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SAR EVALUATION REPORT

Applicant Name:
Samsung Electronics Co., Ltd.
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Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:
06/29/2022-07/24/2022
Test Site/Location:
Element, Columbia, MD, USA
Document Serial No.:
1M2206140073-16.A3L (Rev1)

FCC ID: **A3LSMF721JPN**

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

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model(s): SC-54C, SCG17

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.21	0.19	0.51	0.84
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	< 0.1	0.31	0.56	0.80
PCE	UMTS 850	826.40 - 846.60 MHz	0.24	0.34	1.03	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	0.24	0.30	0.69	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.18	0.28	0.99	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.19	0.30	0.90	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	< 0.1	0.70	0.99	1.38
PCE	LTE Band 41	2498.5 - 2687.5 MHz	< 0.1	0.38	0.86	1.79
DTS	2.4 GHz WLAN	2412 - 2472 MHz	0.26	< 0.1	0.43	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.14	< 0.1	N/A	1.10
NII	U-NII-2C	5500 - 5720 MHz	0.11	< 0.1	N/A	0.72
NII	U-NII-3	5745 - 5825 MHz	0.11	< 0.1	0.48	N/A
NII	U-NII-4	5845 - 5885 MHz	0.11	< 0.1	N/A	0.75
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.16	< 0.1	0.39	N/A
DXX	NFC	13.56 MHz	N/A	N/A	N/A	< 0.1
Simultaneous SAR per KDB 690783 D01v01r03:			0.89	0.93	1.56	2.06

Note: This revised Test Report (S/N: 1M2206140073-16.A3L (Rev1)) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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

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

RJ Ortanez
Executive Vice President

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TABLE OF CONTENTS

1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Data	2412 - 2472 MHz
U-NII-1	Data	5180 - 5240 MHz
U-NII-2A	Data	5260 - 5320 MHz
U-NII-2C	Data	5500 - 5720 MHz
U-NII-3	Data	5745 - 5825 MHz
U-NII-4	Data	5845 - 5885 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz

1.2 Time-Averaging Algorithm for RF Exposure Compliance

This device is enabled with the Qualcomm® Smart Transmit feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. For this device, all US Operations are limited to peak exposure mode only.

Note that WLAN operations are not enabled with Smart Transmit.

In Peak Exposure mode, the output power of the device is limited to the lower of the Pmax and the Plimit for each characterized technology and band (see RF Exposure Part 0 Test Report, report SN could be found in Section 1.11 - Bibliography).

Below table shows Plimit EFS settings and maximum tune up output power Pmax configured for this EUT for various transmit conditions (Device State Index DSI). Note that the device uncertainty for sub-6GHz WWAN is 1.0dB for this EUT.

Exposure Senario		Body-Worn	Phablet Max	Phablet Reduced	Head	Hotspot	Earjack	Maximum Tune-Up Output Power*
Averaging Volume		1g	10g	10g	1g	1g	10g	
Spacing		15 mm	12, 8, 6, 0 mm	0 mm	0 mm	10, 5 mm	0 mm	
DSI		0	0	1	2	3	4	
Technology/Band	Antenna							Pmax
GSM 850	A	30.8		21.8	30.5	21.8	21.8	25.3
GSM 1900	A	26.0		16.8	36.0	16.8	16.8	22.3
UMTS 850	A	29.2		28.8	21.0	24.4	28.8	23.5
LTE Band 12	A	29.6		29.6	31.1	26.6	29.6	24.0
LTE Band 13	A	30.6		28.0	32.3	25.0	28.0	24.0
LTE Band 26/5 (Cell)	A	29.0		28.6	32.2	25.5	28.6	24.0
LTE Band 4 (AWS)	A	23.3		18.5	33.5	18.5	18.5	22.5
LTE Band 41	B	27.3		20.0	34.1	17.0	20.0	22.0

*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 2G/3G/4G WWAN technology, band, and DSI = minimum of "P_{limit} EFS" and "Maximum tune up output power P_{max}" + 1dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D04v01.

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

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

1.3 Power Reduction for SAR

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

1.4 Nominal and Maximum Output Power Specifications

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

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

1.4.1 2G/3G/4G Output Power

GSM/GPRS/EDGE 850										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
Pmax	Max Allowed Power	33.0	33.0	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.0	32.0	31.5	29.5	27.5	27.0	25.0	23.0	22.0
DSI = 0 (Body-Worn or Phablet Max)	Max Allowed Power	33.0	33.0	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.0	32.0	31.5	29.5	27.5	27.0	25.0	23.0	22.0
DSI = 1 (Phablet Reduced)	Max Allowed Power	32.0	32.0	29.0	27.2	26.0	28.0	26.0	24.0	23.0
	Nominal	31.0	31.0	28.0	26.2	25.0	27.0	25.0	23.0	22.0
DSI = 2 (Head)	Max Allowed Power	33.0	33.0	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.0	32.0	31.5	29.5	27.5	27.0	25.0	23.0	22.0
DSI = 3 (Hotspot)	Max Allowed Power	N/A	32.0	29.0	27.2	26.0	28.0	26.0	24.0	23.0
	Nominal	N/A	31.0	28.0	26.2	25.0	27.0	25.0	23.0	22.0
DSI = 4 (Earjack)	Max Allowed Power	32.0	32.0	29.0	27.2	26.0	28.0	26.0	24.0	23.0
	Nominal	31.0	31.0	28.0	26.2	25.0	27.0	25.0	23.0	22.0
GSM/GPRS/EDGE 1900										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
Pmax	Max Allowed Power	30.0	30.0	29.5	27.5	25.5	27.0	25.0	23.0	22.0
	Nominal	29.0	29.0	28.5	26.5	24.5	26.0	24.0	22.0	21.0
DSI = 0 (Body-Worn or Phablet Max)	Max Allowed Power	30.0	30.0	29.5	27.5	25.5	27.0	25.0	23.0	22.0
	Nominal	29.0	29.0	28.5	26.5	24.5	26.0	24.0	22.0	21.0
DSI = 1 (Phablet Reduced)	Max Allowed Power	27.0	27.0	24.0	22.2	21.0	27.0	24.0	22.2	21.0
	Nominal	26.0	26.0	23.0	21.2	20.0	26.0	23.0	21.2	20.0
DSI = 2 (Head)	Max Allowed Power	30.0	30.0	29.5	27.5	25.5	27.0	25.0	23.0	22.0
	Nominal	29.0	29.0	28.5	26.5	24.5	26.0	24.0	22.0	21.0
DSI = 3 (Hotspot)	Max Allowed Power	N/A	27.0	24.0	22.2	21.0	27.0	24.0	22.2	21.0
	Nominal	N/A	26.0	23.0	21.2	20.0	26.0	23.0	21.2	20.0
DSI = 4 (Earjack)	Max Allowed Power	27.0	27.0	24.0	22.2	21.0	27.0	24.0	22.2	21.0
	Nominal	26.0	26.0	23.0	21.2	20.0	26.0	23.0	21.2	20.0

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

UMTS Band 5 (850 MHz)				
Power Level		Modulated Average Output Power		
		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 or Phablet Max)	Max Allowed Power	24.5	23.5	23.5
	Nominal	23.5	22.5	22.5
DSI = 1 (Phablet Reduced)	Max Allowed Power	24.5	23.5	23.5
	Nominal	23.5	22.5	22.5
DSI = 2 (Head)	Max Allowed Power	22.0	21.0	21.0
	Nominal	21.0	20.0	20.0
DSI = 3 (Hotspot)	Max Allowed Power	24.5	23.5	23.5
	Nominal	23.5	22.5	22.5
DSI = 4 (Earjack)	Max Allowed Power	24.5	23.5	23.5
	Nominal	23.5	22.5	22.5

Mode / Band	Antenna		Modulated Average Output Power (in dBm)					
			Pmax	DSI = 0 (Body-Worn or Phablet Max)	DSI = 1 (Phablet Reduced)	DSI = 2 (Head)	DSI = 3 (Hotspot)	DSI = 4 (Earjack)
LTE Band 12	A	Max Allowed Power	25.0	25.0	25.0	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0	24.0	24.0	24.0
LTE Band 13	A	Max Allowed Power	25.0	25.0	25.0	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0	24.0	24.0	24.0
LTE Band 26 (Cell)	A	Max Allowed Power	25.0	25.0	25.0	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0	24.0	24.0	24.0
LTE Band 5 (Cell)	A	Max Allowed Power	25.0	25.0	25.0	25.0	25.0	25.0
		Nominal	24.0	24.0	24.0	24.0	24.0	24.0
LTE Band 4 (AWS)	A	Max Allowed Power	23.5	23.5	19.5	23.5	19.5	19.5
		Nominal	22.5	22.5	18.5	22.5	18.5	18.5
LTE Band 41	B	Max Allowed Power	25.0	25.0	23.0	25.0	20.0	23.0
		Nominal	24.0	24.0	22.0	24.0	19.0	22.0

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

1.4.2 2.4 GHz Maximum SISO/MIMO WLAN Output Power

Mode	Band	IEEE 802.11 (in dBm)															
		SISO Antenna 1 & 2		SISO Antenna 2						MIMO							
		b		g		n		ax		g (CDD + STBC)		n (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)			
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum		
2.4 GHz WIFI	2.45 GHz	17.0	18.0	15.0	16.0	15.0	16.0	15.0	16.0	18.0	19.0	18.0	19.0	18.0	19.0		
		Ch. 12: 5.0	Ch. 12: 6.0	Ch. 12: 5.0	Ch. 12: 6.0	Ch. 12: 5.0	Ch. 12: 6.0	Ch. 12: 5.0	Ch. 12: 6.0	Ch. 12: 8.0	Ch. 12: 9.0	Ch. 12: 8.0	Ch. 12: 9.0	Ch. 12: 8.0	Ch. 12: 9.0		
		Ch. 13: -1.0	Ch. 13: 0.0	Ch. 13: -1.0	Ch. 13: 0.0	Ch. 13: -1.0	Ch. 13: 0.0	Ch. 13: -1.0	Ch. 13: 0.0	Ch. 13: 2.0	Ch. 13: 3.0	Ch. 13: 2.0	Ch. 13: 3.0	Ch. 13: 2.0	Ch. 13: 3.0		

(Upper tolerance: Target +1.0 dB)

1.4.3 2.4 GHz Reduced WLAN Output Powers

The below table is applicable in the following conditions:

- Simultaneous conditions with 5 GHz WLAN
- RCV Active
- RCV Active during simultaneous conditions with 5 GHz WLAN

Mode	Band	IEEE 802.11 (in dBm)															
		SISO Antenna 1 & 2		SISO Antenna 2						MIMO							
		b		g		n		ax		g (CDD + STBC)		n (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)			
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum		
2.4 GHz WIFI	2.45 GHz	12.0	13.0	12.0	13.0	12.0	13.0	12.0	13.0	15.0	16.0	15.0	16.0	15.0	16.0		
		Ch. 12: 5.0	Ch. 12: 6.0	Ch. 12: 5.0	Ch. 12: 6.0	Ch. 12: 5.0	Ch. 12: 6.0	Ch. 12: 5.0	Ch. 12: 6.0	Ch. 12: 8.0	Ch. 12: 9.0	Ch. 12: 8.0	Ch. 12: 9.0	Ch. 12: 8.0	Ch. 12: 9.0		
		Ch. 13: -1.0	Ch. 13: 0.0	Ch. 13: -1.0	Ch. 13: 0.0	Ch. 13: -1.0	Ch. 13: 0.0	Ch. 13: -1.0	Ch. 13: 0.0	Ch. 13: 2.0	Ch. 13: 3.0	Ch. 13: 2.0	Ch. 13: 3.0	Ch. 13: 2.0	Ch. 13: 3.0		

(Upper tolerance: Target +1.0 dB)

1.4.4 5 GHz Maximum SISO/MIMO WLAN Output Power

Mode	Band	IEEE 802.11 (in dBm)								IEEE 802.11 (in dBm)							
		SISO Antenna 1								MIMO							
		a		n		ac		ax (SU)		a (CDD + STBC)		n (CDD + STBC, SDM)		ac (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum
5 GHz WIFI (20MHz BW)	UNII-1	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	19.0	20.0	19.0	20.0	19.0	20.0	19.0	20.0
	UNII-2A	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	19.0	20.0	19.0	20.0	19.0	20.0	19.0	20.0
	UNII-2C	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	19.0	20.0	19.0	20.0	19.0	20.0	19.0	20.0
	UNII-3	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	19.0	20.0	19.0	20.0	19.0	20.0	19.0	20.0
	UNII-4	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	19.0	20.0	19.0	20.0	19.0	20.0	19.0	20.0
5 GHz WIFI (40MHz BW)	UNII-1			14.0	15.0	14.0	15.0	14.0	15.0			17.0	18.0	17.0	18.0	17.0	18.0
	UNII-2A			14.0	15.0	14.0	15.0	14.0	15.0			17.0	18.0	17.0	18.0	17.0	18.0
	UNII-2C			14.0	15.0	14.0	15.0	14.0	15.0			17.0	18.0	17.0	18.0	17.0	18.0
	UNII-3			14.0	15.0	14.0	15.0	14.0	15.0			17.0	18.0	17.0	18.0	17.0	18.0
	UNII-4			14.0	15.0	14.0	15.0	14.0	15.0			17.0	18.0	17.0	18.0	17.0	18.0
5 GHz WIFI (80MHz BW)	UNII-1					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
	UNII-2A					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
	UNII-2C					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
	UNII-3					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
	UNII-4					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
5 GHz WIFI (160MHz BW)	UNII-1/2A					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
	UNII-2C					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0
	UNII-3/4					13.0	14.0	13.0	14.0					16.0	17.0	16.0	17.0

(Upper tolerance: Target +1.0 dB)

1.4.5 5 GHz Reduced WLAN Output Powers

The below table is applicable in the following conditions:

- Simultaneous conditions with 2.4 GHz WLAN
- RCV Active
- RCV Active during simultaneous conditions with 2.4 GHz WLAN

Mode	Band	IEEE 802.11 (in dBm) SISO Antenna 1								IEEE 802.11 (in dBm) MIMO							
		a		n		ac		ax (SU)		a (CDD + STBC)		n (CDD + STBC, SDM)		ac (CDD + STBC, SDM)		ax (SU) (CDD + STBC, SDM)	
		Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum
5 GHz WIFI (20MHz BW)	UNII-1	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0
	UNII-2A	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0
	UNII-2C	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0
	UNII-3	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0
	UNII-4	10.0	11.0	10.0	11.0	10.0	11.0	10.0	11.0	13.0	14.0	13.0	14.0	13.0	14.0	13.0	14.0
5 GHz WIFI (40MHz BW)	UNII-1			10.0	11.0	10.0	11.0	10.0	11.0			13.0	14.0	13.0	14.0	13.0	14.0
	UNII-2A			10.0	11.0	10.0	11.0	10.0	11.0			13.0	14.0	13.0	14.0	13.0	14.0
	UNII-2C			10.0	11.0	10.0	11.0	10.0	11.0			13.0	14.0	13.0	14.0	13.0	14.0
	UNII-3			10.0	11.0	10.0	11.0	10.0	11.0			13.0	14.0	13.0	14.0	13.0	14.0
	UNII-4			10.0	11.0	10.0	11.0	10.0	11.0			13.0	14.0	13.0	14.0	13.0	14.0
5 GHz WIFI (80MHz BW)	UNII-1					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
	UNII-2A					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
	UNII-2C					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
	UNII-3					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
	UNII-4					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
5 GHz WIFI (160MHz BW)	UNII-1/2A					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
	UNII-2C					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0
	UNII-3/4					10.0	11.0	10.0	11.0					13.0	14.0	13.0	14.0

(Upper tolerance: Target +1.0 dB)

1.4.6 2.4 GHz Maximum Bluetooth Output Power

Mode	Antenna 1		Antenna 2	
	Nominal	Maximum	Nominal	Maximum
Bluetooth (in dBm)	16.5	17.5	16.5	17.5
Bluetooth EDR (in dBm)	12.5	13.5	12.5	13.5
Bluetooth LE 1Mbps, 2Mbps (in dBm)	9.5	10.5	9.5	10.5
Bluetooth LE 125/500 kbps (in dBm)	9.5	10.5	9.5	10.5

(Upper tolerance: Target +1.0 dB)

1.4.7 2.4 GHz Reduced Bluetooth Output Power

The below table is applicable in the following condition:

- RCV Active

Mode	Antenna 1		Antenna 2	
	Nominal	Maximum	Nominal	Maximum
Bluetooth (in dBm)	10.5	11.5	10.5	11.5
Bluetooth EDR (in dBm)	10.5	11.5	10.5	11.5
Bluetooth LE 1Mbps, 2Mbps (in dBm)	9.5	10.5	9.5	10.5
Bluetooth LE 125/500 kbps (in dBm)	9.5	10.5	9.5	10.5

(Upper tolerance: Target +1.0 dB)

1.5 DUT Antenna Locations

A diagram showing the location of the device antennas for both open and closed configurations can be found in DUT Antenna Diagram and SAR Test Setup Photographs Appendix. When the device is open, the overall dimensions of this device are > 9 x 5 cm. Since the diagonal dimension of this device when open is > 160 mm and <200 mm, it is considered a “phablet.” and operates similar to a traditional portable handset. In the closed configuration, only a simple display/interaction of notifications occurs and overall dimensions are < 9 x5 cm. Therefore, when the device is closed, the only testing considered is for body-worn and hotspot.

Table 1-1
Device Edges/Sides for Open Configuration SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	Yes	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	Yes
LTE Band 13	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 41	Yes	Yes	No	Yes	No	Yes
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	Yes	No
2.4 GHz WLAN MIMO	Yes	Yes	Yes	No	Yes	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN MIMO	Yes	Yes	Yes	No	Yes	Yes
Bluetooth Ant 1	Yes	Yes	Yes	No	No	Yes
Bluetooth Ant 2	Yes	Yes	Yes	No	Yes	No
NFC	Yes	Yes	No	Yes	Yes	Yes

Table 1-2
Device Edges/Sides for Close Configuration SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	Yes	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	Yes
LTE Band 13	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 41	Yes	Yes	No	Yes	No	Yes
2.4 GHz WLAN Ant 1	Yes	Yes	No	Yes	No	Yes
2.4 GHz WLAN Ant 2	Yes	Yes	No	Yes	Yes	No
2.4 GHz WLAN MIMO	Yes	Yes	No	Yes	Yes	Yes
5 GHz WLAN Ant 1	Yes	Yes	No	Yes	Yes	No
5 GHz WLAN MIMO	Yes	Yes	No	Yes	Yes	Yes
Bluetooth Ant 1	Yes	Yes	No	Yes	No	Yes
Bluetooth Ant 2	Yes	Yes	No	Yes	Yes	No

Note: Particular DUT edges were not required to be evaluated for wireless router SAR or phablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III and FCC KDB Publication 648474 D04v01r03. The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, U-NII-1, U-NII-2A, U-NII-2C, UNII-4 operations are disabled.

1.6 Near Field Communications (NFC) Antenna

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

1.7 Simultaneous Transmission Capabilities

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

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

Table 1-3
Simultaneous Transmission Scenarios

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

1. 2.4 GHz WLAN ant 1 and 2.4 GHz Bluetooth ant 1 share the same antenna path and cannot transmit simultaneously.
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. This device supports 2x2 MIMO Tx for WLAN 802.11a/g/n/ac/ax. 802.11a/g/n/ac/ax supports CDD and STBC and 802.11n/ac/ax additionally supports SDM.
6. This device does not support VoWIFI.
7. This device supports Bluetooth Tethering.
8. This device supports VoLTE.
9. NFC was evaluated for phablet based on expected usage conditions.

1.8 Miscellaneous SAR Test Considerations

When on the device dimensions when closed, hotspot SAR in the closed configuration was performed at 5mm per KDB Publication 941225 D06v02r01.

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

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" in open configuration since the diagonal dimension is greater than 160mm and less than 200mm. Phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Because wireless router operations are not supported for U-NII-1, U-NII-2A, U-NII-2C, and U-NII-4 WLAN, 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, SAR testing was not required for 802.11ax when applying the initial test configuration procedures of KDB 248227, with 802.11ax considered a higher order 802.11 mode.

This device supports channel 1-13 for 2.4 GHZ WLAN. However, because channel 12/13 targets are not higher than that of channels 1-11, default channels for SAR testing are determined per FCC KDB 248227 D01v02r02.

(B) Licensed Transmitter(s)

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

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

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

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 D04v01r03, this device is considered a "phablet" when it is in an open configuration since the diagonal dimension is greater than 160mm and less than 200mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.

