



SAR EVALUATION REPORT

Applicant Name:

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Gyeonggi-do, 16677, Korea

Date of Testing:

12/22/23-02/01/2024

Test Site/Location:

Element, Columbia, MD, USA

Document Serial No.:

1M2312110124-01.A3L(R1)

FCC ID:

A3LSMS928JPN

APPLICANT:

SAMSUNG ELECTRONICS CO., LTD.

DUT Type:

Portable Handset

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model(s)

SC-52E, SCG26

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	1.22	0.39	0.73	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	<0.1	0.43	0.61	N/A
PCE	UMTS 1900	824.40 - 848.60 MHz	1.22	0.71	0.76	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	1.09	0.31	0.31	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	1.11	0.52	0.52	N/A
PCE	LTE Band 5	824.7 - 848.3 MHz	1.02	0.61	0.61	N/A
PCE	LTE Band 66	1710.7 - 1779.3 MHz	0.11	0.58	1.03	N/A
PCE	LTE Band 4	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 2	1850.7 - 1909.3 MHz	0.10	0.61	1.25	2.19
PCE	LTE Band 41	2486.5 - 2687.5 MHz	1.25	0.43	0.64	N/A
PCE	NR Band n5	825 - 845 MHz	1.21	0.61	0.72	N/A
PCE	NR Band n66	1712.5 - 1777.5 MHz	1.18	0.50	1.00	N/A
PCE	NR Band n41	2501.01 - 2685 MHz	1.05	0.46	0.60	N/A
DTS	2.4 GHz WiFi	2412 - 2652 MHz	0.75	0.29	0.42	N/A
NII	5 GHz WiFi	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz U-NII-4: 5845 - 5885 MHz	0.80	0.55	0.75	3.10
6CD	6 GHz WiFi	U-NII-5: 5935 - 6415 MHz U-NII-6: 6435 - 6515 MHz U-NII-7: 6535 - 6875 MHz U-NII-8: 6895 - 7115 MHz	0.20	0.17	N/A	0.51
DSS	2.4 GHz Bluetooth	2402 - 2480 MHz	0.28	<0.1	0.14	<0.1
DX	NFC	13.56 MHz	N/A	N/A	N/A	<0.1
UWB	UWB	6499.6 - 7987.2 MHz	N/A	N/A	N/A	<0.1
Simultaneous SAR per KDB 690783 D01v01R03:			1.59	1.44	1.53	3.10
Equipment Class	Band & Mode	Tx Frequency	APD (W/m²)			Reported PD (W/m²)
			Head	Body-Worn	Phablet	
6CD	6 GHz WiFi	U-NII-5: 5935 - 6415 MHz U-NII-6: 6435 - 6515 MHz U-NII-7: 6535 - 6875 MHz U-NII-8: 6895 - 7115 MHz	1.47	1.39	12.08	7.46
UWB	UWB	6499.6 - 7987.2 MHz	N/A	N/A	<0.1	0.47

Note: This revised test report supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly

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

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

RJ Ortanez
Executive Vice President



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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
LTE Band 12	Data	699.7 - 715.3 MHz
LTE Band 13	Data	779.5 - 784.5 MHz
LTE Band 5	Data	824.7 - 848.3 MHz
LTE Band 66	Data	1710.7 - 1779.3 MHz
LTE Band 4	Data	1710.7 - 1754.3 MHz
LTE Band 2	Data	1850.7 - 1909.3 MHz
LTE Band 41	Data	2498.5 - 2687.5 MHz
NR Band n5	Data	826.5 - 846.5 MHz
NR Band n66	Data	1712.5 - 1777.5 MHz
NR Band n41	Data	2501.01 - 2685 MHz
2.4 GHz WIFI	Data	2412 - 2462 MHz
5 GHz WIFI	Data	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz U-NII-4: 5845 - 5885 MHz
6 GHz WIFI	Data	U-NII-5: 5945 - 6415 MHz U-NII-6: 6435 - 6515 MHz U-NII-7: 6535 - 6875 MHz U-NII-8: 6895 - 7115 MHz
2.4 GHz Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
UWB	Data	6489.6 - 7987.2 MHz

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1.2 Time-Averaging Algorithm for RF Exposure Compliance

This Device is enabled with the Qualcomm® Smart Transmit Gen2 feature with antenna grouping.. 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).

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 WWAN sub-6/WLAN/BT radio), for each characterized technology and band. Characterization is achieved by determining P_{limit} for WWAN sub-6/WLAN/BT that corresponds to the exposure design targets after accounting for all device design related uncertainties, i.e., SAR_design_target (<FCC SAR Limit) for sub-6 radio. (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 1.0dB for this EUT.

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Exposure Scenario			Maximum Tune-Up Output Power*	Body-Worn, Hotspot, or Phablet	Head
Averaging Volume				1g/10g	1g
Spacing				10mm, 0mm	0mm
DSI				0	1
Technology/Band	Antenna	Antenna Group	Pmax		
GSM 850	A	AG0	25.1	26.1	29.6
GSM 850	E	AG1	24.6	26.9	21.8
GSM 1900	A	AG0	21.8	18.8	30.5
UMTS 850	A	AG0	24.0	24.2	27.7
UMTS 850	E	AG1	23.5	25.7	21.5
LTE Band 12	A	AG0	23.0	26.8	28.9
LTE Band 12	E	AG1	22.5	26.1	22.0
LTE Band 13	A	AG0	23.0	24.6	27.6
LTE Band 13	E	AG1	22.5	26.8	22.5
LTE Band 5	A	AG0	24.0	24.9	28.2
LTE Band 5	E	AG1	23.5	26.4	21.0
LTE Band 66/4	A	AG0	23.0	18.5	29.5
LTE Band 2	A	AG0	23.0	18.0	29.5
LTE Band 41 PC3	B	AG0	22.0	19.0	27.7
LTE Band 41 PC3	F	AG1	22.0	19.5	16.5
NR Band n5	A	AG0	24.0	24.6	27.5
NR Band n5	E	AG1	23.5	25.9	21.0
NR Band n66	A	AG0	23.0	18.5	28.7
NR Band n66	F	AG1	23.0	20.5	18.5
NR Band n41 PC3	B	AG0	24.0	19.5	21.0
NR Band n41 PC3	F	AG1	24.0	19.0	16.5
2.4 GHz WIFI	H	AG1	17.0	21.4	16.0
2.4 GHz WIFI	J	AG1	17.0	23.5	16.0
2.4 GHz WIFI	MIMO	AG1	17.0	19.5	16.0
5 GHz WIFI	H	AG1	17.0	17.0	15.0
5 GHz WIFI	E	AG1	17.0	20.5	15.0
5 GHz WIFI	MIMO	AG1	17.0	17.1	15.0
6 GHz WIFI	H	AG1	16.0	11.0	11.0
6 GHz WIFI	E	AG1	16.0	11.0	11.0
6 GHz WIFI	MIMO	AG1	16.0	11.0	11.0
2.4 GHz Bluetooth	H	AG1	15.9	23.9	22.3
2.4 GHz Bluetooth	J	AG1	15.0	31.0	25.9
2.4 GHz Bluetooth	MIMO	AG1	11.0	21.5	21.1

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

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

The maximum time-averaged output power (dBm) for any WWAN sub-6/WLAN/BT technology, band, and DSI is the minimum of (" $P_{limit, nom}$ EFS" and "Maximum tune up output power $P_{Max, nom}$ ") + 1dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D01v06.

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.

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

1.3 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.

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

1.3.1 WWAN Output Power

GSM/GPRS/EDGE 850										
Antenna E										
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
Pmax	Max Allowed Power	33.0	33.0	31.5	30.0	28.0	27.5	25.5	24.5	24.5
	Nominal	32.0	32.0	30.5	29.0	27.0	26.5	24.5	23.5	23.5
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	33.0	33.0	31.5	30.0	28.0	27.5	25.5	24.5	24.5
	Nominal	32.0	32.0	30.5	29.0	27.0	26.5	24.5	23.5	23.5
DSI = 1 (Head)	Max Allowed Power	32.0	32.0	29.0	27.2	26.0	27.5	25.5	24.5	24.5
	Nominal	31.0	31.0	28.0	26.2	25.0	26.5	24.5	23.5	23.5
GSM/GPRS/EDGE 850										
Antenna A										
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
Pmax	Max Allowed Power	33.5	33.5	32.0	30.5	28.5	28.0	26.0	25.0	25.0
	Nominal	32.5	32.5	31.0	29.5	27.5	27.0	25.0	24.0	24.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	33.5	33.5	32.0	30.5	28.5	28.0	26.0	25.0	25.0
	Nominal	32.5	32.5	31.0	29.5	27.5	27.0	25.0	24.0	24.0
DSI = 1 (Head)	Max Allowed Power	33.5	33.5	32.0	30.5	28.5	28.0	26.0	25.0	25.0
	Nominal	32.5	32.5	31.0	29.5	27.5	27.0	25.0	24.0	24.0
GSM/GPRS/EDGE 1900										
Antenna A										
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
Pmax	Max Allowed Power	30.0	30.0	29.0	27.0	25.5	27.0	25.0	24.5	24.5
	Nominal	29.0	29.0	28.0	26.0	24.5	26.0	24.0	23.5	23.5
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	29.0	29.0	26.0	24.2	23.0	27.0	25.0	24.2	23.0
	Nominal	28.0	28.0	25.0	23.2	22.0	26.0	24.0	23.2	22.0
DSI = 1 (Head)	Max Allowed Power	30.0	30.0	29.0	27.0	25.5	27.0	25.0	24.5	24.5
	Nominal	29.0	29.0	28.0	26.0	24.5	26.0	24.0	23.5	23.5

For GSM, the above powers listed are GSM burst average values.

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UMTS Band 5 (850 MHz)				
Antenna A				
Power Level		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
Pmax	Max Allowed Power	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0
DSI = 1 (Head)	Max Allowed Power	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0
UMTS Band 5 (850 MHz)				
Antenna E				
Power Level		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
Pmax	Max Allowed Power	24.5	23.5	23.5
	Nominal	23.5	22.5	22.5
DSI = 0 (Body-Worn, Hotspot, or Phablet)	Max Allowed Power	24.5	23.5	23.5
	Nominal	23.5	22.5	22.5
DSI = 1 (Head)	Max Allowed Power	22.5	21.5	21.5
	Nominal	21.5	20.5	20.5

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Mode / Band	Antenna		Modulated Average Output Power (in dBm)		
			Pmax	DSI = 0 (Body-Worn, Hotspot, or Phablet)	DSI = 1 (Head)
LTE Band 12	A	Max Allowed Power	24.0	24.0	24.0
		Nominal	23.0	23.0	23.0
LTE Band 12	E	Max Allowed Power	23.5	23.5	23.0
		Nominal	22.5	22.5	22.0
LTE Band 13	A	Max Allowed Power	24.0	24.0	24.0
		Nominal	23.0	23.0	23.0
LTE Band 13	E	Max Allowed Power	23.5	23.5	23.5
		Nominal	22.5	22.5	22.5
LTE Band 5	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
LTE Band 5	E	Max Allowed Power	24.5	24.5	22.0
		Nominal	23.5	23.5	21.0
LTE Band 66/4	A	Max Allowed Power	24.0	19.5	24.0
		Nominal	23.0	18.5	23.0
LTE Band 2	A	Max Allowed Power	24.0	19.0	24.0
		Nominal	23.0	18.0	23.0
LTE Band 41 PC3	B	Max Allowed Power	25.0	22.0	25.0
		Nominal	24.0	21.0	24.0
LTE Band 41 PC3	F	Max Allowed Power	25.0	22.5	19.5
		Nominal	24.0	21.5	18.5

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Mode / Band	Antenna		Modulated Average Output Power (in		
			Pmax	DSI = 0 (Body-Worn, Hotspot, or Phablet)	DSI = 1 (Head)
NR Band n5	A	Max Allowed Power	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0
NR Band n5	E	Max Allowed Power	24.5	24.5	22.0
		Nominal	23.5	23.5	21.0
NR Band n66	A	Max Allowed Power	24.0	19.5	24.0
		Nominal	23.0	18.5	23.0
NR Band n66	F	Max Allowed Power	24.0	21.5	19.5
		Nominal	23.0	20.5	18.5
NR Band n41 PC3	B	Max Allowed Power	25.0	20.5	22.0
		Nominal	24.0	19.5	21.0
NR Band n41 PC3	F	Max Allowed Power	25.0	20.0	17.5
		Nominal	24.0	19.0	16.5

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

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1.3.2 2.4 GHz WLAN Output Power

The below table is applicable in the following conditions:

- Pmax, DSI=0 (Body-worn, Hotspot, Phablet)

Band	Power Level	IEEE 802.11 Modulated/Framed Output Power (in dBm)																							
		SSO												SSO in MIMO											
		Antenna H						Antenna J						MIMO						MIMO					
Maximum / Nominal Power		Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom
2.4 GHz WLAN	2.45 GHz	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
		ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0
		ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0

The below table is applicable in the following conditions:

- DSI=1 (RCV)

Band	Power Level	IEEE 802.11 Modulated/Framed Output Power (in dBm)																							
		SSO												SSO in MIMO											
		Antenna H						Antenna J						MIMO						MIMO					
Maximum / Nominal Power		Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom
2.4 GHz WLAN	2.45 GHz	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0
		ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0	ch. 12: 6.0	5.0
		ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0	ch. 13: 0.0	-1.0

1.3.3 5 GHz WLAN Output Power

The below table is applicable in the following conditions:

- Pmax, DSI=0 (Body-worn, Hotspot or Phablet)

Mode	Band	IEEE 802.11 Modulated/Framed Output Power (in dBm)																							
		SSO												SSO in MIMO											
		Antenna H						Antenna J						MIMO						MIMO					
Maximum / Nominal Power		Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom
5 GHz WLAN (20MHz BW)	UNH-10A/C20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-10A/C20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-1	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-2A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-2C/20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-3/20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-3C/20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0

The below table is applicable in the following conditions:

- DSI=1 (RCV)

Mode	Band	IEEE 802.11 Modulated/Framed Output Power (in dBm)																							
		SSO												SSO in MIMO											
		Antenna H						Antenna J						MIMO						MIMO					
Maximum / Nominal Power		Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom	Max	Nom
5 GHz WLAN (20MHz BW)	UNH-10A/C20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-10A/C20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-1	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-2A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-2C/20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-3/20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0
5 GHz WLAN (20MHz BW)	UNH-3C/20A	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	17.0

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1.3.4 6 GHz WLAN Output Power

The below table is applicable in the following conditions:

- Pmax

Mode	Band	IEEE 802.11 Modulated/Framed Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H						Antenna E						MIMO					
		a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.
6 GHz WiFi (20MHz BW) - SP	UNII-5/7	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	16.0
6 GHz WiFi (40MHz BW) - SP	UNII-5/7			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0
6 GHz WiFi (80MHz BW) - SP	UNII-5/7			17.0	16.0	17.0	16.0			17.0	16.0	17.0	16.0			17.0	16.0	17.0	16.0
6 GHz WiFi (160MHz BW) - SP	UNII-5/7			17.0	16.0	17.0	16.0			17.0	16.0	17.0	16.0			17.0	16.0	17.0	16.0
6 GHz WiFi (320MHz BW) - SP	UNII-5/7					17.0	16.0					17.0	16.0					17.0	16.0

Mode	Band	IEEE 802.11 Modulated/Framed Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H						Antenna E						MIMO					
		a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)	
Maximum / Nominal Power		Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.
6 GHz WiFi (20MHz BW) - LPI	UNII-5/6/7/8	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0
6 GHz WiFi (40MHz BW) - LPI	UNII-5/6/7/8			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0			13.0	12.0	13.0	12.0
6 GHz WiFi (80MHz BW) - LPI	UNII-5/6/7/8			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0
6 GHz WiFi (160MHz BW) - LPI	UNII-5/6/7/8			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0			16.0	15.0	16.0	15.0
6 GHz WiFi (320MHz BW) - LPI	UNII-5/6/7/8					16.0	15.0					16.0	15.0					16.0	15.0

The below table is applicable in the following conditions:

- DSI=0 (Body-worn or Phablet), DSI=1 (RCV)

Mode	Band	IEEE 802.11 Modulated/Framed Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H						Antenna E						MIMO					
a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)			
Maximum / Nominal Power		Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.		
6 GHz WiFi (20MHz BW) - SP	UNII-5/7	12.0	11.0	12.0	11.0	12.0	11.0	12.0	11.0	12.0	11.0	12.0	11.0	12.0	11.0	12.0	11.0		
6 GHz WiFi (40MHz BW) - SP	UNII-5/7			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0		
6 GHz WiFi (80MHz BW) - SP	UNII-5/7			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0		
6 GHz WiFi (160MHz BW) - SP	UNII-5/7			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0		
6 GHz WiFi (320MHz BW) - SP	UNII-5/7					12.0	11.0					12.0	11.0				11.0		
Mode	Band	IEEE 802.11 Modulated/Framed Output Power (in dBm)																	
		SISO						SISO						SISO in MIMO					
		Antenna H						Antenna E						MIMO					
a		ax (SU)		be (SU)		a		ax (SU)		be (SU)		a (CDD + STBC)		ax (SU) (CDD + STBC, SDM)		be (SU) (CDD + STBC, SDM)			
Maximum / Nominal Power		Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.	Max	Norm.		
6 GHz WiFi (20MHz BW) - LPI	UNII-5/6/7/8	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	10.0		
6 GHz WiFi (40MHz BW) - LPI	UNII-5/6/7/8			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0		
6 GHz WiFi (80MHz BW) - LPI	UNII-5/6/7/8			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0		
6 GHz WiFi (160MHz BW) - LPI	UNII-5/6/7/8			12.0	11.0	12.0	11.0			12.0	11.0	12.0	11.0			12.0	11.0		
6 GHz WiFi (320MHz BW) - LPI	UNII-5/6/7/8					12.0	11.0					12.0	11.0				11.0		

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1.3.5 2.4 GHz Maximum Bluetooth Output Power

The below table is applicable in the following conditions:

- Pmax, DSI=0 (Body-worn, Hotspot or Phablet), DSI=1 (RCV)

Mode	Data Rate	Modulated Output Power (in dBm)					
		Single Antenna				Each Chain in Dual Mode	
		Antenna H		Antenna J		MIMO	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.
Bluetooth	1Mbps	18.0	17.0	17.0	16.0	13.0	12.0
Bluetooth EDR	2Mbps	15.0	14.0	13.5	12.5	10.5	9.5
Bluetooth EDR	3Mbps	14.5	13.5	13.5	12.5	10.5	9.5
Bluetooth LE	1Mbps	10.5	9.5	10.5	9.5	N/A	N/A
Bluetooth LE	2Mbps	10.5	9.5	10.5	9.5	N/A	N/A
Bluetooth LE	125kbps	10.5	9.5	10.5	9.5	N/A	N/A
Bluetooth LE	500kbps	10.5	9.5	10.5	9.5	N/A	N/A

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1.4 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 DUT Antenna Diagram & SAR Test Setup Photographs Appendix. Since the display diagonal dimension of this device is > 150 mm and <200 mm, it is considered a “phablet.” Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC filing.

Table 1-1
Device Edges/Sides for SAR Testing

Antenna	Back	Front	Top	Bottom	Right	Left
A	Yes	Yes	No	Yes	Yes	Yes
B	Yes	Yes	No	Yes	Yes	No
E	Yes	Yes	Yes	No	Yes	No
F	Yes	Yes	Yes	No	No	Yes
H	Yes	Yes	Yes	No	No	Yes
J	Yes	Yes	Yes	No	Yes	No
UWB	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 D01v06r03. 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-1, U-NII-2A, U-NII-2C, U-NII-4, and WIFI6E operations are disabled.

1.5 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 DUT Antenna Diagram & SAR Test Setup Photographs Appendix.

1.6 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.

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

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**Table 1-2
Simultaneous Transmission Scenarios**

No.	Capable Transmission Configuration	Head	Body Works	Antenna	Wireless	Phone	Notes
1	SDM voice + 2.4 GHz Bluetooth SSID	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
2	SDM voice + 2.4 GHz Bluetooth Dual	Yes*	Yes	N/A	Yes	N/A	
3	SDM voice + 2.4 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
4	SDM voice + 2.4 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
5	SDM voice + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
6	SDM voice + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
7	SDM voice + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
8	SDM voice + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
9	SDM voice + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
10	SDM voice + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
11	SDM voice + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
12	SDM voice + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
13	SDM voice + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
14	SDM voice + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
15	SDM voice + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
16	SDM voice + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
17	SDM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
18	SDM voice + 2.4 GHz Bluetooth Ant H + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
19	SDM voice + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
20	SDM voice + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
21	SDM voice + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
22	SDM voice + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
23	SDM voice + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
24	SDM voice + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
25	SDM voice + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
26	SDM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
27	SDM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
28	SDM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
29	SDM voice + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
30	JAIFULTE/NB + 2.4 GHz Bluetooth SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
31	JAIFULTE/NB + 2.4 GHz Bluetooth Dual	Yes	Yes	N/A	Yes	N/A	
32	JAIFULTE/NB + 2.4 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
33	JAIFULTE/NB + 2.4 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
34	JAIFULTE/NB + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
35	JAIFULTE/NB + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
36	JAIFULTE/NB + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
37	JAIFULTE/NB + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
38	JAIFULTE/NB + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
39	JAIFULTE/NB + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
40	JAIFULTE/NB + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
41	JAIFULTE/NB + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
42	JAIFULTE/NB + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
43	JAIFULTE/NB + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
44	JAIFULTE/NB + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
45	JAIFULTE/NB + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
46	JAIFULTE/NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
47	JAIFULTE/NB + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
48	JAIFULTE/NB + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
49	JAIFULTE/NB + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
50	JAIFULTE/NB + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
51	JAIFULTE/NB + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
52	JAIFULTE/NB + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
53	JAIFULTE/NB + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
54	JAIFULTE/NB + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
55	JAIFULTE/NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
56	JAIFULTE/NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
57	JAIFULTE/NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
58	JAIFULTE/NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
59	STE + NB	Yes	Yes	N/A	Yes	N/A	
60	STE + NB + 2.4 GHz Bluetooth SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
61	STE + NB + 2.4 GHz Bluetooth Dual	Yes	Yes	N/A	Yes	N/A	
62	STE + NB + 2.4 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
63	STE + NB + 2.4 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
64	STE + NB + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
65	STE + NB + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
66	STE + NB + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
67	STE + NB + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
68	STE + NB + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
69	STE + NB + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
70	STE + NB + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
71	STE + NB + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
72	STE + NB + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
73	STE + NB + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
74	STE + NB + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
75	STE + NB + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
76	STE + NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
77	STE + NB + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
78	STE + NB + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
79	STE + NB + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
80	STE + NB + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
81	STE + NB + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
82	STE + NB + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
83	STE + NB + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	Yes	Yes	N/A	Yes	N/A	
84	STE + NB + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	Yes	Yes	N/A	Yes	N/A	
85	STE + NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
86	STE + NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
87	STE + NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
88	STE + NB + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SISO	Yes*	Yes	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
89	SPRCE/EDGE + 2.4 GHz Bluetooth SISO	N/A	N/A	N/A	Yes	N/A	* Bluetooth Tethering is considered only on Ant H
90	SPRCE/EDGE + 2.4 GHz Bluetooth Dual	N/A	N/A	N/A	Yes	N/A	
91	SPRCE/EDGE + 2.4 GHz WLAN MIMO	N/A	N/A	N/A	Yes	N/A	
92	SPRCE/EDGE + 2.4 GHz WLAN SISO	N/A	N/A	N/A	Yes	N/A	
93	SPRCE/EDGE + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes	N/A	
94	SPRCE/EDGE + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes	N/A	
95	SPRCE/EDGE + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes	N/A	
96	SPRCE/EDGE + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes	N/A	
97	SPRCE/EDGE + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes	N/A	
98	SPRCE/EDGE + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes	N/A	
99	SPRCE/EDGE + 2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes	N/A	
100	SPRCE/EDGE + 2.4 GHz WLAN MIMO + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes	N/A	
101	SPRCE/EDGE + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes	N/A	
102	SPRCE/EDGE + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes	N/A	
103	SPRCE/EDGE + 2.4 GHz WLAN SISO + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes	N/A	
104	SPRCE/EDGE + 2.4 GHz WLAN SISO + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes	N/A	
105	SPRCE/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes*	N/A	* Bluetooth Tethering is considered only on Ant H
106	SPRCE/EDGE + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes*	N/A	* Bluetooth Tethering is considered only on Ant H
107	SPRCE/EDGE + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes*	N/A	* Bluetooth Tethering is considered only on Ant H
108	SPRCE/EDGE + 2.4 GHz Bluetooth SISO + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes*	N/A	* Bluetooth Tethering is considered only on Ant H
109	SPRCE/EDGE + 2.4 GHz Bluetooth SISO + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes*	N/A	* Bluetooth Tethering is considered only on Ant H
110	SPRCE/EDGE + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes	N/A	
111	SPRCE/EDGE + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes	N/A	
112	SPRCE/EDGE + 2.4 GHz Bluetooth Dual + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes	N/A	
113	SPRCE/EDGE + 2.4 GHz Bluetooth Dual + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes	N/A	
114	SPRCE/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes*	N/A	* Bluetooth Tethering is considered only on Ant H
115	SPRCE/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes*	N/A	* Bluetooth Tethering is considered only on Ant H
116	SPRCE/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN MIMO	N/A	N/A	N/A	Yes*	N/A	* Bluetooth Tethering is considered only on Ant H
117	SPRCE/EDGE + 2.4 GHz Bluetooth Ant H + 2.4 GHz WLAN Ant I + 5 GHz WLAN SISO	N/A	N/A	N/A	Yes*	N/A	* Bluetooth Tethering is considered only on Ant H

1. No other simultaneous scenarios besides described above is supported for this model.
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 not 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-3 by S/W, therefore U-NII-1, U-NII-2A, U-NII-2C, and U-NII-4 were not evaluated for wireless router conditions.
5. 6 GHz Wireless Router is not supported, therefore it was not evaluated for wireless router conditions.
6. This device supports 2x2 MIMO Tx for WLAN 802.11a/b/g/n/ac/ax/be. 802.11a/b/g/n/ac/ax/be supports CDD and STBC and 802.11n/ac/ax/be additionally supports SDM.

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7. This device supports VoWIFI.
8. This device supports Bluetooth Tethering on Antenna 1 only.
9. This device supports VoLTE.
10. This device supports VoNR.
11. LTE + 5G NR FR1 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR1 checklist.
12. UWB and NFC were evaluated for phablet based on expected usage conditions.
13. SISO represents 2.4 GHz WLAN/BT transmission on Ant H or Ant J, and 5/6 GHz transmission on Ant H or Ant E.

1.7 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

Since Wireless Router operations are not allowed by the chipset firmware using U-NII-1, U-NII-2A, U-NII-2C, and U-NII-4 WIFI, only 2.4 GHz WIFI, 2.4 GHz Bluetooth, 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.

This device supports IEEE 802.11ax with the following features:

- a) Up to 320 MHz Bandwidth only for 6GHz
- b) Up to 160 MHz Bandwidth only for 5/6 GHz
- c) Up to 20 MHz Bandwidth only for 2.4 GHz
- d) 2 Tx antenna output
- e) Up to 4KQAM is supported
- f) TDWR and Band gap channels are supported for 5/6 GHz
- g) MU-MIMO UL Operations are not supported

Per FCC KDB Publication 648474 D01v06r03, this device is considered a "phablet" since the display diagonal dimension is greater than 150mm 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-1, U-NII-2A, U-NII-2C, U-NII-4 WIFI and 6 GHz, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WLAN, 2.4 GHz Bluetooth, and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

Per April 2019 TCB Workshop Notes and FCC guidance, SAR testing for 802.11ax/be follows initial test configuration procedures of KDB 248227, with 802.11ax/be considered a higher order 802.11 mode.

Per FCC guidance, SAR was performed using 6.5 GHz SAR probe calibration factors for WIFI 6GHz/UWB and 8GHz SAR probe calibration factors for UWB. FCC KDB 648474, FCC KDB 941225 D07 and FCC KDB 248227 were followed for test positions, distances, and modes. Absorbed power density (APD) using a 4cm² averaging area is reported based on SAR measurements. Incident power density is evaluated at 2mm ensuring that the resolution is sufficient such that integrated power density (iPD) between d=2mm and d=λ/5mm is ≥ -1dB per equipment manufacturer guidance. Power density results are scaled up for uncertainty above 30%. Per TCB workshop October 2020 notes, 5 channels were tested for WIFI 6 GHz.

(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.

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

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

Per FCC KDB Publication 648474 D01v06r03, this device is considered a "phablet" since the display diagonal dimension is greater than 150mm 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.

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

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

This device can transmit with antenna E for GSM 850, UMTS 850, LTE B12/13/5, and NR Band n5, and antenna F for LTE B41 and NR Band n66/41. SAR tests for antenna E, and antenna F respectively were additionally performed for these bands to ensure compliance.

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

1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r05, 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 D01v06r03 (Phablet Procedures)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO)

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- November 2017, April 2018, October 2018 TCB Workshop Notes (LTE Carrier Aggregation)
- April 2019 TCB Workshop Notes (IEEE 802.11ax, Dynamic Antenna Tuning)

1.9 Device Serial Numbers

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

1.10 Bibliography

Report Type	Report Serial Number
RF Exposure Part 2 Test Report	1M2312110124-02.A3L
RF Part 0 Test Report	1M2312110124-05.A3L
RF Exposure Compliance Summary Report	1M2312110124-03.A3L

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2 LTE AND NR INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 12: 699.7 - 715.3 MHz				
	LTE Band 13: 779.5 - 784.5 MHz				
	LTE Band 5: 824.7 - 848.3 MHz				
	LTE Band 66: 1710.7 - 1779.3 MHz				
	LTE Band 4: 1710.7 - 1754.3 MHz				
	LTE Band 2: 1850.7 - 1909.3 MHz				
	LTE Band 41: 2498.5 - 2687.5 MHz				
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 5: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	(N/A)		782 (23230)	(N/A)	
LTE Band 5: 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5: 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5: 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5: 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 66: 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66: 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66: 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66: 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66: 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66: 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4: 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4: 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4: 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4: 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4: 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4: 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 2: 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2: 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2: 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2: 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2: 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2: 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 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	UL Cat: 13, DL Cat: 20				
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 16. It supports carrier aggregation, downlink MIMO features as shown in the RF Conducted Powers section of this report and the Downlink LTE CA RF Conducted Powers Appendix. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 16 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, eMBMS, Wifi Offloading, 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 n5: 826.5 - 846.5 MHz				
	NR Band n66: 1712.5 - 1777.5 MHz				
	NR Band n41: 2501.01 - 2685 MHz				
Channel Bandwidths	NR Band n5: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	NR Band n66: 5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz				
	NR Band n41: 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz				
Channel Numbers and Frequencies (MHz)					
NR Band n5: 5 MHz	826.5 (165300)		836.5 (167300)		846.5 (169300)
NR Band n5: 10 MHz	829 (165800)		836.5 (167300)		844 (168800)
NR Band n5: 15 MHz	831.5 (166300)		836.5 (167300)		841.5 (168300)
NR Band n5: 20 MHz	834 (166800)		836.5 (167300)		839 (167800)
NR Band n66: 5 MHz	1712.5 (342500)		1745 (349000)		1777.5 (355500)
NR Band n66: 10 MHz	1715 (343000)		1745 (349000)		1775 (355000)
NR Band n66: 15 MHz	1717.5 (343500)		1745 (349000)		1772.5 (354500)
NR Band n66: 20 MHz	1720 (344000)		1745 (349000)		1770 (354000)
NR Band n66: 25 MHz	1722.5 (344500)		1745 (349000)		1767.5 (353500)
NR Band n66: 30 MHz	1725 (345000)		1745 (349000)		1765 (353000)
NR Band n66: 40 MHz	1730 (346000)		1745 (349000)		1760 (352000)
NR Band n41: 10 MHz	2501.01 (500202)	2547 (509400)	2592.99 (518598)	2639.01 (527802)	2685 (537000)
NR Band n41: 15 MHz	2503.5 (500700)	2548.26 (509652)	2592.99 (518598)	2637.75 (527550)	2682.51 (536502)
NR Band n41: 20 MHz	2506.02 (501204)	2549.49 (509898)	2592.99 (518598)	2636.49 (527298)	2679.99 (535998)
NR Band n41: 25 MHz	2508.51 (501702)	2550.75 (510150)	2592.99 (518598)	2635.26 (527052)	2677.5 (535500)
NR Band n41: 30 MHz	2511 (502200)	2552.01 (510402)	2592.99 (518598)	2634 (526800)	2674.98 (534996)
NR Band n41: 40 MHz	2616.01 (523202)	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: 70 MHz	2531.01 (506202)		(N/A)		2655 (531000)
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 n5, n66	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				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
EN-DC and NR Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Anchor Bands for NR Band n5	2/66				
LTE Anchor Bands for NR Band n66	2/13				
LTE Anchor Bands for NR Band n41	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.

