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SAR EVALUATION REPORT

Applicant Name:
Sony Corporation
1-7-1 Konan Minato-ku
Tokyo, 108-0075, Japan

Date of Testing:
03/24/2022 - 05/05/2022
Test Site/Location:
Element, Columbia, MD, USA
Document Serial No.:
1M2201200003-05.PY7

FCC ID: **PY7-57325M**

APPLICANT: **SONY CORPORATION**

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093

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/DTM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.12	0.83	0.72	N/A
PCE	GSM/DTM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	< 0.1	0.22	0.19	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	< 0.1	0.39	0.39	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	< 0.1	0.21	0.21	N/A
PCE	UMTS 1900	1852.4 - 1907.6 MHz	< 0.1	0.20	0.27	N/A
PCE	LTE Band 71	665.5 - 695.5 MHz	< 0.1	0.31	0.31	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	< 0.1	0.15	0.24	N/A
PCE	LTE Band 17	706.5 - 713.5 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.13	0.32	0.32	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.11	0.38	0.38	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.80	0.20	0.20	N/A
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.14	0.18	0.21	N/A
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	0.98	< 0.1	< 0.1	N/A
PCE	LTE Band 41	2498.5 - 2687.5 MHz	< 0.1	0.11	0.14	N/A
CBE	LTE Band 48	3552.5 - 3697.5 MHz	< 0.1	0.29	0.29	N/A
PCE	NR Band n71	665.5 - 695.5 MHz	< 0.1	0.38	0.38	N/A
PCE	NR Band n5 (Cell)	826.5 - 846.5 MHz	0.18	0.43	0.48	N/A
PCE	NR Band n66 (AWS)	1712.5 - 1777.5 MHz	0.21	0.31	0.35	N/A
PCE	NR Band n2 (PCS)	1852.5 - 1907.5 MHz	0.14	0.34	0.34	N/A
PCE	NR Band n41	2506.02 - 2679.99 MHz	<0.1	0.34	0.34	1.73
PCE	NR Band n77	3710.01 - 3969.99 MHz	<0.1	0.38	0.38	1.50
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.82	0.14	0.23	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	0.11	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.35	0.16	N/A	0.32
NII	U-NII-2C	5500 - 5720 MHz	0.17	< 0.1	N/A	0.29
NII	U-NII-3	5745 - 5825 MHz	0.14	< 0.1	< 0.1	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.36	< 0.1	0.12	N/A
DXX	NFC	13.56 MHz	N/A	N/A	N/A	< 0.1
Simultaneous SAR per KDB 690783 D01v01r03:			1.59	1.24	1.19	2.34

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

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

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

RJ Ortanez
Executive Vice President

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/DTM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/DTM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
LTE Band 48	Voice/Data	3552.5 - 3697.5 MHz
NR Band n71	Data	665.5 - 695.5 MHz
NR Band n5 (Cell)	Data	826.5 - 846.5 MHz
NR Band n66 (AWS)	Data	1712.5 - 1777.5 MHz
NR Band n2 (PCS)	Data	1852.5 - 1907.5 MHz
NR Band n41	Data	2506.02 - 2679.99 MHz
NR Band n77	Data	3710.01 - 3969.99 MHz
2.4 GHz WLAN	Data	2412 - 2462 MHz
U-NII-1	Data	5180 - 5240 MHz
U-NII-2A	Data	5260 - 5320 MHz
U-NII-2C	Data	5500 - 5720 MHz
U-NII-3	Data	5745 - 5825 MHz
U-NII-5	Data	5955 - 6415 MHz
U-NII-6	Data	6435 - 6525 MHz
U-NII-7	Data	6535 - 6875 MHz
U-NII-8	Data	6895 - 7115 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
NR Band n260	Data	37000 - 40000 MHz
NR Band n261	Data	27500 - 28350 MHz

1.2 Data Referencing

Mode	Antenna	Reference	Variant
GPRS 850	Main 1	Fully Evaluated	Fully Evaluated
GPRS 1900	Main 2	Fully Evaluated	Fully Evaluated
UMTS 850	Main 1	Fully Evaluated	Fully Evaluated
UMTS 1750	Main 2	Not Supported	Fully Evaluated
UMTS 1900	Main 2	Not Supported	Fully Evaluated
LTE Band 71	Main 1	Not Supported	Fully Evaluated
LTE Band 12	Main 1	Fully Evaluated	Fully Evaluated
LTE Band 12	Sub	Not Supported	Fully Evaluated
LTE Band 13	Main 1	Fully Evaluated	Fully Evaluated
LTE Band 13	Sub	Not Supported	Fully Evaluated
LTE Band 5 (Cell)	Main 1	Fully Evaluated	Fully Evaluated
LTE Band 5 (Cell)	Sub	Not Supported	Fully Evaluated
LTE Band 66 (AWS)	Main 2	Not Supported	Fully Evaluated
LTE Band 66 (AWS)	Sub	Not Supported	Fully Evaluated
LTE Band 25 (PCS)	Main 2	Not Supported	Fully Evaluated
LTE Band 2	Sub	Not Supported	Fully Evaluated
LTE Band 41	Main 2	Fully Evaluated	Fully Evaluated
LTE Band 48	Main 1	Not Supported	Fully Evaluated
NR Band n71	Main 1	Not Supported	Fully Evaluated
NR Band n5 (Cell)	Main 1	Not Supported	Fully Evaluated
NR Band n5 (Cell)	Sub	Not Supported	Fully Evaluated
NR Band n66 (AWS)	Main 2	Not Supported	Fully Evaluated
NR Band n2 (PCS)	Main 2	Not Supported	Fully Evaluated
NR Band n41	Main 2	Not Supported	Fully Evaluated
NR Band n77	Main 1	Not Supported	Fully Evaluated
NR Band n77	4th	Not Supported	Fully Evaluated
2.4 GHz WLAN	WLAN Main +	Fully Evaluated	Partially Referenced/Partially Evaluated
2.4 GHz WLAN	Wifi Sub /BT Div	Fully Evaluated	Referenced
5 GHz WLAN	WLAN Main +	Fully Evaluated	Partially Referenced/Partially Evaluated
5 GHz WLAN	Wifi Sub /BT Div	Fully Evaluated	Partially Referenced/Partially Evaluated
Bluetooth	WLAN Main +	Fully Evaluated	Referenced
Bluetooth	Wifi Sub /BT Div	Fully Evaluated	Referenced
NFC	NFC/Felicia	Fully Evaluated	Fully Evaluated

Per manufacturer declaration, the two devices PY7-83262V (reference FCC ID) and PY7-5325M (variant FCC ID) have a high degree of similarity. For unlicensed bands, the circuit design and components, including antennas and their locations, are identical. For licensed bands, the antennas and components are different. Per FCC guidance, testing was done fully on the reference model PY7-83262V, while spotcheck verification was performed on variant model PY7-5325M. For modes where the data was reused from the reference, comparison data tables were included in Section 12. Please see RF Exposure Technical Report S/N: 14176139-S1V1 for complete compliance evaluation for PY7-83262V.

1.3 Time-Averaging Algorithm for RF Exposure Compliance

This Device is enabled with the Qualcomm® Smart Transmit Gen2 feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. Refer to Compliance Summary document for detailed description of Qualcomm® Smart Transmit feature (report SN could be found in Section 1.11 – Bibliography).

Note that WLAN operations are not enabled with Smart Transmit.

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

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

Exposure Senario			Body-Worn	Hotspot	Extremity	Head	Maximum Tune-Up Output Power*
Averaging Volume			1g	1g	10g	1g	
Spacing			10 mm	10 mm	0 mm	0 mm	
DSI			3	3	3	2	
Technology/Band	Antenna	Antenna Group					Pmax
GSM 850	Main 1	AG0	23.3		23.3	23.3	23.3
GSM 1900	Main 2	AG0	17.8		17.8	17.8	17.8
UMTS 850	Main 1	AG0	21.0		21.0	21.0	21.0
UMTS 1750	Main 2	AG0	19.0		19.0	19.0	19.0
UMTS 1900	Main 2	AG0	19.0		19.0	19.0	19.0
LTE Band 71	Main 1	AG0	24.0		24.0	24.0	24.0
LTE Band 12/17	Main 1	AG0	21.0		21.0	24.0	24.0
LTE Band 12/17	Sub	AG1	20.5		20.5	N/A	23.5
LTE Band 13	Main 1	AG0	21.0		21.0	24.0	24.0
LTE Band 13	Sub	AG1	20.5		20.5	N/A	23.5
LTE Band 5 (Cell)	Main 1	AG0	21.0		21.0	24.0	24.0
LTE Band 5 (Cell)	Sub	AG1	20.5		20.5	N/A	23.5
LTE Band 66/4 (AWS)	Main 2	AG0	19.0		19.0	24.0	24.0
LTE Band 66/4 (AWS)	Sub	AG1	19.0		19.0	19.0	23.0
LTE Band 25/2 (PCS)	Main 2	AG0	19.0		19.0	24.0	24.0
LTE Band 2 (PCS)	Sub	AG1	19.0		19.0	19.0	23.0
LTE Band 48	Main 1	AG0	17.0		17.0	22.0	22.0
LTE Band 41 (PC3)	Main 2	AG0	17.0		17.0	22.0	22.0
NR Band n71	Main 1	AG0	24.0		24.0	24.0	24.0
NR Band n5 (Cell)	Main 1	AG0	21.0		21.0	24.0	24.0
NR Band n5 (Cell)	Sub	AG1	20.5		20.5	N/A	23.5
NR Band n66 (AWS)	Main 2	AG0	19.0		19.0	24.0	24.0
NR Band n2 (PCS)	Main 2	AG0	19.0		19.0	24.0	24.0
NR Band n41 (PC3)	Main 2	AG0	19.0		19.0	27.0	24.0
NR Band n41 (PC2)	Main 2	AG0	19.0		19.0	27.0	26.0
NR Band n77 (PC3)	Main 1	AG0	18.0		18.0	27.0	24.0
NR Band n77 (PC2)	Main 1	AG0	18.0		18.0	27.0	26.0
NR Band n77 (PC3)	4th path	AG1	16.3		16.3	N/A	16.3

*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/5G Sub6 WWAN technology, band, and DSI = minimum of "P_{limit} EFS" and "Maximum tune up output power P_{max}" + 1dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D01v06.

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

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

1.4 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06.

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

GSM/GPRS/EDGE 850										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
All DSI	Max Allowed Power	33.2	33.2	30.2	28.4	27.2	27.7	24.7	22.9	21.7
	Nominal	32.5	32.5	29.5	27.7	26.5	27.0	24.0	22.2	21.0
GSM/GPRS/EDGE 1900										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
All DSI	Max Allowed Power	27.7	27.7	24.7	22.9	21.7	26.7	23.7	21.9	20.7
	Nominal	27.0	27.0	24.0	22.2	21.0	26.0	23.0	21.2	20.0

DTM 850					
Power Level		DTM (GSM+GPRS) (in dBm)		DTM (GSM+EGPRS) (in dBm)	
		2 TX Slots	3 TX Slots	2 TX Slots	3 TX Slots
All DSI	Max Allowed Power	30.2	28.4	24.7	22.9
	Nominal	29.5	27.7	24.0	22.2
DTM 1900					
Power Level		DTM (GSM+GPRS) (in dBm)		DTM (GSM+EGPRS) (in dBm)	
		2 TX Slots	3 TX Slots	2 TX Slots	3 TX Slots
All DSI	Max Allowed Power	24.7	22.9	23.7	21.9
	Nominal	24.0	22.2	23.0	21.2

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

UMTS Band 5 (850 MHz)					
Power Level		Modulated Average Output Power (in dBm)			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
All DSI	Max Allowed Power	21.7	21.0	21.0	21.0
	Nominal	21.0	20.0	20.0	20.0
UMTS Band 4 (1750 MHz)					
Power Level		Modulated Average Output Power (in dBm)			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
All DSI	Max Allowed Power	19.7	19.0	19.0	19.0
	Nominal	19.0	18.0	18.0	18.0
UMTS Band 2 (1900 MHz)					
Power Level		Modulated Average Output Power (in dBm)			
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6	3GPP DC-HSDPA Rel 8
All DSI	Max Allowed Power	19.7	19.0	19.0	19.0
	Nominal	19.0	18.0	18.0	18.0

Mode / Band	Antenna		Modulated Average Output Power (in dBm)	
			DSI =2 (Head)	DSI =3 (Body Worn, Hotspot, Phablet)
LTE Band 71	Main 1	Max Allowed Power	25.0	25.0
		Nominal	24.0	24.0
LTE Band 12	Main 1	Max Allowed Power	25.0	22.0
		Nominal	24.0	21.0
LTE Band 12	Sub	Max Allowed Power	N/A	21.5
		Nominal	N/A	20.5
LTE Band 17	Main 1	Max Allowed Power	25.0	22.0
		Nominal	24.0	21.0
LTE Band 17	Sub	Max Allowed Power	N/A	21.5
		Nominal	N/A	20.5
LTE Band 13	Main 1	Max Allowed Power	25.0	22.0
		Nominal	24.0	21.0
LTE Band 13	Sub	Max Allowed Power	N/A	21.5
		Nominal	N/A	20.5
LTE Band 5 (Cell)	Main 1	Max Allowed Power	25.0	22.0
		Nominal	24.0	21.0
LTE Band 5 (Cell)	Sub	Max Allowed Power	N/A	21.5
		Nominal	N/A	20.5
LTE Band 66 (AWS)	Main 2	Max Allowed Power	25.0	20.0
		Nominal	24.0	19.0
LTE Band 66 (AWS)	Sub	Max Allowed Power	20.0	20.0
		Nominal	19.0	19.0
LTE Band 4	Main 2	Max Allowed Power	25.0	20.0
		Nominal	24.0	19.0
LTE Band 25 (PCS)	Main 2	Max Allowed Power	25.0	20.0
		Nominal	24.0	19.0
LTE Band 2 (PCS)	Main 2	Max Allowed Power	25.0	20.0
		Nominal	24.0	19.0
LTE Band 2 (PCS)	Sub	Max Allowed Power	20.0	20.0
		Nominal	19.0	19.0
LTE Band 41	Main 2	Max Allowed Power	25.0	20.0
		Nominal	24.0	19.0
LTE Band 48	Main 1	Max Allowed Power	25.0	20.0
		Nominal	24.0	19.0

Mode / Band	Antenna		Modulated Average Output Power (in dBm)	
			DSI =2 (Head)	DSI =3 (Body Worn, Hotspot, Phablet)
NR Band n71	Main 1	Max Allowed Power	25.0	25.0
		Nominal	24.0	24.0
NR Band n5 (Cell)	Main 1	Max Allowed Power	25.0	22.0
		Nominal	24.0	21.0
NR Band n5 (Cell)	Sub	Max Allowed Power	N/A	21.5
		Nominal	N/A	20.5
NR Band n66 (AWS)	Main 2	Max Allowed Power	25.0	20.0
		Nominal	24.0	19.0
NR Band n2 (PCS)	Main 2	Max Allowed Power	25.0	20.0
		Nominal	24.0	19.0
NR Band n41 (PC2)	Main 2	Max Allowed Power	27.0	20.0
		Nominal	26.0	19.0
NR Band n41 (PC3)	Main 2	Max Allowed Power	25.0	20.0
		Nominal	24.0	19.0
NR Band n77 (PC2)	Main 1	Max Allowed Power	27.0	19.0
		Nominal	26.0	18.0
NR Band n77 (PC3)	Main 1	Max Allowed Power	25.0	19.0
		Nominal	24.0	18.0
NR Band n77 (PC3)	4th path	Max Allowed Power	N/A	17.3
		Nominal	N/A	16.3

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

1.4.2 2.4 GHz Maximum SISO/MIMO WLAN Output Power

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

Mode	Band	IEEE 802.11 (in dBm)							
		SISO				MIMO			
		Chain 0							
		b	g	n	ax (SU)	b	g (CDD+STBC)	n (CDD+STBC,SDM)	ax (SU) (CDD+STBC,SDM)
Maximum/ Nominal Power		Max	Max	Max	Max	Max	Max	Max	Max
2.4 GHz WIFI	2.45 GHz	14.5	15.0 ch. 1: 14.0 ch. 11: 13.5	15.0 ch. 1: 13.5 ch. 11: 13.0	15.0 ch. 1: 13.5 ch. 11: 13.0	14.5	15.0 ch. 1: 14.0 ch. 11: 13.5	15.0 ch. 1: 13.5 ch. 11: 13.0	15.0 ch. 1: 13.5 ch. 11: 13.0
Mode	Band	IEEE 802.11 (in dBm)							
		SISO				MIMO			
		Chain 1							
		b	g	n	ax (SU)	b	g (CDD+STBC)	n (CDD+STBC,SDM)	ax (SU) (CDD+STBC,SDM)
Maximum/ Nominal Power		Max	Max	Max	Max	Max	Max	Max	Max
2.4 GHz WIFI	2.45 GHz	12.7	15.0 ch. 1: 14.0 ch. 11: 13.5	15.0 ch. 1: 13.5 ch. 11: 13.0	15.0 ch. 1: 13.5 ch. 11: 13.0	12.7	15.0 ch. 1: 14.0 ch. 11: 13.5	15.0 ch. 1: 13.5 ch. 11: 13.0	15.0 ch. 1: 13.5 ch. 11: 13.0

Note: in MIMO operations, each Chain 0 and Chain 1 transmits at maximum allowed powers as indicated above.

1.4.3 2.4 GHz Reduced MIMO WLAN Output Powers

The below table is applicable during Simultaneous Conditions with 2.4 GHz and 5/6 GHz WLAN

Mode	Band	IEEE 802.11 (in dBm)							
		MIMO							
		Chain 0				Chain 1			
		b	g (CDD+STBC)	n (CDD+STBC,SDM)	ax (SU) (CDD+STBC,SDM)	b	g (CDD+STBC)	n (CDD+STBC,SDM)	ax (SU) (CDD+STBC,SDM)
Maximum/ Nominal Power		Max	Max	Max	Max	Max	Max	Max	Max
2.4 GHz WIFI	2.45 GHz	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0

Note: in MIMO operations, each Chain 0 and Chain 1 transmits at maximum allowed powers as indicated above.

1.4.4 5 GHz Maximum SISO/MIMO WLAN Output Power

Mode	Band	IEEE 802.11 (in dBm)							
		SISO				MIMO			
		Chain 0							
		a	n (CDD+STBC, SDM)	ac (CDD+STBC, SDM)	ax (SU) (CDD+STBC, SDM)	a	n (CDD+STBC, SDM)	ac (CDD+STBC, SDM)	ax (SU) (CDD+STBC, SDM)
Maximum/ Nominal Power		Max	Max	Max	Max	Max	Max	Max	Max
5 GHz WIFI (20MHz BW)	UNII-1	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	UNII-2A	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	UNII-2C	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	UNII-3	11.5	11.5 ch. 149: 11.0	11.5 ch. 149: 11.0	11.5 ch. 149: 11.0	11.5	11.5 ch. 149: 11.0	11.5 ch. 149: 11.0	11.5 ch. 149: 11.0
5 GHz WIFI (40MHz BW)	UNII-1		11.5	11.5	11.5		11.5	11.5	11.5
	UNII-2A		11.5	11.5	11.5		11.5	11.5	11.5
	UNII-2C		11.5	11.5	11.5		11.5	11.5	11.5
	UNII-3		11.5 ch. 151: 11.0	11.5 ch. 151: 11.0	11.5 ch. 151: 11.0		11.5 ch. 151: 11.0	11.5 ch. 151: 11.0	11.5 ch. 151: 11.0
5 GHz WIFI (80MHz BW)	UNII-1			11.5	11.5			11.5	11.5
	UNII-2A			11.5	11.5			11.5	11.5
	UNII-2C			11.5	11.5			11.5	11.5
	UNII-3			11.5	11.5			11.5	11.5
5 GHz WIFI (160MHz BW)	UNII-1			11.5	11.5			11.5	11.5
	UNII-2A			11.5	11.5			11.5	11.5

Mode	Band	IEEE 802.11 (in dBm)							
		SISO				MIMO			
		Chain 1							
		a	n (CDD+STBC, SDM)	ac (CDD+STBC, SDM)	ax (SU) (CDD+STBC, SDM)	a	n (CDD+STBC, SDM)	ac (CDD+STBC, SDM)	ax (SU) (CDD+STBC, SDM)
Maximum/ Nominal Power		Max	Max	Max	Max	Max	Max	Max	Max
5 GHz WIFI (20MHz BW)	UNII-1	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	UNII-2A	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	UNII-2C	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	UNII-3	11.5	11.5 ch. 149: 11.0	11.5 ch. 149: 11.0	11.5 ch. 149: 11.0	11.5	11.5 ch. 149: 11.0	11.5 ch. 149: 11.0	11.5 ch. 149: 11.0
5 GHz WIFI (40MHz BW)	UNII-1		11.5	11.5	11.5		11.5	11.5	11.5
	UNII-2A		11.5	11.5	11.5		11.5	11.5	11.5
	UNII-2C		11.5	11.5	11.5		11.5	11.5	11.5
	UNII-3		11.5 ch. 151: 11.0	11.5 ch. 151: 11.0	11.5 ch. 151: 11.0		11.5 ch. 151: 11.0	11.5 ch. 151: 11.0	11.5 ch. 151: 11.0
5 GHz WIFI (80MHz BW)	UNII-1			11.5	11.5			11.5	11.5
	UNII-2A			11.5	11.5			11.5	11.5
	UNII-2C			11.5	11.5			11.5	11.5
	UNII-3			11.5	11.5			11.5	11.5
5 GHz WIFI (160MHz BW)	UNII-1			11.5	11.5			11.5	11.5
	UNII-2A			11.5	11.5			11.5	11.5

Note: in MIMO operations, each Chain 0 and Chain 1 transmits at maximum allowed powers as indicated above.

1.4.5 5 GHz Reduced MIMO WLAN Output Powers

The below table is applicable during Simultaneous Conditions with 2.4 GHz and 5 GHz WLAN

Mode	Band	IEEE 802.11 (in dBm)							
		MIMO							
		Chain 0				Chain 1			
		a	n (CDD+STBC, SDM)	ac (CDD+STBC, SDM)	ax (SU) (CDD+STBC, SDM)	a	n (CDD+STBC, SDM)	ac (CDD+STBC, SDM)	ax (SU) (CDD+STBC, SDM)
Maximum/ Nominal Power		Max	Max	Max	Max	Max	Max	Max	Max
5 GHz WIFI (20MHz BW)	UNII-1	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
	UNII-2A	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
	UNII-2C	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
	UNII-3	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
5 GHz WIFI (40MHz BW)	UNII-1		9.5	9.5	9.5		9.5	9.5	9.5
	UNII-2A		9.5	9.5	9.5		9.5	9.5	9.5
	UNII-2C		9.5	9.5	9.5		9.5	9.5	9.5
	UNII-3		9.5	9.5	9.5		9.5	9.5	9.5
5 GHz WIFI (80MHz BW)	UNII-1			9.5	9.5			9.5	9.5
	UNII-2A			9.5	9.5			9.5	9.5
	UNII-2C			9.5	9.5			9.5	9.5
	UNII-3			9.5	9.5			9.5	9.5
5 GHz WIFI (160MHz BW)	UNII-1			9.5	9.5			9.5	9.5
	UNII-2A			9.5	9.5			9.5	9.5

Note: in MIMO operations, each Chain 0 and Chain 1 transmits at maximum allowed powers as indicated above.

1.4.6 2.4 GHz Maximum Bluetooth Output Power

Bluetooth (in dBm)
14
EDR (in dBm)
13
BLE 1Mbps (in dBm)
10.79
BLE 2Mbps (in dBm)
10.79

1.5 DUT Antenna Locations

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

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Antenna	Back	Front	Top	Bottom	Right	Left
GPRS 850	Main 1	Yes	Yes	No	Yes	No	Yes
GPRS 1900	Main 2	Yes	Yes	No	Yes	Yes	No
UMTS 850	Main 1	Yes	Yes	No	Yes	No	Yes
UMTS 1750	Main 2	Yes	Yes	No	Yes	Yes	No
UMTS 1900	Main 2	Yes	Yes	No	Yes	Yes	No
LTE Band 71	Main 1	Yes	Yes	No	Yes	No	Yes
LTE Band 12	Main 1	Yes	Yes	No	Yes	No	Yes
LTE Band 12	Sub	Yes	Yes	Yes	No	Yes	Yes
LTE Band 13	Main 1	Yes	Yes	No	Yes	No	Yes
LTE Band 13	Sub	Yes	Yes	Yes	No	Yes	Yes
LTE Band 5 (Cell)	Main 1	Yes	Yes	No	Yes	No	Yes
LTE Band 5 (Cell)	Sub	Yes	Yes	Yes	No	Yes	Yes
LTE Band 66 (AWS)	Main 2	Yes	Yes	No	Yes	Yes	No
LTE Band 66 (AWS)	Sub	Yes	Yes	Yes	No	Yes	Yes
LTE Band 25 (PCS)	Main 2	Yes	Yes	No	Yes	Yes	No
LTE Band 2	Sub	Yes	Yes	Yes	No	Yes	Yes
LTE Band 41	Main 2	Yes	Yes	No	Yes	Yes	No
LTE Band 48	Main 1	Yes	Yes	No	Yes	No	Yes
NR Band n71	Main 1	Yes	Yes	No	Yes	No	Yes
NR Band n5 (Cell)	Main 1	Yes	Yes	No	Yes	No	Yes
NR Band n5 (Cell)	Sub	Yes	Yes	Yes	No	Yes	Yes
NR Band n66 (AWS)	Main 2	Yes	Yes	No	Yes	Yes	No
NR Band n2 (PCS)	Main 2	Yes	Yes	No	Yes	Yes	No
NR Band n41	Main 2	Yes	Yes	No	Yes	Yes	No
NR Band n77	Main 1	Yes	Yes	No	Yes	No	Yes
NR Band n77	4th	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN	WLAN Main +	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN	Wifi Sub /BT Div	Yes	Yes	No	Yes	No	Yes
5 GHz WLAN	WLAN Main +	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN	Wifi Sub /BT Div	Yes	Yes	No	Yes	No	Yes
Bluetooth	WLAN Main +	Yes	Yes	Yes	No	No	Yes
Bluetooth	Wifi Sub /BT Div	Yes	Yes	No	Yes	No	Yes
NFC	NFC/Felicia	Yes	Yes	Yes	No	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-2A, U-NII-2C operations are disabled.

1.6 Near Field Communications (NFC) Antenna

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

1.7 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

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

Table 1-2
Simultaneous Transmission Scenarios

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

1. All licensed modes 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-1 and U-NII-3 by S/W, therefore U-NII-2A, and U-NII-2C were not evaluated for wireless router conditions.
5. This device supports 2x2 MIMO Tx for WLAN 802.11a/g/n/ac/ax. 802.11a/g/n/ac/ax supports CDD and STBC and 802.11n/ac/ax additionally supports SDM.
6. This device supports VoLTE.
7. This device supports Bluetooth Tethering.
8. LTE + 5G NR FR1 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR1 checklist.
9. 5G NR FR2 n260, and n261 cannot transmit simultaneously.
10. LTE + 5G NR FR2 Scenarios are limited to EN-DC combinations with anchor bands as shown in the NR FR2 checklist.
11. 5 GHz WLAN and 6 GHz WLAN share the same antenna path and cannot transmit simultaneously.
12. 2.4 GHz WLAN and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
13. 6 GHz Wireless Router is not supported, therefore it was not evaluated for wireless router conditions.

