



SAR EVALUATION REPORT

Applicant Name:
LG Electronics U.S.A., Inc.
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Englewood Cliffs, NJ 07632
United States

Date of Testing:
08/31/20 – 10/06/20
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M2007230115-01.ZNF

FCC ID: **ZNFF100TM**

APPLICANT: **LG ELECTRONICS U.S.A., INC.**

DUT Type: Portable Handset
Application Type: Class II Permissive Change
FCC Rule Part(s): CFR §2.1093
Model: LM-F100TM
Additional Model(s): LMF100TM, F100TM
Permissive Change(s): See FCC Change Document
Date of Original Certification: 09/21/20

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1g Head (W/kg)	1g Body Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.13	0.66	0.66	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	< 0.1	0.51	0.76	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.11	0.57	0.57	N/A
PCE	UMTS 1755	1712.4 - 1752.6 MHz	< 0.1	0.68	0.96	2.09
PCE	UMTS 1900	1852.4 - 1907.6 MHz	< 0.1	0.49	0.97	2.28
PCE	CDMA/EVDO B20 (S20S)	817.90 - 823.10 MHz	0.12	0.57	0.60	N/A
PCE	CDMA/EVDO B20 (S22H)	824.70 - 848.31 MHz	0.11	0.66	0.65	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	< 0.1	0.48	1.01	2.28
PCE	LTE Band 71	665.5 - 695.5 MHz	< 0.1	0.29	0.29	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	< 0.1	0.30	0.30	N/A
PCE	LTE Band 17	706.5 - 713.5 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.13	0.37	0.37	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	< 0.1	0.45	0.45	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	< 0.1	0.72	0.82	1.85
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	< 0.1	0.50	0.93	2.48
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	0.10	0.30	0.49	N/A
CBE	LTE Band 48	3552.5 - 3697.5 MHz	1.24	0.54	0.65	N/A
PCE	LTE Band 41	2496.5 - 2687.5 MHz	< 0.1	0.35	0.59	N/A
PCE	NR Band n71	665.5 - 695.5 MHz	< 0.1	0.30	0.30	N/A
PCE	NR Band n66 (AWS)	1712.5 - 1777.5 MHz	0.10	0.42	0.57	N/A
PCE	NR Band n25 (PCS)	1852.5 - 1912.5 MHz	< 0.1	0.30	0.62	N/A
PCE	NR Band n41	2506.02 - 2679.99 MHz	< 0.1	0.10	0.15	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.96	0.29	0.45	N/A
Nil	U-NB-1	5180 - 5240 MHz	N/A	N/A	0.59	N/A
Nil	U-NB-2A	5260 - 5320 MHz	0.28	0.50	N/A	0.89
Nil	U-NB-2C	5500 - 5720 MHz	0.18	0.18	N/A	0.80
Nil	U-NB-3	5745 - 5825 MHz	0.13	0.24	0.24	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.24	< 0.1	< 0.1	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.59	1.54	1.59	3.84

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.


Randy Ortanez
President



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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
CDMA/EVDO BC0 (\$22H)	Voice/Data	824.70 - 848.31 MHz
CDMA/EVDO BC10 (\$90S)	Voice/Data	817.90 - 823.10 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 48	Voice/Data	3552.5 - 3697.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
NR Band n71	Data	665.5 - 695.5 MHz
NR Band n66 (AWS)	Data	1712.5 - 1777.5 MHz
NR Band n25 (PCS)	Data	1852.5 - 1912.5 MHz
NR Band n41	Data	2506.02 - 2679.99 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
WMC	Data	500 Hz - 4 kHz

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1.1 Time-Averaging Algorithm for RF Exposure Compliance

The equipment under test (EUT) contains:

Qualcomm® SM7250 modem supporting 2G/3G/4G/5G NR WWAN technologies

Qualcomm® SM7250 modem is enabled with 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}*, below the predefined time-averaged power limit (i.e., P_{limit} for sub-6 radio), for each characterized technology and band (see RF Exposure Part 0 Test Report, report SN could 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 +1.0/-1.0 dB for this EUT.

Exposure Scenario:		Head	Body-Worn	Phablet	Swivel		Hotspot	Maximum Tune-Up Output Power*
					Head	Phablet		
Averaging Volume:		1g	1g	10g	1g	10g	1g	
Spacing:		0 mm	10 mm	0 mm	0mm	0 mm	10 mm	
DSI:		1			7		5	
Technology/Band	Antenna	Plimit						Pmax
GSM/GPRS/EDGE 850 MHz	1	27.1			27.1		27.1	25.1
GSM/GPRS/EDGE 1900 MHz	2	25.3			25.3		25.3	22.6
UMTS B5	1	28.2			28.2		28.2	24.5
UMTS B4	2	22.5			22.5		22.5	24.5
UMTS B2	2	22.5			22.5		22.5	24.5
CDMA/EVDO BC10	1	27.8			27.8		27.8	24.5
CDMA/EVDO BC0	1	27.2			27.2		27.2	24.5
CDMA/EVDO BC1	2	22.5			22.5		22.5	24.5
LTE FDD B12/B17	1	29.1			29.1		27.1	24.5
LTE FDD B12 ULCA PCC	1	27.1			27.1		27.1	22.5
LTE FDD B13	1	28.9			28.9		28.9	24.5
LTE FDD B5	1	29.0			29.0		29.0	24.5
LTE FDD B26	1	29.4			29.4		29.0	24.5
LTE FDD B71	1	29.6			29.6		29.6	24.5
LTE FDD B66/B4	2	22.5			22.5		22.5	24.5
LTE FDD B66 ULCA PCC	3	25.1			25.1		25.1	22.5
LTE FDD B66 EN-DC	3	22.5			22.5		22.5	24.5
LTE FDD B25/B2	2	22.5			22.5		22.5	24.5
LTE FDD B2 ULCA PCC	3	24.8			24.8		24.8	22.5
LTE FDD B2 EN-DC	3	22.5			22.5		22.5	24.5
LTE TDD B48	9	19.5			19.5		19.5	21.0
LTE TDD B41 (PC3)	2	22.0			22.0		22.0	22.5
LTE TDD B41 (PC2)	2	22.0			22.0		22.0	22.9
NR FDD n71	1	29.5			29.5		29.5	24.5
NR FDD n66	3	22.5			22.5		22.5	24.5
NR FDD n25	3	22.5			22.5		22.5	24.5
NR TDD n41 PC3	1	17.7			17.7		17.7	18.2
NR TDD n41 PC2	1	17.7			17.7		17.7	20.2

*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 (for e.g., GSM & LTE TDD). LTE B12/B2/B66 is defined by ULCA PCC and Standalone, and LTE B12/B2/B66 ULCA is defined by ULCA SCC. When they are operated by ULCA, the max power is 22.5 dBm (2 dB lower than standalone power).

*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 + 1.0dB device design uncertainty. For

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interband-ULCA scenarios, LTE Band 66/2/12 as SCC will operate as maximum allowed output power limited at 17.7 dBm according to software implementation in this model.

The maximum time-averaged output power (dBm) for any 2G/3G/4G/5G WWAN technology, band, and DSI = minimum of " P_{limit} EFS" and "Maximum tune up output power P_{max} " +1.0/-1.0 dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D01v06.

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.

1.2 Power Reduction for SAR

This device uses an independent fixed level power reduction mechanism for WLAN operations during voice or VoIP held to ear scenarios. Per FCC Guidance, the held-to-ear exposure conditions were evaluated at reduced power according to the head SAR positions described in IEEE 1528-2013. Detailed descriptions of the power reduction mechanism are included in the operational description.

1.3 Mechanical Modes

This device supports four different mechanical modes: normal mode, normal mode + pop up, swivel mode, swivel mode + pop up. Per FCC guidance, SAR with the mechanical mode 3 was measured for the configurations with the highest reported SAR from mechanical mode 1 for each wireless technology, frequency band, operating mode, and applicable exposure condition (head, phablet). Additionally, overall worst-case hotspot and phablet (between normal and swivel modes) was checked for mechanical mode 2 (normal mode + pop-up) or mechanical mode 4 (swivel mode + pop-up). Full SAR tests were additionally performed for any mechanical mode 3 test configurations with 1g SAR >1.2 W/kg or 10g SAR >3.0 W/kg. For WIFI/BT and LTE B48 phablet, if the worst case was right edge or left edge, the second-worst case was considered for SAR testing with mechanical mode 3 since swivel mode checks can only be performed for TX antennas in the grip portion of the DUT (Antennas 1, 2 and 3). There are no TX antennas present in the swivel-display. Appendix E contains positioning information in mechanical modes 1, 2 and 3.

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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 D01v06.

1.4.1 2G/3G/4G/5G Output Power

GSM/GPRS/EDGE 850										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
All DSI	Max allowed power	34.0	34.0	32.0	30.5	29.0	27.0	27.0	26.0	26.0
	Nominal	33.0	33.0	31.0	29.5	28.0	26.0	26.0	25.0	25.0

GSM/GPRS/EDGE 1900										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
All DSI	Max allowed power	31.0	31.0	29.0	28.0	26.0	26.0	26.0	25.0	25.0
	Nominal	30.0	30.0	28.0	27.0	25.0	25.0	25.0	24.0	24.0

CDMA BC10 (815 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		1x-RTT	EVDO Rev 0	EVDO Rev A
All DSI	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5

CDMA BC0 (835 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		1x-RTT	EVDO Rev 0	EVDO Rev A
All DSI	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5

CDMA BC1 (1900 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		1x-RTT	EVDO Rev 0	EVDO Rev A
DSI = 1 (Head, Bodyworn or Phablet); DSI = 7 (Swivel)	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
DSI = 5 (Hotspot)	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5

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
All DSI	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5

UMTS Band 4 (1750 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
DSI = 1 (Head, Bodyworn or Phablet); DSI = 7 (Swivel)	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
DSI = 5 (Hotspot)	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5

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
DSI = 1 (Head, Bodyworn or Phablet); DSI = 7 (Swivel)	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
DSI = 5 (Hotspot)	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5

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Mode / Band		Modulated Average Output Power (in dBm)		
		DSI = 1 (Head, Bodyworn or Phablet)	DSI = 5 (Hotspot)	DSI = 7 (Swivel)
LTE FDD Band 71	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5
LTE FDD Band 12	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5
LTE FDD Band 17	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5
LTE FDD Band 13	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5
LTE FDD Band 5	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5
LTE FDD Band 26	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5
LTE FDD Band 4	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
LTE FDD Band 66	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
LTE FDD Band 2	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
LTE FDD Band 25	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
LTE TDD Band 48	Max allowed power	22.5	22.5	22.5
	Nominal	21.5	21.5	21.5
LTE TDD Band 41 (PC3)	Max allowed power	25.0	25.0	25.0
	Nominal	24.0	24.0	24.0
LTE TDD Band 41 (PC2)	Max allowed power	26.6	26.6	26.6
	Nominal	25.6	25.6	25.6

Mode / Band		Modulated Average Output Power (in dBm)		
		DSI = 1 (Head, Bodyworn or Phablet)	DSI = 5 (Hotspot)	DSI = 7 (Swivel)
NR FDD Band n71	Max allowed power	25.5	25.5	25.5
	Nominal	24.5	24.5	24.5
NR FDD Band n66	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
NR FDD Band n25	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
NR TDD Band n41 (PC3)	Max allowed power	25.0	25.0	25.0
	Nominal	24.0	24.0	24.0
NR TDD Band n41 (PC2)	Max allowed power	25.0	25.0	25.0
	Nominal	24.0	24.0	24.0

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The below tables are applicable in the following condition:

- Inter-band ULCA Active for combos CA 12A-66A, CA 2A-12A

Mode / Band		Modulated Average Output Power (in dBm)		
		DSI = 1 (Head, Bodyworn or Phablet)	DSI = 5 (Hotspot)	DSI = 7 (Swivel)
LTE FDD Band 12 as PCC	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
LTE FDD Band 66 Ant 3 as PCC	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
LTE FDD Band 2 Ant 3 as PCC	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
LTE FDD Band 12 as SCC	Max allowed power	17.7	17.7	17.7
	Nominal	17.0	17.0	17.0
LTE FDD Band 66 Ant 3 as SCC	Max allowed power	17.7	17.7	17.7
	Nominal	17.0	17.0	17.0
LTE FDD Band 2 Ant 3 as SCC	Max allowed power	17.7	17.7	17.7
	Nominal	17.0	17.0	17.0

The below tables are applicable in the following condition:

- EN-DC active with LTE Band 2/66 as an anchor band for NR Band n71

Mode / Band		Modulated Average Output Power (in dBm)		
		DSI = 1 (Head, Bodyworn or Phablet)	DSI = 5 (Hotspot)	DSI = 7 (Swivel)
LTE FDD Band 66 Ant 3 as Anchor Band in EN-DC	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5
LTE FDD Band 2 Ant 3 as Anchor Band in EN-DC	Max allowed power	23.5	23.5	23.5
	Nominal	22.5	22.5	22.5

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1.4.2 Maximum Bluetooth and SISO/MIMO WLAN Output Power

Mode	Band	IEEE 802.11 (in dBm)															
		SISO								MIMO							
		Antenna 1 / Antenna 2															
		b		g		n		ac		b (CDD + STBC)		g (CDD + STBC)		n (CDD+STBC, SDM)		ac (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	2.45 GHz	21.5	20.5	20.0	19.0	19.0	18.0	19.0	18.0	24.5	23.5	23.0	22.0	22.0	21.0	22.0	21.0
			ch. 1: 18.0 ch. 2: 18.0 ch. 10: 18.0 ch. 11: 18.0	17.0 17.0 17.0 17.0	ch. 1: 17.0 ch. 2: 17.0 ch. 10: 17.0 ch. 11: 17.0	16.0 16.0 16.0 16.0	ch. 1: 17.0 ch. 2: 17.0 ch. 10: 17.0 ch. 11: 17.0	16.0 16.0 16.0 16.0				ch. 1: 21.0 ch. 2: 21.0 ch. 10: 21.0 ch. 11: 21.0	20.0 20.0 20.0 20.0	ch. 1: 20.0 ch. 2: 20.0 ch. 10: 20.0 ch. 11: 20.0	19.0 19.0 19.0 19.0	ch. 1: 20.0 ch. 2: 20.0 ch. 10: 20.0 ch. 11: 20.0	19.0 19.0 19.0 19.0

Mode	Band	IEEE 802.11 (in dBm)											
		SISO						MIMO					
		Antenna 1 / Antenna 2											
		a		n		ac		a (CDD + STBC)		n (CDD+STBC, SDM)		ac (CDD+STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	5200 MHz	20.0	19.0	18.5	17.5	18.5	17.5	23.0	22.0	21.5	20.5	21.5	20.5
		ch. 36: 17.0 ch. 44: 17.0 ch. 48: 17.0	16.0 16.0 16.0	ch. 36: 17.0 ch. 44: 17.0 ch. 48: 17.0	16.0 16.0 16.0	ch. 36: 17.0 ch. 44: 17.0 ch. 48: 17.0	16.0 16.0 16.0	ch. 36: 20.0 ch. 44: 20.0 ch. 48: 20.0	19.0 19.0 19.0	ch. 36: 20.0 ch. 44: 20.0 ch. 48: 20.0	19.0 19.0 19.0	ch. 36: 20.0 ch. 44: 20.0 ch. 48: 20.0	19.0 19.0 19.0
	5300 MHz	20.0	19.0	18.0	17.0	18.0	17.0	23.0	22.0	21.0	20.0	21.0	20.0
		ch. 52: 17.0 ch. 60: 17.0 ch. 64: 17.0	16.0 16.0 16.0	ch. 52: 17.0 ch. 60: 17.0 ch. 64: 17.0	16.0 16.0 16.0	ch. 52: 17.0 ch. 60: 17.0 ch. 64: 17.0	16.0 16.0 16.0	ch. 52: 20.0 ch. 60: 20.0 ch. 64: 20.0	19.0 19.0 19.0	ch. 52: 20.0 ch. 60: 20.0 ch. 64: 20.0	19.0 19.0 19.0	ch. 52: 20.0 ch. 60: 20.0 ch. 64: 20.0	19.0 19.0 19.0
	5500 MHz	17.0	16.0	17.0	16.0	17.0	16.0	20.0	19.0	20.0	19.0	20.0	19.0
	5800 MHz	20.0	19.0	18.5	17.5	18.5	17.5	23.0	22.0	21.5	20.5	21.5	20.5
		ch. 149: 17.0 ch. 153: 17.0	16.0 16.0	ch. 149: 17.0 ch. 153: 17.0	16.0 16.0	ch. 149: 17.0 ch. 153: 17.0	16.0 16.0	ch. 149: 20.0 ch. 153: 20.0	19.0 19.0	ch. 149: 20.0 ch. 153: 20.0	19.0 19.0	ch. 149: 20.0 ch. 153: 20.0	19.0 19.0
5 GHz WIFI (40MHz BW)	5200 MHz			16.0	15.0	16.0	15.0			19.0	18.0	19.0	18.0
				ch. 38: 14.0	13.0	ch. 38: 14.0	13.0			ch. 38: 17.0	16.0	ch. 38: 17.0	16.0
	5300 MHz			16.0	15.0	16.0	15.0			19.0	18.0	19.0	18.0
				ch. 62: 14.0	13.0	ch. 62: 14.0	13.0			ch. 62: 17.0	16.0	ch. 62: 17.0	16.0
	5500 MHz			16.0	15.0	16.0	15.0			19.0	18.0	19.0	18.0
5 GHz WIFI (80MHz BW)	5200 MHz					13.0	12.0					16.0	15.0
	5300 MHz					13.0	12.0					16.0	15.0
	5500 MHz					15.0	14.0					18.0	17.0
						ch. 106: 13.0	12.0					ch. 106: 16.0	15.0
	5800 MHz					15.0	14.0					18.0	17.0

Mode / Band		Modulated Average - Single Tx Chain (dBm)
Bluetooth 1 Mbps (GFSK)	Maximum	12.0
	Nominal	11.0
Bluetooth 2 Mbps (DPSK)	Maximum	11.5
	Nominal	10.5
Bluetooth 3 Mbps (8DPSK)	Maximum	11.5
	Nominal	10.5
Bluetooth LE	Maximum	10.0
	Nominal	9.0

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1.4.3

Reduced SISO/MIMO WLAN Output Power

The below tables are applicable in the following conditions:

- Head Conditions
- Simultaneous conditions with 2.4 GHz WLAN and 5 GHz WLAN

Mode	Band	IEEE 802.11 (in dBm)															
		SISO								MIMO							
		Antenna 1 / Antenna 2															
		b		g		n		ac		^b (CDD + STBC)		^g (CDD + STBC)		ⁿ (CDD+STBC, SDM)		^{ac} (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	2.45 GHz	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	21.0	20.0	21.0	20.0	21.0	20.0	21.0	20.0
						ch. 1: 17.0	16.0	ch. 1: 17.0	16.0					ch. 1: 20.0	19.0	ch. 1: 20.0	19.0
						ch. 2: 17.0	16.0	ch. 2: 17.0	16.0					ch. 2: 20.0	19.0	ch. 2: 20.0	19.0
						ch. 10: 17.0	16.0	ch. 10: 17.0	16.0					ch. 10: 20.0	19.0	ch. 10: 20.0	19.0
						ch. 11: 17.0	16.0	ch. 11: 17.0	16.0					ch. 11: 20.0	19.0	ch. 11: 20.0	19.0

Mode	Band	IEEE 802.11 (in dBm)											
		SISO						MIMO					
		Antenna 1 / Antenna 2											
		a		n		ac		^a (CDD + STBC)		ⁿ (CDD+STBC, SDM)		^{ac} (CDD+STBC, SDM)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	5200 MHz	16.0	15.0	16.0	15.0	16.0	15.0	19.0	18.0	19.0	18.0	19.0	18.0
	5300 MHz	16.0	15.0	16.0	15.0	16.0	15.0	19.0	18.0	19.0	18.0	19.0	18.0
	5500 MHz	16.0	15.0	16.0	15.0	16.0	15.0	19.0	18.0	19.0	18.0	19.0	18.0
	5800 MHz	16.0	15.0	16.0	15.0	16.0	15.0	19.0	18.0	19.0	18.0	19.0	18.0
5 GHz WIFI (40MHz BW)	5200 MHz			16.0	15.0	16.0	15.0			19.0	18.0	19.0	18.0
				ch. 38: 14.0	13.0	ch. 38: 14.0	13.0			ch. 38: 17.0	16.0	ch. 38: 17.0	16.0
	5300 MHz			16.0	15.0	16.0	15.0			19.0	18.0	19.0	18.0
				ch. 62: 14.0	13.0	ch. 62: 14.0	13.0			ch. 62: 17.0	16.0	ch. 62: 17.0	16.0
5 GHz WIFI (80MHz BW)	5200 MHz			16.0	15.0	16.0	15.0			19.0	18.0	19.0	18.0
				ch. 102: 14.0	13.0	ch. 102: 14.0	13.0			ch. 102: 17.0	16.0	ch. 102: 17.0	16.0
	5800 MHz			16.0	15.0	16.0	15.0			19.0	18.0	19.0	18.0
5 GHz WIFI (80MHz BW)	5200 MHz					13.0	12.0					16.0	15.0
	5300 MHz					13.0	12.0					16.0	15.0
	5500 MHz					15.0	14.0					18.0	17.0
	5800 MHz					ch. 106: 13.0	12.0					ch. 106: 16.0	15.0

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1.5 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device antennas can be found in Appendix E. Since the diagonal dimension of this device is > 160 mm and <200 mm, it is considered a “phablet.”

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	No
GPRS 1900	Yes	Yes	No	Yes	No	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	No
UMTS 1750	Yes	Yes	No	Yes	No	Yes
UMTS 1900	Yes	Yes	No	Yes	No	Yes
EVDO BC0 (\$22H)	Yes	Yes	No	Yes	Yes	No
EVDO BC10 (\$90S)	Yes	Yes	No	Yes	Yes	No
PCS EVDO	Yes	Yes	No	Yes	No	Yes
LTE Band 71	Yes	Yes	No	Yes	Yes	No
LTE Band 12	Yes	Yes	No	Yes	Yes	No
LTE Band 13	Yes	Yes	No	Yes	Yes	No
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	No
LTE Band 66 (AWS) Ant 3	Yes	Yes	No	No	Yes	No
LTE Band 66 (AWS) Ant 2	Yes	Yes	No	Yes	No	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	No	Yes
LTE Band 2 (PCS) Ant 3	Yes	Yes	No	No	Yes	No
LTE Band 48	Yes	Yes	Yes	No	Yes	No
LTE Band 41	Yes	Yes	No	Yes	No	Yes
NR Band n71	Yes	Yes	No	Yes	Yes	No
NR Band n66 (AWS)	Yes	Yes	No	No	Yes	No
NR Band n25 (PCS)	Yes	Yes	No	No	Yes	No
NR Band n41	Yes	Yes	No	Yes	Yes	No
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	No	Yes

Note: Particular DUT edges were not required to be evaluated for wireless router SAR or phablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III and FCC KDB Publication 648474 D04v01r03.

The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, U-NII-2A, U-NII-2C operations are disabled.

1.6 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the device for this model. Therefore, all SAR tests were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the NFC antenna can be found in Appendix E.

1.7 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, 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.

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This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06 4.3.2 procedures.

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet	Notes
1	1x CDMA voice + 2.4 GHz Wi-Fi	Yes	Yes	N/A	Yes	
2	1x CDMA voice + 5 GHz Wi-Fi	Yes	Yes	N/A	Yes	
3	1x CDMA voice + 2.4 GHz Bluetooth	Yes ^a	Yes	N/A	Yes	^a Bluetooth Tethering is considered
4	1x CDMA voice + 2.4 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
5	1x CDMA voice + 5 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
6	1x CDMA voice + 2.4 GHz Bluetooth + 2.4 GHz Wi-Fi Ant 2	Yes ^a	Yes	N/A	Yes	^a Bluetooth Tethering is considered
7	1x CDMA voice + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes ^a	Yes	N/A	Yes	^a Bluetooth Tethering is considered
8	1x CDMA voice + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes ^a	Yes	N/A	Yes	^a Bluetooth Tethering is considered
9	1x CDMA voice + 2.4 GHz Wi-Fi Ant 1 + 5 GHz Wi-Fi Ant 2	Yes	Yes	N/A	Yes	
10	GSM voice + 2.4 GHz Wi-Fi	Yes	Yes	N/A	Yes	
11	GSM voice + 5 GHz Wi-Fi	Yes ^a	Yes	N/A	Yes	^a Bluetooth Tethering is considered
12	GSM voice + 2.4 GHz Bluetooth	Yes ^a	Yes	N/A	Yes	^a Bluetooth Tethering is considered
13	GSM voice + 2.4 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
14	GSM voice + 5 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
15	GSM voice + 2.4 GHz Bluetooth + 2.4 GHz Wi-Fi Ant 2	Yes ^a	Yes	N/A	Yes	^a Bluetooth Tethering is considered
16	GSM voice + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes ^a	Yes	N/A	Yes	^a Bluetooth Tethering is considered
17	GSM voice + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes ^a	Yes	N/A	Yes	^a Bluetooth Tethering is considered
18	GSM voice + 2.4 GHz Wi-Fi Ant 1 + 5 GHz Wi-Fi Ant 2	Yes	Yes	N/A	Yes	
19	UMTS + 2.4 GHz Wi-Fi	Yes	Yes	Yes	Yes	
20	UMTS + 5 GHz Wi-Fi	Yes	Yes	Yes	Yes	
21	UMTS + 2.4 GHz Bluetooth	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
22	UMTS + 2.4 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
23	UMTS + 5 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
24	UMTS + 2.4 GHz Bluetooth + 2.4 GHz Wi-Fi Ant 2	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
25	UMTS + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
26	UMTS + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
27	UMTS + 2.4 GHz Wi-Fi Ant 1 + 5 GHz Wi-Fi Ant 2	Yes	Yes	Yes	Yes	
28	LTE + 2.4 GHz Wi-Fi	Yes	Yes	Yes	Yes	
29	LTE + 5 GHz Wi-Fi	Yes	Yes	Yes	Yes	
30	LTE + 2.4 GHz Bluetooth	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
31	LTE + 2.4 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
32	LTE + 5 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
33	LTE + 2.4 GHz Bluetooth + 2.4 GHz Wi-Fi Ant 2	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
34	LTE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
35	LTE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
36	LTE + 2.4 GHz Wi-Fi Ant 1 + 5 GHz Wi-Fi Ant 2	Yes	Yes	Yes	Yes	
37	LTE + 5G NR	Yes	Yes	N/A	Yes	
38	LTE + 5 GHz Wi-Fi + 5G NR	Yes	Yes	Yes	Yes	
39	LTE + 2.4 GHz Wi-Fi + 5G NR	Yes	Yes	Yes	Yes	
40	LTE + 2.4 GHz Bluetooth + 5G NR	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
41	LTE + 2.4 GHz Wi-Fi MIMO + 5G NR	Yes	Yes	Yes	Yes	
42	LTE + 5 GHz Wi-Fi MIMO + 5G NR	Yes	Yes	Yes	Yes	
43	LTE + 2.4 GHz Bluetooth + 2.4 GHz Wi-Fi Ant 2 + 5G NR	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
44	LTE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi + 5G NR	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
45	LTE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO + 5G NR	Yes ^a	Yes	Yes ^a	Yes	^a Bluetooth Tethering is considered
46	LTE + 2.4 GHz Wi-Fi Ant 1 + 5 GHz Wi-Fi Ant 2 + 5G NR	Yes	Yes	Yes	Yes	
47	5G NR + 5 GHz Wi-Fi	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
48	5G NR + 2.4 GHz Wi-Fi	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
49	5G NR + 2.4 GHz Bluetooth	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
50	5G NR + 2.4 GHz Wi-Fi MIMO	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
51	5G NR + 5 GHz Wi-Fi MIMO	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
52	5G NR + 2.4 GHz Bluetooth + 2.4 GHz Wi-Fi Ant 2	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
53	5G NR + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
54	5G NR + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
55	5G NR + 2.4 GHz Wi-Fi Ant 1 + 5 GHz Wi-Fi Ant 2	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
56	CDMA/EVDO data + 2.4 GHz Wi-Fi	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
57	CDMA/EVDO data + 5 GHz Wi-Fi	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
58	CDMA/EVDO data + 2.4 GHz Bluetooth	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
59	CDMA/EVDO data + 2.4 GHz Wi-Fi MIMO	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
60	CDMA/EVDO data + 5 GHz Wi-Fi MIMO	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
61	CDMA/EVDO data + 2.4 GHz Bluetooth + 2.4 GHz Wi-Fi Ant 2	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
62	CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
63	CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
64	CDMA/EVDO data + 2.4 GHz Wi-Fi Ant 1 + 5 GHz Wi-Fi Ant 2	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
65	GPRS/EDGE + 2.4 GHz Wi-Fi	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
66	GPRS/EDGE + 5 GHz Wi-Fi	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
67	GPRS/EDGE + 2.4 GHz Bluetooth	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
68	GPRS/EDGE + 2.4 GHz Wi-Fi MIMO	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
69	GPRS/EDGE + 5 GHz Wi-Fi MIMO	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered
70	GPRS/EDGE + 2.4 GHz Bluetooth + 2.4 GHz Wi-Fi Ant 2	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
71	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
72	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes ^a	Yes ^a	Yes ^a	Yes	^a Pre-installed VOIP applications are considered ^a Bluetooth Tethering is considered
73	GPRS/EDGE + 2.4 GHz Wi-Fi Ant 1 + 5 GHz Wi-Fi Ant 2	Yes ^a	Yes ^a	Yes	Yes	^a Pre-installed VOIP applications are considered

- 2.4 GHz WLAN antenna 1 and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.

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2. When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.
3. Per the manufacturer, WIFI Direct is expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
4. 5 GHz Wireless Router is only supported for the U-NII-1 and U-NII-3 by S/W, therefore U-NII-2A, and U-NII-2C were not evaluated for wireless router conditions.
5. This device supports 2x2 MIMO Tx for WLAN 802.11a/g/n/ac. 802.11a/g/n/ac supports CDD and STBC and 802.11n/ac additionally supports SDM. Each WLAN antenna can transmit independently or together when operating with MIMO.
6. This device supports VOLTE.
7. This device supports VOWIFI.
8. This device supports Bluetooth Tethering.
9. NR implementation supports SA and NSA operations. EN-DC operations are limited with LTE Bands shown in the NR FR1 Checklist acting as anchor bands.
10. LTE operations in the table above include intra-band and inter-band ULCA operations with 2 carriers transmitting in the uplink.

1.8 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, head and body-worn SAR is not required for U-NII-1 band according to FCC KDB Publication 248227 D01v02r02.

Since Wireless Router operations are not allowed by the chipset firmware using U-NII-2A and U-NII-2C WIFI, only 2.4 GHz, U-NII-1, and U-NII-3 WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v02r01.

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Because wireless router operations are not supported for U-NII-2A & U-NII-2C WLAN, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WLAN, Bluetooth, U-NII-1, and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

This device supports IEEE 802.11ac with the following features:

- a) Up to 80 MHz Bandwidth only for 5GHz
- b) Up to 20 MHz Bandwidth only for 2.4 GHz
- c) No aggregate channel configurations
- d) 2 Tx antenna output
- e) Up to 1024 QAM is supported
- f) TDWR and Band gap channels are supported
- g) MU-MIMO UL Operations are not supported

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(B) Licensed Transmitter(s)

GSM/GPRS/EDGE DTM is not supported for US bands. Therefore, the GSM Voice modes in this report do not transmit simultaneously with GPRS/EDGE Data.

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.

CDMA 1X Advanced technology was not required for SAR since the maximum allowed output powers for 1x Advanced was not more than 0.25 dB higher than the maximum powers for 1x and the measured SAR in any 1x mode exposure conditions was not greater than 1.2 W/kg per FCC KDB Publication 941225 D01v03r01.

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 original certification report number 1M2006150095-01-R3.ZNF

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6.

This device supports LTE capabilities with overlapping transmission frequency ranges. When the supported frequency range of an LTE Band falls completely within an LTE band with a larger transmission frequency range, LTE bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and LTE 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 intra-band LTE Carrier Aggregation (CA) for 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 uplink inter-band LTE Carrier Aggregation (CA) for LTE Bands 12, 2, 66 with two component carriers in the uplink. SAR tests were performed separately for antenna 3 for LTE Band 2 and LTE Band 66.

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.

NR implementation supports SA and NSA operations. EN-DC operations are limited with LTE Bands shown in the NR FR1 Checklist acting as anchor bands. Per FCC Guidance, SAR tests for NR Bands and LTE Anchor Bands were performed separately due to equipment limitations in SAR probe calibration factors. Please see Section 11 for more details.

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This device supports 64QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAM uplink configurations were measured per Section 5.1 of FCC KDB Publication 941225D05v02r05. SAR was not required for 64QAM since the highest maximum output power for 64QAM is $\leq \frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg, per Section 5.2.4 of FCC KDB Publication 941225 D05v02r05.

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 condition was evaluated for the highest configuration in Power Class 3 for each test configuration to confirm the results were scalable linearly (See Section 14).

1.9 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)
- FCC KDB Publication 616217 D04v01r02 (Proximity Sensor)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

1.10 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 11.

1.11 Bibliography

Report Type	Report Serial Number
SAR Evaluation Report (Part 0)	Rev1.0
RF Exposure Part 2 Test Report	1M2007230115-02.ZNF
RF Exposure Compliance Summary Report	1M2007230115-22.ZNF

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LTE Information					
Form Factor	Portable Handset				
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 17 (706.5 - 713.5 MHz)				
	LTE Band 13 (779.5 - 784.5 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 48 (3552.5 - 3697.5 MHz)				
	LTE Band 41 (2498.5 - 2687.5 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 17: 5 MHz, 10 MHz				
	LTE Band 13: 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 48: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 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)		690.5 (133297)	695.5 (133447)	
LTE Band 71: 10 MHz	668 (133172)		690.5 (133297)	693 (133422)	
LTE Band 71: 15 MHz	670.5 (133197)		690.5 (133297)	690.5 (133397)	
LTE Band 71: 20 MHz	673 (133222)		690.5 (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 17: 5 MHz	706.5 (23755)		710 (23790)	713.5 (23825)	
LTE Band 17: 10 MHz	709 (23780)		710 (23790)	711 (23800)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	N/A	
LTE Band 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 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		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 48: 5 MHz	3552.5 (55265)	3600.8 (55748)	N/A	3649.2 (56232)	3697.5 (56715)
LTE Band 48: 10 MHz	3555 (55290)	3601.7 (55757)	N/A	3648.3 (56223)	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)
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	DL UE Cat 18, 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 15. It supports carrier aggregation, downlink MIMO, LAA features. All other uplink communications are identical to the Release 8 specification. Uplink communications are done on the PCC. The following LTE Release 15 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

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NR Information					
Form Factor	Portable Handset				
Frequency Range of each NR transmission band	NR Band n71 (665.5 - 695.5 MHz)				
	NR Band n66 (AWS) (1712.5 - 1777.5 MHz)				
	NR Band n25 (PCS) (1852.5 - 1912.5 MHz)				
	NR Band n41 (2506.02 - 2679.99 MHz)				
Channel Bandwidths	NR Band n71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	NR Band n66 (AWS): 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	NR Band n25 (PCS): 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	NR Band n41: 20 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz, 100 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
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 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 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 n41: 20 MHz	2506.02 (501204)	2549.49 (509898)	2592.99 (518598)	2636.49 (527298)	2679.99 (535998)
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)	
SCS for NR Band n71/n66/n25	15 kHz				
SCS for NR Band n41	30 kHz				
Modulations Supported in UL	DFT-s-OFDM: $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM				
NR MPR Permanently implemented per 3GPP TS	YES				
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 2/66				
LTE Anchor Bands for NR Band n66 (AWS)	LTE Band 2/5/12				
LTE Anchor Bands for NR Band n25 (PCS)	LTE Band 12/66				
LTE Anchor Bands for NR Band n41	LTE Band 2/66				

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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/m³)
- 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 DASY manual online for more details):
 - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
 - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

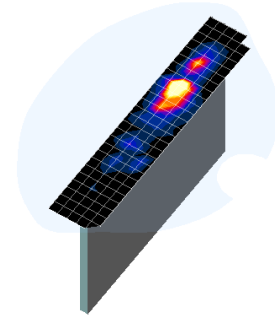


Figure 4-1
Sample SAR Area Scan

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

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

*Also compliant to IEEE 1528-2013 Table 6

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5

DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

Figure 5-2 shows the front, back and side views of the SAM Twin Phantom. The point “M” is the reference point for the center of the mouth, “LE” is the left ear reference point (ERP), and “RE” is the right ERP. The ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 5-1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front), also called the Reference Pivoting Line, is not perpendicular to the reference plane (see Figure 5-1). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning [5].

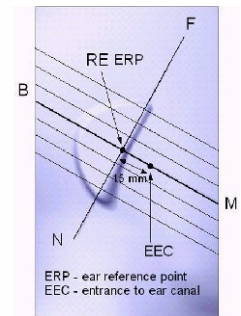


Figure 5-1
Close-Up Side view
of ERP

5.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the acoustic output located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (See Figure 5-3). The acoustic output was then located at the same level as the center of the ear reference point. The test device was positioned so that the “vertical centerline” was bisecting the front surface of the handset at its top and bottom edges, positioning the “ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point.

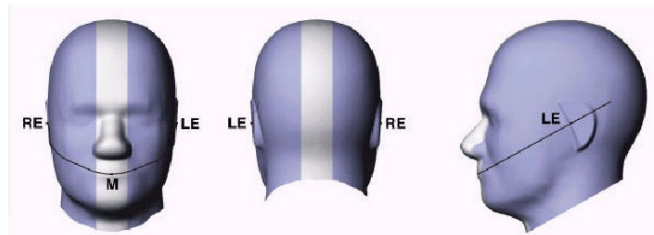


Figure 5-2
Front, back and side view of SAM Twin Phantom

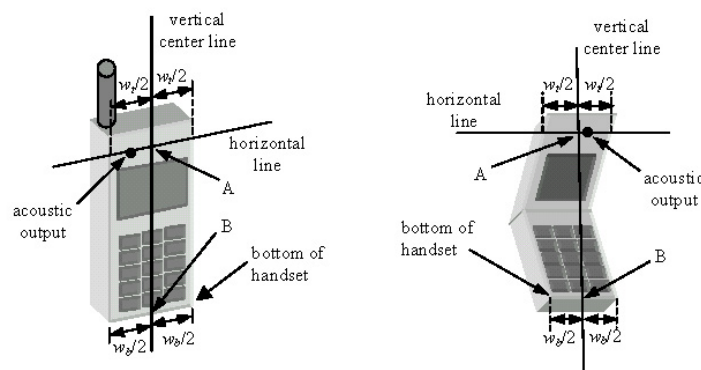


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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6 TEST CONFIGURATION POSITIONS

6.1 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 $\delta = 0.02$.

6.2 Positioning for Cheek

1. The test device was positioned with the device close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6-1), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

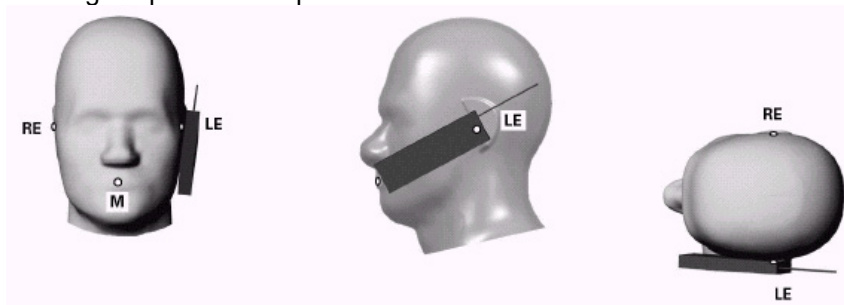


Figure 6-1 Front, Side and Top View of Cheek Position

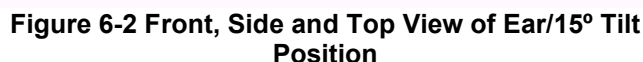
2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the pinna.
3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the reference plane.
4. The phone was then rotated around the vertical centerline until the phone (horizontal line) was symmetrical with respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the device contact with the ear, the device was rotated about the NF line until any point on the handset made contact with a phantom point below the ear (cheek) (See Figure 6-2).

6.3 Positioning for Ear / 15° Tilt

With the test device aligned in the “Cheek Position”:

1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15 degrees.
2. The phone was then rotated around the horizontal line by 15 degrees.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the handset touched the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. In this situation, the tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 6-2).

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contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented.

Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

6.6 Extremity Exposure Configurations

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1g body and 10g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01v06 should be applied to determine SAR test requirements.

Per KDB Publication 447498 D01v06, Cell phones (handsets) are not normally designed to be used on extremities or operated in extremity only exposure conditions. The maximum output power levels of handsets generally do not require extremity SAR testing to show compliance. Therefore, extremity SAR was not evaluated for this device.

6.7 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

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

6.8 Phablet Configurations

For smart phones with a display diagonal dimension > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that

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support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04v01r03 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally required head and body-worn accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna ≤ 25 mm from that surface or edge, in direct contact with the phantom, for 10g SAR. The UMPC mini-tablet 1g SAR at 5 mm is not required. When hotspot mode applies, 10g SAR is required only for the surfaces and edges with hotspot mode 1g SAR > 1.2 W/kg.

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7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. 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 7-1
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)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR 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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8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, 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.

8.2 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 ≤ 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 ≤ 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.

8.3 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.

8.4 SAR Measurement Conditions for CDMA2000

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

8.4.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by FCC KDB Publication 941225 D01v03r01 “3G SAR Measurement Procedures.” Maximum output power is verified on the High, Middle and Low channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. SO55 tests were measured with power control bits in the “All Up” condition.

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1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 8-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH₀ and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH₀ data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 8-2 was applied.

Table 8-1
Parameters for Max. Power for RC1

Parameter	Units	Value
I_{or}	dBm/1.23 MHz	-104
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	dB	-7.4

Table 8-2
Parameters for Max. Power for RC3

Parameter	Units	Value
I_{or}	dBm/1.23 MHz	-86
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	dB	-7.4

5. FCHs were configured at full rate for maximum SAR with “All Up” power control bits.

8.4.2 Head SAR Measurements

SAR for next to the ear head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55. The 3G SAR test reduction procedure is applied to RC1 with RC3 as the primary mode; otherwise, SAR is required for the channel with maximum measured output in RC1 using the head exposure configuration that results in the highest reported SAR in RC3.

Head SAR is additionally evaluated using EVDO Rev. A to support compliance for VoIP operations. See Section 8.4.5 for EVDO Rev. A configuration parameters.

8.4.3 Body-worn SAR Measurements

SAR for body-worn exposure configurations is measured in RC3 with the DUT configured to transmit at full rate on FCH with all other code channels disabled using TDSO / SO32. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCH_n), with FCH only as the primary mode. Otherwise, SAR is required for multiple code channel configuration (FCH + SCH_n), with FCH at full rate and SCH₀ enabled at 9600 bps, using the highest reported SAR configuration for FCH only. When multiple code channels are enabled, the transmitter output can shift by more than 0.5 dB and may lead to higher SAR drifts and SCH dropouts.