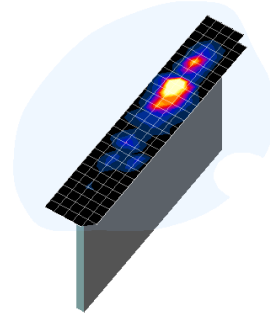


Figure 4-1
Sample SAR Area Scan

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 $\Delta z_{\text{zoom}}(n)$	Graded Grid		
				$\Delta z_{\text{zoom}}(1)^*$	$\Delta z_{\text{zoom}}(n>1)^*$	
≤ 2 GHz	≤ 15	≤ 8	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
2-3 GHz	≤ 12	≤ 5	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤ 5	≤ 4	≤ 3	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤ 4	≤ 3	≤ 2.5	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤ 2	≤ 2	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 22

*Also compliant to IEEE 1528-2013 Table 6

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5 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].

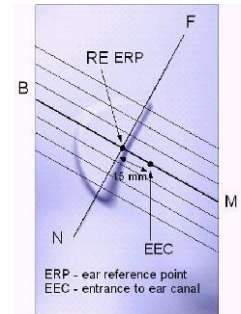


Figure 5-1
Close-Up Side view
of ERP

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

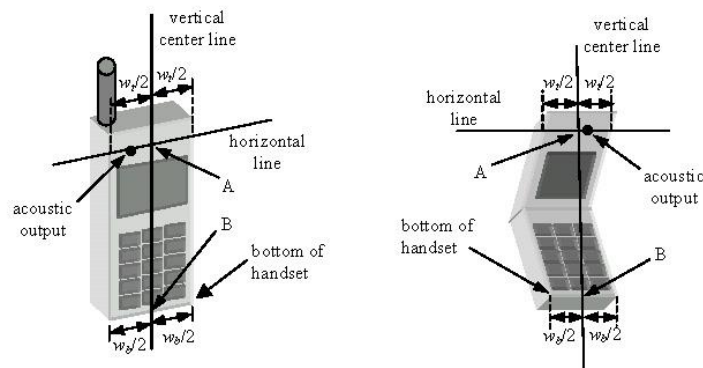


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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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.

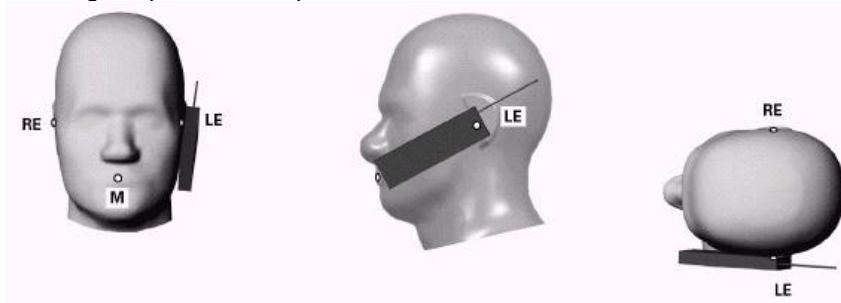


Figure 6-1 Front, Side and Top View of Cheek Position

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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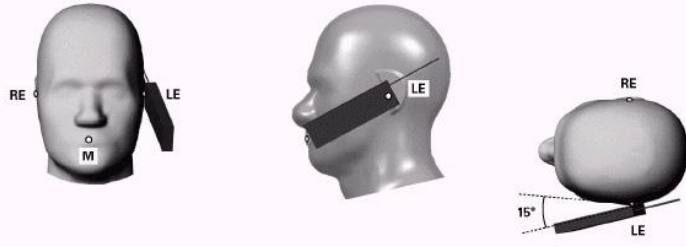


Figure 6-2 Front, Side and Top View of Ear/15° Tilt Position

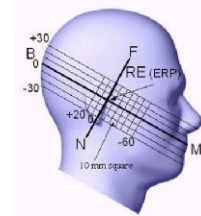


Figure 6-3 Side view w/ relevant markings

6.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones. Per IEEE 1528-2013, a rotated SAM phantom is necessary to allow probe access to such regions. Both SAM heads of the TwinSAM-Chin20 are rotated 20 degrees around the NF line. Each head can be removed from the table for emptying and cleaning.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D01v06r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR location identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

6.5 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-4). Per FCC KDB Publication 648474 D01v06r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

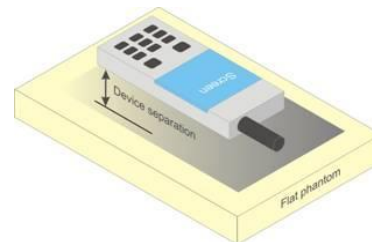


Figure 6-4 Sample Body-Worn Diagram

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not

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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 $> 150 \text{ mm}$ or an overall diagonal dimension $> 160 \text{ mm}$ 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 D01v06r03 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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7.3 RF Exposure Limits for Frequencies above 6 GHz

Per §1.1310 (d)(3), the MPE limits are applied for frequencies above 6 GHz. Power Density is expressed in units of W/m² or mW/cm².

Peak Spatially Averaged Power Density was evaluated over a circular area of 4 cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

Table 7-2
Human Exposure Limits Specified in FCC 47 CFR §1.1310

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

Note: 1.0 mW/cm² is 10 W/m²

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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 UMTS

8.4.1 Output Power Verification

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

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8.4.2 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 “1’s”. The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the 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.

8.4.3 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.

8.4.4 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.

8.4.5 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.

8.5 SAR Measurement Conditions for LTE

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

8.5.1 Spectrum Plots for RB Configurations

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

8.5.2 MPR

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

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8.5.3 A-MPR

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

8.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

- a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
 - i. The required channel and offset combination with the highest maximum output power is required for SAR.
 - ii. When the reported SAR is ≤ 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.

8.5.5 TDD

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

8.5.6 Downlink Only Carrier Aggregation

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

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8.6 SAR Testing with 802.11 Transmitters

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

8.6.1 General Device Setup

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

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

8.6.2 U-NII-1 and U-NII-2A

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

8.6.3 U-NII-2C and U-NII-3

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

8.6.4 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.

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8.6.5 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.
- 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.

8.6.6 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.

8.6.7 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 8.6.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.8 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

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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.

8.6.9 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 RF CONDUCTED POWERS

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

9.1 GSM Conducted Powers

Table 9-1
Measured P_{max} for all DSI for GSM 850 Ant A

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	33.12	33.14	31.55	29.49	27.88	27.20	25.56	24.68	24.41
	190	32.88	32.73	31.69	29.70	27.84	26.90	25.23	24.35	24.44
	251	33.01	32.91	31.69	29.61	27.86	27.20	25.82	25.00	24.95

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	23.92	23.94	25.36	25.06	24.70	18.00	19.37	20.25	21.23
	190	23.68	23.53	25.50	25.27	24.66	17.70	19.04	19.92	21.26
	251	23.81	23.71	25.50	25.18	24.68	18.00	19.63	20.57	21.77

GSM 850	Frame Avg.Targets:	23.30	23.30	24.81	25.07	24.32	17.80	18.81	19.57	20.82
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Table 9-2
Measured P_{limit} for DSI = 0 (Body-worn, Hotspot or Phablet) for GSM 1900 Ant A

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 1900	512	28.40	28.30	25.73	23.36	21.41	25.40	24.31	22.85	21.55
	661	28.92	28.87	25.86	23.23	21.94	25.76	24.16	23.10	22.14
	810	28.34	28.35	25.85	23.17	21.68	25.60	24.17	23.22	21.87

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 1900	512	19.20	19.10	19.54	18.93	18.23	16.20	18.12	18.42	18.37
	661	19.72	19.67	19.67	18.80	18.76	16.56	17.97	18.67	18.96
	810	19.14	19.15	19.66	18.74	18.50	16.40	17.98	18.79	18.69

GSM 1900	Frame Avg.Targets:	18.80	18.80	18.81	18.77	18.82	16.80	17.81	18.77	18.82
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Table 9-3
Measured P_{max} for DSI = 1 (Head) for GSM 1900 Ant A

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 1900	512	29.30	29.36	28.31	26.29	24.74	25.40	24.31	23.53	23.25
	661	29.39	29.30	28.98	26.99	24.94	25.76	24.16	23.42	23.23
	810	29.58	29.53	28.21	26.08	24.79	25.60	24.17	23.34	23.24
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 1900	512	20.10	20.16	22.12	21.86	21.56	16.20	18.12	19.10	20.07
	661	20.19	20.10	22.79	22.56	21.76	16.56	17.97	18.99	20.05
	810	20.38	20.33	22.02	21.65	21.61	16.40	17.98	18.91	20.06
GSM 1900	Frame Avg.Targets:	19.80	19.80	21.81	21.57	21.32	16.80	17.81	19.07	20.32

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Table 9-4
Measured P_{max} for DSI = 0 (Body-worn, Hotspot or Phablet) for GSM 850 Ant E

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	32.57	32.69	31.30	29.51	27.62	26.52	24.85	24.03	23.72
	190	32.67	32.75	31.42	29.67	27.66	26.84	25.28	24.40	24.02
	251	32.79	32.96	31.28	29.62	27.70	26.89	25.28	24.47	24.31

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	23.37	23.49	25.11	25.08	24.44	17.32	18.66	19.60	20.54
	190	23.47	23.55	25.23	25.24	24.48	17.64	19.09	19.97	20.84
	251	23.59	23.76	25.09	25.19	24.52	17.69	19.09	20.04	21.13

GSM 850	Frame Avg.Targets:	22.80	22.80	24.31	24.57	23.82	17.30	18.31	19.07	20.32
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Table 9-5
Measured P_{limit} for DSI = 1 (Head) for GSM 850 Ant E

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	30.81	30.89	27.98	25.87	25.00	26.52	24.85	24.03	23.72
	190	30.80	30.76	27.89	25.41	24.34	26.84	25.28	24.40	24.02
	251	31.21	31.20	28.04	25.54	24.86	26.89	25.28	24.47	24.31

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	21.61	21.69	21.79	21.44	21.82	17.32	18.66	19.60	20.54
	190	21.60	21.56	21.70	20.98	21.16	17.64	19.09	19.97	20.84
	251	22.01	22.00	21.85	21.11	21.68	17.69	19.09	20.04	21.13

GSM 850	Frame Avg.Targets:	21.80	21.80	21.81	21.77	21.82	17.30	18.31	19.07	20.32
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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.

GSM Class: B
GPRS Multislot class: 33 (Max 4 Tx uplink slots)
EDGE Multislot class: 33 (Max 4 Tx uplink slots)
DTM Multislot Class: N/A



Figure 9-1
Power Measurement Setup

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9.2 UMTS Conducted Powers

Table 9-6
Measured P_{max} for all DSI for UMTS 850 Ant A

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	23.07	23.17	23.09	-
99		12.2 kbps AMR	23.06	23.16	23.08	-
6	HSDPA	Subtest 1	22.16	22.15	22.18	0
6		Subtest 2	22.18	22.21	22.15	0
6		Subtest 3	21.69	21.68	21.66	0.5
6		Subtest 4	21.64	21.67	21.63	0.5
6	HSUPA	Subtest 1	22.16	22.27	22.25	0
6		Subtest 2	20.08	20.14	20.10	2
6		Subtest 3	21.13	21.21	21.19	1
6		Subtest 4	20.14	20.17	20.16	2
6		Subtest 5	22.20	22.23	22.19	0

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Table 9-7
Measured P_{max} for DSI = 0 (Body-worn, Hotspot or Phablet) for UMTS 850 Ant E

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	22.88	22.99	23.00	-
99		12.2 kbps AMR	22.85	22.98	23.00	-
6	HSDPA	Subtest 1	22.07	22.12	22.07	0
6		Subtest 2	22.16	22.14	22.15	0
6		Subtest 3	21.60	21.63	21.68	0.5
6		Subtest 4	21.64	21.64	21.53	0.5
6	HSUPA	Subtest 1	22.10	22.20	22.15	0
6		Subtest 2	20.09	20.12	20.07	2
6		Subtest 3	21.12	21.14	21.08	1
6		Subtest 4	20.09	20.13	20.11	2
6		Subtest 5	22.07	22.14	22.12	0

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Table 9-8
Measured P_{limit} for DSI = 1 (Head) for UMTS 850 Ant E

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	21.18	21.27	21.18	-
99		12.2 kbps AMR	21.20	21.25	21.17	-
6	HSDPA	Subtest 1	20.12	20.22	20.10	0
6		Subtest 2	20.09	20.14	20.09	0
6		Subtest 3	19.66	19.67	19.60	0.5
6		Subtest 4	19.57	19.64	19.64	0.5
6	HSUPA	Subtest 1	20.11	20.15	20.14	0
6		Subtest 2	18.33	18.41	18.34	2
6		Subtest 3	19.15	19.08	19.11	1
6		Subtest 4	18.21	18.25	18.33	2
6		Subtest 5	20.15	20.18	20.14	0

It is expected by the manufacturer that MPR for some HSPA subtests may be up to 2 dB more than specified by 3GPP, but also as low as 0 dB according to the chipset implementation in this model.



Figure 9-2
Power Measurement Setup

9.3 LTE Conducted Powers

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

Note: Some bands do not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

LTE Carrier Aggregation Notes:

1. This device supports uplink carrier aggregation for LTE CA_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

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implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.

2. Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

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9.3.1

LTE Band 12

Table 9-9
LTE Band 12 Ant A Measured P_{Max} for all DSI - 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	22.75	0	0
	1	25	22.89		0
	1	49	23.15		0
	25	0	22.11	0-1	1
	25	12	22.09		1
	25	25	22.12		1
16QAM	50	0	22.09	0-1	1
	1	0	21.92		1
	1	25	22.36		1
	1	49	22.14	0-2	1
	25	0	21.18		2
	25	12	21.13		2
64QAM	25	25	21.04	0-2	2
	50	0	21.08		2
	1	0	21.07	0-2	2
	1	25	21.27		2
	1	49	21.09	0-3	2
	25	0	20.01		3
64QAM	25	12	20.19		3
	25	25	20.15		3
	50	0	20.09		3

Table 9-10
LTE Band 12 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.09	0	0
	1	25	23.12		0
	1	49	23.24		0
	25	0	22.16	0-1	1
	25	12	22.30		1
	25	25	22.27		1
16QAM	50	0	22.21	0-1	1
	1	0	22.45		1
	1	25	22.40		1
	1	49	22.47	0-2	1
	25	0	21.19		2
	25	12	21.33		2
64QAM	25	25	21.32	0-2	2
	50	0	21.27		2
	1	0	21.48	0-2	2
	1	25	21.39		2
	1	49	21.40	0-3	2
	25	0	20.16		3
64QAM	25	12	20.28		3
	25	25	20.27		3
	50	0	20.27		3

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Table 9-11
LTE Band 12 Ant E Measured P_{Limit} for DSI = 1 (Head) - 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	22.00	0	0
	1	25	22.12		0
	1	49	21.80		0
	25	0	21.89	0-1	0.5
	25	12	21.94		0.5
	25	25	22.02		0.5
	50	0	21.99		0.5
16QAM	1	0	22.04	0-1	0.5
	1	25	22.16		0.5
	1	49	22.01		0.5
	25	0	21.18	0-2	1.5
	25	12	21.27		1.5
	25	25	21.28		1.5
	50	0	21.26		1.5
64QAM	1	0	21.26	0-2	1.5
	1	25	21.18		1.5
	1	49	21.25		1.5
	25	0	20.23	0-3	2.5
	25	12	20.26		2.5
	25	25	20.23		2.5
	50	0	20.29		2.5

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LTE Band 13

Table 9-12
LTE Band 13 Ant A Measured P_{Max} for all DSI - 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	22.65	0	0
	1	25	22.61		0
	1	49	22.58		0
	25	0	21.63	0-1	1
	25	12	21.57		1
	25	25	21.58		1
	50	0	21.58		1
16QAM	1	0	21.85	0-1	1
	1	25	21.80		1
	1	49	21.90		1
	25	0	20.67	0-2	2
	25	12	20.57		2
	25	25	20.66		2
	50	0	20.55		2
64QAM	1	0	20.81	0-2	2
	1	25	20.82		2
	1	49	20.76		2
	25	0	19.61	0-3	3
	25	12	19.60		3
	25	25	19.62		3
	50	0	19.64		3

Table 9-13
LTE Band 13 Ant E Measured P_{Max} for all DSI - 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	22.52	0	0
	1	25	22.96		0
	1	49	22.63		0
	25	0	21.64	0-1	1
	25	12	21.70		1
	25	25	21.62		1
	50	0	21.69		1
16QAM	1	0	21.71	0-1	1
	1	25	21.83		1
	1	49	21.80		1
	25	0	20.72	0-2	2
	25	12	20.74		2
	25	25	20.64		2
	50	0	20.66		2
64QAM	1	0	20.94	0-2	2
	1	25	20.73		2
	1	49	20.68		2
	25	0	19.71	0-3	3
	25	12	19.68		3
	25	25	19.65		3
	50	0	19.60		3

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LTE Band 5

Table 9-14
LTE Band 5 Ant A Measured P_{Max} for all DSI - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20525 (836.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.70	0	0
	1	25	23.50		0
	1	49	23.92		0
	25	0	22.64	0-1	1
	25	12	22.61		1
	25	25	22.72		1
	50	0	22.57		1
16QAM	1	0	23.04	0-1	1
	1	25	23.38		1
	1	49	22.78		1
	25	0	21.63	0-2	2
	25	12	21.63		2
	25	25	21.69		2
	50	0	21.53		2
64QAM	1	0	21.78	0-2	2
	1	25	21.83		2
	1	49	21.74		2
	25	0	20.64	0-3	3
	25	12	20.69		3
	25	25	20.64		3
	50	0	20.66		3

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Table 9-15
LTE Band 5 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 10 MHz Bandwidth
LTE Band 5 (Cell)
10 MHz Bandwidth

Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20525 (836.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.52	0	0
	1	25	23.75		0
	1	49	23.94		0
	25	0	22.67	0-1	1
	25	12	22.66		1
	25	25	22.73		1
	50	0	22.57		1
16QAM	1	0	22.81	0-1	1
	1	25	22.86		1
	1	49	22.72		1
	25	0	21.73	0-2	2
	25	12	21.65		2
	25	25	21.76		2
	50	0	21.68		2
64QAM	1	0	21.65	0-2	2
	1	25	21.96		2
	1	49	21.80		2
	25	0	20.67	0-3	3
	25	12	20.66		3
	25	25	20.75		3
	50	0	20.70		3

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Table 9-16
LTE Band 5 Ant E Measured P_{Limit} for DSI = 1 (Head) - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20525 (836.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	20.39	0	0
	1	25	20.74		0
	1	49	20.33		0
	25	0	20.36	0-1	0
	25	12	20.42		0
	25	25	20.45		0
	50	0	20.38		0
16QAM	1	0	20.70	0-1	0
	1	25	20.53		0
	1	49	20.64		0
	25	0	20.41	0-2	0
	25	12	20.45		0
	25	25	20.47		0
	50	0	20.35		0
64QAM	1	0	20.41	0-2	0
	1	25	20.53		0
	1	49	20.72		0
	25	0	20.44	0-3	0.5
	25	12	20.45		0.5
	25	25	20.50		0.5
	50	0	20.47		0.5

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LTE Band 66

Table 9-17
LTE Band 66 (AWS) Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 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	17.83	18.21	17.79	0	0
	1	50	18.14	18.12	17.94		0
	1	99	18.23	17.98	17.98		0
	50	0	18.11	17.76	17.89	0-1	0
	50	25	18.18	17.77	18.02		0
	50	50	18.03	17.76	18.00		0
	100	0	18.14	17.77	17.99		0
16QAM	1	0	18.50	18.04	18.02	0-1	0
	1	50	18.29	18.24	18.31		0
	1	99	18.36	18.01	17.97		0
	50	0	18.11	18.01	17.87	0-2	0
	50	25	18.15	17.80	18.03		0
	50	50	18.04	17.78	18.01		0
	100	0	18.15	17.82	17.98		0
64QAM	1	0	18.11	18.22	18.06	0-2	0
	1	50	18.40	17.94	18.11		0
	1	99	18.24	17.94	18.18		0
	50	0	18.14	17.82	17.93	0-3	0
	50	25	18.16	17.78	17.99		0
	50	50	18.07	17.84	17.95		0
	100	0	18.13	17.77	18.07		0

Table 9-18
LTE Band 66 (AWS) Ant A Measured P_{Max} for DSI = 1 (Head) - 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	22.89	22.51	23.06	0	0
	1	50	22.71	22.36	22.57		0
	1	99	23.00	22.60	22.77		0
	50	0	21.77	21.32	21.78	0-1	1
	50	25	21.72	21.41	21.55		1
	50	50	21.67	21.30	21.61		1
	100	0	21.68	21.38	21.54		1
16QAM	1	0	21.93	21.58	21.48	0-1	1
	1	50	21.92	21.61	21.70		1
	1	99	21.83	21.45	21.73		1
	50	0	20.74	20.34	20.51	0-2	2
	50	25	20.75	20.32	20.57		2
	50	50	20.63	20.38	20.64		2
	100	0	20.71	20.31	20.55		2
64QAM	1	0	20.55	20.75	20.56	0-2	2
	1	50	21.11	20.49	20.70		2
	1	99	20.60	20.41	20.79		2
	50	0	19.74	19.31	19.50	0-3	3
	50	25	19.70	19.36	19.56		3
	50	50	19.62	19.42	19.48		3
	100	0	19.75	19.38	19.57		3

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LTE Band 2

Table 9-19
LTE Band 2 (PCS) Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 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	17.36	17.27	17.34	0	0
	1	50	17.43	17.20	17.60		0
	1	99	17.32	17.23	17.70		0
	50	0	17.39	17.30	17.28	0-1	0
	50	25	17.34	17.36	17.68		0
	50	50	17.22	17.28	17.43		0
	100	0	17.26	17.34	17.47		0
16QAM	1	0	17.46	17.34	17.44	0-1	0
	1	50	17.38	17.46	17.50		0
	1	99	18.12	17.56	17.73		0
	50	0	17.41	17.30	17.31	0-2	0
	50	25	17.35	17.39	17.48		0
	50	50	17.30	17.26	17.49		0
	100	0	17.30	17.29	17.46		0
64QAM	1	0	17.71	17.62	17.68	0-2	0
	1	50	17.45	17.41	17.56		0
	1	99	17.75	17.56	17.49		0
	50	0	17.43	17.37	17.36	0-3	0
	50	25	17.32	17.33	17.50		0
	50	50	17.27	17.37	17.48		0
	100	0	17.30	17.33	17.38		0

Table 9-20
LTE Band 2 (PCS) Ant A Measured P_{Max} for DSI = 1 (Head) - 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	22.51	22.35	22.48	0	0
	1	50	22.37	22.46	22.50		0
	1	99	22.40	22.50	22.58		0
	50	0	21.45	21.52	21.50	0-1	1
	50	25	21.40	21.51	21.58		1
	50	50	21.36	21.47	21.61		1
	100	0	21.38	21.43	21.54		1
16QAM	1	0	21.81	21.50	21.56	0-1	1
	1	50	21.66	21.46	21.77		1
	1	99	21.86	21.57	21.74		1
	50	0	20.55	20.41	20.56	0-2	2
	50	25	20.39	20.49	20.68		2
	50	50	20.42	20.48	20.61		2
	100	0	20.48	20.48	20.58		2
64QAM	1	0	20.48	20.63	20.61	0-2	2
	1	50	20.74	20.64	20.87		2
	1	99	20.74	20.46	20.82		2
	50	0	19.54	19.48	19.50	0-3	3
	50	25	19.46	19.48	19.60		3
	50	50	19.41	19.43	19.56		3
	100	0	19.36	19.52	19.63		3

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9.3.4 LTE Band 41

Table 9-21

LTE Band 41 PC3 Ant B Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]
Conducted Power [dBm]								
QPSK	1	0	20.99	21.27	20.87	20.64	20.89	0
	1	50	20.96	21.05	20.86	20.76	21.18	0
	1	99	21.03	21.01	20.69	21.20	20.67	0
	50	0	20.91	21.25	21.05	20.84	20.96	0
	50	25	21.01	21.20	21.04	20.89	21.05	0
	50	50	20.99	21.19	20.97	20.88	20.95	0
	100	0	20.95	21.16	20.99	20.88	20.95	0
	1	0	20.88	21.30	21.00	20.78	20.95	0
	1	50	20.96	21.26	20.88	20.94	21.22	0
	1	99	21.03	21.22	20.69	20.84	20.96	0
16QAM	50	0	20.96	21.23	21.08	20.87	20.97	0
	50	25	21.05	21.26	21.03	20.92	21.00	0
	50	50	21.04	21.21	20.98	20.89	20.97	0
	100	0	21.01	21.25	21.01	20.91	20.91	0
	1	0	21.11	21.27	21.02	20.82	21.00	0
	1	50	21.06	21.17	21.03	21.08	21.10	0
	1	99	21.14	21.18	21.01	20.96	20.86	0
	50	0	20.24	20.54	20.38	20.28	20.24	0
	50	25	20.32	20.58	20.34	20.36	20.35	0
	50	50	20.33	20.53	20.29	20.30	20.26	0
64QAM	100	0	20.34	20.55	20.30	20.31	20.24	0

Table 9-22

LTE Band 41 PC3 Ant B Uplink Carrier Aggregation Measured for P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)

Combination	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	40185	2549.5	QPSK	50	0	LTE B41	20	39987	2529.7	QPSK	50	50	21.66	21.25
CA_41C	LTE B41	20	41055	2636.5	QPSK	50	50	LTE B41	20	41253	2656.3	QPSK	50	0	21.32	20.88

Table 9-23

LTE Band 41 PC3 Ant B Measured P_{Max} for DSI = 1 (Head) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]
Conducted Power [dBm]								
QPSK	1	0	23.26	23.54	23.23	23.02	23.11	0
	1	50	23.31	23.50	23.22	23.14	23.19	0
	1	99	23.40	23.35	23.09	23.10	23.02	0
	50	0	22.40	22.57	22.38	22.15	22.29	1
	50	25	22.49	22.61	22.37	22.28	22.37	1
	50	50	22.49	22.55	22.29	22.24	22.31	1
	100	0	22.45	22.58	22.29	22.23	22.25	1
	1	0	22.35	22.49	22.33	22.04	22.32	1
	1	50	22.44	22.46	22.42	22.18	22.33	1
	1	99	22.55	22.52	22.05	22.19	22.05	1
16QAM	50	0	21.38	21.52	21.39	21.16	21.28	2
	50	25	21.46	21.64	21.31	21.25	21.36	2
	50	50	21.47	21.57	21.29	21.22	21.27	2
	100	0	21.46	21.58	21.32	21.25	21.25	2
	1	0	21.58	21.73	21.40	21.18	21.30	2
	1	50	21.55	21.68	21.47	21.34	21.38	2
	1	99	21.59	21.53	21.21	21.19	21.12	2
	50	0	20.39	20.56	20.37	20.16	20.29	3
	50	25	20.48	20.62	20.36	20.28	20.35	3
	50	50	20.46	20.54	20.30	20.20	20.30	3
64QAM	100	0	20.49	20.58	20.35	20.22	20.25	3

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Table 9-24
LTE Band 41 PC3 Ant B Uplink Carrier Aggregation Measured for P_{Max} for DSI = 1 (Head)

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	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	24.08	23.54

Table 9-25
LTE Band 41 PC3 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 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	20.93	20.95	21.05	20.73	21.00	0	0
	1	50	20.92	20.92	21.20	20.81	21.04		0
	1	99	20.98	20.84	21.09	20.66	20.89		0
	50	0	20.98	20.96	21.22	20.92	21.16	0-1	0
	50	25	21.05	21.04	21.26	20.91	21.13		0
	50	50	21.00	21.05	21.21	20.90	21.15		0
16QAM	100	0	21.00	20.99	21.15	20.87	21.11	0-1	0
	1	0	21.00	21.13	21.37	20.81	21.02		0
	1	50	20.98	21.04	21.38	20.88	21.20		0
	1	99	20.97	20.94	21.22	20.88	20.99	0-2	0
	50	0	20.99	20.99	21.22	20.91	21.14		0
	50	25	21.05	21.05	21.27	20.92	21.18		0
64QAM	50	50	20.99	21.02	21.17	20.95	21.16	0-2	0
	100	0	21.06	21.03	21.24	20.91	21.10		0
	1	0	21.11	21.01	21.20	20.95	21.09		0-3
	1	50	21.12	21.15	21.21	20.90	21.29	0	
	1	99	21.18	21.01	21.14	20.89	21.07	0	
	50	0	20.50	20.48	20.77	20.45	20.65	0-3	0.5
50	25	20.55	20.57	20.84	20.39	20.67	0.5		
50	50	20.55	20.54	20.76	20.43	20.64	0.5		
	100	0	20.53	20.57	20.78	20.37	20.60		0.5

Table 9-26
LTE Band 41 PC3 Ant F Uplink Carrier Aggregation Measured for P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)

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	21.00	21.09

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Table 9-27
LTE Band 41 PC3 Ant F Measured P_{Limit} for DSI = 1 (Head) - 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	18.01	18.08	18.19	17.76	18.06	0	0
	1	50	18.07	18.03	18.05	17.88	18.09		0
	1	99	18.03	17.96	17.90	17.75	18.02		0
	50	0	17.96	17.93	18.12	17.86	18.05	0-1	0
	50	25	18.01	18.03	18.16	17.85	18.07		0
	50	50	18.05	17.98	18.11	17.88	18.10		0
	100	0	17.98	17.99	18.08	17.85	18.03		0
16QAM	1	0	18.01	17.90	18.18	17.90	18.13	0-1	0
	1	50	18.06	17.94	18.17	18.00	18.01		0
	1	99	17.80	18.09	18.05	17.84	17.94		0
	50	0	17.95	17.94	18.16	17.84	18.09	0-2	0
	50	25	18.01	18.02	18.22	17.82	18.08		0
	50	50	17.93	17.96	18.15	17.90	18.10		0
	100	0	17.99	18.01	18.19	17.82	18.01		0
64QAM	1	0	18.09	17.95	18.28	17.81	18.06	0-2	0
	1	50	18.04	17.93	18.27	17.98	18.14		0
	1	99	18.03	17.96	18.02	17.84	18.00		0
	50	0	17.94	17.94	18.21	17.91	18.12	0-3	0
	50	25	17.98	18.04	18.25	17.86	18.13		0
	50	50	17.96	17.97	18.18	17.90	18.11		0
	100	0	17.94	17.97	18.20	17.84	18.09		0

Table 9-28
LTE Band 41 PC3 Ant F Uplink Carrier Aggregation Measured for P_{Limit} for DSI = 1 (Head)

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	39750	2506.0	QPSK	50	50	LTE B41	20	39948	2525.8	QPSK	50	0	18.30	18.05