1.8 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

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

This device supports IEEE 802.11ax with the following features:

a) Up to 80 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" since the diagonal dimension is greater than 160mm and less than 200mm. Phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Because wireless router operations are not supported for U-NII-2A and U-NII-2C WLAN, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz 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 6 GHz WIFI Operations. RF Exposure assessment for these bands can be found in the WIFI6E RF Exposure Report (report SN can be found in Section 1.11 – Bibliography). Simultaneous transmission analysis is addressed in the Simultaneous Numerical Calculations Appendix of this report.

(B) Licensed Transmitter(s)

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

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

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

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

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

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

1.9 Guidance Applied

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

1.10 Device Serial Numbers

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

1.11 Bibliography

Report Type	Report Serial Number
Near Field PD Report (Part 1)	1M2201200003-08.PY7
RF Exposure Part 2 Test Report	1M2201200003-04.PY7
RF Exposure Compliance Summary Report	1M2201200003-10.PY7
WIFI 6GHz RF exposure	1M2201200003-9.PY7

2 LTE AND NR INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 71 (665.5 - 695.5 MHz)				
	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 17 (706.5 - 713.5 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
	LTE Band 48 (3552.5 - 3697.5 MHz)				
Channel Bandwidths	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 17: 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 48: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)		680.5 (133297)	695.5 (133447)	
LTE Band 71: 10 MHz	668 (133172)		680.5 (133297)	693 (133422)	
LTE Band 71: 15 MHz	670.5 (133197)		680.5 (133297)	690.5 (133397)	
LTE Band 71: 20 MHz	673 (133222)		680.5 (133297)	688 (133372)	
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 17: 5 MHz	706.5 (23755)		710 (23790)	713.5 (23825)	
LTE Band 17: 10 MHz	709 (23780)		710 (23790)	711 (23800)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	N/A	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)	1914.3 (26683)	
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)	1913.5 (26675)	
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)	1912.5 (26665)	
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)	1910 (26640)	
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)	1907.5 (26615)	
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)	1905 (26590)	
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2549.5 (40185)	2593 (40620)	2636.5 (41055)
LTE Band 48: 5 MHz	3552.5 (55265)	3600.8 (55748)	N/A	3649.2 (56232)	3697.5 (56715)
LTE Band 48: 10 MHz	3555 (55290)	3601.7 (55757)	N/A	3648.3 (56223)	3695 (56690)
LTE Band 48: 15 MHz	3557.5 (55315)	3602.5 (55765)	N/A	3647.5 (56215)	3692.5 (56665)
LTE Band 48: 20 MHz	3560 (55340)	3603.3 (55773)	N/A	3646.7 (56207)	3690 (56640)
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, downlink MIMO, LAA features as shown in Appendix J. 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, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

NR Information						
Form Factor	Portable Handset					
Frequency Range of each NR transmission band	NR Band n71 (665.5 - 695.5 MHz)					
	NR Band n5 (Cell) (826.5 - 846.5 MHz)					
	NR Band n66 (AWS) (1712.5 - 1777.5 MHz)					
	NR Band n2 (PCS) (1852.5 - 1907.5 MHz)					
	NR Band n41 (2506.02 - 2679.99 MHz)					
	NR Band n77 (3710.01 - 3969.99 MHz)					
Channel Bandwidths	NR Band n71: 5 MHz, 10 MHz, 15 MHz, 20 MHz					
	NR Band n5 (Cell): 5 MHz, 10 MHz, 15 MHz, 20 MHz					
	NR Band n66 (AWS): 5 MHz, 10 MHz, 15 MHz, 20 MHz					
	NR Band n2 (PCS): 5 MHz, 10 MHz, 15 MHz, 20 MHz					
	NR Band n41: 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 80 MHz, 90 MHz, 100 MHz					
	NR Band n77: 20 MHz, 30 MHz, 40 MHz, 60 MHz, 80 MHz, 100 MHz					
Channel Numbers and Frequencies (MHz)						
NR Band n71: 5 MHz	665.5 (133147)		680.5 (136100)		695.5 (133447)	
NR Band n71: 10 MHz	668 (133600)		680.5 (136100)		693 (138600)	
NR Band n71: 15 MHz	670.5 (134100)		680.5 (136100)		690.5 (138100)	
NR Band n71: 20 MHz	673 (134600)		680.5 (136100)		688 (137600)	
NR Band n5 (Cell): 5 MHz	826.5 (165300)		836.5 (167300)		846.5 (169300)	
NR Band n5 (Cell): 10 MHz	829 (165800)		836.5 (167300)		844 (168800)	
NR Band n5 (Cell): 15 MHz	831.5 (166300)		836.5 (167300)		841.5 (168300)	
NR Band n5 (Cell): 20 MHz	834 (166800)		836.5 (167300)		839 (167800)	
NR Band n66 (AWS): 5 MHz	1712.5 (342500)		1745 (349000)		1777.5 (355500)	
NR Band n66 (AWS): 10 MHz	1715 (343000)		1745 (349000)		1775 (355000)	
NR Band n66 (AWS): 15 MHz	1717.5 (343500)		1745 (349000)		1772.5 (354500)	
NR Band n66 (AWS): 20 MHz	1720 (344000)		1745 (349000)		1770 (354000)	
NR Band n2 (PCS): 5 MHz	1852.5 (370500)		1880 (376000)		1907.5 (381500)	
NR Band n2 (PCS): 10 MHz	1855 (371000)		1880 (376000)		1905 (381000)	
NR Band n2 (PCS): 15 MHz	1857.5 (371500)		1880 (376000)		1902.5 (380500)	
NR Band n2 (PCS): 20 MHz	1860 (372000)		1880 (376000)		1900 (380000)	
NR Band n41: 20 MHz	2506.02 (501204)	2549.49 (509898)	2592.99 (518598)		2636.49 (527298)	2679.99 (535998)
NR Band n41: 30 MHz	2511 (502200)	2552.01 (510402)	2592.99 (518598)		2634 (526800)	2674.98 (534996)
NR Band n41: 40 MHz	2516.01 (503202)	2567.34 (513468)	N/A		2618.67 (523734)	2670 (534000)
NR Band n41: 50 MHz	2521.02 (504204)		2592.99 (518598)		2664.99 (532998)	
NR Band n41: 60 MHz	2526 (505200)		2592.99 (518598)		2659.98 (531996)	
NR Band n41: 80 MHz	2536.02 (507204)		N/A		2649.99 (529998)	
NR Band n41: 90 MHz	2541 (508200)		N/A		2644.98 (528996)	
NR Band n41: 100 MHz	2546.01 (509202)		2592.99 (518598)		2640 (528000)	
NR Band n77: 20 MHz	3710.01 (647334)	3762 (650800)	3813.99 (654266)	3866.01 (657734)	3918 (661200)	3969.99 (664666)
NR Band n77: 30 MHz	3715.02 (647668)	3765 (651000)	3815.01 (654334)	3864.99 (657666)	3915 (661000)	3964.98 (664332)
NR Band n77: 40 MHz	3720 (648000)	3768 (651200)	3816 (654400)	3864 (657600)	3912 (660800)	3960 (664000)
NR Band n77: 60 MHz	3730.02 (648668)	3803.34 (653556)	N/A	N/A	3876.66 (658444)	3949.98 (663332)
NR Band n77: 80 MHz	3740.01 (649334)	N/A	3840 (656000)		N/A	3939.99 (662666)
NR Band n77: 100 MHz	3750 (650000)	N/A	N/A	N/A	N/A	3930 (662000)
SCS for NR Band n71/n5/n66/n2	15 kHz					
SCS for NR Band n41/n77	30 kHz					
A-MPR (Additional MPR) disabled for SAR Testing?	YES					
EN-DC Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations					
LTE Anchor Bands for NR Band n71	LTE Band 66/2					
LTE Anchor Bands for NR Band n5 (Cell)	LTE Band 66/2					
LTE Anchor Bands for NR Band n66 (AWS)	LTE Band 12/13/2/5					
LTE Anchor Bands for NR Band n2 (PCS)	LTE Band 12/13/66/5					
LTE Anchor Bands for NR Band n41	LTE Band 12/2					
LTE Anchor Bands for NR Band n77	LTE Band 12/13/2/5/66					

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:

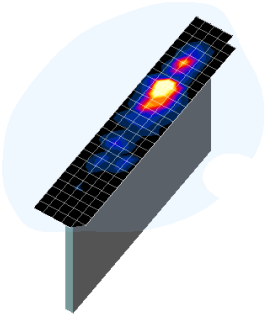

Figure 4-1
Sample SAR Area Scan

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].

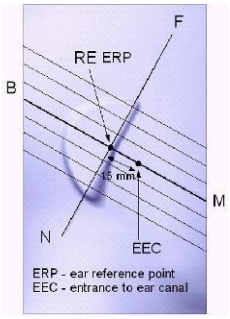

Figure 5-1
Close-Up Side view of ERP

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.

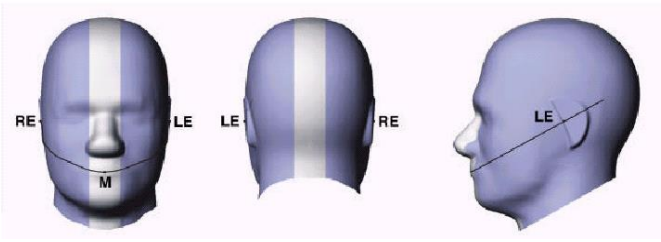

Figure 5-2
Front, back and side view of SAM Twin Phantom

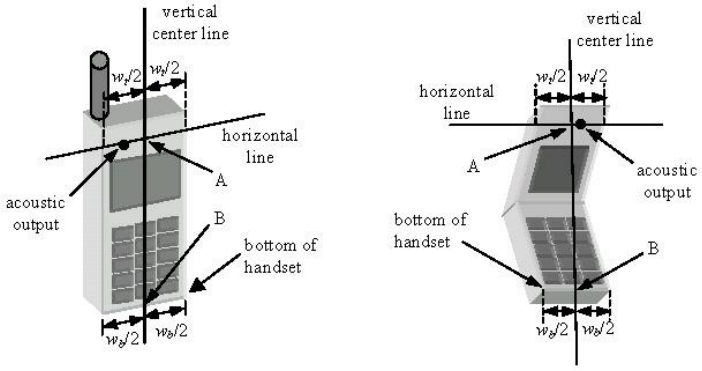

Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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.

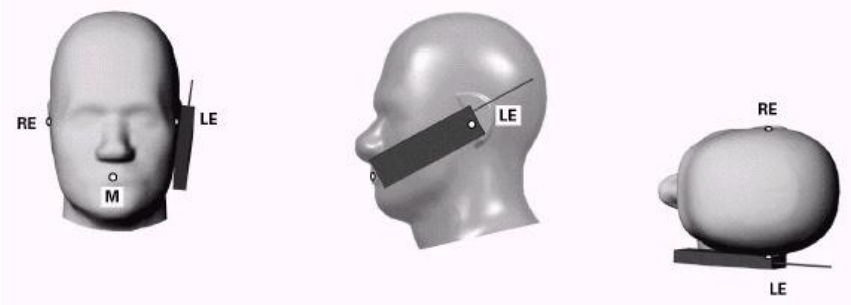

Figure 6-1 Front, Side and Top View of Cheek Position

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).

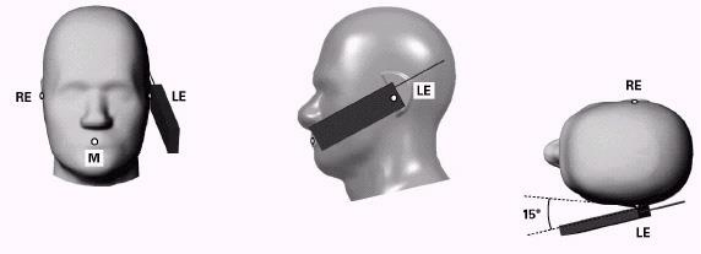

Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

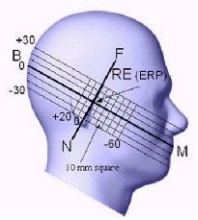

Figure 6-3
Side view w/ relevant markings

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 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

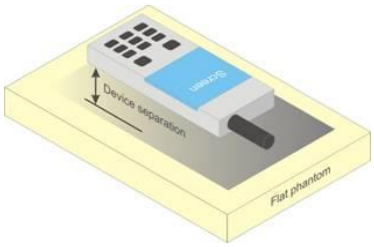

Figure 6-4
Sample Body-Worn Diagram

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that

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

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented.
Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

6.6 Extremity Exposure Configurations

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

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

6.7 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets (L 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 D01v06 procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

6.8 Phablet Configurations

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

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 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

8.2 3G SAR Test Reduction Procedure

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

8.3 Procedures Used to Establish RF Signal for SAR

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

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

8.4 SAR Measurement Conditions for UMTS

8.4.1 Output Power Verification

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

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.

8.4.6 SAR Measurement Conditions for DC-HSDPA

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

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 D01v06 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is <1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9 RF CONDUCTED POWERS

All conducted power measurements for 2G/3G/4G/5G Sub6 WWAN technologies and bands in this section were performed by setting *Reserve_power_margin* (Qualcomm® Smart Transmit EFS entry) to 0dB, so that the EUT transmits continuously at minimum (P_{limit}, maximum tune up output power P_{max}).

9.1 GSM Conducted Powers

Table 9-1
GSM/GPRS/EDGE Measured P_{Max} for all DSI

Maximum Burst-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	32.41	32.42	29.26	27.28	**26.15**	26.65	23.49	21.67	20.59
	190	32.47	32.46	29.25	27.31	**26.27**	26.86	23.59	21.79	20.79
	251	32.48	32.40	29.26	27.36	**26.13**	26.83	23.58	21.26	20.20
GSM 1900	512	26.45	26.48	23.45	21.58	**20.53**	25.50	22.02	20.36	19.30
	661	26.45	26.86	23.74	21.75	**20.75**	26.02	22.30	20.64	19.51
	810	26.47	26.69	23.84	21.86	**20.83**	26.00	22.42	20.77	19.63

Calculated Maximum Frame-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	23.21	23.22	23.07	22.85	**22.97**	17.45	17.30	17.24	17.41
	190	23.27	23.26	23.06	22.88	**23.09**	17.66	17.40	17.36	17.61
	251	23.28	23.20	23.07	22.93	**22.95**	17.63	17.39	16.83	17.02
GSM 1900	512	17.25	17.28	17.26	17.15	**17.35**	16.30	15.83	15.93	16.12
	661	17.25	17.66	17.55	17.32	**17.57**	16.82	16.11	16.21	16.33
	810	17.27	17.49	17.65	17.43	**17.65**	16.80	16.23	16.34	16.45

GSM 850	**Frame Avg.Targets:**	23.30	23.30	23.31	23.27	**23.32**	17.80	17.81	17.77	17.82
GSM 1900		17.80	17.80	17.81	17.77	**17.82**	16.80	16.81	16.77	16.82

Table 9-2
DTM Measured *Pmax* for all DSI

Maximum Burst-Averaged Output Power					
		DTM (GSM + GPRS)		*DTM (GSM + EGPRS)*	
Band	**Channel**	**DTM [dBm] CS + PS (2 Slots)**	**DTM [dBm] CS + 2PS (3 Slots)**	**DTM [dBm] CS + PS (2 Slots)**	**DTM [dBm] CS + 2PS (3 Slots)**
GSM 850	128	29.56	**27.61**	24.59	22.51
	190	29.52	**27.93**	24.61	22.55
	251	29.57	**27.94**	24.51	22.49
GSM 1900	512	24.01	**22.19**	23.08	21.19
	661	24.12	**22.40**	23.09	21.25
	810	24.17	**22.32**	23.13	21.03

Calculated Maximum Frame-Averaged Output Power					
		DTM (GSM + GPRS)		*DTM (GSM + EGPRS)*	
Band	**Channel**	**DTM [dBm] CS + PS (2 Slots)**	**DTM [dBm] CS + 2PS (3 Slots)**	**DTM [dBm] CS + PS (2 Slots)**	**DTM [dBm] CS + 2PS (3 Slots)**
GSM 850	128	23.37	**23.18**	18.40	18.08
	190	23.33	**23.50**	18.42	18.12
	251	23.38	**23.51**	18.32	18.06
GSM 1900	512	17.82	**17.76**	16.89	16.76
	661	17.93	**17.97**	16.90	16.82
	810	17.98	**17.89**	16.94	16.60

GSM 850	**Frame Avg.Targets:**	23.31	**23.27**	17.81	17.77
GSM 1900		17.81	**17.77**	16.81	16.77

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.
4. DTM output powers were measured with a communication test set with DTM supported when the device was operating in DTM using one CS slot plus PS multislots. The bolded DTM modes were selected for SAR testing according to the according to the maximum CS and PS slots according to KDB 941225 D04v01.

GSM Class: A
GPRS Multislot class: 33 (Max 4 Tx uplink slots)
EDGE Multislot class: 33 (Max 4 Tx uplink slots)
DTM Multislot Class: 11 (Max 3 Tx uplink slots)

Figure 9-1
Power Measurement Setup

9.2 UMTS Conducted Powers

Table 9-3
Measured P_{Max} for all DSI

Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
		4132	4183	4233	1312	1412	1513	9262	9400	9538	
WCDMA	12.2 kbps RMC	21.36	21.25	21.40	19.40	19.10	19.08	19.10	19.07	19.21	-
	12.2 kbps AMR	21.40	21.10	21.30	19.13	19.19	19.28	19.36	19.31	19.31	-
HSDPA	Subtest 1	20.00	20.15	20.13	18.29	18.26	18.21	18.32	18.50	18.28	0
	Subtest 2	20.01	20.08	20.13	18.15	18.27	18.20	18.29	18.53	18.30	0
	Subtest 3	19.49	19.61	19.67	17.77	17.80	17.72	17.81	18.02	17.82	0.5
	Subtest 4	19.47	19.62	19.57	17.76	18.20	17.61	17.82	17.99	17.79	0.5
HSUPA	Subtest 1	20.04	20.13	20.13	18.31	18.32	18.22	18.28	18.49	18.25	0
	Subtest 2	18.02	18.15	18.20	16.28	16.32	16.22	16.28	16.43	16.30	2
	Subtest 3	18.87	19.00	19.01	17.19	17.21	17.21	17.27	17.47	17.29	1
	Subtest 4	18.23	18.26	18.32	16.27	16.25	16.24	16.29	16.49	16.25	2
	Subtest 5	20.00	19.98	19.95	18.30	18.38	18.29	18.25	18.45	18.30	0
DC-HSDPA	Subtest 1	19.90	20.01	19.67	17.82	17.92	17.80	17.79	17.92	17.77	0
	Subtest 2	19.89	19.99	19.95	17.81	17.83	17.79	17.75	17.95	17.76	0
	Subtest 3	19.32	19.48	19.49	17.33	17.36	17.30	17.25	17.39	17.25	0.5
	Subtest 4	19.34	19.41	19.50	17.32	17.26	17.28	17.24	17.26	17.23	0.5

DC-HSDPA considerations

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

Figure 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 the LTE and NR Lower Bandwidth Conducted Power Appendix.

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

9.3.1 LTE Band 71

Table 9-4
LTE Band 71 Measured P_{Max} for all DSI - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 133297 (680.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	23.86	0	0
	1	50	23.94		0
	1	99	**23.95**		0
	50	0	22.74	0-1	1
	50	25	22.78		1
	50	50	**22.83**		1
	100	0	22.79		1
16QAM	1	0	22.98	0-1	1
	1	50	23.49		1
	1	99	23.31		1
	50	0	21.78	0-2	2
	50	25	21.81		2
	50	50	21.81		2
	100	0	21.80		2
64QAM	1	0	22.02	0-2	2
	1	50	22.35		2
	1	99	22.08		2
	50	0	20.75	0-3	3
	50	25	20.81		3
	50	50	20.78		3
	100	0	20.79		3

9.3.2 LTE Band 12

Table 9-5
LTE Band 12 Cellular Main 1 Antenna Measured P_{Max} for DSI=2 (Head) - 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	**23.71**	0	0
	1	25	23.63		0
	1	49	23.56		0
	25	0	23.04	0-1	1
	25	12	23.05		1
	25	25	**23.07**		1
	50	0	23.02		1
16QAM	1	0	23.40	0-1	1
	1	25	23.29		1
	1	49	23.36		1
	25	0	22.10	0-2	2
	25	12	22.06		2
	25	25	22.09		2
	50	0	22.00		2
64QAM	1	0	22.33	0-2	2
	1	25	22.35		2
	1	49	22.23		2
	25	0	21.06	0-3	3
	25	12	21.10		3
	25	25	21.09		3
	50	0	21.01		3

Table 9-6
LTE Band 12 Cellular Main 1 Antenna Measured P_{limit} for DSI = 3 (Body-worn, Hotspot or Phablet)- 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	**21.20**	0	0
	1	25	21.03		0
	1	49	20.97		0
	25	0	21.13	0-1	0
	25	12	21.09		0
	25	25	**21.14**		0
	50	0	21.12		0
16QAM	1	0	21.46	0-1	0
	1	25	21.37		0
	1	49	21.36		0
	25	0	21.13	0-2	0
	25	12	21.09		0
	25	25	21.15		0
	50	0	21.10		0
64QAM	1	0	21.52	0-2	0
	1	25	21.45		0
	1	49	21.35		0
	25	0	21.12	0-3	0
	25	12	21.09		0
	25	25	21.07		0
	50	0	21.07		0

Table 9-7
LTE Band 12 Cellular Sub Antenna Measured P_{limit} for DSI = 3 (Body-worn, Hotspot or Phablet)- 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	**20.80**	0	0
	1	25	20.73		0
	1	49	20.68		0
	25	0	**20.81**	0-1	0
	25	12	20.76		0
	25	25	20.80		0
	50	0	20.75		0
16QAM	1	0	21.30	0-1	0
	1	25	21.13		0
	1	49	21.05		0
	25	0	20.79	0-2	0
	25	12	20.81		0
	25	25	20.77		0
	50	0	20.74		0
64QAM	1	0	20.95	0-2	0
	1	25	20.94		0
	1	49	20.90		0
	25	0	20.75	0-3	0
	25	12	20.77		0
	25	25	20.80		0
	50	0	20.76		0

9.3.3 LTE Band 13

Table 9-8
LTE Band 13 Cellular Main 1 Antenna Measured P_{max} for DSI = 2 (Head)- 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	23.75	0	0
	1	25	**23.77**		0
	1	49	23.70		0
	25	0	23.10	0-1	1
	25	12	23.06		1
	25	25	**23.12**		1
	50	0	23.10		1
16QAM	1	0	23.47	0-1	1
	1	25	23.48		1
	1	49	23.31		1
	25	0	22.05	0-2	2
	25	12	22.05		2
	25	25	22.08		2
	50	0	22.13		2
64QAM	1	0	22.35	0-2	2
	1	25	22.30		2
	1	49	22.18		2
	25	0	21.12	0-3	3
	25	12	21.10		3
	25	25	21.12		3
	50	0	21.10		3

Table 9-9
LTE Band 13 Cellular Main 1 Antenna Measured P_{limit} for DSI = 3 (Body-worn, Hotspot or Phablet)- 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	**21.30**	0	0
	1	25	21.20		0
	1	49	21.18		0
	25	0	21.10	0-1	0
	25	12	21.14		0
	25	25	**21.16**		0
	50	0	21.15		0
16QAM	1	0	21.53	0-1	0
	1	25	21.37		0
	1	49	21.47		0
	25	0	21.19	0-2	0
	25	12	21.15		0
	25	25	21.21		0
	50	0	21.20		0
64QAM	1	0	21.43	0-2	0
	1	25	21.34		0
	1	49	21.37		0
	25	0	21.15	0-3	0
	25	12	21.10		0
	25	25	21.17		0
	50	0	21.16		0

Table 9-10
LTE Band 13 Cellular Sub Antenna Measured P_{limit} for DSI = 3 (Body-worn, Hotspot or Phablet)- 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	20.80	0	0
	1	25	**20.89**		0
	1	49	20.83		0
	25	0	**20.92**	0-1	0
	25	12	20.87		0
	25	25	20.91		0
	50	0	20.87		0
16QAM	1	0	21.30	0-1	0
	1	25	21.20		0
	1	49	21.15		0
	25	0	20.96	0-2	0
	25	12	20.92		0
	25	25	20.99		0
	50	0	20.91		0
64QAM	1	0	21.06	0-2	0
	1	25	21.15		0
	1	49	21.10		0
	25	0	20.90	0-3	0
	25	12	20.91		0
	25	25	20.90		0
	50	0	20.91		0

9.3.4 LTE Band 5

Table 9-11
LTE Band 5 (Cell) Cellular Main 1 Antenna Measured P_{Max} for DSI=2 (Head) - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.00**	0	0
	1	25	23.93		0
	1	49	23.96		0
	25	0	23.30	0-1	1
	25	12	23.30		1
	25	25	**23.31**		1
	50	0	23.29		1
16QAM	1	0	23.68	0-1	1
	1	25	23.70		1
	1	49	23.65		1
	25	0	22.35	0-2	2
	25	12	22.37		2
	25	25	22.39		2
	50	0	22.30		2
64QAM	1	0	22.56	0-2	2
	1	25	22.52		2
	1	49	22.52		2
	25	0	21.34	0-3	3
	25	12	21.36		3
	25	25	21.37		3
	50	0	21.31		3

Table 9-12
LTE Band 5 (Cell) Cellular Main 1 Antenna Measured P_{limit} for DSI = 3 (Body-worn, Hotspot or Phablet)- 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**21.35**	0	0
	1	25	21.18		0
	1	49	21.13		0
	25	0	**21.15**	0-1	0
	25	12	21.13		0
	25	25	21.14		0
	50	0	21.13		0
16QAM	1	0	21.57	0-1	0
	1	25	21.50		0
	1	49	21.51		0
	25	0	21.18	0-2	0
	25	12	21.13		0
	25	25	21.26		0
	50	0	21.18		0
64QAM	1	0	21.32	0-2	0
	1	25	21.35		0
	1	49	21.40		0
	25	0	21.16	0-3	0
	25	12	21.16		0
	25	25	21.16		0
	50	0	21.20		0

Table 9-13
LTE Band 5 (Cell) Cellular Sub Antenna Measured P_{limit} for DSI = 3 (Body-worn, Hotspot or Phablet)- 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	21.20	0	0
	1	25	**21.21**		0
	1	49	21.20		0
	25	0	21.16	0-1	0
	25	12	**21.18**		0
	25	25	21.17		0
	50	0	21.16		0
16QAM	1	0	21.34	0-1	0
	1	25	21.49		0
	1	49	21.49		0
	25	0	21.20	0-2	0
	25	12	21.24		0
	25	25	21.25		0
	50	0	21.18		0
64QAM	1	0	21.36	0-2	0
	1	25	21.45		0
	1	49	21.50		0
	25	0	21.20	0-3	0
	25	12	21.20		0
	25	25	21.23		0
	50	0	21.20		0

9.3.5 LTE Band 66

Table 9-14
LTE Band 66 (AWS) Cellular Main 2 Antenna Measured P_{Max} for DSI=2 (Head) - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.92	23.59	**23.96**	0	0
	1	50	23.95	23.67	23.94		0
	1	99	23.93	23.65	23.94		0
	50	0	22.89	22.83	22.79	0-1	1
	50	25	22.93	22.93	22.86		1
	50	50	22.94	22.90	**22.96**		1
	100	0	22.94	22.91	22.95		1
16QAM	1	0	23.11	23.24	23.17	0-1	1
	1	50	23.25	23.47	23.27		1
	1	99	23.13	23.05	23.25		1
	50	0	21.93	21.85	21.83	0-2	2
	50	25	21.95	21.92	21.88		2
	50	50	21.93	21.95	21.86		2
	100	0	21.99	21.86	21.90		2
64QAM	1	0	22.12	22.10	22.23	0-2	2
	1	50	22.18	22.45	22.41		2
	1	99	22.07	22.08	22.10		2
	50	0	20.94	20.89	20.77	0-3	3
	50	25	20.94	20.91	20.88		3
	50	50	20.94	20.92	20.86		3
	100	0	20.92	20.94	20.88		3