The 3G SAR test reduction procedure is applied to body-worn accessory SAR in RC1 with RC3 as the primary mode. Otherwise, SAR is required for RC1, with SO55 and full rate, using the highest reported SAR configuration for body-worn accessory exposure in RC3.

8.4.4 Body-worn SAR Measurements for EVDO Devices

For handsets with EVDO capabilities, the 3G SAR test reduction procedure is applied to EVDO Rev. 0 with 1x RTT RC3 as the primary mode to determine body-worn accessory test requirements. Otherwise, body-worn accessory SAR is required for Rev. 0, at 153.6 kbps, using the highest reported SAR configuration for body-worn accessory exposure in RC3.

The 3G SAR test reduction procedure is applied to Rev. A, with Rev. 0 as the primary mode to determine body-worn accessory SAR test requirements. When SAR is not required for Rev. 0, the 3G SAR test reduction is applied with 1x RTT RC3 as the primary mode.

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When SAR is required for EVDO Rev. A, SAR is measured with a Reverse Data Channel payload size of 4096 bits and a Termination Target of 16 slots defined for Subtype 2 Physical Layer configurations, using the highest reported SAR configuration for body-worn accessory exposure in Rev. 0 or 1x RTT RC3, as appropriate.

8.4.5 Body SAR Measurements for EVDO Hotspot

Hotspot Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. The 3G SAR test reduction procedure is applied to Rev. A, Subtype 2 Physical layer configuration, with Rev. 0 as the primary mode; otherwise, SAR is measured for Rev. A using the highest reported SAR configuration for body-worn accessory exposure in Rev. 0. The AT is tested with a Reverse Data Channel rate of 153.6 kbps in Subtype 0/1 Physical Layer configurations; and a Reverse Data Channel payload size of 4096 bits and Termination Target of 16 slots in Subtype 2 Physical Layer configurations.

For EVDO data devices that also support 1x RTT voice and/or data operations, the 3G SAR test reduction procedure is applied to 1x RTT RC3 and RC1 with EVDO Rev. 0 and Rev. A as the respective primary modes. Otherwise, the 'Body-Worn Accessory SAR' procedures in the '3GPP2 CDMA 2000 1x Handsets' section are applied.

8.4.6 CDMA2000 1x Advanced

This device additionally supports 1x Advanced. Conducted powers are measured using SO75 with RC8 on the uplink and RC11 on the downlink per FCC KDB Publication 941225 D01v03r01. Smart blanking is disabled for all measurements. The EUT is configured with forward power control Mode 000 and reverse power control at 400 bps. Conducted powers are measured on an Agilent 8960 Series 10 Wireless Communications Test Set, Model E5515C using the CDMA2000 1x Advanced application, Option E1962B-410.

The 3G SAR test reduction procedure is applied to the 1x-Advanced transmission mode with 1x RTT RC3 as the primary mode. When SAR measurement is required, the 1x-Advanced power measurement configurations are used. The 1x Advanced SAR procedures are applied separately to head, body-worn accessory and other exposure conditions.

8.5 SAR Measurement Conditions for UMTS

8.5.1 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.

8.5.2 Head SAR Measurements

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1s". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the

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primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure.

8.5.3 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_n 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_n, for the highest reported SAR configuration in 12.2 kbps RMC.

8.5.4 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.

8.5.5 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.

8.6 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).

8.6.1 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.

8.6.2 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.

8.6.3 A-MPR

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

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8.6.4 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 ≤ 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.

8.6.5 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.

8.6.6 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.

8.7 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.

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8.7.1 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.

8.7.2 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.

8.7.3 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.

8.7.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.7.5 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 ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

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- 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.

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.

8.7.6 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.

8.7.7 Initial Test Configuration Procedure

For OFDM, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order IEEE 802.11 mode. The channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 8.7.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.7.8 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.

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8.7.9 MIMO SAR considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB Publication 447498 D01v06 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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9.1 CDMA Conducted Powers

Table 9-1
Measured P_{max}

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	25.21	25.23	25.27	25.26	25.29	25.32	25.30
Cellular	1013	22H	824.7	25.22	25.24	25.22	25.24	25.25	25.32	25.32
	384	22H	836.52	25.20	25.20	25.19	25.24	25.23	25.29	25.30
	777	22H	848.31	25.21	25.21	25.13	25.20	25.21	25.30	25.27

Table 9-2
Measured P_{limit} for all DSI

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
PCS	25	24E	1851.25	23.39	23.40	23.41	23.50	23.41	23.49	23.38
	600	24E	1880	23.35	23.38	23.46	23.44	23.44	23.50	23.38
	1175	24E	1908.75	23.41	23.41	23.39	23.41	23.46	23.41	23.39

Note: RC1 is only applicable for IS-95 compatibility. For FCC Rule Part 90S, Per FCC KDB Publication 447498 D01v06 4.1.g), only one channel is required since the device operates within the transmission range of 817.90 – 823.10 MHz.

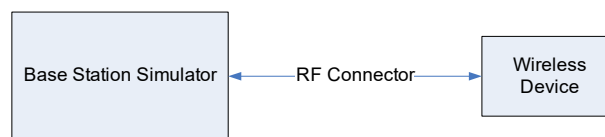


Figure 9-1
Power Measurement Setup

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9.2 GSM Conducted Powers

Table 9-3
Measured P_{max}

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	33.47	33.72	31.47	29.91	28.50	26.88	26.49	25.55	25.44
	190	33.16	33.37	31.29	29.65	28.06	26.67	26.32	25.34	25.19
	251	33.19	33.42	30.89	29.61	28.49	26.63	26.26	25.05	24.85
GSM 1900	512	30.70	30.71	28.56	27.52	25.27	25.87	25.66	24.82	24.61
	661	30.57	30.61	28.55	27.42	25.07	25.83	25.61	24.55	24.41
	810	30.28	30.24	28.35	27.30	25.02	25.29	25.12	24.44	24.32

Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	24.27	24.52	25.28	25.48	25.32	17.68	20.30	21.12	22.26
	190	23.96	24.17	25.10	25.22	24.88	17.47	20.13	20.91	22.01
	251	23.99	24.22	24.70	25.18	25.31	17.43	20.07	20.62	21.67
GSM 1900	512	21.50	21.51	22.37	23.09	22.09	16.67	19.47	20.39	21.43
	661	21.37	21.41	22.36	22.99	21.89	16.63	19.42	20.12	21.23
	810	21.08	21.04	22.16	22.87	21.84	16.09	18.93	20.01	21.14

GSM 850	Frame	23.80	23.80	24.81	25.07	24.82	16.80	19.81	20.57	21.82
GSM 1900	Avg. Targets:	20.80	20.80	21.81	22.57	21.82	15.80	18.81	19.57	20.82

Note:

- Both burst-averaged and calculated frame-averaged powers are included. Frame-averaged power was calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 8 timeslots.
- GPRS/EDGE (GMSK) output powers were measured with coding scheme setting of 1 (CS1) on the base station simulator. CS1 was configured to measure GPRS output power measurements and SAR to ensure GMSK modulation in the signal. Our Investigation has shown that CS1 - CS4 settings do not have any impact on the output levels or modulation in the GPRS modes.
- EDGE (8-PSK) output powers were measured with MCS7 on the base station simulator. MCS7 coding scheme was used to measure the output powers for EDGE since investigation has shown that choosing MCS7 coding scheme will ensure 8-PSK modulation. It has been shown that MCS levels that produce 8-PSK modulation do not have an impact on output power.

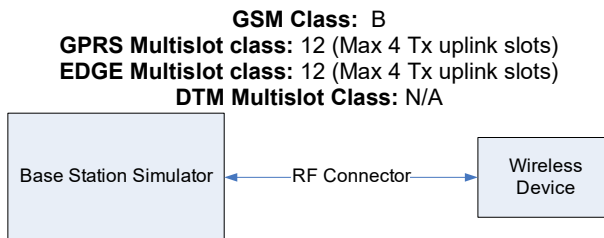


Figure 9-2
Power Measurement Setup

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9.3 UMTS Conducted Powers

Table 9-4
Measured P_{max}

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	25.14	25.13	25.02	-
99		12.2 kbps AMR	25.14	25.11	25.02	-
6	HSDPA	Subtest 1	25.19	25.21	25.11	0
6		Subtest 2	25.23	25.22	25.29	0
6		Subtest 3	24.70	24.69	24.62	0.5
6		Subtest 4	24.71	24.70	24.61	0.5
6	HSUPA	Subtest 1	24.44	23.70	24.32	0
6		Subtest 2	23.39	23.31	23.33	2
6		Subtest 3	24.42	23.89	24.31	1
6		Subtest 4	23.35	23.45	23.34	2
6		Subtest 5	25.41	25.36	25.30	0

Table 9-5
Measured P_{limit} for all DSI

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.05	23.01	23.02	23.23	23.26	23.20	-
99		12.2 kbps AMR	22.98	22.96	22.95	23.22	23.16	22.96	-
6	HSDPA	Subtest 1	23.05	23.04	22.86	23.35	23.26	23.07	0
6		Subtest 2	23.04	23.00	23.05	23.31	23.18	23.02	0
6		Subtest 3	22.54	22.53	22.52	22.69	22.74	22.52	0.5
6		Subtest 4	22.53	22.59	22.53	22.52	22.73	22.57	0.5
6	HSUPA	Subtest 1	22.57	22.55	22.50	22.80	22.77	22.59	0
6		Subtest 2	21.08	21.02	21.03	20.35	20.27	20.29	2
6		Subtest 3	22.02	22.01	22.05	22.33	22.25	22.08	1
6		Subtest 4	20.15	20.11	20.15	21.35	21.33	21.11	2
6		Subtest 5	23.06	23.05	23.06	23.37	23.32	23.10	0

This device does not support DC-HSDPA.



Figure 9-3
Power Measurement Setup

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9.4 LTE Conducted Powers

9.4.1 LTE Band 71

Table 9-6
LTE Band 71 Measured P_{max} - 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	25.04	0	0
	1	50	25.00		0
	1	99	24.97		0
	50	0	24.20	0-1	1
	50	25	24.20		1
	50	50	24.21		1
	100	0	24.12		1
16QAM	1	0	23.90	0-1	1
	1	50	23.84		1
	1	99	23.82		1
	50	0	22.94	0-2	2
	50	25	22.95		2
	50	50	22.97		2
	100	0	22.90		2
64QAM	1	0	23.50	0-2	2
	1	50	23.48		2
	1	99	23.49		2
	50	0	22.21	0-3	3
	50	25	22.20		3
	50	50	22.21		3
	100	0	22.16		3

Note: LTE Band 71 at 20 MHz bandwidth does 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.

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Table 9-7
LTE Band 71 Measured P_{max} - 15 MHz Bandwidth

LTE Band 71 15 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	24.95	0	0
	1	36	24.82		0
	1	74	24.81		0
	36	0	23.96	0-1	1
	36	18	23.99		1
	36	37	24.03		1
	75	0	23.95		1
16QAM	1	0	23.95	0-1	1
	1	36	23.92		1
	1	74	23.81		1
	36	0	22.79	0-2	2
	36	18	22.77		2
	36	37	22.84		2
	75	0	22.70		2
64QAM	1	0	23.19	0-2	2
	1	36	23.16		2
	1	74	23.15		2
	36	0	22.00	0-3	3
	36	18	22.02		3
	36	37	22.03		3
	75	0	21.96		3

Note: LTE Band 71 at 15 MHz bandwidth does 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.

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Table 9-8
LTE Band 71 Measured P_{max} - 10 MHz Bandwidth

LTE Band 71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133172 (668.0 MHz)	133297 (680.5 MHz)	133422 (693.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	25.02	24.87	24.82	0	0
	1	25	24.85	24.78	24.79		0
	1	49	24.94	24.81	24.67		0
	25	0	24.12	24.01	23.95	0-1	1
	25	12	24.09	24.01	23.92		1
	25	25	24.01	23.98	23.93		1
	50	0	24.01	23.89	23.87		1
16QAM	1	0	24.14	23.95	23.92	0-1	1
	1	25	24.00	24.02	23.88		1
	1	49	24.02	24.05	23.92		1
	25	0	22.96	22.79	22.77	0-2	2
	25	12	22.87	22.82	22.74		2
	25	25	22.85	22.79	22.78		2
	50	0	22.83	22.68	22.67		2
64QAM	1	0	23.18	23.12	23.19	0-2	2
	1	25	23.19	23.21	23.07		2
	1	49	23.18	23.20	23.08		2
	25	0	22.14	22.02	22.00	0-3	3
	25	12	22.12	22.03	22.06		3
	25	25	22.06	22.02	21.96		3
	50	0	22.03	21.93	21.94		3

Table 9-9
LTE Band 71 Measured P_{max} - 5 MHz Bandwidth

LTE Band 71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133147 (665.5 MHz)	133297 (680.5 MHz)	133447 (695.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	25.00	24.70	24.80	0	0
	1	12	24.90	24.86	24.86		0
	1	24	24.85	24.80	24.72		0
	12	0	24.13	23.98	23.92	0-1	1
	12	6	24.14	24.02	23.98		1
	12	13	24.16	24.06	24.01		1
16QAM	25	0	24.12	23.95	24.00		1
	1	0	24.10	23.83	23.72	0-1	1
	1	12	23.98	23.91	23.83		1
	1	24	23.95	23.95	23.78		
	12	0	22.97	22.85	22.77	0-2	2
	12	6	23.06	22.91	22.83		2
	12	13	23.03	22.89	22.87		2
25	0	22.96	22.78	22.69	2		
64QAM	1	0	22.97	23.05	23.00	0-2	2
	1	12	23.21	23.19	23.18		2
	1	24	23.27	23.14	23.12		2
	12	0	22.10	22.01	21.98	0-3	3
	12	6	22.19	22.03	22.03		3
	12	13	22.17	22.06	22.06		3
	25	0	22.07	22.01	21.98		3

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9.4.1

LTE Band 12

Table 9-10
LTE Band 12 Measured P_{max} - 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	25.04	0	0
	1	25	25.02		0
	1	49	25.03		0
	25	0	23.97	0-1	1
	25	12	24.00		1
	25	25	24.02		1
	50	0	24.00		1
16QAM	1	0	24.08	0-1	1
	1	25	24.11		1
	1	49	24.05		1
	25	0	22.79	0-2	2
	25	12	22.90		2
	25	25	22.89		2
	50	0	22.78		2
64QAM	1	0	23.18	0-2	2
	1	25	23.23		2
	1	49	23.21		2
	25	0	22.00	0-3	3
	25	12	22.07		3
	25	25	22.05		3
	50	0	21.94		3

Note: LTE Band 12 at 10 MHz bandwidth does 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.

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Table 9-11
LTE Band 12 Measured P_{max} - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23035 (701.5 MHz)	23095 (707.5 MHz)	23155 (713.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	25.20	25.22	25.12	0	0
	1	12	25.19	25.24	25.09		0
	1	24	25.15	25.26	25.13		0
	12	0	24.40	24.31	24.32	0-1	1
	12	6	24.37	24.31	24.30		1
	12	13	24.34	24.33	24.30		1
	25	0	24.38	24.30	24.29		1
16QAM	1	0	23.95	24.49	23.91	0-1	1
	1	12	23.95	24.43	24.01		1
	1	24	23.97	24.47	24.02		1
	12	0	23.21	23.18	23.18	0-2	2
	12	6	23.22	23.18	23.17		2
	12	13	23.21	23.23	23.17		2
	25	0	23.17	23.20	23.09		2
64QAM	1	0	23.40	22.85	23.39	0-2	2
	1	12	23.38	22.99	23.45		2
	1	24	23.36	22.94	23.42		2
	12	0	22.07	22.04	22.04	0-3	3
	12	6	22.10	22.06	22.08		3
	12	13	22.03	22.12	22.09		3
	25	0	22.00	21.97	21.96		3

Table 9-12
LTE Band 12 Measured P_{max} - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23025 (700.5 MHz)	23095 (707.5 MHz)	23165 (714.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	25.14	25.14	25.14	0	0
	1	7	25.06	25.12	25.09		0
	1	14	25.10	25.14	25.12		0
	8	0	24.33	24.26	24.24	0-1	1
	8	4	24.36	24.31	24.33		1
	8	7	24.30	24.27	24.33		1
	15	0	24.35	24.26	24.27		1
16QAM	1	0	23.96	24.31	23.94	0-1	1
	1	7	23.91	24.32	23.90		1
	1	14	23.93	24.29	23.88		1
	8	0	23.14	23.18	23.04	0-2	2
	8	4	23.22	23.20	23.08		2
	8	7	23.19	23.21	23.10		2
	15	0	23.16	23.18	22.98		2
64QAM	1	0	23.48	23.08	23.30	0-2	2
	1	7	23.20	23.13	23.33		2
	1	14	23.33	23.12	23.28		2
	8	0	22.00	22.00	22.08	0-3	3
	8	4	22.05	22.07	22.16		3
	8	7	21.97	22.06	22.10		3
	15	0	22.08	22.03	22.00		3

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Table 9-13
LTE Band 12 Measured P_{max} – 1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23017 (699.7 MHz)	23095 (707.5 MHz)	23173 (715.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	25.21	24.98	24.98	0	0
	1	2	25.24	25.07	25.01		0
	1	5	25.26	25.05	25.03		0
	3	0	25.09	25.03	24.95		0
	3	2	25.19	25.07	25.07		0
	3	3	25.16	25.04	25.04		0
	6	0	24.25	24.25	24.24	0-1	1
16QAM	1	0	23.63	24.18	23.92	0-1	1
	1	2	23.73	24.27	23.94		1
	1	5	23.68	24.23	24.07		1
	3	0	23.89	23.99	23.85		1
	3	2	23.93	24.10	23.95		1
	3	3	23.92	24.10	23.89		1
	6	0	23.26	22.93	23.18	0-2	2
64QAM	1	0	23.20	23.09	23.30	0-2	2
	1	2	23.30	23.18	23.42		2
	1	5	23.22	23.10	23.29		2
	3	0	22.88	23.04	23.27		2
	3	2	22.97	23.17	23.33		2
	3	3	22.90	23.15	23.28		2
	6	0	22.00	22.32	21.89	0-3	3

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LTE Band 13

Table 9-14
LTE Band 13 Measured P_{max} - 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	24.88	0	0
	1	25	24.94		0
	1	49	24.91		0
	25	0	24.10	0-1	1
	25	12	24.09		1
	25	25	24.13		1
	50	0	24.03		1
16QAM	1	0	24.00	0-1	1
	1	25	23.97		1
	1	49	23.94		1
	25	0	22.97	0-2	2
	25	12	22.92		2
	25	25	23.06		2
	50	0	22.83		2
64QAM	1	0	23.33	0-2	2
	1	25	23.36		2
	1	49	23.34		2
	25	0	22.16	0-3	3
	25	12	22.15		3
	25	25	22.19		3
	50	0	22.04		3

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Table 9-15
LTE Band 13 Measured P_{max} - 5 MHz Bandwidth

LTE Band 13 5 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	25.23	0	0
	1	12	25.24		0
	1	24	25.26		0
	12	0	24.27	0-1	1
	12	6	24.34		1
	12	13	24.36		1
	25	0	24.34		1
16QAM	1	0	23.95	0-1	1
	1	12	23.97		1
	1	24	24.02		1
	12	0	23.20	0-2	2
	12	6	23.19		2
	12	13	23.23		2
	25	0	23.14		2
64QAM	1	0	23.22	0-2	2
	1	12	23.20		2
	1	24	23.32		2
	12	0	22.10	0-3	3
	12	6	22.15		3
	12	13	22.19		3
	25	0	22.12		3

Note: LTE Band 13 at 5 MHz bandwidth does 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.

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LTE Band 26

Table 9-16
LTE Band 26 Measured P_{max} - 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	24.94	0	0
	1	36	24.92		0
	1	74	24.93		0
	36	0	23.88	0-1	1
	36	18	23.94		1
	36	37	23.98		1
	75	0	23.97		1
16QAM	1	0	23.60	0-1	1
	1	36	23.61		1
	1	74	23.60		1
	36	0	22.81	0-2	2
	36	18	22.83		2
	36	37	22.83		2
	75	0	22.78		2
64QAM	1	0	23.41	0-2	2
	1	36	23.42		2
	1	74	23.43		2
	36	0	21.94	0-3	3
	36	18	21.99		3
	36	37	22.00		3
	75	0	21.99		3

Note: LTE Band 26 at 15 MHz bandwidth does 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.

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Table 9-17
LTE Band 26 Measured P_{max} - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26740 (819.0 MHz)	26865 (831.5 MHz)	26990 (844.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	25.11	24.96	25.02	0	0
	1	25	25.00	25.00	24.85		0
	1	49	24.95	24.91	24.81		0
	25	0	23.98	23.89	23.86	0-1	1
	25	12	24.07	23.97	23.94		1
	25	25	23.99	23.96	23.98		1
	50	0	23.98	23.88	23.80		1
16QAM	1	0	23.83	23.77	23.75	0-1	1
	1	25	23.68	23.65	23.84		1
	1	49	23.66	23.71	23.69		1
	25	0	22.80	22.66	22.60	0-2	2
	25	12	22.86	22.78	22.67		2
	25	25	22.75	22.74	22.69		2
	50	0	22.78	22.66	22.62		2
64QAM	1	0	23.30	23.20	23.16	0-2	2
	1	25	23.13	23.08	23.09		2
	1	49	23.10	23.14	23.04		2
	25	0	21.99	21.91	21.85	0-3	3
	25	12	22.09	22.02	21.97		3
	25	25	21.94	22.03	21.93		3
	50	0	22.04	21.95	21.85		3

Table 9-18
LTE Band 26 Measured P_{max} - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26715 (816.5 MHz)	26865 (831.5 MHz)	27015 (846.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.97	24.95	24.90	0	0
	1	12	25.02	25.06	24.85		0
	1	24	24.96	24.95	24.80		0
	12	0	24.09	23.99	23.95	0-1	1
	12	6	24.15	24.02	23.98		1
	12	13	24.09	24.03	23.94		1
	25	0	24.06	23.95	23.93		1
16QAM	1	0	23.69	23.67	23.63	0-1	1
	1	12	23.77	23.67	23.60		1
	1	24	23.68	23.72	23.57		1
	12	0	22.94	22.83	22.80	0-2	2
	12	6	22.99	22.90	22.87		2
	12	13	22.92	22.85	22.78		2
	25	0	22.85	22.79	22.73		2
64QAM	1	0	23.17	23.15	23.11	0-2	2
	1	12	23.24	23.20	23.18		2
	1	24	23.11	23.21	22.98		2
	12	0	22.13	21.98	21.99	0-3	3
	12	6	22.18	22.04	21.97		3
	12	13	22.07	22.08	21.93		3
	25	0	22.11	21.99	21.98		3

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Table 9-19
LTE Band 26 Measured P_{max} - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			26705 (815.5 MHz)	26865 (831.5 MHz)	27025 (847.5 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	25.04	24.89	24.86	0	0	
	1	7	25.07	25.03	24.81		0	
	1	14	25.05	24.94	24.79		0	
	8	0	24.19	23.99	23.97	0-1	1	
	8	4	24.16	24.08	23.98		1	
	8	7	24.15	24.03	23.93		1	
16QAM	15	0	24.17	23.98	23.94	0-1	1	
	1	0	23.75	23.62	23.59		0-1	1
	1	7	23.85	23.69	23.55			1
	1	14	23.77	23.68	23.52	0-2		1
	8	0	23.03	22.90	22.84		2	
	8	4	23.05	22.95	22.82		2	
64QAM	8	7	23.04	22.95	22.79	0-2	2	
	15	0	22.95	22.78	22.71		2	
	1	0	23.27	23.15	23.10		0-2	2
	1	7	23.28	23.12	23.04	2		
	1	14	23.27	23.21	23.05	0-3		2
	8	0	22.14	21.98	21.93		3	
8	4	22.15	22.07	21.95	3			
64QAM	8	7	22.11	22.06	21.94	0-3	3	
	15	0	22.20	22.01	21.96		3	

Table 9-20
LTE Band 26 Measured P_{max} - 1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26697 (814.7 MHz)	26865 (831.5 MHz)	27033 (848.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.99	24.83	24.78	0	0
	1	2	25.07	24.96	24.86		0
	1	5	24.95	24.88	24.81		0
	3	0	24.99	24.78	24.73		0
	3	2	25.05	24.93	24.78		0
	3	3	24.97	24.88	24.69		0
	6	0	24.06	23.94	23.85	0-1	1
16QAM	1	0	23.76	23.56	23.49	0-1	1
	1	2	23.79	23.66	23.60		1
	1	5	23.78	23.66	23.44		1
	3	0	23.78	23.61	23.59		1
	3	2	23.84	23.74	23.69		1
	3	3	23.79	23.69	23.57	1	
6	0	22.95	22.81	22.73	0-2	2	
64QAM	1	0	23.18	23.08	23.03	0-2	2
	1	2	23.32	23.25	23.09		2
	1	5	23.25	23.12	22.97		2
	3	0	23.18	23.04	22.98		2
	3	2	23.26	23.10	23.00		2
	3	3	23.19	23.07	22.93		2
	6	0	22.09	21.94	21.91	0-3	3

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LTE Band 66 (AWS)

Table 9-21
LTE Band 66 (AWS) Antenna 2 Measured P_{limit} for all DSI - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.52	22.65	23.05	0	0
	1	50	22.81	22.90	22.81		0
	1	99	22.53	22.67	22.80		0
	50	0	22.80	22.78	22.76	0-1	0
	50	25	22.84	22.82	22.85		0
	50	50	22.83	22.81	22.84		0
	100	0	22.70	22.68	22.67		0
16QAM	1	0	22.80	22.85	22.92	0-1	0
	1	50	23.03	23.03	23.02		0
	1	99	22.79	22.88	23.13		0
	50	0	22.77	22.75	22.83	0-2	0
	50	25	22.84	22.91	22.94		0
	50	50	22.82	22.86	22.94		0
	100	0	22.84	22.85	22.97		0
64QAM	1	0	22.65	22.68	23.02	0-2	0
	1	50	23.00	22.87	22.96		0
	1	99	22.78	22.93	23.08		0
	50	0	22.05	22.05	22.06	0-3	1
	50	25	22.15	22.18	22.10		1
	50	50	22.04	22.09	22.10		1
	100	0	22.03	22.10	22.03		1

Table 9-22
LTE Band 66 (AWS) Antenna 2 Measured P_{limit} for all DSI - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.80	22.85	23.01	0	0
	1	36	22.82	22.90	23.00		0
	1	74	22.70	22.77	22.90		0
	36	0	22.96	22.93	22.99	0-1	0
	36	18	22.97	22.99	23.00		0
	36	37	22.90	22.92	23.01		0
	75	0	22.89	22.94	22.95		0
16QAM	1	0	23.28	23.06	23.05	0-1	0
	1	36	23.44	23.16	23.02		0
	1	74	23.25	23.00	22.97		0
	36	0	22.92	22.91	22.99	0-2	0
	36	18	22.91	23.05	23.01		0
	36	37	22.88	22.96	22.99		0
	75	0	22.91	22.98	22.95		0
64QAM	1	0	23.33	23.02	23.32	0-2	0
	1	36	23.49	23.12	23.33		0
	1	74	23.40	22.94	23.30		0
	36	0	22.21	22.25	22.29	0-3	1
	36	18	22.17	22.30	22.25		1
	36	37	22.15	22.22	22.27		1
	75	0	22.17	22.18	22.20		1

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Table 9-23
LTE Band 66 (AWS) Antenna 2 Measured P_{limit} for all DSI - 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	22.61	22.53	23.00	0	0
	1	25	22.84	22.76	23.13		0
	1	49	22.65	22.58	22.73		0
	25	0	22.89	22.88	23.00	0-1	0
	25	12	22.93	22.97	23.02		0
	25	25	22.76	22.85	22.97		0
50	0	22.83	22.90	22.90	0		
16QAM	1	0	23.18	22.71	22.87	0-1	0
	1	25	23.34	22.91	23.19		0
	1	49	23.14	22.70	22.90		0
	25	0	22.85	23.01	23.04	0-2	0
	25	12	22.96	23.10	22.99		0
	25	25	22.80	23.02	23.03		0
50	0	22.84	22.96	22.93	0		
64QAM	1	0	22.60	22.85	22.83	0-2	0
	1	25	23.06	23.28	23.19		0
	1	49	22.71	22.91	23.01		0
	25	0	22.07	22.14	22.20	0-3	1
	25	12	22.18	22.25	22.30		1
	25	25	22.03	22.22	22.29		1
	50	0	22.04	22.15	22.18		1

Table 9-24
LTE Band 66 (AWS) Antenna 2 Measured P_{limit} for all DSI - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.90	22.84	23.15	0	0
	1	12	22.88	22.90	23.13		0
	1	24	22.82	22.83	23.05		0
	12	0	22.84	22.98	23.12	0-1	0
	12	6	22.97	23.04	23.13		0
	12	13	22.83	22.95	23.00		0
	25	0	22.87	23.00	23.09		0
16QAM	1	0	23.01	23.09	23.01	0-1	0
	1	12	23.03	23.07	23.03		0
	1	24	22.93	23.08	22.93		0
	12	0	22.91	23.10	23.13	0-2	0
	12	6	22.92	23.18	23.12		0
	12	13	22.85	23.10	23.07		0
	25	0	22.95	23.07	23.11		0
64QAM	1	0	23.25	23.31	23.03	0-2	0
	1	12	23.26	23.34	23.02		0
	1	24	23.17	23.26	22.92		0
	12	0	22.24	22.15	22.37	0-3	1
	12	6	22.22	22.19	22.38		1
	12	13	22.17	22.11	22.31		1
	25	0	22.15	22.17	22.30		1

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Table 9-25
LTE Band 66 (AWS) Antenna 2 Measured P_{limit} for all DSI - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.91	22.86	23.03	0	0
	1	7	22.86	22.93	22.97		0
	1	14	22.85	22.81	22.99		0
	8	0	23.00	22.92	23.12	0-1	0
	8	4	22.98	22.95	23.10		0
	8	7	22.92	22.88	23.07		0
16QAM	15	0	22.97	22.95	23.10	0-1	0
	1	0	23.04	23.11	23.24		0
	1	7	23.00	23.18	23.18		0
	1	14	22.90	23.07	23.05	0-2	0
	8	0	23.08	23.02	23.31		0
	8	4	23.06	23.07	23.30		0
64QAM	8	7	23.02	23.00	23.25	0-2	0
	15	0	23.01	22.99	23.06		0
	1	0	23.40	23.05	23.41		0-2
	1	7	23.30	23.09	23.35	0	
	1	14	23.21	23.03	23.28	0-3	
	8	0	22.20	22.22	22.41		1
	8	4	22.19	22.23	22.39		1
	8	7	22.13	22.18	22.35	1	
	15	0	22.27	22.22	22.30		1

Table 9-26
LTE Band 66 (AWS) Antenna 2 Measured P_{limit} for all DSI – 1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.90	22.81	23.00	0	0
	1	2	22.93	22.86	23.02		0
	1	5	22.86	22.80	22.95		0
	3	0	22.81	22.81	22.90		0
	3	2	22.82	22.86	22.95		0
	3	3	22.75	22.79	22.91		0
	6	0	22.85	22.85	23.00	0-1	0
16QAM	1	0	23.00	23.02	23.11	0-1	0
	1	2	23.06	23.06	23.19		0
	1	5	22.95	22.95	23.07		0
	3	0	22.91	22.90	23.02		0
	3	2	22.90	22.91	23.05		0
	3	3	22.89	22.87	23.00	0	
64QAM	6	0	23.04	22.88	23.15	0-2	0
	1	0	23.29	23.02	23.41	0-2	0
	1	2	23.37	23.11	23.49		0
	1	5	23.26	23.00	23.37		0
	3	0	23.26	23.03	23.41		0
	3	2	23.30	23.05	23.44		0
	3	3	23.21	23.03	23.37		0
	6	0	22.07	22.43	22.23	0-3	1

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Table 9-27
LTE Band 66 (AWS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA When Band 66 as PCC (P_{max}) - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.52	22.38	22.63	0	0
	1	50	22.79	22.59	22.58		0
	1	99	22.45	22.33	22.45		0
	50	0	22.60	22.54	22.49	0-1	0
	50	25	22.79	22.59	22.66		0
	50	50	22.68	22.57	22.49		0
	100	0	22.69	22.48	22.56		0
16QAM	1	0	22.57	22.47	22.75	0-1	0
	1	50	22.78	22.69	22.69		0
	1	99	22.52	22.41	22.61		0
	50	0	22.53	22.50	22.42	0-2	0
	50	25	22.66	22.51	22.57		0
	50	50	22.56	22.51	22.43		0
	100	0	22.68	22.53	22.54		0
64QAM	1	0	22.31	22.23	22.36	0-2	0
	1	50	22.49	22.51	22.33		0
	1	99	22.59	22.41	22.44		0
	50	0	21.69	21.75	21.72	0-3	1
	50	25	21.71	21.74	21.77		1
	50	50	21.77	21.78	21.63		1
	100	0	21.80	21.71	21.64		1

Table 9-28
LTE Band 66 (AWS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA When Band 66 as PCC (P_{max}) - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.39	22.18	22.58	0	0
	1	36	22.41	22.23	22.45		0
	1	74	22.26	22.20	22.47		0
	36	0	22.47	22.30	22.40	0-1	0
	36	18	22.58	22.31	22.50		0
	36	37	22.49	22.28	22.47		0
16QAM	75	0	22.45	22.31	22.37	0-1	0
	1	0	22.24	22.20	22.61		0
	1	36	22.44	22.28	22.31		0
	1	74	22.50	22.14	22.46	0-2	0
	36	0	22.51	22.27	22.50		0
	36	18	22.53	22.29	22.41		0
64QAM	36	37	22.52	22.29	22.47	0-2	0
	75	0	22.20	22.28	22.43		0
	1	0	22.39	22.03	22.46		0-2
	1	36	22.36	22.00	22.40	0	
	1	74	22.41	22.11	22.26	0	
	36	0	21.79	21.67	21.94	0-3	1
36	18	21.86	21.71	21.99	1		
36	37	21.89	21.73	21.89	1		
	75	0	21.90	21.73	21.81		1

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Table 9-29
LTE Band 66 (AWS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA When Band 66 as PCC (P_{max}) - 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	22.26	22.34	22.18	0	0
	1	25	22.31	22.28	22.28		0
	1	49	22.28	22.31	22.38		0
	25	0	22.38	22.26	22.32	0-1	0
	25	12	22.40	22.17	22.39		0
	25	25	22.22	22.20	22.43		0
	50	0	22.33	22.25	22.33		0
16QAM	1	0	22.23	22.15	22.35	0-1	0
	1	25	22.45	22.28	22.35		0
	1	49	22.24	22.23	22.27		0
	25	0	22.42	22.31	22.32	0-2	0
	25	12	22.38	22.30	22.29		0
	25	25	22.31	22.23	22.37		0
	50	0	22.40	22.27	22.32		0
64QAM	1	0	22.30	22.06	22.24	0-2	0
	1	25	22.46	22.15	22.27		0
	1	49	22.21	22.08	22.22		0
	25	0	21.90	21.62	21.84	0-3	1
	25	12	21.87	21.88	21.70		1
	25	25	21.88	21.62	21.66		1
	50	0	21.72	21.73	21.71		1

Table 9-30
LTE Band 66 (AWS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA When Band 66 as PCC (P_{max}) - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.49	22.31	22.24	0	0
	1	12	22.26	22.25	22.37		0
	1	24	22.34	22.34	22.32		0
	12	0	22.34	22.35	22.40	0-1	0
	12	6	22.47	22.39	22.38		0
	12	13	22.51	22.39	22.30		0
	25	0	22.46	22.30	22.38		0
16QAM	1	0	22.37	22.36	22.20	0-1	0
	1	12	22.41	22.30	22.25		0
	1	24	22.39	22.42	22.39		0
	12	0	22.50	22.26	22.41	0-2	0
	12	6	22.52	22.38	22.21		0
	12	13	22.44	22.41	22.26		0
	25	0	22.43	22.39	22.30		0
64QAM	1	0	22.35	22.20	22.41	0-2	0
	1	12	22.44	22.21	22.24		0
	1	24	22.32	22.23	22.35		0
	12	0	21.99	21.77	21.83	0-3	1
	12	6	21.87	21.76	21.78		1
	12	13	21.91	21.80	21.79		1
	25	0	21.90	21.77	21.80		1

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Table 9-31
LTE Band 66 (AWS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA When Band 66 as PCC (P_{max}) - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.52	22.26	22.33	0	0
	1	7	22.43	22.21	22.29		0
	1	14	22.36	22.33	22.36		0
	8	0	22.41	22.31	22.40	0-1	0
	8	4	22.51	22.29	22.47		0
	8	7	22.48	22.31	22.30		0
	15	0	22.44	22.30	22.38		0
16QAM	1	0	22.50	22.30	22.31	0-1	0
	1	7	22.49	22.39	22.33		0
	1	14	22.42	22.36	22.29		0
	8	0	22.39	22.32	22.39	0-2	0
	8	4	22.48	22.30	22.37		0
	8	7	22.51	22.34	22.29		0
	15	0	22.54	22.36	22.35		0
64QAM	1	0	22.27	22.15	22.27	0-2	0
	1	7	22.45	22.25	22.25		0
	1	14	22.39	22.33	22.38		0
	8	0	21.85	21.84	21.90	0-3	1
	8	4	21.80	21.83	21.88		1
	8	7	21.70	21.86	21.75		1
	15	0	21.93	21.72	21.79		1

Table 9-32
LTE Band 66 (AWS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA When Band 66 as PCC (P_{max}) - 1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.31	22.25	22.18	0	0
	1	2	22.33	22.28	22.27		0
	1	5	22.29	22.27	22.20		0
	3	0	22.38	22.24	22.15		0
	3	2	22.37	22.22	22.26		0
	3	3	22.34	22.26	22.25		0
	6	0	22.33	22.29	22.27	0-1	0
16QAM	1	0	22.41	22.30	22.20	0-1	0
	1	2	22.32	22.29	22.32		0
	1	5	22.31	22.27	22.34		0
	3	0	22.30	22.22	22.19		0
	3	2	22.36	22.20	22.20		0
	3	3	22.42	22.30	22.24		0
	6	0	22.34	22.29	22.21	0-2	0
64QAM	1	0	22.39	22.26	22.22	0-2	0
	1	2	22.40	22.31	22.23		0
	1	5	22.37	22.20	22.26		0
	3	0	22.36	22.27	22.31		0
	3	2	22.37	22.36	22.30		0
	3	3	22.33	22.33	22.31		0
	6	0	21.62	21.53	21.47	0-3	1

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LTE Band 25 (PCS)

Table 9-33
LTE Band 25 (PCS) Measured P_{limit} for all DSI - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.37	23.37	23.10	0	0
	1	50	23.38	23.22	23.09		0
	1	99	23.29	23.29	23.02		0
	50	0	23.35	23.24	23.08	0-1	0
	50	25	23.36	23.25	23.12		0
	50	50	23.33	23.30	23.14		0
16QAM	100	0	23.34	23.17	22.98	0-1	0
	1	0	23.42	23.47	23.43		0
	1	50	23.42	23.46	23.28		0
	1	99	23.40	23.46	23.33	0-2	0
	50	0	22.90	22.72	22.58		0
	50	25	22.84	22.68	22.55		0
64QAM	50	50	22.85	22.66	22.64	0-2	0
	100	0	22.80	22.67	22.50		0
	1	0	23.17	23.02	22.97		0-2
	1	50	23.24	22.98	23.08	0	
	1	99	23.24	23.01	23.03	0	
	50	0	22.11	21.97	21.83	0-3	1
50	25	22.11	21.94	21.80	1		
50	50	22.08	21.99	21.85	1		
	100	0	22.01	21.85	21.68		1

Table 9-34
LTE Band 25 (PCS) Measured P_{limit} for all DSI - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26115 (1857.5 MHz)	26365 (1882.5 MHz)	26615 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.91	23.13	23.13	0	0
	1	36	23.13	23.12	23.09		0
	1	74	23.06	23.17	23.05		0
	36	0	23.14	23.05	23.06	0-1	0
	36	18	23.22	23.15	23.15		0
	36	37	23.20	23.21	23.09		0
	75	0	23.16	23.13	23.05		0
16QAM	1	0	23.37	23.49	23.49	0-1	0
	1	36	23.49	23.48	23.48		0
	1	74	23.48	23.49	23.49		0
	36	0	22.64	22.66	22.60	0-2	0
	36	18	22.70	22.75	22.68		0
	36	37	22.71	22.77	22.65		0
	75	0	22.65	22.65	22.63		0
64QAM	1	0	23.20	22.96	23.11	0-2	0
	1	36	23.49	23.00	23.13		0
	1	74	23.40	23.05	23.18		0
	36	0	21.92	21.88	21.82	0-3	1
	36	18	21.97	21.97	21.89		1
	36	37	21.93	22.00	21.85		1
	75	0	21.96	21.90	21.80		1

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Table 9-35
LTE Band 25 (PCS) Measured P_{limit} for all DSI - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26090 (1855.0 MHz)	26365 (1882.5 MHz)	26640 (1910.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.90	22.95	23.10	0	0
	1	25	23.15	23.33	23.00		0
	1	49	22.72	22.93	23.03		0
	25	0	23.18	23.10	23.06	0-1	0
	25	12	23.20	23.18	23.12		0
	25	25	23.12	23.15	23.02		0
	50	0	23.18	23.07	23.00		0
16QAM	1	0	23.19	23.25	23.20	0-1	0
	1	25	23.38	23.47	23.19		0
	1	49	23.15	23.29	23.28		0
	25	0	22.80	22.63	22.51	0-2	0
	25	12	22.85	22.68	22.58		0
	25	25	22.75	22.75	22.52		0
	50	0	22.66	22.54	22.50		0
64QAM	1	0	23.00	22.62	23.02	0-2	0
	1	25	23.16	22.93	22.95		0
	1	49	22.76	22.75	23.00		0
	25	0	21.88	21.90	21.73	0-3	1
	25	12	22.01	21.97	21.82		1
	25	25	21.95	21.98	21.77		1
	50	0	21.86	21.83	21.71		1

Table 9-36
LTE Band 25 (PCS) Measured P_{limit} for all DSI - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26065 (1852.5 MHz)	26365 (1882.5 MHz)	26665 (1912.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.18	23.15	23.07	0	0
	1	12	23.19	23.23	23.05		0
	1	24	23.20	23.25	23.06		0
	12	0	23.17	23.09	23.04	0-1	0
	12	6	23.24	23.19	23.08		0
	12	13	23.19	23.20	23.09		0
	25	0	23.26	23.15	23.05		0
16QAM	1	0	23.39	23.25	23.40	0-1	0
	1	12	23.48	23.40	23.38		0
	1	24	23.45	23.33	23.30		0
	12	0	22.77	22.58	22.58	0-2	0
	12	6	22.80	22.67	22.60		0
	12	13	22.81	22.65	22.62		0
	25	0	22.70	22.62	22.51		0
64QAM	1	0	23.26	22.60	23.14	0-2	0
	1	12	23.35	22.72	23.12		0
	1	24	23.31	22.75	23.10		0
	12	0	21.99	21.78	21.82	0-3	1
	12	6	22.03	21.91	21.85		1
	12	13	22.01	21.93	21.86		1
	25	0	21.96	21.77	21.78		1