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

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

1.9 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 D04v01 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)
- FCC KDB Publication 616217 D04v01r02 (Proximity Sensor)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO, LTE Band 41 Power Class 2/3)
- November 2017, April 2018, October 2018 TCB Workshop Notes (LTE Carrier Aggregation)
- April 2019 TCB Workshop Notes (IEEE 802.11ax)

1.10 Device Serial Numbers

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

1.11 Bibliography

Report Type	Report Serial Number
RF Exposure Part 0 Test Report	1M2206140073-17.A3L

2 LTE AND NR INFORMATION

LTE Information					
Form Factor	Portable Handset				
	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 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 26 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)	841.5 (26965)	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
UE Category	DL UE Cat 20, UL UE Cat 13				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 15. It supports carrier aggregation and downlink MIMO features as shown in RF Conducted Powers Section and Downlink LTE CA RF Conducted Powers Appendix. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 15 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

3 INTRODUCTION

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

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

3.1 SAR Definition

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

Equation 3-1
SAR Mathematical Equation

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

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

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

where:

σ = conductivity of the tissue-simulating material (S/m)
ρ = mass density of the tissue-simulating material (kg/m^3)
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]

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:

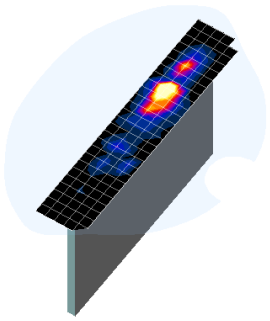

Figure 4-1
Sample SAR Area Scan

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.

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

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

*Also compliant to IEEE 1528-2013 Table 6

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].

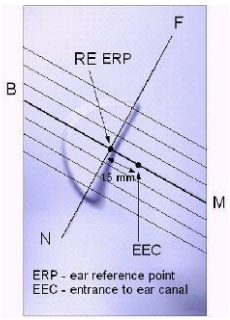

Figure 5-1
Close-Up Side view of ERP

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 than 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

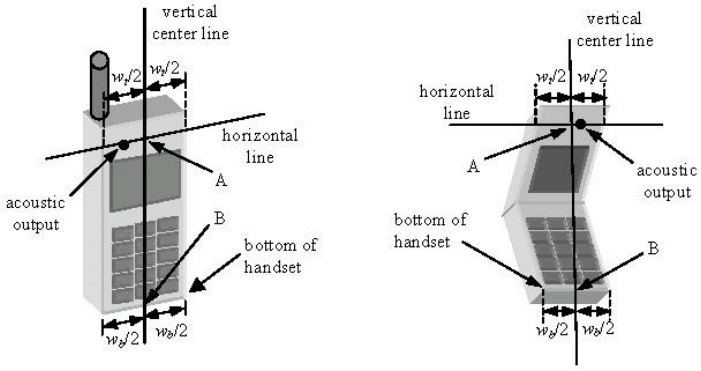

Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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 ε = 3 and loss tangent δ = 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.

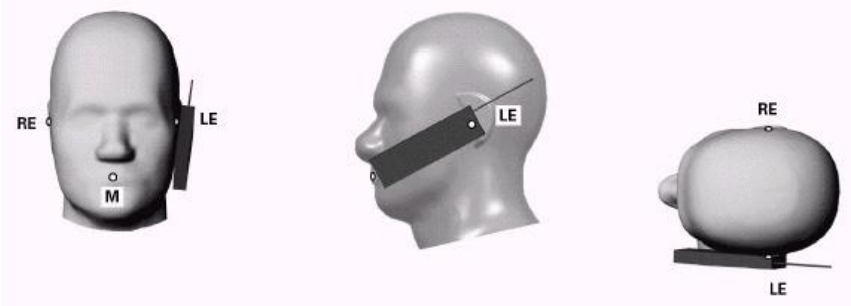

Figure 6-1 Front, Side and Top View of Cheek Position

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 was 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 / 15º 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 15degrees.
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).

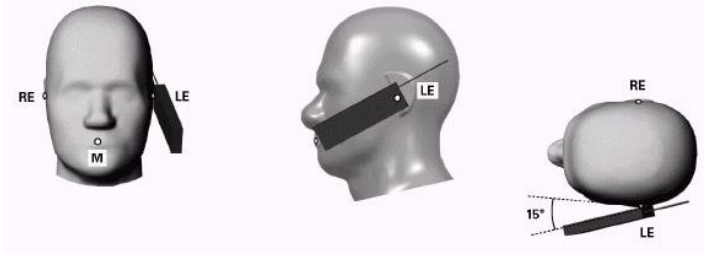

Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

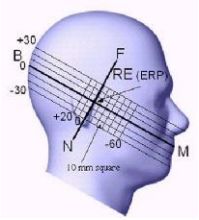

Figure 6-3
Side view w/ relevant markings

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 D04v01r03. 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 D04v01r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D04v01 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.

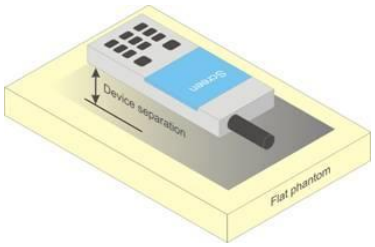

Figure 6-4
Sample Body-Worn Diagram

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 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 D04v01 should be applied to determine SAR test requirements.

Per KDB Publication 447498 D04v01, 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 x W ≥ 9 cm x 5 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 D04v01 procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

6.8 Phablet Configurations

For smart phones with a display diagonal dimension > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04v01r03

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

6.9 Proximity Sensor Considerations

This device uses a power reduction mechanism to reduce output powers in certain use conditions when the device is used close the user's body.

When the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, additional evaluation is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions. Sensor triggering distance summary data is included in Power Reduction Verification Appendix.

The sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the sensor entirely covers the antennas.

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 *General Population* (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT *Occupational* (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.

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

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.

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.

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 ½ 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.

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.

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

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

9 RF CONDUCTED POWERS

All conducted power measurements for 2G/3G/4G 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 DSI = 0 (Body-worn, or Phablet with grip sensor inactive), or DSI = 2 (Head)

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	31.85	31.89	31.28	**29.60**	27.37	26.61	24.80	22.90	22.02
	190	32.37	32.39	31.70	**29.98**	27.38	26.75	25.15	23.35	22.39
	251	32.12	32.14	31.60	**29.85**	27.90	26.84	25.21	23.24	21.95
GSM 1900	512	29.69	29.81	28.95	**27.02**	24.97	25.92	24.70	22.57	21.56
	661	29.41	29.54	28.62	**26.99**	24.78	25.75	24.47	22.37	21.54
	810	29.62	29.81	28.46	**26.92**	25.09	25.96	24.64	22.67	21.24

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 850	128	22.65	22.69	25.09	**25.17**	24.19	17.41	18.61	18.47	18.84
	190	23.17	23.19	25.51	**25.55**	24.20	17.55	18.96	18.92	19.21
	251	22.92	22.94	25.41	**25.42**	24.72	17.64	19.02	18.81	18.77
GSM 1900	512	20.49	20.61	22.76	**22.59**	21.79	16.72	18.51	18.14	18.38
	661	20.21	20.34	22.43	**22.56**	21.60	16.55	18.28	17.94	18.36
	810	20.42	20.61	22.27	**22.49**	21.91	16.76	18.45	18.24	18.06

GSM 850	**Frame Avg.Targets:**	22.80	22.80	25.31	**25.07**	24.32	17.80	18.81	18.57	18.82
GSM 1900		19.80	19.80	22.31	**22.07**	21.32	16.80	17.81	17.57	17.82

Table 9-2
Measured P_{limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active)

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	30.84	30.81	27.86	25.86	**24.19**	26.61	24.80	22.90	22.02
	190	30.76	30.84	27.97	26.22	**24.52**	26.75	25.15	23.35	22.39
	251	31.30	31.25	28.22	26.68	**25.07**	26.84	25.21	23.24	21.95
GSM 1900	512	26.69	26.74	23.75	21.91	**20.71**	26.13	23.84	22.15	20.84
	661	27.00	26.98	23.79	22.14	**19.92**	26.23	23.98	22.18	20.86
	810	26.90	26.87	23.77	21.93	**20.77**	26.29	23.86	22.17	20.83

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	21.64	21.61	21.67	21.43	**21.01**	17.41	18.61	18.47	18.84
	190	21.56	21.64	21.78	21.79	**21.34**	17.55	18.96	18.92	19.21
	251	22.10	22.05	22.03	22.25	**21.89**	17.64	19.02	18.81	18.77
GSM 1900	512	17.49	17.54	17.56	17.48	**17.53**	16.93	17.65	17.72	17.66
	661	17.80	17.78	17.60	17.71	**16.74**	17.03	17.79	17.75	17.68
	810	17.70	17.67	17.58	17.50	**17.59**	17.09	17.67	17.74	17.65

GSM 850	**Frame Avg.Targets:**	21.80	21.80	21.81	21.77	**21.82**	17.80	18.81	18.57	18.82
GSM 1900		16.80	16.80	16.81	16.77	**16.82**	16.80	16.81	16.77	16.82

Note:

1. 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.
2. 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.
3. 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

9.2 UMTS Conducted Powers

Table 9-3
Measured P_{max} for DSI = 0 (Body-worn, or Phablet with grip sensor inactive), or DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot mode), and/or DSI = 4 (Earjack active)

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	23.77	23.83	23.86	-
99		12.2 kbps AMR	23.80	23.84	23.87	-
6	HSDPA	Subtest 1	22.72	22.65	22.84	0
6		Subtest 2	22.73	22.78	22.85	0
6		Subtest 3	22.25	22.33	22.39	0.5
6		Subtest 4	22.27	22.21	22.38	0.5
6	HSUPA	Subtest 1	22.76	22.84	22.92	0
6		Subtest 2	20.73	20.84	20.92	2
6		Subtest 3	21.72	21.83	21.92	1
6		Subtest 4	20.76	20.85	20.92	2
6		Subtest 5	22.75	22.83	22.91	0

Table 9-4
Measured P_{limit} for DSI = 2 (Head)

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	21.21	21.35	21.39	-
99		12.2 kbps AMR	21.24	21.36	21.43	-
6	HSDPA	Subtest 1	20.17	20.34	20.39	0
6		Subtest 2	20.17	20.32	20.40	0
6		Subtest 3	19.68	19.82	19.89	0.5
6		Subtest 4	19.70	19.77	19.90	0.5
6	HSUPA	Subtest 1	20.08	20.14	20.23	0
6		Subtest 2	18.06	18.14	18.17	2
6		Subtest 3	19.07	19.15	19.18	1
6		Subtest 4	18.08	18.11	18.18	2
6		Subtest 5	19.69	19.74	19.79	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 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 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.

9.3.1 LTE Band 12

Table 9-5
LTE Band 12 Measured P_{Max} for all DSI- 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.45	0	0
	1	25	**24.61**		0
	1	49	24.54		0
	25	0	23.41	0-1	1
	25	12	**23.55**		1
	25	25	23.55		1
	50	0	23.47		1
16QAM	1	0	23.67	0-1	1
	1	25	23.74		1
	1	49	23.78		1
	25	0	22.42	0-2	2
	25	12	22.55		2
	25	25	22.56		2
	50	0	22.44		2
64QAM	1	0	22.73	0-2	2
	1	25	22.90		2
	1	49	22.85		2
	25	0	21.45	0-3	3
	25	12	21.57		3
	25	25	21.60		3
	50	0	21.47		3

9.3.2 LTE Band 13

Table 9-6
LTE Band 13 Measured P_{Max} for all DSI - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.25**	0	0
	1	25	24.23		0
	1	49	24.17		0
	25	0	**23.23**	0-1	1
	25	12	23.22		1
	25	25	23.22		1
	50	0	23.13		1
16QAM	1	0	23.51	0-1	1
	1	25	23.40		1
	1	49	23.39		1
	25	0	22.22	0-2	2
	25	12	22.20		2
	25	25	22.22		2
	50	0	22.11		2
64QAM	1	0	22.58	0-2	2
	1	25	22.55		2
	1	49	22.41		2
	25	0	21.25	0-3	3
	25	12	21.23		3
	25	25	21.22		3
	50	0	21.11		3

9.3.3 LTE Band 26

Table 9-7
LTE Band 26 (Cell) Measured P_{Max} for all DSI - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	23.97	0	0
	1	36	**24.01**		0
	1	74	24.00		0
	36	0	22.93	0-1	1
	36	18	23.00		1
	36	37	**23.04**		1
	75	0	22.91		1
16QAM	1	0	23.25	0-1	1
	1	36	23.36		1
	1	74	23.33		1
	36	0	22.11	0-2	2
	36	18	22.05		2
	36	37	22.06		2
	75	0	21.98		2
64QAM	1	0	22.25	0-2	2
	1	36	22.30		2
	1	74	22.33		2
	36	0	20.95	0-3	3
	36	18	21.00		3
	36	37	21.03		3
	75	0	20.94		3

9.3.4 LTE Band 4

Table 9-8
LTE Band 4 (AWS) Measured P_{Max} for DSI = 0 (Body-worn, or Phablet with grip sensor inactive), or DSI = 2 (Head) - 20 MHz Bandwidth

LTE Band 4 (AWS) 20 MHz Bandwidth				
Modulation	RB Size	RB Offset	Mid Channel 20175 (1732.5 MHz) Conducted Power [dBm]	Designed MPR [dB]
QPSK	1	0	22.38	0
	1	50	**22.66**	0
	1	99	22.55	0
	50	0	20.06	2
	50	25	**20.15**	2
	50	50	20.15	2
	100	0	20.06	2
16QAM	1	0	21.64	1
	1	50	21.96	1
	1	99	21.70	1
	50	0	20.55	2
	50	25	20.60	2
	50	50	20.60	2
	100	0	20.55	2
64QAM	1	0	20.59	2
	1	50	20.91	2
	1	99	20.69	2
	50	0	19.55	3
	50	25	19.63	3
	50	50	19.63	3
	100	0	19.53	3

Table 9-9
LTE Band 4 (AWS) Measured P_{Limit} for DSI = 1 (Phablet with grip sensor active), DSI = 3 (Hotspot Mode), and/or DSI = 4 (Earjack active) - 20 MHz Bandwidth

LTE Band 4 (AWS) 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20175 (1732.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	18.86	0	0
	1	50	**19.04**		0
	1	99	19.01		0
	50	0	18.99	0-1	0
	50	25	**19.10**		0
	50	50	19.07		0
	100	0	18.98		0
16QAM	1	0	19.10	0-1	0
	1	50	19.33		0
	1	99	19.13		0
	50	0	19.03	0-2	0
	50	25	19.11		0
	50	50	19.10		0
	100	0	19.01		0
64QAM	1	0	19.06	0-2	0
	1	50	19.31		0
	1	99	19.20		0
	50	0	19.02	0-3	0
	50	25	19.11		0
	50	50	19.08		0
	100	0	19.05		0

9.3.5 LTE Band 41

Table 9-10
LTE Band 41 Measured P_{Max} for DSI = 0 (Body-worn, or Phablet with grip sensor inactive), or DSI = 2 (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]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	24.44	24.52	24.64	24.55	24.51	0	0
	1	50	24.51	24.56	24.74	**24.91**	24.73		0
	1	99	24.56	24.56	24.47	24.63	24.63		0
	50	0	23.56	23.62	23.63	23.87	23.64	0-1	1
	50	25	23.69	23.65	23.86	**23.95**	23.87		1
	50	50	23.67	23.58	23.81	23.89	23.86		1
	100	0	23.58	23.56	23.76	23.82	23.70		1
16QAM	1	0	23.43	23.47	23.39	23.62	23.32	0-1	1
	1	50	23.57	23.62	23.86	23.98	23.78		1
	1	99	23.58	23.59	23.60	23.52	23.66		1
	50	0	22.50	22.64	22.62	22.86	22.63	0-2	2
	50	25	22.61	22.66	22.85	22.95	22.87		2
	50	50	22.64	22.59	22.86	22.91	22.82		2
	100	0	22.53	22.55	22.77	22.84	22.71		2
64QAM	1	0	22.48	22.59	22.34	22.61	22.38	0-2	2
	1	50	22.52	22.65	22.76	22.98	22.84		2
	1	99	22.62	22.58	22.60	22.56	22.62		2
	50	0	21.53	21.63	21.61	21.85	21.65	0-3	3
	50	25	21.66	21.68	21.86	21.96	21.86		3
	50	50	21.63	21.59	21.83	21.89	21.84		3
	100	0	21.55	21.55	21.75	21.85	21.67		3

Table 9-11
LTE Band 41 Uplink Carrier Aggregation Measured P_{Max} for DSI = 0 (Body-worn, or Phablet with grip sensor inactive), or DSI = 2 (Head) - 20 MHz Bandwidth

	PCC							SCC							Power	
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	41055	2636.5	QPSK	1	0	LTE B41	20	40857	2616.7	QPSK	1	99	25.00	24.55

Table 9-12
LTE Band 41 Measured P_{Limit} for DSI = 3 (Hotspot Mode) - 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]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	19.45	19.56	19.38	19.46	19.23	0	0
	1	50	19.56	19.55	19.73	**19.76**	19.64		0
	1	99	19.55	19.50	19.41	19.24	19.44		0
	50	0	19.51	19.63	19.60	19.66	19.48	0-1	0
	50	25	19.64	19.63	19.81	**19.82**	19.69		0
	50	50	19.63	19.50	19.73	19.62	19.68		0
	100	0	19.52	19.50	19.69	19.70	19.54		0
16QAM	1	0	19.52	19.61	19.37	19.50	19.23	0-1	0
	1	50	19.65	19.64	19.82	19.86	19.72		0
	1	99	19.66	19.47	19.40	19.26	19.52		0
	50	0	19.52	19.65	19.63	19.67	19.49	0-2	0
	50	25	19.64	19.63	19.80	19.71	19.71		0
	50	50	19.63	19.49	19.72	19.64	19.69		0
	100	0	19.54	19.52	19.72	19.62	19.54		0
64QAM	1	0	19.58	19.70	19.49	19.61	19.34	0-2	0
	1	50	19.70	19.71	19.90	19.87	19.81		0
	1	99	19.72	19.63	19.52	19.37	19.61		0
	50	0	19.52	19.64	19.60	19.67	19.51	0-3	0
	50	25	19.64	19.64	19.81	19.72	19.71		0
	50	50	19.64	19.50	19.71	19.63	19.67		0
	100	0	19.54	19.53	19.71	19.60	19.54		0

Table 9-13
LTE Band 41 Uplink Carrier Aggregation Measured P_{Limit} for DSI = 3 (Hotspot Mode) - 20 MHz Bandwidth

	PCC							SCC							Power	
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	41490	2680.0	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	19.46	19.23

Table 9-14
LTE Band 41 Measured P_{Limit} for DSI = 1 (Phablet with grip sensor active) and/or DSI = 4 (Earjack Active) - 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]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	22.13	22.23	22.44	22.70	22.39	0	0
	1	50	22.22	22.32	22.50	**23.00**	22.21		0
	1	99	22.21	22.31	22.16	22.59	22.10		0
	50	0	22.01	22.28	22.69	22.92	22.62	0-1	0
	50	25	22.13	22.32	22.39	22.38	22.30		0
	50	50	22.12	22.29	22.87	**22.95**	22.29		0
	100	0	22.03	22.07	22.09	22.10	22.08		0
16QAM	1	0	22.08	22.39	22.00	22.70	21.86	0-1	0
	1	50	22.20	22.39	22.51	23.00	22.33		0
	1	99	22.16	22.46	22.13	22.64	22.20		0
	50	0	22.03	22.27	22.17	22.92	21.99	0-2	0
	50	25	22.16	22.30	22.27	23.00	22.17		0
	50	50	22.17	22.30	22.32	22.97	22.28		0
	100	0	22.08	22.18	22.18	22.05	22.09		0
64QAM	1	0	21.91	22.26	21.90	22.72	21.75	0-2	0
	1	50	22.07	22.32	22.33	23.00	22.20		0
	1	99	22.15	22.32	22.09	22.76	22.13		0
	50	0	21.03	21.25	21.14	21.93	21.01	0-3	1
	50	25	21.15	21.32	21.31	22.00	21.17		1
	50	50	21.13	21.29	21.31	21.97	21.25		1
	100	0	21.06	21.19	21.16	21.89	21.09		1

Table 9-15
LTE Band 41 Uplink Carrier Aggregation Measured P_{Limit} for DSI = 1 (Phablet with grip sensor active) and/or DSI = 4 (Earjack Active) - 20 MHz Bandwidth

	PCC							SCC							Power	
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	41055	2636.5	QPSK	100	0	LTE B41	20	40857	2616.7	QPSK	100	0	21.74	22.10