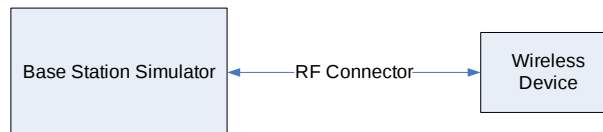


Figure 9-3
Power Measurement Setup

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9.4 NR Conducted Powers

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

Note: Some bands do not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

9.4.1 NR Band n5

Table 9-29
NR Band n5 Ant A Measured P_{Max} for all DSI - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth				
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]
			167300 (836.5 MHz) Conducted Power [dBm]	
DFT-s-OFDM QPSK	1	1	23.48	0
	1	53	23.42	
	1	104	23.50	
	50	0	22.56	0-1
	50	28	23.58	0
	50	56	22.54	0-1
	100	0	22.48	
DFT-s-OFDM 16QAM	1	1	22.45	0-1
CP-OFDM QPSK	1	1	22.09	0-1.5

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Table 9-30
NR Band n5 Ant E Measured P_{Max} for DSI = 0 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	23.55	0	0.0
	1	53	23.61		0.0
	1	104	23.49		0.0
	50	0	22.54	0-1	1.0
	50	28	23.57	0	0.0
	50	56	22.55	0-1	1.0
	100	0	22.61		1.0
DFT-s-OFDM 16QAM	1	1	22.41	0-1	1.0
CP-OFDM QPSK	1	1	22.18	0-1.5	1.5

Table 9-31
NR Band n5 Ant E Measured P_{Limit} for DSI = 1 (Head) - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			167300 (836.5 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.32	0	0.0
	1	53	21.31		0.0
	1	104	21.30		0.0
	50	0	21.33	0-1	0.0
	50	28	21.27	0	0.0
	50	56	21.25	0-1	0.0
	100	0	21.23		0.0
DFT-s-OFDM 16QAM	1	1	21.18	0-1	0.0
CP-OFDM QPSK	1	1	21.49	0-1.5	0.0

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9.4.2 NR Band n66

Table 9-32
NR Band n66 Ant A Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 40 MHz Bandwidth

NR Band n66 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	18.47	0	0.0
	1	108	18.09		0.0
	1	214	18.29		0.0
	108	0	18.37	0-1	0.0
	108	54	18.31	0	0.0
	108	108	18.31	0-1	0.0
	216	0	18.36		0.0
DFT-s-OFDM 16QAM	1	1	18.26	0-1	0.0
CP-OFDM QPSK	1	1	18.53	0-1.5	0.0

Table 9-33
NR Band n66 Ant A Measured P_{Max} for DSI = 1 (Head) - 40 MHz Bandwidth

NR Band n66 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	22.58	0	0.0
	1	108	22.41		0.0
	1	214	22.61		0.0
	108	0	21.51	0-1	1.0
	108	54	22.49	0	0.0
	108	108	21.38	0-1	1.0
	216	0	21.51		1.0
DFT-s-OFDM 16QAM	1	1	21.55	0-1	1.0
CP-OFDM QPSK	1	1	21.10	0-1.5	1.5

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Table 9-34
NR Band n66 Ant F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet) - 40 MHz Bandwidth

NR Band n66 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.99	0	0.0
	1	108	19.89		0.0
	1	214	19.87		0.0
	108	0	19.94	0-1	0.0
	108	54	19.97	0	0.0
	108	108	19.87	0-1	0.0
	216	0	19.93		0.0
DFT-s-OFDM 16QAM	1	1	19.91	0-1	0.0
CP-OFDM QPSK	1	1	19.86	0-1.5	0.0

Table 9-35
NR Band n66 Ant F Measured P_{Limit} for DSI = 1 (Head) - 40 MHz Bandwidth

NR Band n66 40 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			349000 (1745 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	18.12	0	0.0
	1	108	17.82		0.0
	1	214	17.89		0.0
	108	0	17.86	0-1	0.0
	108	54	18.00	0	0.0
	108	108	17.82	0-1	0.0
	216	0	17.84		0.0
DFT-s-OFDM 16QAM	1	1	17.73	0-1	0.0
CP-OFDM QPSK	1	1	18.09	0-1.5	0.0

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9.4.3 NR Band n41

Table 9-36
NR Band n41 PC2 Antenna B Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.63	0	0.0
	1	137	19.28		0.0
	1	271	19.12		0.0
	135	0	19.52	0-1	0.0
	135	69	19.26	0	0.0
	135	138	19.16	0-1	0.0
	270	0	19.31		0.0
DFT-s-OFDM 16QAM	1	1	19.51	0-1	0.0
CP-OFDM QPSK	1	1	19.51	0-1.5	0.0

Table 9-37
NR Band n41 PC2 Antenna B Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	21.18	0	0.0
	1	137	20.79		0.0
	1	271	20.63		0.0
	135	0	21.12	0-1	0.0
	135	69	20.77	0	0.0
	135	138	20.65	0-1	0.0
	270	0	20.79		0.0
DFT-s-OFDM 16QAM	1	1	20.90	0-1	0.0
CP-OFDM QPSK	1	1	21.01	0-1.5	0.0

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Table 9-38
NR Band n41 PC2 Antenna F Measured P_{Limit} for DSI = 0 (Body-worn, Hotspot or Phablet)
- 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	19.08	0	0.0
	1	137	19.09		0.0
	1	271	18.99		0.0
	135	0	18.99	0-1	0.0
	135	69	18.98	0	0.0
	135	138	19.03	0-1	0.0
	270	0	19.01		0.0
DFT-s-OFDM 16QAM	1	1	19.05	0-1	0.0
CP-OFDM QPSK	1	1	19.20	0-1.5	0.0

Table 9-39
NR Band n41 PC2 Antenna F Measured P_{Limit} for DSI = 1 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
Modulation	RB Size	RB Offset	Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			518598 (2592.99 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	16.52	0	0.0
	1	137	16.56		0.0
	1	271	16.37		0.0
	135	0	16.54	0-1	0.0
	135	69	16.49	0	0.0
	135	138	16.55	0-1	0.0
	270	0	16.50		0.0
DFT-s-OFDM 16QAM	1	1	16.82	0-1	0.0
CP-OFDM QPSK	1	1	16.77	0-1.5	0.0

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Figure 9-4
Power Measurement Setup – NR FDD

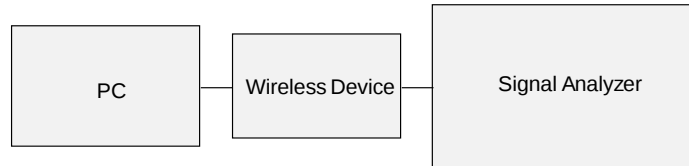


Figure 9-5
Power Measurement Setup – NR TDD

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9.5 WLAN Conducted Powers

Table 9-40
2.4 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – Ant H

2.4GHz WIFI (20MHz 802.11b SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.36
2437	6		16.42
2462	11		16.32
2.4GHz WIFI (20MHz 802.11g SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.26
2437	6		16.34
2462	11		16.27
2.4GHz WIFI (20MHz 802.11n SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.38
2437	6		16.35
2462	11		16.31
2.4GHz WIFI (20MHz 802.11ac SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.32
2437	6		16.34
2462	11		16.29
2.4GHz WIFI (20MHz 802.11ax SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	15.28
2417	2		16.22
2437	6		16.38
2457	10		16.40
2462	11		15.31
2.4GHz WIFI (20MHz 802.11be SISO ANT H)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	15.27
2417	2		16.35
2437	6		16.24
2457	10		16.42
2462	11		15.33

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Table 9-41
2.4 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – Ant J

2.4GHz WIFI (20MHz 802.11b SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.61
2437	6		16.79
2462	11		16.64
2.4GHz WIFI (20MHz 802.11g SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.54
2437	6		16.77
2462	11		16.62
2.4GHz WIFI (20MHz 802.11n SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.55
2437	6		16.84
2462	11		16.65
2.4GHz WIFI (20MHz 802.11ac SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	16.59
2437	6		16.81
2462	11		16.61
2.4GHz WIFI (20MHz 802.11ax SISO ANT J)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	15.51
2417	2		16.66
2437	6		16.86
2457	10		16.59
2462	11		15.61
2.4GHz WIFI (20MHz 802.11be SISO ANT2)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	15.47
2417	2		16.71
2437	6		16.87
2457	10		16.72
2462	11		15.59

Table 9-42
2.4 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – MIMO

2.4GHz WIFI (20MHz 802.11b MIMO)					
Freq [MHz]	Channel	Detector	Conducted Power [dBm]		
			ANT1	ANT2	MIMO
2412	1	Average	16.39	16.56	19.49
2437	6		16.36	16.78	19.59
2462	11		16.33	16.61	19.48

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Table 9-43

2.4 GHz WLAN Measured P_{Max} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet) – Ant H

2.4GHz WIFI (20MHz 802.11b SISO ANTH)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.33
2437	6		17.42
2462	11		17.19
2.4GHz WIFI (20MHz 802.11g SISO ANTH)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.23
2437	6		17.39
2462	11		17.16
2.4GHz WIFI (20MHz 802.11n SISO ANTH)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.33
2437	6		17.45
2462	11		17.21
2.4GHz WIFI (20MHz 802.11ac SISO ANTH)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	17.28
2437	6		17.43
2462	11		17.18
2.4GHz WIFI (20MHz 802.11ax SISO ANT1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	15.33
2417	2		17.32
2437	6		17.55
2457	10		17.45
2462	11		15.33
2.4GHz WIFI (20MHz 802.11be SISO ANTH)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	15.29
2417	2		17.21
2437	6		17.49
2457	10		17.32
2462	11		15.34

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Table 9-44

2.4 GHz WLAN Measured P_{Max} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet) – Ant J

2.4GHz WIFI (20MHz 802.11b SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
112	1	Average	17.56
137	6		17.63
162	11		17.52
2.4GHz WIFI (20MHz 802.11g SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
112	1	Average	17.47
137	6		17.59
162	11		17.46
2.4GHz WIFI (20MHz 802.11n SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
112	1	Average	17.52
137	6		16.69
162	11		17.51
2.4GHz WIFI (20MHz 802.11ac SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
112	1	Average	17.45
137	6		17.66
162	11		17.53
2.4GHz WIFI (20MHz 802.11ax SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
112	1	Average	15.51
117	2		17.45
137	6		17.78
157	10		17.55
162	11		15.63
2.4GHz WIFI (20MHz 802.11be SISO ANTJ)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
112	1	Average	15.47
117	2		17.30
137	6		17.77
157	10		17.45
162	11		15.61

Table 9-45

2.4 GHz WLAN Measured P_{Max} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet) – MIMO

2.4GHz WIFI (20MHz 802.11b MIMO)					
Freq [MHz]	Channel	Detector	Conducted Power [dBm]		
			ANT1	ANT2	MIMO
2412	1	Average	17.26	17.56	20.42
2437	6		17.33	17.61	20.48
2462	11		17.16	17.49	20.34

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Table 9-46
5 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – Ant H

5GHz WIFI (80MHz 802.11ac SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.44
UNII-2A	5290	58	15.56
UNII-2C	5530	106	15.40
	5610	122	15.29
	5690	138	15.35
UNII-3	5775	155	15.37
UNII-4	5885	171	15.31
5GHz WIFI (80MHz 802.11ax SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.47
UNII-2A	5290	58	15.64
UNII-2C	5530	106	15.46
	5610	122	15.38
	5690	138	15.45
UNII-3	5775	155	15.36
UNII-4	5885	171	15.42
5GHz WIFI (80MHz 802.11be SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.72
UNII-2A	5290	58	15.81
UNII-2C	5530	106	15.63
	5610	122	15.62
	5690	138	15.66
UNII-3	5775	155	15.59
UNII-4	5885	171	15.58

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Table 9-47

5 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – Ant E

5GHz WIFI (80MHz 802.11ac SISO ANTE)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.85
UNII-2A	5290	58	15.61
UNII-2C	5530	106	15.49
	5610	122	15.81
	5690	138	15.64
UNII-3	5775	155	15.54
UNII-4	5885	171	15.45
5GHz WIFI (80MHz 802.11ax SISO ANTE)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.88
UNII-2A	5290	58	15.63
UNII-2C	5530	106	15.51
	5610	122	15.92
	5690	138	15.74
UNII-3	5775	155	15.50
UNII-4	5885	171	15.47
5GHz WIFI (80MHz 802.11be SISO ANTE)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	15.59
UNII-2A	5290	58	15.83
UNII-2C	5530	106	15.67
	5610	122	15.56
	5690	138	15.92
UNII-3	5775	155	15.79
UNII-4	5885	171	15.71

Table 9-48

5 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 1 (Head) – MIMO

5GHz WIFI (80MHz 802.11ac MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-1	5210	42	15.49	15.77	18.64
UNII-2A	5290	58	15.52	15.60	18.57
UNII-2C	5530	106	15.43	15.47	18.46
	5610	122	15.34	15.79	18.58
	5690	138	15.39	15.65	18.53
UNII-3	5775	155	15.34	15.52	18.44
UNII-4	5885	171	15.37	15.43	18.41

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Table 9-49

5 GHz WLAN Measured P_{Max} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet) – Ant H

5GHz WIFI (80MHz 802.11ac SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	17.28
UNII-2A	5290	58	17.42
UNII-2C	5530	106	17.15
	5610	122	17.10
	5690	138	17.09
UNII-3	5775	155	17.12
UNII-4	5885	171	17.15
5GHz WIFI (80MHz 802.11ax SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	16.18
UNII-2A	5290	58	15.91
UNII-2C	5530	106	17.25
	5610	122	17.19
	5690	138	17.12
UNII-3	5775	155	17.17
UNII-4	5885	171	17.20
5GHz WIFI (80MHz 802.11be SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	16.44
UNII-2A	5290	58	16.17
UNII-2C	5530	106	17.49
	5610	122	17.33
	5690	138	17.26
UNII-3	5775	155	17.32
UNII-4	5885	171	17.36

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Table 9-50

5 GHz WLAN Measured P_{Max} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet) – Ant E

5GHz WIFI (80MHz 802.11ac SISO ANTE)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	17.55
UNII-2A	5290	58	17.34
UNII-2C	5530	106	17.35
	5610	122	17.75
	5690	138	17.56
UNII-3	5775	155	17.62
UNII-4	5885	171	17.64
5GHz WIFI (80MHz 802.11ax SISO ANTE)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	16.56
UNII-2A	5290	58	15.93
UNII-2C	5530	106	17.36
	5610	122	17.81
	5690	138	17.61
UNII-3	5775	155	17.62
UNII-4	5885	171	17.71
5GHz WIFI (80MHz 802.11be SISO ANTE)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	16.78
UNII-2A	5290	58	16.09
UNII-2C	5530	106	17.63
	5610	122	17.97
	5690	138	17.86
UNII-3	5775	155	17.89
UNII-4	5885	171	17.91

Table 9-51

5 GHz WLAN Measured P_{Max} Average RF Power for DSI = 0 (Body-worn, Hotspot or Phablet) – MIMO

5GHz WIFI (80MHz 802.11ac MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-1	5210	42	17.55	17.21	20.39
UNII-2A	5290	58	17.73	16.59	20.21
UNII-2C	5530	106	17.47	16.85	20.18
	5610	122	17.42	17.37	20.41
	5690	138	17.43	17.45	20.45
UNII-3	5775	155	17.46	17.52	20.50
UNII-4	5885	171	17.44	17.56	20.51

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Table 9-52

6 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn or Phablet), DSI = 1 (Head) – Ant H

6GHz WIFI (80MHz 802.11ax SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5985	7	11.57
	6305	71	11.24
UNII-6	6465	103	11.28
UNII-7	6705	151	11.35
UNII-8	7025	215	11.29
6GHz WIFI (80MHz 802.11be SISO ANT H)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5985	7	11.71
	6305	71	11.46
UNII-6	6465	103	11.49
UNII-7	6705	151	11.48
UNII-8	7025	215	11.45

Table 9-53

6 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn or Phablet), DSI = 1 (Head) – Ant E

6GHz WIFI (80MHz 802.11ax SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5985	7	11.23
	6305	71	11.68
	6465	103	11.22
UNII-7	6705	151	11.63
UNII-8	7025	215	11.44
6GHz WIFI (80MHz 802.11be SISO ANT E)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-5	5985	7	11.24
	6305	71	11.64
	6465	103	11.23
UNII-7	6705	151	11.64
UNII-8	7025	215	11.74

Table 9-54

6 GHz WLAN Measured P_{Limit} Average RF Power for DSI = 0 (Body-worn or Phablet), DSI = 1 (Head) – MIMO

6GHz WIFI (80MHz 802.11ax MIMO)					
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]		
			ANT1	ANT2	MIMO
UNII-5	5985	7	11.69	11.42	14.57
	6305	71	11.45	11.78	14.63
UNII-6	6465	103	11.43	11.33	14.39
UNII-7	6705	151	11.35	11.66	14.52
UNII-8	7025	215	11.31	11.56	14.45

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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.

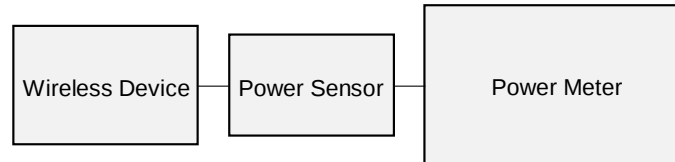


Figure 9-6
Power Measurement Setup

9.6 Bluetooth Conducted Powers

Table 9-55
Bluetooth Measured P_{Max} Average RF Power for all DSI – Ant H

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	16.06	40.365
2441	1.0	GFSK	ePA	39	17.29	53.580
2480	1.0	GFSK	ePA	78	16.41	43.752

Table 9-56
Bluetooth Measured P_{Max} Average RF Power for all DSI – Ant J

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	16.53	44.978
2441	1.0	GFSK	ePA	39	16.81	47.973
2480	1.0	GFSK	ePA	78	16.04	40.179

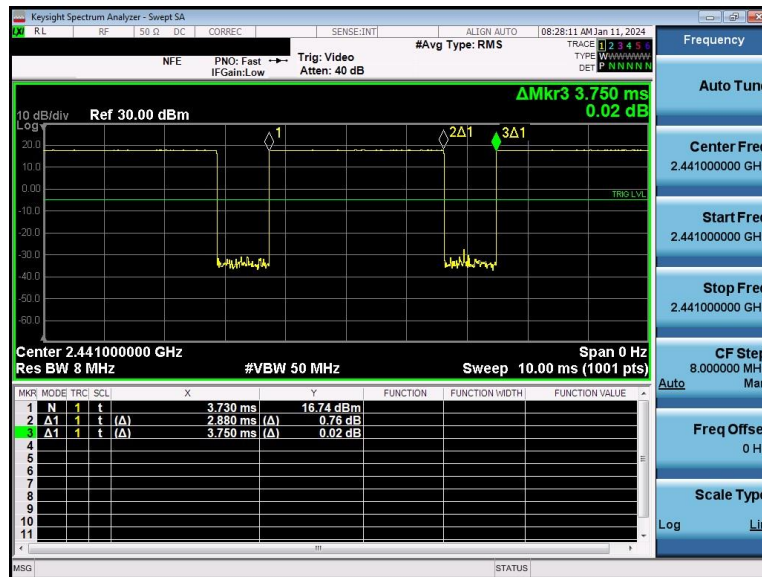
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Table 9-57
Bluetooth Measured P_{Max} Average RF Power for all DSI – MIMO

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	ANT1 Avg Conducted Power		ANT2 Avg Conducted Power		Dual Avg Conducted Power	
					[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]
2402	1.0	GFSK	iPA	0	12.33	17.100	12.02	15.922	15.19	33.022
2441	1.0	GFSK	iPA	39	12.98	19.861	12.49	17.742	15.75	37.603
2480	1.0	GFSK	iPA	78	12.43	17.498	11.51	14.158	15.00	31.656

Figure 9-7
Bluetooth Antenna H Transmission Plot

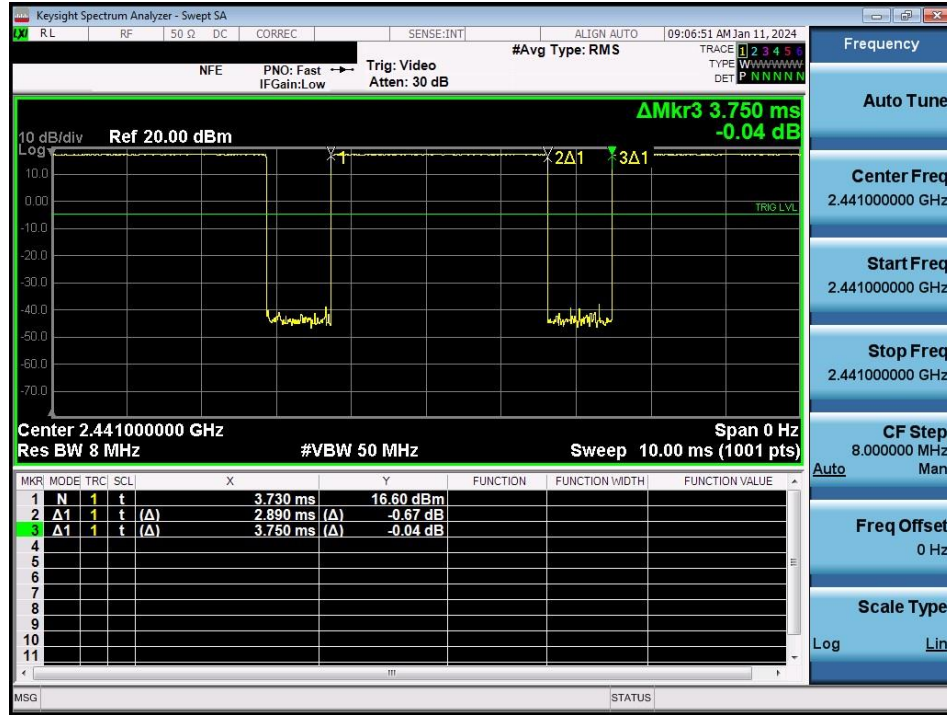


Equation 9-1
Bluetooth Antenna H Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.880ms}{3.750ms} * 100\% = 76.80\%$$

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Figure 9-8
Bluetooth Antenna J Transmission Plot



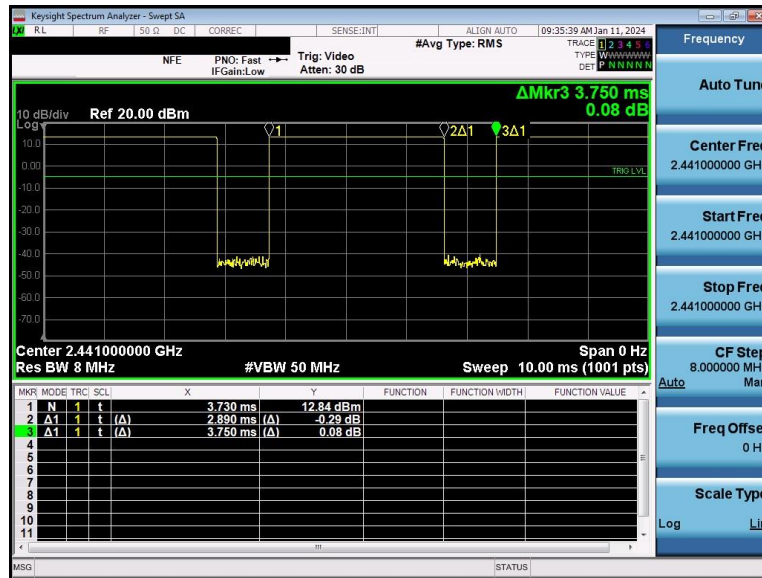
Equation 9-2
Bluetooth Antenna J Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.890\text{ms}}{3.750\text{ms}} * 100\% = 77.07\%$$

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Figure 9-9
Bluetooth MIMO Transmission Plot



Equation 9-3 Bluetooth MIMO Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.890\text{ms}}{3.750\text{ms}} * 100\% = 77.07\%$$

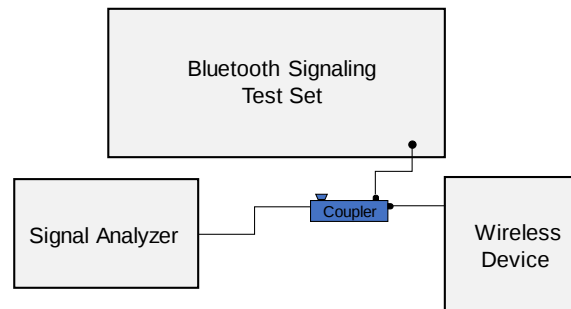


Figure 9-10
Power Measurement Setup

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10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Head Tissue Properties

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
12/22/2023	30 Head	20.5	12	0.748	52.459	0.750	55.000	-0.27%	-4.62%
			13	0.748	53.891	0.750	55.000	-0.27%	-3.83%
			14	0.748	53.277	0.750	55.000	-0.27%	-3.13%
			680	0.859	40.692	0.888	42.305	-3.27%	-3.81%
01/04/2024	750 Head	19.9	695	0.864	40.649	0.889	42.227	-2.81%	-3.74%
			700	0.865	40.636	0.889	42.201	-2.70%	-3.71%
			710	0.869	40.607	0.890	42.149	-2.36%	-3.66%
			725	0.874	40.564	0.891	42.071	-1.91%	-3.58%
			750	0.883	40.494	0.894	41.942	-1.23%	-3.45%
			770	0.891	40.436	0.895	41.838	-0.45%	-3.35%
			785	0.896	40.390	0.896	41.760	0.00%	-3.28%
			800	0.902	40.341	0.897	41.682	0.56%	-3.22%
			680	0.848	42.327	0.888	42.305	-4.50%	0.05%
			695	0.853	42.297	0.889	42.227	-4.05%	0.14%
01/04/2024	750 Head	20.2	710	0.858	42.245	0.890	42.149	-3.60%	0.23%
			725	0.863	42.197	0.891	42.071	-3.14%	0.30%
			750	0.872	42.121	0.894	41.942	-2.46%	0.43%
			770	0.879	42.077	0.895	41.838	-1.79%	0.57%
			785	0.886	42.042	0.896	41.760	-1.12%	0.68%
			800	0.892	41.992	0.897	41.682	-0.56%	0.74%
			815	0.906	42.386	0.898	41.594	0.89%	1.90%
			820	0.908	42.374	0.899	41.578	1.00%	1.91%
01/03/2024	835 Head	19.5	835	0.913	42.348	0.900	41.500	1.44%	2.04%
			850	0.919	42.323	0.916	41.500	0.33%	1.98%
			815	0.896	41.931	0.898	41.594	-0.22%	0.81%
			820	0.898	41.911	0.899	41.578	-0.11%	0.80%
01/04/2024	835 Head	20.2	835	0.903	41.861	0.900	41.500	0.33%	0.87%
			850	0.909	41.829	0.916	41.500	-0.76%	0.79%
			815	0.902	41.384	0.898	41.594	0.45%	-0.50%
01/04/2024	835 Head	19.9	820	0.903	41.365	0.899	41.578	0.44%	-0.51%
			835	0.909	41.317	0.900	41.500	1.00%	-0.44%
			850	0.914	41.289	0.916	41.500	-0.22%	-0.51%
01/08/2024	835 Head	19.1	815	0.875	42.803	0.898	41.594	-2.56%	2.91%
			820	0.877	42.793	0.899	41.578	-2.45%	2.90%
			835	0.882	42.737	0.900	41.500	-2.00%	2.98%
			850	0.888	42.706	0.916	41.500	-3.06%	2.90%
01/09/2024	835 Head	19.0	815	0.896	41.706	0.898	41.594	-0.22%	0.27%
			820	0.898	41.692	0.899	41.578	-0.11%	0.27%
			835	0.903	41.649	0.900	41.500	0.33%	0.36%
			850	0.909	41.602	0.916	41.500	-0.76%	0.25%
01/11/2024	835 Head	21.1	815	0.907	41.034	0.898	41.594	1.00%	-1.35%
			820	0.909	41.017	0.899	41.578	1.11%	-1.35%
			835	0.914	40.985	0.900	41.500	1.56%	-2.29%
			850	0.920	40.919	0.916	41.500	0.44%	-1.40%
01/11/2024	835 Head	20.0	815	0.909	40.821	0.898	41.594	1.22%	-1.86%
			820	0.911	40.803	0.899	41.578	1.33%	-1.86%
			835	0.917	40.752	0.900	41.500	1.89%	-1.80%
			850	0.922	40.717	0.916	41.500	0.66%	-1.89%
01/15/2024	835 Head	19.7	815	0.895	39.979	0.898	41.594	-0.33%	-3.88%
			820	0.896	39.970	0.899	41.578	-0.33%	-3.87%
			835	0.902	39.937	0.900	41.500	0.22%	-3.77%
			850	0.908	39.883	0.916	41.500	-0.87%	-3.90%
01/10/2024	1750 Head	22.1	1700	1.290	39.719	1.343	40.145	-3.95%	-1.06%
			1705	1.293	39.713	1.345	40.141	-3.87%	-1.07%
			1710	1.296	39.705	1.348	40.136	-3.86%	-1.07%
			1720	1.301	39.694	1.354	40.126	-3.91%	-1.10%
			1745	1.315	39.631	1.368	40.087	-3.87%	-1.14%
			1750	1.317	39.621	1.371	40.079	-3.94%	-1.14%
			1770	1.328	39.588	1.383	40.047	-3.98%	-1.15%
			1790	1.338	39.563	1.394	40.016	-4.02%	-1.13%
			1700	1.310	39.857	1.343	40.145	-2.46%	-0.72%
			1705	1.314	39.834	1.345	40.141	-2.30%	-0.76%
01/15/2024	1750 Head	19.2	1710	1.318	39.909	1.348	40.136	-2.23%	-0.81%
			1720	1.326	39.763	1.354	40.126	-2.07%	-0.90%
			1745	1.345	39.748	1.368	40.087	-1.69%	-0.85%
			1750	1.348	39.746	1.371	40.079	-1.69%	-0.83%
			1770	1.357	39.743	1.383	40.047	-1.88%	-0.76%
			1790	1.366	39.717	1.394	40.016	-2.01%	-0.75%
			1700	1.314	39.718	1.343	40.145	-2.16%	-1.06%
			1705	1.317	39.715	1.345	40.141	-2.08%	-1.06%
01/17/2024	1750 Head	19.0	1710	1.320	39.712	1.348	40.136	-2.08%	-1.06%
			1720	1.326	39.702	1.354	40.126	-2.07%	-1.06%
			1745	1.342	39.665	1.368	40.087	-1.90%	-1.05%
			1750	1.346	39.657	1.371	40.079	-1.90%	-1.05%
			1770	1.359	39.621	1.383	40.047	-1.74%	-1.06%
			1790	1.371	39.582	1.394	40.016	-1.65%	-1.08%
			1850	1.423	40.336	1.400	40.000	1.64%	0.84%
			1860	1.428	40.327	1.400	40.000	2.00%	0.82%
01/02/2024	1900 Head	20.0	1880	1.440	40.301	1.400	40.000	2.86%	0.75%
			1900	1.454	40.270	1.400	40.000	3.86%	0.68%
			1905	1.457	40.251	1.400	40.000	4.07%	0.65%
			1910	1.461	40.251	1.400	40.000	4.36%	0.63%
			1920	1.468	40.231	1.400	40.000	4.86%	0.58%
			1850	1.406	39.617	1.400	40.000	0.43%	-0.96%
			1860	1.410	39.602	1.400	40.000	0.71%	-1.00%
			1880	1.421	39.596	1.400	40.000	1.50%	-1.01%
01/15/2024	1900 Head	19.2	1900	1.436	39.508	1.400	40.000	2.57%	-1.23%
			1905	1.440	39.486	1.400	40.000	2.86%	-1.29%
			1910	1.444	39.465	1.400	40.000	3.14%	-1.34%
			1920	1.452	39.446	1.400	40.000	3.71%	-1.39%

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Table 10-2
Measured Head Tissue Properties (Cont.)