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Table 9-37
LTE Band 25 (PCS) Measured P_{limit} for all DSI - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26055 (1851.5 MHz)	26365 (1882.5 MHz)	26675 (1913.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.12	23.13	22.97	0	0
	1	7	23.15	23.19	23.00		0
	1	14	23.17	23.20	23.04		0
	8	0	23.20	23.16	23.03	0-1	0
	8	4	23.25	23.19	23.05		0
	8	7	23.21	23.17	23.07		0
	15	0	23.22	23.21	23.06		0
16QAM	1	0	23.41	23.48	23.49	0-1	0
	1	7	23.40	23.48	23.47		0
	1	14	23.41	23.49	23.46		0
	8	0	22.80	22.73	22.71	0-2	0
	8	4	22.79	22.76	22.73		0
	8	7	22.81	22.75	22.72		0
	15	0	22.75	22.73	22.54		0
64QAM	1	0	23.14	22.96	22.98	0-2	0
	1	7	23.16	22.99	23.00		0
	1	14	23.19	22.97	23.02		0
	8	0	21.85	21.93	21.81	0-3	1
	8	4	21.92	21.95	21.84		1
	8	7	21.91	21.94	21.79		1
	15	0	21.96	21.95	21.72		1

Table 9-38
LTE Band 25 (PCS) Measured P_{limit} for all DSI – 1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26047 (1850.7 MHz)	26365 (1882.5 MHz)	26683 (1914.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.20	23.03	22.84	0	0
	1	2	23.21	23.09	22.95		0
	1	5	23.19	23.00	22.90		0
	3	0	23.11	23.04	22.86		0
	3	2	23.14	23.05	22.92		0
	3	3	23.09	23.02	22.88		0
	6	0	23.16	23.10	22.96	0-1	0
16QAM	1	0	23.20	23.20	22.95	0-1	0
	1	2	23.28	23.30	22.99		0
	1	5	23.22	23.25	22.96		0
	3	0	22.85	22.80	22.86		0
	3	2	22.92	22.84	22.96		0
	3	3	22.88	22.81	22.89	0	
64QAM	6	0	22.62	22.35	22.40	0-2	0
	1	0	23.22	22.90	22.92	0-2	0
	1	2	23.29	22.99	22.96		0
	1	5	23.23	22.89	22.98		0
	3	0	23.20	22.91	22.61		0
	3	2	23.26	22.95	22.66		0
	3	3	23.24	22.90	22.64		0
	6	0	21.85	22.13	21.90	0-3	1

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LTE Band 2 (PCS) Ant 3

Table 9-39

LTE Band 2 (PCS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA
When Band 2 as PCC (P_{max}) - 20 MHz Bandwidth

LTE Band 2 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18700 (1860.0 MHz)	18900 (1880.0 MHz)	19100 (1900.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.18	22.28	22.24	0	0
	1	50	22.46	22.55	22.52		0
	1	99	22.38	22.39	22.32		0
	50	0	22.33	22.41	22.42	0-1	0
	50	25	22.59	22.56	22.53		0
	50	50	22.54	22.61	22.58		0
	100	0	22.50	22.48	22.42		0
16QAM	1	0	22.36	22.19	22.33	0-1	0
	1	50	22.56	22.51	22.52		0
	1	99	22.31	22.42	22.58		0
	50	0	22.30	22.39	22.37	0-2	0
	50	25	22.45	22.47	22.46		0
	50	50	22.48	22.54	22.53		0
	100	0	22.52	22.48	22.42		0
64QAM	1	0	22.26	22.37	22.38	0-2	0
	1	50	22.69	22.76	22.83		0
	1	99	22.62	22.55	22.53		0
	50	0	21.96	22.01	21.97	0-3	1
	50	25	22.09	22.09	22.04		1
	50	50	22.11	22.15	22.13		1
	100	0	22.11	22.06	22.03		1

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Table 9-40
LTE Band 2 (PCS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA
When Band 2 as PCC (P_{max}) - 15 MHz Bandwidth

LTE Band 2 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18675 (1857.5 MHz)	18900 (1880.0 MHz)	19125 (1902.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.39	22.45	22.58	0	0
	1	36	22.41	22.41	22.49		0
	1	74	22.27	22.42	22.54		0
	36	0	22.30	22.30	22.42	0-1	0
	36	18	22.51	22.35	22.52		0
	36	37	22.45	22.49	22.56		0
	75	0	22.41	22.32	22.44		0
16QAM	1	0	22.13	22.25	22.42	0-1	0
	1	36	22.22	22.20	22.35		0
	1	74	22.17	22.16	22.37		0
	36	0	22.40	22.24	22.42	0-2	0
	36	18	22.58	22.28	22.46		0
	36	37	22.54	22.42	22.57		0
	75	0	22.52	22.27	22.46		0
64QAM	1	0	22.29	22.37	22.32	0-2	0
	1	36	22.33	22.27	22.39		0
	1	74	22.40	22.41	22.36		0
	36	0	22.01	21.96	22.10	0-3	1
	36	18	22.10	21.97	22.12		1
	36	37	22.11	22.04	21.79		1
	75	0	22.11	21.86	22.03		1

Table 9-41
LTE Band 2 (PCS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA
When Band 2 as PCC (P_{max}) - 10 MHz Bandwidth

LTE Band 2 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18650 (1855.0 MHz)	18900 (1880.0 MHz)	19150 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.29	22.22	22.69	0	0
	1	25	22.47	22.56	22.61		0
	1	49	22.33	22.27	22.72		0
	25	0	22.59	22.48	22.41	0-1	0
	25	12	22.73	22.63	22.52		0
	25	25	22.54	22.52	22.45		0
	50	0	22.56	22.45	22.38		0
16QAM	1	0	22.32	22.30	22.61	0-1	0
	1	25	22.58	22.55	22.62		0
	1	49	22.31	22.27	22.55		0
	25	0	22.46	22.44	22.41	0-2	0
	25	12	22.62	22.53	22.43		0
	25	25	22.50	22.49	22.44		0
	50	0	22.58	22.47	22.46		0
64QAM	1	0	22.31	22.30	22.52	0-2	0
	1	25	22.57	22.49	22.51		0
	1	49	22.32	22.41	22.58		0
	25	0	22.11	22.10	21.83	0-3	1
	25	12	22.11	22.10	21.89		1
	25	25	22.02	22.09	21.64		1
	50	0	22.08	22.06	21.77		1

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Table 9-42

LTE Band 2 (PCS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA
When Band 2 as PCC (P_{max}) - 5 MHz Bandwidth

LTE Band 2 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18625 (1852.5 MHz)	18900 (1880.0 MHz)	19175 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.53	22.41	22.48	0	0
	1	12	22.51	22.46	22.61		0
	1	24	22.52	22.54	22.59		0
	12	0	22.57	22.53	22.55	0-1	0
	12	6	22.51	22.57	22.54		0
	12	13	22.60	22.39	22.55		0
	25	0	22.51	22.60	22.56		0
16QAM	1	0	22.56	22.61	22.41	0-1	0
	1	12	22.57	22.57	22.45		0
	1	24	22.56	22.55	22.48		0
	12	0	22.47	22.60	22.49	0-2	0
	12	6	22.56	22.51	22.41		0
	12	13	22.50	22.51	22.45		0
	25	0	22.55	22.58	22.47		0
64QAM	1	0	22.41	22.49	22.61	0-2	0
	1	12	22.36	22.47	22.57		0
	1	24	22.42	22.59	22.50		0
	12	0	21.95	21.80	21.43	0-3	1
	12	6	21.99	21.89	21.42		1
	12	13	21.96	21.96	21.52		1
	25	0	21.94	21.82	21.40		1

Table 9-43

LTE Band 2 (PCS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA
When Band 2 as PCC (P_{max}) - 3 MHz Bandwidth

LTE Band 2 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18615 (1851.5 MHz)	18900 (1880.0 MHz)	19185 (1908.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.50	22.57	22.58	0	0
	1	7	22.40	22.63	22.55		0
	1	14	22.31	22.71	22.67		0
	8	0	22.63	22.61	22.41	0-1	0
	8	4	22.65	22.64	22.55		0
	8	7	22.62	22.62	22.63		0
	15	0	22.49	22.52	22.60		0
16QAM	1	0	22.58	22.70	22.67	0-1	0
	1	7	22.67	22.73	22.62		0
	1	14	22.70	22.67	22.59		0
	8	0	22.58	22.69	22.61	0-2	0
	8	4	22.59	22.59	22.53		0
	8	7	22.57	22.61	22.58		0
	15	0	22.56	22.58	22.63		0
64QAM	1	0	22.42	22.43	22.42	0-2	0
	1	7	22.39	22.23	22.39		0
	1	14	22.31	22.36	22.46		0
	8	0	22.00	22.00	21.30	0-3	1
	8	4	22.00	22.04	21.34		1
	8	7	21.88	22.03	21.31		1
	15	0	21.93	21.91	21.34		1

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Table 9-44
LTE Band 2 (PCS) Antenna 3 for conditions with NR EN-DC (Measured P_{limit} for all DSI) or inter-band ULCA
When Band 2 as PCC (P_{max}) – 1.4 MHz Bandwidth

LTE Band 2 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18607 (1850.7 MHz)	18900 (1880.0 MHz)	19193 (1909.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.52	22.42	22.54	0	0
	1	2	22.55	22.47	22.51		0
	1	5	22.62	22.36	22.43		0
	3	0	22.36	22.44	22.53		0
	3	2	22.46	22.46	22.51		0
	3	3	22.41	22.48	22.49		0
	6	0	22.47	22.52	22.42	0-1	0
16QAM	1	0	22.57	22.46	22.64	0-1	0
	1	2	22.64	22.48	22.62		0
	1	5	22.65	22.51	22.52		0
	3	0	22.43	22.47	22.63		0
	3	2	22.38	22.45	22.38		0
	3	3	22.42	22.48	22.49		0
	6	0	22.36	22.52	22.31	0-2	0
64QAM	1	0	22.36	22.56	22.37	0-2	0
	1	2	22.37	22.66	22.41		0
	1	5	22.22	22.70	22.39		0
	3	0	22.52	22.65	22.47		0
	3	2	22.43	22.55	22.33		0
	3	3	22.54	22.58	22.40		0
	6	0	21.83	22.12	21.45	0-3	1

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LTE Band 48

Table 9-45
LTE Band 48 Measured P_{Limit} for all DSI - 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	21.70	21.57	21.63	21.64	0	0
	1	50	21.66	21.58	21.63	21.56		0
	1	99	21.67	21.47	21.59	21.66		0
	50	0	21.72	21.40	21.55	21.53	0-1	0
	50	25	21.70	21.71	21.66	21.57		0
	50	50	21.68	21.58	21.60	21.54		0
	100	0	21.69	21.68	21.61	21.45		0
16QAM	1	0	21.72	21.23	21.41	21.70	0-1	0
	1	50	21.73	21.29	21.39	21.70		0
	1	99	21.75	21.25	21.36	21.68		0
	50	0	21.16	21.24	21.11	21.12	0-2	0.5
	50	25	21.19	21.12	21.28	21.36		0.5
	50	50	21.16	21.06	21.16	21.40		0.5
	100	0	21.21	21.19	21.11	21.19		0.5
64QAM	1	0	21.46	21.47	21.38	21.46	0-2	0.5
	1	50	21.46	21.42	21.41	21.57		0.5
	1	99	21.45	21.44	21.42	21.36		0.5
	50	0	20.48	20.48	20.48	20.32	0-3	1.5
	50	25	20.50	20.42	20.41	20.52		1.5
	50	50	20.53	20.44	20.42	20.40		1.5
	100	0	20.48	20.36	20.39	20.38		1.5

Table 9-46
LTE Band 48 Measured P_{Limit} for all DSI - 15 MHz Bandwidth

LTE Band 48 15 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55315 (3557.5 MHz)	55765 (3602.5 MHz)	56215 (3647.5 MHz)	56665 (3692.5 MHz)		
			Conducted Power [dBm]					
QPSK	1	0	21.64	21.58	21.79	21.68	0	0
	1	36	21.68	21.57	21.77	21.69		0
	1	74	21.67	21.53	21.76	21.65		0
	36	0	21.70	21.67	21.70	21.73	0-1	0
	36	18	21.76	21.71	21.80	21.73		0
	36	37	21.68	21.68	21.79	21.74		0
	75	0	21.70	21.67	21.68	21.68		0
16QAM	1	0	21.50	21.53	21.68	21.59	0-1	0
	1	36	21.53	21.60	21.70	21.57		0
	1	74	21.50	21.62	21.75	21.52		0
	36	0	21.20	21.19	21.25	21.10	0-2	0.5
	36	18	21.24	21.22	21.30	21.11		0.5
	36	37	21.13	21.17	21.34	21.13		0.5
	75	0	21.20	21.13	21.23	21.10		0.5
64QAM	1	0	21.54	21.15	21.51	21.62	0-2	0.5
	1	36	21.60	21.23	21.57	21.66		0.5
	1	74	21.55	21.11	21.54	21.65		0.5
	36	0	20.59	20.66	20.66	20.70	0-3	1.5
	36	18	20.70	20.63	20.70	20.65		1.5
	36	37	20.63	20.61	20.71	20.66		1.5
	75	0	20.60	20.60	20.64	20.59		1.5

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Table 9-47
LTE Band 48 Measured P_{Limit} for all DSI - 10 MHz Bandwidth

LTE Band 48 10 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55290 (3555.0 MHz)	55757 (3601.7 MHz)	56223 (3648.3 MHz)	56690 (3695.0 MHz)		
			Conducted Power [dBm]					
QPSK	1	0	21.80	21.62	21.67	21.71	0	0
	1	25	21.78	21.60	21.75	21.79		0
	1	49	21.76	21.94	21.84	21.77		0
	25	0	21.83	22.00	21.71	21.95	0-1	0
	25	12	21.80	21.99	21.91	21.66		0
	25	25	21.78	21.61	21.97	21.62		0
	50	0	21.74	21.77	21.91	21.94		0
16QAM	1	0	21.75	21.89	21.85	21.59	0-1	0
	1	25	21.74	21.75	21.80	21.61		0
	1	49	21.79	21.77	21.78	21.84		0
	25	0	21.17	21.12	21.17	21.02	0-2	0.5
	25	12	21.30	21.18	21.41	21.25		0.5
	25	25	21.24	21.27	21.35	21.14		0.5
	50	0	21.23	21.36	21.25	21.41		0.5
64QAM	1	0	21.60	21.74	21.61	21.42	0-2	0.5
	1	25	21.55	21.73	21.35	21.52		0.5
	1	49	21.65	21.57	21.41	21.70		0.5
	25	0	20.60	20.58	20.66	20.57	0-3	1.5
	25	12	20.72	20.53	20.47	20.83		1.5
	25	25	20.71	20.83	20.58	20.74		1.5
	50	0	20.65	20.37	20.56	20.76		1.5

Table 9-48
LTE Band 48 Measured P_{Limit} for all DSI - 5 MHz Bandwidth

LTE Band 48 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55265 (3552.5 MHz)	55748 (3600.8 MHz)	56232 (3649.2 MHz)	56715 (3697.5 MHz)		
			Conducted Power [dBm]					
QPSK	1	0	21.67	21.61	21.85	21.83	0	0
	1	12	21.59	21.60	21.79	21.62		0
	1	24	21.70	21.57	21.51	21.72		0
	12	0	21.67	21.80	21.72	21.88	0-1	0
	12	6	21.84	21.89	21.82	21.81		0
	12	13	21.54	21.55	21.50	21.51		0
	25	0	21.63	21.63	21.53	21.65		0
16QAM	1	0	21.58	21.83	21.85	21.73	0-1	0
	1	12	21.55	21.79	21.73	21.74		0
	1	24	21.73	21.59	21.59	21.82		0
	12	0	21.11	21.14	21.11	21.13	0-2	0.5
	12	6	21.19	21.39	21.35	21.17		0.5
	12	13	21.05	21.35	21.14	21.01		0.5
	25	0	21.05	21.26	21.33	21.12		0.5
64QAM	1	0	21.76	21.30	21.83	21.42	0-2	0.5
	1	12	21.45	21.56	21.61	21.64		0.5
	1	24	21.81	21.87	21.47	21.65		0.5
	12	0	20.55	20.78	20.62	20.60	0-3	1.5
	12	6	20.72	20.97	20.54	20.66		1.5
	12	13	20.70	20.86	20.84	20.65		1.5
	25	0	20.82	20.75	20.56	20.57		1.5

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LTE Band 41

Table 9-49
LTE Band 41 PC3 Measured P_{Limit} for all DSI - 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	23.67	23.73	23.64	23.78	23.57	0	0
	1	50	23.69	23.69	23.79	23.78	23.59		0
	1	99	23.59	23.67	23.68	23.60	23.48		0
	50	0	23.64	23.51	23.54	23.54	23.42	0-1	0.5
	50	25	23.63	23.64	23.67	23.59	23.52		0.5
	50	50	23.61	23.54	23.65	23.52	23.36		0.5
	100	0	23.66	23.52	23.62	23.58	23.43		0.5
16QAM	1	0	23.34	23.71	23.44	23.73	23.86	0-1	0.5
	1	50	23.35	23.70	23.42	23.68	23.90		0.5
	1	99	23.35	23.68	23.40	23.84	23.71		0.5
	50	0	22.62	22.60	22.70	22.52	22.36	0-2	1.5
	50	25	22.54	22.60	22.67	22.49	22.48		1.5
	50	50	22.55	22.63	22.58	22.44	22.51		1.5
	100	0	22.61	22.61	22.61	22.53	22.45		1.5
64QAM	1	0	22.67	22.55	22.40	22.32	22.32	0-2	1.5
	1	50	22.69	22.50	22.67	22.18	22.00		1.5
	1	99	22.68	22.50	22.47	22.11	21.97		1.5
	50	0	21.80	21.97	21.95	21.95	21.76	0-3	2.5
	50	25	21.98	22.03	21.91	22.04	21.95		2.5
	50	50	21.96	22.00	21.99	21.85	21.86		2.5
	100	0	21.87	21.92	21.95	21.96	21.78		2.5

Table 9-50
LTE Band 41 PC3 P_{Limit} for all DSI - 15 MHz Bandwidth

LTE Band 41 15 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	23.92	23.63	23.65	23.95	23.70	0	0
	1	36	23.85	23.83	23.75	23.93	23.84		0
	1	74	23.88	23.57	23.65	23.71	23.79		0
	36	0	23.75	23.78	23.82	23.85	23.75	0-1	0.5
	36	18	23.92	23.89	23.92	23.91	23.85		0.5
	36	37	23.88	23.83	23.91	23.84	23.86		0.5
	75	0	23.85	23.82	23.86	23.85	23.81		0.5
16QAM	1	0	23.53	23.22	23.46	23.46	23.64	0-1	0.5
	1	36	23.60	23.35	23.66	23.59	23.75		0.5
	1	74	23.59	23.15	23.51	23.30	23.71		0.5
	36	0	22.80	22.73	22.80	22.89	22.66	0-2	1.5
	36	18	22.93	22.88	22.91	22.94	22.74		1.5
	36	37	22.94	22.80	22.88	22.85	22.77		1.5
	75	0	22.85	22.82	22.87	22.82	22.81		1.5
64QAM	1	0	22.79	22.80	22.41	22.80	22.79	0-2	1.5
	1	36	22.88	22.99	22.60	22.81	22.90		1.5
	1	74	22.90	22.79	22.46	22.63	22.85		1.5
	36	0	22.01	22.05	22.05	22.13	22.00	0-3	2.5
	36	18	22.14	22.06	22.14	22.15	22.05		2.5
	36	37	22.09	22.02	22.13	22.06	22.06		2.5
	75	0	22.00	22.04	22.11	22.05	22.10		2.5

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Table 9-51
LTE Band 41 PC3 P_{Limit} for all DSI - 10 MHz Bandwidth

LTE Band 41 10 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	23.88	23.67	23.67	23.70	23.65	0	0
	1	25	23.87	23.88	23.88	23.85	23.85		0
	1	49	23.85	23.66	23.70	23.65	23.66		0
	25	0	23.83	23.85	23.88	23.88	23.80	0-1	0.5
	25	12	23.92	23.99	24.00	23.99	23.90		0.5
	25	25	23.93	23.90	23.95	23.92	23.80		0.5
	50	0	23.85	23.94	23.94	23.96	23.83		0.5
16QAM	1	0	23.76	23.25	23.55	23.55	23.90	0-1	0.5
	1	25	23.75	23.27	23.51	23.43	23.88		0.5
	1	49	23.77	23.22	23.52	23.51	23.80		0.5
	25	0	22.81	22.76	22.89	22.95	22.87	0-2	1.5
	25	12	22.90	22.92	22.99	22.85	23.00		1.5
	25	25	22.81	22.83	22.90	22.82	22.88		1.5
	50	0	22.83	22.91	22.91	22.93	22.85		1.5
64QAM	1	0	22.76	22.80	22.60	22.52	22.70	0-2	1.5
	1	25	22.70	23.10	22.80	22.80	22.95		1.5
	1	49	22.72	22.86	22.52	22.50	22.70		1.5
	25	0	21.97	22.00	22.12	22.14	22.03	0-3	2.5
	25	12	22.08	22.15	22.10	22.14	22.14		2.5
	25	25	22.04	22.05	22.16	22.10	22.05		2.5
	50	0	22.03	22.07	22.13	22.12	22.05		2.5

Table 9-52
LTE Band 41 PC3 P_{Limit} for all DSI - 5 MHz Bandwidth

LTE Band 41 5 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	23.92	23.81	23.90	23.90	23.80	0	0
	1	12	23.93	23.93	23.99	24.00	23.90		0
	1	24	23.92	23.83	23.90	23.92	23.72		0
	12	0	23.93	24.00	24.00	23.90	23.87	0-1	0.5
	12	6	23.96	24.01	24.04	23.97	23.88		0.5
	12	13	23.92	23.98	23.99	23.95	23.90		0.5
	25	0	23.90	23.98	24.03	23.92	23.93		0.5
16QAM	1	0	23.66	23.35	23.55	23.90	23.85	0-1	0.5
	1	12	23.65	23.43	23.60	24.00	23.85		0.5
	1	24	23.70	23.40	23.53	23.99	23.77		0.5
	12	0	22.93	22.86	23.00	22.90	22.80	0-2	1.5
	12	6	22.95	22.91	22.99	22.95	22.81		1.5
	12	13	22.97	22.90	22.97	22.91	22.78		1.5
	25	0	22.88	22.97	23.00	22.85	22.88		1.5
64QAM	1	0	22.80	23.14	22.85	23.39	23.15	0-2	1.5
	1	12	22.81	23.30	22.92	23.39	23.21		1.5
	1	24	22.80	23.25	22.90	23.38	23.17		1.5
	12	0	22.16	22.05	22.35	22.11	21.92	0-3	2.5
	12	6	22.15	22.08	22.30	22.15	22.00		2.5
	12	13	22.18	22.00	22.35	22.13	21.95		2.5
	25	0	22.00	22.10	22.23	22.05	22.05		2.5

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Table 9-53
LTE Band 41 PC2 P_{Limit} for all DSI - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	25.12	25.24	25.23	25.03	25.05	0	0
	1	50	25.13	25.22	25.34	25.07	25.02		0
	1	99	25.09	25.18	25.20	25.00	25.02		0
	50	0	25.30	25.32	25.25	25.26	25.00	0-1	0.1
	50	25	25.32	25.34	25.38	25.25	25.07		0.1
	50	50	25.35	25.30	25.34	25.17	25.25		0.1
	100	0	25.33	25.25	25.12	25.11	25.19		0.1

9.4.3 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-54
LTE Band 41 Uplink Carrier Aggregation Measured P_{Limit}

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	40620	2593.0	QPSK	1	99	LTE B41	20	40818	2612.8	QPSK	1	0	24.07	23.68

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41 PC2	20	40620	2593.0	QPSK	1	99	LTE B41 PC2	20	40818	2612.8	QPSK	1	0	25.55	25.20

Notes:

1. This device supports uplink carrier aggregation for 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.



Figure 9-4
Power Measurement Setup

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9.5 NR Conducted Powers

9.5.1 NR Band n71

Table 9-55
NR Band n71 Measured P_{max} for all DSI - 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	24.75	0	0.0
	1	53	24.63		0.0
	1	104	24.64		0.0
	50	0	24.66	0-0.5	0.0
	50	28	24.58	0	0.0
	50	56	24.55	0-0.5	0.0
	100	0	24.63		0.0
DFT-s-OFDM QPSK	1	1	24.76	0	0.0
	1	53	24.67		0.0
	1	104	24.50		0.0
	50	0	23.72	0-1	1.0
	50	28	24.58	0	0.0
	50	56	23.63	0-1	1.0
	100	0	23.66		1.0
DFT-s-OFDM 16QAM	1	1	23.42	0-1	1.0
CP-OFDM QPSK	1	1	22.88	0-1.5	1.5

Note: NR Band n71 at 20 MHz bandwidth does 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.

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Table 9-56
NR Band n71 Measured P_{max} for all DSI - 15 MHz Bandwidth
NR Band n71
15 MHz Bandwidth

NR Band n71 15 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	24.93	0	0.0
	1	40	24.98		0.0
	1	77	24.79		0.0
	36	0	24.83	0-0.5	0.0
	36	22	24.83	0	0.0
	36	43	24.84		0.0
	75	0	24.87		0.0
DFT-s-OFDM QPSK	1	1	25.02	0	0.0
	1	40	24.99		0.0
	1	77	24.87		0.0
	36	0	23.97	0-1	1.0
	36	22	24.85	0	0.0
	36	43	23.96		1.0
	75	0	23.99		1.0
DFT-s-OFDM 16QAM	1	1	23.44	0-1	1.0
CP-OFDM QPSK	1	1	22.91	0-1.5	1.5

Note: NR Band n71 at 15 MHz bandwidth does 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.

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Table 9-57
NR Band n71 Measured P_{max} for all DSI - 10 MHz Bandwidth

NR Band n71 10 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	133600 (668 MHz)	136100 (680.5 MHz)	138600 (693 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	25.00	24.83	24.89	0	0.0
	1	26	24.93	25.00	24.83		0.0
	1	50	24.85	24.99	24.61		0.0
	25	0	24.94	24.83	24.75	0-0.5	0.0
	25	14	24.92	24.86	24.78	0	0.0
	25	27	24.90	24.86	24.75	0-0.5	0.0
	50	0	24.93	24.82	24.79		0.0
DFT-s-OFDM QPSK	1	1	25.10	24.98	24.92	0	0.0
	1	26	24.97	24.94	24.82		0.0
	1	50	24.82	24.85	24.68		0.0
	25	0	24.11	23.85	23.98	0-1	1.0
	25	14	24.93	24.77	24.80	0	0.0
	25	27	23.99	23.91	23.67	0-1	1.0
	50	0	24.08	23.93	23.80		1.0
DFT-s-OFDM 16QAM	1	1	23.61	23.36	23.38	0-1	1.0
CP-OFDM QPSK	1	1	23.12	22.96	23.04	0-1.5	1.5

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Table 9-58
NR Band n71 Measured P_{max} for all DSI - 5 MHz Bandwidth

NR Band n71 5 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	133100 (665.5 MHz)	136100 (680.5 MHz)	139100 (695.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.97	24.92	24.72	0	0.0
	1	13	25.07	24.77	24.55		0.0
	1	23	24.96	24.81	24.56		0.0
	12	0	25.00	24.88	24.74	0-0.5	0.0
	12	7	25.08	24.75	24.58	0	0.0
	12	13	24.99	24.76	24.54	0-0.5	0.0
	25	0	25.00	24.72	24.58		0.0
DFT-s-OFDM QPSK	1	1	25.19	24.91	24.80	0	0.0
	1	13	25.18	24.78	24.59		0.0
	1	23	25.18	24.84	24.59		0.0
	12	0	24.26	23.98	23.81	0-1	1.0
	12	7	25.00	24.75	24.57	0	0.0
	12	13	24.03	23.81	23.65	0-1	1.0
	25	0	24.10	23.85	23.69		1.0
DFT-s-OFDM 16QAM	1	1	23.59	23.43	23.25	0-1	1.0
CP-OFDM QPSK	1	1	23.15	22.89	22.93	0-1.5	1.5

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9.5.2

NR Band n66 (AWS)

Table 9-59
NR Band n66 (AWS) Measured P_{Limit} for all DSI - 20 MHz Bandwidth

NR Band n66 20 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	344000 (1720 MHz)	349000 (1745 MHz)	354000 (1770 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	22.93	22.92	22.79	0	0.0
	1	53	22.74	22.78	22.72		0.0
	1	104	22.89	22.75	22.62		0.0
	50	0	22.84	22.84	22.67	0-0.5	0.0
	50	28	22.79	22.78	22.65	0	0.0
	50	56	22.74	22.75	22.64	0-0.5	0.0
	100	0	22.75	22.79	22.64		0.0
DFT-s-OFDM QPSK	1	1	22.83	22.76	22.73	0	0.0
	1	53	22.76	22.69	22.55		0.0
	1	104	22.84	22.74	22.58		0.0
	50	0	22.79	22.80	22.66	0-1	0.0
	50	28	22.80	22.80	22.65	0	0.0
	50	56	22.81	22.78	22.61	0-1	0.0
	100	0	22.80	22.79	22.69		0.0
DFT-s-OFDM 16QAM	1	1	22.77	22.71	22.72	0-1	0.0
CP-OFDM QPSK	1	1	22.58	22.67	22.61	0-1.5	0.0

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Table 9-60
NR Band n66 (AWS) Measured P_{Limit} for all DSI - 15 MHz Bandwidth

NR Band n66 15 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	343500 (1717.5 MHz)	349000 (1745 MHz)	354500 (1772.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	22.81	22.72	22.66	0	0.0
	1	40	22.80	22.68	22.72		0.0
	1	77	22.70	22.84	22.75		0.0
	36	0	22.77	22.72	22.77	0-0.5	0.0
	36	22	22.79	22.61	22.77	0	0.0
	36	43	22.80	22.68	22.64	0-0.5	0.0
	75	0	22.69	22.70	22.72		0.0
DFT-s-OFDM QPSK	1	1	22.77	22.62	22.58	0	0.0
	1	40	22.71	22.77	22.67		0.0
	1	77	22.52	22.50	22.55		0.0
	36	0	22.56	22.49	22.44	0-1	0.0
	36	22	22.77	22.67	22.67	0	0.0
	36	43	22.68	22.70	22.61	0-1	0.0
	75	0	22.65	22.68	22.70		0.0
DFT-s-OFDM 16QAM	1	1	22.64	22.80	22.74	0-1	0.0
CP-OFDM QPSK	1	1	22.54	22.77	22.65	0-1.5	0.0

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Table 9-61
NR Band n66 (AWS) Measured P_{Limit} for all DSI - 10 MHz Bandwidth

NR Band n66 10 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	343000 (1715 MHz)	349000 (1745 MHz)	355000 (1775 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	22.80	22.75	22.62	0	0.0
	1	26	22.81	22.66	22.59		0.0
	1	50	22.88	22.71	22.60		0.0
	25	0	22.78	22.74	22.56	0-0.5	0.0
	25	14	22.63	22.70	22.51	0	0.0
	25	27	22.66	22.68	22.52	0-0.5	0.0
	50	0	22.76	22.66	22.57		0.0
DFT-s-OFDM QPSK	1	1	22.81	22.71	22.56	0	0.0
	1	26	22.85	22.70	22.58		0.0
	1	50	22.79	22.72	22.55		0.0
	25	0	22.78	22.65	22.49	0-1	0.0
	25	14	22.77	22.71	22.54	0	0.0
	25	27	22.80	22.63	22.47	0-1	0.0
	50	0	22.77	22.71	22.61		0.0
DFT-s-OFDM 16QAM	1	1	22.70	22.60	22.53	0-1	0.0
CP-OFDM QPSK	1	1	22.63	22.53	22.40	0-1.5	0.0

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Table 9-62
NR Band n66 (AWS) Measured P_{Limit} for all DSI - 5 MHz Bandwidth

NR Band n66 5 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	342500 (1712.5 MHz)	349000 (1745 MHz)	355500 (1777.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	22.70	22.75	22.54	0	0.0
	1	13	22.60	22.63	22.46		0.0
	1	23	22.78	22.67	22.47		0.0
	12	0	22.57	22.63	22.48	0-0.5	0.0
	12	7	22.62	22.65	22.55	0	0.0
	12	13	22.72	22.57	22.45	0-0.5	0.0
	25	0	22.60	22.60	22.47		0.0
DFT-s-OFDM QPSK	1	1	22.66	22.57	22.53	0	0.0
	1	13	22.69	22.60	22.47		0.0
	1	23	22.73	22.54	22.40		0.0
	12	0	22.63	22.57	22.51	0-1	0.0
	12	7	22.66	22.61	22.54	0	0.0
	12	13	22.68	22.59	22.51	0-1	0.0
	25	0	22.62	22.58	22.57		0.0
DFT-s-OFDM 16QAM	1	1	22.55	22.58	22.52	0-1	0.0
CP-OFDM QPSK	1	1	22.67	22.61	22.54	0-1.5	0.0

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9.5.3 NR Band n25 (PCS)

Table 9-63
NR Band n25 (PCS) Measured P_{Limit} for all DSI - 20 MHz Bandwidth

NR Band n25 20 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	372000 (1860 MHz)	376500 (1882.5 MHz)	381000 (1905 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	22.92	22.94	22.92	0	0.0
	1	53	22.86	22.87	22.89		0.0
	1	104	22.87	22.76	22.85		0.0
	50	0	22.86	22.85	22.81	0-0.5	0.0
	50	28	22.83	22.87	22.83	0	0.0
	50	56	22.77	22.81	22.80	0-0.5	0.0
	100	0	22.86	22.88	22.84		0.0
DFT-s-OFDM QPSK	1	1	22.97	22.93	22.91	0	0.0
	1	53	22.89	22.92	22.88		0.0
	1	104	22.90	22.89	22.89		0.0
	50	0	22.82	22.82	22.84	0-1	0.0
	50	28	22.85	22.81	22.83	0	0.0
	50	56	22.79	22.80	22.78	0-1	0.0
	100	0	22.84	22.77	22.83		0.0
DFT-s-OFDM 16QAM	1	1	22.61	22.67	22.70	0-1	0.0
CP-OFDM QPSK	1	1	22.84	22.88	22.74	0-1.5	0.0

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Table 9-64
NR Band n25 (PCS) Measured P_{Limit} for all DSI - 15 MHz Bandwidth

NR Band n25 15 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	371500 (1857.5 MHz)	376500 (1882.5 MHz)	381500 (1907.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	23.02	23.03	22.98	0	0.0
	1	40	22.90	23.15	22.87		0.0
	1	77	22.92	23.09	22.96		0.0
	36	0	22.96	22.99	22.85	0-0.5	0.0
	36	22	22.90	22.90	22.83	0	0.0
	36	43	22.87	23.01	22.84	0-0.5	0.0
	75	0	22.91	23.02	22.83		0.0
DFT-s-OFDM QPSK	1	1	22.93	22.93	22.88	0	0.0
	1	40	22.99	23.00	22.93		0.0
	1	77	22.92	22.92	22.92		0.0
	36	0	22.82	22.95	22.84	0-1	0.0
	36	22	22.88	22.90	22.83	0	0.0
	36	43	22.77	22.83	22.79	0-1	0.0
	75	0	22.86	22.93	22.84		0.0
DFT-s-OFDM 16QAM	1	1	22.78	22.67	22.70	0-1	0.0
CP-OFDM QPSK	1	1	22.86	22.85	22.87	0-1.5	0.0

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Table 9-65
NR Band n25 (PCS) Measured P_{Limit} for all DSI - 10 MHz Bandwidth

NR Band n25 10 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	371000 (1855 MHz)	376500 (1882.5 MHz)	382000 (1910 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	22.91	22.95	22.91	0	0.0
	1	26	22.76	23.00	22.97		0.0
	1	50	22.94	22.89	23.05		0.0
	25	0	22.75	22.92	22.89	0-0.5	0.0
	25	14	22.80	22.95	22.90	0	0.0
	25	27	22.85	22.87	22.96	0-0.5	0.0
	50	0	22.79	22.93	23.00		0.0
DFT-s-OFDM QPSK	1	1	22.87	22.90	22.95	0	0.0
	1	26	22.83	22.92	23.01		0.0
	1	50	22.81	22.86	22.88		0.0
	25	0	22.77	22.97	22.94	0-1	0.0
	25	14	22.80	22.94	23.04	0	0.0
	25	27	22.81	22.97	23.00	0-1	0.0
	50	0	22.76	22.88	23.01		0.0
DFT-s-OFDM 16QAM	1	1	22.78	22.77	22.90	0-1	0.0
CP-OFDM QPSK	1	1	22.72	22.79	22.83	0-1.5	0.0

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Table 9-66
NR Band n25 (PCS) Measured P_{Limit} for all DSI - 5 MHz Bandwidth

NR Band n25 5 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	370500 (1852.5 MHz)	376500 (1882.5 MHz)	382500 (1912.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	22.68	22.80	22.87	0	0.0
	1	13	22.80	22.85	22.76		0.0
	1	23	22.75	22.90	22.85		0.0
	12	0	22.77	22.91	22.82	0-0.5	0.0
	12	7	22.79	22.90	22.82	0	0.0
	12	13	22.76	22.95	22.81	0-0.5	0.0
	25	0	22.79	22.78	22.83		0.0
DFT-s-OFDM QPSK	1	1	22.87	22.78	22.74	0	0.0
	1	13	22.85	22.81	22.76		0.0
	1	23	22.81	22.87	22.72		0.0
	12	0	22.76	22.90	22.85	0-1	0.0
	12	7	22.73	22.88	22.83	0	0.0
	12	13	22.76	22.91	22.78	0-1	0.0
	25	0	22.80	22.82	22.84		0.0
DFT-s-OFDM 16QAM	1	1	22.74	22.82	22.76	0-1	0.0
CP-OFDM QPSK	1	1	22.76	22.71	22.83	0-1.5	0.0

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9.5.1

NR Band n41

Table 9-67
NR Band n41 PC2 Measured P_{Limit} for all DSI - 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	24.40	0	0.0
	1	137	24.59		0.0
	1	271	24.47		0.0
	135	0	24.51	0-0.5	0.0
	135	69	24.54	0	0.0
	135	138	24.58	0-0.5	0.0
	270	0	24.57		0.0
DFT-s-OFDM QPSK	1	1	24.44	0	0.0
	1	137	24.55		0.0
	1	271	24.46		0.0
	135	0	24.52	0-1	0.0
	135	69	24.57	0	0.0
	135	138	24.66	0-1	0.0
	270	0	24.51		0.0
DFT-s-OFDM 16QAM	1	1	24.39	0-1	0.0
CP-OFDM QPSK	1	1	24.34	0-1.5	0.0

Note: NR Band n41 at 100 MHz bandwidth does 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.