Figure 9-3
Power Measurement Setup

9.4 WLAN Conducted Powers

Table 9-16
2.4 GHz WLAN Maximum Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11b
		Average
2412	1	17.54
2437	6	17.55
2462	11	17.26

Table 9-17
2.4 GHz WLAN Maximum Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	17.82	15.97	15.87	15.91
2437	6	17.32	15.81	15.58	15.62
2462	11	17.96	15.49	15.40	15.17

Table 9-18
2.4 GHz WLAN Maximum Average RF Power – MIMO

2.4GHz 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
2412	1	15.45	15.87	18.68
2437	6	15.89	15.58	18.75
2462	11	15.61	15.40	18.52

Table 9-19
2.4 GHz WLAN Reduced Average RF Power with RCV Active– Ant 1

2.4GHz Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11b
		Average
2412	1	12.12
2437	6	12.34
2462	11	12.51

Table 9-20
2.4 GHz WLAN Reduced Average RF Power with RCV Active and/or During Conditions with 5 GHz WLAN– Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax
		Average	Average	Average	Average
2412	1	12.64	12.71	12.78	12.30
2437	6	12.79	12.49	12.61	12.54
2462	11	12.89	12.34	12.27	12.74

Table 9-21
2.4 GHz WLAN Reduced Average RF Power with RCV Active and/or During Conditions with 5 GHz WLAN– MIMO

2.4GHz 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
2412	1	12.22	12.78	15.52
2437	6	12.47	12.61	15.55
2462	11	12.56	12.27	15.43

Table 9-22
5 GHz WLAN Maximum Average RF Power – Ant 1

5GHz (20MHz) Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11a	802.11n	802.11ac	802.11ax
		Average	Average	Average	Average
5180	36	16.64	16.60	16.52	16.55
5200	40	16.82	16.80	16.57	16.54
5220	44	16.98	16.63	16.49	16.48
5240	48	16.72	16.73	16.47	16.56
5260	52	16.69	16.66	16.51	16.70
5280	56	16.49	16.45	16.47	16.49
5300	60	16.36	16.32	16.50	16.52
5320	64	16.89	16.54	16.74	16.77
5500	100	16.43	16.84	16.39	16.47
5600	120	16.47	16.66	16.34	16.55
5620	124	16.64	16.40	16.52	16.74
5720	144	16.59	16.91	16.78	16.22
5745	149	16.64	16.82	16.52	16.12
5785	157	16.65	16.56	16.46	16.33
5825	165	16.44	16.63	16.67	16.48
5845	169	16.67	16.72	16.67	16.70
5865	173	16.50	16.63	16.54	16.72
5885	177	16.75	16.71	16.13	16.54

Table 9-23
5 GHz WLAN Maximum Average RF Power – MIMO

5GHz (20MHz) 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
5180	36	16.60	16.54	19.58
5200	40	16.80	16.61	19.72
5220	44	16.63	16.50	19.58
5240	48	16.73	16.44	19.60
5260	52	16.66	16.36	19.52
5280	56	16.45	16.33	19.40
5300	60	16.32	16.26	19.30
5320	64	16.54	16.11	19.34
5500	100	16.84	16.59	19.73
5600	120	16.66	16.57	19.63
5620	124	16.40	16.55	19.49
5720	144	16.91	16.20	19.58
5745	149	16.82	16.74	19.79
5785	157	16.56	16.77	19.68
5825	165	16.63	16.91	19.78
5845	169	16.72	16.16	19.46
5865	173	16.63	16.22	19.44
5885	177	16.71	16.63	19.68

Table 9-24
5 GHz WLAN Reduced Average RF Power with RCV Active and/or During Conditions with 2.4 GHz WLAN - Ant 1

5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11ac	802.11ax
		Average	Average
5210	42	10.23	10.22
5290	58	10.57	10.74
5530	106	10.64	10.92
5610	122	10.82	10.12
5690	138	10.74	10.40
5775	155	10.66	10.57
5855	171	10.77	10.77

Table 9-25
5 GHz WLAN Reduced Average RF Power with RCV Active and/or During Conditions with 2.4 GHz WLAN - MIMO

5GHz (80MHz) 802.11ac Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
5210	42	10.23	10.71	13.49
5290	58	10.57	10.59	13.59
5530	106	10.64	10.44	13.55
5610	122	10.82	10.62	13.73
5690	138	10.74	10.52	13.64
5775	155	10.66	10.79	13.74
5855	171	10.77	10.88	13.84

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.

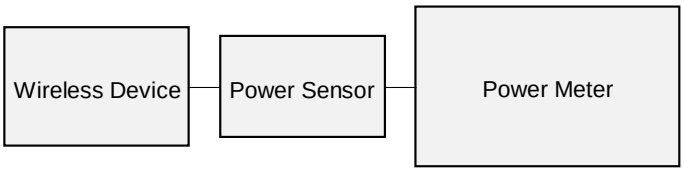

Figure 9-4
Power Measurement Setup

9.5 Bluetooth Conducted Powers

Table 9-26
Bluetooth Maximum Average RF Power– Antenna 1

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	17.23	52.871
2441	1.0	GFSK	ePA	39	17.43	55.271
2480	1.0	GFSK	ePA	78	15.58	36.122
2402	2.0	π/4-DQPSK	ePA	0	13.15	20.652
2441	2.0	π/4-DQPSK	ePA	39	13.24	21.066
2480	2.0	π/4-DQPSK	ePA	78	11.28	13.417
2402	3.0	8DPSK	ePA	0	13.07	20.279
2441	3.0	8DPSK	ePA	39	13.32	21.487
2480	3.0	8DPSK	ePA	78	11.36	13.666

Table 9-27
Bluetooth Maximum Average RF Power– Antenna 2

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	15.93	39.203
2441	1.0	GFSK	ePA	39	15.66	36.793
2480	1.0	GFSK	ePA	78	14.51	28.250
2402	2.0	π/4-DQPSK	ePA	0	11.73	14.900
2441	2.0	π/4-DQPSK	ePA	39	11.31	13.532
2480	2.0	π/4-DQPSK	ePA	78	10.05	10.105
2402	3.0	8DPSK	ePA	0	11.65	14.609
2441	3.0	8DPSK	ePA	39	11.39	13.772
2480	3.0	8DPSK	ePA	78	10.12	10.276

Table 9-28
Bluetooth Reduced Average RF Power (RCV Active) – Antenna 1

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	10.67	11.668
2441	1.0	GFSK	ePA	39	11.45	13.964
2480	1.0	GFSK	ePA	78	9.98	9.954

Table 9-29
Bluetooth Reduced Average RF Power (RCV Active) – Antenna 2

Frequency [MHz]	Data Rate [Mbps]	Mod.	Power Scheme	Channel No.	Avg Conducted Power	
					[dBm]	[mW]
2402	1.0	GFSK	ePA	0	10.19	10.447
2441	1.0	GFSK	ePA	39	10.18	10.423
2480	1.0	GFSK	ePA	78	9.64	9.204

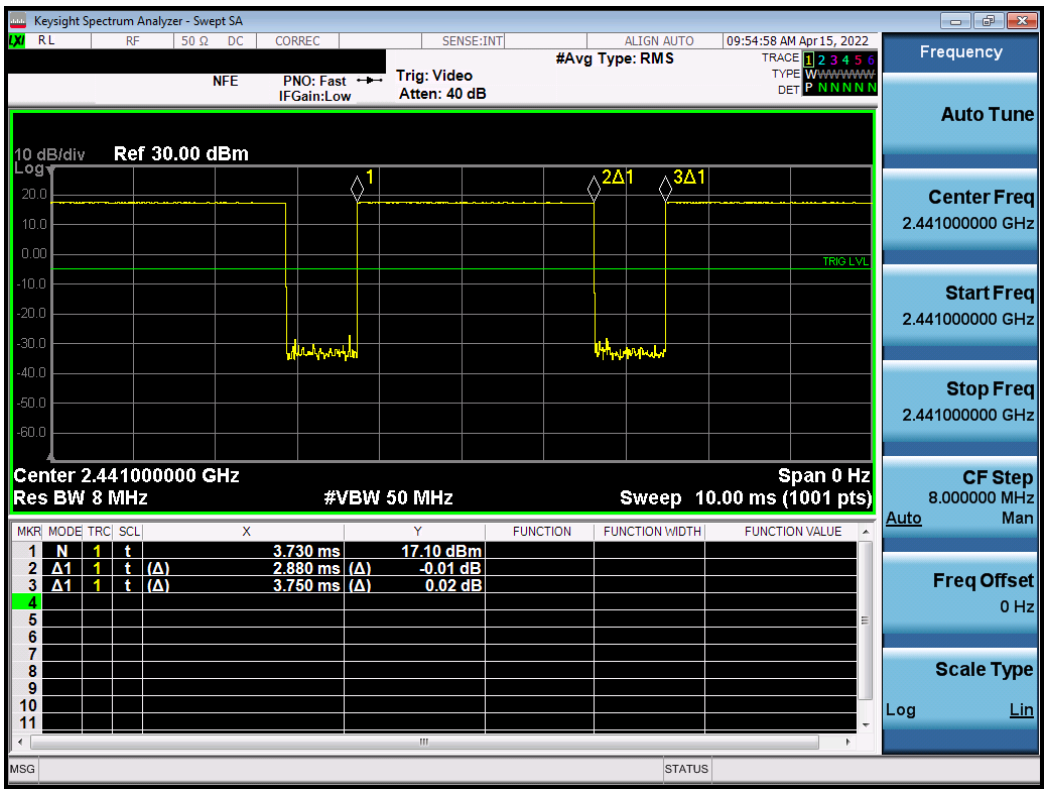

Figure 9-5
Bluetooth Antenna 1 Transmission Plot

Equation 9-1
Bluetooth Antenna 1 Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.88ms}{3.750ms} * 100\% = 76.80\%$$

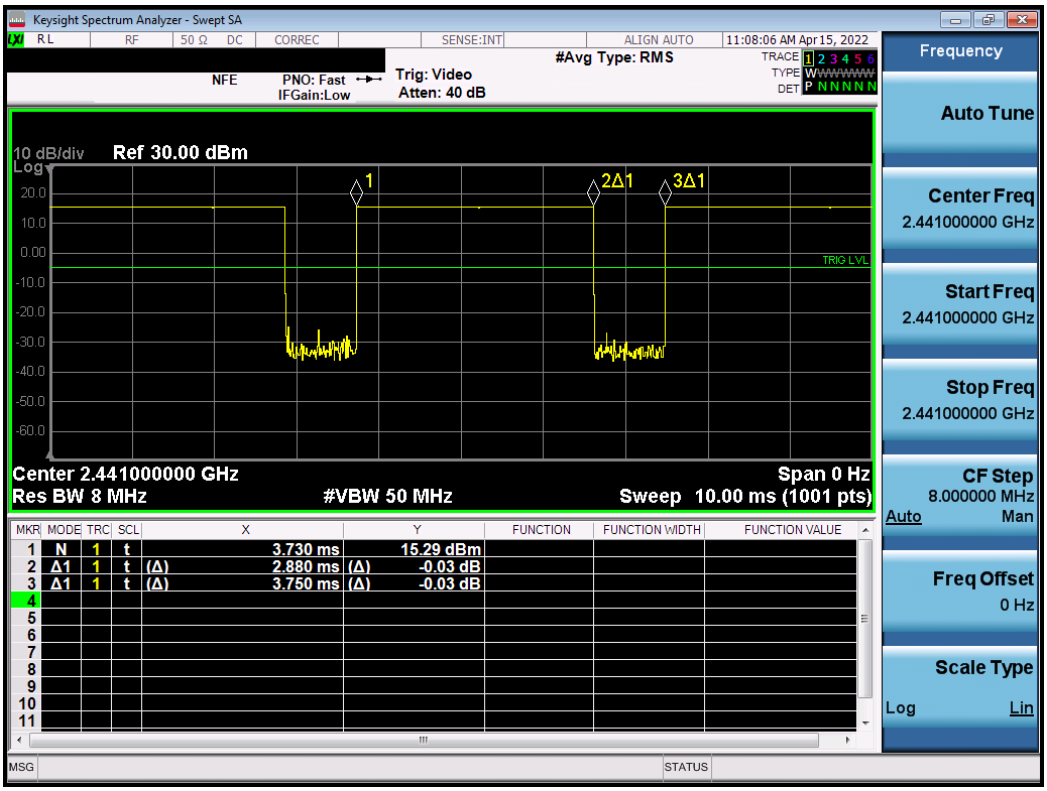

Figure 9-6
Bluetooth Antenna 2 Transmission Plot

Equation 9-2
Bluetooth Antenna 2 Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.88ms}{3.75ms} * 100\% = 76.80\%$$

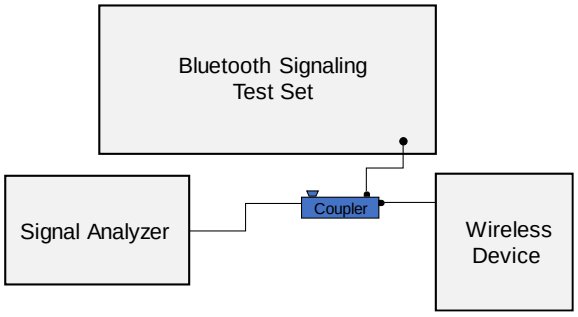

Figure 9-7
Power Measurement Setup

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
07/10/2022	30 Head	23.6	12	0.758	53.134	0.750	55.000	1.07%	-3.39%
			13	0.758	53.080	0.750	55.000	1.07%	-3.49%
			14	0.758	53.076	0.750	55.000	1.07%	-3.50%
			30	0.760	52.804	0.750	55.000	1.33%	-3.99%
			60	0.767	52.147	0.753	54.325	1.86%	-4.01%
			65	0.768	52.084	0.753	54.213	1.99%	-3.93%
07/20/2022	750 Head	20.4	680	0.882	41.544	0.888	42.305	-0.68%	-1.80%
			695	0.887	41.509	0.889	42.227	-0.22%	-1.70%
			700	0.888	41.492	0.889	42.201	-0.11%	-1.68%
			710	0.891	41.462	0.890	42.149	0.11%	-1.63%
			725	0.896	41.407	0.891	42.071	0.56%	-1.58%
			750	0.905	41.330	0.894	41.942	1.23%	-1.46%
			770	0.912	41.286	0.895	41.838	1.90%	-1.32%
			785	0.918	41.251	0.896	41.760	2.46%	-1.22%
			800	0.923	41.205	0.897	41.682	2.90%	-1.14%
06/29/2022	835 Head	20.5	815	0.921	42.342	0.898	41.594	2.56%	1.80%
			820	0.923	42.331	0.899	41.578	2.67%	1.81%
			835	0.929	42.300	0.900	41.500	3.22%	1.93%
			850	0.935	42.273	0.916	41.500	2.07%	1.86%
07/18/2022	835 Head	21.8	815	0.931	40.949	0.898	41.594	3.67%	-1.55%
			820	0.933	40.933	0.899	41.578	3.78%	-1.55%
			835	0.939	40.889	0.900	41.500	4.33%	-1.47%
			850	0.944	40.854	0.916	41.500	3.06%	-1.56%
07/17/2022	1750 Head	20.7	1710	1.376	39.830	1.348	40.142	2.08%	-0.78%
			1720	1.387	39.785	1.354	40.126	2.44%	-0.85%
			1745	1.415	39.686	1.368	40.087	3.44%	-1.00%
			1750	1.420	39.663	1.371	40.079	3.57%	-1.04%
			1770	1.440	39.560	1.383	40.047	4.12%	-1.22%
			1790	1.459	39.437	1.394	40.016	4.66%	-1.45%
07/13/2022	1900 Head	22.8	1850	1.396	38.416	1.400	40.000	-0.29%	-3.96%
			1860	1.405	38.367	1.400	40.000	0.36%	-4.08%
			1880	1.425	38.255	1.400	40.000	1.79%	-4.36%
			1900	1.449	38.155	1.400	40.000	3.50%	-4.61%
			1905	1.454	38.132	1.400	40.000	3.86%	-4.67%
			1910	1.460	38.110	1.400	40.000	4.29%	-4.73%
07/14/2022	2450 Head	20.7	2400	1.740	38.853	1.756	39.289	-0.91%	-1.11%
			2450	1.799	38.673	1.800	39.200	-0.06%	-1.34%
			2480	1.831	38.568	1.833	39.162	-0.11%	-1.52%
07/19/2022	2450 Head	21.5	2400	1.817	39.199	1.756	39.289	3.47%	-0.23%
			2450	1.873	38.996	1.800	39.200	4.06%	-0.52%
			2480	1.909	38.876	1.833	39.162	4.15%	-0.73%
07/24/2022	2450 Head	22.2	2400	1.701	39.687	1.756	39.289	-3.13%	1.01%
			2450	1.754	39.496	1.800	39.200	-2.56%	0.76%
			2480	1.788	39.389	1.833	39.162	-2.45%	0.58%
			2500	1.810	39.321	1.855	39.136	-2.43%	0.47%
			2510	1.821	39.285	1.866	39.123	-2.41%	0.41%
			2535	1.847	39.190	1.893	39.092	-2.43%	0.25%
			2550	1.864	39.134	1.909	39.073	-2.36%	0.16%
			2560	1.876	39.099	1.920	39.060	-2.29%	0.10%
			2600	1.922	38.967	1.964	39.009	-2.14%	-0.11%
			2650	1.978	38.763	2.018	38.945	-1.98%	-0.47%
			2680	2.014	38.671	2.051	38.907	-1.80%	-0.61%

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
07/11/2022	5200-5800 Head	20.7	5180	4.475	35.206	4.635	36.009	-3.45%	-2.23%
			5190	4.487	35.181	4.645	35.998	-3.40%	-2.27%
			5200	4.500	35.150	4.655	35.986	-3.33%	-2.32%
			5210	4.511	35.126	4.666	35.975	-3.32%	-2.36%
			5220	4.525	35.099	4.676	35.963	-3.23%	-2.40%
			5240	4.546	35.072	4.696	35.940	-3.19%	-2.42%
			5250	4.558	35.064	4.706	35.929	-3.14%	-2.41%
			5260	4.566	35.042	4.717	35.917	-3.20%	-2.44%
			5270	4.577	35.023	4.727	35.906	-3.17%	-2.46%
			5280	4.587	35.008	4.737	35.894	-3.17%	-2.47%
			5290	4.597	34.993	4.748	35.883	-3.18%	-2.48%
			5300	4.608	34.975	4.758	35.871	-3.15%	-2.50%
			5310	4.616	34.947	4.768	35.860	-3.19%	-2.55%
			5320	4.628	34.930	4.778	35.849	-3.14%	-2.56%
			5500	4.829	34.631	4.963	35.643	-2.70%	-2.84%
			5510	4.841	34.617	4.973	35.632	-2.65%	-2.85%
			5520	4.851	34.602	4.983	35.620	-2.65%	-2.86%
			5530	4.863	34.593	4.994	35.609	-2.62%	-2.85%
			5540	4.875	34.582	5.004	35.597	-2.58%	-2.85%
			5550	4.885	34.566	5.014	35.586	-2.57%	-2.87%
			5560	4.896	34.545	5.024	35.574	-2.55%	-2.89%
			5580	4.922	34.493	5.045	35.551	-2.44%	-2.98%
			5600	4.944	34.466	5.065	35.529	-2.39%	-2.99%
			5610	4.953	34.453	5.076	35.518	-2.42%	-3.00%
			5620	4.966	34.431	5.086	35.506	-2.36%	-3.03%
			5640	4.984	34.403	5.106	35.483	-2.39%	-3.04%
			5660	5.007	34.358	5.127	35.460	-2.34%	-3.11%
			5670	5.021	34.343	5.137	35.449	-2.26%	-3.12%
			5680	5.036	34.324	5.147	35.437	-2.16%	-3.14%
			5690	5.048	34.311	5.158	35.426	-2.13%	-3.15%
			5700	5.061	34.290	5.168	35.414	-2.07%	-3.17%
			5710	5.071	34.275	5.178	35.403	-2.07%	-3.19%
			5720	5.085	34.261	5.188	35.391	-1.99%	-3.19%
			5745	5.110	34.207	5.214	35.363	-1.99%	-3.27%
			5750	5.114	34.195	5.219	35.357	-2.01%	-3.29%
			5755	5.118	34.188	5.224	35.351	-2.03%	-3.29%
			5765	5.128	34.175	5.234	35.340	-2.03%	-3.30%
			5775	5.142	34.164	5.245	35.329	-1.96%	-3.30%
			5785	5.153	34.145	5.255	35.317	-1.94%	-3.32%
			5795	5.167	34.131	5.265	35.305	-1.86%	-3.33%
			5805	5.178	34.113	5.275	35.294	-1.84%	-3.35%
			5825	5.200	34.066	5.296	35.271	-1.81%	-3.42%
			5835	5.212	34.046	5.305	35.230	-1.75%	-3.36%
			5845	5.224	34.033	5.315	35.210	-1.71%	-3.34%
			5855	5.235	34.026	5.325	35.197	-1.69%	-3.33%
			5875	5.255	34.012	5.347	35.183	-1.72%	-3.33%
			5885	5.269	33.986	5.357	35.177	-1.64%	-3.39%
			5905	5.290	33.946	5.379	35.163	-1.65%	-3.46%