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			
01/08/2024	2450 Head	21.1	2300	1.695	38.169	1.670	39.500	1.50%	-3.37%			
			2310	1.703	38.157	1.679	39.480	1.43%	-3.35%			
			2320	1.710	38.143	1.687	39.460	1.36%	-3.34%			
			2400	1.773	38.029	1.756	39.289	0.97%	-3.21%			
			2450	1.812	37.941	1.800	39.200	0.67%	-3.21%			
			2480	1.824	37.897	1.833	39.162	0.05%	-3.23%			
			2500	1.848	37.859	1.855	39.136	-0.38%	-3.26%			
			2510	1.855	37.839	1.866	39.123	-0.59%	-3.28%			
			2535	1.876	37.799	1.893	39.092	-0.90%	-3.31%			
			2550	1.889	37.780	1.909	39.073	-1.05%	-3.31%			
			2560	1.897	37.768	1.920	39.060	-1.20%	-3.31%			
			2600	1.926	37.712	1.964	39.009	-1.93%	-3.32%			
			2650	1.969	37.628	2.018	38.945	-2.43%	-3.38%			
			2680	1.993	37.595	2.051	38.907	-2.83%	-3.37%			
			2700	2.009	37.563	2.073	38.882	-3.09%	-3.39%			
			2300	1.674	38.855	1.670	39.500	0.24%	-1.63%			
			2310	1.682	38.841	1.679	39.480	0.18%	-1.62%			
			2320	1.689	38.824	1.687	39.460	0.12%	-1.61%			
			2400	1.747	38.695	1.756	39.289	-0.51%	-1.51%			
			01/10/2024	2450 Head	20.2	2450	1.785	38.620	1.800	39.200	-0.83%	-1.48%
2480	1.807	38.578				1.833	39.162	-1.42%	-1.49%			
2500	1.822	38.549				1.855	39.136	-1.78%	-1.50%			
2510	1.830	38.533				1.866	39.123	-1.93%	-1.51%			
2535	1.851	38.489				1.893	39.092	-2.22%	-1.54%			
2550	1.864	38.463				1.909	39.073	-2.36%	-1.56%			
2560	1.873	38.446				1.920	39.060	-2.45%	-1.57%			
2600	1.904	38.388				1.964	39.009	-3.05%	-1.59%			
2650	1.942	38.283				2.018	38.945	-3.77%	-1.70%			
2680	1.970	38.235				2.051	38.907	-3.95%	-1.73%			
2700	1.985	38.217				2.073	38.882	-4.25%	-1.71%			
2300	1.726	38.740				1.670	39.500	3.35%	-1.92%			
2310	1.734	38.726				1.679	39.480	3.28%	-1.91%			
2320	1.742	38.713				1.687	39.460	3.26%	-1.89%			
2400	1.803	38.575				1.756	39.289	2.68%	-1.82%			
2450	1.843	38.502				1.800	39.200	2.39%	-1.78%			
2480	1.867	38.450				1.833	39.162	1.85%	-1.82%			
2500	1.883	38.414				1.855	39.136	1.51%	-1.84%			
01/15/2024	2450 Head	19.0				2510	1.891	38.395	1.866	39.123	1.34%	-1.86%
						2535	1.915	38.349	1.893	39.092	1.16%	-1.90%
			2550	1.929	38.320	1.909	39.073	1.05%	-1.93%			
			2560	1.937	38.301	1.920	39.060	0.89%	-1.94%			
			2600	1.971	38.232	1.964	39.009	0.36%	-1.99%			
			2650	2.014	38.118	2.018	38.945	-0.20%	-2.12%			
			2680	2.042	38.063	2.051	38.907	-0.44%	-2.17%			
			2700	2.058	38.033	2.073	38.882	-0.72%	-2.18%			
			5180	4.446	35.981	4.635	35.009	-4.08%	-0.08%			
			5190	4.451	35.992	4.645	35.998	-4.18%	-0.02%			
			5200	4.453	35.976	4.655	35.986	-4.34%	-0.03%			
			5210	4.455	35.948	4.666	35.975	-4.52%	-0.08%			
			5220	4.462	35.906	4.676	35.963	-4.58%	-0.16%			
			5240	4.492	35.823	4.696	35.940	-4.34%	-0.33%			
			5250	4.513	35.799	4.706	35.929	-4.10%	-0.36%			
			5260	4.535	35.794	4.717	35.917	-3.86%	-0.34%			
			5270	4.554	35.803	4.727	35.906	-3.66%	-0.29%			
			5280	4.564	35.816	4.737	35.894	-3.65%	-0.22%			
			5290	4.569	35.816	4.748	35.883	-3.77%	-0.19%			
			01/09/2024	5200-5800 Head	23.8	5300	4.570	35.812	4.758	35.871	-3.95%	-0.16%
5310	4.572	35.796				4.768	35.860	-4.11%	-0.18%			
5320	4.578	35.774				4.778	35.849	-4.19%	-0.21%			
5500	4.794	35.475				4.963	35.643	-3.41%	-0.47%			
5510	4.801	35.488				4.973	35.632	-3.46%	-0.40%			
5520	4.804	35.490				4.983	35.620	-3.59%	-0.36%			
5530	4.803	35.469				4.994	35.609	-3.62%	-0.39%			
5540	4.806	35.431				5.004	35.597	-3.96%	-0.47%			
5550	4.814	35.376				5.014	35.586	-3.99%	-0.59%			
5560	4.831	35.312				5.024	35.574	-3.84%	-0.74%			
5580	4.875	35.254				5.045	35.551	-3.37%	-0.84%			
5600	4.904	35.277				5.065	35.529	-3.18%	-0.71%			
5610	4.911	35.299				5.076	35.518	-3.25%	-0.62%			
5620	4.917	35.317				5.086	35.506	-3.32%	-0.53%			
5640	4.923	35.296				5.106	35.483	-3.58%	-0.56%			
5660	4.940	35.169				5.127	35.460	-3.65%	-0.82%			
5670	4.961	35.117				5.137	35.449	-3.43%	-0.94%			
5680	4.982	35.086				5.147	35.437	-3.21%	-0.99%			
5690	5.000	35.069				5.158	35.426	-3.06%	-1.01%			
5700	5.014	35.080				5.168	35.414	-2.98%	-0.94%			
5710	5.027	35.100	5.178			35.403	-2.92%	-0.86%				
5720	5.032	35.123	5.188			35.391	-3.01%	-0.76%				
5745	5.036	35.098	5.214			35.363	-3.41%	-0.75%				
5750	5.039	35.080	5.219			35.357	-3.45%	-0.78%				
5755	5.043	35.050	5.224			35.351	-3.46%	-0.85%				
5765	5.053	34.986	5.234			35.340	-3.46%	-1.00%				
5775	5.072	34.921	5.245			35.329	-3.30%	-1.13%				
5785	5.095	34.887	5.255			35.317	-3.04%	-1.22%				
5795	5.119	34.876	5.265			35.305	-2.77%	-1.22%				
5800	5.129	34.882	5.270			35.300	-2.68%	-1.18%				
5805	5.140	34.890	5.275			35.294	-2.56%	-1.14%				
5825	5.160	34.950	5.296			35.271	-2.57%	-0.91%				
5835	5.152	34.972	5.305			35.230	-2.88%	-0.73%				
5845	5.143	34.977	5.315			35.210	-3.24%	-0.66%				
5855	5.140	34.952	5.325			35.197	-3.47%	-0.70%				
5865	5.145	34.886	5.336			35.180	-3.58%	-0.86%				
5875	5.157	34.813	5.347	35.183	-3.55%	-1.05%						
5885	5.173	34.751	5.357	35.177	-3.43%	-1.21%						
5905	5.229	34.690	5.379	35.163	-2.79%	-1.35%						

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**Table 10-3
Measured Head Tissue Properties (Cont.)**

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
01/29/2024	5200-5800 Head	21.3	5180	4.673	36.075	4.635	36.009	0.82%	0.18%
			5190	4.686	36.051	4.645	35.998	0.88%	0.15%
			5200	4.701	36.030	4.655	35.986	0.99%	0.12%
			5210	4.717	36.019	4.666	35.975	1.09%	0.12%
			5220	4.733	36.009	4.676	35.963	1.22%	0.13%
			5240	4.757	35.980	4.696	35.940	1.30%	0.11%
			5250	4.768	35.976	4.706	35.929	1.32%	0.13%
			5260	4.779	35.953	4.717	35.917	1.31%	0.10%
			5270	4.790	35.923	4.727	35.906	1.33%	0.05%
			5280	4.804	35.892	4.737	35.894	1.41%	-0.01%
			5290	4.816	35.870	4.748	35.883	1.43%	-0.04%
			5300	4.830	35.839	4.758	35.871	1.51%	-0.09%
			5310	4.843	35.818	4.768	35.860	1.57%	-0.12%
			5320	4.851	35.800	4.778	35.849	1.53%	-0.14%
			5500	5.080	35.495	4.963	35.643	2.36%	-0.42%
			5510	5.092	35.470	4.973	35.632	2.39%	-0.45%
			5520	5.105	35.453	4.983	35.620	2.45%	-0.47%
			5530	5.118	35.439	4.994	35.609	2.48%	-0.48%
			5540	5.130	35.421	5.004	35.597	2.52%	-0.49%
			5550	5.146	35.383	5.014	35.586	2.63%	-0.57%
			5560	5.162	35.360	5.024	35.574	2.75%	-0.60%
			5580	5.188	35.355	5.045	35.551	2.83%	-0.55%
			5600	5.206	35.322	5.065	35.529	2.78%	-0.58%
			5610	5.219	35.299	5.076	35.518	2.82%	-0.62%
			5620	5.232	35.263	5.086	35.506	2.87%	-0.68%
			5640	5.266	35.222	5.106	35.483	3.13%	-0.74%
			5660	5.293	35.214	5.127	35.460	3.24%	-0.69%
			5670	5.303	35.193	5.137	35.449	3.23%	-0.72%
			5680	5.316	35.173	5.147	35.437	3.28%	-0.74%
			5690	5.326	35.167	5.158	35.426	3.26%	-0.73%
			5700	5.336	35.146	5.168	35.414	3.25%	-0.76%
			5710	5.350	35.114	5.178	35.403	3.32%	-0.82%
			5720	5.367	35.080	5.188	35.391	3.45%	-0.88%
			5745	5.402	35.057	5.214	35.363	3.61%	-0.87%
			5750	5.409	35.045	5.219	35.357	3.64%	-0.88%
			5755	5.416	35.032	5.224	35.351	3.68%	-0.90%
			5765	5.427	35.012	5.234	35.340	3.69%	-0.93%
			5775	5.434	34.995	5.245	35.329	3.60%	-0.95%
			5785	5.445	34.973	5.255	35.317	3.62%	-0.97%
			5795	5.462	34.955	5.265	35.305	3.74%	-0.99%
			5800	5.472	34.943	5.270	35.300	3.83%	-1.01%
			5805	5.481	34.938	5.275	35.294	3.91%	-1.01%
			5825	5.509	34.914	5.296	35.271	4.02%	-1.01%
			5835	5.519	34.886	5.305	35.230	4.03%	-0.98%
			5845	5.536	34.865	5.315	35.210	4.16%	-0.98%
			5855	5.548	34.852	5.325	35.197	4.19%	-0.98%
			5865	5.557	34.832	5.336	35.190	4.14%	-1.02%
			5875	5.565	34.801	5.347	35.183	4.08%	-1.09%
			5885	5.575	34.778	5.357	35.177	4.07%	-1.13%

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Table 10-4
Measured Head Tissue Properties (Cont.)

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
01/17/2024	6000 Head	21.2	5935	5.382	35.529	5.411	35.143	-0.54%	1.10%
			5970	5.369	35.492	5.448	35.120	-1.45%	1.06%
			5985	5.378	35.351	5.464	35.110	-1.57%	0.69%
			6000	5.408	35.236	5.480	35.100	-1.31%	0.39%
			6025	5.477	35.219	5.510	35.070	-0.60%	0.42%
			6065	5.503	35.314	5.557	35.022	-0.97%	0.83%
			6075	5.503	35.277	5.569	35.010	-1.19%	0.76%
			6085	5.504	35.215	5.580	34.998	-1.36%	0.62%
			6185	5.654	35.044	5.698	34.878	-0.77%	0.48%
			6275	5.790	34.873	5.805	34.770	-0.26%	0.30%
			6285	5.797	34.864	5.816	34.758	-0.33%	0.30%
			6305	5.802	34.851	5.840	34.734	-0.65%	0.34%
			6345	5.854	34.712	5.887	34.686	-0.56%	0.07%
			6475	6.021	34.488	6.041	34.530	-0.33%	-0.12%
			6485	6.033	34.488	6.052	34.518	-0.31%	-0.09%
			6500	6.049	34.487	6.070	34.500	-0.35%	-0.04%
			6505	6.054	34.482	6.076	34.494	-0.36%	-0.03%
			6545	6.087	34.368	6.122	34.446	-0.57%	-0.23%
			6665	6.233	34.144	6.265	34.302	-0.51%	-0.46%
			6675	6.242	34.100	6.273	34.290	-0.49%	-0.55%
			6685	6.259	34.085	6.285	34.278	-0.41%	-0.56%
			6715	6.311	34.092	6.319	34.242	-0.13%	-0.44%
			6785	6.363	33.868	6.400	34.158	-0.58%	-0.85%
			6825	6.439	33.870	6.447	34.110	-0.12%	-0.70%
			6985	6.588	33.651	6.633	33.918	-0.68%	-0.79%
			6995	6.591	33.593	6.644	33.906	-0.80%	-0.92%
			7000	6.595	33.567	6.650	33.900	-0.83%	-0.98%
			7005	6.598	33.543	6.656	33.894	-0.87%	-1.04%
			7025	6.631	33.462	6.680	33.870	-0.73%	-1.20%
			7500	7.216	32.651	7.240	33.300	-0.33%	-1.95%
			7980	7.865	31.985	7.816	32.724	0.63%	-2.26%
			8000	7.920	32.060	7.840	32.700	1.02%	-1.96%
01/26/2024	6000 Head	22.9	5935	5.310	34.198	5.411	35.143	-1.87%	-2.69%
			5970	5.335	34.146	5.448	35.120	-2.07%	-2.77%
			5985	5.346	34.098	5.464	35.110	-2.16%	-2.88%
			6000	5.371	34.027	5.480	35.100	-1.99%	-3.06%
			6065	5.452	34.008	5.557	35.022	-1.89%	-2.90%
			6085	5.467	33.898	5.580	34.998	-2.03%	-3.14%
			6185	5.590	33.782	5.698	34.878	-1.90%	-3.14%
			6275	5.722	33.604	5.805	34.770	-1.43%	-3.35%
			6305	5.732	33.547	5.840	34.734	-1.85%	-3.42%
			6345	5.808	33.469	5.887	34.686	-1.34%	-3.51%
			6475	5.964	33.258	6.041	34.530	-1.27%	-3.68%
			6500	5.981	33.251	6.070	34.500	-1.47%	-3.62%
			6545	6.011	33.040	6.122	34.446	-1.81%	-4.08%
			6665	6.138	32.880	6.265	34.302	-2.03%	-4.15%
			6675	6.166	32.832	6.273	34.290	-1.71%	-4.25%
			6685	6.184	32.810	6.285	34.278	-1.61%	-4.28%
			6785	6.274	32.624	6.400	34.158	-1.97%	-4.49%
			6995	6.454	32.415	6.644	33.906	-2.86%	-4.40%
			7000	6.455	32.373	6.650	33.900	-2.93%	-4.50%
			7005	6.462	32.333	6.656	33.894	-2.91%	-4.61%
			7025	6.514	32.212	6.680	33.870	-2.49%	-4.90%
02/01/2024	6000 Head	19.8	5935	5.616	35.211	5.411	35.143	3.79%	0.19%
			5985	5.632	35.078	5.464	35.110	3.07%	-0.09%
			6000	5.671	35.010	5.480	35.100	3.49%	-0.26%
			6075	5.779	34.992	5.569	35.010	3.77%	-0.05%
			6085	5.786	34.934	5.580	34.998	3.69%	-0.18%
			6185	5.919	34.702	5.698	34.878	3.88%	-0.50%
			6275	6.047	34.537	5.805	34.770	4.17%	-0.67%
			6285	6.052	34.525	5.816	34.758	4.06%	-0.67%
			6305	6.056	34.492	5.840	34.734	3.70%	-0.70%
			6345	6.118	34.344	5.887	34.686	3.92%	-0.99%
			6485	6.310	34.121	6.052	34.518	4.26%	-1.15%
			6500	6.323	34.120	6.070	34.500	4.17%	-1.10%
			6505	6.328	34.109	6.076	34.494	4.15%	-1.12%
			6545	6.359	33.952	6.122	34.446	3.87%	-1.43%
			6665	6.511	33.742	6.265	34.302	3.93%	-1.63%
			6675	6.523	33.698	6.273	34.290	3.99%	-1.73%
			6685	6.540	33.682	6.285	34.278	4.06%	-1.74%
			6785	6.657	33.465	6.400	34.158	4.02%	-2.03%
			6985	6.887	33.226	6.633	33.918	3.83%	-2.04%
			6995	6.891	33.168	6.644	33.906	3.72%	-2.18%
			7000	6.893	33.140	6.650	33.900	3.65%	-2.24%
			7005	6.895	33.117	6.656	33.894	3.59%	-2.29%
			7025	6.923	33.030	6.680	33.870	3.64%	-2.48%
			7500	7.514	32.167	7.240	33.300	3.78%	-3.40%
			8000	8.188	31.507	7.840	32.700	4.44%	-3.65%

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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10.3 Power Density Test System Verification

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

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

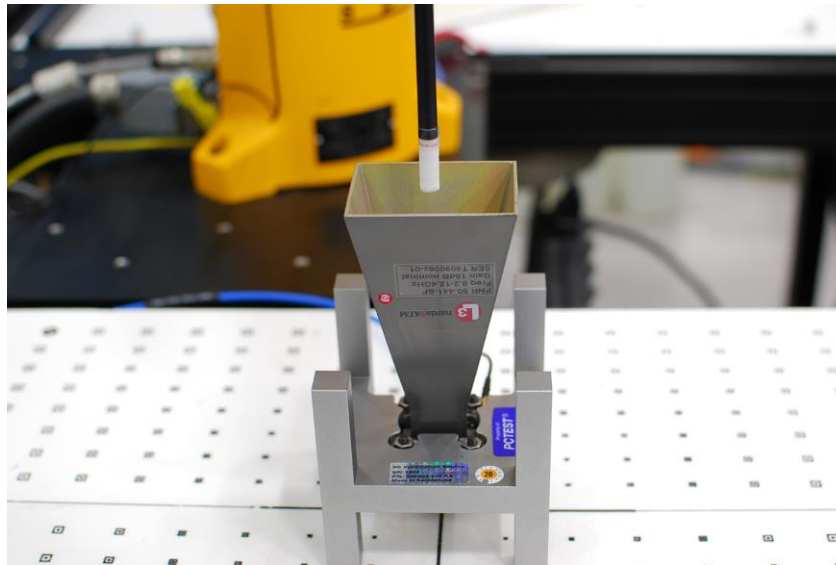


Figure 10-3
System Verification Setup Photo

Table 10-6
10 GHz Verifications

System	Frequency	Date	Source S/N	Probe S/N	Normal psPD (W/m ² over 4 cm ²)		Deviation (dB)	Total psPD (W/m ² over 4 cm ²)		Deviation (dB)
					Measured	Target		Measured	Target	
Q	10	02/01/2024	1004	9389	48.50	55.80	-0.61	48.70	56.10	-0.61
Q	10	01/16/2024	1004	9622	61.80	55.80	0.44	62.10	56.10	0.44

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

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11 SAR DATA SUMMARY

11.1 GSM 850 Standalone SAR

Table 11-1

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	GSM 850	GSM	A	1668M	1:8.3	0.03	824.20	128	33.5	33.12	Right Cheek	0	0.065	1.091	0.071	0.240	0.150		35.7	33.9	29.6
Head	GSM 850	GSM	A	1668M	1:8.3	0.00	824.20	128	33.5	33.12	Right Tilt	0	0.045	1.091	0.049	0.166	0.104		37.3		
Head	GSM 850	GSM	A	1668M	1:8.3	-0.09	824.20	128	33.5	33.12	Left Cheek	0	0.099	1.091	0.108	0.366	0.229		33.9		
Head	GSM 850	GSM	A	1668M	1:8.3	0.08	824.20	128	33.5	33.12	Left Tilt	0	0.049	1.091	0.053	0.181	0.113		37.0		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-2

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-worn	GSM 850	GSM	A	1668M	1:8.3	-0.02	824.20	128	33.5	33.12	Back	10	0.306	1.091	0.334	0.506	0.316		29.0		
Hotspot	GPRS 850	GPRS 3 Tx Slots	A	1668M	1:2.76	-0.09	836.60	190	30.5	29.70	Back	10	0.497	1.202	0.597	0.597	0.373		28.3		
Hotspot	GPRS 850	GPRS 3 Tx Slots	A	1668M	1:2.76	-0.10	836.60	190	30.5	29.70	Front	10	0.312	1.202	0.375	0.375	0.234		30.3	28.3	26.1
Hotspot	GPRS 850	GPRS 3 Tx Slots	A	1668M	1:2.76	-0.06	836.60	190	30.5	29.70	Bottom	10	0.205	1.202	0.246	0.246	0.154		32.1		
Hotspot	GPRS 850	GPRS 3 Tx Slots	A	1668M	1:2.76	0.01	836.60	190	30.5	29.70	Right	10	0.088	1.202	0.106	0.106	0.066		35.8		
Hotspot	GPRS 850	GPRS 3 Tx Slots	A	1668M	1:2.76	-0.06	836.60	190	30.5	29.70	Left	10	0.162	1.202	0.195	0.195	0.122		33.1		
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 11-3

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	GSM 850	GSM	E	1727M	1:8.3	0.00	824.20	128	32.0	30.81	Right Cheek	0	0.696	1.315	0.915	0.915	0.572		23.1		
Head	GSM 850	GSM	E	1727M	1:8.3	0.02	836.60	190	32.0	30.80	Right Cheek	0	0.741	1.318	0.977	0.977	0.611		22.9		
Head	GSM 850	GSM	E	1727M	1:8.3	0.00	848.80	251	32.0	31.21	Right Cheek	0	0.830	1.199	0.995	0.995	0.622		22.8		
Head	GSM 850	GSM	E	1727M	1:8.3	0.01	824.20	128	32.0	30.81	Right Tilt	0	0.587	1.315	0.772	0.772	0.483		23.9		
Head	GSM 850	GSM	E	1727M	1:8.3	0.01	836.60	190	32.0	30.80	Right Tilt	0	0.639	1.318	0.842	0.842	0.526		23.5		
Head	GSM 850	GSM	E	1727M	1:8.3	0.02	848.80	251	32.0	31.21	Right Tilt	0	0.720	1.199	0.863	0.863	0.539		23.4		
Head	GSM 850	GSM	E	1727M	1:8.3	0.04	824.20	128	32.0	30.81	Left Cheek	0	0.911	1.315	1.198	1.198	0.749		22.0		
Head	GSM 850	GSM	E	1727M	1:8.3	0.03	836.60	190	32.0	30.80	Left Cheek	0	0.928	1.318	1.223	1.223	0.764		21.9		
Head	GSM 850	GSM	E	1727M	1:8.3	0.08	848.80	251	32.0	31.21	Left Cheek	0	1.000	1.199	1.199	1.199	0.749	A1	22.0		
Head	GSM 850	GSM	E	1727M	1:8.3	0.04	824.20	128	32.0	30.81	Left Tilt	0	0.777	1.315	1.022	1.022	0.639		22.7		
Head	GSM 850	GSM	E	1727M	1:8.3	-0.16	836.60	190	32.0	30.80	Left Tilt	0	0.819	1.318	1.079	1.079	0.674		22.4		
Head	GSM 850	GSM	E	1727M	1:8.3	0.08	848.80	251	32.0	31.21	Left Tilt	0	0.920	1.199	1.103	1.103	0.689		22.3		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																					
Spatial Peak																					
Uncontrolled Exposure/General Population																					
1.6 W/kg (mW/g)																					
averaged over 1 gram																					

Table 11-4

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-worn	GSM 850	GSM	E	1727M	1:8.3	-0.01	848.80	251	33.0	32.79	Back	10	0.372	1.050	0.391	0.797	0.498	A2	27.8		
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1727M	1:2.76	-0.03	836.60	190	30.0	29.67	Back	10	0.476	1.079	0.514	0.693	0.433		28.4	26.9	26.9
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1727M	1:2.76	-0.02	836.60	190	30.0	29.67	Front	10	0.611	1.079	0.659	0.889	0.556		27.3		
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1727M	1:2.76	0.04	836.60	190	30.0	29.67	Top	10	0.673	1.079	0.726	0.979	0.612	A3	26.9		
Hotspot	GPRS 850	GPRS 3 Tx Slots	E	1727M	1:2.76	-0.01	836.60	190	30.0	29.67	Right	10	0.524	1.079	0.565	0.762	0.476		28.0		
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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11.2 GSM 1900 Standalone SAR

Table 11-5

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	GSM 1900	GSM	A	1668M	1:8.3	0.02	1909.80	810	30.0	29.58	Right Cheek	0	0.023	1.102	0.025	0.236	0.148		36.7	34.8	30.5
Head	GSM 1900	GSM	A	1668M	1:8.3	0.06	1909.80	810	30.0	29.58	Right Tilt	0	0.018	1.102	0.020	0.185	0.116		37.8		
Head	GSM 1900	GSM	A	1668M	1:8.3	0.07	1909.80	810	30.0	29.58	Left Cheek	0	0.036	1.102	0.040	0.370	0.231	A4	34.8		
Head	GSM 1900	GSM	A	1668M	1:8.3	0.06	1909.80	810	30.0	29.58	Left Tilt	0	0.014	1.102	0.015	0.144	0.090		38.9		
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 11-6

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]	
Body-worn	GSM 1900	GSM	A	1668M	1:8.3	0.02	1880.00	661	29.0	28.92	Back	10	0.421	1.019	0.429	0.429	0.268	A5	23.4			
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1668M	1:2.076	-0.11	1880.00	661	23.0	21.94	Back	10	0.216	1.276	0.276	0.276	0.173		25.4			
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1668M	1:2.076	-0.03	1880.00	661	23.0	21.94	Front	10	0.178	1.276	0.227	0.227	0.142		26.2			
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1668M	1:2.076	0.00	1880.00	661	23.0	21.94	Bottom	10	0.478	1.276	0.610	0.610	0.381	A6	21.9	21.9	18.8	
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1668M	1:2.076	-0.01	1880.00	661	23.0	21.94	Right	10	0.012	1.276	0.015	0.015	0.009		37.9			
Hotspot	GPRS 1900	GPRS 4 Tx Slots	A	1668M	1:2.076	0.02	1880.00	661	23.0	21.94	Left	10	0.023	1.276	0.029	0.029	0.018		35.1			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT													Body									
Spatial Peak													1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population													averaged over 1 gram									

11.3 UMTS 850 Standalone SAR

Table 11-7

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	UMTS 850	RMC	A	1668M	1:1	-0.12	836.60	4183	25.0	23.17	Right Cheek	0	134	0.091	1.524	0.139	0.258	0.161		33.5	32.0	27.7
Head	UMTS 850	RMC	A	1668M	1:1	0.17	836.60	4183	25.0	23.17	Right Tilt	0	134	0.060	1.524	0.091	0.170	0.106		35.3		
Head	UMTS 850	RMC	A	1668M	1:1	0.01	836.60	4183	25.0	23.17	Left Cheek	0	134	0.129	1.524	0.197	0.366	0.229		32.0		
Head	UMTS 850	RMC	A	1668M	1:1	-0.06	836.60	4183	25.0	23.17	Left Tilt	0	134	0.073	1.524	0.111	0.207	0.129		34.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-8

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-worn/Hotspot	UMTS 850	RMC	A	1668M	1:1	-0.01	836.60	4183	25.0	23.17	Back	10	132	0.465	1.524	0.709	0.709	0.443	A8	26.4	26.4	24.2
Hotspot	UMTS 850	RMC	A	1668M	1:1	0.01	836.60	4183	25.0	23.17	Front	10	34	0.273	1.524	0.416	0.416	0.260		28.8		
Hotspot	UMTS 850	RMC	A	1668M	1:1	-0.01	836.60	4183	25.0	23.17	Bottom	10	34	0.181	1.524	0.276	0.276	0.173		30.5		
Hotspot	UMTS 850	RMC	A	1668M	1:1	0.08	836.60	4183	25.0	23.17	Right	10	134	0.102	1.524	0.155	0.155	0.097		33.0		
Hotspot	UMTS 850	RMC	A	1668M	1:1	0.02	836.60	4183	25.0	23.17	Left	10	132	0.182	1.524	0.277	0.277	0.173		30.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-9

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]			
Head	UMTS 850	RMC	E	1727M	1:1	0.02	826.40	4132	22.5	21.18	Right Cheek	0	0.684	1.355	0.927	0.927	0.579		22.8					
Head	UMTS 850	RMC	E	1727M	1:1	0.02	836.60	4183	22.5	21.27	Right Cheek	0	0.723	1.327	0.959	0.959	0.599		22.6					
Head	UMTS 850	RMC	E	1727M	1:1	0.00	846.60	4233	22.5	21.18	Right Cheek	0	0.717	1.355	0.972	0.972	0.608		22.6					
Head	UMTS 850	RMC	E	1727M	1:1	-0.03	826.40	4132	22.5	21.18	Right Tilt	0	0.574	1.355	0.778	0.778	0.486		23.5					
Head	UMTS 850	RMC	E	1727M	1:1	0.00	836.60	4183	22.5	21.27	Right Tilt	0	0.604	1.327	0.802	0.802	0.501		23.4					
Head	UMTS 850	RMC	E	1727M	1:1	0.00	846.60	4233	22.5	21.18	Right Tilt	0	0.627	1.355	0.850	0.850	0.531		23.2		21.6			
Head	UMTS 850	RMC	E	1727M	1:1	0.00	826.40	4132	22.5	21.18	Left Cheek	0	0.869	1.355	1.177	1.177	0.736		21.7					
Head	UMTS 850	RMC	E	1727M	1:1	0.01	836.60	4183	22.5	21.27	Left Cheek	0	0.920	1.327	1.221	1.221	0.763	A7	21.6		21.5			
Head	UMTS 850	RMC	E	1727M	1:1	0.04	846.60	4233	22.5	21.18	Left Cheek	0	0.882	1.355	1.195	1.195	0.747		21.7					
Head	UMTS 850	RMC	E	1727M	1:1	0.00	826.40	4132	22.5	21.18	Left Tilt	0	0.756	1.355	1.024	1.024	0.640		22.3					
Head	UMTS 850	RMC	E	1727M	1:1	0.01	836.60	4183	22.5	21.27	Left Tilt	0	0.804	1.327	1.067	1.067	0.667		22.2					
Head	UMTS 850	RMC	E	1727M	1:1	0.03	846.60	4233	22.5	21.18	Left Tilt	0	0.813	1.355	1.102	1.102	0.689		22.0					
ANSI/IEEE C95.1 1992 - SAFETY LIMIT													Head											
Spatial Peak													1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population													averaged over 1 gram											

FCC ID: A3LSMS928JPN	SAR EVALUATION REPORT															Approved by: Technical Manager					
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11.5 LTE Band 13 Standalone SAR

