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SAR EVALUATION REPORT

Applicant Name:
LG Electronics U.S.A., Inc.
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States

Date of Testing:
01/19/20 - 02/26/20
Test Site/Location:
PCTEST, Columbia, MD, USA
Document Serial No.:
1M1912300229-01-R2.ZNF

FCC ID: **ZNFV600AM**

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

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: LM-V600AM
Additional Model(s): LMV600AM, V600AM

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.13	0.39	0.39	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	< 0.1	0.52	0.93	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.21	0.71	0.71	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.13	0.88	0.76	2.29
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.13	0.84	0.78	2.96
PCE	LTE Band 12	699.7 - 715.3 MHz	0.17	0.34	0.35	N/A
PCE	LTE Band 14	790.5 - 795.5 MHz	0.16	0.42	0.42	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.17	0.55	0.55	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.12	0.86	0.87	2.59
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	0.11	0.79	0.88	3.05
PCE	LTE Band 30	2307.5 - 2312.5 MHz	< 0.1	0.40	0.64	N/A
PCE	LTE Band 41	2498.5 - 2687.5 MHz	< 0.1	0.56	0.88	N/A
PCE	NR Band n5 (Cell)	826.5 - 846.5 MHz	< 0.1	0.26	0.26	N/A
PCE	NR Band n66 (AWS)	1712.5 - 1777.5 MHz	0.15	0.36	0.86	2.67
PCE	NR Band n2 (PCS)	1852.5 - 1907.5 MHz	0.21	0.29	0.58	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.95	0.22	0.53	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	0.32	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.84	0.41	N/A	1.25
NII	U-NII-2C	5500 - 5720 MHz	0.52	0.30	N/A	0.91
NII	U-NII-3	5745 - 5825 MHz	0.56	0.23	0.23	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.19	< 0.1	0.13	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.58	1.52	1.59	3.97

Note: This revised Test Report (S/N: 1M1912300229-01-R2.ZNF) 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 1.10 of this report; for North American frequency bands only.

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

Randy Ortanez
President

The SAR Tick is an initiative of the Mobile & Wireless Forum (MWF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MWF. Further details can be obtained by emailing: sartick@mwfai.info.

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 14	Voice/Data	790.5 - 795.5 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 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 30	Voice/Data	2307.5 - 2312.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 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
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
WMC	Data	500 Hz - 4 kHz

1.2 Time-Averaging Algorithm for RF Exposure Compliance

The equipment under test (EUT) contains:

a. Qualcomm® SM8250 modem supporting 2G/3G/4G WWAN technologies

b. Qualcomm® SDX55M modem supporting 5G NR

Both of Qualcomm® SM8250 and SDX55M modems are enabled with Qualcomm® Smart Transmit feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. Refer to Compliance Summary document for detailed description of Qualcomm® Smart Transmit feature (report SN could be found in Section 1.11 – Bibliography).

Note that WLAN operations are not enabled with Smart Transmit.

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

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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 +0.5/-1.5 dB for this EUT.

Exposure Scenario:		Head	Body-Worn	Phablet	Hotspot	Phablet	Maximum Tune-up Output Power*
Averaging Volume:		1g	1g	10g	1g	10g	
Spacing:		0 mm	10 mm	2, 1, 3 mm	10 mm	0 mm	
DSI:		1, 6, 7			5	8	
Technology/Band	Antenna	**Plimit corresponding to 1mW/g (SAR_design_target)**					P_{max}
GSM/GPRS/EDGE 850 MHz	1	26.2			26.2	26.2	24.5
GSM/GPRS/EDGE 1900 MHz	2	23.0			23.0	23.0	22.5
UMTS B5	1	27.6			27.6	27.6	25.0
UMTS B4	2	26.5			22.2	22.2	24.7
UMTS B2	2	25.9			22.2	22.2	24.7
LTE FDD B12	1	30.1			30.1	30.1	25.0
LTE FDD B14	1	29.8			29.8	29.8	25.0
LTE FDD B5	1	28.6			28.6	28.6	25.0
LTE FDD B2	2	25.8			22.2	22.2	24.7
LTE FDD B66/4	2	25.6			22.2	22.2	24.7
LTE FDD B30	2	25.0			25.0	25.0	22.2
LTE TDD B41	2	23.8			23.8	23.8	22.7
NR FDD n5	1	29.4			29.4	29.4	24.2
NR FDD n66	3	23.4			23.4	23.4	25.0
NR FDD n2	3	23.2			23.2	23.2	25.0

*Note all P_{limit} EFS and maximum tune up output power P_{max} levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (for e.g., GSM & 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 + 0.5dB device design uncertainty.

The maximum time-averaged output power (dBm) for any 2G/3G/4G/5G Sub-6 WWAN technology, band, and DSI = minimum of "P_{limit} EFS" and "Maximum tune up output power P_{max}" +0.5/-1.5 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.

1.3 Power Reduction for SAR

This device uses an independent fixed level power reduction mechanism for WLAN operations during voice or VoIP held to ear scenarios for 2.4 GHz WLAN and in some simultaneous transmission conditions with 2.4 GHz + 5 GHz WIFI Active. Per FCC Guidance, the held-to-ear exposure conditions were evaluated at reduced power according to the head SAR positions described in IEEE 1528-2013 for the cases mentioned above. Detailed descriptions of the power reduction mechanism are included in the operational description.

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1.4 Dual Display Cover

This device supports Dual Display (DD) Cover, which attaches to the device to provide a secondary display on the inside of the cover. The Dual Display Cover is free rotating from 0 to 360 degrees. Per FCC guidance, the use conditions of 0, 180 and 360 degrees were considered for SAR testing. SAR with the Dual Display Cover was measured for the overall worst case per each exposure condition (head, body-worn accessory, etc.). Head SAR tests were performed with the accessory cover folded to 0 and 360 degrees to represent typical use conditions. Body-worn, Hotspot, and Phablet SAR tests were performed with accessory cover folded to 0, 180 and 360 degrees.

1.5 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.

1.5.1 2G/3G/4G/5G Output Power

GSM/GPRS/EDGE 850						
Device State Index		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	1 TX Slots	2 TX Slots
All DSI	Max allowed power	33.4	33.4	31.2	27.2	26.7
	Nominal	32.9	32.9	30.7	26.7	26.2
GSM/GPRS/EDGE 1900						
Device State Index		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	1 TX Slots	2 TX Slots
All DSI	Max allowed power	30.2	30.2	29.2	26.2	25.7
	Nominal	29.7	29.7	28.7	25.7	25.2

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UMTS Band 5 (850 MHz)				
Device State Index		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
All DSI	Max allowed power	25.5	25.5	25.5
	Nominal	25.0	25.0	25.0
UMTS Band 4 (1750 MHz)				
Device State Index		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
DSI = 1, 6, 7 (Head, Body-worn, or Phablet Max)	Max allowed power	25.2	25.2	25.2
	Nominal	24.7	24.7	24.7
DSI = 5 (Hotspot); DSI = 8 (Phablet Reduced)	Max allowed power	22.7	22.7	22.7
	Nominal	22.2	22.2	22.2
UMTS Band 2 (1900 MHz)				
Device State Index		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
DSI = 1, 6, 7 (Head, Body-worn, or Phablet Max)	Max allowed power	25.2	25.2	25.2
	Nominal	24.7	24.7	24.7
DSI = 5 (Hotspot); DSI = 8 (Phablet Reduced)	Max allowed power	22.7	22.7	22.7
	Nominal	22.2	22.2	22.2

Device State Index		Modulated Average Output Power (in dBm)	
		DSI = 1, 6, 7 (Head, Body-worn, or Phablet Max)	DSI = 5 (Hotspot); DSI = 8 (Phablet Reduced)
LTE FDD Band 12	Max allowed power	25.5	25.5
	Nominal	25.0	25.0
LTE FDD Band 14	Max allowed power	25.5	25.5
	Nominal	25.0	25.0
LTE FDD Band 5	Max allowed power	25.5	25.5
	Nominal	25.0	25.0
LTE FDD Band 4	Max allowed power	25.2	22.7
	Nominal	24.7	22.2
LTE FDD Band 66	Max allowed power	25.2	22.7
	Nominal	24.7	22.2
LTE FDD Band 2	Max allowed power	25.2	22.7
	Nominal	24.7	22.2
LTE FDD Band 30	Max allowed power	22.7	22.7
	Nominal	22.2	22.2
LTE TDD Band 41	Max allowed power	25.2	25.2
	Nominal	24.7	24.7

Mode / Band		Modulated Average Output Power (in dBm)
		DSI = 1, 6, 7 (Head, Body-worn, or Phablet Max); DSI = 5 (Hotspot); DSI = 8 (Phablet Reduced)
NR FDD Band n5	Max allowed power	24.7
	Nominal	24.2
NR FDD Band n66	Max allowed power	23.9
	Nominal	23.4
NR FDD Band n2	Max allowed power	23.7
	Nominal	23.2

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1.5.2 Maximum Bluetooth and SISO/MIMO WLAN Output Power

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

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
		Ch. 1-2	Ch. 3-9	Ch 10-11
IEEE 802.11b (2.4 GHz)	Maximum	20.5		
	Nominal	19.5		
IEEE 802.11g (2.4 GHz)	Maximum	18.0	19.5	17.5
	Nominal	17.0	18.5	16.5
IEEE 802.11n (2.4 GHz)	Maximum	17.0	18.5	16.5
	Nominal	16.0	17.5	15.5
IEEE 802.11ac (2.4 GHz)	Maximum	17.0	18.5	16.5
	Nominal	16.0	17.5	15.5
IEEE 802.11ax SU (2.4 GHz)	Maximum	15.0	16.5	14.5
	Nominal	14.0	15.5	13.5

Mode / Band		Modulated Average - MIMO (dBm)		
		Ch. 1-2	Ch. 3-9	Ch 10-11
IEEE 802.11g (2.4 GHz)	Maximum	21.0	22.5	20.5
	Nominal	20.0	21.5	19.5
IEEE 802.11n (2.4 GHz)	Maximum	20.0	21.5	19.5
	Nominal	19.0	20.5	18.5
IEEE 802.11ac (2.4 GHz)	Maximum	20.0	21.5	19.5
	Nominal	19.0	20.5	18.5
IEEE 802.11ax SU (2.4 GHz)	Maximum	18.0	19.5	17.5
	Nominal	17.0	18.5	16.5

Mode / Band		Modulated Average - Single Tx Chain (dBm)													
		20 MHz Bandwidth								40 MHz Bandwidth				80 MHz Bandwidth	
		36	40	44-52	56	60-153	157	161	165	38	46-54	62-102	110-159	42-58	106-155
IEEE 802.11a (5 GHz)	Maximum	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0						
	Nominal	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0						
IEEE 802.11n (5 GHz)	Maximum	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	11.5	16.0	11.5	16.0		
	Nominal	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	10.5	15.0	10.5	15.0		
IEEE 802.11ac (5 GHz)	Maximum	17.0	18.0	17.0	18.0	17.0	18.0	17.0	18.0	11.5	16.0	11.5	16.0	11.0	13.0
	Nominal	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	10.5	15.0	10.5	15.0	10.0	12.0
IEEE 802.11ax SU (5 GHz)	Maximum	15.0								9.5	13.0	9.5	13.0	9.0	11.0
	Nominal	14.0								8.5	12.0	8.5	12.0	8.0	10.0

Mode / Band		Modulated Average - MIMO (dBm)													
		20 MHz Bandwidth								40 MHz Bandwidth				80 MHz Bandwidth	
		36	40	44-52	56	60-153	157	161	165	38	46-54	62-102	110-159	42-58	106-155
IEEE 802.11a (5 GHz)	Maximum	20.0	21.0	20.0	21.0	20.0	21.0	20.0	21.0						
	Nominal	19.0	20.0	19.0	20.0	19.0	20.0	19.0	20.0						
IEEE 802.11n (5 GHz)	Maximum	20.0	21.0	20.0	21.0	20.0	21.0	20.0	21.0	14.5	19.0	14.5	19.0		
	Nominal	19.0	20.0	19.0	20.0	19.0	20.0	19.0	20.0	13.5	18.0	13.5	18.0		
IEEE 802.11ac (5 GHz)	Maximum	20.0	21.0	20.0	21.0	20.0	21.0	20.0	21.0	14.5	19.0	14.5	19.0	14.0	16.0
	Nominal	19.0	20.0	19.0	20.0	19.0	20.0	19.0	20.0	13.5	18.0	13.5	18.0	13.0	15.0
IEEE 802.11ax SU (5 GHz)	Maximum	18.0								12.5	16.0	12.5	16.0	12.0	14.0
	Nominal	17.0								11.5	15.0	11.5	15.0	11.0	13.0

Mode / Band		Modulated Average (dBm)
Bluetooth	Maximum	12.5
	Nominal	11.5
Bluetooth LE	Maximum	7.0
	Nominal	6.0

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1.5.3 Reduced SISO/MIMO WLAN Output Power

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

The below table is applicable in the following conditions:

- Head Conditions for 2.4 GHz WLAN
- Head Conditions during simultaneous conditions with 2.4 GHz WLAN and 5 GHz WLAN
- Simultaneous Conditions with 2.4 GHz WLAN and 5 GHz WLAN

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
		Ch. 1-2	Ch. 3-9	Ch 10-11
IEEE 802.11b (2.4 GHz)	Maximum	15.5		
	Nominal	14.5		
IEEE 802.11g (2.4 GHz)	Maximum	15.5		
	Nominal	14.5		
IEEE 802.11n (2.4 GHz)	Maximum	15.5		
	Nominal	14.5		
IEEE 802.11ac (2.4 GHz)	Maximum	15.5		
	Nominal	14.5		
IEEE 802.11ax SU (2.4 GHz)	Maximum	15.0	15.5	14.5
	Nominal	14.0	14.5	13.5

Mode / Band		Modulated Average - MIMO (dBm)		
		Ch. 1-2	Ch. 3-9	Ch 10-11
IEEE 802.11g (2.4 GHz)	Maximum	18.5		
	Nominal	17.5		
IEEE 802.11n (2.4 GHz)	Maximum	18.5		
	Nominal	17.5		
IEEE 802.11ac (2.4 GHz)	Maximum	18.5		
	Nominal	17.5		
IEEE 802.11ax SU (2.4 GHz)	Maximum	18.0	18.5	17.5
	Nominal	17.0	17.5	16.5

The below table is applicable in simultaneous conditions with 2.4 GHz WLAN and 5 GHz WLAN

Mode / Band		Modulated Average - Single Tx Chain (dBm)													
		20 MHz Bandwidth								40 MHz Bandwidth				80 MHz Bandwidth	
		36	40	44-52	56	60-153	157	161	165	38	46-54	62-102	110-159	42-58	106-155
IEEE 802.11a (5 GHz)	Maximum	15.0													
	Nominal	14.0													
IEEE 802.11n (5 GHz)	Maximum	15.0								11.5	15.0	11.5	15.0		
	Nominal	14.0								10.5	14.0	10.5	14.0		
IEEE 802.11ac (5 GHz)	Maximum	15.0								11.5	15.0	11.5	15.0	11.0	13.0
	Nominal	14.0								10.5	14.0	10.5	14.0	10.0	12.0
IEEE 802.11ax SU (5 GHz)	Maximum	15.0								9.5	13.0	9.5	13.0	9.0	11.0
	Nominal	14.0								8.5	12.0	8.5	12.0	8.0	10.0

Mode / Band		Modulated Average - MIMO (dBm)													
		20 MHz Bandwidth								40 MHz Bandwidth				80 MHz Bandwidth	
		36	40	44-52	56	60-153	157	161	165	38	46-54	62-102	110-159	42-58	106-155
IEEE 802.11a (5 GHz)	Maximum	18.0													
	Nominal	17.0													
IEEE 802.11n (5 GHz)	Maximum	18.0								14.5	18.0	14.5	18.0		
	Nominal	17.0								13.5	17.0	13.5	17.0		
IEEE 802.11ac (5 GHz)	Maximum	18.0								14.5	18.0	14.5	18.0	14.0	16.0
	Nominal	17.0								13.5	17.0	13.5	17.0	13.0	15.0
IEEE 802.11ax SU (5 GHz)	Maximum	18.0								12.5	16.0	12.5	16.0	12.0	14.0
	Nominal	17.0								11.5	15.0	11.5	15.0	11.0	13.0

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1.6 DUT Antenna Locations

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

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	No
GPRS 1900	Yes	Yes	No	Yes	No	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	No
UMTS 1750	Yes	Yes	No	Yes	No	Yes
UMTS 1900	Yes	Yes	No	Yes	No	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	No
LTE Band 14	Yes	Yes	No	Yes	Yes	No
LTE Band 5 (Cell)	Yes	Yes	No	Yes	Yes	No
LTE Band 66 (AWS)	Yes	Yes	No	Yes	No	Yes
LTE Band 2 (PCS)	Yes	Yes	No	Yes	No	Yes
LTE Band 30	Yes	Yes	No	Yes	No	Yes
LTE Band 41	Yes	Yes	No	Yes	No	Yes
NR Band n5 (Cell)	Yes	Yes	No	Yes	Yes	No
NR Band n66 (AWS)	Yes	Yes	No	Yes	Yes	No
NR Band n2 (PCS)	Yes	Yes	No	Yes	Yes	No
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN MIMO	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	No	Yes

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

1.7 Near Field Communications (NFC) Antenna

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

1.8 Simultaneous Transmission Capabilities

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

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

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet	Notes
1	GSM voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	
2	GSM voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
3	GSM voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered
4	GSM voice + 2.4 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
5	GSM voice + 5 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
6	GSM voice + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
7	GSM voice + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered
8	GSM voice + 2.4 GHz Bluetooth + 2.4 GHz WI-FI Ant2	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered
9	UMTS + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	
10	UMTS + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
11	UMTS + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
12	UMTS + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
13	UMTS + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
14	UMTS + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
15	UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
16	UMTS + 2.4 GHz Bluetooth + 2.4 GHz WI-FI Ant2	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
17	LTE + 5G NR	Yes	Yes	N/A	Yes	
18	LTE + 2.4 GHz WI-FI + 5G NR	Yes	Yes	Yes	Yes	
19	LTE + 5 GHz WI-FI + 5G NR	Yes	Yes	Yes	Yes	
20	LTE + 2.4 GHz Bluetooth + 5G NR	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
21	LTE + 2.4 GHz WI-FI MIMO + 5G NR	Yes	Yes	Yes	Yes	
22	LTE + 5 GHz WI-FI MIMO + 5G NR	Yes	Yes	Yes	Yes	
23	LTE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO + 5G NR	Yes	Yes	Yes	Yes	
24	LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO +5G NR	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
25	LTE + 2.4 GHz Bluetooth + 2.4 GHz WI-FI Ant2 +5G NR	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
26	LTE + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	
27	LTE + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
28	LTE + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
29	LTE + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
30	LTE + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
31	LTE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
32	LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
33	LTE + 2.4 GHz Bluetooth + 2.4 GHz WI-FI Ant2	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
34	GPRS/EDGE + 2.4 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
35	GPRS/EDGE + 5 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
36	GPRS/EDGE + 2.4 GHz Bluetooth	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^Bluetooth Tethering is considered
37	GPRS/EDGE + 2.4 GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
38	GPRS/EDGE + 5 GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
39	GPRS/EDGE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
40	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^Bluetooth Tethering is considered
41	GPRS/EDGE + 2.4 GHz Bluetooth + 2.4 GHz WI-FI Ant2	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^Bluetooth Tethering is considered

1. 2.4 GHz WLAN Antenna 1 and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
2. All licensed modes share the same antenna path and cannot transmit simultaneously.
3. 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.
4. Per the manufacturer, WIFI Direct is expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
5. 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.
6. 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. Each WLAN antenna can transmit independently or together when operating with MIMO.

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7. This device supports VOLTE.
8. This device supports VOWIFI.
9. This device supports Bluetooth Tethering.
10. LTE + 5G NR FR1 Scenarios are limited to LTE Anchor Bands, LTE Band 2/5/12/30/66 under EN-DC mode.

1.9 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 & U-NII-2C, 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 publication 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) No aggregate channel configurations
d) 2 Tx antenna output
e) Up to 1024 QAM is supported
f) TDWR and Band gap channels are supported for 5 GHz
g) 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 & U-NII-2C WLAN, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WLAN, U-NII-1 WLAN, U-NII-3 WLAN, and Bluetooth 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.

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(B) Licensed Transmitter(s)

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

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

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

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 Appendix F.

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information).

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

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

This device supports LTE Carrier Aggregation (CA) for LTE Band 5 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

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

NR implementation of n5, n66, and n2 is limited to EN-DC operations only, with LTE Band 2/5/12/30/66 acting as the anchor band. Per FCC Guidance, SAR tests were performed separately for NR Bands and LTE Anchor Bands. Please see Section 11 for more details.

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1.10 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)
- FCC KDB Publication 616217 D04v01r02 (Proximity Sensor)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)
- April 2019 TCB Workshop Notes (IEEE 802.11ax)

1.11 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.

1.12 Bibliography

Report Type	Report Serial Number
RF Exposure Part 0 Test Report	rev E
RF Exposure Part 2 Test Report	80-W5674-2 Rev C
RF Exposure Compliance Summary Report	1M1912300229-15.ZNF

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2 LTE AND NR FR1 INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 14 (790.5 - 795.5 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 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 30 (2307.5 - 2312.5 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 14: 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 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 30: 5 MHz, 10 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 14: 5 MHz	790.5 (23305)		793 (23330)	795.5 (23355)	
LTE Band 14: 10 MHz	N/A		793 (23330)	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 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 30: 5 MHz	2307.5 (27685)		2310 (27710)	2312.5 (27735)	
LTE Band 30: 10 MHz	N/A		2310 (27710)	N/A	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	DL UE Cat 20, UL UE Cat 18				
Modulations Supported in UL	QPSK, 16QAM, 64QAM, 256QAM				
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 Section 9 and Appendix F. 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.				

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NR FR1 Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	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)				
Channel Bandwidths	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				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
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 n5/n66/n2 SCS	15				
Modulations Supported in UL	DFT-s-OFDM: pi/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
EN-DC Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Anchor Bands for NR Band n5	LTE Band 2/66/30				
LTE Anchor Bands for NR Band n66	LTE Band 2/30/5/12				
LTE Anchor Bands for NR Band n2	LTE Band 66/5/12/30				

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3 INTRODUCTION

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

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

3.1 SAR Definition

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

Equation 3-1
SAR Mathematical Equation

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

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

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

where:

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

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4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

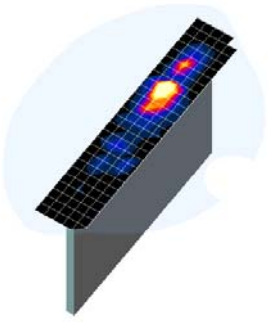

Figure 4-1
Sample SAR Area Scan

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

*Also compliant to IEEE 1528-2013 Table 6

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5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

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

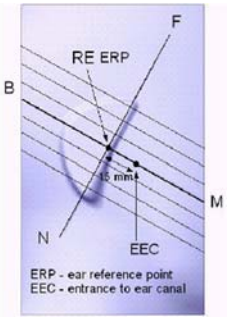

Figure 5-1
Close-Up Side view of ERP

5.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the acoustic output located along the "vertical centerline" on the front of the device aligned to the "ear reference point" (See Figure 5-3). The acoustic output was 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.

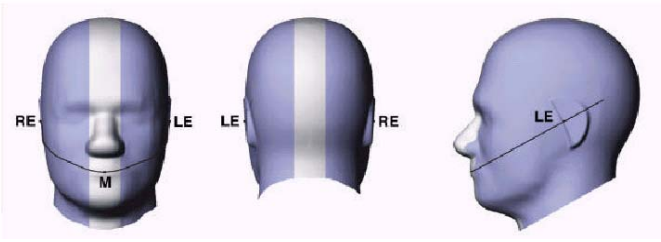

Figure 5-2
Front, back and side view of SAM Twin Phantom

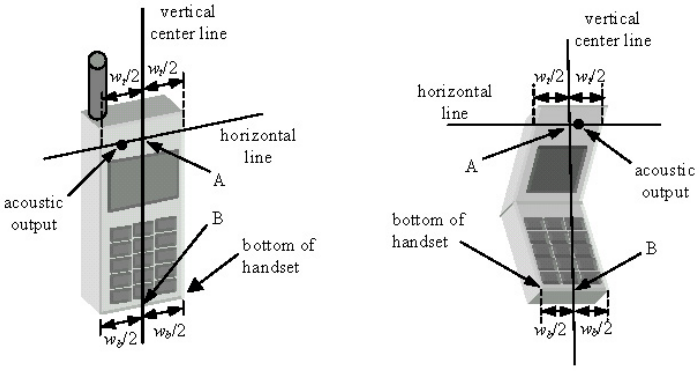

Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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6 TEST CONFIGURATION POSITIONS

6.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity 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).

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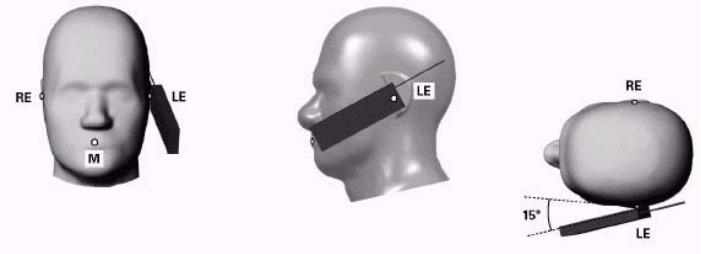

Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

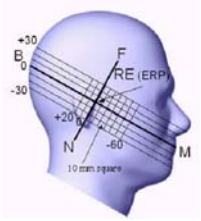

Figure 6-3
Side view w/ relevant markings

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.

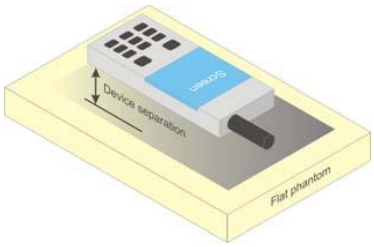

Figure 6-4
Sample Body-Worn Diagram

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

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

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

6.6 Extremity Exposure Configurations

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

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

6.7 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets (L 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

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

6.9 Proximity Sensor Considerations

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

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

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

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7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 7-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *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.

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8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

8.2 3G SAR Test Reduction Procedure

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

8.3 Procedures Used to Establish RF Signal for SAR

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

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

8.4 SAR Measurement Conditions for UMTS

8.4.1 Output Power Verification

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

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8.4.2 Head SAR Measurements

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure.

8.4.3 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all "1s". The 3G SAR test reduction procedure is applied to other spreading codes and multiple $DPDCH_n$ configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or $DPDCH_n$, for the highest reported SAR configuration in 12.2 kbps RMC.

8.4.4 SAR Measurements with Rel 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

8.4.5 SAR Measurements with Rel 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

8.5 SAR Measurement Conditions for LTE

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

8.5.1 Spectrum Plots for RB Configurations

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

8.5.2 MPR

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

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8.5.3 A-MPR

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

8.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
    i. The required channel and offset combination with the highest maximum output power is required for SAR.
    ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
    iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to 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.

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8.6 SAR Testing with 802.11 Transmitters

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

8.6.1 General Device Setup

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

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

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

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

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

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

8.6.4 Initial Test Position Procedure

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

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8.6.5 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n/ax OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. Per April 2019 TCB Workshop guidance, 802.11ax was considered the highest order 802.11 mode. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

8.6.7 Initial Test Configuration Procedure

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

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 8.6.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the

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subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.9 MIMO SAR considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB Publication 447498 D01v06 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is <1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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9 RF CONDUCTED POWERS

9.1 GSM Conducted Powers

Table 9-1
Measured P_{max}

Maximum Burst-Averaged Output Power						
		Voice	*GPRS/EDGE Data (GMSK)*		*EDGE Data (8-PSK)*	
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
GSM 850	128	32.62	32.65	**30.74**	26.55	25.70
	190	32.78	32.78	**30.78**	26.62	25.73
	251	32.55	32.63	**30.36**	26.36	25.65
GSM 1900	512	29.16	29.15	**28.03**	25.51	24.54
	661	29.32	29.37	**28.53**	25.76	24.77
	810	29.22	29.23	**28.49**	25.42	24.41

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**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
GSM 850	128	23.59	23.62	**24.72**	17.52	19.68
	190	23.75	23.75	**24.76**	17.59	19.71
	251	23.52	23.60	**24.34**	17.33	19.63
GSM 1900	512	20.13	20.12	**22.01**	16.48	18.52
	661	20.29	20.34	**22.51**	16.73	18.75
	810	20.19	20.20	**22.47**	16.39	18.39

GSM 850	**Frame Avg.Targets:**	23.70	23.70	**24.51**	17.50	20.01
GSM 1900		20.50	20.50	**22.51**	16.50	19.01

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Note:

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

GSM Class: B
GPRS Multislot class: 10 (Max 2 Tx uplink slots)
EDGE Multislot class: 10 (Max 2 Tx uplink slots)
DTM Multislot Class: N/A

Figure 9-1
Power Measurement Setup

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9.2 UMTS Conducted Powers

Table 9-2
Measured P_{max}

3GPP Release Version	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	
99	WCDMA	12.2 kbps RMC	25.15	25.10	25.11	24.72	24.94	24.77	24.75	24.82	24.72	-
99		12.2 kbps AMR	25.13	25.14	25.07	24.73	24.85	24.84	24.76	24.72	24.71	-
6	HSDPA	Subtest 1	25.19	25.24	25.11	24.04	24.57	24.62	24.54	24.50	24.51	0
6		Subtest 2	25.17	25.27	24.97	23.89	24.60	24.25	24.49	24.50	24.46	0
6		Subtest 3	24.67	24.74	24.63	23.50	24.06	24.02	23.87	23.97	24.00	0.5
6		Subtest 4	24.69	24.75	24.63	23.58	24.10	23.98	23.94	23.99	23.94	0.5
6	HSUPA	Subtest 1	24.60	24.64	24.56	23.73	24.52	24.57	23.73	23.81	23.70	0
6		Subtest 2	23.17	23.25	23.16	22.21	22.74	22.57	22.54	22.42	22.37	2
6		Subtest 3	24.19	24.24	24.16	23.22	23.72	23.59	23.64	23.40	23.41	1
6		Subtest 4	23.18	23.25	23.18	22.28	22.70	22.67	22.53	22.63	22.69	2
6		Subtest 5	25.20	25.26	25.15	23.95	24.75	24.45	24.52	24.47	24.48	0

Table 9-3
Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode)

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	22.38	22.39	22.36	22.15	22.20	22.11	-
99		12.2 kbps AMR	22.34	22.36	22.31	22.12	22.16	22.14	-
6	HSDPA	Subtest 1	22.45	22.38	22.48	22.36	22.44	22.37	0
6		Subtest 2	22.46	22.39	22.49	22.31	22.40	22.35	0
6		Subtest 3	21.89	21.90	21.96	21.83	21.87	21.85	0.5
6		Subtest 4	21.95	21.88	21.95	21.82	21.89	21.89	0.5
6	HSUPA	Subtest 1	21.49	21.50	21.41	21.35	21.45	21.39	0
6		Subtest 2	20.48	20.49	20.47	20.58	20.65	20.58	2
6		Subtest 3	21.48	21.44	21.39	21.32	21.45	21.38	1
6		Subtest 4	20.20	20.17	20.05	20.06	20.08	20.04	2
6		Subtest 5	22.45	22.38	22.48	22.38	22.43	22.35	0

This device does not support DC-HSDPA.

