PCTEST
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. +1.410.290.6652 / Fax +1.410.290.6654
http://www.pctest.com

SAR EVALUATION REPORT

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

Date of Testing:
12/28/20 – 01/30/21
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M2012230208-01-R1.ZNF

FCC ID: **ZNFK420TM**

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

DUT Type: Portable Handset
Application Type: Class II Permissive Change
FCC Rule Part(s): CFR §2.1093
Model: LM-K420TM
Additional Models: LMK420TM, K420TM, LM-K420MM, LMK420MM, K420MM, LM-K420PM, LMK420PM, K420PM, LG L560DL, LGL560DL, L560DL, LM-K420QM, LMK420QM, K420QM, LM-K420QM5, LMK420QM5, K420QM5, LM-K420QM6, LMK420QM6, K420QM6, LM-K420QA, LMK420QA, K420QA

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	CDMA/EVDO BC10 (§90S)	817.90 - 823.10 MHz	0.23	0.33	0.27	N/A
PCE	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	0.24	0.40	0.31	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.31	0.82	0.72	2.56
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.30	0.50	0.50	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.23	0.51	0.51	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.24	0.43	0.43	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.25	0.70	0.70	2.41
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.32	0.66	0.66	2.42
PCE	LTE Band 71	665.5 - 695.5 MHz	0.18	0.43	0.49	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	0.22	0.43	0.46	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.20	0.36	0.36	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.26	0.37	0.37	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.27	0.69	0.70	2.62
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.31	0.82	0.82	2.23
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 41	2498.5 - 2687.5 MHz	0.19	0.85	1.29	2.60
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.71	0.34	0.34	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	0.63	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.85	0.36	N/A	1.88
NII	U-NII-2C	5500 - 5720 MHz	1.22	0.64	N/A	2.43
NII	U-NII-3	5745 - 5825 MHz	1.19	0.53	0.91	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.13	< 0.1	< 0.1	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.59	1.53	1.57	3.86

Note: This revised Test Report (S/N: 1M2012230208-01-R1.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 1.7 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
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
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 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
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

1.2 Power Reduction for SAR

This device uses a power reduction mechanism for SAR compliance. The power reduction mechanism is activated when the device is used in close proximity to the user's body. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device. Detailed descriptions of the power reduction mechanism are included in the operational description.

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

1.3 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.

1.3.1 2G/3G/4G Maximum Output Power

CDMA BC10 (815 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		1x-RTT	EVDO Rev 0	EVDO Rev A
Max	Max allowed power	24.9	24.9	24.9
	Nominal	24.4	24.4	24.4
CDMA BC0 (835 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		1x-RTT	EVDO Rev 0	EVDO Rev A
Max	Max allowed power	24.9	24.9	24.9
	Nominal	24.4	24.4	24.4
CDMA BC1 (1900 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		1x-RTT	EVDO Rev 0	EVDO Rev A
Max	Max allowed power	24.7	24.7	24.7
	Nominal	24.2	24.2	24.2
Proximity Sensor Active	Max allowed power	23.2	23.2	23.2
	Nominal	22.7	22.7	22.7

GSM/GPRS/EDGE 850										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
Max	Max allowed power	33.7	33.7	32.2	30.4	29.2	27.7	26.2	24.4	23.2
	Nominal	33.2	33.2	31.7	29.9	28.7	27.2	25.7	23.9	22.7
GSM/GPRS/EDGE 1900										
Power Level		Voice (in dBm)	Data - Burst Average GMSK (in dBm)				Data - Burst Average 8-PSK (in dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
Max	Max allowed power	29.7	29.7	29.2	27.4	26.2	26.7	25.2	23.4	22.2
	Nominal	29.2	29.2	28.7	26.9	25.7	26.2	24.7	22.9	21.7

UMTS Band 5 (850 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
Max	Max allowed power	25.2	25.2	25.2
	Nominal	24.7	24.7	24.7
UMTS Band 4 (1750 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
Max	Max allowed power	25.2	25.2	25.2
	Nominal	24.7	24.7	24.7
Proximity Sensor Active	Max allowed power	23.2	23.2	23.2
	Nominal	22.7	22.7	22.7
UMTS Band 2 (1900 MHz)				
Power Level		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
Max	Max allowed power	24.7	24.7	24.7
	Nominal	24.2	24.2	24.2
Proximity Sensor Active	Max allowed power	23.2	23.2	23.2
	Nominal	22.7	22.7	22.7

Mode / Band		Modulated Average Output Power (in dBm)	
		Max	Proximity Sensor Active
LTE FDD Band 71	Max allowed power	25.2	25.2
	Nominal	24.7	24.7
LTE FDD Band 12	Max allowed power	25.2	25.2
	Nominal	24.7	24.7
LTE FDD Band 13	Max allowed power	24.2	24.2
	Nominal	23.7	23.7
LTE FDD Band 5	Max allowed power	25.2	25.2
	Nominal	24.7	24.7
LTE FDD Band 26	Max allowed power	25.2	25.2
	Nominal	24.7	24.7
LTE FDD Band 4	Max allowed power	25.2	23.2
	Nominal	24.7	22.7
LTE FDD Band 66	Max allowed power	25.2	23.2
	Nominal	24.7	22.7
LTE FDD Band 2	Max allowed power	24.7	23.2
	Nominal	24.2	22.7
LTE FDD Band 25	Max allowed power	24.7	23.2
	Nominal	24.2	22.7
LTE TDD Band 41 (PC3)	Max allowed power	24.2	23.2
	Nominal	23.7	22.7
LTE TDD Band 41 (PC2)	Max allowed power	27.2	26.2
	Nominal	26.7	25.7

1.3.2 Maximum Bluetooth and SISO WLAN Output Power

Mode	Band	IEEE 802.11 (in dBm)					
		SISO					
		b		g		n	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI	2.45 GHz	21.0	20.0	19.5 ch. 1: 16.5 ch. 2: 19.0 ch 11: 17.0	18.5 15.5 18.0 16.0	19.0 ch. 1: 16.0 ch. 2: 18.5 ch 11: 16.5	18.0 15.0 17.5 15.5

Mode	Band	IEEE 802.11 (in dBm)					
		SISO					
		a		n		ac	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	5200 MHz	17.5	16.5	17.0	16.0	17.0	16.0
	5300 MHz	18.0	17.0	17.5	16.5	17.5	16.5
	5500 MHz	18.0	17.0	17.5	16.5	17.5	16.5
		ch. 100: 16.5	15.5	ch. 100: 16.0	15.0	ch. 100: 16.0	15.0
		ch. 116: 17.5	16.5	ch. 116: 17.0	16.0	ch. 116: 17.0	16.0
		ch. 120: 17.5	16.5	ch. 120: 17.0	16.0	ch. 120: 17.0	16.0
		ch. 124: 17.5	16.5	ch. 124: 17.0	16.0	ch. 124: 17.0	16.0
		ch. 128: 17.0	16.0	ch. 128: 16.5	15.5	ch. 128: 16.5	15.5
		ch. 132: 17.0	16.0	ch. 132: 16.5	15.5	ch. 132: 16.5	15.5
		ch. 136: 16.5	15.5	ch. 136: 16.0	15.0	ch. 136: 16.0	15.0
		ch. 140: 16.5	15.5	ch. 140: 16.0	15.0	ch. 140: 16.0	15.0
		ch. 144: 16.5	15.5	ch. 144: 16.0	15.0	ch. 144: 16.0	15.0
	5800 MHz	17.0	16.0	16.5	15.5	16.5	15.5
		ch. 165: 16.5	15.5	ch. 165: 16.0	15.0	ch. 165: 16.0	15.0
5 GHz WIFI (40MHz BW)	5200 MHz			14.5	13.5	14.5	13.5
				ch. 38: 14.0	13.0	ch. 38: 14.0	13.0
	5300 MHz			15.0	14.0	15.0	14.0
	5500 MHz			15.0	14.0	15.0	14.0
				ch. 102: 12.5	11.5	ch. 102: 12.5	11.5
				ch. 134: 14.0	13.0	ch. 134: 14.0	13.0
				ch. 142: 14.0	13.0	ch. 142: 14.0	13.0
	5800 MHz			15.0	14.0	15.0	14.0
				ch. 159: 14.5	13.5	ch. 159: 14.5	13.5
5 GHz WIFI (80MHz BW)	5200 MHz					11.5	10.5
	5300 MHz					13.0	12.0
	5500 MHz					13.0	12.0
						ch. 106: 11.0	10.0
	5800 MHz					13.5	12.5

