 140: 18.0 ch. 144: 20.0	19.0 16.0 18.0	21.0 16.0 18.0	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0
	UNII-3	21.0	19.0	21.0	19.0	21.0	19.0	21.0	19.0	24.0	22.0	24.0	22.0	24.0	22.0	24.0	22.0	
5 GHz WiFi (40MHz BW)	UNII-1			16.5	14.5	16.5	14.5	16.5	14.5			19.5	17.5	19.5	17.5	19.5	17.5	
	UNII-2A			20.0	18.0	20.0	18.0	20.0	18.0			23.0	21.0	23.0	21.0	23.0	21.0	
				ch. 62: 17.0	15.0	ch. 62: 17.0	15.0	ch. 62: 17.0	15.0			ch. 62: 20.0	18.0	ch. 62: 20.0	18.0	ch. 62: 20.0	18.0	
	UNII-2C			20.0	18.0	20.0	18.0	20.0	18.0			23.0	21.0	23.0	21.0	23.0	21.0	
			ch. 102: 18.0 ch. 110: 18.0	16.0 16.0	ch. 102: 18.0 ch. 110: 18.0	16.0 16.0	ch. 102: 18.0 ch. 110: 18.0	16.0 16.0			ch. 102: 21.0 ch. 110: 21.0	19.0 19.0	ch. 102: 21.0 ch. 110: 21.0	19.0 19.0	ch. 102: 21.0 ch. 110: 21.0	19.0 19.0		
UNII-3			20.0	18.0	20.0	18.0	20.0	18.0			23.0	21.0	23.0	21.0	23.0	21.0		
5 GHz WiFi (80MHz BW)	UNII-1			16.5	14.5	16.5	14.5					19.5	17.5	19.5	17.5			
	UNII-2A			16.5	14.5	16.5	14.5					19.5	17.5	19.5	17.5			
	UNII-2C			20.0	18.0	20.0	18.0					23.0	21.0	23.0	21.0			
				ch. 106: 17.0	15.0	ch. 106: 17.0	15.0					ch. 106: 20.0	18.0	ch. 106: 20.0	18.0			
UNII-3			19.0	17.0	19.0	17.0					22.0	20.0	22.0	20.0				
5 GHz WiFi (160MHz BW)	UNII-1/2A			16.0	14.0	16.0	14.0					19.0	17.0	19.0	17.0			
	UNII-2C			18.0	16.0	18.0	16.0					21.0	19.0	21.0	19.0			

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## 1.4.5 5 GHz Reduced WLAN Output Powers

### 5 GHz WLAN Reduced Level 1

The below table is applicable in the following conditions:

- Tablet Mode Active

Mode	Band	IEEE 802.11 (in dBm)															
		SISO								SISO							
		Antenna 1								Antenna 2							
		a		n		ac		ax (SU)		a		n		ac		ax (SU)	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	
5 GHz WiFi (20MHz BW)	UNII-1	11.5	9.5	11.5	9.5	11.5	9.5	11.5	9.5	11.0	9.0	11.0	9.0	11.0	9.0	11.0	9.0
	UNII-2A	11.5	9.5	11.5	9.5	11.5	9.5	11.5	9.5	11.0	9.0	11.0	9.0	11.0	9.0	11.0	9.0
	UNII-2C	10.0	8.0	10.0	8.0	10.0	8.0	10.0	8.0	9.5	7.5	9.5	7.5	9.5	7.5	9.5	7.5
	UNII-3	10.0	8.0	10.0	8.0	10.0	8.0	10.0	8.0	9.5	7.5	9.5	7.5	9.5	7.5	9.5	7.5
5 GHz WiFi (40MHz BW)	UNII-1			11.5	9.5	11.5	9.5	11.5	9.5			11.0	9.0	11.0	9.0	11.0	9.0
	UNII-2A			11.5	9.5	11.5	9.5	11.5	9.5			11.0	9.0	11.0	9.0	11.0	9.0
	UNII-2C			10.0	8.0	10.0	8.0	10.0	8.0			9.5	7.5	9.5	7.5	9.5	7.5
	UNII-3			10.0	8.0	10.0	8.0	10.0	8.0			9.5	7.5	9.5	7.5	9.5	7.5
5 GHz WiFi (80MHz BW)	UNII-1					11.5	9.5	11.5	9.5					11.0	9.0	11.0	9.0
	UNII-2A					11.5	9.5	11.5	9.5					11.0	9.0	11.0	9.0
	UNII-2C					10.0	8.0	10.0	8.0					9.5	7.5	9.5	7.5
	UNII-3					10.0	8.0	10.0	8.0					9.5	7.5	9.5	7.5
5 GHz WiFi (160MHz BW)	UNII-1/2A					11.5	9.5	11.5	9.5					11.0	9.0	11.0	9.0
	UNII-2C					10.0	8.0	10.0	8.0					9.5	7.5	9.5	7.5

Mode	Band	IEEE 802.11 (in dBm)															
		MIMO								MIMO							
		Antenna 1								Antenna 2							
		a		n		ac		ax (SU)		a		n		ac		ax (SU)	
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	
5 GHz WiFi (20MHz BW)	UNII-1	11.5	9.5	11.5	9.5	11.5	9.5	11.5	9.5	11.0	9.0	11.0	9.0	11.0	9.0	11.0	9.0
	UNII-2A	11.5	9.5	11.5	9.5	11.5	9.5	11.5	9.5	11.0	9.0	11.0	9.0	11.0	9.0	11.0	9.0
	UNII-2C	10.0	8.0	10.0	8.0	10.0	8.0	10.0	8.0	9.5	7.5	9.5	7.5	9.5	7.5	9.5	7.5
	UNII-3	10.0	8.0	10.0	8.0	10.0	8.0	10.0	8.0	9.5	7.5	9.5	7.5	9.5	7.5	9.5	7.5
5 GHz WiFi (40MHz BW)	UNII-1			11.5	9.5	11.5	9.5	11.5	9.5			11.0	9.0	11.0	9.0	11.0	9.0
	UNII-2A			11.5	9.5	11.5	9.5	11.5	9.5			11.0	9.0	11.0	9.0	11.0	9.0
	UNII-2C			10.0	8.0	10.0	8.0	10.0	8.0			9.5	7.5	9.5	7.5	9.5	7.5
	UNII-3			10.0	8.0	10.0	8.0	10.0	8.0			9.5	7.5	9.5	7.5	9.5	7.5
5 GHz WiFi (80MHz BW)	UNII-1					11.5	9.5	11.5	9.5					11.0	9.0	11.0	9.0
	UNII-2A					11.5	9.5	11.5	9.5					11.0	9.0	11.0	9.0
	UNII-2C					10.0	8.0	10.0	8.0					9.5	7.5	9.5	7.5
	UNII-3					10.0	8.0	10.0	8.0					9.5	7.5	9.5	7.5
5 GHz WiFi (160MHz BW)	UNII-1/2A					11.5	9.5	11.5	9.5					11.0	9.0	11.0	9.0
	UNII-2C					10.0	8.0	10.0	8.0					9.5	7.5	9.5	7.5

Note: In MIMO operations, each antenna transmits at the maximum allowed powers indicated above.

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### 5 GHz WLAN Reduced Level 2

The below table is applicable in the following conditions:

- Tablet mode active with simultaneous conditions with 2.4 GHz WLAN
- Tablet mode active with simultaneous conditions with WWAN

Mode	Band	IEEE 802.11 (in dBm)															
		SISO								SISO							
		Antenna 1								Antenna 2							
		a		n		ac		ax (SU)		a		n		ac		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WiFi (20MHz BW)	UNII-1	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5	7.0	5.0	7.0	5.0	7.0	5.0	7.0	5.0
	UNII-2A	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5	7.0	5.0	7.0	5.0	7.0	5.0	7.0	5.0
	UNII-2C	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5
	UNII-3	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5
5 GHz WiFi (40MHz BW)	UNII-1			5.5	3.5	5.5	3.5	5.5	3.5			7.0	5.0	7.0	5.0	7.0	5.0
	UNII-2A			5.5	3.5	5.5	3.5	5.5	3.5			7.0	5.0	7.0	5.0	7.0	5.0
	UNII-2C			4.0	2.0	4.0	2.0	4.0	2.0			5.5	3.5	5.5	3.5	5.5	3.5
	UNII-3			4.0	2.0	4.0	2.0	4.0	2.0			5.5	3.5	5.5	3.5	5.5	3.5
5 GHz WiFi (80MHz BW)	UNII-1					5.5	3.5	5.5	3.5					7.0	5.0	7.0	5.0
	UNII-2A					5.5	3.5	5.5	3.5					7.0	5.0	7.0	5.0
	UNII-2C					4.0	2.0	4.0	2.0					5.5	3.5	5.5	3.5
	UNII-3					4.0	2.0	4.0	2.0					5.5	3.5	5.5	3.5
5 GHz WiFi (160MHz BW)	UNII-1/2A					5.5	3.5	5.5	3.5					7.0	5.0	7.0	5.0
	UNII-2C					4.0	2.0	4.0	2.0					5.5	3.5	5.5	3.5

Mode	Band	IEEE 802.11 (in dBm)															
		MIMO								MIMO							
		Antenna 1								Antenna 2							
		a		n		ac		ax (SU)		a		n		ac		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WiFi (20MHz BW)	UNII-1	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5	7.0	5.0	7.0	5.0	7.0	5.0	7.0	5.0
	UNII-2A	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5	7.0	5.0	7.0	5.0	7.0	5.0	7.0	5.0
	UNII-2C	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5
	UNII-3	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5
5 GHz WiFi (40MHz BW)	UNII-1			5.5	3.5	5.5	3.5	5.5	3.5			7.0	5.0	7.0	5.0	7.0	5.0
	UNII-2A			5.5	3.5	5.5	3.5	5.5	3.5			7.0	5.0	7.0	5.0	7.0	5.0
	UNII-2C			4.0	2.0	4.0	2.0	4.0	2.0			5.5	3.5	5.5	3.5	5.5	3.5
	UNII-3			4.0	2.0	4.0	2.0	4.0	2.0			5.5	3.5	5.5	3.5	5.5	3.5
5 GHz WiFi (80MHz BW)	UNII-1					5.5	3.5	5.5	3.5					7.0	5.0	7.0	5.0
	UNII-2A					5.5	3.5	5.5	3.5					7.0	5.0	7.0	5.0
	UNII-2C					4.0	2.0	4.0	2.0					5.5	3.5	5.5	3.5
	UNII-3					4.0	2.0	4.0	2.0					5.5	3.5	5.5	3.5
5 GHz WiFi (160MHz BW)	UNII-1/2A					5.5	3.5	5.5	3.5					7.0	5.0	7.0	5.0
	UNII-2C					4.0	2.0	4.0	2.0					5.5	3.5	5.5	3.5

Note: In MIMO operations, each antenna transmits at the maximum allowed powers indicated above.

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### 5 GHz WLAN Reduced Level 3

The below table is applicable in the following conditions:

- Tablet mode active with simultaneous conditions with 2.4 GHz WLAN and WWAN

Mode	Band	IEEE 802.11 (in dBm)															
		SISO								SISO							
		Antenna 1								Antenna 2							
		a		n		ac		ax (SU)		a		n		ac		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	UNII-1	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0
	UNII-2A	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0
	UNII-2C	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0	2.5	0.5	2.5	0.5	2.5	0.5	2.5	0.5
	UNII-3	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0	2.5	0.5	2.5	0.5	2.5	0.5	2.5	0.5
5 GHz WIFI (40MHz BW)	UNII-1			5.5	3.5	5.5	3.5	5.5	3.5			4.0	2.0	4.0	2.0	4.0	2.0
	UNII-2A			5.5	3.5	5.5	3.5	5.5	3.5			4.0	2.0	4.0	2.0	4.0	2.0
	UNII-2C			4.0	2.0	4.0	2.0	4.0	2.0			2.5	0.5	2.5	0.5	2.5	0.5
	UNII-3			4.0	2.0	4.0	2.0	4.0	2.0			2.5	0.5	2.5	0.5	2.5	0.5
5 GHz WIFI (80MHz BW)	UNII-1					5.5	3.5	5.5	3.5					4.0	2.0	4.0	2.0
	UNII-2A					5.5	3.5	5.5	3.5					4.0	2.0	4.0	2.0
	UNII-2C					4.0	2.0	4.0	2.0					2.5	0.5	2.5	0.5
	UNII-3					4.0	2.0	4.0	2.0					2.5	0.5	2.5	0.5
5 GHz WIFI (160MHz BW)	UNII-1/2A					5.5	3.5	5.5	3.5					4.0	2.0	4.0	2.0
	UNII-2C					4.0	2.0	4.0	2.0					2.5	0.5	2.5	0.5

Mode	Band	IEEE 802.11 (in dBm)															
		MIMO								MIMO							
		Antenna 1								Antenna 2							
		a		n		ac		ax (SU)		a		n		ac		ax (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	UNII-1	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0
	UNII-2A	5.5	3.5	5.5	3.5	5.5	3.5	5.5	3.5	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0
	UNII-2C	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0	2.5	0.5	2.5	0.5	2.5	0.5	2.5	0.5
	UNII-3	4.0	2.0	4.0	2.0	4.0	2.0	4.0	2.0	2.5	0.5	2.5	0.5	2.5	0.5	2.5	0.5
5 GHz WIFI (40MHz BW)	UNII-1			5.5	3.5	5.5	3.5	5.5	3.5			4.0	2.0	4.0	2.0	4.0	2.0
	UNII-2A			5.5	3.5	5.5	3.5	5.5	3.5			4.0	2.0	4.0	2.0	4.0	2.0
	UNII-2C			4.0	2.0	4.0	2.0	4.0	2.0			2.5	0.5	2.5	0.5	2.5	0.5
	UNII-3			4.0	2.0	4.0	2.0	4.0	2.0			2.5	0.5	2.5	0.5	2.5	0.5
5 GHz WIFI (80MHz BW)	UNII-1					5.5	3.5	5.5	3.5					4.0	2.0	4.0	2.0
	UNII-2A					5.5	3.5	5.5	3.5					4.0	2.0	4.0	2.0
	UNII-2C					4.0	2.0	4.0	2.0					2.5	0.5	2.5	0.5
	UNII-3					4.0	2.0	4.0	2.0					2.5	0.5	2.5	0.5
5 GHz WIFI (160MHz BW)	UNII-1/2A					5.5	3.5	5.5	3.5					4.0	2.0	4.0	2.0
	UNII-2C					4.0	2.0	4.0	2.0					2.5	0.5	2.5	0.5

Note: In MIMO operations, each antenna transmits at the maximum allowed powers indicated above.

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### 1.4.6 2.4 GHz Maximum Bluetooth Output Power

Mode		
	Nominal	Maximum
Bluetooth (in dBm)	11.0	13.0
Bluetooth EDR (in dBm)	8.0	10.0
Bluetooth LE (in dBm)	5.5	7.5

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## 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**

Mode	Back	Front	Top	Bottom	Right	Left
UMTS 850	Yes	No	Yes	Yes	Yes	Yes
UMTS 1900	Yes	No	Yes	Yes	Yes	Yes
LTE Band 71	Yes	No	Yes	Yes	Yes	Yes
LTE Band 12	Yes	No	Yes	Yes	Yes	Yes
LTE Band 13	Yes	No	Yes	Yes	Yes	Yes
LTE Band 14	Yes	No	Yes	Yes	Yes	Yes
LTE Band 26 (Cell)	Yes	No	Yes	Yes	Yes	Yes
LTE Band 5 (Cell)	Yes	No	Yes	Yes	Yes	Yes
LTE Band 66 (AWS)	Yes	No	Yes	Yes	Yes	Yes
LTE Band 25 (PCS)	Yes	No	Yes	Yes	Yes	Yes
LTE Band 30	Yes	No	Yes	Yes	Yes	Yes
LTE Band 7	Yes	No	Yes	Yes	Yes	Yes
LTE Band 41	Yes	No	Yes	Yes	Yes	Yes
LTE Band 48	Yes	No	Yes	Yes	Yes	Yes
NR Band n71	Yes	No	Yes	Yes	Yes	Yes
NR Band n5 (Cell)	Yes	No	Yes	Yes	Yes	Yes
NR Band n66 (AWS) Antenna 1	Yes	No	Yes	Yes	Yes	Yes
NR Band n66 (AWS) Antenna 4	Yes	No	Yes	Yes	Yes	Yes
NR Band n25 (PCS) Antenna 1	Yes	No	Yes	Yes	Yes	Yes
NR Band n25 (PCS) Antenna 4	Yes	No	Yes	Yes	Yes	Yes
NR Band n41 Antenna 1	Yes	No	Yes	Yes	Yes	Yes
NR Band n41 Antenna 4	Yes	No	Yes	Yes	Yes	Yes
NR Band n41 Antenna 5	Yes	No	Yes	Yes	Yes	Yes
NR Band n41 Antenna 8	Yes	No	Yes	Yes	Yes	Yes
NR Band n77 Antenna 2	Yes	No	Yes	Yes	Yes	Yes
NR Band n77 Antenna 3	Yes	No	Yes	Yes	Yes	Yes
NR Band n77 Antenna 5	Yes	No	Yes	Yes	Yes	Yes
NR Band n77 Antenna 8	Yes	No	Yes	Yes	Yes	Yes
2.4 GHz WLAN Ant 1	Yes	No	Yes	Yes	Yes	Yes
2.4 GHz WLAN Ant 2	Yes	No	Yes	Yes	Yes	Yes
5 GHz WLAN Ant 1	Yes	No	Yes	Yes	Yes	Yes
5 GHz WLAN Ant 2	Yes	No	Yes	Yes	Yes	Yes
Bluetooth	Yes	No	Yes	Yes	Yes	Yes

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 1-2  
Simultaneous Transmission Scenarios**

No.	Capable Transmit Configuration	Body - Tablet	Body - Laptop
1	UMTS + 2.4 GHz WLAN	Yes	Yes
2	UMTS + 2.4 GHz WLAN MIMO	Yes	Yes
3	UMTS + 5 GHz WLAN	Yes	Yes
4	UMTS + 5 GHz WLAN MIMO	Yes	Yes
5	UMTS + 2.4 GHz WLAN Ant 1 + 5 GHz WLAN MIMO	Yes	Yes
6	UMTS + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes	Yes
7	UMTS + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes
8	UMTS + 2.4 GHz Bluetooth	Yes	Yes
9	UMTS + 2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2	Yes	Yes
10	UMTS + 2.4 GHz Bluetooth + 5 GHz WLAN MIMO	Yes	Yes
11	UMTS + 2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN Ant 2	Yes	Yes
12	UMTS + 2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes	Yes
13	LTE + 2.4 GHz WLAN	Yes	Yes
14	LTE + 2.4 GHz WLAN MIMO	Yes	Yes
15	LTE + 5 GHz WLAN	Yes	Yes
16	LTE + 5 GHz WLAN MIMO	Yes	Yes
17	LTE + 2.4 GHz WLAN Ant 1 + 5 GHz WLAN MIMO	Yes	Yes
18	LTE + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes	Yes
19	LTE + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes
20	LTE + 2.4 GHz Bluetooth	Yes	Yes
21	LTE + 2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2	Yes	Yes
22	LTE + 2.4 GHz Bluetooth + 5 GHz WLAN MIMO	Yes	Yes
23	LTE + 2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN Ant 2	Yes	Yes
24	LTE + 2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes	Yes
25	LTE + NR	Yes	Yes
26	LTE + NR + 2.4 GHz WLAN	Yes	Yes
27	LTE + NR + 2.4 GHz WLAN MIMO	Yes	Yes
28	LTE + NR + 5 GHz WLAN	Yes	Yes
29	LTE + NR + 5 GHz WLAN MIMO	Yes	Yes
30	LTE + NR + 2.4 GHz WLAN Ant 1 + 5 GHz WLAN MIMO	Yes	Yes
31	LTE + NR + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes	Yes
32	LTE + NR + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes
33	LTE + NR + 2.4 GHz Bluetooth	Yes	Yes
34	LTE + NR + 2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2	Yes	Yes
35	LTE + NR + 2.4 GHz Bluetooth + 5 GHz WLAN MIMO	Yes	Yes
36	LTE + NR + 2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN Ant 2	Yes	Yes
37	LTE + NR + 2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes	Yes
38	2.4 GHz WLAN MIMO	Yes	Yes
39	5 GHz WLAN MIMO	Yes	Yes
40	6 GHz WLAN MIMO	Yes	Yes
41	2.4 GHz WLAN Ant 1 + 5 GHz WLAN MIMO	Yes	Yes
42	2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes	Yes
43	2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes
44	2.4 GHz WLAN Ant 1 + 6 GHz WLAN MIMO	Yes	Yes
45	2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO	Yes	Yes
46	2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	Yes	Yes
47	2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2	Yes	Yes
48	2.4 GHz Bluetooth + 5 GHz WLAN MIMO	Yes	Yes
49	2.4 GHz Bluetooth + 6 GHz WLAN MIMO	Yes	Yes
50	2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN Ant 2	Yes	Yes
51	2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 5 GHz WLAN MIMO	Yes	Yes
52	2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN Ant 2	Yes	Yes
53	2.4 GHz Bluetooth + 2.4 GHz WLAN Ant 2 + 6 GHz WLAN MIMO	Yes	Yes

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1. 2.4 GHz WLAN Antenna 1 and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
2. 6 GHz WLAN cannot transmit simultaneously with WWAN.
3. 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.
4. This device supports Bluetooth Tethering.
5. LTE + 5G NR FR1 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR1 checklist.
6. 5G NR FR2 n260 and n261 cannot transmit simultaneously.
7. LTE + 5G NR FR2 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR2 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 40 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 April 2019 TCB Workshop Notes, SAR testing was not required for 802.11ax when applying the initial test configuration procedures of KDB 248227, with 802.11ax considered a higher order 802.11 mode.

This device supports 6 GHz WIFI Operations. RF Exposure assessment for these bands can be found in the WIFI6E RF Exposure Report (report SN can be found in Section 1.11 – Bibliography). Simultaneous transmission analysis is addressed in the Simultaneous Numerical Calculations Appendix of this report.

This device supports channel 1-13 for 2.4 GHz WLAN. However, because channel 12/13 targets are not higher than that of channels 1-11, channels 1, 6, and 11 were considered for SAR testing per FCC KDB 248227 D01V02r02.

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**(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.

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 5, LTE Band 7, LTE Band 66, and LTE Band 41 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

This device supports 5G NR for Bands n260 and n261. RF Exposure assessment and simultaneous transmission analysis for these bands can be found in the Near Field PD Report (report SN can be found in Section 1.11 – Bibliography).

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.

SRS was tested with CW signal per Qualcomm guidance in 80-w2112-4.

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## 1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r05, D05Av01r02, D06v02r01 (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)

## 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.

## 1.10 Bibliography

Report Type	Report Serial Number
Near Field PD Report (Part 1)	1M2204040049-25.C3K
Near Field PD Part 0 Report	
RF Exposure Part 2 Test Report	1M2204040049-21.C3K
RF Exposure Compliance Summary Report	1M2204040049-27.C3K
RF Exposure Part 0 Test Report	1M2204040049-01.C3K
WIFI 6GHz RF exposure	1M2204040049-26.C3K

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## 2 LTE AND NR INFORMATION

LTE Information					
Form Factor	Tablet				
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 - 795.5 MHz) LTE Band 14 (790.5 - 795.5 MHz) LTE Band 26 (Cell) (814.7 - 848.3 MHz) LTE Band 5 (Cell) (824.7 - 848.3 MHz) LTE Band 66 (AWS) (1710.7 - 1779.3 MHz) LTE Band 4 (AWS) (1710.7 - 1754.3 MHz) LTE Band 25 (PCS) (1850.7 - 1914.3 MHz) LTE Band 2 (PCS) (1850.7 - 1909.3 MHz) LTE Band 30 (2307.5 - 2312.5 MHz) LTE Band 7 (2502.5 - 2567.5 MHz) LTE Band 41 (2498.5 - 2687.5 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 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 2 (PCS): 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 48: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)		680.5 (133297)		695.5 (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 (23305)		782 (23320)		784.5 (23255)
LTE Band 13: 10 MHz	N/A		782 (23320)		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 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)		848.3 (27033)
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)		847.5 (27025)
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)		846.5 (27015)
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)		844 (26990)
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)		841.5 (26965)
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)		848.3 (20643)
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)		847.5 (20635)
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)		846.5 (20625)
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)		844 (20600)
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)		1779.3 (132665)
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)		1778.5 (132657)
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)		1777.5 (132647)
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)		1775 (132622)
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)		1772.5 (132597)
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)		1770 (132572)
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19857)		1732.5 (20175)		1754.3 (20393)
LTE Band 4 (AWS): 3 MHz	1711.5 (19865)		1732.5 (20175)		1753.5 (20385)
LTE Band 4 (AWS): 5 MHz	1712.5 (19875)		1732.5 (20175)		1752.5 (20375)
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)		1750 (20350)
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)		1747.5 (20325)
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)		1745 (20300)
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)		1914.3 (26683)
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)		1913.5 (26675)
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)		1912.5 (26665)
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)		1910 (26640)
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)		1907.5 (26615)
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)		1905 (26590)
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)		1909.3 (19193)
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)		1908.5 (19185)
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)		1907.5 (19175)
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)		1905 (19150)
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)		1902.5 (19125)
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)		1900 (19100)
LTE Band 30: 5 MHz	2307.5 (27685)		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)		2405 (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)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 48: 5 MHz	3552.5 (55265)	3600.9 (55748)	N/A	3648.2 (56232)	3697.5 (56715)
LTE Band 48: 10 MHz	3555 (55290)	3611.7 (55757)	N/A	3648.3 (56233)	3695 (56690)
LTE Band 48: 15 MHz	3557.5 (55315)	3602.5 (55765)	N/A	3647.5 (56215)	3692.5 (56665)
LTE Band 48: 20 MHz	3560 (55340)	3603.3 (55773)	N/A	3646.7 (56207)	3690 (56640)
UE Category	DL UE Cat 20, UL UE Cat 13				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3-6.2.5? (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 14. It supports carrier aggregation, downlink MIMO, LAA features as shown in the Downlink LTE CA RF Conducted Powers Appendix. All uplink communications are identical to the Release 8 Specifications. The following LTE Release 14 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WiFi Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