Table 10-3
Measured Body 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
07/07/2022	750 Body	20.4	680	0.911	53.452	0.958	55.804	-4.91%	-4.21%
			695	0.916	53.427	0.959	55.745	-4.48%	-4.16%
			700	0.918	53.419	0.959	55.726	-4.28%	-4.14%
			710	0.921	53.401	0.960	55.687	-4.06%	-4.11%
			725	0.927	53.358	0.961	55.629	-3.54%	-4.08%
			750	0.936	53.296	0.964	55.531	-2.90%	-4.02%
			770	0.943	53.251	0.965	55.453	-2.28%	-3.97%
			785	0.949	53.211	0.966	55.395	-1.76%	-3.94%
			800	0.955	53.172	0.967	55.336	-1.24%	-3.91%
07/11/2022	750 Body	21.7	680	0.915	53.793	0.958	55.804	-4.49%	-3.60%
			695	0.920	53.764	0.959	55.745	-4.07%	-3.55%
			700	0.922	53.756	0.959	55.726	-3.86%	-3.54%
			710	0.925	53.735	0.960	55.687	-3.65%	-3.51%
			725	0.930	53.695	0.961	55.629	-3.23%	-3.48%
			750	0.939	53.633	0.964	55.531	-2.59%	-3.42%
			770	0.946	53.591	0.965	55.453	-1.97%	-3.36%
			785	0.952	53.558	0.966	55.395	-1.45%	-3.32%
			800	0.957	53.524	0.967	55.336	-1.03%	-3.27%
07/11/2022	835 Body	21.5	815	0.981	55.236	0.968	55.271	1.34%	-0.06%
			820	0.986	55.189	0.969	55.258	1.75%	-0.12%
			835	1.002	55.056	0.970	55.200	3.30%	-0.26%
			850	1.018	54.919	0.988	55.154	3.04%	-0.43%
07/13/2022	835 Body	21.5	815	0.985	54.923	0.968	55.271	1.76%	-0.63%
			820	0.990	54.874	0.969	55.258	2.17%	-0.69%
			835	1.006	54.729	0.970	55.200	3.71%	-0.85%
			850	1.022	54.592	0.988	55.154	3.44%	-1.02%
07/14/2022	835 Body	22.0	815	0.984	54.845	0.968	55.271	1.65%	-0.77%
			820	0.989	54.798	0.969	55.258	2.06%	-0.83%
			835	1.006	54.663	0.970	55.200	3.71%	-0.97%
			850	1.022	54.533	0.988	55.154	3.44%	-1.13%
07/18/2022	835 Body	21.4	815	0.979	54.618	0.968	55.271	1.14%	-1.18%
			820	0.984	54.565	0.969	55.258	1.55%	-1.25%
			835	1.000	54.413	0.970	55.200	3.09%	-1.43%
			850	1.016	54.272	0.988	55.154	2.83%	-1.60%
07/11/2022	1750 Body	20.5	1710	1.495	51.438	1.463	53.537	2.19%	-3.92%
			1720	1.507	51.396	1.469	53.511	2.59%	-3.95%
			1745	1.535	51.294	1.485	53.445	3.37%	-4.02%
			1750	1.540	51.272	1.488	53.432	3.49%	-4.04%
			1770	1.562	51.183	1.501	53.379	4.06%	-4.11%
			1790	1.583	51.085	1.514	53.326	4.56%	-4.20%
07/13/2022	1750 Body	21.6	1710	1.469	51.083	1.463	53.537	0.41%	-4.58%
			1720	1.481	51.042	1.469	53.511	0.82%	-4.61%
			1745	1.509	50.936	1.485	53.445	1.62%	-4.69%
			1750	1.514	50.915	1.488	53.432	1.75%	-4.71%
			1770	1.535	50.824	1.501	53.379	2.27%	-4.79%
			1790	1.555	50.730	1.514	53.326	2.71%	-4.87%
07/05/2022	1900 Body	20.8	1850	1.498	52.113	1.520	53.300	-1.45%	-2.23%
			1860	1.509	52.084	1.520	53.300	-0.72%	-2.28%
			1880	1.528	52.008	1.520	53.300	0.53%	-2.42%
			1900	1.547	51.920	1.520	53.300	1.78%	-2.59%
			1905	1.552	51.901	1.520	53.300	2.11%	-2.62%
			1910	1.557	51.881	1.520	53.300	2.43%	-2.66%
07/21/2022	1900 Body	22.9	1850	1.500	53.130	1.520	53.300	-1.32%	-0.32%
			1860	1.512	53.109	1.520	53.300	-0.53%	-0.36%
			1880	1.532	53.058	1.520	53.300	0.79%	-0.45%
			1900	1.553	52.981	1.520	53.300	2.17%	-0.60%
			1905	1.558	52.959	1.520	53.300	2.50%	-0.64%
			1910	1.564	52.937	1.520	53.300	2.89%	-0.68%

Table 10-4
Measured Body 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
07/05/2022	2450 Body	24.0	2400	1.919	51.368	1.902	52.767	0.89%	-2.65%
			2450	1.984	51.185	1.950	52.700	1.74%	-2.87%
			2480	2.026	51.097	1.993	52.662	1.66%	-2.97%
			2500	2.052	51.041	2.021	52.636	1.53%	-3.03%
			2510	2.064	51.007	2.035	52.623	1.43%	-3.07%
			2535	2.098	50.898	2.071	52.592	1.30%	-3.22%
			2550	2.121	50.839	2.092	52.573	1.39%	-3.30%
			2560	2.136	50.807	2.106	52.560	1.42%	-3.34%
			2600	2.192	50.692	2.163	52.509	1.34%	-3.46%
			2650	2.264	50.459	2.234	52.445	1.34%	-3.79%
			2680	2.308	50.372	2.277	52.407	1.36%	-3.88%
07/07/2022	2450 Body	24.1	2400	1.895	51.101	1.902	52.767	-0.37%	-3.16%
			2450	1.963	50.917	1.950	52.700	0.67%	-3.38%
			2480	2.003	50.819	1.993	52.662	0.50%	-3.50%
			2500	2.027	50.751	2.021	52.636	0.30%	-3.58%
			2510	2.041	50.715	2.035	52.623	0.29%	-3.63%
			2535	2.075	50.617	2.071	52.592	0.19%	-3.76%
			2550	2.098	50.560	2.092	52.573	0.29%	-3.83%
			2560	2.113	50.524	2.106	52.560	0.33%	-3.87%
			2600	2.166	50.382	2.163	52.509	0.14%	-4.05%
			2650	2.235	50.170	2.234	52.445	0.04%	-4.34%
			2680	2.276	50.066	2.277	52.407	-0.04%	-4.47%
07/05/2022	5200-5800 Body	20.8	5180	5.306	48.577	5.276	49.041	0.57%	-0.95%
			5190	5.323	48.566	5.288	49.028	0.66%	-0.94%
			5200	5.341	48.557	5.299	49.014	0.79%	-0.93%
			5210	5.356	48.540	5.311	49.001	0.85%	-0.94%
			5220	5.370	48.520	5.323	48.987	0.88%	-0.95%
			5240	5.400	48.477	5.346	48.960	1.01%	-0.99%
			5250	5.414	48.457	5.358	48.947	1.05%	-1.00%
			5260	5.431	48.450	5.369	48.933	1.15%	-0.99%
			5270	5.449	48.435	5.381	48.919	1.26%	-0.99%
			5280	5.463	48.413	5.393	48.906	1.30%	-1.01%
			5290	5.473	48.371	5.404	48.892	1.28%	-1.07%
			5300	5.485	48.340	5.416	48.879	1.27%	-1.10%
			5310	5.498	48.316	5.428	48.865	1.29%	-1.12%
			5320	5.520	48.301	5.439	48.851	1.49%	-1.13%
			5500	5.780	47.953	5.650	48.607	2.30%	-1.35%
			5510	5.796	47.920	5.661	48.594	2.38%	-1.39%
			5520	5.809	47.911	5.673	48.580	2.40%	-1.38%
			5530	5.822	47.892	5.685	48.566	2.41%	-1.39%
			5540	5.836	47.873	5.696	48.553	2.46%	-1.40%
			5550	5.852	47.862	5.708	48.539	2.52%	-1.39%
			5560	5.870	47.852	5.720	48.526	2.62%	-1.39%
			5580	5.898	47.813	5.743	48.499	2.70%	-1.41%
			5600	5.927	47.759	5.766	48.471	2.79%	-1.47%
			5610	5.944	47.748	5.778	48.458	2.87%	-1.47%
			5620	5.956	47.725	5.790	48.444	2.87%	-1.48%
			5640	5.992	47.678	5.813	48.417	3.08%	-1.53%
			5660	6.029	47.626	5.837	48.390	3.29%	-1.58%
			5670	6.038	47.608	5.848	48.376	3.25%	-1.59%
			5680	6.055	47.592	5.860	48.363	3.33%	-1.59%
			5690	6.073	47.575	5.872	48.349	3.42%	-1.60%
			5700	6.091	47.550	5.883	48.336	3.54%	-1.63%
			5710	6.109	47.542	5.895	48.322	3.63%	-1.61%
			5720	6.120	47.519	5.907	48.309	3.61%	-1.64%
			5745	6.151	47.465	5.936	48.275	3.62%	-1.68%
			5750	6.161	47.458	5.942	48.268	3.69%	-1.68%
			5755	6.170	47.454	5.947	48.261	3.75%	-1.67%
			5765	6.186	47.445	5.959	48.248	3.81%	-1.66%
			5775	6.201	47.413	5.971	48.234	3.85%	-1.70%
			5785	6.214	47.395	5.982	48.220	3.88%	-1.71%
			5795	6.233	47.377	5.994	48.207	3.99%	-1.72%
			5800	6.242	47.356	6.000	48.200	4.03%	-1.75%
			5805	6.249	47.351	6.006	48.193	4.05%	-1.75%
			5825	6.278	47.322	6.029	48.166	4.13%	-1.75%
			5835	6.290	47.304	6.042	48.130	4.10%	-1.72%
			5845	6.306	47.280	6.054	48.110	4.16%	-1.73%
			5855	6.325	47.249	6.066	48.093	4.27%	-1.75%
			5865	6.345	47.237	6.077	48.080	4.41%	-1.75%
			5875	6.365	47.217	6.088	48.067	4.55%	-1.77%
			5885	6.378	47.199	6.100	48.053	4.56%	-1.78%
			5905	6.396	47.172	6.122	48.027	4.48%	-1.78%

Table 10-5
Measured Body 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
07/11/2022	5200-5800 Body	21.0	5180	5.321	48.973	5.276	49.041	0.85%	-0.14%
			5190	5.335	48.957	5.288	49.028	0.89%	-0.14%
			5200	5.346	48.947	5.299	49.014	0.89%	-0.14%
			5210	5.359	48.923	5.311	49.001	0.90%	-0.16%
			5220	5.375	48.908	5.323	48.987	0.98%	-0.16%
			5240	5.411	48.863	5.346	48.960	1.22%	-0.20%
			5250	5.419	48.857	5.358	48.947	1.14%	-0.18%
			5260	5.435	48.831	5.369	48.933	1.23%	-0.21%
			5270	5.450	48.809	5.381	48.919	1.28%	-0.22%
			5280	5.471	48.775	5.393	48.906	1.45%	-0.27%
			5290	5.485	48.750	5.404	48.892	1.50%	-0.29%
			5300	5.498	48.738	5.416	48.879	1.51%	-0.29%
			5310	5.516	48.722	5.428	48.865	1.62%	-0.29%
			5320	5.530	48.710	5.439	48.851	1.67%	-0.29%
			5500	5.793	48.369	5.650	48.607	2.53%	-0.49%
			5510	5.812	48.353	5.661	48.594	2.67%	-0.50%
			5520	5.828	48.329	5.673	48.580	2.73%	-0.52%
			5530	5.842	48.298	5.685	48.566	2.76%	-0.55%
			5540	5.860	48.261	5.696	48.553	2.88%	-0.60%
			5550	5.870	48.242	5.708	48.539	2.84%	-0.61%
			5560	5.884	48.231	5.720	48.526	2.87%	-0.61%
			5580	5.917	48.198	5.743	48.499	3.03%	-0.62%
			5600	5.954	48.158	5.766	48.471	3.26%	-0.65%
			5610	5.969	48.143	5.778	48.458	3.31%	-0.65%
			5620	5.984	48.124	5.790	48.444	3.35%	-0.66%
			5640	6.014	48.073	5.813	48.417	3.46%	-0.71%
			5660	6.046	48.036	5.837	48.390	3.58%	-0.73%
			5670	6.060	48.027	5.848	48.376	3.63%	-0.72%
			5680	6.071	48.009	5.860	48.363	3.60%	-0.73%
			5690	6.087	47.972	5.872	48.349	3.66%	-0.78%
			5700	6.101	47.950	5.883	48.336	3.71%	-0.80%
			5710	6.113	47.942	5.895	48.322	3.70%	-0.79%
			5720	6.128	47.930	5.907	48.309	3.74%	-0.78%
			5745	6.172	47.854	5.936	48.275	3.98%	-0.87%
			5750	6.180	47.851	5.942	48.268	4.01%	-0.86%
			5755	6.188	47.840	5.947	48.261	4.05%	-0.87%
			5765	6.203	47.815	5.959	48.248	4.09%	-0.90%
			5775	6.217	47.791	5.971	48.234	4.12%	-0.92%
			5785	6.233	47.772	5.982	48.220	4.20%	-0.93%
			5795	6.250	47.758	5.994	48.207	4.27%	-0.93%
			5800	6.259	47.745	6.000	48.200	4.32%	-0.94%
			5805	6.263	47.735	6.006	48.193	4.28%	-0.95%
			5825	6.300	47.701	6.029	48.166	4.49%	-0.97%
			5835	6.317	47.684	6.042	48.130	4.55%	-0.93%
			5845	6.332	47.678	6.054	48.110	4.59%	-0.90%
			5855	6.343	47.663	6.066	48.093	4.57%	-0.89%
			5865	6.358	47.636	6.077	48.080	4.62%	-0.92%
			5875	6.377	47.600	6.088	48.067	4.75%	-0.97%
			5885	6.391	47.574	6.100	48.053	4.77%	-1.00%
			5905	6.418	47.545	6.122	48.027	4.84%	-1.00%

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.

10.2 Test System Verification

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

Table 10-6
System Verification Results – 1g

System Verification TARGET & MEASURED												
SAR System	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp. (C)	Liquid Temp. (C)	Input Power (W)	Source SN	Probe SN	Measured SAR1g (W/kg)	1W Target SAR1g (W/kg)	1W Normalized SAR 1g (W/kg)	Deviation1g (%)
K2	750	HEAD	07/20/2022	20.0	20.4	0.20	1003	7640	1.690	8.59	8.450	-1.63%
K5	835	HEAD	06/29/2022	20.9	20.5	0.20	4d119	7402	1.920	9.66	9.600	-0.62%
K2	835	HEAD	07/18/2022	21.3	21.8	0.20	4d180	7640	1.880	9.75	9.400	-3.59%
S	1750	HEAD	07/17/2022	21.0	20.5	0.10	1008	7552	3.790	37.40	37.900	1.34%
S	1900	HEAD	07/13/2022	22.2	22.3	0.10	5d148	7552	3.970	40.10	39.700	-1.00%
P	2450	HEAD	07/14/2022	22.9	20.7	0.10	981	7409	5.120	53.90	51.200	-5.01%
P	2450	HEAD	07/19/2022	22.7	21.8	0.10	981	7409	5.070	53.90	50.700	-5.94%
P	2450	HEAD	07/24/2022	23.3	22.2	0.10	981	7409	5.210	53.90	52.100	-3.34%
P	2600	HEAD	07/24/2022	23.3	22.2	0.10	1071	7409	5.520	56.10	55.200	-1.60%
O	5250	HEAD	07/11/2022	23.3	21.7	0.05	1057	7417	3.710	81.20	74.200	-8.62%
O	5600	HEAD	07/11/2022	23.3	21.7	0.05	1057	7417	4.130	84.20	82.600	-1.90%
O	5750	HEAD	07/11/2022	23.3	21.7	0.05	1057	7417	3.980	80.80	79.600	-1.49%
O	5800	HEAD	07/11/2022	23.3	21.7	0.05	1057	7417	3.770	82.10	75.400	-8.16%
K3	750	BODY	07/07/2022	21.8	20.4	0.20	1046	7565	1.690	8.68	8.450	-2.65%
K3	750	BODY	07/11/2022	22.1	21.7	0.20	1046	7565	1.670	8.68	8.350	-3.80%
K5	835	BODY	07/11/2022	22.0	21.5	0.20	4d119	7402	2.060	9.91	10.300	3.94%
K5	835	BODY	07/14/2022	22.0	22.1	0.20	4d119	7402	1.990	9.91	9.950	0.40%
K5	835	BODY	07/18/2022	21.7	21.4	0.20	4d119	7402	1.980	9.91	9.900	-0.10%
I	1750	BODY	07/11/2022	20.5	20.1	0.10	1150	7660	3.800	37.80	38.000	0.53%
I	1750	BODY	07/13/2022	21.3	21.3	0.10	1150	7660	3.760	37.80	37.600	-0.53%
E	1900	BODY	07/05/2022	20.9	20.8	0.10	5d148	7538	4.330	39.90	43.300	8.52%
E	1900	BODY	07/21/2022	20.9	21.6	0.10	5d149	7538	3.980	40.40	39.800	-1.49%
S	2450	BODY	07/05/2022	22.2	22.0	0.10	719	7552	5.040	52.00	50.400	-3.08%
S	2450	BODY	07/07/2022	22.2	22.1	0.10	719	7552	5.080	52.00	50.800	-2.31%
S	2600	BODY	07/05/2022	22.2	22.0	0.10	1004	7552	5.510	55.40	55.100	-0.54%
O	5250	BODY	07/05/2022	22.1	20.8	0.05	1057	7417	3.380	74.20	67.600	-8.89%
O	5250	BODY	07/11/2022	22.5	21.0	0.05	1057	7417	3.400	74.20	68.000	-8.36%
O	5600	BODY	07/05/2022	22.1	20.8	0.05	1057	7417	3.640	77.00	72.800	-5.45%
O	5600	BODY	07/11/2022	22.5	21.0	0.05	1057	7417	3.830	77.00	76.600	-0.52%
O	5750	BODY	07/05/2022	22.1	20.8	0.05	1057	7417	3.390	74.90	67.800	-9.48%
O	5750	BODY	07/11/2022	22.5	21.0	0.05	1057	7417	3.520	74.90	70.400	-6.01%
O	5800	BODY	07/05/2022	22.1	20.8	0.05	1057	7417	3.520	74.80	70.400	-5.88%
O	5800	BODY	07/11/2022	22.5	21.0	0.05	1057	7417	3.400	74.80	68.000	-9.09%

Table 10-7
System Verification Results – 10g

System Verification TARGET & MEASURED												
SAR System	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp. (C)	Liquid Temp. (C)	Input Power (W)	Source SN	Probe SN	Measured SAR10g (W/kg)	1W Target SAR10g (W/kg)	1W Normalized SAR10g (W/kg)	Deviation10g (%)
G	13	HEAD	07/10/2022	22.1	22.0	1.00	1002	7527	0.328	0.34	0.328	-4.65%
K5	835	BODY	07/13/2022	21.9	21.5	0.20	4d119	7402	1.270	6.59	6.350	-3.64%
I	1750	BODY	07/13/2022	21.3	21.3	0.10	1150	7660	1.980	20.00	19.800	-1.00%
E	1900	BODY	07/05/2022	20.9	20.8	0.10	5d148	7538	2.220	20.90	22.200	6.22%
S	2450	BODY	07/07/2022	22.2	22.1	0.10	719	7552	2.330	24.70	23.300	-5.67%
S	2600	BODY	07/07/2022	22.2	22.1	0.10	1004	7552	2.300	24.80	23.000	-7.26%
O	5250	BODY	07/11/2022	22.5	21.0	0.05	1057	7417	0.950	20.60	19.000	-7.77%
O	5600	BODY	07/11/2022	22.5	21.0	0.05	1057	7417	1.050	21.20	21.000	-0.94%
O	5750	BODY	07/11/2022	22.5	21.0	0.05	1057	7417	0.990	20.70	19.800	-4.35%
O	5800	BODY	07/11/2022	22.5	21.0	0.05	1057	7417	0.960	20.50	19.200	-6.34%