Figure 9-2
Power Measurement Setup

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9.3 LTE Conducted Powers

9.3.1 LTE Band 12

Table 9-4
LTE Band 12 Measured P_{max} for all DSI - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	25.16	0	0
	1	25	**25.26**		0
	1	49	25.21		0
	25	0	23.95	0-1	1
	25	12	23.93		1
	25	25	**23.96**		1
	50	0	23.90		1
16QAM	1	0	24.47	0-1	1
	1	25	24.44		1
	1	49	24.39		1
	25	0	22.99	0-2	2
	25	12	23.10		2
	25	25	22.99		2
	50	0	22.98		2
64QAM	1	0	23.14	0-2	2
	1	25	23.24		2
	1	49	22.96		2
	25	0	21.93	0-3	3
	25	12	21.92		3
	25	25	22.05		3
	50	0	22.08		3
256QAM	1	0	19.80	0-5	5
	1	25	20.07		5
	1	49	19.78		5
	25	0	19.92		5
	25	12	20.03		5
	25	25	20.05		5
	50	0	19.90		5

Note: LTE Band 12 at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.12	25.24	25.29	0	0
	1	12	25.29	25.29	25.28		0
	1	24	25.18	25.31	25.25		0
	12	0	24.04	24.06	24.06	0-1	1
	12	6	24.07	24.07	24.08		1
	12	13	24.03	24.13	24.10		1
	25	0	23.98	24.04	24.03		1
16QAM	1	0	24.32	24.28	24.28	0-1	1
	1	12	24.29	24.26	24.30		1
	1	24	24.30	24.12	24.20		1
	12	0	23.08	23.09	23.13	0-2	2
	12	6	23.09	23.14	23.11		2
	12	13	23.18	22.98	23.14		2
	25	0	23.05	23.04	23.02		2
64QAM	1	0	23.18	23.21	23.31	0-2	2
	1	12	23.27	23.37	23.26		2
	1	24	23.12	23.19	23.18		2
	12	0	22.10	22.11	22.23	0-3	3
	12	6	22.12	22.14	22.14		3
	12	13	22.04	22.16	22.12		3
	25	0	22.08	22.09	22.04		3
256QAM	1	0	20.13	20.15	20.20	0-5	5
	1	12	20.11	20.23	20.05		5
	1	24	20.02	20.17	20.12		5
	12	0	20.10	20.16	20.11		5
	12	6	20.07	20.06	20.07		5
	12	13	20.07	20.05	20.05		5
	25	0	20.01	20.03	20.04		5

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Table 9-6
LTE Band 12 Measured P_{max} for all DSI - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.21	25.27	25.33	0	0
	1	7	25.17	25.26	25.21		0
	1	14	25.12	25.28	25.17		0
	8	0	24.09	24.11	24.09	0-1	1
	8	4	24.05	24.05	24.06		1
	8	7	24.01	24.11	24.00		1
	15	0	24.06	24.07	24.09		1
16QAM	1	0	24.17	24.28	24.42	0-1	1
	1	7	24.13	24.21	24.10		1
	1	14	24.21	24.38	24.13		1
	8	0	23.12	23.16	23.17	0-2	2
	8	4	23.16	23.23	23.18		2
	8	7	23.09	23.15	23.04		2
	15	0	23.05	23.15	23.10		2
64QAM	1	0	23.26	23.18	23.28	0-2	2
	1	7	23.23	23.28	23.21		2
	1	14	23.21	23.23	23.22		2
	8	0	22.08	22.10	22.11	0-3	3
	8	4	22.07	22.09	22.12		3
	8	7	22.09	22.15	22.07		3
	15	0	22.08	22.11	22.13		3
256QAM	1	0	20.09	20.12	20.22	0-5	5
	1	7	20.10	20.10	20.05		5
	1	14	20.16	20.19	20.11		5
	8	0	20.06	20.04	20.12		5
	8	4	20.13	20.10	20.11		5
	8	7	20.02	20.11	20.09		5
	15	0	20.09	20.07	20.13		5

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Table 9-7
LTE Band 12 Measured P_{max} for all DSI -1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23017 (699.7 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23173 (715.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.12	25.17	25.23	0	0
	1	2	25.18	25.31	25.25		0
	1	5	25.14	25.22	25.17		0
	3	0	25.13	25.19	25.19		0
	3	2	25.27	25.32	25.28		0
	3	3	25.16	25.24	25.17		0
	6	0	23.93	23.97	23.95	0-1	1
16QAM	1	0	24.27	24.28	24.21	0-1	1
	1	2	24.32	24.36	23.99		1
	1	5	24.23	24.21	24.09		1
	3	0	24.08	24.12	24.09		1
	3	2	24.15	24.15	24.18		1
	3	3	24.02	24.17	23.97		1
	6	0	23.06	23.04	23.19	0-2	2
64QAM	1	0	23.11	23.15	23.13	0-2	2
	1	2	23.21	23.29	23.20		2
	1	5	23.08	23.21	23.10		2
	3	0	22.99	23.11	23.06		2
	3	2	23.07	23.07	23.08		2
	3	3	23.01	23.14	23.02		2
	6	0	22.05	21.96	22.00	0-3	3
256QAM	1	0	20.04	20.06	20.13	0-5	5
	1	2	20.09	20.18	20.25		5
	1	5	20.05	20.12	20.05		5
	3	0	20.06	20.09	20.13		5
	3	2	20.07	20.15	20.14		5
	3	3	20.04	20.16	20.07		5
	6	0	19.93	20.01	20.00		5

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9.3.2 LTE Band 14

Table 9-8
LTE Band 14 Measured P_{max} for all DSI - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23330 (793.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**25.21**	0	0
	1	25	24.91		0
	1	49	25.05		0
	25	0	**23.92**	0-1	1
	25	12	23.91		1
	25	25	23.88		1
	50	0	23.84		1
16QAM	1	0	24.45	0-1	1
	1	25	24.48		1
	1	49	24.42		1
	25	0	22.89	0-2	2
	25	12	22.88		2
	25	25	23.07		2
	50	0	22.91		2
64QAM	1	0	23.21	0-2	2
	1	25	22.93		2
	1	49	23.11		2
	25	0	21.97	0-3	3
	25	12	22.00		3
	25	25	21.92		3
	50	0	21.93		3
256QAM	1	0	19.76	0-5	5
	1	25	20.05		5
	1	49	19.98		5
	25	0	19.94		5
	25	12	20.00		5
	25	25	19.97		5
	50	0	19.85		5

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Table 9-9
LTE Band 14 Measured P_{max} for all DSI - 5 MHz Bandwidth

LTE Band 14 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23330 (793.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	25.05	0	0
	1	12	25.28		0
	1	24	25.15		0
	12	0	24.00	0-1	1
	12	6	24.05		1
	12	13	24.02		1
	25	0	24.04		1
16QAM	1	0	24.30	0-1	1
	1	12	24.27		1
	1	24	23.84		1
	12	0	23.13	0-2	2
	12	6	23.15		2
	12	13	23.12		2
	25	0	23.01		2
64QAM	1	0	23.07	0-2	2
	1	12	23.06		2
	1	24	22.95		2
	12	0	21.98	0-3	3
	12	6	21.90		3
	12	13	21.86		3
	25	0	21.85		3
256QAM	1	0	20.05	0-5	5
	1	12	20.15		5
	1	24	20.03		5
	12	0	20.07		5
	12	6	20.09		5
	12	13	20.02		5
	25	0	19.97		5

Note: LTE Band 14 at 5 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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9.3.3 LTE Band 5 (Cell)

Table 9-10
LTE Band 5 (Cell) Measured P_{max} for all DSI - 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	**25.30**	0	0
	1	25	25.21		0
	1	49	25.11		0
	25	0	23.85	0-1	1
	25	12	**24.01**		1
	25	25	23.99		1
	50	0	23.93		1
16QAM	1	0	24.41	0-1	1
	1	25	24.34		1
	1	49	24.45		1
	25	0	22.88	0-2	2
	25	12	23.00		2
	25	25	22.88		2
	50	0	22.93		2
64QAM	1	0	23.07	0-2	2
	1	25	23.01		2
	1	49	22.93		2
	25	0	21.93	0-3	3
	25	12	22.11		3
	25	25	21.93		3
	50	0	21.96		3
256QAM	1	0	19.87	0-5	5
	1	25	19.96		5
	1	49	19.93		5
	25	0	19.82		5
	25	12	20.03		5
	25	25	19.96		5
	50	0	19.95		5

Note: LTE Band 5 (Cell) at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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Table 9-11
LTE Band 5 (Cell) Measured P_{max} for all DSI - 5 MHz Bandwidth

LTE Band 5 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20425 (826.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20625 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.14	25.20	25.23	0	0
	1	12	25.17	25.12	25.14		0
	1	24	25.11	25.15	25.20		0
	12	0	23.74	23.69	23.86	0-1	1
	12	6	23.80	23.77	23.93		1
	12	13	23.75	23.78	23.90		1
	25	0	23.76	23.75	23.63		1
16QAM	1	0	23.72	23.88	23.82	0-1	1
	1	12	23.69	23.93	23.89		1
	1	24	23.79	23.94	23.81		1
	12	0	22.85	22.79	22.86	0-2	2
	12	6	22.79	22.90	22.80		2
	12	13	22.80	22.82	22.76		2
	25	0	22.72	22.85	22.78		2
64QAM	1	0	23.25	23.10	22.99	0-2	2
	1	12	23.14	23.21	23.17		2
	1	24	22.98	23.18	23.05		2
	12	0	21.95	21.63	21.76	0-3	3
	12	6	21.86	21.76	21.95		3
	12	13	21.82	21.69	21.91		3
	25	0	21.71	21.72	21.96		3
256QAM	1	0	20.00	20.02	19.95	0-5	5
	1	12	19.94	19.98	19.99		5
	1	24	20.03	19.85	19.96		5
	12	0	20.07	19.94	19.98		5
	12	6	19.89	19.97	20.05		5
	12	13	19.90	19.90	20.03		5
	25	0	19.92	20.02	20.09		5

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Table 9-12
LTE Band 5 (Cell) Measured P_{max} for all DSI - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20415 (825.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20635 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.13	25.10	25.09	0	0
	1	7	25.07	25.18	25.05		0
	1	14	25.11	25.21	25.04		0
	8	0	23.75	23.71	23.78	0-1	1
	8	4	23.76	23.81	23.73		1
	8	7	23.71	23.76	23.72		1
	15	0	23.75	23.77	23.66		1
16QAM	1	0	23.69	23.78	23.62	0-1	1
	1	7	23.86	23.97	23.84		1
	1	14	23.94	24.00	23.88		1
	8	0	22.82	22.85	22.70	0-2	2
	8	4	22.96	22.91	22.81		2
	8	7	22.80	22.89	22.73		2
	15	0	22.73	22.83	22.76		2
64QAM	1	0	23.05	23.06	23.06	0-2	2
	1	7	23.01	23.12	23.14		2
	1	14	23.03	23.00	23.19		2
	8	0	21.75	21.83	21.72	0-3	3
	8	4	21.79	21.93	21.78		3
	8	7	21.75	21.89	21.72		3
	15	0	21.89	21.83	21.73		3
256QAM	1	0	20.07	19.88	20.07	0-5	5
	1	7	20.05	19.98	19.96		5
	1	14	20.19	19.96	20.02		5
	8	0	19.93	19.97	19.99		5
	8	4	19.98	19.96	19.87		5
	8	7	19.95	19.89	19.86		5
	15	0	19.91	19.85	19.93		5

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Table 9-13
LTE Band 5 (Cell) Measured P_{max} for all DSI -1.4 MHz Bandwidth

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20407 (824.7 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20643 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.23	25.04	24.94	0	0
	1	2	25.28	25.15	25.02		0
	1	5	25.25	25.09	24.97		0
	3	0	24.99	25.12	25.03		0
	3	2	25.00	25.17	25.13		0
	3	3	24.97	25.18	25.05		0
	6	0	23.89	24.12	24.11	0-1	1
16QAM	1	0	23.94	23.80	24.01	0-1	1
	1	2	23.88	23.93	24.24		1
	1	5	23.87	23.83	23.96		1
	3	0	24.01	23.74	23.96		1
	3	2	23.98	23.83	23.80		1
	3	3	23.91	23.93	23.86		1
	6	0	22.84	22.75	22.95	0-2	2
64QAM	1	0	22.96	22.88	23.01	0-2	2
	1	2	23.01	22.91	23.00		2
	1	5	23.05	22.96	22.91		2
	3	0	23.07	22.94	22.94		2
	3	2	23.05	22.93	23.00		2
	3	3	22.97	22.97	22.96		2
	6	0	21.96	21.67	21.71	0-3	3
256QAM	1	0	20.18	19.97	20.07	0-5	5
	1	2	20.01	19.92	19.98		5
	1	5	20.12	19.89	20.06		5
	3	0	19.98	19.87	20.01		5
	3	2	19.92	19.85	20.02		5
	3	3	19.98	19.86	20.00		5
	6	0	19.97	19.76	19.99		5

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9.3.4 LTE Band 66 (AWS)

Table 9-14
LTE Band 66 (AWS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 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	24.62	25.16	**25.20**	0	0
	1	50	25.19	25.19	25.19		0
	1	99	25.13	25.16	25.15		0
	50	0	23.94	24.12	24.11	0-1	1
	50	25	24.18	24.17	24.17		1
	50	50	24.17	24.15	**24.19**		1
	100	0	24.12	24.10	24.12		1
16QAM	1	0	23.86	23.99	24.11	0-1	1
	1	50	23.96	24.20	24.12		1
	1	99	24.06	24.01	24.05		1
	50	0	23.01	23.17	23.13	0-2	2
	50	25	23.19	23.18	23.16		2
	50	50	23.17	23.19	23.15		2
	100	0	23.11	23.12	23.11		2
64QAM	1	0	22.85	23.04	23.19	0-2	2
	1	50	23.16	23.19	23.15		2
	1	99	23.00	23.03	23.08		2
	50	0	21.85	22.08	22.17	0-3	3
	50	25	22.19	22.16	22.19		3
	50	50	22.03	22.18	22.20		3
	100	0	22.16	22.13	22.17		3
256QAM	1	0	20.13	20.04	20.05	0-5	5
	1	50	20.20	20.19	20.18		5
	1	99	20.02	20.06	20.08		5
	50	0	20.00	20.12	20.15		5
	50	25	20.20	20.16	20.17		5
	50	50	20.06	20.05	20.12		5
	100	0	20.17	20.10	20.09		5

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Table 9-15
LTE Band 66 (AWS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.88	25.02	25.10	0	0
	1	36	24.97	24.85	24.72		0
	1	74	24.87	24.94	25.05		0
	36	0	24.10	24.19	24.02	0-1	1
	36	18	23.98	24.12	23.97		1
	36	37	24.02	24.14	24.05		1
	75	0	24.18	24.12	24.07		1
16QAM	1	0	23.56	24.13	23.95	0-1	1
	1	36	23.93	24.00	23.96		1
	1	74	23.71	24.05	23.77		1
	36	0	22.92	23.02	23.13	0-2	2
	36	18	22.98	23.02	23.14		2
	36	37	22.91	23.03	23.09		2
	75	0	22.92	22.96	23.05		2
64QAM	1	0	22.88	22.91	22.96	0-2	2
	1	36	22.67	23.08	22.94		2
	1	74	22.70	22.85	22.84		2
	36	0	21.72	21.80	22.01	0-3	3
	36	18	21.80	21.83	22.13		3
	36	37	21.75	21.81	22.02		3
	75	0	21.70	21.75	22.06		3
256QAM	1	0	20.19	20.16	20.06	0-5	5
	1	36	20.11	19.98	20.04		5
	1	74	20.12	19.91	20.07		5
	36	0	19.98	19.97	19.96		5
	36	18	20.13	20.04	20.06		5
	36	37	20.04	20.08	20.09		5
	75	0	20.08	20.10	20.12		5

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Table 9-16
LTE Band 66 (AWS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132022 (1715.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132622 (1775.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.69	24.97	24.93	0	0
	1	25	25.08	24.96	25.15		0
	1	49	24.85	24.85	25.00		0
	25	0	24.12	23.96	24.19	0-1	1
	25	12	24.14	23.95	24.01		1
	25	25	24.06	24.05	24.19		1
	50	0	24.08	24.12	24.14		1
16QAM	1	0	23.96	23.97	24.03	0-1	1
	1	25	24.05	23.86	23.94		1
	1	49	23.94	23.93	24.05		1
	25	0	23.06	22.98	23.04	0-2	2
	25	12	23.08	23.09	23.13		2
	25	25	22.96	22.93	23.02		2
	50	0	22.89	22.95	22.97		2
64QAM	1	0	22.87	22.92	22.95	0-2	2
	1	25	22.85	22.87	22.91		2
	1	49	22.93	22.95	22.89		2
	25	0	21.86	21.96	22.10	0-3	3
	25	12	21.96	21.96	22.15		3
	25	25	22.14	21.96	22.07		3
	50	0	22.09	21.96	21.98		3
256QAM	1	0	20.12	20.19	19.87	0-5	5
	1	25	20.15	19.94	20.16		5
	1	49	20.17	19.98	19.96		5
	25	0	20.02	19.95	20.02		5
	25	12	20.05	20.02	20.07		5
	25	25	20.01	20.00	20.00		5
	50	0	19.97	19.94	19.98		5

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Table 9-17
LTE Band 66 (AWS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131997 (1712.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132647 (1777.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.65	24.80	24.75	0	0
	1	12	24.74	24.87	24.86		0
	1	24	25.06	24.75	25.10		0
	12	0	24.08	24.15	24.18	0-1	1
	12	6	24.15	24.18	24.12		1
	12	13	24.08	24.14	24.16		1
	25	0	23.86	23.96	24.15		1
16QAM	1	0	23.68	23.96	23.97	0-1	1
	1	12	23.78	23.96	24.12		1
	1	24	23.72	23.84	23.85		1
	12	0	23.09	22.98	22.87	0-2	2
	12	6	23.07	22.97	22.79		2
	12	13	22.98	23.01	22.87		2
	25	0	22.93	23.05	22.96		2
64QAM	1	0	22.95	23.01	22.94	0-2	2
	1	12	23.01	23.08	23.04		2
	1	24	23.04	23.14	23.12		2
	12	0	21.87	22.11	22.14	0-3	3
	12	6	22.03	22.04	22.17		3
	12	13	22.04	22.11	22.07		3
	25	0	22.11	22.15	22.20		3
256QAM	1	0	20.02	20.18	20.15	0-5	5
	1	12	19.99	20.17	20.10		5
	1	24	19.95	20.05	19.99		5
	12	0	20.08	20.04	20.15		5
	12	6	20.08	20.03	20.14		5
	12	13	19.97	20.04	20.06		5
	25	0	19.96	19.99	20.13		5

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Table 9-18
LTE Band 66 (AWS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.08	25.16	25.06	0	0
	1	7	25.04	25.17	25.07		0
	1	14	24.99	25.16	24.98		0
	8	0	24.01	24.12	24.00	0-1	1
	8	4	24.08	24.17	24.03		1
	8	7	24.14	24.15	24.19		1
	15	0	23.95	24.01	24.00		1
16QAM	1	0	23.98	24.01	24.03	0-1	1
	1	7	23.80	23.87	23.88		1
	1	14	23.74	24.03	23.88		1
	8	0	23.10	23.03	23.02	0-2	2
	8	4	23.06	22.74	23.02		2
	8	7	23.00	22.85	23.02		2
	15	0	22.97	22.96	23.02		2
64QAM	1	0	22.87	22.87	23.03	0-2	2
	1	7	23.11	23.12	23.04		2
	1	14	23.14	23.15	23.01		2
	8	0	21.89	21.97	22.03	0-3	3
	8	4	22.14	21.85	21.87		3
	8	7	21.96	22.11	22.00		3
	15	0	22.10	22.20	22.08		3
256QAM	1	0	19.85	20.15	20.13	0-5	5
	1	7	19.77	20.13	20.17		5
	1	14	19.72	20.09	20.15		5
	8	0	20.20	19.98	20.12		5
	8	4	20.13	20.05	19.98		5
	8	7	20.11	19.95	19.92		5
	15	0	20.12	20.08	19.93		5

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Table 9-19
LTE Band 66 (AWS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.99	24.98	25.19	0	0
	1	2	25.05	25.01	25.15		0
	1	5	24.97	24.99	25.14		0
	3	0	25.09	25.00	25.08		0
	3	2	24.97	25.05	25.10		0
	3	3	24.92	24.96	25.12		0
	6	0	23.97	23.98	24.17	0-1	1
16QAM	1	0	23.96	24.03	23.97	0-1	1
	1	2	23.90	24.10	24.18		1
	1	5	23.87	23.97	24.07		1
	3	0	23.90	24.11	23.95		1
	3	2	23.95	24.12	23.97		1
	3	3	23.81	24.14	23.91		1
	6	0	23.13	23.04	23.10	0-2	2
64QAM	1	0	22.88	23.04	23.08	0-2	2
	1	2	22.79	23.02	23.10		2
	1	5	22.96	22.87	23.14		2
	3	0	22.87	22.85	23.17		2
	3	2	22.76	22.79	23.15		2
	3	3	23.04	23.01	23.18		2
	6	0	21.85	22.04	22.14	0-3	3
256QAM	1	0	19.72	20.07	20.13	0-5	5
	1	2	19.77	20.08	19.97		5
	1	5	19.68	20.07	20.04		5
	3	0	19.96	20.11	20.04		5
	3	2	20.01	20.18	20.12		5
	3	3	19.95	20.06	20.17		5
	6	0	20.02	19.94	20.13		5

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Table 9-20
LTE Band 66 (AWS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 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	22.38	22.07	22.40	0	0
	1	50	**22.48**	22.10	22.28		0
	1	99	22.18	21.95	22.41		0
	50	0	22.59	22.29	22.39	0-1	0
	50	25	**22.65**	22.33	22.42		0
	50	50	22.50	22.26	22.27		0
	100	0	22.46	22.22	22.40		0
16QAM	1	0	22.45	22.21	22.42	0-1	0
	1	50	22.42	22.36	22.28		0
	1	99	22.24	22.22	22.43		0
	50	0	22.04	22.10	21.84	0-2	0
	50	25	22.22	22.00	21.93		0
	50	50	21.94	22.02	22.01		0
	100	0	21.99	21.85	21.83		0
64QAM	1	0	21.89	21.99	22.10	0-2	0
	1	50	22.14	22.10	22.09		0
	1	99	21.91	21.88	22.08		0
	50	0	21.95	22.00	21.80	0-3	0.5
	50	25	22.05	21.99	21.92		0.5
	50	50	22.02	21.96	21.89		0.5
	100	0	21.88	21.86	21.90		0.5
256QAM	1	0	19.87	19.86	19.95	0-5	2.5
	1	50	20.09	20.12	20.15		2.5
	1	99	19.88	19.89	19.87		2.5
	50	0	19.98	19.96	19.91		2.5
	50	25	20.04	20.07	19.92		2.5
	50	50	19.99	19.95	19.90		2.5
	100	0	19.92	19.89	19.87		2.5

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Table 9-21
LTE Band 66 (AWS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	21.85	22.08	21.86	0	0
	1	36	21.95	22.18	21.85		0
	1	74	21.83	22.12	21.79		0
	36	0	22.02	22.02	21.97	0-1	0
	36	18	22.03	22.03	21.98		0
	36	37	22.07	21.97	21.90		0
	75	0	22.06	21.97	21.92		0
16QAM	1	0	22.20	22.17	22.12	0-1	0
	1	36	22.24	22.13	22.22		0
	1	74	21.99	22.05	22.13		0
	36	0	21.96	22.01	21.93	0-2	0
	36	18	22.05	22.01	21.98		0
	36	37	21.96	21.94	21.96		0
	75	0	22.02	22.00	21.89		0
64QAM	1	0	22.00	21.99	22.06	0-2	0
	1	36	22.12	22.09	22.10		0
	1	74	21.99	21.92	22.05		0
	36	0	21.72	21.97	21.91	0-3	0.5
	36	18	22.03	21.94	21.94		0.5
	36	37	22.03	21.95	21.93		0.5
	75	0	21.96	21.87	21.90		0.5
256QAM	1	0	19.91	19.87	19.84	0-5	2.5
	1	36	20.10	20.05	20.09		2.5
	1	74	19.94	19.97	19.94		2.5
	36	0	19.95	19.98	19.89		2.5
	36	18	20.05	20.01	19.96		2.5
	36	37	20.00	19.97	19.98		2.5
	75	0	20.05	19.95	19.90		2.5

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Table 9-22
LTE Band 66 (AWS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132022 (1715.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132622 (1775.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	21.90	21.96	21.40	0	0
	1	25	21.83	21.82	21.59		0
	1	49	21.97	22.06	21.37		0
	25	0	21.98	22.07	21.61	0-1	0
	25	12	22.02	22.00	21.64		0
	25	25	22.13	21.91	21.63		0
	50	0	21.88	21.83	21.54		0
16QAM	1	0	21.94	21.84	21.78	0-1	0
	1	25	22.08	22.02	22.03		0
	1	49	21.90	21.80	21.81		0
	25	0	21.84	21.62	21.68	0-2	0
	25	12	21.84	21.78	21.63		0
	25	25	21.79	21.67	21.59		0
	50	0	21.76	21.63	21.63		0
64QAM	1	0	21.71	21.67	21.52	0-2	0
	1	25	21.91	21.95	21.78		0
	1	49	21.74	21.56	21.62		0
	25	0	21.50	21.63	21.59	0-3	0.5
	25	12	21.80	21.75	21.68		0.5
	25	25	21.67	21.69	21.76		0.5
	50	0	21.76	21.64	21.57		0.5
256QAM	1	0	19.67	19.63	19.74	0-5	2.5
	1	25	19.88	19.84	19.79		2.5
	1	49	19.65	19.69	19.60		2.5
	25	0	19.70	19.70	19.59		2.5
	25	12	19.83	19.69	19.51		2.5
	25	25	19.73	19.65	19.67		2.5
	50	0	19.84	19.61	19.63		2.5

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Table 9-23
LTE Band 66 (AWS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131997 (1712.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132647 (1777.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	21.93	21.80	21.85	0	0
	1	12	21.92	21.91	21.90		0
	1	24	21.80	21.78	21.75		0
	12	0	22.01	21.96	21.91	0-1	0
	12	6	22.07	21.91	21.91		0
	12	13	21.95	21.90	21.84		0
	25	0	22.05	21.98	21.88		0
16QAM	1	0	22.05	21.87	21.96	0-1	0
	1	12	22.15	21.98	21.93		0
	1	24	21.96	21.91	21.95		0
	12	0	21.94	21.80	21.82	0-2	0
	12	6	21.91	21.79	21.83		0
	12	13	21.80	21.79	21.82		0
	25	0	21.77	21.78	21.66		0
64QAM	1	0	22.01	21.83	21.83	0-2	0
	1	12	21.94	21.90	21.84		0
	1	24	21.92	21.92	21.76		0
	12	0	21.40	21.78	21.64	0-3	0.5
	12	6	21.52	21.76	21.63		0.5
	12	13	21.64	21.74	21.53		0.5
	25	0	21.36	21.78	21.49		0.5
256QAM	1	0	19.79	19.76	19.84	0-5	2.5
	1	12	19.79	19.89	19.84		2.5
	1	24	19.69	19.79	19.69		2.5
	12	0	19.74	19.79	19.78		2.5
	12	6	19.78	19.74	19.78		2.5
	12	13	19.68	19.73	19.73		2.5
	25	0	19.74	19.79	19.74		2.5

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Table 9-24
LTE Band 66 (AWS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.04	21.88	21.88	0	0
	1	7	22.20	21.97	21.97		0
	1	14	21.99	21.91	21.86		0
	8	0	22.07	21.94	21.95	0-1	0
	8	4	22.10	22.06	22.06		0
	8	7	22.08	21.97	21.99		0
	15	0	22.05	21.99	22.00		0
16QAM	1	0	22.14	22.09	22.09	0-1	0
	1	7	22.20	22.12	22.12		0
	1	14	22.09	22.03	22.05		0
	8	0	22.04	21.90	21.88	0-2	0
	8	4	22.03	21.92	21.90		0
	8	7	21.95	21.87	21.85		0
	15	0	21.91	21.89	21.85		0
64QAM	1	0	22.07	21.99	22.21	0-2	0
	1	7	22.12	21.93	22.03		0
	1	14	21.98	21.92	21.89		0
	8	0	21.44	21.82	21.85	0-3	0.5
	8	4	21.48	21.88	21.86		0.5
	8	7	21.56	21.81	21.83		0.5
	15	0	21.91	21.90	21.85		0.5
256QAM	1	0	20.15	20.00	20.05	0-5	2.5
	1	7	20.16	20.10	20.06		2.5
	1	14	19.99	20.00	19.88		2.5
	8	0	20.06	19.96	19.95		2.5
	8	4	20.05	19.98	19.94		2.5
	8	7	19.94	19.81	19.84		2.5
	15	0	20.04	19.99	19.93		2.5

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Table 9-25
LTE Band 66 (AWS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.02	22.08	22.37	0	0
	1	2	22.05	22.15	22.39		0
	1	5	21.95	22.04	22.36		0
	3	0	22.00	22.02	22.38		0
	3	2	22.02	22.01	22.39		0
	3	3	22.00	22.00	22.38		0
	6	0	22.05	22.02	22.36	0-1	0
16QAM	1	0	22.48	21.92	22.40	0-1	0
	1	2	22.50	21.96	22.36		0
	1	5	22.37	21.90	22.40		0
	3	0	22.41	22.25	22.40		0
	3	2	22.45	22.31	22.36		0
	3	3	22.38	22.27	22.35		0
	6	0	22.05	22.28	22.37	0-2	0
64QAM	1	0	22.07	22.27	22.40	0-2	0
	1	2	22.01	22.39	22.37		0
	1	5	21.99	22.39	22.41		0
	3	0	22.19	22.38	22.37		0
	3	2	22.23	22.40	22.40		0
	3	3	22.18	22.33	22.28		0
	6	0	21.88	22.05	22.14	0-3	0.5
256QAM	1	0	20.20	20.14	20.19	0-5	2.5
	1	2	20.19	20.08	20.20		2.5
	1	5	20.15	20.05	20.15		2.5
	3	0	20.20	20.09	20.19		2.5
	3	2	20.19	20.15	20.20		2.5
	3	3	20.18	20.19	20.18		2.5
	6	0	20.16	20.18	20.16		2.5

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9.3.5 LTE Band 2 (PCS)

Table 9-26
LTE Band 2 (PCS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 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	25.12	**25.20**	25.19	0	0
	1	50	25.10	25.13	25.17		0
	1	99	25.13	25.18	25.12		0
	50	0	23.99	24.09	24.07	0-1	1
	50	25	24.19	24.19	**24.20**		1
	50	50	24.10	24.19	24.18		1
	100	0	24.15	24.11	24.17		1
16QAM	1	0	23.85	24.06	23.93	0-1	1
	1	50	23.67	24.20	23.88		1
	1	99	23.85	23.99	23.76		1
	50	0	22.89	22.88	23.07	0-2	2
	50	25	23.06	23.00	23.01		2
	50	50	23.00	23.01	22.98		2
	100	0	22.95	22.97	22.90		2
64QAM	1	0	22.86	23.10	22.84	0-2	2
	1	50	23.04	23.12	23.10		2
	1	99	23.04	23.18	23.19		2
	50	0	21.86	21.88	21.90	0-3	3
	50	25	21.96	22.01	22.04		3
	50	50	22.02	21.98	22.06		3
	100	0	21.91	21.97	22.00		3
256QAM	1	0	19.70	19.77	19.75	0-5	5
	1	50	20.00	20.17	20.16		5
	1	99	19.98	19.52	19.77		5
	50	0	19.87	19.84	19.84		5
	50	25	20.00	19.92	20.05		5
	50	50	19.92	20.04	20.09		5
	100	0	19.98	19.95	19.87		5

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Table 9-27
LTE Band 2 (PCS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 15 MHz Bandwidth

LTE Band 2 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18675 (1857.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19125 (1902.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.17	24.98	25.05	0	0
	1	36	25.05	24.96	24.96		0
	1	74	25.09	25.16	25.04		0
	36	0	24.16	24.10	23.98	0-1	1
	36	18	24.17	24.15	24.08		1
	36	37	24.12	24.12	24.13		1
	75	0	24.18	24.18	23.98		1
16QAM	1	0	23.83	24.18	23.99	0-1	1
	1	36	24.03	23.79	24.02		1
	1	74	23.95	23.96	23.97		1
	36	0	23.00	22.98	23.07	0-2	2
	36	18	23.18	23.15	22.96		2
	36	37	23.15	23.18	23.09		2
	75	0	23.11	23.10	23.10		2
64QAM	1	0	23.08	23.18	22.96	0-2	2
	1	36	23.06	23.12	23.13		2
	1	74	22.97	23.16	23.11		2
	36	0	22.05	21.97	22.18	0-3	3
	36	18	22.01	21.97	22.15		3
	36	37	21.98	22.04	22.03		3
	75	0	22.00	21.93	22.10		3
256QAM	1	0	20.07	19.96	20.10	0-5	5
	1	36	20.02	19.93	20.08		5
	1	74	20.17	20.08	19.96		5
	36	0	20.03	20.06	20.12		5
	36	18	19.98	19.86	20.00		5
	36	37	20.02	20.06	20.04		5
	75	0	19.89	20.11	20.16		5

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Table 9-28
LTE Band 2 (PCS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 10 MHz Bandwidth

LTE Band 2 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18650 (1855.0 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19150 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.73	24.91	25.02	0	0
	1	25	24.98	25.07	25.10		0
	1	49	24.86	24.93	24.98		0
	25	0	24.12	24.15	24.04	0-1	1
	25	12	24.16	24.20	24.16		1
	25	25	24.14	24.11	24.11		1
	50	0	24.18	24.17	24.05		1
16QAM	1	0	23.89	23.88	23.92	0-1	1
	1	25	24.03	23.93	23.85		1
	1	49	23.88	23.92	23.82		1
	25	0	23.01	22.93	23.00	0-2	2
	25	12	23.11	22.92	23.04		2
	25	25	22.89	22.97	23.02		2
	50	0	22.93	22.90	22.84		2
64QAM	1	0	22.80	22.91	23.10	0-2	2
	1	25	23.08	23.04	23.14		2
	1	49	22.92	22.89	23.17		2
	25	0	22.02	21.92	21.91	0-3	3
	25	12	22.08	21.91	22.02		3
	25	25	22.02	21.93	22.01		3
	50	0	21.93	21.90	21.94		3
256QAM	1	0	19.77	19.93	20.11	0-5	5
	1	25	19.89	20.06	20.06		5
	1	49	19.74	19.80	20.07		5
	25	0	19.98	19.92	19.98		5
	25	12	20.12	20.02	20.12		5
	25	25	19.97	19.99	20.02		5
	50	0	19.98	19.88	19.99		5

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Table 9-29
LTE Band 2 (PCS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 5 MHz Bandwidth

LTE Band 2 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18625 (1852.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19175 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.05	24.98	25.10	0	0
	1	12	25.07	24.97	25.11		0
	1	24	24.98	25.04	25.09		0
	12	0	24.18	24.12	24.15	0-1	1
	12	6	24.19	24.11	24.19		1
	12	13	24.13	24.13	24.07		1
	25	0	24.14	24.10	24.06		1
16QAM	1	0	23.89	24.14	23.97	0-1	1
	1	12	23.96	24.09	23.95		1
	1	24	23.81	24.13	23.89		1
	12	0	23.05	23.09	22.98	0-2	2
	12	6	23.09	22.98	22.92		2
	12	13	22.98	23.02	22.87		2
	25	0	22.99	23.07	22.81		2
64QAM	1	0	23.10	23.06	22.79	0-2	2
	1	12	23.15	22.99	22.80		2
	1	24	23.03	23.01	22.91		2
	12	0	22.06	21.97	21.98	0-3	3
	12	6	22.08	22.04	21.85		3
	12	13	21.99	21.99	21.96		3
	25	0	21.97	22.00	21.84		3
256QAM	1	0	19.97	19.95	20.15	0-5	5
	1	12	20.03	20.10	20.11		5
	1	24	19.88	20.04	20.08		5
	12	0	20.00	20.11	20.08		5
	12	6	20.06	20.06	20.07		5
	12	13	19.96	20.09	19.94		5
	25	0	19.98	19.95	20.02		5