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NR Information						
Form Factor	Tablet					
Frequency Range of each NR transmission band	NR Band n71 (665.5 - 695.5 MHz)					
	NR Band n5 (Cell) (826.5 - 846.5 MHz)					
	NR Band n66 (AWS) (1712.5 - 1777.5 MHz)					
	NR Band n25 (PCS) (1852.5 - 1912.5 MHz)					
	NR Band n2 (PCS) (1852.5 - 1907.5 MHz)					
	NR Band n41 (2506.02 - 2679.99 MHz)					
	NR Band n77 (3710.01 - 3969.99 MHz)					
Channel Bandwidths	NR Band n71: 5 MHz, 10 MHz, 15 MHz, 20 MHz					
	NR Band n5 (Cell): 5 MHz, 10 MHz, 15 MHz, 20 MHz					
	NR Band n66 (AWS): 5 MHz, 10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz					
	NR Band n25 (PCS): 5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz					
	NR Band n2 (PCS): 5 MHz, 10 MHz, 15 MHz, 20 MHz					
	NR Band n41: 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz, 100 MHz					
	NR Band n77: 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz					
Channel Numbers and Frequencies (MHz)						
NR Band n71: 5 MHz	665.5 (133100)		680.5 (136100)			695.5 (139100)
NR Band n71: 10 MHz	668 (133600)		680.5 (136100)			693 (138600)
NR Band n71: 15 MHz	670.5 (134100)		680.5 (136100)			690.5 (138100)
NR Band n71: 20 MHz	673 (134600)		680.5 (136100)			688 (137600)
NR Band n5 (Cell): 5 MHz	826.5 (165300)		836.5 (167300)			846.5 (169300)
NR Band n5 (Cell): 10 MHz	829 (165800)		836.5 (167300)			844 (168800)
NR Band n5 (Cell): 15 MHz	831.5 (166300)		836.5 (167300)			841.5 (168300)
NR Band n5 (Cell): 20 MHz	834 (166800)		836.5 (167300)			839 (167800)
NR Band n66 (AWS): 5 MHz	1712.5 (342500)		1745 (349000)			1777.5 (355500)
NR Band n66 (AWS): 10 MHz	1715 (343000)		1745 (349000)			1775 (355000)
NR Band n66 (AWS): 15 MHz	1717.5 (343500)		1745 (349000)			1772.5 (354500)
NR Band n66 (AWS): 20 MHz	1720 (344000)		1745 (349000)			1770 (354000)
NR Band n66 (AWS): 30 MHz	1725 (345000)		1745 (349000)			1765 (353000)
NR Band n66 (AWS): 40 MHz	1730 (346000)		1745 (349000)			1760 (352000)
NR Band n25 (PCS): 5 MHz	1852.5 (370500)		1882.5 (376500)			1912.5 (382500)
NR Band n25 (PCS): 10 MHz	1855 (371000)		1882.5 (376500)			1910 (382000)
NR Band n25 (PCS): 15 MHz	1857.5 (371500)		1882.5 (376500)			1907.5 (381500)
NR Band n25 (PCS): 20 MHz	1860 (372000)		1882.5 (376500)			1905 (381000)
NR Band n25 (PCS): 25 MHz	1862.5 (372500)		1882.5 (376500)			1902.5 (380500)
NR Band n25 (PCS): 30 MHz	1865 (373000)		1882.5 (376500)			1900 (380000)
NR Band n25 (PCS): 40 MHz	1870 (374000)		1882.5 (376500)			1895 (379000)
NR Band n2 (PCS): 5 MHz	1852.5 (370500)		1880 (376000)			1907.5 (381500)
NR Band n2 (PCS): 10 MHz	1855 (371000)		1880 (376000)			1905 (381000)
NR Band n2 (PCS): 15 MHz	1857.5 (371500)		1880 (376000)			1902.5 (380500)
NR Band n2 (PCS): 20 MHz	1860 (372000)		1880 (376000)			1900 (380000)
NR Band n41: 20 MHz	2506.02 (501204)	2549.49 (509898)	2592.99 (518598)		2636.49 (527298)	2679.99 (535998)
NR Band n41: 30 MHz	2511 (502200)	2552.01 (510402)	2592.99 (518598)		2634 (526800)	2674.98 (534996)
NR Band n41: 40 MHz	2516.01 (503202)	2567.34 (513468)	N/A		2618.67 (523734)	2670 (534000)
NR Band n41: 50 MHz	2521.02 (504204)		2592.99 (518598)			2664.99 (532998)
NR Band n41: 60 MHz	2526 (505200)		2592.99 (518598)			2659.98 (531996)
NR Band n41: 80 MHz	2536.02 (507204)		N/A			2649.99 (529998)
NR Band n41: 90 MHz	2541 (508200)		N/A			2644.98 (528996)
NR Band n41: 100 MHz	2546.01 (509202)		2592.99 (518598)			2640 (528000)
NR Band n77: 20 MHz	3710.01 (647334)	3762 (650800)	3813.99 (654266)	3866.01 (657734)	3918 (661200)	3969.99 (664666)
NR Band n77: 30 MHz	3715.02 (647668)	3765 (651000)	3815.01 (654334)	3864.99 (657666)	3915 (661000)	3964.98 (664332)
NR Band n77: 40 MHz	3720 (648000)	3768 (651200)	3816 (654400)	3864 (657600)	3912 (660800)	3960 (664000)
NR Band n77: 50 MHz	3725.01 (648334)	3782.49 (652166)	3840 (656000)		3897.51 (659834)	3954.99 (663666)
NR Band n77: 60 MHz	3730.02 (648668)	3803.34 (653556)	N/A	N/A	3876.66 (658444)	3949.98 (663332)
NR Band n77: 70 MHz	3735 (649000)	3804.99 (653666)	N/A		3875.01 (658334)	3945 (663000)
NR Band n77: 80 MHz	3740.01 (649334)	N/A	3840 (656000)		N/A	3939.99 (662666)
NR Band n77: 90 MHz	3745.02 (649668)	N/A	3840 (656000)		N/A	3934.98 (662332)
NR Band n77: 100 MHz	3750 (650000)	N/A	N/A	N/A	N/A	3930 (662000)
SCS for NR Band n71/n5/n66/n25/n2	15 kHz					
SCS for NR Band n41/n77	30 kHz					
Modulations Supported in UL	DFT-s-OFDM: $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM					
A-MPR (Additional MPR) disabled for SAR Testing?	YES					
EN-DC Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations					
LTE Anchor Bands for NR Band n71	LTE Band 66/2					
LTE Anchor Bands for NR Band n5 (Cell)	LTE Band 66/2/30/7/48					
LTE Anchor Bands for NR Band n66 (AWS)	LTE Band 12/13/14/5/2/30/48					
LTE Anchor Bands for NR Band n25 (PCS)	LTE Band 12/66					
LTE Anchor Bands for NR Band n2 (PCS)	LTE Band 12/13/14/5/66/30					
LTE Anchor Bands for NR Band n41	LTE Band 66/2					
LTE Anchor Bands for NR Band n77	LTE Band 12/13/14/5/66/2/30					

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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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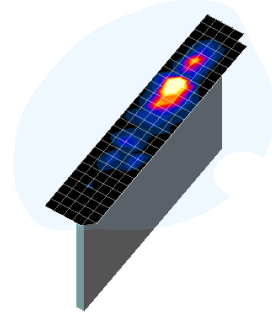


## 4 DOSIMETRIC ASSESSMENT

### 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 DASYS 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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## 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 ≤ 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

All conducted power measurements for 3G/4G/5G Sub6 WWAN technologies and bands in this section were performed by setting *Reserve\_power\_margin* (Qualcomm® Smart Transmit EFS entry) to 0dB, so that the EUT transmits continuously at minimum ( $P_{limit}$ , maximum tune up output power  $P_{max}$ ).

### 8.1 UMTS Conducted Powers

#### 8.1.1 UMTS Band 5 Antenna 4

Table 8-1  
UMTS Band 5 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop)

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	24.52	24.54	24.41	-
6	HSDPA	Subtest 1	23.54	23.56	23.42	0
6		Subtest 2	23.57	23.57	23.40	0
6		Subtest 3	23.05	23.08	23.12	0.5
6		Subtest 4	23.02	23.03	23.09	0.5
6	HSUPA	Subtest 1	23.55	23.58	23.40	0
6		Subtest 2	21.55	21.55	21.40	2
6		Subtest 3	22.54	22.55	22.40	1
6		Subtest 4	21.55	21.58	21.41	2
6		Subtest 5	23.53	23.53	23.42	0
8	DC-HSDPA	Subtest 1	23.40	23.41	23.40	0
8		Subtest 2	23.41	23.42	23.42	0
8		Subtest 3	22.90	22.92	22.90	0.5
8		Subtest 4	22.90	22.90	22.91	0.5

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**Table 8-2**  
**UMTS Band 5 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet)**

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	17.02	17.01	16.87	-
6	HSDPA	Subtest 1	16.08	16.01	15.80	0
6		Subtest 2	15.95	16.01	15.85	0
6		Subtest 3	15.51	15.52	15.31	0.5
6		Subtest 4	15.47	15.49	15.33	0.5
6	HSUPA	Subtest 1	15.98	15.99	15.82	0
6		Subtest 2	13.92	13.99	13.79	2
6		Subtest 3	14.95	15.02	14.80	1
6		Subtest 4	13.98	14.02	13.81	2
6		Subtest 5	15.07	15.12	14.92	0
8	DC-HSDPA	Subtest 1	15.77	15.80	15.61	0
8		Subtest 2	15.75	15.85	15.57	0
8		Subtest 3	15.25	15.35	15.18	0.5
8		Subtest 4	15.28	15.33	15.07	0.5

### 8.1.1 UMTS Band 2 Antenna 1

**Table 8-3**  
**UMTS Band 2 Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop)**

3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]			3GPP MPR [dB]
			9262	9400	9538	
99	WCDMA	12.2 kbps RMC	24.73	24.76	24.75	-
6	HSDPA	Subtest 1	23.70	23.78	23.75	0
6		Subtest 2	23.70	23.75	23.74	0
6		Subtest 3	23.20	23.26	23.26	0.5
6		Subtest 4	23.17	23.26	23.29	0.5
6	HSUPA	Subtest 1	23.69	23.76	23.76	0
6		Subtest 2	21.68	21.74	21.73	2
6		Subtest 3	22.69	22.78	22.75	1
6		Subtest 4	21.70	21.76	21.74	2
6		Subtest 5	23.60	23.68	23.64	0
8	DC-HSDPA	Subtest 1	23.55	23.52	23.55	0
8		Subtest 2	23.52	23.58	23.53	0
8		Subtest 3	22.98	23.06	22.97	0.5
8		Subtest 4	23.04	23.03	23.01	0.5

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**Table 8-4**  
**UMTS Band 2 Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet)**

3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]			3GPP MPR [dB]
			9262	9400	9538	
99	WCDMA	12.2 kbps RMC	13.25	13.26	13.24	-
6	HSDPA	Subtest 1	11.78	11.71	11.60	0
6		Subtest 2	11.82	11.70	11.77	0
6		Subtest 3	11.15	11.30	11.17	0.5
6		Subtest 4	11.30	11.26	11.27	0.5
6	HSUPA	Subtest 1	11.79	11.80	11.70	0
6		Subtest 2	9.78	9.77	9.71	2
6		Subtest 3	10.79	10.80	10.71	1
6		Subtest 4	9.78	9.77	9.71	2
6		Subtest 5	11.82	11.81	11.75	0
8	DC-HSDPA	Subtest 1	11.61	11.65	11.65	0
8		Subtest 2	11.60	11.61	11.63	0
8		Subtest 3	11.10	11.11	11.12	0.5
8		Subtest 4	11.11	11.12	11.14	0.5

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\_5B, LTE CA\_66B, LTE CA\_7C 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 4

Table 8-5  
LTE Band 71 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	23.05	0	0
	1	50	23.09		0
	1	99	<b>23.20</b>		0
	50	0	22.15	0-1	1
	50	25	<b>22.23</b>		1
	50	50	22.17		1
	100	0	22.20		1
16QAM	1	0	22.53	0-1	1
	1	50	22.54		1
	1	99	22.80		1
	50	0	21.10	0-2	2
	50	25	21.11		2
	50	50	21.20		2
	100	0	21.14		2
64QAM	1	0	21.33	0-2	2
	1	50	21.35		2
	1	99	21.52		2
	50	0	20.16	0-3	3
	50	25	20.19		3
	50	50	20.26		3
	100	0	20.07		3

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**Table 8-6  
LTE Band 71 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	13.75	0	0
	1	50	13.79		0
	1	99	<b>13.92</b>		0
	50	0	13.87	0-1	0
	50	25	13.93		0
	50	50	<b>13.94</b>		0
	100	0	13.90		0
16QAM	1	0	13.87	0-1	0
	1	50	13.85		0
	1	99	14.00		0
	50	0	13.72	0-2	0
	50	25	13.63		0
	50	50	13.76		0
	100	0	13.61		0
64QAM	1	0	13.75	0-2	0
	1	50	13.77		0
	1	99	13.88		0
	50	0	13.73	0-3	0
	50	25	13.70		0
	50	50	13.69		0
	100	0	13.69		0

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## 8.2.2 LTE Band 12 Antenna 4

**Table 8-7**  
**LTE Band 12 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	24.05	0	0
	1	25	24.02		0
	1	49	24.01		0
	25	0	23.13	0-1	1
	25	12	23.06		1
	25	25	23.08		1
	50	0	23.10		1
16QAM	1	0	22.98	0-1	1
	1	25	23.03		1
	1	49	22.99		1
	25	0	22.16	0-2	2
	25	12	22.13		2
	25	25	22.15		2
	50	0	22.06		2
64QAM	1	0	22.41	0-2	2
	1	25	22.45		2
	1	49	22.40		2
	25	0	21.18	0-3	3
	25	12	21.14		3
	25	25	21.17		3
	50	0	21.12		3

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**Table 8-8  
LTE Band 12 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	15.86	0	0
	1	25	15.83		0
	1	49	15.85		0
	25	0	15.92	0-1	0
	25	12	15.86		0
	25	25	15.97		0
	50	0	15.81		0
16QAM	1	0	16.10	0-1	0
	1	25	16.04		0
	1	49	16.12		0
	25	0	15.89	0-2	0
	25	12	15.85		0
	25	25	15.88		0
	50	0	15.84		0
64QAM	1	0	15.98	0-2	0
	1	25	16.05		0
	1	49	16.10		0
	25	0	15.94	0-3	0
	25	12	15.89		0
	25	25	15.95		0
	50	0	15.89		0

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### 8.2.3 LTE Band 13 Antenna 4

Table 8-9  
 LTE Band 13 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	<b>24.30</b>	0	0
	1	25	24.19		0
	1	49	24.25		0
	25	0	<b>23.60</b>	0-1	1
	25	12	23.55		1
	25	25	23.45		1
	50	0	23.55		1
16QAM	1	0	23.54	0-1	1
	1	25	23.49		1
	1	49	23.46		1
	25	0	22.69	0-2	2
	25	12	22.66		2
	25	25	22.57		2
	50	0	22.63		2
64QAM	1	0	22.64	0-2	2
	1	25	22.61		2
	1	49	22.76		2
	25	0	21.64	0-3	3
	25	12	21.60		3
	25	25	21.56		3
	50	0	21.55		3

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**Table 8-10**  
**LTE Band 13 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	16.59	0	0
	1	25	16.45		0
	1	49	16.42		0
	25	0	16.67	0-1	0
	25	12	16.62		0
	25	25	16.50		0
	50	0	16.58		0
16QAM	1	0	17.00	0-1	0
	1	25	16.90		0
	1	49	16.74		0
	25	0	16.67	0-2	0
	25	12	16.64		0
	25	25	16.53		0
	50	0	16.59		0
64QAM	1	0	16.72	0-2	0
	1	25	16.74		0
	1	49	16.71		0
	25	0	16.72	0-3	0
	25	12	16.66		0
	25	25	16.54		0
	50	0	16.62		0

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## 8.2.4 LTE Band 14 Antenna 4

**Table 8-11**  
**LTE Band 14 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	24.31	0	0
	1	25	24.26		0
	1	49	24.20		0
	25	0	23.31	0-1	1
	25	12	23.31		1
	25	25	23.32		1
	50	0	23.30		1
16QAM	1	0	23.31	0-1	1
	1	25	23.27		1
	1	49	23.29		1
	25	0	22.35	0-2	2
	25	12	22.37		2
	25	25	22.33		2
	50	0	22.32		2
64QAM	1	0	22.64	0-2	2
	1	25	22.61		2
	1	49	22.63		2
	25	0	21.41	0-3	3
	25	12	21.39		3
	25	25	21.35		3
	50	0	21.33		3

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**Table 8-12  
LTE Band 14 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	16.61	0	0
	1	25	16.50		0
	1	49	16.47		0
	25	0	16.54	0-1	0
	25	12	16.50		0
	25	25	16.48		0
	50	0	16.47		0
16QAM	1	0	16.71	0-1	0
	1	25	16.83		0
	1	49	16.78		0
	25	0	16.56	0-2	0
	25	12	16.50		0
	25	25	16.54		0
	50	0	16.53		0
64QAM	1	0	16.78	0-2	0
	1	25	16.81		0
	1	49	16.59		0
	25	0	16.55	0-3	0
	25	12	16.62		0
	25	25	16.58		0
	50	0	16.49		0

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## 8.2.5 LTE Band 26 Antenna 4

**Table 8-13**  
**LTE Band 26 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	<b>24.70</b>	0	0
	1	36	24.68		0
	1	74	24.58		0
	36	0	<b>23.98</b>	0-1	1
	36	18	23.94		1
	36	37	23.95		1
	75	0	23.87		1
16QAM	1	0	24.30	0-1	1
	1	36	24.41		1
	1	74	24.25		1
	36	0	22.92	0-2	2
	36	18	22.95		2
	36	37	22.96		2
	75	0	22.91		2
64QAM	1	0	22.86	0-2	2
	1	36	23.05		2
	1	74	22.85		2
	36	0	22.03	0-3	3
	36	18	22.06		3
	36	37	22.09		3
	75	0	21.91		3

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**Table 8-14**  
**LTE Band 26 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	16.41	0	0
	1	36	<b>16.46</b>		0
	1	74	16.35		0
	36	0	16.58	0-1	0
	36	18	<b>16.65</b>		0
	36	37	16.54		0
	75	0	16.45		0
16QAM	1	0	16.75	0-1	0
	1	36	16.77		0
	1	74	16.62		0
	36	0	16.65	0-2	0
	36	18	16.53		0
	36	37	16.52		0
	75	0	16.56		0
64QAM	1	0	16.62	0-2	0
	1	36	16.60		0
	1	74	16.55		0
	36	0	16.63	0-3	0
	36	18	16.44		0
	36	37	16.62		0
	75	0	16.53		0

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## 8.2.6 LTE Band 5 Antenna 4

**Table 8-15**  
**LTE Band 5 (Cell) Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 10 MHz Bandwidth**

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20525 (836.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	<b>23.78</b>	0	0
	1	25	23.71		0
	1	49	23.77		0
	25	0	<b>22.98</b>	0-1	1
	25	12	22.92		1
	25	25	22.94		1
	50	0	22.97		1
16QAM	1	0	23.01	0-1	1
	1	25	22.93		1
	1	49	22.91		1
	25	0	22.04	0-2	2
	25	12	22.03		2
	25	25	22.04		2
	50	0	22.06		2
64QAM	1	0	22.21	0-2	2
	1	25	22.23		2
	1	49	22.12		2
	25	0	21.07	0-3	3
	25	12	21.08		3
	25	25	21.10		3
	50	0	21.03		3

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**Table 8-16**  
**LTE Band 5 (Cell) Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 10 MHz Bandwidth**

LTE Band 5 (Cell) 10 MHz Bandwidth						
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			20525 (836.5 MHz)			
			Conducted Power [dBm]			
QPSK	1	0	16.75	0	0	
	1	25	16.51		0	
	1	49	16.47		0	
	16QAM	25	0	16.73	0-1	0
		25	12	16.62		0
		25	25	16.64		0
		50	0	16.72		0
64QAM	1	0	16.91	0-1	0	
	1	25	16.84		0	
	1	49	16.74		0	
	64QAM	25	0	16.60	0-2	0
		25	12	16.68		0
		25	25	16.61		0
		50	0	16.61		0
64QAM	1	0	16.71	0-2	0	
	1	25	16.76		0	
	1	49	16.66		0	
	64QAM	25	0	16.62	0-3	0
		25	12	16.67		0
		25	25	16.65		0
		50	0	16.65		0

**Table 8-17**  
**LTE Band 5 (Cell) Antenna 4 Uplink Carrier Aggregation Measured  $P_{Max}$  for DSI = 3 (Laptop Mode)**

Combination	PCC Band	PCC								SCC								Power		
		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_5B	LTE B5	10	20525	836.5	2525	881.5	QPSK	1	0	LTE B5	5	20453	829.3	2453	874.3	QPSK	1	24	24.25	23.78

**Table 8-18**  
**LTE Band 5 (Cell) Antenna 4 Uplink Carrier Aggregation Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode)**

Combination	PCC Band	PCC								SCC								Power		
		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_5B	LTE B5	10	20525	836.5	2525	881.5	QPSK	1	0	LTE B5	5	20453	829.3	2453	874.3	QPSK	1	24	16.65	16.75

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## 8.2.7 LTE Band 66 Antenna 1

**Table 8-19**  
**LTE Band 66 (AWS) Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	24.53	24.64	24.57	0	0
	1	50	24.42	24.62	24.43		0
	1	99	24.63	24.61	24.49		0
	50	0	23.65	23.66	23.61	0-1	1
	50	25	23.71	23.69	23.62		1
	50	50	23.67	23.72	23.71		1
16QAM	100	0	23.69	23.70	23.62	0-1	1
	1	0	23.78	23.66	23.58		1
	1	50	23.66	23.71	23.68		1
	1	99	23.67	23.75	23.57	0-2	1
	50	0	22.76	22.63	22.65		2
	50	25	22.77	22.67	22.57		2
64QAM	50	50	22.63	22.77	22.67	0-2	2
	100	0	22.72	22.66	22.52		2
	1	0	22.67	22.63	22.56		0-2
	1	50	22.59	22.74	22.59	2	
	1	99	22.60	22.58	22.61	0-3	
	50	0	21.76	21.67	21.59		3
50	25	21.74	21.72	21.68	3		
64QAM	50	50	21.71	21.76	21.63	0-3	3
	100	0	21.69	21.77	21.67		3

**Table 8-20**  
**LTE Band 66 (AWS) Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	24.49	24.46	24.47	0	0	
	1	25	24.41	24.39	24.47		0	
	1	49	24.43	24.22	24.44		0	
	25	0	23.52	23.40	23.58	0-1	1	
	25	12	23.55	23.38	23.59		1	
	25	25	23.50	23.48	23.58		1	
16QAM	50	0	23.55	23.41	23.65	0-1	1	
	1	0	23.83	23.97	24.05		0-1	1
	1	25	23.75	23.94	23.98			1
	1	49	23.75	23.91	23.92	0-2		1
	25	0	22.76	22.66	22.58		2	
	25	12	22.73	22.68	22.66		2	
64QAM	25	25	22.69	22.71	22.64	0-2	2	
	50	0	22.69	22.63	22.62		2	
	1	0	22.58	22.84	22.55		0-2	2
	1	25	22.56	22.85	22.60	2		
	1	49	22.56	22.85	22.60	0-3		2
	25	0	21.80	21.65	21.54		3	
25	12	21.80	21.70	21.65	3			
64QAM	25	25	21.77	21.67	21.57	0-3	3	
	50	0	21.73	21.61	21.63		3	

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**Table 8-21**  
**LTE Band 66 (AWS) Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	14.46	14.64	14.65	0	0
	1	50	14.44	14.72	14.74		0
	1	99	14.49	14.69	14.72		0
	50	0	14.73	14.70	14.69	0-1	0
	50	25	14.73	14.71	14.72		0
	50	50	14.72	14.72	14.74		0
	100	0	14.72	14.71	14.73		0
16QAM	1	0	15.09	15.10	14.97	0-1	0
	1	50	14.94	15.09	14.92		0
	1	99	14.94	15.01	14.84		0
	50	0	14.83	14.85	14.77	0-2	0
	50	25	14.79	14.84	14.76		0
	50	50	14.74	14.88	14.79		0
	100	0	14.79	14.77	14.74		0
64QAM	1	0	15.05	15.09	14.96	0-2	0
	1	50	14.90	15.03	14.94		0
	1	99	14.86	15.02	14.93		0
	50	0	14.89	14.90	14.83	0-3	0
	50	25	14.88	14.92	14.82		0
	50	50	14.79	14.93	14.81		0
	100	0	14.81	14.86	14.79		0

**Table 8-22**  
**LTE Band 66 (AWS) Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	14.57	14.62	14.58	0	0
	1	25	14.51	14.57	14.59		0
	1	49	14.44	14.66	14.63		0
	25	0	14.79	14.71	14.71	0-1	0
	25	12	14.78	14.69	14.70		0
	25	25	14.72	14.73	14.71		0
	50	0	14.77	14.70	14.69		0
16QAM	1	0	14.94	15.10	15.10	0-1	0
	1	25	14.90	15.05	15.03		0
	1	49	14.90	15.01	14.98		0
	25	0	14.87	14.87	14.78	0-2	0
	25	12	14.88	14.89	14.79		0
	25	25	14.85	14.93	14.80		0
	50	0	14.82	14.78	14.72		0
64QAM	1	0	14.93	15.00	15.10	0-2	0
	1	25	14.89	15.04	15.08		0
	1	49	14.87	14.98	15.09		0
	25	0	14.94	14.90	14.84	0-3	0
	25	12	14.95	14.91	14.82		0
	25	25	14.90	14.97	14.83		0
	50	0	14.90	14.81	14.74		0

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**Table 8-23**

**LTE Band 66 (AWS) Antenna 1 Uplink Carrier Aggregation Measured  $P_{Max}$  for DSI = 3 (Laptop Mode)**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC			Modulation	PCC UL# RB	PCC UL RB Offset	SCC					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]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_66B	LTE B66	10	132322	1745.0	66786	2145.0	QPSK	1	0	LTE B66	10	132223	1735.1	66687	2135.1	QPSK	1	49	25.44	24.46

**Table 8-24**

**LTE Band 66 (AWS) Antenna 1 Uplink Carrier Aggregation Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode)**

Combination	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					Power					
										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_66B	LTE B66	10	132622	1775.0	67086	2175.0	QPSK	25	0	LTE B66	10	132523	1765.1	66987	2165.1	QPSK	25	25	14.59	14.71

**8.2.8 LTE Band 25 Antenna 1**

**Table 8-25**

**LTE Band 25 (PCS) Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	24.45	24.45	24.54	0	0
	1	50	24.46	24.42	24.46		0
	1	99	24.37	24.56	24.55		0
	50	0	23.51	23.58	23.52	0-1	1
	50	25	23.58	23.50	23.55		1
	50	50	23.47	23.60	23.54		1
16QAM	100	0	23.55	23.56	23.53	0-1	1
	1	0	23.68	23.65	23.66		1
	1	50	23.69	23.66	23.57		1
	1	99	23.63	23.52	23.54	0-2	1
	50	0	22.51	22.56	22.51		2
	50	25	22.53	22.59	22.59		2
64QAM	50	50	22.61	22.60	22.52	0-2	2
	100	0	22.59	22.64	22.56		2
	1	0	22.76	22.62	22.64		2
	1	50	22.65	22.70	22.67	0-2	2
	1	99	22.53	22.49	22.55		2
	50	0	21.55	21.59	21.58		0-3
50	25	21.54	21.57	21.59	3		
50	50	21.58	21.41	21.54	3		
100	0	21.52	21.56	21.55	0-3	3	

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**Table 8-26**  
**LTE Band 25 (PCS) Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	12.89	13.01	12.99	0	0
	1	50	<b>13.15</b>	13.12	12.98		0
	1	99	12.98	13.00	12.98		0
	50	0	<b>13.21</b>	13.00	13.00	0-1	0
	50	25	13.17	13.02	13.02		0
	50	50	13.09	13.10	13.06		0
	100	0	13.14	13.09	13.05		0
16QAM	1	0	13.57	13.45	13.41	0-1	0
	1	50	13.58	13.41	13.42		0
	1	99	13.53	13.40	13.44		0
	50	0	13.23	13.04	13.41	0-2	0
	50	25	13.21	13.04	13.22		0
	50	50	13.09	13.09	13.13		0
	100	0	13.16	13.05	13.12		0
64QAM	1	0	13.56	13.35	13.16	0-2	0
	1	50	13.57	13.36	13.23		0
	1	99	13.51	13.38	13.20		0
	50	0	13.13	13.03	13.11	0-3	0
	50	25	13.21	13.12	13.16		0
	50	50	13.22	13.15	13.08		0
	100	0	13.15	13.08	13.01		0

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## 8.2.9 LTE Band 30 Antenna 1

**Table 8-27**  
**LTE Band 30 Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	<b>23.01</b>	0	0
	1	25	22.84		0
	1	49	22.86		0
	25	0	<b>21.88</b>	0-1	1
	25	12	21.82		1
	25	25	21.81		1
	50	0	21.85		1
16QAM	1	0	21.71	0-1	1
	1	25	21.90		1
	1	49	21.76		1
	25	0	20.80	0-2	2
	25	12	20.92		2
	25	25	20.85		2
	50	0	20.84		2
64QAM	1	0	20.75	0-2	2
	1	25	20.89		2
	1	49	20.79		2
	25	0	19.84	0-3	3
	25	12	19.86		3
	25	25	19.93		3
	50	0	20.00		3

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**Table 8-28**  
**LTE Band 30 Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	11.92	0	0
	1	25	<b>11.94</b>		0
	1	49	11.92		0
	25	0	12.06	0-1	0
	25	12	<b>12.11</b>		0
	25	25	12.04		0
	50	0	11.90		0
16QAM	1	0	12.07	0-1	0
	1	25	12.21		0
	1	49	12.12		0
	25	0	12.04	0-2	0
	25	12	12.06		0
	25	25	12.07		0
	50	0	12.13		0
64QAM	1	0	12.11	0-2	0
	1	25	12.03		0
	1	49	11.82		0
	25	0	12.03	0-3	0
	25	12	12.06		0
	25	25	12.00		0
	50	0	11.95		0

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### 8.2.10 LTE Band 7 Antenna 1