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Table 9-68
NR Band n41 PC2 Measured P_{Limit} for all DSI - 90 MHz Bandwidth

NR Band n41 90 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	508200 (2541 MHz)	528996 (2644.98 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.68	24.74	0	0.0
	1	123	24.39	24.53		0.0
	1	243	24.56	24.42		0.0
	120	0	24.44	24.56	0-0.5	0.0
	120	63	24.48	24.49	0	0.0
	120	125	24.53	24.43	0-0.5	0.0
	243	0	24.50	24.54		0.0
DFT-s-OFDM QPSK	1	1	24.63	24.73	0	0.0
	1	123	24.58	24.65		0.0
	1	243	24.61	24.51		0.0
	120	0	24.49	24.52	0-1	0.0
	120	63	24.36	24.48	0	0.0
	120	125	24.42	24.40	0-1	0.0
	243	0	24.44	24.50		0.0
DFT-s-OFDM 16QAM	1	1	24.53	24.51	0	0.0
CP-OFDM QPSK	1	1	24.60	24.63	0-1.5	0.0

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Table 9-69
NR Band n41 PC2 Measured P_{Limit} for all DSI - 80 MHz Bandwidth

NR Band n41 80 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	507204 (2536.02 MHz)	529998 (2649.99 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.59	24.69	0	0.0
	1	109	24.48	24.55		0.0
	1	215	24.62	24.43		0.0
	108	0	24.41	24.60	0-0.5	0.0
	108	55	24.49	24.54	0	0.0
	108	109	24.53	24.44	0-0.5	0.0
	216	0	24.48	24.48		0.0
DFT-s-OFDM QPSK	1	1	24.65	24.67	0	0.0
	1	109	24.43	24.53		0.0
	1	215	24.57	24.47		0.0
	108	0	24.42	24.50	0-1	0.0
	108	55	24.40	24.45	0	0.0
	108	109	24.52	24.46	0-1	0.0
	216	0	24.43	24.52		0.0
DFT-s-OFDM 16QAM	1	1	24.37	24.45	0-1	0.0
CP-OFDM QPSK	1	1	24.44	24.59	0-1.5	0.0

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Table 9-70
NR Band n41 PC2 Measured P_{Limit} for all DSI - 60 MHz Bandwidth

NR Band n41 60 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	505200 (2526 MHz)	518598 (2592.99 MHz)	531996 (2659.98 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.66	24.50	24.55	0	0.0
	1	81	24.51	24.68	24.43		0.0
	1	160	24.58	24.65	24.48		0.0
	81	0	24.54	24.62	24.44	0-0.5	0.0
	81	41	24.49	24.68	24.36	0	0.0
	81	81	24.50	24.72	24.47	0-0.5	0.0
	162	0	24.50	24.69	24.41		0.0
DFT-s-OFDM QPSK	1	1	24.57	24.48	24.53	0	0.0
	1	81	24.45	24.60	24.42		0.0
	1	160	24.42	24.52	24.50		0.0
	81	0	24.51	24.58	24.43	0-1	0.0
	81	41	24.46	24.64	24.49	0	0.0
	81	81	24.43	24.67	24.50	0-1	0.0
	162	0	24.48	24.65	24.42		0.0
DFT-s-OFDM 16QAM	1	1	24.31	24.35	24.10	0-1	0.0
CP-OFDM QPSK	1	1	24.44	24.34	24.36	0-1.5	0.0

Table 9-71
NR Band n41 PC2 Measured P_{Limit} for all DSI - 50 MHz Bandwidth

NR Band n41 50 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	504204 (2521.02 MHz)	518598 (2592.99 MHz)	532998 (2664.99 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.57	24.66	24.51	0	0.0
	1	67	24.41	24.70	24.36		0.0
	1	131	24.48	24.64	24.44		0.0
	64	0	24.43	24.63	24.37	0-0.5	0.0
	64	35	24.37	24.65	24.33	0	0.0
	64	69	24.36	24.69	24.42	0-0.5	0.0
	128	0	24.35	24.64	24.40		0.0
DFT-s-OFDM QPSK	1	1	24.61	24.53	24.53	0	0.0
	1	67	24.39	24.69	24.37		0.0
	1	131	24.36	24.60	24.46		0.0
	64	0	24.40	24.64	24.32	0-1	0.0
	64	35	24.33	24.62	24.35	0	0.0
	64	69	24.31	24.69	24.37	0-1	0.0
	128	0	24.35	24.64	24.40		0.0
DFT-s-OFDM 16QAM	1	1	24.18	24.26	24.04	0-1	0.0
CP-OFDM QPSK	1	1	24.39	24.47	24.41	0-1.5	0.0

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Table 9-72
NR Band n41 PC2 Measured P_{Limit} for all DSI - 40 MHz Bandwidth

NR Band n41 40 MHz Bandwidth								
			Channel				MPR Allowed per 3GPP [dB]	MPR Allowed per 3GPP [dB]
Modulation	RB Size	RB Offset	503202 (2516.01 MHz)	513468 (2567.34 MHz)	523734 (2618.67 MHz)	534000 (2670 MHz)		
			Conducted Power [dBm]					
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.89	24.82	24.78	24.80	0	0.0
	1	53	24.79	24.86	24.82	24.78		0.0
	1	104	24.84	24.92	24.67	24.85		0.0
	50	0	24.85	24.75	24.91	24.73	0-0.5	0.0
	50	28	24.78	24.84	24.88	24.71	0	0.0
	50	56	24.75	24.93	24.95	24.86	0-0.5	0.0
	100	0	24.86	24.85	24.96	24.80		0.0
DFT-s-OFDM QPSK	1	1	24.79	24.86	24.89	24.87	0	0.0
	1	53	24.69	24.83	24.92	24.74		0.0
	1	104	24.75	24.95	24.88	24.81		0.0
	50	0	24.80	24.79	24.91	24.79	0-1	0.0
	50	28	24.82	24.77	24.86	24.73	0	0.0
	50	56	24.78	24.93	24.89	24.87	0-1	0.0
	100	0	24.84	24.83	24.95	24.85		0.0
DFT-s-OFDM 16QAM	1	1	24.24	24.32	24.56	24.59	0-1	0.0
CP-OFDM QPSK	1	1	24.53	24.46	24.50	24.43	0-1.5	0.0

Table 9-73
NR Band n41 PC2 Measured P_{Limit} for all DSI - 20 MHz Bandwidth

NR Band n41									
20 MHz Bandwidth									
			Channel					MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	501204 (2506.02 MHz)	509898 (2549.49 MHz)	518598 (2592.99 MHz)	527298 (2636.49 MHz)	535998 (2679.99 MHz)		
			Conducted Power [dBm]						
DFT-s-OFDM $\pi/2$ BPSK	1	1	24.65	24.57	24.76	24.56	24.49	0	0.0
	1	26	24.61	24.62	24.67	24.44	24.35		0.0
	1	49	24.73	24.65	24.74	24.48	24.46		0.0
	25	0	24.57	24.51	24.73	24.57	24.58	0-0.5	0.0
	25	13	24.56	24.54	24.83	24.47	24.56	0	0.0
	25	26	24.58	24.61	24.77	24.53	24.57	0-0.5	0.0
	50	0	24.58	24.53	24.81	24.55	24.53		0.0
DFT-s-OFDM QPSK	1	1	24.77	24.64	24.75	24.59	24.50	0	0.0
	1	26	24.63	24.55	24.69	24.48	24.45		0.0
	1	49	24.69	24.75	24.72	24.52	24.52		0.0
	25	0	24.57	24.52	24.74	24.46	24.59	0-1	0.0
	25	13	24.54	24.59	24.82	24.50	24.51	0	0.0
	25	26	24.58	24.53	24.81	24.43	24.53	0-1	0.0
	50	0	24.60	24.56	24.84	24.54	24.56		0.0
DFT-s-OFDM 16QAM	1	1	24.12	24.10	24.67	24.49	24.48	0-1	0.0
CP-OFDM QPSK	1	1	24.55	24.50	24.46	24.52	24.56	0-1.5	0.0

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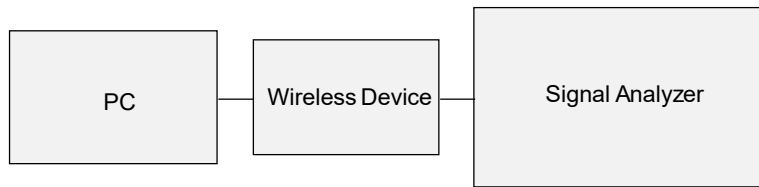


Figure 9-5
Power Measurement Setup

9.6 WLAN Conducted Powers

Table 9-74
2.4 GHz WLAN Maximum Average RF Power – Ant 1

Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	21.49	17.85	16.71	16.72
2422	3	N/A	19.70	18.33	18.40
2437	6	21.25	19.92	18.70	18.66
2452	9	N/A	19.84	18.55	18.53
2462	11	20.73	17.53	16.40	16.35

Table 9-75
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	802.11ac
		Average	Average	Average	Average
2412	1	20.72	17.92	16.92	16.75
2422	3	N/A	19.45	18.73	18.74
2437	6	21.22	19.71	18.81	18.93
2452	9	N/A	19.62	18.64	18.87
2462	11	20.83	17.65	16.90	16.94

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Table 9-76
2.4 GHz WLAN Reduced Average RF Power– Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	17.63	17.85	16.71	16.72
2437	6	17.65	17.46	17.28	17.26
2462	11	16.80	17.53	16.40	16.35

Table 9-77
2.4 GHz WLAN Reduced Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	17.40	17.92	16.92	16.75
2437	6	17.84	18.00	17.88	17.96
2462	11	17.22	17.65	16.90	16.94

Table 9-78
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
		Average	Average	Average
5180	36	16.49	16.97	16.95
5200	40	19.73	17.26	17.14
5220	44	16.43	16.96	16.93
5240	48	16.35	16.92	16.93
5260	52	16.38	16.94	16.99
5280	56	19.33	17.97	17.96
5300	60	16.30	16.57	16.70
5320	64	16.17	16.82	16.85
5500	100	16.70	16.63	16.60
5600	120	16.17	16.06	16.05
5620	124	16.10	16.93	16.85
5720	144	16.68	16.03	16.01
5745	149	16.44	16.33	16.36
5785	157	19.66	17.26	17.16
5825	165	19.44	17.93	17.90

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Table 9-79
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
		Average	Average	Average
5180	36	16.89	16.73	16.83
5200	40	19.98	17.90	17.62
5220	44	16.96	16.81	16.56
5240	48	16.99	16.84	16.51
5260	52	16.98	16.90	16.51
5280	56	19.94	17.89	17.49
5300	60	16.93	16.82	16.55
5320	64	16.67	16.36	16.04
5500	100	16.02	16.58	16.53
5600	120	16.75	16.83	16.95
5620	124	16.67	16.96	16.71
5720	144	16.07	16.75	16.70
5745	149	16.78	16.99	16.64
5785	157	19.84	17.93	17.94
5825	165	19.67	17.82	17.81

Table 9-80
5 GHz WLAN Reduced Average RF Power– Ant 1

5GHz (40MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11n	802.11ac
		Average	Average
5190	38	13.80	13.76
5230	46	15.53	15.53
5270	54	15.73	15.57
5310	62	13.70	13.71
5510	102	13.46	13.49
5550	110	15.17	15.22
5590	118	15.02	15.43
5630	126	15.03	15.10
5710	142	15.98	15.99
5755	151	15.63	15.61
5795	159	15.64	15.60

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Table 9-81
5 GHz WLAN Reduced Average RF Power– Ant 2

5GHz (40MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11n	802.11ac
		Average	Average
5190	38	13.96	13.97
5230	46	15.95	15.98
5270	54	15.75	15.81
5310	62	13.97	13.98
5510	102	13.96	13.98
5550	110	15.01	15.01
5590	118	15.07	15.01
5630	126	15.03	15.05
5710	142	15.17	15.15
5755	151	15.05	15.04
5795	159	15.20	15.22

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.

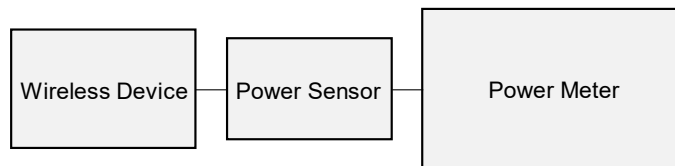


Figure 9-6
Power Measurement Setup

FCC ID: ZNFF100TM	 Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
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9.7 Bluetooth Conducted Powers

Table 9-82
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	10.91	12.320
2441	1.0	39	11.95	15.671
2480	1.0	78	10.30	10.720
2402	2.0	0	10.28	10.656
2441	2.0	39	11.31	13.530
2480	2.0	78	9.71	9.347
2402	3.0	0	10.31	10.732
2441	3.0	39	11.36	13.687
2480	3.0	78	9.78	9.515

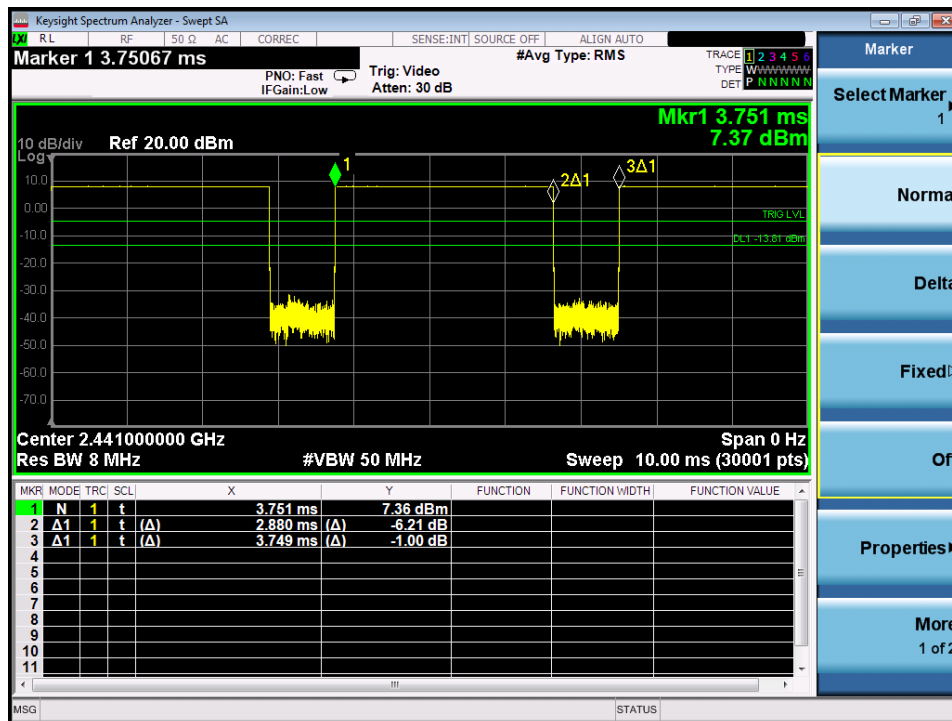


Figure 9-7
Bluetooth Transmission Plot

FCC ID: ZNFF100TM	PCTEST Proud to be part of element	SAR EVALUATION REPORT	LG	Approved by: Quality Manager
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Equation 9-1
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.880\ ms}{3.749\ ms} * 100\% = 76.8\%$$

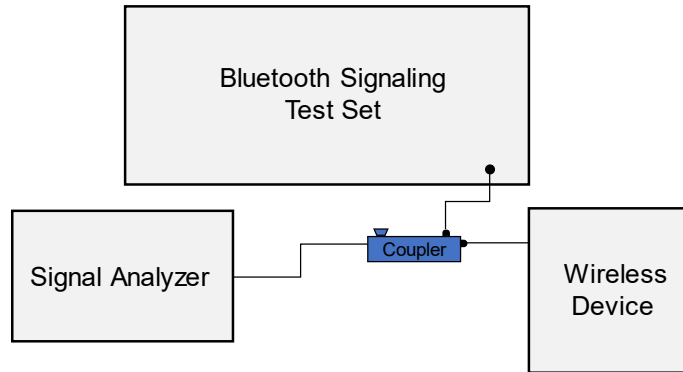


Figure 9-8
Power Measurement Setup

FCC ID: ZNFF100TM	 Proud to be part of element	SAR EVALUATION REPORT		Approved by: Quality Manager
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10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Tissue Properties - Head

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
9/8/2020	750 Head	22.0	700	0.886	43.961	0.889	42.201	-0.34%	4.17%
			710	0.890	43.927	0.890	42.149	0.00%	4.22%
			750	0.904	43.819	0.894	41.942	1.12%	4.48%
			770	0.911	43.759	0.895	41.838	1.79%	4.59%
			785	0.916	43.706	0.896	41.760	2.23%	4.66%
9/21/2020	750 Head	22.3	680	0.889	44.108	0.888	42.305	0.11%	4.26%
			695	0.895	44.084	0.889	42.227	0.67%	4.40%
			750	0.914	43.882	0.894	41.942	2.24%	4.63%
9/23/2020	750 Head	21.8	680	0.878	43.874	0.888	42.305	-1.13%	3.71%
			695	0.883	43.831	0.889	42.227	-0.67%	3.80%
			750	0.903	43.647	0.894	41.942	1.01%	4.07%
9/20/2020	835 Head	21.4	820	0.939	42.127	0.899	41.578	4.45%	1.32%
			835	0.945	42.092	0.900	41.500	5.00%	1.43%
			850	0.950	42.062	0.916	41.500	3.71%	1.35%
9/28/2020	835 Head	21.0	820	0.930	40.985	0.899	41.578	3.45%	-1.43%
			835	0.935	40.931	0.900	41.500	3.89%	-1.37%
			850	0.941	40.882	0.916	41.500	2.73%	-1.49%
9/30/2020	835 Head	21.8	820	0.936	43.346	0.899	41.578	4.12%	4.25%
			835	0.941	43.307	0.900	41.500	4.56%	4.35%
			850	0.946	43.266	0.916	41.500	3.28%	4.26%
10/06/2020	835 Head	21.8	820	0.919	39.762	0.899	41.578	2.22%	-4.37%
			835	0.924	39.723	0.900	41.500	2.67%	-4.28%
			850	0.929	39.672	0.916	41.500	1.42%	-4.40%
9/10/2020	1750 Head	23.7	1710	1.353	40.339	1.348	40.142	0.37%	0.49%
			1720	1.363	40.294	1.354	40.126	0.66%	0.42%
			1745	1.390	40.190	1.368	40.087	1.61%	0.26%
			1750	1.395	40.170	1.371	40.079	1.75%	0.23%
			1770	1.416	40.088	1.383	40.047	2.39%	0.10%
			1790	1.437	39.999	1.394	40.016	3.08%	-0.04%
9/16/2020	1900 Head	22.7	1850	1.361	41.049	1.400	40.000	-2.79%	2.62%
			1860	1.372	41.005	1.400	40.000	-2.00%	2.51%
			1880	1.393	40.916	1.400	40.000	-0.50%	2.29%
			1900	1.414	40.833	1.400	40.000	1.00%	2.08%
			2400	1.802	38.676	1.756	39.289	2.62%	-1.56%
9/8/2020	2450 Head	22.0	2450	1.855	38.478	1.800	39.200	3.06%	-1.84%
			2480	1.887	38.391	1.833	39.162	2.95%	-1.97%
9/10/2020	2450 Head	23.0	2400	1.821	40.531	1.756	39.289	3.70%	3.16%
			2450	1.860	40.460	1.800	39.200	3.33%	3.21%
9/21/2020	2450 Head	23.0	2480	1.881	40.421	1.833	39.162	2.62%	3.21%
			2400	1.830	40.372	1.756	39.289	4.21%	2.76%
			2450	1.885	40.182	1.800	39.200	4.72%	2.51%
9/24/2020	2450 Head	22.5	2480	1.919	40.075	1.833	39.162	4.69%	2.33%
			2560	1.929	38.398	1.920	39.060	0.47%	-1.69%
			2600	1.955	38.352	1.964	39.009	-0.46%	-1.68%
9/29/2020	2450 Head	22.8	2650	1.997	38.242	2.018	38.945	-1.04%	-1.81%
			2560	1.909	38.644	1.920	39.060	-0.57%	-1.07%
			2600	1.942	38.584	1.964	39.009	-1.12%	-1.09%
9/29/2020	3600 Head	22.5	2650	1.984	38.498	2.018	38.945	-1.68%	-1.15%
			3500	2.812	38.260	2.913	37.929	-3.47%	0.87%
			3560	2.861	38.162	2.974	37.860	-3.80%	0.80%
			3600	2.896	38.130	3.015	37.814	-3.95%	0.84%
			3650	2.931	38.057	3.066	37.757	-4.40%	0.79%
			3690	2.966	37.998	3.107	37.711	-4.54%	0.76%
9/14/2020	5200-5800 Head	22.8	3700	2.976	37.996	3.117	37.700	-4.52%	0.79%
			5250	4.495	36.052	4.706	35.929	-4.48%	0.34%
			5270	4.511	36.032	4.727	35.906	-4.57%	0.35%
			5600	4.835	35.578	5.065	35.529	-4.54%	0.14%
			5710	4.953	35.461	5.178	35.403	-4.35%	0.16%
			5750	4.988	35.388	5.219	35.357	-4.43%	0.09%
			5795	5.039	35.333	5.265	35.305	-4.29%	0.08%

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Table 10-2
Measured Tissue Properties – Body

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
9/17/2020	750 Body	23.0	680	0.949	54.847	0.958	55.804	-0.94%	-1.71%
			695	0.955	54.827	0.959	55.745	-0.42%	-1.65%
			700	0.956	54.823	0.959	55.726	-0.31%	-1.62%
			710	0.960	54.819	0.960	55.687	0.00%	-1.56%
			750	0.975	54.761	0.964	55.531	1.14%	-1.39%
			770	0.982	54.706	0.965	55.453	1.76%	-1.35%
			785	0.988	54.667	0.966	55.395	2.28%	-1.31%
9/23/2020	750 Body	21.4	680	0.933	54.899	0.958	55.804	-2.61%	-1.62%
			695	0.938	54.876	0.959	55.745	-2.19%	-1.56%
			750	0.960	54.728	0.964	55.531	-0.41%	-1.45%
9/20/2020	835 Body	21.3	820	0.953	53.320	0.969	55.258	-1.65%	-3.51%
			835	0.969	53.152	0.970	55.200	-0.10%	-3.71%
			850	0.986	52.982	0.988	55.154	-0.20%	-3.94%
9/22/2020	835 Body	21.2	820	0.939	53.206	0.969	55.258	-3.10%	-3.71%
			835	0.955	53.042	0.970	55.200	-1.55%	-3.91%
			850	0.971	52.892	0.988	55.154	-1.72%	-4.10%
9/8/2020	1750 Body	21.6	1710	1.456	52.132	1.463	53.537	-0.48%	-2.62%
			1720	1.468	52.095	1.469	53.511	-0.07%	-2.65%
			1745	1.496	52.010	1.485	53.445	0.74%	-2.69%
			1750	1.501	51.993	1.488	53.432	0.87%	-2.69%
			1770	1.522	51.910	1.501	53.379	1.40%	-2.75%
9/14/2020	1750 Body	20.9	1720	1.479	53.069	1.469	53.511	0.68%	-0.83%
			1745	1.508	53.003	1.485	53.445	1.55%	-0.83%
			1750	1.513	52.973	1.488	53.432	1.68%	-0.86%
9/23/2020	1750 Body	21.9	1710	1.463	51.856	1.463	53.537	0.00%	-3.14%
			1720	1.475	51.817	1.469	53.511	0.41%	-3.17%
			1745	1.502	51.719	1.485	53.445	1.14%	-3.23%
			1750	1.508	51.697	1.488	53.432	1.34%	-3.25%
			1770	1.528	51.605	1.501	53.379	1.80%	-3.32%
9/6/2020	1900 Body	24.9	1850	1.510	53.031	1.520	53.300	-0.66%	-0.50%
			1860	1.521	52.998	1.520	53.300	0.07%	-0.57%
			1880	1.543	52.930	1.520	53.300	1.51%	-0.69%
			1900	1.565	52.861	1.520	53.300	2.96%	-0.82%
			1905	1.570	52.846	1.520	53.300	3.29%	-0.85%
9/8/2020	1900 Body	23.0	1910	1.576	52.830	1.520	53.300	3.68%	-0.88%
			1880	1.547	51.920	1.520	53.300	1.78%	-2.59%
			1900	1.571	51.863	1.520	53.300	3.36%	-2.70%
9/17/2020	1900 Body	23.8	1905	1.577	51.849	1.520	53.300	3.75%	-2.72%
			1860	1.519	51.933	1.520	53.300	-0.07%	-2.56%
			1880	1.540	51.860	1.520	53.300	1.32%	-2.70%
9/21/2020	1900 Body	23.2	1900	1.562	51.790	1.520	53.300	2.76%	-2.83%
			1905	1.568	51.774	1.520	53.300	3.16%	-2.86%
			1850	1.525	51.754	1.520	53.300	0.33%	-2.90%
			1860	1.536	51.721	1.520	53.300	1.05%	-2.96%
			1880	1.556	51.636	1.520	53.300	2.37%	-3.12%
9/8/2020	2450 Body	22.0	1900	1.579	51.554	1.520	53.300	3.88%	-3.28%
			1905	1.585	51.536	1.520	53.300	4.28%	-3.31%
			1910	1.591	51.517	1.520	53.300	4.67%	-3.35%
9/14/2020	2450 Body	23.2	2400	1.971	52.589	1.902	52.767	3.63%	-0.34%
			2450	2.030	52.446	1.950	52.700	4.10%	-0.48%
			2480	2.063	52.370	1.993	52.662	3.51%	-0.55%
			2400	1.964	51.261	1.902	52.767	3.26%	-2.85%
			2450	2.034	51.063	1.950	52.700	4.31%	-3.11%
9/28/2020	2450 Body	22.4	2480	2.075	50.957	1.993	52.662	4.11%	-3.24%
			2560	2.186	50.638	2.106	52.560	3.80%	-3.66%
			2600	2.243	50.492	2.163	52.509	3.70%	-3.84%
10/1/2020	2450 Body	23.3	2650	2.314	50.283	2.234	52.445	3.58%	-4.12%
			2560	2.179	51.586	2.106	52.560	3.47%	-1.85%
			2600	2.224	51.471	2.163	52.509	2.82%	-1.98%
9/27/2020	3600 Body	22.3	2650	2.288	51.285	2.234	52.445	2.42%	-2.21%
			2560	2.162	51.122	2.106	52.560	2.66%	-2.74%
			2600	2.205	51.009	2.163	52.509	1.94%	-2.86%
			2650	2.267	50.846	2.234	52.445	1.48%	-3.05%
			3500	3.390	49.918	3.314	51.321	2.29%	-2.73%
8/31/2020	5200-5800 Body	21.0	3550	3.442	49.826	3.372	51.254	2.08%	-2.79%
			3560	3.456	49.810	3.384	51.240	2.13%	-2.79%
			3600	3.498	49.781	3.431	51.186	1.95%	-2.74%
			3650	3.546	49.680	3.489	51.118	1.63%	-2.81%
			3690	3.593	49.625	3.536	51.063	1.61%	-2.82%
			3700	3.605	49.623	3.548	51.050	1.61%	-2.80%
			5200	5.399	47.889	5.299	49.014	1.89%	-2.30%
			5250	5.450	47.801	5.358	48.947	1.72%	-2.34%
			5280	5.490	47.740	5.393	48.906	1.80%	-2.38%
			5500	5.786	47.406	5.650	48.607	2.41%	-2.47%
			5600	5.905	47.207	5.766	48.471	2.41%	-2.61%
			5750	6.135	46.990	5.942	48.268	3.25%	-2.65%
			5785	6.184	46.921	5.982	48.220	3.38%	-2.69%

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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10.2 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 Appendix E.

Table 10-3
System Verification Results – 1g Head

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 _{1g} (W/kg)	1 W Target SAR _{1g} (W/kg)	1 W Normalized SAR _{1g} (W/kg)	Deviation _{1g} (%)
E	750	HEAD	09/08/2020	22.3	22.0	0.200	1054	3589	1.680	8.630	8.400	-2.67%
L	750	HEAD	09/21/2020	23.9	22.2	0.200	1054	7406	1.700	8.630	8.500	-1.51%
L	750	HEAD	09/23/2020	23.3	21.6	0.200	1054	7406	1.740	8.630	8.700	0.81%
E	835	HEAD	09/20/2020	21.4	21.4	0.200	4d047	3589	1.870	9.420	9.350	-0.74%
E	835	HEAD	09/28/2020	22.8	22.0	0.200	4d133	3589	2.000	9.430	10.000	6.04%
L	835	HEAD	09/30/2020	22.7	21.7	0.200	4d132	7406	1.920	9.650	9.600	-0.52%
E	835	HEAD	10/06/2020	22.9	21.8	0.200	4d133	3589	1.960	9.430	9.800	3.92%
L	1750	HEAD	09/10/2020	24.9	22.5	0.100	1148	7406	3.830	35.900	38.300	6.69%
L	1900	HEAD	09/16/2020	21.9	22.7	0.100	5d148	7406	4.200	39.100	42.000	7.42%
K2	2450	HEAD	09/08/2020	22.0	22.0	0.100	882	7402	5.370	52.900	53.700	1.51%
E	2450	HEAD	09/10/2020	24.1	23.0	0.100	981	3589	5.170	52.300	51.700	-1.15%
K2	2450	HEAD	09/21/2020	22.5	23.0	0.100	882	7402	5.350	52.900	53.500	1.13%
E	2600	HEAD	09/24/2020	22.9	22.5	0.100	1064	3589	5.930	58.100	59.300	2.07%
E	2600	HEAD	09/29/2020	23.1	22.8	0.100	1064	3589	5.850	58.100	58.500	0.69%
D	3500	HEAD	09/29/2020	23.1	22.5	0.100	1059	7488	6.210	64.600	62.100	-3.87%
D	3700	HEAD	09/29/2020	23.1	22.5	0.100	1018	7488	6.180	65.800	61.800	-6.08%
K2	5250	HEAD	09/14/2020	22.5	22.8	0.050	1120	7402	3.970	80.300	79.400	-1.12%
K2	5600	HEAD	09/14/2020	22.5	22.8	0.050	1120	7402	4.120	83.600	82.400	-1.44%
K2	5750	HEAD	09/14/2020	22.5	22.8	0.050	1120	7402	3.910	80.400	78.200	-2.74%

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Table 10-4
System Verification Results – 1g Body

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 _{1g} (W/kg)	1 W Target SAR _{1g} (W/kg)	1 W Normalized SAR _{1g} (W/kg)	Deviation _{1g} (%)
O	750	BODY	09/17/2020	23.1	23.0	0.200	1054	7547	1.750	8.530	8.750	2.58%
O	750	BODY	09/23/2020	22.8	21.4	0.200	1054	7547	1.800	8.530	9.000	5.51%
P	835	BODY	09/20/2020	21.0	21.3	0.200	4d132	7308	2.020	9.960	10.100	1.41%
P	835	BODY	09/22/2020	23.7	21.2	0.200	4d132	7308	1.870	9.960	9.350	-6.12%
I	1750	BODY	09/08/2020	21.4	21.6	0.100	1148	7570	3.750	36.300	37.500	3.31%
G	1750	BODY	09/14/2020	22.1	20.9	0.100	1008	7538	3.940	37.400	39.400	5.35%
I	1750	BODY	09/23/2020	22.1	21.9	0.100	1148	7570	3.720	36.300	37.200	2.48%
J	1900	BODY	09/06/2020	22.0	22.9	0.100	5d080	7571	4.080	39.200	40.800	4.08%
H	1900	BODY	09/08/2020	21.3	21.8	0.100	5d149	7357	4.060	39.400	40.600	3.05%
J	1900	BODY	09/17/2020	22.7	22.1	0.100	5d080	7571	4.170	39.200	41.700	6.38%
H	1900	BODY	09/21/2020	22.2	22.5	0.100	5d149	7357	4.000	39.400	40.000	1.52%
K2	2450	BODY	09/08/2020	22.0	22.0	0.100	882	7402	5.400	51.500	54.000	4.85%
P	2450	BODY	09/14/2020	22.7	22.6	0.100	981	7308	5.170	50.900	51.700	1.57%
P	2600	BODY	09/14/2020	22.7	22.6	0.100	1004	7308	5.580	54.800	55.800	1.82%
K	2600	BODY	09/28/2020	22.0	22.4	0.100	1064	7409	5.490	55.600	54.900	-1.26%
K	2600	BODY	10/01/2020	22.4	22.2	0.100	1064	7409	5.540	55.600	55.400	-0.36%
D	3500	BODY	09/27/2020	23.1	22.3	0.100	1059	7488	6.570	65.100	65.700	0.92%
D	3700	BODY	09/27/2020	23.1	22.3	0.100	1018	7488	6.430	64.300	64.300	0.00%
G	5250	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	3.540	75.600	70.800	-6.35%
G	5600	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	3.760	78.500	75.200	-4.20%
G	5750	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	3.600	75.900	72.000	-5.14%

Table 10-5
System Verification Results – 10g

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 _{10g} (W/kg)	1 W Target SAR _{10g} (W/kg)	1 W Normalized SAR _{10g} (W/kg)	Deviation _{10g} (%)
I	1750	BODY	09/23/2020	22.1	21.9	0.100	1148	7570	1.960	19.300	19.600	1.55%
J	1900	BODY	09/17/2020	22.7	22.1	0.100	5d080	7571	2.130	20.600	21.300	3.40%
H	1900	BODY	09/21/2020	22.2	22.5	0.100	5d149	7357	2.060	20.700	20.600	-0.48%
G	5250	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	0.987	21.200	19.740	-6.89%
G	5600	BODY	08/31/2020	21.1	21.0	0.050	1237	7538	1.050	22.000	21.000	-4.55%

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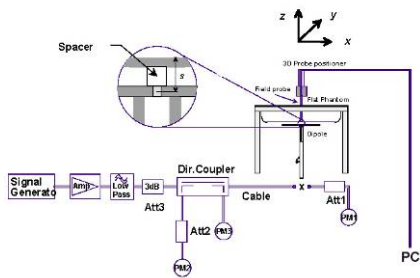


Figure 10-1
System Verification Setup Diagram



Figure 10-2
System Verification Setup Photo

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11 SAR DATA SUMMARY

**Table 11-1
GSM 850 Head SAR**

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Mechanical Mode	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	34.0	33.16	-0.14	Right	Cheek	1	01886	1	1:8.3	0.046	1.213	0.056	
836.60	190	GSM 850	GSM	34.0	33.16	0.03	Right	Tilt	1	01886	1	1:8.3	0.049	1.213	0.059	
836.60	190	GSM 850	GSM	34.0	33.16	0.13	Left	Cheek	1	01886	1	1:8.3	0.058	1.213	0.070	
836.60	190	GSM 850	GSM	34.0	33.16	0.10	Left	Tilt	1	01886	1	1:8.3	0.057	1.213	0.069	
836.60	190	GSM 850	GPRS	30.5	29.65	-0.06	Right	Cheek	1	01886	3	1:2.76	0.051	1.216	0.062	
836.60	190	GSM 850	GPRS	30.5	29.65	0.11	Right	Tilt	1	01886	3	1:2.76	0.049	1.216	0.060	
836.60	190	GSM 850	GPRS	30.5	29.65	0.03	Left	Cheek	1	01886	3	1:2.76	0.058	1.216	0.071	
836.60	190	GSM 850	GPRS	30.5	29.65	0.08	Left	Tilt	1	01886	3	1:2.76	0.059	1.216	0.072	
836.60	190	GSM 850	GPRS	30.5	29.65	0.10	Left	Tilt	3	01886	3	1:2.76	0.109	1.216	0.133	A1
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

**Table 11-2
GSM 1900 Head SAR**

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Mechanical Mode	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	31.0	30.57	0.05	Right	Cheek	1	03759	1	1:8.3	0.031	1.104	0.034	
1880.00	661	GSM 1900	GSM	31.0	30.57	0.05	Right	Tilt	1	03759	1	1:8.3	0.034	1.104	0.038	
1880.00	661	GSM 1900	GSM	31.0	30.57	0.00	Left	Cheek	1	03759	1	1:8.3	0.044	1.104	0.049	
1880.00	661	GSM 1900	GSM	31.0	30.57	-0.15	Left	Tilt	1	03759	1	1:8.3	0.029	1.104	0.032	
1880.00	661	GSM 1900	GPRS	28.0	27.42	-0.09	Right	Cheek	1	03759	3	1:2.76	0.034	1.143	0.039	
1880.00	661	GSM 1900	GPRS	28.0	27.42	0.06	Right	Tilt	1	03759	3	1:2.76	0.041	1.143	0.047	
1880.00	661	GSM 1900	GPRS	28.0	27.42	-0.16	Left	Cheek	1	03759	3	1:2.76	0.051	1.143	0.058	A2
1880.00	661	GSM 1900	GPRS	28.0	27.42	-0.11	Left	Cheek	3	03759	3	1:2.76	0.033	1.143	0.038	
1880.00	661	GSM 1900	GPRS	28.0	27.42	-0.02	Left	Tilt	1	03759	3	1:2.76	0.034	1.143	0.039	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Head								
Spatial Peak								1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population								averaged over 1 gram								

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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Table 11-3
UMTS 850 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna State	Mechanical Mode	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.5	25.13	0.16	Right	Cheek	86	1	03759	1:1	0.045	1.089	0.049	
836.60	4183	UMTS 850	RMC	25.5	25.13	0.08	Right	Tilt	86	1	03759	1:1	0.051	1.089	0.056	
836.60	4183	UMTS 850	RMC	25.5	25.13	0.04	Left	Cheek	86	1	03759	1:1	0.043	1.089	0.047	
836.60	4183	UMTS 850	RMC	25.5	25.13	0.13	Left	Tilt	86	1	03759	1:1	0.073	1.089	0.079	
836.60	4183	UMTS 850	RMC	25.5	25.13	0.17	Left	Tilt	86	3	03759	1:1	0.105	1.089	0.114	A3
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-4
UMTS 1750 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Mechanical Mode	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	23.5	23.01	0.09	Right	Cheek	1	01886	1:1	0.053	1.119	0.059	
1732.40	1412	UMTS 1750	RMC	23.5	23.01	0.18	Right	Tilt	1	01886	1:1	0.035	1.119	0.039	
1732.40	1412	UMTS 1750	RMC	23.5	23.01	0.14	Left	Cheek	1	01886	1:1	0.068	1.119	0.076	A4
1732.40	1412	UMTS 1750	RMC	23.5	23.01	0.01	Left	Cheek	3	01886	1:1	0.061	1.119	0.068	
1732.40	1412	UMTS 1750	RMC	23.5	23.01	0.20	Left	Tilt	1	01886	1:1	0.037	1.119	0.041	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-5
UMTS 1900 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Mechanical Mode	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.15	Right	Cheek	1	03759	1:1	0.042	1.057	0.044	
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.16	Right	Tilt	1	03759	1:1	0.063	1.057	0.067	
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.02	Left	Cheek	1	03759	1:1	0.070	1.057	0.074	A5
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.03	Left	Cheek	3	03759	1:1	0.039	1.057	0.041	
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.09	Left	Tilt	1	03759	1:1	0.051	1.057	0.054	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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Table 11-6
CDMA BC10 (§90S) Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna State	Mechanical Mode	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.23	0.05	Right	Cheek	86	1	01894	1:1	0.095	1.064	0.101	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.23	0.08	Right	Tilt	86	1	01894	1:1	0.084	1.064	0.089	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.23	0.02	Left	Cheek	86	1	01894	1:1	0.103	1.064	0.110	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.23	0.08	Left	Tilt	86	1	01894	1:1	0.100	1.064	0.106	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.30	0.02	Right	Cheek	86	1	01894	1:1	0.103	1.047	0.108	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.30	0.10	Right	Tilt	86	1	01894	1:1	0.086	1.047	0.090	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.30	0.17	Left	Cheek	86	1	01894	1:1	0.115	1.047	0.120	A6
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.30	-0.07	Left	Cheek	86	3	01894	1:1	0.101	1.047	0.106	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.30	0.13	Left	Tilt	86	1	01894	1:1	0.106	1.047	0.111	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-7
CDMA BC0 (§22H) Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna State	Mechanical Mode	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.20	0.02	Right	Cheek	86	1	03742	1:1	0.058	1.072	0.062	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.20	0.10	Right	Tilt	86	1	03742	1:1	0.069	1.072	0.074	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.20	-0.03	Left	Cheek	86	1	03742	1:1	0.079	1.072	0.085	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.20	0.10	Left	Cheek	86	3	03742	1:1	0.102	1.072	0.109	A7
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.20	0.05	Left	Tilt	86	1	03742	1:1	0.077	1.072	0.083	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.30	0.09	Right	Cheek	86	1	03742	1:1	0.059	1.047	0.062	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.30	0.07	Right	Tilt	86	1	03742	1:1	0.063	1.047	0.066	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.30	0.02	Left	Cheek	86	1	03742	1:1	0.071	1.047	0.074	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.30	0.02	Left	Tilt	86	1	03742	1:1	0.054	1.047	0.057	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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Table 11-8
PCS CDMA Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Mechanical Mode	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	23.5	23.38	0.03	Right	Cheek	1	03742	1:1	0.039	1.028	0.040	
1880.00	600	PCS CDMA	RC3 / SO55	23.5	23.38	0.06	Right	Tilt	1	03742	1:1	0.035	1.028	0.036	
1880.00	600	PCS CDMA	RC3 / SO55	23.5	23.38	0.07	Left	Cheek	1	03742	1:1	0.059	1.028	0.061	
1880.00	600	PCS CDMA	RC3 / SO55	23.5	23.38	-0.07	Left	Tilt	1	03742	1:1	0.036	1.028	0.037	
1880.00	600	PCS CDMA	EVDO Rev. A	23.5	23.38	0.02	Right	Cheek	1	03742	1:1	0.041	1.028	0.042	
1880.00	600	PCS CDMA	EVDO Rev. A	23.5	23.38	-0.03	Right	Tilt	1	03742	1:1	0.041	1.028	0.042	
1880.00	600	PCS CDMA	EVDO Rev. A	23.5	23.38	0.02	Left	Cheek	1	03742	1:1	0.059	1.028	0.061	A8
1880.00	600	PCS CDMA	EVDO Rev. A	23.5	23.38	-0.14	Left	Cheek	3	03742	1:1	0.042	1.028	0.043	
1880.00	600	PCS CDMA	EVDO Rev. A	23.5	23.38	0.10	Left	Tilt	1	03742	1:1	0.036	1.028	0.037	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-9
LTE Band 71 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna State	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
680.50	133297	Mid	LTE Band 71	20	1	25.5	25.04	0.18	0	Right	Cheek	34	QPSK	1	0	03759	1:1	0.057	1.112	0.063	
680.50	133297	Mid	LTE Band 71	20	1	24.5	24.21	0.03	1	Right	Cheek	34	QPSK	50	50	03759	1:1	0.040	1.069	0.043	
680.50	133297	Mid	LTE Band 71	20	1	25.5	25.04	0.05	0	Right	Tilt	34	QPSK	1	0	03759	1:1	0.038	1.112	0.042	
680.50	133297	Mid	LTE Band 71	20	1	24.5	24.21	0.03	1	Right	Tilt	34	QPSK	50	50	03759	1:1	0.023	1.069	0.025	
680.50	133297	Mid	LTE Band 71	20	1	25.5	25.04	-0.18	0	Left	Cheek	34	QPSK	1	0	03759	1:1	0.071	1.112	0.079	A9
680.50	133297	Mid	LTE Band 71	20	3	25.5	25.04	0.05	0	Left	Cheek	34	QPSK	1	0	03759	1:1	0.062	1.112	0.069	
680.50	133297	Mid	LTE Band 71	20	1	24.5	24.21	-0.10	1	Left	Cheek	34	QPSK	50	50	03759	1:1	0.043	1.069	0.046	
680.50	133297	Mid	LTE Band 71	20	1	25.5	25.04	0.11	0	Left	Tilt	34	QPSK	1	0	03759	1:1	0.035	1.112	0.039	
680.50	133297	Mid	LTE Band 71	20	1	24.5	24.21	0.04	1	Left	Tilt	34	QPSK	50	50	03759	1:1	0.018	1.069	0.019	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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Table 11-10
LTE Band 12 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna State	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
707.50	23095	Mid	LTE Band 12	10	1	25.5	25.04	0.05	0	Right	Cheek	43	QPSK	1	0	01886	1:1	0.066	1.112	0.073	
707.50	23095	Mid	LTE Band 12	10	3	25.5	25.04	0.15	0	Right	Cheek	43	QPSK	1	0	01886	1:1	0.075	1.112	0.083	A10
707.50	23095	Mid	LTE Band 12	10	1	24.5	24.02	0.02	1	Right	Cheek	43	QPSK	25	25	01886	1:1	0.041	1.117	0.046	
707.50	23095	Mid	LTE Band 12	10	1	25.5	25.04	0.03	0	Right	Tilt	43	QPSK	1	0	01886	1:1	0.054	1.112	0.060	
707.50	23095	Mid	LTE Band 12	10	1	24.5	24.02	0.19	1	Right	Tilt	43	QPSK	25	25	01886	1:1	0.036	1.117	0.040	
707.50	23095	Mid	LTE Band 12	10	1	25.5	25.04	-0.07	0	Left	Cheek	43	QPSK	1	0	01886	1:1	0.062	1.112	0.069	
707.50	23095	Mid	LTE Band 12	10	1	24.5	24.02	0.11	1	Left	Cheek	43	QPSK	25	25	01886	1:1	0.042	1.117	0.047	
707.50	23095	Mid	LTE Band 12	10	1	25.5	25.04	-0.20	0	Left	Tilt	43	QPSK	1	0	01886	1:1	0.040	1.112	0.044	
707.50	23095	Mid	LTE Band 12	10	1	24.5	24.02	-0.02	1	Left	Tilt	43	QPSK	25	25	01886	1:1	0.033	1.117	0.037	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram											

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-11
LTE Band 13 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna State	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
782.00	23230	Mid	LTE Band 13	10	1	25.5	24.94	0.21	0	Right	Cheek	74	QPSK	1	25	01886	1:1	0.064	1.138	0.073	
782.00	23230	Mid	LTE Band 13	10	3	25.5	24.94	0.03	0	Right	Cheek	74	QPSK	1	25	01886	1:1	0.116	1.138	0.132	A11
782.00	23230	Mid	LTE Band 13	10	1	24.5	24.13	0.15	1	Right	Cheek	74	QPSK	25	25	01886	1:1	0.039	1.089	0.042	
782.00	23230	Mid	LTE Band 13	10	1	25.5	24.94	0.05	0	Right	Tilt	74	QPSK	1	25	01886	1:1	0.037	1.138	0.042	
782.00	23230	Mid	LTE Band 13	10	1	24.5	24.13	0.10	1	Right	Tilt	74	QPSK	25	25	01886	1:1	0.028	1.089	0.030	
782.00	23230	Mid	LTE Band 13	10	1	25.5	24.94	-0.02	0	Left	Cheek	74	QPSK	1	25	01886	1:1	0.064	1.138	0.073	
782.00	23230	Mid	LTE Band 13	10	1	24.5	24.13	0.16	1	Left	Cheek	74	QPSK	25	25	01886	1:1	0.036	1.089	0.039	
782.00	23230	Mid	LTE Band 13	10	1	25.5	24.94	0.02	0	Left	Tilt	74	QPSK	1	25	01886	1:1	0.028	1.138	0.032	
782.00	23230	Mid	LTE Band 13	10	1	24.5	24.13	0.05	1	Left	Tilt	74	QPSK	25	25	01886	1:1	0.015	1.089	0.016	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram											