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Table 9-30
LTE Band 2 (PCS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) - 3 MHz Bandwidth

LTE Band 2 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18615 (1851.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19185 (1908.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.14	25.14	25.13	0	0
	1	7	25.10	25.10	25.16		0
	1	14	25.09	25.09	25.14		0
	8	0	23.98	23.95	24.18	0-1	1
	8	4	24.12	23.98	24.15		1
	8	7	24.09	24.11	24.12		1
	15	0	24.14	24.03	24.11		1
16QAM	1	0	23.98	24.09	24.08	0-1	1
	1	7	23.97	24.05	24.15		1
	1	14	24.11	23.99	24.13		1
	8	0	23.05	22.96	23.13	0-2	2
	8	4	22.98	22.97	23.16		2
	8	7	22.93	23.07	23.19		2
	15	0	22.89	23.02	23.12		2
64QAM	1	0	22.96	23.12	22.96	0-2	2
	1	7	22.97	23.14	23.09		2
	1	14	23.01	22.96	23.04		2
	8	0	22.00	21.96	22.07	0-3	3
	8	4	21.96	21.89	21.96		3
	8	7	21.86	21.86	21.93		3
	15	0	21.83	21.93	22.11		3
256QAM	1	0	19.88	20.20	20.12	0-5	5
	1	7	19.86	20.19	20.10		5
	1	14	19.89	20.14	20.05		5
	8	0	20.19	20.00	20.19		5
	8	4	20.20	20.06	20.09		5
	8	7	20.11	19.97	20.17		5
	15	0	20.14	20.09	20.08		5

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Table 9-31
LTE Band 2 (PCS) Measured P_{max} for DSI = 1, 6, 7 (Head, Body-worn, or Phablet with grip sensor not triggered) -1.4 MHz Bandwidth

LTE Band 2 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18607 (1850.7 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19193 (1909.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.12	24.92	24.90	0	0
	1	2	25.10	24.94	24.98		0
	1	5	25.12	24.97	24.87		0
	3	0	25.15	24.98	24.96		0
	3	2	25.11	24.97	24.92		0
	3	3	25.13	25.01	24.95		0
	6	0	24.13	24.16	23.91	0-1	1
16QAM	1	0	24.10	23.97	24.01	0-1	1
	1	2	24.12	24.09	23.99		1
	1	5	24.11	24.07	24.12		1
	3	0	24.15	24.11	23.98		1
	3	2	23.96	24.17	24.08		1
	3	3	24.14	24.08	23.97		1
	6	0	23.02	22.90	22.79	0-2	2
64QAM	1	0	22.98	23.05	23.11	0-2	2
	1	2	22.78	23.07	23.04		2
	1	5	22.95	22.99	22.93		2
	3	0	22.96	23.07	23.02		2
	3	2	23.08	23.01	22.89		2
	3	3	23.02	23.09	22.94		2
	6	0	22.20	22.09	21.97	0-3	3
256QAM	1	0	20.07	19.97	20.07	0-5	5
	1	2	20.14	19.95	20.09		5
	1	5	20.01	20.01	20.03		5
	3	0	20.17	20.03	20.09		5
	3	2	20.15	20.10	20.15		5
	3	3	20.09	20.00	20.03		5
	6	0	20.06	20.11	19.95		5

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Table 9-32
LTE Band 2 (PCS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 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	**22.69**	22.65	22.50	0	0
	1	50	22.55	22.54	22.53		0
	1	99	22.60	22.54	22.38		0
	50	0	22.64	22.61	22.52	0-1	0
	50	25	**22.70**	22.67	22.53		0
	50	50	22.69	22.68	22.61		0
	100	0	22.65	22.62	22.53		0
16QAM	1	0	22.43	22.53	22.70	0-1	0
	1	50	22.59	22.51	22.64		0
	1	99	22.69	22.70	22.65		0
	50	0	22.45	22.48	22.37	0-2	0
	50	25	22.70	22.57	22.51		0
	50	50	22.57	22.63	22.49		0
	100	0	22.64	22.44	22.32		0
64QAM	1	0	22.69	22.51	22.61	0-2	0
	1	50	22.66	22.43	22.51		0
	1	99	22.65	22.64	22.63		0
	50	0	21.93	21.91	21.79	0-3	0.5
	50	25	22.15	21.89	21.86		0.5
	50	50	22.02	21.99	21.80		0.5
	100	0	22.00	21.93	21.73		0.5
256QAM	1	0	19.62	19.65	19.58	0-5	2.5
	1	50	19.76	19.76	19.67		2.5
	1	99	19.83	19.73	19.65		2.5
	50	0	19.50	19.48	19.39		2.5
	50	25	19.69	19.56	19.46		2.5
	50	50	19.63	19.59	19.52		2.5
	100	0	19.72	19.52	19.44		2.5

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Table 9-33
LTE Band 2 (PCS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 15 MHz Bandwidth

LTE Band 2 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18675 (1857.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19125 (1902.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.06	22.30	22.12	0	0
	1	36	22.30	22.32	22.20		0
	1	74	22.18	22.28	22.14		0
	36	0	22.13	22.30	22.24	0-1	0
	36	18	22.33	22.31	22.33		0
	36	37	22.30	22.30	22.40		0
	75	0	22.23	22.30	22.23		0
16QAM	1	0	22.03	22.29	22.23	0-1	0
	1	36	22.28	22.30	22.33		0
	1	74	22.18	22.29	22.25		0
	36	0	22.13	22.28	22.28	0-2	0
	36	18	22.29	22.29	22.37		0
	36	37	22.30	22.30	22.43		0
	75	0	22.22	22.29	22.31		0
64QAM	1	0	22.64	22.29	22.36	0-2	0
	1	36	22.33	22.32	22.54		0
	1	74	22.27	22.31	22.45		0
	36	0	22.05	22.11	22.08	0-3	0.5
	36	18	22.10	21.89	22.06		0.5
	36	37	21.98	22.01	21.99		0.5
	75	0	21.96	21.99	22.12		0.5
256QAM	1	0	19.62	19.87	19.98	0-5	2.5
	1	36	19.89	19.85	20.11		2.5
	1	74	19.79	19.74	20.10		2.5
	36	0	19.60	19.65	19.68		2.5
	36	18	19.79	19.77	19.76		2.5
	36	37	19.75	19.80	19.83		2.5
	75	0	19.71	19.71	19.74		2.5

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Table 9-34
LTE Band 2 (PCS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 10 MHz Bandwidth

LTE Band 2 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18650 (1855.0 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19150 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.05	22.25	22.19	0	0
	1	25	22.30	22.28	22.21		0
	1	49	22.08	22.30	22.25		0
	25	0	22.46	22.30	22.23	0-1	0
	25	12	22.58	22.29	22.34		0
	25	25	22.45	22.30	22.27		0
	50	0	22.51	22.27	22.25		0
16QAM	1	0	21.98	22.27	22.39	0-1	0
	1	25	22.14	22.24	22.38		0
	1	49	21.98	22.28	22.27		0
	25	0	22.61	22.30	22.31	0-2	0
	25	12	22.66	22.28	22.38		0
	25	25	22.60	22.27	22.40		0
	50	0	22.53	22.29	22.24		0
64QAM	1	0	22.30	22.20	22.53	0-2	0
	1	25	22.68	22.23	22.61		0
	1	49	22.32	22.28	22.66		0
	25	0	22.10	21.97	22.08	0-3	0.5
	25	12	22.18	22.05	22.14		0.5
	25	25	22.14	22.05	22.11		0.5
	50	0	21.90	22.08	22.05		0.5
256QAM	1	0	19.71	19.96	20.20	0-5	2.5
	1	25	20.02	20.20	20.17		2.5
	1	49	19.75	20.13	19.98		2.5
	25	0	20.07	20.17	19.96		2.5
	25	12	20.17	20.18	19.92		2.5
	25	25	20.20	19.96	20.05		2.5
	50	0	20.19	20.15	20.15		2.5

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Table 9-35
LTE Band 2 (PCS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 5 MHz Bandwidth

LTE Band 2 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18625 (1852.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19175 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.07	22.19	22.42	0	0
	1	12	22.10	22.24	22.41		0
	1	24	22.02	22.23	22.41		0
	12	0	22.17	22.32	22.41	0-1	0
	12	6	22.22	22.29	22.40		0
	12	13	22.12	22.30	22.41		0
	25	0	22.12	22.32	22.40		0
16QAM	1	0	22.51	22.40	22.43	0-1	0
	1	12	22.57	22.31	22.40		0
	1	24	22.68	22.44	22.42		0
	12	0	22.30	22.38	22.39	0-2	0
	12	6	22.31	22.32	22.39		0
	12	13	22.23	22.38	22.43		0
	25	0	22.27	22.37	22.39		0
64QAM	1	0	22.31	22.31	22.42	0-2	0
	1	12	22.35	22.29	22.42		0
	1	24	22.19	22.40	22.41		0
	12	0	22.16	21.99	21.97	0-3	0.5
	12	6	22.04	22.04	21.86		0.5
	12	13	22.08	22.07	21.93		0.5
	25	0	22.20	22.11	21.89		0.5
256QAM	1	0	19.83	20.20	20.20	0-5	2.5
	1	12	20.04	19.95	20.19		2.5
	1	24	20.20	20.11	20.14		2.5
	12	0	20.18	20.19	20.13		2.5
	12	6	19.97	20.20	19.98		2.5
	12	13	20.09	20.17	19.96		2.5
	25	0	20.00	20.14	20.05		2.5

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Table 9-36
LTE Band 2 (PCS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) - 3 MHz Bandwidth

LTE Band 2 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18615 (1851.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19185 (1908.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.36	22.28	22.20	0	0
	1	7	22.26	22.36	22.30		0
	1	14	22.25	22.26	22.24		0
	8	0	22.49	22.28	22.26	0-1	0
	8	4	22.54	22.27	22.25		0
	8	7	22.41	22.35	22.35		0
	15	0	22.50	22.34	22.40		0
16QAM	1	0	22.33	22.44	22.38	0-1	0
	1	7	22.24	22.35	22.47		0
	1	14	22.20	22.30	22.34		0
	8	0	22.47	22.31	22.44	0-2	0
	8	4	22.50	22.37	22.50		0
	8	7	22.46	22.35	22.42		0
	15	0	22.48	22.29	22.46		0
64QAM	1	0	22.61	22.40	22.50	0-2	0
	1	7	22.60	22.43	22.47		0
	1	14	22.49	22.50	22.37		0
	8	0	22.09	22.11	21.98	0-3	0.5
	8	4	22.04	22.12	21.78		0.5
	8	7	21.97	21.96	22.04		0.5
	15	0	22.07	21.97	21.89		0.5
256QAM	1	0	19.87	20.14	19.98	0-5	2.5
	1	7	19.79	20.16	19.96		2.5
	1	14	19.79	20.09	20.04		2.5
	8	0	20.19	19.96	19.99		2.5
	8	4	20.15	20.04	20.20		2.5
	8	7	20.10	20.00	20.13		2.5
	15	0	20.14	20.07	20.03		2.5

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Table 9-37
LTE Band 2 (PCS) Measured P_{limit} for DSI = 8 (Phablet with grip sensor active) and/or DSI = 5 (Hotspot Mode) -1.4 MHz Bandwidth

LTE Band 2 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18607 (1850.7 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19193 (1909.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.26	22.42	22.42	0	0
	1	2	22.31	22.41	22.40		0
	1	5	22.19	22.40	22.39		0
	3	0	22.31	22.39	22.38		0
	3	2	22.38	22.41	22.37		0
	3	3	22.32	22.43	22.37		0
	6	0	22.41	22.40	22.39	0-1	0
16QAM	1	0	22.18	22.45	22.39	0-1	0
	1	2	22.22	22.38	22.43		0
	1	5	22.21	22.41	22.39		0
	3	0	22.55	22.45	22.41		0
	3	2	22.58	22.44	22.40		0
	3	3	22.50	22.48	22.36		0
	6	0	22.57	22.50	22.41	0-2	0
64QAM	1	0	22.46	22.48	22.42	0-2	0
	1	2	22.52	22.30	22.43		0
	1	5	22.45	22.46	22.36		0
	3	0	22.43	22.44	22.42		0
	3	2	22.44	22.42	22.44		0
	3	3	22.42	22.38	22.38		0
	6	0	22.14	22.08	22.19	0-3	0.5
256QAM	1	0	19.86	20.15	20.04	0-5	2.5
	1	2	19.94	19.98	20.16		2.5
	1	5	19.81	20.18	20.03		2.5
	3	0	20.15	20.19	20.14		2.5
	3	2	20.18	19.98	19.99		2.5
	3	3	20.08	20.17	20.15		2.5
	6	0	19.98	20.06	20.16		2.5

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9.3.6 LTE Band 30

Table 9-38
LTE Band 30 Measured P_{max} for all DSI - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 27710 (2310.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**22.68**	0	0
	1	25	22.59		0
	1	49	22.67		0
	25	0	21.61	0-1	1
	25	12	**21.62**		1
	25	25	21.51		1
	50	0	21.52		1
16QAM	1	0	21.68	0-1	1
	1	25	21.65		1
	1	49	21.66		1
	25	0	20.42	0-2	2
	25	12	20.37		2
	25	25	20.25		2
	50	0	20.37		2
64QAM	1	0	20.62	0-2	2
	1	25	20.51		2
	1	49	20.38		2
	25	0	19.35	0-3	3
	25	12	19.42		3
	25	25	19.33		3
	50	0	19.45		3
256QAM	1	0	17.22	0-5	5
	1	25	17.36		5
	1	49	17.20		5
	25	0	17.36		5
	25	12	17.56		5
	25	25	17.42		5
	50	0	17.38		5

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Table 9-39
LTE Band 30 Measured P_{max} for all DSI - 5 MHz Bandwidth

LTE Band 30 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 27710 (2310.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	22.66	0	0
	1	12	22.64		0
	1	24	22.55		0
	12	0	21.68	0-1	1
	12	6	21.59		1
	12	13	21.58		1
	25	0	21.66		1
16QAM	1	0	21.58	0-1	1
	1	12	21.64		1
	1	24	21.55		1
	12	0	20.66	0-2	2
	12	6	20.67		2
	12	13	20.64		2
	25	0	20.60		2
64QAM	1	0	20.45	0-2	2
	1	12	20.57		2
	1	24	20.54		2
	12	0	19.63	0-3	3
	12	6	19.68		3
	12	13	19.63		3
	25	0	19.58		3
256QAM	1	0	17.64	0-5	5
	1	12	17.27		5
	1	24	17.18		5
	12	0	17.55		5
	12	6	17.60		5
	12	13	17.59		5
	25	0	17.57		5

Note: LTE Band 30 at 5 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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9.3.7 LTE Band 41

Table 9-40
LTE Band 41 Measured P_{max} for all DSI - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	25.15	25.00	25.10	25.12	24.72	0	0
	1	50	25.08	25.19	**25.20**	25.19	25.03		0
	1	99	25.04	25.19	24.98	24.75	24.92		0
	50	0	23.94	24.10	24.13	24.10	23.89	0-1	1
	50	25	24.11	24.19	**24.20**	24.15	24.00		1
	50	50	24.06	24.17	24.19	24.19	23.87		1
	100	0	24.01	24.10	24.16	24.15	23.80		1
16QAM	1	0	23.77	23.67	23.56	23.55	23.16	0-1	1
	1	50	23.82	23.70	23.85	23.73	23.57		1
	1	99	23.50	23.67	23.52	23.64	23.46		1
	50	0	22.88	22.84	22.88	22.86	22.64	0-2	2
	50	25	22.95	22.92	22.99	22.97	22.76		2
	50	50	22.95	22.90	22.96	22.83	22.79		2
	100	0	22.95	22.86	22.87	22.89	22.70		2
64QAM	1	0	22.69	22.56	22.31	22.34	22.08	0-2	2
	1	50	22.54	22.59	22.68	22.62	22.31		2
	1	99	22.35	22.57	22.33	22.55	22.30		2
	50	0	21.94	21.89	21.91	21.93	21.61	0-3	3
	50	25	21.99	21.96	21.96	21.95	21.60		3
	50	50	22.00	21.93	22.02	21.90	21.58		3
	100	0	21.91	21.92	22.00	21.89	21.50		3
256QAM	1	0	19.55	19.40	19.47	19.57	19.22	0-5	5
	1	50	19.83	19.71	19.86	19.81	19.62		5
	1	99	19.52	19.31	19.54	19.79	19.48		5
	50	0	19.92	19.85	19.98	19.97	19.40		5
	50	25	20.04	20.01	19.99	19.95	19.44		5
	50	50	20.04	19.84	19.98	19.85	19.46		5
	100	0	19.91	19.87	19.90	19.92	19.41		5

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Table 9-41
LTE Band 41 Measured P_{max} for all DSI - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	25.05	24.80	24.95	25.05	24.80	0	0
	1	36	24.89	25.07	25.07	24.97	24.98		0
	1	74	25.08	24.90	24.99	24.93	24.84		0
	36	0	23.98	23.97	24.04	24.14	23.85	0-1	1
	36	18	24.02	24.03	24.12	24.08	23.93		1
	36	37	24.03	24.09	24.18	24.07	23.92		1
	75	0	23.96	23.98	24.08	24.11	23.97		1
16QAM	1	0	23.81	23.88	23.67	23.80	23.45	0-1	1
	1	36	23.68	23.75	23.88	23.88	23.41		1
	1	74	23.66	23.68	23.72	23.72	23.56		1
	36	0	22.70	22.76	22.81	22.92	22.72	0-2	2
	36	18	22.77	22.74	22.87	22.86	22.58		2
	36	37	22.83	22.70	22.94	23.00	22.56		2
	75	0	22.82	22.72	22.70	22.83	22.62		2
64QAM	1	0	22.68	22.32	22.42	22.71	22.27	0-2	2
	1	36	22.67	22.48	22.64	22.72	22.25		2
	1	74	22.65	22.46	22.49	22.77	22.46		2
	36	0	21.74	21.86	21.86	21.90	21.66	0-3	3
	36	18	21.83	21.80	21.93	21.89	21.71		3
	36	37	21.78	21.82	21.89	22.04	21.65		3
	75	0	21.81	21.83	21.89	22.01	21.72		3
256QAM	1	0	19.96	19.52	19.56	19.95	19.32	0-5	5
	1	36	19.63	19.56	19.87	19.72	19.40		5
	1	74	19.62	19.61	19.64	19.74	19.47		5
	36	0	19.70	19.68	19.95	19.87	19.50		5
	36	18	19.90	19.79	19.96	20.01	19.64		5
	36	37	19.88	19.75	20.04	20.00	19.63		5
	75	0	19.87	19.83	19.88	19.88	19.66		5

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Table 9-42
LTE Band 41 Measured P_{max} for all DSI - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.87	24.86	24.93	25.01	24.87	0	0
	1	25	24.92	25.01	25.07	24.83	24.88		0
	1	49	24.91	24.73	24.79	24.96	24.70		0
	25	0	23.77	23.77	23.84	23.94	23.65	0-1	1
	25	12	23.72	23.83	23.92	23.88	23.73		1
	25	25	23.73	23.89	23.98	23.87	23.72		1
	50	0	23.66	23.78	23.88	23.91	23.77		1
16QAM	1	0	23.51	23.67	23.47	23.60	23.55	0-1	1
	1	25	23.38	23.55	23.68	23.68	23.21		1
	1	49	23.36	23.48	23.52	23.52	23.36		1
	25	0	22.40	22.56	22.61	22.72	22.52	0-2	2
	25	12	22.47	22.54	22.67	22.66	22.38		2
	25	25	22.53	22.50	22.74	22.80	22.36		2
	50	0	22.52	22.52	22.50	22.63	22.42		2
64QAM	1	0	22.50	22.12	22.22	22.51	22.28	0-2	2
	1	25	22.68	22.28	22.44	22.52	22.05		2
	1	49	22.21	22.26	22.29	22.57	22.26		2
	25	0	21.44	21.66	21.66	21.70	21.46	0-3	3
	25	12	21.53	21.60	21.73	21.69	21.51		3
	25	25	21.48	21.62	21.69	21.84	21.45		3
	50	0	21.51	21.63	21.69	21.81	21.52		3
256QAM	1	0	19.66	19.32	19.36	19.75	19.45	0-5	5
	1	25	19.33	19.36	19.67	19.52	19.56		5
	1	49	19.32	19.41	19.44	19.54	19.50		5
	25	0	19.40	19.48	19.75	19.67	19.47		5
	25	12	19.60	19.59	19.76	19.81	19.44		5
	25	25	19.58	19.55	19.84	19.80	19.43		5
	50	0	19.57	19.63	19.68	19.68	19.46		5

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Table 9-43
LTE Band 41 Measured P_{max} for all DSI - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.92	24.81	24.80	24.98	24.70	0	0
	1	12	24.94	24.96	24.97	24.96	24.78		0
	1	24	24.88	24.80	25.00	24.93	24.90		0
	12	0	24.01	24.08	23.95	23.78	23.86	0-1	1
	12	6	23.93	24.04	23.74	24.09	23.94		1
	12	13	23.94	24.10	24.19	24.08	23.93		1
	25	0	23.87	23.92	23.87	24.12	23.98		1
16QAM	1	0	23.72	23.88	23.68	23.81	23.47	0-1	1
	1	12	23.59	23.76	23.89	23.89	23.42		1
	1	24	23.57	23.69	23.73	23.73	23.57		1
	12	0	22.61	22.89	22.82	22.93	22.73	0-2	2
	12	6	22.68	22.75	22.88	22.87	22.59		2
	12	13	22.74	22.71	22.95	23.01	22.57		2
	25	0	22.73	22.73	22.71	22.84	22.63		2
64QAM	1	0	22.60	22.59	22.43	22.72	22.39	0-2	2
	1	12	22.52	22.63	22.65	22.73	22.61		2
	1	24	22.63	22.61	22.50	22.78	22.50		2
	12	0	21.65	21.87	21.87	21.91	21.67	0-3	3
	12	6	21.74	21.81	21.94	21.90	21.72		3
	12	13	21.69	21.83	21.90	22.05	21.66		3
	25	0	21.72	21.84	21.90	22.02	21.73		3
256QAM	1	0	19.87	19.87	19.98	19.96	19.66	0-5	5
	1	12	19.54	19.57	19.88	19.73	19.77		5
	1	24	19.53	19.62	19.65	19.75	19.71		5
	12	0	19.61	19.69	19.96	19.88	19.68		5
	12	6	19.81	19.80	19.97	20.02	19.65		5
	12	13	19.79	19.76	20.05	20.01	19.64		5
	25	0	19.78	19.84	19.89	19.89	19.67		5

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9.3.8 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-44
LTE Uplink Carrier Aggregation Measured P_{max} for all DSI

	PCC									SCC								Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC UL Channel	PCC UL Frequency [MHz]	PCC DL Channel	PCC DL Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC UL Channel	SCC UL Frequency [MHz]	SCC DL Channel	SCC DL Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_5B	LTE B5	10	20525	836.5	2525	881.5	QPSK	1	0	LTE B5	5	20453	829.3	2453	874.3	QPSK	1	24	25.50	25.30

Notes:

1. This device supports uplink carrier aggregation for LTE CA_5B with a maximum of two component carriers. For intraband contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when non-contiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.
2. Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

Figure 9-3
Power Measurement Setup

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9.4 NR Conducted Powers

9.4.1 NR Band n5

Table 9-45
NR Band n5 Measured P_{max} for all DSI - 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	23.70	0	0
	1	53	23.89		0
	1	104	23.84		0
	50	0	23.81	0-0.5	0
	50	28	23.85	0	0
	50	56	23.72	0-0.5	0
	100	0	23.77		0
DFT-s-OFDM QPSK	1	1	23.62	0	0
	1	53	**23.87**		0
	1	104	23.34		0
	50	0	23.20	0-1	0
	50	28	**23.91**	0	0
	50	56	23.84	0-1	0
	100	0	23.19		0
DFT-s-OFDM 16QAM	1	1	22.66	0-1	0.5
CP-OFDM QPSK	1	1	22.12	0-1.5	1

Note: NR Band n5 (Cell) at 20 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 9-46
NR Band n5 Measured P_{max} for all DSI - 15 MHz Bandwidth

NR Band n5 15 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	23.92	0	0
	1	40	24.49		0
	1	77	24.37		0
	36	0	24.01	0-0.5	0
	36	22	24.44	0	0
	36	43	24.49	0-0.5	0
	75	0	24.46		0
DFT-s-OFDM QPSK	1	1	24.00	0	0
	1	40	24.31		0
	1	77	24.24		0
	36	0	24.03	0-1	0
	36	22	24.20	0	0
	36	43	24.46	0-1	0
	75	0	23.85		0
DFT-s-OFDM 16QAM	1	1	23.12	0-1	0.5
CP-OFDM QPSK	1	1	22.49	0-1.5	1

Note: NR Band n5 (Cell) at 15 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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Table 9-47
NR Band n5 Measured P_{max} for all DSI - 10 MHz Bandwidth

NR Band n5 10 MHz Bandwidth					
			Channel		
Modulation	RB Size	RB Offset	167300 (836.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]		
DFT-s-OFDM π/2 BPSK	1	1	24.07	0	0
	1	26	24.54		0
	1	50	24.44		0
	25	0	24.28	0-0.5	0
	25	14	24.45	0	0
	25	27	24.47	0-0.5	0
	50	0	24.49		0
DFT-s-OFDM QPSK	1	1	24.25	0	0
	1	26	24.63		0
	1	50	24.47		0
	25	0	24.20	0-1	0
	25	14	24.67	0	0
	25	27	24.66	0-1	0
	50	0	24.14		0
DFT-s-OFDM 16QAM	1	1	22.88	0-1	0.5
CP-OFDM QPSK	1	1	22.58	0-1.5	1

Note: NR Band n5 (Cell) at 10 MHz bandwidth does not support non-overlapping channels. Per FCC Guidance, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 9-48
NR Band n5 Measured P_{max} for all DSI - 5 MHz Bandwidth

NR Band n5 5 MHz Bandwidth							
			Channel				
Modulation	RB Size	RB Offset	165300 (826.5 MHz)	167300 (836.5 MHz)	169300 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	24.67	24.66	24.51		0
	1	13	24.19	24.48	24.51	0	0
	1	23	24.00	24.41	24.41		0
	12	0	24.05	24.37	24.03	0-0.5	0
	12	7	24.20	24.33	24.40	0	0
	12	13	23.54	24.35	23.95	0-0.5	0
	25	0	23.78	24.35	23.89		0
DFT-s-OFDM QPSK	1	1	24.61	24.70	24.24		0
	1	13	24.21	24.67	24.15	0	0
	1	23	23.89	24.62	23.99		0
	12	0	23.60	24.36	23.50	0-1	0
	12	7	24.05	24.60	24.00	0	0
	12	13	23.22	24.60	23.39	0-1	0
	25	0	23.41	24.43	23.40		0
DFT-s-OFDM 16QAM	1	1	23.78	24.14	23.10	0-1	0.5
CP-OFDM QPSK	1	1	23.00	23.25	23.15	0-1.5	1

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9.4.2 NR Band n66

Table 9-49
NR Band n66 Measured P_{limit} for all DSI - 20 MHz Bandwidth

NR Band n66 20 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	344000 (1720 MHz)	349000 (1745 MHz)	354000 (1770 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	23.85	23.38	23.51	0	0
	1	53	23.80	23.39	23.50		0
	1	104	23.85	23.36	23.44		0
	50	0	23.77	23.43	23.52	0-0.5	0
	50	28	23.78	23.39	23.47	0	0
	50	56	23.79	23.43	23.47	0-0.5	0
	100	0	23.82	23.41	23.50		0
DFT-s-OFDM QPSK	1	1	23.71	23.47	23.48	0	0
	1	53	23.73	23.20	23.44		0
	1	104	**23.84**	23.33	23.46		0
	50	0	**23.79**	23.42	23.43	0-1	0
	50	28	23.78	23.33	23.44	0	0
	50	56	23.77	23.40	23.48	0-1	0
	100	0	23.78	23.41	23.45		0
DFT-s-OFDM 16QAM	1	1	23.90	23.90	23.12	0-1	0
DFT-s-OFDM 64QAM	1	1	23.51	23.53	23.39	0-2.5	0
CP-OFDM QPSK	1	1	23.40	22.95	23.15	0-1.5	0
CP-OFDM 16QAM	1	1	23.28	23.46	23.29	0-2	0

Table 9-50
NR Band n66 Measured P_{limit} for all DSI - 15 MHz Bandwidth

NR Band n66 15 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	343500 (1717.5 MHz)	349000 (1745 MHz)	354500 (1772.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	23.32	23.41	23.29	0	0
	1	40	23.29	23.17	23.22		0
	1	77	23.33	23.38	23.38		0
	36	0	23.36	23.37	23.28	0-0.5	0
	36	22	23.26	23.28	23.23	0	0
	36	43	23.29	23.36	23.29	0-0.5	0
	75	0	23.33	23.33	23.27		0
DFT-s-OFDM QPSK	1	1	23.30	23.37	23.27	0	0
	1	40	23.24	23.13	23.18		0
	1	77	23.33	23.35	23.38		0
	36	0	23.29	23.32	23.25	0-1	0
	36	22	23.26	23.28	23.22	0	0
	36	43	23.28	23.34	23.26	0-1	0
	75	0	23.30	23.32	23.28		0
DFT-s-OFDM 16QAM	1	1	23.25	23.27	23.09	0-1	0
DFT-s-OFDM 64QAM	1	1	23.49	23.41	23.68	0-2.5	0
CP-OFDM QPSK	1	1	23.15	23.06	23.02	0-1.5	0
CP-OFDM 16QAM	1	1	23.35	23.08	23.20	0-2	0

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Table 9-51
NR Band n66 Measured P_{limit} for all DSI - 10 MHz Bandwidth

NR Band n66 10 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	343000 (1715 MHz)	349000 (1745 MHz)	355000 (1775 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	23.11	23.19	23.06	0	0
	1	26	23.15	23.14	23.05		0
	1	50	23.07	23.18	23.04		0
	25	0	23.14	23.12	23.16	0-0.5	0
	25	14	23.19	23.15	23.20	0	0
	25	27	23.17	23.13	23.22	0-0.5	0
	50	0	23.16	23.12	23.10		0
DFT-s-OFDM QPSK	1	1	23.14	23.31	23.00	0	0
	1	26	23.06	23.28	22.98		0
	1	50	23.08	23.29	23.07		0
	25	0	23.20	23.21	23.08	0-1	0
	25	14	23.23	23.21	23.00	0	0
	25	27	23.21	23.17	23.12	0-1	0
	50	0	23.14	23.17	23.12		0
DFT-s-OFDM 16QAM	1	1	23.15	23.18	23.11	0-1	0
DFT-s-OFDM 64QAM	1	1	23.50	23.31	23.39	0-2.5	0
CP-OFDM QPSK	1	1	22.95	23.06	23.00	0-1.5	0
CP-OFDM 16QAM	1	1	23.03	23.02	23.31	0-2	0

Table 9-52
NR Band n66 Measured P_{limit} for all DSI - 5 MHz Bandwidth

NR Band n66 5 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	342500 (1712.5 MHz)	349000 (1745 MHz)	355500 (1777.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	23.21	23.21	23.19	0	0
	1	13	23.24	23.26	23.25		0
	1	23	23.21	23.21	23.19		0
	12	0	23.22	23.26	23.17	0-0.5	0
	12	7	23.25	23.30	23.22	0	0
	12	13	23.22	23.22	23.20	0-0.5	0
	25	0	23.22	23.25	23.19		0
DFT-s-OFDM QPSK	1	1	23.24	23.25	23.15	0	0
	1	13	23.27	23.31	23.20		0
	1	23	23.18	23.25	23.20		0
	12	0	23.28	23.25	23.24	0-1	0
	12	7	23.28	23.26	23.25	0	0
	12	13	23.24	23.27	23.26	0-1	0
	25	0	23.30	23.29	23.24		0
DFT-s-OFDM 16QAM	1	1	23.22	23.16	23.11	0-1	0
DFT-s-OFDM 64QAM	1	1	23.54	23.54	23.74	0-2.5	0
CP-OFDM QPSK	1	1	23.09	23.19	23.10	0-1.5	0
CP-OFDM 16QAM	1	1	23.22	23.13	23.26	0-2	0

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9.4.3 NR Band n2

Table 9-53
NR Band n2 Measured P_{limit} for all DSI - 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	23.52	23.57	23.65	0	0
	1	53	23.44	23.62	23.67		0
	1	104	23.31	23.61	23.65		0
	50	0	23.50	23.61	23.65	0-0.5	0
	50	28	23.35	23.63	23.63	0	0
	50	56	23.45	23.61	23.56	0-0.5	0
	100	0	23.45	23.62	23.65		0
DFT-s-OFDM QPSK	1	1	23.47	23.40	23.23	0	0
	1	53	23.44	23.58	23.15		0
	1	104	23.45	**23.59**	23.38		0
	50	0	23.45	23.55	23.36	0-1	0
	50	28	23.47	23.56	23.44	0	0
	50	56	23.49	**23.58**	23.57	0-1	0
	100	0	23.43	23.57	23.37		0
DFT-s-OFDM 16QAM	1	1	23.01	23.47	23.09	0-1	0
DFT-s-OFDM 64QAM	1	1	23.43	23.48	23.44	0-2.5	0
CP-OFDM QPSK	1	1	23.20	23.20	23.11	0-1.5	0
CP-OFDM 16QAM	1	1	23.17	23.35	23.12	0-2	0