Table 9-15
LTE Band 66 (AWS) Cellular Main 2 Antenna Measured P_{limit} for DSI = 3 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.08	19.35	19.23	0	0
	1	50	19.04	19.35	19.33		0
	1	99	19.01	**19.37**	19.25		0
	50	0	19.25	19.18	19.15	0-1	0
	50	25	19.32	**19.33**	19.17		0
	50	50	19.25	19.27	19.24		0
	100	0	19.32	19.26	19.13		0
16QAM	1	0	19.55	19.42	19.33	0-1	0
	1	50	19.73	19.76	19.41		0
	1	99	19.66	19.60	19.43		0
	50	0	19.26	19.18	19.16	0-2	0
	50	25	19.34	19.23	19.16		0
	50	50	19.32	19.27	19.29		0
	100	0	19.29	19.26	19.23		0
64QAM	1	0	19.43	19.49	19.50	0-2	0
	1	50	19.41	19.62	19.52		0
	1	99	19.56	19.50	19.47		0
	50	0	19.15	19.22	19.22	0-3	0
	50	25	19.33	19.29	19.17		0
	50	50	19.32	19.30	19.24		0
	100	0	19.24	19.26	19.20		0

Table 9-16
LTE Band 66 Cellular Sub Antenna (AWS) Measured P_{Max} for all DSI – 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.98	19.98	19.94	0	0
	1	50	19.96	19.98	19.94		0
	1	99	19.99	**20.00**	19.95		0
	50	0	19.97	**20.00**	19.91	0-1	0
	50	25	19.93	19.96	19.90		0
	50	50	19.96	19.98	19.88		0
	100	0	19.98	19.99	19.90		0
16QAM	1	0	20.00	19.98	19.95	0-1	0
	1	50	19.95	20.00	19.88		0
	1	99	19.95	19.98	19.93		0
	50	0	20.00	20.00	19.87	0-2	0
	50	25	20.00	19.97	19.98		0
	50	50	19.99	19.97	19.92		0
	100	0	19.91	19.98	19.94		0
64QAM	1	0	19.97	19.99	19.87	0-2	0
	1	50	19.93	20.00	19.92		0
	1	99	19.91	19.94	19.92		0
	50	0	20.00	19.90	19.88	0-3	0
	50	25	19.95	19.99	19.89		0
	50	50	19.91	19.98	19.92		0
	100	0	19.93	19.95	19.90		0

9.3.1 LTE Band 25

Table 9-17
LTE Band 25 (PCS) Measured P_{Max} for DSI=2 (Head) - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.53	23.90	23.73	0	0
	1	50	23.55	23.90	23.75		0
	1	99	23.54	**23.91**	23.65		0
	50	0	22.83	22.85	22.78	0-1	1
	50	25	22.85	**22.86**	22.83		1
	50	50	22.83	22.85	22.78		1
	100	0	22.82	22.84	22.81		1
16QAM	1	0	23.02	23.13	23.00	0-1	1
	1	50	23.28	23.51	23.09		1
	1	99	23.10	23.20	22.85		1
	50	0	21.80	21.83	21.85	0-2	2
	50	25	21.90	21.85	21.82		2
	50	50	21.84	21.84	21.79		2
	100	0	21.88	21.79	21.73		2
64QAM	1	0	21.95	22.27	22.00	0-2	2
	1	50	22.18	22.31	22.02		2
	1	99	22.08	22.15	21.86		2
	50	0	20.80	20.83	20.81	0-3	3
	50	25	20.88	20.85	20.84		3
	50	50	20.82	20.86	20.80		3
	100	0	20.87	20.85	20.81		3

Table 9-18
LTE Band 25 (PCS) Measured P_{Limit} for DSI = 3 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.25	19.04	19.12	0	0
	1	50	**19.34**	18.96	19.13		0
	1	99	19.32	18.87	18.97		0
	50	0	19.17	19.15	19.14	0-1	0
	50	25	**19.28**	19.24	19.12		0
	50	50	19.23	19.19	19.12		0
	100	0	19.26	19.21	19.09		0
16QAM	1	0	19.62	19.60	19.33	0-1	0
	1	50	19.64	19.67	19.43		0
	1	99	19.53	19.45	19.13		0
	50	0	19.15	19.21	19.15	0-2	0
	50	25	19.27	19.22	19.10		0
	50	50	19.25	19.21	19.08		0
	100	0	19.20	19.33	19.10		0
64QAM	1	0	19.33	19.34	19.25	0-2	0
	1	50	19.41	19.21	19.15		0
	1	99	19.70	19.36	19.15		0
	50	0	19.18	19.22	19.07	0-3	0
	50	25	19.32	19.26	19.18		0
	50	50	19.27	19.23	19.05		0
	100	0	19.30	19.18	19.22		0

9.3.1 LTE Band 2

Table 9-19
LTE Band 2 Cellular Sub Antenna (AWS) Measured P_{Max} for all DSI – 20 MHz Bandwidth

LTE Band 2 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18700 (1860.0 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19100 (1900.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.98	19.91	19.95	0	0
	1	50	19.98	19.99	19.93		0
	1	99	19.99	**20.00**	19.96		0
	50	0	19.98	**20.00**	19.97	0-1	0
	50	25	19.93	19.95	19.96		0
	50	50	19.95	19.96	19.96		0
	100	0	19.90	19.97	19.95		0
16QAM	1	0	19.99	20.00	19.98	0-1	0
	1	50	19.93	19.95	20.00		0
	1	99	19.91	20.00	19.96		0
	50	0	19.98	19.94	20.00	0-2	0
	50	25	19.92	19.93	19.94		0
	50	50	19.95	19.96	19.91		0
	100	0	19.91	19.91	19.99		0
64QAM	1	0	19.96	19.92	19.95	0-2	0
	1	50	19.92	19.99	19.97		0
	1	99	19.89	19.98	19.99		0
	50	0	19.90	19.99	19.98	0-3	0
	50	25	19.92	19.96	20.00		0
	50	50	19.98	20.00	20.00		0
	100	0	19.91	20.00	19.92		0

9.3.2 LTE Band 41

Table 9-20
LTE Band 41 PC3 Measured P_{Max} for DSI=2 (Head) - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.47	23.85	24.05	23.85	23.61	0	0
	1	50	23.87	23.74	23.98	**24.08**	24.05		0
	1	99	23.81	23.77	24.04	23.65	23.94		0
	50	0	23.12	23.00	23.15	23.11	22.98	0-1	1
	50	25	23.15	23.04	23.24	**23.25**	23.15		1
	50	50	23.10	22.98	23.23	23.02	23.12		1
	100	0	23.15	23.00	23.20	23.21	23.08		1
16QAM	1	0	23.01	22.89	23.14	22.95	22.67	0-1	1
	1	50	23.06	22.82	23.40	23.14	23.03		1
	1	99	22.88	22.92	23.10	22.77	23.08		1
	50	0	22.14	22.00	22.14	22.15	22.03	0-2	2
	50	25	22.10	22.00	22.20	22.16	22.20		2
	50	50	22.10	21.97	22.26	22.04	22.05		2
	100	0	22.14	22.01	22.25	22.13	22.07		2
64QAM	1	0	21.83	21.81	22.16	21.92	21.67	0-2	2
	1	50	22.18	21.87	21.98	22.09	22.17		2
	1	99	21.85	21.91	22.04	21.56	22.06		2
	50	0	21.10	21.04	21.09	21.08	20.97	0-3	3
	50	25	21.11	20.98	21.17	21.12	21.17		3
	50	50	21.11	20.97	21.16	21.02	21.09		3
	100	0	21.11	21.00	21.20	21.06	21.10		3

Table 9-21
LTE Band 41 PC3 Measured P_{Limit} DSI = 3 (Body-worn, Hotspot or Phablet) – 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	19.02	19.21	19.32	18.96	18.77	0	0
	1	50	19.26	19.23	19.24	19.30	19.17		0
	1	99	19.21	19.32	**19.33**	18.87	19.22		0
	50	0	19.20	19.29	19.35	19.21	18.96	0-1	0
	50	25	19.31	19.36	**19.38**	19.30	19.13		0
	50	50	19.28	19.32	19.36	19.10	19.15		0
	100	0	19.26	19.30	19.31	19.13	19.03		0
16QAM	1	0	19.14	19.17	19.45	19.07	18.87	0-1	0
	1	50	19.50	19.56	19.71	19.21	19.22		0
	1	99	19.15	19.36	19.45	19.00	19.09		0
	50	0	19.25	19.23	19.39	19.23	18.98	0-2	0
	50	25	19.36	19.31	19.37	19.23	19.12		0
	50	50	19.33	19.32	19.40	19.09	19.02		0
	100	0	19.36	19.35	19.38	19.13	19.10		0
64QAM	1	0	19.11	19.21	19.22	18.80	18.74	0-2	0
	1	50	18.99	19.35	19.34	19.27	19.20		0
	1	99	19.08	19.47	19.18	18.84	19.13		0
	50	0	19.20	19.21	19.33	19.21	18.94	0-3	0
	50	25	19.28	19.31	19.34	19.24	19.10		0
	50	50	19.26	19.28	19.42	19.08	19.05		0
	100	0	19.32	19.24	19.28	19.08	19.01		0

9.3.1 LTE Band 48

Table 9-22
LTE Band 48 Measured P_{Max} for DSI=2 (Head) - 20 MHz Bandwidth

LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55340 (3560.0 MHz)	Low-Mid Channel 55773 (3603.3 MHz)	Mid-High Channel 56207 (3646.7 MHz)	High Channel 56640 (3690.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	23.40	23.61	23.92	**24.22**	0	0
	1	50	23.43	23.68	23.98	24.03		0
	1	99	23.40	23.69	24.06	24.02		0
	50	0	22.57	22.75	22.99	23.17	0-1	1
	50	25	22.62	22.90	23.00	23.21		1
	50	50	22.61	22.87	23.09	**23.24**		1
	100	0	22.60	22.86	23.01	23.13		1
16QAM	1	0	23.01	23.18	23.47	23.53	0-1	1
	1	50	23.32	23.25	23.77	23.81		1
	1	99	23.06	23.17	23.43	23.55		1
	50	0	21.59	21.78	21.97	22.19	0-2	2
	50	25	21.57	21.89	22.02	22.26		2
	50	50	21.62	21.91	22.11	22.23		2
	100	0	21.60	21.87	22.01	22.16		2
64QAM	1	0	21.61	21.98	22.23	22.45	0-2	2
	1	50	21.92	22.33	22.61	22.74		2
	1	99	21.73	22.10	22.32	22.46		2
	50	0	20.57	20.76	20.97	21.14	0-3	3
	50	25	20.62	20.88	21.00	21.24		3
	50	50	20.61	20.89	21.10	21.22		3
	100	0	20.61	20.85	20.93	21.15		3

Table 9-23
LTE Band 48 P_{Limit} DSI = 3 (Body-worn, Hotspot or Phablet) – 20 MHz Bandwidth

LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55340 (3560.0 MHz)	Low-Mid Channel 55773 (3603.3 MHz)	Mid-High Channel 56207 (3646.7 MHz)	High Channel 56640 (3690.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	18.27	18.36	18.75	18.73	0	0
	1	50	18.20	18.27	18.64	18.69		0
	1	99	18.34	18.36	18.61	**18.77**		0
	50	0	18.24	18.35	18.63	18.76	0-1	0
	50	25	18.30	18.47	18.64	18.80		0
	50	50	18.32	18.42	18.71	**18.87**		0
	100	0	18.28	18.40	18.58	18.76		0
16QAM	1	0	18.48	18.33	18.86	18.60	0-1	0
	1	50	18.48	18.45	18.72	18.82		0
	1	99	18.27	18.27	18.77	18.76		0
	50	0	18.30	18.40	18.62	18.77	0-2	0
	50	25	18.34	18.45	18.67	18.84		0
	50	50	18.36	18.47	18.72	18.89		0
	100	0	18.32	18.48	18.69	18.83		0
64QAM	1	0	18.16	18.39	18.73	18.73	0-2	0
	1	50	18.27	18.73	18.76	18.89		0
	1	99	18.22	18.48	18.66	18.93		0
	50	0	18.25	18.40	18.63	18.80	0-3	0
	50	25	18.30	18.50	18.62	18.82		0
	50	50	18.35	18.46	18.75	18.95		0
	100	0	18.37	18.48	18.68	18.76		0

Figure 9-3
Power Measurement Setup

9.4 NR Conducted Powers

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

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

9.4.1 NR Band n71

Table 9-24
NR Band n71 Measured P_{Max} for all DSI - 20 MHz Bandwidth

NR Band n71 20 MHz Bandwidth					
			Channel		
Modulation	RB Size	RB Offset	136100 (680.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
DFT-s-OFDM π/2 BPSK	1	1	23.62	0	0.0
	1	53	23.66		0.0
	1	104	23.47		0.0
	50	0	23.18	0-0.5	0.5
	50	28	23.72	0	0.0
	50	56	23.13	0-0.5	0.5
	100	0	23.25		0.5
DFT-s-OFDM QPSK	1	1	23.77	0	0.0
	1	53	**23.79**		0.0
	1	104	23.56		0.0
	50	0	22.74	0-1	1.0
	50	28	**23.76**	0	0.0
	50	56	22.65	0-1	1.0
	100	0	22.75		1.0
DFT-s-OFDM 16QAM	1	1	23.03	0-1	1.0
CP-OFDM QPSK	1	1	22.11	0-1.5	1.5

9.4.2 NR Band n5

Table 9-25
NR Band n5 Cellular Main 1 Antenna Measured P_{Max} for DSI=2 (Head) - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
			Channel		
Modulation	RB Size	RB Offset	167300 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
DFT-s-OFDM π/2 BPSK	1	1	23.60	0	0.0
	1	53	23.61		0.0
	1	104	23.47		0.0
	50	0	23.02	0-0.5	0.5
	50	28	23.54	0	0.0
	50	56	22.94	0-0.5	0.5
	100	0	23.04		0.5
DFT-s-OFDM QPSK	1	1	**23.55**	0	0.0
	1	53	23.54		0.0
	1	104	23.51		0.0
	50	0	22.54	0-1	1.0
	50	28	**23.55**	0	0.0
	50	56	22.44	0-1	1.0
	100	0	22.57		1.0
DFT-s-OFDM 16QAM	1	1	22.36	0-1	1.0
CP-OFDM QPSK	1	1	21.99	0-1.5	1.5

Table 9-26
NR Band n5 Cellular Main 1 Antenna Measured P_{Limit} DSI = 3 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
			Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	167300 (836.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM π/2 BPSK	1	1	20.56	0	0.0
	1	53	20.51		0.0
	1	104	20.39		0.0
	50	0	20.54	0-0.5	0.0
	50	28	20.44	0	0.0
	50	56	20.38	0-0.5	0.0
	100	0	20.48		0.0
DFT-s-OFDM QPSK	1	1	**20.61**	0	0.0
	1	53	20.57		0.0
	1	104	20.43		0.0
	50	0	**20.50**	0-1	0.0
	50	28	20.47	0	0.0
	50	56	20.41	0-1	0.0
	100	0	20.49		0.0
DFT-s-OFDM 16QAM	1	1	20.53	0-1	0.0
CP-OFDM QPSK	1	1	20.48	0-1.5	0.0

Table 9-27
NR Band n5 Cellular Sub Antenna Measured P_{Limit} DSI = 3 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

NR Band n5 20 MHz Bandwidth					
			Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	167300 (836.5 MHz) Conducted Power [dBm]		
DFT-s-OFDM π/2 BPSK	1	1	20.14	0	0.0
	1	53	20.07		0.0
	1	104	19.96		0.0
	50	0	20.15	0-0.5	0.0
	50	28	20.03	0	0.0
	50	56	20.00	0-0.5	0.0
	100	0	20.08		0.0
DFT-s-OFDM QPSK	1	1	**20.17**	0	0.0
	1	53	20.03		0.0
	1	104	20.00		0.0
	50	0	**20.12**	0-1	0.0
	50	28	20.03	0	0.0
	50	56	19.97	0-1	0.0
	100	0	20.09		0.0
DFT-s-OFDM 16QAM	1	1	19.91	0-1	0.0
CP-OFDM QPSK	1	1	20.05	0-1.5	0.0

9.4.3 NR Band n66

Table 9-28
NR Band n66 Measured P_{Max} for DSI=2 (Head) - 20 MHz Bandwidth

NR Band n66 20 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	344000 (1720 MHz)	349000 (1745 MHz)	354000 (1770 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	23.52	23.38	23.34	0	0.0
	1	53	23.44	23.40	23.28		0.0
	1	104	23.51	23.41	23.33		0.0
	50	0	22.98	22.98	22.88	0-0.5	0.5
	50	28	23.45	23.42	23.39	0	0.0
	50	56	22.96	22.96	22.90	0-0.5	0.5
	100	0	23.01	22.95	22.89		0.5
DFT-s-OFDM QPSK	1	1	23.58	23.39	23.47	0	0.0
	1	53	23.52	23.40	23.34		0.0
	1	104	**23.61**	23.47	23.41		0.0
	50	0	22.52	22.44	22.48	0-1	1.0
	50	28	**23.77**	23.51	23.47	0	0.0
	50	56	22.55	22.48	22.43	0-1	1.0
	100	0	22.52	22.46	22.46		1.0
DFT-s-OFDM 16QAM	1	1	22.50	22.63	22.75	0-1	1.0
CP-OFDM QPSK	1	1	22.07	21.79	21.79	0-1.5	1.5

Table 9-29
NR Band n66 Measured P_{Limit} DSI = 3 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

NR Band n66 20 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	344000 (1720 MHz)	349000 (1745 MHz)	354000 (1770 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	18.37	18.42	18.41	0	0.0
	1	53	18.28	18.29	18.32		0.0
	1	104	18.32	18.35	18.35		0.0
	50	0	18.34	18.41	18.37	0-0.5	0.0
	50	28	18.32	18.40	18.38	0	0.0
	50	56	18.31	18.37	18.34	0-0.5	0.0
	100	0	18.31	18.41	18.36		0.0
DFT-s-OFDM QPSK	1	1	18.36	**18.45**	18.40	0	0.0
	1	53	18.22	18.34	18.33		0.0
	1	104	18.35	18.41	18.35		0.0
	50	0	18.33	**18.45**	18.41	0-1	0.0
	50	28	18.31	18.41	18.38	0	0.0
	50	56	18.37	18.41	18.30	0-1	0.0
	100	0	18.38	18.43	18.36		0.0
DFT-s-OFDM 16QAM	1	1	18.60	18.58	18.64	0-1	0.0
CP-OFDM QPSK	1	1	18.30	18.29	18.25	0-1.5	0.0

9.4.4 NR Band n2

Table 9-30
NR Band n2 Measured P_{Max} for DSI=2 (Head) - 20 MHz Bandwidth

NR Band n2 20 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	372000 (1860 MHz)	376000 (1880 MHz)	380000 (1900 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	23.36	23.34	23.29	0	0.0
	1	53	23.34	23.30	23.26		0.0
	1	104	23.31	23.31	23.27		0.0
	50	0	22.86	22.73	22.75	0-0.5	0.5
	50	28	23.37	23.24	23.23	0	0.0
	50	56	22.85	22.73	22.81	0-0.5	0.5
	100	0	22.91	22.75	22.79		0.5
DFT-s-OFDM QPSK	1	1	**23.42**	23.41	23.37	0	0.0
	1	53	23.41	23.38	23.28		0.0
	1	104	23.40	23.30	23.30		0.0
	50	0	22.44	22.31	22.30	0-1	1.0
	50	28	**23.45**	23.28	23.27	0	0.0
	50	56	22.41	22.26	22.29	0-1	1.0
	100	0	22.44	22.29	22.27		1.0
DFT-s-OFDM 16QAM	1	1	22.66	22.50	22.66	0-1	1.0
CP-OFDM QPSK	1	1	21.79	21.77	21.76	0-1.5	1.5

Table 9-31
NR Band n2 Measured P_{Limit} for DSI = 3 (Body-worn, Hotspot or Phablet) - 20 MHz Bandwidth

NR Band n2 20 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	372000 (1860 MHz)	376000 (1880 MHz)	380000 (1900 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	18.38	18.34	18.27	0	0.0
	1	53	18.36	18.27	18.28		0.0
	1	104	18.28	18.21	18.25		0.0
	50	0	18.31	18.28	18.18	0-0.5	0.0
	50	28	18.35	18.23	18.25	0	0.0
	50	56	18.28	18.21	18.21	0-0.5	0.0
	100	0	18.31	18.26	18.20		0.0
DFT-s-OFDM QPSK	1	1	**18.37**	18.34	18.31	0	0.0
	1	53	18.35	18.27	18.30		0.0
	1	104	18.31	18.20	18.26		0.0
	50	0	18.33	18.26	18.22	0-1	0.0
	50	28	**18.36**	18.27	18.26	0	0.0
	50	56	18.28	18.26	18.25	0-1	0.0
	100	0	18.31	18.22	18.26		0.0
DFT-s-OFDM 16QAM	1	1	18.53	18.47	18.53	0-1	0.0
CP-OFDM QPSK	1	1	18.18	18.15	18.17	0-1.5	0.0

9.4.5 NR Band n41

Table 9-32
NR Band n41 PC2 Cellular Main 2 Antenna Measured P_{Max} for DSI = 2 (Head) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
			Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM π/2 BPSK	1	1	25.44	0	0.0
	1	137	25.45		0.0
	1	271	25.31		0.0
	135	0	24.91	0-0.5	0.5
	135	69	25.23	0	0.0
	135	138	24.58	0-0.5	0.5
	270	0	24.65		0.5
DFT-s-OFDM QPSK	1	1	25.39	0	0.0
	1	137	**25.52**		0.0
	1	271	25.40		0.0
	135	0	24.38	0-1	1.0
	135	69	**25.35**	0	0.0
	135	138	24.22	0-1	1.0
	270	0	24.39		1.0
DFT-s-OFDM 16QAM	1	1	24.25	0-1	1.0
CP-OFDM QPSK	1	1	23.91	0-1.5	1.5

Table 9-33
NR Band n41 PC2 Cellular Main 2 Antenna Measured P_{Limit} for DSI = 3 (Body-worn, Hotspot or Phablet) - 100 MHz Bandwidth

NR Band n41 100 MHz Bandwidth					
			Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	518598 (2592.99 MHz) Conducted Power [dBm]		
DFT-s-OFDM π/2 BPSK	1	1	19.09	0	0.0
	1	137	19.18		0.0
	1	271	18.83		0.0
	135	0	19.16	0-0.5	0.0
	135	69	19.16	0	0.0
	135	138	18.87	0-0.5	0.0
	270	0	18.99		0.0
DFT-s-OFDM QPSK	1	1	18.90	0	0.0
	1	137	**19.11**		0.0
	1	271	18.78		0.0
	135	0	19.06	0-1	0.0
	135	69	**19.07**	0	0.0
	135	138	18.81	0-1	0.0
	270	0	18.97		0.0
DFT-s-OFDM 16QAM	1	1	19.01	0-1	0.0
CP-OFDM QPSK	1	1	18.63	0-1.5	0.0

9.4.6 NR Band n77 C-Band

Table 9-34
NR Band n77 PC2 Cellular Main 1 Antenna Measured P_{Max} for DSI = 2 (Head) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM π/2 BPSK	1	1	25.34	25.16	0	0.0
	1	137	25.62	25.29		0.0
	1	271	25.29	25.18		0.0
	135	0	25.30	24.67	0-0.5	0.5
	135	69	25.64	25.14	0	0.0
	135	138	24.98	24.59	0-0.5	0.5
	270	0	25.13	24.91		0.5
DFT-s-OFDM QPSK	1	1	25.62	25.05	0	0.0
	1	137	**25.76**	25.11		0.0
	1	271	25.36	25.03		0.0
	135	0	24.79	24.48	0-1	1.0
	135	69	**25.75**	25.01	0	0.0
	135	138	24.56	24.46	0-1	1.0
	270	0	24.72	24.50		1.0
DFT-s-OFDM 16QAM	1	1	24.52	24.11	0-1	1.0
CP-OFDM QPSK	1	1	24.20	23.51	0-1.5	1.5

Table 9-35
NR Band n77 PC2 Cellular Main 1 Antenna Measured P_{Limit} for DSI = 3 (Body-worn, Hotspot or Phablet) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM π/2 BPSK	1	1	18.46	18.30	0	0.0
	1	137	18.78	18.96		0.0
	1	271	18.49	18.76		0.0
	135	0	18.84	18.59	0-0.5	0.0
	135	69	18.75	18.83	0	0.0
	135	138	18.70	18.82	0-0.5	0.0
	270	0	18.73	18.71		0.0
DFT-s-OFDM QPSK	1	1	18.50	18.24	0	0.0
	1	137	18.83	**18.95**		0.0
	1	271	18.48	18.76		0.0
	135	0	18.82	18.65	0-1	0.0
	135	69	18.76	**18.83**	0	0.0
	135	138	18.68	18.78	0-1	0.0
	270	0	18.76	18.70		0.0
DFT-s-OFDM 16QAM	1	1	18.75	18.57	0-1	0.0
CP-OFDM QPSK	1	1	18.37	18.38	0-1.5	0.0

Table 9-36
NR Band n77 PC2 Cellular 4th Path Antenna Measured P_{Limit} for DSI = 3 (Body-worn, Hotspot or Phablet) - 100 MHz Bandwidth

NR Band n77 100 MHz Bandwidth						
			Channel		MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	650000 (3750 MHz)	662000 (3930 MHz)		
			Conducted Power [dBm]			
DFT-s-OFDM π/2 BPSK	1	1	15.78	16.52	0	0.0
	1	137	16.12	16.85		0.0
	1	271	16.38	16.63		0.0
	135	0	16.07	16.62	0-0.5	0.0
	135	69	16.18	16.70	0	0.0
	135	138	16.22	16.70	0-0.5	0.0
	270	0	16.20	16.66		0.0
DFT-s-OFDM QPSK	1	1	15.94	16.58	0	0.0
	1	137	16.10	**17.16**		0.0
	1	271	16.50	16.77		0.0
	135	0	16.05	16.65	0-1	0.0
	135	69	16.18	16.71	0	0.0
	135	138	16.15	**16.76**	0-1	0.0
	270	0	16.20	16.70		0.0
DFT-s-OFDM 16QAM	1	1	16.13	16.50	0-1	0.0
CP-OFDM QPSK	1	1	15.77	16.75	0-1.5	0.0

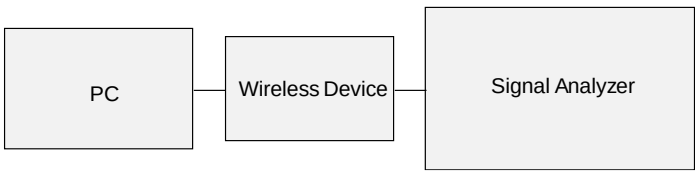

Figure 9-4
Power Measurement Setup

9.5 WLAN Conducted Powers

**Refer to original FCC filing for reference FCC ID PY7-83262V, RF Exposure Technical Report S/N: 14176139-S1V1. The same powers were used in this assessment.

9.6 Bluetooth Conducted Powers

**Refer to original FCC filing for reference FCC ID PY7-83262V, RF Exposure Technical Report S/N: 14176139-S1V1. The same powers were used in this assessment.