Bluetooth (in dBm)	
Max	**Nom**
10.5	9.5

Bluetooth LE (in dBm)	
Max	**Nom**
5.0	4.0

1.3.3 Reduced SISO WLAN Output Power

Mode	Band	IEEE 802.11 (in dBm)					
		SISO					
		b		g		n	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WIFI	2.45 GHz	18.5	17.5	18.5 ch. 1: 16.5 ch. 11: 17.0	17.5 15.5 16.0	18.5 ch. 1: 16.0 ch. 11: 16.5	17.5 15.0 15.5

Mode	Band	IEEE 802.11 (in dBm)					
		SISO					
		a		n		ac	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WIFI (20MHz BW)	5200 MHz	14.5	13.5	14.5	13.5	14.5	13.5
	5300 MHz	15.0	14.0	15.0	14.0	15.0	14.0
	5500 MHz	15.0	14.0	15.0	14.0	15.0	14.0
		ch. 116: 14.5	13.5	ch. 116: 14.5	13.5	ch. 116: 14.5	13.5
		ch. 120: 14.5	13.5	ch. 120: 14.5	13.5	ch. 120: 14.5	13.5
		ch. 124: 14.5	13.5	ch. 124: 14.5	13.5	ch. 124: 14.5	13.5
		ch. 128: 14.0	13.0	ch. 128: 14.0	13.0	ch. 128: 14.0	13.0
		ch. 132: 14.0	13.0	ch. 132: 14.0	13.0	ch. 132: 14.0	13.0
		ch. 136: 13.5	12.5	ch. 136: 13.5	12.5	ch. 136: 13.5	12.5
		ch. 140: 13.5	12.5	ch. 140: 13.5	12.5	ch. 140: 13.5	12.5
		ch. 144: 13.5	12.5	ch. 144: 13.5	12.5	ch. 144: 13.5	12.5
	5800 MHz	14.5	13.5	14.5	13.5	14.5	13.5
		ch. 157: 14.0	13.0	ch. 157: 14.0	13.0	ch. 157: 14.0	13.0
		ch. 161: 14.0	13.0	ch. 161: 14.0	13.0	ch. 161: 14.0	13.0
		ch. 165: 13.5	12.5	ch. 165: 13.5	12.5	ch. 165: 13.5	12.5
5 GHz WIFI (40MHz BW)	5200 MHz			14.0	13.0	14.0	13.0
	5300 MHz			14.5	13.5	14.5	13.5
	5500 MHz			14.5	13.5	14.5	13.5
				ch. 102: 12.5	11.5	ch. 102: 12.5	11.5
				ch. 134: 13.5	12.5	ch. 134: 13.5	12.5
				ch. 142: 13.5	12.5	ch. 142: 13.5	12.5
	5800 MHz			14.5	13.5	14.5	13.5
				ch. 159: 14.0	13.0	ch. 159: 14.0	13.0
5 GHz WIFI (80MHz BW)	5200 MHz					11.5	10.5
	5300 MHz					13.0	12.0
	5500 MHz					13.0	12.0
						ch. 106: 11.0	10.0
	5800 MHz					13.5	12.5

1.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device antennas can be found in 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
EVDO BC10 (§90S)	Yes	Yes	No	Yes	Yes	Yes
EVDO BC0 (§22H)	Yes	Yes	No	Yes	Yes	Yes
PCS EVDO	Yes	Yes	No	Yes	No	Yes
GPRS 850	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	No	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	Yes
UMTS 1750	Yes	Yes	No	Yes	No	Yes
UMTS 1900	Yes	Yes	No	Yes	No	Yes
LTE Band 71	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	Yes
LTE Band 13	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 66 (AWS)	Yes	Yes	No	Yes	No	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	No	Yes
LTE Band 41	Yes	Yes	No	Yes	Yes	Yes
2.4 GHz WLAN	Yes	Yes	Yes	No	Yes	No
5 GHz WLAN	Yes	Yes	Yes	No	Yes	No
Bluetooth	Yes	Yes	Yes	No	Yes	No

Note: Particular DUT edges were not required to be evaluated for wireless router SAR or phablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III and FCC KDB Publication 648474 D04v01r03. The distances between the transmit antennas and the edges of the device are included in the filing.

When Wireless router mode is enabled U-NII-2A and U-NII-2C operations are disabled

1.5 Simultaneous Transmission Capabilities

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

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

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet	Notes
1	1x CDMA voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
2	1x CDMA voice + 2.4 GHz WLAN	Yes	Yes	N/A	Yes	
3	1x CDMA voice + 5 GHz WLAN	Yes	Yes	N/A	Yes	
4	1x CDMA voice + 2.4 GHz Bluetooth + 5 GHz WLAN	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
5	GSM voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
6	GSM voice + 2.4 GHz WLAN	Yes	Yes	N/A	Yes	
7	GSM voice + 5 GHz WLAN	Yes	Yes	N/A	Yes	
8	GSM voice + 2.4 GHz Bluetooth + 5 GHz WLAN	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
9	UMTS + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
10	UMTS + 2.4 GHz WLAN	Yes	Yes	Yes	Yes	
11	UMTS + 5 GHz WLAN	Yes	Yes	Yes	Yes	
12	UMTS + 2.4 GHz Bluetooth + 5 GHz WLAN	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
13	LTE + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
14	LTE + 2.4 GHz WLAN	Yes	Yes	Yes	Yes	
15	LTE + 5 GHz WLAN	Yes	Yes	Yes	Yes	
16	LTE + 2.4 GHz Bluetooth + 5 GHz WLAN	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
17	CDMA/EVDO data + 2.4 GHz Bluetooth	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered. ^ Bluetooth Tethering is considered
18	CDMA/EVDO data + 2.4 GHz WLAN	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered.
19	CDMA/EVDO data + 5 GHz WLAN	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered.
20	CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz WLAN	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered. ^ Bluetooth Tethering is considered
21	GPRS/EDGE + 2.4 GHz Bluetooth	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered. ^ Bluetooth Tethering is considered
22	GPRS/EDGE + 2.4 GHz WLAN	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered.
23	GPRS/EDGE + 5 GHz WLAN	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered.
24	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz WLAN	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered. ^ Bluetooth Tethering is considered

1. 2.4 GHz WLAN 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 VOLTE.
7. This device supports VOWIFI.
8. This device supports Bluetooth Tethering.