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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Table 11-12
LTE Band 26 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna State	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
831.50	26865	Mid	LTE Band 26 (Cell)	15	1	25.5	24.94	0.04	0	Right	Cheek	86	QPSK	1	0	03742	1:1	0.053	1.138	0.060	
831.50	26865	Mid	LTE Band 26 (Cell)	15	1	24.5	23.98	0.05	1	Right	Cheek	86	QPSK	36	37	03742	1:1	0.032	1.127	0.036	
831.50	26865	Mid	LTE Band 26 (Cell)	15	1	25.5	24.94	0.16	0	Right	Tilt	86	QPSK	1	0	03742	1:1	0.063	1.138	0.072	A13
831.50	26865	Mid	LTE Band 26 (Cell)	15	3	25.5	24.94	0.03	0	Right	Tilt	86	QPSK	1	0	03742	1:1	0.059	1.138	0.067	
831.50	26865	Mid	LTE Band 26 (Cell)	15	1	24.5	23.98	0.17	1	Right	Tilt	86	QPSK	36	37	03742	1:1	0.036	1.127	0.041	
831.50	26865	Mid	LTE Band 26 (Cell)	15	1	25.5	24.94	0.06	0	Left	Cheek	86	QPSK	1	0	03742	1:1	0.061	1.138	0.069	
831.50	26865	Mid	LTE Band 26 (Cell)	15	1	24.5	23.98	0.06	1	Left	Cheek	86	QPSK	36	37	03742	1:1	0.040	1.127	0.045	
831.50	26865	Mid	LTE Band 26 (Cell)	15	1	25.5	24.94	0.16	0	Left	Tilt	86	QPSK	1	0	03742	1:1	0.049	1.138	0.056	
831.50	26865	Mid	LTE Band 26 (Cell)	15	1	24.5	23.98	0.20	1	Left	Tilt	86	QPSK	36	37	03742	1:1	0.034	1.127	0.038	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-13
LTE Band 66 (AWS) Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna Config.	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	23.05	-0.17	0	Right	Cheek	Ant 2	QPSK	1	0	01886	1:1	0.050	1.109	0.055	
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	22.85	0.02	0	Right	Cheek	Ant 2	QPSK	50	25	01886	1:1	0.047	1.161	0.055	
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	23.05	0.08	0	Right	Tilt	Ant 2	QPSK	1	0	01886	1:1	0.029	1.109	0.032	
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	22.85	0.13	0	Right	Tilt	Ant 2	QPSK	50	25	01886	1:1	0.031	1.161	0.036	
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	23.05	0.16	0	Left	Cheek	Ant 2	QPSK	1	0	01886	1:1	0.062	1.109	0.069	
1770.00	132572	High	LTE Band 66 (AWS)	20	3	23.5	23.05	-0.16	0	Left	Cheek	Ant 2	QPSK	1	0	01886	1:1	0.054	1.109	0.060	
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	22.85	0.02	0	Left	Cheek	Ant 2	QPSK	50	25	01886	1:1	0.047	1.161	0.055	
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	23.05	0.04	0	Left	Tilt	Ant 2	QPSK	1	0	01886	1:1	0.037	1.109	0.041	
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	22.85	0.02	0	Left	Tilt	Ant 2	QPSK	50	25	01886	1:1	0.040	1.161	0.046	
1720.00	132072	Low	LTE Band 66 (AWS)	20	1	23.5	22.79	0.13	0	Right	Cheek	Ant 3	QPSK	1	50	03759	1:1	0.068	1.178	0.080	
1720.00	132072	Low	LTE Band 66 (AWS)	20	1	23.5	22.79	0.11	0	Right	Cheek	Ant 3	QPSK	50	25	03759	1:1	0.070	1.178	0.082	A13
1720.00	132072	Low	LTE Band 66 (AWS)	20	3	23.5	22.79	0.08	0	Right	Cheek	Ant 3	QPSK	50	25	03759	1:1	0.070	1.178	0.082	
1720.00	132072	Low	LTE Band 66 (AWS)	20	1	23.5	22.79	0.14	0	Right	Tilt	Ant 3	QPSK	1	50	03759	1:1	0.036	1.178	0.042	
1720.00	132072	Low	LTE Band 66 (AWS)	20	1	23.5	22.79	0.03	0	Right	Tilt	Ant 3	QPSK	50	25	03759	1:1	0.039	1.178	0.046	
1720.00	132072	Low	LTE Band 66 (AWS)	20	1	23.5	22.79	0.14	0	Left	Cheek	Ant 3	QPSK	1	50	03759	1:1	0.056	1.178	0.066	
1720.00	132072	Low	LTE Band 66 (AWS)	20	1	23.5	22.79	0.01	0	Left	Cheek	Ant 3	QPSK	50	25	03759	1:1	0.056	1.178	0.066	
1720.00	132072	Low	LTE Band 66 (AWS)	20	1	23.5	22.79	0.02	0	Left	Tilt	Ant 3	QPSK	1	50	03759	1:1	0.048	1.178	0.057	
1720.00	132072	Low	LTE Band 66 (AWS)	20	1	23.5	22.79	0.17	0	Left	Tilt	Ant 3	QPSK	50	25	03759	1:1	0.045	1.178	0.053	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram											

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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Table 11-14
LTE Band 25 (PCS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.	(W/kg)															(W/kg)			
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.38	0.04	0	Right	Cheek	QPSK	1	50	03742	1:1	0.041	1.028	0.042	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.36	0.19	0	Right	Cheek	QPSK	50	25	03742	1:1	0.042	1.033	0.043	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.38	0.13	0	Right	Tilt	QPSK	1	50	03742	1:1	0.035	1.028	0.036	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.36	0.03	0	Right	Tilt	QPSK	50	25	03742	1:1	0.033	1.033	0.034	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.38	0.04	0	Left	Cheek	QPSK	1	50	03742	1:1	0.052	1.028	0.053	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.36	0.09	0	Left	Cheek	QPSK	50	25	03742	1:1	0.058	1.033	0.060	A14
1860.00	26140	Low	LTE Band 25 (PCS)	20	3	23.5	23.36	0.12	0	Left	Cheek	QPSK	50	25	03742	1:1	0.054	1.033	0.056	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.38	0.14	0	Left	Tilt	QPSK	1	50	03742	1:1	0.029	1.028	0.030	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.36	0.15	0	Left	Tilt	QPSK	50	25	03742	1:1	0.031	1.033	0.032	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT											Head									
Spatial Peak											1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population											averaged over 1 gram									

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-15
LTE Band 2 (PCS) Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna Config.	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
1880.00	18900	Mid	LTE Band 2 (PCS)	20	1	23.5	22.55	0.02	0	Right	Cheek	Ant 3	QPSK	1	50	03759	1:1	0.083	1.245	0.103	A15
1880.00	18900	Mid	LTE Band 2 (PCS)	20	3	23.5	22.55	-0.06	0	Right	Cheek	Ant 3	QPSK	1	50	03759	1:1	0.041	1.245	0.051	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	1	23.5	22.61	0.03	0	Right	Cheek	Ant 3	QPSK	50	50	03759	1:1	0.081	1.227	0.099	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	1	23.5	22.55	0.00	0	Right	Tilt	Ant 3	QPSK	1	50	03759	1:1	0.029	1.245	0.036	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	1	23.5	22.61	-0.03	0	Right	Tilt	Ant 3	QPSK	50	50	03759	1:1	0.026	1.227	0.032	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	1	23.5	22.55	0.05	0	Left	Cheek	Ant 3	QPSK	1	50	03759	1:1	0.044	1.245	0.055	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	1	23.5	22.61	0.17	0	Left	Cheek	Ant 3	QPSK	50	50	03759	1:1	0.050	1.227	0.061	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	1	23.5	22.55	0.02	0	Left	Tilt	Ant 3	QPSK	1	50	03759	1:1	0.029	1.245	0.036	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	1	23.5	22.61	0.06	0	Left	Tilt	Ant 3	QPSK	50	50	03759	1:1	0.033	1.227	0.040	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Head											
Spatial Peak										1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population										averaged over 1 gram											

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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Table 11-16
LTE Band 48 Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)
MHz	Ch.															(W/kg)		(W/kg)
3560.00	55340	Low	LTE Band 48	20	1	22.5	21.70	0.00	0	Right	Cheek	QPSK	1	0	03742	1:1.58	0.140	0.168
3560.00	55340	Low	LTE Band 48	20	1	22.5	21.72	0.00	0	Right	Cheek	QPSK	50	0	03742	1:1.58	0.130	0.156
3560.00	55340	Low	LTE Band 48	20	1	22.5	21.70	0.04	0	Right	Tilt	QPSK	1	0	03742	1:1.58	0.171	0.206
3560.00	55340	Low	LTE Band 48	20	1	22.5	21.72	0.06	0	Right	Tilt	QPSK	50	0	03742	1:1.58	0.164	0.196
3560.00	55340	Low	LTE Band 48	20	1	22.5	21.70	-0.08	0	Left	Cheek	QPSK	1	0	03742	1:1.58	0.520	0.625
3603.30	55773	Low-Mid	LTE Band 48	20	1	22.5	21.58	-0.08	0	Left	Cheek	QPSK	1	50	03742	1:1.58	0.457	0.565
3646.70	56207	Mid-High	LTE Band 48	20	1	22.5	21.63	-0.09	0	Left	Cheek	QPSK	1	0	03742	1:1.58	0.458	0.560
3690.00	56640	High	LTE Band 48	20	1	22.5	21.66	-0.09	0	Left	Cheek	QPSK	1	99	03742	1:1.58	0.376	0.456
3560.00	55340	Low	LTE Band 48	20	1	22.5	21.72	-0.09	0	Left	Cheek	QPSK	50	0	03742	1:1.58	0.478	0.572
3560.00	55340	Low	LTE Band 48	20	1	22.5	21.69	-0.06	0	Left	Cheek	QPSK	100	0	03742	1:1.58	0.484	0.583
3560.00	55340	Low	LTE Band 48	20	1	22.5	21.70	0.01	0	Left	Tilt	QPSK	1	0	03742	1:1.58	0.214	0.257
3560.00	55340	Low	LTE Band 48	20	1	22.5	21.72	0.01	0	Left	Tilt	QPSK	50	0	03742	1:1.58	0.206	0.247
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.70	0.08	0	Right	Cheek	QPSK	1	0	03742	1:1.58	0.408	0.490
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.72	0.02	0	Right	Cheek	QPSK	50	0	03742	1:1.58	0.415	0.497
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.70	0.04	0	Right	Tilt	QPSK	1	0	03742	1:1.58	0.279	0.335
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.72	0.01	0	Right	Tilt	QPSK	50	0	03742	1:1.58	0.271	0.324
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.70	0.03	0	Left	Cheek	QPSK	1	0	03742	1:1.58	1.030	1.238
3603.30	55773	Low-Mid	LTE Band 48	20	3	22.5	21.58	0.02	0	Left	Cheek	QPSK	1	50	03742	1:1.58	0.913	1.128
3646.70	56207	Mid-High	LTE Band 48	20	3	22.5	21.63	0.00	0	Left	Cheek	QPSK	1	0	03742	1:1.58	0.895	1.094
3690.00	56640	High	LTE Band 48	20	3	22.5	21.66	-0.01	0	Left	Cheek	QPSK	1	99	03742	1:1.58	0.709	0.860
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.72	-0.01	0	Left	Cheek	QPSK	50	0	03742	1:1.58	0.979	1.172
3603.30	55773	Low-Mid	LTE Band 48	20	3	22.5	21.71	0.02	0	Left	Cheek	QPSK	50	25	03742	1:1.58	0.927	1.111
3646.70	56207	Mid-High	LTE Band 48	20	3	22.5	21.66	-0.01	0	Left	Cheek	QPSK	50	25	03742	1:1.58	0.890	1.080
3690.00	56640	High	LTE Band 48	20	3	22.5	21.57	-0.05	0	Left	Cheek	QPSK	50	25	03742	1:1.58	0.758	0.939
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.69	-0.02	0	Left	Cheek	QPSK	100	0	03742	1:1.58	0.990	1.193
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.70	0.05	0	Left	Tilt	QPSK	1	0	03742	1:1.58	0.916	1.101
3603.30	55773	Low-Mid	LTE Band 48	20	3	22.5	21.58	0.03	0	Left	Tilt	QPSK	1	50	03742	1:1.58	0.806	0.996
3646.70	56207	Mid-High	LTE Band 48	20	3	22.5	21.63	-0.03	0	Left	Tilt	QPSK	1	0	03742	1:1.58	0.818	1.000
3690.00	56640	High	LTE Band 48	20	3	22.5	21.66	-0.01	0	Left	Tilt	QPSK	1	99	03742	1:1.58	0.678	0.822
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.72	0.00	0	Left	Tilt	QPSK	50	0	03742	1:1.58	0.889	1.064
3603.30	55773	Low-Mid	LTE Band 48	20	3	22.5	21.71	-0.05	0	Left	Tilt	QPSK	50	25	03742	1:1.58	0.843	1.011
3646.70	56207	Mid-High	LTE Band 48	20	3	22.5	21.66	-0.05	0	Left	Tilt	QPSK	50	25	03742	1:1.58	0.814	0.987
3690.00	56640	High	LTE Band 48	20	3	22.5	21.57	-0.01	0	Left	Tilt	QPSK	50	25	03742	1:1.58	0.726	0.900
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.69	0.00	0	Left	Tilt	QPSK	100	0	03742	1:1.58	0.897	1.081
3560.00	55340	Low	LTE Band 48	20	3	22.5	21.70	0.03	0	Left	Cheek	QPSK	1	0	03742	1:1.58	1.030	1.238
3603.30	55773	Low-Mid	LTE Band 48	20	3	22.5	21.71	0.02	0	Left	Cheek	QPSK	50	25	03742	1:1.58	0.926	1.110
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Head								
Spatial Peak										1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population										averaged over 1 gram								

Note 1: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)
Note 2: Blue entry represents variability measurements.

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Table 11-17
LTE Band 41 Head SAR

MEASUREMENT RESULTS																						
1 CC Uplink 2 CC Uplink, Power Class	Component Carrier	FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.															(W/kg)		(W/kg)		
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	1	25.0	23.79	0.10	0	Right	Cheek	QPSK	1	50	03742	1:1.58	0.015	1.321	0.020	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	1	24.5	23.67	0.06	0.5	Right	Cheek	QPSK	50	25	03742	1:1.58	0.013	1.211	0.016	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	1	25.0	23.79	0.10	0	Right	Tilt	QPSK	1	50	03742	1:1.58	0.015	1.321	0.020	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	1	24.5	23.67	0.07	0.5	Right	Tilt	QPSK	50	25	03742	1:1.58	0.014	1.211	0.017	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	1	25.0	23.79	0.17	0	Left	Cheek	QPSK	1	50	03742	1:1.58	0.021	1.321	0.028	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	3	25.0	23.79	0.09	0	Left	Cheek	QPSK	1	50	03742	1:1.58	0.014	1.321	0.018	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	1	25.0	23.68	0.03	0	Left	Cheek	QPSK	1	99	03742	1:1.58	0.021	1.355	0.028	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	1	24.5	23.67	0.05	0.5	Left	Cheek	QPSK	50	25	03742	1:1.58	0.015	1.211	0.018	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	1	26.6	25.34	0.02	0	Left	Cheek	QPSK	1	50	03742	1:2.31	0.022	1.337	0.029	A18
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	1	26.6	25.20	0.09	0	Left	Cheek	QPSK	1	99	03742	1:2.31	0.020	1.380	0.028	
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	1	25.0	24.07	0.08	0	Left	Cheek	QPSK	1	99	03742	1:1.58	0.021	1.239	0.026	
	SCC	2612.80	40818													0	03742					
2 CC Uplink - Power Class 2	PCC	2593.00	40620	Mid	LTE Band 41	20	1	26.6	25.55	0.03	0	Left	Cheek	QPSK	1	99	03742	1:2.31	0.021	1.274	0.027	
	SCC	2612.80	40818													0	03742					
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	1	25.0	23.79	0.06	0	Left	Tilt	QPSK	1	50	03742	1:1.58	0.006	1.321	0.008	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	1	24.5	23.67	0.17	0.5	Left	Tilt	QPSK	50	25	03742	1:1.58	0.003	1.211	0.004	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT												Head										
Spatial Peak												1.6 W/kg (mW/g)										
Uncontrolled Exposure/General Population												averaged over 1 gram										

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-18
NR Band n71 Head SAR

MEASUREMENT RESULTS																						
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna State	Waveform	Modulation	RB Size	RB Offset	Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																	(W/kg)		(W/kg)		
680.50	136100	Mid	NR Band n71	20	1	25.5	24.76	0.05	0	Right	Cheek	34	DFT-S-OFDM	QPSK	1	1	03759	1:1	0.058	1.186	0.069	A19
680.50	136100	Mid	NR Band n71	20	1	25.5	24.58	0.02	0	Right	Cheek	34	DFT-S-OFDM	QPSK	50	28	03759	1:1	0.061	1.236	0.075	
680.50	136100	Mid	NR Band n71	20	3	25.5	24.58	0.13	0	Right	Cheek	34	DFT-S-OFDM	QPSK	50	28	03759	1:1	0.052	1.236	0.064	
680.50	136100	Mid	NR Band n71	20	1	24.0	22.88	-0.07	1.5	Right	Cheek	34	CP-OFDM	QPSK	1	1	03759	1:1	0.046	1.294	0.060	
680.50	136100	Mid	NR Band n71	20	1	25.5	24.76	0.05	0	Right	Tilt	34	DFT-S-OFDM	QPSK	1	1	03759	1:1	0.035	1.186	0.042	
680.50	136100	Mid	NR Band n71	20	1	25.5	24.58	0.00	0	Right	Tilt	34	DFT-S-OFDM	QPSK	50	28	03759	1:1	0.036	1.236	0.044	
680.50	136100	Mid	NR Band n71	20	1	25.5	24.76	0.05	0	Left	Cheek	34	DFT-S-OFDM	QPSK	1	1	03759	1:1	0.060	1.186	0.071	
680.50	136100	Mid	NR Band n71	20	1	25.5	24.58	-0.03	0	Left	Cheek	34	DFT-S-OFDM	QPSK	50	28	03759	1:1	0.059	1.236	0.073	
680.50	136100	Mid	NR Band n71	20	1	25.5	24.76	0.05	0	Left	Tilt	34	DFT-S-OFDM	QPSK	1	1	03759	1:1	0.029	1.186	0.034	
680.50	136100	Mid	NR Band n71	20	1	25.5	24.58	0.05	0	Left	Tilt	34	DFT-S-OFDM	QPSK	50	28	03759	1:1	0.026	1.236	0.032	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Head												
Spatial Peak										1.6 W/kg (mW/g)												
Uncontrolled Exposure/General Population										averaged over 1 gram												

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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Table 11-19
NR Band n66 (AWS) Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Waveform	Modulation	RB Size	RB Offset	Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
1720.00	344000	Low	NR Band n66 (AWS)	20	1	23.5	22.84	-0.09	0	Right	Cheek	DFT-S-OFDM	QPSK	1	104	03759	1:1	0.083	1.164	0.097	
1720.00	344000	Low	NR Band n66 (AWS)	20	1	23.5	22.81	0.01	0	Right	Cheek	DFT-S-OFDM	QPSK	50	56	03759	1:1	0.080	1.172	0.094	
1745.00	349000	Md	NR Band n66 (AWS)	20	1	23.5	22.67	-0.01	0	Right	Cheek	CP-OFDM	QPSK	1	1	03759	1:1	0.084	1.211	0.102	A20
1745.00	349000	Md	NR Band n66 (AWS)	20	3	23.5	22.67	0.15	0	Right	Cheek	CP-OFDM	QPSK	1	1	03759	1:1	0.076	1.211	0.092	
1720.00	344000	Low	NR Band n66 (AWS)	20	1	23.5	22.84	0.06	0	Right	Tilt	DFT-S-OFDM	QPSK	1	104	03759	1:1	0.046	1.164	0.054	
1720.00	344000	Low	NR Band n66 (AWS)	20	1	23.5	22.81	0.04	0	Right	Tilt	DFT-S-OFDM	QPSK	50	56	03759	1:1	0.041	1.172	0.048	
1720.00	344000	Low	NR Band n66 (AWS)	20	1	23.5	22.84	0.02	0	Left	Cheek	DFT-S-OFDM	QPSK	1	104	03759	1:1	0.046	1.164	0.054	
1720.00	344000	Low	NR Band n66 (AWS)	20	1	23.5	22.81	0.15	0	Left	Cheek	DFT-S-OFDM	QPSK	50	56	03759	1:1	0.048	1.172	0.056	
1720.00	344000	Low	NR Band n66 (AWS)	20	1	23.5	22.84	0.03	0	Left	Tilt	DFT-S-OFDM	QPSK	1	104	03759	1:1	0.040	1.164	0.047	
1720.00	344000	Low	NR Band n66 (AWS)	20	1	23.5	22.81	0.11	0	Left	Tilt	DFT-S-OFDM	QPSK	50	56	03759	1:1	0.043	1.172	0.050	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Head											
Spatial Peak										1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population										averaged over 1 gram											

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-20
NR Band n25 (PCS) Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Waveform	Modulation	RB Size	RB Offset	Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
1860.00	372000	Low	NR Band n25 (PCS)	20	1	23.5	22.97	-0.11	0	Right	Cheek	DFT-S-OFDM	QPSK	1	1	01894	1:1	0.077	1.130	0.087	A21
1860.00	372000	Low	NR Band n25 (PCS)	20	1	23.5	22.85	-0.08	0	Right	Cheek	DFT-S-OFDM	QPSK	50	28	01894	1:1	0.070	1.161	0.081	
1882.50	376500	Mid	NR Band n25 (PCS)	20	1	23.5	22.88	-0.05	0	Right	Cheek	CP-OFDM	QPSK	1	1	01894	1:1	0.080	1.153	0.092	
1882.50	376500	Mid	NR Band n25 (PCS)	20	3	23.5	22.88	-0.01	0	Right	Cheek	CP-OFDM	QPSK	1	1	01894	1:1	0.047	1.153	0.054	
1860.00	372000	Low	NR Band n25 (PCS)	20	1	23.5	22.97	0.03	0	Right	Tilt	DFT-S-OFDM	QPSK	1	1	01894	1:1	0.040	1.130	0.045	
1860.00	372000	Low	NR Band n25 (PCS)	20	1	23.5	22.85	0.17	0	Right	Tilt	DFT-S-OFDM	QPSK	50	28	01894	1:1	0.036	1.161	0.042	
1860.00	372000	Low	NR Band n25 (PCS)	20	1	23.5	22.97	-0.02	0	Left	Cheek	DFT-S-OFDM	QPSK	1	1	01894	1:1	0.052	1.130	0.059	
1860.00	372000	Low	NR Band n25 (PCS)	20	1	23.5	22.85	0.01	0	Left	Cheek	DFT-S-OFDM	QPSK	50	28	01894	1:1	0.044	1.161	0.051	
1860.00	372000	Low	NR Band n25 (PCS)	20	1	23.5	22.97	0.13	0	Left	Tilt	DFT-S-OFDM	QPSK	1	1	01894	1:1	0.034	1.130	0.038	
1860.00	372000	Low	NR Band n25 (PCS)	20	1	23.5	22.85	0.06	0	Left	Tilt	DFT-S-OFDM	QPSK	50	28	01894	1:1	0.035	1.161	0.041	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT											Head										
Spatial Peak											1.6 W/kg (mW/g)										
Uncontrolled Exposure/General Population											averaged over 1 gram										

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

Table 11-21
NR Band 41 Head SAR

MEASUREMENT RESULTS																						
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Waveform	Modulation	RB Size	RB Offset	Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #		
MHz	Ch.																(W/kg)		(W/kg)			
2592.99	518598	Mid	NR Band n41	100	1	25.0	24.55	0.10	0	Right	Cheek	DFT-S-OFDM	QPSK	1	137	03759	1:4	0.001	1.109	0.001		
2592.99	518598	Mid	NR Band n41	100	1	25.0	24.66	0.02	0	Right	Cheek	DFT-S-OFDM	QPSK	135	138	03759	1:4	0.003	1.081	0.003		
2592.99	518598	Mid	NR Band n41	100	1	25.0	24.34	0.10	0	Right	Cheek	CP-OFDM	QPSK	1	1	03759	1:4	0.003	1.164	0.003		A22
2592.99	518598	Mid	NR Band n41	100	3	25.0	24.34	-0.03	0	Right	Cheek	CP-OFDM	QPSK	1	1	03759	1:4	0.000	1.164	0.000		
2592.99	518598	Mid	NR Band n41	100	1	25.0	24.55	0.03	0	Right	Tilt	DFT-S-OFDM	QPSK	1	137	03759	1:4	0.000	1.109	0.000		
2592.99	518598	Mid	NR Band n41	100	1	25.0	24.66	0.02	0	Right	Tilt	DFT-S-OFDM	QPSK	135	138	03759	1:4	0.000	1.081	0.000		
2592.99	518598	Mid	NR Band n41	100	1	25.0	24.55	0.04	0	Left	Cheek	DFT-S-OFDM	QPSK	1	137	03759	1:4	0.000	1.109	0.000		
2592.99	518598	Mid	NR Band n41	100	1	25.0	24.66	0.10	0	Left	Cheek	DFT-S-OFDM	QPSK	135	138	03759	1:4	0.001	1.081	0.001		
2592.99	518598	Mid	NR Band n41	100	1	25.0	24.55	0.09	0	Left	Tilt	DFT-S-OFDM	QPSK	1	137	03759	1:4	0.002	1.109	0.002		
2592.99	518598	Mid	NR Band n41	100	1	25.0	24.66	0.06	0	Left	Tilt	DFT-S-OFDM	QPSK	135	138	03759	1:4	0.001	1.081	0.001		
ANSI / IEEE C95.1 1992 - SAFETY LIMIT											Head											
Spatial Peak											1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population											averaged over 1 gram											

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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**Table 11-22
DTS Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Mechanical Mode	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	18.0	17.65	0.04	Right	Cheek	1	1	03734	1	99.2	0.362	0.235	1.084	1.008	0.257	
2437	6	802.11b	DSSS	22	18.0	17.65	0.06	Right	Cheek	1	3	03734	1	99.2	0.939	0.652	1.084	1.008	0.712	
2437	6	802.11b	DSSS	22	18.0	17.65	0.02	Right	Tilt	1	1	03734	1	99.2	0.245	0.216	1.084	1.008	0.236	
2437	6	802.11b	DSSS	22	18.0	17.65	0.02	Left	Cheek	1	1	03734	1	99.2	0.132	0.127	1.084	1.008	0.139	
2437	6	802.11b	DSSS	22	18.0	17.65	0.02	Left	Tilt	1	1	03734	1	99.2	0.113	0.094	1.084	1.008	0.103	
2437	6	802.11b	DSSS	22	18.0	17.84	0.08	Right	Cheek	2	1	03734	1	99.2	0.278	0.204	1.038	1.008	0.213	
2437	6	802.11b	DSSS	22	18.0	17.84	0.12	Right	Tilt	2	1	03734	1	99.2	0.490	0.271	1.038	1.008	0.284	A23
2437	6	802.11b	DSSS	22	18.0	17.84	0.06	Right	Tilt	2	3	03734	1	99.2	1.004	0.913	1.038	1.008	0.955	A24
2437	6	802.11b	DSSS	22	18.0	17.84	0.14	Left	Cheek	2	1	03734	1	99.2	0.135	0.115	1.038	1.008	0.120	
2437	6	802.11b	DSSS	22	18.0	17.84	0.08	Left	Tilt	2	1	03734	1	99.2	0.168	0.142	1.038	1.008	0.149	
2437	6	802.11b	DSSS	22	18.0	17.84	0.06	Right	Tilt	2	3	03734	1	99.2	1.008	0.913	1.038	1.008	0.955	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram												

Note 1: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)
Note 2: Blue entry represents variability measurements.

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**Table 11-23
NII Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Mechanical Mode	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)	(W/kg)			
5270	54	802.11n	OFDM	40	16.0	15.73	0.14	Right	Cheek	1	1	03734	13.5	94.9	0.563	0.205	1.064	1.054	0.230	
5270	54	802.11n	OFDM	40	16.0	15.73	0.09	Right	Cheek	1	3	03734	13.5	94.9	0.637	0.253	1.064	1.054	0.284	A25
5270	54	802.11n	OFDM	40	16.0	15.73	0.05	Right	Tilt	1	1	03734	13.5	94.9	0.464	-	1.064	1.054	-	
5270	54	802.11n	OFDM	40	16.0	15.73	0.02	Left	Cheek	1	1	03734	13.5	94.9	0.358	-	1.064	1.054	-	
5270	54	802.11n	OFDM	40	16.0	15.73	0.10	Left	Tilt	1	1	03734	13.5	94.9	0.388	-	1.064	1.054	-	
5270	54	802.11n	OFDM	40	16.0	15.75	-0.03	Right	Cheek	2	1	03734	13.5	94.2	0.062	-	1.059	1.062	-	
5270	54	802.11n	OFDM	40	16.0	15.75	-0.14	Right	Tilt	2	1	03734	13.5	94.2	0.119	0.052	1.059	1.062	0.058	
5270	54	802.11n	OFDM	40	16.0	15.75	0.16	Right	Tilt	2	3	03734	13.5	94.2	0.299	0.106	1.059	1.062	0.119	
5270	54	802.11n	OFDM	40	16.0	15.75	0.03	Left	Cheek	2	1	03734	13.5	94.2	0.071	-	1.059	1.062	-	
5270	54	802.11n	OFDM	40	16.0	15.75	0.02	Left	Tilt	2	1	03734	13.5	94.2	0.071	-	1.059	1.062	-	
5710	142	802.11n	OFDM	40	16.0	15.98	0.19	Right	Cheek	1	1	03734	13.5	94.9	0.388	0.166	1.005	1.054	0.176	
5710	142	802.11n	OFDM	40	16.0	15.98	-0.15	Right	Tilt	1	1	03734	13.5	94.9	0.356	-	1.005	1.054	-	
5710	142	802.11n	OFDM	40	16.0	15.98	0.03	Left	Cheek	1	1	03734	13.5	94.9	0.247	-	1.005	1.054	-	
5710	142	802.11n	OFDM	40	16.0	15.98	0.10	Left	Tilt	1	1	03734	13.5	94.9	0.256	-	1.005	1.054	-	
5710	142	802.11n	OFDM	40	16.0	15.17	0.01	Right	Cheek	2	1	03734	13.5	94.2	0.094	0.032	1.211	1.062	0.041	
5710	142	802.11n	OFDM	40	16.0	15.17	0.05	Right	Tilt	2	1	03734	13.5	94.2	0.049	-	1.211	1.062	-	
5710	142	802.11n	OFDM	40	16.0	15.17	-0.02	Left	Cheek	2	1	03734	13.5	94.2	0.069	-	1.211	1.062	-	
5710	142	802.11n	OFDM	40	16.0	15.17	0.10	Left	Tilt	2	1	03734	13.5	94.2	0.056	-	1.211	1.062	-	
5795	159	802.11n	OFDM	40	16.0	15.64	0.11	Right	Cheek	1	1	03734	13.5	94.9	0.395	0.113	1.086	1.054	0.129	
5795	159	802.11n	OFDM	40	16.0	15.64	0.05	Right	Tilt	1	1	03734	13.5	94.9	0.268	-	1.086	1.054	-	
5795	159	802.11n	OFDM	40	16.0	15.64	0.04	Left	Cheek	1	1	03734	13.5	94.9	0.225	-	1.086	1.054	-	
5795	159	802.11n	OFDM	40	16.0	15.64	0.10	Left	Tilt	1	1	03734	13.5	94.9	0.224	-	1.086	1.054	-	
5795	159	802.11n	OFDM	40	16.0	15.20	0.01	Right	Cheek	2	1	03734	13.5	94.2	0.085	-	1.202	1.062	-	
5795	159	802.11n	OFDM	40	16.0	15.20	0.00	Right	Tilt	2	1	03734	13.5	94.2	0.053	-	1.202	1.062	-	
5795	159	802.11n	OFDM	40	16.0	15.20	0.16	Left	Cheek	2	1	03734	13.5	94.2	0.089	0.027	1.202	1.062	0.034	
5795	159	802.11n	OFDM	40	16.0	15.20	-0.06	Left	Tilt	2	1	03734	13.5	94.2	0.061	-	1.202	1.062	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT									Head											
Spatial Peak									1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population									averaged over 1 gram											

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

**Table 11-24
DSS Head SAR**

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Mechanical Mode	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)			(W/kg)	
2441.00	39	Bluetooth	FHSS	12.0	11.95	0.06	Right	Cheek	1	03809	1	76.8	0.072	1.012	1.302	0.095	
2441.00	39	Bluetooth	FHSS	12.0	11.95	0.06	Right	Cheek	3	03809	1	76.8	0.182	1.012	1.302	0.240	A26
2441.00	39	Bluetooth	FHSS	12.0	11.95	0.02	Right	Tilt	1	03809	1	76.8	0.049	1.012	1.302	0.065	
2441.00	39	Bluetooth	FHSS	12.0	11.95	0.04	Left	Cheek	1	03809	1	76.8	0.027	1.012	1.302	0.036	
2441.00	39	Bluetooth	FHSS	12.0	11.95	-0.03	Left	Tilt	1	03809	1	76.8	0.016	1.012	1.302	0.021	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Head									
Spatial Peak								1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population								averaged over 1 gram									

Note: Green entry represents additional Head SAR Position (Mechanical Mode #3: Swivel)

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11.1 Standalone Body-Worn SAR Data

Table 11-25
GSM/UMTS/CDMA Body-Worn SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna State	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	34.0	33.16	-0.08	10 mm	N/A	03742	1	1:8.3	back	0.260	1.213	0.315	
824.20	128	GSM 850	GPRS	30.5	29.91	-0.09	10 mm	N/A	03742	3	1:2.76	back	0.482	1.146	0.552	
836.60	190	GSM 850	GPRS	30.5	29.65	-0.11	10 mm	N/A	03742	3	1:2.76	back	0.506	1.216	0.615	
848.80	251	GSM 850	GPRS	30.5	29.61	-0.02	10 mm	N/A	03742	3	1:2.76	back	0.541	1.227	0.664	A27
1880.00	661	GSM 1900	GSM	31.0	30.57	0.05	10 mm	N/A	01894	1	1:8.3	back	0.411	1.104	0.454	
1880.00	661	GSM 1900	GPRS	28.0	27.42	-0.11	10 mm	N/A	01894	3	1:2.76	back	0.442	1.143	0.505	A28
836.60	4183	UMTS 850	RMC	25.5	25.13	0.11	10 mm	86	03742	N/A	1:1	back	0.525	1.089	0.572	A30
1712.40	1312	UMTS 1750	RMC	23.5	23.05	-0.04	10 mm	N/A	01894	N/A	1:1	back	0.547	1.109	0.607	
1732.40	1412	UMTS 1750	RMC	23.5	23.01	-0.07	10 mm	N/A	01894	N/A	1:1	back	0.605	1.119	0.677	A31
1752.60	1513	UMTS 1750	RMC	23.5	23.02	-0.03	10 mm	N/A	01894	N/A	1:1	back	0.579	1.117	0.647	
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.01	10 mm	N/A	01894	N/A	1:1	back	0.464	1.057	0.490	A33
820.10	564	CDMA BC10 (§90S)	TDSO / SO32	25.5	25.29	0.00	10 mm	86	03742	N/A	1:1	back	0.543	1.050	0.570	A35
824.70	1013	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.25	0.01	10 mm	86	03742	N/A	1:1	back	0.571	1.059	0.605	
836.52	384	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.23	-0.01	10 mm	86	03742	N/A	1:1	back	0.618	1.064	0.658	A37
848.31	777	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.21	0.00	10 mm	86	03742	N/A	1:1	back	0.603	1.069	0.645	
1880.00	600	PCS CDMA	TDSO / SO32	23.5	23.44	-0.07	10 mm	N/A	01894	N/A	1:1	back	0.475	1.014	0.482	A39
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 11-26
LTE Band 71/12/13/26/25/48 Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
680.50	133297	Mid	LTE Band 71	20	25.5	25.04	-0.05	0	34	01886	QPSK	1	0	10 mm	back	1:1	0.257	1.112	0.286	A41
680.50	133297	Mid	LTE Band 71	20	24.5	24.21	0.01	1	34	01886	QPSK	50	50	10 mm	back	1:1	0.174	1.069	0.186	
707.50	23095	Mid	LTE Band 12	10	25.5	25.04	-0.04	0	43	01886	QPSK	1	0	10 mm	back	1:1	0.273	1.112	0.304	A42
707.50	23095	Mid	LTE Band 12	10	24.5	24.02	-0.01	1	43	01886	QPSK	25	25	10 mm	back	1:1	0.178	1.117	0.199	
782.00	23230	Mid	LTE Band 13	10	25.5	24.94	0.04	0	74	01886	QPSK	1	25	10 mm	back	1:1	0.322	1.138	0.366	A43
782.00	23230	Mid	LTE Band 13	10	24.5	24.13	0.01	1	74	01886	QPSK	25	25	10 mm	back	1:1	0.207	1.089	0.225	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.94	0.07	0	86	01886	QPSK	1	0	10 mm	back	1:1	0.398	1.138	0.453	A44
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.98	0.01	1	86	01886	QPSK	36	37	10 mm	back	1:1	0.296	1.127	0.334	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.38	-0.12	0	N/A	01894	QPSK	1	50	10 mm	back	1:1	0.463	1.028	0.476	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.36	-0.05	0	N/A	01894	QPSK	50	25	10 mm	back	1:1	0.479	1.033	0.495	A47
3560.00	55340	Low	LTE Band 48	20	22.5	21.70	-0.03	0	N/A	03742	QPSK	1	0	10 mm	back	1:1.58	0.448	1.202	0.538	A51
3560.00	55340	Low	LTE Band 48	20	22.5	21.72	-0.08	0	N/A	03742	QPSK	50	0	10 mm	back	1:1.58	0.395	1.197	0.473	
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 11-27
LTE Band 66/2 Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.81	-0.03	0	Ant 2	01894	QPSK	1	50	10 mm	back	1:1	0.606	1.172	0.710	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.5	22.90	0.02	0	Ant 2	01894	QPSK	1	50	10 mm	back	1:1	0.630	1.148	0.723	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	23.05	0.03	0	Ant 2	01894	QPSK	1	0	10 mm	back	1:1	0.648	1.109	0.719	A45
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	22.85	-0.02	0	Ant 2	01894	QPSK	50	25	10 mm	back	1:1	0.611	1.161	0.709	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.79	-0.08	0	Ant 3	03759	QPSK	1	50	10 mm	back	1:1	0.304	1.178	0.358	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.79	0.00	0	Ant 3	03759	QPSK	50	25	10 mm	back	1:1	0.311	1.178	0.366	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	23.5	22.55	0.00	0	Ant 3	01894	QPSK	1	50	10 mm	back	1:1	0.243	1.245	0.303	A49
1880.00	18900	Mid	LTE Band 2 (PCS)	20	23.5	22.61	-0.01	0	Ant 3	01894	QPSK	50	50	10 mm	back	1:1	0.236	1.227	0.290	
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 11-28
LTE Band 41 Body-Worn

MEASUREMENT RESULTS																					
1 CC Uplink 2 CC Uplink, Power Class	Component Carrier	FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.														(W/kg)		(W/kg)		
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	23.79	0.00	0	01894	QPSK	1	50	10 mm	back	1:1.58	0.263	1.321	0.347	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	23.68	0.08	0	01894	QPSK	1	99	10 mm	back	1:1.58	0.248	1.355	0.336	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.5	23.67	0.04	0.5	01894	QPSK	50	25	10 mm	back	1:1.58	0.263	1.211	0.318	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	26.6	25.34	0.07	0	01894	QPSK	1	50	10 mm	back	1:2.31	0.238	1.337	0.318	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	26.6	25.20	-0.03	0	01894	QPSK	1	99	10 mm	back	1:2.31	0.244	1.380	0.337	
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	25.0	24.07	0.04	0	01894	QPSK	1	99	10 mm	back	1:1.58	0.272	1.239	0.337	A53
	SCC	2612.80	40818											0							
2 CC Uplink - Power Class 2	PCC	2593.00	40620	Mid	LTE Band 41	20	26.6	25.55	0.02	0	01894	QPSK	1	99	10 mm	back	1:2.31	0.265	1.274	0.338	
	SCC	2612.80	40818											0							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-29
NR Body-Worn SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna State	Serial Number	Waveform	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
680.50	136100	Mid	NR Band n71	20	25.5	24.76	0.01	0	34	01886	DFT-S-OFDM	QPSK	1	1	10 mm	back	1:1	0.242	1.186	0.287	
680.50	136100	Mid	NR Band n71	20	25.5	24.58	0.03	0	34	01886	DFT-S-OFDM	QPSK	50	28	10 mm	back	1:1	0.245	1.236	0.303	A55
680.50	136100	Mid	NR Band n71	20	24.0	22.88	0.02	1.5	34	01886	CP-OFDM	QPSK	1	1	10 mm	back	1:1	0.204	1.294	0.264	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.5	22.84	-0.03	0	N/A	03742	DFT-S-OFDM	QPSK	1	104	10 mm	back	1:1	0.338	1.164	0.393	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.5	22.81	-0.02	0	N/A	03742	DFT-S-OFDM	QPSK	50	56	10 mm	back	1:1	0.349	1.172	0.409	A56
1745.00	349000	Mid	NR Band n66 (AWS)	20	23.5	22.67	-0.12	0	N/A	03742	CP-OFDM	QPSK	1	1	10 mm	back	1:1	0.345	1.211	0.418	
1860.00	372000	Low	NR Band n25 (PCS)	20	23.5	22.97	0.14	0	N/A	01894	DFT-S-OFDM	QPSK	1	1	10 mm	back	1:1	0.257	1.130	0.290	
1860.00	372000	Low	NR Band n25 (PCS)	20	23.5	22.85	0.18	0	N/A	01894	DFT-S-OFDM	QPSK	50	28	10 mm	back	1:1	0.261	1.161	0.303	A58
1862.50	376500	Mid	NR Band n25 (PCS)	20	23.5	22.88	0.03	0	N/A	01894	CP-OFDM	QPSK	1	1	10 mm	back	1:1	0.252	1.153	0.291	
2592.99	518598	Mid	NR Band n41	100	25.0	24.55	0.02	0	N/A	03759	DFT-S-OFDM	QPSK	1	137	10 mm	back	1:4	0.094	1.109	0.104	A60
2592.99	518598	Mid	NR Band n41	100	25.0	24.66	0.02	0	N/A	03759	DFT-S-OFDM	QPSK	135	138	10 mm	back	1:4	0.064	1.081	0.069	
2592.99	518598	Mid	NR Band n41	100	25.0	24.34	0.19	0	N/A	03759	CP-OFDM	QPSK	1	1	10 mm	back	1:4	0.063	1.164	0.073	
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 11-30
DTS Body-Worn SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	21.5	21.49	-0.04	10 mm	1	03734	1	back	99.2	0.481	0.290	1.002	1.008	0.293	A62
2437	6	802.11b	DSSS	22	21.5	21.22	-0.02	10 mm	2	03734	1	back	99.2	0.314	0.214	1.067	1.008	0.230	
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 11-31
NII Body-Worn SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)		(W/kg)		
5280	56	802.11a	OFDM	20	20.0	19.33	0.02	10 mm	1	03809	6	back	98.1	0.993	0.419	1.167	1.019	0.498	A64
5280	56	802.11a	OFDM	20	20.0	19.94	-0.07	10 mm	2	03809	6	back	98.1	0.620	0.263	1.014	1.019	0.272	
5500	100	802.11a	OFDM	20	17.0	16.70	0.07	10 mm	1	03809	6	back	98.1	0.410	0.164	1.072	1.019	0.179	
5600	120	802.11a	OFDM	20	17.0	16.75	0.02	10 mm	2	03809	6	back	98.1	0.242	0.110	1.059	1.019	0.119	
5785	157	802.11a	OFDM	20	20.0	19.66	0.01	10 mm	1	03809	6	back	98.1	0.399	0.175	1.081	1.019	0.193	
5785	157	802.11a	OFDM	20	20.0	19.84	-0.09	10 mm	2	03809	6	back	98.1	0.556	0.223	1.038	1.019	0.236	
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 11-32
DSS Body-Worn SAR**