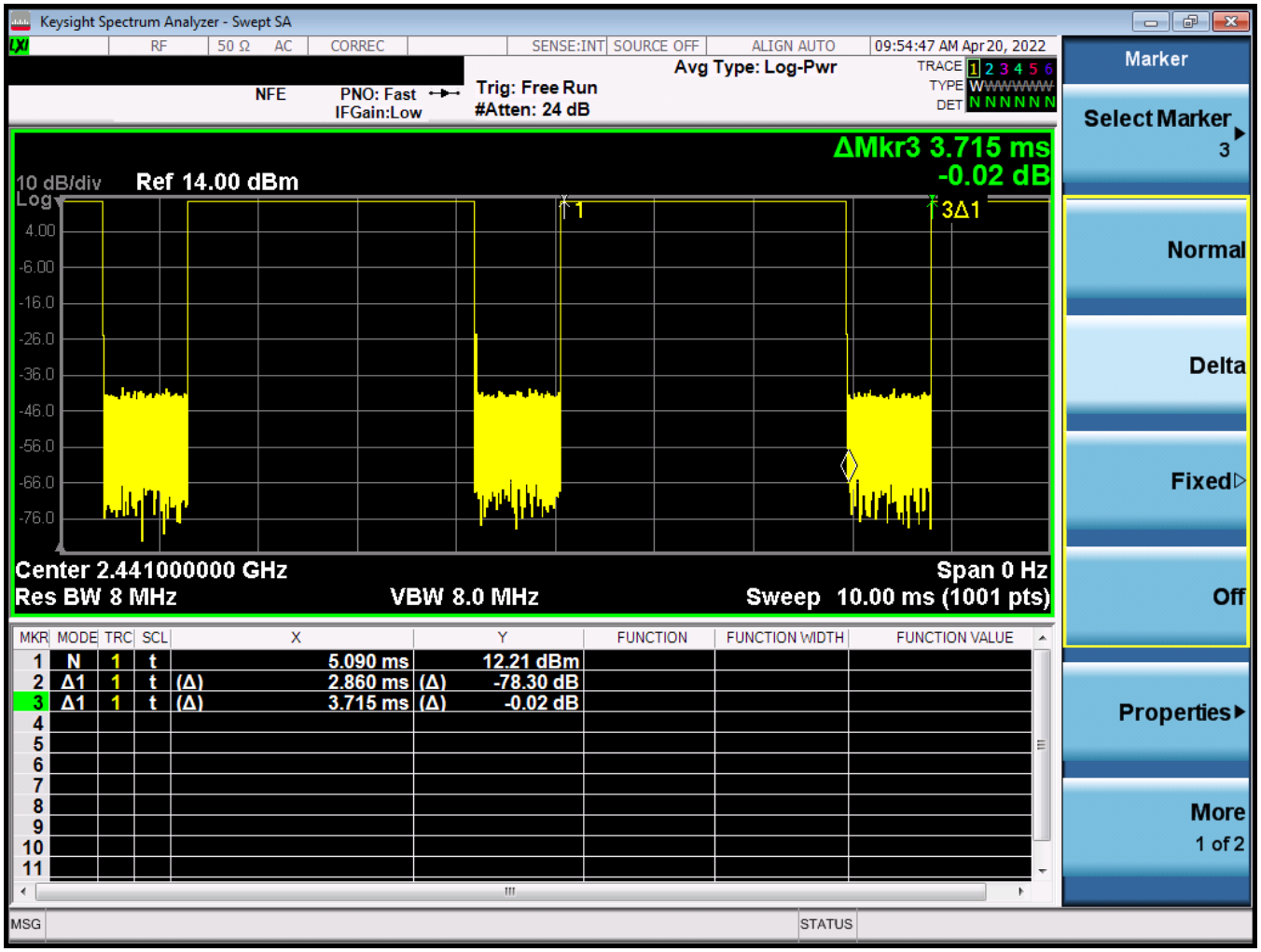

Figure 9-5
Bluetooth Antenna 1 Transmission Plot

Equation 9-1
Bluetooth Antenna 1 Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.86ms}{3.715ms} * 100\% = 77.0\%$$

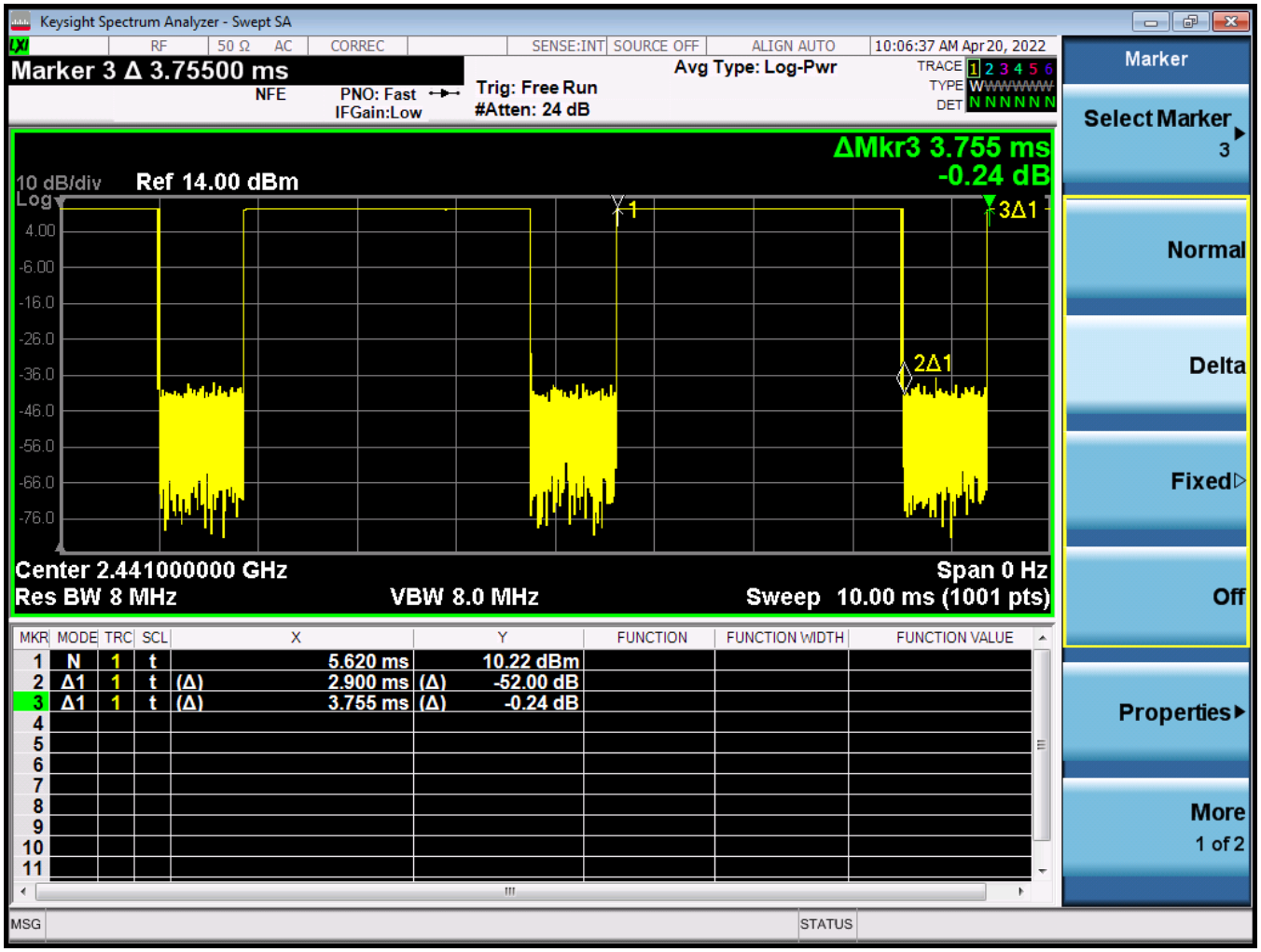

Figure 9-6
Bluetooth Antenna 2 Transmission Plot

Equation 9-2
Bluetooth Antenna 2 Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.90ms}{3.755ms} * 100\% = 77.2\%$$

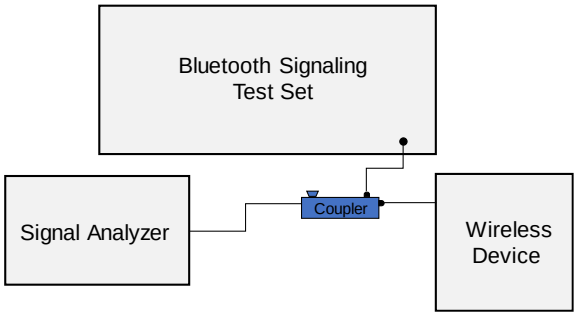

Figure 9-7
Power Measurement Setup

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
04/18/2022	30 Head	21.6	12	0.724	53.334	0.750	55.000	-3.47%	-3.03%
			13	0.724	53.509	0.750	55.000	-3.47%	-2.71%
			14	0.724	53.599	0.750	55.000	-3.47%	-2.55%
03/24/2022	750 Head	21.0	680	0.884	41.726	0.888	42.305	-0.45%	-1.37%
			695	0.890	41.680	0.889	42.227	0.11%	-1.30%
			700	0.891	41.663	0.889	42.201	0.22%	-1.27%
			710	0.895	41.626	0.890	42.149	0.56%	-1.24%
			725	0.900	41.566	0.891	42.071	1.01%	-1.20%
			750	0.909	41.481	0.894	41.942	1.68%	-1.10%
			770	0.915	41.421	0.895	41.838	2.23%	-1.00%
			785	0.921	41.367	0.896	41.760	2.79%	-0.94%
			800	0.927	41.308	0.897	41.682	3.34%	-0.90%
03/30/2022	750 Head	21.9	680	0.887	43.343	0.888	42.305	-0.11%	2.45%
			695	0.893	43.294	0.889	42.227	0.45%	2.53%
			700	0.894	43.277	0.889	42.201	0.56%	2.55%
			710	0.898	43.239	0.890	42.149	0.90%	2.59%
			725	0.903	43.180	0.891	42.071	1.35%	2.64%
			750	0.911	43.100	0.894	41.942	1.90%	2.76%
			770	0.918	43.038	0.895	41.838	2.57%	2.87%
			785	0.923	42.983	0.896	41.760	3.01%	2.93%
			800	0.929	42.928	0.897	41.682	3.57%	2.99%
04/10/2022	750 Head	20.5	680	0.886	42.326	0.888	42.305	-0.23%	0.05%
			695	0.892	42.276	0.889	42.227	0.34%	0.12%
			700	0.893	42.262	0.889	42.201	0.45%	0.14%
			710	0.897	42.232	0.890	42.149	0.79%	0.20%
			725	0.902	42.185	0.891	42.071	1.23%	0.27%
			750	0.911	42.114	0.894	41.942	1.90%	0.41%
			770	0.917	42.046	0.895	41.838	2.46%	0.50%
			785	0.923	41.994	0.896	41.760	3.01%	0.56%
			800	0.929	41.953	0.897	41.682	3.57%	0.65%
03/24/2022	835 Head	21.0	815	0.933	41.257	0.898	41.594	3.90%	-0.81%
			820	0.935	41.243	0.899	41.578	4.00%	-0.81%
			835	0.941	41.202	0.900	41.500	4.56%	-0.72%
			850	0.946	41.161	0.916	41.500	3.28%	-0.82%
03/30/2022	835 Head	21.2	815	0.935	42.682	0.898	41.594	4.12%	2.62%
			820	0.937	42.672	0.899	41.578	4.23%	2.63%
			835	0.943	42.637	0.900	41.500	4.78%	2.74%
			850	0.949	42.597	0.916	41.500	3.60%	2.64%
04/07/2022	835 Head	21.8	815	0.874	40.503	0.898	41.594	-2.67%	-2.62%
			820	0.879	40.439	0.899	41.578	-2.22%	-2.74%
			835	0.895	40.235	0.900	41.500	-0.56%	-3.05%
			850	0.910	40.029	0.916	41.500	-0.66%	-3.54%
03/24/2022	1750 Head	21.7	1710	1.340	40.076	1.348	40.142	-0.59%	-0.16%
			1720	1.350	40.033	1.354	40.126	-0.30%	-0.23%
			1745	1.376	39.934	1.368	40.087	0.58%	-0.38%
			1750	1.381	39.913	1.371	40.079	0.73%	-0.41%
			1770	1.401	39.827	1.383	40.047	1.30%	-0.55%
			1790	1.420	39.735	1.394	40.016	1.87%	-0.70%
03/30/2022	1750 Head	22.1	1710	1.352	38.698	1.348	40.142	0.30%	-3.60%
			1720	1.358	38.682	1.354	40.126	0.30%	-3.60%
			1745	1.371	38.632	1.368	40.087	0.22%	-3.63%
			1750	1.374	38.622	1.371	40.079	0.22%	-3.64%
			1770	1.385	38.581	1.383	40.047	0.14%	-3.66%
			1790	1.397	38.553	1.394	40.016	0.22%	-3.66%
04/19/2022	1750 Head	19.2	1710	1.306	41.836	1.348	40.142	-3.12%	4.22%
			1720	1.313	41.813	1.354	40.126	-3.03%	4.20%
			1745	1.329	41.767	1.368	40.087	-2.85%	4.19%
			1750	1.332	41.762	1.371	40.079	-2.84%	4.20%
			1770	1.344	41.753	1.383	40.047	-2.82%	4.26%
			1790	1.355	41.737	1.394	40.016	-2.80%	4.30%
03/28/2022	1900 Head	23.8	1850	1.349	39.443	1.400	40.000	-3.64%	-1.39%
			1860	1.359	39.401	1.400	40.000	-2.93%	-1.50%
			1880	1.379	39.323	1.400	40.000	-1.50%	-1.69%
			1900	1.399	39.239	1.400	40.000	-0.07%	-1.90%
			1905	1.404	39.218	1.400	40.000	0.29%	-1.95%
			1910	1.409	39.197	1.400	40.000	0.64%	-2.01%
04/07/2022	1900 Head	22.4	1850	1.403	40.200	1.400	40.000	0.21%	0.50%
			1860	1.413	40.162	1.400	40.000	0.93%	0.40%
			1880	1.433	40.088	1.400	40.000	2.36%	0.22%
			1900	1.454	40.008	1.400	40.000	3.86%	0.02%
			1905	1.460	39.988	1.400	40.000	4.29%	-0.03%
			1910	1.466	39.967	1.400	40.000	4.71%	-0.08%
04/19/2022	1900 Head	19.2	1850	1.391	41.602	1.400	40.000	-0.64%	4.00%
			1860	1.397	41.594	1.400	40.000	-0.21%	3.99%
			1880	1.409	41.588	1.400	40.000	0.64%	3.97%
			1900	1.422	41.578	1.400	40.000	1.57%	3.95%
			1905	1.425	41.573	1.400	40.000	1.79%	3.93%
			1910	1.429	41.566	1.400	40.000	2.07%	3.92%

Table 10-2
Measured Head Tissue Properties (continued)

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
04/10/2022	2450 Head	22.5	2400	1.672	38.053	1.756	39.289	-4.78%	-3.15%
			2450	1.726	37.872	1.800	39.200	-4.11%	-3.39%
			2480	1.757	37.768	1.833	39.162	-4.15%	-3.56%
			2500	1.777	37.694	1.855	39.136	-4.20%	-3.68%
			2510	1.788	37.660	1.866	39.123	-4.18%	-3.74%
			2535	1.815	37.569	1.893	39.092	-4.12%	-3.90%
			2550	1.832	37.519	1.909	39.073	-4.03%	-3.98%
			2560	1.844	37.483	1.920	39.060	-3.96%	-4.04%
			2600	1.887	37.343	1.964	39.009	-3.92%	-4.27%
			2650	1.943	37.147	2.018	38.945	-3.72%	-4.62%
			2680	1.975	37.045	2.051	38.907	-3.71%	-4.79%
			2700	1.995	36.977	2.073	38.882	-3.76%	-4.90%
04/24/2022	2450 Head	23.6	2300	1.709	38.464	1.670	39.500	2.34%	-2.62%
			2310	1.720	38.428	1.679	39.480	2.44%	-2.66%
			2320	1.731	38.394	1.687	39.460	2.61%	-2.70%
			2400	1.817	38.101	1.756	39.289	3.47%	-3.02%
			2450	1.870	37.897	1.800	39.200	3.89%	-3.32%
			2480	1.904	37.791	1.833	39.162	3.87%	-3.50%
			2500	1.924	37.729	1.855	39.136	3.72%	-3.60%
			2510	1.934	37.692	1.866	39.123	3.64%	-3.66%
			2535	1.961	37.580	1.893	39.092	3.59%	-3.87%
			2550	1.980	37.517	1.909	39.073	3.72%	-3.98%
			2560	1.992	37.482	1.920	39.060	3.75%	-4.04%
			2600	2.033	37.370	1.964	39.009	3.51%	-4.20%
			2650	2.090	37.138	2.018	38.945	3.57%	-4.64%
			2680	2.125	37.068	2.051	38.907	3.61%	-4.73%
			2700	2.140	37.007	2.073	38.882	3.23%	-4.82%
04/06/2022	3600 Head	20.5	3300	2.625	39.733	2.708	38.157	-3.06%	4.13%
			3350	2.668	39.630	2.759	38.100	-3.30%	4.02%
			3450	2.765	39.464	2.861	37.986	-3.36%	3.89%
			3500	2.809	39.380	2.913	37.929	-3.57%	3.83%
			3550	2.857	39.294	2.964	37.871	-3.61%	3.76%
			3560	2.864	39.283	2.974	37.860	-3.70%	3.76%
			3600	2.904	39.224	3.015	37.814	-3.68%	3.73%
			3650	2.952	39.137	3.066	37.757	-3.72%	3.65%
			3690	2.988	39.043	3.107	37.711	-3.83%	3.53%
			3700	2.997	39.023	3.117	37.700	-3.85%	3.51%
			3750	3.049	38.961	3.169	37.643	-3.79%	3.50%
			3900	3.201	38.710	3.323	37.471	-3.67%	3.31%
			3930	3.235	38.660	3.353	37.437	-3.52%	3.27%
			4100	3.411	38.383	3.528	37.243	-3.32%	3.06%
			4150	3.466	38.301	3.579	37.186	-3.16%	3.00%
04/24/2022	3600 Head	21.2	3300	2.596	39.884	2.708	38.157	-4.14%	4.53%
			3350	2.645	39.833	2.759	38.100	-4.13%	4.55%
			3450	2.738	39.673	2.861	37.986	-4.30%	4.44%
			3500	2.782	39.543	2.913	37.929	-4.50%	4.26%
			3550	2.826	39.485	2.964	37.871	-4.66%	4.26%
			3560	2.834	39.450	2.974	37.860	-4.71%	4.20%
			3600	2.874	39.381	3.015	37.814	-4.68%	4.14%
			3650	2.918	39.320	3.066	37.757	-4.83%	4.14%
			3690	2.959	39.236	3.107	37.711	-4.76%	4.04%
			3700	2.969	39.231	3.117	37.700	-4.75%	4.06%
			3750	3.011	39.149	3.169	37.643	-4.99%	4.00%
			3900	3.169	38.936	3.323	37.471	-4.63%	3.91%
			3930	3.194	38.902	3.353	37.437	-4.74%	3.91%
			4100	3.377	38.655	3.528	37.243	-4.28%	3.79%
			4150	3.427	38.545	3.579	37.186	-4.25%	3.65%

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
03/24/2022	750 Body	21.9	680	0.960	54.829	0.958	55.804	0.21%	-1.75%
			695	0.965	54.791	0.959	55.745	0.63%	-1.71%
			700	0.967	54.776	0.959	55.726	0.83%	-1.70%
			710	0.970	54.748	0.960	55.687	1.04%	-1.69%
			725	0.976	54.705	0.961	55.629	1.56%	-1.66%
			750	0.984	54.644	0.964	55.531	2.07%	-1.60%
			770	0.991	54.598	0.965	55.453	2.69%	-1.54%
			785	0.997	54.552	0.966	55.395	3.21%	-1.52%
			800	1.002	54.507	0.967	55.336	3.62%	-1.50%
03/31/2022	750 Body	20.0	680	0.940	55.096	0.958	55.804	-1.88%	-1.27%
			695	0.945	55.050	0.959	55.745	-1.46%	-1.25%
			700	0.947	55.037	0.959	55.726	-1.25%	-1.24%
			710	0.951	55.012	0.960	55.687	-0.94%	-1.21%
			725	0.957	54.981	0.961	55.629	-0.42%	-1.16%
			750	0.967	54.930	0.964	55.531	0.31%	-1.08%
			770	0.974	54.875	0.965	55.453	0.93%	-1.04%
			785	0.980	54.830	0.966	55.395	1.45%	-1.02%
			800	0.986	54.789	0.967	55.336	1.96%	-0.99%
04/04/2022	750 Body	20.3	680	0.918	54.178	0.958	55.804	-4.18%	-2.91%
			695	0.923	54.136	0.959	55.745	-3.75%	-2.89%
			700	0.925	54.123	0.959	55.726	-3.55%	-2.88%
			710	0.929	54.097	0.960	55.687	-3.23%	-2.86%
			725	0.935	54.060	0.961	55.629	-2.71%	-2.82%
			750	0.946	54.000	0.964	55.531	-1.87%	-2.76%
			770	0.954	53.949	0.965	55.453	-1.14%	-2.71%
			785	0.960	53.901	0.966	55.395	-0.62%	-2.70%
			800	0.965	53.866	0.967	55.336	-0.21%	-2.66%
03/25/2022	835 Body	21.2	815	0.921	53.378	0.968	55.271	-4.86%	-3.42%
			820	0.926	53.334	0.969	55.258	-4.44%	-3.48%
			835	0.943	53.199	0.970	55.200	-2.78%	-3.63%
			850	0.959	53.052	0.988	55.154	-2.94%	-3.81%
04/03/2022	835 Body	21.3	815	0.930	53.717	0.968	55.271	-3.93%	-2.81%
			820	0.936	53.672	0.969	55.258	-3.41%	-2.87%
			835	0.953	53.534	0.970	55.200	-1.75%	-3.02%
			850	0.970	53.390	0.988	55.154	-1.82%	-3.20%
03/27/2022	1750 Body	21.4	1710	1.478	52.566	1.463	53.537	1.03%	-1.81%
			1720	1.485	52.555	1.469	53.511	1.09%	-1.79%
			1745	1.504	52.529	1.485	53.445	1.28%	-1.71%
			1750	1.508	52.523	1.488	53.432	1.34%	-1.70%
			1770	1.522	52.499	1.501	53.379	1.40%	-1.65%
			1790	1.536	52.462	1.514	53.326	1.45%	-1.62%
03/30/2022	1750 Body	21.2	1710	1.485	52.857	1.463	53.537	1.50%	-1.27%
			1720	1.492	52.842	1.469	53.511	1.57%	-1.25%
			1745	1.509	52.813	1.485	53.445	1.62%	-1.18%
			1750	1.512	52.806	1.488	53.432	1.61%	-1.17%
			1770	1.525	52.782	1.501	53.379	1.60%	-1.12%
			1790	1.538	52.752	1.514	53.326	1.59%	-1.08%
05/05/2022	1750 Body	21.0	1710	1.445	52.951	1.463	53.537	-1.23%	-1.09%
			1720	1.451	52.934	1.469	53.511	-1.23%	-1.08%
			1745	1.465	52.890	1.485	53.445	-1.35%	-1.04%
			1750	1.468	52.887	1.488	53.432	-1.34%	-1.02%
			1770	1.484	52.877	1.501	53.379	-1.13%	-0.94%
			1790	1.502	52.874	1.514	53.326	-0.79%	-0.85%
03/28/2022	1900 Body	23.3	1850	1.495	51.563	1.520	53.300	-1.64%	-3.26%
			1860	1.506	51.526	1.520	53.300	-0.92%	-3.33%
			1880	1.529	51.447	1.520	53.300	0.59%	-3.48%
			1900	1.551	51.358	1.520	53.300	2.04%	-3.64%
			1905	1.556	51.337	1.520	53.300	2.37%	-3.68%
			1910	1.562	51.318	1.520	53.300	2.76%	-3.72%
04/01/2022	1900 Body	22.8	1850	1.490	50.867	1.520	53.300	-1.97%	-4.56%
			1860	1.501	50.835	1.520	53.300	-1.25%	-4.62%
			1880	1.521	50.765	1.520	53.300	0.07%	-4.76%
			1900	1.540	50.690	1.520	53.300	1.32%	-4.90%
			1905	1.545	50.672	1.520	53.300	1.64%	-4.93%
			1910	1.550	50.651	1.520	53.300	1.97%	-4.97%
04/04/2022	1900 Body	23.5	1850	1.522	51.609	1.520	53.300	0.13%	-3.17%
			1860	1.533	51.578	1.520	53.300	0.86%	-3.23%
			1880	1.555	51.511	1.520	53.300	2.30%	-3.36%
			1900	1.576	51.442	1.520	53.300	3.68%	-3.49%
			1905	1.581	51.425	1.520	53.300	4.01%	-3.52%
			1910	1.586	51.406	1.520	53.300	4.34%	-3.55%
04/13/2022	1900 Body	21.7	1850	1.554	53.812	1.520	53.300	2.24%	0.96%
			1860	1.560	53.806	1.520	53.300	2.63%	0.95%
			1880	1.573	53.791	1.520	53.300	3.49%	0.92%
			1900	1.588	53.775	1.520	53.300	4.47%	0.89%
			1905	1.591	53.770	1.520	53.300	4.67%	0.88%
			1910	1.595	53.765	1.520	53.300	4.93%	0.87%

Table 10-4
Measured Body Tissue Properties (continued)