1.6 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

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

evaluated for 2.4 GHz, U-NII-1 WLAN, U-NII-3 WLAN and 2.4 BT operations since wireless router 1g SAR was < 1.2 W/kg.

(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.

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 64QAM on the uplink for LTE Operations. Conducted powers for 64QAM uplink configurations were measured per Section 5.1 of FCC KDB Publication 941225D05v02r05. SAR was not required for 64QAM since the highest maximum output power for 64QAM is ≤ ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45W/kg, per Section 5.2.4 of FCC KDB Publication 941225 D05v02r05.

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 both Power Class 2 (PC2) and Power Class 3 (PC3) for LTE Band 41. Per May 2017 TCB Workshop Notes, SAR tests were performed with Power Class 3 (given the specific UL/DL limitations for Power Class 2). Additionally, SAR testing for the power class 2 condition was evaluated for the highest configuration in Power Class 3 for each test configuration to confirm the results were scalable linearly (See Section 14.1).

LTE Downlink Carrier Aggregation was fully addressed in the original filing. Per FCC Guidance, no additional measurements were required since there were no changes to the downlink CA implementation for this C2PC.

1.7 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, 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 Band 41 Power Class 2/3)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

1.8 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.

2 LTE INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 71 (665.5 - 695.5 MHz)				
	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)		680.5 (133297)	695.5 (133447)	
LTE Band 71: 10 MHz	668 (133172)		680.5 (133297)	693 (133422)	
LTE Band 71: 15 MHz	670.5 (133197)		680.5 (133297)	690.5 (133397)	
LTE Band 71: 20 MHz	673 (133222)		680.5 (133297)	688 (133372)	
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	N/A	
LTE Band 26 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)	841.5 (26965)	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)	1914.3 (26683)	
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)	1913.5 (26675)	
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)	1912.5 (26665)	
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)	1910 (26640)	
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)	1907.5 (26615)	
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)	1905 (26590)	
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 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 7, UL UE Cat 13				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 11. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 11 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

3 INTRODUCTION

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

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

3.1 SAR Definition

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

Equation 3-1
SAR Mathematical Equation

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

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

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

where:

σ = conductivity of the tissue-simulating material (S/m)
ρ = mass density of the tissue-simulating material (kg/m^3)
E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

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

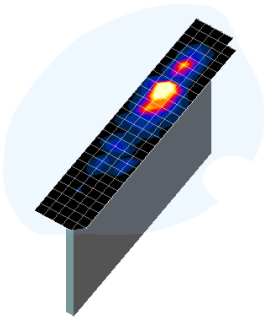


Figure 4-1
Sample SAR Area Scan

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):

   a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).

   b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.

   c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

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

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

5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

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

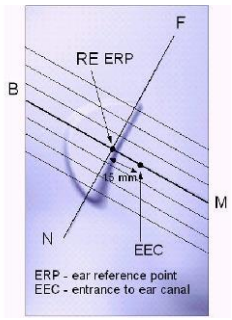


Figure 5-1
Close-Up Side view of ERP

5.2 HANDSET REFERENCE POINTS

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

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

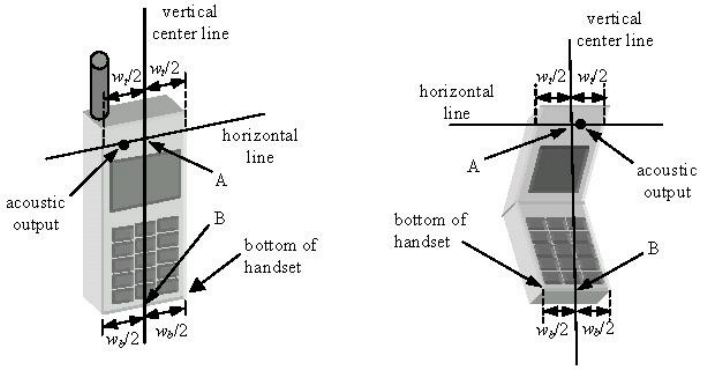


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

6 TEST CONFIGURATION POSITIONS

6.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02.

6.2 Positioning for Cheek

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

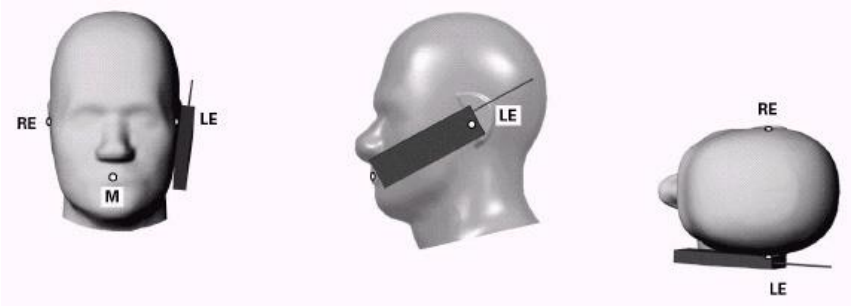


Figure 6-1 Front, Side and Top View of Cheek Position

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

6.3 Positioning for Ear / 15º Tilt

With the test device aligned in the "Cheek Position":

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

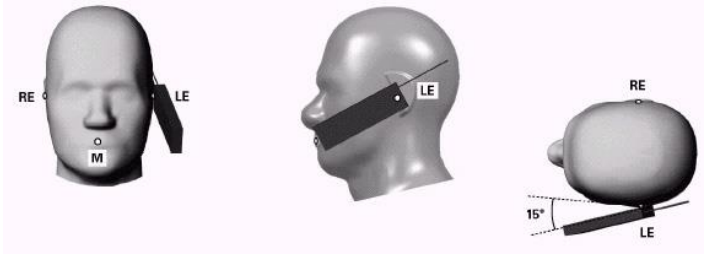


Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

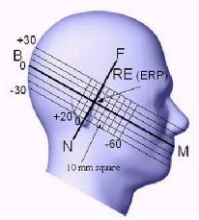


Figure 6-3
Side view w/ relevant markings

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

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

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D04v01r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR location identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

6.5 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-4). Per FCC KDB Publication 648474 D04v01r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

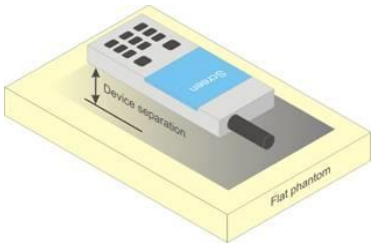


Figure 6-4
Sample Body-Worn Diagram

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

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

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

6.6 Extremity Exposure Configurations

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

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

6.7 Wireless Router Configurations

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

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

6.8 Phablet Configurations

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

support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04v01r03 should be applied to evaluate SAR compliance. A device marketed as a phablet, 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.

7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *General Population* (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT *Occupational* (W/kg) or (mW/g)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

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

8.2 3G SAR Test Reduction Procedure

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

8.3 Procedures Used to Establish RF Signal for SAR

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

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

8.4 SAR Measurement Conditions for CDMA2000

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

8.4.1 Output Power Verification

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

1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 8-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH_0 and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 8-2 was applied.

Table 8-1
Parameters for Max. Power for RC1

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

Table 8-2
Parameters for Max. Power for RC3

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

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

8.4.2 Head SAR Measurements

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

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

8.4.3 Body-worn SAR Measurements

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

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

8.4.4 Body-worn SAR Measurements for EVDO Devices

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

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

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

8.4.5 Body SAR Measurements for EVDO Hotspot

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

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

8.5 SAR Measurement Conditions for UMTS

8.5.1 Output Power Verification

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

8.5.2 Head SAR Measurements

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "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.