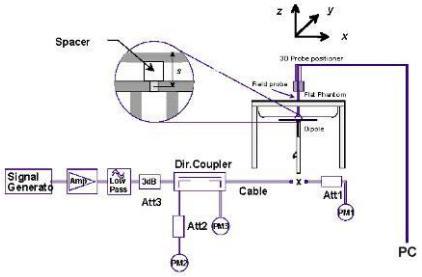

Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
GSM 850 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	Right	Cheek	GSM 850	GSM	A	Open	1175M	33.0	32.37	0.02	1:8.3	0.183	1.156	0.212	A1
836.60	190	Right	Tilt	GSM 850	GSM	A	Open	1175M	33.0	32.37	-0.02	1:8.3	0.082	1.156	0.095	
836.60	190	Left	Cheek	GSM 850	GSM	A	Open	1175M	33.0	32.37	0.02	1:8.3	0.140	1.156	0.162	
836.60	190	Left	Tilt	GSM 850	GSM	A	Open	1175M	33.0	32.37	-0.02	1:8.3	0.078	1.156	0.090	
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
GSM 1900 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1850.20	512	Right	Cheek	GSM 1900	GSM	A	Open	1104M	30.0	29.69	-0.03	1:8.3	0.028	1.074	0.030	A2
1850.20	512	Right	Tilt	GSM 1900	GSM	A	Open	1104M	30.0	29.69	0.20	1:8.3	0.010	1.074	0.011	
1850.20	512	Left	Cheek	GSM 1900	GSM	A	Open	1104M	30.0	29.69	-0.10	1:8.3	0.018	1.074	0.019	
1850.20	512	Left	Tilt	GSM 1900	GSM	A	Open	1104M	30.0	29.69	0.05	1:8.3	0.017	1.074	0.018	
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 11-3
UMTS 850 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
846.60	4233	Right	Cheek	UMTS 850	RMC	A	Open	1175M	22.0	21.39	0.05	1:1	0.205	1.151	**0.236**	A3
846.60	4233	Right	Tilt	UMTS 850	RMC	A	Open	1175M	22.0	21.39	0.09	1:1	0.110	1.151	0.127	
846.60	4233	Left	Cheek	UMTS 850	RMC	A	Open	1175M	22.0	21.39	0.07	1:1	0.198	1.151	0.228	
846.60	4233	Left	Tilt	UMTS 850	RMC	A	Open	1175M	22.0	21.39	0.02	1:1	0.106	1.151	0.122	
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 11-4
LTE Band 12 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Test Position	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
707.50	23095	Mid	Right	Cheek	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	0.00	1:1	0.222	1.093	**0.243**	A4
707.50	23095	Mid	Right	Cheek	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.03	1:1	0.171	1.110	0.190	
707.50	23095	Mid	Right	Tilt	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	-0.02	1:1	0.108	1.093	0.118	
707.50	23095	Mid	Right	Tilt	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.02	1:1	0.083	1.110	0.092	
707.50	23095	Mid	Left	Cheek	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	-0.06	1:1	0.187	1.093	0.204	
707.50	23095	Mid	Left	Cheek	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.01	1:1	0.146	1.110	0.162	
707.50	23095	Mid	Left	Tilt	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	0.00	1:1	0.109	1.093	0.119	
707.50	23095	Mid	Left	Tilt	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.00	1:1	0.084	1.110	0.093	
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 11-5
LTE Band 13 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Test Position	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot =
MHz	Ch.																	(W/kg)		(W/kg)	
782.00	23230	Mid	Right	Cheek	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	-0.04	1:1	0.150	1.188	0.178	A5
782.00	23230	Mid	Right	Cheek	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	0.00	1:1	0.124	1.195	0.148	
782.00	23230	Mid	Right	Tilt	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	-0.03	1:1	0.073	1.188	0.087	
782.00	23230	Mid	Right	Tilt	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	-0.02	1:1	0.062	1.195	0.074	
782.00	23230	Mid	Left	Cheek	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	-0.01	1:1	0.149	1.188	0.177	
782.00	23230	Mid	Left	Cheek	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	0.01	1:1	0.118	1.195	0.141	
782.00	23230	Mid	Left	Tilt	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	0.00	1:1	0.085	1.188	0.101	
782.00	23230	Mid	Left	Tilt	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	-0.04	1:1	0.066	1.195	0.079	
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 11-6
LTE Band 26 (Cell) Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Test Position	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
831.50	26865	Mid	Right	Cheek	LTE Band 26 (Cell)	A	Open	1175M	15	QPSK	1	36	25.0	24.01	0	0.07	1:1	0.138	1.256	0.173	
831.50	26865	Mid	Right	Cheek	LTE Band 26 (Cell)	A	Open	1175M	15	QPSK	36	37	24.0	23.04	1	0.07	1:1	0.108	1.247	0.135	
831.50	26865	Mid	Right	Tilt	LTE Band 26 (Cell)	A	Open	1175M	15	QPSK	1	36	25.0	24.01	0	0.10	1:1	0.072	1.256	0.090	
831.50	26865	Mid	Right	Tilt	LTE Band 26 (Cell)	A	Open	1175M	15	QPSK	36	37	24.0	23.04	1	0.10	1:1	0.055	1.247	0.069	
831.50	26865	Mid	Left	Cheek	LTE Band 26 (Cell)	A	Open	1175M	15	QPSK	1	36	25.0	24.01	0	0.03	1:1	0.153	1.256	0.192	A6
831.50	26865	Mid	Left	Cheek	LTE Band 26 (Cell)	A	Open	1175M	15	QPSK	36	37	24.0	23.04	1	0.01	1:1	0.122	1.247	0.152	
831.50	26865	Mid	Left	Tilt	LTE Band 26 (Cell)	A	Open	1175M	15	QPSK	1	36	25.0	24.01	0	0.02	1:1	0.089	1.256	0.112	
831.50	26865	Mid	Left	Tilt	LTE Band 26 (Cell)	A	Open	1175M	15	QPSK	36	37	24.0	23.04	1	0.13	1:1	0.067	1.247	0.084	
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 11-7
LTE Band 4 (AWS) Head SAR

MEASUREMENT RESULTS																							
FREQUENCY			Side	Test Position	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																				
1732.50	20175	Mid	Right	Cheek	LTE Band 4 (AWS)	A	Open	1104M	20	QPSK	1	50	23.5	22.66	0	0.05	1:1	0.047	1.214	0.057	
1732.50	20175	Mid	Right	Cheek	LTE Band 4 (AWS)	A	Open	1104M	20	QPSK	50	25	21.5	20.15	2	0.04	1:1	0.038	1.365	0.052	
1732.50	20175	Mid	Right	Tilt	LTE Band 4 (AWS)	A	Open	1104M	20	QPSK	1	50	23.5	22.66	0	-0.07	1:1	0.024	1.214	0.029	
1732.50	20175	Mid	Right	Tilt	LTE Band 4 (AWS)	A	Open	1104M	20	QPSK	50	25	21.5	20.15	2	-0.01	1:1	0.021	1.365	0.029	
1732.50	20175	Mid	Left	Cheek	LTE Band 4 (AWS)	A	Open	1104M	20	QPSK	1	50	23.5	22.66	0	-0.14	1:1	0.052	1.214	0.063	A7
1732.50	20175	Mid	Left	Cheek	LTE Band 4 (AWS)	A	Open	1104M	20	QPSK	50	25	21.5	20.15	2	0.01	1:1	0.046	1.365	0.063	
1732.50	20175	Mid	Left	Tilt	LTE Band 4 (AWS)	A	Open	1104M	20	QPSK	1	50	23.5	22.66	0	0.00	1:1	0.011	1.214	0.013	
1732.50	20175	Mid	Left	Tilt	LTE Band 4 (AWS)	A	Open	1104M	20	QPSK	50	25	21.5	20.15	2	0.04	1:1	0.015	1.365	0.020	

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 11-8
LTE Band 41 Head SAR

MEASUREMENT RESULTS																							
# CC Uplink	Component Carrier	FREQUENCY			Side	Test Position	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
		MHz	Ch.																				
1 CC Uplink	N/A	2636.50	41055	Mid-High	Right	Cheek	LTE Band 41	B	Open	1094M	20	QPSK	1	50	25.0	24.91	0	0.02	1:1.58	0.029	1.021	0.030	
1 CC Uplink	N/A	2636.50	41055	Mid-High	Right	Cheek	LTE Band 41	B	Open	1094M	20	QPSK	50	25	24.0	23.95	1	-0.16	1:1.58	0.021	1.011	0.021	
1 CC Uplink	N/A	2636.50	41055	Mid-High	Right	Tilt	LTE Band 41	B	Open	1094M	20	QPSK	1	50	25.0	24.91	0	-0.07	1:1.58	0.028	1.021	0.029	
1 CC Uplink	N/A	2636.50	41055	Mid-High	Right	Tilt	LTE Band 41	B	Open	1094M	20	QPSK	50	25	24.0	23.95	1	-0.02	1:1.58	0.019	1.011	0.019	
1 CC Uplink	N/A	2636.50	41055	Mid-High	Left	Cheek	LTE Band 41	B	Open	1094M	20	QPSK	1	0	25.0	24.55	0	-0.07	1:1.58	0.062	1.109	0.069	
1 CC Uplink	N/A	2636.50	41055	Mid-High	Left	Cheek	LTE Band 41	B	Open	1094M	20	QPSK	1	50	25.0	24.91	0	0.00	1:1.58	0.076	1.021	0.078	A7
1 CC Uplink	N/A	2636.50	41055	Mid-High	Left	Cheek	LTE Band 41	B	Open	1094M	20	QPSK	50	25	24.0	23.95	1	0.08	1:1.58	0.061	1.011	0.062	
2 CC Uplink	PCC	2636.50	41055	Mid-High	Left	Cheek	LTE Band 41	B	Open	1094M	20	QPSK	1	0	25.0	25.00	0	0.03	1:1.58	0.071	1.000	0.071	
	SCC	2616.70	40857											99									
1 CC Uplink	N/A	2636.50	41055	Mid-High	Left	Tilt	LTE Band 41	B	Open	1094M	20	QPSK	1	50	25.0	24.91	0	0.04	1:1.58	0.018	1.021	0.018	
1 CC Uplink	N/A	2636.50	41055	Mid-High	Left	Tilt	LTE Band 41	B	Open	1094M	20	QPSK	50	25	24.0	23.95	1	-0.04	1:1.58	0.014	1.011	0.014	

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 11-9
DTS Head SISO SAR

MEASUREMENT RESULTS																					
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																				
2462	11	Right	Cheek	802.11b	DSSS	1	Open	1152M	22	1	13.0	12.51	0.01	99.42	0.259	0.201	1.119	1.006	0.226	
2462	11	Right	Tilt	802.11b	DSSS	1	Open	1152M	22	1	13.0	12.51	0.09	99.42	0.171	-	1.119	1.006	-	
2462	11	Left	Cheek	802.11b	DSSS	1	Open	1152M	22	1	13.0	12.51	0.06	99.42	0.052	-	1.119	1.006	-	
2462	11	Left	Tilt	802.11b	DSSS	1	Open	1152M	22	1	13.0	12.51	0.03	99.42	0.051	-	1.119	1.006	-	
2462	11	Right	Cheek	802.11b	DSSS	2	Open	1152M	22	1	13.0	12.89	0.07	99.42	0.133	-	1.026	1.006	-	
2462	11	Right	Tilt	802.11b	DSSS	2	Open	1152M	22	1	13.0	12.89	0.02	99.42	0.104	-	1.026	1.006	-	
2462	11	Left	Cheek	802.11b	DSSS	2	Open	1152M	22	1	13.0	12.89	0.01	99.42	0.361	0.247	1.026	1.006	0.255	A9
2462	11	Left	Tilt	802.11b	DSSS	2	Open	1152M	22	1	13.0	12.89	0.00	99.42	0.276	-	1.026	1.006	-	

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 11-10
DTS Head MIMO SAR

MEASUREMENT RESULTS																						
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.																W/kg	(W/kg)			(W/kg)	
2437	6	Right	Cheek	802.11n	OFDM	MIMO	Open	1100M	20	13	13.0	12.47	13.0	12.61	0.03	97.94	0.243	-	1.130	1.021	-	
2437	6	Right	Tilt	802.11n	OFDM	MIMO	Open	1100M	20	13	13.0	12.47	13.0	12.61	-0.03	97.94	0.238	-	1.130	1.021	-	
2437	6	Left	Cheek	802.11n	OFDM	MIMO	Open	1100M	20	13	13.0	12.47	13.0	12.61	-0.02	97.94	0.342	0.243	1.130	1.021	0.280	
2437	6	Left	Tilt	802.11n	OFDM	MIMO	Open	1100M	20	13	13.0	12.47	13.0	12.61	0.02	97.94	0.303	-	1.130	1.021	-	
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: To achieve the 16.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 13.0 dBm.

Table 11-11
NII SISO Head SAR

MEASUREMENT RESULTS																					
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5290	58	Right	Cheek	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.57	0.01	95.99	0.189	0.118	1.104	1.042	**0.136**	
5290	58	Right	Tilt	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.57	0.09	95.99	0.155	0.102	1.104	1.042	0.117	
5290	58	Left	Cheek	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.57	0.09	95.99	0.050	0.023	1.104	1.042	0.026	
5290	58	Left	Tilt	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.57	0.01	95.99	0.065	0.064	1.104	1.042	0.074	
5610	122	Right	Cheek	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.82	0.08	95.99	0.102	0.097	1.042	1.042	0.105	
5610	122	Right	Tilt	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.82	0.05	95.99	0.164	0.085	1.042	1.042	0.092	
5610	122	Left	Cheek	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.82	0.03	95.99	0.045	0.021	1.042	1.042	0.023	
5610	122	Left	Tilt	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.82	0.06	95.99	0.055	0.047	1.042	1.042	0.051	
5775	155	Right	Cheek	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.66	0.02	95.99	0.073	0.062	1.081	1.042	0.070	
5775	155	Right	Tilt	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.66	-0.06	95.99	0.141	0.100	1.081	1.042	0.113	
5775	155	Left	Cheek	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.66	0.01	95.99	0.062	0.028	1.081	1.042	0.032	
5775	155	Left	Tilt	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.66	0.00	95.99	0.054	0.038	1.081	1.042	0.043	
5855	171	Right	Cheek	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.77	0.08	95.99	0.102	0.058	1.054	1.042	0.064	
5855	171	Right	Tilt	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.77	0.07	95.99	0.068	0.104	1.054	1.042	0.114	
5855	171	Left	Cheek	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.77	0.08	95.99	0.061	0.032	1.054	1.042	0.035	
5855	171	Left	Tilt	802.11ac	OFDM	1	Open	1100M	80	29.3	11.0	10.77	0.08	95.99	0.056	0.025	1.054	1.042	0.027	
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 11-12
NII MIMO Head SAR

MEASUREMENT RESULTS																						
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.																W/kg	(W/kg)			(W/kg)	
5290	58	Right	Cheek	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.57	11.0	10.59	0.05	92.36	0.303	0.241	1.104	1.083	0.288	A10
5290	58	Right	Tilt	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.57	11.0	10.59	0.09	92.36	0.173	0.130	1.104	1.083	0.155	
5290	58	Left	Cheek	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.57	11.0	10.59	0.09	92.36	0.136	0.089	1.104	1.083	0.106	
5290	58	Left	Tilt	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.57	11.0	10.59	0.05	92.36	0.135	0.099	1.104	1.083	0.118	
5610	122	Right	Cheek	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.82	11.0	10.62	0.01	92.36	0.166	0.153	1.091	1.083	0.181	
5610	122	Right	Tilt	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.82	11.0	10.62	0.11	92.36	0.185	0.101	1.091	1.083	0.119	
5610	122	Left	Cheek	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.82	11.0	10.62	-0.14	92.36	0.216	0.160	1.091	1.083	0.189	
5610	122	Left	Tilt	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.82	11.0	10.62	-0.14	92.36	0.158	0.099	1.091	1.083	0.117	
5775	155	Right	Cheek	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.66	11.0	10.79	0.12	92.36	0.133	0.119	1.081	1.083	**0.139**	
5775	155	Right	Tilt	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.66	11.0	10.79	0.08	92.36	0.128	0.063	1.081	1.083	0.074	
5775	155	Left	Cheek	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.66	11.0	10.79	0.16	92.36	0.216	0.163	1.081	1.083	0.191	
5775	155	Left	Tilt	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.66	11.0	10.79	0.14	92.36	0.199	0.129	1.081	1.083	0.151	
5855	171	Right	Cheek	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.77	11.0	10.88	0.08	92.36	0.116	0.108	1.054	1.083	0.123	
5855	171	Right	Tilt	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.77	11.0	10.88	0.09	92.36	0.110	0.053	1.054	1.083	0.060	
5855	171	Left	Cheek	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.77	11.0	10.88	-0.08	92.36	0.248	0.158	1.054	1.083	0.180	
5855	171	Left	Tilt	802.11ac	OFDM	MIMO	Open	1100M	80	58.5	11.0	10.77	11.0	10.88	-0.08	92.36	0.214	0.133	1.054	1.083	0.152	
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: To achieve the 14.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 11.0 dBm.