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	12.0	11.95	0.11	10 mm	03809	1	back	76.8	0.032	1.012	1.302	0.042	A66
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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11.2 Standalone Hotspot SAR Data

Table 11-33
GPRS/UMTS/CDMA Hotspot SAR Data

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna State	Mechanical Mode	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																
824.20	128	GSM 850	GPRS	30.5	29.91	-0.09	10 mm	N/A	1	03742	3	1:2.76	back	0.482	1.146	0.552	
836.60	190	GSM 850	GPRS	30.5	29.65	-0.11	10 mm	N/A	1	03742	3	1:2.76	back	0.506	1.216	0.615	
848.80	251	GSM 850	GPRS	30.5	29.61	-0.02	10 mm	N/A	1	03742	3	1:2.76	back	0.541	1.227	0.664	A27
836.60	190	GSM 850	GPRS	30.5	29.65	-0.06	10 mm	N/A	1	01886	3	1:2.76	front	0.169	1.216	0.206	
836.60	190	GSM 850	GPRS	30.5	29.65	0.01	10 mm	N/A	1	01886	3	1:2.76	bottom	0.123	1.216	0.150	
836.60	190	GSM 850	GPRS	30.5	29.65	-0.05	10 mm	N/A	1	01886	3	1:2.76	right	0.085	1.216	0.103	
1880.00	661	GSM 1900	GPRS	28.0	27.42	-0.11	10 mm	N/A	1	01894	3	1:2.76	back	0.442	1.143	0.505	
1880.00	661	GSM 1900	GPRS	28.0	27.42	-0.04	10 mm	N/A	1	01894	3	1:2.76	front	0.154	1.143	0.176	
1850.20	512	GSM 1900	GPRS	28.0	27.52	-0.09	10 mm	N/A	1	01894	3	1:2.76	bottom	0.659	1.117	0.736	A29
1880.00	661	GSM 1900	GPRS	28.0	27.42	-0.11	10 mm	N/A	1	01894	3	1:2.76	bottom	0.593	1.143	0.678	
1909.80	810	GSM 1900	GPRS	28.0	27.30	-0.02	10 mm	N/A	1	01894	3	1:2.76	bottom	0.650	1.175	0.764	
1880.00	661	GSM 1900	GPRS	28.0	27.42	-0.03	10 mm	N/A	1	01894	3	1:2.76	left	0.134	1.143	0.153	
836.60	4183	UMTS 850	RMC	25.5	25.13	0.11	10 mm	86	1	03742	N/A	1:1	back	0.525	1.089	0.572	A30
836.60	4183	UMTS 850	RMC	25.5	25.13	0.07	10 mm	86	1	03742	N/A	1:1	front	0.253	1.089	0.276	
836.60	4183	UMTS 850	RMC	25.5	25.13	0.02	10 mm	86	1	03742	N/A	1:1	bottom	0.248	1.089	0.270	
836.60	4183	UMTS 850	RMC	25.5	25.13	-0.07	10 mm	86	1	03742	N/A	1:1	right	0.146	1.089	0.159	
1732.40	1412	UMTS 1750	RMC	23.5	23.01	-0.07	10 mm	N/A	1	01894	N/A	1:1	back	0.605	1.119	0.677	
1732.40	1412	UMTS 1750	RMC	23.5	23.01	0.05	10 mm	N/A	1	01894	N/A	1:1	front	0.356	1.119	0.398	
1712.40	1312	UMTS 1750	RMC	23.5	23.05	0.01	10 mm	N/A	1	01894	N/A	1:1	bottom	0.739	1.109	0.820	
1732.40	1412	UMTS 1750	RMC	23.5	23.01	0.00	10 mm	N/A	1	01894	N/A	1:1	bottom	0.839	1.119	0.939	
1752.60	1513	UMTS 1750	RMC	23.5	23.02	-0.02	10 mm	N/A	1	01894	N/A	1:1	bottom	0.857	1.117	0.957	A32
1732.40	1412	UMTS 1750	RMC	23.5	23.01	-0.01	10 mm	N/A	1	01894	N/A	1:1	left	0.284	1.119	0.318	
1752.60	1513	UMTS 1750	RMC	23.5	23.02	-0.02	10 mm	N/A	1	01894	N/A	1:1	bottom	0.855	1.117	0.955	
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.01	10 mm	N/A	1	01894	N/A	1:1	back	0.464	1.057	0.490	
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.05	10 mm	N/A	1	01894	N/A	1:1	front	0.195	1.057	0.206	
1852.40	9262	UMTS 1900	RMC	23.5	23.23	0.05	10 mm	N/A	1	01894	N/A	1:1	bottom	0.817	1.064	0.869	
1880.00	9400	UMTS 1900	RMC	23.5	23.26	-0.01	10 mm	N/A	1	01894	N/A	1:1	bottom	0.892	1.057	0.943	
1907.60	9538	UMTS 1900	RMC	23.5	23.20	0.00	10 mm	N/A	1	01894	N/A	1:1	bottom	0.904	1.072	0.969	A34
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.12	10 mm	N/A	1	01894	N/A	1:1	left	0.179	1.057	0.189	
820.10	564	CDMA BC10 (S90S)	EVDO Rev. 0	25.5	25.32	-0.02	10 mm	86	1	03742	N/A	1:1	back	0.575	1.042	0.599	A36
820.10	564	CDMA BC10 (S90S)	EVDO Rev. 0	25.5	25.32	0.14	10 mm	86	1	03742	N/A	1:1	front	0.234	1.042	0.244	
820.10	564	CDMA BC10 (S90S)	EVDO Rev. 0	25.5	25.32	-0.01	10 mm	86	1	03742	N/A	1:1	bottom	0.197	1.042	0.205	
820.10	564	CDMA BC10 (S90S)	EVDO Rev. 0	25.5	25.32	0.04	10 mm	86	1	03742	N/A	1:1	right	0.134	1.042	0.140	
824.70	1013	CDMA BC0 (S22H)	EVDO Rev. 0	25.5	25.32	-0.02	10 mm	86	1	03742	N/A	1:1	back	0.565	1.042	0.589	
836.52	384	CDMA BC0 (S22H)	EVDO Rev. 0	25.5	25.29	-0.02	10 mm	86	1	03742	N/A	1:1	back	0.621	1.050	0.652	A38
848.31	777	CDMA BC0 (S22H)	EVDO Rev. 0	25.5	25.30	0.00	10 mm	86	1	03742	N/A	1:1	back	0.608	1.047	0.637	
836.52	384	CDMA BC0 (S22H)	EVDO Rev. 0	25.5	25.29	0.00	10 mm	86	1	03742	N/A	1:1	front	0.259	1.050	0.272	
836.52	384	CDMA BC0 (S22H)	EVDO Rev. 0	25.5	25.29	0.07	10 mm	86	1	03742	N/A	1:1	bottom	0.227	1.050	0.238	
836.52	384	CDMA BC0 (S22H)	EVDO Rev. 0	25.5	25.29	-0.08	10 mm	86	1	03742	N/A	1:1	right	0.159	1.050	0.167	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	23.50	0.04	10 mm	N/A	1	01894	N/A	1:1	back	0.531	1.000	0.531	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	23.50	-0.14	10 mm	N/A	1	01894	N/A	1:1	front	0.193	1.000	0.193	
1851.25	25	PCS CDMA	EVDO Rev. 0	23.5	23.49	0.00	10 mm	N/A	1	01894	N/A	1:1	bottom	0.869	1.002	0.871	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	23.50	0.06	10 mm	N/A	1	01894	N/A	1:1	bottom	0.994	1.000	0.994	A40
1908.75	1175	PCS CDMA	EVDO Rev. 0	23.5	23.41	-0.02	10 mm	N/A	1	01894	N/A	1:1	bottom	0.984	1.021	1.005	
1908.75	1175	PCS CDMA	EVDO Rev. 0	23.5	23.41	-0.02	10 mm	N/A	2	01894	N/A	1:1	bottom	0.970	1.021	0.990	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	23.50	0.00	10 mm	N/A	1	01894	N/A	1:1	left	0.166	1.000	0.166	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	23.50	0.06	10 mm	N/A	1	01894	N/A	1:1	bottom	0.972	1.000	0.972	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak							Body 1.6 W/kg (mW/g) averaged over 1 gram										
Uncontrolled Exposure/General Population																	

Note 1: Purple entry represents additional Hotspot SAR Position (Mechanical Mode #2: Normal mode + Pop-up)

Note 2: Blue entry represents variability measurements.

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Table 11-34
LTE Band 71 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna State	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
680.50	133297	Mid	LTE Band 71	20	25.5	25.04	-0.05	0	34	01886	QPSK	1	0	10 mm	back	1:1	0.257	1.112	0.286	A41
680.50	133297	Mid	LTE Band 71	20	24.5	24.21	0.01	1	34	01886	QPSK	50	50	10 mm	back	1:1	0.174	1.069	0.186	
680.50	133297	Mid	LTE Band 71	20	25.5	25.04	0.01	0	34	01886	QPSK	1	0	10 mm	front	1:1	0.092	1.112	0.102	
680.50	133297	Mid	LTE Band 71	20	24.5	24.21	0.03	1	34	01886	QPSK	50	50	10 mm	front	1:1	0.061	1.069	0.065	
680.50	133297	Mid	LTE Band 71	20	25.5	25.04	0.10	0	34	01886	QPSK	1	0	10 mm	bottom	1:1	0.077	1.112	0.086	
680.50	133297	Mid	LTE Band 71	20	24.5	24.21	0.02	1	34	01886	QPSK	50	50	10 mm	bottom	1:1	0.058	1.069	0.062	
680.50	133297	Mid	LTE Band 71	20	25.5	25.04	0.03	0	34	01886	QPSK	1	0	10 mm	right	1:1	0.235	1.112	0.261	
680.50	133297	Mid	LTE Band 71	20	24.5	24.21	-0.02	1	34	01886	QPSK	50	50	10 mm	right	1:1	0.196	1.069	0.210	
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 11-35
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna State	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
707.50	23095	Mid	LTE Band 12	10	25.5	25.04	-0.04	0	43	01886	QPSK	1	0	10 mm	back	1:1	0.273	1.112	0.304	A42
707.50	23095	Mid	LTE Band 12	10	24.5	24.02	-0.01	1	43	01886	QPSK	25	25	10 mm	back	1:1	0.178	1.117	0.199	
707.50	23095	Mid	LTE Band 12	10	25.5	25.04	-0.11	0	43	01886	QPSK	1	0	10 mm	front	1:1	0.091	1.112	0.101	
707.50	23095	Mid	LTE Band 12	10	24.5	24.02	0.00	1	43	01886	QPSK	25	25	10 mm	front	1:1	0.062	1.117	0.069	
707.50	23095	Mid	LTE Band 12	10	25.5	25.04	0.01	0	43	01886	QPSK	1	0	10 mm	bottom	1:1	0.111	1.112	0.123	
707.50	23095	Mid	LTE Band 12	10	24.5	24.02	-0.04	1	43	01886	QPSK	25	25	10 mm	bottom	1:1	0.072	1.117	0.080	
707.50	23095	Mid	LTE Band 12	10	25.5	25.04	-0.10	0	43	01886	QPSK	1	0	10 mm	right	1:1	0.228	1.112	0.254	
707.50	23095	Mid	LTE Band 12	10	24.5	24.02	-0.11	1	43	01886	QPSK	25	25	10 mm	right	1:1	0.122	1.117	0.136	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body												
Spatial Peak								1.6 W/kg (mW/g)												
Uncontrolled Exposure/General Population								averaged over 1 gram												

Table 11-36
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna State	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
782.00	23230	Mid	LTE Band 13	10	25.5	24.94	0.04	0	74	01886	QPSK	1	25	10 mm	back	1:1	0.322	1.138	0.366	A43
782.00	23230	Mid	LTE Band 13	10	24.5	24.13	0.01	1	74	01886	QPSK	25	25	10 mm	back	1:1	0.207	1.089	0.225	
782.00	23230	Mid	LTE Band 13	10	25.5	24.94	-0.08	0	74	01886	QPSK	1	25	10 mm	front	1:1	0.148	1.138	0.168	
782.00	23230	Mid	LTE Band 13	10	24.5	24.13	0.10	1	74	01886	QPSK	25	25	10 mm	front	1:1	0.093	1.089	0.101	
782.00	23230	Mid	LTE Band 13	10	25.5	24.94	0.11	0	74	01886	QPSK	1	25	10 mm	bottom	1:1	0.123	1.138	0.140	
782.00	23230	Mid	LTE Band 13	10	24.5	24.13	-0.04	1	74	01886	QPSK	25	25	10 mm	bottom	1:1	0.079	1.089	0.086	
782.00	23230	Mid	LTE Band 13	10	25.5	24.94	-0.02	0	74	01886	QPSK	1	25	10 mm	right	1:1	0.151	1.138	0.172	
782.00	23230	Mid	LTE Band 13	10	24.5	24.13	0.03	1	74	01886	QPSK	25	25	10 mm	right	1:1	0.113	1.089	0.123	
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 11-37
LTE Band 26 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna State	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.94	0.07	0	86	01886	QPSK	1	0	10 mm	back	1:1	0.398	1.138	0.453	A44
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.98	0.01	1	86	01886	QPSK	36	37	10 mm	back	1:1	0.296	1.127	0.334	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.94	0.03	0	86	01886	QPSK	1	0	10 mm	front	1:1	0.251	1.138	0.286	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.98	0.02	1	86	01886	QPSK	36	37	10 mm	front	1:1	0.161	1.127	0.181	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.94	0.06	0	86	01886	QPSK	1	0	10 mm	bottom	1:1	0.199	1.138	0.226	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.98	0.16	1	86	01886	QPSK	36	37	10 mm	bottom	1:1	0.124	1.127	0.140	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.94	0.05	0	86	01886	QPSK	1	0	10 mm	right	1:1	0.147	1.138	0.167	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.98	0.08	1	86	01886	QPSK	36	37	10 mm	right	1:1	0.097	1.127	0.109	
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 11- 38
LTE Band 66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	23.05	0.03	0	Ant 2	01894	QPSK	1	0	10 mm	back	1:1	0.648	1.109	0.719	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	22.85	-0.02	0	Ant 2	01894	QPSK	50	25	10 mm	back	1:1	0.611	1.161	0.709	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	23.05	-0.02	0	Ant 2	01894	QPSK	1	0	10 mm	front	1:1	0.287	1.109	0.318	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	22.85	-0.01	0	Ant 2	01894	QPSK	50	25	10 mm	front	1:1	0.258	1.161	0.300	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.81	-0.03	0	Ant 2	01894	QPSK	1	50	10 mm	bottom	1:1	0.659	1.172	0.772	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.5	22.90	-0.01	0	Ant 2	01894	QPSK	1	50	10 mm	bottom	1:1	0.664	1.148	0.762	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	23.05	0.00	0	Ant 2	01894	QPSK	1	0	10 mm	bottom	1:1	0.726	1.109	0.805	A46
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.84	-0.01	0	Ant 2	01894	QPSK	50	25	10 mm	bottom	1:1	0.689	1.164	0.802	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.5	22.82	0.01	0	Ant 2	01894	QPSK	50	25	10 mm	bottom	1:1	0.703	1.169	0.822	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	22.85	-0.02	0	Ant 2	01894	QPSK	50	25	10 mm	bottom	1:1	0.691	1.161	0.802	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.70	0.00	0	Ant 2	01894	QPSK	100	0	10 mm	bottom	1:1	0.681	1.202	0.819	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	23.05	0.01	0	Ant 2	01894	QPSK	1	0	10 mm	left	1:1	0.213	1.109	0.236	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	22.85	-0.01	0	Ant 2	01894	QPSK	50	25	10 mm	left	1:1	0.204	1.161	0.237	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.79	-0.08	0	Ant 3	03759	QPSK	1	50	10 mm	back	1:1	0.304	1.178	0.358	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.79	0.00	0	Ant 3	03759	QPSK	50	25	10 mm	back	1:1	0.311	1.178	0.366	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.79	-0.04	0	Ant 3	03759	QPSK	1	50	10 mm	front	1:1	0.099	1.178	0.117	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.79	-0.03	0	Ant 3	03759	QPSK	50	25	10 mm	front	1:1	0.108	1.178	0.127	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.79	0.10	0	Ant 3	03759	QPSK	1	50	10 mm	right	1:1	0.442	1.178	0.521	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	22.79	0.10	0	Ant 3	03759	QPSK	50	25	10 mm	right	1:1	0.487	1.178	0.574	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram												

FCC ID: ZNFF100TM	 PCTEST Proud to be part of  element	SAR EVALUATION REPORT	 LG	Approved by: Quality Manager
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Table 11-39
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.38	-0.12	0	01894	QPSK	1	50	10 mm	back	1:1	0.463	1.028	0.476	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.36	-0.05	0	01894	QPSK	50	25	10 mm	back	1:1	0.479	1.033	0.495	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.38	-0.01	0	01894	QPSK	1	50	10 mm	front	1:1	0.192	1.028	0.197	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.36	-0.01	0	01894	QPSK	50	25	10 mm	front	1:1	0.193	1.033	0.199	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.38	-0.02	0	01894	QPSK	1	50	10 mm	bottom	1:1	0.786	1.028	0.808	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.37	0.01	0	01894	QPSK	1	0	10 mm	bottom	1:1	0.861	1.030	0.887	A48
1905.00	26590	High	LTE Band 25 (PCS)	20	23.5	23.10	-0.11	0	01894	QPSK	1	0	10 mm	bottom	1:1	0.846	1.096	0.927	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.36	-0.02	0	01894	QPSK	50	25	10 mm	bottom	1:1	0.776	1.033	0.802	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.30	-0.02	0	01894	QPSK	50	50	10 mm	bottom	1:1	0.827	1.047	0.866	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.5	23.14	-0.02	0	01894	QPSK	50	50	10 mm	bottom	1:1	0.853	1.086	0.926	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.34	-0.06	0	01894	QPSK	100	0	10 mm	bottom	1:1	0.754	1.038	0.783	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.38	0.01	0	01894	QPSK	1	50	10 mm	left	1:1	0.148	1.028	0.152	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.36	0.01	0	01894	QPSK	50	25	10 mm	left	1:1	0.154	1.033	0.159	
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 11-40
LTE Band 2 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
1880.00	18900	Mid	LTE Band 2 (PCS)	20	23.5	22.55	0.00	0	Ant 3	01894	QPSK	1	50	10 mm	back	1:1	0.243	1.245	0.303	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	23.5	22.61	-0.01	0	Ant 3	01894	QPSK	50	50	10 mm	back	1:1	0.236	1.227	0.290	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	23.5	22.55	0.04	0	Ant 3	01894	QPSK	1	50	10 mm	front	1:1	0.118	1.245	0.147	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	23.5	22.61	0.01	0	Ant 3	01894	QPSK	50	50	10 mm	front	1:1	0.119	1.227	0.146	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	23.5	22.55	-0.02	0	Ant 3	01894	QPSK	1	50	10 mm	right	1:1	0.397	1.245	0.494	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	23.5	22.61	-0.02	0	Ant 3	01894	QPSK	50	50	10 mm	right	1:1	0.400	1.227	0.491	A50
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 11-41
LTE Band 48 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
3560.00	55340	Low	LTE Band 48	20	22.5	21.70	-0.03	0	03742	QPSK	1	0	10 mm	back	1:1.58	0.448	1.202	0.538	
3560.00	55340	Low	LTE Band 48	20	22.5	21.72	-0.08	0	03742	QPSK	50	0	10 mm	back	1:1.58	0.395	1.197	0.473	
3560.00	55340	Low	LTE Band 48	20	22.5	21.70	-0.15	0	03742	QPSK	1	0	10 mm	front	1:1.58	0.122	1.202	0.147	
3560.00	55340	Low	LTE Band 48	20	22.5	21.72	0.11	0	03742	QPSK	50	0	10 mm	front	1:1.58	0.109	1.197	0.130	
3560.00	55340	Low	LTE Band 48	20	22.5	21.70	0.10	0	03742	QPSK	1	0	10 mm	top	1:1.58	0.151	1.202	0.182	
3560.00	55340	Low	LTE Band 48	20	22.5	21.72	-0.04	0	03742	QPSK	50	0	10 mm	top	1:1.58	0.142	1.197	0.170	
3560.00	55340	Low	LTE Band 48	20	22.5	21.70	-0.03	0	03742	QPSK	1	0	10 mm	right	1:1.58	0.541	1.202	0.650	A52
3603.30	55773	Low-Mid	LTE Band 48	20	22.5	21.58	0.02	0	03742	QPSK	1	50	10 mm	right	1:1.58	0.495	1.236	0.612	
3646.70	56207	Mid-High	LTE Band 48	20	22.5	21.63	0.12	0	03742	QPSK	1	0	10 mm	right	1:1.58	0.465	1.222	0.568	
3690.00	56640	High	LTE Band 48	20	22.5	21.66	0.02	0	03742	QPSK	1	99	10 mm	right	1:1.58	0.377	1.213	0.457	
3560.00	55340	Low	LTE Band 48	20	22.5	21.72	-0.03	0	03742	QPSK	50	0	10 mm	right	1:1.58	0.493	1.197	0.590	
3560.00	55340	Low	LTE Band 48	20	22.5	21.69	-0.03	0	03742	QPSK	100	0	10 mm	right	1:1.58	0.497	1.205	0.599	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body											
Spatial Peak								1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population								averaged over 1 gram											

Table 11-42
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																					
1 CC Uplink 2 CC Uplink, Power Class	Component Carrier	FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.														(W/kg)		(W/kg)		
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	23.79	0.00	0	01894	QPSK	1	50	10 mm	back	1:1.58	0.263	1.321	0.347	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.5	23.67	0.04	0.5	01894	QPSK	50	25	10 mm	back	1:1.58	0.263	1.211	0.318	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	23.79	-0.01	0	01894	QPSK	1	50	10 mm	front	1:1.58	0.122	1.321	0.161	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.5	23.67	-0.02	0.5	01894	QPSK	50	25	10 mm	front	1:1.58	0.119	1.211	0.144	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	23.79	-0.07	0	01894	QPSK	1	50	10 mm	bottom	1:1.58	0.417	1.321	0.551	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	23.68	-0.04	0	01894	QPSK	1	99	10 mm	bottom	1:1.58	0.357	1.355	0.484	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.5	23.67	-0.01	0.5	01894	QPSK	50	25	10 mm	bottom	1:1.58	0.426	1.211	0.516	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	26.6	25.34	0.03	0	01894	QPSK	1	50	10 mm	bottom	1:2.31	0.444	1.337	0.594	A54
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	26.6	25.20	-0.04	0	01894	QPSK	1	99	10 mm	bottom	1:2.31	0.350	1.380	0.483	
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	25.0	24.07	-0.06	0	01894	QPSK	1	99	10 mm	bottom	1:1.58	0.396	1.239	0.491	
	SCC	2612.80	40818											0							
2 CC Uplink - Power Class 2	PCC	2593.00	40620	Mid	LTE Band 41	20	26.6	25.55	-0.04	0	01894	QPSK	1	99	10 mm	bottom	1:2.31	0.382	1.274	0.487	
	SCC	2612.80	40818											0							
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.0	23.79	0.04	0	01894	QPSK	1	50	10 mm	left	1:1.58	0.060	1.321	0.079	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.5	23.67	0.03	0.5	01894	QPSK	50	25	10 mm	left	1:1.58	0.042	1.211	0.051	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Body											
Spatial Peak										1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population										averaged over 1 gram											

FCC ID: ZNFF100TM	 PCTEST Proud to be part of  element	SAR EVALUATION REPORT	 LG	Approved by: Quality Manager
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Table 11-43
NR Band n71 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna State	Serial Number	Waveform	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.																(W/kg)		(W/kg)		
680.50	136100	Mid	NR Band n71	20	25.5	24.76	0.01	0	34	01886	DFT-S-OFDM	QPSK	1	1	10 mm	back	1:1	0.242	1.186	0.287	A55
680.50	136100	Mid	NR Band n71	20	25.5	24.58	0.03	0	34	01886	DFT-S-OFDM	QPSK	50	28	10 mm	back	1:1	0.245	1.236	0.303	
680.50	136100	Mid	NR Band n71	20	24.0	22.88	0.02	1.5	34	01886	CP-OFDM	QPSK	1	1	10 mm	back	1:1	0.204	1.294	0.264	
680.50	136100	Mid	NR Band n71	20	25.5	24.76	0.13	0	34	01886	DFT-S-OFDM	QPSK	1	1	10 mm	front	1:1	0.084	1.186	0.100	
680.50	136100	Mid	NR Band n71	20	25.5	24.58	0.02	0	34	01886	DFT-S-OFDM	QPSK	50	28	10 mm	front	1:1	0.088	1.236	0.109	
680.50	136100	Mid	NR Band n71	20	25.5	24.76	0.09	0	34	01886	DFT-S-OFDM	QPSK	1	1	10 mm	bottom	1:1	0.070	1.186	0.083	
680.50	136100	Mid	NR Band n71	20	25.5	24.58	0.03	0	34	01886	DFT-S-OFDM	QPSK	50	28	10 mm	bottom	1:1	0.075	1.236	0.093	
680.50	136100	Mid	NR Band n71	20	25.5	24.76	0.03	0	34	01886	DFT-S-OFDM	QPSK	1	1	10 mm	right	1:1	0.219	1.186	0.260	
680.50	136100	Mid	NR Band n71	20	25.5	24.58	0.05	0	34	01886	DFT-S-OFDM	QPSK	50	28	10 mm	right	1:1	0.241	1.236	0.298	
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 11-44
NR Band n66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Waveform	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
1720.00	344000	Low	NR Band n66 (AWS)	20	23.5	22.84	-0.03	0	03742	DFT-S-OFDM	QPSK	1	104	10 mm	back	1:1	0.338	1.164	0.393	A57
1720.00	344000	Low	NR Band n66 (AWS)	20	23.5	22.81	-0.02	0	03742	DFT-S-OFDM	QPSK	50	56	10 mm	back	1:1	0.349	1.172	0.409	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.5	22.84	0.02	0	03742	DFT-S-OFDM	QPSK	1	104	10 mm	front	1:1	0.109	1.164	0.127	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.5	22.81	0.02	0	03742	DFT-S-OFDM	QPSK	50	56	10 mm	front	1:1	0.120	1.172	0.141	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.5	22.84	-0.03	0	03742	DFT-S-OFDM	QPSK	1	104	10 mm	right	1:1	0.453	1.164	0.527	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.5	22.81	-0.15	0	03742	DFT-S-OFDM	QPSK	50	56	10 mm	right	1:1	0.488	1.172	0.572	
1745.00	349000	Mid	NR Band n66 (AWS)	20	23.5	22.67	-0.03	0	03742	CP-OFDM	QPSK	1	1	10 mm	right	1:1	0.422	1.211	0.511	
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 11-45
NR Band n25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Waveform	Modulation	RB Size	RB Offset	Spacing	MPR [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																			
1860.00	372000	Low	NR Band n25 (PCS)	20	23.5	22.97	0.14	0	01894	DFT-S-OFDM	QPSK	1	1	10 mm	back	1:1	0.257	1.130	0.290	
1860.00	372000	Low	NR Band n25 (PCS)	20	23.5	22.85	0.18	0	01894	DFT-S-OFDM	QPSK	50	28	10 mm	back	1:1	0.261	1.161	0.303	
1860.00	372000	Low	NR Band n25 (PCS)	20	23.5	22.97	-0.04	0	01894	DFT-S-OFDM	QPSK	1	1	10 mm	front	1:1	0.098	1.130	0.111	
1860.00	372000	Low	NR Band n25 (PCS)	20	23.5	22.85	0.07	0	01894	DFT-S-OFDM	QPSK	50	28	10 mm	front	1:1	0.123	1.161	0.143	
1860.00	372000	Low	NR Band n25 (PCS)	20	23.5	22.97	-0.05	0	01894	DFT-S-OFDM	QPSK	1	1	10 mm	right	1:1	0.464	1.130	0.524	
1860.00	372000	Low	NR Band n25 (PCS)	20	23.5	22.85	0.09	0	01894	DFT-S-OFDM	QPSK	50	28	10 mm	right	1:1	0.529	1.161	0.614	
1882.50	376500	Md	NR Band n25 (PCS)	20	23.5	22.82	-0.16	0	01894	DFT-S-OFDM	QPSK	50	0	10 mm	right	1:1	0.524	1.169	0.613	
1905.00	381000	High	NR Band n25 (PCS)	20	23.5	22.84	-0.07	0	01894	DFT-S-OFDM	QPSK	50	0	10 mm	right	1:1	0.439	1.164	0.511	
1882.50	376500	Md	NR Band n25 (PCS)	20	23.5	22.88	-0.02	0	01894	CP-OFDM	QPSK	1	1	10 mm	right	1:1	0.538	1.153	0.620	A59
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram												

Table 11-46
NR Band n41 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Waveform	Modulation	RB Size	RB Offset	Spacing	MPR [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
2592.99	518598	Mid	NR Band n41	100	25.0	24.55	0.02	0	03759	DFT-S-OFDM	QPSK	1	137	10 mm	back	1:4	0.094	1.109	0.104	
2592.99	518598	Mid	NR Band n41	100	25.0	24.66	0.02	0	03759	DFT-S-OFDM	QPSK	135	138	10 mm	back	1:4	0.064	1.081	0.069	
2592.99	518598	Mid	NR Band n41	100	25.0	24.55	0.10	0	03759	DFT-S-OFDM	QPSK	1	137	10 mm	front	1:4	0.014	1.109	0.016	
2592.99	518598	Mid	NR Band n41	100	25.0	24.66	0.04	0	03759	DFT-S-OFDM	QPSK	135	138	10 mm	front	1:4	0.041	1.081	0.044	
2592.99	518598	Mid	NR Band n41	100	25.0	24.55	-0.04	0	03759	DFT-S-OFDM	QPSK	1	137	10 mm	bottom	1:4	0.137	1.109	0.152	A61
2592.99	518598	Mid	NR Band n41	100	25.0	24.66	-0.07	0	03759	DFT-S-OFDM	QPSK	135	138	10 mm	bottom	1:4	0.113	1.081	0.122	
2592.99	518598	Mid	NR Band n41	100	25.0	24.34	-0.02	0	03759	CP-OFDM	QPSK	1	1	10 mm	bottom	1:4	0.123	1.164	0.143	
2592.99	518598	Mid	NR Band n41	100	25.0	24.55	0.02	0	03759	DFT-S-OFDM	QPSK	1	137	10 mm	right	1:4	0.027	1.109	0.030	
2592.99	518598	Mid	NR Band n41	100	25.0	24.66	0.00	0	03759	DFT-S-OFDM	QPSK	135	138	10 mm	right	1:4	0.018	1.081	0.019	
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 11-47
WLAN Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	21.5	21.49	-0.04	10 mm	1	03734	1	back	99.2	0.481	0.290	1.002	1.008	0.293	
2412	1	802.11b	DSSS	22	21.5	21.49	0.12	10 mm	1	03734	1	front	99.2	0.210	-	1.002	1.008	-	
2412	1	802.11b	DSSS	22	21.5	21.49	0.10	10 mm	1	03734	1	top	99.2	0.229	-	1.002	1.008	-	
2412	1	802.11b	DSSS	22	21.5	21.49	-0.01	10 mm	1	03734	1	left	99.2	0.733	0.442	1.002	1.008	0.446	A63
2437	6	802.11b	DSSS	22	21.5	21.22	-0.02	10 mm	2	03734	1	back	99.2	0.314	-	1.067	1.008	-	
2437	6	802.11b	DSSS	22	21.5	21.22	-0.16	10 mm	2	03734	1	front	99.2	0.107	-	1.067	1.008	-	
2437	6	802.11b	DSSS	22	21.5	21.22	0.00	10 mm	2	03734	1	top	99.2	0.455	0.291	1.067	1.008	0.313	
2437	6	802.11b	DSSS	22	21.5	21.22	0.03	10 mm	2	03734	1	left	99.2	0.084	-	1.067	1.008	-	
5200	40	802.11a	OFDM	20	20.0	19.73	-0.03	10 mm	1	03809	6	back	98.1	1.253	0.540	1.064	1.019	0.585	A65
5200	40	802.11a	OFDM	20	20.0	19.73	0.00	10 mm	1	03809	6	front	98.1	0.234	-	1.064	1.019	-	
5200	40	802.11a	OFDM	20	20.0	19.73	-0.03	10 mm	1	03809	6	top	98.1	0.318	-	1.064	1.019	-	
5200	40	802.11a	OFDM	20	20.0	19.73	-0.15	10 mm	1	03809	6	left	98.1	0.512	0.246	1.064	1.019	0.267	
5200	40	802.11a	OFDM	20	20.0	19.98	0.06	10 mm	2	03809	6	back	98.1	0.370	0.161	1.005	1.019	0.165	
5200	40	802.11a	OFDM	20	20.0	19.98	0.00	10 mm	2	03809	6	front	98.1	0.022	-	1.005	1.019	-	
5200	40	802.11a	OFDM	20	20.0	19.98	-0.04	10 mm	2	03809	6	top	98.1	0.130	-	1.005	1.019	-	
5200	40	802.11a	OFDM	20	20.0	19.98	-0.05	10 mm	2	03809	6	left	98.1	0.176	-	1.005	1.019	-	
5785	157	802.11a	OFDM	20	20.0	19.66	0.01	10 mm	1	03809	6	back	98.1	0.399	0.175	1.081	1.019	0.193	
5785	157	802.11a	OFDM	20	20.0	19.66	0.00	10 mm	1	03809	6	front	98.1	0.192	-	1.081	1.019	-	
5785	157	802.11a	OFDM	20	20.0	19.66	0.02	10 mm	1	03809	6	top	98.1	0.147	-	1.081	1.019	-	
5785	157	802.11a	OFDM	20	20.0	19.66	-0.03	10 mm	1	03809	6	left	98.1	0.255	-	1.081	1.019	-	
5785	157	802.11a	OFDM	20	20.0	19.84	-0.09	10 mm	2	03809	6	back	98.1	0.556	0.223	1.038	1.019	0.236	
5785	157	802.11a	OFDM	20	20.0	19.84	-0.02	10 mm	2	03809	6	front	98.1	0.072	-	1.038	1.019	-	
5785	157	802.11a	OFDM	20	20.0	19.84	-0.01	10 mm	2	03809	6	top	98.1	0.072	-	1.038	1.019	-	
5785	157	802.11a	OFDM	20	20.0	19.84	-0.10	10 mm	2	03809	6	left	98.1	0.266	-	1.038	1.019	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body											
Spatial Peak								1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population								averaged over 1 gram											

Table 11-48
DSS Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	12.0	11.95	0.11	10 mm	03809	1	back	76.8	0.032	1.012	1.302	0.042	
2441	39	Bluetooth	FHSS	12.0	11.95	0.07	10 mm	03809	1	front	76.8	0.015	1.012	1.302	0.020	
2441	39	Bluetooth	FHSS	12.0	11.95	0.19	10 mm	03809	1	top	76.8	0.013	1.012	1.302	0.017	
2441	39	Bluetooth	FHSS	12.0	11.95	-0.05	10 mm	03809	1	left	76.8	0.055	1.012	1.302	0.072	A67
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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11.3 Standalone Phablet SAR Data

Table 11-49
UMTS/CDMA Phablet SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Mechanical Mode	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g) (W/kg)	Plot #
MHz	Ch.											(W/kg)			
1712.40	1312	UMTS 1750	RMC	23.5	23.05	-0.02	0 mm	1	01894	1:1	bottom	1.800	1.109	1.996	
1732.40	1412	UMTS 1750	RMC	23.5	23.01	-0.02	0 mm	1	01894	1:1	bottom	1.870	1.119	2.093	A68
1732.40	1412	UMTS 1750	RMC	23.5	23.01	0.06	0 mm	3	01894	1:1	bottom	1.820	1.119	2.037	
1752.60	1513	UMTS 1750	RMC	23.5	23.02	-0.06	0 mm	1	01894	1:1	bottom	1.850	1.117	2.066	
1852.40	9262	UMTS 1900	RMC	23.5	23.23	-0.06	0 mm	1	01886	1:1	bottom	1.960	1.064	2.085	
1880.00	9400	UMTS 1900	RMC	23.5	23.26	0.10	0 mm	1	01886	1:1	bottom	2.160	1.057	2.283	A69
1880.00	9400	UMTS 1900	RMC	23.5	23.26	-0.05	0 mm	3	01886	1:1	bottom	2.150	1.057	2.273	
1907.60	9538	UMTS 1900	RMC	23.5	23.20	-0.07	0 mm	1	01886	1:1	bottom	2.080	1.072	2.230	
1851.25	25	PCS CDMA	EVDO Rev. 0	23.5	23.49	-0.08	0 mm	1	01894	1:1	bottom	2.240	1.002	2.244	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	23.50	-0.11	0 mm	1	01894	1:1	bottom	2.280	1.000	2.280	A70
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	23.50	-0.11	0 mm	3	01894	1:1	bottom	2.040	1.000	2.040	
1908.75	1175	PCS CDMA	EVDO Rev. 0	23.5	23.41	-0.10	0 mm	1	01894	1:1	bottom	2.140	1.021	2.185	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams							

Note: Green entry represents additional Phablet SAR Position (Mechanical Mode #3: Swivel)

Table 11-50
LTE Phablet SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Mechanical Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	23.05	0.02	0	01894	QPSK	1	0	0 mm	bottom	1:1	1.500	1.109	1.664	
1720.00	132072	Low	LTE Band 66 (AWS)	20	1	23.5	22.84	0.06	0	01894	QPSK	50	25	0 mm	bottom	1:1	1.590	1.164	1.851	A71
1720.00	132072	Low	LTE Band 66 (AWS)	20	3	23.5	22.84	0.04	0	01894	QPSK	50	25	0 mm	bottom	1:1	1.490	1.164	1.734	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	1	23.5	22.82	0.01	0	01894	QPSK	50	25	0 mm	bottom	1:1	1.550	1.169	1.812	
1770.00	132572	High	LTE Band 66 (AWS)	20	1	23.5	22.85	-0.01	0	01894	QPSK	50	25	0 mm	bottom	1:1	1.500	1.161	1.742	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.38	-0.06	0	01894	QPSK	1	50	0 mm	bottom	1:1	2.290	1.028	2.354	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	1	23.5	23.37	-0.06	0	01894	QPSK	1	0	0 mm	bottom	1:1	2.330	1.030	2.400	
1905.00	26590	High	LTE Band 25 (PCS)	20	1	23.5	23.10	0.01	0	01894	QPSK	1	0	0 mm	bottom	1:1	2.430	1.096	2.663	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.36	0.04	0	01894	QPSK	50	25	0 mm	bottom	1:1	2.430	1.033	2.510	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	1	23.5	23.30	0.05	0	01894	QPSK	50	50	0 mm	bottom	1:1	2.510	1.047	2.628	A72
1905.00	26590	High	LTE Band 25 (PCS)	20	1	23.5	23.14	-0.09	0	01894	QPSK	50	50	0 mm	bottom	1:1	2.470	1.086	2.682	
1905.00	26590	High	LTE Band 25 (PCS)	20	2	23.5	23.14	-0.02	0	01894	QPSK	50	50	0 mm	bottom	1:1	2.140	1.086	2.324	
1905.00	26590	High	LTE Band 25 (PCS)	20	3	23.5	23.14	-0.02	0	01894	QPSK	50	50	0 mm	bottom	1:1	2.220	1.086	2.411	
1860.00	26140	Low	LTE Band 25 (PCS)	20	1	23.5	23.34	0.02	0	01894	QPSK	100	0	0 mm	bottom	1:1	2.410	1.038	2.502	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	1	23.5	23.30	0.05	0	01894	QPSK	50	50	0 mm	bottom	1:1	2.490	1.047	2.607	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Phablet										
Spatial Peak										4.0 W/kg (mW/g)										
Uncontrolled Exposure/General Population										averaged over 10 grams										

Note 1: Green entry represents additional Phablet SAR Position (Mechanical Mode #3: Swivel)

Note 2: Purple entry represents additional Phablet SAR Position (Mechanical Mode #2: Normal mode + Pop-up)

Note 3: Blue entry represents variability measurements.

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**Table 11-51
WLAN Phablet SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Mechanical Mode	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5280	56	802.11a	OFDM	20	20.0	19.33	0.10	0 mm	1	1	03809	6	back	98.1	6.555	0.625	1.167	1.019	0.743	
5280	56	802.11a	OFDM	20	20.0	19.33	-0.10	0 mm	1	3	03809	6	back	98.1	4.494	0.648	1.167	1.019	0.771	
5280	56	802.11a	OFDM	20	20.0	19.33	0.03	0 mm	1	1	03809	6	front	98.1	1.848	-	1.167	1.019	-	
5280	56	802.11a	OFDM	20	20.0	19.33	-0.20	0 mm	1	1	03809	6	top	98.1	5.861	-	1.167	1.019	-	
5280	56	802.11a	OFDM	20	20.0	19.33	0.09	0 mm	1	1	03809	6	left	98.1	8.434	0.752	1.167	1.019	0.894	
5280	56	802.11a	OFDM	20	20.0	19.94	0.08	0 mm	2	1	03809	6	back	98.1	7.306	0.822	1.014	1.019	0.849	
5280	56	802.11a	OFDM	20	20.0	19.94	0.05	0 mm	2	3	03809	6	back	98.1	7.970	0.826	1.014	1.019	0.853	A73
5280	56	802.11a	OFDM	20	20.0	19.94	0.20	0 mm	2	1	03809	6	front	98.1	0.369	-	1.014	1.019	-	
5280	56	802.11a	OFDM	20	20.0	19.94	0.03	0 mm	2	1	03809	6	top	98.1	3.823	-	1.014	1.019	-	
5280	56	802.11a	OFDM	20	20.0	19.94	0.09	0 mm	2	1	03809	6	left	98.1	6.194	-	1.014	1.019	-	
5500	100	802.11a	OFDM	20	17.0	16.70	0.20	0 mm	1	1	03809	6	back	98.1	3.394	0.328	1.072	1.019	0.358	
5500	100	802.11a	OFDM	20	17.0	16.70	0.20	0 mm	1	1	03809	6	front	98.1	1.222	-	1.072	1.019	-	
5500	100	802.11a	OFDM	20	17.0	16.70	0.03	0 mm	1	1	03809	6	top	98.1	3.001	-	1.072	1.019	-	
5500	100	802.11a	OFDM	20	17.0	16.70	0.09	0 mm	1	1	03809	6	left	98.1	7.215	0.551	1.072	1.019	0.602	
5600	120	802.11a	OFDM	20	17.0	16.75	0.05	0 mm	2	1	03809	6	back	98.1	2.815	0.307	1.059	1.019	0.331	
5600	120	802.11a	OFDM	20	17.0	16.75	0.09	0 mm	2	1	03809	6	front	98.1	0.284	-	1.059	1.019	-	
5600	120	802.11a	OFDM	20	17.0	16.75	0.03	0 mm	2	1	03809	6	top	98.1	1.168	-	1.059	1.019	-	
5600	120	802.11a	OFDM	20	17.0	16.75	0.09	0 mm	2	1	03809	6	left	98.1	1.715	-	1.059	1.019	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams												

Note: Green entry represents additional Phablet SAR Position (Mechanical Mode #3: Swivel)

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11.4 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, and FCC KDB Publication 447498 D01v06.
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 orange highlights throughout the report represents the highest SAR per FCC Equipment Class reflected on the FCC Grant.
5. 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.
6. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
7. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
8. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
9. 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 13 for variability analysis.
10. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
11. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information)
12. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the 1g thresholds for the equivalent test cases.
13. This device uses Qualcomm Smart Transmit for 2G/3G/4G/5G operations to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, compliance was assessed at the minimum of the time averaged power and the maximum output power for each band/mode/exposure condition (DSI).
14. SAR with mechanical mode #3 (Swivel Mode) was measured for the configurations with the highest reported SAR for each wireless technology, frequency band, and operating mode for head and phablet exposure conditions.
15. SAR with mechanical mode #2 (Normal Mode + Pop-Up) or mechanical mode #4 (Swivel Mode + Pop-Up) was measured for the highest overall reported hotspot and phablet SAR configurations.
16. This device supports dynamic antenna tuning for some bands. Per FCC Guidance, SAR was measured according to the normally required SAR measurement configurations with tuner active. The auto-tune state determined by the device was verified before and after each SAR measurement and is listed in tables above. Please see Section 14 for supplemental data.