8.5.3 Body SAR Measurements

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

8.5.4 SAR Measurements with Rel 5 HSDPA

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

8.5.5 SAR Measurements with Rel 6 HSUPA

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

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

8.6 SAR Measurement Conditions for LTE

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

8.6.1 Spectrum Plots for RB Configurations

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

8.6.2 MPR

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

8.6.3 A-MPR

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

8.6.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   i. The required channel and offset combination with the highest maximum output power is required for SAR.
   ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
   iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.

c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.

8.6.5 TDD

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

8.6.6 Downlink Only Carrier Aggregation

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

8.7 SAR Testing with 802.11 Transmitters

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

8.7.1 General Device Setup

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

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

8.7.2 U-NII-1 and U-NII-2A

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

8.7.3 U-NII-2C and U-NII-3

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

8.7.4 Initial Test Position Procedure

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

8.7.5 2.4 GHz SAR Test Requirements

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

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

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

8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel

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

8.7.7 Initial Test Configuration Procedure

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

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

8.7.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Table 9-1
Maximum Conducted Power

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	24.43	24.43	24.44	24.43	24.75	24.80
Cellular	1013	22H	824.7	24.49	24.50	24.55	24.53	24.78	24.79
	384	22H	836.52	24.54	24.54	24.59	24.60	24.82	24.72
	777	22H	848.31	24.59	24.60	24.60	24.62	24.89	24.83
PCS	25	24E	1851.25	24.34	24.33	24.35	24.36	24.32	24.33
	600	24E	1880	24.31	24.31	24.33	24.33	24.28	24.30
	1175	24E	1908.75	24.28	24.29	24.29	24.28	24.26	24.27

Table 9-2
Reduced Conducted Power

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	FCH+SCH	FCH	(RTAP)	(RETAP)
PCS	25	24E	1851.25	22.91	22.92	22.83	22.82	22.65	22.64
	600	24E	1880	22.91	22.91	22.82	22.84	22.74	22.73
	1175	24E	1908.75	22.85	22.86	22.77	22.77	22.70	22.69

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

Figure 9-1
Power Measurement Setup

9.2 GSM Conducted Powers

Table 9-3
Maximum Conducted Power

Maximum Burst-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	33.43	33.43	32.08	30.35	**29.16**	27.50	25.96	24.18	23.05
	190	33.49	33.49	32.12	30.36	**29.20**	27.55	26.01	24.27	23.06
	251	33.36	33.35	31.97	30.22	**29.02**	27.68	26.15	24.40	23.20
GSM 1900	512	29.60	29.60	29.04	27.39	**26.20**	26.66	25.02	23.18	21.96
	661	29.70	29.70	29.16	27.40	**26.19**	26.58	24.83	23.01	21.73
	810	29.29	29.29	28.74	27.21	**25.90**	26.40	24.68	22.79	21.48

Calculated Maximum Frame-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	24.23	24.23	25.89	25.92	**25.98**	18.30	19.77	19.75	19.87
	190	24.29	24.29	25.93	25.93	**26.02**	18.35	19.82	19.84	19.88
	251	24.16	24.15	25.78	25.79	**25.84**	18.48	19.96	19.97	20.02
GSM 1900	512	20.40	20.40	22.85	22.96	**23.02**	17.46	18.83	18.75	18.78
	661	20.50	20.50	22.97	22.97	**23.01**	17.38	18.64	18.58	18.55
	810	20.09	20.09	22.55	22.78	**22.72**	17.20	18.49	18.36	18.30
GSM 850	**Frame Avg.Targets:**	24.00	24.00	25.51	25.47	**25.52**	18.00	19.51	19.47	19.52
GSM 1900		20.00	20.00	22.51	22.47	**22.52**	17.00	18.51	18.47	18.52

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: 12 (Max 4 Tx uplink slots)
EDGE Multislot class: 12 (Max 4 Tx uplink slots)
DTM Multislot Class: N/A

Figure 9-2
Power Measurement Setup

9.3 UMTS Conducted Powers

Table 9-4
Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	25.20	25.16	25.20	24.92	24.88	24.98	24.66	24.59	24.50	-
99		12.2 kbps AMR	25.20	25.19	25.19	24.94	24.87	24.98	24.69	24.57	24.47	-
6	HSDPA	Subtest 1	25.20	25.19	25.20	24.88	24.81	24.93	24.64	24.55	24.43	0
6		Subtest 2	25.20	25.16	25.20	24.84	24.79	24.94	24.60	24.49	24.36	0
6		Subtest 3	24.70	24.70	24.70	24.35	24.30	24.42	24.12	24.00	23.88	0.5
6		Subtest 4	24.69	24.69	24.70	24.35	24.28	24.44	24.12	24.03	23.87	0.5
6	HSUPA	Subtest 1	23.20	23.18	23.20	22.77	22.72	22.84	22.55	22.43	22.30	2
6		Subtest 2	23.18	23.19	23.19	22.77	22.71	22.81	22.51	22.43	22.30	2
6		Subtest 3	24.19	24.20	24.20	23.74	23.70	23.84	23.54	23.44	23.31	1
6		Subtest 4	22.63	22.68	22.70	22.30	22.28	22.35	22.00	21.97	21.82	2.5
6		Subtest 5	24.16	24.18	24.20	23.74	23.70	23.80	23.49	23.41	23.30	1

Table 9-5
Reduced Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]			PCS Band [dBm]			MPR [dB]
			1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	22.82	22.76	22.87	23.06	23.01	22.87	-
99		12.2 kbps AMR	22.83	22.78	22.88	23.12	23.02	22.86	-
6	HSDPA	Subtest 1	22.82	22.79	22.90	23.11	23.02	22.88	0
6		Subtest 2	22.79	22.75	22.87	23.06	22.96	22.81	0
6		Subtest 3	22.35	22.26	22.36	22.57	22.49	22.36	0.5
6		Subtest 4	22.32	22.27	22.35	22.60	22.48	22.35	0.5
6	HSUPA	Subtest 1	20.75	20.70	20.84	21.00	20.95	20.80	2
6		Subtest 2	20.78	20.70	20.80	21.00	20.94	20.80	2
6		Subtest 3	21.80	21.73	21.84	22.00	21.93	21.77	1
6		Subtest 4	20.25	20.22	20.33	20.51	20.42	20.30	2.5
6		Subtest 5	21.77	21.70	21.84	21.97	21.90	21.76	1

This device does not support DC-HSDPA.