Table 9-54
NR Band n2 Measured P_{limit} for all DSI - 15 MHz Bandwidth

NR Band n2 15 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	371500 (1857.5 MHz)	376000 (1880 MHz)	380500 (1902.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	23.43	23.33	23.40	0	0
	1	40	23.48	23.50	23.45		0
	1	77	23.54	23.48	23.51		0
	36	0	23.40	23.15	23.35	0-0.5	0
	36	22	23.40	23.24	23.39	0	0
	36	43	23.45	23.27	23.45	0-0.5	0
	75	0	23.48	23.26	23.41		0
DFT-s-OFDM QPSK	1	1	23.31	23.47	23.46	0	0
	1	40	23.40	23.42	23.50		0
	1	77	23.44	23.57	23.59		0
	36	0	23.43	23.18	23.37	0-1	0
	36	22	23.45	23.26	23.34	0	0
	36	43	23.49	23.29	23.42	0-1	0
	75	0	23.52	23.27	23.44		0
DFT-s-OFDM 16QAM	1	1	22.96	22.83	23.11	0-1	0
DFT-s-OFDM 64QAM	1	1	22.57	23.17	23.60	0-2.5	0
CP-OFDM QPSK	1	1	23.23	23.30	23.33	0-1.5	0
CP-OFDM 16QAM	1	1	23.28	23.19	23.32	0-2	0

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Table 9-55
NR Band n2 Measured P_{limit} for all DSI - 10 MHz Bandwidth

NR Band n2 10 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	371000 (1855 MHz)	376000 (1880 MHz)	381000 (1905 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	23.25	23.37	23.15	0	0
	1	26	23.19	23.27	23.16		0
	1	50	23.17	23.45	23.14		0
	25	0	23.18	23.34	23.07	0-0.5	0
	25	14	23.17	23.37	23.06	0	0
	25	27	23.25	23.39	23.16	0-0.5	0
	50	0	23.25	23.42	23.09		0
DFT-s-OFDM QPSK	1	1	23.28	23.46	23.22	0	0
	1	26	23.23	23.40	23.10		0
	1	50	23.31	23.46	23.20		0
	25	0	23.12	23.33	23.05	0-1	0
	25	14	23.20	23.33	23.07	0	0
	25	27	23.22	23.46	23.13	0-1	0
	50	0	23.22	23.03	23.09		0
DFT-s-OFDM 16QAM	1	1	22.74	22.82	22.74	0-1	0
DFT-s-OFDM 64QAM	1	1	23.21	23.52	23.11	0-2.5	0
CP-OFDM QPSK	1	1	23.08	23.27	22.95	0-1.5	0
CP-OFDM 16QAM	1	1	23.01	22.83	22.90	0-2	0

Table 9-56
NR Band n2 Measured P_{limit} for all DSI - 5 MHz Bandwidth

NR Band n2 5 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	370500 (1852.5 MHz)	376000 (1880 MHz)	381500 (1907.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM π/2 BPSK	1	1	23.31	23.44	23.09	0	0
	1	13	23.36	23.41	23.17		0
	1	23	23.39	23.44	23.26		0
	12	0	23.24	23.42	23.11	0-0.5	0
	12	7	23.25	23.39	23.15	0	0
	12	13	23.31	23.48	23.16	0-0.5	0
	25	0	23.27	23.41	23.14		0
DFT-s-OFDM QPSK	1	1	23.26	23.44	23.25	0	0
	1	13	23.39	23.65	23.28		0
	1	23	23.34	23.51	23.33		0
	12	0	23.22	23.36	23.07	0-1	0
	12	7	23.29	23.40	23.23	0	0
	12	13	23.31	23.39	23.18	0-1	0
	25	0	23.25	23.39	23.17		0
DFT-s-OFDM 16QAM	1	1	22.84	23.02	23.36	0-1	0
DFT-s-OFDM 64QAM	1	1	23.08	22.92	22.91	0-2.5	0
CP-OFDM QPSK	1	1	23.02	23.28	23.08	0-1.5	0
CP-OFDM 16QAM	1	1	23.18	23.26	23.07	0-2	0

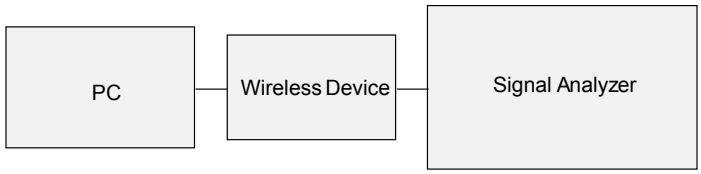

Figure 9-4
Power Measurement Setup

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9.5 WLAN Conducted Powers

Table 9-57
2.4 GHz WLAN Maximum Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11b	802.11g
		Average	Average
2412	1	20.20	17.60
2422	3		19.39
2437	6	20.15	19.11
2452	9		18.68
2462	11	20.45	17.31

Table 9-58
2.4 GHz WLAN Maximum Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11b	802.11g
		Average	Average
2412	1	20.05	17.61
2422	3		19.07
2437	6	20.28	19.21
2452	9		19.17
2462	11	20.14	17.23

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Table 9-59
5 GHz WLAN Maximum Average RF Power – Ant 1

5GHz (20MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
		Average	Average	Average
5180	36	16.65	16.91	16.92
5200	40	17.53	17.80	17.81
5220	44	16.59	16.81	16.82
5240	48	16.53	16.73	16.69
5260	52	16.04	16.38	16.39
5280	56	17.30	17.49	17.44
5300	60	16.38	16.70	16.71
5320	64	16.48	16.65	16.66
5500	100	16.55	16.87	16.89
5600	120	16.66	16.91	16.92
5620	124	16.65	16.86	16.81
5720	144	16.31	16.53	16.47
5745	149	16.29	16.47	16.47
5785	157	17.53	17.77	17.75
5825	165	17.42	17.70	17.72

Table 9-60
5 GHz WLAN Maximum Average RF Power – Ant 2

5GHz (20MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
		Average	Average	Average
5180	36	16.33	16.61	16.53
5200	40	17.37	17.59	17.59
5220	44	16.34	16.65	16.55
5240	48	16.46	16.60	16.57
5260	52	16.48	16.81	16.67
5280	56	17.43	17.67	17.66
5300	60	16.33	16.65	16.53
5320	64	16.39	16.64	16.58
5500	100	16.47	16.74	16.71
5600	120	16.54	16.80	16.74
5620	124	16.50	16.74	16.67
5720	144	16.38	16.58	16.54
5745	149	16.41	16.63	16.59
5785	157	17.08	17.36	17.37
5825	165	17.32	17.58	17.56

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Table 9-61
5 GHz WLAN Maximum Average RF Power – MIMO

5GHz (20MHz) 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
5180	36	16.91	16.61	19.77
5200	40	17.80	17.59	20.71
5220	44	16.81	16.65	19.74
5240	48	16.73	16.60	19.68
5260	52	16.38	16.81	19.61
5280	56	17.49	17.67	20.59
5300	60	16.70	16.65	19.69
5320	64	16.65	16.64	19.66
5500	100	16.87	16.74	19.82
5600	120	16.91	16.80	19.87
5620	124	16.86	16.74	19.81
5720	144	16.53	16.58	19.57
5745	149	16.47	16.63	19.56
5785	157	17.77	17.36	20.58
5825	165	17.70	17.58	20.65

Table 9-62
Maximum Output Powers During Conditions with 2.4 GHz and 5 GHz WLAN

5GHz (40MHz) 802.11n Conducted Power [dBm]			
Freq [MHz]	Channel	ANT1	ANT2
5190	38	11.26	10.79
5230	46	14.95	14.58
5270	54	14.77	14.25
5310	62	10.98	11.00
5510	102	11.14	11.15
5550	110	14.48	14.70
5590	118	14.58	14.64
5630	126	14.32	14.95
5710	142	14.37	14.78
5755	151	14.35	14.79
5795	159	14.46	14.76

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Table 9-63
2.4 GHz WLAN Reduced Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]						
Freq [MHz]	Channel	IEEE Transmission Mode				
		802.11b	802.11g	802.11n	802.11ac	802.11ax
		Average	Average	Average	Average	Average
2412	1	15.34	15.22	14.98	14.95	14.01
2437	6	15.34	15.19	15.04	14.80	13.79
2462	11	15.44	15.47	15.13	15.06	14.11

Table 9-64
2.4 GHz WLAN Reduced Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]						
Freq [MHz]	Channel	IEEE Transmission Mode				
		802.11b	802.11g	802.11n	802.11ac	802.11ax
		Average	Average	Average	Average	Average
2412	1	15.47	15.31	14.96	14.97	13.86
2437	6	15.37	15.46	15.16	15.15	14.06
2462	11	15.45	15.38	15.10	15.11	14.01

Table 9-65
2.4 GHz WLAN Reduced Average RF Power – MIMO

2.4GHz 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
2412	1	14.98	14.96	17.98
2437	6	15.04	15.16	18.11
2462	11	15.13	15.10	18.13

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Table 9-66
5 GHz WLAN Reduced Average RF Power – Ant 1

5GHz (40MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11n	802.11ac	802.11ax
		Average	Average	Average
5190	38	11.26	10.14	8.14
5230	46	14.95	13.88	11.63
5270	54	14.77	13.65	11.73
5310	62	10.98	9.94	7.87
5510	102	11.14	10.17	8.05
5550	110	14.48	13.82	11.26
5590	118	14.58	13.84	11.97
5630	126	14.32	13.81	11.78
5710	142	14.37	13.96	11.75
5755	151	14.35	13.74	11.80
5795	159	14.46	14.03	11.92

Table 9-67
5 GHz WLAN Reduced Average RF Power – Ant 2

5GHz (40MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11n	802.11ac	802.11ax
		Average	Average	Average
5190	38	10.79	10.50	8.43
5230	46	14.58	14.28	12.12
5270	54	14.25	14.41	12.00
5310	62	11.00	10.68	8.28
5510	102	11.15	10.91	8.63
5550	110	14.70	14.74	12.22
5590	118	14.64	14.58	12.45
5630	126	14.95	14.69	12.50
5710	142	14.78	14.48	12.38
5755	151	14.79	14.61	12.16
5795	159	14.76	14.70	12.38

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Table 9-68
5 GHz WLAN Reduced Average RF Power – MIMO

5GHz (40MHz) 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
5190	38	11.26	10.79	14.04
5230	46	14.95	14.58	17.78
5270	54	14.77	14.25	17.53
5310	62	10.98	11.00	14.00
5510	102	11.14	11.15	14.16
5550	110	14.48	14.70	17.60
5590	118	14.58	14.64	17.62
5630	126	14.32	14.95	17.66
5710	142	14.37	14.78	17.59
5755	151	14.35	14.79	17.59
5795	159	14.46	14.76	17.62

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.

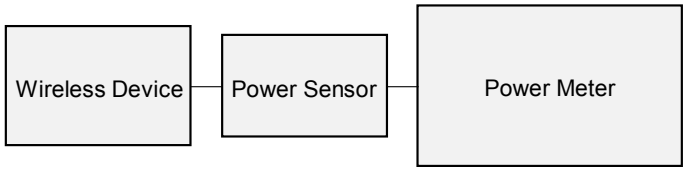

Figure 9-5
Power Measurement Setup

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9.6 Bluetooth Conducted Powers

Table 9-69
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	11.51	14.166
2441	1.0	39	11.93	15.613
2480	1.0	78	9.85	9.659
2402	2.0	0	11.25	13.334
2441	2.0	39	11.63	14.560
2480	2.0	78	9.56	9.027
2402	3.0	0	11.28	13.432
2441	3.0	39	11.70	14.782
2480	3.0	78	9.64	9.200

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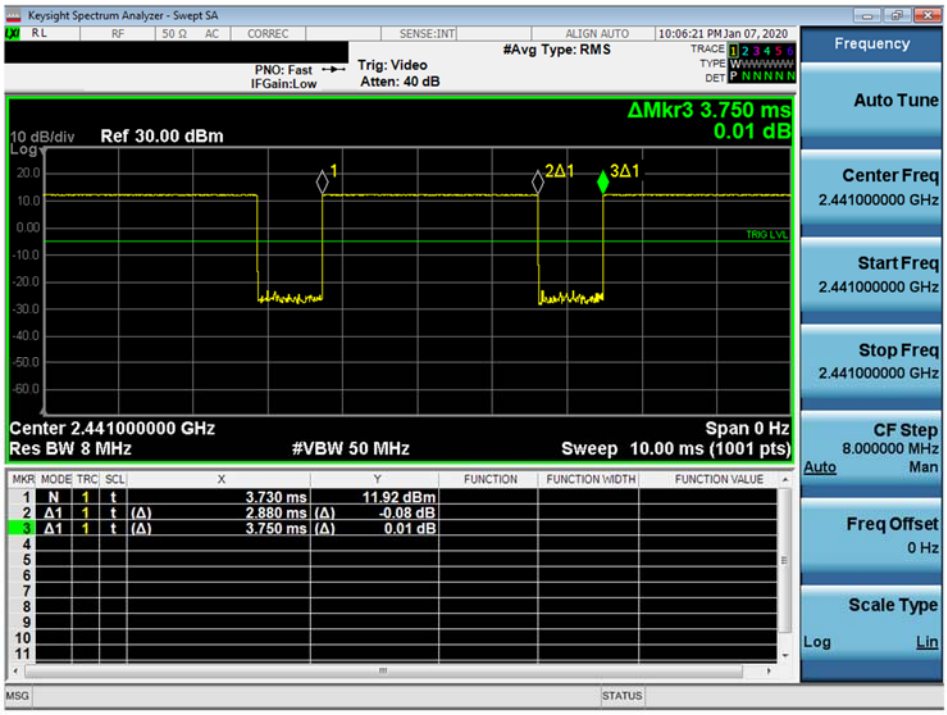

Figure 9-6
Bluetooth Transmission Plot

Equation 9-1
Bluetooth Duty Cycle Calculation

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

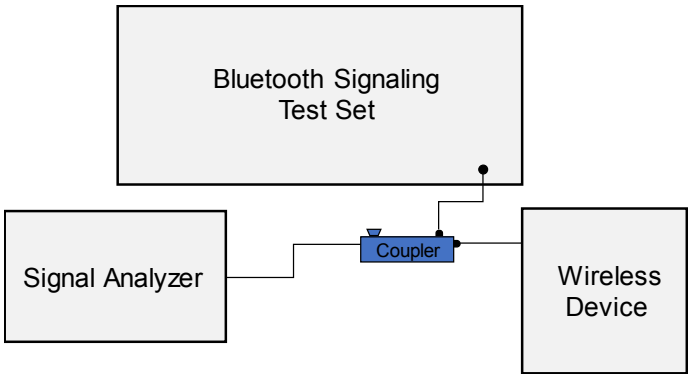

Figure 9-7
Power Measurement Setup

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10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Tissue Properties - Head

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
02/05/2020	750 Head	20.6	700	0.866	41.503	0.889	42.201	-2.59%	-1.65%
			710	0.869	41.476	0.890	42.149	-2.36%	-1.60%
			725	0.874	41.424	0.891	42.071	-1.91%	-1.54%
			740	0.879	41.363	0.893	41.994	-1.57%	-1.50%
			750	0.883	41.320	0.894	41.942	-1.23%	-1.48%
			755	0.884	41.304	0.894	41.916	-1.12%	-1.46%
			770	0.889	41.260	0.895	41.838	-0.67%	-1.38%
			785	0.895	41.214	0.896	41.760	-0.11%	-1.31%
			800	0.900	41.170	0.897	41.682	0.33%	-1.23%
02/02/2020	835 Head	21.6	820	0.927	41.103	0.899	41.578	3.11%	-1.14%
			835	0.933	41.052	0.900	41.500	3.67%	-1.08%
			850	0.939	41.015	0.916	41.500	2.51%	-1.17%
02/07/2020	835 Head	20.2	820	0.896	40.647	0.899	41.578	-0.33%	-2.24%
			835	0.902	40.598	0.900	41.500	0.22%	-2.17%
			850	0.908	40.544	0.916	41.500	-0.87%	-2.30%
1/29/2020	1750 Head	20.8	1710	1.339	39.978	1.348	40.142	-0.67%	-0.41%
			1720	1.346	39.960	1.354	40.126	-0.59%	-0.41%
			1745	1.361	39.922	1.368	40.087	-0.51%	-0.41%
			1750	1.364	39.913	1.371	40.079	-0.51%	-0.41%
			1770	1.375	39.880	1.383	40.047	-0.58%	-0.42%
			1790	1.385	39.842	1.394	40.016	-0.65%	-0.43%
02/10/2020	1750 Head	20.4	1710	1.344	41.675	1.348	40.142	-0.30%	3.82%
			1720	1.351	41.658	1.354	40.126	-0.22%	3.82%
			1745	1.367	41.617	1.368	40.087	-0.07%	3.82%
			1750	1.370	41.609	1.371	40.079	-0.07%	3.82%
			1770	1.382	41.577	1.383	40.047	-0.07%	3.82%
			1790	1.393	41.541	1.394	40.016	-0.07%	3.81%
02/26/2020	1750 Head	20.4	1710	1.317	38.478	1.348	40.142	-2.30%	-4.15%
			1720	1.323	38.463	1.354	40.126	-2.29%	-4.14%
			1745	1.339	38.425	1.368	40.087	-2.12%	-4.15%
			1750	1.342	38.416	1.371	40.079	-2.12%	-4.15%
			1770	1.354	38.379	1.383	40.047	-2.10%	-4.17%
			1790	1.366	38.340	1.394	40.016	-2.01%	-4.19%
01/22/2020	1900 Head	20.8	1850	1.420	41.194	1.400	40.000	1.43%	2.99%
			1860	1.427	41.181	1.400	40.000	1.93%	2.95%
			1880	1.439	41.163	1.400	40.000	2.79%	2.91%
			1900	1.450	41.140	1.400	40.000	3.57%	2.85%
			1905	1.453	41.132	1.400	40.000	3.79%	2.83%
			1910	1.456	41.122	1.400	40.000	4.00%	2.81%
1/31/2020	1900 Head	21.2	1850	1.435	39.695	1.400	40.000	2.50%	-0.76%
			1880	1.452	39.667	1.400	40.000	3.71%	-0.83%
			1910	1.468	39.638	1.400	40.000	4.86%	-0.91%
01/27/2020	2450 Head	24.3	2400	1.784	38.367	1.756	39.289	1.59%	-2.35%
			2450	1.822	38.294	1.800	39.200	1.22%	-2.31%
			2500	1.857	38.221	1.855	39.136	0.11%	-2.34%
			2510	1.864	38.206	1.866	39.123	-0.11%	-2.34%
			2535	1.883	38.165	1.893	39.092	-0.53%	-2.37%
			2550	1.895	38.144	1.909	39.073	-0.73%	-2.38%
			2560	1.903	38.132	1.920	39.060	-0.89%	-2.38%
			2600	1.931	38.079	1.964	39.009	-1.68%	-2.38%
			2650	1.970	37.995	2.018	38.945	-2.38%	-2.44%
			2680	1.993	37.951	2.051	38.907	-2.83%	-2.46%
			2700	2.008	37.917	2.073	38.882	-3.14%	-2.48%
01/30/2020	2450 Head	21.0	2300	1.693	41.215	1.670	39.500	1.38%	4.34%
			2310	1.700	41.202	1.679	39.480	1.25%	4.36%
			2320	1.707	41.189	1.687	39.460	1.19%	4.38%
			2400	1.763	41.078	1.756	39.289	0.40%	4.55%
			2450	1.801	40.999	1.800	39.200	0.06%	4.59%
			2500	1.839	40.911	1.855	39.136	-0.86%	4.54%

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Table 10-2
Measured Tissue Properties – Head 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
02/09/2020	5200-5800 Head	21.9	5250	4.708	37.057	4.706	35.929	0.04%	3.14%
			5260	4.718	37.033	4.717	35.917	0.02%	3.11%
			5270	4.730	37.024	4.727	35.906	0.06%	3.11%
			5280	4.745	37.015	4.737	35.894	0.17%	3.12%
			5290	4.760	37.002	4.748	35.883	0.25%	3.12%
			5300	4.772	36.981	4.758	35.871	0.29%	3.09%
			5310	4.780	36.966	4.768	35.860	0.25%	3.08%
			5320	4.787	36.947	4.778	35.849	0.19%	3.06%
			5500	4.998	36.617	4.963	35.643	0.71%	2.73%
			5510	5.012	36.597	4.973	35.632	0.78%	2.71%
			5520	5.022	36.589	4.983	35.620	0.78%	2.72%
			5530	5.033	36.587	4.994	35.609	0.78%	2.75%
			5540	5.043	36.565	5.004	35.597	0.78%	2.72%
			5550	5.052	36.533	5.014	35.586	0.76%	2.66%
			5560	5.060	36.508	5.024	35.574	0.72%	2.63%
			5580	5.088	36.487	5.045	35.551	0.85%	2.63%
			5600	5.120	36.439	5.065	35.529	1.09%	2.56%
			5610	5.131	36.421	5.076	35.518	1.08%	2.54%
			5620	5.143	36.404	5.086	35.506	1.12%	2.53%
			5640	5.167	36.372	5.106	35.483	1.19%	2.51%
			5660	5.190	36.340	5.127	35.460	1.23%	2.48%
			5670	5.201	36.326	5.137	35.449	1.25%	2.47%
			5680	5.213	36.309	5.147	35.437	1.28%	2.46%
			5690	5.224	36.286	5.158	35.426	1.28%	2.43%
			5700	5.238	36.261	5.168	35.414	1.35%	2.39%
			5710	5.250	36.240	5.178	35.403	1.39%	2.36%
			5720	5.263	36.227	5.188	35.391	1.45%	2.36%
			5745	5.293	36.182	5.214	35.363	1.52%	2.32%
			5750	5.299	36.169	5.219	35.357	1.53%	2.30%
			5755	5.304	36.160	5.224	35.351	1.53%	2.29%
			5765	5.315	36.150	5.234	35.340	1.55%	2.29%
			5775	5.330	36.145	5.245	35.329	1.62%	2.31%
			5785	5.345	36.128	5.255	35.317	1.71%	2.30%
			5795	5.356	36.099	5.265	35.305	1.73%	2.25%
			5800	5.360	36.086	5.270	35.300	1.71%	2.23%
			5805	5.364	36.080	5.275	35.294	1.69%	2.23%
			5825	5.390	36.056	5.296	35.271	1.77%	2.23%
02/14/2020	5200-5800 Head	21.6	5220	4.671	36.859	4.676	35.963	-0.11%	2.49%
			5240	4.698	36.816	4.696	35.940	0.04%	2.44%
			5250	4.713	36.795	4.706	35.929	0.15%	2.41%
			5260	4.725	36.776	4.717	35.917	0.17%	2.39%
			5270	4.736	36.762	4.727	35.906	0.19%	2.38%
			5280	4.747	36.747	4.737	35.894	0.21%	2.38%
			5290	4.758	36.733	4.748	35.883	0.21%	2.37%
			5300	4.769	36.721	4.758	35.871	0.23%	2.37%
			5310	4.779	36.697	4.768	35.860	0.23%	2.33%
			5320	4.789	36.672	4.778	35.849	0.23%	2.30%

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Table 10-3
Measured Tissue Properties – Body

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	%dev σ	%dev ε
01/29/2020	750 Body	19.6	700	0.938	53.136	0.959	55.726	-2.19%	-4.65%
			710	0.942	53.111	0.960	55.687	-1.88%	-4.63%
			725	0.947	53.071	0.961	55.629	-1.46%	-4.60%
			740	0.953	53.023	0.963	55.570	-1.04%	-4.58%
			750	0.957	52.993	0.964	55.531	-0.73%	-4.57%
			755	0.959	52.980	0.964	55.512	-0.52%	-4.56%
			770	0.964	52.935	0.965	55.453	-0.10%	-4.54%
			785	0.971	52.894	0.966	55.395	0.52%	-4.51%
			800	0.977	52.858	0.967	55.336	1.03%	-4.48%
01/23/2020	835 Body	21.6	820	0.945	54.407	0.969	55.258	-2.48%	-1.54%
			835	0.951	54.362	0.970	55.200	-1.96%	-1.52%
			850	0.958	54.320	0.988	55.154	-3.04%	-1.51%
02/05/2020	835 Body	20.6	820	0.975	52.939	0.969	55.258	0.62%	-4.20%
			835	0.981	52.901	0.970	55.200	1.13%	-4.16%
			850	0.988	52.866	0.988	55.154	0.00%	-4.15%
02/12/2020	835 Body	22.6	820	0.933	54.624	0.969	55.258	-3.72%	-1.15%
			835	0.949	54.487	0.970	55.200	-2.16%	-1.29%
			850	0.964	54.344	0.988	55.154	-2.43%	-1.47%
01/28/2020	1750 Body	21.2	1710	1.451	54.523	1.463	53.537	-0.82%	1.84%
			1720	1.463	54.479	1.469	53.511	-0.41%	1.81%
			1745	1.492	54.377	1.485	53.445	0.47%	1.74%
			1750	1.497	54.356	1.488	53.432	0.60%	1.73%
			1770	1.518	54.275	1.501	53.379	1.13%	1.68%
			1790	1.540	54.197	1.514	53.326	1.72%	1.63%
01/31/2020	1750 Body	20.3	1710	1.473	54.677	1.463	53.537	0.68%	2.13%
			1720	1.486	54.637	1.469	53.511	1.16%	2.10%
			1745	1.515	54.539	1.485	53.445	2.02%	2.05%
			1750	1.520	54.519	1.488	53.432	2.15%	2.03%
			1770	1.542	54.432	1.501	53.379	2.73%	1.97%
			1790	1.565	54.346	1.514	53.326	3.37%	1.91%
02/24/2020	1750 Body	21.0	1710	1.442	55.974	1.463	53.537	-1.44%	4.55%
			1720	1.455	55.940	1.469	53.511	-0.95%	4.54%
			1745	1.485	55.855	1.485	53.445	0.00%	4.51%
			1750	1.491	55.836	1.488	53.432	0.20%	4.50%
			1770	1.512	55.758	1.501	53.379	0.73%	4.46%
			1790	1.533	55.670	1.514	53.326	1.25%	4.40%
02/26/2020	1750 Body	20.9	1710	1.428	55.742	1.463	53.537	-2.39%	4.12%
			1720	1.440	55.709	1.469	53.511	-1.97%	4.11%
			1745	1.468	55.639	1.485	53.445	-1.14%	4.11%
			1750	1.474	55.625	1.488	53.432	-0.94%	4.10%
			1770	1.496	55.565	1.501	53.379	-0.33%	4.10%
			1790	1.517	55.491	1.514	53.326	0.20%	4.06%
01/19/2020	1900 Body	22.6	1850	1.529	51.312	1.520	53.300	0.59%	-3.73%
			1860	1.540	51.277	1.520	53.300	1.32%	-3.80%
			1880	1.562	51.211	1.520	53.300	2.76%	-3.92%
			1900	1.583	51.146	1.520	53.300	4.14%	-4.04%
			1905	1.588	51.130	1.520	53.300	4.47%	-4.07%
			1910	1.593	51.114	1.520	53.300	4.80%	-4.10%
01/21/2020	1900 Body	22.5	1850	1.522	52.071	1.520	53.300	0.13%	-2.31%
			1860	1.533	52.035	1.520	53.300	0.86%	-2.37%
			1880	1.554	51.971	1.520	53.300	2.24%	-2.49%
			1900	1.576	51.912	1.520	53.300	3.68%	-2.60%
			1905	1.581	51.897	1.520	53.300	4.01%	-2.63%
			1910	1.587	51.882	1.520	53.300	4.41%	-2.66%
01/27/2020	1900 Body	24.2	1850	1.496	51.681	1.520	53.300	-1.58%	-3.04%
			1860	1.507	51.650	1.520	53.300	-0.86%	-3.10%
			1880	1.529	51.580	1.520	53.300	0.59%	-3.23%
			1900	1.551	51.507	1.520	53.300	2.04%	-3.36%
			1905	1.556	51.488	1.520	53.300	2.37%	-3.40%
			1910	1.561	51.469	1.520	53.300	2.70%	-3.44%
02/04/2020	1900 Body	23.9	1850	1.513	52.168	1.520	53.300	-0.46%	-2.12%
			1860	1.525	52.132	1.520	53.300	0.33%	-2.19%
			1880	1.547	52.055	1.520	53.300	1.78%	-2.34%
			1900	1.569	51.982	1.520	53.300	3.22%	-2.47%
			1905	1.574	51.963	1.520	53.300	3.55%	-2.51%
			1910	1.580	51.945	1.520	53.300	3.95%	-2.54%
01/27/2020	2450 Body	21.5	2300	1.843	52.053	1.809	52.900	1.88%	-1.60%
			2310	1.856	52.019	1.816	52.887	2.20%	-1.64%
			2320	1.869	51.985	1.826	52.873	2.35%	-1.68%
			2535	2.163	51.169	2.071	52.592	4.44%	-2.71%
			2550	2.185	51.109	2.092	52.573	4.45%	-2.78%
			2560	2.200	51.069	2.106	52.560	4.46%	-2.84%
			2600	2.260	50.909	2.163	52.509	4.48%	-3.05%
			2650	2.331	50.706	2.234	52.445	4.34%	-3.32%
			2680	2.373	50.579	2.277	52.407	4.22%	-3.49%
			2700	2.401	50.492	2.305	52.382	4.16%	-3.61%
01/30/2020	2450 Body	22.8	2400	1.966	51.530	1.902	52.767	3.36%	-2.34%
			2450	2.024	51.394	1.950	52.700	3.79%	-2.48%
			2500	2.083	51.258	2.021	52.636	3.07%	-2.62%
			2510	2.095	51.230	2.035	52.623	2.95%	-2.65%

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Table 10-4
Measured Tissue Properties – Body 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
01/27/2020	5200-5800 Body	22.5	5180	5.310	47.717	5.276	49.041	0.64%	-2.70%
			5190	5.319	47.696	5.288	49.028	0.59%	-2.72%
			5200	5.330	47.679	5.299	49.014	0.59%	-2.72%
			5210	5.343	47.677	5.311	49.001	0.60%	-2.70%
			5220	5.355	47.664	5.323	48.987	0.60%	-2.70%
			5240	5.382	47.615	5.346	48.960	0.67%	-2.75%
			5250	5.396	47.584	5.358	48.947	0.71%	-2.78%
			5260	5.412	47.564	5.369	48.933	0.80%	-2.80%
			5270	5.426	47.554	5.381	48.919	0.84%	-2.79%
			5280	5.439	47.546	5.393	48.906	0.85%	-2.78%
			5290	5.452	47.545	5.404	48.892	0.89%	-2.76%
			5300	5.464	47.530	5.416	48.879	0.89%	-2.76%
			5310	5.474	47.501	5.428	48.865	0.85%	-2.79%
			5320	5.483	47.471	5.439	48.851	0.81%	-2.82%
			5500	5.709	47.193	5.650	48.607	1.04%	-2.91%
			5510	5.725	47.166	5.661	48.594	1.13%	-2.94%
			5520	5.742	47.154	5.673	48.580	1.22%	-2.94%
			5530	5.756	47.148	5.685	48.566	1.25%	-2.92%
			5540	5.765	47.134	5.696	48.553	1.21%	-2.92%
			5550	5.771	47.117	5.708	48.539	1.10%	-2.93%
			5560	5.778	47.100	5.720	48.526	1.01%	-2.94%
			5580	5.805	47.078	5.743	48.499	1.08%	-2.93%
			5600	5.838	47.034	5.766	48.471	1.25%	-2.96%
			5610	5.854	47.014	5.778	48.458	1.32%	-2.98%
			5620	5.869	47.004	5.790	48.444	1.36%	-2.97%
			5640	5.899	46.978	5.813	48.417	1.48%	-2.97%
			5660	5.922	46.949	5.837	48.390	1.46%	-2.98%
			5670	5.930	46.925	5.848	48.376	1.40%	-3.00%
			5680	5.943	46.902	5.860	48.363	1.42%	-3.02%
			5690	5.957	46.889	5.872	48.349	1.45%	-3.02%
			5700	5.971	46.875	5.883	48.336	1.50%	-3.02%
			5710	5.985	46.860	5.895	48.322	1.53%	-3.03%
			5720	5.997	46.846	5.907	48.309	1.52%	-3.03%
			5745	6.034	46.811	5.936	48.275	1.65%	-3.03%
			5750	6.040	46.798	5.942	48.268	1.65%	-3.05%
			5755	6.045	46.787	5.947	48.261	1.65%	-3.05%
			5765	6.055	46.767	5.959	48.248	1.61%	-3.07%
			5775	6.066	46.758	5.971	48.234	1.59%	-3.06%
			5785	6.082	46.740	5.982	48.220	1.67%	-3.07%
			5795	6.098	46.721	5.994	48.207	1.74%	-3.08%
			5800	6.107	46.712	6.000	48.200	1.78%	-3.09%
			5805	6.116	46.703	6.006	48.193	1.83%	-3.09%
			5825	6.138	46.688	6.029	48.166	1.81%	-3.07%
02/03/2020	5200-5800 Body	22.8	5250	5.388	48.355	5.358	48.947	0.56%	-1.21%
			5260	5.406	48.340	5.369	48.933	0.69%	-1.21%
			5270	5.418	48.328	5.381	48.919	0.69%	-1.21%
			5280	5.426	48.327	5.393	48.906	0.61%	-1.18%
			5290	5.436	48.323	5.404	48.892	0.59%	-1.16%
			5300	5.448	48.310	5.416	48.879	0.59%	-1.16%
			5310	5.459	48.293	5.428	48.865	0.57%	-1.17%
			5320	5.468	48.271	5.439	48.851	0.53%	-1.19%
			5500	5.699	47.957	5.650	48.607	0.87%	-1.34%
			5510	5.715	47.949	5.661	48.594	0.95%	-1.33%
			5550	5.765	47.927	5.708	48.539	1.00%	-1.26%
			5560	5.775	47.893	5.720	48.526	0.96%	-1.30%
			5580	5.798	47.836	5.743	48.499	0.96%	-1.37%
			5600	5.829	47.806	5.766	48.471	1.09%	-1.37%
02/10/2020	5200-5800 Body	23.1	5250	5.540	47.095	5.358	48.947	3.40%	-3.78%
			5260	5.555	47.063	5.369	48.933	3.46%	-3.82%
			5270	5.568	47.040	5.381	48.919	3.48%	-3.84%
			5280	5.579	47.032	5.393	48.906	3.45%	-3.83%
			5290	5.593	47.030	5.404	48.892	3.50%	-3.81%
			5300	5.606	47.018	5.416	48.879	3.51%	-3.81%
			5310	5.617	46.999	5.428	48.865	3.48%	-3.82%
			5320	5.625	46.973	5.439	48.851	3.42%	-3.84%
			5500	5.870	46.664	5.650	48.607	3.89%	-4.00%
			5510	5.886	46.644	5.661	48.594	3.97%	-4.01%
			5520	5.897	46.636	5.673	48.580	3.95%	-4.00%
			5530	5.908	46.641	5.685	48.566	3.92%	-3.96%
			5540	5.923	46.634	5.696	48.553	3.99%	-3.95%
			5550	5.936	46.597	5.708	48.539	3.99%	-4.00%
			5560	5.947	46.560	5.720	48.526	3.97%	-4.05%
			5580	5.975	46.528	5.743	48.499	4.04%	-4.06%
			5600	6.006	46.496	5.766	48.471	4.16%	-4.07%
			5610	6.020	46.465	5.778	48.458	4.19%	-4.11%
			5620	6.034	46.447	5.790	48.444	4.21%	-4.12%
			5640	6.065	46.443	5.813	48.417	4.34%	-4.08%
			5660	6.093	46.402	5.837	48.390	4.39%	-4.11%
			5670	6.103	46.381	5.848	48.376	4.36%	-4.12%
			5680	6.113	46.364	5.860	48.363	4.32%	-4.13%
			5690	6.128	46.343	5.872	48.349	4.36%	-4.15%
			5700	6.146	46.311	5.883	48.336	4.47%	-4.19%
			5710	6.160	46.293	5.895	48.322	4.50%	-4.20%
			5720	6.170	46.287	5.907	48.309	4.45%	-4.19%
			5745	6.210	46.260	5.936	48.275	4.62%	-4.17%
			5750	6.219	46.246	5.942	48.268	4.66%	-4.19%
			5755	6.225	46.234	5.947	48.261	4.67%	-4.20%
			5765	6.234	46.221	5.959	48.248	4.61%	-4.20%
			5775	6.248	46.218	5.971	48.234	4.64%	-4.18%
			5785	6.263	46.215	5.982	48.220	4.70%	-4.16%
			5795	6.280	46.182	5.994	48.207	4.77%	-4.20%
			5800	6.285	46.161	6.000	48.200	4.75%	-4.23%
			5805	6.289	46.144	6.006	48.193	4.71%	-4.25%
			5825	6.313	46.127	6.029	48.166	4.71%	-4.23%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