GSM Test Notes:

1. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2. Justification for reduced test configurations per KDB Publication 941225 D01v03r01 and October 2013 TCB Workshop Notes: The source-based frame-averaged output power was evaluated for all GPRS/EDGE slot configurations. The configuration with the highest target frame averaged output power

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was evaluated for hotspot SAR. When the maximum frame-averaged powers are equivalent across two or more slots (within 0.25 dB), the configuration with the most number of time slots was tested.

3. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.
4. GPRS was additionally evaluated for head and body-worn exposure conditions to address possible VoIP scenarios.

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v03r01.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO Rev0 and RevA and TDSO / SO32 FCH+SCH SAR tests were not required per the 3G SAR Test Reduction Procedure in FCC KDB Publication 941225 D01v03r01.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01v03r01 procedures for data devices. Wireless Router SAR tests for Subtype 2 of Rev.A and 1x RTT configurations were not required per the 3G SAR Test Reduction Policy in KDB Publication 941225 D01v03r01.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
5. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.
6. CDMA 1X Advanced technology was not required for SAR since the maximum allowed output powers for 1X Advanced was not more than 0.25 dB higher than the maximum powers for 1X.

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 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.

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 8.6.4.
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 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 D01v06, when the reported LTE Band 41 and 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

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and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.

6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. For 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.
8. 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 14 for linearity results.

NR Notes:

1. NR implementation supports SA and NSA operations. EN-DC operations are limited with LTE Bands shown in the NR FR1 Checklist acting as anchor bands.
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 in section 1-12).
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 Guidance, the device was configured with the tuner state selected by the device in LTE mode with auto-tune active at the same frequency as the NR test results. Additional tuner states were evaluated per April 2019 TCBC Workshop Guidance. Please see Section 14 for supplemental data.

WLAN Notes:

1. For held-to-ear, hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. 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) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.7.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain 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 8.7.6 for more information.
4. When the maximum reported 1g averaged SAR is ≤ 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 ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.

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5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
6. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 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 Section 12 for complete analysis.

Bluetooth Notes

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 9.7 for the time domain plot and calculation for the duty factor of the device.
2. Head and Hotspot Bluetooth SAR were evaluated for BT BR tethering applications.

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12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v06 are applicable to devices with built-in unlicensed transmitters such as 802.11 and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

12.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g SAR for all the simultaneous transmitting antennas in a specific physical test configuration is ≤ 1.6 W/kg. The different test positions in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1g or 10g SAR.

Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from 4G (including scenarios with inter-band ULCA active) and time-averaged RF exposure from 5G NR. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR and during inter-band ULCA active conditions to not exceed FCC limit. Therefore, simultaneous transmission compliance between 4G+5G operations (including scenarios with inter-band ULCA active) is demonstrated in the Qualcomm Part 2 Report during algorithm validation.

Per FCC KDB Publication 941225 D06v02r01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR (“-”).

(*) For test positions that were not required to be evaluated for WLAN SAR per FCC KDB publication 248227, the worst case WLAN SAR result for the applicable exposure conditions was used for simultaneous transmission analysis.

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12.3 Head SAR Simultaneous Transmission Analysis

Table 12-1
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Held to Ear)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	GSM/GPRS 850	0.133	0.712	0.955	0.845	1.088	See Table Below
	GSM/GPRS 1900	0.058	0.712	0.955	0.770	1.013	See Table Below
	UMTS 850	0.114	0.712	0.955	0.826	1.069	See Table Below
	UMTS 1750	0.076	0.712	0.955	0.788	1.031	See Table Below
	UMTS 1900	0.074	0.712	0.955	0.786	1.029	See Table Below
	CDMA/EVDO BC10 (\$90S)	0.120	0.712	0.955	0.832	1.075	See Table Below
	CDMA/EVDO BC0 (\$22H)	0.109	0.712	0.955	0.821	1.064	See Table Below
	PCS CDMA/EVDO	0.061	0.712	0.955	0.773	1.016	See Table Below
	LTE Band 71	0.079	0.712	0.955	0.791	1.034	See Table Below
	LTE Band 12	0.083	0.712	0.955	0.795	1.038	See Table Below
	LTE Band 13	0.132	0.712	0.955	0.844	1.087	See Table Below
	LTE Band 26 (Cell)	0.072	0.712	0.955	0.784	1.027	See Table Below
	LTE Band 66 (AWS)	0.069	0.712	0.955	0.781	1.024	See Table Below
	LTE Band 66 (AWS) Ant 3	0.082	0.712	0.955	0.794	1.037	See Table Below
	LTE Band 25 (PCS)	0.060	0.712	0.955	0.772	1.015	See Table Below
	LTE Band 2 (PCS) Ant 3	0.103	0.712	0.955	0.815	1.058	See Table Below
	LTE Band 48	1.238	0.712	0.955	See Table Below	See Table Below	See Table Below
	LTE Band 41	0.029	0.712	0.955	0.741	0.984	See Table Below
	NR Band n71	0.075	0.712	0.955	0.787	1.030	See Table Below
	NR Band n66 (AWS)	0.102	0.712	0.955	0.814	1.057	See Table Below
	NR Band n25 (PCS)	0.092	0.712	0.955	0.804	1.047	See Table Below
	NR Band n41	0.003	0.712	0.955	0.715	0.958	See Table Below
Simult Tx	Configuration	GSM/GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2+3		
Head SAR	Right Cheek	0.062	0.712	0.213	0.987		
	Right Tilt	0.060	0.236	0.955	1.251		
	Left Cheek	0.071	0.139	0.120	0.330		
	Left Tilt	0.133	0.103	0.149	0.385		
Simult Tx	Configuration	GSM/GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2+3		
Head SAR	Right Cheek	0.039	0.712	0.213	0.964		
	Right Tilt	0.047	0.236	0.955	1.238		
	Left Cheek	0.058	0.139	0.120	0.317		
	Left Tilt	0.039	0.103	0.149	0.291		
Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2+3		
Head SAR	Right Cheek	0.049	0.712	0.213	0.974		
	Right Tilt	0.056	0.236	0.955	1.247		
	Left Cheek	0.047	0.139	0.120	0.306		
	Left Tilt	0.114	0.103	0.149	0.366		
Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2+3		
Head SAR	Right Cheek	0.059	0.712	0.213	0.984		
	Right Tilt	0.039	0.236	0.955	1.230		
	Left Cheek	0.076	0.139	0.120	0.335		
	Left Tilt	0.041	0.103	0.149	0.293		

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Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	CDMA/EVDO BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Head SAR	Right Cheek	0.044	0.712	0.213	0.969	Head SAR	Right Cheek	0.108	0.712	0.213	1.033
	Right Tilt	0.067	0.236	0.955	1.258		Right Tilt	0.090	0.236	0.955	1.281
	Left Cheek	0.074	0.139	0.120	0.333		Left Cheek	0.120	0.139	0.120	0.379
	Left Tilt	0.054	0.103	0.149	0.306		Left Tilt	0.111	0.103	0.149	0.363

Simult Tx	Configuration	CDMA/EVDO BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS CDMA/EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Head SAR	Right Cheek	0.062	0.712	0.213	0.987	Head SAR	Right Cheek	0.042	0.712	0.213	0.967
	Right Tilt	0.074	0.236	0.955	1.265		Right Tilt	0.042	0.236	0.955	1.233
	Left Cheek	0.109	0.139	0.120	0.368		Left Cheek	0.061	0.139	0.120	0.320
	Left Tilt	0.083	0.103	0.149	0.335		Left Tilt	0.037	0.103	0.149	0.289

Simult Tx	Configuration	LTE Band 71 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Head SAR	Right Cheek	0.063	0.712	0.213	0.988	Head SAR	Right Cheek	0.083	0.712	0.213	1.008
	Right Tilt	0.042	0.236	0.955	1.233		Right Tilt	0.060	0.236	0.955	1.251
	Left Cheek	0.079	0.139	0.120	0.338		Left Cheek	0.069	0.139	0.120	0.328
	Left Tilt	0.039	0.103	0.149	0.291		Left Tilt	0.044	0.103	0.149	0.296

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Head SAR	Right Cheek	0.132	0.712	0.213	1.057	Head SAR	Right Cheek	0.060	0.712	0.213	0.985
	Right Tilt	0.042	0.236	0.955	1.233		Right Tilt	0.072	0.236	0.955	1.263
	Left Cheek	0.073	0.139	0.120	0.332		Left Cheek	0.069	0.139	0.120	0.328
	Left Tilt	0.032	0.103	0.149	0.284		Left Tilt	0.056	0.103	0.149	0.308

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 66 (AWS) Ant 3 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Head SAR	Right Cheek	0.055	0.712	0.213	0.980	Head SAR	Right Cheek	0.082	0.712	0.213	1.007
	Right Tilt	0.036	0.236	0.955	1.227		Right Tilt	0.046	0.236	0.955	1.237
	Left Cheek	0.069	0.139	0.120	0.328		Left Cheek	0.066	0.139	0.120	0.325
	Left Tilt	0.046	0.103	0.149	0.298		Left Tilt	0.057	0.103	0.149	0.309

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 2 (PCS) Ant 3 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Head SAR	Right Cheek	0.043	0.712	0.213	0.968	Head SAR	Right Cheek	0.103	0.712	0.213	1.028
	Right Tilt	0.036	0.236	0.955	1.227		Right Tilt	0.036	0.236	0.955	1.227
	Left Cheek	0.060	0.139	0.120	0.319		Left Cheek	0.061	0.139	0.120	0.320
	Left Tilt	0.032	0.103	0.149	0.284		Left Tilt	0.040	0.103	0.149	0.292

Simult Tx	Configuration	LTE Band 48 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			
		1	2	3	1+2	1+3	1+2+3	
Head SAR	Right Cheek		0.497	0.712	0.213	1.209	0.710	1.422
	Right Tilt		0.335	0.236	0.955	0.571	1.290	1.526
	Left Cheek		1.238	0.139	0.120	1.377	1.358	1.497
	Left Tilt		1.101	0.103	0.149	1.204	1.250	1.353

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Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	NR Band n71 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Head SAR	Right Cheek	0.020	0.712	0.213	0.945	Head SAR	Right Cheek	0.075	0.712	0.213	1.000
	Right Tilt	0.020	0.236	0.955	1.211		Right Tilt	0.044	0.236	0.955	1.235
	Left Cheek	0.029	0.139	0.120	0.288		Left Cheek	0.073	0.139	0.120	0.332
	Left Tilt	0.008	0.103	0.149	0.260		Left Tilt	0.034	0.103	0.149	0.286
Simult Tx	Configuration	NR Band n66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	NR Band n25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Head SAR	Right Cheek	0.102	0.712	0.213	1.027	Head SAR	Right Cheek	0.092	0.712	0.213	1.017
	Right Tilt	0.054	0.236	0.955	1.245		Right Tilt	0.045	0.236	0.955	1.236
	Left Cheek	0.056	0.139	0.120	0.315		Left Cheek	0.059	0.139	0.120	0.318
	Left Tilt	0.050	0.103	0.149	0.302		Left Tilt	0.041	0.103	0.149	0.293
Simult Tx	Configuration	NR Band n41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	NR Band n41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Head SAR	Right Cheek	0.003	0.712	0.213	0.928	Head SAR	Right Cheek	0.003	0.712	0.213	0.928
	Right Tilt	0.000	0.236	0.955	1.191		Right Tilt	0.000	0.236	0.955	1.191
	Left Cheek	0.001	0.139	0.120	0.260		Left Cheek	0.001	0.139	0.120	0.260
	Left Tilt	0.002	0.103	0.149	0.254		Left Tilt	0.002	0.103	0.149	0.254

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Table 12-2
Simultaneous Transmission Scenario with 5 GHz WLAN (Held to Ear)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	GSM/GPRS 850	0.133	0.284	0.119	0.417	0.252	0.536
	GSM/GPRS 1900	0.058	0.284	0.119	0.342	0.177	0.461
	UMTS 850	0.114	0.284	0.119	0.398	0.233	0.517
	UMTS 1750	0.076	0.284	0.119	0.360	0.195	0.479
	UMTS 1900	0.074	0.284	0.119	0.358	0.193	0.477
	CDMA/EVDO BC10 (\$90S)	0.120	0.284	0.119	0.404	0.239	0.523
	CDMA/EVDO BC0 (\$22H)	0.109	0.284	0.119	0.393	0.228	0.512
	PCS CDMA/EVDO	0.061	0.284	0.119	0.345	0.180	0.464
	LTE Band 71	0.079	0.284	0.119	0.363	0.198	0.482
	LTE Band 12	0.083	0.284	0.119	0.367	0.202	0.486
	LTE Band 13	0.132	0.284	0.119	0.416	0.251	0.535
	LTE Band 26 (Cell)	0.072	0.284	0.119	0.356	0.191	0.475
	LTE Band 66 (AWS)	0.069	0.284	0.119	0.353	0.188	0.472
	LTE Band 66 (AWS) Ant 3	0.082	0.284	0.119	0.366	0.201	0.485
	LTE Band 25 (PCS)	0.060	0.284	0.119	0.344	0.179	0.463
	LTE Band 2 (PCS) Ant 3	0.103	0.284	0.119	0.387	0.222	0.506
	LTE Band 48	1.238	0.284	0.119	1.522	1.357	See Table Below
	LTE Band 41	0.029	0.284	0.119	0.313	0.148	0.432
	NR Band n71	0.075	0.284	0.119	0.359	0.194	0.478
	NR Band n66 (AWS)	0.102	0.284	0.119	0.386	0.221	0.505
	NR Band n25 (PCS)	0.092	0.284	0.119	0.376	0.211	0.495
	NR Band n41	0.003	0.284	0.119	0.287	0.122	0.406
Simult Tx	Configuration	LTE Band 48 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	Right Cheek	0.497	0.284	0.041	0.781	0.538	0.822
	Right Tilt	0.335	0.284*	0.119	0.619	0.454	0.738
	Left Cheek	1.238	0.284*	0.034	1.522	1.272	1.556
	Left Tilt	1.101	0.284*	0.119*	1.385	1.220	1.504

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Table 12-3
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 (Held to Ear)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM/GPRS 850	0.133	0.712	0.119	0.964
	GSM/GPRS 1900	0.058	0.712	0.119	0.889
	UMTS 850	0.114	0.712	0.119	0.945
	UMTS 1750	0.076	0.712	0.119	0.907
	UMTS 1900	0.074	0.712	0.119	0.905
	CDMA/EVDO BC10 (\$90S)	0.120	0.712	0.119	0.951
	CDMA/EVDO BC0 (\$22H)	0.109	0.712	0.119	0.940
	PCS CDMA/EVDO	0.061	0.712	0.119	0.892
	LTE Band 71	0.079	0.712	0.119	0.910
	LTE Band 12	0.083	0.712	0.119	0.914
	LTE Band 13	0.132	0.712	0.119	0.963
	LTE Band 26 (Cell)	0.072	0.712	0.119	0.903
	LTE Band 66 (AWS)	0.069	0.712	0.119	0.900
	LTE Band 66 (AWS) Ant 3	0.082	0.712	0.119	0.913
	LTE Band 25 (PCS)	0.060	0.712	0.119	0.891
	LTE Band 2 (PCS) Ant 3	0.103	0.712	0.119	0.934
	LTE Band 48	1.238	0.712	0.119	See Table Below
	LTE Band 41	0.029	0.712	0.119	0.860
	NR Band n71	0.075	0.712	0.119	0.906
	NR Band n66 (AWS)	0.102	0.712	0.119	0.933
	NR Band n25 (PCS)	0.092	0.712	0.119	0.923
	NR Band n41	0.003	0.712	0.119	0.834
Simult Tx	Configuration	LTE Band 48 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.497	0.712	0.041	1.250
	Right Tilt	0.335	0.236	0.119	0.690
	Left Cheek	1.238	0.139	0.034	1.411
	Left Tilt	1.101	0.103	0.119*	1.323

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Table 12-4
Simultaneous Transmission Scenario with Bluetooth (Held to Ear)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.133	0.240	0.373
	GSM/GPRS 1900	0.058	0.240	0.298
	UMTS 850	0.114	0.240	0.354
	UMTS 1750	0.076	0.240	0.316
	UMTS 1900	0.074	0.240	0.314
	CDMA/EVDO BC10 (\$90S)	0.120	0.240	0.360
	CDMA/EVDO BC0 (\$22H)	0.109	0.240	0.349
	PCS CDMA/EVDO	0.061	0.240	0.301
	LTE Band 71	0.079	0.240	0.319
	LTE Band 12	0.083	0.240	0.323
	LTE Band 13	0.132	0.240	0.372
	LTE Band 26 (Cell)	0.072	0.240	0.312
	LTE Band 66 (AWS)	0.069	0.240	0.309
	LTE Band 66 (AWS) Ant 3	0.082	0.240	0.322
	LTE Band 25 (PCS)	0.060	0.240	0.300
	LTE Band 2 (PCS) Ant 3	0.103	0.240	0.343
	LTE Band 48	1.238	0.240	1.478
	LTE Band 41	0.029	0.240	0.269
	NR Band n71	0.075	0.240	0.315
	NR Band n66 (AWS)	0.102	0.240	0.342
	NR Band n25 (PCS)	0.092	0.240	0.332
	NR Band n41	0.003	0.240	0.243

Table 12-5
Simultaneous Transmission Scenario with 2.4 GHz WLAN Antenna 2 and Bluetooth (Held to Ear)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM/GPRS 850	0.133	0.240	0.955	1.328
	GSM/GPRS 1900	0.058	0.240	0.955	1.253
	UMTS 850	0.114	0.240	0.955	1.309
	UMTS 1750	0.076	0.240	0.955	1.271
	UMTS 1900	0.074	0.240	0.955	1.269
	CDMA/EVDO BC10 (\$90S)	0.120	0.240	0.955	1.315
	CDMA/EVDO BC0 (\$22H)	0.109	0.240	0.955	1.304
	PCS CDMA/EVDO	0.061	0.240	0.955	1.256
	LTE Band 71	0.079	0.240	0.955	1.274
	LTE Band 12	0.083	0.240	0.955	1.278
	LTE Band 13	0.132	0.240	0.955	1.327
	LTE Band 26 (Cell)	0.072	0.240	0.955	1.267
	LTE Band 66 (AWS)	0.069	0.240	0.955	1.264
	LTE Band 66 (AWS) Ant 3	0.082	0.240	0.955	1.277
	LTE Band 25 (PCS)	0.060	0.240	0.955	1.255
	LTE Band 2 (PCS) Ant 3	0.103	0.240	0.955	1.298
	LTE Band 48	1.238	0.240	0.955	See Table Below
	LTE Band 41	0.029	0.240	0.955	1.224
	NR Band n71	0.075	0.240	0.955	1.270
	NR Band n66 (AWS)	0.102	0.240	0.955	1.297
	NR Band n25 (PCS)	0.092	0.240	0.955	1.287
	NR Band n41	0.003	0.240	0.955	1.198

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Simult Tx	Configuration	LTE Band 48 SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.497	0.240	0.213	0.950
	Right Tilt	0.335	0.065	0.955	1.355
	Left Cheek	1.238	0.036	0.120	1.394
	Left Tilt	1.101	0.021	0.149	1.271

Table 12-6
Simultaneous Transmission Scenario with 5 GHz WLAN and Bluetooth (Held to Ear)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	4	1+2+3	1+2+4	1+2+3+4
Head SAR	GSM/GPRS 850	0.133	0.240	0.284	0.119	0.657	0.492	0.776
	GSM/GPRS 1900	0.058	0.240	0.284	0.119	0.582	0.417	0.701
	UMTS 850	0.114	0.240	0.284	0.119	0.638	0.473	0.757
	UMTS 1750	0.076	0.240	0.284	0.119	0.600	0.435	0.719
	UMTS 1900	0.074	0.240	0.284	0.119	0.598	0.433	0.717
	CDMA/EVDO BC10 (\$90S)	0.120	0.240	0.284	0.119	0.644	0.479	0.763
	CDMA/EVDO BC0 (\$22H)	0.109	0.240	0.284	0.119	0.633	0.468	0.752
	PCS CDMA/EVDO	0.061	0.240	0.284	0.119	0.585	0.420	0.704
	LTE Band 71	0.079	0.240	0.284	0.119	0.603	0.438	0.722
	LTE Band 12	0.083	0.240	0.284	0.119	0.607	0.442	0.726
	LTE Band 13	0.132	0.240	0.284	0.119	0.656	0.491	0.775
	LTE Band 26 (Cell)	0.072	0.240	0.284	0.119	0.596	0.431	0.715
	LTE Band 66 (AWS)	0.069	0.240	0.284	0.119	0.593	0.428	0.712
	LTE Band 66 (AWS) Ant 3	0.082	0.240	0.284	0.119	0.606	0.441	0.725
	LTE Band 25 (PCS)	0.060	0.240	0.284	0.119	0.584	0.419	0.703
	LTE Band 2 (PCS) Ant 3	0.103	0.240	0.284	0.119	0.627	0.462	0.746
	LTE Band 48	1.238	0.240	0.284	0.119	See Table Below	See Table Below	See Table Below
	LTE Band 41	0.029	0.240	0.284	0.119	0.553	0.388	0.672
	NR Band n71	0.075	0.240	0.284	0.119	0.599	0.434	0.718
	NR Band n66 (AWS)	0.102	0.240	0.284	0.119	0.626	0.461	0.745
	NR Band n25 (PCS)	0.092	0.240	0.284	0.119	0.616	0.451	0.735
	NR Band n41	0.003	0.240	0.284	0.119	0.527	0.362	0.646
Simult Tx	Configuration	LTE Band 48 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	4	1+2+3	1+2+4	1+2+3+4
Head SAR	Right Cheek	0.497	0.240	0.284	0.041	1.021	0.778	1.062
	Right Tilt	0.335	0.065	0.284*	0.119	0.684	0.519	0.803
	Left Cheek	1.238	0.036	0.284*	0.034	1.558	1.308	1.592
	Left Tilt	1.101	0.021	0.284*	0.119*	1.406	1.241	1.525

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12.4 Body-Worn Simultaneous Transmission Analysis

Table 12-7
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM/GPRS 850	0.664	0.293	0.230	0.957	0.894	1.187
	GSM/GPRS 1900	0.505	0.293	0.230	0.798	0.735	1.028
	UMTS 850	0.572	0.293	0.230	0.865	0.802	1.095
	UMTS 1750	0.677	0.293	0.230	0.970	0.907	1.200
	UMTS 1900	0.490	0.293	0.230	0.783	0.720	1.013
	CDMA BC10 (\$90S)	0.570	0.293	0.230	0.863	0.800	1.093
	CDMA BC0 (\$22H)	0.658	0.293	0.230	0.951	0.888	1.181
	PCS CDMA	0.482	0.293	0.230	0.775	0.712	1.005
	LTE Band 71	0.286	0.293	0.230	0.579	0.516	0.809
	LTE Band 12	0.304	0.293	0.230	0.597	0.534	0.827
	LTE Band 13	0.366	0.293	0.230	0.659	0.596	0.889
	LTE Band 26 (Cell)	0.453	0.293	0.230	0.746	0.683	0.976
	LTE Band 66 (AWS)	0.723	0.293	0.230	1.016	0.953	1.246
	LTE Band 66 (AWS) Ant 3	0.366	0.293	0.230	0.659	0.596	0.889
	LTE Band 25 (PCS)	0.495	0.293	0.230	0.788	0.725	1.018
	LTE Band 2 (PCS) Ant 3	0.303	0.293	0.230	0.596	0.533	0.826
	LTE Band 48	0.538	0.293	0.230	0.831	0.768	1.061
	LTE Band 41	0.347	0.293	0.230	0.640	0.577	0.870
	NR Band n71	0.303	0.293	0.230	0.596	0.533	0.826
	NR Band n66 (AWS)	0.418	0.293	0.230	0.711	0.648	0.941
	NR Band n25 (PCS)	0.303	0.293	0.230	0.596	0.533	0.826
	NR Band n41	0.104	0.293	0.230	0.397	0.334	0.627

Table 12-8
Simultaneous Transmission Scenario with 5 GHz WLAN (Body-Worn at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM/GPRS 850	0.664	0.498	0.272	1.162	0.936	1.434
	GSM/GPRS 1900	0.505	0.498	0.272	1.003	0.777	1.275
	UMTS 850	0.572	0.498	0.272	1.070	0.844	1.342
	UMTS 1750	0.677	0.498	0.272	1.175	0.949	1.447
	UMTS 1900	0.490	0.498	0.272	0.988	0.762	1.260
	CDMA BC10 (\$90S)	0.570	0.498	0.272	1.068	0.842	1.340
	CDMA BC0 (\$22H)	0.658	0.498	0.272	1.156	0.930	1.428
	PCS CDMA	0.482	0.498	0.272	0.980	0.754	1.252
	LTE Band 71	0.286	0.498	0.272	0.784	0.558	1.056
	LTE Band 12	0.304	0.498	0.272	0.802	0.576	1.074
	LTE Band 13	0.366	0.498	0.272	0.864	0.638	1.136
	LTE Band 26 (Cell)	0.453	0.498	0.272	0.951	0.725	1.223
	LTE Band 66 (AWS)	0.723	0.498	0.272	1.221	0.995	1.493
	LTE Band 66 (AWS) Ant 3	0.366	0.498	0.272	0.864	0.638	1.136
	LTE Band 25 (PCS)	0.495	0.498	0.272	0.993	0.767	1.265
	LTE Band 2 (PCS) Ant 3	0.303	0.498	0.272	0.801	0.575	1.073
	LTE Band 48	0.538	0.498	0.272	1.036	0.810	1.308
	LTE Band 41	0.347	0.498	0.272	0.845	0.619	1.117
	NR Band n71	0.303	0.498	0.272	0.801	0.575	1.073
	NR Band n66 (AWS)	0.418	0.498	0.272	0.916	0.690	1.188
	NR Band n25 (PCS)	0.303	0.498	0.272	0.801	0.575	1.073
	NR Band n41	0.104	0.498	0.272	0.602	0.376	0.874

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Table 12-9
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2
(Body-Worn at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn SAR	GSM/GPRS 850	0.664	0.293	0.272	1.229
	GSM/GPRS 1900	0.505	0.293	0.272	1.070
	UMTS 850	0.572	0.293	0.272	1.137
	UMTS 1750	0.677	0.293	0.272	1.242
	UMTS 1900	0.490	0.293	0.272	1.055
	CDMA BC10 (\$90S)	0.570	0.293	0.272	1.135
	CDMA BC0 (\$22H)	0.658	0.293	0.272	1.223
	PCS CDMA	0.482	0.293	0.272	1.047
	LTE Band 71	0.286	0.293	0.272	0.851
	LTE Band 12	0.304	0.293	0.272	0.869
	LTE Band 13	0.366	0.293	0.272	0.931
	LTE Band 26 (Cell)	0.453	0.293	0.272	1.018
	LTE Band 66 (AWS)	0.723	0.293	0.272	1.288
	LTE Band 66 (AWS) Ant 3	0.366	0.293	0.272	0.931
	LTE Band 25 (PCS)	0.495	0.293	0.272	1.060
	LTE Band 2 (PCS) Ant 3	0.303	0.293	0.272	0.868
	LTE Band 48	0.538	0.293	0.272	1.103
	LTE Band 41	0.347	0.293	0.272	0.912
	NR Band n71	0.303	0.293	0.272	0.868
	NR Band n66 (AWS)	0.418	0.293	0.272	0.983
	NR Band n25 (PCS)	0.303	0.293	0.272	0.868
	NR Band n41	0.104	0.293	0.272	0.669

Table 12-10
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn SAR	GSM/GPRS 850	0.664	0.042	0.706
	GSM/GPRS 1900	0.505	0.042	0.547
	UMTS 850	0.572	0.042	0.614
	UMTS 1750	0.677	0.042	0.719
	UMTS 1900	0.490	0.042	0.532
	CDMA BC10 (\$90S)	0.570	0.042	0.612
	CDMA BC0 (\$22H)	0.658	0.042	0.700
	PCS CDMA	0.482	0.042	0.524
	LTE Band 71	0.286	0.042	0.328
	LTE Band 12	0.304	0.042	0.346
	LTE Band 13	0.366	0.042	0.408
	LTE Band 26 (Cell)	0.453	0.042	0.495
	LTE Band 66 (AWS)	0.723	0.042	0.765
	LTE Band 66 (AWS) Ant 3	0.366	0.042	0.408
	LTE Band 25 (PCS)	0.495	0.042	0.537
	LTE Band 2 (PCS) Ant 3	0.303	0.042	0.345
	LTE Band 48	0.538	0.042	0.580
	LTE Band 41	0.347	0.042	0.389
	NR Band n71	0.303	0.042	0.345
	NR Band n66 (AWS)	0.418	0.042	0.460
	NR Band n25 (PCS)	0.303	0.042	0.345
	NR Band n41	0.104	0.042	0.146

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Table 12-11
Simultaneous Transmission Scenario with 2.4 GHz WLAN Antenna 2 and Bluetooth (Body-Worn at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn SAR	GSM/GPRS 850	0.664	0.042	0.230	0.936
	GSM/GPRS 1900	0.505	0.042	0.230	0.777
	UMTS 850	0.572	0.042	0.230	0.844
	UMTS 1750	0.677	0.042	0.230	0.949
	UMTS 1900	0.490	0.042	0.230	0.762
	CDMA BC10 (\$90S)	0.570	0.042	0.230	0.842
	CDMA BC0 (\$22H)	0.658	0.042	0.230	0.930
	PCS CDMA	0.482	0.042	0.230	0.754
	LTE Band 71	0.286	0.042	0.230	0.558
	LTE Band 12	0.304	0.042	0.230	0.576
	LTE Band 13	0.366	0.042	0.230	0.638
	LTE Band 26 (Cell)	0.453	0.042	0.230	0.725
	LTE Band 66 (AWS)	0.723	0.042	0.230	0.995
	LTE Band 66 (AWS) Ant 3	0.366	0.042	0.230	0.638
	LTE Band 25 (PCS)	0.495	0.042	0.230	0.767
	LTE Band 2 (PCS) Ant 3	0.303	0.042	0.230	0.575
	LTE Band 48	0.538	0.042	0.230	0.810
	LTE Band 41	0.347	0.042	0.230	0.619
	NR Band n71	0.303	0.042	0.230	0.575
	NR Band n66 (AWS)	0.418	0.042	0.230	0.690
	NR Band n25 (PCS)	0.303	0.042	0.230	0.575
	NR Band n41	0.104	0.042	0.230	0.376

Table 12-12
Simultaneous Transmission Scenario with 5 GHz WLAN and Bluetooth (Body-Worn at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	4	1+2+3	1+2+4	1+2+3+4
Body-Worn SAR	GSM/GPRS 850	0.664	0.042	0.498	0.272	1.204	0.978	1.476
	GSM/GPRS 1900	0.505	0.042	0.498	0.272	1.045	0.819	1.317
	UMTS 850	0.572	0.042	0.498	0.272	1.112	0.886	1.384
	UMTS 1750	0.677	0.042	0.498	0.272	1.217	0.991	1.489
	UMTS 1900	0.490	0.042	0.498	0.272	1.030	0.804	1.302
	CDMA BC10 (\$90S)	0.570	0.042	0.498	0.272	1.110	0.884	1.382
	CDMA BC0 (\$22H)	0.658	0.042	0.498	0.272	1.198	0.972	1.470
	PCS CDMA	0.482	0.042	0.498	0.272	1.022	0.796	1.294
	LTE Band 71	0.286	0.042	0.498	0.272	0.826	0.600	1.098
	LTE Band 12	0.304	0.042	0.498	0.272	0.844	0.618	1.116
	LTE Band 13	0.366	0.042	0.498	0.272	0.906	0.680	1.178
	LTE Band 26 (Cell)	0.453	0.042	0.498	0.272	0.993	0.767	1.265
	LTE Band 66 (AWS)	0.723	0.042	0.498	0.272	1.263	1.037	1.535
	LTE Band 66 (AWS) Ant 3	0.366	0.042	0.498	0.272	0.906	0.680	1.178
	LTE Band 25 (PCS)	0.495	0.042	0.498	0.272	1.035	0.809	1.307
	LTE Band 2 (PCS) Ant 3	0.303	0.042	0.498	0.272	0.843	0.617	1.115
	LTE Band 48	0.538	0.042	0.498	0.272	1.078	0.852	1.350
	LTE Band 41	0.347	0.042	0.498	0.272	0.887	0.661	1.159
	NR Band n71	0.303	0.042	0.498	0.272	0.843	0.617	1.115
	NR Band n66 (AWS)	0.418	0.042	0.498	0.272	0.958	0.732	1.230
	NR Band n25 (PCS)	0.303	0.042	0.498	0.272	0.843	0.617	1.115
	NR Band n41	0.104	0.042	0.498	0.272	0.644	0.418	0.916

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12.5 Hotspot SAR Simultaneous Transmission Analysis

Table 12-13
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot	GPRS 850	0.664	0.446	0.313	1.110	0.977	1.423
	GPRS 1900	0.764	0.446	0.313	1.210	1.077	1.523
	UMTS 850	0.572	0.446	0.313	1.018	0.885	1.331
	UMTS 1750	0.957	0.446	0.313	1.403	1.270	See Table Below
	UMTS 1900	0.969	0.446	0.313	1.415	1.282	See Table Below
	EVDO BC10 (\$90S)	0.599	0.446	0.313	1.045	0.912	1.358
	EVDO BC0 (\$22H)	0.652	0.446	0.313	1.098	0.965	1.411
	PCS EVDO	1.005	0.446	0.313	1.451	1.318	See Table Below
	LTE Band 71	0.286	0.446	0.313	0.732	0.599	1.045
	LTE Band 12	0.304	0.446	0.313	0.750	0.617	1.063
	LTE Band 13	0.366	0.446	0.313	0.812	0.679	1.125
	LTE Band 26 (Cell)	0.453	0.446	0.313	0.899	0.766	1.212
	LTE Band 66 (AWS)	0.822	0.446	0.313	1.268	1.135	1.581
	LTE Band 66 (AWS) Ant 3	0.574	0.446	0.313	1.020	0.887	1.333
	LTE Band 25 (PCS)	0.927	0.446	0.313	1.373	1.240	See Table Below
	LTE Band 2 (PCS) Ant 3	0.494	0.446	0.313	0.940	0.807	1.253
	LTE Band 48	0.650	0.446	0.313	1.096	0.963	1.409
	LTE Band 41	0.594	0.446	0.313	1.040	0.907	1.353
	NR Band n71	0.303	0.446	0.313	0.749	0.616	1.062
	NR Band n66 (AWS)	0.572	0.446	0.313	1.018	0.885	1.331
	NR Band n25 (PCS)	0.620	0.446	0.313	1.066	0.933	1.379
	NR Band n41	0.152	0.446	0.313	0.598	0.465	0.911
Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2+3		
Hotspot SAR	Back	0.677	0.293	0.313*	1.283		
	Front	0.398	0.446*	0.313*	1.157		
	Top	-	0.446*	0.313	0.759		
	Bottom	0.957	-	-	0.957		
	Left	0.318	0.446	0.313*	1.077		
Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2+3		
Hotspot SAR	Back	0.490	0.293	0.313*	1.096		
	Front	0.206	0.446*	0.313*	0.965		
	Top	-	0.446*	0.313	0.759		
	Bottom	0.969	-	-	0.969		
	Left	0.189	0.446	0.313*	0.948		
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2+3		
Hotspot SAR	Back	0.531	0.293	0.313*	1.137		
	Front	0.193	0.446*	0.313*	0.952		
	Top	-	0.446*	0.313	0.759		
	Bottom	1.005	-	-	1.005		
	Left	0.166	0.446	0.313*	0.925		
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2+3		
Hotspot SAR	Back	0.495	0.293	0.313*	1.101		
	Front	0.199	0.446*	0.313*	0.958		
	Top	-	0.446*	0.313	0.759		
	Bottom	0.927	-	-	0.927		
	Left	0.159	0.446	0.313*	0.918		

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Table 12-14
Simultaneous Transmission Scenario with 5 GHz WLAN (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot	GPRS 850	0.664	0.585	0.236	1.249	0.900	1.485
	GPRS 1900	0.764	0.585	0.236	1.349	1.000	1.585
	UMTS 850	0.572	0.585	0.236	1.157	0.808	1.393
	UMTS 1750	0.957	0.585	0.236	1.542	1.193	See Table Below
	UMTS 1900	0.969	0.585	0.236	1.554	1.205	See Table Below
	EVDO BC10 (\$90S)	0.599	0.585	0.236	1.184	0.835	1.420
	EVDO BC0 (\$22H)	0.652	0.585	0.236	1.237	0.888	1.473
	PCS EVDO	1.005	0.585	0.236	1.590	1.241	See Table Below
	LTE Band 71	0.286	0.585	0.236	0.871	0.522	1.107
	LTE Band 12	0.304	0.585	0.236	0.889	0.540	1.125
	LTE Band 13	0.366	0.585	0.236	0.951	0.602	1.187
	LTE Band 26 (Cell)	0.453	0.585	0.236	1.038	0.689	1.274
	LTE Band 66 (AWS)	0.822	0.585	0.236	1.407	1.058	See Table Below
	LTE Band 66 (AWS) Ant 3	0.574	0.585	0.236	1.159	0.810	1.395
	LTE Band 25 (PCS)	0.927	0.585	0.236	1.512	1.163	See Table Below
	LTE Band 2 (PCS) Ant 3	0.494	0.585	0.236	1.079	0.730	1.315
	LTE Band 48	0.650	0.585	0.236	1.235	0.886	1.471
	LTE Band 41	0.594	0.585	0.236	1.179	0.830	1.415
	NR Band n71	0.303	0.585	0.236	0.888	0.539	1.124
	NR Band n66 (AWS)	0.572	0.585	0.236	1.157	0.808	1.393
	NR Band n25 (PCS)	0.620	0.585	0.236	1.205	0.856	1.441
	NR Band n41	0.152	0.585	0.236	0.737	0.388	0.973

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.677	0.585	0.236	1.498	Hotspot SAR	Back	0.490	0.585	0.236	1.311
	Front	0.398	0.585*	0.236*	1.219		Front	0.206	0.585*	0.236*	1.027
	Top	-	0.585*	0.236*	0.821		Top	-	0.585*	0.236*	0.821
	Bottom	0.957	-	-	0.957		Bottom	0.969	-	-	0.969
	Left	0.318	0.267	0.236*	0.821		Left	0.189	0.267	0.236*	0.692
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.531	0.585	0.236	1.352	Hotspot SAR	Back	0.719	0.585	0.236	1.540
	Front	0.193	0.585*	0.236*	1.014		Front	0.318	0.585*	0.236*	1.139
	Top	-	0.585*	0.236*	0.821		Top	-	0.585*	0.236*	0.821
	Bottom	1.005	-	-	1.005		Bottom	0.822	-	-	0.822
	Left	0.166	0.267	0.236*	0.669		Left	0.237	0.267	0.236*	0.740

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.495	0.585	0.236	1.316
	Front	0.199	0.585*	0.236*	1.020
	Top	-	0.585*	0.236*	0.821
	Bottom	0.927	-	-	0.927
	Left	0.159	0.267	0.236*	0.662

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Table 12-15
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2
(Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot	GPRS 850	0.664	0.446	0.236	1.346
	GPRS 1900	0.764	0.446	0.236	1.446
	UMTS 850	0.572	0.446	0.236	1.254
	UMTS 1750	0.957	0.446	0.236	See Table Below
	UMTS 1900	0.969	0.446	0.236	See Table Below
	EVDO BC10 (\$90S)	0.599	0.446	0.236	1.281
	EVDO BC0 (\$22H)	0.652	0.446	0.236	1.334
	PCS EVDO	1.005	0.446	0.236	See Table Below
	LTE Band 71	0.286	0.446	0.236	0.968
	LTE Band 12	0.304	0.446	0.236	0.986
	LTE Band 13	0.366	0.446	0.236	1.048
	LTE Band 26 (Cell)	0.453	0.446	0.236	1.135
	LTE Band 66 (AWS)	0.822	0.446	0.236	1.504
	LTE Band 66 (AWS) Ant 3	0.574	0.446	0.236	1.256
	LTE Band 25 (PCS)	0.927	0.446	0.236	See Table Below
	LTE Band 2 (PCS) Ant 3	0.494	0.446	0.236	1.176
	LTE Band 48	0.650	0.446	0.236	1.332
	LTE Band 41	0.594	0.446	0.236	1.276
	NR Band n71	0.303	0.446	0.236	0.985
	NR Band n66 (AWS)	0.572	0.446	0.236	1.254
	NR Band n25 (PCS)	0.620	0.446	0.236	1.302
	NR Band n41	0.152	0.446	0.236	0.834
Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.677	0.293	0.236	1.206
	Front	0.398	0.446*	0.236*	1.080
	Top	-	0.446*	0.236*	0.682
	Bottom	0.957	-	-	0.957
	Left	0.318	0.446	0.236*	1.000
Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.490	0.293	0.236	1.019
	Front	0.206	0.446*	0.236*	0.888
	Top	-	0.446*	0.236*	0.682
	Bottom	0.969	-	-	0.969
	Left	0.189	0.446	0.236*	0.871
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.531	0.293	0.236	1.060
	Front	0.193	0.446*	0.236*	0.875
	Top	-	0.446*	0.236*	0.682
	Bottom	1.005	-	-	1.005
	Left	0.166	0.446	0.236*	0.848
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.495	0.293	0.236	1.024
	Front	0.199	0.446*	0.236*	0.881
	Top	-	0.446*	0.236*	0.682
	Bottom	0.927	-	-	0.927
	Left	0.159	0.446	0.236*	0.841