Table 11-15

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	LTE Band 13	10	QPSK	A	1668M	1:1	0.05	782.00	23230	0.0	24.0	22.65	1	0	Right Cheek	0	64	0.080	1.365	0.109	0.250	0.156		33.6		
Head	LTE Band 13	10	QPSK	A	1668M	1:1	0.01	782.00	23230	1.0	23.0	21.63	25	0	Right Cheek	0	64	0.070	1.371	0.096	0.277	0.173		33.1		
Head	LTE Band 13	10	QPSK	A	1668M	1:1	-0.08	782.00	23230	0.0	24.0	22.65	1	0	Right Tilt	0	64	0.049	1.365	0.067	0.153	0.096		35.7		
Head	LTE Band 13	10	QPSK	A	1668M	1:1	-0.05	782.00	23230	1.0	23.0	21.63	25	0	Right Tilt	0	64	0.040	1.371	0.055	0.158	0.099		35.6		
Head	LTE Band 13	10	QPSK	A	1668M	1:1	0.02	782.00	23230	0.0	24.0	22.65	1	0	Left Cheek	0	64	0.108	1.365	0.147	0.338	0.211		32.3		
Head	LTE Band 13	10	QPSK	A	1668M	1:1	-0.02	782.00	23230	1.0	23.0	21.63	25	0	Left Cheek	0	64	0.093	1.371	0.128	0.368	0.230		31.9		
Head	LTE Band 13	10	QPSK	A	1668M	1:1	0.02	782.00	23230	0.0	24.0	22.65	1	0	Left Tilt	0	64	0.042	1.365	0.057	0.131	0.082		36.4		
Head	LTE Band 13	10	QPSK	A	1668M	1:1	0.01	782.00	23230	1.0	23.0	21.63	25	0	Left Tilt	0	64	0.042	1.371	0.058	0.166	0.104		35.3		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																		Head		1.6 W/kg (mW/g)						
Spatial Peak																										
Uncontrolled Exposure/General Population																										

Table 11-16

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-worn/Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	0.12	782.00	23230	0.0	24.0	22.65	1	0	Back	10	0	0.378	1.365	0.516	0.592	0.370	A14	26.8	26.8	24.6
Body-worn/Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	0.00	782.00	23230	1.0	23.0	21.63	25	0	Back	10	0	0.299	1.371	0.410	0.593	0.371		26.8		
Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	-0.03	782.00	23230	0.0	24.0	22.65	1	0	Front	10	128	0.210	1.365	0.287	0.329	0.206		29.4		
Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	-0.01	782.00	23230	1.0	23.0	21.63	25	0	Front	10	64	0.167	1.371	0.229	0.331	0.207		29.4		
Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	0.03	782.00	23230	0.0	24.0	22.65	1	0	Bottom	10	0	0.129	1.365	0.176	0.202	0.126		31.5		
Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	-0.03	782.00	23230	1.0	23.0	21.63	25	0	Bottom	10	0	0.101	1.371	0.138	0.200	0.125		31.5		
Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	0.04	782.00	23230	0.0	24.0	22.65	1	0	Right	10	0	0.085	1.365	0.116	0.113	0.083		33.3		
Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	-0.03	782.00	23230	1.0	23.0	21.63	25	0	Right	10	0	0.084	1.371	0.115	0.166	0.104		32.3		
Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	0.04	782.00	23230	0.0	24.0	22.65	1	0	Left	10	128	0.139	1.365	0.190	0.218	0.136		31.2		
Hotspot	LTE Band 13	10	QPSK	A	1668M	1:1	-0.03	782.00	23230	1.0	23.0	21.63	25	0	Left	10	64	0.114	1.371	0.156	0.226	0.141		31.0		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																		Body								
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		averaged over 1 g/cm								

Table 11-17

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Power [dBm]	EFS Plimit [dBm]
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.00	782.00	23230	0.0	23.5	22.96	1	25	Right Cheek	0	0.868	1.132	0.983	0.983	0.614		23.5		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.00	782.00	23230	1.0	22.5	21.70	25	12	Right Cheek	0	0.691	1.202	0.831	0.831	0.519		23.3		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	-0.02	782.00	23230	1.0	22.5	21.69	50	0	Right Cheek	0	0.587	1.205	0.828	0.828	0.518		23.3		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.00	782.00	23230	0.0	23.5	22.96	1	25	Right Tilt	0	0.757	1.132	0.857	0.857	0.536		24.1		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.00	782.00	23230	1.0	22.5	21.70	25	12	Right Tilt	0	0.595	1.202	0.715	0.715	0.447		23.9		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	-0.03	782.00	23230	1.0	22.5	21.69	50	0	Right Tilt	0	0.596	1.205	0.718	0.718	0.449		23.9		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.00	782.00	23230	0.0	23.5	22.96	1	25	Left Cheek	0	0.960	1.132	1.109	1.109	0.693	A13	23.0	22.5	22.5
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.01	782.00	23230	0.0	23.5	22.96	1	25	Left Cheek	0	0.976	1.132	1.105	1.105	0.691		23.0		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.00	782.00	23230	1.0	22.5	21.70	25	12	Left Cheek	0	0.825	1.202	0.992	0.992	0.620		22.5		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.00	782.00	23230	1.0	22.5	21.69	50	0	Left Cheek	0	0.825	1.205	0.994	0.994	0.621		22.5		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.03	782.00	23230	0.0	23.5	22.96	1	25	Left Tilt	0	0.929	1.132	1.052	1.052	0.658		23.2		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.02	782.00	23230	1.0	22.5	21.70	25	12	Left Tilt	0	0.781	1.202	0.939	0.939	0.587		22.7		
Head	LTE Band 13	10	QPSK	E	1668M	1:1	0.01	782.00	23230	1.0	22.5	21.69	50	0	Left Tilt	0	0.771	1.205	0.929	0.929	0.581		22.8		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																		Head		1.6 W/kg (mW/g)					
Spatial Peak																									
Uncontrolled Exposure/General Population																									

Note: Blue entry represents variability measurement

Table 11-18

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-worn/Hotspot	LTE Band 13	10	QPSK	E	1651M	1:1	-0.02	782.00	23230	0.0	23.5	22.96	1	25	Back	10	0.278	1.132	0.315	0.673	0.421		28.5		
Body-worn/Hotspot	LTE Band 13	10	QPSK	E	1651M	1:1	-0.02	782.00	23230	1.0	22.5	21.70	25	12	Back	10	0.220	1.202	0.264	0.712	0.445		28.2		
Hotspot	LTE Band 13	10	QPSK	E	1651M	1:1	0.03	782.00	23230	0.0	23.5	22.96	1	25	Front	10	0.337	1.132	0.381	0.816	0.510		27.6		
Hotspot	LTE Band 13	10	QPSK	E	1651M	1:1	-0.01	782.00	23230	1.0	22.5	21.70	25	12	Front	10	0.268	1.202	0.322	0.867	0.542		27.4		
Hotspot	LTE Band 13	10	QPSK	E	1651M	1:1	-0.01	782.00	23230	0.0	23.5	22.96	1	25	Top	10	0.382	1.132	0.432	0.925	0.578	A15	27.1		
Hotspot	LTE Band 13	10	QPSK	E	1651M	1:1	-0.02	782.00	23230	1.0	22.5	21.70	25	12	Top	10	0.301	1.202	0.362	0.974	0.609		26.9		
Hotspot	LTE Band 13	10	QPSK	E	1651M	1:1	0.02	782.00	23230	0.0	23.5	22.96	1	25	Right	10	0.321	1.132	0.363	0.777	0.486		27.8		
Hotspot	LTE Band 13	10	QPSK	E	1651M	1:1	0.00	782.00	23230	1.0	22.5	21.70	25	12	Right	10	0.252	1.202	0.303	0.815	0.509		27.6		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																									
Spatial Peak																	Body								
Uncontrolled Exposure/General Population																	1.6 W/kg (mW/g) averaged over 16 cm								

11.6 LTE Band 5 (Cell) Standalone SAR

Table 11-19

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 5	10	QPSK	A	1727M	1:1	-0.06	836.50	20525	0.0	25.0	23.92	1	49	Right Cheek	0	132	0.094	1.282	0.121	0.252	0.158		34.1		
Head	LTE Band 5	10	QPSK	A	1727M	1:1	-0.10	836.50	20525	1.0	24.0	22.72	25	25	Right Cheek	0	132	0.080	1.343	0.107	0.283	0.177		33.6		
Head	LTE Band 5	10	QPSK	A	1727M	1:1	0.06	836.50	20525	0.0	25.0	23.92	1	49	Right Tilt	0	134	0.066	1.282	0.085	0.177	0.111		35.7		
Head	LTE Band 5	10	QPSK	A	1727M	1:1	0.08	836.50	20525	1.0	24.0	22.72	25	25	Right Tilt	0	132	0.056	1.343	0.075	0.198	0.124		35.2		
Head	LTE Band 5	10	QPSK	A	1727M	1:1	0.02	836.50	20525	0.0	25.0	23.92	1	49	Left Cheek	0	132	0.132	1.282	0.169	0.354	0.221		32.7	32.5	28.2
Head	LTE Band 5	10	QPSK	A	1727M	1:1	0.00	836.50	20525	1.0	24.0	22.72	25	25	Left Cheek	0	134	0.105	1.343	0.141	0.371	0.232		32.5		
Head	LTE Band 5	10	QPSK	A	1727M	1:1	0.00	836.50	20525	0.0	25.0	23.92	1	49	Left Tilt	0	134	0.061	1.282	0.078	0.163	0.102		36.0		
Head	LTE Band 5	10	QPSK	A	1727M	1:1	0.01	836.50	20525	1.0	24.0	22.72	25	25	Left Tilt	0	134	0.062	1.343	0.070	0.184	0.115		35.5		
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 11-20

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	0.02	836.50	20525	0.0	25.0	23.92	1	49	Back	10	132	0.475	1.282	0.609	0.609	0.381	A17	27.1	27.1	24.9
Body-worn/Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	0.00	836.50	20525	1.0	24.0	22.72	25	25	Back	10	132	0.334	1.343	0.449	0.552	0.345	27.4			
Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	-0.01	836.50	20525	0.0	25.0	23.92	1	49	Front	10	34	0.300	1.282	0.385	0.385	0.241	28.1			
Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	-0.03	836.50	20525	1.0	24.0	22.72	25	25	Front	10	34	0.238	1.343	0.320	0.393	0.246	28.9			
Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	0.06	836.50	20525	0.0	25.0	23.92	1	49	Bottom	10	132	0.193	1.282	0.247	0.247	0.154	31.0			
Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	0.01	836.50	20525	1.0	24.0	22.72	25	25	Bottom	10	132	0.152	1.343	0.204	0.251	0.157	30.9			
Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	-0.07	836.50	20525	0.0	25.0	23.92	1	49	Right	10	34	0.052	1.282	0.067	0.067	0.042	36.7			
Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	-0.09	836.50	20525	1.0	24.0	22.72	25	25	Right	10	132	0.048	1.343	0.064	0.079	0.049	35.9			
Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	0.04	836.50	20525	0.0	25.0	23.92	1	49	Left	10	34	0.160	1.282	0.205	0.205	0.128	31.8			
Hotspot	LTE Band 5	10	QPSK	A	1727M	1:1	0.03	836.50	20525	1.0	24.0	22.72	25	25	Left	10	132	0.133	1.343	0.179	0.220	0.138	31.4			
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 11-21

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	LTE Band 5	10	QPSK	E	1651M	1:1	-0.01	836.50	20525	0.0	22.0	20.74	1	25	Right Cheek	0	0.588	1.337	0.786	0.786	0.491		23.0		
Head	LTE Band 5	10	QPSK	E	1651M	1:1	0.00	836.50	20525	0.0	22.0	20.45	25	25	Right Cheek	0	0.604	1.429	0.863	0.863	0.539		22.6		
Head	LTE Band 5	10	QPSK	E	1651M	1:1	0.01	836.50	20525	0.0	22.0	20.38	50	0	Right Cheek	0	0.599	1.452	0.870	0.870	0.544		22.6		
Head	LTE Band 5	10	QPSK	E	1651M	1:1	-0.02	836.50	20525	0.0	22.0	20.74	1	25	Right Tilt	0	0.474	1.337	0.634	0.634	0.396		23.9		
Head	LTE Band 5	10	QPSK	E	1651M	1:1	-0.02	836.50	20525	0.0	22.0	20.45	25	25	Right Tilt	0	0.485	1.429	0.693	0.693	0.433		23.5		
Head	LTE Band 5	10	QPSK	E	1651M	1:1	-0.09	836.50	20525	0.0	22.0	20.74	1	25	Left Cheek	0	0.697	1.337	0.932	0.932	0.583		22.3	21.9	21.0
Head	LTE Band 5	10	QPSK	E	1651M	1:1	-0.04	836.50	20525	0.0	22.0	20.45	25	25	Left Cheek	0	0.704	1.429	1.006	1.006	0.629	A15	21.9		
Head	LTE Band 5	10	QPSK	E	1651M	1:1	-0.01	836.50	20525	0.0	22.0	20.38	50	0	Left Cheek	0	0.701	1.452	1.018	1.018	0.636		21.9		
Head	LTE Band 5	10	QPSK	E	1651M	1:1	0.00	836.50	20525	0.0	22.0	20.74	1	25	Left Tilt	0	0.650	1.337	0.869	0.869	0.543		22.6		
Head	LTE Band 5	10	QPSK	E	1651M	1:1	-0.01	836.50	20525	0.0	22.0	20.45	25	25	Left Tilt	0	0.659	1.429	0.942	0.942	0.589		22.2		
Head	LTE Band 5	10	QPSK	E	1651M	1:1	0.00	836.50	20525	0.0	22.0	20.38	50	0	Left Tilt	0	0.649	1.452	0.942	0.942	0.589		22.2		
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 11-22

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio 1g SAR	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	LTE Band 5	10	QPSK	E	1727M	1:1	-0.02	836.50	20525	0.0	24.5	23.94	1	49	Back	10	0.399	1.138	0.454	0.703	0.439		27.9		
Body-worn/Hotspot	LTE Band 5	10	QPSK	E	1727M	1:1	-0.01	836.50	20525	1.0	23.5	22.73	25	25	Back	10	0.323	1.194	0.386	0.752	0.470		27.6		
Hotspot	LTE Band 5	10	QPSK	E	1727M	1:1	0.06	836.50	20525	0.0	24.5	23.94	1	49	Front	10	0.453	1.138	0.516	0.798	0.499		27.3		
Hotspot	LTE Band 5	10	QPSK	E	1727M	1:1	0.00	836.50	20525	1.0	23.5	22.73	25	25	Front	10	0.354	1.194	0.423	0.824	0.515		27.2		
Hotspot	LTE Band 5	10	QPSK	E	1727M	1:1	-0.01	836.50	20525	0.0	24.5	23.94	1	49	Top	10	0.534	1.138	0.608	0.941	0.588	A18	26.6		
Hotspot	LTE Band 5	10	QPSK	E	1727M	1:1	0.00	836.50	20525	1.0	23.5	22.73	25	25	Top	10	0.425	1.194	0.507	0.989	0.618		26.4		
Hotspot	LTE Band 5	10	QPSK	E	1727M	1:1	0.06	836.50	20525	0.0	24.5	23.94	1	49	Right	10	0.360	1.138	0.410	0.634	0.396		28.3		
Hotspot	LTE Band 5	10	QPSK	E	1727M	1:1	-0.01	836.50	20525	1.0	23.5	22.73	25	25	Right	10	0.294	1.194	0.351	0.684	0.428		28.0		
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 11-24

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EFS Plimt [dBm]
Body-worn/Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	-0.04	1720.00	132072	0.0	19.5	18.23	1	99	Back	10	32	0.436	1.340	0.584	0.584	0.365	A20	21.8		
Body-worn/Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	-0.02	1720.00	132072	0.0	19.5	18.18	50	25	Back	10	32	0.430	1.355	0.583	0.583	0.364		21.8		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	-0.01	1720.00	132072	0.0	19.5	18.23	1	99	Front	10	135	0.333	1.340	0.446	0.446	0.279		23.0		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	-0.02	1720.00	132072	0.0	19.5	18.18	50	25	Front	10	135	0.234	1.355	0.453	0.453	0.283		22.9		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	-0.01	1720.00	132072	0.0	19.5	18.23	1	99	Bottom	10	32	0.689	1.340	0.923	0.923	0.577		19.8		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	0.01	1745.00	132322	0.0	19.5	18.21	1	0	Bottom	10	32	0.706	1.346	0.950	0.950	0.594		19.7		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	0.02	1720.00	132572	0.0	19.5	17.98	1	99	Bottom	10	135	0.679	1.419	0.964	0.964	0.603		19.6		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	0.02	1720.00	132072	0.0	19.5	18.18	50	25	Bottom	10	32	0.720	1.355	0.976	0.976	0.610	A21	19.6	19.3	18.5
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	0.00	1745.00	132322	0.0	19.5	17.77	50	25	Bottom	10	32	0.691	1.489	1.029	1.029	0.643		19.3		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	-0.04	1720.00	132572	0.0	19.5	18.02	50	25	Bottom	10	135	0.701	1.406	0.986	0.986	0.616		19.5		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	0.00	1720.00	132072	0.0	19.5	18.18	100	0	Bottom	10	32	0.708	1.368	0.969	0.969	0.606		19.6		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	-0.07	1720.00	132072	0.0	19.5	18.23	1	99	Right	10	32	0.060	1.340	0.080	0.080	0.050		30.4		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	-0.09	1720.00	132072	0.0	19.5	18.18	50	25	Right	10	32	0.064	1.355	0.087	0.087	0.054		30.1		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	0.15	1720.00	132072	0.0	19.5	18.23	1	99	Left	10	32	0.043	1.340	0.058	0.058	0.036		31.8		
Hotspot	LTE Band 66	20	QPSK	A	1725M	1:1	-0.06	1720.00	132072	0.0	19.5	18.18	50	25	Left	10	32	0.042	1.355	0.057	0.057	0.036		31.9		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																								Body 1.6 W/kg (mW/g) averaged over 1 gram		

11.8 LTE Band 2 (PCS) Standalone SAR

Table 11-25

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EFS Plimt [dBm]
Head	LTE Band 2	20	QPSK	A	1651M	1:1	0.00	1900.00	19100	0.0	24.0	22.58	1	99	Right Cheek	0	135	0.046	1.387	0.064	0.226	0.141		35.9		
Head	LTE Band 2	20	QPSK	A	1651M	1:1	0.16	1900.00	19100	1.0	23.0	21.61	50	25	Right Cheek	0	135	0.037	1.377	0.051	0.228	0.143		35.9		
Head	LTE Band 2	20	QPSK	A	1651M	1:1	-0.12	1900.00	19100	0.0	24.0	22.58	1	99	Right Tilt	0	135	0.041	1.387	0.057	0.202	0.126		36.4		
Head	LTE Band 2	20	QPSK	A	1651M	1:1	0.09	1900.00	19100	1.0	23.0	21.61	50	50	Right Tilt	0	135	0.031	1.377	0.043	0.191	0.119		36.6		
Head	LTE Band 2	20	QPSK	A	1651M	1:1	-0.18	1900.00	19100	0.0	24.0	22.58	1	99	Left Cheek	0	135	0.074	1.387	0.103	0.364	0.228	A22	33.8		29.5
Head	LTE Band 2	20	QPSK	A	1651M	1:1	-0.05	1900.00	19100	1.0	23.0	21.61	50	50	Left Cheek	0	135	0.055	1.377	0.076	0.338	0.211		34.2		
Head	LTE Band 2	20	QPSK	A	1651M	1:1	0.06	1900.00	19100	0.0	24.0	22.58	1	99	Left Tilt	0	135	0.044	1.387	0.061	0.216	0.135		36.1		
Head	LTE Band 2	20	QPSK	A	1651M	1:1	-0.07	1900.00	19100	1.0	23.0	21.61	50	50	Left Tilt	0	135	0.035	1.377	0.048	0.215	0.134		36.1		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																								Head 1.6 W/kg (mW/g) averaged over 1 gram		

Table 11-26

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EFS Plimt [dBm]
Body-worn/Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	-0.01	1900.00	19100	0.0	19.0	17.70	1	99	Back	10	135	0.442	1.349	0.596	0.596	0.373		21.2		
Body-worn/Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	-0.03	1900.00	19100	0.0	19.0	17.68	50	25	Back	10	135	0.449	1.355	0.608	0.608	0.380	A23	21.1		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	0.04	1900.00	19100	0.0	19.0	17.70	1	99	Front	10	98	0.398	1.349	0.537	0.537	0.336		21.7		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	0.00	1900.00	19100	0.0	19.0	17.68	50	25	Front	10	98	0.393	1.355	0.533	0.533	0.333		21.7		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	-0.06	1860.00	18700	0.0	19.0	17.43	1	50	Bottom	10	135	0.777	1.435	1.115	1.115	0.697		18.5		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	-0.06	1880.00	18900	0.0	19.0	17.27	1	0	Bottom	10	135	0.796	1.489	1.188	1.188	0.743		18.2		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	0.04	1900.00	19100	0.0	19.0	17.70	1	99	Bottom	10	135	0.900	1.349	1.214	1.214	0.759	A24	18.1		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	-0.06	1900.00	19100	0.0	19.0	17.70	1	99	Bottom	10	135	0.911	1.349	1.202	1.202	0.751		18.2		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	0.02	1860.00	18700	0.0	19.0	17.39	50	0	Bottom	10	135	0.782	1.449	1.133	1.133	0.708		18.4		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	-0.01	1880.00	18900	0.0	19.0	17.36	50	25	Bottom	10	135	0.817	1.459	1.221	1.221	0.763		18.1		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	0.02	1900.00	19100	0.0	19.0	17.68	50	25	Bottom	10	135	0.888	1.355	1.203	1.203	0.752		18.1		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	-0.02	1900.00	19100	0.0	19.0	17.47	100	0	Bottom	10	135	0.882	1.422	1.254	1.254	0.784		18.0		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	0.07	1900.00	19100	0.0	19.0	17.70	1	99	Right	10	98	0.625	1.349	0.934	0.934	0.621		33.7		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	-0.09	1900.00	19100	0.0	19.0	17.68	50	25	Right	10	98	0.624	1.355	0.933	0.933	0.621		33.8		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	-0.01	1900.00	19100	0.0	19.0	17.70	1	99	Left	10	135	0.039	1.349	0.053	0.053	0.033		31.7		
Hotspot	LTE Band 2	20	QPSK	A	1651M	1:1	0.02	1900.00	19100	0.0	19.0	17.68	50	25	Left	10	135	0.040	1.355	0.054	0.054	0.034		31.6		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																								Body 1.6 W/kg (mW/g) averaged over 1 gram		

Note: Blue entry represents variability measurement

Table 11-27

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	Plimt [dBm]	Overall Plimt [dBm]	EFS Plimt [dBm]
Phablet	LTE Band 2	20	QPSK	A	1651M	1:1	0.01	1860.00	18700	0.0	19.0	17.43	1	50	Bottom	0	1.480	1.435	2.124	2.124	0.531				
Phablet	LTE Band 2	20	QPSK	A	1651M	1:1	-0.03	1880.00	18900	0.0	19.0	17.27	1	0	Bottom	0	1.460	1.489	2.174	2.174	0.544				
Phablet	LTE Band 2	20	QPSK	A	1651M	1:1	0.02	1900.00	19100	0.0	19.0	17.70	1	99	Bottom	0	1.550	1.349	2.091	2.091	0.523				
Phablet	LTE Band 2	20	QPSK	A	1651M	1:1	0.01	1860.00	18700	0.0	19.0	17.39	50	0	Bottom	0	1.490	1.449	2.159	2.159	0.540			19.5	18.0
Phablet	LTE Band 2	20	QPSK	A	1651M	1:1	0.01	1880.00	18900	0.0	19.0	17.36	50	25	Bottom	0	1.480	1.459	2.159	2.159	0.540				
Phablet	LTE Band 2	20	QPSK	A	1651M	1:1	0.01	1900.00	19100	0.0	19.0	17.68	50	25	Bottom	0	1.560	1.355	2.114	2.114	0.529	A25		19.7	
Phablet	LTE Band 2	20	QPSK	A	1651M	1:1	0.00	1900.00	19100	0.0	19.0	17.47	100	0	Bottom	0	1.540	1.422	2.180	2.190	0.548			19.5	
ANS/IEEE C95.1-1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population 4.0 W/kg (mW/g) averaged over 10 grams																									

11.9 LTE Band 41 Standalone SAR

Table 11-28

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Add'l Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Limit [dBm]	Overall Limit [dBm]	EPS Limit [dBm]
Head	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.20	2549.50	40185	0.0	25.0	23.54	1	0	Right Cheek	0	N/A	0.083	1.400	0.116	0.343	0.214		32.3		
Head	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.02	2549.50	40185	1.0	24.0	22.61	50	25	Right Cheek	0	N/A	0.081	1.377	0.112	0.434	0.259		31.5		
Head	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.03	2549.50	40185	0.0	25.0	23.54	1	0	Right Tilt	0	N/A	0.030	1.400	0.042	0.124	0.078		36.7		
Head	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.11	2549.50	40185	1.0	24.0	22.61	50	25	Right Tilt	0	N/A	0.026	1.377	0.036	0.133	0.083		36.4		
Head	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.17	2549.50	40185	0.0	25.0	23.54	1	0	Left Cheek	0	N/A	0.035	1.400	0.049	0.145	0.091		36.1		
Head	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.01	2549.50	40185	1.0	24.0	22.61	50	25	Left Cheek	0	N/A	0.015	1.377	0.021	0.077	0.048		38.8	31.5	27.7
Head	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.06	2549.50	40185	0.0	25.0	23.54	1	0	Left Tilt	0	N/A	0.038	1.400	0.053	0.157	0.098		35.7		
Head	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.10	2549.50	40185	1.0	24.0	22.61	50	25	Left Tilt	0	N/A	0.039	1.377	0.054	0.200	0.125		34.7		
Head	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.14	2549.50	40185	0.0	25.0	24.08	1	0	Right Cheek	0	ULCA	0.085	1.236	0.105	0.310	0.194		32.8		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT															Head										1.6 W/kg (mW/g)	
Spatial Peak															averaged over 1 gram											
Uncontrolled Exposure/General Population																										

Table 11-29

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Add'l Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Limit [dBm]	Overall Limit [dBm]	RFSS Limit [dBm]	
Body-worn/Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.21	2549.50	40185	0.0	22.0	21.27	1	0	Back	10	N/A	0.342	1.183	0.405	0.405	0.253		23.9			
Body-worn/Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.03	2549.50	40185	0.0	22.0	21.25	50	0	Back	10	N/A	0.349	1.189	0.415	0.415	0.259		23.8			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.00	2549.50	40185	0.0	22.0	21.27	1	0	Front	10	N/A	0.292	1.183	0.274	0.274	0.171		25.6			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.02	2549.50	40185	0.0	22.0	21.25	50	0	Front	10	N/A	0.274	1.189	0.326	0.326	0.204		24.8			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.02	2506.00	39750	0.0	22.0	21.03	1	99	Bottom	10	N/A	0.416	1.250	0.520	0.520	0.325		22.8			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.02	2549.50	40185	0.0	22.0	21.27	1	0	Bottom	10	N/A	0.465	1.183	0.550	0.550	0.344		22.6			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.02	2593.00	40620	0.0	22.0	20.87	1	0	Bottom	10	N/A	0.447	1.297	0.580	0.580	0.363		22.3			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.03	2636.50	41055	0.0	22.0	21.20	1	99	Bottom	10	N/A	0.481	1.202	0.578	0.578	0.361		22.3			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.00	2680.00	41490	0.0	22.0	21.18	1	50	Bottom	10	N/A	0.476	1.208	0.575	0.575	0.359		22.4			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.00	2506.00	39750	0.0	22.0	21.01	50	25	Bottom	10	N/A	0.406	1.256	0.510	0.510	0.319		22.9			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.00	2549.50	40185	0.0	22.0	21.25	50	0	Bottom	10	N/A	0.488	1.189	0.580	0.580	0.363		22.3	21.9	19.0	
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.02	2593.00	40620	0.0	22.0	21.05	50	0	Bottom	10	N/A	0.461	1.245	0.574	0.574	0.359		22.4			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.01	2636.50	41055	0.0	22.0	20.89	50	25	Bottom	10	N/A	0.497	1.291	0.642	0.642	0.401		21.9			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.00	2636.50	41055	0.0	22.0	20.88	50	50	Bottom	10	N/A	0.491	1.294	0.635	0.635	0.397		21.9			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.01	2549.50	40185	0.0	22.0	21.16	100	0	Bottom	10	N/A	0.488	1.213	0.592	0.592	0.370		22.2			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	0.05	2549.50	40185	0.0	22.0	21.27	1	0	Right	10	N/A	0.338	1.183	0.400	0.400	0.250		23.9			
Hotspot	LTE Band 41	20	QPSK	B	1642M	1:1.58	-0.04	2549.50	40185	0.0	22.0	21.25	50	0	Right	10	N/A	0.353	1.189	0.420	0.420	0.263		23.7			
Body-worn/Hotspot	LTE Band 41		QPSK	B	1642M	1:1.58	-0.05	2549.50 2529.70	40185 39987	0.0	22.0	21.66	50 50		Back	10	ULCA 41C	0.394	1.081	0.426	0.426	0.266	A27	23.7			
Hotspot	LTE Band 41		QPSK	B	1642M	1:1.58	-0.02	2636.50 2656.30	41055 41253	0.0	22.0	21.32	50 50		Bottom	10	ULCA 41C	0.526	1.169	0.615	0.615	0.384	A28	22.1			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT															Body										1.6 W/kg (mW/g)		
Spatial Peak															averaged over 1 gram												
Uncontrolled Exposure/General Population																											

Table 11-30

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Add'l Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Limit [dBm]	Overall Limit [dBm]	EPS Limit [dBm]
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.04	2506.00	39750	0.0	19.5	18.07	1	50	Right Cheek	0	N/A	0.628	1.390	0.873	0.873	0.546		18.1		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.02	2549.50	40185	0.0	19.5	18.08	1	0	Right Cheek	0	N/A	0.585	1.387	0.811	0.811	0.507		18.4		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.00	2593.00	40620	0.0	19.5	18.19	1	0	Right Cheek	0	N/A	0.539	1.352	0.729	0.729	0.456		18.8		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.02	2636.50	41055	0.0	19.5	17.88	1	50	Right Cheek	0	N/A	0.476	1.452	0.691	0.691	0.432		19.1		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.02	2680.00	41490	0.0	19.5	18.09	1	50	Right Cheek	0	N/A	0.489	1.384	0.677	0.677	0.423		19.2		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.01	2506.00	39750	0.0	19.5	18.05	50	50	Right Cheek	0	N/A	0.615	1.396	0.863	0.863	0.539		18.1		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.01	2549.50	40185	0.0	19.5	18.03	50	25	Right Cheek	0	N/A	0.574	1.403	0.805	0.805	0.503		18.4		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.01	2593.00	40620	0.0	19.5	18.16	50	25	Right Cheek	0	N/A	0.549	1.361	0.747	0.747	0.467		18.7		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.01	2636.50	41055	0.0	19.5	17.88	50	50	Right Cheek	0	N/A	0.472	1.452	0.685	0.685	0.428		19.1		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.03	2680.00	41490	0.0	19.5	18.10	50	50	Right Cheek	0	N/A	0.476	1.380	0.657	0.657	0.411		19.3		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.01	2593.00	40620	0.0	19.5	18.08	100	0	Right Cheek	0	N/A	0.571	1.387	0.792	0.792	0.495		18.5		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.02	2506.00	39750	0.0	19.5	18.07	1	50	Right Tilt	0	N/A	0.892	1.390	1.240	1.240	0.775		16.5		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.02	2549.50	40185	0.0	19.5	18.08	1	0	Right Tilt	0	N/A	0.783	1.387	1.086	1.086	0.679		17.1		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.05	2593.00	40620	0.0	19.5	18.19	1	0	Right Tilt	0	N/A	0.719	1.352	0.972	0.972	0.608		17.6		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.03	2636.50	41055	0.0	19.5	17.88	1	50	Right Tilt	0	N/A	0.648	1.452	0.941	0.941	0.588		17.7		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.01	2680.00	41490	0.0	19.5	18.09	1	50	Right Tilt	0	N/A	0.670	1.384	0.927	0.927	0.579		17.8		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.01	2506.00	39750	0.0	19.5	18.05	50	50	Right Tilt	0	N/A	0.893	1.396	1.247	1.247	0.779		16.5		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.01	2549.50	40185	0.0	19.5	18.01	50	25	Right Tilt	0	N/A	0.781	1.403	1.096	1.096	0.685		17.1		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.01	2593.00	40620	0.0	19.5	18.16	50	25	Right Tilt	0	N/A	0.725	1.361	0.867	0.867	0.517		17.5		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.00	2636.50	41055	0.0	19.5	17.88	50	50	Right Tilt	0	N/A	0.653	1.452	0.948	0.948	0.593		17.7		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.03	2680.00	41490	0.0	19.5	18.10	50	50	Right Tilt	0	N/A	0.656	1.380	0.905	0.905	0.566		17.9		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.01	2593.00	40620	0.0	19.5	18.08	100	0	Right Tilt	0	N/A	0.730	1.387	1.013	1.013	0.633		17.4		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.00	2593.00	40620	0.0	19.5	18.19	0	0	Left Cheek	0	N/A	0.299	1.352	0.404	0.404	0.253		21.4		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.02	2593.00	40620	0.0	19.5	18.16	50	25	Left Cheek	0	N/A	0.311	1.361	0.423	0.423	0.264		21.2		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.01	2593.00	40620	0.0	19.5	18.19	1	0	Left Tilt	0	N/A	0.354	1.352	0.479	0.479	0.299		20.7		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.00	2593.00	40620	0.0	19.5	18.16	50	25	Left Tilt	0	N/A	0.363	1.361	0.494	0.494	0.309		20.5		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.00	2506.00	39750	0.0	19.5	18.07	50	50	Right Tilt	0	ULCA	0.906	1.318	1.194	1.194	0.746	A26	16.7		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.02	2525.80	39948	0.0	19.5	18.06	50	50	Right Tilt	0	ULCA	0.890	1.318	1.173	1.173	0.733		16.8		
Head	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.02	2506.00	39750	0.0	19.5	18.07	50	50	Right Tilt	0	ULCA	0.906	1.318	1.194	1.194	0.746		16.7		
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: Blue entry represents variability measurement