**Table 8-29**  
**LTE Band 7 Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	23.70	23.76	23.67	0	0
	1	50	23.62	23.63	23.65		0
	1	99	23.63	23.69	23.54		0
	50	0	22.75	22.84	22.76	0-1	1
	50	25	22.87	22.81	22.83		1
	50	50	22.80	22.88	22.82		1
16QAM	100	0	22.81	22.85	22.83	0-1	1
	1	0	22.89	22.94	22.82		1
	1	50	22.96	22.91	22.84		1
	1	99	22.78	22.85	22.76	0-2	1
	50	0	21.81	21.88	21.89		2
	50	25	21.88	21.83	21.94		2
64QAM	50	50	21.82	21.87	21.90	0-2	2
	100	0	21.80	21.76	21.88		2
	1	0	21.70	21.86	21.96		0-3
	1	50	21.64	21.72	21.88	2	
	1	99	21.73	21.82	21.92	3	
	50	0	20.79	20.91	20.86	0-3	3
50	25	20.84	20.83	20.90	3		
50	50	20.88	20.86	20.87	3		
100	0	20.79	20.87	20.89		3	

**Table 8-30**  
**LTE Band 7 Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	11.28	11.38	11.40	0	0	
	1	50	11.35	11.41	11.37		0	
	1	99	11.38	11.49	11.34		0	
	50	0	11.41	11.51	11.41	0-1	0	
	50	25	11.38	11.54	11.39		0	
	50	50	11.51	11.48	11.35		0	
16QAM	100	0	11.40	11.47	11.37	0-1	0	
	1	0	11.86	11.77	11.68		0-1	0
	1	50	11.77	11.86	11.60			0
	1	99	11.73	11.84	11.65	0-2		0
	50	0	11.39	11.44	11.41		0	
	50	25	11.46	11.44	11.38		0	
64QAM	50	50	11.40	11.55	11.45	0-2	0	
	100	0	11.38	11.49	11.36		0	
	1	0	11.64	11.58	11.84		0-2	0
	1	50	11.62	11.73	11.87	0		
	1	99	11.58	11.85	11.80	0-3		0
	50	0	11.56	11.47	11.38		0	
50	25	11.60	11.39	11.35	0			
50	50	11.48	11.42	11.43	0-3	0		
100	0	11.49	11.42	11.36		0		

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**Table 8-31**

**LTE Band 7 Antenna 1 Uplink Carrier Aggregation Measured  $P_{Max}$  for DSI = 3 (Laptop Mode)**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC UL Channel	PCC UL Frequency [MHz]	PCC					SCC					Power					
					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_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	23.86	23.76

**Table 8-32**

**LTE Band 7 Antenna 1 Uplink Carrier Aggregation Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode)**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC UL Channel	PCC UL Frequency [MHz]	PCC					SCC					Power					
					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_7C	LTE B7	20	21350	2560.0	3350	2680.0	QPSK	1	0	LTE B7	20	21152	2540.2	3152	2660.2	QPSK	1	99	11.14	11.40

**8.2.11 LTE Band 41 Antenna 1**

**Table 8-33**

**LTE Band 41 PC3 Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	23.61	23.64	23.88	23.99	23.98	0	0	
	1	50	23.56	23.56	23.75	23.81	23.81		0	
	1	99	23.56	23.55	23.84	23.91	23.85		0	
	16QAM	50	0	22.68	22.70	22.87	22.98	22.98	0-1	1
		50	25	22.77	22.80	22.89	22.92	22.92		1
		50	50	22.68	22.73	22.91	23.02	22.96		1
64QAM		100	0	22.73	22.78	22.81	22.92	22.89	0-1	1
		1	0	23.00	22.46	23.04	22.97	23.03		1
		1	50	22.95	22.50	22.90	22.91	22.89		1
	16QAM	1	99	22.96	22.49	22.98	22.92	22.96	0-2	1
		50	0	21.70	21.83	21.94	21.97	21.94		2
		50	25	21.77	21.89	21.93	21.94	21.94		2
64QAM		50	50	21.78	21.87	21.99	22.01	21.93	0-2	2
		100	0	21.79	21.90	21.94	21.98	21.91		2
		1	0	21.70	21.79	21.67	21.71	21.63		2
	16QAM	1	50	21.69	21.82	21.60	21.63	21.55	0-2	2
		1	99	21.71	21.83	21.64	21.72	21.63		2
		50	0	20.74	20.84	20.99	21.00	20.98		3
64QAM		50	25	20.81	20.90	20.97	21.02	20.97	0-3	3
		50	50	20.80	20.90	21.02	21.06	21.00		3
		100	0	20.79	20.91	20.95	20.98	20.94		3

**Table 8-34**

**LTE Band 41 PC2 Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	26.50	26.75	26.72	26.86	27.03	0	0	
	1	50	26.46	26.70	26.58	26.73	26.88		0	
	1	99	26.45	26.65	26.69	26.82	26.93		0	
	16QAM	50	0	25.69	25.65	25.86	25.89	25.88	0-1	1
		50	25	25.76	25.76	25.83	25.87	25.88		1
		50	50	25.72	25.72	25.88	25.92	25.90		1
100		0	25.73	25.74	25.85	25.87	25.88	1		

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**Table 8-35**  
**LTE Band 41 PC3 Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	13.29	13.46	13.55	13.54	13.65	0	0
	1	50	13.21	13.39	13.39	13.40	13.49		0
	1	99	13.39	13.40	13.45	13.46	13.60		0
	50	0	13.38	13.39	13.49	13.50	13.59	0-1	0
	50	25	13.37	13.38	13.51	13.44	13.58		0
	50	50	13.42	13.31	13.48	13.47	13.54		0
16QAM	100	0	13.35	13.34	13.43	13.44	13.58	0-1	0
	1	0	13.29	13.20	13.03	13.80	13.58		0
	1	50	13.37	13.22	12.97	13.62	13.62		0
	1	99	13.40	13.31	12.95	13.71	13.50	0-2	0
	50	0	13.38	13.48	13.58	13.53	13.53		0
	50	25	13.35	13.52	13.48	13.54	13.63		0
64QAM	50	50	13.38	13.57	13.43	13.64	13.56	0-2	0
	100	0	13.43	13.43	13.51	13.60	13.62		0
	1	0	13.00	13.04	13.45	13.35	13.42		0-3
	1	50	12.99	12.99	13.47	13.39	13.26	0	
	1	99	13.04	13.01	13.40	13.47	13.36	0	
	50	0	13.44	13.50	13.50	13.67	13.67	0-3	0
50	25	13.41	13.40	13.73	13.60	13.62	0		
50	50	13.52	13.47	13.62	13.72	13.71	0		
100	0	13.49	13.52	13.59	13.73	13.64	0	0	

**Table 8-36**  
**LTE Band 41 PC2 Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	14.71	14.83	15.22	15.29	15.28	0	0
	1	50	14.70	14.75	15.09	15.22	15.08		0
	1	99	14.82	14.79	15.07	15.23	15.04		0
	50	0	15.04	15.04	15.12	15.19	15.20	0-1	0
	50	25	15.05	15.09	15.14	15.15	15.25		0
	50	50	15.00	15.07	15.15	15.25	15.22		0
100	0	15.08	15.06	15.11	15.14	15.23	0	0	

**Table 8-37**  
**LTE Band 41 PC3 Antenna 1 Uplink Carrier Aggregation Measured  $P_{Max}$  for DSI = 3 (Laptop Mode)**

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	41055	2636.5	QPSK	1	0	LTE B41	20	40857	2616.7	QPSK	1	99	23.47	23.99

**Table 8-38**  
**LTE Band 41 PC3 Antenna 1 Uplink Carrier Aggregation Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode)**

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	39750	2506.0	QPSK	50	50	LTE B41	20	39948	2525.8	QPSK	50	0	13.07	13.42

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## 8.2.12 LTE Band 48 Antenna 2

**Table 8-39**  
**LTE Band 48 Antenna 2 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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	24.03	24.16	24.42	24.47	0	0
	1	50	24.02	24.26	24.40	24.42		0
	1	99	24.12	24.36	24.38	24.43		0
	50	0	23.24	23.39	23.62	23.71	0-1	1
	50	25	23.32	23.48	23.68	23.69		1
	50	50	23.34	23.54	23.69	23.70		1
	100	0	23.31	23.50	23.67	23.67		1
16QAM	1	0	23.04	23.24	23.53	23.51	0-1	1
	1	50	23.15	23.31	23.54	23.50		1
	1	99	23.21	23.44	23.58	23.48		1
	50	0	22.22	22.38	22.61	22.65	0-2	2
	50	25	22.30	22.44	22.74	22.69		2
	50	50	22.29	22.53	22.67	22.65		2
	100	0	22.33	22.47	22.68	22.72		2
64QAM	1	0	22.37	22.60	22.74	22.67	0-2	2
	1	50	22.39	22.66	22.77	22.69		2
	1	99	22.47	22.70	22.83	22.70		2
	50	0	21.52	21.54	21.69	21.86	0-3	3
	50	25	21.60	21.63	21.75	21.92		3
	50	50	21.60	21.65	21.74	21.90		3
	100	0	21.57	21.60	21.72	21.91		3

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**Table 8-40**  
**LTE Band 48 Antenna 2 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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	10.94	11.00	11.20	11.20	0	0
	1	50	10.95	11.02	11.23	11.19		0
	1	99	11.21	11.20	11.49	11.47		0
	50	0	11.08	10.99	11.37	11.32	0-1	0
	50	25	11.20	11.04	11.39	11.26		0
	50	50	11.11	11.06	11.45	11.37		0
	100	0	10.95	10.86	11.44	11.22		0
16QAM	1	0	11.16	11.03	11.33	11.37	0-1	0
	1	50	11.07	11.02	11.38	11.36		0
	1	99	11.07	11.08	11.44	11.40		0
	50	0	11.12	11.04	11.37	11.35	0-2	0
	50	25	11.18	11.10	11.48	11.34		0
	50	50	11.16	11.11	11.47	11.39		0
	100	0	11.17	11.08	11.44	11.30		0
64QAM	1	0	10.64	11.14	10.99	11.62	0-2	0
	1	50	10.72	11.20	11.07	11.67		0
	1	99	10.71	11.26	11.07	11.74		0
	50	0	11.16	11.37	11.56	11.57	0-3	0
	50	25	11.23	11.49	11.65	11.53		0
	50	50	11.20	11.49	11.62	11.57		0
	100	0	11.21	11.46	11.65	11.53		0



**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 4

**Table 8-41  
NR Band n71 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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 $\pi/2$ BPSK	1	1	24.14	0	0.0
	1	53	24.05		0.0
	1	104	24.08		0.0
	50	0	23.49	0-0.5	0.5
	50	28	23.95	0	0.0
	50	56	23.51	0-0.5	0.5
	100	0	23.52		0.5
DFT-s-OFDM QPSK	1	1	24.02	0	0.0
	1	53	24.05		0.0
	1	104	<b>24.12</b>		0.0
	50	0	23.01	0-1	1.0
	50	28	<b>23.99</b>	0	0.0
	50	56	23.04	0-1	1.0
	100	0	23.03		1.0
DFT-s-OFDM 16QAM	1	1	22.85	0-1	1.0
CP-OFDM QPSK	1	1	22.24	0-1.5	1.5

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**Table 8-42  
NR Band n71 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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 $\pi/2$ BPSK	1	1	14.92	0	0.0
	1	53	14.89		0.0
	1	104	14.98		0.0
	50	0	14.95	0-0.5	0.0
	50	28	14.91	0	0.0
	50	56	14.88	0-0.5	0.0
	100	0	14.90		0.0
DFT-s-OFDM QPSK	1	1	14.74	0	0.0
	1	53	14.79		0.0
	1	104	<b>14.83</b>		0.0
	50	0	14.77	0-1	0.0
	50	28	<b>14.85</b>	0	0.0
	50	56	14.78	0-1	0.0
	100	0	14.80		0.0
DFT-s-OFDM 16QAM	1	1	15.02	0-1	0.0
CP-OFDM QPSK	1	1	14.93	0-1.5	0.0

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### 8.3.2 NR Band n5 Antenna 4

Table 8-43  
NR Band n5 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.85	0	0.0
	1	53	23.94		0.0
	1	104	23.81		0.0
	50	0	23.27	0-0.5	0.5
	50	28	23.92	0	0.0
	50	56	23.29	0-0.5	0.5
	100	0	23.34		0.5
DFT-s-OFDM QPSK	1	1	24.03	0	0.0
	1	53	<b>24.07</b>		0.0
	1	104	23.99		0.0
	50	0	22.84	0-1	1.0
	50	28	<b>23.86</b>	0	0.0
	50	56	22.77	0-1	1.0
	100	0	22.84		1.0
DFT-s-OFDM 16QAM	1	1	22.94	0-1	1.0
CP-OFDM QPSK	1	1	22.12	0-1.5	1.5

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**Table 8-44  
NR Band n5 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 20 MHz Bandwidth**

NR Band n5 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM $\pi/2$ BPSK	1	1	16.52	0	0.0
	1	53	16.69		0.0
	1	104	16.53		0.0
	50	0	16.64	0-0.5	0.0
	50	28	16.61	0	0.0
	50	56	16.53	0-0.5	0.0
	100	0	16.57		0.0
DFT-s-OFDM QPSK	1	1	16.76	0	0.0
	1	53	<b>16.86</b>		0.0
	1	104	16.73		0.0
	50	0	16.56	0-1	0.0
	50	28	<b>16.61</b>	0	0.0
	50	56	16.50	0-1	0.0
	100	0	16.59		0.0
DFT-s-OFDM 16QAM	1	1	16.47	0-1	0.0
CP-OFDM QPSK	1	1	16.50	0-1.5	0.0

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### 8.3.3 NR Band n66 Antenna 1

Table 8-45  
NR Band n66 Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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 $\pi/2$ BPSK	1	1	24.55	0	0.0
	1	108	24.65		0.0
	1	214	24.72		0.0
	108	0	24.27	0-0.5	0.5
	108	54	24.73	0	0.0
	108	108	24.25	0-0.5	0.5
	216	0	24.32		0.5
DFT-s-OFDM QPSK	1	1	24.64	0	0.0
	1	108	<b>24.77</b>		0.0
	1	214	24.75		0.0
	108	0	23.76	0-1	1.0
	108	54	<b>24.77</b>	0	0.0
	108	108	23.80	0-1	1.0
	216	0	23.76		1.0
DFT-s-OFDM 16QAM	1	1	23.85	0-1	1.0
CP-OFDM QPSK	1	1	23.25	0-1.5	1.5

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**Table 8-46**  
**NR Band n66 Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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 $\pi/2$ BPSK	1	1	14.99	0	0.0
	1	108	15.07		0.0
	1	214	15.11		0.0
	108	0	15.11	0-0.5	0.0
	108	54	15.15	0	0.0
	108	108	15.21	0-0.5	0.0
	216	0	15.16		0.0
DFT-s-OFDM QPSK	1	1	15.16	0	0.0
	1	108	<b>15.27</b>		0.0
	1	214	15.13		0.0
	108	0	15.12	0-1	0.0
	108	54	15.14	0	0.0
	108	108	<b>15.26</b>	0-1	0.0
	216	0	15.25		0.0
DFT-s-OFDM 16QAM	1	1	15.29	0-1	0.0
CP-OFDM QPSK	1	1	15.14	0-1.5	0.0

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### 8.3.4 NR Band n66 Antenna 4

**Table 8-47**  
**NR Band n66 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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 $\pi/2$ BPSK	1	1	24.60	0	0.0
	1	108	24.75		0.0
	1	214	24.65		0.0
	108	0	24.27	0-0.5	0.5
	108	54	24.63	0	0.0
	108	108	24.25	0-0.5	0.5
	216	0	24.21		0.5
DFT-s-OFDM QPSK	1	1	24.53	0	0.0
	1	108	<b>24.66</b>		0.0
	1	214	24.63		0.0
	108	0	23.72	0-1	1.0
	108	54	<b>24.70</b>	0	0.0
	108	108	23.73	0-1	1.0
	216	0	23.68		1.0
DFT-s-OFDM 16QAM	1	1	23.77	0-1	1.0
CP-OFDM QPSK	1	1	23.08	0-1.5	1.5

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**Table 8-48  
NR Band n66 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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 $\pi/2$ BPSK	1	1	14.36	0	0.0
	1	108	14.42		0.0
	1	214	14.34		0.0
	108	0	14.37	0-0.5	0.0
	108	54	14.37	0	0.0
	108	108	14.33	0-0.5	0.0
	216	0	14.39		0.0
DFT-s-OFDM QPSK	1	1	<b>14.42</b>	0	0.0
	1	108	14.39		0.0
	1	214	14.34		0.0
	108	0	14.34	0-1	0.0
	108	54	14.35	0	0.0
	108	108	<b>14.43</b>	0-1	0.0
	216	0	14.41		0.0
DFT-s-OFDM 16QAM	1	1	14.52	0-1	0.0
CP-OFDM QPSK	1	1	14.46	0-1.5	0.0

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### 8.3.1 NR Band n25 Antenna 1

**Table 8-49**  
**NR Band n25 Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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 $\pi/2$ BPSK	1	1	24.41	0	0.0
	1	108	24.37		0.0
	1	214	24.41		0.0
	108	0	23.93	0-0.5	0.5
	108	54	24.31	0	0.0
	108	108	23.70	0-0.5	0.5
	216	0	23.91		0.5
DFT-s-OFDM QPSK	1	1	23.92	0	0.0
	1	108	<b>24.25</b>		0.0
	1	214	24.23		0.0
	108	0	23.55	0-1	1.0
	108	54	<b>24.31</b>	0	0.0
	108	108	22.91	0-1	1.0
	216	0	23.37		1.0
DFT-s-OFDM 16QAM	1	1	22.83	0-1	1.0
CP-OFDM QPSK	1	1	22.56	0-1.5	1.5

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**Table 8-50  
NR Band n25 Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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 $\pi/2$ BPSK	1	1	12.95	0	0.0
	1	108	12.86		0.0
	1	214	12.93		0.0
	108	0	12.82	0-0.5	0.0
	108	54	12.80	0	0.0
	108	108	12.83	0-0.5	0.0
	216	0	12.84		0.0
DFT-s-OFDM QPSK	1	1	12.90	0	0.0
	1	108	12.84		0.0
	1	214	<b>13.02</b>		0.0
	108	0	12.81	0-1	0.0
	108	54	12.79	0	0.0
	108	108	<b>12.99</b>	0-1	0.0
	216	0	12.89		0.0
DFT-s-OFDM 16QAM	1	1	12.63	0-1	0.0
CP-OFDM QPSK	1	1	13.00	0-1.5	0.0

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### 8.3.2 NR Band n25 Antenna 4

**Table 8-51  
NR Band n25 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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 $\pi/2$ BPSK	1	1	24.92	0	0.0
	1	108	24.93		0.0
	1	214	24.97		0.0
	108	0	24.46	0-0.5	0.5
	108	54	24.87	0	0.0
	108	108	24.21	0-0.5	0.5
	216	0	24.46		0.5
DFT-s-OFDM QPSK	1	1	24.04	0	0.0
	1	108	24.28		0.0
	1	214	<b>24.71</b>		0.0
	108	0	23.93	0-1	1.0
	108	54	<b>24.62</b>	0	0.0
	108	108	23.06	0-1	1.0
	216	0	23.61		1.0
DFT-s-OFDM 16QAM	1	1	23.74	0-1	1.0
CP-OFDM QPSK	1	1	22.78	0-1.5	1.5

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**Table 8-52**  
**NR Band n25 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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 $\pi/2$ BPSK	1	1	13.70	0	0.0
	1	108	13.65		0.0
	1	214	13.83		0.0
	108	0	13.80	0-0.5	0.0
	108	54	13.68	0	0.0
	108	108	13.74	0-0.5	0.0
	216	0	13.74		0.0
DFT-s-OFDM QPSK	1	1	<b>13.82</b>	0	0.0
	1	108	13.76		0.0
	1	214	13.79		0.0
	108	0	<b>13.78</b>	0-1	0.0
	108	54	13.75	0	0.0
	108	108	13.70	0-1	0.0
	216	0	13.76		0.0
DFT-s-OFDM 16QAM	1	1	13.73	0-1	0.0
CP-OFDM QPSK	1	1	13.74	0-1.5	0.0

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### 8.3.1 NR Band n41 Antenna 1

Table 8-53  
NR Band n41 Antenna 1 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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 $\pi/2$ BPSK	1	1	23.57	0	0.0
	1	137	23.97		0.0
	1	271	23.67		0.0
	135	0	23.24	0-0.5	0.5
	135	69	23.86	0	0.0
	135	138	23.24	0-0.5	0.5
	270	0	23.27		0.5
DFT-s-OFDM QPSK	1	1	23.21	0	0.0
	1	137	<b>23.58</b>		0.0
	1	271	23.28		0.0
	135	0	22.41	0-1	1.0
	135	69	<b>23.60</b>	0	0.0
	135	138	22.51	0-1	1.0
	270	0	22.51		1.0
DFT-s-OFDM 16QAM	1	1	22.40	0-1	1.0
CP-OFDM QPSK	1	1	21.69	0-1.5	1.5

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**Table 8-54  
NR Band n41 Antenna 1 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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 $\pi/2$ BPSK	1	1	11.62	0	0.0
	1	137	12.08		0.0
	1	271	11.71		0.0
	135	0	11.89	0-0.5	0.0
	135	69	12.02	0	0.0
	135	138	11.90	0-0.5	0.0
	270	0	11.93		0.0
DFT-s-OFDM QPSK	1	1	11.54	0	0.0
	1	137	<b>12.01</b>		0.0
	1	271	11.60		0.0
	135	0	11.86	0-1	0.0
	135	69	<b>12.02</b>	0	0.0
	135	138	11.86	0-1	0.0
	270	0	11.95		0.0
DFT-s-OFDM 16QAM	1	1	11.75	0-1	0.0
CP-OFDM QPSK	1	1	11.57	0-1.5	0.0

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### 8.3.2 NR Band n41 Antenna 4

Table 8-55  
NR Band n41 Antenna 4 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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 $\pi/2$ BPSK	1	1	23.56	0	0.0
	1	137	24.03		0.0
	1	271	23.73		0.0
	135	0	23.32	0-0.5	0.5
	135	69	24.03	0	0.0
	135	138	23.48	0-0.5	0.5
	270	0	23.45		0.5
DFT-s-OFDM QPSK	1	1	23.31	0	0.0
	1	137	<b>23.81</b>		0.0
	1	271	23.33		0.0
	135	0	22.52	0-1	1.0
	135	69	<b>23.72</b>	0	0.0
	135	138	22.73	0-1	1.0
	270	0	22.60		1.0
DFT-s-OFDM 16QAM	1	1	22.42	0-1	1.0
CP-OFDM QPSK	1	1	21.82	0-1.5	1.5

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**Table 8-56  
NR Band n41 Antenna 4 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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 $\pi/2$ BPSK	1	1	13.89	0	0.0
	1	137	14.38		0.0
	1	271	13.97		0.0
	135	0	14.18	0-0.5	0.0
	135	69	14.36	0	0.0
	135	138	14.23	0-0.5	0.0
	270	0	14.25		0.0
DFT-s-OFDM QPSK	1	1	13.83	0	0.0
	1	137	<b>14.46</b>		0.0
	1	271	14.13		0.0
	135	0	14.15	0-1	0.0
	135	69	<b>14.34</b>	0	0.0
	135	138	14.24	0-1	0.0
	270	0	14.25		0.0
DFT-s-OFDM 16QAM	1	1	13.91	0-1	0.0
CP-OFDM QPSK	1	1	13.85	0-1.5	0.0

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### 8.3.3 NR Band n41 SRS Antennas 5 & 8

**Table 8-57**  
**NR Band n41 SRS Antennas 5 & 8 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 100 MHz Bandwidth**

NR Band n41 100 MHz Bandwidth	
Channel	
Antenna	518598 (2592.99 MHz)
	Conducted Power [dBm]
SRS #2 Ant 5	22.23
SRS #3 Ant 8	22.31

**Table 8-58**  
**NR Band n41 SRS Antennas 5 & 8 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 100 MHz Bandwidth**

NR Band n41 100 MHz Bandwidth	
Channel	
Antenna	518598 (2592.99 MHz)
	Conducted Power [dBm]
SRS #2 Ant 5	10.32
SRS #3 Ant 8	10.25

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### 8.3.1 NR Band n77 Antenna 2

**Table 8-59**  
**NR Band n77 Antenna 2 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 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 $\pi/2$ BPSK	1	1	23.73	23.86	0	0.0
	1	137	24.18	24.02		0.0
	1	271	24.17	24.13		0.0
	135	0	23.41	23.45	0-0.5	0.5
	135	69	24.06	24.02	0	0.0
	135	138	23.57	23.49	0-0.5	0.5
	270	0	23.51	23.51		0.5
DFT-s-OFDM QPSK	1	1	23.68	23.93	0	0.0
	1	137	24.11	24.06		0.0
	1	271	<b>24.18</b>	24.14		0.0
	135	0	22.92	22.94	0-1	1.0
	135	69	<b>24.03</b>	23.98	0	0.0
	135	138	23.05	22.98	0-1	1.0
	270	0	22.96	22.95		1.0
DFT-s-OFDM 16QAM	1	1	22.54	22.97	0-1	1.0
CP-OFDM QPSK	1	1	22.42	22.41	0-1.5	1.5

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**Table 8-60  
NR Band n77 Antenna 2 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 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 $\pi/2$ BPSK	1	1	7.47	7.72	0	0.0
	1	137	7.88	7.82		0.0
	1	271	7.82	7.86		0.0
	135	0	7.79	7.70	0-0.5	0.0
	135	69	7.78	7.71	0	0.0
	135	138	7.84	7.83	0-0.5	0.0
	270	0	7.76	7.85		0.0
DFT-s-OFDM QPSK	1	1	7.42	7.70	0	0.0
	1	137	7.77	7.76		0.0
	1	271	7.80	<b>7.90</b>		0.0
	135	0	7.79	7.78	0-1	0.0
	135	69	7.75	7.75	0	0.0
	135	138	7.81	<b>7.83</b>	0-1	0.0
	270	0	7.74	7.75		0.0
DFT-s-OFDM 16QAM	1	1	7.43	7.67	0-1	0.0
CP-OFDM QPSK	1	1	7.50	7.71	0-1.5	0.0

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### 8.3.2 NR Band n77 SRS Antennas 3, 5, & 8

Table 8-61

NR Band n77 SRS Antennas 3, 5, & 8 Measured  $P_{Max}$  for DSI = 3 (Laptop Mode) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth		
Channel		
Antenna	650000 (3750 MHz)	662000 (3930 MHz)
	Conducted Power [dBm]	
SRS #2 Ant 3	25.41	25.50
SRS #3 Ant 5	22.92	23.01
SRS #4 Ant 8	23.45	22.46

Table 8-62

NR Band n77 SRS Antennas 3, 5, & 8 Measured  $P_{Limit}$  for DSI = 6 (Tablet Mode) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth		
Channel		
Modulation	650000 (3750 MHz)	662000 (3930 MHz)
	Conducted Power [dBm]	
SRS #2 Ant 3	7.72	8.00
SRS #3 Ant 5	8.06	8.47
SRS #4 Ant 8	8.30	7.57

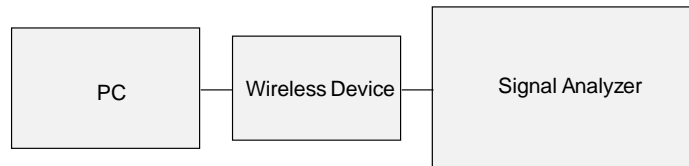


Figure 8-3

Power Measurement Setup – NR

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## 8.4 WLAN Conducted Powers

**Table 8-63**  
2.4 GHz WLAN Maximum Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	19.98	17.16	14.83	15.60
2417	2	19.97	18.97	18.95	18.35
2422	3	20.68	19.82	19.85	19.99
2437	6	20.47	20.64	20.56	20.57
2457	10	20.57	19.98	19.75	19.35
2462	11	19.61	18.72	18.59	18.30

**Table 8-64**  
2.4 GHz WLAN Maximum Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	19.62	17.31	15.68	15.90
2417	2	19.57	18.94	18.83	18.65
2422	3	20.64	19.72	19.78	19.98
2437	6	20.80	20.60	20.47	20.52
2457	10	20.66	19.68	19.62	19.22
2462	11	19.65	18.47	18.45	18.25

**Table 8-65**  
2.4 GHz WLAN Reduced Average RF Power during Tablet Mode – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	12.27	12.30	12.69	12.23
2437	6	12.13	12.14	12.52	12.66
2462	11	12.29	12.30	12.14	12.70

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**Table 8-66**  
**2.4 GHz WLAN Reduced Average RF Power during Tablet Mode – Ant 2**

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	12.27	12.27	12.18	12.22
2437	6	12.20	12.21	12.10	12.13
2462	11	12.26	12.24	12.15	12.27