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Table 12-16
Simultaneous Transmission Scenario with Bluetooth (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.664	0.072	0.736
	GPRS 1900	0.764	0.072	0.836
	UMTS 850	0.572	0.072	0.644
	UMTS 1750	0.957	0.072	1.029
	UMTS 1900	0.969	0.072	1.041
	EVDO BC10 (\$90S)	0.599	0.072	0.671
	EVDO BC0 (\$22H)	0.652	0.072	0.724
	PCS EVDO	1.005	0.072	1.077
	LTE Band 71	0.286	0.072	0.358
	LTE Band 12	0.304	0.072	0.376
	LTE Band 13	0.366	0.072	0.438
	LTE Band 26 (Cell)	0.453	0.072	0.525
	LTE Band 66 (AWS)	0.822	0.072	0.894
	LTE Band 66 (AWS) Ant 3	0.574	0.072	0.646
	LTE Band 25 (PCS)	0.927	0.072	0.999
	LTE Band 2 (PCS) Ant 3	0.494	0.072	0.566
	LTE Band 48	0.650	0.072	0.722
	LTE Band 41	0.594	0.072	0.666
	NR Band n71	0.303	0.072	0.375
	NR Band n66 (AWS)	0.572	0.072	0.644
	NR Band n25 (PCS)	0.620	0.072	0.692
	NR Band n41	0.152	0.072	0.224

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Table 12-17
Simultaneous Transmission Scenario with 2.4 GHz WLAN Antenna 2 and Bluetooth (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot	GPRS 850	0.664	0.072	0.313	1.049
	GPRS 1900	0.764	0.072	0.313	1.149
	UMTS 850	0.572	0.072	0.313	0.957
	UMTS 1750	0.957	0.072	0.313	1.342
	UMTS 1900	0.969	0.072	0.313	1.354
	EVDO BC10 (\$90S)	0.599	0.072	0.313	0.984
	EVDO BC0 (\$22H)	0.652	0.072	0.313	1.037
	PCS EVDO	1.005	0.072	0.313	1.390
	LTE Band 71	0.286	0.072	0.313	0.671
	LTE Band 12	0.304	0.072	0.313	0.689
	LTE Band 13	0.366	0.072	0.313	0.751
	LTE Band 26 (Cell)	0.453	0.072	0.313	0.838
	LTE Band 66 (AWS)	0.822	0.072	0.313	1.207
	LTE Band 66 (AWS) Ant 3	0.574	0.072	0.313	0.959
	LTE Band 25 (PCS)	0.927	0.072	0.313	1.312
	LTE Band 2 (PCS) Ant 3	0.494	0.072	0.313	0.879
	LTE Band 48	0.650	0.072	0.313	1.035
	LTE Band 41	0.594	0.072	0.313	0.979
	NR Band n71	0.303	0.072	0.313	0.688
	NR Band n66 (AWS)	0.572	0.072	0.313	0.957
	NR Band n25 (PCS)	0.620	0.072	0.313	1.005
	NR Band n41	0.152	0.072	0.313	0.537

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Table 12-18
Simultaneous Transmission Scenario with 5 GHz WLAN and Bluetooth (Hotspot at 1.0 cm)

Configuration	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	4	1+2+3	1+2+4	1+2+3+4
Hotspot SAR	GPRS 850	0.664	0.072	0.585	0.236	1.321	0.972	1.557
	GPRS 1900	0.764	0.072	0.585	0.236	1.421	1.072	See Table Below
	UMTS 850	0.572	0.072	0.585	0.236	1.229	0.880	1.465
	UMTS 1750	0.957	0.072	0.585	0.236	See Table Below	1.265	See Table Below
	UMTS 1900	0.969	0.072	0.585	0.236	See Table Below	1.277	See Table Below
	EVDO BC10 (\$90S)	0.599	0.072	0.585	0.236	1.256	0.907	1.492
	EVDO BC0 (\$22H)	0.652	0.072	0.585	0.236	1.309	0.960	1.545
	PCS EVDO	1.005	0.072	0.585	0.236	See Table Below	1.313	See Table Below
	LTE Band 71	0.286	0.072	0.585	0.236	0.943	0.594	1.179
	LTE Band 12	0.304	0.072	0.585	0.236	0.961	0.612	1.197
	LTE Band 13	0.366	0.072	0.585	0.236	1.023	0.674	1.259
	LTE Band 26 (Cell)	0.453	0.072	0.585	0.236	1.110	0.761	1.346
	LTE Band 66 (AWS)	0.822	0.072	0.585	0.236	1.479	1.130	See Table Below
	LTE Band 66 (AWS) Ant 3	0.574	0.072	0.585	0.236	1.231	0.882	1.467
	LTE Band 25 (PCS)	0.927	0.072	0.585	0.236	1.584	1.235	See Table Below
	LTE Band 2 (PCS) Ant 3	0.494	0.072	0.585	0.236	1.151	0.802	1.387
	LTE Band 48	0.650	0.072	0.585	0.236	1.307	0.958	1.543
	LTE Band 41	0.594	0.072	0.585	0.236	1.251	0.902	1.487
	NR Band n71	0.303	0.072	0.585	0.236	0.960	0.611	1.196
	NR Band n66 (AWS)	0.572	0.072	0.585	0.236	1.229	0.880	1.465
	NR Band n25 (PCS)	0.620	0.072	0.585	0.236	1.277	0.928	1.513
	NR Band n41	0.152	0.072	0.585	0.236	0.809	0.460	1.045

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.505	0.042	0.585	0.236	1.368
	Front	0.176	0.020	0.585*	0.236*	1.017
	Top	-	0.017	0.585*	0.236*	0.838
	Bottom	0.764	-	-	-	0.764
	Right	-	-	-	-	0.000
	Left	0.153	0.072	0.267	0.236*	0.728

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	4	1+2+3	1+2+4	1+2+3+4
Hotspot SAR	Back	0.677	0.042	0.585	0.236	1.304	0.955	1.540
	Front	0.398	0.020	0.585*	0.236*	1.003	0.654	1.239
	Top	-	0.017	0.585*	0.236*	0.602	0.253	0.838
	Bottom	0.957	-	-	-	0.957	0.957	0.957
	Left	0.318	0.072	0.267	0.236*	0.657	0.626	0.893

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	4	1+2+3	1+2+4	1+2+3+4
Hotspot SAR	Back	0.531	0.042	0.585	0.236	1.158	0.809	1.394
	Front	0.193	0.020	0.585*	0.236*	0.798	0.449	1.034
	Top	-	0.017	0.585*	0.236*	0.602	0.253	0.838
	Bottom	1.005	-	-	-	1.005	1.005	1.005
	Left	0.166	0.072	0.267	0.236*	0.505	0.474	0.741

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.719	0.042	0.585	0.236	1.582
	Front	0.318	0.020	0.585*	0.236*	1.159
	Top	-	0.017	0.585*	0.236*	0.838
	Bottom	0.822	-	-	-	0.822
	Left	0.237	0.072	0.267	0.236*	0.812

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.495	0.042	0.585	0.236	1.358
	Front	0.199	0.020	0.585*	0.236*	1.040
	Top	-	0.017	0.585*	0.236*	0.838
	Bottom	0.927	-	-	-	0.927
	Left	0.159	0.072	0.267	0.236*	0.734

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12.6 Phablet Simultaneous Transmission Analysis

Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required if wireless router 1g SAR (scaled to the maximum output power, including tolerance) < 1.2 W/kg. Therefore, no further analysis beyond the tables included in this section was required to determine that possible simultaneous transmission scenarios would not exceed the SAR limit.

Table 12-19
Simultaneous Transmission Scenario with 5 GHz WLAN (Phablet)

Configuration	Mode	3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Phablet SAR	UMTS 1750	2.093	0.894	0.853	2.987	2.946	3.840
	UMTS 1900	2.283	0.894	0.853	3.177	3.136	See Table Below
	PCS EVDO/EVDO	2.280	0.894	0.853	3.174	3.133	See Table Below
	LTE Band 66 (AWS)	1.851	0.894	0.853	2.745	2.704	3.598
	LTE Band 25 (PCS)	2.682	0.894	0.853	3.576	3.535	See Table Below

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Phablet SAR	Back	-	0.771	0.853	1.624	Phablet SAR	Back	-	0.771	0.853	1.624
	Front	-	0.894*	0.853*	1.747		Front	-	0.894*	0.853*	1.747
	Top	-	0.894*	0.853*	1.747		Top	-	0.894*	0.853*	1.747
	Bottom	2.283	-	-	2.283		Bottom	2.280	-	-	2.280
	Left	-	0.894	0.853*	1.747		Left	-	0.894	0.853*	1.747

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Phablet SAR	Back	-	0.771	0.853	1.624
	Front	-	0.894*	0.853*	1.747
	Top	-	0.894*	0.853*	1.747
	Bottom	2.682	-	-	2.682
	Left	-	0.894	0.853*	1.747

12.7 Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528-2013 Section 6.3.4.1.2.

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13 SAR MEASUREMENT VARIABILITY

13.1 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 ≥ 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 ≥ 1.45 W/kg ($\sim 10\%$ from the 1g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 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
- 5) When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Table 13-1
Head SAR Measurement Variability Results

HEAD VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Side	Test Position	Data Rate (Mbps)	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)	
3500	3560.00	55340	LTE Band 48, 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	Left	Cheek	N/A	1.030	1.030	1.00	N/A	N/A	N/A	N/A
3700	3603.30	55773	LTE Band 48, 20 MHz Bandwidth	QPSK, 50 RB, 25 RB Offset	Left	Cheek	N/A	0.927	0.926	1.00	N/A	N/A	N/A	N/A
2450	2437.00	6	802.11b, 22 MHz Bandwidth	DSSS , ANT 2	Right	Tilt	1	0.913	0.913	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Head								
Spatial Peak						1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population						averaged over 1 gram								

Table 13-2
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	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)	
1750	1752.60	1513	UMTS 1750	RMC	bottom	10 mm	0.857	0.855	1.00	N/A	N/A	N/A	N/A
1900	1880.00	600	PCS CDMA	EVDO Rev. 0	bottom	10 mm	0.994	0.972	1.02	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							

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Table 13-3
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1900	1882.50	26365	LTE Band 25 (PCS), 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	bottom	0 mm	2.510	2.490	1.01	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Phablet 4.0 W/kg (mW/g) averaged over 10 grams							

13.2 Measurement Uncertainty

The measured SAR was <1.5 W/kg for 1g and <3.75 W/kg for 10g 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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14 ADDITIONAL TESTING PER FCC GUIDANCE

14.1 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. When ULCA is active, the linearity between the Power Class 2 with ULCA active and Power Class 3 with ULCA active 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 14-1
LTE Band 41 Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.00	26.60
Measured Output Power (dBm)	23.79	25.34
Measured SAR (W/kg)	0.021	0.022
Measured Power (mW)	239.33	341.98
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	151.50	148.08
% deviation from expected linearity		9.13%

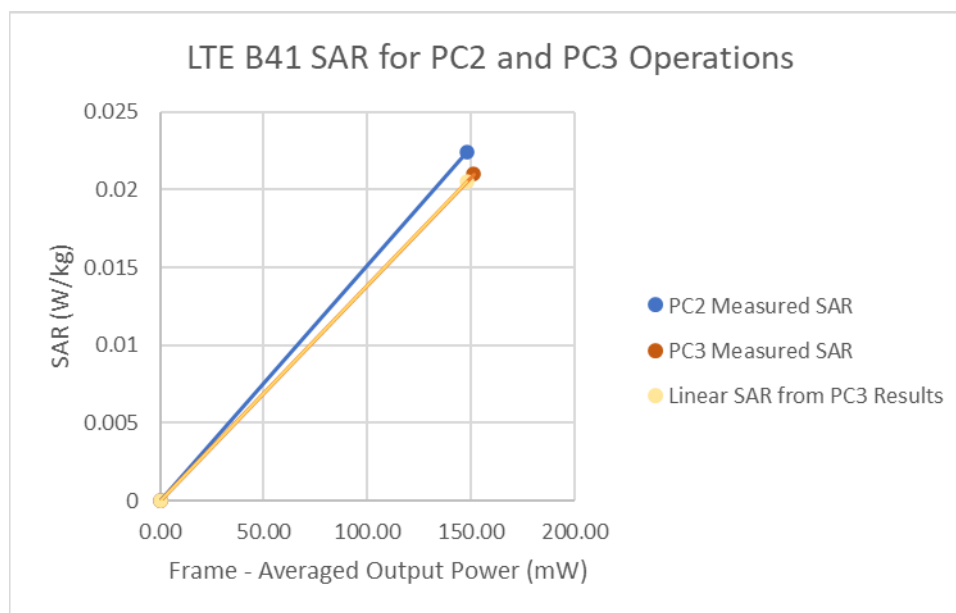


Figure 14-1
LTE Band 41 Head Linearity

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Table 14-2
LTE Band 41 ULCA Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.00	26.60
Measured Output Power (dBm)	24.07	25.55
Measured SAR (W/kg)	0.021	0.021
Measured Power (mW)	255.27	358.92
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	161.59	155.41
% deviation from expected linearity		3.97%

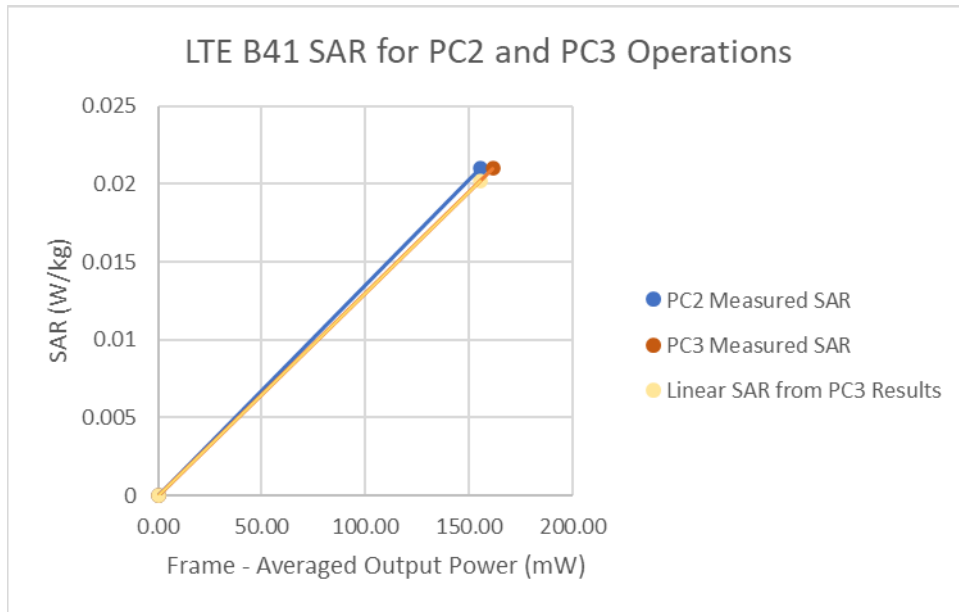


Figure 14-2
LTE Band 41 ULCA Head Linearity

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Table 14-3
LTE Band 41 Body-Worn Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.00	26.60
Measured Output Power (dBm)	23.79	25.34
Measured SAR (W/kg)	0.263	0.238
Measured Power (mW)	239.33	341.98
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	151.50	148.08
% deviation from expected linearity		-7.42%

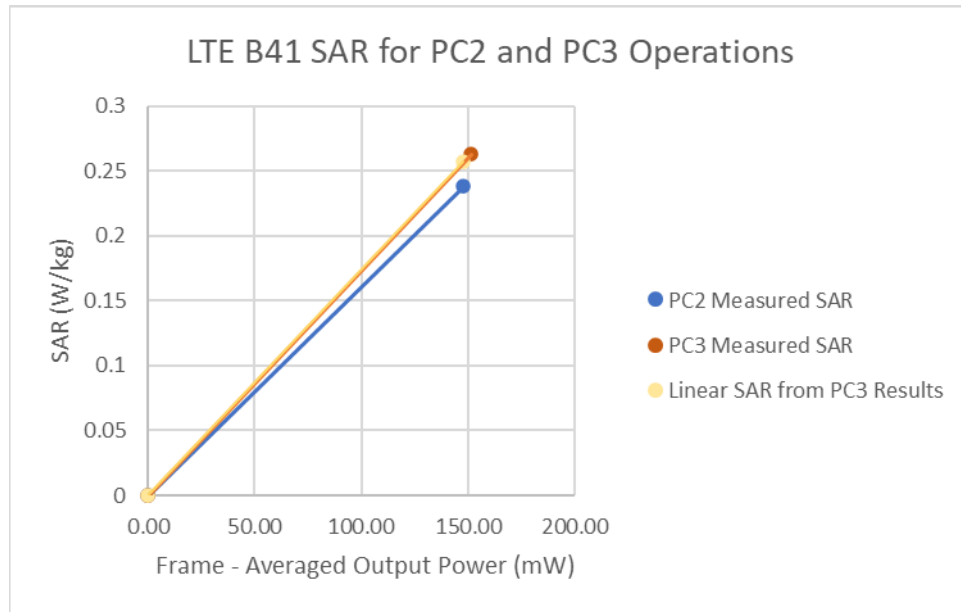


Figure 14-3
LTE Band 41 Body-Worn Linearity

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Table 14-4
LTE Band 41 ULCA Body-Worn Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.00	26.60
Measured Output Power (dBm)	24.07	25.55
Measured SAR (W/kg)	0.272	0.265
Measured Power (mW)	255.27	358.92
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	161.59	155.41
% deviation from expected linearity		1.30%

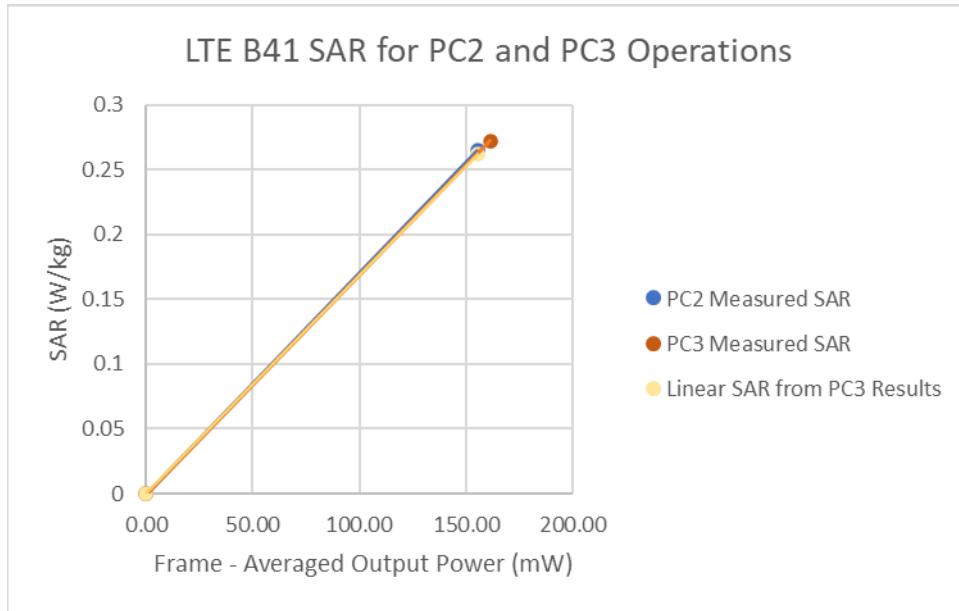


Figure 14-4
LTE Band 41 ULCA Body-Worn Linearity

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Table 14-5
LTE Band 41 Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.00	26.60
Measured Output Power (dBm)	23.79	25.34
Measured SAR (W/kg)	0.417	0.444
Measured Power (mW)	239.33	341.98
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	151.50	148.08
% deviation from expected linearity		8.93%

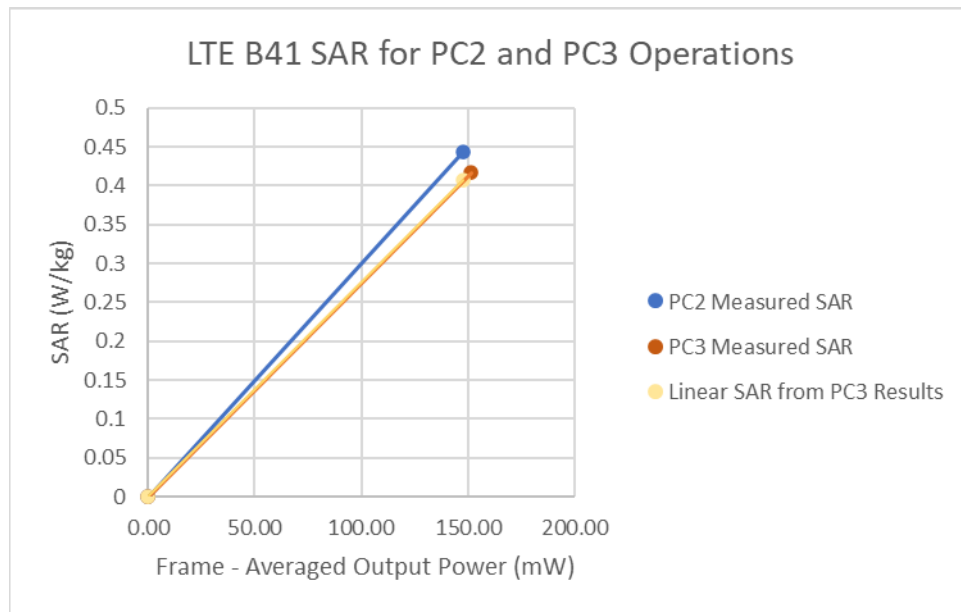


Figure 14-5
LTE Band 41 Hotspot Linearity

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Table 14-6
LTE Band 41 ULCA Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.00	26.60
Measured Output Power (dBm)	24.07	25.55
Measured SAR (W/kg)	0.396	0.382
Measured Power (mW)	255.27	358.92
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	161.59	155.41
% deviation from expected linearity		0.30%

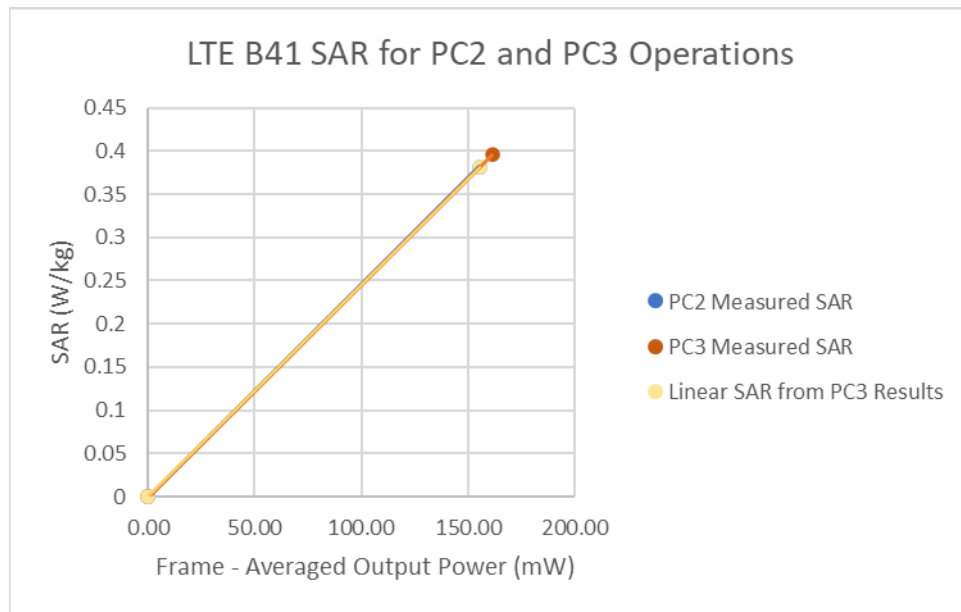


Figure 14-6
LTE Band 41 ULCA Hotspot Linearity

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14.2 Tuner Testing

Per April 2019 TCB Workshop Notes, the following test procedures were followed to demonstrate that the SAR results in Section 11 represented the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR was measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Per FCC Guidance, during NR testing the device was configured with the tuner state selected by the device in LTE mode with auto-tune active at the same frequency. Additional single point SAR time-sweep measurements were evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence on the antenna characteristics, other than impedance matching.

To evaluate all the tuner states, the 130 tuner states were divided among the aggregate band, mode and exposure combinations. Single point time-sweep measurements were performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state was able to be established remotely so that the device was not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe remained stationary at the same position throughout the entire series of single point measurements for each combination. When the single point SAR or 1g SAR was > 1.2 W/kg for a particular band/mode/exposure condition, point SAR measurements were made for all 131 states.

The operational description contains more information about the design and implementation of the dynamic antenna tuning.

**Table 14-7
Supplemental Head SAR Data**

UMTS B5		CDMA BC10		CDMA BC20		LTE B71		LTE B12		LTE B13		LTE B26		NR Band n71	
RMC		EVDO Rev A		CDMA		QPSK, 20 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 25 RB Offset		QPSK, 15 MHz Bandwidth, 1 RB, 0 RB Offset		DFT-s-OFDM QPSK, 20 MHz Bandwidth, 50 RB 25RB Offset	
Test Position	Left Tie	Test Position	Left Tie	Test Position	Left Tie	Test Position	Left Tie	Test Position	Right Tie	Test Position	Right Tie	Test Position	Right Tie	Test Position	Right Tie
Frequency (MHz)	836.6	Frequency (MHz)	820.1	Frequency (MHz)	836.52	Frequency (MHz)	836.52	Frequency (MHz)	707.5	Frequency (MHz)	707.5	Frequency (MHz)	782.0	Frequency (MHz)	831.5
Channel	4183	Channel	564	Channel	384	Channel	133297	Channel	23095	Channel	23230	Channel	26865	Channel	136100
Measured 1g SAR (W/kg)	0.073	Measured 1g SAR (W/kg)	0.115	Measured 1g SAR (W/kg)	0.079	Measured 1g SAR (W/kg)	0.071	Measured 1g SAR (W/kg)	0.066	Measured 1g SAR (W/kg)	0.064	Measured 1g SAR (W/kg)	0.063	Measured 1g SAR (W/kg)	0.061
Average Value of Time Sweep (W/kg)	0.115	Average Value of Time Sweep (W/kg)	0.152	Average Value of Time Sweep (W/kg)	0.105	Average Value of Time Sweep (W/kg)	0.094	Average Value of Time Sweep (W/kg)	0.079	Average Value of Time Sweep (W/kg)	0.079	Average Value of Time Sweep (W/kg)	0.080	Average Value of Time Sweep (W/kg)	0.070
Auto-tune (State 86)	0.114	Auto-tune (State 86)	0.155	Auto-tune (State 86)	0.091	Auto-tune (State 34)	0.092	Auto-tune (State 43)	0.090	Auto-tune (State 74)	0.079	Auto-tune (State 86)	0.077	Auto-tune (State 34)	0.070
Default (State 86)	0.007	Default (State 86)	0.078	Default (State 86)	0.020	Default (State 34)	0.058	Default (State 43)	0.013	Default (State 74)	0.022	Default (State 86)	0.039	Default (State 34)	0.053
State 0	0.007	State 5	0.081	State 9	0.012	State 1	0.091	State 13	0.075	State 8	0.050	State 10	0.031	State 3	0.007
State 17	0.042	State 12	0.125	State 21	0.004	State 15	0.047	State 20	0.018	State 25	0.023	State 11	0.034	State 27	0.005
State 37	0.107	State 33	0.019	State 34	0.014	State 31	0.013	State 22	0.016	State 37	0.046	State 40	0.051	State 36	0.063
State 54	0.104	State 42	0.026	State 39	0.041	State 34	0.062	State 35	0.086	State 50	0.012	State 47	0.040	State 51	0.000
State 69	0.043	State 55	0.123	State 45	0.028	State 45	0.073	State 46	0.090	State 60	0.062	State 59	0.059	State 57	0.007
State 83	0.043	State 58	0.080	State 48	0.049	State 53	0.012	State 49	0.050	State 74	0.078	State 71	0.039	State 72	0.047
State 94	0.109	State 62	0.156	State 63	0.092	State 64	0.016	State 68	0.022	State 77	0.058	State 88	0.071	State 78	0.040
State 99	0.007	State 75	0.019	State 79	0.044	State 81	0.053	State 84	0.020	State 95	0.053	State 97	0.068	State 93	0.001
State 115	0.004	State 110	0.077	State 106	0.067	State 104	0.076	State 97	0.016	State 108	0.036	State 107	0.009	State 109	0.034
State 124	0.081	State 120	0.135	State 117	0.100	State 114	0.044	State 112	0.068	State 118	0.062	State 116	0.047	State 113	0.035
State 128	0.101	State 130	0.108	State 129	0.091	State 127	0.012	State 125	0.007	State 126	0.051	State 122	0.055	State 124	0.000

**Table 14-8
Supplemental Body SAR Data**

UMTS B5		CDMA BC10		CDMA BC20		LTE B71		LTE B12		LTE B13		LTE B26		NR Band n71	
RMC		EVDO Rev 0		CDMA		QPSK, 20 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 25 RB Offset		QPSK, 15 MHz Bandwidth, 1 RB, 0 RB Offset		DFT-s-OFDM QPSK, 20 MHz Bandwidth, 50 RB 25 RB Offset	
Test Position	Back	Test Position	Back	Test Position	Back	Test Position	Back	Test Position	Back	Test Position	Back	Test Position	Back	Test Position	Back
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	836.6	Frequency (MHz)	820.1	Frequency (MHz)	836.52	Frequency (MHz)	836.52	Frequency (MHz)	707.5	Frequency (MHz)	707.5	Frequency (MHz)	782.0	Frequency (MHz)	831.5
Channel	4183	Channel	564	Channel	384	Channel	133297	Channel	23095	Channel	23230	Channel	26865	Channel	136100
Measured 1g SAR (W/kg)	0.525	Measured 1g SAR (W/kg)	0.575	Measured 1g SAR (W/kg)	0.618	Measured 1g SAR (W/kg)	0.257	Measured 1g SAR (W/kg)	0.273	Measured 1g SAR (W/kg)	0.322	Measured 1g SAR (W/kg)	0.398	Measured 1g SAR (W/kg)	0.245
Average Value of Time Sweep (W/kg)	0.783	Average Value of Time Sweep (W/kg)	0.864	Average Value of Time Sweep (W/kg)	0.930	Average Value of Time Sweep (W/kg)	0.379	Average Value of Time Sweep (W/kg)	0.392	Average Value of Time Sweep (W/kg)	0.477	Average Value of Time Sweep (W/kg)	0.606	Average Value of Time Sweep (W/kg)	0.353
Auto-tune (State 86)	0.775	Auto-tune (State 86)	0.885	Auto-tune (State 86)	0.929	Auto-tune (State 34)	0.392	Auto-tune (State 43)	0.376	Auto-tune (State 74)	0.429	Auto-tune (State 86)	0.572	Auto-tune (State 34)	0.353
Default (State 86)	0.101	Default (State 86)	0.592	Default (State 86)	0.498	Default (State 34)	0.158	Default (State 43)	0.015	Default (State 74)	0.044	Default (State 86)	0.219	Default (State 34)	0.315
State 1	0.277	State 19	0.926	State 28	0.905	State 13	0.206	State 18	0.095	State 26	0.337	State 11	0.236	State 17	0.014
State 10	0.224	State 29	0.499	State 39	0.396	State 22	0.083	State 36	0.351	State 41	0.104	State 23	0.446	State 24	0.006
State 18	0.720	State 47	0.458	State 53	0.816	State 30	0.083	State 53	0.104	State 55	0.406	State 29	0.550	State 44	0.309
State 32	0.051	State 58	0.351	State 66	0.077	State 43	0.331	State 72	0.342	State 67	0.149	State 38	0.238	State 63	0.084
State 45	0.271	State 65	0.679	State 70	0.353	State 56	0.088	State 87	0.050	State 74	0.443	State 52	0.487	State 69	0.332
State 52	0.626	State 67	0.150	State 73	0.929	State 74	0.231	State 88	0.099	State 79	0.378	State 66	0.051	State 93	0.033
State 61	0.680	State 76	0.203	State 82	0.675	State 80	0.230	State 90	0.076	State 91	0.656	State 76	0.113	State 109	0.243
State 73	0.497	State 87	0.873	State 91	0.339	State 85	0.071	State 101	0.398	State 102	0.325	State 89	0.526	State 114	0.186
State 85	0.743	State 96	0.625	State 98	0.795	State 100	0.212	State 102	0.326	State 106	0.430	State 100	0.065	State 120	0.059
State 92	0.500	State 103	0.382	State 105	0.451	State 119	0.061	State 123	0.008	State 117	0.285	State 111	0.372	State 125	0.033
State 104	0.346	State 121	0.813	State 117	0.886	State 126	0.053	State 130	0.083	State 127	0.342	State 115	0.181	State 129	0.069

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Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85033E	3 mm Standard Calibration Kit	6/6/2020	Annual	6/6/2021	MY53402352
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	30514000187
Agilent	8753ES	Network Analyzer	3/5/2020	Annual	3/5/2021	MY40001472
Agilent	8753ES	S-Parameter Network Analyzer	12/31/2019	Annual	12/31/2020	US39170122
Agilent	8753ES	S-Parameter Network Analyzer	1/16/2020	Annual	1/16/2021	US39170118
Agilent	E4438C	ESD Vector Signal Generator	8/10/2020	Annual	8/10/2021	MY47270002
Agilent	E4438C	ESD Vector Signal Generator	9/8/2020	Biennial	9/8/2022	MY45090700
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	2/10/2020	Annual	2/10/2021	GB42320325
Agilent	E5515C	Wireless Communications Test Set	2/26/2020	Annual	2/26/2021	GB44400860
Agilent	E5515C	Wireless Communications Test Set	1/14/2020	Triennial	1/14/2023	GB43304447
Agilent	N4410A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Agilent	N4410A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44400773
Agilent	N5182A	MXG Vector Signal Generator	2/19/2020	Annual	2/19/2021	MY47420653
Agilent	N5182A	MXG Vector Signal Generator	5/13/2020	Annual	5/13/2021	MY47420603
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	353468
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	353469
Anritsu	MA24106A	USB Power Sensor	2/27/2020	Annual	2/27/2021	1244524
Anritsu	MA24106A	USB Power Sensor	2/27/2020	Annual	2/27/2021	1245009
Anritsu	MA24106A	USB Power Sensor	2/27/2020	Annual	2/27/2021	1520503
Anritsu	MA24106A	USB Power Sensor	2/27/2020	Annual	2/27/2021	1520501
Anritsu	MA24118	Pulse Power Sensor	1/21/2020	Annual	1/21/2021	1207470
Anritsu	MA24118	Pulse Power Sensor	1/21/2020	Annual	1/21/2021	1339907
Anritsu	ML108-155A	Digital Caliper	1/17/2020	Biennial	1/17/2022	40929336
Anritsu	ML2495A	Power Meter	12/17/2019	Annual	12/17/2020	941001
Anritsu	ML2496A	Power Meter	2/13/2020	Annual	2/13/2021	1306009
Anritsu	ML2496A	Power Meter	3/23/2020	Annual	3/23/2021	1351001
Anritsu	MT8820C	Radio Communication Analyzer	9/17/2020	Annual	9/17/2021	6201300731
Anritsu	MT8821C	Radio Communication Analyzer	2/22/2020	Annual	2/22/2021	6261895213
Anritsu	MT8821C	Radio Communication Analyzer	3/10/2020	Annual	3/10/2021	6202021196
Anritsu	MT8821C	Radio Communication Analyzer	6/15/2020	Annual	6/15/2021	6201381794
Anritsu	MT8821C	Radio Communication Analyzer	7/3/2020	Annual	7/3/2021	6262150047
Control Company	4040	Therm./Clock/Humidity Monitor	6/29/2019	Biennial	6/29/2021	192291455
Control Company	4040	Therm./Clock/Humidity Monitor	6/29/2019	Biennial	6/29/2021	192291460
Control Company	4352	Long Stem Thermometer	5/16/2020	Biennial	5/16/2022	200294438
Control Company	4352	Long Stem Thermometer	5/16/2020	Biennial	5/16/2022	200294418
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
KEYSIGHT	E4438C	VECTOR SIGNAL GENERATOR	6/22/2020	Annual	6/22/2021	MY45090708
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	9/1/2020	Annual	9/1/2021	MY33401181
Keysight Technologies	ATN6705B	DC Power Supply	N/A	N/A	N/A	MY33001315
Keysight Technologies	N9020A	MXA Signal Analyzer	8/14/2020	Annual	8/14/2021	US46470541
Keysight Technologies	N9030A	PKA Signal Analyzer (44GHz)	8/17/2020	Annual	8/17/2021	MY52300166
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-1400+	Low Pass Filter	CBT	N/A	CBT	R8975500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1235
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	8486
Narda	BW-S1W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	8/4/2020	Biennial	8/4/2022	N/A
Pasternack	NC-100	Torque Wrench	8/4/2020	Biennial	8/4/2022	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
R&M	Proface IIC	Soundcheck Acoustic Analyzer External Audio Interface	4/24/2020	Biennial	4/24/2021	23230889
Rohde & Schwarz	CMW500	Radio Communication Tester	5/13/2020	Annual	5/13/2021	1267284
Rohde & Schwarz	CMW500	Radio Communication Tester	5/21/2020	Annual	5/21/2021	128635
Rohde & Schwarz	CMW500	Radio Communication Tester	6/25/2020	Annual	6/25/2021	140148
Rohde & Schwarz	ZNLE6	Vector Network Analyzer	10/11/2019	Annual	10/11/2020	101307
SPEAG	D750V2	750 MHz SAR Dipole	3/11/2020	Annual	3/11/2021	1054
SPEAG	D835V2	835 MHz SAR Dipole	3/13/2019	Biennial	3/13/2021	46017
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Biennial	10/19/2020	46113
SPEAG	D835V2	835 MHz SAR Dipole	1/13/2020	Annual	1/13/2021	46132
SPEAG	D1750V2	1750 MHz SAR Dipole	5/12/2020	Annual	5/12/2021	1148
SPEAG	D1760V2	1765 MHz SAR Dipole	5/23/2018	Triennial	5/23/2021	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Biennial	10/23/2020	56980
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Biennial	10/23/2020	56149
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2019	Biennial	2/21/2021	56148
SPEAG	D2450V2	2450 MHz SAR Dipole	2/10/2020	Annual	2/10/2021	882
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Triennial	8/16/2021	981
SPEAG	D2600V2	2600 MHz SAR Dipole	8/14/2019	Biennial	8/14/2021	1064
SPEAG	D2600V2	2600 MHz SAR Dipole	4/11/2018	Triennial	4/11/2021	1004
SPEAG	D3500V2	3500 MHz SAR Dipole	1/11/2018	Triennial	1/11/2021	1059
SPEAG	D3700V2	3700 MHz SAR Dipole	1/11/2018	Triennial	1/11/2021	1018
SPEAG	D5GHV2	5 GHz SAR Dipole	2/18/2020	Annual	2/18/2021	1120
SPEAG	D5GHV2	5 GHz SAR Dipole	8/16/2018	Triennial	8/16/2021	1237
SPEAG	DAE4	Dasys Data Acquisition Electronics	8/12/2020	Annual	8/12/2021	1323
SPEAG	DAE4	Dasys Data Acquisition Electronics	8/11/2020	Annual	8/11/2021	1450
SPEAG	DAE4	Dasys Data Acquisition Electronics	3/12/2020	Annual	3/12/2021	1368
SPEAG	DAE4	Dasys Data Acquisition Electronics	5/20/2020	Annual	5/20/2021	728
SPEAG	DAE4	Dasys Data Acquisition Electronics	12/5/2019	Annual	12/5/2020	1533
SPEAG	DAE4	Dasys Data Acquisition Electronics	4/15/2020	Annual	4/15/2021	1407
SPEAG	DAE4	Dasys Data Acquisition Electronics	4/15/2020	Annual	4/15/2021	1502
SPEAG	DAE4	Dasys Data Acquisition Electronics	6/18/2020	Annual	6/18/2021	1334
SPEAG	DAE4	Dasys Data Acquisition Electronics	1/13/2020	Annual	1/13/2021	1530
SPEAG	DAE4	Dasys Data Acquisition Electronics	7/15/2020	Annual	7/15/2021	1322
SPEAG	DAE4	Dasys Data Acquisition Electronics	1/13/2020	Annual	1/13/2021	1558
SPEAG	DAE4	Dasys Data Acquisition Electronics	5/14/2020	Annual	5/14/2021	1583
SPEAG	DAK-3.5	Dielectric Assessment Kit	10/23/2019	Annual	10/23/2020	1091
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/13/2020	Annual	5/13/2021	1070
SPEAG	DAK-3.5	Dielectric Parameter Probes	12/16/2019	Annual	12/16/2020	1278
SPEAG	EX3DV4	SAR Probe	1/21/2020	Annual	1/21/2021	3589
SPEAG	EX3DV4	SAR Probe	6/23/2020	Annual	6/23/2021	7406
SPEAG	EX3DV4	SAR Probe	4/21/2020	Annual	4/21/2021	7402
SPEAG	EX3DV4	SAR Probe	1/21/2020	Annual	1/21/2021	7408
SPEAG	EX3DV4	SAR Probe	7/31/2020	Annual	7/31/2021	7308
SPEAG	EX3DV4	SAR Probe	8/19/2020	Annual	8/19/2021	7547
SPEAG	EX3DV4	SAR Probe	12/11/2019	Annual	12/11/2020	7570
SPEAG	EX3DV4	SAR Probe	5/18/2020	Annual	5/18/2021	7538
SPEAG	EX3DV4	SAR Probe	12/11/2019	Annual	12/11/2020	7571
SPEAG	EX3DV4	SAR Probe	4/21/2020	Annual	4/21/2021	7357
SPEAG	EX3DV4	SAR Probe	6/23/2020	Annual	6/23/2021	7409

Notes: 1) Equipment was solely used during its 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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16 MEASUREMENT UNCERTAINTIES

a	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System								
Probe Calibration	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	2.0	R	1.73	1.0	1.0	1.2	1.2	∞
Linearity	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	0.25	R	1.73	1.0	1.0	0.1	0.1	∞
Readout Electronics	0.3	N	1	1.0	1.0	0.3	0.3	∞
Response Time	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions - Noise	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
RF Ambient Conditions - Reflections	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	6.7	R	1.73	1.0	1.0	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	2.7	N	1	1.0	1.0	2.7	2.7	35
Device Holder Uncertainty	1.67	N	1	1.0	1.0	1.7	1.7	5
Output Power Variation - SAR drift measurement	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
SAR Scaling	0.0	R	1.73	1.0	1.0	0.0	0.0	∞
Phantom & Tissue Parameters								
Phantom Uncertainty (Shape & Thickness tolerances)	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	4.2	N	1	0.78	0.71	3.3	3.0	10
Liquid Permittivity - measurement uncertainty	4.1	N	1	0.23	0.26	1.0	1.1	10
Liquid Conductivity - Temperature Uncertainty	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)						RSS	11.5	11.3
Expanded Uncertainty (95% CONFIDENCE LEVEL)						k=2	23.0	22.6

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17 CONCLUSION

17.1 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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