Figure 9-3
Power Measurement Setup

9.4 LTE Conducted Powers

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

9.4.1 LTE Band 71

Table 9-6
LTE Band 71 Conducted Powers - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 133297 (680.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.79	0	0
	1	50	**25.03**		0
	1	99	24.79		0
	50	0	23.86	0-1	1
	50	25	**24.05**		1
	50	50	23.98		1
	100	0	23.91		1
16QAM	1	0	24.02	0-1	1
	1	50	24.15		1
	1	99	24.13		1
	50	0	22.87	0-2	2
	50	25	23.01		2
	50	50	22.93		2
	100	0	22.92		2
64QAM	1	0	23.01	0-2	2
	1	50	23.19		2
	1	99	23.02		2
	50	0	21.84	0-3	3
	50	25	22.03		3
	50	50	21.94		3
	100	0	21.90		3

Note: LTE Band 71 at 20 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

9.4.2 LTE Band 12

Table 9-7
LTE Band 12 Conducted Powers - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	**RB Size**	**RB Offset**	**Mid Channel** **23095** **(707.5 MHz)** **Conducted Power [dBm]**	**MPR Allowed per 3GPP [dB]**	**MPR [dB]**
QPSK	1	0	24.90	0	0
	1	25	**25.01**		0
	1	49	24.81		0
	25	0	24.01	0-1	1
	25	12	24.01		1
	25	25	**24.02**		1
	50	0	24.01		1
16QAM	1	0	24.13	0-1	1
	1	25	24.20		1
	1	49	24.01		1
	25	0	23.00	0-2	2
	25	12	23.00		2
	25	25	23.02		2
	50	0	23.02		2
64QAM	1	0	23.09	0-2	2
	1	25	23.20		2
	1	49	23.03		2
	25	0	22.02	0-3	3
	25	12	22.01		3
	25	25	22.04		3
	50	0	22.06		3

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

9.4.3 LTE Band 13

Table 9-8
LTE Band 13 Conducted Powers - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	23.88	0	0
	1	25	**23.99**		0
	1	49	23.83		0
	25	0	22.86	0-1	1
	25	12	**22.94**		1
	25	25	22.90		1
	50	0	22.90		1
16QAM	1	0	23.04	0-1	1
	1	25	23.20		1
	1	49	23.19		1
	25	0	21.88	0-2	2
	25	12	21.95		2
	25	25	21.90		2
	50	0	21.89		2
64QAM	1	0	22.03	0-2	2
	1	25	22.19		2
	1	49	22.07		2
	25	0	20.87	0-3	3
	25	12	20.96		3
	25	25	20.89		3
	50	0	20.92		3

9.4.4 LTE Band 26 (Cell)

Table 9-9
LTE Band 26 (Cell) Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.88	0	0
	1	36	**24.94**		0
	1	74	24.93		0
	36	0	**24.08**	0-1	1
	36	18	24.05		1
	36	37	24.06		1
	75	0	24.07		1
16QAM	1	0	23.91	0-1	1
	1	36	23.98		1
	1	74	24.08		1
	36	0	22.77	0-2	2
	36	18	22.73		2
	36	37	22.77		2
	75	0	22.79		2
64QAM	1	0	23.08	0-2	2
	1	36	23.14		2
	1	74	23.16		2
	36	0	22.02	0-3	3
	36	18	22.00		3
	36	37	22.04		3
	75	0	22.04		3

Note: LTE Band 26 (Cell) at 15 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

9.4.5 LTE Band 66 (AWS)

Table 9-10
LTE Band 66 (AWS) Maximum Conducted Powers - 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	24.49	24.45	24.58	0	0
	1	50	24.75	24.79	**24.80**		0
	1	99	24.55	24.70	24.57		0
	50	0	23.76	23.91	**24.00**	0-1	1
	50	25	23.80	23.85	23.88		1
	50	50	23.80	23.88	23.89		1
	100	0	23.79	23.89	23.90		1
16QAM	1	0	23.57	23.58	23.60	0-1	1
	1	50	23.88	23.92	23.93		1
	1	99	23.65	23.78	23.68		1
	50	0	22.49	22.63	22.67	0-2	2
	50	25	22.53	22.59	22.61		2
	50	50	22.56	22.62	22.60		2
	100	0	22.55	22.65	22.64		2
64QAM	1	0	22.80	22.70	22.87	0-2	2
	1	50	23.03	23.12	23.11		2
	1	99	22.82	23.01	22.88		2
	50	0	21.76	21.89	21.91	0-3	3
	50	25	21.79	21.81	21.86		3
	50	50	21.79	21.87	21.84		3
	100	0	21.77	21.89	21.87		3

Table 9-11
LTE Band 66 (AWS) Reduced Conducted Powers - Grip Sensor Mode Active - 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	22.55	22.58	22.63	0	0
	1	50	22.80	**22.91**	22.89		0
	1	99	22.60	22.77	22.64		0
	50	0	22.71	**22.91**	22.88	0-1	0
	50	25	22.78	22.84	22.84		0
	50	50	22.77	22.86	22.86		0
	100	0	22.77	22.88	22.89		0
16QAM	1	0	22.85	22.86	22.97	0-1	0
	1	50	23.16	23.19	23.17		0
	1	99	22.93	23.13	22.96		0
	50	0	22.49	22.63	22.67	0-2	0
	50	25	22.54	22.60	22.60		0
	50	50	22.56	22.61	22.59		0
	100	0	22.55	22.65	22.64		0
64QAM	1	0	22.75	22.70	22.86	0-2	0
	1	50	23.07	23.11	23.12		0
	1	99	22.80	23.01	22.87		0
	50	0	21.74	21.87	21.92	0-3	1
	50	25	21.80	21.83	21.86		1
	50	50	21.77	21.87	21.86		1
	100	0	21.78	21.90	21.87		1

9.4.6 LTE Band 25 (PCS)

Table 9-12
LTE Band 25 (PCS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.04	24.13	24.13	0	0
	1	50	24.38	**24.39**	24.31		0
	1	99	24.21	24.15	24.02		0
	50	0	23.27	**23.43**	23.33	0-1	1
	50	25	23.38	23.41	23.30		1
	50	50	23.39	23.33	23.15		1
	100	0	23.34	23.38	23.23		1
16QAM	1	0	23.14	23.25	23.28	0-1	1
	1	50	23.49	23.49	23.44		1
	1	99	23.26	23.21	23.08		1
	50	0	21.98	22.10	22.04	0-2	2
	50	25	22.05	22.10	22.03		2
	50	50	22.08	22.01	21.85		2
	100	0	22.02	22.07	21.97		2
64QAM	1	0	22.30	22.41	22.47	0-2	2
	1	50	22.68	22.65	22.67		2
	1	99	22.45	22.44	22.35		2
	50	0	21.26	21.42	21.34	0-3	3
	50	25	21.35	21.38	21.32		3
	50	50	21.37	21.33	21.18		3
	100	0	21.32	21.36	21.25		3

Table 9-13
LTE Band 25 (PCS) Reduced Conducted Powers - Grip Sensor Mode Active - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.59	22.65	22.69	0	0
	1	50	22.90	**22.94**	22.89		0
	1	99	22.73	22.65	22.60		0
	50	0	22.77	**22.91**	22.80	0-1	0
	50	25	22.85	22.87	22.80		0
	50	50	22.89	22.81	22.65		0
	100	0	22.82	22.85	22.72		0
16QAM	1	0	22.93	23.05	23.04	0-1	0
	1	50	23.15	23.20	23.20		0
	1	99	23.06	22.99	22.89		0
	50	0	21.97	22.09	22.02	0-2	0.5
	50	25	22.05	22.08	22.02		0.5
	50	50	22.08	22.01	21.84		0.5
	100	0	22.02	22.05	21.96		0.5
64QAM	1	0	22.30	22.42	22.50	0-2	0.5
	1	50	22.60	22.69	22.66		0.5
	1	99	22.49	22.42	22.33		0.5
	50	0	21.27	21.40	21.34	0-3	1.5
	50	25	21.36	21.38	21.32		1.5
	50	50	21.39	21.33	21.16		1.5
	100	0	21.31	21.35	21.25		1.5