**Table 8-67**  
**2.4 GHz WLAN Reduced Average RF Power during Tablet Mode**  
**with simultaneous conditions with 5/6 GHz WLAN or WWAN - Ant 1**

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	8.25	8.16	8.06	8.13
2437	6	8.19	8.10	8.12	8.11
2462	11	8.20	8.14	8.06	8.08

**Table 8-68**  
**2.4 GHz WLAN Reduced Average RF Power during Tablet Mode**  
**with simultaneous conditions with 5/6 GHz WLAN or WWAN - Ant 2**

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	7.90	7.79	7.63	7.70
2437	6	7.86	7.76	7.64	7.50
2462	11	7.73	7.64	7.52	7.64

**Table 8-69**  
**2.4 GHz WLAN Reduced Average RF Power during Tablet Mode**  
**with simultaneous conditions with 5 GHz WLAN and WWAN - Ant 1**

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	5.72	5.59	5.70	5.55
2437	6	5.62	5.31	5.57	5.42
2462	11	5.54	5.34	5.49	5.55

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**Table 8-70**  
**2.4 GHz WLAN Reduced Average RF Power during Tablet Mode**  
**with simultaneous conditions with 5 GHz WLAN and WWAN - Ant 2**

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	5.03	5.14	5.27	5.44
2437	6	5.13	5.30	5.49	5.49
2462	11	5.50	5.12	5.35	5.47

**Table 8-71**  
**5 GHz WLAN Maximum Average RF Power – Ant 1**

5GHz (20MHz) Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11a	802.11n	802.11ac	802.11ax
		Average	Average	Average	Average
5180	36	20.67	20.54	20.52	20.52
5200	40	20.64	20.55	20.55	20.49
5220	44	20.68	20.58	20.56	20.56
5240	48	20.54	20.56	20.50	20.56
5260	52	20.89	20.91	20.92	20.99
5280	56	20.89	20.82	20.95	20.99
5300	60	20.76	20.97	20.79	20.98
5320	64	20.95	20.99	20.87	20.99
5500	100	20.99	20.94	20.99	20.99
5600	120	20.70	20.72	20.70	20.64
5620	124	20.73	20.65	20.89	20.66
5680	136	20.55	20.54	20.56	20.58
5720	144	19.55	19.62	19.65	19.65
5745	149	20.56	20.99	20.57	20.99
5785	157	20.96	20.77	20.85	20.75
5825	165	20.94	20.45	20.55	20.80

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**Table 8-72**  
**5 GHz WLAN Maximum Average RF Power – Ant 2**

5GHz (20MHz) Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11a	802.11n	802.11ac	802.11ax
		Average	Average	Average	Average
5180	36	20.85	20.79	20.83	20.84
5200	40	20.87	20.75	20.78	20.79
5220	44	20.79	20.84	20.85	20.87
5240	48	20.86	20.85	20.86	20.80
5260	52	20.67	20.69	20.68	20.61
5280	56	20.77	20.67	20.68	20.64
5300	60	20.64	20.64	20.65	20.69
5320	64	20.58	20.53	20.56	20.50
5500	100	20.69	20.81	20.77	20.64
5600	120	20.99	20.60	20.93	20.65
5620	124	20.99	20.92	20.96	20.55
5680	136	20.53	20.59	20.78	20.48
5720	144	19.65	19.66	19.62	19.60
5745	149	20.71	20.61	20.68	20.60
5785	157	20.59	20.54	20.99	20.52
5825	165	20.92	20.25	20.62	20.97

**Table 8-73**  
**5 GHz WLAN Reduced Average RF Power during Tablet Mode – Ant 1**

5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11ac	802.11ax
		Average	Average
5210	42	9.15	9.33
5290	58	10.02	10.17
5530	106	8.97	9.00
5610	122	8.71	8.54
5690	138	8.47	8.43
5775	155	8.85	8.72

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**Table 8-74**  
**5 GHz WLAN Reduced Average RF Power during Tablet Mode – Ant 2**

5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11ac	802.11ax
		Average	Average
5210	42	9.67	9.72
5290	58	10.00	9.99
5530	106	8.43	8.40
5610	122	8.32	8.37
5690	138	8.22	8.30
5775	155	8.34	8.28

**Table 8-75**  
**5 GHz WLAN Reduced Average RF Power during Tablet with simultaneous conditions with 2.4 GHz WLAN and/or WWAN - Ant 1**

5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11ac	802.11ax
		Average	Average
5210	42	4.29	4.33
5290	58	4.46	4.47
5530	106	2.97	2.99
5610	122	2.96	2.92
5690	138	2.77	2.78
5775	155	2.46	2.48

**Table 8-76**  
**5 GHz WLAN Reduced Average RF Power during Tablet with simultaneous conditions with 2.4 GHz WLAN or WWAN - Ant 2**

5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11ac	802.11ax
		Average	Average
5210	42	5.84	5.87
5290	58	5.89	5.88
5530	106	4.32	4.44
5610	122	4.23	4.30
5690	138	4.18	4.23
5775	155	4.42	4.28

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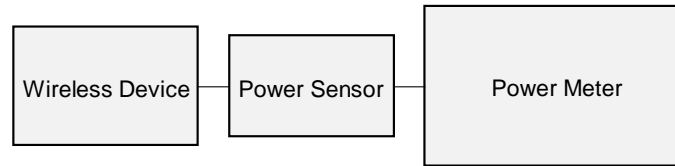
**Table 8-77**

**5 GHz WLAN Reduced Average RF Power during Tablet with simultaneous conditions with 2.4 GHz WLAN and WWAN - Ant 2**

5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11ac	802.11ax
		Average	Average
5210	42	2.64	2.72
5290	58	2.55	2.66
5530	106	1.47	1.49
5610	122	1.20	1.11
5690	138	1.29	1.30
5775	155	1.03	1.10

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 8-4**  
**Power Measurement Setup**

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## 8.5 Bluetooth Conducted Powers

**Table 8-78**  
**Bluetooth Maximum Average RF Power**

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	10.93	12.388
2441	1.0	GFSK	ePA	39	11.10	12.882
2480	1.0	GFSK	ePA	78	10.09	10.209
2402	2.0	$\pi/4$ -DQPSK	ePA	0	8.52	7.112
2441	2.0	$\pi/4$ -DQPSK	ePA	39	8.67	7.362
2480	2.0	$\pi/4$ -DQPSK	ePA	78	7.79	6.012
2402	3.0	8DPSK	ePA	0	8.56	7.178
2441	3.0	8DPSK	ePA	39	8.73	7.464
2480	3.0	8DPSK	ePA	78	7.83	6.067

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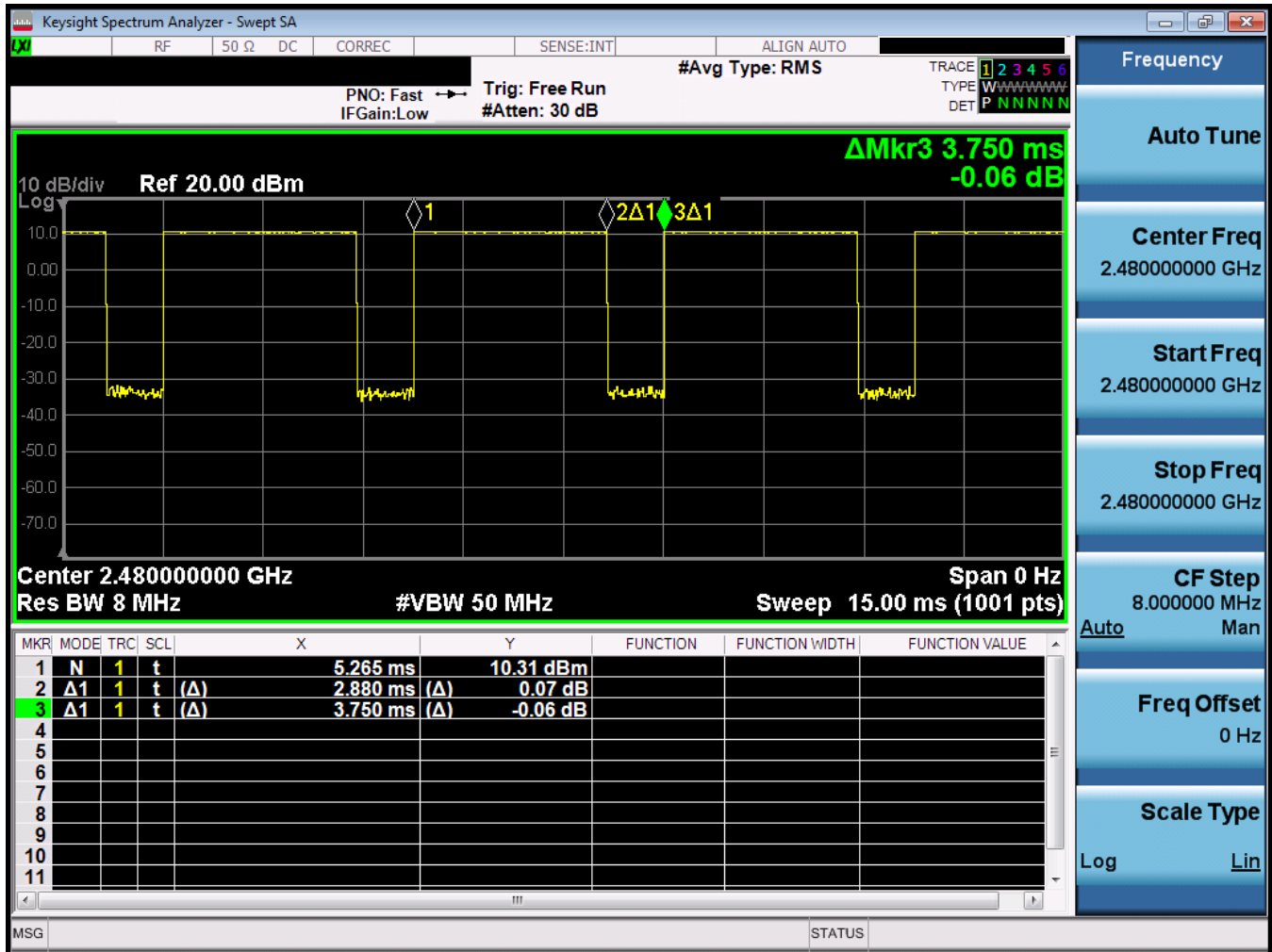


Figure 8-5  
Bluetooth Transmission Plot

Equation 8-1  
Bluetooth Antenna 1 Duty Cycle Calculation

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

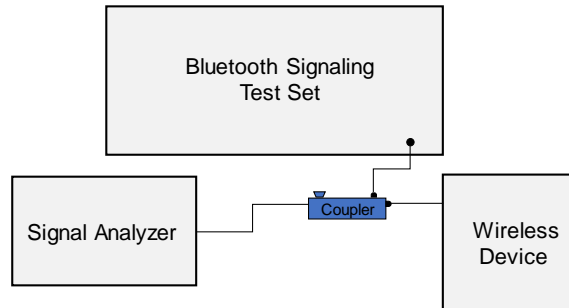


Figure 8-6  
Power Measurement Setup

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# 9 SYSTEM VERIFICATION

## 9.1 Tissue Verification

**Table 9-1  
Measured Body 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 $\epsilon$
04/13/2022	750 Body	21.4	680	0.942	55.099	0.958	55.804	-1.67%	-1.26%
			695	0.948	55.048	0.959	55.745	-1.15%	-1.25%
			700	0.950	55.031	0.959	55.726	-0.94%	-1.25%
			710	0.954	54.988	0.960	55.687	-0.63%	-1.24%
			725	0.959	54.953	0.961	55.629	-0.21%	-1.22%
			750	0.968	54.903	0.964	55.531	0.41%	-1.13%
			770	0.976	54.864	0.965	55.453	1.14%	-1.06%
			785	0.982	54.818	0.966	55.395	1.66%	-1.04%
			800	0.988	54.772	0.967	55.336	2.17%	-1.02%
			680	0.938	54.447	0.958	55.804	-2.09%	-2.43%
695	0.943	54.413	0.959	55.745	-1.67%	-2.39%			
700	0.945	54.400	0.959	55.726	-1.46%	-2.38%			
710	0.948	54.381	0.960	55.687	-1.25%	-2.35%			
725	0.953	54.349	0.961	55.629	-0.83%	-2.30%			
750	0.963	54.309	0.964	55.531	-0.10%	-2.20%			
770	0.971	54.262	0.965	55.453	0.62%	-2.15%			
785	0.977	54.209	0.966	55.395	1.14%	-2.14%			
800	0.983	54.164	0.967	55.336	1.65%	-2.12%			
700	0.912	55.937	0.959	55.726	-4.90%	0.38%			
710	0.916	55.925	0.960	55.687	-4.58%	0.43%			
725	0.921	55.918	0.961	55.629	-4.16%	0.52%			
750	0.929	55.884	0.964	55.531	-3.63%	0.64%			
770	0.936	55.829	0.965	55.453	-3.01%	0.68%			
785	0.941	55.799	0.966	55.395	-2.59%	0.73%			
800	0.947	55.779	0.967	55.336	-2.07%	0.80%			
680	0.930	54.959	0.958	55.804	-2.92%	-1.51%			
695	0.935	54.939	0.959	55.745	-2.50%	-1.45%			
700	0.937	54.934	0.959	55.726	-2.29%	-1.42%			
710	0.940	54.926	0.960	55.687	-2.08%	-1.37%			
725	0.946	54.913	0.961	55.629	-1.56%	-1.29%			
750	0.954	54.873	0.964	55.531	-1.04%	-1.18%			
770	0.962	54.830	0.965	55.453	-0.31%	-1.12%			
785	0.968	54.799	0.966	55.395	0.21%	-1.08%			
800	0.975	54.773	0.967	55.336	0.83%	-1.02%			
680	0.923	53.123	0.958	55.804	-3.65%	-4.80%			
695	0.928	53.089	0.959	55.745	-3.23%	-4.76%			
700	0.930	53.080	0.959	55.726	-3.02%	-4.75%			
710	0.934	53.059	0.960	55.687	-2.71%	-4.72%			
725	0.940	53.037	0.961	55.629	-2.19%	-4.66%			
750	0.949	52.983	0.964	55.531	-1.56%	-4.59%			
770	0.956	52.922	0.965	55.453	-0.93%	-4.56%			
785	0.961	52.886	0.966	55.395	-0.52%	-4.53%			
800	0.967	52.854	0.967	55.336	0.00%	-4.49%			
680	0.913	55.541	0.958	55.804	-4.70%	-0.47%			
695	0.918	55.520	0.959	55.745	-4.28%	-0.40%			
700	0.919	55.511	0.959	55.726	-4.17%	-0.39%			
710	0.923	55.488	0.960	55.687	-3.85%	-0.36%			
725	0.928	55.435	0.961	55.629	-3.43%	-0.35%			
750	0.937	55.368	0.964	55.531	-2.80%	-0.29%			
770	0.944	55.325	0.965	55.453	-2.18%	-0.23%			
785	0.950	55.306	0.966	55.395	-1.66%	-0.16%			
800	0.955	55.286	0.967	55.336	-1.24%	-0.09%			
680	0.929	55.024	0.958	55.804	-3.03%	-1.40%			
695	0.935	54.991	0.959	55.745	-2.50%	-1.35%			
700	0.937	54.980	0.959	55.726	-2.29%	-1.34%			
710	0.940	54.960	0.960	55.687	-2.08%	-1.31%			
725	0.945	54.929	0.961	55.629	-1.66%	-1.26%			
750	0.954	54.867	0.964	55.531	-1.04%	-1.20%			
770	0.961	54.813	0.965	55.453	-0.41%	-1.15%			
785	0.967	54.786	0.966	55.395	0.10%	-1.10%			
800	0.972	54.765	0.967	55.336	0.52%	-1.03%			
815	1.005	54.226	0.968	55.271	3.82%	-1.89%			
820	1.007	54.219	0.969	55.258	3.92%	-1.88%			
835	1.014	54.210	0.970	55.200	4.54%	-1.79%			
850	1.019	54.193	0.988	55.154	3.14%	-1.74%			
815	0.949	52.836	0.968	55.271	-1.96%	-4.22%			
820	0.954	52.887	0.969	55.258	-1.55%	-4.20%			
835	0.970	52.737	0.970	55.200	0.00%	-4.46%			
850	0.986	52.568	0.988	55.154	-0.20%	-4.69%			
815	0.947	52.956	0.968	55.271	-2.17%	-4.19%			
820	0.953	52.908	0.969	55.258	-1.65%	-4.25%			
835	0.968	52.761	0.970	55.200	-0.21%	-4.42%			
850	0.983	52.607	0.988	55.154	-0.51%	-4.62%			
815	0.945	53.086	0.968	55.271	-2.38%	-3.95%			
820	0.950	53.037	0.969	55.258	-1.96%	-4.02%			
835	0.965	52.884	0.970	55.200	-0.52%	-4.20%			
850	0.980	52.736	0.988	55.154	-0.81%	-4.38%			
815	0.920	56.016	0.968	55.271	-4.96%	1.35%			
820	0.926	55.976	0.969	55.258	-4.44%	1.30%			
835	0.942	55.850	0.970	55.200	-2.89%	1.18%			
850	0.957	55.709	0.988	55.154	-3.14%	1.01%			

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**Table 9-2  
Measured Body 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 $\epsilon$
05/24/2022	835 Body	19.8	815	0.971	57.640	0.968	55.271	0.31%	4.29%
			820	0.976	57.595	0.969	55.258	0.72%	4.23%
			835	0.992	57.450	0.970	55.200	2.27%	4.08%
			850	1.008	57.308	0.988	55.154	2.02%	3.91%
05/09/2022	1750 Body	20.9	1710	1.438	52.553	1.463	53.537	-1.71%	-1.84%
			1720	1.447	52.525	1.469	53.511	-1.50%	-1.84%
			1745	1.469	52.469	1.485	53.445	-1.08%	-1.83%
			1750	1.474	52.459	1.488	53.432	-0.94%	-1.82%
			1770	1.493	52.416	1.501	53.379	-0.53%	-1.80%
			1790	1.513	52.371	1.514	53.326	-0.07%	-1.79%
			1710	1.393	52.234	1.463	53.537	-4.78%	-2.43%
05/16/2022	1750 Body	18.6	1720	1.402	52.216	1.469	53.511	-4.56%	-2.42%
			1745	1.424	52.166	1.485	53.445	-4.11%	-2.39%
			1750	1.429	52.151	1.488	53.432	-3.97%	-2.40%
			1770	1.449	52.089	1.501	53.379	-3.46%	-2.42%
05/24/2022	1750 Body	21.2	1790	1.467	52.019	1.514	53.326	-3.10%	-2.45%
			1710	1.487	51.858	1.463	53.537	1.64%	-3.14%
			1720	1.494	51.848	1.469	53.511	1.70%	-3.11%
			1745	1.511	51.824	1.485	53.445	1.75%	-3.03%
			1750	1.514	51.818	1.488	53.432	1.75%	-3.02%
05/25/2022	1750 Body	20.7	1770	1.527	51.790	1.501	53.379	1.73%	-2.98%
			1790	1.542	51.762	1.514	53.326	1.85%	-2.93%
			1710	1.475	51.273	1.463	53.537	0.82%	-4.23%
			1720	1.485	51.230	1.469	53.511	1.09%	-4.26%
			1745	1.509	51.141	1.485	53.445	1.62%	-4.31%
05/03/2022	1900 Body	23.2	1750	1.514	51.127	1.488	53.432	1.75%	-4.31%
			1770	1.534	51.075	1.501	53.379	2.20%	-4.32%
			1790	1.557	51.032	1.514	53.326	2.84%	-4.30%
			1850	1.512	51.175	1.520	53.300	-0.53%	-3.99%
05/05/2022	1900 Body	23.2	1860	1.523	51.137	1.520	53.300	0.20%	-4.06%
			1880	1.545	51.067	1.520	53.300	1.64%	-4.19%
			1900	1.567	51.001	1.520	53.300	3.09%	-4.31%
			1905	1.573	50.985	1.520	53.300	3.49%	-4.34%
			1910	1.578	50.969	1.520	53.300	3.82%	-4.37%
05/05/2022	1900 Body	23.2	1850	1.488	53.004	1.520	53.300	-2.11%	-0.56%
			1860	1.498	52.973	1.520	53.300	-1.45%	-0.61%
			1880	1.519	52.918	1.520	53.300	-0.07%	-0.72%
			1900	1.539	52.857	1.520	53.300	1.25%	-0.83%
05/10/2022	1900 Body	23.5	1905	1.544	52.841	1.520	53.300	1.58%	-0.86%
			1910	1.549	52.825	1.520	53.300	1.91%	-0.89%
			1850	1.519	52.272	1.520	53.300	-0.07%	-1.93%
			1860	1.530	52.233	1.520	53.300	0.66%	-2.00%
			1880	1.553	52.178	1.520	53.300	2.17%	-2.11%
05/10/2022	1900 Body	20.8	1900	1.575	52.129	1.520	53.300	3.62%	-2.20%
			1905	1.580	52.110	1.520	53.300	3.95%	-2.23%
			1850	1.585	52.092	1.520	53.300	4.28%	-2.27%
			1850	1.474	52.020	1.520	53.300	-3.03%	-2.40%
			1860	1.482	51.981	1.520	53.300	-2.50%	-2.47%
05/12/2022	1900 Body	23.4	1880	1.498	51.903	1.520	53.300	-1.45%	-2.62%
			1900	1.514	51.847	1.520	53.300	-0.39%	-2.73%
			1905	1.518	51.837	1.520	53.300	-0.13%	-2.74%
			1910	1.523	51.827	1.520	53.300	0.20%	-2.76%
			1850	1.523	52.241	1.520	53.300	0.20%	-1.99%
03/17/2022	2450 Body	22.9	1860	1.534	52.198	1.520	53.300	0.92%	-2.07%
			1880	1.556	52.121	1.520	53.300	2.37%	-2.21%
			1900	1.577	52.056	1.520	53.300	3.75%	-2.33%
			1905	1.582	52.042	1.520	53.300	4.08%	-2.36%
			1910	1.588	52.028	1.520	53.300	4.47%	-2.39%
			2400	1.987	52.536	1.902	52.767	4.47%	-0.44%
			2450	2.033	52.450	1.950	52.700	4.26%	-0.47%
			2480	2.056	52.408	1.993	52.662	3.16%	-0.48%
			2500	2.073	52.368	2.021	52.636	2.57%	-0.51%
			2510	2.082	52.350	2.035	52.623	2.31%	-0.52%
			2535	2.105	52.310	2.071	52.592	1.64%	-0.54%
			2550	2.118	52.296	2.092	52.573	1.24%	-0.53%
			2560	2.126	52.289	2.106	52.560	0.95%	-0.52%
04/06/2022	2450 Body	24.6	2600	2.158	52.242	2.163	52.509	-0.23%	-0.51%
			2650	2.205	52.155	2.234	52.445	-1.30%	-0.55%
			2680	2.232	52.133	2.277	52.407	-1.98%	-0.52%
			2700	2.248	52.114	2.305	52.382	-2.47%	-0.51%
			2400	1.835	51.247	1.902	52.767	-3.52%	-2.88%
			2450	1.899	51.066	1.950	52.700	-2.62%	-3.10%
			2480	1.936	50.966	1.993	52.662	-2.86%	-3.22%
			2500	1.961	50.900	2.021	52.636	-2.97%	-3.30%
			2510	1.974	50.869	2.035	52.623	-3.00%	-3.33%
			2535	2.006	50.785	2.071	52.592	-3.14%	-3.44%

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**Table 9-3  
Measured Body 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 $\epsilon$			
04/28/2022	2450 Body	20.8	2400	1.989	51.272	1.902	52.767	-4.57%	-2.63%			
			2450	2.037	51.200	1.950	52.700	-4.46%	-2.85%			
			2480	2.064	51.151	1.993	52.662	-3.56%	-2.67%			
			2500	2.082	51.121	2.021	52.636	-3.02%	-2.68%			
			2510	2.092	51.108	2.035	52.623	-2.80%	-2.68%			
			2535	2.116	51.070	2.071	52.592	-2.17%	-2.69%			
			2550	2.131	51.042	2.092	52.573	-1.86%	-2.91%			
			2560	2.141	51.025	2.106	52.560	-1.66%	-2.92%			
			2600	2.179	50.962	2.163	52.509	-0.74%	-2.95%			
			2650	2.227	50.858	2.234	52.445	-0.31%	-3.03%			
			2680	2.256	50.805	2.277	52.407	-0.92%	-3.06%			
			2700	2.273	50.770	2.305	52.382	-1.39%	-3.06%			
			05/01/2022	2450 Body	24.0	2300	1.865	50.378	1.809	52.900	3.10%	-4.77%
						2310	1.872	50.356	1.816	52.887	3.08%	-4.79%
2320	1.881	50.340				1.826	52.873	3.01%	-4.79%			
2400	1.944	50.239				1.902	52.767	2.21%	-4.79%			
2450	1.989	50.192				1.950	52.700	2.00%	-4.76%			
2480	2.009	50.142				1.993	52.662	0.80%	-4.79%			
2500	2.025	50.087				2.021	52.636	0.20%	-4.84%			
2510	2.034	50.070				2.035	52.623	-0.05%	-4.85%			
2535	2.058	50.052				2.071	52.592	-0.63%	-4.83%			
2550	2.072	50.044				2.092	52.573	-0.96%	-4.81%			
2560	2.079	50.029				2.106	52.560	-1.28%	-4.82%			
2600	2.109	49.944				2.163	52.509	-2.50%	-4.68%			
2650	2.154	49.886				2.234	52.445	-3.58%	-4.88%			
2680	2.174	49.824				2.277	52.407	-4.52%	-4.93%			
2700	2.191	49.785	2.305	52.382	-4.95%	-4.96%						
05/04/2022	2450 Body	24.9	2300	1.898	51.895	1.809	52.900	4.92%	-1.90%			
			2310	1.906	51.876	1.816	52.887	4.96%	-1.91%			
			2320	1.914	51.862	1.826	52.873	4.82%	-1.91%			
			2400	1.982	51.764	1.902	52.767	4.21%	-1.90%			
			2450	2.024	51.689	1.950	52.700	3.79%	-1.92%			
			2480	2.051	51.659	1.993	52.662	2.91%	-1.90%			
			2500	2.067	51.637	2.021	52.636	2.28%	-1.90%			
			2510	2.075	51.623	2.035	52.623	1.97%	-1.90%			
			2535	2.098	51.583	2.071	52.592	1.30%	-1.92%			
			2550	2.114	51.559	2.092	52.573	1.05%	-1.93%			
			2560	2.124	51.544	2.106	52.560	0.85%	-1.93%			
			2600	2.158	51.505	2.163	52.509	-0.23%	-1.91%			
			2650	2.206	51.400	2.234	52.445	-1.25%	-1.99%			
			2680	2.234	51.369	2.277	52.407	-1.89%	-1.98%			
2700	2.248	51.340	2.305	52.382	-2.47%	-1.99%						
05/05/2022	2450 Body	19.8	2300	1.804	53.801	1.809	52.900	-0.28%	1.70%			
			2310	1.813	53.787	1.816	52.887	-0.17%	1.70%			
			2320	1.822	53.773	1.826	52.873	-0.22%	1.70%			
			2400	1.897	53.689	1.902	52.767	-0.26%	1.75%			
			2450	1.947	53.611	1.950	52.700	-0.15%	1.73%			
			2480	1.974	53.566	1.993	52.662	-0.95%	1.72%			
			2500	1.993	53.530	2.021	52.636	-1.39%	1.70%			
			2510	2.003	53.513	2.035	52.623	-1.57%	1.69%			
			2535	2.028	53.478	2.071	52.592	-2.08%	1.68%			
			2550	2.043	53.453	2.092	52.573	-2.34%	1.67%			
			2560	2.054	53.436	2.106	52.560	-2.47%	1.67%			
			2600	2.094	53.362	2.163	52.509	-3.19%	1.62%			
			2650	2.143	53.272	2.234	52.445	-4.07%	1.58%			
			2680	2.174	53.217	2.277	52.407	-4.52%	1.55%			
2700	2.193	53.181	2.305	52.382	-4.86%	1.53%						
05/07/2022	2450 Body	24.5	2300	1.759	51.693	1.809	52.900	-2.76%	-2.28%			
			2310	1.772	51.656	1.816	52.887	-2.42%	-2.33%			
			2320	1.786	51.621	1.826	52.873	-2.19%	-2.37%			
			2400	1.892	51.349	1.902	52.767	-0.53%	-2.69%			
			2450	1.960	51.167	1.950	52.700	0.51%	-2.91%			
			2480	2.001	51.064	1.993	52.662	0.40%	-3.03%			
			2500	2.027	50.982	2.021	52.636	0.30%	-3.14%			
			2510	2.041	50.945	2.035	52.623	0.29%	-3.19%			
			2535	2.075	50.841	2.071	52.592	0.19%	-3.33%			
			2550	2.096	50.779	2.092	52.573	0.19%	-3.41%			
			2560	2.110	50.743	2.106	52.560	0.19%	-3.46%			
			2600	2.163	50.606	2.163	52.509	0.00%	-3.62%			
			2650	2.231	50.406	2.234	52.445	-0.13%	-3.89%			
			2680	2.271	50.298	2.277	52.407	-0.26%	-4.02%			
2700	2.297	50.224	2.305	52.382	-0.35%	-4.12%						
05/10/2022	2450 Body	24.0	2300	1.738	51.740	1.809	52.900	-3.92%	-2.19%			
			2310	1.750	51.704	1.816	52.887	-3.63%	-2.24%			
			2320	1.762	51.668	1.826	52.873	-3.50%	-2.28%			
			2400	1.866	51.425	1.902	52.767	-1.89%	-2.54%			
			2450	1.934	51.252	1.950	52.700	-0.82%	-2.75%			
			2480	1.975	51.153	1.993	52.662	-0.90%	-2.87%			
			2500	2.001	51.079	2.021	52.636	-0.99%	-2.96%			
			2510	2.014	51.042	2.035	52.623	-1.03%	-3.00%			
			2535	2.049	50.947	2.071	52.592	-1.06%	-3.13%			
			2550	2.071	50.892	2.092	52.573	-1.00%	-3.20%			
			2560	2.085	50.858	2.106	52.560	-1.00%	-3.24%			
			2600	2.138	50.710	2.163	52.509	-1.16%	-3.43%			
			2650	2.208	50.508	2.234	52.445	-1.16%	-3.69%			
			2680	2.248	50.406	2.277	52.407	-1.27%	-3.82%			
2700	2.274	50.328	2.305	52.382	-1.34%	-3.92%						