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
04/18/2022	1900 Body	19.6	1850	1.546	53.087	1.520	53.300	1.71%	-0.40%
			1860	1.553	53.078	1.520	53.300	2.17%	-0.42%
			1880	1.567	53.059	1.520	53.300	3.09%	-0.45%
			1900	1.581	53.041	1.520	53.300	4.01%	-0.49%
			1905	1.585	53.037	1.520	53.300	4.28%	-0.49%
			1910	1.588	53.032	1.520	53.300	4.47%	-0.50%
04/10/2022	2450 Body	23.8	2300	1.737	51.706	1.809	52.900	-3.98%	-2.26%
			2310	1.750	51.674	1.816	52.887	-3.63%	-2.29%
			2320	1.764	51.643	1.826	52.873	-3.40%	-2.33%
			2400	1.870	51.359	1.902	52.767	-1.68%	-2.67%
			2450	1.936	51.195	1.950	52.700	-0.72%	-2.86%
			2480	1.973	51.088	1.993	52.662	-1.00%	-2.99%
			2500	2.001	51.010	2.021	52.636	-0.99%	-3.09%
			2510	2.014	50.975	2.035	52.623	-1.03%	-3.13%
			2535	2.050	50.894	2.071	52.592	-1.01%	-3.23%
			2550	2.071	50.851	2.092	52.573	-1.00%	-3.28%
			2560	2.084	50.825	2.106	52.560	-1.04%	-3.30%
			2600	2.135	50.686	2.163	52.509	-1.29%	-3.47%
			2650	2.206	50.497	2.234	52.445	-1.25%	-3.71%
			2680	2.247	50.402	2.277	52.407	-1.32%	-3.83%
			2700	2.272	50.328	2.305	52.382	-1.43%	-3.92%
04/25/2022	2450 Body	20.9	2300	1.792	51.786	1.809	52.900	-0.94%	-2.11%
			2310	1.806	51.747	1.816	52.887	-0.55%	-2.16%
			2320	1.820	51.709	1.826	52.873	-0.33%	-2.20%
			2400	1.928	51.402	1.902	52.767	1.37%	-2.59%
			2450	1.995	51.212	1.950	52.700	2.31%	-2.82%
			2480	2.035	51.097	1.993	52.662	2.11%	-2.97%
			2500	2.063	51.017	2.021	52.636	2.08%	-3.08%
			2510	2.077	50.974	2.035	52.623	2.06%	-3.13%
			2535	2.113	50.883	2.071	52.592	2.03%	-3.25%
			2550	2.134	50.831	2.092	52.573	2.01%	-3.31%
			2560	2.148	50.796	2.106	52.560	1.99%	-3.36%
			2600	2.201	50.640	2.163	52.509	1.76%	-3.56%
			2650	2.272	50.436	2.234	52.445	1.70%	-3.83%
			2680	2.314	50.325	2.277	52.407	1.62%	-3.97%
			2700	2.340	50.248	2.305	52.382	1.52%	-4.07%
04/06/2022	3600 Body	19.6	3300	2.948	50.300	3.080	51.593	-4.29%	-2.51%
			3350	3.008	50.217	3.139	51.525	-4.17%	-2.54%
			3450	3.120	50.044	3.256	51.389	-4.18%	-2.62%
			3500	3.177	49.950	3.314	51.321	-4.13%	-2.67%
			3550	3.233	49.883	3.372	51.254	-4.12%	-2.67%
			3560	3.244	49.866	3.384	51.240	-4.14%	-2.68%
			3600	3.291	49.789	3.431	51.186	-4.08%	-2.73%
			3650	3.348	49.703	3.489	51.118	-4.04%	-2.77%
			3690	3.395	49.604	3.536	51.063	-3.99%	-2.86%
			3700	3.408	49.599	3.548	51.050	-3.95%	-2.84%
			3750	3.466	49.505	3.606	50.982	-3.88%	-2.90%
			3900	3.649	49.183	3.781	50.779	-3.49%	-3.14%
			3930	3.693	49.121	3.816	50.738	-3.22%	-3.19%
04/11/2022	3600 Body	20.5	3300	2.953	50.229	3.080	51.593	-4.12%	-2.64%
			3350	3.012	50.138	3.139	51.525	-4.05%	-2.69%
			3450	3.126	49.979	3.256	51.389	-3.99%	-2.74%
			3500	3.185	49.897	3.314	51.321	-3.89%	-2.77%
			3550	3.240	49.832	3.372	51.254	-3.91%	-2.77%
			3560	3.250	49.814	3.384	51.240	-3.96%	-2.78%
			3600	3.299	49.747	3.431	51.186	-3.85%	-2.81%
			3650	3.353	49.666	3.489	51.118	-3.90%	-2.84%
			3690	3.399	49.567	3.536	51.063	-3.87%	-2.93%
			3700	3.410	49.560	3.548	51.050	-3.89%	-2.92%
			3750	3.466	49.482	3.606	50.982	-3.88%	-2.94%
			3900	3.645	49.173	3.781	50.779	-3.60%	-3.16%
			3930	3.688	49.073	3.816	50.738	-3.35%	-3.28%
			4100	3.916	48.749	4.015	50.507	-2.47%	-3.48%
			4150	3.983	48.647	4.073	50.439	-2.21%	-3.55%

Table 10-5
Measured Body Tissue Properties (continued)

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
04/17/2022	5200-5800 Body	21.3	5180	5.289	47.208	5.276	49.041	0.25%	-3.74%
			5190	5.303	47.186	5.288	49.028	0.28%	-3.76%
			5200	5.317	47.156	5.299	49.014	0.34%	-3.79%
			5210	5.330	47.125	5.311	49.001	0.36%	-3.83%
			5220	5.348	47.093	5.323	48.987	0.47%	-3.87%
			5240	5.383	47.053	5.346	48.960	0.69%	-3.90%
			5250	5.400	47.050	5.358	48.947	0.78%	-3.88%
			5260	5.418	47.045	5.369	48.933	0.91%	-3.86%
			5270	5.433	47.038	5.381	48.919	0.97%	-3.85%
			5280	5.445	47.023	5.393	48.906	0.96%	-3.85%
			5290	5.456	47.021	5.404	48.892	0.96%	-3.83%
			5300	5.466	47.008	5.416	48.879	0.92%	-3.83%
			5310	5.477	46.979	5.428	48.865	0.90%	-3.86%
			5320	5.486	46.949	5.439	48.851	0.86%	-3.89%
			5500	5.760	46.663	5.650	48.607	1.95%	-4.00%
			5510	5.775	46.660	5.661	48.594	2.01%	-3.98%
			5520	5.789	46.655	5.673	48.580	2.04%	-3.96%
			5530	5.801	46.644	5.685	48.566	2.04%	-3.96%
			5540	5.811	46.627	5.696	48.553	2.02%	-3.97%
			5550	5.822	46.599	5.708	48.539	2.00%	-4.00%
			5560	5.837	46.577	5.720	48.526	2.05%	-4.02%
			5580	5.870	46.520	5.743	48.499	2.21%	-4.08%
			5600	5.905	46.494	5.766	48.471	2.41%	-4.08%
			5610	5.922	46.485	5.778	48.458	2.49%	-4.07%
			5620	5.937	46.475	5.790	48.444	2.54%	-4.06%
			5640	5.962	46.460	5.813	48.417	2.56%	-4.04%
			5660	5.985	46.424	5.837	48.390	2.54%	-4.06%
			5670	5.998	46.402	5.848	48.376	2.56%	-4.08%
			5680	6.012	46.376	5.860	48.363	2.59%	-4.11%
			5690	6.026	46.345	5.872	48.349	2.62%	-4.14%
			5700	6.045	46.316	5.883	48.336	2.75%	-4.18%
			5710	6.063	46.298	5.895	48.322	2.85%	-4.19%
			5720	6.079	46.289	5.907	48.309	2.91%	-4.18%
			5745	6.109	46.260	5.936	48.275	2.91%	-4.17%
			5750	6.116	46.255	5.942	48.268	2.93%	-4.17%
			5755	6.124	46.247	5.947	48.261	2.98%	-4.17%
			5765	6.137	46.229	5.959	48.248	2.99%	-4.18%
			5775	6.151	46.201	5.971	48.234	3.01%	-4.21%
			5785	6.165	46.166	5.982	48.220	3.06%	-4.26%
			5795	6.179	46.137	5.994	48.207	3.09%	-4.29%
			5800	6.188	46.130	6.000	48.200	3.13%	-4.29%
			5805	6.197	46.121	6.006	48.193	3.18%	-4.30%
			5825	6.230	46.084	6.029	48.166	3.33%	-4.32%
			5835	6.246	46.067	6.042	48.130	3.38%	-4.29%
			5845	6.259	46.051	6.054	48.110	3.39%	-4.28%
			5855	6.268	46.032	6.066	48.093	3.33%	-4.29%
			5865	6.279	46.012	6.077	48.080	3.32%	-4.30%
			5875	6.292	45.993	6.088	48.067	3.35%	-4.31%
			5885	6.306	45.969	6.100	48.053	3.38%	-4.34%
			5905	6.334	45.900	6.122	48.027	3.46%	-4.43%

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 the 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 (%)
S	750	HEAD	03/24/2022	22.9	21.0	0.20	1003	7552	1.820	8.78	9.100	3.64%
L	750	HEAD	03/30/2022	24.4	22.2	0.20	1003	7670	1.740	8.78	8.700	-0.91%
H	750	HEAD	04/10/2022	21.7	21.3	0.20	1161	7409	1.810	8.44	9.050	7.23%
S	835	HEAD	03/24/2022	22.9	21.0	0.20	4d132	7552	1.950	9.66	9.750	0.93%
E	835	HEAD	03/30/2022	22.5	22.2	0.20	4d132	7538	1.960	9.66	9.800	1.45%
H	835	HEAD	04/07/2022	21.4	21.0	0.20	4d047	7409	1.960	9.65	9.800	1.55%
A	1750	HEAD	03/24/2022	23.5	21.7	0.10	1150	7406	3.630	36.90	36.300	-1.63%
S	1750	HEAD	03/30/2022	22.6	22.1	0.10	1008	7552	3.950	37.40	39.500	5.61%
N	1750	HEAD	04/19/2022	18.5	19.2	0.10	1150	7713	3.570	36.90	35.700	-3.25%
E	1900	HEAD	03/28/2022	21.8	24.2	0.10	5d148	7538	4.040	40.10	40.400	0.75%
K	1900	HEAD	04/07/2022	23.2	22.4	0.10	5d149	3914	4.250	40.50	42.500	4.94%
N	1900	HEAD	04/19/2022	18.5	19.2	0.10	5d080	7713	3.980	40.50	39.800	-1.73%
P	2450	HEAD	04/10/2022	23.3	21.5	0.10	797	7410	5.040	52.40	50.400	-3.82%
P	2600	HEAD	04/10/2022	23.3	21.5	0.10	1064	7410	5.510	58.10	55.100	-5.16%
P	2600	HEAD	04/24/2022	23.0	22.6	0.10	1064	7410	5.940	58.10	59.400	2.24%
L	3500	HEAD	04/06/2022	20.7	20.0	0.10	1059	7670	6.730	63.70	67.300	5.65%
L	3700	HEAD	04/06/2022	20.7	20.0	0.10	1067	7670	6.880	67.20	68.800	2.38%
L	3700	HEAD	04/24/2022	21.5	21.6	0.10	1067	7670	6.580	67.20	65.800	-2.08%
L	3900	HEAD	04/24/2022	21.5	21.6	0.10	1056	7670	6.930	68.90	69.300	0.58%
P	750	BODY	03/24/2022	22.8	21.9	0.20	1161	7410	1.860	8.79	9.300	5.80%
H	750	BODY	03/31/2022	21.0	20.4	0.20	1161	7409	1.860	8.79	9.300	5.80%
I	750	BODY	04/04/2022	20.3	20.5	0.20	1161	7661	1.840	8.79	9.200	4.66%
H	835	BODY	03/25/2022	21.3	21.2	0.20	4d132	7409	2.030	9.81	10.150	3.47%
H	835	BODY	04/03/2022	20.9	21.1	0.20	4d047	7409	2.010	9.68	10.050	3.82%
H	1750	BODY	03/27/2022	21.5	21.3	0.10	1150	7409	3.800	37.80	38.000	0.53%
K	1750	BODY	03/30/2022	21.5	21.2	0.10	1150	3914	3.780	37.80	37.800	0.00%
L	1750	BODY	05/05/2022	21.5	21.0	0.10	1008	7670	3.700	37.80	37.000	-2.12%
K	1900	BODY	03/28/2022	22.8	22.3	0.10	5d080	3914	4.340	40.70	43.400	6.63%
P	1900	BODY	04/01/2022	21.9	22.8	0.10	5d149	7410	3.760	40.40	37.600	-6.93%
P	1900	BODY	04/04/2022	24.7	21.9	0.10	5d149	7410	4.360	40.40	43.600	7.92%
N	1900	BODY	04/13/2022	24.8	21.7	0.10	5d080	7713	4.240	40.70	42.400	4.18%
N	1900	BODY	04/18/2022	19.1	19.6	0.10	5d080	7713	4.260	40.70	42.600	4.67%
S	2450	BODY	04/10/2022	22.3	21.8	0.10	719	7552	4.940	52.00	49.400	-5.00%
S	2600	BODY	04/10/2022	22.3	21.8	0.10	1004	7552	5.450	55.40	54.500	-1.62%
H	2600	BODY	04/25/2022	22.9	20.7	0.10	1004	7409	5.550	55.40	55.500	0.18%
I	3500	BODY	04/06/2022	21.0	20.5	0.10	1097	7661	6.400	64.20	64.000	-0.31%
I	3700	BODY	04/06/2022	21.0	20.5	0.10	1018	7661	5.960	63.50	59.600	-6.14%
I	3900	BODY	04/06/2022	21.0	20.5	0.10	1073	7661	6.670	64.30	66.700	3.73%

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 (%)
K	13	HEAD	04/18/2022	22.2	21.6	1.00	1002	3914	0.349	0.34	0.349	1.45%
H	2600	BODY	04/25/2022	22.9	20.7	0.10	1004	7409	2.410	24.80	24.100	-2.82%
I	3700	BODY	04/11/2022	21.0	21.0	0.10	1018	7661	2.260	22.50	22.600	0.44%
I	3900	BODY	04/11/2022	21.0	21.0	0.10	1073	7661	2.390	22.00	23.900	8.64%
O	5250	BODY	04/17/2022	22.3	21.3	0.05	1057	7417	1.010	20.60	20.200	-1.94%
O	5600	BODY	04/17/2022	22.3	21.3	0.05	1057	7417	1.090	21.20	21.800	2.83%
O	5750	BODY	04/17/2022	22.3	21.3	0.05	1057	7417	1.050	20.70	21.000	1.45%

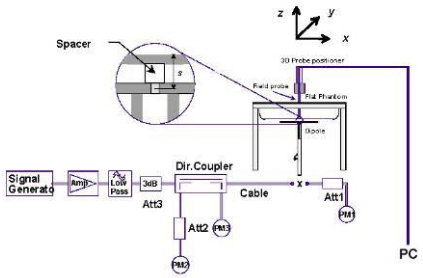

Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
GSM/DTM 850 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	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	Right	Cheek	GSM 850	GSM	Main 1	17787	1	33.2	32.48	0.01	1:8.3	0.099	1.180	0.117	A1
848.80	251	Right	Tilt	GSM 850	GSM	Main 1	17787	1	33.2	32.48	0.01	1:8.3	0.036	1.180	0.042	
848.80	251	Left	Cheek	GSM 850	GSM	Main 1	17787	1	33.2	32.48	-0.02	1:8.3	0.063	1.180	0.074	
848.80	251	Left	Tilt	GSM 850	GSM	Main 1	17787	1	33.2	32.48	-0.11	1:8.3	0.037	1.180	0.044	
848.80	251	Right	Cheek	GSM 850	DTM	Main 1	17787	3	28.4	27.94	-0.03	1:2.76	0.097	1.112	0.108	
848.80	251	Right	Tilt	GSM 850	DTM	Main 1	17787	3	28.4	27.94	0.06	1:2.76	0.044	1.112	0.049	
848.80	251	Left	Cheek	GSM 850	DTM	Main 1	17787	3	28.4	27.94	0.01	1:2.76	0.054	1.112	0.060	
848.80	251	Left	Tilt	GSM 850	DTM	Main 1	17787	3	28.4	27.94	0.07	1:2.76	0.034	1.112	0.038	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-2
GSM/DTM 1900 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	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)	
1909.80	810	Right	Cheek	GSM 1900	GSM	Main 2	17761	1	27.7	26.47	0.02	1:8.3	0.027	1.327	0.036	
1909.80	810	Right	Tilt	GSM 1900	GSM	Main 2	17761	1	27.7	26.47	0.03	1:8.3	0.020	1.327	0.027	
1909.80	810	Left	Cheek	GSM 1900	GSM	Main 2	17761	1	27.7	26.47	-0.19	1:8.3	0.023	1.327	0.031	
1909.80	810	Left	Tilt	GSM 1900	GSM	Main 2	17761	1	27.7	26.47	-0.03	1:8.3	0.016	1.327	0.021	
1880.00	661	Right	Cheek	GSM 1900	DTM	Main 2	17761	3	22.9	22.40	0.07	1:2.76	0.028	1.122	0.031	A2
1880.00	661	Right	Tilt	GSM 1900	DTM	Main 2	17761	3	22.9	22.40	0.12	1:2.76	0.010	1.122	0.011	
1880.00	661	Left	Cheek	GSM 1900	DTM	Main 2	17761	3	22.9	22.40	-0.01	1:2.76	0.028	1.122	0.031	
1880.00	661	Left	Tilt	GSM 1900	DTM	Main 2	17761	3	22.9	22.40	0.06	1:2.76	0.022	1.122	0.025	
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.	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	Main 1	17761	21.7	21.40	-0.01	1:1	0.053	1.072	0.057	A3
846.60	4233	Right	Tilt	UMTS 850	RMC	Main 1	17761	21.7	21.40	-0.01	1:1	0.021	1.072	0.023	
846.60	4233	Left	Cheek	UMTS 850	RMC	Main 1	17761	21.7	21.40	-0.06	1:1	0.037	1.072	0.040	
846.60	4233	Left	Tilt	UMTS 850	RMC	Main 1	17761	21.7	21.40	-0.01	1:1	0.018	1.072	0.019	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram						

Table 11-4
UMTS 1750 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	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)	
1712.40	1312	Right	Cheek	UMTS 1750	RMC	Main 2	17787	19.7	19.40	-0.03	1:1	0.035	1.072	0.038	A4
1712.40	1312	Right	Tilt	UMTS 1750	RMC	Main 2	17787	19.7	19.40	-0.11	1:1	0.030	1.072	0.032	
1712.40	1312	Left	Cheek	UMTS 1750	RMC	Main 2	17787	19.7	19.40	-0.03	1:1	0.033	1.072	0.035	
1712.40	1312	Left	Tilt	UMTS 1750	RMC	Main 2	17787	19.7	19.40	0.09	1:1	0.029	1.072	0.031	
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
UMTS 1900 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	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)	
1907.60	9538	Right	Cheek	UMTS 1900	RMC	Main 2	17761	19.7	19.21	-0.04	1:1	0.034	1.119	0.038	A5
1907.60	9538	Right	Tilt	UMTS 1900	RMC	Main 2	17761	19.7	19.21	0.04	1:1	0.026	1.119	0.029	
1907.60	9538	Left	Cheek	UMTS 1900	RMC	Main 2	17761	19.7	19.21	0.03	1:1	0.028	1.119	0.031	
1907.60	9538	Left	Tilt	UMTS 1900	RMC	Main 2	17761	19.7	19.21	0.05	1:1	0.020	1.119	0.022	
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 71 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Test Position	Mode	Antenna Config.	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
680.50	133297	Mid	Right	Cheek	LTE Band 71	Main 1	17738	20	QPSK	1	99	25.0	23.95	0	0.07	1:1	0.039	1.274	0.050	A6
680.50	133297	Mid	Right	Cheek	LTE Band 71	Main 1	17738	20	QPSK	50	50	24.0	22.83	1	-0.02	1:1	0.032	1.309	0.042	
680.50	133297	Mid	Right	Tilt	LTE Band 71	Main 1	17738	20	QPSK	1	99	25.0	23.95	0	0.08	1:1	0.013	1.274	0.017	
680.50	133297	Mid	Right	Tilt	LTE Band 71	Main 1	17738	20	QPSK	50	50	24.0	22.83	1	-0.13	1:1	0.008	1.309	0.010	
680.50	133297	Mid	Left	Cheek	LTE Band 71	Main 1	17738	20	QPSK	1	99	25.0	23.95	0	0.10	1:1	0.029	1.274	0.037	
680.50	133297	Mid	Left	Cheek	LTE Band 71	Main 1	17738	20	QPSK	50	50	24.0	22.83	1	0.00	1:1	0.024	1.309	0.031	
680.50	133297	Mid	Left	Tilt	LTE Band 71	Main 1	17738	20	QPSK	1	99	25.0	23.95	0	-0.13	1:1	0.011	1.274	0.014	
680.50	133297	Mid	Left	Tilt	LTE Band 71	Main 1	17738	20	QPSK	50	50	24.0	22.83	1	0.01	1:1	0.009	1.309	0.012	

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 12 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Test Position	Mode	Antenna Config.	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	Main 1	17761	10	QPSK	1	0	25.0	23.71	0	0.01	1:1	0.030	1.346	0.040	A7
707.50	23095	Mid	Right	Cheek	LTE Band 12	Main 1	17761	10	QPSK	25	25	24.0	23.07	1	0.01	1:1	0.027	1.239	0.033	
707.50	23095	Mid	Right	Tilt	LTE Band 12	Main 1	17761	10	QPSK	1	0	25.0	23.71	0	0.09	1:1	0.009	1.346	0.012	
707.50	23095	Mid	Right	Tilt	LTE Band 12	Main 1	17761	10	QPSK	25	25	24.0	23.07	1	-0.01	1:1	0.008	1.239	0.010	
707.50	23095	Mid	Left	Cheek	LTE Band 12	Main 1	17761	10	QPSK	1	0	25.0	23.71	0	0.05	1:1	0.018	1.346	0.024	
707.50	23095	Mid	Left	Cheek	LTE Band 12	Main 1	17761	10	QPSK	25	25	24.0	23.07	1	0.03	1:1	0.018	1.239	0.022	
707.50	23095	Mid	Left	Tilt	LTE Band 12	Main 1	17761	10	QPSK	1	0	25.0	23.71	0	0.08	1:1	0.007	1.346	0.009	
707.50	23095	Mid	Left	Tilt	LTE Band 12	Main 1	17761	10	QPSK	25	25	24.0	23.07	1	0.02	1:1	0.007	1.239	0.009	

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

Table 11-8
LTE Band 13 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Test Position	Mode	Antenna Config.	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	Main 1	17761	10	QPSK	1	25	25.0	23.77	0	0.00	1:1	0.095	1.327	0.126	A8
782.00	23230	Mid	Right	Cheek	LTE Band 13	Main 1	17761	10	QPSK	25	25	24.0	23.12	1	0.00	1:1	0.073	1.225	0.089	
782.00	23230	Mid	Right	Tilt	LTE Band 13	Main 1	17761	10	QPSK	1	25	25.0	23.77	0	0.01	1:1	0.034	1.327	0.045	
782.00	23230	Mid	Right	Tilt	LTE Band 13	Main 1	17761	10	QPSK	25	25	24.0	23.12	1	-0.04	1:1	0.028	1.225	0.034	
782.00	23230	Mid	Left	Cheek	LTE Band 13	Main 1	17761	10	QPSK	1	25	25.0	23.77	0	0.00	1:1	0.057	1.327	0.076	
782.00	23230	Mid	Left	Cheek	LTE Band 13	Main 1	17761	10	QPSK	25	25	24.0	23.12	1	0.06	1:1	0.046	1.225	0.056	
782.00	23230	Mid	Left	Tilt	LTE Band 13	Main 1	17761	10	QPSK	1	25	25.0	23.77	0	0.01	1:1	0.038	1.327	0.050	
782.00	23230	Mid	Left	Tilt	LTE Band 13	Main 1	17761	10	QPSK	25	25	24.0	23.12	1	0.07	1:1	0.031	1.225	0.038	

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

Table 11-9
LTE Band 5 (Cell) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Test Position	Mode	Antenna Config.	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)	
836.50	20525	Mid	Right	Cheek	LTE Band 5 (Cell)	Main 1	17779	10	QPSK	1	0	25.0	24.00	0	0.12	1:1	0.086	1.259	0.108	A9
836.50	20525	Mid	Right	Cheek	LTE Band 5 (Cell)	Main 1	17779	10	QPSK	25	25	24.0	23.31	1	0.02	1:1	0.071	1.172	0.083	
836.50	20525	Mid	Right	Tilt	LTE Band 5 (Cell)	Main 1	17779	10	QPSK	1	0	25.0	24.00	0	0.02	1:1	0.037	1.259	0.047	
836.50	20525	Mid	Right	Tilt	LTE Band 5 (Cell)	Main 1	17779	10	QPSK	25	25	24.0	23.31	1	0.19	1:1	0.028	1.172	0.033	
836.50	20525	Mid	Left	Cheek	LTE Band 5 (Cell)	Main 1	17779	10	QPSK	1	0	25.0	24.00	0	0.00	1:1	0.071	1.259	0.089	
836.50	20525	Mid	Left	Cheek	LTE Band 5 (Cell)	Main 1	17779	10	QPSK	25	25	24.0	23.31	1	-0.02	1:1	0.058	1.172	0.068	
836.50	20525	Mid	Left	Tilt	LTE Band 5 (Cell)	Main 1	17779	10	QPSK	1	0	25.0	24.00	0	-0.18	1:1	0.042	1.259	0.053	
836.50	20525	Mid	Left	Tilt	LTE Band 5 (Cell)	Main 1	17779	10	QPSK	25	25	24.0	23.31	1	-0.03	1:1	0.031	1.172	0.036	
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 11-10
LTE Band 66 (AWS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Test Position	Mode	Antenna Config.	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)	
1770.00	132572	High	Right	Cheek	LTE Band 66 (AWS)	Main 2	17779	20	QPSK	1	0	25.0	23.96	0	0.03	1:1	0.102	1.271	0.130	
1770.00	132572	High	Right	Cheek	LTE Band 66 (AWS)	Main 2	17779	20	QPSK	50	50	24.0	22.96	1	0.01	1:1	0.083	1.271	0.105	
1770.00	132572	High	Right	Tilt	LTE Band 66 (AWS)	Main 2	17779	20	QPSK	1	0	25.0	23.96	0	0.04	1:1	0.087	1.271	0.111	
1770.00	132572	High	Right	Tilt	LTE Band 66 (AWS)	Main 2	17779	20	QPSK	50	50	24.0	22.96	1	0.02	1:1	0.056	1.271	0.071	
1770.00	132572	High	Left	Cheek	LTE Band 66 (AWS)	Main 2	17779	20	QPSK	1	0	25.0	23.96	0	-0.01	1:1	0.085	1.271	0.108	
1770.00	132572	High	Left	Cheek	LTE Band 66 (AWS)	Main 2	17779	20	QPSK	50	50	24.0	22.96	1	0.00	1:1	0.052	1.271	0.066	
1770.00	132572	High	Left	Tilt	LTE Band 66 (AWS)	Main 2	17779	20	QPSK	1	0	25.0	23.96	0	-0.10	1:1	0.094	1.271	0.119	
1770.00	132572	High	Left	Tilt	LTE Band 66 (AWS)	Main 2	17779	20	QPSK	50	50	24.0	22.96	1	-0.03	1:1	0.059	1.271	0.075	
1745.00	132322	Mid	Right	Cheek	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.12	1:1	0.253	1.000	0.253	
1745.00	132322	Mid	Right	Cheek	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.07	1:1	0.241	1.000	0.241	
1745.00	132322	Mid	Right	Tilt	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.13	1:1	0.134	1.000	0.134	
1745.00	132322	Mid	Right	Tilt	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.02	1:1	0.148	1.000	0.148	
1720.00	132072	Low	Left	Cheek	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	19.99	0	0.03	1:1	0.625	1.002	0.626	
1745.00	132322	Mid	Left	Cheek	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.06	1:1	0.795	1.000	0.795	A10
1770.00	132572	High	Left	Cheek	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	19.95	0	0.00	1:1	0.754	1.012	0.763	
1745.00	132322	Mid	Left	Cheek	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.00	1:1	0.774	1.000	0.774	
1745.00	132322	Mid	Left	Tilt	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.01	1:1	0.378	1.000	0.378	
1745.00	132322	Mid	Left	Tilt	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.01	1:1	0.364	1.000	0.364	
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 11-11
LTE Band 25 (PCS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Test Position	Mode	Antenna Config.	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1882.50	26365	Mid	Right	Cheek	LTE Band 25 (PCS)	Main 2	17761	20	QPSK	1	99	25.0	23.91	0	-0.06	1:1	0.111	1.285	0.143	A11
1882.50	26365	Mid	Right	Cheek	LTE Band 25 (PCS)	Main 2	17761	20	QPSK	50	25	24.0	22.86	1	0.05	1:1	0.093	1.300	0.121	
1882.50	26365	Mid	Right	Tilt	LTE Band 25 (PCS)	Main 2	17761	20	QPSK	1	99	25.0	23.91	0	0.03	1:1	0.088	1.285	0.113	
1882.50	26365	Mid	Right	Tilt	LTE Band 25 (PCS)	Main 2	17761	20	QPSK	50	25	24.0	22.86	1	0.07	1:1	0.072	1.300	0.094	
1882.50	26365	Mid	Left	Cheek	LTE Band 25 (PCS)	Main 2	17761	20	QPSK	1	99	25.0	23.91	0	-0.03	1:1	0.098	1.285	0.126	
1882.50	26365	Mid	Left	Cheek	LTE Band 25 (PCS)	Main 2	17761	20	QPSK	50	25	24.0	22.86	1	-0.11	1:1	0.075	1.300	0.098	
1882.50	26365	Mid	Left	Tilt	LTE Band 25 (PCS)	Main 2	17761	20	QPSK	1	99	25.0	23.91	0	-0.10	1:1	0.086	1.285	0.111	
1882.50	26365	Mid	Left	Tilt	LTE Band 25 (PCS)	Main 2	17761	20	QPSK	50	25	24.0	22.86	1	-0.09	1:1	0.075	1.300	0.098	

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 11-12
LTE Band 2 (PCS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Test Position	Mode	Antenna Config.	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)	
1880.00	18900	Mid	Right	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.05	1:1	0.274	1.000	0.274	
1880.00	18900	Mid	Right	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.07	1:1	0.274	1.000	0.274	
1880.00	18900	Mid	Right	Tilt	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.06	1:1	0.150	1.000	0.150	
1880.00	18900	Mid	Right	Tilt	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.08	1:1	0.145	1.000	0.145	
1860.00	18700	Low	Left	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	19.99	0	0.06	1:1	0.948	1.002	0.950	
1880.00	18900	Mid	Left	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.06	1:1	0.843	1.000	0.843	
1900.00	19100	High	Left	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	19.96	0	-0.05	1:1	0.911	1.009	0.919	
1860.00	18700	Low	Left	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	19.98	0	0.05	1:1	0.954	1.005	0.959	
1880.00	18900	Mid	Left	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.01	1:1	0.873	1.000	0.873	
1900.00	19100	High	Left	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	19.97	0	0.00	1:1	0.968	1.007	**0.975**	A12
1880.00	18900	Mid	Left	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	100	0	20.0	19.97	0	0.03	1:1	0.846	1.007	0.852	
1880.00	18900	Mid	Left	Tilt	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.03	1:1	0.559	1.000	0.559	
1880.00	18900	Mid	Left	Tilt	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.01	1:1	0.557	1.000	0.557	
1900.00	19100	High	Left	Cheek	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	19.97	0	0.02	1:1	0.964	1.007	0.971	

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

Note: Blue Entry represents variability measurement.