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10.2 Test System Verification

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

Table 10-5
System Verification Results – 1g Head

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
L	750	HEAD	02/05/2020	22.3	20.6	0.200	1161	7410	1.740	8.030	8.700	8.34%
E	835	HEAD	02/02/2020	24.3	21.6	0.200	4d047	7417	1.930	9.420	9.650	2.44%
L	835	HEAD	02/07/2020	22.3	20.2	0.200	4d132	7410	1.890	9.650	9.450	-2.07%
D	1750	HEAD	01/29/2020	21.7	20.8	0.100	1008	3914	3.830	36.200	38.300	5.80%
H	1750	HEAD	02/10/2020	23.1	21.3	0.100	1148	7406	3.480	37.000	34.800	-5.95%
L	1750	HEAD	02/26/2020	21.2	20.4	0.100	1150	7410	3.770	36.500	37.700	3.29%
E	1900	HEAD	01/22/2020	21.8	21.8	0.100	5d148	7417	4.110	39.100	41.100	5.12%
L	1900	HEAD	01/31/2020	22.2	20.7	0.100	5d148	7410	4.150	39.100	41.500	6.14%
E	2300	HEAD	01/30/2020	22.5	21.6	0.100	1073	7417	5.020	49.200	50.200	2.03%
E	2450	HEAD	01/27/2020	24.4	23.0	0.100	981	7417	5.420	52.300	54.200	3.63%
E	2450	HEAD	01/30/2020	22.5	21.6	0.100	981	7417	5.150	52.300	51.500	-1.53%
E	2600	HEAD	01/27/2020	24.4	23.0	0.100	1064	7417	5.980	58.100	59.800	2.93%
H	5250	HEAD	02/09/2020	22.1	21.9	0.050	1191	7406	3.720	80.800	74.400	-7.92%
H	5250	HEAD	02/14/2020	21.4	21.3	0.050	1057	7406	3.640	79.200	72.800	-8.08%
H	5600	HEAD	02/09/2020	22.1	21.9	0.050	1191	7406	3.930	82.700	78.600	-4.96%
H	5750	HEAD	02/09/2020	22.1	21.9	0.050	1191	7406	3.690	80.200	73.800	-7.98%

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Table 10-6
System Verification Results – 1g Body

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
P	750	BODY	01/29/2020	21.5	19.6	0.200	1161	7551	1.770	8.430	8.850	4.98%
P	835	BODY	01/23/2020	23.1	21.6	0.200	4d133	7551	2.000	9.750	10.000	2.56%
P	835	BODY	02/05/2020	21.5	21.1	0.200	4d132	7551	2.020	9.960	10.100	1.41%
G	835	BODY	02/12/2020	22.7	22.6	0.200	4d047	7409	2.040	9.470	10.200	7.71%
I	1750	BODY	01/28/2020	21.7	21.2	0.100	1148	7357	3.880	37.700	38.800	2.92%
I	1750	BODY	01/31/2020	21.3	20.3	0.100	1148	7357	3.970	37.700	39.700	5.31%
I	1750	BODY	02/26/2020	21.2	20.9	0.100	1148	7357	3.850	37.700	38.500	2.12%
P	1900	BODY	01/19/2020	22.5	21.6	0.100	5d149	7551	4.160	39.400	41.600	5.58%
P	1900	BODY	01/21/2020	22.0	21.4	0.100	5d080	7551	4.010	39.200	40.100	2.30%
J	1900	BODY	01/27/2020	23.3	23.0	0.100	5d148	7571	4.210	39.100	42.100	7.67%
J	1900	BODY	02/04/2020	22.0	23.4	0.100	5d149	7571	4.210	39.400	42.100	6.85%
L	2300	BODY	01/27/2020	20.5	21.5	0.100	1073	7410	4.850	47.700	48.500	1.68%
K	2450	BODY	01/30/2020	23.9	22.8	0.100	797	7547	5.170	51.100	51.700	1.17%
L	2600	BODY	01/27/2020	20.5	21.5	0.100	1064	7410	5.420	55.600	54.200	-2.52%
G	5250	BODY	01/27/2020	23.2	22.5	0.050	1191	7409	3.760	77.000	75.200	-2.34%
G	5250	BODY	02/10/2020	22.3	23.1	0.050	1057	7409	3.750	75.900	75.000	-1.19%
G	5600	BODY	01/27/2020	23.2	22.5	0.050	1191	7409	3.950	78.600	79.000	0.51%
G	5600	BODY	02/10/2020	22.3	23.1	0.050	1057	7409	3.980	79.900	79.600	-0.38%
G	5750	BODY	01/27/2020	23.2	22.5	0.050	1191	7409	3.810	76.900	76.200	-0.91%
G	5750	BODY	02/10/2020	22.3	23.1	0.050	1057	7409	3.870	76.700	77.400	0.91%

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Table 10-7
System Verification Results – 10g Body

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
I	1750	BODY	01/28/2020	21.7	21.2	0.100	1148	7357	2.060	19.800	20.600	4.04%
I	1750	BODY	01/31/2020	21.3	20.3	0.100	1148	7357	2.100	19.800	21.000	6.06%
I	1750	BODY	02/24/2020	21.4	21.0	0.100	1148	7357	2.090	19.800	20.900	5.56%
P	1900	BODY	01/19/2020	22.5	21.6	0.100	5d149	7551	2.120	20.700	21.200	2.42%
J	1900	BODY	01/27/2020	23.3	23.0	0.100	5d148	7571	2.150	20.500	21.500	4.88%
G	5250	BODY	02/03/2020	23.5	21.8	0.050	1191	7409	1.080	21.400	21.600	0.93%
G	5600	BODY	02/03/2020	23.5	21.8	0.050	1191	7409	1.080	21.900	21.600	-1.37%

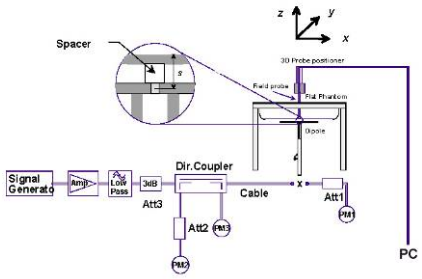

Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

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11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
GSM 850 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.4	32.78	0.10	Right	Cheek	00018	1	1:8.3	0.084	1.153	0.097	
836.60	190	GSM 850	GSM	33.4	32.78	0.11	Right	Tilt	00018	1	1:8.3	0.067	1.153	0.077	
836.60	190	GSM 850	GSM	33.4	32.78	0.12	Left	Cheek	00018	1	1:8.3	0.112	1.153	0.129	
836.60	190	GSM 850	GSM	33.4	32.78	-0.04	Left	Tilt	00018	1	1:8.3	0.055	1.153	0.063	
836.60	190	GSM 850	GPRS	31.2	30.78	-0.16	Right	Cheek	00018	2	1:4.15	0.083	1.102	0.091	
836.60	190	GSM 850	GPRS	31.2	30.78	-0.19	Right	Tilt	00018	2	1:4.15	0.060	1.102	0.066	
836.60	190	GSM 850	GPRS	31.2	30.78	-0.20	Left	Cheek	00018	2	1:4.15	0.118	1.102	0.130	A1
836.60	190	GSM 850	GPRS	31.2	30.78	-0.14	Left	Tilt	00018	2	1:4.15	0.059	1.102	0.065	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-2
GSM 1900 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	30.2	29.32	0.09	Right	Cheek	00216	1	1:8.3	0.030	1.225	0.037	
1880.00	661	GSM 1900	GSM	30.2	29.32	0.14	Right	Tilt	00216	1	1:8.3	0.028	1.225	0.034	
1880.00	661	GSM 1900	GSM	30.2	29.32	-0.18	Left	Cheek	00216	1	1:8.3	0.027	1.225	0.033	
1880.00	661	GSM 1900	GSM	30.2	29.32	0.21	Left	Tilt	00216	1	1:8.3	0.021	1.225	0.026	
1880.00	661	GSM 1900	GPRS	29.2	28.53	0.01	Right	Cheek	00216	2	1:4.15	0.053	1.167	0.062	A2
1880.00	661	GSM 1900	GPRS	29.2	28.53	0.13	Right	Tilt	00216	2	1:4.15	0.044	1.167	0.051	
1880.00	661	GSM 1900	GPRS	29.2	28.53	0.03	Left	Cheek	00216	2	1:4.15	0.046	1.167	0.054	
1880.00	661	GSM 1900	GPRS	29.2	28.53	0.02	Left	Tilt	00216	2	1:4.15	0.035	1.167	0.041	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

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Table 11-3
UMTS 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.5	25.10	0.14	Right	Cheek	00018	1:1	0.172	1.096	0.189	
836.60	4183	UMTS 850	RMC	25.5	25.10	0.00	Right	Tilt	00018	1:1	0.106	1.096	0.116	
836.60	4183	UMTS 850	RMC	25.5	25.10	0.05	Left	Cheek	00018	1:1	0.189	1.096	0.207	A3
836.60	4183	UMTS 850	RMC	25.5	25.10	0.01	Left	Tilt	00018	1:1	0.093	1.096	0.102	
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		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	25.2	24.94	0.19	Right	Cheek	00224	1:1	0.070	1.062	0.074	
1732.40	1412	UMTS 1750	RMC	25.2	24.94	0.13	Right	Tilt	00224	1:1	0.054	1.062	0.057	
1732.40	1412	UMTS 1750	RMC	25.2	24.94	0.11	Left	Cheek	00224	1:1	0.120	1.062	0.127	A4
1732.40	1412	UMTS 1750	RMC	25.2	24.94	0.11	Left	Tilt	00224	1:1	0.069	1.062	0.073	
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		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	25.2	24.82	0.20	Right	Cheek	00216	1:1	0.115	1.091	0.125	A5
1880.00	9400	UMTS 1900	RMC	25.2	24.82	0.14	Right	Tilt	00216	1:1	0.085	1.091	0.093	
1880.00	9400	UMTS 1900	RMC	25.2	24.82	0.19	Left	Cheek	00216	1:1	0.081	1.091	0.088	
1880.00	9400	UMTS 1900	RMC	25.2	24.82	0.14	Left	Tilt	00216	1:1	0.078	1.091	0.085	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-6
LTE Band 12 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.26	-0.15	0	Right	Cheek	QPSK	1	25	00257	1:1	0.138	1.057	0.146	
707.50	23095	Mid	LTE Band 12	10	24.5	23.96	0.04	1	Right	Cheek	QPSK	25	25	00257	1:1	0.103	1.132	0.117	
707.50	23095	Mid	LTE Band 12	10	25.5	25.26	-0.09	0	Right	Tilt	QPSK	1	25	00257	1:1	0.086	1.057	0.091	
707.50	23095	Mid	LTE Band 12	10	24.5	23.96	0.12	1	Right	Tilt	QPSK	25	25	00257	1:1	0.053	1.132	0.060	
707.50	23095	Mid	LTE Band 12	10	25.5	25.26	-0.07	0	Left	Cheek	QPSK	1	25	00257	1:1	0.160	1.057	0.169	A6
707.50	23095	Mid	LTE Band 12	10	24.5	23.96	0.05	1	Left	Cheek	QPSK	25	25	00257	1:1	0.103	1.132	0.117	
707.50	23095	Mid	LTE Band 12	10	25.5	25.26	0.00	0	Left	Tilt	QPSK	1	25	00257	1:1	0.096	1.057	0.101	
707.50	23095	Mid	LTE Band 12	10	24.5	23.96	0.17	1	Left	Tilt	QPSK	25	25	00257	1:1	0.059	1.132	0.067	
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 14 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
793.00	23330	Mid	LTE Band 14	10	25.5	25.21	0.12	0	Right	Cheek	QPSK	1	0	00257	1:1	0.151	1.069	0.161	A7
793.00	23330	Mid	LTE Band 14	10	24.5	23.92	0.14	1	Right	Cheek	QPSK	25	0	00257	1:1	0.090	1.143	0.103	
793.00	23330	Mid	LTE Band 14	10	25.5	25.21	-0.20	0	Right	Tilt	QPSK	1	0	00257	1:1	0.084	1.069	0.090	
793.00	23330	Mid	LTE Band 14	10	24.5	23.92	0.18	1	Right	Tilt	QPSK	25	0	00257	1:1	0.051	1.143	0.058	
793.00	23330	Mid	LTE Band 14	10	25.5	25.21	0.11	0	Left	Cheek	QPSK	1	0	00257	1:1	0.145	1.069	0.155	
793.00	23330	Mid	LTE Band 14	10	24.5	23.92	0.19	1	Left	Cheek	QPSK	25	0	00257	1:1	0.091	1.143	0.104	
793.00	23330	Mid	LTE Band 14	10	25.5	25.21	-0.16	0	Left	Tilt	QPSK	1	0	00257	1:1	0.071	1.069	0.076	
793.00	23330	Mid	LTE Band 14	10	24.5	23.92	0.15	1	Left	Tilt	QPSK	25	0	00257	1:1	0.044	1.143	0.050	
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 5 (Cell) Head SAR

MEASUREMENT RESULTS																						
# CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.30	0.09	0	Right	Cheek	QPSK	1	0	00257	1:1	0.139	1.047	0.146	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.01	0.15	1	Right	Cheek	QPSK	25	12	00257	1:1	0.098	1.119	0.110	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.30	0.07	0	Right	Tilt	QPSK	1	0	00257	1:1	0.087	1.047	0.091	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.01	0.16	1	Right	Tilt	QPSK	25	12	00257	1:1	0.061	1.119	0.068	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.30	0.09	0	Left	Cheek	QPSK	1	0	00257	1:1	0.156	1.047	0.163	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.01	0.10	1	Left	Cheek	QPSK	25	12	00257	1:1	0.113	1.119	0.126	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.50	-0.11	0	Left	Cheek	QPSK	1	0	00257	1:1	0.165	1.000	0.165	A8
	SCC	829.30	20453	Mid	LTE Band 5 (Cell)	5								1	24						
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.30	0.06	0	Left	Tilt	QPSK	1	0	00257	1:1	0.082	1.047	0.086	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.01	0.13	1	Left	Tilt	QPSK	25	12	00257	1:1	0.059	1.119	0.066	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram						

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Table 11-9
LTE Band 66 (AWS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	-0.20	0	Right	Cheek	QPSK	1	0	00240	1:1	0.098	1.000	0.098	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.19	-0.02	1	Right	Cheek	QPSK	50	50	00240	1:1	0.080	1.002	0.080	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	0.13	0	Right	Tilt	QPSK	1	0	00240	1:1	0.079	1.000	0.079	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.19	0.19	1	Right	Tilt	QPSK	50	50	00240	1:1	0.061	1.002	0.061	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	0.19	0	Left	Cheek	QPSK	1	0	00240	1:1	0.120	1.000	0.120	A9
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.19	0.14	1	Left	Cheek	QPSK	50	50	00240	1:1	0.105	1.002	0.105	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	0.08	0	Left	Tilt	QPSK	1	0	00240	1:1	0.078	1.000	0.078	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.19	0.14	1	Left	Tilt	QPSK	50	50	00240	1:1	0.055	1.002	0.055	
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 2 (PCS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
1880.00	18900	Mid	LTE Band 2 (PCS)	20	25.2	25.20	-0.03	0	Right	Cheek	QPSK	1	0	00240	1:1	0.107	1.000	0.107	A10
1900.00	19100	High	LTE Band 2 (PCS)	20	24.2	24.20	0.16	1	Right	Cheek	QPSK	50	25	00240	1:1	0.082	1.000	0.082	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	25.2	25.20	0.19	0	Right	Tilt	QPSK	1	0	00240	1:1	0.085	1.000	0.085	
1900.00	19100	High	LTE Band 2 (PCS)	20	24.2	24.20	0.11	1	Right	Tilt	QPSK	50	25	00240	1:1	0.067	1.000	0.067	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	25.2	25.20	0.08	0	Left	Cheek	QPSK	1	0	00240	1:1	0.096	1.000	0.096	
1900.00	19100	High	LTE Band 2 (PCS)	20	24.2	24.20	0.13	1	Left	Cheek	QPSK	50	25	00240	1:1	0.069	1.000	0.069	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	25.2	25.20	0.16	0	Left	Tilt	QPSK	1	0	00240	1:1	0.084	1.000	0.084	
1900.00	19100	High	LTE Band 2 (PCS)	20	24.2	24.20	0.17	1	Left	Tilt	QPSK	50	25	00240	1:1	0.055	1.000	0.055	
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 30 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2310.00	27710	Mid	LTE Band 30	10	22.7	22.68	0.18	0	Right	Cheek	QPSK	1	0	00257	1:1	0.049	1.005	0.049	
2310.00	27710	Mid	LTE Band 30	10	21.7	21.62	0.12	1	Right	Cheek	QPSK	25	12	00257	1:1	0.038	1.019	0.039	
2310.00	27710	Mid	LTE Band 30	10	22.7	22.68	0.12	0	Right	Tilt	QPSK	1	0	00257	1:1	0.023	1.005	0.023	
2310.00	27710	Mid	LTE Band 30	10	21.7	21.62	0.18	1	Right	Tilt	QPSK	25	12	00257	1:1	0.018	1.019	0.018	
2310.00	27710	Mid	LTE Band 30	10	22.7	22.68	0.17	0	Left	Cheek	QPSK	1	0	00257	1:1	0.052	1.005	0.052	A11
2310.00	27710	Mid	LTE Band 30	10	21.7	21.62	0.13	1	Left	Cheek	QPSK	25	12	00257	1:1	0.036	1.019	0.037	
2310.00	27710	Mid	LTE Band 30	10	22.7	22.68	0.20	0	Left	Tilt	QPSK	1	0	00257	1:1	0.027	1.005	0.027	
2310.00	27710	Mid	LTE Band 30	10	21.7	21.62	0.16	1	Left	Tilt	QPSK	25	12	00257	1:1	0.018	1.019	0.018	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Head 1.6 W/kg (mW/g) averaged over 1 gram					

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Table 11-12
LTE Band 41 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	0.18	0	Right	Cheek	QPSK	1	50	00257	1:1.58	0.040	1.000	0.040	
2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.11	1	Right	Cheek	QPSK	50	25	00257	1:1.58	0.031	1.000	0.031	
2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	0.17	0	Right	Tilt	QPSK	1	50	00257	1:1.58	0.025	1.000	0.025	
2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.12	1	Right	Tilt	QPSK	50	25	00257	1:1.58	0.016	1.000	0.016	
2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	0.14	0	Left	Cheek	QPSK	1	50	00257	1:1.58	0.059	1.000	0.059	A12
2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.13	1	Left	Cheek	QPSK	50	25	00257	1:1.58	0.044	1.000	0.044	
2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	-0.15	0	Left	Tilt	QPSK	1	50	00257	1:1.58	0.033	1.000	0.033	
2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.14	1	Left	Tilt	QPSK	50	25	00257	1:1.58	0.027	1.000	0.027	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram			

Table 11-13
NR Band n5 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.87	0.08	0	Right	Cheek	DFT-S-OFDM QPSK	1	53	00265	1:1	0.040	1.211	0.048	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.91	0.17	0	Right	Cheek	DFT-S-OFDM QPSK	50	28	00265	1:1	0.041	1.199	0.049	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.87	0.18	0	Right	Tilt	DFT-S-OFDM QPSK	1	53	00265	1:1	0.028	1.211	0.034	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.91	0.00	0	Right	Tilt	DFT-S-OFDM QPSK	50	28	00265	1:1	0.029	1.199	0.035	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.87	0.19	0	Left	Cheek	DFT-S-OFDM QPSK	1	53	00265	1:1	0.049	1.211	0.059	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.91	0.19	0	Left	Cheek	DFT-S-OFDM QPSK	50	28	00265	1:1	0.053	1.199	0.064	A13
836.50	167300	Mid	NR Band n5 (Cell)	20	23.7	22.12	0.19	1	Left	Cheek	CP-OFDM QPSK	1	1	00265	1:1	0.038	1.439	0.055	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.87	0.15	0	Left	Tilt	DFT-S-OFDM QPSK	1	53	00265	1:1	0.023	1.211	0.028	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.91	0.13	0	Left	Tilt	DFT-S-OFDM QPSK	50	28	00265	1:1	0.024	1.199	0.029	
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 11-14
NR Band n66 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	0.12	0	Right	Cheek	DFT-S-OFDM QPSK	1	104	00265	1:1	0.144	1.014	0.146	A14
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	0.04	0	Right	Cheek	DFT-S-OFDM QPSK	50	0	00265	1:1	0.131	1.026	0.134	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.40	0.03	0	Right	Cheek	CP-OFDM QPSK	1	1	00265	1:1	0.124	1.122	0.139	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	0.19	0	Right	Tilt	DFT-S-OFDM QPSK	1	104	00265	1:1	0.041	1.014	0.042	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	0.14	0	Right	Tilt	DFT-S-OFDM QPSK	50	0	00265	1:1	0.035	1.026	0.036	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	0.03	0	Left	Cheek	DFT-S-OFDM QPSK	1	104	00265	1:1	0.109	1.014	0.111	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	0.14	0	Left	Cheek	DFT-S-OFDM QPSK	50	0	00265	1:1	0.088	1.026	0.090	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	0.20	0	Left	Tilt	DFT-S-OFDM QPSK	1	104	00265	1:1	0.070	1.014	0.071	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	0.17	0	Left	Tilt	DFT-S-OFDM QPSK	50	0	00265	1:1	0.067	1.026	0.069	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram			

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Table 11-15
NR Band n2 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.59	0.05	0	Right	Cheek	DFT-S-OFDM QPSK	1	104	00273	1:1	0.202	1.026	0.207	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.58	0.21	0	Right	Cheek	DFT-S-OFDM QPSK	50	56	00273	1:1	0.207	1.028	**0.213**	A15
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.20	0.13	0	Right	Cheek	CP-OFDM QPSK	1	1	00273	1:1	0.165	1.122	0.185	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.59	0.09	0	Right	Tilt	DFT-S-OFDM QPSK	1	104	00273	1:1	0.069	1.026	0.071	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.58	0.12	0	Right	Tilt	DFT-S-OFDM QPSK	50	56	00273	1:1	0.065	1.028	0.067	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.59	0.15	0	Left	Cheek	DFT-S-OFDM QPSK	1	104	00273	1:1	0.092	1.026	0.094	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.58	0.08	0	Left	Cheek	DFT-S-OFDM QPSK	50	56	00273	1:1	0.093	1.028	0.096	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.59	0.15	0	Left	Tilt	DFT-S-OFDM QPSK	1	104	00273	1:1	0.073	1.026	0.075	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.58	0.14	0	Left	Tilt	DFT-S-OFDM QPSK	50	56	00273	1:1	0.075	1.028	0.077	
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 11-16
DTS Head SISO SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	15.5	15.34	0.15	Right	Cheek	1	00307	1	99.4	1.560	0.838	1.038	1.006	0.875	
2437	6	802.11b	DSSS	22	15.5	15.34	0.13	Right	Cheek	1	00307	1	99.4	1.705	0.913	1.038	1.006	**0.953**	A16
2462	11	802.11b	DSSS	22	15.5	15.44	0.19	Right	Cheek	1	00307	1	99.4	1.548	0.824	1.014	1.006	0.841	
2462	11	802.11b	DSSS	22	15.5	15.44	0.21	Right	Tilt	1	00307	1	99.4	0.410	0.334	1.014	1.006	0.341	
2462	11	802.11b	DSSS	22	15.5	15.44	0.05	Left	Cheek	1	00307	1	99.4	0.235	-	1.014	1.006	-	
2462	11	802.11b	DSSS	22	15.5	15.44	0.09	Left	Tilt	1	00307	1	99.4	0.247	-	1.014	1.006	-	
2412	1	802.11b	DSSS	22	15.5	15.47	0.19	Right	Cheek	2	00307	1	99.4	0.533	-	1.007	1.006	-	
2412	1	802.11b	DSSS	22	15.5	15.47	0.08	Right	Tilt	2	00307	1	99.4	0.577	-	1.007	1.006	-	
2412	1	802.11b	DSSS	22	15.5	15.47	0.09	Left	Cheek	2	00307	1	99.4	0.498	-	1.007	1.006	-	
2412	1	802.11b	DSSS	22	15.5	15.47	0.08	Left	Tilt	2	00307	1	99.4	0.629	0.354	1.007	1.006	0.359	
2437	6	802.11b	DSSS	22	15.5	15.34	0.13	Right	Cheek	1	00307	1	99.4	1.705	0.908	1.038	1.006	0.948	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram									

Note: Blue entries represent variability measurements.

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Table 11-17
DTS Head MIMO SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
2412	1	802.11n	OFDM	20	15.5	14.98	15.5	14.96	0.15	Right	Cheek	MIMO	00307	13	99.7	0.807	0.659	1.132	1.003	0.748	
2437	6	802.11n	OFDM	20	15.5	15.04	15.5	15.16	0.14	Right	Cheek	MIMO	00307	13	99.7	0.903	0.727	1.112	1.003	0.811	
2462	11	802.11n	OFDM	20	15.5	15.13	15.5	15.10	0.14	Right	Cheek	MIMO	00307	13	99.7	1.258	0.607	1.096	1.003	0.667	
2462	11	802.11n	OFDM	20	15.5	15.13	15.5	15.10	0.09	Right	Tilt	MIMO	00307	13	99.7	0.920	0.628	1.096	1.003	0.690	
2462	11	802.11n	OFDM	20	15.5	15.13	15.5	15.10	0.14	Left	Cheek	MIMO	00307	13	99.7	0.734	-	1.096	1.003	-	
2462	11	802.11n	OFDM	20	15.5	15.13	15.5	15.10	0.17	Left	Tilt	MIMO	00307	13	99.7	0.894	-	1.096	1.003	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram											

Note: To achieve the 18.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 15.5 dBm.

Table 11-18
NII Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5260	52	802.11a	OFDM	20	17.0	16.04	0.13	Right	Cheek	1	00307	6	99.1	0.865	0.403	1.247	1.009	0.507	
5280	56	802.11a	OFDM	20	18.0	17.30	0.13	Right	Cheek	1	00307	6	99.1	1.477	0.571	1.175	1.009	0.677	
5320	64	802.11a	OFDM	20	17.0	16.48	0.19	Right	Cheek	1	00307	6	99.1	0.944	0.465	1.127	1.009	0.529	
5280	56	802.11a	OFDM	20	18.0	17.30	0.16	Right	Tilt	1	00307	6	99.1	0.506	0.224	1.175	1.009	0.266	
5280	56	802.11a	OFDM	20	18.0	17.30	0.17	Left	Cheek	1	00307	6	99.1	0.224	-	1.175	1.009	-	
5280	56	802.11a	OFDM	20	18.0	17.30	0.14	Left	Tilt	1	00307	6	99.1	0.178	-	1.175	1.009	-	
5260	52	802.11a	OFDM	20	17.0	16.48	0.19	Right	Cheek	2	00307	6	99.2	1.518	0.696	1.127	1.008	0.791	
5280	56	802.11a	OFDM	20	18.0	17.43	0.15	Right	Cheek	2	00307	6	99.2	1.342	0.644	1.140	1.008	0.740	
5300	60	802.11a	OFDM	20	17.0	16.33	0.15	Right	Cheek	2	00307	6	99.2	1.458	0.678	1.167	1.008	0.798	
5320	64	802.11a	OFDM	20	17.0	16.39	0.19	Right	Cheek	2	00307	6	99.2	1.466	0.724	1.151	1.008	**0.840**	
5280	56	802.11a	OFDM	20	18.0	17.43	0.15	Right	Tilt	2	00307	6	99.2	0.960	0.454	1.140	1.008	0.522	
5280	56	802.11a	OFDM	20	18.0	17.43	0.19	Left	Cheek	2	00307	6	99.2	0.835	-	1.140	1.008	-	
5280	56	802.11a	OFDM	20	18.0	17.43	0.14	Left	Tilt	2	00307	6	99.2	0.560	-	1.140	1.008	-	
5600	120	802.11a	OFDM	20	17.0	16.66	0.16	Right	Cheek	1	00307	6	99.1	1.189	0.480	1.081	1.009	0.524	
5600	120	802.11a	OFDM	20	17.0	16.66	0.14	Right	Tilt	1	00307	6	99.1	0.542	0.254	1.081	1.009	0.277	
5600	120	802.11a	OFDM	20	17.0	16.66	0.17	Left	Cheek	1	00307	6	99.1	0.256	-	1.081	1.009	-	
5600	120	802.11a	OFDM	20	17.0	16.66	0.13	Left	Tilt	1	00307	6	99.1	0.247	-	1.081	1.009	-	
5600	120	802.11a	OFDM	20	17.0	16.54	0.15	Right	Cheek	2	00307	6	99.2	0.840	0.350	1.112	1.008	0.392	
5600	120	802.11a	OFDM	20	17.0	16.54	0.15	Right	Tilt	2	00307	6	99.2	0.607	-	1.112	1.008	-	
5600	120	802.11a	OFDM	20	17.0	16.54	0.11	Left	Cheek	2	00307	6	99.2	0.304	-	1.112	1.008	-	
5600	120	802.11a	OFDM	20	17.0	16.54	0.20	Left	Tilt	2	00307	6	99.2	0.411	-	1.112	1.008	-	
5785	157	802.11a	OFDM	20	18.0	17.53	0.14	Right	Cheek	1	00307	6	99.1	1.256	0.501	1.114	1.009	0.563	
5785	157	802.11a	OFDM	20	18.0	17.53	0.13	Right	Tilt	1	00307	6	99.1	0.390	0.194	1.114	1.009	0.218	
5785	157	802.11a	OFDM	20	18.0	17.53	0.16	Left	Cheek	1	00307	6	99.1	0.246	-	1.114	1.009	-	
5785	157	802.11a	OFDM	20	18.0	17.53	0.15	Left	Tilt	1	00307	6	99.1	0.226	-	1.114	1.009	-	
5825	165	802.11a	OFDM	20	18.0	17.32	0.16	Right	Cheek	2	00307	6	99.2	0.287	0.105	1.169	1.008	0.124	
5825	165	802.11a	OFDM	20	18.0	17.32	0.17	Right	Tilt	2	00307	6	99.2	0.219	-	1.169	1.008	-	
5825	165	802.11a	OFDM	20	18.0	17.32	0.14	Left	Cheek	2	00307	6	99.2	0.106	-	1.169	1.008	-	
5825	165	802.11a	OFDM	20	18.0	17.32	0.18	Left	Tilt	2	00307	6	99.2	0.172	-	1.169	1.008	-	
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Table 11-19
NII Head MIMO SAR

MEASUREMENT RESULTS																							
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Dual Display Accessory Configuration	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.																W/kg	(W/kg)			(W/kg)	
5260	52	802.11n	OFDM	20	17.0	16.38	17.0	16.81	0.13	Right	Cheek	MIMO	-	00307	13	99.7	1.769	0.969	1.153	1.003	1.121	
5280	56	802.11n	OFDM	20	18.0	17.49	18.0	17.67	0.00	Right	Cheek	MIMO	-	00307	13	99.7	2.041	0.924	1.125	1.003	1.043	
5300	60	802.11n	OFDM	20	17.0	16.70	17.0	16.65	0.13	Right	Cheek	MIMO	-	00307	13	99.7	1.849	1.020	1.084	1.003	1.109	
5320	64	802.11n	OFDM	20	17.0	16.65	17.0	16.64	-0.14	Right	Cheek	MIMO	-	00307	13	99.7	1.939	1.020	1.086	1.003	1.111	A17
5260	52	802.11n	OFDM	20	17.0	16.38	17.0	16.81	0.12	Right	Cheek	MIMO	#1	00307	13	99.7	0.202	0.082	1.153	1.003	0.095	
5260	52	802.11n	OFDM	20	17.0	16.38	17.0	16.81	0.13	Right	Cheek	MIMO	#3	00307	13	99.7	1.643	0.738	1.153	1.003	0.853	
5280	56	802.11n	OFDM	20	18.0	17.49	18.0	17.67	0.12	Right	Tilt	MIMO	-	00307	13	99.7	1.710	0.694	1.125	1.003	0.783	
5280	56	802.11n	OFDM	20	18.0	17.49	18.0	17.67	0.12	Left	Cheek	MIMO	-	00307	13	99.7	0.965	-	1.125	1.003	-	
5280	56	802.11n	OFDM	20	18.0	17.49	18.0	17.67	0.12	Left	Tilt	MIMO	-	00307	13	99.7	0.678	-	1.125	1.003	-	
5320	64	802.11n	OFDM	20	17.0	16.65	17.0	16.64	0.17	Right	Cheek	MIMO	-	00307	13	99.7	2.122	0.956	1.086	1.003	1.041	
5600	120	802.11n	OFDM	20	17.0	16.91	17.0	16.80	0.14	Right	Cheek	MIMO	-	00307	13	99.7	1.364	0.558	1.047	1.003	0.586	
5600	120	802.11n	OFDM	20	17.0	16.91	17.0	16.80	0.19	Right	Tilt	MIMO	-	00307	13	99.7	1.111	0.480	1.047	1.003	0.504	
5600	120	802.11n	OFDM	20	17.0	16.91	17.0	16.80	0.12	Left	Cheek	MIMO	-	00307	13	99.7	0.693	-	1.047	1.003	-	
5600	120	802.11n	OFDM	20	17.0	16.91	17.0	16.80	0.06	Left	Tilt	MIMO	-	00307	13	99.7	0.691	-	1.047	1.003	-	
5825	165	802.11n	OFDM	20	18.0	17.70	18.0	17.58	0.16	Right	Cheek	MIMO	-	00307	13	99.7	1.422	0.591	1.102	1.003	0.653	
5825	165	802.11n	OFDM	20	18.0	17.70	18.0	17.58	0.14	Right	Tilt	MIMO	-	00307	13	99.7	0.613	0.237	1.102	1.003	0.262	
5825	165	802.11n	OFDM	20	18.0	17.70	18.0	17.58	0.17	Left	Cheek	MIMO	-	00307	13	99.7	0.362	-	1.102	1.003	-	
5825	165	802.11n	OFDM	20	18.0	17.70	18.0	17.58	0.18	Left	Tilt	MIMO	-	00307	13	99.7	0.301	-	1.102	1.003	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Head 1.6 W/kg (mW/g) averaged over 1 gram					

Notes:

1. To achieve the 20.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17.0 dBm (channel 52, 60, 64 and 120).
2. To achieve the 21.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.0 dBm (channel 56 and 165).
3. Green entries represent additional Head SAR Position (DD #1: 0 degrees).
4. Light orange entries represent additional Head SAR Position (DD #3: 360 degrees).
5. Blue entries represent variability measurements.