9.4.7 LTE Band 41

Table 9-14
LTE Band 41 PC3 Maximum Conducted Powers - 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	23.81	23.55	23.70	23.70	24.17	0	0
	1	50	23.88	23.83	23.83	23.99	**24.20**		0
	1	99	23.51	23.65	23.57	23.88	24.00		0
	50	0	22.76	22.68	22.76	22.84	**23.20**	0-1	1
	50	25	22.76	22.68	22.79	22.93	23.17		1
	50	50	22.65	22.72	22.75	22.97	23.10		1
	100	0	22.78	22.67	22.80	22.92	23.19		1
16QAM	1	0	22.48	22.24	22.38	22.44	22.81	0-1	1
	1	50	22.52	22.55	22.60	22.69	22.95		1
	1	99	22.19	22.29	22.31	22.55	22.61		1
	50	0	21.48	21.45	21.57	21.67	21.87	0-2	2
	50	25	21.44	21.50	21.58	21.71	21.85		2
	50	50	21.40	21.50	21.56	21.79	21.77		2
	100	0	21.50	21.47	21.57	21.72	21.88		2
64QAM	1	0	21.42	21.25	21.42	21.42	21.78	0-2	2
	1	50	21.54	21.52	21.60	21.71	21.96		2
	1	99	21.16	21.33	21.31	21.63	21.61		2
	50	0	20.87	20.85	20.93	21.02	21.20	0-3	3
	50	25	20.85	20.89	20.97	21.10	21.19		3
	50	50	20.75	20.88	20.95	21.17	21.14		3
	100	0	20.79	20.77	20.90	20.98	21.15		3

Table 9-15
LTE Band 41 PC2 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	26.84	26.62	26.71	26.77	27.07	0	0
	1	50	27.00	26.87	26.93	27.00	**27.20**		0
	1	99	26.70	26.72	26.66	26.90	26.88		0
	50	0	25.78	25.69	25.78	25.83	**26.20**	0-1	1
	50	25	25.78	25.72	25.79	25.92	**26.20**		1
	50	50	25.69	25.71	25.76	25.99	26.12		1
	100	0	25.75	25.69	25.80	25.89	26.18		1

Table 9-16
LTE Band 41 PC3 Reduced Conducted Powers - Grip Sensor Mode Active - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	22.83	22.54	22.73	22.72	23.19	0	0
	1	50	22.91	22.86	22.91	22.95	**23.20**		0
	1	99	22.52	22.54	22.46	22.92	23.00		0
	50	0	22.80	22.68	22.77	22.89	**23.20**	0-1	0
	50	25	22.79	22.72	22.75	22.96	23.19		0
	50	50	22.71	22.72	22.67	23.00	23.15		0
	100	0	22.83	22.70	22.77	22.95	23.18		0
16QAM	1	0	22.50	22.26	22.47	22.45	22.85	0-1	0
	1	50	22.55	22.53	22.65	22.73	23.07		0
	1	99	22.21	22.30	22.21	22.64	22.68		0
	50	0	21.51	21.47	21.59	21.65	21.91	0-2	1
	50	25	21.46	21.48	21.61	21.73	21.91		1
	50	50	21.43	21.48	21.52	21.83	21.84		1
	100	0	21.51	21.47	21.57	21.71	21.92		1
64QAM	1	0	21.47	21.24	21.42	21.45	21.84	0-2	1
	1	50	21.58	21.52	21.56	21.75	22.05		1
	1	99	21.21	21.36	21.24	21.63	21.67		1
	50	0	20.89	20.89	20.91	21.05	21.20	0-3	2
	50	25	20.88	20.94	20.88	21.12	21.19		2
	50	50	20.80	20.92	20.83	21.19	21.18		2
	100	0	20.82	20.79	20.83	21.03	21.17		2

Table 9-17
LTE Band 41 PC2 Reduced Conducted Powers - Grip Sensor Mode Active - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	25.88	25.60	25.74	25.84	**26.20**	0	0
	1	50	25.88	25.91	25.93	26.11	26.19		0
	1	99	25.59	25.73	25.63	26.00	26.04		0
	50	0	25.81	25.68	25.75	25.87	26.18	0-1	0
	50	25	25.79	25.72	25.76	25.94	**26.19**		0
	50	50	25.69	25.71	25.74	26.02	26.16		0
	100	0	25.77	25.69	25.77	25.93	26.17		0

9.4.8 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-18
LTE B41 Uplink Carrier Aggregation Maximum Conducted Powers

	PCC							SCC							Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	39750	2506.0	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	23.24	23.51
CA_41C	LTE B41	20	41490	2680.0	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	23.50	24.17
	PCC							SCC							Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41 PC2	20	39750	2506.0	QPSK	1	99	LTE B41 PC2	20	39948	2525.8	QPSK	1	0	26.22	26.70
CA_41C	LTE B41 PC2	20	41490	2680.0	QPSK	1	0	LTE B41 PC2	20	41292	2660.2	QPSK	1	99	26.55	27.07

Table 9-19
LTE B41 Uplink Carrier Aggregation Reduced - Grip Sensor Mode Active - Conducted Powers

	PCC							SCC							Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	41490	2680.0	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	23.00	23.19
	PCC							SCC							Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41 PC2	20	41490	2680.0	QPSK	1	0	LTE B41 PC2	20	41292	2660.2	QPSK	1	99	25.95	26.20

9.5 WLAN Conducted Powers

Table 9-20
2.4 GHz WLAN Maximum Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	20.25	15.76	15.18
2417	2		18.47	17.87
2422	3		18.79	18.53
2437	6	20.43	18.76	18.54
2457	10		18.92	18.19
2462	11	20.35	16.38	15.79

Table 9-21
5 GHz WLAN Maximum Average RF Power

5GHz (20MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
		Average	Average	Average
5180	36	17.01	16.43	16.46
5200	40	17.17	16.51	16.43
5220	44	17.04	16.47	16.42
5240	48	17.12	16.43	16.39
5260	52	17.52	16.92	17.06
5280	56	17.55	16.85	17.09
5300	60	17.68	16.69	17.21
5320	64	17.35	16.83	16.91
5500	100	16.28	15.59	15.48
5520	104	17.65	16.99	16.96
5540	108	17.71	16.96	16.91
5600	120	16.93	16.62	16.55
5620	124	16.85	16.31	16.34
5720	144	15.77	15.53	15.35
5745	149	16.56	16.12	16.06
5785	157	16.66	16.21	16.21
5805	161	16.32	15.94	15.87
5825	165	16.02	15.69	15.61

Table 9-22
2.4 GHz WLAN Reduced Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	17.70	15.76	15.18
2417	2		17.91	17.87
2437	6	17.99	18.09	17.94
2457	10		17.96	17.89
2462	11	17.77	16.38	15.79

Table 9-23
5 GHz WLAN Reduced Average RF Power

5GHz (20MHz) Conducted Power [dBm]			
Channel	IEEE Transmission Mode		
	802.11a	802.11n	802.11ac
	Average	Average	Average
36	14.35	14.11	13.99
40	14.39	14.09	14.04
44	14.47	14.28	14.25
48	14.38	14.22	14.10
52	14.98	14.89	14.60
56	14.97	14.76	14.82
60	14.86	14.81	14.83
64	14.98	14.91	14.92
100	14.98	14.82	14.81
112	14.92	14.89	14.83
120	13.92	13.94	13.76
124	13.92	13.91	13.92
132	13.97	13.52	13.52
144	13.18	12.85	12.66

5GHz (40MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11n	802.11ac
		Average	Average
5755	151	13.72	13.83
5795	159	13.25	13.46