Table 11-13
LTE Band 41 Head SAR

Measurement Results																				
FREQUENCY			Side	Test Position	Mode	Antenna Config.	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)	
2636.50	41055	Mid-High	Right	Cheek	LTE Band 41	Main 2	17779	20	QPSK	1	50	25.0	24.08	0	0.20	1:1.58	0.006	1.236	0.007	A13
2636.50	41055	Mid-High	Right	Cheek	LTE Band 41	Main 2	17779	20	QPSK	50	25	24.0	23.25	1	0.03	1:1.58	0.004	1.189	0.005	
2636.50	41055	Mid-High	Right	Tilt	LTE Band 41	Main 2	17779	20	QPSK	1	50	25.0	24.08	0	0.20	1:1.58	0.002	1.236	0.002	
2636.50	41055	Mid-High	Right	Tilt	LTE Band 41	Main 2	17779	20	QPSK	50	25	24.0	23.25	1	0.04	1:1.58	0.002	1.189	0.002	
2636.50	41055	Mid-High	Left	Cheek	LTE Band 41	Main 2	17779	20	QPSK	1	50	25.0	24.08	0	0.09	1:1.58	0.004	1.236	0.005	
2636.50	41055	Mid-High	Left	Cheek	LTE Band 41	Main 2	17779	20	QPSK	50	25	24.0	23.25	1	0.03	1:1.58	0.004	1.189	0.005	
2636.50	41055	Mid-High	Left	Tilt	LTE Band 41	Main 2	17779	20	QPSK	1	50	25.0	24.08	0	0.04	1:1.58	0.002	1.236	0.002	
2636.50	41055	Mid-High	Left	Tilt	LTE Band 41	Main 2	17779	20	QPSK	50	25	24.0	23.25	1	0.09	1:1.58	0.002	1.189	0.002	

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 11-14
LTE Band 48 Head SAR

Measurement Results																				
FREQUENCY			Side	Test Position	Mode	Antenna Config.	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
3690.00	56640	High	Right	Cheek	LTE Band 48	Main 1	17779	20	QPSK	1	0	25.0	24.22	0	0.20	1:1.58	0.003	1.197	0.004	
3690.00	56640	High	Right	Cheek	LTE Band 48	Main 1	17779	20	QPSK	50	50	24.0	23.24	1	0.09	1:1.58	0.003	1.191	0.004	
3690.00	56640	High	Right	Tilt	LTE Band 48	Main 1	17779	20	QPSK	1	0	25.0	24.22	0	0.20	1:1.58	0.005	1.197	0.006	
3690.00	56640	High	Right	Tilt	LTE Band 48	Main 1	17779	20	QPSK	50	50	24.0	23.24	1	-0.18	1:1.58	0.004	1.191	0.005	
3690.00	56640	High	Left	Cheek	LTE Band 48	Main 1	17779	20	QPSK	1	0	25.0	24.22	0	0.08	1:1.58	0.007	1.197	0.008	A14
3690.00	56640	High	Left	Cheek	LTE Band 48	Main 1	17779	20	QPSK	50	50	24.0	23.24	1	0.03	1:1.58	0.007	1.191	0.008	
3690.00	56640	High	Left	Tilt	LTE Band 48	Main 1	17779	20	QPSK	1	0	25.0	24.22	0	0.04	1:1.58	0.002	1.197	0.002	
3690.00	56640	High	Left	Tilt	LTE Band 48	Main 1	17779	20	QPSK	50	50	24.0	23.24	1	0.06	1:1.58	0.000	1.191	0.000	

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 11-15
NR Band n71 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Test Position	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
680.50	136100	Mid	Right	Cheek	NR Band n71	Main 1	01203	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	-0.09	1:1	0.037	1.321	0.049	
680.50	136100	Mid	Right	Cheek	NR Band n71	Main 1	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	-0.09	1:1	0.037	1.330	0.049	
680.50	136100	Mid	Right	Tilt	NR Band n71	Main 1	01203	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	-0.21	1:1	0.011	1.321	0.015	
680.50	136100	Mid	Right	Tilt	NR Band n71	Main 1	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	0.02	1:1	0.011	1.330	0.015	
680.50	136100	Mid	Left	Cheek	NR Band n71	Main 1	01203	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	0.04	1:1	0.040	1.321	0.053	A15
680.50	136100	Mid	Left	Cheek	NR Band n71	Main 1	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	0.03	1:1	0.037	1.330	0.049	
680.50	136100	Mid	Left	Cheek	NR Band n71	Main 1	01203	20	CP-OFDM	QPSK	1	1	23.5	22.11	1.5	-0.12	1:1	0.026	1.377	0.036	
680.50	136100	Mid	Left	Tilt	NR Band n71	Main 1	01203	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	-0.16	1:1	0.016	1.321	0.021	
680.50	136100	Mid	Left	Tilt	NR Band n71	Main 1	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	-0.15	1:1	0.015	1.330	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 11-16
NR Band n5 Head SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Test Position	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
836.50	167300	Mid	Right	Cheek	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	25.0	23.55	0	-0.01	1:1	0.131	1.396	0.183	A16
836.50	167300	Mid	Right	Cheek	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.55	0	-0.11	1:1	0.111	1.396	0.155	
836.50	167300	Mid	Right	Cheek	NR Band n5 (Cell)	Main 1	01203	20	CP-OFDM	QPSK	1	1	23.5	21.99	1.5	0.00	1:1	0.092	1.416	0.130	
836.50	167300	Mid	Right	Tilt	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	25.0	23.55	0	-0.07	1:1	0.059	1.396	0.082	
836.50	167300	Mid	Right	Tilt	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.55	0	-0.05	1:1	0.040	1.396	0.056	
836.50	167300	Mid	Left	Cheek	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	25.0	23.55	0	0.04	1:1	0.103	1.396	0.144	
836.50	167300	Mid	Left	Cheek	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.55	0	0.00	1:1	0.099	1.396	0.138	
836.50	167300	Mid	Left	Tilt	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	25.0	23.55	0	0.07	1:1	0.056	1.396	0.078	
836.50	167300	Mid	Left	Tilt	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.55	0	-0.01	1:1	0.054	1.396	0.075	
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 11-17
NR Band n66 Head SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Test Position	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
1720.00	344000	Low	Right	Cheek	NR Band n66 (AWS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	104	25.0	23.61	0	-0.03	1:1	0.154	1.377	0.212	A17
1720.00	344000	Low	Right	Cheek	NR Band n66 (AWS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.77	0	0.03	1:1	0.139	1.327	0.184	
1720.00	344000	Low	Right	Cheek	NR Band n66 (AWS)	Main 2	01146	20	CP-OFDM	QPSK	1	1	23.5	22.07	1.5	0.13	1:1	0.121	1.390	0.168	
1720.00	344000	Low	Right	Tilt	NR Band n66 (AWS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	104	25.0	23.61	0	-0.06	1:1	0.152	1.377	0.209	
1720.00	344000	Low	Right	Tilt	NR Band n66 (AWS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.77	0	0.08	1:1	0.120	1.327	0.159	
1720.00	344000	Low	Left	Cheek	NR Band n66 (AWS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	104	25.0	23.61	0	-0.14	1:1	0.118	1.377	0.162	
1720.00	344000	Low	Left	Cheek	NR Band n66 (AWS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.77	0	0.01	1:1	0.124	1.327	0.165	
1720.00	344000	Low	Left	Tilt	NR Band n66 (AWS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	104	25.0	23.61	0	0.01	1:1	0.120	1.377	0.165	
1720.00	344000	Low	Left	Tilt	NR Band n66 (AWS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.77	0	0.05	1:1	0.120	1.327	0.159	
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 11-18
NR Band n2 Head SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Test Position	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
1860.00	372000	Low	Right	Cheek	NR Band n2 (PCS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	25.0	23.42	0	0.19	1:1	0.091	1.439	0.131	
1860.00	372000	Low	Right	Cheek	NR Band n2 (PCS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.45	0	0.02	1:1	0.098	1.429	0.140	A18
1860.00	372000	Low	Right	Cheek	NR Band n2 (PCS)	Main 2	01203	20	CP-OFDM	QPSK	1	1	23.5	21.79	1.5	0.19	1:1	0.070	1.483	0.104	
1860.00	372000	Low	Right	Tilt	NR Band n2 (PCS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	25.0	23.42	0	0.00	1:1	0.087	1.439	0.125	
1860.00	372000	Low	Right	Tilt	NR Band n2 (PCS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.45	0	0.03	1:1	0.082	1.429	0.117	
1860.00	372000	Low	Left	Cheek	NR Band n2 (PCS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	25.0	23.42	0	0.02	1:1	0.095	1.439	0.137	
1860.00	372000	Low	Left	Cheek	NR Band n2 (PCS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.45	0	0.04	1:1	0.087	1.429	0.124	
1860.00	372000	Low	Left	Tilt	NR Band n2 (PCS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	25.0	23.42	0	0.09	1:1	0.079	1.439	0.114	
1860.00	372000	Low	Left	Tilt	NR Band n2 (PCS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	28	25.0	23.45	0	0.13	1:1	0.066	1.429	0.094	
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 11-19
NR Band n41 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Test Position	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
2592.99	518598	Mid	Right	Cheek	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	27.0	25.52	0	-0.10	1:1	0.024	1.406	0.034	
2592.99	518598	Mid	Right	Cheek	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	27.0	25.35	0	-0.08	1:1	0.012	1.462	0.018	
2592.99	518598	Mid	Right	Tilt	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	27.0	25.52	0	0.20	1:1	0.000	1.406	0.000	
2592.99	518598	Mid	Right	Tilt	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	27.0	25.35	0	0.07	1:1	0.010	1.462	0.015	
2592.99	518598	Mid	Left	Cheek	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	27.0	25.52	0	0.09	1:1	0.027	1.406	0.038	A19
2592.99	518598	Mid	Left	Cheek	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	27.0	25.35	0	0.15	1:1	0.019	1.462	0.028	
2592.99	518598	Mid	Left	Cheek	NR Band n41	Main 2	17746	100	CP-OFDM	QPSK	1	1	25.5	23.91	1.5	0.07	1:1	0.019	1.442	0.027	
2592.99	518598	Mid	Left	Tilt	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	27.0	25.52	0	0.05	1:1	0.010	1.406	0.014	
2592.99	518598	Mid	Left	Tilt	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	27.0	25.35	0	0.07	1:1	0.008	1.462	0.012	
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 11-20
NR Band n77 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Test Position	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
3750.00	650000	Low	Right	Cheek	NR Band n77	Main 1	01088	100	DFT-S-OFDM	QPSK	1	137	27.0	25.76	0	-0.06	1:1	0.024	1.330	0.032	
3750.00	650000	Low	Right	Cheek	NR Band n77	Main 1	01088	100	DFT-S-OFDM	QPSK	135	69	27.0	25.75	0	0.03	1:1	0.031	1.334	0.041	
3750.00	650000	Low	Right	Tilt	NR Band n77	Main 1	01088	100	DFT-S-OFDM	QPSK	1	137	27.0	25.76	0	0.10	1:1	0.051	1.330	0.068	A20
3750.00	650000	Low	Right	Tilt	NR Band n77	Main 1	01088	100	DFT-S-OFDM	QPSK	135	69	27.0	25.75	0	0.16	1:1	0.044	1.334	0.059	
3750.00	650000	Low	Right	Tilt	NR Band n77	Main 1	01088	100	CP-OFDM	QPSK	1	1	25.5	24.20	1.5	0.05	1:1	0.015	1.349	0.020	
3750.00	650000	Low	Left	Cheek	NR Band n77	Main 1	01088	100	DFT-S-OFDM	QPSK	1	137	27.0	25.76	0	0.07	1:1	0.038	1.330	0.051	
3750.00	650000	Low	Left	Cheek	NR Band n77	Main 1	01088	100	DFT-S-OFDM	QPSK	135	69	27.0	25.75	0	0.12	1:1	0.039	1.334	0.052	
3750.00	650000	Low	Left	Tilt	NR Band n77	Main 1	01088	100	DFT-S-OFDM	QPSK	1	137	27.0	25.76	0	0.15	1:1	0.024	1.330	0.032	
3750.00	650000	Low	Left	Tilt	NR Band n77	Main 1	01088	100	DFT-S-OFDM	QPSK	135	69	27.0	25.75	0	-0.15	1:1	0.021	1.334	0.028	
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 11-21
DTS Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	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)	Reported SAR for Reference Model (1g)
MHz	Ch.													W/kg	(W/kg)			(W/kg)	(W/kg)
2462	11	Right	Cheek	802.11b	DSSS	Chain 0	12181	22	1	14.5	13.90	0.01	99.9	0.892	0.678	1.148	1.001	0.779	0.816
2462	11	Left	Cheek	802.11b	DSSS	Chain 0	12181	22	1	14.5	13.90	0.00	99.9	0.216	0.179	1.148	1.001	0.206	
2462	11	Left	Tilt	802.11b	DSSS	Chain 0	12181	22	1	14.5	13.90	0.06	99.9	0.081	0.059	1.148	1.001	0.068	
2462	11	Left	Tilt	802.11b	DSSS	Chain 1	12348	22	1	12.7	11.50	0.03	99.9	0.002	0.000	1.318	1.001	0.000	0.010
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: Worst case spot check justified full data reuse for chain 0 from report 14176139-S1V1, but additional zoom scans were needed for left head due to simultaneous considerations.

Table 11-22
DTS Head SISO SAR during conditions with 5 GHz WLAN

MEASUREMENT RESULTS																			
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	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	Right	Cheek	802.11b	DSSS	Chain 0	12306	22	1	11.0	10.40	0.04	99.9	0.384	0.339	1.148	1.001	0.390	
2462	11	Right	Tilt	802.11b	DSSS	Chain 0	12306	22	1	11.0	10.40	0.05	99.9	0.082	0.060	1.148	1.001	0.069	
2462	11	Left	Cheek	802.11b	DSSS	Chain 0	12306	22	1	11.0	10.40	0.00	99.9	0.086	0.068	1.148	1.001	0.078	
2462	11	Left	Tilt	802.11b	DSSS	Chain 0	12306	22	1	11.0	10.40	0.20	99.9	0.022	0.017	1.148	1.001	0.020	
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 11-23
NII Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	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)	Reported SAR for Reference Model (1g)
MHz	Ch.													W/kg	(W/kg)			(W/kg)	(W/kg)
5250	50	Right	Cheek	802.11ac	OFDM	Chain 0	12249	160	58.5	11.5	11.50	0.10	99.7	0.440	0.375	1.000	1.003	0.376	0.353
5250	50	Left	Tilt	802.11ac	OFDM	Chain 1	12249	160	58.5	11.5	11.00	0.10	99.6	0.003	0.000	1.122	1.004	0.000	0.010
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 11-24
DSS Head SAR

MEASUREMENT RESULTS																	
FREQUENCY		Side	Test Position	Mode	Service	Antenna Config.	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)	Reported SAR for Reference Model (1g)
MHz	Ch.												(W/kg)			(W/kg)	(W/kg)
2480	78	Right	Cheek	Bluetooth	FHSS	Chain 0	20630	1	14.0	13.60	0.10	77.0	0.378	1.096	1.082	0.448	**0.361**
2480	78	Left	Cheek	Bluetooth	FHSS	Chain 1	12348	1	14.0	13.00	0.10	77.2	0.000	1.259	1.079	0.000	0.014
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: The reported SAR was scaled to the 83.3% transmission duty factor to determine compliance since the duty factor of the device is permanently limited to 83.3% per the manufacturer.

11.2 Standalone Body-Worn SAR Data

Table 11-25
GSM Body-Worn SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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)	
824.20	128	back	10 mm	GSM 850	GSM	Main 1	17761	1	33.2	32.41	-0.01	1:8.3	0.599	1.199	0.770	
836.60	190	back	10 mm	GSM 850	GSM	Main 1	17761	1	33.2	32.47	0.01	1:8.3	0.656	1.183	**0.832**	A21
848.80	251	back	10 mm	GSM 850	GSM	Main 1	17761	1	33.2	32.48	0.04	1:8.3	0.642	1.180	0.812	
848.80	251	front	10 mm	GSM 850	GSM	Main 1	17761	1	33.2	32.48	-0.01	1:8.3	0.580	1.180	0.734	
848.80	251	back	10 mm	GSM 850	DTM	Main 1	17761	3	28.4	27.94	0.00	1:2.76	0.533	1.112	0.593	
848.80	251	front	10 mm	GSM 850	DTM	Main 1	17761	3	28.4	27.94	-0.06	1:2.76	0.479	1.112	0.533	
1909.80	810	back	10 mm	GSM 1900	GSM	Main 2	17779	1	27.7	26.47	-0.04	1:8.3	0.140	1.327	0.199	
1909.80	810	front	10 mm	GSM 1900	GSM	Main 2	17779	1	27.7	26.47	-0.03	1:8.3	0.152	1.327	0.216	A22
1880.00	661	back	10 mm	GSM 1900	DTM	Main 2	17779	3	22.9	22.40	-0.02	1:2.76	0.132	1.122	0.148	
1880.00	661	front	10 mm	GSM 1900	DTM	Main 2	17779	3	22.9	22.40	0.01	1:2.76	0.142	1.122	0.159	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Body** **1.6 W/kg (mW/g)** averaged over 1 grams									

Table 11-26
UMTS Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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	Main 1	17761	21.7	21.40	0.01	1:1	0.362	1.072	0.388	A23
846.60	4233	front	10 mm	UMTS 850	RMC	Main 1	17761	21.7	21.40	0.01	1:1	0.342	1.072	0.367	
1712.40	1312	back	10 mm	UMTS 1750	RMC	Main 2	17753	19.7	19.40	0.02	1:1	0.193	1.072	0.207	A24
1712.40	1312	front	10 mm	UMTS 1750	RMC	Main 2	17753	19.7	19.40	0.02	1:1	0.175	1.072	0.188	
1907.60	9538	back	10 mm	UMTS 1900	RMC	Main 2	17779	19.7	19.21	-0.04	1:1	0.176	1.119	0.197	A25
1907.60	9538	front	10 mm	UMTS 1900	RMC	Main 2	17779	19.7	19.21	-0.05	1:1	0.153	1.119	0.171	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Body** **1.6 W/kg (mW/g)** averaged over 1 grams								

Table 11-27
LTE Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
680.50	133297	Mid	back	10 mm	LTE Band 71	Main 1	17761	20	QPSK	1	99	25.0	23.95	0	0.00	1:1	0.241	1.274	0.307	
680.50	133297	Mid	back	10 mm	LTE Band 71	Main 1	17761	20	QPSK	50	50	24.0	22.83	1	-0.01	1:1	0.192	1.309	0.251	
680.50	133297	Mid	front	10 mm	LTE Band 71	Main 1	17761	20	QPSK	1	99	25.0	23.95	0	-0.13	1:1	0.245	1.274	0.312	A26
680.50	133297	Mid	front	10 mm	LTE Band 71	Main 1	17761	20	QPSK	50	50	24.0	22.83	1	-0.01	1:1	0.207	1.309	0.271	
707.50	23095	Mid	back	10 mm	LTE Band 12	Main 1	17761	10	QPSK	1	0	22.0	21.20	0	0.05	1:1	0.101	1.202	0.121	
707.50	23095	Mid	back	10 mm	LTE Band 12	Main 1	17761	10	QPSK	25	25	22.0	21.14	0	0.01	1:1	0.120	1.219	0.146	
707.50	23095	Mid	front	10 mm	LTE Band 12	Main 1	17761	10	QPSK	1	0	22.0	21.20	0	0.02	1:1	0.089	1.202	0.107	
707.50	23095	Mid	front	10 mm	LTE Band 12	Main 1	17761	10	QPSK	25	25	22.0	21.14	0	0.01	1:1	0.105	1.219	0.128	
707.50	23095	Mid	back	10 mm	LTE Band 12	Sub	17753	10	QPSK	1	0	21.5	20.80	0	0.06	1:1	0.118	1.175	0.139	
707.50	23095	Mid	back	10 mm	LTE Band 12	Sub	17753	10	QPSK	25	0	21.5	20.81	0	0.08	1:1	0.119	1.172	0.139	
707.50	23095	Mid	front	10 mm	LTE Band 12	Sub	17753	10	QPSK	1	0	21.5	20.80	0	0.01	1:1	0.129	1.175	0.152	A27
707.50	23095	Mid	front	10 mm	LTE Band 12	Sub	17753	10	QPSK	25	0	21.5	20.81	0	0.00	1:1	0.129	1.172	0.151	
782.00	23230	Mid	back	10 mm	LTE Band 13	Main 1	17753	10	QPSK	1	0	22.0	21.30	0	-0.04	1:1	0.265	1.175	0.311	
782.00	23230	Mid	back	10 mm	LTE Band 13	Main 1	17753	10	QPSK	25	25	22.0	21.16	0	0.03	1:1	0.267	1.213	0.324	A28
782.00	23230	Mid	front	10 mm	LTE Band 13	Main 1	17753	10	QPSK	1	0	22.0	21.30	0	-0.07	1:1	0.246	1.175	0.289	
782.00	23230	Mid	front	10 mm	LTE Band 13	Main 1	17753	10	QPSK	25	25	22.0	21.16	0	0.00	1:1	0.227	1.213	0.275	
782.00	23230	Mid	back	10 mm	LTE Band 13	Sub	17753	10	QPSK	1	25	21.5	20.89	0	0.01	1:1	0.121	1.151	0.139	
782.00	23230	Mid	back	10 mm	LTE Band 13	Sub	17753	10	QPSK	25	0	21.5	20.92	0	0.00	1:1	0.122	1.143	0.139	
782.00	23230	Mid	front	10 mm	LTE Band 13	Sub	17753	10	QPSK	1	25	21.5	20.89	0	0.03	1:1	0.136	1.151	0.157	
782.00	23230	Mid	front	10 mm	LTE Band 13	Sub	17753	10	QPSK	25	0	21.5	20.92	0	0.03	1:1	0.137	1.143	0.157	
836.50	20525	Mid	back	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	1	0	22.0	21.35	0	-0.04	1:1	0.299	1.161	0.347	
836.50	20525	Mid	back	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	25	0	22.0	21.15	0	-0.01	1:1	0.315	1.216	0.383	A29
836.50	20525	Mid	front	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	1	0	22.0	21.35	0	-0.02	1:1	0.275	1.161	0.319	
836.50	20525	Mid	front	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	25	0	22.0	21.15	0	0.01	1:1	0.284	1.216	0.345	
836.50	20525	Mid	back	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	1	25	21.5	21.21	0	-0.14	1:1	0.106	1.069	0.113	
836.50	20525	Mid	back	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	25	12	21.5	21.18	0	-0.02	1:1	0.106	1.076	0.114	
836.50	20525	Mid	front	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	1	25	21.5	21.21	0	0.01	1:1	0.120	1.069	0.128	
836.50	20525	Mid	front	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	25	12	21.5	21.18	0	-0.01	1:1	0.119	1.076	0.128	
1745.00	132322	Mid	back	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	1	99	20.0	19.37	0	-0.01	1:1	0.153	1.156	0.177	
1745.00	132322	Mid	back	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	50	25	20.0	19.33	0	-0.01	1:1	0.151	1.167	0.176	
1745.00	132322	Mid	front	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	1	99	20.0	19.37	0	0.19	1:1	0.172	1.156	0.199	A30
1745.00	132322	Mid	front	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	50	25	20.0	19.33	0	0.03	1:1	0.170	1.167	0.198	
1745.00	132322	Mid	back	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.03	1:1	0.062	1.000	0.062	
1745.00	132322	Mid	back	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.06	1:1	0.069	1.000	0.069	
1745.00	132322	Mid	front	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.02	1:1	0.081	1.000	0.081	
1745.00	132322	Mid	front	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.08	1:1	0.083	1.000	0.083	
1860.00	26140	Low	back	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	1	50	20.0	19.34	0	0.01	1:1	0.152	1.164	0.177	
1860.00	26140	Low	back	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	50	25	20.0	19.28	0	0.01	1:1	0.152	1.180	0.179	A31
1860.00	26140	Low	front	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	1	50	20.0	19.34	0	-0.02	1:1	0.148	1.164	0.172	
1860.00	26140	Low	front	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	50	25	20.0	19.28	0	-0.01	1:1	0.150	1.180	0.177	
1880.00	18900	Mid	back	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.10	1:1	0.061	1.000	0.061	
1880.00	18900	Mid	back	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.02	1:1	0.063	1.000	0.063	
1880.00	18900	Mid	front	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.01	1:1	0.075	1.000	0.075	A32
1880.00	18900	Mid	front	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.09	1:1	0.071	1.000	0.071	
2593.00	40620	Mid	back	10 mm	LTE Band 41	Main 2	17787	20	QPSK	1	99	20.0	19.33	0	-0.14	1:1.58	0.087	1.167	0.102	
2593.00	40620	Mid	back	10 mm	LTE Band 41	Main 2	17787	20	QPSK	50	25	20.0	19.38	0	-0.04	1:1.58	0.091	1.153	0.105	A33
2593.00	40620	Mid	front	10 mm	LTE Band 41	Main 2	17787	20	QPSK	1	99	20.0	19.33	0	-0.03	1:1.58	0.062	1.167	0.072	
2593.00	40620	Mid	front	10 mm	LTE Band 41	Main 2	17787	20	QPSK	50	25	20.0	19.38	0	0.04	1:1.58	0.064	1.153	0.074	
3690.00	56640	High	back	10 mm	LTE Band 48	Main 1	17787	20	QPSK	1	99	20.0	18.77	0	0.14	1:1.58	0.202	1.327	0.268	
3690.00	56640	High	back	10 mm	LTE Band 48	Main 1	17787	20	QPSK	50	50	20.0	18.87	0	-0.01	1:1.58	0.221	1.297	0.287	A34
3690.00	56640	High	front	10 mm	LTE Band 48	Main 1	17787	20	QPSK	1	99	20.0	18.77	0	0.08	1:1.58	0.014	1.327	0.019	
3690.00	56640	High	front	10 mm	LTE Band 48	Main 1	17787	20	QPSK	50	50	20.0	18.87	0	0.06	1:1.58	0.015	1.297	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 grams