Table 11-20
NII Head MIMO SAR During Conditions with 2.4 GHz and 5 GHz WLAN

MEASUREMENT RESULTS																							
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
5270	54	802.11n	OFDM	40	15.0	14.77	15.0	14.25	0.16	Right	Cheek	MIMO	00307	27	99.7	1.077	0.462	1.189	1.003	0.551	
5270	54	802.11n	OFDM	40	15.0	14.77	15.0	14.25	0.17	Right	Tilt	MIMO	00307	27	99.7	0.816	0.330	1.189	1.003	0.394	
5270	54	802.11n	OFDM	40	15.0	14.77	15.0	14.25	0.07	Left	Cheek	MIMO	00307	27	99.7	0.391	-	1.189	1.003	-	
5270	54	802.11n	OFDM	40	15.0	14.77	15.0	14.25	0.16	Left	Tilt	MIMO	00307	27	99.7	0.264	-	1.189	1.003	-	
5630	126	802.11n	OFDM	40	15.0	14.32	15.0	14.95	0.14	Right	Cheek	MIMO	00307	27	99.7	0.854	0.388	1.169	1.003	0.455	
5630	126	802.11n	OFDM	40	15.0	14.32	15.0	14.95	0.18	Right	Tilt	MIMO	00307	27	99.7	0.468	0.314	1.169	1.003	0.368	
5630	126	802.11n	OFDM	40	15.0	14.32	15.0	14.95	0.20	Left	Cheek	MIMO	00307	27	99.7	0.382	-	1.169	1.003	-	
5630	126	802.11n	OFDM	40	15.0	14.32	15.0	14.95	0.12	Left	Tilt	MIMO	00307	27	99.7	0.349	-	1.169	1.003	-	
5795	159	802.11n	OFDM	40	15.0	14.46	15.0	14.76	0.19	Right	Cheek	MIMO	00307	27	99.7	0.491	0.227	1.132	1.003	0.258	
5795	159	802.11n	OFDM	40	15.0	14.46	15.0	14.76	0.20	Right	Tilt	MIMO	00307	27	99.7	0.263	-	1.132	1.003	-	
5795	159	802.11n	OFDM	40	15.0	14.46	15.0	14.76	0.12	Left	Cheek	MIMO	00307	27	99.7	0.134	-	1.132	1.003	-	
5795	159	802.11n	OFDM	40	15.0	14.46	15.0	14.76	0.18	Left	Tilt	MIMO	00307	27	99.7	0.123	-	1.132	1.003	-	
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: NII MIMO was additionally evaluated at the maximum allowed output power during operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 2.4 GHz WIFI was not transmitting during the above evaluations.

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Table 11-21
DSS Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441.00	39	Bluetooth	FHSS	12.5	11.93	0.12	Right	Cheek	00307	1	76.8	0.130	1.140	1.302	**0.193**	A18
2441.00	39	Bluetooth	FHSS	12.5	11.93	0.14	Right	Tilt	00307	1	76.8	0.061	1.140	1.302	0.091	
2441.00	39	Bluetooth	FHSS	12.5	11.93	0.14	Left	Cheek	00307	1	76.8	0.022	1.140	1.302	0.033	
2441.00	39	Bluetooth	FHSS	12.5	11.93	0.10	Left	Tilt	00307	1	76.8	0.021	1.140	1.302	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									

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11.2 Standalone Body-Worn SAR Data

Table 11-22
GSM/UMTS Body-Worn SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Dual Display Accessory Configuration	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.4	32.78	-0.04	10 mm	-	00224	1	1:8.3	back	0.324	1.153	0.374	
836.60	190	GSM 850	GPRS	31.2	30.78	0.12	10 mm	-	00224	2	1:4.15	back	0.356	1.102	0.392	A19
1880.00	661	GSM 1900	GSM	30.2	29.32	0.02	10 mm	-	00216	1	1:8.3	back	0.251	1.225	0.307	
1880.00	661	GSM 1900	GPRS	29.2	28.53	0.03	10 mm	-	00216	2	1:4.15	back	0.448	1.167	0.523	A20
826.40	4132	UMTS 850	RMC	25.5	25.15	0.00	10 mm	-	00224	N/A	1:1	back	0.514	1.084	0.557	
836.60	4183	UMTS 850	RMC	25.5	25.10	-0.05	10 mm	-	00224	N/A	1:1	back	0.583	1.096	0.639	
846.60	4233	UMTS 850	RMC	25.5	25.11	-0.04	10 mm	-	00224	N/A	1:1	back	0.645	1.094	0.706	A22
1712.40	1312	UMTS 1750	RMC	25.2	24.72	0.00	10 mm	-	00224	N/A	1:1	back	0.694	1.117	0.775	
1732.40	1412	UMTS 1750	RMC	25.2	24.94	0.00	10 mm	-	00224	N/A	1:1	back	0.757	1.062	0.804	
1752.60	1513	UMTS 1750	RMC	25.2	24.77	-0.03	10 mm	-	00224	N/A	1:1	back	0.795	1.104	**0.878**	A23
1752.60	1513	UMTS 1750	RMC	25.2	24.77	0.08	10 mm	#1	00224	N/A	1:1	back	0.522	1.104	0.576	
1752.60	1513	UMTS 1750	RMC	25.2	24.77	0.05	10 mm	#2	00224	N/A	1:1	back	0.540	1.104	0.596	
1752.60	1513	UMTS 1750	RMC	25.2	24.77	-0.14	10 mm	#3	00224	N/A	1:1	back	0.218	1.104	0.241	
1852.40	9262	UMTS 1900	RMC	25.2	24.75	-0.08	10 mm	-	00216	N/A	1:1	back	0.760	1.109	0.843	A25
1880.00	9400	UMTS 1900	RMC	25.2	24.82	-0.05	10 mm	-	00216	N/A	1:1	back	0.719	1.091	0.784	
1907.60	9538	UMTS 1900	RMC	25.2	24.72	-0.01	10 mm	-	00216	N/A	1:1	back	0.692	1.117	0.773	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram								

Notes:

1. Green entries represent additional Body Worn SAR Position (DD #1: 0 degrees).
2. Purple entries represent additional Body Worn SAR Position (DD #2: 180 degrees).
3. Light orange entries represent additional Body Worn SAR Position (DD #3: 360 degrees).

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Table 11-23
LTE Body-Worn SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.26	0.00	0	00240	QPSK	1	25	10 mm	back	1:1	0.317	1.057	0.335	A27
707.50	23095	Mid	LTE Band 12	10	24.5	23.96	0.01	1	00240	QPSK	25	25	10 mm	back	1:1	0.220	1.132	0.249	
793.00	23330	Mid	LTE Band 14	10	25.5	25.21	-0.01	0	00240	QPSK	1	0	10 mm	back	1:1	0.392	1.069	0.419	A29
793.00	23330	Mid	LTE Band 14	10	24.5	23.92	-0.03	1	00240	QPSK	25	0	10 mm	back	1:1	0.260	1.143	0.297	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.19	0.01	0	00232	QPSK	1	50	10 mm	back	1:1	0.720	1.002	0.721	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.19	-0.02	0	00232	QPSK	1	50	10 mm	back	1:1	0.801	1.002	0.803	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	0.01	0	00232	QPSK	1	0	10 mm	back	1:1	0.856	1.000	0.856	A31
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.19	0.02	1	00232	QPSK	50	50	10 mm	back	1:1	0.667	1.002	0.668	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.12	-0.02	1	00232	QPSK	100	0	10 mm	back	1:1	0.657	1.019	0.669	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	0.01	0	00232	QPSK	1	0	10 mm	back	1:1	0.853	1.000	0.853	
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.2	25.13	0.06	0	00257	QPSK	1	99	10 mm	back	1:1	0.781	1.016	0.793	A33
1880.00	18900	Mid	LTE Band 2 (PCS)	20	25.2	25.20	0.03	0	00257	QPSK	1	0	10 mm	back	1:1	0.753	1.000	0.753	
1900.00	19100	High	LTE Band 2 (PCS)	20	25.2	25.19	0.07	0	00257	QPSK	1	0	10 mm	back	1:1	0.756	1.002	0.758	
1900.00	19100	High	LTE Band 2 (PCS)	20	24.2	24.20	-0.09	1	00257	QPSK	50	25	10 mm	back	1:1	0.582	1.000	0.582	
2310.00	27710	Mid	LTE Band 30	10	22.7	22.68	0.00	0	00240	QPSK	1	0	10 mm	back	1:1	0.398	1.005	0.400	A35
2310.00	27710	Mid	LTE Band 30	10	21.7	21.62	-0.05	1	00240	QPSK	25	12	10 mm	back	1:1	0.303	1.019	0.309	
2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	-0.14	0	00240	QPSK	1	50	10 mm	back	1:1.58	0.561	1.000	0.561	A37
2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	-0.11	1	00240	QPSK	50	25	10 mm	back	1:1.58	0.425	1.000	0.425	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram											

Note: Blue entries represent variability measurements.

Table 11-24
LTE Band 5 (Cell) Body-Worn SAR

MEASUREMENT RESULTS																					
# CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.30	-0.08	0	00257	QPSK	1	0	10 mm	back	1:1	0.505	1.047	0.529	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.01	-0.02	1	00257	QPSK	25	12	10 mm	back	1:1	0.364	1.119	0.407	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.50	-0.11	0	00257	QPSK	1	0	10 mm	back	1:1	0.549	1.000	0.549	A30
	SCC	829.30	20453	Mid	LTE Band 5 (Cell)	5								24	10 mm						
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-25
NR Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.87	-0.04	0	00265	DFT-S-OFDM QPSK	1	53	10 mm	back	1:1	0.212	1.211	0.257	A39
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.91	0.00	0	00265	DFT-S-OFDM QPSK	50	28	10 mm	back	1:1	0.192	1.199	0.230	
836.50	167300	Mid	NR Band n5 (Cell)	20	23.7	22.12	-0.01	1	00265	CP-OFDM QPSK	1	1	10 mm	back	1:1	0.155	1.439	0.223	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	0.03	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	back	1:1	0.336	1.014	0.341	A40
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	-0.02	0	00265	DFT-S-OFDM QPSK	50	0	10 mm	back	1:1	0.319	1.026	0.327	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.40	-0.02	0	00265	CP-OFDM QPSK	1	1	10 mm	back	1:1	0.317	1.122	0.356	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.59	0.08	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	back	1:1	0.260	1.026	0.267	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.58	0.01	0	00265	DFT-S-OFDM QPSK	50	56	10 mm	back	1:1	0.275	1.028	0.283	A42
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.20	0.07	0	00265	CP-OFDM QPSK	1	1	10 mm	back	1:1	0.256	1.122	0.287	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										

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Table 11-26
DTS Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2462	11	802.11b	DSSS	22	20.5	20.45	0.19	10 mm	1	00307	1	back	99.4	0.293	0.211	1.012	1.006	**0.215**	A44
2437	6	802.11b	DSSS	22	20.5	20.28	0.18	10 mm	2	00307	1	back	99.4	0.214	0.145	1.052	1.006	0.153	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-27
NII SISO Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
5280	56	802.11a	OFDM	20	18.0	17.30	-0.02	10 mm	1	00307	6	back	99.1	0.661	0.346	1.175	1.009	**0.410**	
5280	56	802.11a	OFDM	20	18.0	17.43	0.16	10 mm	2	00307	6	back	99.2	0.353	0.160	1.140	1.008	0.184	
5600	120	802.11a	OFDM	20	17.0	16.66	0.16	10 mm	1	00307	6	back	99.1	0.329	0.146	1.081	1.009	0.159	
5600	120	802.11a	OFDM	20	17.0	16.54	0.10	10 mm	2	00307	6	back	99.2	0.628	0.271	1.112	1.008	0.304	
5785	157	802.11a	OFDM	20	18.0	17.53	-0.01	10 mm	1	00307	6	back	99.1	0.301	0.122	1.114	1.009	0.137	
5825	165	802.11a	OFDM	20	18.0	17.32	0.13	10 mm	2	00307	6	back	99.2	0.499	0.195	1.169	1.008	0.230	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-28
NII MIMO Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																			
5280	56	802.11n	OFDM	20	18.0	17.49	18.0	17.67	0.00	10 mm	MIMO	00307	13	back	99.7	0.967	0.487	1.125	1.003	0.550	A46
5600	120	802.11n	OFDM	20	17.0	16.91	17.0	16.80	0.19	10 mm	MIMO	00307	13	back	99.7	0.744	0.344	1.047	1.003	0.361	
5825	165	802.11n	OFDM	20	18.0	17.70	18.0	17.58	0.12	10 mm	MIMO	00307	13	back	99.7	0.549	0.212	1.102	1.003	0.234	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										

Note: To achieve the 21.0 dBm (20.0 dBm for ch. 120) maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.0 dBm (17.0 dBm for ch. 120).

Table 11-29
NII MIMO Body-Worn SAR During Conditions with 2.4 GHz and 5 GHz WLAN

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																			
5270	54	802.11n	OFDM	40	15.0	14.77	15.0	14.25	-0.03	10 mm	MIMO	00307	27	back	99.7	0.413	0.229	1.189	1.003	0.273	
5630	126	802.11n	OFDM	40	15.0	14.32	15.0	14.95	0.15	10 mm	MIMO	00307	27	back	99.7	0.461	0.211	1.169	1.003	0.247	
5795	159	802.11n	OFDM	40	15.0	14.46	15.0	14.76	-0.18	10 mm	MIMO	00307	27	back	99.7	0.254	0.109	1.132	1.003	0.124	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										

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Table 11-30
DSS Body-Worn SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	12.5	11.93	0.14	10 mm	00307	1	back	76.8	0.036	1.140	1.302	**0.053**	A48
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Body** **1.6 W/kg (mW/g)** averaged over 1 gram									

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11.3 Standalone Hotspot SAR Data

Table 11-31
GPRS/UMTS Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Dual Display Accessory Configuration	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GPRS	31.2	30.78	0.12	10 mm	-	00224	2	1:4.15	back	0.356	1.102	0.392	A19
836.60	190	GSM 850	GPRS	31.2	30.78	-0.01	10 mm	-	00224	2	1:4.15	front	0.351	1.102	0.387	
836.60	190	GSM 850	GPRS	31.2	30.78	0.12	10 mm	-	00224	2	1:4.15	bottom	0.167	1.102	0.184	
836.60	190	GSM 850	GPRS	31.2	30.78	0.05	10 mm	-	00224	2	1:4.15	right	0.123	1.102	0.136	
1880.00	661	GSM 1900	GPRS	29.2	28.53	0.03	10 mm	-	00216	2	1:4.15	back	0.448	1.167	0.523	
1880.00	661	GSM 1900	GPRS	29.2	28.53	-0.05	10 mm	-	00216	2	1:4.15	front	0.418	1.167	0.488	
1850.20	512	GSM 1900	GPRS	29.2	28.03	0.03	10 mm	-	00216	2	1:4.15	bottom	0.713	1.309	**0.933**	A21
1880.00	661	GSM 1900	GPRS	29.2	28.53	-0.08	10 mm	-	00216	2	1:4.15	bottom	0.650	1.167	0.759	
1909.80	810	GSM 1900	GPRS	29.2	28.49	-0.07	10 mm	-	00216	2	1:4.15	bottom	0.664	1.178	0.782	
1850.20	512	GSM 1900	GPRS	29.2	28.03	-0.03	10 mm	#1	00216	2	1:4.15	bottom	0.351	1.309	0.459	
1850.20	512	GSM 1900	GPRS	29.2	28.03	0.05	10 mm	#2	00216	2	1:4.15	bottom	0.337	1.309	0.441	
1850.20	512	GSM 1900	GPRS	29.2	28.03	-0.03	10 mm	#3	00216	2	1:4.15	bottom	0.257	1.309	0.336	
1880.00	661	GSM 1900	GPRS	29.2	28.53	0.18	10 mm	-	00216	2	1:4.15	left	0.103	1.167	0.120	
826.40	4132	UMTS 850	RMC	25.5	25.15	0.00	10 mm	-	00224	N/A	1:1	back	0.514	1.084	0.557	
836.60	4183	UMTS 850	RMC	25.5	25.10	-0.05	10 mm	-	00224	N/A	1:1	back	0.583	1.096	0.639	
846.60	4233	UMTS 850	RMC	25.5	25.11	-0.04	10 mm	-	00224	N/A	1:1	back	0.645	1.094	0.706	A22
836.60	4183	UMTS 850	RMC	25.5	25.10	-0.01	10 mm	-	00224	N/A	1:1	front	0.462	1.096	0.506	
836.60	4183	UMTS 850	RMC	25.5	25.10	0.00	10 mm	-	00224	N/A	1:1	bottom	0.230	1.096	0.252	
836.60	4183	UMTS 850	RMC	25.5	25.10	-0.01	10 mm	-	00224	N/A	1:1	right	0.221	1.096	0.242	
1732.40	1412	UMTS 1750	RMC	22.7	22.39	-0.01	10 mm	-	00232	N/A	1:1	back	0.429	1.074	0.461	
1732.40	1412	UMTS 1750	RMC	22.7	22.39	0.08	10 mm	-	00232	N/A	1:1	front	0.370	1.074	0.397	
1712.40	1312	UMTS 1750	RMC	22.7	22.38	0.02	10 mm	-	00232	N/A	1:1	bottom	0.575	1.076	0.619	
1732.40	1412	UMTS 1750	RMC	22.7	22.39	-0.01	10 mm	-	00232	N/A	1:1	bottom	0.656	1.074	0.705	
1752.60	1513	UMTS 1750	RMC	22.7	22.36	0.00	10 mm	-	00232	N/A	1:1	bottom	0.706	1.081	0.763	A24
1732.40	1412	UMTS 1750	RMC	22.7	22.39	0.07	10 mm	-	00232	N/A	1:1	left	0.125	1.074	0.134	
1880.00	9400	UMTS 1900	RMC	22.7	22.20	0.01	10 mm	-	00232	N/A	1:1	back	0.382	1.122	0.429	
1880.00	9400	UMTS 1900	RMC	22.7	22.20	0.00	10 mm	-	00232	N/A	1:1	front	0.348	1.122	0.390	
1852.40	9262	UMTS 1900	RMC	22.7	22.15	-0.02	10 mm	-	00232	N/A	1:1	bottom	0.685	1.135	0.777	A26
1880.00	9400	UMTS 1900	RMC	22.7	22.20	-0.05	10 mm	-	00232	N/A	1:1	bottom	0.665	1.122	0.746	
1907.60	9538	UMTS 1900	RMC	22.7	22.11	-0.02	10 mm	-	00232	N/A	1:1	bottom	0.676	1.146	0.775	
1880.00	9400	UMTS 1900	RMC	22.7	22.20	0.02	10 mm	-	00232	N/A	1:1	left	0.111	1.122	0.125	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram							

Notes:

1. Green entries represent additional Hotspot SAR Position (DD #1: 0 degrees).
2. Purple entries represent additional Hotspot SAR Position (DD #2: 180 degrees).
3. Light orange entries represent additional Hotspot SAR Position (DD #3: 360 degrees).

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Table 11-32
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.26	0.00	0	00240	QPSK	1	25	10 mm	back	1:1	0.317	1.057	0.335	
707.50	23095	Mid	LTE Band 12	10	24.5	23.96	0.01	1	00240	QPSK	25	25	10 mm	back	1:1	0.220	1.132	0.249	
707.50	23095	Mid	LTE Band 12	10	25.5	25.26	0.01	0	00240	QPSK	1	25	10 mm	front	1:1	0.294	1.057	0.311	
707.50	23095	Mid	LTE Band 12	10	24.5	23.96	0.01	1	00240	QPSK	25	25	10 mm	front	1:1	0.205	1.132	0.232	
707.50	23095	Mid	LTE Band 12	10	25.5	25.26	0.10	0	00240	QPSK	1	25	10 mm	bottom	1:1	0.115	1.057	0.122	
707.50	23095	Mid	LTE Band 12	10	24.5	23.96	-0.05	1	00240	QPSK	25	25	10 mm	bottom	1:1	0.074	1.132	0.084	
707.50	23095	Mid	LTE Band 12	10	25.5	25.26	-0.01	0	00240	QPSK	1	25	10 mm	right	1:1	0.332	1.057	0.351	A28
707.50	23095	Mid	LTE Band 12	10	24.5	23.96	0.06	1	00240	QPSK	25	25	10 mm	right	1:1	0.224	1.132	0.254	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-33
LTE Band 14 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
793.00	23330	Mid	LTE Band 14	10	25.5	25.21	-0.01	0	00240	QPSK	1	0	10 mm	back	1:1	0.392	1.069	0.419	A29
793.00	23330	Mid	LTE Band 14	10	24.5	23.92	-0.03	1	00240	QPSK	25	0	10 mm	back	1:1	0.260	1.143	0.297	
793.00	23330	Mid	LTE Band 14	10	25.5	25.21	0.01	0	00240	QPSK	1	0	10 mm	front	1:1	0.381	1.069	0.407	
793.00	23330	Mid	LTE Band 14	10	24.5	23.92	0.01	1	00240	QPSK	25	0	10 mm	front	1:1	0.254	1.143	0.290	
793.00	23330	Mid	LTE Band 14	10	25.5	25.21	0.00	0	00240	QPSK	1	0	10 mm	bottom	1:1	0.166	1.069	0.177	
793.00	23330	Mid	LTE Band 14	10	24.5	23.92	0.01	1	00240	QPSK	25	0	10 mm	bottom	1:1	0.102	1.143	0.117	
793.00	23330	Mid	LTE Band 14	10	25.5	25.21	0.00	0	00240	QPSK	1	0	10 mm	right	1:1	0.291	1.069	0.311	
793.00	23330	Mid	LTE Band 14	10	24.5	23.92	-0.02	1	00240	QPSK	25	0	10 mm	right	1:1	0.183	1.143	0.209	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 11-34
LTE Band 5 (Cell) Hotspot SAR

MEASUREMENT RESULTS																					
# CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.30	-0.08	0	00257	QPSK	1	0	10 mm	back	1:1	0.505	1.047	0.529	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.01	-0.02	1	00257	QPSK	25	12	10 mm	back	1:1	0.364	1.119	0.407	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.50	-0.11	0	00257	QPSK	1	0	10 mm	back	1:1	0.549	1.000	0.549	A30
	SCC	829.30	20453	Mid	LTE Band 5 (Cell)	5							1	24							
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.30	0.00	0	00257	QPSK	1	0	10 mm	front	1:1	0.465	1.047	0.487	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.01	0.01	1	00257	QPSK	25	12	10 mm	front	1:1	0.332	1.119	0.372	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.30	0.02	0	00257	QPSK	1	0	10 mm	bottom	1:1	0.187	1.047	0.196	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.01	-0.01	1	00257	QPSK	25	12	10 mm	bottom	1:1	0.140	1.119	0.157	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.5	25.30	0.04	0	00257	QPSK	1	0	10 mm	right	1:1	0.187	1.047	0.196	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.5	24.01	-0.03	1	00257	QPSK	25	12	10 mm	right	1:1	0.129	1.119	0.144	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						

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Table 11-35
LTE Band 66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.48	-0.03	0	00224	QPSK	1	50	10 mm	back	1:1	0.397	1.052	0.418	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.65	-0.05	0	00224	QPSK	50	25	10 mm	back	1:1	0.414	1.012	0.419	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.48	0.06	0	00224	QPSK	1	50	10 mm	front	1:1	0.370	1.052	0.389	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.65	0.01	0	00224	QPSK	50	25	10 mm	front	1:1	0.386	1.012	0.391	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.48	0.02	0	00224	QPSK	1	50	10 mm	bottom	1:1	0.633	1.052	0.666	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.65	-0.01	0	00224	QPSK	50	25	10 mm	bottom	1:1	0.671	1.012	0.679	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	22.7	22.33	0.01	0	00224	QPSK	50	25	10 mm	bottom	1:1	0.740	1.089	0.806	
1770.00	132572	High	LTE Band 66 (AWS)	20	22.7	22.42	0.00	0	00224	QPSK	50	25	10 mm	bottom	1:1	0.816	1.067	0.871	A32
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.46	0.03	0	00224	QPSK	100	0	10 mm	bottom	1:1	0.658	1.057	0.696	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.48	0.05	0	00224	QPSK	1	50	10 mm	left	1:1	0.139	1.052	0.146	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.65	0.01	0	00224	QPSK	50	25	10 mm	left	1:1	0.147	1.012	0.149	
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 11-36
LTE Band 2 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.7	22.69	-0.13	0	00224	QPSK	1	0	10 mm	back	1:1	0.386	1.002	0.387	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.7	22.70	-0.06	0	00224	QPSK	50	25	10 mm	back	1:1	0.383	1.000	0.383	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.7	22.69	-0.03	0	00224	QPSK	1	0	10 mm	front	1:1	0.372	1.002	0.373	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.7	22.70	0.13	0	00224	QPSK	50	25	10 mm	front	1:1	0.381	1.000	0.381	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.7	22.69	0.16	0	00224	QPSK	1	0	10 mm	bottom	1:1	0.751	1.002	0.753	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	22.7	22.65	-0.01	0	00224	QPSK	1	0	10 mm	bottom	1:1	0.762	1.012	0.771	
1900.00	19100	High	LTE Band 2 (PCS)	20	22.7	22.53	0.03	0	00224	QPSK	1	50	10 mm	bottom	1:1	0.808	1.040	0.840	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.7	22.70	-0.06	0	00224	QPSK	50	25	10 mm	bottom	1:1	0.749	1.000	0.749	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	22.7	22.68	-0.04	0	00224	QPSK	50	50	10 mm	bottom	1:1	0.813	1.005	0.817	
1900.00	19100	High	LTE Band 2 (PCS)	20	22.7	22.61	-0.05	0	00224	QPSK	50	50	10 mm	bottom	1:1	0.864	1.021	0.882	A34
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.7	22.65	0.04	0	00224	QPSK	100	0	10 mm	bottom	1:1	0.744	1.012	0.753	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.7	22.69	0.00	0	00224	QPSK	1	0	10 mm	left	1:1	0.129	1.002	0.129	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.7	22.70	-0.02	0	00224	QPSK	50	25	10 mm	left	1:1	0.128	1.000	0.128	
1900.00	19100	High	LTE Band 2 (PCS)	20	22.7	22.61	0.06	0	00224	QPSK	50	50	10 mm	bottom	1:1	0.855	1.021	0.873	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram												

Note: Blue entries represent variability measurements.

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Table 11-37
LTE Band 30 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2310.00	27710	Mid	LTE Band 30	10	22.7	22.68	0.00	0	00240	QPSK	1	0	10 mm	back	1:1	0.398	1.005	0.400	
2310.00	27710	Mid	LTE Band 30	10	21.7	21.62	-0.05	1	00240	QPSK	25	12	10 mm	back	1:1	0.303	1.019	0.309	
2310.00	27710	Mid	LTE Band 30	10	22.7	22.68	0.04	0	00240	QPSK	1	0	10 mm	front	1:1	0.333	1.005	0.335	
2310.00	27710	Mid	LTE Band 30	10	21.7	21.62	-0.01	1	00240	QPSK	25	12	10 mm	front	1:1	0.255	1.019	0.260	
2310.00	27710	Mid	LTE Band 30	10	22.7	22.68	-0.06	0	00240	QPSK	1	0	10 mm	bottom	1:1	0.637	1.005	0.640	A36
2310.00	27710	Mid	LTE Band 30	10	21.7	21.62	-0.04	1	00240	QPSK	25	12	10 mm	bottom	1:1	0.506	1.019	0.516	
2310.00	27710	Mid	LTE Band 30	10	22.7	22.68	0.20	0	00240	QPSK	1	0	10 mm	left	1:1	0.072	1.005	0.072	
2310.00	27710	Mid	LTE Band 30	10	21.7	21.62	-0.05	1	00240	QPSK	25	12	10 mm	left	1:1	0.054	1.019	0.055	
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 41 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	-0.14	0	00240	QPSK	1	50	10 mm	back	1:1.58	0.561	1.000	0.561	
2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	-0.11	1	00240	QPSK	50	25	10 mm	back	1:1.58	0.425	1.000	0.425	
2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	0.00	0	00240	QPSK	1	50	10 mm	front	1:1.58	0.315	1.000	0.315	
2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	-0.01	1	00240	QPSK	50	25	10 mm	front	1:1.58	0.243	1.000	0.243	
2506.00	39750	Low	LTE Band 41	20	25.2	25.15	-0.04	0	00240	QPSK	1	0	10 mm	bottom	1:1.58	0.764	1.012	0.773	
2549.50	40185	Low-Mid	LTE Band 41	20	25.2	25.19	-0.06	0	00240	QPSK	1	50	10 mm	bottom	1:1.58	0.747	1.002	0.748	
2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	-0.18	0	00240	QPSK	1	50	10 mm	bottom	1:1.58	0.766	1.000	0.766	
2636.50	41055	Mid-High	LTE Band 41	20	25.2	25.19	-0.04	0	00240	QPSK	1	50	10 mm	bottom	1:1.58	0.787	1.002	0.789	
2680.00	41490	High	LTE Band 41	20	25.2	25.03	-0.02	0	00240	QPSK	1	50	10 mm	bottom	1:1.58	0.846	1.040	0.880	A38
2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	-0.09	1	00240	QPSK	50	25	10 mm	bottom	1:1.58	0.599	1.000	0.599	
2593.00	40620	Mid	LTE Band 41	20	24.2	24.16	-0.05	1	00240	QPSK	100	0	10 mm	bottom	1:1.58	0.583	1.009	0.588	
2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	0.10	0	00240	QPSK	1	50	10 mm	left	1:1.58	0.087	1.000	0.087	
2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	-0.01	1	00240	QPSK	50	25	10 mm	left	1:1.58	0.066	1.000	0.066	
2680.00	41490	High	LTE Band 41	20	25.2	25.03	-0.10	0	00240	QPSK	1	50	10 mm	bottom	1:1.58	0.806	1.040	0.838	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram						

Note: Blue entries represent variability measurements.