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**Table 9-4  
Measured Body 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 $\epsilon$
05/11/2022	2450 Body	21.3	2300	1.787	52.247	1.809	52.900	-1.22%	-1.23%
			2310	1.801	52.218	1.816	52.887	-0.83%	-1.26%
			2320	1.815	52.192	1.826	52.873	-0.60%	-1.29%
			2400	1.921	51.899	1.902	52.767	1.00%	-1.64%
			2450	1.988	51.748	1.950	52.700	1.95%	-1.81%
			2480	2.028	51.595	1.993	52.662	1.76%	-2.03%
			2500	2.058	51.519	2.021	52.636	1.83%	-2.12%
			2510	2.073	51.498	2.035	52.623	1.87%	-2.14%
			2535	2.108	51.428	2.071	52.592	1.79%	-2.21%
			2550	2.126	51.362	2.092	52.573	1.63%	-2.30%
			2560	2.139	51.311	2.106	52.560	1.57%	-2.38%
			2600	2.197	51.137	2.163	52.509	1.57%	-2.61%
			2650	2.264	50.952	2.234	52.445	1.34%	-2.85%
			2680	2.306	50.808	2.277	52.407	1.27%	-3.05%
			2700	2.337	50.741	2.305	52.382	1.39%	-3.13%
			04/27/2022	3600 Body	20.0	3300	2.945	49.800	3.080
3350	3.006	49.721				3.139	51.525	-4.24%	-3.50%
3450	3.113	49.561				3.256	51.389	-4.39%	-3.56%
3500	3.168	49.483				3.314	51.321	-4.41%	-3.58%
3550	3.222	49.410				3.372	51.254	-4.45%	-3.60%
3560	3.234	49.397				3.384	51.240	-4.43%	-3.60%
3600	3.280	49.335				3.431	51.186	-4.40%	-3.62%
3650	3.334	49.255				3.489	51.118	-4.44%	-3.64%
3690	3.380	49.160				3.536	51.063	-4.41%	-3.73%
3700	3.393	49.159				3.548	51.050	-4.37%	-3.70%
3750	3.447	49.093				3.606	50.982	-4.41%	-3.71%
3900	3.623	48.814				3.781	50.779	-4.18%	-3.87%
3930	3.668	48.729				3.816	50.738	-3.88%	-3.96%
4100	3.888	48.445				4.015	50.507	-3.16%	-4.08%
4150	3.955	48.328				4.073	50.439	-2.90%	-4.19%
05/02/2022	3600 Body	20.0				3300	2.960	51.552	3.080
			3350	3.024	51.482	3.139	51.525	-3.66%	-0.08%
			3450	3.138	51.324	3.256	51.389	-3.62%	-0.13%
			3500	3.196	51.242	3.314	51.321	-3.56%	-0.15%
			3550	3.255	51.177	3.372	51.254	-3.47%	-0.15%
			3560	3.266	51.162	3.384	51.240	-3.49%	-0.15%
			3600	3.315	51.102	3.431	51.186	-3.38%	-0.16%
			3650	3.373	51.031	3.489	51.118	-3.32%	-0.17%
			3690	3.421	50.941	3.536	51.063	-3.25%	-0.24%
			3700	3.434	50.933	3.548	51.050	-3.21%	-0.23%
			3750	3.491	50.873	3.606	50.982	-3.19%	-0.21%
			3900	3.682	50.590	3.781	50.779	-2.62%	-0.37%
			3930	3.721	50.511	3.816	50.738	-2.49%	-0.45%
			4100	3.953	50.199	4.015	50.507	-1.54%	-0.61%
			4150	4.027	50.113	4.073	50.439	-1.13%	-0.65%
			05/05/2022	3600 Body	20.5	3300	2.960	51.178	3.080
3350	3.018	51.090				3.139	51.525	-3.85%	-0.84%
3450	3.133	50.917				3.256	51.389	-3.78%	-0.92%
3500	3.191	50.808				3.314	51.321	-3.71%	-1.00%
3550	3.248	50.740				3.372	51.254	-3.68%	-1.00%
3560	3.259	50.726				3.384	51.240	-3.69%	-1.00%
3600	3.307	50.656				3.431	51.186	-3.61%	-1.04%
3650	3.365	50.587				3.489	51.118	-3.55%	-1.04%
3690	3.414	50.495				3.536	51.063	-3.45%	-1.11%
3700	3.425	50.490				3.548	51.050	-3.47%	-1.10%
3750	3.481	50.420				3.606	50.982	-3.47%	-1.10%
3900	3.674	50.160				3.781	50.779	-2.83%	-1.22%
3930	3.712	50.093				3.816	50.738	-2.73%	-1.27%
4100	3.938	49.833				4.015	50.507	-1.92%	-1.33%
4150	4.012	49.739				4.073	50.439	-1.50%	-1.39%
05/30/2022	3600 Body	20.9				3300	2.976	49.944	3.080
			3350	3.033	49.895	3.139	51.525	-3.38%	-3.16%
			3450	3.151	49.707	3.256	51.389	-3.22%	-3.27%
			3500	3.207	49.625	3.314	51.321	-3.23%	-3.30%
			3550	3.264	49.533	3.372	51.254	-3.20%	-3.36%
			3560	3.276	49.523	3.384	51.240	-3.19%	-3.35%
			3600	3.322	49.464	3.431	51.186	-3.18%	-3.36%
			3650	3.379	49.370	3.489	51.118	-3.15%	-3.42%
			3690	3.424	49.291	3.536	51.063	-3.17%	-3.47%
			3700	3.437	49.278	3.548	51.050	-3.13%	-3.47%
			3750	3.494	49.195	3.606	50.982	-3.11%	-3.51%
			3900	3.677	48.875	3.781	50.779	-2.75%	-3.75%
			3930	3.717	48.775	3.816	50.738	-2.59%	-3.87%
			4100	3.947	48.458	4.015	50.507	-1.69%	-4.06%
			4150	4.013	48.370	4.073	50.439	-1.47%	-4.10%

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**Table 9-5  
Measured Body 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 $\epsilon$
04/04/2022	5200-5800 Body	21.5	5180	5.357	47.844	5.276	48.041	1.42%	-3.44%
			5190	5.373	47.811	5.288	49.028	1.61%	-2.46%
			5200	5.387	47.783	5.299	49.014	1.66%	-2.51%
			5210	5.401	47.763	5.311	49.001	1.69%	-2.53%
			5220	5.418	47.733	5.323	48.987	1.78%	-2.56%
			5240	5.447	47.703	5.346	48.960	1.89%	-2.57%
			5250	5.461	47.688	5.358	48.947	1.92%	-2.61%
			5260	5.473	47.640	5.369	48.933	1.94%	-2.64%
			5270	5.488	47.629	5.381	48.919	1.95%	-2.64%
			5280	5.499	47.629	5.393	48.906	1.97%	-2.61%
			5290	5.510	47.616	5.404	48.892	1.96%	-2.61%
			5300	5.524	47.585	5.416	48.879	1.99%	-2.65%
			5310	5.541	47.558	5.428	48.865	2.08%	-2.67%
			5320	5.560	47.534	5.439	48.851	2.22%	-2.70%
			5500	5.817	47.181	5.650	48.607	2.96%	-2.93%
			5510	5.833	47.159	5.661	48.594	3.04%	-2.95%
			5520	5.848	47.133	5.673	48.580	3.10%	-2.98%
			5530	5.861	47.114	5.685	48.566	3.10%	-2.99%
			5540	5.874	47.093	5.696	48.553	3.19%	-3.01%
			5550	5.889	47.077	5.708	48.539	3.17%	-3.01%
			5560	5.904	47.072	5.720	48.526	3.22%	-3.00%
			5580	5.929	47.036	5.743	48.499	3.24%	-3.02%
			5600	5.957	46.992	5.766	48.471	3.31%	-3.05%
			5610	5.971	46.972	5.778	48.458	3.34%	-3.07%
			5620	5.989	46.957	5.790	48.444	3.44%	-3.07%
			5640	6.020	46.942	5.813	48.417	3.56%	-3.05%
			5650	6.047	46.979	5.837	48.390	3.60%	-3.12%
			5670	6.064	46.847	5.848	48.376	3.69%	-3.17%
			5680	6.081	46.813	5.860	48.363	3.77%	-3.19%
			5690	6.096	46.810	5.872	48.349	3.81%	-3.16%
			5700	6.112	46.798	5.883	48.336	3.89%	-3.16%
			5710	6.129	46.777	5.895	48.322	3.97%	-3.20%
			5720	6.142	46.751	5.907	48.309	3.98%	-3.23%
			5745	6.177	46.706	5.936	48.275	4.06%	-3.25%
			5750	6.188	46.692	5.942	48.268	4.09%	-3.27%
			5755	6.193	46.680	5.947	48.261	4.14%	-3.28%
			5765	6.205	46.662	5.959	48.248	4.13%	-3.29%
			5775	6.219	46.652	5.971	48.234	4.15%	-3.28%
			5785	6.236	46.635	5.982	48.220	4.25%	-3.29%
			5795	6.254	46.609	5.994	48.207	4.34%	-3.31%
			5800	6.263	46.596	6.000	48.200	4.38%	-3.33%
			5805	6.270	46.583	6.006	48.193	4.40%	-3.34%
			5825	6.289	46.575	6.029	48.166	4.48%	-3.30%
			5835	6.316	46.562	6.042	48.130	4.57%	-3.26%
			5845	6.335	46.542	6.054	48.110	4.61%	-3.26%
			5855	6.343	46.500	6.066	48.093	4.57%	-3.31%
			5865	6.353	46.464	6.077	48.080	4.54%	-3.36%
			5875	6.370	46.438	6.088	48.067	4.63%	-3.39%
			5885	6.389	46.429	6.100	48.053	4.74%	-3.38%
			5905	6.425	46.404	6.122	48.027	4.95%	-3.38%
5180	5.171	47.397	5.276	49.041	-1.99%	-3.35%			
5190	5.184	47.377	5.288	49.028	-1.97%	-3.37%			
5200	5.194	47.349	5.299	49.014	-1.98%	-3.40%			
5210	5.209	47.315	5.311	49.001	-1.92%	-3.44%			
5220	5.226	47.290	5.323	48.987	-1.82%	-3.46%			
5240	5.257	47.254	5.346	48.960	-1.66%	-3.48%			
5250	5.272	47.237	5.358	48.947	-1.61%	-3.49%			
5260	5.290	47.223	5.369	48.933	-1.47%	-3.49%			
5270	5.305	47.198	5.381	48.919	-1.41%	-3.52%			
5280	5.319	47.173	5.393	48.906	-1.37%	-3.54%			
5290	5.332	47.158	5.404	48.892	-1.33%	-3.55%			
5300	5.348	47.144	5.416	48.879	-1.26%	-3.55%			
5310	5.361	47.128	5.428	48.865	-1.23%	-3.56%			
5320	5.371	47.105	5.439	48.851	-1.25%	-3.57%			
5500	5.640	46.785	5.650	48.607	-0.18%	-3.75%			
5510	5.656	46.772	5.661	48.594	-0.09%	-3.75%			
5520	5.673	46.771	5.673	48.580	0.00%	-3.72%			
5530	5.685	46.766	5.685	48.566	0.00%	-3.71%			
5540	5.695	46.749	5.696	48.553	-0.02%	-3.72%			
5550	5.708	46.714	5.708	48.539	-0.04%	-3.76%			
5560	5.718	46.690	5.720	48.526	-0.03%	-3.78%			
5580	5.748	46.638	5.743	48.499	0.09%	-3.84%			
5600	5.783	46.603	5.766	48.471	0.29%	-3.85%			
5610	5.801	46.596	5.778	48.458	0.40%	-3.84%			
5620	5.819	46.583	5.790	48.444	0.50%	-3.84%			
5640	5.844	46.558	5.813	48.417	0.53%	-3.84%			
5650	5.865	46.519	5.837	48.390	0.48%	-3.87%			
5670	5.873	46.493	5.848	48.376	0.43%	-3.89%			
5680	5.885	46.474	5.860	48.363	0.43%	-3.91%			
5690	5.901	46.445	5.872	48.349	0.49%	-3.94%			
5700	5.919	46.420	5.883	48.336	0.61%	-3.96%			
5710	5.935	46.398	5.895	48.322	0.68%	-3.98%			
5720	5.951	46.386	5.907	48.309	0.74%	-3.98%			
5745	5.989	46.346	5.936	48.275	0.89%	-4.00%			
5750	5.995	46.338	5.942	48.268	0.89%	-4.00%			
5755	5.999	46.334	5.947	48.261	0.97%	-3.99%			
5765	6.012	46.315	5.959	48.248	0.89%	-4.01%			
5775	6.028	46.287	5.971	48.234	0.95%	-4.04%			
5785	6.045	46.254	5.982	48.220	1.05%	-4.08%			
5795	6.060	46.225	5.994	48.207	1.10%	-4.11%			
5800	6.066	46.213	6.000	48.200	1.10%	-4.12%			
5805	6.072	46.201	6.006	48.193	1.10%	-4.13%			
5825	6.104	46.175	6.029	48.166	1.24%	-4.13%			
5835	6.121	46.164	6.042	48.130	1.31%	-4.08%			
5845	6.135	46.144	6.054	48.110	1.34%	-4.09%			
5855	6.149	46.111	6.066	48.093	1.37%	-4.12%			
5865	6.159	46.084	6.077	48.080	1.35%	-4.15%			
5875	6.172	46.061	6.088	48.067	1.38%	-4.17%			
5885	6.184	46.034	6.100	48.053	1.38%	-4.20%			
5905	6.208	45.993	6.122	48.027	1.40%	-4.24%			

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.

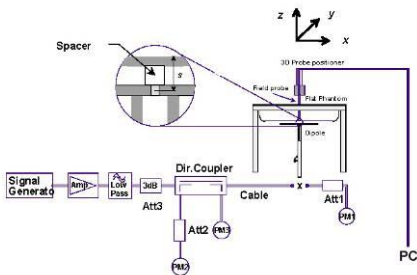
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## 9.2 Test System Verification

Prior to SAR assessment, the system is verified to  $\pm 10\%$  of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in the SAR System Validation Appendix.

**Table 9-6  
System Verification Results – 1g**

System Verification TARGET & MEASURED												
SAR System	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp. (C)	Liquid Temp. (C)	Input Power (W)	Source SN	Probe SN	Measured SAR <sub>1g</sub> (W/kg)	1W Target SAR <sub>1g</sub> (W/kg)	1W Normalized SAR <sub>1g</sub> (W/kg)	Deviation <sub>1g</sub> (%)
S	750	BODY	04/13/2022	22.9	21.4	0.20	1054	7552	1.800	8.63	9.000	4.29%
S	750	BODY	04/15/2022	23.1	22.3	0.20	1054	7552	1.790	8.63	8.950	3.71%
AM6	750	BODY	04/27/2022	22.5	23.4	0.20	1057	7416	1.690	8.64	8.450	-2.20%
AM6	750	BODY	05/02/2022	22.9	21.7	0.20	1057	7416	1.630	8.64	8.150	-5.67%
AM4	750	BODY	05/03/2022	22.4	21.8	0.20	1057	3837	1.840	8.64	9.200	6.48%
AM4	750	BODY	05/16/2022	25.0	21.3	0.20	1097	3837	1.750	8.41	8.750	4.04%
AM4	750	BODY	05/18/2022	23.3	21.5	0.20	1097	3837	1.730	8.41	8.650	2.85%
S	835	BODY	04/27/2022	22.2	21.6	0.20	4d132	7552	2.070	9.81	10.350	5.50%
AM1	835	BODY	04/27/2022	21.5	21.9	0.20	4d040	7639	2.000	9.53	10.000	4.93%
AM1	835	BODY	05/04/2022	22.5	21.0	0.20	4d040	7639	2.010	9.53	10.050	5.46%
D	835	BODY	05/23/2022	22.1	21.5	0.20	4d133	7571	2.040	9.69	10.200	5.26%
AM1	850	BODY	05/06/2022	22.7	22.0	0.20	1010	7639	2.070	9.97	10.350	3.81%
AM7	850	BODY	05/24/2022	20.7	20.1	0.20	1009	7674	2.080	9.90	10.400	5.05%
AM6	1750	BODY	05/09/2022	22.3	20.5	0.10	1104	7532	3.730	36.30	37.300	2.75%
AM6	1750	BODY	05/16/2022	20.2	20.4	0.10	1104	7532	3.800	36.30	38.000	4.68%
L	1750	BODY	05/24/2022	23.2	21.3	0.10	1008	7670	3.930	37.80	39.300	3.97%
AM6	1750	BODY	05/25/2022	20.3	19.0	0.10	1104	7532	3.430	36.30	34.300	-5.51%
AM10	1900	BODY	05/03/2022	21.5	23.0	0.10	5d180	7308	4.030	39.00	40.300	3.33%
AM10	1900	BODY	05/05/2022	21.3	22.6	0.10	5d180	7308	3.830	39.00	38.300	-1.79%
AM6	1900	BODY	05/10/2022	21.9	23.8	0.10	5d181	7546	4.160	39.70	41.600	4.79%
AM6	1900	BODY	05/10/2022	24.2	20.7	0.10	5d181	7532	3.680	39.70	36.800	-7.30%
AM8	1900	BODY	05/12/2022	21.9	22.1	0.10	5d181	7546	4.130	39.70	41.300	4.03%
AM2	2300	BODY	05/05/2022	21.9	20.6	0.10	1064	7421	4.930	48.40	49.300	1.86%
AM3	2300	BODY	05/11/2022	23.5	21.2	0.10	1064	7427	4.720	48.40	47.200	-2.48%
A	2450	BODY	03/17/2022	24.0	22.9	0.10	719	7406	4.810	52.00	48.100	-7.50%
S	2450	BODY	04/06/2022	22.0	23.6	0.10	719	7552	4.900	52.00	49.000	-5.77%
S	2450	BODY	04/28/2022	20.8	20.8	0.10	797	7552	5.150	49.40	51.500	4.25%
S	2450	BODY	05/01/2022	23.0	22.5	0.10	797	7552	5.170	49.40	51.700	4.66%
S	2450	BODY	05/07/2022	20.9	24.0	0.10	797	7552	5.300	49.40	53.000	7.29%
S	2450	BODY	05/10/2022	23.4	22.0	0.10	797	7552	4.740	49.40	47.400	-4.05%
S	2600	BODY	04/28/2022	20.8	20.8	0.10	1064	7552	5.270	55.60	52.700	-5.22%
S	2600	BODY	05/01/2022	23.0	22.5	0.10	1064	7552	5.310	55.60	53.100	-4.50%
S	2600	BODY	05/04/2022	21.9	23.9	0.10	1064	7552	5.160	55.60	51.600	-7.19%
S	2600	BODY	05/07/2022	20.9	24.0	0.10	1064	7552	5.270	55.60	52.700	-5.22%
S	2600	BODY	05/10/2022	23.4	22.0	0.10	1064	7552	5.480	55.60	54.800	-1.44%
I	3500	BODY	04/27/2022	20.5	20.5	0.10	1097	7661	6.580	64.20	65.800	2.49%
I	3500	BODY	05/02/2022	21.3	21.0	0.10	1097	7661	6.580	64.20	65.800	2.49%
I	3700	BODY	04/27/2022	20.5	20.5	0.10	1018	7661	6.390	63.50	63.900	0.63%
I	3700	BODY	05/02/2022	21.3	21.0	0.10	1018	7661	6.220	63.50	62.200	-2.05%
I	3700	BODY	05/05/2022	21.0	21.0	0.10	1018	7661	6.650	63.50	66.500	4.72%
I	3700	BODY	05/30/2022	22.0	20.9	0.10	1018	7661	6.490	63.50	64.900	2.20%
I	3900	BODY	05/05/2022	21.0	21.0	0.10	1073	7661	6.680	64.30	66.800	3.89%
I	3900	BODY	05/30/2022	22.0	20.9	0.10	1073	7661	6.530	64.30	65.300	1.56%
O	5250	BODY	04/04/2022	22.3	21.5	0.05	1191	7417	3.560	74.10	71.200	-3.91%
O	5250	BODY	06/28/2022	21.6	20.9	0.05	1057	7417	3.710	74.20	74.200	0.00%
O	5600	BODY	04/04/2022	22.3	21.5	0.05	1191	7417	3.710	76.90	74.200	-3.51%
O	5600	BODY	06/28/2022	21.6	20.9	0.05	1057	7417	3.750	77.00	75.000	-2.60%
O	5750	BODY	04/04/2022	22.3	21.5	0.05	1191	7417	3.360	74.40	67.200	-9.68%
O	5750	BODY	06/28/2022	21.6	20.9	0.05	1057	7417	3.560	74.90	71.200	-4.94%



**Figure 9-1  
System Verification Setup Diagram**



**Figure 9-2  
System Verification Setup Photo**

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# 10 SAR DATA SUMMARY

## 10.1 Standalone SAR Data - Tablet

**Table 10-1  
UMTS Body SAR**

MEASUREMENT RESULTS																
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Accessory	Device Serial Number	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
826.40	4132	back	0 mm	UMTS 850	RMC	4	N/A	HG220	17.9	17.02	0.00	1:1	0.638	1.225	0.782	A1
836.60	4183	back	0 mm	UMTS 850	RMC	4	N/A	HG220	17.9	17.01	-0.01	1:1	0.598	1.227	0.734	
846.60	4233	back	0 mm	UMTS 850	RMC	4	N/A	HG220	17.9	16.87	-0.01	1:1	0.523	1.268	0.663	
826.40	4132	back	0 mm	UMTS 850	RMC	4	Keyboard	HG220	17.9	17.02	0.01	1:1	0.261	1.225	0.320	
826.40	4132	top	0 mm	UMTS 850	RMC	4	N/A	HG220	17.9	17.02	0.01	1:1	0.349	1.225	0.428	
826.40	4132	bottom	0 mm	UMTS 850	RMC	4	N/A	HG220	17.9	17.02	-0.19	1:1	0.019	1.225	0.023	
826.40	4132	right	0 mm	UMTS 850	RMC	4	N/A	HG220	17.9	17.02	0.07	1:1	0.003	1.225	0.004	
826.40	4132	left	0 mm	UMTS 850	RMC	4	N/A	HG220	17.9	17.02	-0.06	1:1	0.451	1.225	0.552	
1880.00	9400	back	0 mm	UMTS 1900	RMC	1	N/A	GV220	13.8	13.26	0.00	1:1	0.504	1.132	0.571	
1852.40	9262	top	0 mm	UMTS 1900	RMC	1	N/A	GV220	13.8	13.25	0.00	1:1	0.810	1.135	0.919	
1880.00	9400	top	0 mm	UMTS 1900	RMC	1	N/A	GV220	13.8	13.26	-0.02	1:1	0.914	1.132	1.035	A2
1907.60	9538	top	0 mm	UMTS 1900	RMC	1	N/A	GV220	13.8	13.24	0.00	1:1	0.871	1.138	0.991	
1880.00	9400	top	0 mm	UMTS 1900	RMC	1	Keyboard	GV220	13.8	13.26	-0.05	1:1	0.872	1.132	0.987	
1880.00	9400	bottom	0 mm	UMTS 1900	RMC	1	N/A	GV220	13.8	13.26	0.05	1:1	0.002	1.132	0.002	
1880.00	9400	right	0 mm	UMTS 1900	RMC	1	N/A	GV220	13.8	13.26	0.00	1:1	0.067	1.132	0.076	
1880.00	9400	left	0 mm	UMTS 1900	RMC	1	N/A	GV220	13.8	13.26	-0.19	1:1	0.005	1.132	0.006	
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  
LTE Band 71 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
680.50	133297	Mid	back	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	1	99	15.9	13.92	0	-0.01	1:1	0.223	1.578	0.352	
680.50	133297	Mid	back	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	50	50	15.9	13.94	0	0.03	1:1	0.235	1.570	0.369	
680.50	133297	Mid	top	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	1	99	15.9	13.92	0	0.04	1:1	0.173	1.578	0.273	
680.50	133297	Mid	top	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	50	50	15.9	13.94	0	0.02	1:1	0.203	1.570	0.319	
680.50	133297	Mid	bottom	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	1	99	15.9	13.92	0	0.08	1:1	0.005	1.578	0.008	
680.50	133297	Mid	bottom	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	50	50	15.9	13.94	0	-0.05	1:1	0.005	1.570	0.008	
680.50	133297	Mid	right	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	1	99	15.9	13.92	0	0.08	1:1	0.000	1.578	0.000	
680.50	133297	Mid	right	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	50	50	15.9	13.94	0	0.04	1:1	0.000	1.570	0.000	
680.50	133297	Mid	left	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	1	99	15.9	13.92	0	-0.11	1:1	0.359	1.578	0.567	
680.50	133297	Mid	left	0 mm	LTE Band 71	4	N/A	HF220	20	QPSK	50	50	15.9	13.94	0	-0.01	1:1	0.373	1.570	0.586	A3
680.50	133297	Mid	left	0 mm	LTE Band 71	4	Keyboard	HF220	20	QPSK	50	50	15.9	13.94	0	-0.04	1:1	0.049	1.570	0.077	
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 10-3  
LTE Band 12 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																				
707.50	23095	Mid	back	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	1	0	17.5	15.86	0	0.01	1:1	0.315	1.459	0.460	
707.50	23095	Md	back	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	25	25	17.5	15.97	0	0.02	1:1	0.312	1.422	0.444	
707.50	23095	Md	top	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	1	0	17.5	15.86	0	0.20	1:1	0.242	1.459	0.353	
707.50	23095	Md	top	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	25	25	17.5	15.97	0	0.02	1:1	0.243	1.422	0.346	
707.50	23095	Md	bottom	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	1	0	17.5	15.86	0	0.04	1:1	0.008	1.459	0.012	
707.50	23095	Md	bottom	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	25	25	17.5	15.97	0	0.02	1:1	0.009	1.422	0.013	
707.50	23095	Md	right	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	1	0	17.5	15.86	0	0.06	1:1	0.002	1.459	0.003	
707.50	23095	Md	right	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	25	25	17.5	15.97	0	0.06	1:1	0.000	1.422	0.000	
707.50	23095	Md	left	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	1	0	17.5	15.86	0	0.01	1:1	0.518	1.459	0.756	A4
707.50	23095	Md	left	0 mm	LTE Band 12	4	Keyboard	HF220	10	QPSK	1	0	17.5	15.86	0	-0.08	1:1	0.453	1.459	0.661	
707.50	23095	Md	left	0 mm	LTE Band 12	4	N/A	HF220	10	QPSK	25	25	17.5	15.97	0	-0.04	1:1	0.503	1.422	0.715	
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 10-4  
LTE Band 13 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																				
782.00	23230	Mid	back	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	1	0	17.6	16.59	0	-0.01	1:1	0.566	1.262	0.714	A5
782.00	23230	Md	back	0 mm	LTE Band 13	4	Keyboard	HF220	10	QPSK	1	0	17.6	16.59	0	-0.03	1:1	0.398	1.262	0.502	
782.00	23230	Md	back	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	25	0	17.6	16.67	0	-0.01	1:1	0.560	1.239	0.694	
782.00	23230	Md	top	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	1	0	17.6	16.59	0	-0.09	1:1	0.294	1.262	0.371	
782.00	23230	Md	top	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	25	0	17.6	16.67	0	0.06	1:1	0.309	1.239	0.383	
782.00	23230	Md	bottom	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	1	0	17.6	16.59	0	0.09	1:1	0.018	1.262	0.023	
782.00	23230	Md	bottom	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	25	0	17.6	16.67	0	0.09	1:1	0.018	1.239	0.022	
782.00	23230	Md	right	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	1	0	17.6	16.59	0	0.07	1:1	0.002	1.262	0.003	
782.00	23230	Md	right	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	25	0	17.6	16.67	0	0.08	1:1	0.004	1.239	0.005	
782.00	23230	Md	left	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	1	0	17.6	16.59	0	-0.07	1:1	0.509	1.262	0.642	
782.00	23230	Md	left	0 mm	LTE Band 13	4	N/A	HF220	10	QPSK	25	0	17.6	16.67	0	0.07	1:1	0.534	1.239	0.662	
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 10-5  
LTE Band 14 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																				
793.00	23330	Md	back	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	1	0	17.7	16.61	0	-0.06	1:1	0.510	1.285	0.655	
793.00	23330	Md	back	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	25	0	17.7	16.54	0	-0.03	1:1	0.483	1.306	0.631	
793.00	23330	Md	top	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	1	0	17.7	16.61	0	-0.01	1:1	0.287	1.285	0.369	
793.00	23330	Md	top	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	25	0	17.7	16.54	0	0.02	1:1	0.283	1.306	0.370	
793.00	23330	Md	bottom	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	1	0	17.7	16.61	0	0.17	1:1	0.017	1.285	0.022	
793.00	23330	Md	bottom	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	25	0	17.7	16.54	0	-0.02	1:1	0.018	1.306	0.024	
793.00	23330	Md	right	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	1	0	17.7	16.61	0	0.06	1:1	0.001	1.285	0.001	
793.00	23330	Md	right	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	25	0	17.7	16.54	0	0.08	1:1	0.004	1.306	0.005	
793.00	23330	Md	left	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	1	0	17.7	16.61	0	-0.11	1:1	0.546	1.285	0.702	A6
793.00	23330	Md	left	0 mm	LTE Band 14	4	Keyboard	HF220	10	QPSK	1	0	17.7	16.61	0	-0.04	1:1	0.139	1.285	0.179	
793.00	23330	Md	left	0 mm	LTE Band 14	4	N/A	HF220	10	QPSK	25	0	17.7	16.54	0	-0.15	1:1	0.494	1.306	0.645	
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 10-6  
LTE Band 26 (Cell) Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
831.50	26865	Mid	back	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	1	36	17.9	16.46	0	-0.02	1:1	0.593	1.393	0.826	
831.50	26865	Mid	back	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	36	18	17.9	16.65	0	0.00	1:1	0.600	1.334	0.800	
831.50	26865	Mid	back	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	75	0	17.9	16.45	0	0.00	1:1	0.600	1.396	0.838	A7
831.50	26865	Mid	back	0 mm	LTE Band 26 (Cell)	4	Keyboard	HG220	15	QPSK	75	0	17.9	16.45	0	-0.02	1:1	0.217	1.396	0.303	
831.50	26865	Mid	top	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	1	36	17.9	16.46	0	-0.02	1:1	0.314	1.393	0.437	
831.50	26865	Mid	top	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	36	18	17.9	16.65	0	0.00	1:1	0.323	1.334	0.431	
831.50	26865	Mid	bottom	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	1	36	17.9	16.46	0	0.03	1:1	0.030	1.393	0.042	
831.50	26865	Mid	bottom	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	36	18	17.9	16.65	0	-0.06	1:1	0.031	1.334	0.041	
831.50	26865	Mid	right	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	1	36	17.9	16.46	0	0.01	1:1	0.003	1.393	0.004	
831.50	26865	Mid	right	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	36	18	17.9	16.65	0	0.13	1:1	0.003	1.334	0.004	
831.50	26865	Mid	left	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	1	36	17.9	16.46	0	0.02	1:1	0.431	1.393	0.600	
831.50	26865	Mid	left	0 mm	LTE Band 26 (Cell)	4	N/A	HG220	15	QPSK	36	18	17.9	16.65	0	-0.01	1:1	0.444	1.334	0.592	
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 10-7  
LTE Band 5 (Cell) Body SAR**