Table 11-31

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Add'l Info	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn/Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.01	2593.00	40620	0.0	22.5	21.20	1	50	Back	10	N/A	0.120	1.349	0.162	0.162	0.101		28.4		
Body-worn/Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.02	2593.00	40620	0.0	22.5	21.09	1	99	Back	10	N/A	0.120	1.384	0.166	0.166	0.104		28.3		
Body-worn/Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.02	2593.00	40620	0.0	22.5	21.26	50	25	Back	10	N/A	0.117	1.330	0.156	0.156	0.088		28.5		
Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.02	2593.00	40620	0.0	22.5	21.20	1	50	Front	10	N/A	0.164	1.349	0.221	0.221	0.138		27.0		
Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.02	2593.00	40620	0.0	22.5	21.26	50	25	Front	10	N/A	0.166	1.330	0.221	0.221	0.138		27.0		
Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.00	2593.00	40620	0.0	22.5	21.20	1	50	Top	10	N/A	0.409	1.349	0.552	0.552	0.345		23.0		
Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.04	2593.00	40620	0.0	22.5	21.09	1	99	Top	10	N/A	0.255	1.384	0.491	0.491	0.307		23.6		
Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	-0.02	2593.00	40620	0.0	22.5	21.26	50	25	Top	10	N/A	0.412	1.330	0.548	0.548	0.343		23.1		
Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.19	2593.00	40620	0.0	22.5	21.20	1	50	Left	10	N/A	0.042	1.349	0.057	0.057	0.036		32.9		
Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.08	2593.00	40620	0.0	22.5	21.26	50	25	Left	10	N/A	0.042	1.330	0.056	0.056	0.035		33.0		
Hotspot	LTE Band 41	20	QPSK	F	1642M	1:1.58	0.00	2593.00	40620	0.0	22.5	21.00	1	99	Top	10	ULCA	0.335	1.413	0.473	0.473	0.296		23.7		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Body 1.6 W/kg (mW/g) averaged over 1 gram								

11.10 NR Band n5 Standalone SAR

Table 11-32

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	NR Band n5	20	QPSK	A	1725M	1:1	0.09	836.50	167300	DFT-s-OFDM	0.0	25.0	23.50	1	104	Right Cheek	0	132	0.090	1.413	0.127	0.226	0.141		33.9		
Head	NR Band n5	20	QPSK	A	1725M	1:1	0.02	836.50	167300	DFT-s-OFDM	0.0	25.0	23.58	50	28	Right Cheek	0	132	0.105	1.387	0.146	0.259	0.162		33.3		
Head	NR Band n5	20	QPSK	A	1725M	1:1	0.05	836.50	167300	DFT-s-OFDM	0.0	25.0	23.50	1	104	Right Tilt	0	132	0.062	1.413	0.088	0.156	0.098		35.5		
Head	NR Band n5	20	QPSK	A	1725M	1:1	-0.10	836.50	167300	DFT-s-OFDM	0.0	25.0	23.58	50	28	Right Tilt	0	132	0.063	1.387	0.087	0.155	0.097		35.5		
Head	NR Band n5	20	QPSK	A	1725M	1:1	0.12	836.50	167300	DFT-s-OFDM	0.0	25.0	23.50	1	104	Left Cheek	0	132	0.137	1.413	0.194	0.344	0.215		32.1		27.5
Head	NR Band n5	20	QPSK	A	1725M	1:1	0.03	836.50	167300	DFT-s-OFDM	0.0	25.0	23.58	50	28	Left Cheek	0	132	0.138	1.387	0.191	0.340	0.213		32.1		
Head	NR Band n5	20	QPSK	A	1725M	1:1	0.06	836.50	167300	CP-OFDM	1.5	23.5	22.09	1	1	Left Cheek	0	132	0.106	1.384	0.147	0.260	0.130		31.8		
Head	NR Band n5	20	QPSK	A	1725M	1:1	0.03	836.50	167300	DFT-s-OFDM	0.0	25.0	23.50	1	104	Left Tilt	0	132	0.053	1.413	0.075	0.133	0.083		36.2		
Head	NR Band n5	20	QPSK	A	1725M	1:1	-0.02	836.50	167300	DFT-s-OFDM	0.0	25.0	23.58	50	28	Left Tilt	0	132	0.063	1.387	0.087	0.155	0.097		35.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-33

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]	
Body-worn/Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	0.01	836.50	167300	DFT-s-OFDM	0.0	25.0	23.50	1	104	Back	10	0	0.587	1.413	0.547	0.547	0.342		27.6			
Body-worn/Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	0.00	836.50	167300	DFT-s-OFDM	0.0	25.0	23.58	50	28	Back	10	0	0.438	1.387	0.608	0.608	0.380	A30	27.1			
Body-worn/Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	-0.02	836.50	167300	CP-OFDM	1.5	23.5	22.09	1	1	Back	10	0	0.329	1.384	0.455	0.455	0.366		26.9			
Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	-0.04	836.50	167300	DFT-s-OFDM	0.0	25.0	23.50	1	104	Front	10	0	0.242	1.413	0.342	0.342	0.214		29.6			
Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	0.01	836.50	167300	DFT-s-OFDM	0.0	25.0	23.58	50	28	Front	10	0	0.221	1.387	0.307	0.307	0.192		30.1			
Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	0.00	836.50	167300	DFT-s-OFDM	0.0	25.0	23.50	1	104	Bottom	10	0	0.197	1.413	0.278	0.278	0.174		30.5	26.9	24.6	
Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	-0.06	836.50	167300	DFT-s-OFDM	0.0	25.0	23.58	50	28	Bottom	10	0	0.180	1.387	0.250	0.250	0.156		31.0			
Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	-0.04	836.50	167300	DFT-s-OFDM	0.0	25.0	23.50	1	104	Right	10	0	0.075	1.413	0.106	0.106	0.066		34.7			
Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	0.00	836.50	167300	DFT-s-OFDM	0.0	25.0	23.58	50	28	Right	10	0	0.094	1.387	0.130	0.130	0.081		33.8			
Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	-0.18	836.50	167300	DFT-s-OFDM	0.0	25.0	23.50	1	104	Left	10	0	0.389	1.413	0.267	0.267	0.167		30.7			
Hotspot	NR Band n5	20	QPSK	A	1725M	1:1	0.00	836.50	167300	DFT-s-OFDM	0.0	25.0	23.58	50	28	Left	10	0	0.197	1.387	0.273	0.273	0.171		30.6			
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																				Body 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-34

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	NR Band n5	20	QPSK	E	1725M	1:1	-0.03	836.50	167300	DFT-s-OFDM	0.0	22.0	21.32	1	1	Right Cheek	0	0.626	1.169	0.732	0.732	0.458		23.3		
Head	NR Band n5	20	QPSK	E	1725M	1:1	-0.01	836.50	167300	DFT-s-OFDM	0.0	22.0	21.23	50	0	Right Cheek	0	0.652	1.167	0.761	0.761	0.476		23.1		
Head	NR Band n5	20	QPSK	E	1725M	1:1	0.01	836.50	167300	DFT-s-OFDM	0.0	22.0	21.32	1	1	Right Tilt	0	0.552	1.169	0.645	0.645	0.403		23.9		
Head	NR Band n5	20	QPSK	E	1725M	1:1	-0.03	836.50	167300	DFT-s-OFDM	0.0	22.0	21.33	50	0	Right Tilt	0	0.570	1.167	0.665	0.665	0.416		23.7		
Head	NR Band n5	20	QPSK	E	1725M	1:1	-0.06	836.50	167300	DFT-s-OFDM	0.0	22.0	21.32	1	1	Left Cheek	0	0.988	1.169	1.155	1.155	0.722		21.3		
Head	NR Band n5	20	QPSK	E	1725M	1:1	-0.02	836.50	167300	DFT-s-OFDM	0.0	22.0	21.33	50	0	Left Cheek	0	1.010	1.167	1.179	1.179	0.737		21.2		
Head	NR Band n5	20	QPSK	E	1725M	1:1	0.03	836.50	167300	DFT-s-OFDM	0.0	22.0	21.23	100	0	Left Cheek	0	1.010	1.194	1.206	1.206	0.754		21.1		
Head	NR Band n5	20	QPSK	E	1725M	1:1	0.00	836.50	167300	CP-OFDM	0.0	22.0	21.49	1	1	Left Cheek	0	1.050	1.125	1.181	1.181	0.738	A29	21.2		21.0
Head	NR Band n5	20	QPSK	E	1725M	1:1	0.06	836.50	167300	CP-OFDM	0.0	22.0	21.49	1	1	Left Cheek	0	1.206	1.125	1.170	1.170	0.731		21.3		
Head	NR Band n5	20	QPSK	E	1725M	1:1	0.00	836.50	167300	DFT-s-OFDM	0.0	22.0	21.32	1	1	Left Tilt	0	0.854	1.169	0.998	0.998	0.624		22.0		
Head	NR Band n5	20	QPSK	E	1725M	1:1	0.02	836.50	167300	DFT-s-OFDM	0.0	22.0	21.33	50	0	Left Tilt	0	0.900	1.167	1.050	1.050	0.656		21.7		
Head	NR Band n5	20	QPSK	E	1725M	1:1	-0.01	836.50	167300	DFT-s-OFDM	0.0	22.0	21.23	100	0	Left Tilt	0	0.899	1.194	1.073	1.073	0.671		21.6		
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 11-35

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EF5 Plimit [dBm]
Body-worn/Hotspot	NR Band n5	20	QPSK	E	1725M	1:1	-0.09	836.50	167300	DFT-s-OFDM	0.0	24.5	23.61	1	53	Back	10	0.384	1.227	0.471	0.650	0.406		27.7		
Body-worn/Hotspot	NR Band n5	20	QPSK	E	1725M	1:1	-0.01	836.50	167300	DFT-s-OFDM	0.0	24.5	23.57	50	28	Back	10	0.405	1.239	0.502	0.693	0.433		27.4		
Hotspot	NR Band n5	20	QPSK	E	1725M	1:1	-0.01	836.50	167300	DFT-s-OFDM	0.0	24.5	23.61	1	53	Front	10	0.534	1.227	0.631	0.871	0.544		26.5		
Hotspot	NR Band n5	20	QPSK	E	1725M	1:1	-0.01	836.50	167300	DFT-s-OFDM	0.0	24.5	23.57	50	28	Front	10	0.545	1.239	0.675	0.932	0.583		26.2		
Hotspot	NR Band n5	20	QPSK	E	1725M	1:1	-0.01	836.50	167300	DFT-s-OFDM	0.0	24.5	23.61	1	53	Top	10	0.565	1.227	0.669	0.953	0.577		26.2		
Hotspot	NR Band n5	20	QPSK	E	1725M	1:1	-0.03	836.50	167300	DFT-s-OFDM	0.0	24.5	23.57	50	28	Top	10	0.580	1.239	0.719	0.992	0.620	A31	25.9		
Hotspot	NR Band n5	20	QPSK	E	1725M	1:1	-0.04	836.50	167300	CP-OFDM	1.5	23.0	22.18	1	1	Top	10	0.393	1.208	0.475	0.926	0.579		26.2		
Hotspot	NR Band n5	20	QPSK	E	1725M	1:1	0.04	836.50	167300	DFT-s-OFDM	0.0	24.5	23.61	1	53	Right	10	0.385	1.227	0.472	0.652	0.408		27.7		
Hotspot	NR Band n5	20	QPSK	E	1725M	1:1	0.03	836.50	167300	DFT-s-OFDM	0.0	24.5	23.57	50	28	Right	10	0.377	1.239	0.467	0.645	0.403		27.8		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Body 1.6 W/kg (mW/g) averaged over 1 gram								

11.11 NR Band n66 Standalone SAR

Table 11-36

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EF5 Plimit [dBm]
Head	NR Band n66	40	QPSK	A	1725M	1:1	0.12	1745.00	349000	DFT-s-OFDM	0.0	24.0	22.61	1	214	Right Cheek	0	135	0.103	1.377	0.142	0.419	0.262		32.4		
Head	NR Band n66	40	QPSK	A	1725M	1:1	-0.04	1745.00	349000	DFT-s-OFDM	0.0	24.0	22.49	108	54	Right Cheek	0	135	0.092	1.416	0.130	0.384	0.240		32.8		
Head	NR Band n66	40	QPSK	A	1725M	1:1	0.02	1745.00	349000	CP-OFDM	1.5	22.5	21.10	1	1	Right Cheek	0	135	0.067	1.380	0.092	0.386	0.241		32.8		
Head	NR Band n66	40	QPSK	A	1725M	1:1	-0.13	1745.00	349000	DFT-s-OFDM	0.0	24.0	22.61	1	214	Right Tilt	0	135	0.064	1.377	0.088	0.260	0.163		34.5		
Head	NR Band n66	40	QPSK	A	1725M	1:1	-0.07	1745.00	349000	DFT-s-OFDM	0.0	24.0	22.49	108	54	Right Tilt	0	135	0.058	1.416	0.082	0.242	0.151		34.8		28.7
Head	NR Band n66	40	QPSK	A	1725M	1:1	0.02	1745.00	349000	DFT-s-OFDM	0.0	24.0	22.61	1	214	Left Cheek	0	135	0.049	1.377	0.067	0.199	0.124		35.7		
Head	NR Band n66	40	QPSK	A	1725M	1:1	0.06	1745.00	349000	DFT-s-OFDM	0.0	24.0	22.49	108	54	Left Cheek	0	135	0.059	1.416	0.084	0.247	0.154		34.7		
Head	NR Band n66	40	QPSK	A	1725M	1:1	0.02	1745.00	349000	DFT-s-OFDM	0.0	24.0	22.61	1	214	Left Tilt	0	135	0.071	1.377	0.098	0.289	0.181		34.0		
Head	NR Band n66	40	QPSK	A	1725M	1:1	-0.06	1745.00	349000	DFT-s-OFDM	0.0	24.0	22.49	108	54	Left Tilt	0	135	0.069	1.416	0.098	0.288	0.180		34.1		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-37

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Tune state	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EF5 Plimit [dBm]
Body-worn/Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	-0.02	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.47	1	1	Back	10	71	0.393	1.268	0.498	0.498	0.311	A33	22.5		
Body-worn/Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.37	108	0	Back	10	71	0.381	1.297	0.494	0.494	0.309		22.5		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.47	1	1	Front	10	79	0.317	1.268	0.402	0.402	0.251		23.4		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.37	108	0	Front	10	79	0.312	1.297	0.405	0.405	0.253		23.4		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	-0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.47	1	1	Bottom	10	71	0.661	1.268	0.838	0.838	0.524		20.2		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.37	108	0	Bottom	10	71	0.650	1.297	0.843	0.843	0.527		20.2		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	0.00	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.36	216	0	Bottom	10	71	0.655	1.300	0.852	0.852	0.533		20.1		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	0.02	1745.00	349000	CP-OFDM	0.0	19.5	18.53	1	1	Bottom	10	71	0.670	1.250	0.838	0.838	0.524		20.2		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	-0.10	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.47	1	1	Right	10	134	0.050	1.268	0.063	0.063	0.039		31.4		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	-0.18	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.37	108	0	Right	10	134	0.049	1.297	0.064	0.064	0.040		31.4		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	-0.11	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.47	1	1	Left	10	134	0.047	1.268	0.050	0.050	0.038		31.7		
Hotspot	NR Band n66	40	QPSK	A	1657M	1:1	0.03	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.37	108	0	Left	10	134	0.047	1.297	0.061	0.061	0.038		31.6		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT Spatial Peak																		Body 1.6 W/kg (mW/g) averaged over 1 gram									
Uncontrolled Exposure/General Population																											

Table 11-38

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Waveform	MPR [dB]	Max Allowed Power [dBm]	Conducted Power [dBm]	RB Size	RB Offset	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EF5 Plimit [dBm]
Head	NR Band n66	40	QPSK	F	1651M	1:1	-0.02	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.12	1	1	Right Cheek	0	0.819	1.374	1.125	1.125	0.703		18.9		
Head	NR Band n66	40	QPSK	F	1651M	1:1	-0.04	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.00	108	54	Right Cheek	0	0.753	1.413	1.064	1.064	0.665		19.2		
Head	NR Band n66	40	QPSK	F	1651M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	17.84	216	0	Right Cheek	0	0.776	1.466	1.136	1.136	0.711		18.9		
Head	NR Band n66	40	QPSK	F	1651M	1:1	-0.03	1745.00	349000	CP-OFDM	0.0	19.5	18.09	1	1	Right Cheek	0	0.849	1.384	1.175	1.175	0.734	A32	18.8		
Head	NR Band n66	40	QPSK	F	1651M	1:1	0.03	1745.00	349000	CP-OFDM	0.0	19.5	18.06	1	1	Right Cheek	0	0.865	1.384	1.172	1.172	0.733		18.8		
Head	NR Band n66	40	QPSK	F	1651M	1:1	-0.03	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.12	1	1	Right Tilt	0	0.760	1.374	1.044	1.044	0.653		19.3		
Head	NR Band n66	40	QPSK	F	1651M	1:1	-0.02	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.00	108	54	Right Tilt	0	0.735	1.413	1.039	1.039	0.649		19.3		
Head	NR Band n66	40	QPSK	F	1651M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	17.84	216	0	Right Tilt	0	0.776	1.466	1.079	1.079	0.674		19.1		
Head	NR Band n66	40	QPSK	F	1651M	1:1	0.00	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.12	1	1	Left Cheek	0	0.431	1.374	0.592	0.592	0.370		21.7		
Head	NR Band n66	40	QPSK	F	1651M	1:1	0.02	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.00	108	54	Left Cheek	0	0.411	1.413	0.581	0.581	0.363		21.8		
Head	NR Band n66	40	QPSK	F	1651M	1:1	0.00	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.12	1	1	Left Tilt	0	0.556	1.374	0.764	0.764	0.478		20.6		
Head	NR Band n66	40	QPSK	F	1651M	1:1	0.01	1745.00	349000	DFT-s-OFDM	0.0	19.5	18.00	108	54	Left Tilt	0	0.546	1.413	0.771	0.771	0.482		20.6		
ANSI/IEEE C63.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Body 1.6 W/kg (mW/g) averaged over 1 gram								

Note: Blue entry represents variability measurement

Table 11-39

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Table 11-45

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-worn/Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	H	1663M	98.85	-0.17	2437.00	6	1	18.0	17.42	Back	10	0.195	1.143	1.012	0.226	0.493	0.308		24.4		
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	H	1663M	98.85	0.03	2437.00	6	1	18.0	17.42	Front	10	0.181	1.143	1.012	0.209	0.458	0.286		24.7	21.7	21.4
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	H	1663M	98.85	-0.04	2437.00	6	1	18.0	17.42	Top	10	0.136	1.143	1.012	0.157	0.344	0.215		26.0		
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	H	1663M	98.85	-0.01	2437.00	6	1	18.0	17.42	Left	10	0.366	1.143	1.012	0.423	0.926	0.579		21.7		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												1.6 W/kg [mW/g] Body averaged over 1 gram												

Table 11-46

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	J	1705M	98.85	0.01	2437.00	6	1	17.0	16.79	Right Cheek	0	0.462	1.050	1.012	0.491	0.491	0.307		20.0		
Head	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	J	1705M	98.85	0.19	2437.00	6	1	17.0	16.79	Right Tilt	0	0.053	1.050	1.012	0.056	0.056	0.035		29.4	19.2	16.0
Head	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	J	1705M	98.85	0.00	2437.00	6	1	17.0	16.79	Left Cheek	0	0.563	1.050	1.012	0.598	0.598	0.374		19.2		
Head	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	J	1705M	98.85	-0.03	2437.00	6	1	17.0	16.79	Left Tilt	0	0.082	1.050	1.012	0.087	0.087	0.054		27.6		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												1.6 W/kg [mW/g] Head averaged over 1 gram												

Table 11-47

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-worn/Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	J	1663M	98.85	0.10	2437.00	6	1	18.0	17.63	Back	10	0.073	1.089	1.012	0.080	0.285	0.178		28.9		
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	J	1663M	98.85	-0.09	2437.00	6	1	18.0	17.63	Front	10	0.144	1.089	1.012	0.159	0.563	0.352		25.9	25.9	23.5
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	J	1663M	98.85	0.01	2437.00	6	1	18.0	17.63	Top	10	0.004	1.089	1.012	0.004	0.016	0.010		41.5		
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	J	1663M	98.85	0.18	2437.00	6	1	18.0	17.63	Right	10	0.037	1.089	1.012	0.041	0.145	0.091		31.8		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												1.6 W/kg [mW/g] Body averaged over 1 gram												

11.14 2.4 GHz WIFI MIMO Standalone SAR

Table 11-48

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio [1g SAR]	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Head	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	MIMO	1705	98.85	-0.01	2437.00	6	1	17.0	16.36	17.0	16.78	Right Cheek	0	0.513	1.159	1.012	0.602	0.602	0.376		19.2		
Head	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	MIMO	1705	98.85	0.02	2437.00	6	1	17.0	16.36	17.0	16.78	Right Tilt	0	0.238	1.159	1.012	0.279	0.279	0.174		22.5	19.2	16.0
Head	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	MIMO	1705	98.85	0.00	2437.00	6	1	17.0	16.36	17.0	16.78	Left Cheek	0	0.504	1.159	1.012	0.591	0.591	0.369		19.2		
Head	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	MIMO	1705	98.85	0.06	2437.00	6	1	17.0	16.36	17.0	16.78	Left Tilt	0	0.098	1.159	1.012	0.115	0.115	0.072		26.3		
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: To achieve the 20 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17 dBm.

Table 11-49

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EFS Plimit [dBm]
Body-worn/Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	MIMO	1663M	98.85	-0.10	2437.00	6	1	18.0	17.33	18.0	17.61	Back	10	0.277	1.167	1.012	0.327	0.462	0.289	A39	22.8		
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	MIMO	1663M	98.85	0.09	2437.00	6	1	18.0	17.33	18.0	17.61	Front	10	0.145	1.167	1.012	0.171	0.242	0.151		25.6	20.5	19.5
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	MIMO	1663M	98.85	-0.06	2437.00	6	1	18.0	17.33	18.0	17.61	Top	10	0.098	1.167	1.012	0.116	0.163	0.102		27.3		
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	MIMO	1663M	98.85	-0.01	2437.00	6	1	18.0	17.33	18.0	17.61	Right	10	0.041	1.167	1.012	0.048	0.068	0.043		31.1		
Hotspot	2.4 GHz WiFi/ IEEE 802.11b	22	DSSS	MIMO	1663M	98.85	0.03	2437.00	6	1	18.0	17.33	18.0	17.61	Left	10	0.466	1.167	1.012	0.550	0.777	0.486	A40	20.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																										
Spatial Peak																		1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population																		averaged over 1 gram								

Note: To achieve the 21 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18 dBm.

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Document S/N: 1M2312110124-01.A3L(R1)	DUT Type: Portable Handset																		Page 91 of 117				

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11.15 5 GHz WIFI SISO Standalone SAR

Table 11-50

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.04	5290.00	58	U-NII-2A	29.3	16.0	15.56	Right Cheek	0	0.486	1.107	1.044	0.562	0.562	0.351		18.5		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.03	5530.00	106	U-NII-2C	29.3	16.0	15.40	Right Cheek	0	0.670	1.148	1.044	0.803	0.803	0.502		16.9		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.06	5610.00	122	U-NII-2C	29.3	16.0	15.29	Right Cheek	0	0.639	1.178	1.044	0.786	0.786	0.491		17.0		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.05	5690.00	138	U-NII-2C	29.3	16.0	15.35	Right Cheek	0	0.581	1.161	1.044	0.704	0.704	0.440		17.5		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.03	5775.00	155	U-NII-3	29.3	16.0	15.37	Right Cheek	0	0.621	1.156	1.044	0.749	0.749	0.468		17.2		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.08	5855.00	171	U-NII-4	29.3	16.0	15.31	Right Cheek	0	0.542	1.172	1.044	0.712	0.712	0.445		17.4		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.12	5290.00	58	U-NII-2A	29.3	16.0	15.56	Right Tilt	0	0.452	1.107	1.044	0.522	0.522	0.326		18.8		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.11	5530.00	106	U-NII-2C	29.3	16.0	15.40	Right Tilt	0	0.589	1.148	1.044	0.706	0.706	0.441		17.5		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.08	5775.00	155	U-NII-3	29.3	16.0	15.37	Right Tilt	0	0.432	1.156	1.044	0.521	0.521	0.326		18.8	16.9	15.0
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.03	5855.00	171	U-NII-4	29.3	16.0	15.31	Right Tilt	0	0.436	1.172	1.044	0.533	0.533	0.333		18.7		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.12	5290.00	58	U-NII-2A	29.3	16.0	15.56	Left Cheek	0	0.116	1.107	1.044	0.134	0.134	0.084		24.7		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.05	5530.00	106	U-NII-2C	29.3	16.0	15.40	Left Cheek	0	0.152	1.148	1.044	0.182	0.182	0.114		23.3		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.03	5775.00	155	U-NII-3	29.3	16.0	15.37	Left Cheek	0	0.110	1.156	1.044	0.133	0.133	0.083		24.7		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.09	5855.00	171	U-NII-4	29.3	16.0	15.31	Left Cheek	0	0.106	1.172	1.044	0.130	0.130	0.081		24.8		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.02	5290.00	58	U-NII-2A	29.3	16.0	15.56	Left Tilt	0	0.120	1.107	1.044	0.139	0.139	0.087		24.5		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.21	5530.00	106	U-NII-2C	29.3	16.0	15.40	Left Tilt	0	0.155	1.148	1.044	0.186	0.186	0.116		23.3		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.16	5775.00	155	U-NII-3	29.3	16.0	15.37	Left Tilt	0	0.112	1.156	1.044	0.135	0.135	0.084		24.6		
Head	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.07	5855.00	171	U-NII-4	29.3	16.0	15.31	Left Tilt	0	0.113	1.172	1.044	0.138	0.138	0.086		24.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																Head		1.6 W/kg (mW/g)		averaged over 1 gram					
Spatial Peak																Body		1.6 W/kg (mW/g)		averaged over 1 gram					
Uncontrolled Exposure/General Population																									

Table 11-51

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.07	5290.00	58	U-NII-2A	29.3	18.0	17.42	Back	10	0.372	1.143	1.044	0.444	0.444	0.278		21.5		
Body-worn	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.02	5530.00	106	U-NII-2C	29.3	18.0	17.15	Back	10	0.399	1.216	1.044	0.507	0.507	0.317		20.9		
Body-worn	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.02	5855.00	171	U-NII-4	29.3	18.0	17.15	Back	10	0.345	1.216	1.044	0.438	0.438	0.274		21.5		
Body-worn/Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.08	5775.00	155	U-NII-3	29.3	18.0	17.12	Back	10	0.414	1.225	1.044	0.529	0.529	0.391		20.7	19.2	17.0
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.01	5775.00	155	U-NII-3	29.3	18.0	17.12	Front	10	0.144	1.225	1.044	0.184	0.184	0.115		25.3		
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.07	5775.00	155	U-NII-3	29.3	18.0	17.12	Top	10	0.131	1.225	1.044	0.168	0.168	0.105		25.7		
Hotspot	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.03	5775.00	155	U-NII-3	29.3	18.0	17.12	Left	10	0.583	1.225	1.044	0.746	0.746	0.466		19.2		
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 11-52

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.05	5290.00	58	U-NII-2A	29.3	18.0	17.42	Back	0	1.050	1.143	1.044	1.253	1.253	0.313		21.0		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.03	5530.00	106	U-NII-2C	29.3	18.0	17.15	Back	0	1.090	1.216	1.044	1.384	1.384	0.346		20.5		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.00	5855.00	171	U-NII-4	29.3	18.0	17.15	Back	0	0.958	1.216	1.044	1.216	1.216	0.304		21.1		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.05	5290.00	58	U-NII-2A	29.3	18.0	17.42	Front	0	0.960	1.143	1.044	0.668	0.668	0.167		23.7		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.08	5530.00	106	U-NII-2C	29.3	18.0	17.15	Front	0	0.817	1.216	1.044	1.037	1.037	0.259		21.8		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.01	5855.00	171	U-NII-4	29.3	18.0	17.15	Front	0	0.700	1.216	1.044	0.889	0.889	0.222		22.4		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.14	5290.00	58	U-NII-2A	29.3	18.0	17.42	Top	0	0.206	1.143	1.044	0.246	0.246	0.062		28.0		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.02	5530.00	106	U-NII-2C	29.3	18.0	17.15	Top	0	0.300	1.216	1.044	0.381	0.381	0.095		26.1		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.01	5855.00	171	U-NII-4	29.3	18.0	17.15	Top	0	0.255	1.216	1.044	0.324	0.324	0.081		26.8		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.02	5290.00	58	U-NII-2A	29.3	18.0	17.42	Left	0	1.760	1.143	1.044	2.100	2.100	0.525		18.7	17.0	17.0
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.02	5530.00	106	U-NII-2C	29.3	18.0	17.15	Left	0	2.160	1.216	1.044	2.742	2.742	0.686		17.5		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.06	5610.00	122	U-NII-2C	29.3	18.0	17.10	Left	0	2.410	1.230	1.044	3.095	3.095	0.774		17.0		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.02	5690.00	138	U-NII-2C	29.3	18.0	17.05	Left	0	1.626	1.044	1.044	1.652	1.652	0.756		17.1		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	0.02	5690.00	138	U-NII-2C	29.3	18.0	17.05	Left	0	2.410	1.233	1.044	3.102	3.102	0.776	A44	17.0		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.01	5855.00	171	U-NII-4	29.3	18.0	17.15	Left	0	1.365	1.233	1.044	3.064	3.064	0.766		17.1		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.01	5855.00	171	U-NII-4	29.3	18.0	17.15	Left	0	2.410	1.216	1.044	3.060	3.060	0.765		17.1		
Phablet	5 GHz WiFi / IEEE 802.11ac	80	OFDM	H	1713M	95.82	-0.01	5855.00	171	U-NII-4	29.3	18.0	17.15	Left	0	1.465	1.216	1.044	3.047	3.047	0.762		17.1		
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: Blue entry represents variability measurement																									