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Table 11-39
NR Band n5 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.87	-0.04	0	00265	DFT-S-OFDM QPSK	1	53	10 mm	back	1:1	0.212	1.211	0.257	A39
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.91	0.00	0	00265	DFT-S-OFDM QPSK	50	28	10 mm	back	1:1	0.192	1.199	0.230	
836.50	167300	Mid	NR Band n5 (Cell)	20	23.7	22.12	-0.01	1	00265	CP-OFDM QPSK	1	1	10 mm	back	1:1	0.155	1.439	0.223	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.87	-0.01	0	00265	DFT-S-OFDM QPSK	1	53	10 mm	front	1:1	0.154	1.211	0.186	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.91	-0.05	0	00265	DFT-S-OFDM QPSK	50	28	10 mm	front	1:1	0.170	1.199	0.204	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.87	-0.03	0	00265	DFT-S-OFDM QPSK	1	53	10 mm	bottom	1:1	0.065	1.211	0.079	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.91	-0.04	0	00265	DFT-S-OFDM QPSK	50	28	10 mm	bottom	1:1	0.071	1.199	0.085	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.87	0.06	0	00265	DFT-S-OFDM QPSK	1	53	10 mm	right	1:1	0.061	1.211	0.074	
836.50	167300	Mid	NR Band n5 (Cell)	20	24.7	23.91	0.01	0	00265	DFT-S-OFDM QPSK	50	28	10 mm	right	1:1	0.067	1.199	0.080	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-40
NR Band n66 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	0.03	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	back	1:1	0.336	1.014	0.341	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	-0.02	0	00265	DFT-S-OFDM QPSK	50	0	10 mm	back	1:1	0.319	1.026	0.327	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	0.10	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	front	1:1	0.385	1.014	0.390	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	0.09	0	00265	DFT-S-OFDM QPSK	50	0	10 mm	front	1:1	0.365	1.026	0.374	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	0.09	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	bottom	1:1	0.059	1.014	0.060	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	0.15	0	00265	DFT-S-OFDM QPSK	50	0	10 mm	bottom	1:1	0.060	1.026	0.062	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	-0.03	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	right	1:1	0.696	1.014	0.706	
1745.00	349000	Mid	NR Band n66 (AWS)	20	23.9	23.47	-0.03	0	00265	DFT-S-OFDM QPSK	1	1	10 mm	right	1:1	0.753	1.104	0.831	
1770.00	354000	High	NR Band n66 (AWS)	20	23.9	23.48	0.07	0	00265	DFT-S-OFDM QPSK	1	1	10 mm	right	1:1	0.778	1.102	**0.857**	A41
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	-0.01	0	00265	DFT-S-OFDM QPSK	50	0	10 mm	right	1:1	0.664	1.026	0.681	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.40	0.08	0	00265	CP-OFDM QPSK	1	1	10 mm	right	1:1	0.680	1.122	0.763	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.78	0.02	0	00265	DFT-S-OFDM QPSK	100	0	10 mm	right	1:1	0.691	1.028	0.710	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-41
NR Band n2 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.59	0.08	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	back	1:1	0.260	1.026	0.267	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.58	0.01	0	00265	DFT-S-OFDM QPSK	50	56	10 mm	back	1:1	0.275	1.028	0.283	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.59	-0.02	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	front	1:1	0.353	1.026	0.362	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.58	0.16	0	00265	DFT-S-OFDM QPSK	50	56	10 mm	front	1:1	0.341	1.028	0.351	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.59	-0.04	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	bottom	1:1	0.100	1.026	0.103	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.58	0.11	0	00265	DFT-S-OFDM QPSK	50	56	10 mm	bottom	1:1	0.105	1.028	0.108	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.59	0.21	0	00265	DFT-S-OFDM QPSK	1	104	10 mm	right	1:1	0.561	1.026	0.576	A43
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.58	0.06	0	00265	DFT-S-OFDM QPSK	50	56	10 mm	right	1:1	0.538	1.028	0.553	
1880.00	376000	Mid	NR Band n2 (PCS)	20	23.7	23.20	0.02	0	00265	CP-OFDM QPSK	1	1	10 mm	right	1:1	0.509	1.122	0.571	
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
WLAN SISO Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	20.5	20.45	0.19	10 mm	1	00307	1	back	99.4	0.293	0.211	1.012	1.006	0.215	
2462	11	802.11b	DSSS	22	20.5	20.45	0.17	10 mm	1	00307	1	front	99.4	0.432	0.276	1.012	1.006	0.281	
2462	11	802.11b	DSSS	22	20.5	20.45	0.16	10 mm	1	00307	1	top	99.4	0.389	-	1.012	1.006	-	
2462	11	802.11b	DSSS	22	20.5	20.45	0.05	10 mm	1	00307	1	left	99.4	0.813	0.518	1.012	1.006	**0.527**	A45
2437	6	802.11b	DSSS	22	20.5	20.28	0.18	10 mm	2	00307	1	back	99.4	0.214	0.145	1.052	1.006	0.153	
2437	6	802.11b	DSSS	22	20.5	20.28	0.15	10 mm	2	00307	1	front	99.4	0.208	-	1.052	1.006	-	
2437	6	802.11b	DSSS	22	20.5	20.28	0.18	10 mm	2	00307	1	top	99.4	0.540	0.340	1.052	1.006	0.360	
2437	6	802.11b	DSSS	22	20.5	20.28	0.15	10 mm	2	00307	1	left	99.4	0.032	-	1.052	1.006	-	
5200	40	802.11a	OFDM	20	18.0	17.53	0.20	10 mm	1	00307	6	back	99.1	0.524	0.281	1.114	1.009	**0.316**	A47
5200	40	802.11a	OFDM	20	18.0	17.53	0.14	10 mm	1	00307	6	front	99.1	0.101	0.039	1.114	1.009	0.044	
5200	40	802.11a	OFDM	20	18.0	17.53	-0.15	10 mm	1	00307	6	top	99.1	0.087	-	1.114	1.009	-	
5200	40	802.11a	OFDM	20	18.0	17.53	-0.21	10 mm	1	00307	6	left	99.1	0.124	0.054	1.114	1.009	0.061	
5200	40	802.11a	OFDM	20	18.0	17.37	0.13	10 mm	2	00307	6	back	99.2	0.264	0.120	1.156	1.008	0.140	
5200	40	802.11a	OFDM	20	18.0	17.37	0.19	10 mm	2	00307	6	front	99.2	0.094	0.047	1.156	1.008	0.055	
5200	40	802.11a	OFDM	20	18.0	17.37	0.17	10 mm	2	00307	6	top	99.2	0.250	-	1.156	1.008	-	
5200	40	802.11a	OFDM	20	18.0	17.37	0.19	10 mm	2	00307	6	left	99.2	0.083	0.032	1.156	1.008	0.037	
5785	157	802.11a	OFDM	20	18.0	17.53	-0.01	10 mm	1	00307	6	back	99.1	0.301	0.122	1.114	1.009	0.137	
5785	157	802.11a	OFDM	20	18.0	17.53	0.21	10 mm	1	00307	6	front	99.1	0.139	0.053	1.114	1.009	0.060	
5785	157	802.11a	OFDM	20	18.0	17.53	0.20	10 mm	1	00307	6	top	99.1	0.055	-	1.114	1.009	-	
5785	157	802.11a	OFDM	20	18.0	17.53	0.12	10 mm	1	00307	6	left	99.1	0.085	0.024	1.114	1.009	0.027	
5825	165	802.11a	OFDM	20	18.0	17.32	0.13	10 mm	2	00307	6	back	99.2	0.499	0.195	1.169	1.008	0.230	
5825	165	802.11a	OFDM	20	18.0	17.32	0.19	10 mm	2	00307	6	front	99.2	0.021	0.011	1.169	1.008	0.013	
5825	165	802.11a	OFDM	20	18.0	17.32	0.15	10 mm	2	00307	6	top	99.2	0.240	-	1.169	1.008	-	
5825	165	802.11a	OFDM	20	18.0	17.32	0.14	10 mm	2	00307	6	left	99.2	0.061	0.024	1.169	1.008	0.028	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram									

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Table 11-43
NII MIMO Hotspot SAR During Conditions with 2.4 GHz and 5 GHz WLAN

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																				
5230	46	802.11n	OFDM	40	15.0	14.95	15.0	14.58	-0.13	10 mm	MIMO	00307	27	back	99.7	0.388	0.197	1.102	1.003	0.218	
5230	46	802.11n	OFDM	40	15.0	14.95	15.0	14.58	0.14	10 mm	MIMO	00307	27	front	99.7	0.080	0.033	1.102	1.003	0.036	
5230	46	802.11n	OFDM	40	15.0	14.95	15.0	14.58	0.18	10 mm	MIMO	00307	27	top	99.7	0.156	-	1.102	1.003	-	
5230	46	802.11n	OFDM	40	15.0	14.95	15.0	14.58	-0.20	10 mm	MIMO	00307	27	left	99.7	0.082	0.033	1.102	1.003	0.036	
5795	159	802.11n	OFDM	40	15.0	14.46	15.0	14.76	-0.18	10 mm	MIMO	00307	27	back	99.7	0.254	0.109	1.132	1.003	0.124	
5795	159	802.11n	OFDM	40	15.0	14.46	15.0	14.76	0.12	10 mm	MIMO	00307	27	front	99.7	0.074	0.023	1.132	1.003	0.026	
5795	159	802.11n	OFDM	40	15.0	14.46	15.0	14.76	0.19	10 mm	MIMO	00307	27	top	99.7	0.138	-	1.132	1.003	-	
5795	159	802.11n	OFDM	40	15.0	14.46	15.0	14.76	0.21	10 mm	MIMO	00307	27	left	99.7	0.067	0.021	1.132	1.003	0.024	
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: NII MIMO was additionally evaluated at the maximum allowed output power during operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 2.4 GHz WIFI was not transmitting during the above evaluations.

Table 11-44
DSS Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g) (W/kg)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.															
2441	39	Bluetooth	FHSS	12.5	11.93	0.14	10 mm	00307	1	back	76.8	0.036	1.140	1.302	0.053	
2441	39	Bluetooth	FHSS	12.5	11.93	0.10	10 mm	00307	1	front	76.8	0.046	1.140	1.302	0.068	
2441	39	Bluetooth	FHSS	12.5	11.93	0.21	10 mm	00307	1	top	76.8	0.035	1.140	1.302	0.052	
2441	39	Bluetooth	FHSS	12.5	11.93	0.03	10 mm	00307	1	left	76.8	0.085	1.140	1.302	**0.126**	A49
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram				

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11.4 Standalone Phablet SAR Data

Table 11-45
UMTS Phablet SAR Data

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	25.2	24.94	-0.03	2 mm	00224	1:1	back	1.530	1.062	1.625	
1712.40	1312	UMTS 1750	RMC	25.2	24.72	0.00	1 mm	00224	1:1	front	1.870	1.117	2.089	
1732.40	1412	UMTS 1750	RMC	25.2	24.94	0.02	1 mm	00224	1:1	front	1.950	1.062	2.071	
1752.60	1513	UMTS 1750	RMC	25.2	24.77	0.00	1 mm	00224	1:1	front	2.010	1.104	2.219	
1712.40	1312	UMTS 1750	RMC	25.2	24.72	0.01	3 mm	00224	1:1	bottom	1.790	1.117	1.999	
1732.40	1412	UMTS 1750	RMC	25.2	24.94	-0.01	3 mm	00224	1:1	bottom	1.960	1.062	2.082	
1752.60	1513	UMTS 1750	RMC	25.2	24.77	0.00	3 mm	00224	1:1	bottom	2.070	1.104	2.285	A50
1732.40	1412	UMTS 1750	RMC	25.2	24.94	-0.05	0 mm	00224	1:1	left	0.666	1.062	0.707	
1732.40	1412	UMTS 1750	RMC	22.7	22.39	0.02	0 mm	00232	1:1	back	1.450	1.074	1.557	
1732.40	1412	UMTS 1750	RMC	22.7	22.39	-0.01	0 mm	00232	1:1	front	1.620	1.074	1.740	
1732.40	1412	UMTS 1750	RMC	22.7	22.39	0.05	0 mm	00232	1:1	bottom	1.840	1.074	1.976	
1880.00	9400	UMTS 1900	RMC	25.2	24.82	0.00	2 mm	00216	1:1	back	1.640	1.091	1.789	
1852.40	9262	UMTS 1900	RMC	25.2	24.75	0.09	1 mm	00216	1:1	front	1.940	1.109	2.151	
1880.00	9400	UMTS 1900	RMC	25.2	24.82	0.02	1 mm	00216	1:1	front	1.880	1.091	2.051	
1907.60	9538	UMTS 1900	RMC	25.2	24.72	0.05	1 mm	00216	1:1	front	1.810	1.117	2.022	
1852.40	9262	UMTS 1900	RMC	25.2	24.75	-0.03	3 mm	00216	1:1	bottom	2.130	1.109	2.362	
1880.00	9400	UMTS 1900	RMC	25.2	24.82	-0.04	3 mm	00216	1:1	bottom	2.210	1.091	2.411	
1907.60	9538	UMTS 1900	RMC	25.2	24.72	-0.02	3 mm	00216	1:1	bottom	2.280	1.117	2.547	
1880.00	9400	UMTS 1900	RMC	25.2	24.82	-0.16	0 mm	00216	1:1	left	0.453	1.091	0.494	
1880.00	9400	UMTS 1900	RMC	22.7	22.20	0.06	0 mm	00232	1:1	back	1.660	1.122	1.863	
1880.00	9400	UMTS 1900	RMC	22.7	22.20	0.02	0 mm	00232	1:1	front	1.770	1.122	1.986	
1852.40	9262	UMTS 1900	RMC	22.7	22.15	0.02	0 mm	00232	1:1	bottom	2.320	1.135	2.633	
1880.00	9400	UMTS 1900	RMC	22.7	22.20	-0.05	0 mm	00232	1:1	bottom	2.470	1.122	2.771	
1907.60	9538	UMTS 1900	RMC	22.7	22.11	-0.02	0 mm	00232	1:1	bottom	2.580	1.146	2.957	A51
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams						

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Table 11-46
LTE Band 66 (AWS) Phablet SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g) (W/kg)	Scaling Factor	Reported SAR (10g) (W/kg)	Plot #
MHz	Ch.																			
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	-0.07	0	00232	QPSK	1	0	2 mm	back	1:1	1.690	1.000	1.690	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.19	-0.04	1	00232	QPSK	50	50	2 mm	back	1:1	1.350	1.002	1.353	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.19	0.01	0	00232	QPSK	1	50	1 mm	front	1:1	2.030	1.002	2.034	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.19	0.05	0	00232	QPSK	1	50	1 mm	front	1:1	2.200	1.002	2.204	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	-0.05	0	00232	QPSK	1	0	1 mm	front	1:1	2.590	1.000	2.590	A52
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.19	0.04	1	00232	QPSK	50	50	1 mm	front	1:1	1.920	1.002	1.924	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.12	-0.03	1	00232	QPSK	100	0	1 mm	front	1:1	1.890	1.019	1.926	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	0.02	0	00232	QPSK	1	0	3 mm	bottom	1:1	1.950	1.000	1.950	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.19	0.00	1	00232	QPSK	50	50	3 mm	bottom	1:1	1.590	1.002	1.593	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	0.07	0	00232	QPSK	1	0	0 mm	left	1:1	0.797	1.000	0.797	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.19	0.07	1	00232	QPSK	50	50	0 mm	left	1:1	0.627	1.002	0.628	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.48	0.07	0	00224	QPSK	1	50	0 mm	back	1:1	1.550	1.052	1.631	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.65	0.06	0	00224	QPSK	50	25	0 mm	back	1:1	1.650	1.012	1.670	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.48	0.04	0	00224	QPSK	1	50	0 mm	front	1:1	1.740	1.052	1.830	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.65	0.04	0	00224	QPSK	50	25	0 mm	front	1:1	1.870	1.012	1.892	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.48	-0.03	0	00224	QPSK	1	50	0 mm	bottom	1:1	1.850	1.052	1.946	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.65	-0.04	0	00224	QPSK	50	25	0 mm	bottom	1:1	2.000	1.012	2.024	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	22.7	22.33	-0.01	0	00224	QPSK	50	25	0 mm	bottom	1:1	2.150	1.089	2.341	
1770.00	132572	High	LTE Band 66 (AWS)	20	22.7	22.42	-0.09	0	00224	QPSK	50	25	0 mm	bottom	1:1	2.310	1.067	2.465	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.7	22.46	-0.12	0	00224	QPSK	100	0	0 mm	bottom	1:1	1.910	1.057	2.019	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.20	0.12	0	00232	QPSK	1	0	1 mm	front	1:1	2.560	1.000	2.560	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																				
Phablet 4.0 W/kg (mW/g) averaged over 10 grams																				

Note: Blue entries represent variability measurements.

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Table 11-47
LTE Band 2 (PCS) Phablet SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Dual Display Accessory Configuration	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	-	25.2	25.20	0.15	0	00257	QPSK	1	0	2 mm	back	1:1	1.850	1.000	1.850	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	24.2	24.20	0.06	1	00257	QPSK	50	25	2 mm	back	1:1	1.430	1.000	1.430	
1860.00	18700	Low	LTE Band 2 (PCS)	20	-	25.2	25.13	0.07	0	00257	QPSK	1	99	1 mm	front	1:1	2.420	1.016	2.459	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	-	25.2	25.20	-0.02	0	00257	QPSK	1	0	1 mm	front	1:1	2.410	1.000	2.410	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	25.2	25.19	-0.09	0	00257	QPSK	1	0	1 mm	front	1:1	2.380	1.002	2.385	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	24.2	24.20	0.08	1	00257	QPSK	50	25	1 mm	front	1:1	1.940	1.000	1.940	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	24.2	24.17	-0.01	1	00257	QPSK	100	0	1 mm	front	1:1	1.850	1.007	1.863	
1860.00	18700	Low	LTE Band 2 (PCS)	20	-	25.2	25.13	-0.10	0	00257	QPSK	1	99	3 mm	bottom	1:1	2.180	1.016	2.215	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	-	25.2	25.20	-0.14	0	00257	QPSK	1	0	3 mm	bottom	1:1	2.250	1.000	2.250	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	25.2	25.19	-0.02	0	00257	QPSK	1	0	3 mm	bottom	1:1	2.340	1.002	2.345	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	24.2	24.20	-0.10	1	00257	QPSK	50	25	3 mm	bottom	1:1	1.950	1.000	1.950	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	24.2	24.17	-0.13	1	00257	QPSK	100	0	3 mm	bottom	1:1	1.910	1.007	1.923	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	-	25.2	25.20	-0.15	0	00257	QPSK	1	0	0 mm	left	1:1	0.623	1.000	0.623	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	24.2	24.20	-0.08	1	00257	QPSK	50	25	0 mm	left	1:1	0.487	1.000	0.487	
1860.00	18700	Low	LTE Band 2 (PCS)	20	-	22.7	22.69	0.21	0	00224	QPSK	1	0	0 mm	back	1:1	1.690	1.002	1.693	
1860.00	18700	Low	LTE Band 2 (PCS)	20	-	22.7	22.70	0.19	0	00224	QPSK	50	25	0 mm	back	1:1	1.760	1.000	1.760	
1860.00	18700	Low	LTE Band 2 (PCS)	20	-	22.7	22.69	-0.01	0	00224	QPSK	1	0	0 mm	front	1:1	1.930	1.002	1.934	
1860.00	18700	Low	LTE Band 2 (PCS)	20	-	22.7	22.70	-0.05	0	00224	QPSK	50	25	0 mm	front	1:1	2.000	1.000	2.000	
1860.00	18700	Low	LTE Band 2 (PCS)	20	-	22.7	22.69	0.12	0	00224	QPSK	1	0	0 mm	bottom	1:1	2.620	1.002	2.625	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	-	22.7	22.65	0.06	0	00224	QPSK	1	0	0 mm	bottom	1:1	2.720	1.012	2.753	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	22.7	22.53	0.13	0	00224	QPSK	1	50	0 mm	bottom	1:1	2.800	1.040	2.912	
1860.00	18700	Low	LTE Band 2 (PCS)	20	-	22.7	22.70	0.08	0	00224	QPSK	50	25	0 mm	bottom	1:1	2.770	1.000	2.770	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	-	22.7	22.68	0.08	0	00224	QPSK	50	50	0 mm	bottom	1:1	2.780	1.005	2.794	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	22.7	22.61	0.11	0	00224	QPSK	50	50	0 mm	bottom	1:1	2.990	1.021	**3.053**	A53
1860.00	18700	Low	LTE Band 2 (PCS)	20	-	22.7	22.65	0.08	0	00224	QPSK	100	0	0 mm	bottom	1:1	2.720	1.012	2.753	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	#1	25.2	25.20	-0.15	0	00224	QPSK	1	0	0 mm	bottom	1:1	2.230	1.000	2.230	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	#2	25.2	25.20	-0.07	0	00224	QPSK	1	0	0 mm	bottom	1:1	1.760	1.000	1.760	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	#3	25.2	25.20	-0.04	0	00224	QPSK	1	0	0 mm	bottom	1:1	1.830	1.000	1.830	
1900.00	19100	High	LTE Band 2 (PCS)	20	-	22.7	22.61	-0.15	0	00224	QPSK	50	50	0 mm	bottom	1:1	2.940	1.021	3.002	
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Notes:

1. Green entries represent additional Phablet SAR Position (DD #1: 0 degrees).
2. Purple entries represent additional Phablet SAR Position (DD #2: 180 degrees).
3. Light orange entries represent additional Phablet SAR Position (DD #3: 360 degrees).
4. Blue entries represent variability measurements.

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Table 11-48
NR Band n66 Phablet SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.84	0.01	0	00265	DFT-S-OFDM QPSK	1	104	0 mm	right	1:1	2.400	1.014	2.434	
1745.00	349000	Mid	NR Band n66 (AWS)	20	23.9	23.47	0.08	0	00265	DFT-S-OFDM QPSK	1	1	0 mm	right	1:1	2.370	1.104	2.616	
1770.00	354000	High	NR Band n66 (AWS)	20	23.9	23.48	0.07	0	00265	DFT-S-OFDM QPSK	1	1	0 mm	right	1:1	2.420	1.102	2.667	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.79	0.12	0	00265	DFT-S-OFDM QPSK	50	0	0 mm	right	1:1	2.410	1.026	2.473	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.40	0.10	0	00265	CP-OFDM QPSK	1	1	0 mm	right	1:1	2.240	1.122	2.513	
1745.00	349000	Mid	NR Band n66 (AWS)	20	23.9	23.42	0.11	0	00265	DFT-S-OFDM QPSK	50	0	0 mm	right	1:1	2.370	1.117	2.647	
1770.00	354000	High	NR Band n66 (AWS)	20	23.9	23.48	0.07	0	00265	DFT-S-OFDM QPSK	50	56	0 mm	right	1:1	2.400	1.102	2.645	
1720.00	344000	Low	NR Band n66 (AWS)	20	23.9	23.78	0.11	0	00265	DFT-S-OFDM QPSK	100	0	0 mm	right	1:1	2.470	1.028	2.539	A54
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 11-49
WLAN SISO Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5280	56	802.11a	OFDM	20	18.0	17.30	0.13	0 mm	1	00307	6	back	99.1	7.475	1.050	1.175	1.009	1.245	
5280	56	802.11a	OFDM	20	18.0	17.30	0.18	0 mm	1	00307	6	front	99.1	5.359	0.469	1.175	1.009	0.556	
5280	56	802.11a	OFDM	20	18.0	17.30	0.17	0 mm	1	00307	6	top	99.1	0.422	-	1.175	1.009	-	
5280	56	802.11a	OFDM	20	18.0	17.30	-0.18	0 mm	1	00307	6	left	99.1	1.707	-	1.175	1.009	-	
5280	56	802.11a	OFDM	20	18.0	17.43	-0.15	0 mm	2	00307	6	back	99.2	3.404	0.546	1.140	1.008	0.627	
5280	56	802.11a	OFDM	20	18.0	17.43	0.14	0 mm	2	00307	6	front	99.2	3.358	0.478	1.140	1.008	0.549	
5280	56	802.11a	OFDM	20	18.0	17.43	0.14	0 mm	2	00307	6	top	99.2	3.710	0.364	1.140	1.008	0.418	
5280	56	802.11a	OFDM	20	18.0	17.43	-0.16	0 mm	2	00307	6	left	99.2	0.555	-	1.140	1.008	-	
5600	120	802.11a	OFDM	20	17.0	16.66	-0.19	0 mm	1	00307	6	back	99.1	4.096	0.612	1.081	1.009	0.668	
5600	120	802.11a	OFDM	20	17.0	16.66	0.20	0 mm	1	00307	6	front	99.1	3.101	0.334	1.081	1.009	0.364	
5600	120	802.11a	OFDM	20	17.0	16.66	0.12	0 mm	1	00307	6	top	99.1	0.715	-	1.081	1.009	-	
5600	120	802.11a	OFDM	20	17.0	16.66	0.16	0 mm	1	00307	6	left	99.1	0.923	-	1.081	1.009	-	
5600	120	802.11a	OFDM	20	17.0	16.54	0.10	0 mm	2	00307	6	back	99.2	5.494	0.814	1.112	1.008	0.912	
5600	120	802.11a	OFDM	20	17.0	16.54	0.20	0 mm	2	00307	6	front	99.2	2.635	0.290	1.112	1.008	0.325	
5600	120	802.11a	OFDM	20	17.0	16.54	0.17	0 mm	2	00307	6	top	99.2	6.957	0.650	1.112	1.008	0.729	
5600	120	802.11a	OFDM	20	17.0	16.54	0.19	0 mm	2	00307	6	left	99.2	0.570	-	1.112	1.008	-	
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 11-50
WLAN MIMO Phablet SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
5260	52	802.11n	OFDM	20	17.0	16.38	17.0	16.81	0.18	0 mm	MIMO	00307	13	back	99.7	7.892	1.190	1.153	1.003	1.376	
5280	56	802.11n	OFDM	20	18.0	17.49	18.0	17.67	0.03	0 mm	MIMO	00307	13	back	99.7	10.796	1.540	1.125	1.003	1.738	A55
5320	64	802.11n	OFDM	20	17.0	16.65	17.0	16.64	0.16	0 mm	MIMO	00307	13	back	99.7	9.149	1.390	1.086	1.003	1.514	
5280	56	802.11n	OFDM	20	18.0	17.49	18.0	17.67	0.12	0 mm	MIMO	00307	13	front	99.7	5.405	0.759	1.125	1.003	0.856	
5280	56	802.11n	OFDM	20	18.0	17.49	18.0	17.67	0.14	0 mm	MIMO	00307	13	top	99.7	4.271	-	1.125	1.003	-	
5280	56	802.11n	OFDM	20	18.0	17.49	18.0	17.67	0.20	0 mm	MIMO	00307	13	left	99.7	1.775	-	1.125	1.003	-	
5600	120	802.11n	OFDM	20	17.0	16.91	17.0	16.80	-0.15	0 mm	MIMO	00307	13	back	99.7	8.926	1.330	1.047	1.003	1.397	
5600	120	802.11n	OFDM	20	17.0	16.91	17.0	16.80	0.15	0 mm	MIMO	00307	13	front	99.7	3.544	0.460	1.047	1.003	0.483	
5600	120	802.11n	OFDM	20	17.0	16.91	17.0	16.80	0.21	0 mm	MIMO	00307	13	top	99.7	6.774	0.697	1.047	1.003	0.732	
5600	120	802.11n	OFDM	20	17.0	16.91	17.0	16.80	0.16	0 mm	MIMO	00307	13	left	99.7	1.559	-	1.047	1.003	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Phablet 4.0 W/kg (mW/g) averaged over 10 grams					

Note: To achieve the 21.0 dBm (20.0 dBm for ch. 52, 64 and 120) maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.0 dBm (17.0 dBm for ch.52, 64, and 120).

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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 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
10. Per FCC KDB Publication 648474 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. This device utilizes power reduction for some wireless modes and technologies, as outlined in Section1.5. The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous transmission scenarios.
12. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
13. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information).
14. 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).
15. The orange highlights throughout the report represents the highest SAR per FCC Equipment Class reflected on the FCC Grant.
16. SAR with the Dual Display Cover was measured for the overall worst case per each exposure condition. Head SAR tests were performed with the accessory cover folded to 0 and 360 degrees to represent typical use conditions. Body-worn, Hotspot, and Phablet SAR tests were performed with accessory cover folded to 0, 180 and 360 degrees.

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 middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at

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the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.

4. GPRS was additionally evaluated for head and body-worn exposure conditions to address possible VoIP scenarios.

UMTS Notes:

1. UMTS mode was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.

LTE Notes:

1. LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 8.5.4.
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 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.
7. For LTE Band 5, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

NR Notes:

1. NR implementation of n5, n66, and n2 is limited to EN-DC operations only, with LTE Bands 2/5/12/30/66 acting as anchor bands. Per FCC guidance, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.
2. Due to test setup limitations, SAR testing for NR was performed using test mode software to establish the connection.

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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.

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 single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.6.6 for more information.
4. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Section 12 for complete analysis.
5. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
6. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.

Bluetooth Notes

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 9.6 for the time domain plot and calculation for the duty factor of the device.
2. Head and Hotspot Bluetooth SAR were evaluated for BT BR tethering applications.