MEASUREMENT RESULTS																							
# CC Uplink	Component Carrier	FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.																(W/kg)		(W/kg)		
1 CC Uplink	N/A	836.50	20525	Mid	back	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	1	0	17.9	16.75	0	-0.01	1:1	0.473	1.303	0.616	A8
1 CC Uplink	N/A	836.50	20525	Mid	back	0 mm	LTE Band 5 (Cell)	4	Keyboard	H7220	10	QPSK	1	0	17.9	16.75	0	-0.01	1:1	0.457	1.303	0.595	
1 CC Uplink	N/A	836.50	20525	Mid	back	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	25	0	17.9	16.73	0	-0.02	1:1	0.454	1.309	0.594	
2 CC Uplink	PCC	836.50	20525	Mid	back	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	1	0	17.9	16.65	0	-0.02	1:1	0.460	1.334	0.614	
	SCC	829.30	20453																				
1 CC Uplink	N/A	836.50	20525	Mid	top	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	1	0	17.9	16.75	0	-0.04	1:1	0.310	1.303	0.404	
1 CC Uplink	N/A	836.50	20525	Mid	top	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	25	0	17.9	16.73	0	-0.04	1:1	0.309	1.309	0.404	
1 CC Uplink	N/A	836.50	20525	Mid	bottom	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	1	0	17.9	16.75	0	0.01	1:1	0.019	1.303	0.025	
1 CC Uplink	N/A	836.50	20525	Mid	bottom	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	25	0	17.9	16.73	0	0.05	1:1	0.018	1.309	0.024	
1 CC Uplink	N/A	836.50	20525	Mid	right	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	1	0	17.9	16.75	0	0.02	1:1	0.003	1.303	0.004	
1 CC Uplink	N/A	836.50	20525	Mid	right	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	25	0	17.9	16.73	0	0.02	1:1	0.003	1.309	0.004	
1 CC Uplink	N/A	836.50	20525	Mid	left	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	1	0	17.9	16.75	0	-0.08	1:1	0.447	1.303	0.582	
1 CC Uplink	N/A	836.50	20525	Mid	left	0 mm	LTE Band 5 (Cell)	4	N/A	H7220	10	QPSK	25	0	17.9	16.73	0	0.00	1:1	0.441	1.309	0.577	
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 10-8**  
**LTE Band 66 (AWS) Body SAR**

MEASUREMENT RESULTS																							
# CC Uplink	Component Carrier	FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.																(W/kg)		(W/kg)		
1 CC Uplink	N/A	1770.00	132572	High	back	0 mm	LTE Band 66 (AWS)	1	N/A	G2220	20	QPSK	1	50	15.1	14.74	0	-0.07	1:1	0.483	1.086	0.525	
1 CC Uplink	N/A	1770.00	132572	High	back	0 mm	LTE Band 66 (AWS)	1	N/A	G2220	20	QPSK	50	50	15.1	14.74	0	-0.01	1:1	0.517	1.086	0.561	
1 CC Uplink	N/A	1720.00	132072	Low	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	20	QPSK	1	99	15.1	14.49	0	0.01	1:1	0.835	1.151	0.961	
1 CC Uplink	N/A	1745.00	132322	Mid	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	20	QPSK	1	50	15.1	14.72	0	0.02	1:1	0.919	1.091	1.003	
1 CC Uplink	N/A	1770.00	132572	High	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	20	QPSK	1	50	15.1	14.74	0	0.00	1:1	1.050	1.086	1.140	
1 CC Uplink	N/A	1720.00	132072	Low	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	20	QPSK	50	25	15.1	14.73	0	0.00	1:1	0.839	1.089	0.914	
1 CC Uplink	N/A	1745.00	132322	Mid	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	20	QPSK	50	50	15.1	14.72	0	0.01	1:1	0.957	1.091	1.044	
1 CC Uplink	N/A	1770.00	132572	High	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	20	QPSK	50	50	15.1	14.74	0	0.01	1:1	1.070	1.086	1.162	A9
1 CC Uplink	N/A	1770.00	132572	High	top	0 mm	LTE Band 66 (AWS)	1	Keyboard	H7220	20	QPSK	50	50	15.1	14.74	0	-0.04	1:1	1.050	1.086	1.140	
1 CC Uplink	N/A	1770.00	132572	High	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	20	QPSK	100	0	15.1	14.73	0	0.02	1:1	1.030	1.089	1.122	
1 CC Uplink	N/A	1775.00	132622	High	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	10	QPSK	25	0	15.1	14.71	0	-0.01	1:1	1.050	1.094	1.149	
2 CC Uplink CA 66B	PCC	1775.00	132622	High	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	10	QPSK	25	0	15.1	14.59	0	0.01	1:1	1.030	1.125	1.159	
	SCC	1765.10	132523											25									
1 CC Uplink	N/A	1770.00	132572	High	bottom	0 mm	LTE Band 66 (AWS)	1	N/A	G2220	20	QPSK	1	50	15.1	14.74	0	0.02	1:1	0.018	1.086	0.020	
1 CC Uplink	N/A	1770.00	132572	High	bottom	0 mm	LTE Band 66 (AWS)	1	N/A	G2220	20	QPSK	50	50	15.1	14.74	0	0.06	1:1	0.015	1.086	0.016	
1 CC Uplink	N/A	1770.00	132572	High	right	0 mm	LTE Band 66 (AWS)	1	N/A	G2220	20	QPSK	1	50	15.1	14.74	0	0.07	1:1	0.152	1.086	0.165	
1 CC Uplink	N/A	1770.00	132572	High	right	0 mm	LTE Band 66 (AWS)	1	N/A	G2220	20	QPSK	50	50	15.1	14.74	0	-0.04	1:1	0.158	1.086	0.172	
1 CC Uplink	N/A	1770.00	132572	High	left	0 mm	LTE Band 66 (AWS)	1	N/A	G2220	20	QPSK	1	50	15.1	14.74	0	-0.03	1:1	0.007	1.086	0.008	
1 CC Uplink	N/A	1770.00	132572	High	left	0 mm	LTE Band 66 (AWS)	1	N/A	G2220	20	QPSK	50	50	15.1	14.74	0	-0.12	1:1	0.007	1.086	0.008	
1 CC Uplink	N/A	1770.00	132572	High	top	0 mm	LTE Band 66 (AWS)	1	N/A	H7220	20	QPSK	50	50	15.1	14.74	0	0.01	1:1	1.070	1.086	1.162	
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: Blue entry represents variability measurement

**Table 10-9**  
**LTE Band 25 (PCS) Body SAR**

MEASUREMENT RESULTS																						
# CC Uplink	Component Carrier	FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.																(W/kg)		(W/kg)	
1860.00	26140	Low	back	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	1	50	13.8	13.15	0	-0.03	1:1	0.319	1.161	0.370		
1860.00	26140	Low	back	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	50	0	13.8	13.21	0	-0.05	1:1	0.462	1.146	0.529		
1860.00	26140	Low	top	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	1	50	13.8	13.15	0	-0.01	1:1	0.854	1.161	0.991		
1882.50	26365	Mid	top	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	1	50	13.8	13.12	0	-0.02	1:1	0.909	1.169	1.063		
1905.00	26590	High	top	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	1	0	13.8	12.99	0	0.02	1:1	0.917	1.205	1.105		
1860.00	26140	Low	top	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	50	0	13.8	13.21	0	-0.04	1:1	0.873	1.146	1.000		
1882.50	26365	Mid	top	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	50	50	13.8	13.10	0	-0.02	1:1	0.919	1.175	1.080		
1905.00	26590	High	top	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	50	50	13.8	13.06	0	0.04	1:1	0.943	1.186	1.118	A10	
1905.00	26590	High	top	0 mm	LTE Band 25 (PCS)	1	Keyboard	GV220	20	QPSK	50	50	13.8	13.06	0	0.00	1:1	0.613	1.186	0.727		
1860.00	26140	Low	top	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	100	0	13.8	13.14	0	0.00	1:1	0.886	1.164	1.031		
1860.00	26140	Low	bottom	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	1	50	13.8	13.15	0	-0.05	1:1	0.005	1.161	0.006		
1860.00	26140	Low	bottom	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	50	0	13.8	13.21	0	-0.01	1:1	0.004	1.146	0.005		
1860.00	26140	Low	right	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	1	50	13.8	13.15	0	-0.02	1:1	0.079	1.161	0.092		
1860.00	26140	Low	right	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	50	0	13.8	13.21	0	-0.06	1:1	0.081	1.146	0.093		
1860.00	26140	Low	left	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	1	50	13.8	13.15	0	0.09	1:1	0.012	1.161	0.014		
1860.00	26140	Low	left	0 mm	LTE Band 25 (PCS)	1	N/A	GV220	20	QPSK	50	0	13.8	13.21	0	0.04	1:1	0.010	1.146	0.011		
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 10-10  
LTE Band 30 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																				
2310.00	27710	Mid	back	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	1	25	13.0	11.94	0	0.04	1:1	0.494	1.276	0.630	
2310.00	27710	Md	back	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	25	12	13.0	12.11	0	0.05	1:1	0.500	1.227	0.614	
2310.00	27710	Md	top	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	1	25	13.0	11.94	0	-0.02	1:1	0.865	1.276	1.104	
2310.00	27710	Md	top	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	25	12	13.0	12.11	0	-0.01	1:1	0.884	1.227	1.085	
2310.00	27710	Md	top	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	50	0	13.0	11.90	0	0.00	1:1	0.900	1.288	1.159	A11
2310.00	27710	Md	top	0 mm	LTE Band 30	1	Keyboard	2V220	10	QPSK	50	0	13.0	11.90	0	-0.02	1:1	0.895	1.288	1.153	
2310.00	27710	Md	bottom	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	1	25	13.0	11.94	0	0.01	1:1	0.000	1.276	0.000	
2310.00	27710	Md	bottom	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	25	12	13.0	12.11	0	0.09	1:1	0.000	1.227	0.000	
2310.00	27710	Md	right	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	1	25	13.0	11.94	0	0.04	1:1	0.018	1.276	0.023	
2310.00	27710	Md	right	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	25	12	13.0	12.11	0	0.02	1:1	0.032	1.227	0.039	
2310.00	27710	Md	left	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	1	25	13.0	11.94	0	0.09	1:1	0.008	1.276	0.010	
2310.00	27710	Md	left	0 mm	LTE Band 30	1	N/A	2V220	10	QPSK	25	12	13.0	12.11	0	0.09	1:1	0.008	1.227	0.010	
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: Blue entry represents variability measurement

**Table 10-11  
LTE Band 7 Body SAR**

MEASUREMENT RESULTS																							
# CC Uplink	Component Carrier	FREQUENCY		Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
		MHz	Ch.																				
1 CC Uplink	N/A	2535.00	21100	Md	back	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	1	99	12.5	11.49	0	-0.01	1:1	0.501	1.262	0.632	
1 CC Uplink	N/A	2535.00	21100	Md	back	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	50	25	12.5	11.54	0	0.00	1:1	0.519	1.247	0.647	
1 CC Uplink	N/A	2510.00	20850	Low	top	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	1	99	12.5	11.38	0	-0.02	1:1	0.736	1.294	0.952	
1 CC Uplink	N/A	2535.00	21100	Md	top	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	1	99	12.5	11.49	0	-0.03	1:1	0.781	1.262	0.986	
1 CC Uplink	N/A	2560.00	21350	High	top	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	1	0	12.5	11.40	0	-0.02	1:1	0.781	1.288	1.006	
1 CC Uplink	N/A	2510.00	20850	Low	top	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	50	50	12.5	11.51	0	-0.01	1:1	0.752	1.256	0.945	
1 CC Uplink	N/A	2535.00	21100	Md	top	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	50	25	12.5	11.54	0	-0.01	1:1	0.788	1.247	0.983	
1 CC Uplink	N/A	2560.00	21350	High	top	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	50	0	12.5	11.41	0	-0.01	1:1	0.772	1.285	0.992	
1 CC Uplink	N/A	2535.00	21100	Md	top	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	100	0	12.5	11.47	0	-0.02	1:1	0.793	1.268	1.006	A12
1 CC Uplink	N/A	2535.00	21100	Md	top	0 mm	LTE Band 7	1	Keyboard	H8220	20	QPSK	100	0	12.5	11.47	0	0.02	1:1	0.769	1.268	0.975	
2 CC Uplink	PCC	2560.00	21350	High	top	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	1	0	12.5	11.14	0	-0.04	1:1	0.706	1.368	0.966	
	SCC	2540.20	21152																				
1 CC Uplink	N/A	2535.00	21100	Md	bottom	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	1	99	12.5	11.49	0	0.08	1:1	0.000	1.262	0.000	
1 CC Uplink	N/A	2535.00	21100	Md	bottom	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	50	25	12.5	11.54	0	0.03	1:1	0.000	1.247	0.000	
1 CC Uplink	N/A	2535.00	21100	Md	right	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	1	99	12.5	11.49	0	0.09	1:1	0.032	1.262	0.040	
1 CC Uplink	N/A	2535.00	21100	Md	right	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	50	25	12.5	11.54	0	-0.06	1:1	0.034	1.247	0.042	
1 CC Uplink	N/A	2535.00	21100	Md	left	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	1	99	12.5	11.49	0	0.06	1:1	0.012	1.262	0.015	
1 CC Uplink	N/A	2535.00	21100	Md	left	0 mm	LTE Band 7	1	N/A	H8220	20	QPSK	50	25	12.5	11.54	0	0.02	1:1	0.011	1.247	0.014	
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 10-12  
LTE Band 41 Body SAR**

MEASUREMENT RESULTS																							
# CC Uplink, Power Class	Component Carrier	FREQUENCY			Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
		MHz	Ch.	Ch.																			
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	back	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	1	0	14.5	13.65	0	0.03	1:1.58	0.260	1.216	0.316	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	back	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	0	14.5	13.59	0	-0.03	1:1.58	0.232	1.233	0.286	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	1	99	14.5	13.39	0	0.05	1:1.58	0.822	1.291	1.061	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	1	0	14.5	13.46	0	0.01	1:1.58	0.825	1.271	1.049	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	1	0	14.5	13.55	0	0.20	1:1.58	0.810	1.245	1.008	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	1	0	14.5	13.54	0	0.01	1:1.58	0.751	1.247	0.936	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	1	0	14.5	13.65	0	0.08	1:1.58	0.661	1.216	0.804	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	50	14.5	13.42	0	0.01	1:1.58	0.878	1.282	1.126	A13
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	0	14.5	13.39	0	0.01	1:1.58	0.834	1.291	1.077	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	25	14.5	13.51	0	-0.01	1:1.58	0.789	1.256	0.991	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	0	14.5	13.50	0	0.00	1:1.58	0.733	1.259	0.923	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	0	14.5	13.59	0	0.00	1:1.58	0.649	1.233	0.800	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	100	0	14.5	13.58	0	-0.01	1:1.58	0.652	1.236	0.806	
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	50	16.1	15.00	0	0.00	12:31	0.847	1.288	1.091	
2 CC Uplink - Power Class 3	PCC	2506.00	39750	Low	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	50	14.5	13.07	0	-0.01	1:1.58	0.812	1.390	1.129	
	SCC	2525.80	39948																				
	PCC	2506.00	39750																				
2 CC Uplink - Power Class 3	PCC	2506.00	39750	Low	top	0 mm	LTE Band 41	1	Keyboard	H8220	20	QPSK	50	50	14.5	13.07	0	-0.02	1:1.58	0.742	1.390	1.031	
	SCC	2525.80	39948																				
	SCC	2525.80	39948																				
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	bottom	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	1	0	14.5	13.65	0	0.04	1:1.58	0.000	1.216	0.000	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	bottom	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	0	14.5	13.59	0	0.07	1:1.58	0.000	1.233	0.000	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	right	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	1	0	14.5	13.65	0	0.05	1:1.58	0.011	1.216	0.013	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	right	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	0	14.5	13.59	0	-0.19	1:1.58	0.011	1.233	0.014	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	left	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	1	0	14.5	13.65	0	0.09	1:1.58	0.005	1.216	0.006	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	left	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	0	14.5	13.59	0	0.09	1:1.58	0.005	1.233	0.006	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	50	14.5	13.42	0	-0.01	1:1.58	0.864	1.282	1.108	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	top	0 mm	LTE Band 41	1	N/A	H8220	20	QPSK	50	0	14.5	13.39	0	-0.01	1:1.58	0.832	1.291	1.074	
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: Blue entry represents variability measurement

**Table 10-13  
LTE Band 48 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY	Side	Spacing	Mode	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #		
																				MHz	Ch.
3646.70	56207	Mid-High	back	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	1	99	12.2	11.49	0	0.05	1:1.58	0.452	1.178	0.532	
3646.70	56207	Mid-High	back	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	50	50	12.2	11.45	0	-0.02	1:1.58	0.472	1.189	0.561	
3560.00	55340	Low	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	1	99	12.2	11.21	0	-0.04	1:1.58	0.735	1.256	0.923	
3603.30	55773	Low-Mid	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	1	99	12.2	11.20	0	-0.07	1:1.58	0.709	1.259	0.893	
3646.70	56207	Mid-High	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	1	99	12.2	11.49	0	-0.01	1:1.58	0.749	1.178	0.882	
3690.00	56640	High	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	1	99	12.2	11.47	0	-0.05	1:1.58	0.783	1.183	0.926	
3560.00	55340	Low	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	50	25	12.2	11.20	0	-0.17	1:1.58	0.734	1.259	0.924	
3603.30	55773	Low-Mid	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	50	50	12.2	11.06	0	0.04	1:1.58	0.880	1.300	1.144	A14
3603.30	55773	Low-Mid	top	0 mm	LTE Band 48	2	Keyboard	H7220	20	QPSK	50	50	12.2	11.06	0	-0.04	1:1.58	0.798	1.300	1.037	
3646.70	56207	Mid-High	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	50	50	12.2	11.45	0	-0.01	1:1.58	0.776	1.189	0.923	
3690.00	56640	High	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	50	50	12.2	11.37	0	0.00	1:1.58	0.758	1.211	0.918	
3646.70	56207	Mid-High	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	100	0	12.2	11.44	0	-0.05	1:1.58	0.778	1.191	0.927	
3646.70	56207	Mid-High	bottom	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	1	99	12.2	11.49	0	0.04	1:1.58	0.000	1.178	0.000	
3646.70	56207	Mid-High	bottom	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	50	50	12.2	11.45	0	0.20	1:1.58	0.000	1.189	0.000	
3646.70	56207	Mid-High	right	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	1	99	12.2	11.49	0	0.01	1:1.58	0.009	1.178	0.011	
3646.70	56207	Mid-High	right	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	50	50	12.2	11.45	0	-0.09	1:1.58	0.009	1.189	0.011	
3646.70	56207	Mid-High	left	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	1	99	12.2	11.49	0	0.03	1:1.58	0.001	1.178	0.001	
3646.70	56207	Mid-High	left	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	50	50	12.2	11.45	0	0.08	1:1.58	0.002	1.189	0.002	
3603.30	55773	Low-Mid	top	0 mm	LTE Band 48	2	N/A	H7220	20	QPSK	50	50	12.2	11.06	0	0.10	1:1.58	0.875	1.300	1.138	
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: Blue entry represents variability measurement

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**Table 10-14  
NR Band n71 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Accessory	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
680.50	136100	Mid	back	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	1	104	15.9	14.83	0	-0.05	1:1	0.204	1.279	0.261	
680.50	136100	Mid	back	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	50	28	15.9	14.85	0	-0.03	1:1	0.234	1.274	0.298	
680.50	136100	Mid	top	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	1	104	15.9	14.83	0	-0.04	1:1	0.203	1.279	0.260	
680.50	136100	Mid	top	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	50	28	15.9	14.85	0	-0.16	1:1	0.219	1.274	0.279	
680.50	136100	Mid	bottom	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	1	104	15.9	14.83	0	0.04	1:1	0.006	1.279	0.008	
680.50	136100	Mid	bottom	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	50	28	15.9	14.85	0	0.07	1:1	0.005	1.274	0.006	
680.50	136100	Mid	right	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	1	104	15.9	14.83	0	0.07	1:1	0.001	1.279	0.001	
680.50	136100	Mid	right	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	50	28	15.9	14.85	0	0.06	1:1	0.000	1.274	0.000	
680.50	136100	Mid	left	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	1	104	15.9	14.83	0	0.06	1:1	0.433	1.279	0.554	
680.50	136100	Mid	left	0 mm	NR Band n71	4	N/A	HF220	20	DFT-S-OFDM	QPSK	50	28	15.9	14.85	0	-0.15	1:1	0.474	1.274	0.604	
680.50	136100	Mid	left	0 mm	NR Band n71	4	N/A	HF220	20	CP-OFDM	QPSK	1	1	15.9	14.93	0	-0.07	1:1	0.580	1.250	0.725	A15
680.50	136100	Mid	left	0 mm	NR Band n71	4	Keyboard	HF220	20	CP-OFDM	QPSK	1	1	15.9	14.93	0	-0.05	1:1	0.075	1.250	0.094	
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 10-15  
NR Band n5 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Accessory	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
836.50	167300	Mid	back	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	1	53	17.9	16.86	0	0.00	1:1	0.548	1.271	0.687	
836.50	167300	Mid	back	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	50	28	17.9	16.61	0	0.03	1:1	0.558	1.346	0.751	
836.50	167300	Mid	back	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	CP-OFDM	QPSK	1	1	17.9	16.50	0	0.09	1:1	0.595	1.380	0.821	A16
836.50	167300	Mid	back	0 mm	NR Band n5 (Cell)	4	Keyboard	HG220	20	CP-OFDM	QPSK	1	1	17.9	16.50	0	0.00	1:1	0.228	1.380	0.315	
836.50	167300	Mid	top	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	1	53	17.9	16.86	0	-0.04	1:1	0.330	1.271	0.419	
836.50	167300	Mid	top	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	50	28	17.9	16.61	0	0.00	1:1	0.341	1.346	0.459	
836.50	167300	Mid	bottom	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	1	53	17.9	16.86	0	-0.16	1:1	0.027	1.271	0.034	
836.50	167300	Mid	bottom	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	50	28	17.9	16.61	0	0.09	1:1	0.009	1.346	0.012	
836.50	167300	Mid	right	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	1	53	17.9	16.86	0	0.04	1:1	0.002	1.271	0.003	
836.50	167300	Mid	right	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	50	28	17.9	16.61	0	0.04	1:1	0.000	1.346	0.000	
836.50	167300	Mid	left	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	1	53	17.9	16.86	0	0.01	1:1	0.434	1.271	0.552	
836.50	167300	Mid	left	0 mm	NR Band n5 (Cell)	4	N/A	HG220	20	DFT-S-OFDM	QPSK	50	28	17.9	16.61	0	-0.18	1:1	0.289	1.346	0.389	
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 10-16
NR Band n66 Body SAR

Table with 20 columns: FREQUENCY (MHz, Ch), Side, Spacing, Mode, Antenna Config, Accessory, Serial Number, Bandwidth [MHz], Waveform, Modulation, RB Size, RB Offset, Maximum Allowed Power [dBm], Conducted Power [dBm], MPR [dB], Power Drift [dB], Duty Cycle, SAR (1g) (W/kg), Scaling Factor, Reported SAR (1g) (W/kg), Plot #. Includes a summary row for ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak.

Table 10-17
NR Band n25 Body SAR

Table with 20 columns: FREQUENCY (MHz, Ch), Side, Spacing, Mode, Antenna Config, Accessory, Serial Number, Bandwidth [MHz], Waveform, Modulation, RB Size, RB Offset, Maximum Allowed Power [dBm], Conducted Power [dBm], MPR [dB], Power Drift [dB], Duty Cycle, SAR (1g) (W/kg), Scaling Factor, Reported SAR (1g) (W/kg), Plot #. Includes a summary row for ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak.