Table 11-13
DSS Head SISO SAR

MEASUREMENT RESULTS																	
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													(W/kg)			(W/kg)	
2441	39	Right	Cheek	Bluetooth	FHSS	1	Open	1100M	1	11.5	11.45	-0.06	76.8	0.079	1.012	1.302	0.104	
2441	39	Right	Tilt	Bluetooth	FHSS	1	Open	1100M	1	11.5	11.45	0.14	76.8	0.070	1.012	1.302	0.092	
2441	39	Left	Cheek	Bluetooth	FHSS	1	Open	1100M	1	11.5	11.45	0.16	76.8	0.020	1.012	1.302	0.026	
2441	39	Left	Tilt	Bluetooth	FHSS	1	Open	1100M	1	11.5	11.45	0.05	76.8	0.018	1.012	1.302	0.024	
2402	0	Right	Cheek	Bluetooth	FHSS	2	Open	1100M	1	11.5	10.19	0.03	76.8	0.064	1.352	1.302	0.113	
2402	0	Right	Tilt	Bluetooth	FHSS	2	Open	1100M	1	11.5	10.19	0.03	76.8	0.053	1.352	1.302	0.093	
2402	0	Left	Cheek	Bluetooth	FHSS	2	Open	1100M	1	11.5	10.19	-0.06	76.8	0.084	1.352	1.302	0.148	
2402	0	Left	Tilt	Bluetooth	FHSS	2	Open	1100M	1	11.5	10.19	-0.13	76.8	0.092	1.352	1.302	0.162	A11
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram								

11.2 Standalone Body-Worn SAR Data

Table 11-14
GSM Body-Worn SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	back	15 mm	GSM 850	GSM	A	Open	1192M	33.0	32.37	-0.02	1:8.3	0.108	1.156	0.125	
836.60	190	back	15 mm	GSM 850	GSM	A	Closed	1192M	33.0	32.37	-0.06	1:8.3	0.161	1.156	0.186	A12
1850.20	512	back	15 mm	GSM 1900	GSM	A	Open	1104M	30.0	29.69	0.04	1:8.3	0.284	1.074	0.305	A13
1850.20	512	back	15 mm	GSM 1900	GSM	A	Closed	1104M	30.0	29.69	-0.10	1:8.3	0.091	1.074	0.098	
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 11-15
UMTS Body-Worn SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
846.60	4233	back	15 mm	UMTS 850	RMC	A	Open	1192M	24.5	23.86	-0.03	1:1	0.147	1.159	0.170	
846.60	4233	back	15 mm	UMTS 850	RMC	A	Closed	1192M	24.5	23.86	0.01	1:1	0.295	1.159	0.342	A14
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 11-16
LTE Body-Worn SAR

MEASUREMENT RESULTS																								
# CC Uplink	Component Carrier	FREQUENCY			Side	Spacing	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.																	(W/kg)		(W/kg)	
1 CC Uplink	N/A	707.50	23095	Mid	back	15 mm	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	0.03	1:1	0.270	1.093	0.295	A15
1 CC Uplink	N/A	707.50	23095	Mid	back	15 mm	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.03	1:1	0.208	1.110	0.231	
1 CC Uplink	N/A	707.50	23095	Mid	back	15 mm	LTE Band 12	A	Closed	1175M	10	QPSK	1	25	25.0	24.61	0	-0.02	1:1	0.192	1.093	0.210	
1 CC Uplink	N/A	707.50	23095	Mid	back	15 mm	LTE Band 12	A	Closed	1175M	10	QPSK	25	12	24.0	23.55	1	0.03	1:1	0.148	1.110	0.164	
1 CC Uplink	N/A	782.00	23230	Mid	back	15 mm	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	0.03	1:1	0.155	1.188	0.184	
1 CC Uplink	N/A	782.00	23230	Mid	back	15 mm	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	0.00	1:1	0.130	1.195	0.155	
1 CC Uplink	N/A	782.00	23230	Mid	back	15 mm	LTE Band 13	A	Closed	1175M	10	QPSK	1	0	25.0	24.25	0	-0.02	1:1	0.232	1.188	0.276	A16
1 CC Uplink	N/A	782.00	23230	Mid	back	15 mm	LTE Band 13	A	Closed	1175M	10	QPSK	25	0	24.0	23.23	1	0.01	1:1	0.178	1.195	0.213	
1 CC Uplink	N/A	831.50	26865	Mid	back	15 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	1	36	25.0	24.01	0	0.06	1:1	0.116	1.256	0.146	
1 CC Uplink	N/A	831.50	26865	Mid	back	15 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	36	37	24.0	23.04	1	0.02	1:1	0.095	1.247	0.118	
1 CC Uplink	N/A	831.50	26865	Mid	back	15 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	1	36	25.0	24.01	0	-0.02	1:1	0.240	1.256	0.301	A17
1 CC Uplink	N/A	831.50	26865	Mid	back	15 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	36	37	24.0	23.04	1	0.03	1:1	0.189	1.247	0.236	
1 CC Uplink	N/A	1732.50	20175	Mid	back	15 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	23.5	22.66	0	0.06	1:1	0.576	1.214	**0.699**	A18
1 CC Uplink	N/A	1732.50	20175	Mid	back	15 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	21.5	20.15	2	-0.02	1:1	0.479	1.365	0.654	
1 CC Uplink	N/A	1732.50	20175	Mid	back	15 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	1	50	23.5	22.66	0	0.06	1:1	0.242	1.214	0.294	
1 CC Uplink	N/A	1732.50	20175	Mid	back	15 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	50	25	21.5	20.15	2	-0.09	1:1	0.195	1.365	0.266	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	15 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	0	25.0	24.55	0	-0.01	1:1.58	0.331	1.109	0.367	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	15 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	25.0	24.91	0	-0.08	1:1.58	0.351	1.021	0.358	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	15 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	25	24.0	23.95	1	-0.04	1:1.58	0.276	1.011	0.279	
2 CC Uplink	PCC	2636.50	41055	Mid-High	back	15 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	0	25.0	25.00	0	0.01	1:1.58	0.383	1.000	0.383	A19
	SCC	2616.70	40857											99									
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	15 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	50	25.0	24.91	0	0.00	1:1.58	0.234	1.021	0.239	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	15 mm	LTE Band 41	B	Closed	1094M	20	QPSK	50	25	24.0	23.95	1	-0.04	1:1.58	0.182	1.011	0.184	

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 11-17
DTS SISO Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2437	6	back	15 mm	802.11b	DSSS	1	Open	1152M	22	1	18.0	17.55	0.06	99.42	0.067	0.055	1.109	1.006	0.061	
2437	6	back	15 mm	802.11b	DSSS	1	Closed	1152M	22	1	18.0	17.55	0.01	99.42	0.036	0.031	1.109	1.006	0.035	
2462	11	back	15 mm	802.11b	DSSS	2	Open	1152M	22	1	18.0	17.96	-0.01	99.42	0.110	0.088	1.009	1.006	**0.089**	A20
2462	11	back	15 mm	802.11b	DSSS	2	Closed	1152M	22	1	18.0	17.96	0.00	99.42	0.032	0.026	1.009	1.006	0.026	

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 11-18
DTS MIMO Body-Worn

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.																W/kg	(W/kg)			(W/kg)	
2437	6	back	15 mm	802.11n	OFDM	MIMO	Open	1152M	20	13	16.0	15.89	16.0	15.58	-0.14	97.94	0.085	0.070	1.026	1.021	0.079	
2437	6	back	15 mm	802.11n	OFDM	MIMO	Closed	1152M	20	13	16.0	15.89	16.0	15.58	-0.20	97.94	0.036	0.024	1.026	1.021	0.027	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	Body
Spatial Peak	1.6 W/kg (mW/g)
Uncontrolled Exposure/General Population	averaged over 1 gram

To achieve the 19.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 16.0 dBm.

Table 11-19
NII SISO Body-Worn SAR

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5320	64	back	15 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.89	0.13	96.68	0.110	0.067	1.026	1.034	0.071	
5320	64	back	15 mm	802.11a	OFDM	1	Closed	1100M	20	6	17.0	16.89	0.02	96.68	0.033	0.016	1.026	1.034	0.017	
5620	124	back	15 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.64	-0.05	96.68	0.117	0.083	1.086	1.034	**0.093**	
5620	124	back	15 mm	802.11a	OFDM	1	Closed	1100M	20	6	17.0	16.64	0.03	96.68	0.038	0.029	1.086	1.034	0.033	
5785	157	back	15 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.65	0.01	96.68	0.073	0.036	1.084	1.034	0.040	
5785	157	back	15 mm	802.11a	OFDM	1	Closed	1100M	20	6	17.0	16.65	0.02	96.68	0.017	0.005	1.084	1.034	0.006	
5885	177	back	15 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.75	-0.08	96.68	0.111	0.069	1.059	1.034	0.076	
5885	177	back	15 mm	802.11a	OFDM	1	Closed	1100M	20	6	17.0	16.75	0.09	96.68	0.043	0.027	1.059	1.034	0.030	
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 11-20
NII MIMO Body-Worn SAR

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.																W/kg	(W/kg)			(W/kg)	
5260	52	back	15 mm	802.11n	OFDM	MIMO	Open	1100M	20	13	17.0	16.66	17.0	16.36	-0.20	98.11	0.139	0.102	1.081	1.019	0.120	A21
5260	52	back	15 mm	802.11n	OFDM	MIMO	Closed	1100M	20	13	17.0	16.66	17.0	16.36	0.07	98.11	0.027	0.019	1.081	1.019	0.022	
5500	100	back	15 mm	802.11n	OFDM	MIMO	Open	1100M	20	13	17.0	16.84	17.0	16.59	0.02	98.11	0.106	0.079	1.038	1.019	0.088	
5500	100	back	15 mm	802.11n	OFDM	MIMO	Closed	1100M	20	13	17.0	16.84	17.0	16.59	0.02	98.11	0.023	0.018	1.038	1.019	0.020	
5745	149	back	15 mm	802.11n	OFDM	MIMO	Open	1100M	20	13	17.0	16.82	17.0	16.74	0.02	98.11	0.093	0.074	1.042	1.019	0.080	
5745	149	back	15 mm	802.11n	OFDM	MIMO	Closed	1100M	20	13	17.0	16.82	17.0	16.74	0.08	98.11	0.034	0.021	1.042	1.019	0.023	
5885	177	back	15 mm	802.11n	OFDM	MIMO	Open	1100M	20	13	17.0	16.71	17.0	16.63	0.07	98.11	0.104	0.080	1.069	1.019	0.089	
5885	177	back	15 mm	802.11n	OFDM	MIMO	Closed	1100M	20	13	17.0	16.71	17.0	16.63	0.05	98.11	0.040	0.030	1.069	1.019	0.033	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram								

To achieve the 20.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17.0 dBm.

Table 11-21
DSS SISO Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													(W/kg)			(W/kg)	
2441	39	back	15 mm	Bluetooth	FHSS	1	Open	1100M	1	17.5	17.43	0.05	76.80	0.020	1.017	1.302	0.026	
2441	39	back	15 mm	Bluetooth	FHSS	1	Closed	1152M	1	17.5	17.43	0.06	76.80	0.014	1.017	1.302	0.019	
2402	0	back	15 mm	Bluetooth	FHSS	2	Open	1100M	1	17.5	15.93	-0.14	76.80	0.048	1.434	1.302	**0.090**	A22
2402	0	back	15 mm	Bluetooth	FHSS	2	Closed	1152M	1	17.5	15.93	-0.01	76.80	0.010	1.434	1.302	0.019	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram						

11.3 Standalone Hotspot SAR Data

Table 11-22
GPRS Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	# of Time Slots	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
848.80	251	back	10 mm	GSM 850	GPRS	A	Open	1192M	4	26.0	25.07	0.01	1:2.076	0.208	1.239	0.258	
848.80	251	front	10 mm	GSM 850	GPRS	A	Open	1192M	4	26.0	25.07	0.00	1:2.076	0.108	1.239	0.134	
848.80	251	bottom	10 mm	GSM 850	GPRS	A	Open	1192M	4	26.0	25.07	-0.01	1:2.076	0.035	1.239	0.043	
848.80	251	right	10 mm	GSM 850	GPRS	A	Open	1192M	4	26.0	25.07	0.01	1:2.076	0.039	1.239	0.048	
848.80	251	left	10 mm	GSM 850	GPRS	A	Open	1192M	4	26.0	25.07	-0.06	1:2.076	0.051	1.239	0.063	
848.80	251	back	5 mm	GSM 850	GPRS	A	Closed	1192M	4	26.0	25.07	-0.10	1:2.076	0.413	1.239	0.512	A23
848.80	251	front	5 mm	GSM 850	GPRS	A	Closed	1192M	4	26.0	25.07	0.00	1:2.076	0.074	1.239	0.092	
848.80	251	bottom	5 mm	GSM 850	GPRS	A	Closed	1192M	4	26.0	25.07	0.03	1:2.076	0.105	1.239	0.130	
848.80	251	right	5 mm	GSM 850	GPRS	A	Closed	1192M	4	26.0	25.07	-0.09	1:2.076	0.070	1.239	0.087	
848.80	251	left	5 mm	GSM 850	GPRS	A	Closed	1192M	4	26.0	25.07	0.02	1:2.076	0.098	1.239	0.121	
1909.80	810	back	10 mm	GSM 1900	GPRS	A	Open	1104M	4	21.0	20.77	0.02	1:2.076	0.238	1.054	0.251	
1909.80	810	front	10 mm	GSM 1900	GPRS	A	Open	1104M	4	21.0	20.77	-0.06	1:2.076	0.216	1.054	0.228	
1909.80	810	bottom	10 mm	GSM 1900	GPRS	A	Open	1104M	4	21.0	20.77	-0.04	1:2.076	0.377	1.054	0.397	
1909.80	810	right	10 mm	GSM 1900	GPRS	A	Open	1104M	4	21.0	20.77	0.06	1:2.076	0.020	1.054	0.021	
1909.80	810	left	10 mm	GSM 1900	GPRS	A	Open	1104M	4	21.0	20.77	-0.01	1:2.076	0.036	1.054	0.038	
1909.80	810	back	5 mm	GSM 1900	GPRS	A	Closed	1104M	4	21.0	20.77	-0.02	1:2.076	0.256	1.054	0.270	
1909.80	810	front	5 mm	GSM 1900	GPRS	A	Closed	1104M	4	21.0	20.77	-0.02	1:2.076	0.079	1.054	0.083	
1909.80	810	bottom	5 mm	GSM 1900	GPRS	A	Closed	1104M	4	21.0	20.77	-0.01	1:2.076	0.533	1.054	0.562	A24
1909.80	810	right	5 mm	GSM 1900	GPRS	A	Closed	1104M	4	21.0	20.77	0.05	1:2.076	0.017	1.054	0.018	
1909.80	810	left	5 mm	GSM 1900	GPRS	A	Closed	1104M	4	21.0	20.77	-0.06	1:2.076	0.161	1.054	0.170	
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 11-23
UMTS Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
846.60	4233	back	10 mm	UMTS 850	RMC	A	Open	1192M	24.5	23.86	-0.01	1:1	0.350	1.159	0.406	
846.60	4233	front	10 mm	UMTS 850	RMC	A	Open	1192M	24.5	23.86	0.03	1:1	0.210	1.159	0.243	
846.60	4233	bottom	10 mm	UMTS 850	RMC	A	Open	1192M	24.5	23.86	0.01	1:1	0.083	1.159	0.096	
846.60	4233	right	10 mm	UMTS 850	RMC	A	Open	1192M	24.5	23.86	-0.01	1:1	0.168	1.159	0.195	
846.60	4233	left	10 mm	UMTS 850	RMC	A	Open	1192M	24.5	23.86	0.04	1:1	0.050	1.159	0.058	
826.40	4132	back	5 mm	UMTS 850	RMC	A	Closed	1192M	24.5	23.77	0.03	1:1	0.844	1.183	0.998	
836.60	4183	back	5 mm	UMTS 850	RMC	A	Closed	1192M	24.5	23.83	0.04	1:1	0.880	1.167	**1.027**	
846.60	4233	back	5 mm	UMTS 850	RMC	A	Closed	1192M	24.5	23.86	0.01	1:1	0.883	1.159	1.023	A25
846.60	4233	front	5 mm	UMTS 850	RMC	A	Closed	1192M	24.5	23.86	-0.02	1:1	0.266	1.159	0.308	
846.60	4233	bottom	5 mm	UMTS 850	RMC	A	Closed	1192M	24.5	23.86	0.00	1:1	0.201	1.159	0.233	
846.60	4233	right	5 mm	UMTS 850	RMC	A	Closed	1192M	24.5	23.86	0.05	1:1	0.124	1.159	0.144	
846.60	4233	left	5 mm	UMTS 850	RMC	A	Closed	1192M	24.5	23.86	0.03	1:1	0.158	1.159	0.183	
846.60	4233	back	5 mm	UMTS 850	RMC	A	Closed	1192M	24.5	23.86	-0.01	1:1	0.879	1.159	1.019	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram						

Note: Blue entry represents variability measurement.