Table 11-54

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NI band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Body-worn	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.14	5290.00	58	U-NII-2A	29.3	18.0	17.34	Back	10	0.137	1.164	1.043	0.166	0.296	0.185		25.7		
Body-worn	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	0.00	5610.00	122	U-NII-2C	29.3	18.0	17.75	Back	10	0.449	1.059	1.043	0.496	0.882	0.551		21.0		
Body-worn	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.05	5855.00	171	U-NII-4	29.3	18.0	17.64	Back	10	0.465	1.086	1.043	0.549	0.977	0.611		20.5		
Body-worn/Hotspot	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.04	5775.00	155	U-NII-3	29.3	18.0	17.62	Back	10	0.405	1.091	1.043	0.461	0.820	0.513		21.3		
Hotspot	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.07	5775.00	155	U-NII-3	29.3	18.0	17.62	Front	10	0.036	1.091	1.043	0.041	0.073	0.046		31.8		
Hotspot	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.05	5775.00	155	U-NII-3	29.3	18.0	17.62	Top	10	0.277	1.091	1.043	0.315	0.561	0.351		23.0		
Hotspot	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.07	5775.00	155	U-NII-3	29.3	18.0	17.62	Right	10	0.045	1.091	1.043	0.051	0.091	0.057		30.9		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																									
Spatial Peak												Body Head													
Uncontrolled Exposure/General Population												1.6 W/kg (mW/g) averaged over 1 gram													

Table 11-55

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.12	5290.00	58	U-NII-2A	29.3	18.0	17.34	Back	0	0.248	1.164	1.043	0.301	0.535	0.134		27.1		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	0.04	5610.00	122	U-NII-2C	29.3	18.0	17.75	Back	0	0.721	1.059	1.043	0.796	1.417	0.354		22.9		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	0.10	5855.00	171	U-NII-4	29.3	18.0	17.64	Back	0	1.020	1.086	1.043	1.155	2.055	0.514		21.3		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.06	5290.00	58	U-NII-2A	29.3	18.0	17.34	Front	0	0.695	1.164	1.043	0.844	1.501	0.375		22.7		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	0.00	5610.00	122	U-NII-2C	29.3	18.0	17.75	Front	0	0.405	1.059	1.043	0.447	0.796	0.199		25.4		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	0.00	5855.00	171	U-NII-4	29.3	18.0	17.64	Front	0	0.253	1.086	1.043	0.287	0.510	0.128		27.4		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	0.04	5290.00	58	U-NII-2A	29.3	18.0	17.34	Top	0	0.250	1.164	1.043	0.304	0.540	0.135		27.1		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	0.03	5610.00	122	U-NII-2C	29.3	18.0	17.75	Top	0	0.387	1.059	1.043	0.427	0.760	0.190		25.6		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.03	5855.00	171	U-NII-4	29.3	18.0	17.64	Top	0	0.403	1.086	1.043	0.456	0.812	0.203		25.3		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.04	5290.00	58	U-NII-2A	29.3	18.0	17.34	Right	0	0.109	1.164	1.043	0.132	0.235	0.059		30.7		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.04	5610.00	122	U-NII-2C	29.3	18.0	17.75	Right	0	0.176	1.059	1.043	0.197	0.350	0.088		29.0		
Phablet	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	E	1713M	95.86	-0.09	5855.00	171	U-NII-4	29.3	18.0	17.64	Right	0	0.102	1.086	1.043	0.116	0.206	0.052		31.3		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																									
Spatial Peak												Phablet Head													
Uncontrolled Exposure/General Population												4.0 W/kg (mW/g) averaged over 10 grams													

11.16 5 GHz WIFI MIMO Standalone SAR

Table 11-56

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	PLimit [dBm]	Overall PLimit [dBm]	EPS PLimit [dBm]
Head	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.00	5290.00	58	U-NII-2A	58.5	16.0	15.52	16.0	15.60	Right Cheek	0	0.619	1.117	1.084	0.750	0.750	0.469		17.2		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	-0.04	5530.00	106	U-NII-2C	58.5	16.0	15.43	16.0	15.47	Right Cheek	0	0.677	1.140	1.084	0.837	0.837	0.523		16.7		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	-0.01	5610.00	122	U-NII-2C	58.5	16.0	15.34	16.0	15.79	Right Cheek	0	0.642	1.164	1.084	0.810	0.810	0.506		16.9		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.04	5690.00	138	U-NII-2C	58.5	16.0	15.39	16.0	15.65	Right Cheek	0	0.633	1.151	1.084	0.790	0.790	0.494		17.0		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.04	5775.00	155	U-NII-3	58.5	16.0	15.34	16.0	15.52	Right Cheek	0	0.600	1.164	1.084	0.757	0.757	0.473		17.2		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	-0.05	5855.00	171	U-NII-4	58.5	16.0	15.37	16.0	15.43	Right Cheek	0	0.511	1.156	1.084	0.640	0.640	0.400		17.9		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.08	5290.00	58	U-NII-2A	58.5	16.0	15.52	16.0	15.60	Right Tilt	0	0.335	1.117	1.084	0.406	0.406	0.254		19.9		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.01	5610.00	122	U-NII-2C	58.5	16.0	15.34	16.0	15.79	Right Tilt	0	0.439	1.164	1.084	0.530	0.530	0.331		18.7		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	-0.19	5775.00	155	U-NII-3	58.5	16.0	15.34	16.0	15.52	Right Tilt	0	0.346	1.164	1.084	0.437	0.437	0.273		19.5		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	-0.09	5855.00	171	U-NII-4	58.5	16.0	15.37	16.0	15.43	Right Tilt	0	0.319	1.156	1.084	0.400	0.400	0.250		19.9	15.0	
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.02	5290.00	58	U-NII-2A	58.5	16.0	15.52	16.0	15.60	Left Cheek	0	0.790	1.117	1.084	0.957	0.957	0.598	A41	16.1		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.14	5610.00	122	U-NII-2C	58.5	16.0	15.34	16.0	15.79	Left Cheek	0	0.657	1.164	1.084	0.577	0.577	0.361		18.3		
Head	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	-0.05	5775.00	155	U-NII-3	58.5	16.0	15.34	16.0	15.52	Left Cheek	0	0.183	1.164	1.084	0.231	0.231	0.144		22.3		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.05	5855.00	171	U-NII-4	58.5	16.0	15.37	16.0	15.43	Left Cheek	0	0.188	1.156	1.084	0.236	0.236	0.148		22.2		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.01	5290.00	58	U-NII-2A	58.5	16.0	15.52	16.0	15.60	Left Tilt	0	0.621	1.117	1.084	0.752	0.752	0.470		17.2		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	0.05	5610.00	122	U-NII-2C	58.5	16.0	15.34	16.0	15.79	Left Tilt	0	0.218	1.164	1.084	0.275	0.275	0.172		21.6		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	-0.09	5775.00	155	U-NII-3	58.5	16.0	15.34	16.0	15.52	Left Tilt	0	0.130	1.164	1.084	0.164	0.164	0.103		23.8		
	5 GHz WiFi/ IEEE 802.11ac	80	OFDM	MIMO	1713M	92.21	-0.08	5855.00	171	U-NII-4	58.5	16.0	15.37	16.0	15.43	Left Tilt	0	0.169	1.156	1.084	0.212	0.212	0.133		22.7		
	ANSI/IEEE C95.1 1992 - SAFETY LIMIT																										
	Spatial Peak												Head														
	Uncontrolled Exposure/General Population												1.6 W/kg (mW/g) averaged over 1 gram														

Note: To achieve the 19.8dB maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 16dBm.

Note: To achieve the 19 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 16 dBm.

Table 11-57

Table 11-63

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	DFS Plimit [dBm]
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	-0.01	5985.00	7	34	12.0	11.23	Back	0	0.252	1.194	1.003	0.302	0.302	0.076		21.1		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	-0.01	6305.00	71	34	12.0	11.68	Back	0	0.187	1.076	1.003	0.202	0.202	0.051		22.9		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.00	6465.00	103	34	12.0	11.22	Back	0	0.171	1.197	1.003	0.205	0.205	0.051		22.8		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	-0.04	6705.00	151	34	12.0	11.63	Back	0	0.160	1.089	1.003	0.175	0.175	0.044		23.5		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.10	7025.00	215	34	12.0	11.44	Back	0	0.073	1.138	1.003	0.083	0.083	0.021		26.7	21.1	11.0
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.04	6305.00	71	34	12.0	11.58	Front	0	0.125	1.076	1.003	0.135	0.135	0.034		24.6		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.01	6305.00	71	34	12.0	11.68	Top	0	0.064	1.076	1.003	0.069	0.069	0.017		27.5		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.08	6305.00	71	34	12.0	11.68	Right	0	0.087	1.076	1.003	0.094	0.094	0.024		26.2		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Phablet 4.0 W/kg (mW/g) averaged over 10 grams										
Spatial Peak Uncontrolled Exposure/General Population																								

Table 11-64

Exposure	Band/ Mode	Bandwidth [MHz]	Service/ Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	Plimit [dBm]	Overall Plimit [dBm]	DFS Plimit [dBm]
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	-0.01	5985.00	7	34	12.0	11.23	Back	0	5.840	1.194	1.003	6.994	6.994	0.350		14.5	14.5	11.0
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	-0.01	6305.00	71	34	12.0	11.68	Back	0	4.310	1.076	1.003	4.651	4.651	0.233		16.3		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.00	6465.00	103	34	12.0	11.22	Back	0	3.960	1.197	1.003	4.754	4.754	0.238		16.2		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	-0.04	6705.00	151	34	12.0	11.63	Back	0	3.670	1.089	1.003	4.009	4.009	0.200		18.9		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.10	7025.00	215	34	12.0	11.44	Back	0	1.680	1.138	1.003	1.918	1.918	0.096		20.1		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.04	6305.00	71	34	12.0	11.68	Front	0	2.880	1.076	1.003	3.108	3.108	0.155		18.0		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.01	6305.00	71	34	12.0	11.68	Top	0	1.470	1.076	1.003	1.586	1.586	0.079		20.9		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	E	1705M	99.67	0.08	6305.00	71	34	12.0	11.68	Right	0	2.060	1.076	1.003	2.223	2.223	0.111		19.5		

Table 11-65

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	DFS Plimit [dBm]
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.01	5985.00	7	34	12.0	11.57	Right Cheek	0	0.135	1.104	1.004	0.150	0.150	0.094		20.2	19.9	11.0
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.07	6305.00	71	34	12.0	11.24	Right Cheek	0	0.117	1.191	1.004	0.140	0.140	0.088		20.5		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.05	6465.00	103	34	12.0	11.28	Right Cheek	0	0.132	1.180	1.004	0.156	0.156	0.098		20.0		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.03	6705.00	151	34	12.0	11.35	Right Cheek	0	0.139	1.161	1.004	0.162	0.162	0.101		19.9		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.06	7025.00	215	34	12.0	11.29	Right Cheek	0	0.077	1.178	1.004	0.091	0.091	0.057		22.4		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.07	5985.00	7	34	12.0	11.57	Right Tilt	0	0.131	1.104	1.004	0.145	0.145	0.091		20.3		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.06	5985.00	7	34	12.0	11.57	Left Cheek	0	0.032	1.104	1.004	0.035	0.035	0.022		26.5		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.08	5985.00	7	34	12.0	11.57	Left Tilt	0	0.036	1.104	1.004	0.040	0.040	0.025		25.9		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Head 1.6 W/kg (mW/g) averaged over 1 gram										
Spatial Peak Uncontrolled Exposure/General Population																								

Table 11-66

Exposure	Band/ Mode	Bandwidth [MHz]	Service/ Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	APD Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	DFS Plimit [dBm]
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.01	5985.00	7	34	12.0	11.57	Right Cheek	0	0.834	1.104	1.004	0.924	0.924	0.046		23.3	23.3	11.0
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.07	6305.00	71	34	12.0	11.24	Right Cheek	0	0.621	1.191	1.004	0.743	0.743	0.037		24.3		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.05	6465.00	103	34	12.0	11.28	Right Cheek	0	0.691	1.180	1.004	0.819	0.819	0.041		23.8		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.03	6705.00	151	34	12.0	11.35	Right Cheek	0	0.741	1.161	1.004	0.864	0.864	0.043		23.6		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.06	7025.00	215	34	12.0	11.29	Right Cheek	0	0.413	1.178	1.004	0.488	0.488	0.024		26.1		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.07	5985.00	7	34	12.0	11.57	Right Tilt	0	0.710	1.104	1.004	0.787	0.787	0.039		24.0		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.06	5985.00	7	34	12.0	11.57	Left Cheek	0	0.156	1.104	1.004	0.173	0.173	0.009		30.6		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.08	5985.00	7	34	12.0	11.57	Left Tilt	0	0.143	1.104	1.004	0.159	0.159	0.008		31.0		

Table 11-67

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	DFS Plimit [dBm]
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.05	5985.00	7	34	12.0	11.57	Back	10	0.038	1.104	1.004	0.042	0.042	0.026		25.7		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.04	6305.00	71	34	12.0	11.24	Back	10	0.044	1.191	1.004	0.053	0.053	0.033		24.7		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.03	6465.00	103	34	12.0	11.28	Back	10	0.050	1.180	1.004	0.059	0.059	0.037		24.2	23.6	11.0
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.08	6705.00	151	34	12.0	11.35	Back	10	0.059	1.161	1.004	0.069	0.069	0.043		23.6		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.04	7025.00	215	34	12.0	11.29	Back	10	0.024	1.178	1.004	0.028	0.028	0.018		27.4		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT																Body 1.6 W/kg (mW/g) averaged over 1 gram								
Spatial Peak Uncontrolled Exposure/General Population																								

Table 11-68

Exposure	Band/ Mode	Bandwidth [MHz]	Service/ Modulation	Ant.	Serial Number	Duty Cycle [%]	Power drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m ² (4cm ²)]	Adjusted APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #	Plimit [dBm]	Overall Plimit [dBm]	DFS Plimit [dBm]
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.05	5985.00	7	34	12.0	11.57	Back	10	0.232	1.104	1.004	0.257	0.257	0.013		28.9	25.3	11.0
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.04	6305.00	71	34	12.0	11.24	Back	10	0.357	1.191	1.004	0.427	0.427	0.021		26.7		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.03	6465.00	103	34	12.0	11.28	Back	10	0.407	1.180	1.004	0.482	0.482	0.024		26.1		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.08	6705.00	151	34	12.0	11.35	Back	10	0.501	1.161	1.004	0.562	0.562	0.029		25.3		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.04	7025.00	215	34	12.0	11.29	Back	10	0.166	1.178	1.004	0.196	0.196	0.003		26.0		

Table 11-69

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	Limit [dBm]	Overall Limit [dBm]	EFS Limit [dBm]
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.10	5985.00	7	34	12.0	11.57	Back	0	0.164	1.104	1.004	0.182	0.182	0.046		23.3		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.04	5985.00	7	34	12.0	11.57	Front	0	0.138	1.104	1.004	0.153	0.153	0.038		24.1		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.04	5985.00	7	34	12.0	11.57	Top	0	0.049	1.104	1.004	0.054	0.054	0.014		28.6		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.06	5985.00	7	34	12.0	11.57	Left	0	0.457	1.104	1.004	0.939	0.507	0.127	A47	18.9		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.03	6305.00	71	34	12.0	11.24	Left	0	0.271	1.191	1.004	0.324	0.324	0.081		20.8	18.9	11.0
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.01	6465.00	103	34	12.0	11.38	Left	0	0.350	1.180	1.004	0.415	0.415	0.104		19.8		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.04	6705.00	151	34	12.0	11.35	Left	0	0.417	1.161	1.004	0.486	0.486	0.122		19.1		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.10	7025.00	215	34	12.0	11.29	Left	0	0.216	1.178	1.004	0.255	0.255	0.064		21.9		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Phablet										
Spatial Peak														4.0 W/kg (mW/g)										
Uncontrolled Exposure/General Population														averaged over 10 grams										

Table 11-70

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	Limit [dBm]	Overall Limit [dBm]	EFS Limit [dBm]
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.10	5985.00	7	34	12.0	11.57	Back	0	3.870	1.104	1.004	4.290	4.290	0.215		16.6		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.04	5985.00	7	34	12.0	11.57	Front	0	3.190	1.104	1.004	3.536	3.536	0.177		17.5		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.06	5985.00	7	34	12.0	11.57	Top	0	1.180	1.104	1.004	1.308	1.308	0.065		21.8		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.06	5985.00	7	34	12.0	11.57	Left	0	10.900	1.104	1.004	12.082	12.082	0.604	A47	12.1		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.03	6305.00	71	34	12.0	11.24	Left	0	6.450	1.191	1.004	7.713	7.713	0.386		14.1		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	0.01	6465.00	103	34	12.0	11.28	Left	0	8.320	1.180	1.004	9.857	9.857	0.493		13.0		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.04	6705.00	151	34	12.0	11.35	Left	0	9.950	1.161	1.004	11.598	11.598	0.580		12.3		
Phablet	6 GHz WiFi / IEEE 802.11ax	80	OFDM	H	1705M	99.65	-0.10	7025.00	215	34	12.0	11.29	Left	0	5.160	1.178	1.004	6.103	6.103	0.305		15.1		

11.18 6 GHz WIFI MIMO Standalone SAR and APD

Table 11-71

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Limit [dBm]	Overall Limit [dBm]	EFS Limit [dBm]
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.02	5985.00	7	68.1	12.0	11.69	12.0	11.42	Right Cheek	0	0.182	1.143	1.004	0.209	0.209	0.131	A45	18.8	18.8	11.0
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.06	6305.00	71	68.1	12.0	11.45	12.0	11.78	Right Cheek	0	0.099	1.135	1.004	0.113	0.113	0.071		21.4		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.01	6465.00	103	68.1	12.0	11.43	12.0	11.33	Right Cheek	0	0.165	1.167	1.004	0.193	0.193	0.121		19.1		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.09	6705.00	151	68.1	12.0	11.35	12.0	11.66	Right Cheek	0	0.179	1.161	1.004	0.202	0.202	0.126		18.9		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.06	7025.00	215	68.1	12.0	11.31	12.0	11.56	Right Cheek	0	0.112	1.172	1.004	0.132	0.132	0.083		20.8		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.15	6305.00	71	68.1	12.0	11.45	12.0	11.78	Right Tilt	0	0.066	1.135	1.004	0.075	0.075	0.047		23.2		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	-0.09	6305.00	71	68.1	12.0	11.45	12.0	11.78	Left Cheek	0	0.099	1.135	1.004	0.113	0.113	0.071		21.4		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.07	6305.00	71	68.1	12.0	11.45	12.0	11.78	Left Tilt	0	0.036	1.135	1.004	0.041	0.041	0.026		25.8		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Head 1.6 W/kg (mW/g) averaged over 1 gram												
Spatial Peak Uncontrolled Exposure/General Population																										

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

Table 11-72

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured APD [W/m² (4cm²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m² (4cm²)]	Adjusted APD [W/m² (4cm²)]	APD Exposure Ratio	Plot #	Limit [dBm]	Overall Limit [dBm]	EFS Limit [dBm]
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.02	5985.00	7	68.1	12.0	11.69	12.0	11.42	Right Cheek	0	1.170	1.143	1.004	1.343	1.343	0.067	A45	22.7		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.06	6305.00	71	68.1	12.0	11.45	12.0	11.78	Right Cheek	0	0.607	1.135	1.004	0.692	0.692	0.035		24.6		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.01	6465.00	103	68.1	12.0	11.43	12.0	11.33	Right Cheek	0	0.901	1.167	1.004	1.056	1.056	0.053		22.7		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.09	6705.00	151	68.1	12.0	11.35	12.0	11.66	Right Cheek	0	1.000	1.161	1.004	1.166	1.166	0.058		22.3		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.06	7025.00	215	68.1	12.0	11.31	12.0	11.56	Right Cheek	0	0.647	1.172	1.004	0.761	0.761	0.038		24.1		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.15	6305.00	71	68.1	12.0	11.45	12.0	11.78	Right Tilt	0	0.370	1.135	1.004	0.422	0.422	0.021		26.7		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	-0.09	6305.00	71	68.1	12.0	11.45	12.0	11.78	Left Cheek	0	0.714	1.135	1.004	0.814	0.814	0.041		23.9		
Head	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.07	6305.00	71	68.1	12.0	11.45	12.0	11.78	Left Tilt	0	0.301	1.135	1.004	0.343	0.343	0.017		27.6		

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

Table 11-73

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Limit [dBm]	Overall Limit [dBm]	EFS Limit [dBm]
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	-0.12	5985.00	7	68.1	12.0	11.69	12.0	11.42	Back	10	0.134	1.143	1.004	0.154	0.154	0.096		20.1		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	-0.14	6305.00	71	68.1	12.0	11.45	12.0	11.78	Back	10	0.126	1.135	1.004	0.144	0.144	0.090		20.4		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.01	6465.00	103	68.1	12.0	11.43	12.0	11.33	Back	10	0.089	1.167	1.004	0.104	0.104	0.065		21.8		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.09	6705.00	151	68.1	12.0	11.35	12.0	11.66	Back	10	0.107	1.161	1.004	0.125	0.125	0.078		21.0		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.03	7025.00	215	68.1	12.0	11.31	12.0	11.56	Back	10	0.047	1.172	1.004	0.055	0.055	0.034		24.5		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT														Body												
Spatial Peak														1.6 W/kg (mW/g)												
Uncontrolled Exposure/General Population														averaged over 1 gram												

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

Table 11-74

Exposure	Band/ Mode	Bandwidth [MHz]	Service/ Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported APD [W/m ² (4cm ²)]	Adjusted APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #	Limit [dBm]	Overall Limit [dBm]	EFS Limit [dBm]
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	-0.12	5985.00	7	68.1	12.0	11.69	12.0	11.42	Back	10	1.050	1.143	1.004	1.216	1.216	0.061		22.1		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	-0.14	6305.00	71	68.1	12.0	11.45	12.0	11.78	Back	10	0.954	1.135	1.004	1.087	1.087	0.054		22.6		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.01	6465.00	103	68.1	12.0	11.43	12.0	11.33	Back	10	0.653	1.167	1.004	0.765	0.765	0.028		22.1	22.1	11.0
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.09	6705.00	151	68.1	12.0	11.35	12.0	11.66	Back	10	0.891	1.161	1.004	1.039	1.039	0.052		24.7		
Body-worn	6 GHz WiFi / IEEE 802.11ax	80	OFDM	MIMO	1705M	99.65	0.01	7025.00	215	68.1	12.0	11.31	12.0	11.56	Back	10	0.535	1.172	1.004	0.418	0.418	0.021		24.7		

Table 11-80

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn	2.4 GHz Bluetooth	FHSS	J	1705M	77.07	0.09	2441.00	39	1	17.0	16.81	Back	10	0.015	1.045	1.025	0.016	0.508	0.318		33.9	33.9	31.0
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-81

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Phablet	2.4 GHz Bluetooth	FHSS	J	1705M	77.07	-0.09	2441.00	39	1	17.0	16.81	Back	0	0.051	1.045	1.025	0.055	1.727	0.432		32.5	31.0	31.0
Phablet	2.4 GHz Bluetooth	FHSS	J	1705M	77.07	0.01	2441.00	39	1	17.0	16.81	Front	0	0.072	1.045	1.025	0.077	2.438	0.610		31.0		
Phablet	2.4 GHz Bluetooth	FHSS	J	1705M	77.07	0.01	2441.00	39	1	17.0	16.81	Top	0	0.000	1.045	1.025	0.000	0.000	0.000		59.6		
Phablet	2.4 GHz Bluetooth	FHSS	J	1705M	77.07	-0.21	2441.00	39	1	17.0	16.81	Right	0	0.018	1.045	1.025	0.019	0.610	0.153		37.1		
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Phablet 4.0 W/kg (mW/g) averaged over 10 grams											

11.20 2.4 GHz Bluetooth MIMO Standalone SAR

Table 11-82

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported SAR [W/kg]	Adjusted SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]		
Head	2.4 GHz Bluetooth	FHSS	MIMO	1705M	77.07	0.13	2441.00	39	1	13.0	12.98	13.0	12.49	Right Cheek	0	0.104	1.125	1.025	0.120	0.974	0.609		21.1	21.1	21.1		
Head	2.4 GHz Bluetooth	FHSS	MIMO	1705M	77.07	0.07	2441.00	39	1	13.0	12.98	13.0	12.49	Right Tilt	0	0.060	1.125	1.025	0.069	0.562	0.351		23.5				
Head	2.4 GHz Bluetooth	FHSS	MIMO	1705M	77.07	-0.06	2441.00	39	1	13.0	12.98	13.0	12.49	Left Cheek	0	0.056	1.125	1.025	0.065	0.525	0.328		23.8				
Head	2.4 GHz Bluetooth	FHSS	MIMO	1705M	77.07	0.01	2441.00	39	1	13.0	12.98	13.0	12.49	Left Tilt	0	0.042	1.125	1.025	0.048	0.394	0.246		25.1				
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: To achieve the 16 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 13 dBm.																											

Note: To achieve the 16 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 13 dBm.

Table 11-83

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Adjusted 1g SAR [W/kg]	Exposure Ratio (1g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Body-worn	2.4 GHz Bluetooth	FHSS	MIMO	1705	77.07	-0.07	2441.00	39	1	13.0	12.98	13.0	12.49	Back	10	0.046	1.125	1.025	0.053	0.473	0.296		24.7	24.7	21.5
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram												

Note: To achieve the 16 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 13 dBm.

Table 11-84

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Max Allowed Power (2nd ant) [dBm]	Conducted Power (2nd ant) [dBm]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 10g SAR [W/kg]	Adjusted 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #	Plimit [dBm]	Overall Plimit [dBm]	EPS Plimit [dBm]
Phablet	2.4 GHz Bluetooth	FHSS	MIMO	1705M	77.07	0.07	2441.00	39	1	13.0	12.98	13.0	12.49	Back	0	0.143	1.125	1.025	0.165	1.469	0.367		23.7	21.5	21.5
Phablet	2.4 GHz Bluetooth	FHSS	MIMO	1705M	77.07	-0.01	2441.00	39	1	13.0	12.98	13.0	12.49	Front	0	0.196	1.125	1.025	0.226	2.014	0.504		22.4		
Phablet	2.4 GHz Bluetooth	FHSS	MIMO	1705M	77.07	0.01	2441.00	39	1	13.0	12.98	13.0	12.49	Top	0	0.084	1.125	1.025	0.097	0.863	0.216		26.0		
Phablet	2.4 GHz Bluetooth	FHSS	MIMO	1705M	77.07	0.09	2441.00	39	1	13.0	12.98	13.0	12.49	Right	0	0.009	1.125	1.025	0.010	0.092	0.023		35.7		
Phablet	2.4 GHz Bluetooth	FHSS	MIMO	1705M	77.07	0.17	2441.00	39	1	13.0	12.98	13.0	12.49	Left	0	0.240	1.125	1.025	0.277	2.466	0.617	A51	21.5		
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: To achieve the 16 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 13 dBm.

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11.21 UWB Standalone SAR

Table 11-85

Exposure	Band / Mode	Service / Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #
Phablet	UWB	CW	I	1662M	1:1	0.07	6489.60	5	Back	0	0.000	0.000	
Phablet	UWB	CW	I	1662M	1:1	0.04	7987.20	9	Back	0	0.001	0.000	
Phablet	UWB	CW	I	1662M	1:1	0.05	6489.60	5	Front	0	0.002	0.001	
Phablet	UWB	CW	I	1662M	1:1	0.09	7987.20	9	Front	0	0.002	0.001	A52
Phablet	UWB	CW	I	1662M	1:1	0.01	6489.60	5	Top	0	0.001	0.000	
Phablet	UWB	CW	I	1662M	1:1	0.06	7987.20	9	Top	0	0.001	0.000	
Phablet	UWB	CW	I	1662M	1:1	0.05	6489.60	5	Left	0	0.002	0.001	
Phablet	UWB	CW	I	1662M	1:1	0.04	7987.20	9	Left	0	0.001	0.000	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Phablet 4.0 W/kg (mW/g) averaged over 10 grams			

Table 11-86

Exposure	Band/ Mode	Service/ Modulation	Ant.	Serial Number	Duty Cycle	Power Drift [dB]	Frequency [MHz]	Channel #	Test Position	Spacing [mm]	Measured APD [W/m ² (4cm ²)]	APD Exposure Ratio	Plot #
Phablet	UWB	CW	I	1662M	1:1	0.07	6489.60	5	Back	0	0.017	0.001	
Phablet	UWB	CW	I	1662M	1:1	0.04	7987.20	9	Back	0	0.025	0.001	
Phablet	UWB	CW	I	1662M	1:1	0.05	6489.60	5	Front	0	0.052	0.003	
Phablet	UWB	CW	I	1662M	1:1	0.09	7987.20	9	Front	0	0.051	0.003	A52
Phablet	UWB	CW	I	1662M	1:1	0.01	6489.60	5	Top	0	0.029	0.001	
Phablet	UWB	CW	I	1662M	1:1	0.06	7987.20	9	Top	0	0.027	0.001	
Phablet	UWB	CW	I	1662M	1:1	0.05	6489.60	5	Left	0	0.047	0.002	
Phablet	UWB	CW	I	1662M	1:1	0.04	7987.20	9	Left	0	0.032	0.002	

11.22 NFC Standalone SAR

Table 11-87

Exposure	Band / Mode	Signal Type	Ant.	Serial Number	Power Drift [dB]	Frequency [MHz]	Test Position	Spacing [mm]	Measured 10g SAR [W/kg]	Exposure Ratio (10g SAR)	Plot #
Phablet	NFC	B	NFC	1663M	0.07	13.60	Back	0	0.012	0.003	A53
Phablet	NFC	B	NFC	1663M	0.01	13.60	Front	0	0.000	0.000	
Phablet	NFC	B	NFC	1663M	-0.06	13.60	Top	0	0.000	0.000	
Phablet	NFC	B	NFC	1663M	0.01	13.60	Left	0	0.000	0.000	
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams			

SAR Test Notes

General Notes:

- 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.
- Batteries are fully charged at the beginning of the SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.

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6. 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.
7. Per FCC KDB Publication 648474 D01v06r03, 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.
8. 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.
9. 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).
10. Per FCC KDB Publication 648474 D01v06r03, this device is considered a "phablet" since the display diagonal dimension is > 150 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.
11. 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.
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 WWAN/WLAN/BT operations to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, compliance for was assessed at the minimum of the time averaged power and the maximum output power for each band/mode/exposure condition (DSI).
14. Per October 2020 TCB Workshop notes, absorbed power density (APD) using a 4cm² averaging area is reported based on SAR measurements

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 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 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).

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 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).

LTE Notes:

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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 8.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D01v06, when the reported 1g SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for LTE B41, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. 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.

NR Notes:

1. NR implementation supports SA and NSA mode. In EN-DC mode, NR operates with the LTE Bands shown in the NR FR1 checklist acting as anchor bands. Per FCC guidance, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.
2. Due to test setup limitations, SAR testing for NR TDD was performed using test mode software to establish the connection.
3. Simultaneous transmission analysis for EN-DC operations is addressed in the Part 2 Test Report (Serial Number can be found in the bibliography).
4. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.
5. Per FCC Guidance, NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power were evaluated for SAR tests.
6. Per FCC KDB Publication 447498 D01v06, when the reported NR Band n41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations and > 1.5 W/kg for 10g evaluation, testing at the other channels was required for such test configurations.
7. For final implementation, NR Band n41 slot configuration is synchronized using maximum duty cycle of 100%. SAR testing was performed using FTM mode with a 100% duty cycle applied to match final duty cycle.

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

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was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n/ax) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.6.5 for more information.

3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.6.6 for more information.
4. 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 Multi-TX and Antenna SAR Considerations Appendix for complete analysis.
5. 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.
6. 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.
7. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.
8. Per FCC guidance, SAR was performed using 6.5 GHz SAR probe calibration factor for WIFI 6E. Per October 2020 TCB Workshop notes, 5 channels were tested for WIFI 6E.

Bluetooth Notes

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 79% transmission duty factor for Bluetooth and 87% transmission duty factor for Bluetooth LE to determine compliance. See RF Conducted Power Section for the time domain plot and calculation for the duty factor of the device. 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 76.8% transmission duty factor for Bluetooth See RF Conducted Power Section for the time domain plot and calculation for the duty factor of the device.
2. Head and Hotspot Bluetooth SAR were evaluated for BT BDR tethering applications.
3. The highest frame average power configurations for both Bluetooth and Bluetooth LE were evaluated for SAR. The worst case configuration was used for the remaining test positions as the most conservative scenario.