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

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

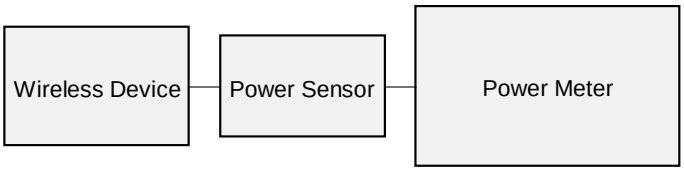


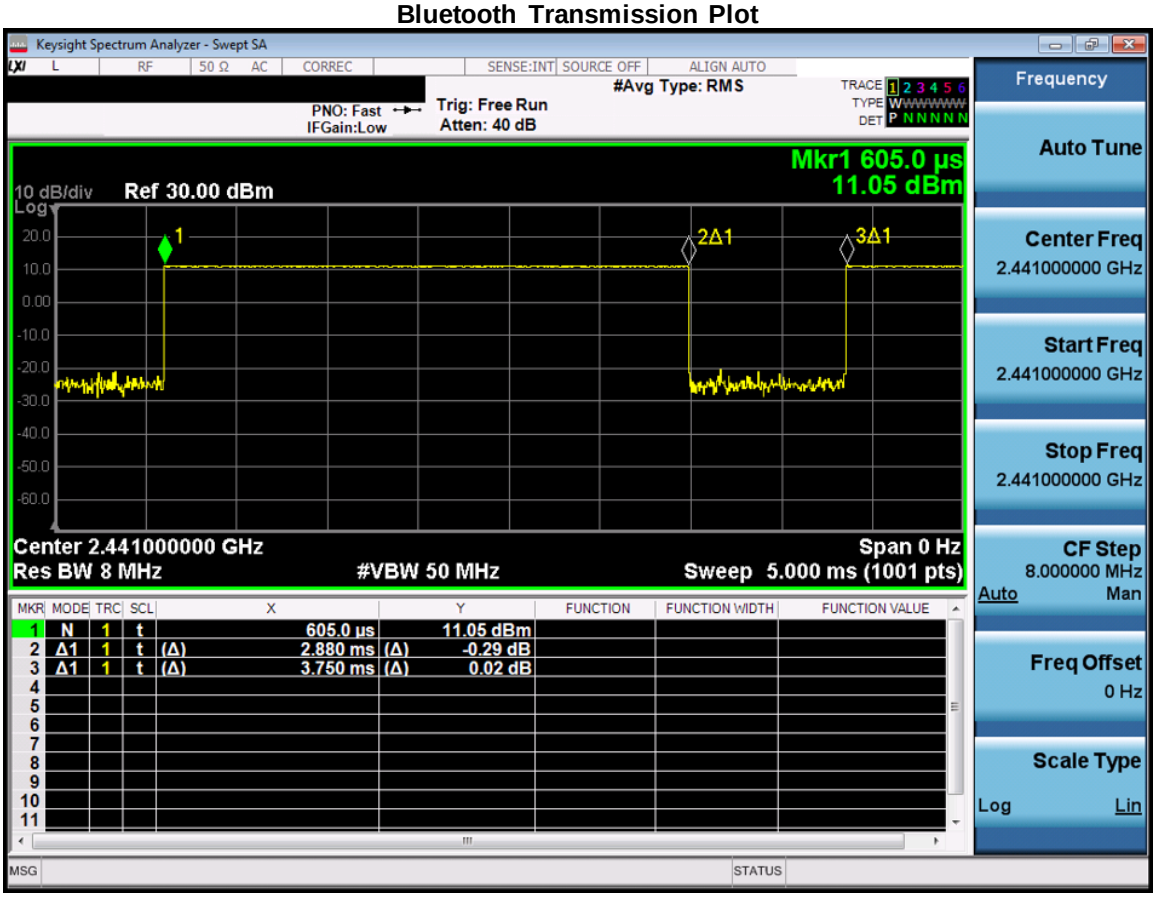
Figure 9-4
Power Measurement Setup

9.6 Bluetooth Conducted Powers

Table 9-24
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	7.95	6.237
2441	1.0	39	10.15	10.351
2480	1.0	78	10.11	10.257
2402	2.0	0	5.83	3.828
2441	2.0	39	7.47	5.585
2480	2.0	78	7.69	5.875
2402	3.0	0	5.92	3.908
2441	3.0	39	7.54	5.675
2480	3.0	78	7.77	5.984

Figure 9-5
Bluetooth Transmission Plot



Equation 9-1
Bluetooth Duty Cycle Calculation

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

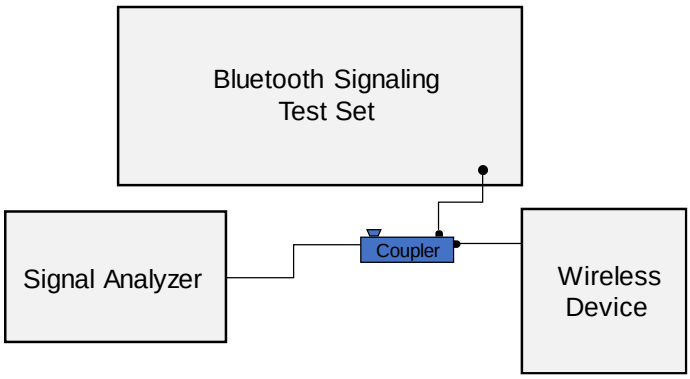


Figure 9-6
Power Measurement Setup

10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
01/11/2021	750 Head	20.0	680	0.860	42.378	0.888	42.305	-3.15%	0.17%
			695	0.866	42.328	0.889	42.227	-2.59%	0.24%
			700	0.867	42.310	0.889	42.201	-2.47%	0.26%
			710	0.871	42.277	0.890	42.149	-2.13%	0.30%
			725	0.877	42.232	0.891	42.071	-1.57%	0.38%
			750	0.885	42.153	0.894	41.942	-1.01%	0.50%
			770	0.891	42.093	0.895	41.838	-0.45%	0.61%
			785	0.897	42.058	0.896	41.760	0.11%	0.71%
			800	0.904	42.029	0.897	41.682	0.78%	0.83%
01/06/2021	835 Head	21.9	820	0.892	42.210	0.899	41.578	-0.78%	1.52%
			835	0.908	42.006	0.900	41.500	0.89%	1.22%
			850	0.924	41.792	0.916	41.500	0.87%	0.70%
1/20/2021	1750 Head	22.6	1710	1.357	39.905	1.348	40.142	0.67%	-0.59%
			1720	1.366	39.799	1.354	40.126	0.89%	-0.81%
			1745	1.393	39.529	1.368	40.087	1.83%	-1.39%
			1750	1.399	39.491	1.371	40.079	2.04%	-1.47%
			1770	1.430	39.408	1.383	40.047	3.40%	-1.60%
			1790	1.462	39.393	1.394	40.016	4.88%	-1.56%
01/05/2021	1900 Head	23.6	1850	1.356	38.991	1.400	40.000	-3.14%	-2.52%
			1860	1.366	38.943	1.400	40.000	-2.43%	-2.64%
			1880	1.387	38.856	1.400	40.000	-0.93%	-2.86%
			1900	1.408	38.778	1.400	40.000	0.57%	-3.06%
			1905	1.413	38.759	1.400	40.000	0.93%	-3.10%
			1910	1.418	38.740	1.400	40.000	1.29%	-3.15%
			1950	1.460	38.583	1.400	40.000	4.29%	-3.54%
01/07/2021	2450 Head	24.6	2400	1.789	39.926	1.756	39.289	1.88%	1.62%
			2450	1.847	39.716	1.800	39.200	2.61%	1.32%
			2480	1.883	39.596	1.833	39.162	2.73%	1.11%
			2500	1.907	39.514	1.855	39.136	2.80%	0.97%
01/10/2021	2450 Head	24.0	2400	1.775	39.729	1.756	39.289	1.08%	1.12%
			2450	1.832	39.546	1.800	39.200	1.78%	0.88%
			2480	1.867	39.425	1.833	39.162	1.85%	0.67%
01/28/2021	2450 Head	23.0	2450	1.832	39.277	1.800	39.200	1.78%	0.20%
			2480	1.868	39.144	1.833	39.162	1.91%	-0.05%
			2500	1.896	39.070	1.855	39.136	2.21%	-0.17%
			2510	1.907	39.015	1.866	39.123	2.20%	-0.28%
			2535	1.938	38.938	1.893	39.092	2.38%	-0.39%
			2550	1.950	38.879	1.909	39.073	2.15%	-0.50%
			2560	1.964	38.795	1.920	39.060	2.29%	-0.68%
			2600	2.012	38.661	1.964	39.009	2.44%	-0.89%
			2650	2.070	38.486	2.018	38.945	2.58%	-1.18%
			2680	2.102	38.340	2.051	38.907	2.49%	-1.46%
			2700	2.129	38.260	2.073	38.882	2.70%	-1.60%