Table 11-24
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Spacing	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																					
707.50	23095	Mid	back	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	0.02	1:1	0.284	1.093	0.310	
707.50	23095	Mid	back	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.01	1:1	0.218	1.110	0.242	
707.50	23095	Mid	front	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	-0.01	1:1	0.270	1.093	0.295	
707.50	23095	Mid	front	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.03	1:1	0.208	1.110	0.231	
707.50	23095	Mid	bottom	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	-0.01	1:1	0.052	1.093	0.057	
707.50	23095	Mid	bottom	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.01	1:1	0.038	1.110	0.042	
707.50	23095	Mid	right	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	0.06	1:1	0.327	1.093	0.357	
707.50	23095	Mid	right	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.01	1:1	0.253	1.110	0.281	
707.50	23095	Mid	left	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	1	25	25.0	24.61	0	-0.01	1:1	0.264	1.093	0.289	
707.50	23095	Mid	left	10 mm	LTE Band 12	A	Open	1175M	10	QPSK	25	12	24.0	23.55	1	0.01	1:1	0.202	1.110	0.224	
707.50	23095	Mid	back	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	1	25	25.0	24.61	0	0.00	1:1	0.635	1.093	0.694	A26
707.50	23095	Mid	back	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	25	12	24.0	23.55	1	0.00	1:1	0.490	1.110	0.544	
707.50	23095	Mid	front	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	1	25	25.0	24.61	0	-0.04	1:1	0.102	1.093	0.111	
707.50	23095	Mid	front	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	25	12	24.0	23.55	1	0.02	1:1	0.078	1.110	0.087	
707.50	23095	Mid	bottom	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	1	25	25.0	24.61	0	0.05	1:1	0.122	1.093	0.133	
707.50	23095	Mid	bottom	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	25	12	24.0	23.55	1	-0.04	1:1	0.094	1.110	0.104	
707.50	23095	Mid	right	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	1	25	25.0	24.61	0	-0.06	1:1	0.174	1.093	0.190	
707.50	23095	Mid	right	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	25	12	24.0	23.55	1	-0.01	1:1	0.135	1.110	0.150	
707.50	23095	Mid	left	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	1	25	25.0	24.61	0	0.07	1:1	0.270	1.093	0.295	
707.50	23095	Mid	left	5 mm	LTE Band 12	A	Closed	1175M	10	QPSK	25	12	24.0	23.55	1	0.01	1:1	0.211	1.110	0.234	
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 11-25
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Spacing	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																					
782.00	23230	Mid	back	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	-0.03	1:1	0.253	1.188	0.301	
782.00	23230	Mid	back	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	0.02	1:1	0.196	1.195	0.234	
782.00	23230	Mid	front	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	0.04	1:1	0.190	1.188	0.226	
782.00	23230	Mid	front	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	-0.03	1:1	0.156	1.195	0.186	
782.00	23230	Mid	bottom	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	0.03	1:1	0.060	1.188	0.071	
782.00	23230	Mid	bottom	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	-0.03	1:1	0.048	1.195	0.057	
782.00	23230	Mid	right	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	0.01	1:1	0.173	1.188	0.206	
782.00	23230	Mid	right	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	-0.01	1:1	0.139	1.195	0.166	
782.00	23230	Mid	left	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	1	0	25.0	24.25	0	-0.09	1:1	0.127	1.188	0.151	
782.00	23230	Mid	left	10 mm	LTE Band 13	A	Open	1175M	10	QPSK	25	0	24.0	23.23	1	0.04	1:1	0.105	1.195	0.125	
782.00	23230	Mid	back	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	1	0	25.0	24.25	0	0.01	1:1	0.836	1.188	0.993	A27
782.00	23230	Mid	back	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	25	0	24.0	23.23	1	-0.01	1:1	0.649	1.195	0.776	
782.00	23230	Mid	back	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	50	0	24.0	23.13	1	0.00	1:1	0.635	1.223	0.777	
782.00	23230	Mid	front	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	1	0	25.0	24.25	0	0.02	1:1	0.108	1.188	0.128	
782.00	23230	Mid	front	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	25	0	24.0	23.23	1	-0.06	1:1	0.085	1.195	0.102	
782.00	23230	Mid	bottom	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	1	0	25.0	24.25	0	-0.03	1:1	0.336	1.188	0.399	
782.00	23230	Mid	bottom	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	25	0	24.0	23.23	1	-0.02	1:1	0.250	1.195	0.299	
782.00	23230	Mid	right	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	1	0	25.0	24.25	0	0.03	1:1	0.144	1.188	0.171	
782.00	23230	Mid	right	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	25	0	24.0	23.23	1	0.04	1:1	0.107	1.195	0.128	
782.00	23230	Mid	left	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	1	0	25.0	24.25	0	0.07	1:1	0.169	1.188	0.201	
782.00	23230	Mid	left	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	25	0	24.0	23.23	1	-0.02	1:1	0.133	1.195	0.159	
782.00	23230	Mid	back	5 mm	LTE Band 13	A	Closed	1175M	10	QPSK	1	0	25.0	24.25	0	0.01	1:1	0.832	1.188	0.988	
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 11-26
LTE Band 26 (Cell) Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Spacing	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																					
831.50	26865	Mid	back	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	1	36	25.0	24.01	0	0.02	1:1	0.257	1.256	0.323	
831.50	26865	Mid	back	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	36	37	24.0	23.04	1	-0.01	1:1	0.200	1.247	0.249	
831.50	26865	Mid	front	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	1	36	25.0	24.01	0	0.04	1:1	0.147	1.256	0.185	
831.50	26865	Mid	front	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	36	37	24.0	23.04	1	0.09	1:1	0.119	1.247	0.148	
831.50	26865	Mid	bottom	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	1	36	25.0	24.01	0	-0.04	1:1	0.059	1.256	0.074	
831.50	26865	Mid	bottom	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	36	37	24.0	23.04	1	0.09	1:1	0.044	1.247	0.055	
831.50	26865	Mid	right	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	1	36	25.0	24.01	0	0.03	1:1	0.140	1.256	0.176	
831.50	26865	Mid	right	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	36	37	24.0	23.04	1	-0.01	1:1	0.115	1.247	0.143	
831.50	26865	Mid	left	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	1	36	25.0	24.01	0	0.05	1:1	0.049	1.256	0.062	
831.50	26865	Mid	left	10 mm	LTE Band 26 (Cell)	A	Open	1192M	15	QPSK	36	37	24.0	23.04	1	0.13	1:1	0.045	1.247	0.056	
831.50	26865	Mid	back	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	1	36	25.0	24.01	0	-0.02	1:1	0.717	1.256	0.901	A28
831.50	26865	Mid	back	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	36	37	24.0	23.04	1	-0.05	1:1	0.572	1.247	0.713	
831.50	26865	Mid	back	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	75	0	24.0	22.91	1	-0.03	1:1	0.556	1.285	0.714	
831.50	26865	Mid	front	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	1	36	25.0	24.01	0	0.01	1:1	0.173	1.256	0.217	
831.50	26865	Mid	front	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	36	37	24.0	23.04	1	0.06	1:1	0.127	1.247	0.158	
831.50	26865	Mid	bottom	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	1	36	25.0	24.01	0	0.00	1:1	0.145	1.256	0.182	
831.50	26865	Mid	bottom	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	36	37	24.0	23.04	1	0.03	1:1	0.111	1.247	0.138	
831.50	26865	Mid	right	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	1	36	25.0	24.01	0	0.03	1:1	0.102	1.256	0.128	
831.50	26865	Mid	right	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	36	37	24.0	23.04	1	0.06	1:1	0.075	1.247	0.094	
831.50	26865	Mid	left	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	1	36	25.0	24.01	0	0.09	1:1	0.132	1.256	0.166	
831.50	26865	Mid	left	5 mm	LTE Band 26 (Cell)	A	Closed	1192M	15	QPSK	36	37	24.0	23.04	1	0.07	1:1	0.104	1.247	0.130	
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 11-27
LTE Band 4 (AWS) Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Spacing	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																					
1732.50	20175	Mid	back	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	19.5	19.04	0	0.07	1:1	0.457	1.112	0.508	
1732.50	20175	Mid	back	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	19.5	19.10	0	0.02	1:1	0.456	1.096	0.500	
1732.50	20175	Mid	front	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	19.5	19.04	0	0.03	1:1	0.411	1.112	0.457	
1732.50	20175	Mid	front	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	19.5	19.10	0	-0.01	1:1	0.414	1.096	0.454	
1732.50	20175	Mid	bottom	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	19.5	19.04	0	0.02	1:1	0.644	1.112	0.716	
1732.50	20175	Mid	bottom	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	19.5	19.10	0	0.02	1:1	0.642	1.096	0.704	
1732.50	20175	Mid	right	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	19.5	19.04	0	-0.01	1:1	0.029	1.112	0.032	
1732.50	20175	Mid	right	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	19.5	19.10	0	0.11	1:1	0.030	1.096	0.033	
1732.50	20175	Mid	left	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	19.5	19.04	0	-0.08	1:1	0.107	1.112	0.119	
1732.50	20175	Mid	left	10 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	19.5	19.10	0	-0.02	1:1	0.106	1.096	0.116	
1732.50	20175	Mid	back	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	1	50	19.5	19.04	0	0.00	1:1	0.634	1.112	0.705	
1732.50	20175	Mid	back	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	50	25	19.5	19.10	0	0.01	1:1	0.647	1.096	0.709	
1732.50	20175	Mid	front	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	1	50	19.5	19.04	0	-0.06	1:1	0.074	1.112	0.082	
1732.50	20175	Mid	front	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	50	25	19.5	19.10	0	-0.03	1:1	0.074	1.096	0.081	
1732.50	20175	Mid	bottom	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	1	50	19.5	19.04	0	-0.02	1:1	0.872	1.112	0.970	
1732.50	20175	Mid	bottom	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	50	25	19.5	19.10	0	0.01	1:1	0.889	1.096	0.974	A29
1732.50	20175	Mid	bottom	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	100	0	19.5	18.98	0	0.01	1:1	0.874	1.127	0.985	
1732.50	20175	Mid	right	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	1	50	19.5	19.04	0	0.07	1:1	0.017	1.112	0.019	
1732.50	20175	Mid	right	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	50	25	19.5	19.10	0	-0.01	1:1	0.017	1.096	0.019	
1732.50	20175	Mid	left	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	1	50	19.5	19.04	0	-0.03	1:1	0.154	1.112	0.171	
1732.50	20175	Mid	left	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	50	25	19.5	19.10	0	0.00	1:1	0.156	1.096	0.171	
1732.50	20175	Mid	bottom	5 mm	LTE Band 4 (AWS)	A	Closed	1098M	20	QPSK	50	25	19.5	19.10	0	0.00	1:1	0.888	1.096	0.973	
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 11-28
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																								
# CC Uplink	Component Carrier	FREQUENCY		Side	Spacing	Mode	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.																(W/kg)		(W/kg)	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	10 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	20.0	19.76	0	0.00	1:1.58	0.260	1.057	0.275	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	10 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	25	20.0	19.82	0	0.01	1:1.58	0.256	1.042	0.267	
1 CC Uplink	N/A	2636.50	41055	Mid-High	front	10 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	20.0	19.76	0	0.00	1:1.58	0.210	1.057	0.222	
1 CC Uplink	N/A	2636.50	41055	Mid-High	front	10 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	25	20.0	19.82	0	0.02	1:1.58	0.206	1.042	0.215	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	10 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	20.0	19.76	0	-0.01	1:1.58	0.567	1.057	0.599	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	10 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	25	20.0	19.82	0	-0.03	1:1.58	0.557	1.042	0.580	
1 CC Uplink	N/A	2636.50	41055	Mid-High	left	10 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	20.0	19.76	0	-0.14	1:1.58	0.054	1.057	0.057	
1 CC Uplink	N/A	2636.50	41055	Mid-High	left	10 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	25	20.0	19.82	0	0.05	1:1.58	0.054	1.042	0.056	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	50	20.0	19.76	0	0.00	1:1.58	0.448	1.057	0.474	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	50	25	20.0	19.82	0	0.00	1:1.58	0.439	1.042	0.457	
1 CC Uplink	N/A	2636.50	41055	Mid-High	front	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	50	20.0	19.76	0	-0.03	1:1.58	0.034	1.057	0.036	
1 CC Uplink	N/A	2636.50	41055	Mid-High	front	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	50	25	20.0	19.82	0	0.02	1:1.58	0.034	1.042	0.035	
1 CC Uplink	N/A	2506.00	39750	Low	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	50	20.0	19.56	0	-0.06	1:1.58	0.730	1.107	0.808	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	0	20.0	19.56	0	-0.16	1:1.58	0.764	1.107	0.846	
1 CC Uplink	N/A	2593.00	40620	Mid	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	50	20.0	19.73	0	-0.05	1:1.58	0.763	1.064	0.812	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	50	20.0	19.76	0	0.00	1:1.58	0.768	1.057	0.812	
1 CC Uplink	N/A	2680.00	41490	High	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	0	20.0	19.23	0	0.01	1:1.58	0.659	1.194	0.787	
1 CC Uplink	N/A	2680.00	41490	High	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	50	20.0	19.64	0	-0.01	1:1.58	0.792	1.086	0.860	A30
1 CC Uplink	N/A	2506.00	39750	Low	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	50	25	20.0	19.64	0	-0.02	1:1.58	0.633	1.086	0.687	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	50	25	20.0	19.63	0	0.00	1:1.58	0.722	1.089	0.786	
1 CC Uplink	N/A	2593.00	40620	Mid	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	50	25	20.0	19.81	0	0.01	1:1.58	0.756	1.045	0.790	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	50	25	20.0	19.82	0	-0.01	1:1.58	0.764	1.042	0.796	
1 CC Uplink	N/A	2680.00	41490	High	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	50	25	20.0	19.69	0	0.01	1:1.58	0.760	1.074	0.816	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	100	0	20.0	19.70	0	-0.01	1:1.58	0.745	1.072	0.799	
2 CC Uplink	PCC	2680.00	41490	High	bottom	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	0	20.0	19.46	0	-0.02	1:1.58	0.705	1.132	0.798	
	SCC	2660.20	41292											99									
1 CC Uplink	N/A	2636.50	41055	Mid-High	left	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	1	50	20.0	19.76	0	-0.06	1:1.58	0.194	1.057	0.205	
1 CC Uplink	N/A	2636.50	41055	Mid-High	left	5 mm	LTE Band 41	B	Closed	1094M	20	QPSK	50	25	20.0	19.82	0	-0.04	1:1.58	0.180	1.042	0.188	

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 11-29
DTS SISO WLAN Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2437	6	back	10 mm	802.11b	DSSS	1	Open	1152M	22	1	18.0	17.55	-0.01	99.42	0.124	0.104	1.109	1.006	0.116	
2437	6	front	10 mm	802.11b	DSSS	1	Open	1152M	22	1	18.0	17.55	0.00	99.42	0.148	0.122	1.109	1.006	0.136	
2437	6	top	10 mm	802.11b	DSSS	1	Open	1152M	22	1	18.0	17.55	0.02	99.42	0.061	0.049	1.109	1.006	0.055	
2437	6	left	10 mm	802.11b	DSSS	1	Open	1152M	22	1	18.0	17.55	0.02	99.42	0.254	0.201	1.109	1.006	0.224	
2437	6	back	5 mm	802.11b	DSSS	1	Closed	1152M	22	1	18.0	17.55	-0.01	99.42	0.165	0.132	1.109	1.006	0.147	
2437	6	front	5 mm	802.11b	DSSS	1	Closed	1152M	22	1	18.0	17.55	-0.04	99.42	0.252	0.205	1.109	1.006	0.229	
2437	6	bottom	5 mm	802.11b	DSSS	1	Closed	1152M	22	1	18.0	17.55	-0.04	99.42	0.426	0.359	1.109	1.006	0.401	
2437	6	left	5 mm	802.11b	DSSS	1	Closed	1152M	22	1	18.0	17.55	-0.06	99.42	0.426	0.379	1.109	1.006	0.423	
2462	11	back	10 mm	802.11b	DSSS	2	Open	1152M	22	1	18.0	17.96	-0.02	99.42	0.264	0.222	1.009	1.006	0.225	
2462	11	front	10 mm	802.11b	DSSS	2	Open	1152M	22	1	18.0	17.96	0.00	99.42	0.220	0.169	1.009	1.006	0.172	
2462	11	top	10 mm	802.11b	DSSS	2	Open	1152M	22	1	18.0	17.96	-0.05	99.42	0.154	0.127	1.009	1.006	0.129	
2462	11	right	10 mm	802.11b	DSSS	2	Open	1152M	22	1	18.0	17.96	0.11	99.42	0.098	0.009	1.009	1.006	0.009	
2462	11	back	5 mm	802.11b	DSSS	2	Closed	1152M	22	1	18.0	17.96	0.03	99.42	0.097	0.082	1.009	1.006	0.083	
2462	11	front	5 mm	802.11b	DSSS	2	Closed	1152M	22	1	18.0	17.96	0.06	99.42	0.456	0.422	1.009	1.006	0.428	A31
2462	11	bottom	5 mm	802.11b	DSSS	2	Closed	1152M	22	1	18.0	17.96	0.09	99.42	0.458	0.301	1.009	1.006	0.306	
2462	11	right	5 mm	802.11b	DSSS	2	Closed	1152M	22	1	18.0	17.96	-0.14	99.42	0.110	0.084	1.009	1.006	0.085	

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 11-30
DTS SISO WLAN Hotspot SAR for Conditions with 5 GHz WLAN SAR

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
2462	11	back	5 mm	802.11b	DSSS	2	Closed	1152M	22	1	13.0	12.89	0.09	99.42	0.024	0.016	1.026	1.006	0.017	
2462	11	front	5 mm	802.11b	DSSS	2	Closed	1152M	22	1	13.0	12.89	-0.05	99.42	0.139	0.111	1.026	1.006	0.115	
2462	11	bottom	5 mm	802.11b	DSSS	2	Closed	1152M	22	1	13.0	12.89	-0.07	99.42	0.079	0.070	1.026	1.006	0.072	
2462	11	right	5 mm	802.11b	DSSS	2	Closed	1152M	22	1	13.0	12.89	0.08	99.42	0.018	0.013	1.026	1.006	0.013	
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: 2.4 GHz SISO was additionally evaluated at the maximum allowed output power during simultaneous operations with 5 GHz WLAN. 5 GHz WLAN was not transmitting during 2.4 GHz WLAN evaluations.

Table 11-31
DTS Hotspot MIMO SAR

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.																W/kg	(W/kg)			(W/kg)	
2437	6	back	10 mm	802.11n	OFDM	MIMO	Open	1152M	20	13	16.0	15.89	16.0	15.58	-0.20	97.94	0.184	0.151	1.026	1.021	0.170	
2437	6	front	10 mm	802.11n	OFDM	MIMO	Open	1152M	20	13	16.0	15.89	16.0	15.58	-0.15	97.94	0.185	0.151	1.026	1.021	0.170	
2437	6	top	10 mm	802.11n	OFDM	MIMO	Open	1152M	20	13	16.0	15.89	16.0	15.58	-0.13	97.94	0.154	0.121	1.026	1.021	0.136	
2437	6	right	10 mm	802.11n	OFDM	MIMO	Open	1152M	20	13	16.0	15.89	16.0	15.58	0.05	97.94	0.042	0.034	1.026	1.021	0.038	
2437	6	left	10 mm	802.11n	OFDM	MIMO	Open	1152M	20	13	16.0	15.89	16.0	15.58	-0.11	97.94	0.182	0.142	1.026	1.021	0.160	
2437	6	back	5 mm	802.11n	OFDM	MIMO	Closed	1152M	20	13	16.0	15.89	16.0	15.58	-0.02	97.94	0.169	0.130	1.026	1.021	0.146	
2437	6	front	5 mm	802.11n	OFDM	MIMO	Closed	1152M	20	13	16.0	15.89	16.0	15.58	0.01	97.94	0.360	0.321	1.026	1.021	0.361	
2437	6	bottom	5 mm	802.11n	OFDM	MIMO	Closed	1152M	20	13	16.0	15.89	16.0	15.58	0.04	97.94	0.337	0.268	1.026	1.021	0.302	
2437	6	right	5 mm	802.11n	OFDM	MIMO	Closed	1152M	20	13	16.0	15.89	16.0	15.58	-0.09	97.94	0.108	0.084	1.026	1.021	0.095	
2437	6	left	5 mm	802.11n	OFDM	MIMO	Closed	1152M	20	13	16.0	15.89	16.0	15.58	0.01	97.94	0.337	0.258	1.026	1.021	0.290	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram					

Note: To achieve the 19.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 16.0 dBm

Table 11-32
NII SISO WLAN Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5785	157	back	10 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.65	-0.20	96.68	0.145	0.178	1.084	1.034	0.200	
5785	157	front	10 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.65	-0.10	96.68	0.081	0.065	1.084	1.034	0.073	
5785	157	top	10 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.65	0.04	96.68	0.072	0.052	1.084	1.034	0.058	
5785	157	left	10 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.65	0.03	96.68	0.201	0.148	1.084	1.034	0.166	
5785	157	back	5 mm	802.11a	OFDM	1	Closed	1100M	20	6	17.0	16.65	0.09	96.68	0.016	0.008	1.084	1.034	0.009	
5785	157	front	5 mm	802.11a	OFDM	1	Closed	1100M	20	6	17.0	16.65	0.14	96.68	0.542	0.428	1.084	1.034	**0.480**	A32
5785	157	bottom	5 mm	802.11a	OFDM	1	Closed	1100M	20	6	17.0	16.65	0.03	96.68	0.110	0.071	1.084	1.034	0.080	
5785	157	left	5 mm	802.11a	OFDM	1	Closed	1100M	20	6	17.0	16.65	-0.01	96.68	0.273	0.263	1.084	1.034	0.295	
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 11-33
NII MIMO WLAN Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.																W/kg	(W/kg)			(W/kg)	
5745	149	back	10 mm	802.11n	OFDM	MIMO	Open	1100M	20	13	17.0	16.82	17.0	16.74	0.16	98.11	0.131	0.103	1.042	1.019	0.111	
5745	149	front	10 mm	802.11n	OFDM	MIMO	Open	1100M	20	13	17.0	16.82	17.0	16.74	0.06	98.11	0.102	0.078	1.042	1.019	0.084	
5745	149	top	10 mm	802.11n	OFDM	MIMO	Open	1100M	20	13	17.0	16.82	17.0	16.74	-0.08	98.11	0.163	0.113	1.042	1.019	0.122	
5745	149	right	10 mm	802.11n	OFDM	MIMO	Open	1100M	20	13	17.0	16.82	17.0	16.74	0.08	98.11	0.080	0.069	1.042	1.019	0.075	
5745	149	left	10 mm	802.11n	OFDM	MIMO	Open	1100M	20	13	17.0	16.82	17.0	16.74	0.09	98.11	0.192	0.136	1.042	1.019	0.147	
5745	149	back	5 mm	802.11n	OFDM	MIMO	Closed	1100M	20	13	17.0	16.82	17.0	16.74	0.09	98.11	0.081	0.044	1.042	1.019	0.048	
5745	149	front	5 mm	802.11n	OFDM	MIMO	Closed	1100M	20	13	17.0	16.82	17.0	16.74	0.08	98.11	0.304	0.227	1.042	1.019	0.246	
5745	149	bottom	5 mm	802.11n	OFDM	MIMO	Closed	1100M	20	13	17.0	16.82	17.0	16.74	-0.06	98.11	0.151	0.116	1.042	1.019	0.126	
5745	149	right	5 mm	802.11n	OFDM	MIMO	Closed	1100M	20	13	17.0	16.82	17.0	16.74	-0.14	98.11	0.133	0.103	1.042	1.019	0.111	
5745	149	left	5 mm	802.11n	OFDM	MIMO	Closed	1100M	20	13	17.0	16.82	17.0	16.74	0.03	98.11	0.244	0.228	1.042	1.019	0.247	
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 20.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17.0 dBm

Table 11-34
DSS Hotspot SAR

MEASUREMENT RESULTS																		
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													(W/kg)			(W/kg)	
2441	39	back	10 mm	Bluetooth	FHSS	1	Open	1100M	1	17.5	17.43	-0.08	76.80	0.058	1.017	1.302	0.077	
2441	39	front	10 mm	Bluetooth	FHSS	1	Open	1100M	1	17.5	17.43	-0.05	76.80	0.054	1.017	1.302	0.072	
2441	39	top	10 mm	Bluetooth	FHSS	1	Open	1100M	1	17.5	17.43	0.06	76.80	0.037	1.017	1.302	0.049	
2441	39	left	10 mm	Bluetooth	FHSS	1	Open	1100M	1	17.5	17.43	-0.15	76.80	0.090	1.017	1.302	0.119	
2441	39	back	5 mm	Bluetooth	FHSS	1	Closed	1152M	1	17.5	17.43	-0.16	76.80	0.063	1.017	1.302	0.083	
2441	39	front	5 mm	Bluetooth	FHSS	1	Closed	1152M	1	17.5	17.43	0.02	76.80	0.098	1.017	1.302	0.130	
2441	39	bottom	5 mm	Bluetooth	FHSS	1	Closed	1152M	1	17.5	17.43	0.01	76.80	0.201	1.017	1.302	0.266	
2441	39	left	5 mm	Bluetooth	FHSS	1	Closed	1152M	1	17.5	17.43	0.09	76.80	0.202	1.017	1.302	0.267	
2402	0	back	10 mm	Bluetooth	FHSS	2	Open	1100M	1	17.5	15.93	0.02	76.80	0.090	1.434	1.302	0.168	
2402	0	front	10 mm	Bluetooth	FHSS	2	Open	1100M	1	17.5	15.93	0.02	76.80	0.064	1.434	1.302	0.119	
2402	0	top	10 mm	Bluetooth	FHSS	2	Open	1100M	1	17.5	15.93	0.05	76.80	0.060	1.434	1.302	0.112	
2402	0	right	10 mm	Bluetooth	FHSS	2	Open	1100M	1	17.5	15.93	0.08	76.80	0.018	1.434	1.302	0.034	
2402	0	back	5 mm	Bluetooth	FHSS	2	Closed	1152M	1	17.5	15.93	-0.02	76.80	0.039	1.434	1.302	0.073	
2402	0	front	5 mm	Bluetooth	FHSS	2	Closed	1152M	1	17.5	15.93	0.00	76.80	0.207	1.434	1.302	**0.386**	A33
2402	0	bottom	5 mm	Bluetooth	FHSS	2	Closed	1152M	1	17.5	15.93	0.03	76.80	0.137	1.434	1.302	0.256	
2402	0	right	5 mm	Bluetooth	FHSS	2	Closed	1152M	1	17.5	15.93	0.00	76.80	0.042	1.434	1.302	0.078	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram							