UWB Notes

1. UWB was evaluated for phablet based on expected usage conditions.
2. Per FCC guidance, SAR was performed using 6.5 GHz/8GHz probe calibration factor for UWB.

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12 POWER DENSITY DATA SUMMARY

12.1 6 GHz WIFI Power Density Results

Table 12-1

MEASUREMENT RESULTS																									
Frequency (MHz)	Channel	Mode	Service	Bandwidth (MHz)	Maximum Allowed Power (Ant 1) (dBm)	Conducted Power (Ant 1) (dBm)	Maximum Allowed Power (Ant 2) (dBm)	Conducted Power (Ant 2) (dBm)	Power Dblt (dB)	Spacing (mm)	Antenna Config.	DUT Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Grid Step (A)	IPD (W/m²)	Scaling Factor for Measurement Uncertainty per IEC 62479	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Normal puPD (W/m²)	Scaled Normal puPD (W/m²)	Total puPD (W/m²)	Scaled Total puPD (W/m²)	Plot #
6305.00	71	802.11ax	OFDM	80	12.00	11.45	12.00	11.78	-0.20	2	MIMO	1663M	68.1	Back	99.65	0.125	-	1.554	1.135	1.004	2.210	3.914	2.940	5.206	
6305.00	71	802.11ax	OFDM	80	12.00	11.45	12.00	11.78	-7.04	2	MIMO	1663M	68.1	Front	99.65	0.125	-	1.554	1.135	1.004	0.630	1.116	0.881	1.560	
6305.00	71	802.11ax	OFDM	80	12.00	11.45	12.00	11.78	-0.56	2	MIMO	1663M	68.1	Top	99.65	0.125	-	1.554	1.135	1.004	0.941	1.666	1.050	1.877	
6305.00	71	802.11ax	OFDM	80	12.00	11.45	12.00	11.78	0.25	2	MIMO	1663M	68.1	Right	99.65	0.125	-	1.554	1.135	1.004	1.210	2.143	1.330	2.355	
5985.00	7	802.11ax	OFDM	80	12.00	11.69	12.00	11.42	-0.05	2	MIMO	1663M	68.1	Left	99.65	0.125	-	1.554	1.143	1.004	2.740	4.886	3.560	6.349	
6305.00	71	802.11ax	OFDM	80	12.00	11.45	12.00	11.78	-0.18	2	MIMO	1663M	68.1	Left	99.65	0.125	1.730	1.554	1.135	1.004	2.900	5.135	3.950	6.995	
6305.00	71	802.11ax	OFDM	80	12.00	11.45	12.00	11.78	0.11	9.51	MIMO	1663M	68.1	Left	99.65	0.125	1.170	1.554	1.135	1.004	0.900	1.594	0.958	1.696	
6465.00	103	802.11ax	OFDM	80	12.00	11.43	12.00	11.33	-0.01	2	MIMO	1663M	68.1	Left	99.65	0.125	-	1.554	1.167	1.004	1.630	2.968	2.940	5.353	
6705.00	151	802.11ax	OFDM	80	12.00	11.35	12.00	11.66	-0.01	2	MIMO	1663M	68.1	Left	99.65	0.125	-	1.554	1.161	1.004	2.540	4.601	3.620	6.920	
7025.00	215	802.11ax	OFDM	80	12.00	11.31	12.00	11.56	-0.07	2	MIMO	1663M	68.1	Left	99.65	0.125	-	1.554	1.172	1.004	1.120	2.048	1.970	3.602	
5985.00	7	802.11ax	OFDM	80	12.00	11.57	-	-	-0.16	2	H	1663M	34.0	Back	99.65	0.125	-	1.554	1.104	1.004	1.540	2.653	1.680	2.894	
5985.00	7	802.11ax	OFDM	80	12.00	11.57	-	-	0.20	2	H	1663M	34.0	Front	99.65	0.125	-	1.554	1.104	1.004	1.120	1.929	1.410	2.420	
5985.00	7	802.11ax	OFDM	80	12.00	11.57	-	-	0.07	2	H	1663M	34.0	Top	99.65	0.125	-	1.554	1.104	1.004	0.917	0.546	0.564	0.971	
5985.00	7	802.11ax	OFDM	80	12.00	11.57	-	-	-0.15	2	H	1663M	34.0	Left	99.65	0.125	1.170	1.554	1.104	1.004	1.920	3.307	3.090	5.322	
5985.00	7	802.11ax	OFDM	80	12.00	11.57	-	-	-0.09	10.02	H	1663M	34.0	Left	99.65	0.125	1.150	1.554	1.104	1.004	0.992	1.709	1.070	1.843	
6305.00	71	802.11ax	OFDM	80	12.00	11.24	-	-	-0.03	2	H	1663M	34.0	Left	99.65	0.125	-	1.554	1.191	1.004	2.130	3.998	2.860	5.315	
6465.00	103	802.11ax	OFDM	80	12.00	11.28	-	-	-0.04	2	H	1663M	34.0	Left	99.65	0.125	-	1.554	1.180	1.004	1.530	2.817	2.180	3.977	
6705.00	151	802.11ax	OFDM	80	12.00	11.35	-	-	0.02	2	H	1663M	34.0	Left	99.65	0.125	-	1.554	1.161	1.004	2.850	5.183	4.120	7.463	A54
7025.00	215	802.11ax	OFDM	80	12.00	11.29	-	-	-0.16	2	H	1663M	34.0	Left	99.65	0.125	-	1.554	1.178	1.004	1.460	2.683	1.950	3.584	
5985.00	7	802.11ax	OFDM	80	-	-	12.00	11.23	-0.26	2	E	1663M	34.0	Back	99.67	0.125	-	1.554	1.054	1.003	1.680	3.127	2.850	5.323	
6305.00	71	802.11ax	OFDM	80	-	-	12.00	11.68	-0.21	2	E	1663M	34.0	Back	99.67	0.125	-	1.554	1.076	1.003	1.610	2.700	2.120	3.555	
6465.00	103	802.11ax	OFDM	80	-	-	12.00	11.22	0.16	2	E	1663M	34.0	Back	99.67	0.125	-	1.554	1.197	1.003	1.990	3.713	2.370	4.422	
6705.00	151	802.11ax	OFDM	80	-	-	12.00	11.63	-0.13	2	E	1663M	34.0	Back	99.67	0.125	-	1.554	1.089	1.003	1.750	2.970	2.370	4.023	
7025.00	215	802.11ax	OFDM	80	-	-	12.00	11.44	-0.15	2	E	1663M	34.0	Back	99.67	0.125	-	1.554	1.138	1.003	0.863	1.531	1.110	1.969	
6305.00	71	802.11ax	OFDM	80	-	-	12.00	11.68	0.04	9.51	E	1663M	34.0	Back	99.67	0.125	1.140	1.554	1.076	1.003	1.110	1.862	1.280	2.163	
6305.00	71	802.11ax	OFDM	80	-	-	12.00	11.68	0.04	2	E	1663M	34.0	Back	99.67	0.125	0.915	1.554	1.076	1.003	1.610	2.700	2.120	3.555	
6305.00	71	802.11ax	OFDM	80	-	-	12.00	11.68	-0.14	2	E	1663M	34.0	Front	99.67	0.125	-	1.554	1.076	1.003	0.783	1.313	0.962	1.664	
6305.00	71	802.11ax	OFDM	80	-	-	12.00	11.68	-0.14	2	E	1663M	34.0	Top	99.67	0.125	-	1.554	1.076	1.003	0.736	1.234	0.909	1.525	
6305.00	71	802.11ax	OFDM	80	-	-	12.00	11.68	-0.14	2	E	1663M	34.0	Right	99.67	0.125	-	1.554	1.076	1.003	0.560	0.939	0.840	1.409	
47 CFR 1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population												Power Density 30 W/m² averaged over 4 cm²													

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12.2 UWB Power Density Results

Table 12-2

MEASUREMENT RESULTS														
Frequency (MHz)	Channel	Mode	Power Drift (dB)	Spacing (mm)	DUT Serial Number	Side	Grid Step (λ)	iPD (W/m ²)	Scaling Factor for Measurement Uncertainty per IEC 62479	Normal psPD (W/m ²)	Scaled Normal psPD (W/m ²)	Total psPD (W/m ²)	Scaled Total psPD (W/m ²)	Plot #
6489.60	5	CW	0.00	2	1662M	Back	0.125	-	1.554	0.283	0.440	0.302	0.469	A55
6489.60	5	CW	0.17	2	1662M	Front	0.125	-	1.554	0.137	0.213	0.158	0.246	
6489.60	5	CW	-0.10	2	1662M	Left	0.125	1.110	1.554	0.259	0.402	0.261	0.406	
7987.20	9	CW	-0.07	2	1662M	Back	0.125	-	1.554	0.178	0.277	0.206	0.320	
7987.20	9	CW	-0.13	2	1662M	Front	0.125	-	1.554	0.231	0.359	0.293	0.455	
7987.20	9	CW	-0.20	2	1662M	Left	0.125	-	1.554	0.134	0.208	0.147	0.228	
6489.60	5	CW	-0.17	9.24	1662M	Left	0.125	0.485	1.554	0.237	0.368	0.239	0.371	
47 CFR §1.1310 - SAFETY LIMIT Spatial Average Uncontrolled Exposure / General Population					Power Density 10 W/m ² averaged over 4 cm ²									

Power Density General Notes

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

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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 (~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	Antenna Config	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)
750	782.00	23230	LTE Band 13, 10 MHz Bandwidth	QPSK, 1 RB, 25 RB Offset	Left	Cheek	E	0.980	0.976	1.00	N/A	N/A	N/A
835	836.50	167300	NR Band 5 20 MHz Bandwidth	CP-OFDM, QPSK, 1 RB, 1 RB Offset	Left	Cheek	E	1.050	1.040	1.01	N/A	N/A	N/A
1750	1745.00	349000	NR Band 66 40 MHz Bandwidth	CP-OFDM, QPSK, 1 RB, 1 RB Offset	Right	Cheek	F	0.849	0.847	1.00	N/A	N/A	N/A
2450	2506.00	39750	LTE Band 41, 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	Right	Cheek	F	0.906	0.890	1.02	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 13-2
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Antenna Config	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)
1900	1900.00	19100	LTE Band 2 (PCS), MHz Bandwidth	QPSK, 1 RB, 99 RB Offset	Bottom	10	A	0.900	0.891	1.01	N/A	N/A	N/A
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 13-3
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS															
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Antenna Config	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)	
5600	5610.00	122	5GHz WiFi / IEEE 802.11ac, 80 MHz Bandwidth	OFDM	29.3	Left	0	MIMO	2.410	2.380	1.01	N/A	N/A	N/A	N/A
5750	5690.00	138	5GHz WiFi / IEEE 802.11ac, 80 MHz Bandwidth	OFDM	29.3	Left	0	MIMO	2.410	2.380	1.01	N/A	N/A	N/A	N/A
5800	5855.00	171	5GHz WiFi / IEEE 802.11ac, 80 MHz Bandwidth	OFDM	29.3	Left	0	MIMO	2.410	2.400	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT							Phablet								
Spatial Peak							4.0 W/kg (mW/g)								
Uncontrolled Exposure/General Population							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 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. 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 144 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 measured 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 $> 1.2 \text{ W/kg}$ for a particular band/mode/exposure condition, point SAR measurements were made for all 144 states.

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

Table 14-1
UMTS Supplemental Head SAR Data

UMTS B5	
RMC	
Test Position	Left Cheek
Frequency (MHz)	836.60
Channel	4183
Measured 1g SAR (W/kg)	0.129
Average Value of Time Sweep (W/kg)	
Auto-tune (State 134)	0.142
Default (State 0)	0.148
State 0	0.148
State 31	0.002
State 32	0.119
State 63	0.005
State 64	0.149
State 95	0.003
State 96	0.100
State 127	0.004
State 128	0.149
State 134	0.148

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Table 14-2
LTE Supplemental Head SAR Data

LTE B12		LTE B13		LTE B5		LTE B66		LTE B2	
QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 99 RB Offset	
Test Position	Left Cheek	Test Position	Left Cheek	Test Position	Left Cheek	Test Position	Right Cheek	Test Position	Left Cheek
Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	836.50	Frequency (MHz)	1770.00	Frequency (MHz)	1900.00
Channel	23095	Channel	23230	Channel	20525	Channel	132572	Channel	19100
Measured 1g SAR (W/kg)	0.097	Measured 1g SAR (W/kg)	0.108	Measured 1g SAR (W/kg)	0.132	Measured 1g SAR (W/kg)	0.086	Measured 1g SAR (W/kg)	0.074
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 66)	0.106	Auto-tune (State 64)	0.114	Auto-tune (State 132)	0.138	Auto-tune (State 135)	0.087	Auto-tune (State 135)	0.075
Default (State 0)	0.103	Default (State 0)	0.128	Default (State 0)	0.134	Default (State 0)	0.065	Default (State 0)	0.059
State 1	0.083	State 2	0.107	State 3	0.102	State 4	0.057	State 5	0.052
State 30	0.006	State 29	0.010	State 28	0.008	State 27	0.042	State 26	0.002
State 33	0.037	State 34	0.075	State 35	0.136	State 36	0.079	State 37	0.064
State 62	0.003	State 61	0.016	State 60	0.023	State 59	0.003	State 58	0.005
State 65	0.099	State 64	0.127	State 67	0.110	State 68	0.073	State 69	0.059
State 66	0.103	State 66	0.129	State 92	0.010	State 91	0.001	State 90	0.003
State 94	0.014	State 93	0.015	State 99	0.132	State 100	0.082	State 101	0.068
State 97	0.040	State 98	0.073	State 124	0.022	State 123	0.008	State 122	0.003
State 126	0.006	State 125	0.020	State 131	0.095	State 132	0.067	State 133	0.064
State 129	0.058	State 130	0.125	State 132	0.134			State 135	0.073

Table 14-3
NR Supplemental Head SAR Data

NR Band n5		NR Band n66	
DFT-s-OFDM QPSK, 20 MHz Bandwidth, 50 RB, 28 RB Offset		DFT-s-OFDM QPSK, 40 MHz Bandwidth, 1 RB, 214 RB Offset	
Test Position	Left Cheek	Test Position	Right Cheek
Frequency (MHz)	836.50	Frequency (MHz)	1745.00
Channel	167300	Channel	349000
Measured 1g SAR (W/kg)	0.138	Measured 1g SAR (W/kg)	0.103
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 132)	0.150	Auto-tune (State 135)	0.107
Default (State 0)	0.138	Default (State 32)	0.106
State 0	0.138	State 7	0.067
State 6	0.102	State 24	0.004
State 25	0.033	State 39	0.097
State 38	0.106	State 56	0.012
State 57	0.084	State 71	0.091
State 70	0.116	State 88	0.007
State 89	0.045	State 103	0.108
State 102	0.113	State 120	0.017
State 121	0.095	State 135	0.115
State 132	0.139		
State 134	0.138		

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Table 14-4
UMTS Supplemental Body SAR Data

UMTS B5	
RMC	
Test Position	Back
Spacing	10 mm
Frequency (MHz)	836.60
Channel	4183
Measured 1g SAR (W/kg)	0.465
Average Value of Time Sweep (W/kg)	
Auto-tune (State 132)	0.512
Default (State 0)	0.521
State 8	0.307
State 23	0.176
State 40	0.352
State 55	0.393
State 72	0.317
State 87	0.202
State 104	0.390
State 119	0.402
State 132	0.521
State 136	0.418

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Table 14-5
LTE Supplemental Body SAR Data

LTE B12		LTE B13		LTE B5		LTE B66		LTE B2	
QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset		QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset		QPSK, 20 MHz Bandwidth, 50 RB, 25 RB Offset		QPSK, 20 MHz Bandwidth, 1 RB, 99 RB Offset	
Test Position	Back	Test Position	Back	Test Position	Back	Test Position	Bottom	Test Position	Bottom
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	836.50	Frequency (MHz)	1720.00	Frequency (MHz)	1900.00
Channel	23095	Channel	23230	Channel	20525	Channel	132072	Channel	19100
Measured 1g SAR (W/kg)	0.251	Measured 1g SAR (W/kg)	0.378	Measured 1g SAR (W/kg)	0.475	Measured 1g SAR (W/kg)	0.720	Measured 1g SAR (W/kg)	0.900
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 0)	0.273	Auto-tune (State 0)	0.418	Auto-tune (State 132)	0.509	Auto-tune (State 32)	0.823	Auto-tune (State 135)	0.987
Default (State 0)	0.282	Default (State 0)	0.419	Default (State 0)	0.505	Default (State 0)	0.525	Default (State 0)	0.730
State 0	0.282	State 0	0.419	State 11	0.164	State 12	0.340	State 13	0.313
State 9	0.160	State 10	0.214	State 20	0.223	State 19	0.045	State 18	0.073
State 22	0.101	State 21	0.174	State 43	0.132	State 32	0.802	State 45	0.466
State 41	0.047	State 42	0.110	State 52	0.433	State 44	0.341	State 50	0.132
State 54	0.127	State 53	0.305	State 75	0.169	State 51	0.097	State 77	0.460
State 73	0.251	State 74	0.252	State 84	0.262	State 76	0.654	State 82	0.085
State 86	0.211	State 85	0.263	State 107	0.130	State 83	0.059	State 109	0.619
State 105	0.108	State 106	0.161	State 116	0.426	State 108	0.585	State 114	0.154
State 118	0.175	State 117	0.321	State 132	0.503	State 115	0.129	State 135	0.965
State 137	0.210	State 138	0.361	State 139	0.384	State 140	0.047	State 141	0.151

Table 14-6
NR Supplemental Body SAR Data

NR Band n5		NR Band n66	
DFT-s-OFDM QPSK, 20 MHz Bandwidth, 50 RB, 28 RB Offset		DFT-s-OFDM QPSK, 40 MHz Bandwidth, 1 RB, 214 RB Offset	
Test Position	Left Cheek	Test Position	Right Cheek
Frequency (MHz)	836.50	Frequency (MHz)	1745.00
Channel	167300	Channel	349000
Measured 1g SAR (W/kg)	0.138	Measured 1g SAR (W/kg)	0.103
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 132)	0.150	Auto-tune (State 135)	0.107
Default (State 0)	0.138	Default (State 32)	0.106
State 0	0.138	State 7	0.067
State 6	0.102	State 24	0.004
State 25	0.033	State 39	0.097
State 38	0.106	State 56	0.012
State 57	0.084	State 71	0.091
State 70	0.116	State 88	0.007
State 89	0.045	State 103	0.108
State 102	0.113	State 120	0.017
State 121	0.095	State 135	0.115
State 132	0.139		
State 134	0.138		

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15 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E4404B	Spectrum Analyzer	N/A	N/A	N/A	MY45113242
Agilent	E4438C	ESG Vector Signal Generator	11/14/2023	Annual	11/14/2024	MY45093852
Agilent	E4438C	ESG Vector Signal Generator	11/15/2023	Annual	11/15/2024	MY45092078
Agilent	NS182A	MXG Vector Signal Generator	10/12/2023	Annual	10/12/2024	MY47400015
Agilent	NS182A	MXG Vector Signal Generator	7/4/2023	Annual	7/4/2024	MY48180366
Agilent	8753ES	S-Parameter Vector Network Analyzer	6/2/2023	Annual	6/2/2024	MY40003841
Agilent	8753ES	S-Parameter Vector Network Analyzer	2/8/2023	Annual	2/8/2024	US39170122
Agilent	E5515C	Wireless Communications Test Set	CBT	N/A	CBT	US41140256
Agilent	E5515C	Wireless Communications Test Set	1/10/2024	Annual	1/10/2025	MY50262130
Agilent	E5515C	Wireless Communications Test Set	4/19/2022	Biennial	4/19/2024	GB43193591
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433973
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433974
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Anritsu	MN81108	I/O Adaptor	CBT	N/A	CBT	6261747881
Anritsu	ML2456A	Power Meter	6/15/2023	Annual	6/15/2024	4138001
Anritsu	ML2456A	Power Meter	6/13/2023	Annual	6/13/2024	1039008
Anritsu	MA2411B	Pulse Power Sensor	8/22/2023	Annual	8/22/2024	1726262
Anritsu	MA2411B	Pulse Power Sensor	11/8/2023	Annual	11/8/2024	1027293
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	12/15/2023	Annual	12/15/2024	6200901190
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	7/7/2023	Annual	7/7/2024	6262044715
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	1/20/2023	Annual	1/20/2024	6201144419
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	7/5/2023	Annual	7/5/2024	6262150000
Anritsu	MT8000A	Radio Communication Test Station	3/21/2023	Annual	3/21/2024	6261987983
Anritsu	MT8000A	Radio Communication Test Station	4/6/2023	Annual	4/6/2024	6272337439
Anritsu	MT8000A	Radio Communication Test Station	3/1/2023	Annual	3/1/2024	6272337419
Anritsu	MA24106A	USB Power Sensor	6/15/2023	Annual	6/15/2024	1827530
Anritsu	MA24106A	USB Power Sensor	12/4/2023	Annual	12/4/2024	1520501
Control Company	4352	Long Stem Thermometer	1/26/2023	Annual	1/26/2024	160508097
Control Company	4040	Therm./ Clock/ Humidity Monitor	1/17/2023	Annual	1/17/2024	1605744418
Control Company	4040	Digital Thermometer	3/27/2023	Biennial	3/27/2025	230208036
Mitutoyo	500-196-30	CD-6/ASM Grench Digital Caliper	2/16/2022	Triennial	2/16/2025	A20238413
Keysight Technologies	N9705B	DC Power Analyzer	5/5/2021	Triennial	5/5/2024	MY53004059
Keysight Technologies	N9020A	MIXA Signal Analyzer	4/6/2023	Annual	4/6/2024	MY48010233
Agilent	N9020A	MIXA Signal Analyzer	4/26/2022	Biennial	4/26/2024	MY56470202
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	7/5/2023	Annual	7/5/2024	31634
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	ZUDC10-83-5+	Directional Coupler	CBT	N/A	CBT	2050
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-53W2	Attenuator (3dB)	CBT	N/A	CBT	120
Seekonk	NC-100	Torque Wrench	CBT	N/A	CBT	22217
Seekonk	NC-100	Torque Wrench	CBT	N/A	CBT	1262
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	7/4/2023	Annual	7/4/2024	166818
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	2/9/2023	Annual	2/9/2024	161617
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	7/17/2023	Annual	7/17/2024	171008
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	10/16/2023	Annual	10/16/2024	170999
SPEAG	DAK-3.5	Dielectric Assessment Kit	11/13/2023	Annual	11/13/2024	1277
SPEAG	DAK5-3.5	Portable Dielectric Assessment Kit	8/14/2023	Annual	8/14/2024	1041
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1237
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1331
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1390
SPEAG	DAK-12	Dielectric Assessment Kit (4MHz - 3GHz)	3/13/2023	Annual	3/13/2024	1102
SPEAG	CLA-13	Confined Loop Antenna	9/12/2023	Annual	9/12/2024	1002
SPEAG	D750V3	750 MHz SAR Dipole	2/13/2023	Annual	2/13/2024	1046
SPEAG	D835V2	835 MHz SAR Dipole	3/14/2022	Biennial	3/14/2024	44047
SPEAG	D835V2	835 MHz SAR Dipole	4/13/2023	Annual	4/13/2024	44019
SPEAG	D835V2	835 MHz SAR Dipole	5/11/2023	Annual	5/11/2024	440180
SPEAG	D1750V2	1750 MHz SAR Dipole	4/19/2023	Annual	4/19/2024	1051
SPEAG	D1750V2	1750 MHz SAR Dipole	5/17/2023	Annual	5/17/2024	1092
SPEAG	D1750V2	1750 MHz SAR Dipole	10/20/2021	Triennial	10/20/2024	1150
SPEAG	D1900V2	1900 MHz SAR Dipole	5/12/2023	Annual	5/12/2024	54026
SPEAG	D1900V2	1900 MHz SAR Dipole	4/18/2023	Annual	4/18/2024	54141
SPEAG	D2450V2	2450 MHz SAR Dipole	11/25/2021	Triennial	11/25/2024	981
SPEAG	D2600V2	2600 MHz SAR Dipole	4/14/2021	Triennial	4/14/2024	1004
SPEAG	D2600V2	2600 MHz SAR Dipole	8/10/2023	Annual	8/10/2024	1126
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/10/2022	Triennial	1/10/2025	1057
SPEAG	D6.5GHzV2	6.5 GHz SAR Dipole	10/11/2023	Annual	10/11/2024	1019
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/15/2023	Annual	6/15/2024	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/15/2023	Annual	6/15/2024	1532
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/14/2023	Annual	4/14/2024	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/6/2023	Annual	9/6/2024	1364
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/14/2023	Annual	4/14/2024	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2023	Annual	2/15/2024	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/16/2023	Annual	2/16/2024	1645
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/18/2023	Annual	10/18/2024	1322
SPEAG	EX3DV4	SAR Probe	9/12/2023	Annual	9/12/2024	7558
SPEAG	EX3DV4	SAR Probe	6/15/2023	Annual	6/15/2024	7409
SPEAG	EX3DV4	SAR Probe	4/14/2023	Annual	4/14/2024	7659
SPEAG	EX3DV4	SAR Probe	4/18/2023	Annual	4/18/2024	7718
SPEAG	EX3DV4	SAR Probe	2/8/2023	Annual	2/8/2024	7417
SPEAG	EX3DV4	SAR Probe	6/8/2023	Annual	6/8/2024	7491
SPEAG	EX3DV4	SAR Probe	2/10/2023	Annual	2/10/2024	7640
SPEAG	EX3DV4	SAR Probe	10/23/2023	Annual	10/23/2024	7547
SPEAG	EX3DV4	SAR Probe	3/28/2023	Annual	3/28/2024	7803

Note: 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.

Note: All equipment was used solely within its respective calibration period.

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16 MEASUREMENT UNCERTAINTIES

Applicable for SAR measurements < 6GHz:

a	b	c	d	e = f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System									
Probe Calibration	E.2.1	7	N	1	1	1	7.0	7.0	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	E.2.3	2	R	1.732	1	1	1.2	1.2	∞
Linearity	E.2.4	0.3	N	1	1	1	0.3	0.3	∞
System Detection Limits	E.2.4	0.25	R	1.732	1	1	0.1	0.1	∞
Modulation Response	E.2.5	4.8	R	1.732	1	1	2.8	2.8	∞
Readout Electronics	E.2.6	0.3	N	1	1	1	0.3	0.3	∞
Response Time	E.2.7	0.8	R	1.732	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E.6.1	3	R	1.732	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	3	R	1.732	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.732	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E.6.3	6.7	R	1.732	1	1	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	4	R	1.732	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E.4.2	3.12	N	1	1	1	3.1	3.1	35
Device Holder Uncertainty	E.4.1	1.67	N	1	1	1	1.7	1.7	5
Output Power Variation - SAR drift measurement	E.2.9	5	R	1.732	1	1	2.9	2.9	∞
SAR Scaling	E.6.5	0	R	1.732	1	1	0.0	0.0	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	E.3.3	4.3	N	1	0.78	0.71	3.3	3.0	76
Liquid Permittivity - measurement uncertainty	E.3.3	4.2	N	1	0.23	0.26	1.0	1.1	75
Liquid Conductivity - Temperature Uncertainty	E.3.4	3.4	R	1.732	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	E.3.4	0.6	R	1.732	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)				RSS			12.2	12.0	191
Expanded Uncertainty (95% CONFIDENCE LEVEL)				k=2			24.4	24.0	

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

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Applicable for SAR measurements > 6GHz:

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c _i 1gm	c _i 10 gms	1gm u _i (± %)	10gms u _i (± %)	v _i
Measurement System									
Probe Calibration	E.2.1	9.3	N	1	1	1	9.3	9.3	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	E.2.3	2	R	1.732	1	1	1.2	1.2	∞
Linearity	E.2.4	0.3	N	1	1	1	0.3	0.3	∞
System Detection Limits	E.2.4	0.25	R	1.732	1	1	0.1	0.1	∞
Modulation Response	E.2.5	4.8	R	1.732	1	1	2.8	2.8	∞
Readout Electronics	E.2.6	0.3	N	1	1	1	0.3	0.3	∞
Response Time	E.2.7	0.8	R	1.732	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E.6.1	3	R	1.732	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	3	R	1.732	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.732	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E.6.3	6.7	R	1.732	1	1	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	4	R	1.732	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E.4.2	3.12	N	1	1	1	3.1	3.1	35
Device Holder Uncertainty	E.4.1	1.67	N	1	1	1	1.7	1.7	5
Output Power Variation - SAR drift measurement	E.2.9	5	R	1.732	1	1	2.9	2.9	∞
SAR Scaling	E.6.5	0	R	1.732	1	1	0.0	0.0	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	E.3.3	4.3	N	1	0.78	0.71	3.3	3.0	76
Liquid Permittivity - measurement uncertainty	E.3.3	4.2	N	1	0.23	0.26	1.0	1.1	75
Liquid Conductivity - Temperature Uncertainty	E.3.4	3.4	R	1.732	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Uncertainty	E.3.4	0.6	R	1.732	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)							RSS	13.8	13.6
Expanded Uncertainty (95% CONFIDENCE LEVEL)							k=2	27.6	27.1

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

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Applicable for Power Density Measurements:

a	b	c	d	e	f = c x f/e	g
Uncertainty Component	Unc. (± dB)	Prob. Dist.	Div.	c _i	u _i (± dB)	v _i
Measurement System						
Calibration	0.49	N	1	1	0.49	∞
Probe Correction	0.00	R	1.73	1	0.00	∞
Frequency Response	0.20	R	1.73	1	0.12	∞
Sensor Cross Coupling	0.00	R	1.73	1	0.00	∞
Isotropy	0.50	R	1.73	1	0.29	∞
Linearity	0.20	R	1.73	1	0.12	∞
Probe Scattering	0.00	R	1.73	1	0.00	∞
Probe Positioning offset	0.30	R	1.73	1	0.17	∞
Probe Positioning Repeatability	0.04	R	1.73	1	0.02	∞
Sensor Mechanical Offset	0.00	R	1.73	1	0.00	∞
Probe Spatial Resolution	0.00	R	1.73	1	0.00	∞
Field Impedance Dependence	0.00	R	1.73	1	0.00	∞
Amplitude and Phase Drift	0.00	R	1.73	1	0.00	∞
Amplitude and Phase Noise	0.04	R	1.73	1	0.02	∞
Measurement Area Truncation	0.00	R	1.73	1	0.00	∞
Data Acquisition	0.03	N	1	1	0.03	∞
Sampling	0.00	R	1.73	1	0.00	∞
Field Reconstruction	2.00	R	1.73	1	1.15	∞
Forward Transformation	0.00	R	1.73	1	0.00	∞
Power Density Scaling	0.00	R	1.73	1	0.00	∞
Spatial Averaging	0.10	R	1.73	1	0.06	∞
System Detection Limit	0.04	R	1.73	1	0.02	∞
Test Sample Related						
Probe Coupling with DUT	0.00	R	1.73	1	0.00	∞
Modulation Response	0.40	R	1.73	1	0.23	∞
Integration Time	0.00	R	1.73	1	0.00	∞
Response Time	0.00	R	1.73	1	0.00	∞
Device Holder Influence	0.10	R	1.73	1	0.06	∞
DUT alignment	0.00	R	1.73	1	0.00	∞
RF Ambient Conditions	0.04	R	1.73	1	0.02	∞
Ambient Reflections	0.04	R	1.73	1	0.02	∞
Immunity/Secondary Reception	0.00	R	1.73	1	0.00	∞
Drift of DUT	0.21	R	1.73	1	0.12	∞
Combined Standard Uncertainty (k=1)					RSS	1.34
Expanded Uncertainty (95% CONFIDENCE LEVEL)					k=2	2.68

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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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