Note: Blue entry represents variability measurement

Table with 3 columns: FCC ID: C3K1997, SAR EVALUATION REPORT, Approved by: Technical Manager; Document S/N: M2204040049-02.C3K, DUT Type: Portable Computing Device, Page 101 of 121

**Table 10-18  
NR Band n41 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Accessory	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
2592.99	518598	Mid	back	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	12.5	12.01	0	-0.13	1:1	0.415	1.119	0.464	
2592.99	518598	Mid	back	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	12.5	12.02	0	-0.01	1:1	0.462	1.117	0.516	
2592.99	518598	Mid	top	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	12.5	12.01	0	0.00	1:1	0.698	1.119	0.781	
2592.99	518598	Mid	top	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	12.5	12.02	0	-0.03	1:1	0.694	1.117	0.775	
2592.99	518598	Mid	top	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	270	0	12.5	11.95	0	0.01	1:1	0.682	1.135	0.774	
2592.99	518598	Mid	top	0 mm	NR Band n41	1	N/A	H7220	100	CP-OFDM	QPSK	1	1	12.5	11.57	0	0.00	1:1	0.824	1.239	1.021	A19
2592.99	518598	Mid	top	0 mm	NR Band n41	1	Keyboard	H7220	100	CP-OFDM	QPSK	1	1	12.5	11.57	0	0.00	1:1	0.814	1.239	1.009	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	12.5	12.01	0	0.08	1:1	0.000	1.119	0.000	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	12.5	12.02	0	0.02	1:1	0.000	1.117	0.000	
2592.99	518598	Mid	right	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	12.5	12.01	0	-0.05	1:1	0.045	1.119	0.050	
2592.99	518598	Mid	right	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	12.5	12.02	0	-0.04	1:1	0.036	1.117	0.040	
2592.99	518598	Mid	left	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	12.5	12.01	0	0.05	1:1	0.011	1.119	0.012	
2592.99	518598	Mid	left	0 mm	NR Band n41	1	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	12.5	12.02	0	-0.07	1:1	0.008	1.117	0.009	
2592.99	518598	Mid	back	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	14.7	14.46	0	0.00	1:1	0.332	1.057	0.351	
2592.99	518598	Mid	back	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	14.7	14.34	0	0.01	1:1	0.365	1.086	0.396	
2592.99	518598	Mid	top	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	14.7	14.46	0	-0.02	1:1	0.731	1.057	0.773	
2592.99	518598	Mid	top	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	14.7	14.34	0	0.00	1:1	0.740	1.086	0.804	
2592.99	518598	Mid	top	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	270	0	14.7	14.25	0	-0.12	1:1	0.744	1.109	0.825	
2592.99	518598	Mid	top	0 mm	NR Band n41	4	Keyboard	H7220	100	DFT-S-OFDM	QPSK	270	0	14.7	14.25	0	-0.01	1:1	0.720	1.109	0.798	
2592.99	518598	Mid	top	0 mm	NR Band n41	4	N/A	H7220	100	CP-OFDM	QPSK	1	1	14.7	13.85	0	-0.01	1:1	0.673	1.216	0.818	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	14.7	14.46	0	0.20	1:1	0.000	1.057	0.000	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	14.7	14.34	0	0.20	1:1	0.002	1.086	0.002	
2592.99	518598	Mid	right	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	14.7	14.46	0	0.03	1:1	0.006	1.057	0.006	
2592.99	518598	Mid	right	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	14.7	14.34	0	0.13	1:1	0.008	1.086	0.009	
2592.99	518598	Mid	left	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	1	137	14.7	14.46	0	-0.01	1:1	0.287	1.057	0.303	
2592.99	518598	Mid	left	0 mm	NR Band n41	4	N/A	H7220	100	DFT-S-OFDM	QPSK	135	69	14.7	14.34	0	-0.02	1:1	0.287	1.086	0.312	
2592.99	518598	Mid	back	0 mm	NR Band n41	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.32	N/A	-0.05	1:1	0.083	1.225	0.102	
2592.99	518598	Mid	top	0 mm	NR Band n41	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.32	N/A	0.04	1:1	0.002	1.225	0.002	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.32	N/A	0.20	1:1	0.009	1.225	0.011	
2592.99	518598	Mid	right	0 mm	NR Band n41	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.32	N/A	0.07	1:1	0.000	1.225	0.000	
2592.99	518598	Mid	left	0 mm	NR Band n41	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.32	N/A	-0.20	1:1	0.432	1.225	0.529	
2592.99	518598	Mid	left	0 mm	NR Band n41	5	Keyboard	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.32	N/A	-0.01	1:1	0.108	1.225	0.132	
2592.99	518598	Mid	back	0 mm	NR Band n41	8	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.25	N/A	0.10	1:1	0.075	1.245	0.093	
2592.99	518598	Mid	top	0 mm	NR Band n41	8	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.25	N/A	0.20	1:1	0.000	1.245	0.000	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	8	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.25	N/A	-0.04	1:1	0.009	1.245	0.011	
2592.99	518598	Mid	right	0 mm	NR Band n41	8	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.25	N/A	0.04	1:1	0.277	1.245	0.345	
2592.99	518598	Mid	right	0 mm	NR Band n41	8	Keyboard	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.25	N/A	-0.03	1:1	0.150	1.245	0.187	
2592.99	518598	Mid	left	0 mm	NR Band n41	8	N/A	H7220	100	CWSRS	N/A	N/A	N/A	11.2	10.25	N/A	0.20	1:1	0.000	1.245	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

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**Table 10-19  
NR Band n77 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Accessory	Serial Number	Bandwidth (MHz)	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power (dBm)	Conducted Power (dBm)	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
3930.00	662000	High	back	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	1	271	8.6	7.90	0	-0.03	1:1	0.214	1.175	0.251	
3930.00	662000	High	back	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	135	138	8.6	7.83	0	-0.16	1:1	0.213	1.194	0.254	
3750.00	650000	Low	top	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	1	271	8.6	7.80	0	0.02	1:1	0.621	1.202	0.746	
3930.00	662000	High	top	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	1	271	8.6	7.90	0	-0.15	1:1	0.618	1.175	0.726	
3750.00	650000	Low	top	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	135	138	8.6	7.81	0	-0.02	1:1	0.651	1.199	0.781	
3930.00	662000	High	top	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	135	138	8.6	7.83	0	-0.05	1:1	0.587	1.194	0.701	
3930.00	662000	High	top	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	270	0	8.6	7.75	0	-0.10	1:1	0.703	1.216	0.855	A20
3930.00	662000	High	top	0 mm	NR Band n77	2	Keyboard	H4220	100	DFT-S-OFDM	QPSK	270	0	8.6	7.75	0	-0.15	1:1	0.547	1.216	0.665	
3930.00	662000	High	top	0 mm	NR Band n77	2	N/A	H4220	100	CP-OFDM	QPSK	1	1	8.6	7.71	0	-0.01	1:1	0.597	1.227	0.733	
3930.00	662000	High	bottom	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	1	271	8.6	7.90	0	0.02	1:1	0.000	1.175	0.000	
3930.00	662000	High	bottom	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	135	138	8.6	7.83	0	0.01	1:1	0.000	1.194	0.000	
3930.00	662000	High	right	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	1	271	8.6	7.90	0	0.20	1:1	0.004	1.175	0.005	
3930.00	662000	High	right	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	135	138	8.6	7.83	0	0.20	1:1	0.002	1.194	0.002	
3930.00	662000	High	left	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	1	271	8.6	7.90	0	0.07	1:1	0.000	1.175	0.000	
3930.00	662000	High	left	0 mm	NR Band n77	2	N/A	H4220	100	DFT-S-OFDM	QPSK	135	138	8.6	7.83	0	0.02	1:1	0.000	1.194	0.000	
3930.00	662000	High	back	0 mm	NR Band n77	3	N/A	H4220	100	CWSRS	N/A	N/A	N/A	8.2	8.00	N/A	0.01	1:1	0.113	1.047	0.118	
3750.00	650000	Low	top	0 mm	NR Band n77	3	N/A	H4220	100	CWSRS	N/A	N/A	N/A	8.2	7.72	N/A	-0.03	1:1	0.331	1.117	0.370	
3930.00	662000	High	top	0 mm	NR Band n77	3	N/A	H4220	100	CWSRS	N/A	N/A	N/A	8.2	8.00	N/A	0.07	1:1	0.470	1.047	0.492	
3930.00	662000	High	top	0 mm	NR Band n77	3	Keyboard	H4220	100	CWSRS	N/A	N/A	N/A	8.2	8.00	N/A	-0.06	1:1	0.550	1.047	0.576	
3930.00	662000	High	bottom	0 mm	NR Band n77	3	N/A	H4220	100	CWSRS	N/A	N/A	N/A	8.2	8.00	N/A	0.20	1:1	0.000	1.047	0.000	
3930.00	662000	High	right	0 mm	NR Band n77	3	N/A	H4220	100	CWSRS	N/A	N/A	N/A	8.2	8.00	N/A	0.08	1:1	0.002	1.047	0.002	
3930.00	662000	High	left	0 mm	NR Band n77	3	N/A	H4220	100	CWSRS	N/A	N/A	N/A	8.2	8.00	N/A	-0.19	1:1	0.002	1.047	0.002	
3930.00	662000	High	back	0 mm	NR Band n77	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.47	N/A	0.12	1:1	0.099	1.183	0.117	
3930.00	662000	High	top	0 mm	NR Band n77	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.47	N/A	0.06	1:1	0.000	1.183	0.000	
3930.00	662000	High	bottom	0 mm	NR Band n77	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.47	N/A	0.20	1:1	0.000	1.183	0.000	
3930.00	662000	High	right	0 mm	NR Band n77	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.47	N/A	0.15	1:1	0.000	1.183	0.000	
3750.00	650000	Low	left	0 mm	NR Band n77	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.06	N/A	0.04	1:1	0.413	1.300	0.537	
3750.00	650000	Low	left	0 mm	NR Band n77	5	Keyboard	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.06	N/A	-0.21	1:1	0.130	1.300	0.169	
3930.00	662000	High	left	0 mm	NR Band n77	5	N/A	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.47	N/A	0.05	1:1	0.430	1.183	0.509	
3750.00	650000	Low	back	0 mm	NR Band n77	8	N/A	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.30	N/A	0.06	1:1	0.185	1.230	0.228	
3750.00	650000	Low	top	0 mm	NR Band n77	8	N/A	H4220	100	CWSRS	N/A	N/A	N/A	9.2	8.30	N/A	0.04	1:1	0.000	1.230	0.000	
3750.00	650000	Low	bottom	0 mm	NR Band n77	8	N/A	H4220	100	CWSRS	N/A	N/A	N/A	9.2	8.30	N/A	0.03	1:1	0.010	1.230	0.012	
3750.00	650000	Low	right	0 mm	NR Band n77	8	N/A	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.30	N/A	0.00	1:1	0.580	1.230	0.713	
3750.00	650000	Low	right	0 mm	NR Band n77	8	Keyboard	H7220	100	CWSRS	N/A	N/A	N/A	9.2	8.30	N/A	-0.04	1:1	0.434	1.230	0.534	
3930.00	662000	High	right	0 mm	NR Band n77	8	N/A	H7220	100	CWSRS	N/A	N/A	N/A	9.2	7.57	N/A	0.01	1:1	0.465	1.455	0.677	
3750.00	650000	Low	left	0 mm	NR Band n77	8	N/A	H4220	100	CWSRS	N/A	N/A	N/A	9.2	8.30	N/A	0.02	1:1	0.000	1.230	0.000	
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 10-20  
DTS SISO WLAN Body SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														(W/kg)			(W/kg)	
2462	11	back	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	13.5	12.29	0.05	99.7	0.176	1.321	1.003	0.233	
2462	11	top	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	13.5	12.29	0.01	99.7	0.006	1.321	1.003	0.008	
2462	11	bottom	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	13.5	12.29	0.13	99.7	0.002	1.321	1.003	0.003	
2462	11	right	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	13.5	12.29	0.04	99.7	0.000	1.321	1.003	0.000	
2412	1	left	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	13.5	12.27	0.01	99.7	0.497	1.327	1.003	0.661	
2437	6	left	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	13.5	12.13	0.02	99.7	0.467	1.371	1.003	0.642	
2462	11	left	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	13.5	12.29	-0.01	99.7	0.517	1.321	1.003	0.685	
2462	11	left	0 mm	802.11b	DSSS	1	Keyboard	HY220	22	1	13.5	12.29	0.02	99.7	0.188	1.321	1.003	0.249	
2412	1	back	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	9.5	8.25	0.11	99.7	0.032	1.334	1.003	0.043	
2412	1	top	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	9.5	8.25	0.03	99.7	0.001	1.334	1.003	0.001	
2412	1	bottom	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	9.5	8.25	0.06	99.7	0.000	1.334	1.003	0.000	
2412	1	left	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	9.5	8.25	-0.08	99.7	0.198	1.334	1.003	0.265	
2412	1	back	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	7.0	5.72	-0.05	99.7	0.021	1.343	1.003	0.028	
2412	1	top	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	7.0	5.72	0.07	99.7	0.000	1.343	1.003	0.000	
2412	1	left	0 mm	802.11b	DSSS	1	N/A	HY220	22	1	7.0	5.72	0.00	99.7	0.103	1.343	1.003	0.139	
2412	1	back	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	13.5	12.27	0.04	99.9	0.109	1.327	1.001	0.145	
2412	1	top	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	13.5	12.27	-0.06	99.9	0.009	1.327	1.001	0.012	
2412	1	bottom	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	13.5	12.27	0.07	99.9	0.003	1.327	1.001	0.004	
2412	1	right	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	13.5	12.27	-0.08	99.9	0.566	1.327	1.001	0.752	A21
2437	6	right	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	13.5	12.20	-0.11	99.9	0.545	1.349	1.001	0.736	
2462	11	right	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	13.5	12.26	-0.02	99.9	0.564	1.330	1.001	0.751	
2412	1	right	0 mm	802.11b	DSSS	2	Keyboard	HY220	22	1	13.5	12.27	-0.17	99.9	0.179	1.327	1.001	0.238	
2412	1	left	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	13.5	12.27	0.01	99.9	0.000	1.327	1.001	0.000	
2412	1	back	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	9.0	7.90	-0.11	99.9	0.055	1.288	1.001	0.071	
2412	1	top	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	9.0	7.90	0.08	99.9	0.001	1.288	1.001	0.001	
2412	1	bottom	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	9.0	7.90	0.02	99.9	0.000	1.288	1.001	0.000	
2412	1	right	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	9.0	7.90	0.00	99.9	0.190	1.288	1.001	0.245	
2462	11	back	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	6.5	5.50	0.04	99.9	0.015	1.259	1.001	0.019	
2462	11	top	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	6.5	5.50	0.05	99.9	0.000	1.259	1.001	0.000	
2462	11	right	0 mm	802.11b	DSSS	2	N/A	HY220	22	1	6.5	5.50	0.00	99.9	0.110	1.259	1.001	0.139	
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 10-21  
NII SISO WLAN Body SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Accessory	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	SAR (1g)	Scaling Factor (Power)	Scaling Factor (W/kg)	Reported SAR (1g) (W/kg)	Port #
MHz	Ch.														(W/kg)				
5290	58	back	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	11.5	10.02	0.03	99.3	0.101	1.406	1.007	0.143	
5290	58	top	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	11.5	10.02	0.04	99.3	0.000	1.406	1.007	0.000	
5290	58	bottom	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	11.5	10.02	-0.06	99.3	0.011	1.406	1.007	0.016	
5290	58	right	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	11.5	10.02	0.02	99.3	0.000	1.406	1.007	0.000	
5290	58	left	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	11.5	10.02	-0.07	99.3	0.542	1.406	1.007	0.767	
5290	58	back	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	5.5	4.46	0.06	99.3	0.025	1.271	1.007	0.032	
5290	58	bottom	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	5.5	4.46	0.05	99.3	0.004	1.271	1.007	0.005	
5290	58	left	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	5.5	4.46	0.13	99.3	0.152	1.271	1.007	0.195	
5290	58	back	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	11.0	10.00	0.06	99.3	0.176	1.259	1.007	0.223	
5290	58	top	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	11.0	10.00	0.06	99.3	0.000	1.259	1.007	0.000	
5290	58	bottom	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	11.0	10.00	0.01	99.3	0.000	1.259	1.007	0.000	
5290	58	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	11.0	10.00	0.01	99.3	0.858	1.259	1.007	1.088	A22
5290	58	right	0 mm	802.11ac	OFDM	2	Keyboard	JC220	80	29.3	11.0	10.00	0.02	99.3	0.415	1.259	1.007	0.526	
5290	58	left	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	11.0	10.00	0.07	99.3	0.000	1.259	1.007	0.000	
5290	58	back	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	7.0	5.89	-0.07	99.3	0.048	1.291	1.007	0.062	
5290	58	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	7.0	5.89	-0.03	99.3	0.289	1.291	1.007	0.350	
5290	58	back	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	4.0	2.55	-0.01	99.3	0.028	1.396	1.007	0.039	
5290	58	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	4.0	2.55	-0.03	99.3	0.166	1.396	1.007	0.233	
5530	106	back	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.97	0.18	99.3	0.095	1.268	1.007	0.121	
5530	106	top	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.97	0.05	99.3	0.000	1.268	1.007	0.000	
5530	106	bottom	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.97	0.04	99.3	0.013	1.268	1.007	0.017	
5530	106	right	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.97	0.04	99.3	0.000	1.268	1.007	0.000	
5530	106	left	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.97	0.00	99.3	0.552	1.268	1.007	0.705	
5530	106	back	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	4.0	2.97	0.07	99.3	0.029	1.268	1.007	0.037	
5530	106	bottom	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	4.0	2.97	0.01	99.3	0.000	1.268	1.007	0.000	
5530	106	left	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	4.0	2.97	-0.03	99.3	0.121	1.268	1.007	0.155	
5530	106	back	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.43	0.11	99.3	0.119	1.279	1.007	0.153	
5530	106	top	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.43	0.01	99.3	0.003	1.279	1.007	0.004	
5530	106	bottom	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.43	0.01	99.3	0.000	1.279	1.007	0.000	
5530	106	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.43	-0.16	99.3	0.538	1.279	1.007	0.693	
5530	106	left	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.43	0.01	99.3	0.003	1.279	1.007	0.004	
5530	106	back	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	5.5	4.32	0.07	99.3	0.042	1.312	1.007	0.055	
5530	106	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	5.5	4.32	0.12	99.3	0.212	1.312	1.007	0.280	
5530	106	back	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	2.5	1.47	0.08	99.3	0.000	1.268	1.007	0.000	
5530	106	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	2.5	1.47	0.04	99.3	0.110	1.268	1.007	0.140	
5775	155	back	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.85	0.20	99.3	0.122	1.303	1.007	0.160	
5775	155	top	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.85	0.04	99.3	0.000	1.303	1.007	0.000	
5775	155	bottom	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.85	0.09	99.3	0.026	1.303	1.007	0.034	
5775	155	right	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.85	0.09	99.3	0.002	1.303	1.007	0.003	
5775	155	left	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	10.0	8.85	-0.03	99.3	0.798	1.303	1.007	1.047	
5775	155	left	0 mm	802.11ac	OFDM	1	Keyboard	JC220	80	29.3	10.0	8.85	-0.02	99.3	0.240	1.303	1.007	0.315	
5775	155	back	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	4.0	2.46	0.04	99.3	0.028	1.426	1.007	0.040	
5775	155	bottom	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	4.0	2.46	0.09	99.3	0.000	1.426	1.007	0.000	
5775	155	left	0 mm	802.11ac	OFDM	1	N/A	JC220	80	29.3	4.0	2.46	0.00	99.3	0.166	1.426	1.007	0.238	
5775	155	back	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.34	-0.05	99.3	0.087	1.306	1.007	0.114	
5775	155	top	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.34	0.09	99.3	0.002	1.306	1.007	0.003	
5775	155	bottom	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.34	0.03	99.3	0.000	1.306	1.007	0.000	
5775	155	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.34	0.02	99.3	0.627	1.306	1.007	0.825	
5775	155	left	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	9.5	8.34	0.20	99.3	0.000	1.306	1.007	0.000	
5775	155	back	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	5.5	4.42	0.03	99.3	0.041	1.282	1.007	0.053	
5775	155	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	5.5	4.42	-0.08	99.3	0.278	1.282	1.007	0.359	
5775	155	back	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	2.5	1.03	0.07	99.3	0.011	1.403	1.007	0.016	
5775	155	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	2.5	1.03	-0.09	99.3	0.121	1.403	1.007	0.171	
5290	58	right	0 mm	802.11ac	OFDM	2	N/A	JC220	80	29.3	11.0	10.00	0.03	99.3	0.853	1.259	1.007	1.081	
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: Blue entry represents variability measurement

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**Table 10-22  
Bluetooth Body SAR**

MEASUREMENT RESULTS																		
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Accessory	Device Serial Number	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													(W/kg)			(W/kg)	
2441	39	back	0 mm	Bluetooth	FHSS	1	N/A	H3220	1	13.0	11.10	0.06	76.8	0.032	1.549	1.302	0.065	
2441	39	top	0 mm	Bluetooth	FHSS	1	N/A	H3220	1	13.0	11.10	0.11	76.8	0.000	1.549	1.302	0.000	
2441	39	bottom	0 mm	Bluetooth	FHSS	1	N/A	H3220	1	13.0	11.10	0.03	76.8	0.000	1.549	1.302	0.000	
2441	39	right	0 mm	Bluetooth	FHSS	1	N/A	H3220	1	13.0	11.10	0.03	76.8	0.000	1.549	1.302	0.000	
2441	39	left	0 mm	Bluetooth	FHSS	1	N/A	H3220	1	13.0	11.10	0.04	76.8	0.127	1.549	1.302	0.256	A23
2441	39	left	0 mm	Bluetooth	FHSS	1	Keyboard	HY220	1	13.0	11.10	-0.17	76.8	0.030	1.549	1.302	0.061	
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 Standalone SAR Data - Laptop

**Table 10-23  
UMTS Body SAR**

MEASUREMENT RESULTS																	
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Configuration	Device Serial Number	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.												(W/kg)		(W/kg)		
836.60	4183	bottom	0 mm	UMTS 850	RMC	4	Laptop	HG220	25.6	24.54	0.17	1:1	0.091	1.276	0.116	A24	
1880.00	9400	bottom	0 mm	UMTS 1900	RMC	1	Laptop	GV220	25.6	24.76	0.08	1:1	0.052	1.213	0.063	A25	
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 71 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
680.50	133297	Md	bottom	0 mm	LTE Band 71	4	Laptop	K1220	20	QPSK	1	99	25.2	23.20	0	0.06	1:1	0.020	1.585	0.032	A26
680.50	133297	Md	bottom	0 mm	LTE Band 71	4	Laptop	K1220	20	QPSK	50	25	24.2	22.23	1	0.12	1:1	0.018	1.574	0.028	
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 10-25  
LTE Band 12 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
707.50	23095	Md	bottom	0 mm	LTE Band 12	4	Laptop	K1220	10	QPSK	1	0	25.5	24.05	0	0.00	1:1	0.024	1.396	0.034	A27
707.50	23095	Md	bottom	0 mm	LTE Band 12	4	Laptop	K1220	10	QPSK	25	0	24.5	23.13	1	0.00	1:1	0.019	1.371	0.026	
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 10-26  
LTE Band 13 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
782.00	23230	Mid	bottom	0 mm	LTE Band 13	4	Laptop	K1220	10	QPSK	1	0	25.2	24.30	0	0.04	1:1	0.073	1.230	0.090	A28
782.00	23230	Md	bottom	0 mm	LTE Band 13	4	Laptop	K1220	10	QPSK	25	0	24.2	23.60	1	0.00	1:1	0.055	1.148	0.063	
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 10-27  
LTE Band 14 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
793.00	23330	Md	bottom	0 mm	LTE Band 14	4	Laptop	K1220	10	QPSK	1	0	25.2	24.31	0	0.02	1:1	0.040	1.227	0.049	A29
793.00	23330	Md	bottom	0 mm	LTE Band 14	4	Laptop	K1220	10	QPSK	25	25	24.2	23.32	1	0.01	1:1	0.026	1.225	0.032	
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 10-28  
LTE Band 26 (Cell) Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
831.50	26865	Md	bottom	0 mm	LTE Band 26 (Cell)	4	Laptop	HG220	15	QPSK	1	0	25.7	24.70	0	0.03	1:1	0.070	1.259	0.088	A30
831.50	26865	Md	bottom	0 mm	LTE Band 26 (Cell)	4	Laptop	HG220	15	QPSK	36	0	24.7	23.98	1	0.04	1:1	0.061	1.180	0.072	
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 10-29  
LTE Band 5 (Cell) Body SAR**

MEASUREMENT RESULTS																							
# CC Uplink	Component Carrier	FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.																(W/kg)		(W/kg)		
1 CC Uplink	N/A	836.50	20525	Mid	bottom	0 mm	LTE Band 5 (Cell)	4	Laptop	H4220	10	0	0	25.7	23.78	0	0.01	1:1	0.097	1.556	0.151		
1 CC Uplink	N/A	836.50	20525	Mid	bottom	0 mm	LTE Band 5 (Cell)	4	Laptop	H4220	10	QPSK	25	0	24.7	22.98	1	-0.02	1:1	0.072	1.486	0.107	
2 CC Uplink	PCC	836.50	20525	Mid	bottom	0 mm	LTE Band 5 (Cell)	4	Laptop	H4220	10	0	0	25.7	24.25	0	0.00	1:1	0.117	1.396	0.163	A31	
	SCC	829.30	20453								5										24		
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 10-30  
LTE Band 66 (AWS) Body SAR**

MEASUREMENT RESULTS																						
# CC Uplink	Component Carrier	FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.																(W/kg)		(W/kg)	
1 CC Uplink	N/A	1745.00	132322	Mid	bottom	0 mm	LTE Band 66 (AWS)	1	Laptop	20	QPSK	1	0	25.7	24.64	0	0.13	1:1	0.103	1.276	0.131	
1 CC Uplink	N/A	1745.00	132322	Mid	bottom	0 mm	LTE Band 66 (AWS)	1	Laptop	20	QPSK	50	50	24.7	23.72	1	-0.03	1:1	0.094	1.253	0.118	
1 CC Uplink	N/A	1745.00	132322	Mid	bottom	0 mm	LTE Band 66 (AWS)	1	Laptop	10	QPSK	1	0	25.7	24.46	0	0.02	1:1	0.102	1.330	0.136	
2 CC Uplink CA 66B	PCC	1745.00	132322	Mid	bottom	0 mm	LTE Band 66 (AWS)	1	Laptop	10	QPSK	1	0	25.7	25.44	0	0.03	1:1	0.130	1.062	0.138	A32
	SCC	1735.10	132223									49										
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 10-31  
LTE Band 25 (PCS) Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
1882.50	26365	Md	bottom	0 mm	LTE Band 25 (PCS)	1	Laptop	GV220	20	QPSK	1	99	25.6	24.56	0	0.04	1:1	0.051	1.271	0.065	A33
1882.50	26365	Md	bottom	0 mm	LTE Band 25 (PCS)	1	Laptop	GV220	20	QPSK	50	50	24.6	23.60	1	0.02	1:1	0.029	1.259	0.037	
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 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
2310.00	27710	Md	bottom	0 mm	LTE Band 30	1	Laptop	2V220	10	QPSK	1	0	24.2	23.01	0	0.07	1:1	0.006	1.315	0.008	A34
2310.00	27710	Md	bottom	0 mm	LTE Band 30	1	Laptop	2V220	10	QPSK	25	0	23.2	21.88	1	0.04	1:1	0.006	1.355	0.008	
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 7 Body SAR**

MEASUREMENT RESULTS																							
# CC Uplink	Component Carrier	FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.																(W/kg)		(W/kg)		
1 CC Uplink	N/A	2535.00	21100	Md	bottom	0 mm	LTE Band 7	1	Laptop	H4220	20	QPSK	1	0	25.2	23.76	0	0.09	1:1	0.004	1.393	0.006	A35
1 CC Uplink	N/A	2535.00	21100	Md	bottom	0 mm	LTE Band 7	1	Laptop	H4220	20	QPSK	50	50	24.2	22.88	1	0.20	1:1	0.002	1.355	0.003	
2 CC Uplink	PCC	2535.00	21100	Md	bottom	0 mm	LTE Band 7	1	Laptop	H4220	20	QPSK	1	99	25.2	23.86	0	0.03	1:1	0.004	1.361	0.005	
	SCC	2515.20	20902																				
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 10-34  
LTE Band 41 Body SAR**