Table 11-28
NR Body-Worn SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
680.50	136100	Mid	back	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	-0.03	1:1	0.290	1.321	0.383	A35
680.50	136100	Mid	back	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	0.01	1:1	0.281	1.330	0.374	
680.50	136100	Mid	back	10 mm	NR Band n71	Main 1	01146	20	CP-OFDM	QPSK	1	1	23.5	22.11	1.5	0.02	1:1	0.236	1.377	0.325	
680.50	136100	Mid	front	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	-0.01	1:1	0.286	1.321	0.378	
680.50	136100	Mid	front	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	-0.01	1:1	0.285	1.330	0.379	
836.50	167300	Mid	back	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	22.0	20.61	0	-0.05	1:1	0.308	1.377	0.424	
836.50	167300	Mid	back	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	0	22.0	20.50	0	-0.05	1:1	0.305	1.413	0.431	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	22.0	20.61	0	-0.02	1:1	0.340	1.377	0.468	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	0	22.0	20.50	0	-0.02	1:1	0.329	1.413	0.465	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Main 1	01203	20	CP-OFDM	QPSK	1	1	22.0	20.48	0	0.02	1:1	0.340	1.419	0.482	A36
836.50	167300	Mid	back	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	1	1	21.5	20.17	0	0.04	1:1	0.115	1.358	0.156	
836.50	167300	Mid	back	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	50	0	21.5	20.12	0	-0.01	1:1	0.110	1.374	0.151	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	1	1	21.5	20.17	0	0.04	1:1	0.118	1.358	0.160	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	50	0	21.5	20.12	0	-0.03	1:1	0.114	1.374	0.157	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Sub	01203	20	CP-OFDM	QPSK	1	1	21.5	20.05	0	0.01	1:1	0.117	1.396	0.163	
1745.00	349000	Mid	back	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	20.0	18.45	0	0.00	1:1	0.217	1.429	0.310	
1745.00	349000	Mid	back	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	0	20.0	18.45	0	0.02	1:1	0.217	1.429	0.310	
1745.00	349000	Mid	front	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	20.0	18.45	0	-0.02	1:1	0.234	1.429	0.334	A37
1745.00	349000	Mid	front	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	0	20.0	18.45	0	0.02	1:1	0.227	1.429	0.324	
1720.00	344000	Low	front	10 mm	NR Band n66 (AWS)	Main 2	01203	20	CP-OFDM	QPSK	1	1	20.0	18.30	0	-0.04	1:1	0.219	1.479	0.324	
1860.00	372000	Low	back	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	1	20.0	18.37	0	-0.05	1:1	0.230	1.455	0.335	A38
1860.00	372000	Low	back	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	20.0	18.36	0	-0.01	1:1	0.219	1.459	0.320	
1860.00	372000	Low	back	10 mm	NR Band n2 (PCS)	Main 2	01146	20	CP-OFDM	QPSK	1	1	20.0	18.18	0	0.02	1:1	0.218	1.521	0.332	
1860.00	372000	Low	front	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	1	20.0	18.37	0	0.02	1:1	0.228	1.455	0.332	
1860.00	372000	Low	front	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	20.0	18.36	0	-0.02	1:1	0.220	1.459	0.321	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-29
NR Band n41 Body-Worn SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
2592.99	518598	Mid	back	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	20.0	19.11	0	-0.14	1:1	0.245	1.227	0.301	
2592.99	518598	Mid	back	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	20.0	19.07	0	-0.04	1:1	0.270	1.239	0.335	A39
2592.99	518598	Mid	back	10 mm	NR Band n41	Main 2	17746	100	CP-OFDM	QPSK	1	1	20.0	18.63	0	-0.12	1:1	0.246	1.371	0.337	
2592.99	518598	Mid	front	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	20.0	19.11	0	-0.04	1:1	0.171	1.227	0.210	
2592.99	518598	Mid	front	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	20.0	19.07	0	-0.10	1:1	0.172	1.239	0.213	
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 11-30
NR Band n77 Body-Worn SAR

MEASUREMENT RESULTS																						
FREQUENCY		Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
3930.00	662000	High	back	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	1	137	19.0	18.95	0	-0.14	1:1	0.241	1.012	0.244	
3930.00	662000	High	back	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	135	69	19.0	18.83	0	-0.09	1:1	0.229	1.040	0.238	
3930.00	662000	High	back	10 mm	NR Band n77	Main 1	01062	100	CP-OFDM	QPSK	1	1	19.0	18.38	0	0.02	1:1	0.329	1.153	0.379	A40
3930.00	662000	High	front	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	1	137	19.0	18.95	0	0.12	1:1	0.079	1.012	0.080	
3930.00	662000	High	front	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	135	69	19.0	18.83	0	0.05	1:1	0.080	1.040	0.083	
3930.00	662000	High	back	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	1	137	17.3	17.16	0	0.11	1:1	0.117	1.033	0.121	
3930.00	662000	High	back	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	135	138	17.3	16.76	0	-0.10	1:1	0.128	1.132	0.145	
3930.00	662000	High	back	10 mm	NR Band n77	4th path	01187	100	CP-OFDM	QPSK	1	1	17.3	16.75	0	-0.03	1:1	0.100	1.135	0.114	
3930.00	662000	High	front	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	1	137	17.3	17.16	0	0.01	1:1	0.030	1.033	0.031	
3930.00	662000	High	front	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	135	138	17.3	16.76	0	0.01	1:1	0.030	1.132	0.034	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram													

Table 11-31
DTS Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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)	Reported SAR for Reference Model (1g)
MHz	Ch.													W/kg	(W/kg)			(W/kg)	(W/kg)
2462	11	back	10 mm	802.11b	DSSS	Chain 1	12181	22	1	12.7	11.50	-0.14	99.9	0.052	0.040	1.318	1.001	0.053	0.082
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: The worst-case Body-worn spotcheck for Chain 0 was not required, as the worst case 1g SAR for this antenna was in the Hotspot configuration. The comparison between reference model and variant model justifying 1g SAR data reuse can be found in table 11-51.

Table 11-32
NII Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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)	Reported SAR for Reference Model (1g)
MHz	Ch.													W/kg	(W/kg)			(W/kg)	(W/kg)
5250	50	Back	10 mm	802.11ac	OFDM	Chain 1	12181	80	29.3	11.5	11.00	0.09	99.6	0.095	0.073	1.122	1.004	0.082	0.155
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: The worst-case Body-worn spotcheck for Chain 0 was not required, as the worst case 1g SAR for this antenna was in the Hotspot configuration. The comparison between reference model and variant model justifying 1g SAR data reuse can be found in table 11-51.

Table 11-33
DSS Body-Worn SAR

MEASUREMENT RESULTS																
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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)	Reported SAR for Reference Model (1g)
MHz	Ch.												(W/kg)			(W/kg)	(W/kg)
2480	78	back	10 mm	Bluetooth	FHSS	Chain 0	12181	1	14.0	13.60	0.10	77.0	0.076	1.096	1.082	0.090	0.066
2480	78	back	10 mm	Bluetooth	FHSS	Chain 1	12181	1	14.0	13.00	0.10	77.2	0.001	1.259	1.079	0.001	0.016
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: The reported SAR was scaled to the 83.3% transmission duty factor to determine compliance since the duty factor of the device is permanently limited to 83.3% per the manufacturer.

11.3 Standalone Hotspot SAR Data

Table 11-34
GPRS/DTM Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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)	
824.20	128	back	10 mm	GSM 850	GPRS	Main 1	17761	4	27.2	26.15	-0.03	1:2.076	0.476	1.274	0.606	
836.60	190	back	10 mm	GSM 850	GPRS	Main 1	17761	4	27.2	26.27	0.09	1:2.076	0.582	1.239	**0.721**	A41
848.80	251	back	10 mm	GSM 850	GPRS	Main 1	17761	4	27.2	26.13	0.02	1:2.076	0.524	1.279	0.670	
836.60	190	front	10 mm	GSM 850	GPRS	Main 1	17761	4	27.2	26.27	-0.01	1:2.076	0.546	1.239	0.676	
836.60	190	bottom	10 mm	GSM 850	GPRS	Main 1	17761	4	27.2	26.27	0.02	1:2.076	0.262	1.239	0.325	
836.60	190	left	10 mm	GSM 850	GPRS	Main 1	17761	4	27.2	26.27	-0.02	1:2.076	0.261	1.239	0.323	
848.80	251	back	10 mm	GSM 850	DTM	Main 1	17761	3	28.4	27.94	0.00	1:2.76	0.533	1.112	0.593	
848.80	251	front	10 mm	GSM 850	DTM	Main 1	17761	3	28.4	27.94	-0.06	1:2.76	0.479	1.112	0.533	
848.80	251	bottom	10 mm	GSM 850	DTM	Main 1	17761	3	28.4	27.94	0.02	1:2.76	0.260	1.112	0.289	
848.80	251	left	10 mm	GSM 850	DTM	Main 1	17761	3	28.4	27.94	0.03	1:2.76	0.225	1.112	0.250	
1909.80	810	back	10 mm	GSM 1900	GPRS	Main 2	17779	4	21.7	20.83	-0.04	1:2.076	0.130	1.222	0.159	
1909.80	810	front	10 mm	GSM 1900	GPRS	Main 2	17779	4	21.7	20.83	-0.03	1:2.076	0.141	1.222	0.172	
1909.80	810	bottom	10 mm	GSM 1900	GPRS	Main 2	17779	4	21.7	20.83	0.01	1:2.076	0.155	1.222	0.189	A42
1909.80	810	right	10 mm	GSM 1900	GPRS	Main 2	17779	4	21.7	20.83	-0.04	1:2.076	0.048	1.222	0.059	
1880.00	661	back	10 mm	GSM 1900	DTM	Main 2	17779	3	22.9	22.40	-0.02	1:2.76	0.132	1.122	0.148	
1880.00	661	front	10 mm	GSM 1900	DTM	Main 2	17779	3	22.9	22.40	0.01	1:2.76	0.142	1.122	0.159	
1880.00	661	bottom	10 mm	GSM 1900	DTM	Main 2	17779	3	22.9	22.40	-0.06	1:2.76	0.153	1.122	0.172	
1880.00	661	right	10 mm	GSM 1900	DTM	Main 2	17779	3	22.9	22.40	0.04	1:2.76	0.050	1.122	0.056	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Body** **1.6 W/kg (mW/g)** averaged over 1 grams									

Table 11-35
UMTS Hotspot SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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	Main 1	17761	21.7	21.40	0.01	1:1	0.362	1.072	0.388	A23
846.60	4233	front	10 mm	UMTS 850	RMC	Main 1	17761	21.7	21.40	0.01	1:1	0.342	1.072	0.367	
846.60	4233	bottom	10 mm	UMTS 850	RMC	Main 1	17761	21.7	21.40	0.02	1:1	0.152	1.072	0.163	
846.60	4233	left	10 mm	UMTS 850	RMC	Main 1	17761	21.7	21.40	-0.03	1:1	0.145	1.072	0.155	
1712.40	1312	back	10 mm	UMTS 1750	RMC	Main 2	17753	19.7	19.40	0.02	1:1	0.193	1.072	0.207	A24
1712.40	1312	front	10 mm	UMTS 1750	RMC	Main 2	17753	19.7	19.40	0.02	1:1	0.175	1.072	0.188	
1712.40	1312	bottom	10 mm	UMTS 1750	RMC	Main 2	17753	19.7	19.40	-0.03	1:1	0.178	1.072	0.191	
1712.40	1312	right	10 mm	UMTS 1750	RMC	Main 2	17753	19.7	19.40	-0.03	1:1	0.084	1.072	0.090	
1907.60	9538	back	10 mm	UMTS 1900	RMC	Main 2	17779	19.7	19.21	-0.04	1:1	0.176	1.119	0.197	
1907.60	9538	front	10 mm	UMTS 1900	RMC	Main 2	17779	19.7	19.21	-0.05	1:1	0.153	1.119	0.171	
1907.60	9538	bottom	10 mm	UMTS 1900	RMC	Main 2	17779	19.7	19.21	-0.01	1:1	0.237	1.119	0.265	A43
1907.60	9538	right	10 mm	UMTS 1900	RMC	Main 2	17779	19.7	19.21	-0.01	1:1	0.063	1.119	0.070	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 grams						

Table 11-36
LTE Band 71 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
680.50	133297	Mid	back	10 mm	LTE Band 71	Main 1	17761	20	QPSK	1	99	25.0	23.95	0	0.00	1:1	0.241	1.274	0.307	
680.50	133297	Mid	back	10 mm	LTE Band 71	Main 1	17761	20	QPSK	50	50	24.0	22.83	1	-0.01	1:1	0.192	1.309	0.251	
680.50	133297	Mid	front	10 mm	LTE Band 71	Main 1	17761	20	QPSK	1	99	25.0	23.95	0	-0.13	1:1	0.245	1.274	0.312	A26
680.50	133297	Mid	front	10 mm	LTE Band 71	Main 1	17761	20	QPSK	50	50	24.0	22.83	1	-0.01	1:1	0.207	1.309	0.271	
680.50	133297	Mid	bottom	10 mm	LTE Band 71	Main 1	17761	20	QPSK	1	99	25.0	23.95	0	0.00	1:1	0.141	1.274	0.180	
680.50	133297	Mid	bottom	10 mm	LTE Band 71	Main 1	17761	20	QPSK	50	50	24.0	22.83	1	0.01	1:1	0.119	1.309	0.156	
680.50	133297	Mid	left	10 mm	LTE Band 71	Main 1	17761	20	QPSK	1	99	25.0	23.95	0	-0.17	1:1	0.154	1.274	0.196	
680.50	133297	Mid	left	10 mm	LTE Band 71	Main 1	17761	20	QPSK	50	50	24.0	22.83	1	-0.03	1:1	0.131	1.309	0.171	
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 11-37
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	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	back	10 mm	LTE Band 12	Main 1	17761	10	QPSK	1	0	22.0	21.20	0	0.05	1:1	0.101	1.202	0.121	
707.50	23095	Mid	back	10 mm	LTE Band 12	Main 1	17761	10	QPSK	25	25	22.0	21.14	0	0.01	1:1	0.120	1.219	0.146	
707.50	23095	Mid	front	10 mm	LTE Band 12	Main 1	17761	10	QPSK	1	0	22.0	21.20	0	0.02	1:1	0.089	1.202	0.107	
707.50	23095	Mid	front	10 mm	LTE Band 12	Main 1	17761	10	QPSK	25	25	22.0	21.14	0	0.01	1:1	0.105	1.219	0.128	
707.50	23095	Mid	bottom	10 mm	LTE Band 12	Main 1	17761	10	QPSK	1	0	22.0	21.20	0	-0.03	1:1	0.064	1.202	0.077	
707.50	23095	Mid	bottom	10 mm	LTE Band 12	Main 1	17761	10	QPSK	25	25	22.0	21.14	0	0.01	1:1	0.073	1.219	0.089	
707.50	23095	Mid	left	10 mm	LTE Band 12	Main 1	17761	10	QPSK	1	0	22.0	21.20	0	0.00	1:1	0.052	1.202	0.063	
707.50	23095	Mid	left	10 mm	LTE Band 12	Main 1	17761	10	QPSK	25	25	22.0	21.14	0	0.01	1:1	0.061	1.219	0.074	
707.50	23095	Mid	back	10 mm	LTE Band 12	Sub	17753	10	QPSK	1	0	21.5	20.80	0	0.06	1:1	0.118	1.175	0.139	
707.50	23095	Mid	back	10 mm	LTE Band 12	Sub	17753	10	QPSK	25	0	21.5	20.81	0	0.08	1:1	0.119	1.172	0.139	
707.50	23095	Mid	front	10 mm	LTE Band 12	Sub	17753	10	QPSK	1	0	21.5	20.80	0	0.01	1:1	0.129	1.175	0.152	
707.50	23095	Mid	front	10 mm	LTE Band 12	Sub	17753	10	QPSK	25	0	21.5	20.81	0	0.00	1:1	0.129	1.172	0.151	
707.50	23095	Mid	top	10 mm	LTE Band 12	Sub	17753	10	QPSK	1	0	21.5	20.80	0	0.06	1:1	0.033	1.175	0.039	
707.50	23095	Mid	top	10 mm	LTE Band 12	Sub	17753	10	QPSK	25	0	21.5	20.81	0	-0.08	1:1	0.032	1.172	0.038	
707.50	23095	Mid	right	10 mm	LTE Band 12	Sub	17753	10	QPSK	1	0	21.5	20.80	0	0.03	1:1	0.196	1.175	0.230	
707.50	23095	Mid	right	10 mm	LTE Band 12	Sub	17753	10	QPSK	25	0	21.5	20.81	0	-0.01	1:1	0.201	1.172	0.236	A44
707.50	23095	Mid	left	10 mm	LTE Band 12	Sub	17753	10	QPSK	1	0	21.5	20.80	0	0.09	1:1	0.123	1.175	0.145	
707.50	23095	Mid	left	10 mm	LTE Band 12	Sub	17753	10	QPSK	25	0	21.5	20.81	0	0.02	1:1	0.131	1.172	0.154	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-38
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	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	back	10 mm	LTE Band 13	Main 1	17753	10	QPSK	1	0	22.0	21.30	0	-0.04	1:1	0.265	1.175	0.311	
782.00	23230	Mid	back	10 mm	LTE Band 13	Main 1	17753	10	QPSK	25	25	22.0	21.16	0	0.03	1:1	0.267	1.213	0.324	A28
782.00	23230	Mid	front	10 mm	LTE Band 13	Main 1	17753	10	QPSK	1	0	22.0	21.30	0	-0.07	1:1	0.246	1.175	0.289	
782.00	23230	Mid	front	10 mm	LTE Band 13	Main 1	17753	10	QPSK	25	25	22.0	21.16	0	0.00	1:1	0.227	1.213	0.275	
782.00	23230	Mid	bottom	10 mm	LTE Band 13	Main 1	17753	10	QPSK	1	0	22.0	21.30	0	-0.11	1:1	0.139	1.175	0.163	
782.00	23230	Mid	bottom	10 mm	LTE Band 13	Main 1	17753	10	QPSK	25	25	22.0	21.16	0	0.03	1:1	0.127	1.213	0.154	
782.00	23230	Mid	left	10 mm	LTE Band 13	Main 1	17753	10	QPSK	1	0	22.0	21.30	0	-0.04	1:1	0.111	1.175	0.130	
782.00	23230	Mid	left	10 mm	LTE Band 13	Main 1	17753	10	QPSK	25	25	22.0	21.16	0	0.06	1:1	0.108	1.213	0.131	
782.00	23230	Mid	back	10 mm	LTE Band 13	Sub	17753	10	QPSK	1	25	21.5	20.89	0	0.01	1:1	0.121	1.151	0.139	
782.00	23230	Mid	back	10 mm	LTE Band 13	Sub	17753	10	QPSK	25	0	21.5	20.92	0	0.00	1:1	0.122	1.143	0.139	
782.00	23230	Mid	front	10 mm	LTE Band 13	Sub	17753	10	QPSK	1	25	21.5	20.89	0	0.03	1:1	0.136	1.151	0.157	
782.00	23230	Mid	front	10 mm	LTE Band 13	Sub	17753	10	QPSK	25	0	21.5	20.92	0	0.03	1:1	0.137	1.143	0.157	
782.00	23230	Mid	top	10 mm	LTE Band 13	Sub	17753	10	QPSK	1	25	21.5	20.89	0	-0.15	1:1	0.029	1.151	0.033	
782.00	23230	Mid	top	10 mm	LTE Band 13	Sub	17753	10	QPSK	25	0	21.5	20.92	0	0.11	1:1	0.031	1.143	0.035	
782.00	23230	Mid	right	10 mm	LTE Band 13	Sub	17753	10	QPSK	1	25	21.5	20.89	0	0.02	1:1	0.194	1.151	0.223	
782.00	23230	Mid	right	10 mm	LTE Band 13	Sub	17753	10	QPSK	25	0	21.5	20.92	0	0.06	1:1	0.197	1.143	0.225	
782.00	23230	Mid	left	10 mm	LTE Band 13	Sub	17753	10	QPSK	1	25	21.5	20.89	0	0.02	1:1	0.146	1.151	0.168	
782.00	23230	Mid	left	10 mm	LTE Band 13	Sub	17753	10	QPSK	25	0	21.5	20.92	0	-0.02	1:1	0.144	1.143	0.165	
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 11-39
LTE Band 5 (Cell) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	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)	
836.50	20525	Mid	back	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	1	0	22.0	21.35	0	-0.04	1:1	0.299	1.161	0.347	
836.50	20525	Mid	back	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	25	0	22.0	21.15	0	-0.01	1:1	0.315	1.216	0.383	A29
836.50	20525	Mid	front	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	1	0	22.0	21.35	0	-0.02	1:1	0.275	1.161	0.319	
836.50	20525	Mid	front	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	25	0	22.0	21.15	0	0.01	1:1	0.284	1.216	0.345	
836.50	20525	Mid	bottom	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	1	0	22.0	21.35	0	-0.08	1:1	0.203	1.161	0.236	
836.50	20525	Mid	bottom	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	25	0	22.0	21.15	0	-0.01	1:1	0.210	1.216	0.255	
836.50	20525	Mid	left	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	1	0	22.0	21.35	0	-0.03	1:1	0.132	1.161	0.153	
836.50	20525	Mid	left	10 mm	LTE Band 5 (Cell)	Main 1	17761	10	QPSK	25	0	22.0	21.15	0	-0.02	1:1	0.139	1.216	0.169	
836.50	20525	Mid	back	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	1	25	21.5	21.21	0	-0.14	1:1	0.106	1.069	0.113	
836.50	20525	Mid	back	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	25	12	21.5	21.18	0	-0.02	1:1	0.106	1.076	0.114	
836.50	20525	Mid	front	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	1	25	21.5	21.21	0	0.01	1:1	0.120	1.069	0.128	
836.50	20525	Mid	front	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	25	12	21.5	21.18	0	-0.01	1:1	0.119	1.076	0.128	
836.50	20525	Mid	top	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	1	25	21.5	21.21	0	0.09	1:1	0.041	1.069	0.044	
836.50	20525	Mid	top	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	25	12	21.5	21.18	0	-0.04	1:1	0.042	1.076	0.045	
836.50	20525	Mid	right	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	1	25	21.5	21.21	0	-0.05	1:1	0.131	1.069	0.140	
836.50	20525	Mid	right	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	25	12	21.5	21.18	0	-0.02	1:1	0.130	1.076	0.140	
836.50	20525	Mid	left	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	1	25	21.5	21.21	0	0.07	1:1	0.144	1.069	0.154	
836.50	20525	Mid	left	10 mm	LTE Band 5 (Cell)	Sub	17753	10	QPSK	25	12	21.5	21.18	0	0.02	1:1	0.145	1.076	0.156	

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 11-40
LTE Band 66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	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)	
1745.00	132322	Mid	back	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	1	99	20.0	19.37	0	-0.01	1:1	0.153	1.156	0.177	
1745.00	132322	Mid	back	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	50	25	20.0	19.33	0	-0.01	1:1	0.151	1.167	0.176	
1745.00	132322	Mid	front	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	1	99	20.0	19.37	0	0.19	1:1	0.172	1.156	0.199	A30
1745.00	132322	Mid	front	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	50	25	20.0	19.33	0	0.03	1:1	0.170	1.167	0.198	
1745.00	132322	Mid	bottom	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	1	99	20.0	19.37	0	0.02	1:1	0.158	1.156	0.183	
1745.00	132322	Mid	bottom	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	50	25	20.0	19.33	0	0.01	1:1	0.159	1.167	0.186	
1745.00	132322	Mid	right	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	1	99	20.0	19.37	0	-0.14	1:1	0.082	1.156	0.095	
1745.00	132322	Mid	right	10 mm	LTE Band 66 (AWS)	Main 2	17753	20	QPSK	50	25	20.0	19.33	0	-0.02	1:1	0.083	1.167	0.097	
1745.00	132322	Mid	back	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.03	1:1	0.062	1.000	0.062	
1745.00	132322	Mid	back	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.06	1:1	0.069	1.000	0.069	
1745.00	132322	Mid	front	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.02	1:1	0.081	1.000	0.081	
1745.00	132322	Mid	front	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.08	1:1	0.083	1.000	0.083	
1745.00	132322	Mid	top	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.02	1:1	0.115	1.000	0.115	
1745.00	132322	Mid	top	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.01	1:1	0.112	1.000	0.112	
1745.00	132322	Mid	right	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.02	1:1	0.071	1.000	0.071	
1745.00	132322	Mid	right	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.10	1:1	0.067	1.000	0.067	
1745.00	132322	Mid	left	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.04	1:1	0.016	1.000	0.016	
1745.00	132322	Mid	left	10 mm	LTE Band 66 (AWS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.05	1:1	0.016	1.000	0.016	

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 11-41
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1860.00	26140	Low	back	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	1	50	20.0	19.34	0	0.01	1:1	0.152	1.164	0.177	
1860.00	26140	Low	back	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	50	25	20.0	19.28	0	0.01	1:1	0.152	1.180	0.179	
1860.00	26140	Low	front	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	1	50	20.0	19.34	0	-0.02	1:1	0.148	1.164	0.172	
1860.00	26140	Low	front	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	50	25	20.0	19.28	0	-0.01	1:1	0.150	1.180	0.177	
1860.00	26140	Low	bottom	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	1	50	20.0	19.34	0	-0.06	1:1	0.178	1.164	0.207	A45
1860.00	26140	Low	bottom	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	50	25	20.0	19.28	0	-0.03	1:1	0.176	1.180	0.208	
1860.00	26140	Low	right	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	1	50	20.0	19.34	0	0.00	1:1	0.071	1.164	0.083	
1860.00	26140	Low	right	10 mm	LTE Band 25 (PCS)	Main 2	17779	20	QPSK	50	25	20.0	19.28	0	0.00	1:1	0.073	1.180	0.086	
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 11-42
LTE Band 2 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	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)	
1880.00	18900	Mid	back	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.10	1:1	0.061	1.000	0.061	
1880.00	18900	Mid	back	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.02	1:1	0.063	1.000	0.063	
1880.00	18900	Mid	front	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	-0.01	1:1	0.075	1.000	0.075	
1880.00	18900	Mid	front	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	-0.09	1:1	0.071	1.000	0.071	
1880.00	18900	Mid	top	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.01	1:1	0.087	1.000	0.087	A46
1880.00	18900	Mid	top	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.00	1:1	0.075	1.000	0.075	
1880.00	18900	Mid	right	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.11	1:1	0.080	1.000	0.080	
1880.00	18900	Mid	right	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.05	1:1	0.081	1.000	0.081	
1880.00	18900	Mid	left	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	1	99	20.0	20.00	0	0.08	1:1	0.001	1.000	0.001	
1880.00	18900	Mid	left	10 mm	LTE Band 2 (PCS)	Sub	17787	20	QPSK	50	0	20.0	20.00	0	0.08	1:1	0.001	1.000	0.001	
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 11-43
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	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)	
2593.00	40620	Mid	back	10 mm	LTE Band 41	Main 2	17787	20	QPSK	1	99	20.0	19.33	0	-0.14	1:1.58	0.087	1.167	0.102	
2593.00	40620	Mid	back	10 mm	LTE Band 41	Main 2	17787	20	QPSK	50	25	20.0	19.38	0	-0.04	1:1.58	0.091	1.153	0.105	
2593.00	40620	Mid	front	10 mm	LTE Band 41	Main 2	17787	20	QPSK	1	99	20.0	19.33	0	-0.03	1:1.58	0.062	1.167	0.072	
2593.00	40620	Mid	front	10 mm	LTE Band 41	Main 2	17787	20	QPSK	50	25	20.0	19.38	0	0.04	1:1.58	0.064	1.153	0.074	
2593.00	40620	Mid	bottom	10 mm	LTE Band 41	Main 2	17787	20	QPSK	1	99	20.0	19.33	0	-0.03	1:1.58	0.116	1.167	0.135	
2593.00	40620	Mid	bottom	10 mm	LTE Band 41	Main 2	17787	20	QPSK	50	25	20.0	19.38	0	-0.01	1:1.58	0.120	1.153	0.138	A47
2593.00	40620	Mid	right	10 mm	LTE Band 41	Main 2	17787	20	QPSK	1	99	20.0	19.33	0	0.01	1:1.58	0.024	1.167	0.028	
2593.00	40620	Mid	right	10 mm	LTE Band 41	Main 2	17787	20	QPSK	50	25	20.0	19.38	0	0.03	1:1.58	0.025	1.153	0.029	