11.4 Standalone Phablet SAR Data

Table 11-35
GPRS Phablet SAR Data

MEASUREMENT RESULTS																	
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	# of Time Slots	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
836.60	190	back	8 mm	GSM 850	GPRS	A	Open	1192M	3	30.5	29.98	-0.07	1:2.76	0.267	1.127	0.301	
836.60	190	front	6 mm	GSM 850	GPRS	A	Open	1192M	3	30.5	29.98	-0.08	1:2.76	0.336	1.127	0.379	
836.60	190	bottom	12 mm	GSM 850	GPRS	A	Open	1192M	3	30.5	29.98	-0.02	1:2.76	0.040	1.127	0.045	
836.60	190	right	0 mm	GSM 850	GPRS	A	Open	1192M	3	30.5	29.98	-0.03	1:2.76	0.507	1.127	0.571	
836.60	190	left	0 mm	GSM 850	GPRS	A	Open	1192M	3	30.5	29.98	0.02	1:2.76	0.742	1.127	0.836	A34
848.80	251	back	0 mm	GSM 850	GPRS	A	Open	1192M	4	26.0	25.07	0.01	1:2.076	0.303	1.239	0.375	
848.80	251	front	0 mm	GSM 850	GPRS	A	Open	1192M	4	26.0	25.07	-0.03	1:2.076	0.299	1.239	0.370	
848.80	251	bottom	0 mm	GSM 850	GPRS	A	Open	1192M	4	26.0	25.07	-0.15	1:2.076	0.144	1.239	0.178	
1850.20	512	back	8 mm	GSM 1900	GPRS	A	Open	1104M	3	27.5	27.02	-0.01	1:2.76	0.514	1.117	0.574	
1850.20	512	front	6 mm	GSM 1900	GPRS	A	Open	1104M	3	27.5	27.02	0.12	1:2.76	0.674	1.117	0.753	
1850.20	512	bottom	12 mm	GSM 1900	GPRS	A	Open	1104M	3	27.5	27.02	0.03	1:2.76	0.442	1.117	0.494	
1850.20	512	right	0 mm	GSM 1900	GPRS	A	Open	1104M	3	27.5	27.02	-0.08	1:2.76	0.161	1.117	0.180	
1850.20	512	left	0 mm	GSM 1900	GPRS	A	Open	1104M	3	27.5	27.02	-0.02	1:2.76	0.236	1.117	0.264	
1909.80	810	back	0 mm	GSM 1900	GPRS	A	Open	1104M	4	21.0	20.77	0.10	1:2.076	0.757	1.054	0.798	A35
1909.80	810	front	0 mm	GSM 1900	GPRS	A	Open	1104M	4	21.0	20.77	0.00	1:2.076	0.638	1.054	0.672	
1909.80	810	bottom	0 mm	GSM 1900	GPRS	A	Open	1104M	4	21.0	20.77	-0.10	1:2.076	0.505	1.054	0.532	
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 11-36
LTE Band 4 (AWS) Phablet SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	Form Factor	Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
1732.50	20175	Mid	back	8 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	23.5	22.66	0	0.04	1:1	0.775	1.214	0.941	
1732.50	20175	Mid	back	8 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	21.5	20.15	2	0.05	1:1	0.708	1.365	0.966	
1732.50	20175	Mid	front	6 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	23.5	22.66	0	0.05	1:1	0.889	1.214	1.079	
1732.50	20175	Mid	front	6 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	21.5	20.15	2	0.05	1:1	0.840	1.365	1.147	
1732.50	20175	Mid	bottom	12 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	23.5	22.66	0	-0.12	1:1	0.667	1.214	0.810	
1732.50	20175	Mid	bottom	12 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	21.5	20.15	2	-0.03	1:1	0.562	1.365	0.767	
1732.50	20175	Mid	right	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	23.5	22.66	0	-0.19	1:1	0.188	1.214	0.228	
1732.50	20175	Mid	right	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	21.5	20.15	2	0.14	1:1	0.159	1.365	0.217	
1732.50	20175	Mid	left	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	23.5	22.66	0	-0.05	1:1	0.449	1.214	0.545	
1732.50	20175	Mid	left	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	21.5	20.15	2	-0.01	1:1	0.399	1.365	0.545	
1732.50	20175	Mid	back	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	19.5	19.04	0	0.01	1:1	1.240	1.112	1.379	A36
1732.50	20175	Mid	back	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	19.5	19.10	0	0.01	1:1	1.240	1.096	1.359	
1732.50	20175	Mid	front	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	19.5	19.04	0	0.03	1:1	1.050	1.112	1.168	
1732.50	20175	Mid	front	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	19.5	19.10	0	0.02	1:1	1.080	1.096	1.184	
1732.50	20175	Mid	bottom	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	1	50	19.5	19.04	0	0.07	1:1	0.858	1.112	0.954	
1732.50	20175	Mid	bottom	0 mm	LTE Band 4 (AWS)	A	Open	1098M	20	QPSK	50	25	19.5	19.10	0	-0.01	1:1	0.874	1.096	0.958	
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 11-37
LTE Band 41 Phablet SAR

MEASUREMENT RESULTS																								
# CC Uplink	Component Carrier	FREQUENCY			Side	Spacing	Mode	Antenna Config.	Form Factor	Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
		MHz	Ch.																	(W/kg)		(W/kg)	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	8 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	25.0	24.91	0	-0.01	1:1.58	0.530	1.021	0.541	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	8 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	25	24.0	23.95	1	-0.02	1:1.58	0.415	1.011	0.420	
1 CC Uplink	N/A	2636.50	41055	Mid-High	front	6 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	25.0	24.91	0	-0.05	1:1.58	0.581	1.021	0.593	
1 CC Uplink	N/A	2636.50	41055	Mid-High	front	6 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	25	24.0	23.95	1	-0.05	1:1.58	0.435	1.011	0.440	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	12 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	25.0	24.91	0	-0.01	1:1.58	0.560	1.021	0.572	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	12 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	25	24.0	23.95	1	-0.03	1:1.58	0.432	1.011	0.437	
1 CC Uplink	N/A	2636.50	41055	Mid-High	left	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	25.0	24.91	0	0.02	1:1.58	0.912	1.021	0.931	
1 CC Uplink	N/A	2636.50	41055	Mid-High	left	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	25	24.0	23.95	1	0.00	1:1.58	0.709	1.011	0.717	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	23.0	23.00	0	0.01	1:1.58	1.240	1.000	1.240	
1 CC Uplink	N/A	2636.50	41055	Mid-High	back	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	50	23.0	22.95	0	-0.01	1:1.58	1.160	1.012	1.174	
1 CC Uplink	N/A	2636.50	41055	Mid-High	front	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	23.0	23.00	0	-0.04	1:1.58	0.870	1.000	0.870	
1 CC Uplink	N/A	2636.50	41055	Mid-High	front	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	50	23.0	22.95	0	0.00	1:1.58	0.851	1.012	0.861	
1 CC Uplink	N/A	2506.00	39750	Low	bottom	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	23.0	22.22	0	0.03	1:1.58	1.100	1.197	1.317	
1 CC Uplink	N/A	2549.50	40185	Low-Mid	bottom	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	23.0	22.32	0	0.01	1:1.58	1.040	1.171	1.218	
1 CC Uplink	N/A	2593.00	40620	Mid	bottom	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	23.0	22.50	0	-0.11	1:1.58	1.230	1.123	1.381	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	50	23.0	23.00	0	0.15	1:1.58	1.510	1.000	1.510	A37
1 CC Uplink	N/A	2680.00	41490	High	bottom	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	1	0	23.0	22.39	0	0.00	1:1.58	1.350	1.151	1.554	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	50	50	23.0	22.95	0	0.01	1:1.58	1.410	1.012	1.427	
1 CC Uplink	N/A	2636.50	41055	Mid-High	bottom	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	100	0	23.0	22.10	0	0.02	1:1.58	1.390	1.230	1.710	
2 CC Uplink	PCC	2636.50	41055	Mid-High	bottom	0 mm	LTE Band 41	B	Open	1094M	20	QPSK	100	0	23.0	21.74	0	-0.03	1:1.58	1.340	1.337	**1.792**	
	SCC	2616.70	40857					B						0									

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 11-38
WLAN SISO Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5320	64	back	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.89	0.15	96.68	2.080	0.394	1.026	1.034	0.418	
5320	64	front	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.89	-0.04	96.68	2.090	0.591	1.026	1.034	0.627	
5320	64	top	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.89	0.01	96.68	1.360	0.260	1.026	1.034	0.276	
5320	64	left	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.89	-0.02	96.68	8.090	1.040	1.026	1.034	**1.103**	A38
5620	124	back	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.64	0.05	96.68	2.070	0.441	1.086	1.034	0.495	
5620	124	front	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.64	0.05	96.68	2.030	0.431	1.086	1.034	0.484	
5620	124	top	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.64	0.14	96.68	0.876	0.147	1.086	1.034	0.165	
5620	124	left	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.64	0.02	96.68	4.860	0.639	1.086	1.034	0.718	
5885	177	back	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.75	0.06	96.68	1.220	0.270	1.059	1.034	0.296	
5885	177	front	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.75	0.05	96.68	0.882	0.164	1.059	1.034	0.180	
5885	177	top	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.75	0.02	96.68	0.580	0.078	1.059	1.034	0.085	
5885	177	left	0 mm	802.11a	OFDM	1	Open	1100M	20	6	17.0	16.75	-0.03	96.68	5.760	0.687	1.059	1.034	0.752	

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 11-39
WLAN MIMO Phablet SAR

MEASUREMENT RESULTS																					
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	Form Factor	Device Serial Number	Bandwidth [MHz]	Data Rate (Mbps)	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.																W/kg	(W/kg)			(W/kg)	
5260	52	back	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.66	17.0	16.36	0.01	98.11	2.620	0.497	1.081	1.019	0.587	
5260	52	front	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.66	17.0	16.36	-0.08	98.11	2.400	0.601	1.081	1.019	0.710	
5260	52	top	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.66	17.0	16.36	0.04	98.11	2.790	0.457	1.081	1.019	0.540	
5260	52	right	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.66	17.0	16.36	0.08	98.11	0.795	0.148	1.081	1.019	0.175	
5260	52	left	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.66	17.0	16.36	-0.02	98.11	7.440	0.952	1.081	1.019	1.124	
5500	100	back	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.84	17.0	16.59	-0.02	98.11	2.280	0.529	1.038	1.019	0.592	
5500	100	front	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.84	17.0	16.59	-0.03	98.11	2.520	0.427	1.038	1.019	0.478	
5500	100	top	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.84	17.0	16.59	0.05	98.11	3.770	0.500	1.038	1.019	0.560	
5500	100	right	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.84	17.0	16.59	-0.03	98.11	1.040	0.205	1.038	1.019	0.230	
5500	100	left	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.84	17.0	16.59	0.04	98.11	6.260	0.717	1.038	1.019	0.803	
5885	177	back	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.71	17.0	16.63	0.00	98.11	1.380	0.213	1.069	1.019	0.236	
5885	177	front	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.71	17.0	16.63	0.02	98.11	2.000	0.426	1.069	1.019	0.473	
5885	177	top	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.71	17.0	16.63	0.00	98.11	2.640	0.459	1.069	1.019	0.509	
5885	177	right	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.71	17.0	16.63	-0.04	98.11	0.628	0.142	1.069	1.019	0.158	
5885	177	left	0 mm	802.11n	OFDM	MIMO	Open	0011M	20	13	17.0	16.71	17.0	16.63	-0.08	98.11	5.500	0.663	1.069	1.019	0.736	
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 20.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17.0 dBm.

Table 11-40
NFC Phablet SAR

MEASUREMENT RESULTS										
FREQUENCY	Side	Test Position	Mode	Type	Antenna Config.	Form Factor	Device Serial Number	Power Drift	SAR (10g)	Plot #
MHz									(W/kg)	
13.56	back	0 mm	NFC	B	NFC	Open	1094M	-0.07	0.009	A39
13.56	front	0 mm	NFC	B	NFC	Open	1094M	0.01	0.000	
13.56	bottom	0 mm	NFC	B	NFC	Open	1094M	-0.10	0.000	
13.56	right	0 mm	NFC	B	NFC	Open	1094M	0.02	0.000	
13.56	left	0 mm	NFC	B	NFC	Open	1094M	0.04	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			

11.5 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D04v01.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D04v01.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 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 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.

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 12 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 D04v01r03, this device is considered a "phablet" when it is in open configuration since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information).
12. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the 1g thresholds for the equivalent test cases.
13. This device uses Qualcomm Smart Transmit for 2G/3G/4G 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. This device has an open and closed configuration. When closed, 1g SAR test are required for back side at a test separation distance of 15mm for body-worn, and on all surfaces and edges with an antenna <=25 mm from that surface or edge at a test separation distance 5mm for hotspot.

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 D04v01, 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 D04v01, 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:

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 D04v01, 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.

WLAN Notes:

1. For held-to-ear, and hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n/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 D04v01 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Multi-Tx and Antenna SAR Consideration 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.

Bluetooth Notes

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 9 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.

12 SAR MEASUREMENT VARIABILITY

12.1 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 12-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS															
Band	FREQUENCY		Mode	Service	Side	Spacing	Antenna Config	Form Factor	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.							(W/kg)	(W/kg)		(W/kg)		(W/kg)	
835	846.60	4233	UMTS 850	RMC	back	5 mm	A	Closed	0.883	0.879	1.00	N/A	N/A	N/A	N/A
750	782.00	23230	LTE Band 13, 10 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	back	5 mm	A	Closed	0.836	0.832	1.00	N/A	N/A	N/A	N/A
1750	1732.50	20175	LTE Band 4 (AWS), 20 MHz Bandwidth	QPSK, 50 RB, 25 RB Offset	bottom	5 mm	A	Closed	0.889	0.888	1.00	N/A	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									

12.2 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.

13 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	5/10/2022	Annual	5/10/2023	MY42082659
Agilent	E4438C	ESG Vector Signal Generator	2/14/2022	Annual	2/14/2023	MY42082385
Agilent	N5182A	MXG Vector Signal Generator	6/21/2022	Annual	6/21/2023	MY47420651
Agilent	N5182A	MXG Vector Signal Generator	7/6/2021	Annual	7/6/2022	MY48180366
Agilent	8753ES	S-Parameter Vector Network Analyzer	2/11/2022	Annual	2/11/2023	MY40003841
Agilent	8753ES	S-Parameter Vector Network Analyzer	12/17/2021	Annual	12/17/2022	MY40000670
Agilent	E5515C	Wireless Communications Test Set	5/12/2022	Annual	5/12/2023	GB43304278
Agilent	E5515C	Wireless Communications Test Set	1/14/2020	Triennial	1/14/2023	GB43304447
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433974
Amplifier Research	15S1G6	Amplifier	9/15/2021	Annual	9/15/2022	433971
Anritsu	ML2496A	Power Meter	3/31/2022	Annual	3/31/2023	1138001
Anritsu	ML2496A	Power Meter	3/29/2022	Annual	3/29/2023	1306009
Anritsu	MA2411B	Pulse Power Sensor	4/29/2022	Annual	4/29/2023	1207470
Anritsu	MA2411B	Pulse Power Sensor	9/21/2021	Annual	9/21/2022	1339008
Anritsu	MS2028C	Vector Network Analyzer	5/4/2022	Annual	5/4/2023	1204153
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	6/27/2022	Annual	6/27/2023	6261895213
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	5/24/2022	Annual	5/24/2023	6201144418
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	3/31/2022	Annual	3/31/2023	6201664756
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	9/26/2021	Annual	9/26/2022	6201524637
Anritsu	MT8000A	Radio Communication Test Station	8/2/2021	Annual	8/2/2022	6272337438
Anritsu	MT8000A	Radio Communication Test Station	8/2/2021	Annual	8/2/2022	6272337436
Anritsu	MT8000A	Radio Communication Test Station	8/2/2021	Annual	8/2/2022	6272337437
Anritsu	MA24106A	USB Power Sensor	6/1/2022	Annual	6/1/2023	1349514
Anritsu	MA24106A	USB Power Sensor	7/7/2021	Annual	7/7/2022	1244512
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	200670623
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	200670633
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	200670635
Control Company	4040	Therm./ Clock/ Humidity Monitor	1/21/2022	Annual	1/21/2023	160574418
Control Company	4040	Therm./ Clock/ Humidity Monitor	3/12/2021	Biennial	3/12/2023	210202100
Mitutoyo	500-196-30	CD-6"ASX 6Inch Digital Caliper	2/16/2022	Triennial	2/16/2025	A20238413
Keysight Technologies	N6705B	DC Power Analyzer	5/5/2021	Triennial	5/5/2024	MY53004059
Keysight Technologies	N9020A	MXA Signal Analyzer	4/14/2022	Annual	4/14/2023	MY48010233
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini-Circuits	PWR-4GHS	Power Sensor	5/3/2022	Annual	5/3/2023	12108190029
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
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	VLF-6000+	Low Pass Filter DC to 6000 MHz	7/6/2021	Annual	7/6/2022	31634
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	ZUDC10-83-S+	Directional Coupler	CBT	N/A	CBT	2050
Mini-Circuits	ZUDC10-83-S+	Directional Coupler	9/15/2021	Annual	9/15/2022	2111
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Seekonk	TSF-100	Torque Wrench	7/8/2021	Annual	7/8/2022	47639-29
Seekonk	NC-100	Torque Wrench (8" lb)	8/5/2020	Biennial	8/5/2022	N/A
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	4/18/2022	Annual	4/18/2023	128633
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	3/29/2022	Annual	3/29/2023	171075
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	4/8/2022	Annual	4/8/2023	162125
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	4/7/2022	Annual	4/7/2023	167283
SPEAG	DAK-3.5	Dielectric Assessment Kit	1/6/2022	Annual	1/6/2023	1278
SPEAG	DAK-3.5	Dielectric Assessment Kit	10/20/2021	Annual	10/20/2022	1091
SPEAG	DAK-12	Dielectric Assessment Kit (10MHz - 3GHz)	3/21/2022	Annual	3/21/2023	1102
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1379
SPEAG	CLA13	13 MHz SAR Dipole	9/16/2021	Annual	9/16/2022	1002
SPEAG	D750V3	750 MHz SAR Dipole	5/9/2022	Annual	5/9/2023	1003
SPEAG	D750V3	750 MHz SAR Dipole	2/14/2022	Annual	2/14/2023	1046
SPEAG	D835V2	835 MHz SAR Dipole	4/14/2022	Annual	4/14/2023	4d119
SPEAG	D835V2	835 MHz SAR Dipole	5/9/2022	Annual	5/9/2023	4d180
SPEAG	D1765V2	1750 MHz SAR Dipole	5/14/2021	Biennial	5/14/2023	1008
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2021	Annual	10/22/2022	1150
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2022	Annual	2/21/2023	5d148
SPEAG	D1900V2	1900 MHz SAR Dipole	9/21/2021	Annual	9/21/2022	5d149
SPEAG	D2450V2	2450 MHz SAR Dipole	8/18/2021	Annual	8/18/2022	719
SPEAG	D2450V2	2450 MHz SAR Dipole	11/25/2021	Annual	11/25/2022	981
SPEAG	D2600V2	2600 MHz SAR Dipole	4/14/2021	Biennial	4/14/2023	1004
SPEAG	D2600V2	2600 MHz SAR Dipole	11/12/2019	Triennial	11/12/2022	1071
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/10/2022	Annual	1/10/2023	1057
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/22/2022	Annual	2/22/2023	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/16/2022	Annual	3/16/2023	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/10/2021	Annual	11/10/2022	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/14/2022	Annual	6/14/2023	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/11/2021	Annual	11/11/2022	1466
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/16/2022	Annual	5/16/2023	1502
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/21/2022	Annual	2/21/2023	1645
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/10/2022	Annual	5/10/2023	1678
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/4/2021	Annual	8/4/2022	1680
SPEAG	EX3DV4	SAR Probe	6/9/2022	Annual	6/9/2023	7402
SPEAG	EX3DV4	SAR Probe	6/16/2022	Annual	6/16/2023	7409
SPEAG	EX3DV4	SAR Probe	2/22/2022	Annual	2/22/2023	7417
SPEAG	EX3DV4	SAR Probe	3/21/2022	Annual	3/21/2023	7527
SPEAG	EX3DV4	SAR Probe	11/16/2021	Annual	11/16/2022	7538
SPEAG	EX3DV4	SAR Probe	9/20/2021	Annual	9/20/2022	7552
SPEAG	EX3DV4	SAR Probe	11/15/2021	Annual	11/15/2022	7565
SPEAG	EX3DV4	SAR Probe	2/24/2022	Annual	2/24/2023	7640
SPEAG	EX3DV4	SAR Probe	5/18/2022	Annual	5/18/2023	7660

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.

14 MEASUREMENT UNCERTAINTIES

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 Unceritainty	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

15 CONCLUSION

15.1 Measurement Conclusion

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

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

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