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12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

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

12.2 Simultaneous Transmission Procedures

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

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

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

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

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12.3 Head SAR Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Head SAR	GSM/GPRS 850	0.130	0.953	0.359	1.083	0.489
	GSM/GPRS 1900	0.062	0.953	0.359	1.015	0.421
	UMTS 850	0.207	0.953	0.359	1.160	0.566
	UMTS 1750	0.127	0.953	0.359	1.080	0.486
	UMTS 1900	0.125	0.953	0.359	1.078	0.484
	LTE Band 12	0.169	0.953	0.359	1.122	0.528
	LTE Band 14	0.161	0.953	0.359	1.114	0.520
	LTE Band 5 (Cell)	0.165	0.953	0.359	1.118	0.524
	LTE Band 66 (AWS)	0.120	0.953	0.359	1.073	0.479
	LTE Band 2 (PCS)	0.107	0.953	0.359	1.060	0.466
	LTE Band 30	0.052	0.953	0.359	1.005	0.411
	LTE Band 41	0.059	0.953	0.359	1.012	0.418
	NR Band n5 (Cell)	0.064	0.953	0.359	1.017	0.423
	NR Band n66 (AWS)	0.146	0.953	0.359	1.099	0.505
	NR Band n2 (PCS)	0.213	0.953	0.359	**1.166**	0.572

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.130	0.811	0.941
	GSM/GPRS 1900	0.062	0.811	0.873
	UMTS 850	0.207	0.811	1.018
	UMTS 1750	0.127	0.811	0.938
	UMTS 1900	0.125	0.811	0.936
	LTE Band 12	0.169	0.811	0.980
	LTE Band 14	0.161	0.811	0.972
	LTE Band 5 (Cell)	0.165	0.811	0.976
	LTE Band 66 (AWS)	0.120	0.811	0.931
	LTE Band 2 (PCS)	0.107	0.811	0.918
	LTE Band 30	0.052	0.811	0.863
	LTE Band 41	0.059	0.811	0.870
	NR Band n5 (Cell)	0.064	0.811	0.875
	NR Band n66 (AWS)	0.146	0.811	0.957
	NR Band n2 (PCS)	0.213	0.811	**1.024**

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Head SAR	GSM/GPRS 850	0.130	0.677	0.840	0.807	0.970
	GSM/GPRS 1900	0.062	0.677	0.840	0.739	0.902
	UMTS 850	0.207	0.677	0.840	0.884	1.047
	UMTS 1750	0.127	0.677	0.840	0.804	0.967
	UMTS 1900	0.125	0.677	0.840	0.802	0.965
	LTE Band 12	0.169	0.677	0.840	0.846	1.009
	LTE Band 14	0.161	0.677	0.840	0.838	1.001
	LTE Band 5 (Cell)	0.165	0.677	0.840	0.842	1.005
	LTE Band 66 (AWS)	0.120	0.677	0.840	0.797	0.960
	LTE Band 2 (PCS)	0.107	0.677	0.840	0.784	0.947
	LTE Band 30	0.052	0.677	0.840	0.729	0.892
	LTE Band 41	0.059	0.677	0.840	0.736	0.899
	NR Band n5 (Cell)	0.064	0.677	0.840	0.741	0.904
	NR Band n66 (AWS)	0.146	0.677	0.840	0.823	0.986
	NR Band n2 (PCS)	0.213	0.677	0.840	0.890	1.053

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.130	1.121	1.251
	GSM/GPRS 1900	0.062	1.121	1.183
	UMTS 850	0.207	1.121	1.328
	UMTS 1750	0.127	1.121	1.248
	UMTS 1900	0.125	1.121	1.246
	LTE Band 12	0.169	1.121	1.290
	LTE Band 14	0.161	1.121	1.282
	LTE Band 5 (Cell)	0.165	1.121	1.286
	LTE Band 66 (AWS)	0.120	1.121	1.241
	LTE Band 2 (PCS)	0.107	1.121	1.228
	LTE Band 30	0.052	1.121	1.173
	LTE Band 41	0.059	1.121	1.180
	NR Band n5 (Cell)	0.064	1.121	1.185
	NR Band n66 (AWS)	0.146	1.121	1.267
	NR Band n2 (PCS)	0.213	1.121	**1.334**

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM/GPRS 850	0.130	0.811	0.551	1.492
	GSM/GPRS 1900	0.062	0.811	0.551	1.424
	UMTS 850	0.207	0.811	0.551	1.569
	UMTS 1750	0.127	0.811	0.551	1.489
	UMTS 1900	0.125	0.811	0.551	1.487
	LTE Band 12	0.169	0.811	0.551	1.531
	LTE Band 14	0.161	0.811	0.551	1.523
	LTE Band 5 (Cell)	0.165	0.811	0.551	1.527
	LTE Band 66 (AWS)	0.120	0.811	0.551	1.482
	LTE Band 2 (PCS)	0.107	0.811	0.551	1.469
	LTE Band 30	0.052	0.811	0.551	1.414
	LTE Band 41	0.059	0.811	0.551	1.421
	NR Band n5 (Cell)	0.064	0.811	0.551	1.426
	NR Band n66 (AWS)	0.146	0.811	0.551	1.508
	NR Band n2 (PCS)	0.213	0.811	0.551	**1.575**

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM/GPRS 850	0.130	0.193	0.323
	GSM/GPRS 1900	0.062	0.193	0.255
	UMTS 850	0.207	0.193	0.400
	UMTS 1750	0.127	0.193	0.320
	UMTS 1900	0.125	0.193	0.318
	LTE Band 12	0.169	0.193	0.362
	LTE Band 14	0.161	0.193	0.354
	LTE Band 5 (Cell)	0.165	0.193	0.358
	LTE Band 66 (AWS)	0.120	0.193	0.313
	LTE Band 2 (PCS)	0.107	0.193	0.300
	LTE Band 30	0.052	0.193	0.245
	LTE Band 41	0.059	0.193	0.252
	NR Band n5 (Cell)	0.064	0.193	0.257
	NR Band n66 (AWS)	0.146	0.193	0.339
	NR Band n2 (PCS)	0.213	0.193	**0.406**

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM/GPRS 850	0.130	0.193	1.121	1.444
	GSM/GPRS 1900	0.062	0.193	1.121	1.376
	UMTS 850	0.207	0.193	1.121	1.521
	UMTS 1750	0.127	0.193	1.121	1.441
	UMTS 1900	0.125	0.193	1.121	1.439
	LTE Band 12	0.169	0.193	1.121	1.483
	LTE Band 14	0.161	0.193	1.121	1.475
	LTE Band 5 (Cell)	0.165	0.193	1.121	1.479
	LTE Band 66 (AWS)	0.120	0.193	1.121	1.434
	LTE Band 2 (PCS)	0.107	0.193	1.121	1.421
	LTE Band 30	0.052	0.193	1.121	1.366
	LTE Band 41	0.059	0.193	1.121	1.373
	NR Band n5 (Cell)	0.064	0.193	1.121	1.378
	NR Band n66 (AWS)	0.146	0.193	1.121	1.460
	NR Band n2 (PCS)	0.213	0.193	1.121	**1.527**

Table 12-6
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 2 and Bluetooth (Held to Ear)

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM/GPRS 850	0.130	0.193	0.359	0.682
	GSM/GPRS 1900	0.062	0.193	0.359	0.614
	UMTS 850	0.207	0.193	0.359	0.759
	UMTS 1750	0.127	0.193	0.359	0.679
	UMTS 1900	0.125	0.193	0.359	0.677
	LTE Band 12	0.169	0.193	0.359	0.721
	LTE Band 14	0.161	0.193	0.359	0.713
	LTE Band 5 (Cell)	0.165	0.193	0.359	0.717
	LTE Band 66 (AWS)	0.120	0.193	0.359	0.672
	LTE Band 2 (PCS)	0.107	0.193	0.359	0.659
	LTE Band 30	0.052	0.193	0.359	0.604
	LTE Band 41	0.059	0.193	0.359	0.611
	NR Band n5 (Cell)	0.064	0.193	0.359	0.616
	NR Band n66 (AWS)	0.146	0.193	0.359	0.698
	NR Band n2 (PCS)	0.213	0.193	0.359	**0.765**

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12.4 Body-Worn Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn	GSM/GPRS 850	0.392	0.215	0.153	0.607	0.545	0.760
	GSM/GPRS 1900	0.523	0.215	0.153	0.738	0.676	0.891
	UMTS 850	0.706	0.215	0.153	0.921	0.859	1.074
	UMTS 1750	0.878	0.215	0.153	1.093	1.031	**1.246**
	UMTS 1900	0.843	0.215	0.153	1.058	0.996	1.211
	LTE Band 12	0.335	0.215	0.153	0.550	0.488	0.703
	LTE Band 14	0.419	0.215	0.153	0.634	0.572	0.787
	LTE Band 5 (Cell)	0.549	0.215	0.153	0.764	0.702	0.917
	LTE Band 66 (AWS)	0.856	0.215	0.153	1.071	1.009	1.224
	LTE Band 2 (PCS)	0.793	0.215	0.153	1.008	0.946	1.161
	LTE Band 30	0.400	0.215	0.153	0.615	0.553	0.768
	LTE Band 41	0.561	0.215	0.153	0.776	0.714	0.929
	NR Band n5 (Cell)	0.257	0.215	0.153	0.472	0.410	0.625
	NR Band n66 (AWS)	0.356	0.215	0.153	0.571	0.509	0.724
	NR Band n2 (PCS)	0.287	0.215	0.153	0.502	0.440	0.655

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Body-Worn	GSM/GPRS 850	0.392	0.410	0.304	0.802	0.696
	GSM/GPRS 1900	0.523	0.410	0.304	0.933	0.827
	UMTS 850	0.706	0.410	0.304	1.116	1.010
	UMTS 1750	0.878	0.410	0.304	**1.288**	1.182
	UMTS 1900	0.843	0.410	0.304	1.253	1.147
	LTE Band 12	0.335	0.410	0.304	0.745	0.639
	LTE Band 14	0.419	0.410	0.304	0.829	0.723
	LTE Band 5 (Cell)	0.549	0.410	0.304	0.959	0.853
	LTE Band 66 (AWS)	0.856	0.410	0.304	1.266	1.160
	LTE Band 2 (PCS)	0.793	0.410	0.304	1.203	1.097
	LTE Band 30	0.400	0.410	0.304	0.810	0.704
	LTE Band 41	0.561	0.410	0.304	0.971	0.865
	NR Band n5 (Cell)	0.257	0.410	0.304	0.667	0.561
	NR Band n66 (AWS)	0.356	0.410	0.304	0.766	0.660
	NR Band n2 (PCS)	0.287	0.410	0.304	0.697	0.591

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM/GPRS 850	0.392	0.550	0.942
	GSM/GPRS 1900	0.523	0.550	1.073
	UMTS 850	0.706	0.550	1.256
	UMTS 1750	0.878	0.550	**1.428**
	UMTS 1900	0.843	0.550	1.393
	LTE Band 12	0.335	0.550	0.885
	LTE Band 14	0.419	0.550	0.969
	LTE Band 5 (Cell)	0.549	0.550	1.099
	LTE Band 66 (AWS)	0.856	0.550	1.406
	LTE Band 2 (PCS)	0.793	0.550	1.343
	LTE Band 30	0.400	0.550	0.950
	LTE Band 41	0.561	0.550	1.111
	NR Band n5 (Cell)	0.257	0.550	0.807
	NR Band n66 (AWS)	0.356	0.550	0.906
	NR Band n2 (PCS)	0.287	0.550	0.837

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Body-Worn	GSM/GPRS 850	0.392	0.215	0.153	0.273	1.033
	GSM/GPRS 1900	0.523	0.215	0.153	0.273	1.164
	UMTS 850	0.706	0.215	0.153	0.273	1.347
	UMTS 1750	0.878	0.215	0.153	0.273	**1.519**
	UMTS 1900	0.843	0.215	0.153	0.273	1.484
	LTE Band 12	0.335	0.215	0.153	0.273	0.976
	LTE Band 14	0.419	0.215	0.153	0.273	1.060
	LTE Band 5 (Cell)	0.549	0.215	0.153	0.273	1.190
	LTE Band 66 (AWS)	0.856	0.215	0.153	0.273	1.497
	LTE Band 2 (PCS)	0.793	0.215	0.153	0.273	1.434
	LTE Band 30	0.400	0.215	0.153	0.273	1.041
	LTE Band 41	0.561	0.215	0.153	0.273	1.202
	NR Band n5 (Cell)	0.257	0.215	0.153	0.273	0.898
	NR Band n66 (AWS)	0.356	0.215	0.153	0.273	0.997
	NR Band n2 (PCS)	0.287	0.215	0.153	0.273	0.928

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM/GPRS 850	0.392	0.053	0.445
	GSM/GPRS 1900	0.523	0.053	0.576
	UMTS 850	0.706	0.053	0.759
	UMTS 1750	0.878	0.053	**0.931**
	UMTS 1900	0.843	0.053	0.896
	LTE Band 12	0.335	0.053	0.388
	LTE Band 14	0.419	0.053	0.472
	LTE Band 5 (Cell)	0.549	0.053	0.602
	LTE Band 66 (AWS)	0.856	0.053	0.909
	LTE Band 2 (PCS)	0.793	0.053	0.846
	LTE Band 30	0.400	0.053	0.453
	LTE Band 41	0.561	0.053	0.614
	NR Band n5 (Cell)	0.257	0.053	0.310
	NR Band n66 (AWS)	0.356	0.053	0.409
	NR Band n2 (PCS)	0.287	0.053	0.340

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Table 12-11
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM/GPRS 850	0.392	0.053	0.550	0.995
	GSM/GPRS 1900	0.523	0.053	0.550	1.126
	UMTS 850	0.706	0.053	0.550	1.309
	UMTS 1750	0.878	0.053	0.550	**1.481**
	UMTS 1900	0.843	0.053	0.550	1.446
	LTE Band 12	0.335	0.053	0.550	0.938
	LTE Band 14	0.419	0.053	0.550	1.022
	LTE Band 5 (Cell)	0.549	0.053	0.550	1.152
	LTE Band 66 (AWS)	0.856	0.053	0.550	1.459
	LTE Band 2 (PCS)	0.793	0.053	0.550	1.396
	LTE Band 30	0.400	0.053	0.550	1.003
	LTE Band 41	0.561	0.053	0.550	1.164
	NR Band n5 (Cell)	0.257	0.053	0.550	0.860
	NR Band n66 (AWS)	0.356	0.053	0.550	0.959
	NR Band n2 (PCS)	0.287	0.053	0.550	0.890

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM/GPRS 850	0.392	0.053	0.153	0.598
	GSM/GPRS 1900	0.523	0.053	0.153	0.729
	UMTS 850	0.706	0.053	0.153	0.912
	UMTS 1750	0.878	0.053	0.153	**1.084**
	UMTS 1900	0.843	0.053	0.153	1.049
	LTE Band 12	0.335	0.053	0.153	0.541
	LTE Band 14	0.419	0.053	0.153	0.625
	LTE Band 5 (Cell)	0.549	0.053	0.153	0.755
	LTE Band 66 (AWS)	0.856	0.053	0.153	1.062
	LTE Band 2 (PCS)	0.793	0.053	0.153	0.999
	LTE Band 30	0.400	0.053	0.153	0.606
	LTE Band 41	0.561	0.053	0.153	0.767
	NR Band n5 (Cell)	0.257	0.053	0.153	0.463
	NR Band n66 (AWS)	0.356	0.053	0.153	0.562
	NR Band n2 (PCS)	0.287	0.053	0.153	0.493

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12.5 Hotspot SAR Simultaneous Transmission Analysis

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

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

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	0.392	0.527	0.360	0.919	0.752	1.279
	GPRS 1900	0.933	0.527	0.360	1.460	1.293	See Table Below
	UMTS 850	0.706	0.527	0.360	1.233	1.066	**1.593**
	UMTS 1750	0.763	0.527	0.360	1.290	1.123	See Table Below
	UMTS 1900	0.777	0.527	0.360	1.304	1.137	See Table Below
	LTE Band 12	0.351	0.527	0.360	0.878	0.711	1.238
	LTE Band 14	0.419	0.527	0.360	0.946	0.779	1.306
	LTE Band 5 (Cell)	0.549	0.527	0.360	1.076	0.909	1.436
	LTE Band 66 (AWS)	0.871	0.527	0.360	1.398	1.231	See Table Below
	LTE Band 2 (PCS)	0.882	0.527	0.360	1.409	1.242	See Table Below
	LTE Band 30	0.640	0.527	0.360	1.167	1.000	1.527
	LTE Band 41	0.880	0.527	0.360	1.407	1.240	See Table Below
	NR Band n5 (Cell)	0.257	0.527	0.360	0.784	0.617	1.144
	NR Band n66 (AWS)	0.857	0.527	0.360	1.384	1.217	See Table Below
	NR Band n2 (PCS)	0.576	0.527	0.360	1.103	0.936	1.463

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.523	0.215	0.153	0.891
	Front	0.488	0.281	0.360*	**1.129**
	Top	-	0.527*	0.360	0.887
	Bottom	0.933	-	-	0.933
	Right	-	-	-	-
	Left	0.120	0.527	0.360*	1.007

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.461	0.215	0.153	0.829
	Front	0.397	0.281	0.360*	**1.038**
	Top	-	0.527*	0.360	0.887
	Bottom	0.763	-	-	0.763
	Right	-	-	-	-
	Left	0.134	0.527	0.360*	1.021

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.429	0.215	0.153	0.797
	Front	0.390	0.281	0.360*	**1.031**
	Top	-	0.527*	0.360	0.887
	Bottom	0.777	-	-	0.777
	Right	-	-	-	-
	Left	0.125	0.527	0.360*	1.012

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.419	0.215	0.153	0.787
	Front	0.391	0.281	0.360*	1.032
	Top	-	0.527*	0.360	0.887
	Bottom	0.871	-	-	0.871
	Right	-	-	-	-
	Left	0.149	0.527	0.360*	**1.036**

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Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.387	0.215	0.153	0.755
	Front	0.381	0.281	0.360*	**1.022**
	Top	-	0.527*	0.360	0.887
	Bottom	0.882	-	-	0.882
	Right	-	-	-	-
	Left	0.129	0.527	0.360*	1.016

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.561	0.215	0.153	0.929
	Front	0.315	0.281	0.360*	0.956
	Top	-	0.527*	0.360	0.887
	Bottom	0.880	-	-	0.880
	Right	-	-	-	-
	Left	0.087	0.527	0.360*	**0.974**

Simult Tx	Configuration	NR Band n66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.341	0.215	0.153	0.709
	Front	0.390	0.281	0.360*	1.031
	Top	-	0.527*	0.360	0.887
	Bottom	0.062	-	-	0.062
	Right	0.857	-	-	0.857
	Left	-	0.527	0.360*	0.887

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	0.392	0.316	0.230	0.708	0.622	0.938
	GPRS 1900	0.933	0.316	0.230	1.249	1.163	**1.479**
	UMTS 850	0.706	0.316	0.230	1.022	0.936	1.252
	UMTS 1750	0.763	0.316	0.230	1.079	0.993	1.309
	UMTS 1900	0.777	0.316	0.230	1.093	1.007	1.323
	LTE Band 12	0.351	0.316	0.230	0.667	0.581	0.897
	LTE Band 14	0.419	0.316	0.230	0.735	0.649	0.965
	LTE Band 5 (Cell)	0.549	0.316	0.230	0.865	0.779	1.095
	LTE Band 66 (AWS)	0.871	0.316	0.230	1.187	1.101	1.417
	LTE Band 2 (PCS)	0.882	0.316	0.230	1.198	1.112	1.428
	LTE Band 30	0.640	0.316	0.230	0.956	0.870	1.186
	LTE Band 41	0.880	0.316	0.230	1.196	1.110	1.426
	NR Band n5 (Cell)	0.257	0.316	0.230	0.573	0.487	0.803
	NR Band n66 (AWS)	0.857	0.316	0.230	1.173	1.087	1.403
	NR Band n2 (PCS)	0.576	0.316	0.230	0.892	0.806	1.122

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

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.392	0.215	0.153	0.218	0.978
	Front	0.387	0.281	0.360*	0.036	**1.064**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.184	-	-	-	0.184
	Right	0.136	-	-	-	0.136
	Left	-	0.527	0.360*	0.036	0.923

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.523	0.215	0.153	0.218	1.109
	Front	0.488	0.281	0.360*	0.036	**1.165**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.933	-	-	-	0.933
	Right	-	-	-	-	-
	Left	0.120	0.527	0.360*	0.036	1.043

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.706	0.215	0.153	0.218	**1.292**
	Front	0.506	0.281	0.360*	0.036	1.183
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.252	-	-	-	0.252
	Right	0.242	-	-	-	0.242
	Left	-	0.527	0.360*	0.036	0.923

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.461	0.215	0.153	0.218	1.047
	Front	0.397	0.281	0.360*	0.036	**1.074**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.763	-	-	-	0.763
	Right	-	-	-	-	-
	Left	0.134	0.527	0.360*	0.036	1.057

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.429	0.215	0.153	0.218	1.015
	Front	0.390	0.281	0.360*	0.036	**1.067**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.777	-	-	-	0.777
	Right	-	-	-	-	-
	Left	0.125	0.527	0.360*	0.036	1.048

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.335	0.215	0.153	0.218	0.921
	Front	0.311	0.281	0.360*	0.036	**0.988**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.122	-	-	-	0.122
	Right	0.351	-	-	-	0.351
	Left	-	0.527	0.360*	0.036	0.923

Simult Tx	Configuration	LTE Band 14 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.419	0.215	0.153	0.218	1.005
	Front	0.407	0.281	0.360*	0.036	**1.084**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.177	-	-	-	0.177
	Right	0.311	-	-	-	0.311
	Left	-	0.527	0.360*	0.036	0.923

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.549	0.215	0.153	0.218	1.135
	Front	0.487	0.281	0.360*	0.036	**1.164**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.196	-	-	-	0.196
	Right	0.196	-	-	-	0.196
	Left	-	0.527	0.360*	0.036	0.923

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.419	0.215	0.153	0.218	1.005
	Front	0.391	0.281	0.360*	0.036	1.068
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.871	-	-	-	0.871
	Right	-	-	-	-	-
	Left	0.149	0.527	0.360*	0.036	**1.072**

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.387	0.215	0.153	0.218	0.973
	Front	0.381	0.281	0.360*	0.036	**1.058**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.882	-	-	-	0.882
	Right	-	-	-	-	-
	Left	0.129	0.527	0.360*	0.036	1.052

Simult Tx	Configuration	LTE Band 30 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.400	0.215	0.153	0.218	0.986
	Front	0.335	0.281	0.360*	0.036	**1.012**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.640	-	-	-	0.640
	Right	-	-	-	-	-
	Left	0.072	0.527	0.360*	0.036	0.995

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.561	0.215	0.153	0.218	**1.147**
	Front	0.315	0.281	0.360*	0.036	0.992
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.880	-	-	-	0.880
	Right	-	-	-	-	-
	Left	0.087	0.527	0.360*	0.036	1.010

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Simult Tx	Configuration	NR Band n5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.257	0.215	0.153	0.218	0.843
	Front	0.204	0.281	0.360*	0.036	0.881
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.085	-	-	-	0.085
	Right	0.080	-	-	-	0.080
	Left	-	0.527	0.360*	0.036	**0.923**

Simult Tx	Configuration	NR Band n66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.341	0.215	0.153	0.218	0.927
	Front	0.390	0.281	0.360*	0.036	**1.067**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.062	-	-	-	0.062
	Right	0.857	-	-	-	0.857
	Left	-	0.527	0.360*	0.036	0.923

Simult Tx	Configuration	NR Band n2 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 18 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.287	0.215	0.153	0.218	0.873
	Front	0.362	0.281	0.360*	0.036	**1.039**
	Top	-	0.527*	0.360	0.218*	0.578
	Bottom	0.108	-	-	-	0.108
	Right	0.576	-	-	-	0.576
	Left	-	0.527	0.360*	0.036	0.923

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.392	0.126	0.518
	GPRS 1900	0.933	0.126	**1.059**
	UMTS 850	0.706	0.126	0.832
	UMTS 1750	0.763	0.126	0.889
	UMTS 1900	0.777	0.126	0.903
	LTE Band 12	0.351	0.126	0.477
	LTE Band 14	0.419	0.126	0.545
	LTE Band 5 (Cell)	0.549	0.126	0.675
	LTE Band 66 (AWS)	0.871	0.126	0.997
	LTE Band 2 (PCS)	0.882	0.126	1.008
	LTE Band 30	0.640	0.126	0.766
	LTE Band 41	0.880	0.126	1.006
	NR Band n5 (Cell)	0.257	0.126	0.383
	NR Band n66 (AWS)	0.857	0.126	0.983
	NR Band n2 (PCS)	0.576	0.126	0.702

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Table 12-17
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	GPRS 850	0.392	0.126	0.316	0.230	1.064
	GPRS 1900	0.933	0.126	0.316	0.230	See Table Below
	UMTS 850	0.706	0.126	0.316	0.230	1.378
	UMTS 1750	0.763	0.126	0.316	0.230	1.435
	UMTS 1900	0.777	0.126	0.316	0.230	1.449
	LTE Band 12	0.351	0.126	0.316	0.230	1.023
	LTE Band 14	0.419	0.126	0.316	0.230	1.091
	LTE Band 5 (Cell)	0.549	0.126	0.316	0.230	1.221
	LTE Band 66 (AWS)	0.871	0.126	0.316	0.230	1.543
	LTE Band 2 (PCS)	0.882	0.126	0.316	0.230	**1.554**
	LTE Band 30	0.640	0.126	0.316	0.230	1.312
	LTE Band 41	0.880	0.126	0.316	0.230	1.552
	NR Band n5 (Cell)	0.257	0.126	0.316	0.230	0.929
	NR Band n66 (AWS)	0.857	0.126	0.316	0.230	1.529
	NR Band n2 (PCS)	0.576	0.126	0.316	0.230	1.248

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.523	0.053	0.316	0.230	**1.122**
	Front	0.488	0.068	0.060	0.055	0.671
	Top	-	0.052	0.316*	0.230*	0.598
	Bottom	0.933	-	-	-	0.933
	Right	-	-	-	-	-
	Left	0.120	0.126	0.061	0.037	0.344

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

Exposure Condition	Mode	2G/3G/4G/5G SAR (W/kg)	Bluetooth SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	GPRS 850	0.392	0.126	0.360	0.878
	GPRS 1900	0.933	0.126	0.360	**1.419**
	UMTS 850	0.706	0.126	0.360	1.192
	UMTS 1750	0.763	0.126	0.360	1.249
	UMTS 1900	0.777	0.126	0.360	1.263
	LTE Band 12	0.351	0.126	0.360	0.837
	LTE Band 14	0.419	0.126	0.360	0.905
	LTE Band 5 (Cell)	0.549	0.126	0.360	1.035
	LTE Band 66 (AWS)	0.871	0.126	0.360	1.357
	LTE Band 2 (PCS)	0.882	0.126	0.360	1.368
	LTE Band 30	0.640	0.126	0.360	1.126
	LTE Band 41	0.880	0.126	0.360	1.366
	NR Band n5 (Cell)	0.257	0.126	0.360	0.743
	NR Band n66 (AWS)	0.857	0.126	0.360	1.343
	NR Band n2 (PCS)	0.576	0.126	0.360	1.062

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12.6 Phablet Simultaneous Transmission Analysis

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

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

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

For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge.

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

Exposure Condition	Mode	3G/4G/5G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	UMTS 1750	2.285	1.245	0.912	3.530	3.197
	UMTS 1900	2.957	1.245	0.912	See Table Below	3.869
	LTE Band 66 (AWS)	2.590	1.245	0.912	3.835	3.502
	LTE Band 2 (PCS)	3.053	1.245	0.912	See Table Below	**3.965**
	NR Band n66	2.667	1.245	0.912	3.912	3.579

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2
Phablet SAR	Back	1.863	1.245	0.912	**3.108**
	Front	2.151	0.556	0.549	2.707
	Top	-	1.245*	0.729	1.245
	Bottom	2.957	-	-	2.957
	Right	-	-	-	-
	Left	0.494	1.245*	0.912*	1.739

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2
Phablet SAR	Back	1.850	1.245	0.912	**3.095**
	Front	2.459	0.556	0.549	3.015
	Top	-	1.245*	0.729	1.245
	Bottom	3.053	-	-	3.053
	Right	-	-	-	-
	Left	0.623	1.245*	0.912*	1.868

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Table 12-20
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Phablet)

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	1.625	1.738	**3.363**
	Front	2.219	0.856	3.075
	Top	-	0.732	0.732
	Bottom	2.285	-	2.285
	Right	-	-	-
	Left	0.707	1.738*	2.445

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	1.863	1.738	**3.601**
	Front	2.151	0.856	3.007
	Top	-	0.732	0.732
	Bottom	2.957	-	2.957
	Right	-	-	-
	Left	0.494	1.738*	2.232

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	1.690	1.738	3.428
	Front	2.590	0.856	**3.446**
	Top	-	0.732	0.732
	Bottom	2.465	-	2.465
	Right	-	-	-
	Left	0.797	1.738*	2.535

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	1.850	1.738	**3.588**
	Front	2.459	0.856	3.315
	Top	-	0.732	0.732
	Bottom	3.053	-	3.053
	Right	-	-	-
	Left	0.623	1.738*	2.361

Simult Tx	Configuration	NR Band n66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	-	1.738	1.738
	Front	-	0.856	0.856
	Top	-	0.732	0.732
	Bottom	-	-	-
	Right	2.667	-	**2.667**
	Left	-	1.738*	1.738

12.7 Simultaneous Transmission Conclusion

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

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13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

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

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

1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1g SAR limit).
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
5) When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Table 13-1
Head SAR Measurement Variability Results

HEAD VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Side	Test Position	Data Rate (Mbps)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
2450	2437.00	6	802.11b, 22 MHz Bandwidth	DSSS , ANT 1	Right	Cheek	1	0.913	0.908	1.01	N/A	N/A	N/A	N/A
5250	5320.00	64	802.11n, 20 MHz Bandwidth	OFDM , MIMO	Right	Cheek	13	1.020	0.956	1.07	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 13-2
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1750	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	back	10 mm	0.856	0.853	1.00	N/A	N/A	N/A	N/A
1900	1900.00	19100	LTE Band 2 (PCS), 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	bottom	10 mm	0.864	0.855	1.01	N/A	N/A	N/A	N/A
2600	2680.00	41490	LTE Band 41, 20 MHz Bandwidth	QPSK, 1 RB, 50 RB Offset	bottom	10 mm	0.846	0.806	1.05	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Body 1.6 W/kg (mW/g) averaged over 1 gram								

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Table 13-3
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1750	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	front	1 mm	2.590	2.560	1.01	N/A	N/A	N/A	N/A
1900	1900.00	19100	LTE Band 2 (PCS), 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	bottom	0 mm	2.990	2.940	1.02	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Phablet 4.0 W/kg (mW/g) averaged over 10 grams						

13.2 Measurement Uncertainty

The measured SAR was <1.5 W/kg for 1g and <3.75 W/kg for 10g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

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14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	E4432B	ESG-D Series Signal Generator	7/14/2019	Annual	7/14/2020	US40053896
Agilent	E5515C	Wireless Communications Test Set	2/28/2018	Biennial	2/28/2020	GB41450275
Agilent	N9020A	MXA Signal Analyzer	4/20/2019	Annual	4/20/2020	US46470561
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	6/3/2019	Annual	6/3/2020	109892
Agilent	E5515C	Wireless Communications Test Set	6/26/2019	Annual	6/26/2020	MY50267125
Agilent	N5182A	MXG Vector Signal Generator	6/27/2019	Annual	6/27/2020	US46240505
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Anritsu	MA24106A	USB Power Sensor	5/22/2019	Annual	5/22/2020	1231535
Anritsu	MA24106A	USB Power Sensor	5/6/2019	Annual	5/6/2020	1231538
Anritsu	MT8820C	Radio Communication Analyzer	7/25/2019	Annual	7/25/2020	6201240328
Anritsu	MT8820C	Radio Communication Analyzer	3/29/2019	Annual	3/29/2020	6201300731
Anritsu	MT8821C	Radio Communication Analyzer	8/16/2019	Annual	8/16/2020	6201144418
Anritsu	MT8821C	Radio Communication Analyzer	3/18/2019	Annual	3/18/2020	6201144419
Anritsu	ML2495A	Power Meter	12/17/2019	Annual	12/17/2020	941001
Anritsu	MA2411B	Pulse Power Sensor	8/8/2019	Annual	8/8/2020	1339008
Anritsu	MA2411B	Pulse Power Sensor	3/6/2019	Annual	3/6/2020	1339018
Anritsu	MT8821C	Radio Communication Analyzer	10/2/2019	Annual	10/2/2020	6201664756
Anritsu	MT8821C	Radio Communication Analyzer	3/6/2019	Annual	3/6/2020	6201381794
Anritsu	MT8862A	Wireless Connectivity Test Set	8/8/2019	Annual	8/8/2020	6261782395
Anritsu	MT8821C	Radio Communication Analyzer	8/16/2019	Annual	8/16/2020	6201144418
Control Company	4352	Ultra Long Stem Thermometer	2/28/2018	Biennial	2/28/2020	170330160
Control Company	4352	Ultra Long Stem Thermometer	2/28/2018	Biennial	2/28/2020	170330158
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433972
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433974
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/9/2018	Biennial	10/9/2020	181647802
Keysight	772D	Dual Directional Coupler	CBT	CBT	CBT	MY52180215
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Rohde & Schwarz	CMW500	Radio Communication Tester	8/26/2019	Annual	8/26/2020	100976
Rohde & Schwarz	CMW500	Radio Communication Tester	6/26/2019	Annual	6/26/2020	112347
Rohde & Schwarz	CMW500	Radio Communication Tester	6/24/2019	Annual	6/24/2020	101699
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	8/6/2019	Annual	8/6/2020	120504
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	11/14/2019	Annual	11/14/2020	164948
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	6/6/2019	Annual	6/6/2020	161662
Rohde & Schwarz	ZNLE6	Vector Network Analyzer	10/11/2019	Annual	10/11/2020	101307
Seekonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	21053
Seekonk	NC-100	Torque Wrench (8" lb)	5/23/2018	Biennial	5/23/2020	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/7/2019	Annual	5/7/2020	1070
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2018	Biennial	10/19/2020	1161
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Biennial	10/19/2020	4d133
SPEAG	D835V2	835 MHz SAR Dipole	3/13/2019	Annual	3/13/2020	4d047
SPEAG	D835V2	835 MHz SAR Dipole	1/13/2020	Annual	1/13/2021	4d132
SPEAG	D1765V2	1765 MHz SAR Dipole	5/23/2018	Biennial	5/23/2020	1008
SPEAG	D1750V2	1750 MHz SAR Dipole	5/15/2019	Annual	5/15/2020	1148
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2018	Biennial	10/22/2020	1150
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2019	Annual	2/21/2020	5d148
SPEAG	D2300V2	2300 MHz SAR Dipole	8/13/2018	Biennial	8/13/2020	1073
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Biennial	8/16/2020	981
SPEAG	D2600V2	2600 MHz SAR Dipole	6/14/2019	Annual	6/14/2020	1064
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/16/2018	Triennial	1/16/2021	1057
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/17/2019	Annual	9/17/2020	1191
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Biennial	10/23/2020	5d149
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Biennial	10/23/2020	5d080
SPEAG	D2450V2	2450 MHz SAR Dipole	9/11/2017	Triennial	9/11/2020	797
SPEAG	EX3DV4	SAR Probe	7/16/2019	Annual	7/16/2020	7410
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	7417
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	3914
SPEAG	EX3DV4	SAR Probe	5/16/2019	Annual	5/16/2020	7406
SPEAG	EX3DV4	SAR Probe	9/19/2019	Annual	9/19/2020	7551
SPEAG	EX3DV4	SAR Probe	4/24/2019	Annual	4/24/2020	7357
SPEAG	EX3DV4	SAR Probe	12/11/2019	Annual	12/11/2020	7571
SPEAG	EX3DV4	SAR Probe	7/15/2019	Annual	7/15/2020	7547
SPEAG	EX3DV4	SAR Probe	6/19/2019	Annual	6/19/2020	7409
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2019	Annual	7/11/2020	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/13/2019	Annual	2/13/2020	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/14/2019	Annual	2/14/2020	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/8/2019	Annual	5/8/2020	728
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/17/2019	Annual	9/17/2020	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/18/2019	Annual	4/18/2020	1407
SPEAG	DAE4	Data Acquisition Electronics	12/5/2019	Annual	12/5/2020	1533
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2019	Annual	7/11/2020	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/20/2019	Annual	6/20/2020	1334

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

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15 MEASUREMENT UNCERTAINTIES

a	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i 1gm**	**c_i 10 gms**	**1gm u_i (± %)**	**10gms u_i (± %)**	**v_i**
Measurement System								
Probe Calibration	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	2.0	R	1.73	1.0	1.0	1.2	1.2	∞
Linearity	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	0.25	R	1.73	1.0	1.0	0.1	0.1	∞
Readout Electronics	0.3	N	1	1.0	1.0	0.3	0.3	∞
Response Time	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions - Noise	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
RF Ambient Conditions - Reflections	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	6.7	R	1.73	1.0	1.0	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	2.7	N	1	1.0	1.0	2.7	2.7	35
Device Holder Uncertainty	1.67	N	1	1.0	1.0	1.7	1.7	5
Output Power Variation - SAR drift measurement	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
SAR Scaling	0.0	R	1.73	1.0	1.0	0.0	0.0	∞
Phantom & Tissue Parameters								
Phantom Uncertainty (Shape & Thickness tolerances)	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	4.2	N	1	0.78	0.71	3.3	3.0	10
Liquid Permittivity - measurement uncertainty	4.1	N	1	0.23	0.26	1.0	1.1	10
Liquid Conductivity - Temperature Uncertainty	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Unceritainty	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)		RSS				11.5	11.3	60
Expanded Uncertainty (95% CONFIDENCE LEVEL)		k=2				23.0	22.6	

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16 CONCLUSION

16.1 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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