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

Table 11-44
LTE Band 48 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Side	Spacing	Mode	Antenna Config.	Device Serial Number	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
3690.00	56640	High	back	10 mm	LTE Band 48	Main 1	17787	20	QPSK	1	99	20.0	18.77	0	0.14	1:1.58	0.202	1.327	0.268	
3690.00	56640	High	back	10 mm	LTE Band 48	Main 1	17787	20	QPSK	50	50	20.0	18.87	0	-0.01	1:1.58	0.221	1.297	0.287	A34
3690.00	56640	High	front	10 mm	LTE Band 48	Main 1	17787	20	QPSK	1	99	20.0	18.77	0	0.08	1:1.58	0.014	1.327	0.019	
3690.00	56640	High	front	10 mm	LTE Band 48	Main 1	17787	20	QPSK	50	50	20.0	18.87	0	0.06	1:1.58	0.015	1.297	0.019	
3690.00	56640	High	bottom	10 mm	LTE Band 48	Main 1	17787	20	QPSK	1	99	20.0	18.77	0	0.06	1:1.58	0.041	1.327	0.054	
3690.00	56640	High	bottom	10 mm	LTE Band 48	Main 1	17787	20	QPSK	50	50	20.0	18.87	0	0.01	1:1.58	0.042	1.297	0.054	
3690.00	56640	High	left	10 mm	LTE Band 48	Main 1	00ZC5	20	QPSK	1	99	20.0	18.77	0	0.03	1:1.58	0.021	1.327	0.028	
3690.00	56640	High	left	10 mm	LTE Band 48	Main 1	00ZC5	20	QPSK	50	50	20.0	18.87	0	0.04	1:1.58	0.021	1.297	0.027	

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 11-45
NR Band n71 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
680.50	136100	Mid	back	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	-0.03	1:1	0.290	1.321	0.383	A35
680.50	136100	Mid	back	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	0.01	1:1	0.281	1.330	0.374	
680.50	136100	Mid	back	10 mm	NR Band n71	Main 1	01146	20	CP-OFDM	QPSK	1	1	23.5	22.11	1.5	0.02	1:1	0.236	1.377	0.325	
680.50	136100	Mid	front	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	-0.01	1:1	0.286	1.321	0.378	
680.50	136100	Mid	front	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	-0.01	1:1	0.285	1.330	0.379	
680.50	136100	Mid	bottom	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	0.01	1:1	0.155	1.321	0.205	
680.50	136100	Mid	bottom	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	0.03	1:1	0.158	1.330	0.210	
680.50	136100	Mid	left	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	1	53	25.0	23.79	0	-0.01	1:1	0.165	1.321	0.218	
680.50	136100	Mid	left	10 mm	NR Band n71	Main 1	01146	20	DFT-S-OFDM	QPSK	50	28	25.0	23.76	0	0.05	1:1	0.163	1.330	0.217	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-46
NR Band n5 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
836.50	167300	Mid	back	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	22.0	20.61	0	-0.05	1:1	0.308	1.377	0.424	
836.50	167300	Mid	back	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	0	22.0	20.50	0	-0.05	1:1	0.305	1.413	0.431	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	22.0	20.61	0	-0.02	1:1	0.340	1.377	0.468	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	0	22.0	20.50	0	-0.02	1:1	0.329	1.413	0.465	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Main 1	01203	20	CP-OFDM	QPSK	1	1	22.0	20.48	0	0.02	1:1	0.340	1.419	0.482	A36
836.50	167300	Mid	bottom	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	22.0	20.61	0	0.01	1:1	0.183	1.377	0.252	
836.50	167300	Mid	bottom	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	0	22.0	20.50	0	0.04	1:1	0.175	1.413	0.247	
836.50	167300	Mid	left	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	1	1	22.0	20.61	0	0.01	1:1	0.170	1.377	0.234	
836.50	167300	Mid	left	10 mm	NR Band n5 (Cell)	Main 1	01203	20	DFT-S-OFDM	QPSK	50	0	22.0	20.50	0	-0.03	1:1	0.169	1.413	0.239	
836.50	167300	Mid	back	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	1	1	21.5	20.17	0	0.04	1:1	0.115	1.358	0.156	
836.50	167300	Mid	back	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	50	0	21.5	20.12	0	-0.01	1:1	0.110	1.374	0.151	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	1	1	21.5	20.17	0	0.04	1:1	0.118	1.358	0.160	
836.50	167300	Mid	front	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	50	0	21.5	20.12	0	-0.03	1:1	0.114	1.374	0.157	
836.50	167300	Mid	top	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	1	1	21.5	20.17	0	-0.05	1:1	0.047	1.358	0.064	
836.50	167300	Mid	top	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	50	0	21.5	20.12	0	-0.03	1:1	0.045	1.374	0.062	
836.50	167300	Mid	right	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	1	1	21.5	20.17	0	0.08	1:1	0.138	1.358	0.187	
836.50	167300	Mid	right	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	50	0	21.5	20.12	0	-0.02	1:1	0.135	1.374	0.185	
836.50	167300	Mid	left	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	1	1	21.5	20.17	0	-0.02	1:1	0.138	1.358	0.187	
836.50	167300	Mid	left	10 mm	NR Band n5 (Cell)	Sub	01203	20	DFT-S-OFDM	QPSK	50	0	21.5	20.12	0	0.05	1:1	0.139	1.374	0.191	
836.50	167300	Mid	left	10 mm	NR Band n5 (Cell)	Sub	01203	20	CP-OFDM	QPSK	1	1	21.5	20.05	0	0.02	1:1	0.137	1.396	0.191	
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 11-47
NR Band n66 Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
1745.00	349000	Mid	back	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	20.0	18.45	0	0.00	1:1	0.217	1.429	0.310	
1745.00	349000	Mid	back	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	0	20.0	18.45	0	0.02	1:1	0.217	1.429	0.310	
1745.00	349000	Mid	front	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	20.0	18.45	0	-0.02	1:1	0.234	1.429	0.334	
1745.00	349000	Mid	front	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	0	20.0	18.45	0	0.02	1:1	0.227	1.429	0.324	
1745.00	349000	Mid	bottom	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	20.0	18.45	0	-0.01	1:1	0.243	1.429	0.347	A48
1745.00	349000	Mid	bottom	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	0	20.0	18.45	0	0.03	1:1	0.242	1.429	0.346	
1720.00	344000	Low	bottom	10 mm	NR Band n66 (AWS)	Main 2	01203	20	CP-OFDM	QPSK	1	1	20.0	18.30	0	0.03	1:1	0.232	1.479	0.343	
1745.00	349000	Mid	right	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	1	1	20.0	18.45	0	0.06	1:1	0.100	1.429	0.143	
1745.00	349000	Mid	right	10 mm	NR Band n66 (AWS)	Main 2	01203	20	DFT-S-OFDM	QPSK	50	0	20.0	18.45	0	0.11	1:1	0.094	1.429	0.134	
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 11-48
NR Band n2 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
1860.00	372000	Low	back	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	1	20.0	18.37	0	-0.05	1:1	0.230	1.455	0.335	A38
1860.00	372000	Low	back	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	20.0	18.36	0	-0.01	1:1	0.219	1.459	0.320	
1860.00	372000	Low	back	10 mm	NR Band n2 (PCS)	Main 2	01146	20	CP-OFDM	QPSK	1	1	20.0	18.18	0	0.02	1:1	0.218	1.521	0.332	
1860.00	372000	Low	front	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	1	20.0	18.37	0	0.02	1:1	0.228	1.455	0.332	
1860.00	372000	Low	front	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	20.0	18.36	0	-0.02	1:1	0.220	1.459	0.321	
1860.00	372000	Low	bottom	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	1	20.0	18.37	0	0.08	1:1	0.196	1.455	0.285	
1860.00	372000	Low	bottom	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	20.0	18.36	0	0.00	1:1	0.201	1.459	0.293	
1860.00	372000	Low	right	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	1	1	20.0	18.37	0	0.02	1:1	0.077	1.455	0.112	
1860.00	372000	Low	right	10 mm	NR Band n2 (PCS)	Main 2	01146	20	DFT-S-OFDM	QPSK	50	28	20.0	18.36	0	0.02	1:1	0.068	1.459	0.099	
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 11-49
NR Band n41 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
2592.99	518598	Mid	back	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	20.0	19.11	0	-0.14	1:1	0.245	1.227	0.301	
2592.99	518598	Mid	back	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	20.0	19.07	0	-0.04	1:1	0.270	1.239	0.335	A39
2592.99	518598	Mid	back	10 mm	NR Band n41	Main 2	17746	100	CP-OFDM	QPSK	1	1	20.0	18.63	0	-0.12	1:1	0.246	1.371	0.337	
2592.99	518598	Mid	front	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	20.0	19.11	0	-0.04	1:1	0.171	1.227	0.210	
2592.99	518598	Mid	front	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	20.0	19.07	0	-0.10	1:1	0.172	1.239	0.213	
2592.99	518598	Mid	bottom	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	20.0	19.11	0	0.02	1:1	0.266	1.227	0.326	
2592.99	518598	Mid	bottom	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	20.0	19.07	0	-0.03	1:1	0.267	1.239	0.331	
2592.99	518598	Mid	right	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	20.0	19.11	0	-0.12	1:1	0.085	1.227	0.104	
2592.99	518598	Mid	right	10 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	20.0	19.07	0	-0.06	1:1	0.084	1.239	0.104	
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 11-50
NR Band n77 Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
3930.00	662000	High	back	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	1	137	19.0	18.95	0	-0.14	1:1	0.241	1.012	0.244	
3930.00	662000	High	back	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	135	69	19.0	18.83	0	-0.09	1:1	0.229	1.040	0.238	
3930.00	662000	High	back	10 mm	NR Band n77	Main 1	01062	100	CP-OFDM	QPSK	1	1	19.0	18.38	0	0.02	1:1	0.329	1.153	0.379	A40
3930.00	662000	High	front	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	1	137	19.0	18.95	0	0.12	1:1	0.079	1.012	0.080	
3930.00	662000	High	front	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	135	69	19.0	18.83	0	0.05	1:1	0.080	1.040	0.083	
3930.00	662000	High	bottom	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	1	137	19.0	18.95	0	0.06	1:1	0.039	1.012	0.039	
3930.00	662000	High	bottom	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	135	69	19.0	18.83	0	0.10	1:1	0.035	1.040	0.036	
3930.00	662000	High	left	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	1	137	19.0	18.95	0	0.04	1:1	0.028	1.012	0.028	
3930.00	662000	High	left	10 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	135	69	19.0	18.83	0	0.07	1:1	0.030	1.040	0.031	
3930.00	662000	High	back	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	1	137	17.3	17.16	0	0.11	1:1	0.117	1.033	0.121	
3930.00	662000	High	back	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	135	138	17.3	16.76	0	-0.10	1:1	0.128	1.132	0.145	
3930.00	662000	High	back	10 mm	NR Band n77	4th path	01187	100	CP-OFDM	QPSK	1	1	17.3	16.75	0	-0.03	1:1	0.100	1.135	0.114	
3930.00	662000	High	front	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	1	137	17.3	17.16	0	0.01	1:1	0.030	1.033	0.031	
3930.00	662000	High	front	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	135	138	17.3	16.76	0	0.01	1:1	0.030	1.132	0.034	
3930.00	662000	High	top	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	1	137	17.3	17.16	0	-0.05	1:1	0.055	1.033	0.057	
3930.00	662000	High	top	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	135	138	17.3	16.76	0	0.04	1:1	0.048	1.132	0.054	
3930.00	662000	High	left	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	1	137	17.3	17.16	0	0.08	1:1	0.064	1.033	0.066	
3930.00	662000	High	left	10 mm	NR Band n77	4th path	01187	100	DFT-s-OFDM	QPSK	135	138	17.3	16.76	0	-0.05	1:1	0.053	1.132	0.060	
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 11-51
WLAN Hotspot SAR

MEASUREMENT RESULTS																		
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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)	Reported SAR for Reference Model (1g)
MHz	Ch.													W/kg	(W/kg)			(W/kg)	(W/kg)
2462	11	Left	10 mm	802.11b	DSSS	Chain 0	12181	22	1	14.5	13.90	0.03	99.9	0.333	0.241	1.148	1.001	0.277	0.232
5250	42	Left	10 mm	802.11ac	OFDM	Chain 0	12181	80	29.3	11.5	10.90	-0.13	99.7	0.174	0.114	1.148	1.003	0.131	0.106
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: The worst-case Hotspot spotcheck for Chain 1 was not required for 2.4 GHz and 5GHz WLAN, as the highest 1g SAR for this antenna at these frequencies was in the Body-worn configuration. The comparisons between reference model and variant model justifying 1g SAR data reuse for 2.4 GHz and 5GHz WLAN can be found in tables 11-31 and 11-32, respectively.

Table 11-52
DSS Hotspot SAR

MEASUREMENT RESULTS																	
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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)	Reported SAR for Reference Model (1g)
MHz	Ch.												(W/kg)			(W/kg)	(W/kg)
2480	78	left	10 mm	Bluetooth	FHSS	Chain 0	12181	1	14.0	13.60	0.10	77.0	0.098	1.096	1.082	**0.116**	0.117
2480	78	back	10 mm	Bluetooth	FHSS	Chain 1	12181	1	14.0	13.00	0.10	77.2	0.001	1.259	1.079	0.001	0.016
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: The reported SAR was scaled to the 83.3% transmission duty factor to determine compliance since the duty factor of the device is permanently limited to 83.3% per the manufacturer.

11.4 Standalone Phablet SAR Data

Table 11-53
NR Band n41 Phablet SAR

MEASUREMENT RESULTS																						
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
2592.99	518598	Mid	back	0 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	20.0	19.11	0	0.00	1:1	1.110	1.227	1.362	
2592.99	518598	Mid	back	0 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	20.0	19.07	0	0.02	1:1	1.080	1.239	1.338	
2592.99	518598	Mid	back	0 mm	NR Band n41	Main 2	17746	100	CP-OFDM	QPSK	1	1	20.0	18.63	0	-0.08	1:1	1.260	1.371	**1.727**	A49
2592.99	518598	Mid	bottom	0 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	1	137	20.0	19.11	0	0.01	1:1	0.882	1.227	1.082	
2592.99	518598	Mid	bottom	0 mm	NR Band n41	Main 2	17746	100	DFT-S-OFDM	QPSK	135	69	20.0	19.07	0	0.03	1:1	0.739	1.239	0.916	
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 11-54
NR Band n77 Phablet SAR

MEASUREMENT RESULTS																					
FREQUENCY			Side	Spacing	Mode	Antenna Config	Serial Number	Bandwidth [MHz]	Waveform	Modulation	RB Size	RB Offset	Maximum Allowed Power [dBm]	Conducted Power [dBm]	MPR [dB]	Power Drift [dB]	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
3930.00	662000	High	back	0 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	1	137	19.0	18.95	0	0.00	1:1	0.982	1.012	0.994	
3930.00	662000	High	back	0 mm	NR Band n77	Main 1	01062	100	DFT-S-OFDM	QPSK	135	69	19.0	18.83	0	-0.02	1:1	0.961	1.040	0.999	
3930.00	662000	High	back	0 mm	NR Band n77	Main 1	01062	100	CP-OFDM	QPSK	1	1	19.0	18.38	0	0.04	1:1	1.300	1.153	1.499	A50
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**									**Phablet** **4 W/kg (mW/g)** averaged over 10 grams												

Table 11-55
WLAN Phablet SAR

MEASUREMENT RESULTS																				
FREQUENCY		Side	Spacing	Mode	Service	Antenna Config.	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)	
5250	50	back	0 mm	802.11ac	OFDM	Chain 0	12181	160	58.5	11.5	11.50	0.01	99.7	1.080	-	1.000	1.003	-	
5250	50	front	0 mm	802.11ac	OFDM	Chain 0	12181	160	58.5	11.5	11.50	-0.01	99.7	1.640	-	1.000	1.003	-	
5250	50	top	0 mm	802.11ac	OFDM	Chain 0	12181	160	58.5	11.5	11.50	0.02	99.7	0.256	-	1.000	1.003	-	
5250	50	left	0 mm	802.11ac	OFDM	Chain 0	12181	160	58.5	11.5	11.50	0.01	99.7	2.490	0.322	1.000	1.003	0.323	A51
5250	50	back	0 mm	802.11ac	OFDM	Chain 1	12181	160	58.5	11.5	11.00	0.09	99.6	0.792	0.206	1.122	1.004	0.232	
5250	50	front	0 mm	802.11ac	OFDM	Chain 1	12181	160	58.5	11.5	11.00	-0.10	99.6	0.041	-	1.122	1.004	-	
5250	50	bottom	0 mm	802.11ac	OFDM	Chain 1	12181	160	58.5	11.5	11.00	0.15	99.6	0.071	-	1.122	1.004	-	
5250	50	left	0 mm	802.11ac	OFDM	Chain 1	12181	160	58.5	11.5	11.00	0.13	99.6	0.036	-	1.122	1.004	-	
5570	114	back	0 mm	802.11ac	OFDM	Chain 0	12181	160	58.5	11.5	11.50	-0.04	99.7	0.308	-	1.000	1.003	-	
5570	114	front	0 mm	802.11ac	OFDM	Chain 0	12181	160	58.5	11.5	11.50	0.09	99.7	0.689	-	1.000	1.003	-	
5570	114	top	0 mm	802.11ac	OFDM	Chain 0	12181	160	58.5	11.5	11.50	0.12	99.7	0.082	-	1.000	1.003	-	
5570	114	left	0 mm	802.11ac	OFDM	Chain 0	12181	160	58.5	11.5	11.50	-0.05	99.7	1.790	0.204	1.000	1.003	0.205	
5570	114	back	0 mm	802.11ac	OFDM	Chain 1	12181	160	58.5	11.5	11.00	-0.02	99.6	0.808	0.256	1.122	1.004	0.288	
5570	114	front	0 mm	802.11ac	OFDM	Chain 1	12181	160	58.5	11.5	11.00	0.20	99.6	0.113	-	1.122	1.004	-	
5570	114	bottom	0 mm	802.11ac	OFDM	Chain 1	12181	160	58.5	11.5	11.00	0.10	99.6	0.077	-	1.122	1.004	-	
5570	114	left	0 mm	802.11ac	OFDM	Chain 1	12181	160	58.5	11.5	11.00	-0.13	99.6	0.025	-	1.122	1.004	-	
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 11-56
NFC Phablet SAR

MEASUREMENT RESULTS											
FREQUENCY		Side	Test Position	Mode	Device Serial Number	Power Drift	Duty Cycle	SAR (10g)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.							(W/kg)		(W/kg)	
13.56	N/A	back	0 mm	NFC	12306	0.08	100.0	0.010	1.000	0.010	A52
13.56	N/A	front	0 mm	NFC	12306	0.00	100.0	0.000	1.000	0.000	
13.56	N/A	top	0 mm	NFC	12306	0.00	100.0	0.000	1.000	0.000	
13.56	N/A	right	0 mm	NFC	12306	0.00	100.0	0.000	1.000	0.000	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Phablet 4.0 W/kg (mW/g) averaged over 10 grams					

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 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The 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 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 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" 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/5G operations to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, compliance for was assessed at the minimum of the time averaged power and the maximum output power for each band/mode/exposure condition (DSI).

GSM Test Notes:

1. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2. Justification for reduced test configurations per KDB Publication 941225 D01v03r01 and October 2013 TCB Workshop Notes: The source-based frame-averaged output power was evaluated for all GPRS/EDGE slot configurations. The configuration with the highest target frame averaged output power was evaluated for hotspot SAR. When the maximum frame-averaged powers are equivalent across two or more slots (within 0.25 dB), the configuration with the most number of time slots was tested.
3. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s).
4. DTM SAR was evaluated with CMW500 Radio Communication Tester FW version 3.7.26 when the device was operating in DTM using maximum CS and PS slots according to FCC KDB 941225 D04v01.

UMTS Notes:

1. UMTS mode was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s).

LTE Notes:

1. LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 8.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D01v06, when the reported LTE Band 41 or LTE Band 48 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.

NR Notes:

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

5. Per FCC Guidance, NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power were evaluated for SAR tests.
6. Per FCC KDB Publication 447498 D01v06, when the reported NR Band n77 C-Band SAR measured at the highest output power channel in a given a test configuration was > 0.4 W/kg for 1g evaluations and > 1 W/kg for 10g evaluation, testing at the other channels was required for such test configurations.

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. 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.
5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
6. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Bluetooth Notes

1. Bluetooth SAR was evaluated with a test mode with hopping disabled with DH5 operation. The reported SAR was scaled to the 83.3% transmission duty factor to determine compliance since the duty factor of the device is limited to 83.3% per the manufacturer. 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 BR 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) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
3) When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Table 12-1
Head SAR Measurement Variability Results

HEAD VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Test Position	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)	
1900	1900.00	19100	LTE Band 2 (PCS), 20 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	Left	Cheek	0.968	0.964	1.00	N/A	N/A	N/A	N/A
ICNIRP 1998 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 2.0 W/kg (mW/g) averaged over 10 grams								

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	2/14/2022	Annual	2/14/2023	MY42082385
Agilent	E4438C	ESG Vector Signal Generator	12/20/2021	Biennial	12/20/2022	MY45090700
Agilent	N5182A	MXG Vector Signal Generator	6/21/2021	Annual	6/21/2022	MY47420603
Agilent	N5182A	MXG Vector Signal Generator	6/15/2021	Annual	6/15/2022	MY47420800
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	5/6/2021	Annual	5/6/2022	GB44400860
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	CBT	N/A	CBT	433972
Anritsu	ML2496A	Power Meter	4/21/2021	Annual	4/21/2022	1351001
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	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	MT8821C	Radio Communication Analyzer MT8821C	8/10/2021	Annual	8/10/2022	6262150000
Anritsu	MT8821C	Radio Communication Analyzer MT8821C	5/21/2021	Annual	5/21/2022	6201144419
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	4/22/2022	Annual	4/22/2023	1344556
Anritsu	MA24106A	USB Power Sensor	3/22/2022	Annual	3/22/2023	2205501
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	2/28/2018	Biennial	CBT	170151872
Control Company	4040	Therm,/ Clock/ Humidity Monitor	2/28/2018	Biennial	CBT	170151893
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	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	7/6/2021	Annual	7/6/2022	31634
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	ZUDC10-83-S+	Directional Coupler	CBT	N/A	CBT	2050
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
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	4/18/2022	Annual	4/18/2023	128633
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
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	2/21/2022	Annual	2/21/2023	164948
SPEAG	CLA-13	Confined Loop Antenna	9/16/2021	Annual	9/16/2022	1002
SPEAG	DAK-3.5	Dielectric Assessment Kit	1/6/2022	Annual	1/6/2023	1278
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	8/18/2021	Annual	8/18/2022	1041
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1379
SPEAG	D750V3	750 MHz SAR Dipole	3/16/2020	Triennial	3/16/2023	1003
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2021	Annual	10/19/2022	1161
SPEAG	D835V2	835 MHz SAR Dipole	1/21/2021	Biennial	1/21/2023	4d132
SPEAG	D835V2	835 MHz SAR Dipole	3/14/2022	Annual	3/14/2023	4d047
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2021	Annual	10/22/2022	1150
SPEAG	D1765V2	1750 MHz SAR Dipole	5/14/2021	Annual	5/14/2022	1008
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	D1900V2	1900 MHz SAR Dipole	10/22/2021	Annual	10/22/2022	5d080
SPEAG	D2450V2	2450 MHz SAR Dipole	9/20/2020	Biennial	9/20/2022	797
SPEAG	D2450V2	2450 MHz SAR Dipole	8/18/2021	Annual	8/18/2022	719
SPEAG	D2600V2	2600 MHz SAR Dipole	6/14/2019	Triennial	6/14/2022	1064
SPEAG	D2600V2	2600 MHz SAR Dipole	4/14/2021	Biennial	4/14/2023	1004
SPEAG	D3500V2	3500 MHz SAR Dipole	1/19/2021	Biennial	1/19/2023	1059
SPEAG	D3500V2	3500 MHz SAR Dipole	1/21/2020	Triennial	1/21/2023	1097
SPEAG	D3700V2	3700 MHz SAR Dipole	1/21/2020	Triennial	1/21/2023	1067
SPEAG	D3700V2	3700 MHz SAR Dipole	1/19/2021	Biennial	1/19/2023	1018
SPEAG	D3900V2	3900 MHz SAR Dipole	10/9/2020	Biennial	10/9/2022	1056
SPEAG	D3900V2	3900 MHz SAR Dipole	6/10/2021	Annual	6/10/2022	1073
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/10/2022	Annual	1/10/2023	1057
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/3/2021	Annual	8/3/2022	1681
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/15/2021	Annual	6/15/2022	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/10/2021	Annual	11/10/2022	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/21/2021	Annual	6/21/2022	1676
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/4/2021	Annual	8/4/2022	1680
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/12/2022	Annual	1/12/2023	1530
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/11/2021	Annual	5/11/2022	728
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/13/2021	Annual	7/13/2022	1583
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/16/2021	Annual	8/16/2022	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/22/2022	Annual	2/22/2023	665
SPEAG	EX3DV4	SAR Probe	9/20/2021	Annual	9/20/2022	7552
SPEAG	EX3DV4	SAR Probe	8/5/2021	Annual	8/5/2022	7670
SPEAG	EX3DV4	SAR Probe	6/21/2021	Annual	6/21/2022	7409
SPEAG	EX3DV4	SAR Probe	11/16/2021	Annual	11/16/2022	7538
SPEAG	EX3DV4	SAR Probe	7/20/2021	Annual	7/20/2022	7406
SPEAG	EX3DV4	SAR Probe	2/4/2022	Annual	2/4/2023	7713
SPEAG	EX3DV4	SAR Probe	5/18/2021	Annual	5/18/2022	3914
SPEAG	EX3DV4	SAR Probe	7/20/2021	Annual	7/20/2022	7410
SPEAG	EX3DV4	SAR Probe	6/28/2021	Annual	6/28/2022	7661
SPEAG	EX3DV4	SAR Probe	2/22/2022	Annual	2/22/2023	7417

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

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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