MEASUREMENT RESULTS																							
# CC Uplink, Power Class	Component Carrier	FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.																(W/kg)		(W/kg)		
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Md-High	bottom	0 mm	LTE Band 41	1	Laptop	H8220	20	QPSK	1	0	25.2	23.99	0	0.05	1:1.58	0.005	1.321	0.007	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Md-High	bottom	0 mm	LTE Band 41	1	Laptop	H8220	20	QPSK	50	50	24.2	23.02	1	0.03	1:1.58	0.000	1.312	0.000	
1 CC Uplink - Power Class 2	N/A	2636.50	41055	Md-High	bottom	0 mm	LTE Band 41	1	Laptop	H8220	20	QPSK	1	0	27.7	26.86	0	0.20	1:2.31	0.006	1.213	0.007	A36
2 CC Uplink - Power Class 3	PCC	2636.50	41055	Md-High	bottom	0 mm	LTE Band 41	1	Laptop	H8220	20	QPSK	1	99	25.2	23.47	0	0.02	1:1.58	0.004	1.489	0.006	
	SCC	2616.70	40857																				
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 48 Body SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
3690.00	56640	High	bottom	0 mm	LTE Band 48	2	Laptop	JE220	20	QPSK	1	0	25.2	24.47	0	0.02	1:1.58	0.000	1.183	0.000	A37
3690.00	56640	High	bottom	0 mm	LTE Band 48	2	Laptop	JE220	20	QPSK	50	0	24.2	23.71	1	0.06	1:1.58	0.000	1.119	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									

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**Table 10-36  
NR Band n71 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Configuration	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
680.50	136100	Mid	bottom	0 mm	NR Band n71	4	Laptop	HF220	20	DFT-S-OFDM	QPSK	1	104	25.2	24.12	0	0.02	1:1	0.027	1.282	0.035	A38
680.50	136100	Mid	bottom	0 mm	NR Band n71	4	Laptop	HF220	20	DFT-S-OFDM	QPSK	50	28	25.2	23.99	0	-0.03	1:1	0.021	1.321	0.028	
680.50	136100	Mid	bottom	0 mm	NR Band n71	4	Laptop	HF220	20	CP-OFDM	QPSK	1	1	23.7	22.24	1.5	0.04	1:1	0.010	1.400	0.014	
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 10-37  
NR Band n5 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Configuration	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
836.50	167300	Mid	bottom	0 mm	NR Band n5 (Cell)	4	Laptop	HG220	20	DFT-S-OFDM	QPSK	1	53	25.4	24.07	0	-0.15	1:1	0.073	1.358	0.099	A39
836.50	167300	Mid	bottom	0 mm	NR Band n5 (Cell)	4	Laptop	HG220	20	DFT-S-OFDM	QPSK	50	28	25.4	23.86	0	0.03	1:1	0.055	1.426	0.078	
836.50	167300	Mid	bottom	0 mm	NR Band n5 (Cell)	4	Laptop	HG220	20	CP-OFDM	QPSK	1	1	23.9	22.12	1.5	0.06	1:1	0.060	1.507	0.090	
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 10-38  
NR Band n66 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Configuration	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
1745.00	349000	Mid	bottom	0 mm	NR Band n66 (AWS)	1	Laptop	HZ220	40	DFT-S-OFDM	QPSK	1	108	25.7	24.77	0	0.03	1:1	0.127	1.239	0.157	A40
1745.00	349000	Mid	bottom	0 mm	NR Band n66 (AWS)	1	Laptop	HZ220	40	DFT-S-OFDM	QPSK	108	54	25.7	24.77	0	-0.11	1:1	0.123	1.239	0.152	
1745.00	349000	Mid	bottom	0 mm	NR Band n66 (AWS)	1	Laptop	HZ220	40	CP-OFDM	QPSK	1	1	24.2	23.25	1.5	0.11	1:1	0.115	1.245	0.143	
1745.00	349000	Mid	bottom	0 mm	NR Band n66 (AWS)	4	Laptop	HZ220	40	DFT-S-OFDM	QPSK	1	108	25.7	24.66	0	0.06	1:1	0.015	1.271	0.019	
1745.00	349000	Mid	bottom	0 mm	NR Band n66 (AWS)	4	Laptop	HZ220	40	DFT-S-OFDM	QPSK	108	54	25.7	24.70	0	0.03	1:1	0.010	1.259	0.013	
1745.00	349000	Mid	bottom	0 mm	NR Band n66 (AWS)	4	Laptop	HZ220	40	CP-OFDM	QPSK	1	1	24.2	23.08	1.5	0.07	1:1	0.008	1.294	0.010	
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 10-39  
NR Band n25 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Configuration	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
1882.50	376500	Mid	bottom	0 mm	NR Band n25 (PCS)	1	Laptop	GV220	40	DFT-S-OFDM	QPSK	1	108	25.4	24.25	0	-0.03	1:1	0.024	1.303	0.031	
1882.50	376500	Mid	bottom	0 mm	NR Band n25 (PCS)	1	Laptop	GV220	40	DFT-S-OFDM	QPSK	108	54	25.4	24.31	0	0.02	1:1	0.032	1.285	0.041	A41
1882.50	376500	Mid	bottom	0 mm	NR Band n25 (PCS)	1	Laptop	GV220	40	CP-OFDM	QPSK	1	1	23.9	22.56	1.5	-0.01	1:1	0.020	1.361	0.027	
1882.50	376500	Mid	bottom	0 mm	NR Band n25 (PCS)	4	Laptop	HZ220	40	DFT-S-OFDM	QPSK	1	214	25.4	24.71	0	-0.12	1:1	0.008	1.172	0.009	
1882.50	376500	Mid	bottom	0 mm	NR Band n25 (PCS)	4	Laptop	HZ220	40	DFT-S-OFDM	QPSK	108	54	25.4	24.62	0	0.09	1:1	0.003	1.197	0.004	
1882.50	376500	Mid	bottom	0 mm	NR Band n25 (PCS)	4	Laptop	HZ220	40	CP-OFDM	QPSK	1	1	23.9	22.78	1.5	0.05	1:1	0.005	1.294	0.006	
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 10-40  
NR Band n41 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Configuration	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
2592.99	518598	Mid	bottom	0 mm	NR Band n41	1	Laptop	H7220	100	DFT-S-OFDM	QPSK	1	137	25.2	23.58	0	0.09	1:1	0.011	1.452	0.016	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	1	Laptop	H7220	100	DFT-S-OFDM	QPSK	135	69	25.2	23.60	0	0.05	1:1	0.010	1.445	0.014	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	1	Laptop	H7220	100	CP-OFDM	QPSK	1	1	23.7	21.69	1.5	0.08	1:1	0.000	1.589	0.000	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	4	Laptop	H7220	100	DFT-S-OFDM	QPSK	1	137	25.2	23.81	0	0.07	1:1	0.000	1.377	0.000	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	4	Laptop	H7220	100	DFT-S-OFDM	QPSK	135	69	25.2	23.72	0	0.20	1:1	0.000	1.406	0.000	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	4	Laptop	H7220	100	CP-OFDM	QPSK	1	1	23.7	21.82	1.5	0.20	1:1	0.000	1.542	0.000	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	5	Laptop	H7220	100	CWRS	N/A	N/A	N/A	23.2	22.23	N/A	-0.03	1:1	0.056	1.250	0.070	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	8	Laptop	H7220	100	CWRS	N/A	N/A	N/A	23.2	22.31	N/A	-0.07	1:1	0.069	1.227	0.085	A42
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 10-41  
NR Band n77 Body SAR**

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Configuration	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																					
3750.00	650000	Low	bottom	0 mm	NR Band n77	2	Laptop	H4220	100	DFT-S-OFDM	QPSK	1	271	25.7	24.18	0	0.01	1:1	0.001	1.419	0.001	
3750.00	650000	Low	bottom	0 mm	NR Band n77	2	Laptop	H4220	100	DFT-S-OFDM	QPSK	135	69	25.7	24.03	0	0.06	1:1	0.000	1.469	0.000	
3750.00	650000	Low	bottom	0 mm	NR Band n77	2	Laptop	H4220	100	CP-OFDM	QPSK	1	1	24.2	22.42	1.5	-0.09	1:1	0.000	1.507	0.000	
3930.00	662000	High	bottom	0 mm	NR Band n77	3	Laptop	H4220	100	CWSRS	N/A	N/A	N/A	25.7	25.50	N/A	0.06	1:1	0.006	1.047	0.006	
3930.00	662000	High	bottom	0 mm	NR Band n77	5	Laptop	H7220	100	CWSRS	N/A	N/A	N/A	23.7	23.01	N/A	-0.01	1:1	0.123	1.172	0.144	
3750.00	650000	Low	bottom	0 mm	NR Band n77	8	Laptop	H7220	100	CWSRS	N/A	N/A	N/A	23.7	23.45	N/A	0.07	1:1	0.123	1.059	0.130	A43
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 10-42  
DTS SISO WLAN Body SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2422	3	bottom	0 mm	802.11b	DSSS	1	Laptop	HD220	22	1	21.0	20.68	0.05	99.7	0.015	1.076	1.003	0.016	
2437	6	bottom	0 mm	802.11b	DSSS	2	Laptop	HD220	22	1	21.0	20.80	0.14	99.9	0.053	1.047	1.001	0.056	A44
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 10-43  
NII SISO WLAN Body SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Configuration	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
5320	64	bottom	0 mm	802.11a	OFDM	1	Laptop	JC220	20	6	21.0	20.95	0.09	98.3	0.057	1.012	1.017	0.059	
5280	56	bottom	0 mm	802.11a	OFDM	2	Laptop	JC220	20	6	21.0	20.77	-0.19	99.0	0.022	1.054	1.010	0.023	
5500	100	bottom	0 mm	802.11a	OFDM	1	Laptop	JC220	20	6	21.0	20.99	0.12	98.3	0.095	1.002	1.017	0.097	
5620	124	bottom	0 mm	802.11a	OFDM	2	Laptop	JC220	20	6	21.0	20.99	0.13	99.0	0.058	1.002	1.010	0.059	
5785	157	bottom	0 mm	802.11a	OFDM	1	Laptop	JC220	20	6	21.0	20.96	-0.04	98.3	0.134	1.009	1.017	0.138	A45
5825	165	bottom	0 mm	802.11a	OFDM	2	Laptop	JC220	20	6	21.0	20.92	-0.10	99.0	0.076	1.019	1.010	0.078	
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 10-44  
Bluetooth WLAN Body SAR**

MEASUREMENT RESULTS																		
FREQUENCY		Side	Spacing	Mode	Service	Configuration	Device Serial Number	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	SAR (1g) (W/kg)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																	
2441	39	bottom	0 mm	Bluetooth	FHSS	Laptop	HY220	1	13.0	11.10	0.08	76.8	0.002	1.549	1.302	0.004	A46	
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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### 10.3 SAR Test Notes

General Notes:

1. 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.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. 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.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D04v01.
6. 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 11 for variability analysis.
7. This device uses Qualcomm Smart Transmit for 3G/4G/5G operations 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 (DSI).
8. 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.
9. 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.
10. 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°
11. The orange highlights throughout the report represent the highest scaled SAR per Equipment Class.

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.

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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 12 for linearity results.
8. For LTE Band 5, LTE Band 7, LTE Band 66, 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.
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. SRS was tested with CW signal per Qualcomm guidance in 80-w2112-4.

**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.

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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.

#### Bluetooth Notes

1. Bluetooth SAR was measured with test mode with hopping disabled with DH5 operation. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 8 for the time domain plot and calculation for the duty factor of the device.

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# 11 SAR MEASUREMENT VARIABILITY

## 11.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

- 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg (~10% from the 1g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .
- 4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

**Table 11-1  
Body SAR Measurement Variability Results - Tablet**

BODY VARIABILITY RESULTS															
Band	FREQUENCY		Mode	Service	Side	Spacing	Antenna Config	Accessory	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.							(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1750	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	top	0 mm	1	N/A	1.070	1.070	1.00	N/A	N/A	N/A	N/A
2300	2310.00	27710	LTE Band 30, 10 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	top	0 mm	1	N/A	0.900	0.887	1.01	N/A	N/A	N/A	N/A
2450	2506.00	39750	LTE Band 41, 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	top	0 mm	1	N/A	0.878	0.864	1.02	N/A	N/A	N/A	N/A
2600	2549.50	40185	LTE Band 41, 20 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	top	0 mm	1	N/A	0.834	0.832	1.00	N/A	N/A	N/A	N/A
3700	3603.30	55773	LTE Band 48, 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	top	0 mm	2	N/A	0.880	0.875	1.01	N/A	N/A	N/A	N/A
1900	1882.50	376500	NR Band n25 (PCS), 40 MHz Bandwidth	DFT-S-OFDM, QPSK, 1 RB, 214 RB Offset	top	0 mm	1	N/A	0.996	0.961	1.04	N/A	N/A	N/A	N/A
5250	5290.00	58	802.11ac, 80 MHz Bandwidth	OFDM	right	0 mm	2	N/A	0.858	0.853	1.01	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Body									
Spatial Peak						1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population						averaged over 1 gram									

## 11.2 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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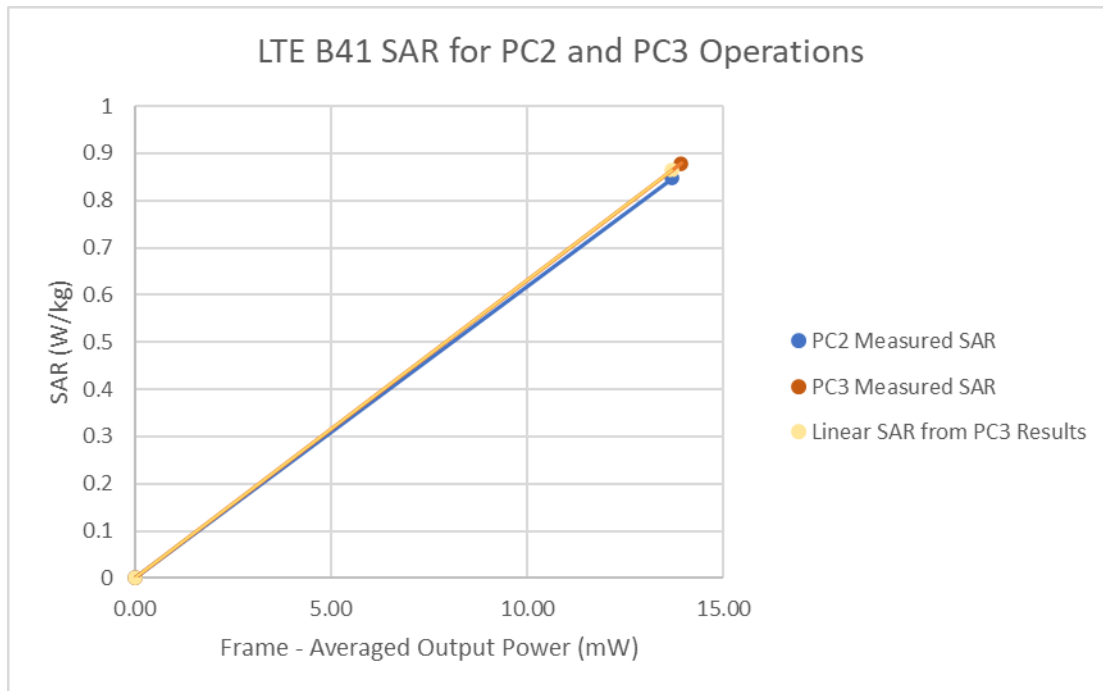
## 12 ADDITIONAL TESTING PER FCC GUIDANCE

### 12.1 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 12-1**  
**LTE Band 41 Body Linearity Data - Tablet**

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	14.50	16.10
Measured Output Power (dBm)	13.42	15.00
Measured SAR (W/kg)	0.878	0.847
Measured Power (mW)	21.98	31.62
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	13.91	13.69
% deviation from expected linearity		-1.98%



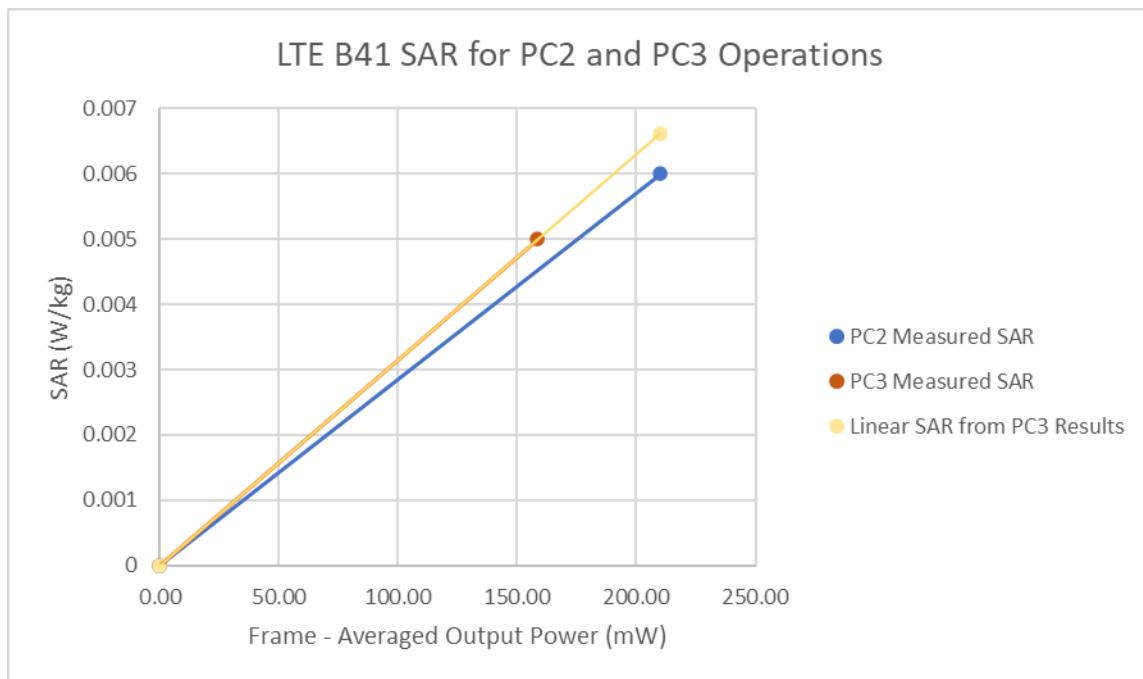
**Figure 12-1**  
**LTE Band 41 Body Linearity - Tablet**

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**Table 12-2**  
**LTE Band 41 Body Linearity Data - Laptop**

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.2	27.7
Measured Output Power (dBm)	23.99	26.86
Measured SAR (W/kg)	0.005	0.006
Measured Power (mW)	250.61	485.29
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	158.64	210.13
% deviation from expected linearity		-9.41%



**Figure 12-2**  
**LTE Band 41 Body Linearity - Laptop**

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# 13 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E4404B	Spectrum Analyzer	N/A	N/A	N/A	MN1511342
Agilent	E4438C	ESG Vector Signal Generator	5/10/2022	Annual	5/10/2023	MN4208969
Agilent	E4438C	ESG Vector Signal Generator	3/24/2022	Annual	3/24/2023	MN4209678
Agilent	N5182A	MVG Vector Signal Generator	6/21/2021	Annual	6/21/2022	MN4742003
Agilent	N5182A	MVG Vector Signal Generator	3/12/2022	Annual	3/12/2023	MN4742887
Agilent	8753ES	S-Parameter Vector Network Analyzer	2/12/2022	Annual	2/12/2023	MN0020841
Agilent	8753ES	S-Parameter Vector Network Analyzer	4/14/2021	Annual	4/14/2022	US3917018
Agilent	E5515C	Wireless Communications Test Set	5/12/2022	Annual	5/12/2023	GB4330478
Agilent	E5515C	Wireless Communications Test Set	5/4/2021	Biennial	5/4/2023	GB4450275
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB4617084
Amplifier Research	3551G6	Amplifier	CBT	N/A	CBT	343974
Amplifier Research	3551G6	Amplifier	CBT	N/A	CBT	343972
Anritsu	ML2496A	Power Meter	4/21/2021	Annual	4/21/2022	1351001
Anritsu	ML2496A	Power Meter	3/29/2022	Annual	3/29/2023	1300009
Anritsu	MA2411B	Pulse Power Sensor	4/29/2022	Annual	4/29/2023	1420470
Anritsu	MA2411B	Pulse Power Sensor	3/28/2022	Annual	3/28/2023	1330007
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	3/31/2022	Annual	3/31/2023	620664796
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	5/11/2021	Annual	5/11/2023	632004715
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	9/26/2021	Annual	9/26/2022	6201524637
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	8/10/2021	Annual	8/10/2022	626215000
Anritsu	MT8800A	Radio Communication Test Station	8/2/2021	Annual	8/2/2022	627337498
Anritsu	MT8800A	Radio Communication Test Station	4/15/2022	Annual	4/15/2023	627337499
Anritsu	MT8800A	Radio Communication Test Station	8/2/2021	Annual	8/2/2022	627337436
Anritsu	MA24106A	USB Power Sensor	4/22/2022	Annual	4/22/2023	1344556
Anritsu	MA24106A	USB Power Sensor	3/29/2022	Annual	3/29/2023	1520503
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	200670629
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	200670633
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	200670635
Control Company	4040	Therm / Clock / Humidity Monitor	1/21/2022	Annual	1/21/2023	160574418
Control Company	4040	Therm / Clock / Humidity Monitor	3/12/2021	Biennial	3/12/2023	210020130
Matsuy	SR-06-20	CD-S-6500 Bench Digital Analyzer	7/19/2021	Triennial	7/19/2023	4203989
Keysight Technologies	N6709B	DC Power Analyzer	5/5/2021	Triennial	5/5/2024	MN5304069
Keysight Technologies	N9020A	MXA Signal Analyzer	4/14/2022	Annual	4/14/2023	MN4803033
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	7/16/2021	Annual	7/16/2022	31564
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-100+	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	1236
Mini-Circuits	ZUCD-82-5+	Directional Coupler	CBT	N/A	CBT	2950
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-53W2	Attenuator (3dB)	CBT	N/A	CBT	130
Seekonk	TSF-100	Torque Wrench	7/8/2021	Annual	7/8/2022	47639-29
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	4/18/2022	Annual	4/18/2023	128613
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	1/12/2022	Annual	1/12/2023	4206699
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	4/8/2022	Annual	4/8/2023	161215
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	4/7/2022	Annual	4/7/2023	167283
SPEAG	DAK-3.5	Dielectric Assessment Kit	1/6/2022	Annual	1/6/2023	1278
SPEAG	DAK3-3.5	Portable Dielectric Assessment Kit	8/18/2021	Annual	8/18/2022	1041
SPEAG	DAK3-3.5	Portable Dielectric Assessment Kit	10/7/2021	Annual	10/7/2022	1041
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1379
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1237
SPEAG	D750V3	750 MHz SAR Dipole	3/14/2022	Annual	3/14/2023	1054
SPEAG	D750V3	750 MHz SAR Dipole	6/20/2019	Triennial	6/20/2022	1057
SPEAG	D750V3	750 MHz SAR Dipole	9/8/2021	Annual	9/8/2022	1097
SPEAG	D835V2	835 MHz SAR Dipole	1/21/2021	Biennial	1/21/2023	46132
SPEAG	D835V2	835 MHz SAR Dipole	6/20/2019	Triennial	6/20/2022	46040
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2021	Annual	10/19/2022	46133
SPEAG	D850V2	850 MHz SAR Dipole	9/10/2020	Biennial	9/8/2022	1010
SPEAG	D850V2	850 MHz SAR Dipole	12/7/2021	Annual	12/7/2022	1009
SPEAG	D1750V2	1750 MHz SAR Dipole	9/9/2020	Biennial	9/9/2022	1104
SPEAG	D1765V2	1750 MHz SAR Dipole	5/14/2021	Biennial	5/14/2023	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	8/10/2020	Biennial	8/10/2022	56180
SPEAG	D1900V2	1900 MHz SAR Dipole	9/10/2020	Biennial	9/10/2022	56181
SPEAG	D2300V2	2300 MHz SAR Dipole	1/12/2020	Biennial	1/12/2022	1064
SPEAG	D2450V2	2450 MHz SAR Dipole	8/18/2021	Annual	8/18/2022	719
SPEAG	D2450V2	2450 MHz SAR Dipole	9/20/2020	Biennial	9/20/2022	797
SPEAG	D2600V2	2600 MHz SAR Dipole	6/14/2019	Triennial	6/14/2022	1064
SPEAG	D3500V2	3500 MHz SAR Dipole	1/21/2020	Triennial	1/21/2023	1097
SPEAG	D3500V2	3500 MHz SAR Dipole	1/28/2021	Biennial	1/28/2023	1098
SPEAG	D3500V2	3900 MHz SAR Dipole	6/10/2021	Annual	6/10/2022	1073
SPEAG	D5GHV2	5 GHz SAR Dipole	1/10/2022	Annual	1/10/2023	1057
SPEAG	D5GHV2	5 GHz SAR Dipole	9/15/2021	Annual	9/15/2022	1191
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/4/2021	Annual	8/4/2022	1680
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/11/2021	Annual	5/11/2022	791
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/13/2022	Annual	1/13/2023	793
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/11/2021	Annual	11/11/2022	1646
SPEAG	DAE4	Dasy Data Acquisition Electronics	12/8/2021	Annual	12/8/2022	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/6/2021	Annual	8/6/2022	1683
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/13/2022	Annual	4/13/2023	521
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/3/2021	Annual	8/3/2022	1681
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/14/2022	Annual	4/14/2023	1402
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/22/2022	Annual	3/22/2023	604
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/22/2022	Annual	2/22/2023	1463
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/21/2021	Annual	6/21/2022	1678
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/16/2021	Annual	8/16/2022	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/22/2022	Annual	2/22/2023	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/24/2022	Annual	2/24/2023	467
SPEAG	EX3DV4	SAR Probe	9/20/2021	Annual	9/20/2022	7552
SPEAG	EX3DV4	SAR Probe	5/18/2021	Annual	5/18/2022	7416
SPEAG	EX3DV4	SAR Probe	1/19/2022	Annual	1/19/2023	3837
SPEAG	EX3DV4	SAR Probe	11/16/2021	Annual	11/16/2022	7639
SPEAG	EX3DV4	SAR Probe	1/10/2022	Annual	1/10/2023	7571
SPEAG	EX3DV4	SAR Probe	9/6/2021	Annual	9/6/2022	7674
SPEAG	EX3DV4	SAR Probe	4/22/2022	Annual	4/22/2023	7521
SPEAG	EX3DV4	SAR Probe	8/5/2021	Annual	8/5/2022	7670
SPEAG	EX3DV4	SAR Probe	2/21/2022	Annual	2/21/2023	7398
SPEAG	EX3DV4	SAR Probe	4/22/2022	Annual	4/22/2023	7546
SPEAG	EX3DV4	SAR Probe	3/22/2022	Annual	3/22/2023	7421
SPEAG	EX3DV4	SAR Probe	2/22/2022	Annual	2/22/2023	7422
SPEAG	EX3DV4	SAR Probe	7/20/2021	Annual	7/20/2022	7486
SPEAG	EX3DV4	SAR Probe	6/28/2021	Annual	6/28/2022	7661
SPEAG	EX3DV4	SAR Probe	2/22/2022	Annual	2/22/2023	7417

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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# 14 MEASUREMENT UNCERTAINTIES

a	b	c	d	e=	f	g	h =	i =	k
				f(d,k)			c x f/e	c x g/e	
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c <sub>i</sub> 1gm	c <sub>i</sub> 10 gms	1gm u <sub>i</sub> (± %)	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	1.732	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	1.732	1	1	0.1	0.1	∞
Modulation Response	E.2.5	4.8	R	1.732	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	1.732	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E.6.1	3	R	1.732	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	3	R	1.732	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.732	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E.6.3	6.7	R	1.732	1	1	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	4	R	1.732	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	1.732	1	1	2.9	2.9	∞
SAR Scaling	E.6.5	0	R	1.732	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	1.732	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	E.3.4	0.6	R	1.732	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	∞
Combined Standard Uncertainty (k=1)	RSS						12.2	12.0	191
Expanded Uncertainty (95% CONFIDENCE LEVEL)	k=2						24.4	24.0	

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

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## 15 CONCLUSION

### 15.1 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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