Table 10-2
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
01/05/2021	5200–5800 Head	20.8	5180	4.619	35.083	4.635	36.009	-0.35%	-2.57%
			5190	4.633	35.071	4.645	35.998	-0.26%	-2.58%
			5200	4.645	35.060	4.655	35.986	-0.21%	-2.57%
			5210	4.656	35.046	4.666	35.975	-0.21%	-2.58%
			5220	4.665	35.026	4.676	35.963	-0.24%	-2.61%
			5240	4.682	34.979	4.696	35.940	-0.30%	-2.67%
			5250	4.692	34.957	4.706	35.929	-0.30%	-2.71%
			5260	4.703	34.931	4.717	35.917	-0.30%	-2.75%
			5270	4.716	34.901	4.727	35.906	-0.23%	-2.80%
			5280	4.730	34.877	4.737	35.894	-0.15%	-2.83%
			5290	4.746	34.858	4.748	35.883	-0.04%	-2.86%
			5300	4.759	34.853	4.758	35.871	0.02%	-2.84%
			5310	4.771	34.836	4.768	35.860	0.06%	-2.86%
			5320	4.781	34.823	4.778	35.849	0.06%	-2.86%
			5500	4.976	34.517	4.963	35.643	0.26%	-3.16%
			5510	4.988	34.499	4.973	35.632	0.30%	-3.18%
			5520	5.005	34.479	4.983	35.620	0.44%	-3.20%
			5530	5.021	34.463	4.994	35.609	0.54%	-3.22%
			5540	5.034	34.451	5.004	35.597	0.60%	-3.22%
			5550	5.045	34.449	5.014	35.586	0.62%	-3.20%
			5560	5.053	34.445	5.024	35.574	0.58%	-3.17%
			5580	5.060	34.391	5.045	35.551	0.30%	-3.26%
			5600	5.087	34.331	5.065	35.529	0.43%	-3.37%
			5610	5.107	34.315	5.076	35.518	0.61%	-3.39%
			5620	5.125	34.301	5.086	35.506	0.77%	-3.39%
			5640	5.150	34.286	5.106	35.483	0.86%	-3.37%
			5660	5.166	34.273	5.127	35.460	0.76%	-3.35%
			5670	5.168	34.244	5.137	35.449	0.60%	-3.40%
			5680	5.170	34.205	5.147	35.437	0.45%	-3.48%
			5690	5.185	34.174	5.158	35.426	0.52%	-3.53%
			5700	5.207	34.148	5.168	35.414	0.75%	-3.57%
			5710	5.223	34.125	5.178	35.403	0.87%	-3.61%
			5720	5.234	34.112	5.188	35.391	0.89%	-3.61%
			5745	5.267	34.096	5.214	35.363	1.02%	-3.58%
			5750	5.272	34.085	5.219	35.357	1.02%	-3.60%
			5755	5.276	34.074	5.224	35.351	1.00%	-3.61%
			5765	5.279	34.060	5.234	35.340	0.86%	-3.62%
			5775	5.285	34.039	5.245	35.329	0.76%	-3.65%
			5785	5.296	34.009	5.255	35.317	0.78%	-3.70%
			5795	5.313	33.976	5.265	35.305	0.91%	-3.76%
			5805	5.327	33.947	5.275	35.294	0.99%	-3.82%
			5825	5.354	33.917	5.296	35.271	1.10%	-3.84%

Table 10-3
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
01/22/2021	5200-5800 Head	23.0	5180	4.422	34.710	4.635	36.009	-4.60%	-3.61%
			5190	4.437	34.690	4.645	35.998	-4.48%	-3.63%
			5200	4.454	34.669	4.655	35.986	-4.32%	-3.66%
			5210	4.467	34.652	4.666	35.975	-4.26%	-3.68%
			5220	4.478	34.644	4.676	35.963	-4.23%	-3.67%
			5240	4.497	34.629	4.696	35.940	-4.24%	-3.65%
			5250	4.504	34.612	4.706	35.929	-4.29%	-3.67%
			5260	4.511	34.589	4.717	35.917	-4.37%	-3.70%
			5270	4.518	34.568	4.727	35.906	-4.42%	-3.73%
			5280	4.529	34.539	4.737	35.894	-4.39%	-3.78%
			5290	4.541	34.515	4.748	35.883	-4.36%	-3.81%
			5300	4.554	34.495	4.758	35.871	-4.29%	-3.84%
			5310	4.568	34.482	4.768	35.860	-4.19%	-3.84%
			5320	4.580	34.468	4.778	35.849	-4.14%	-3.85%
			5500	4.773	34.181	4.963	35.643	-3.83%	-4.10%
			5510	4.785	34.167	4.973	35.632	-3.78%	-4.11%
			5520	4.796	34.160	4.983	35.620	-3.75%	-4.10%
			5530	4.804	34.155	4.994	35.609	-3.80%	-4.08%
			5540	4.810	34.141	5.004	35.597	-3.88%	-4.09%
			5550	4.818	34.113	5.014	35.586	-3.91%	-4.14%
			5560	4.829	34.083	5.024	35.574	-3.88%	-4.19%
			5580	4.862	34.035	5.045	35.551	-3.63%	-4.26%
			5600	4.889	34.021	5.065	35.529	-3.47%	-4.24%
			5610	4.902	34.011	5.076	35.518	-3.43%	-4.24%
			5620	4.912	33.994	5.086	35.506	-3.42%	-4.26%
			5640	4.928	33.975	5.106	35.483	-3.49%	-4.25%
			5660	4.942	33.924	5.127	35.460	-3.61%	-4.33%
			5670	4.950	33.890	5.137	35.449	-3.64%	-4.40%
			5680	4.966	33.869	5.147	35.437	-3.52%	-4.42%
			5690	4.985	33.858	5.158	35.426	-3.35%	-4.43%
			5700	4.999	33.845	5.168	35.414	-3.27%	-4.43%
			5710	5.010	33.833	5.178	35.403	-3.24%	-4.43%
			5720	5.020	33.824	5.188	35.391	-3.24%	-4.43%
			5745	5.049	33.791	5.214	35.363	-3.16%	-4.45%
			5750	5.053	33.784	5.219	35.357	-3.18%	-4.45%
			5755	5.056	33.778	5.224	35.351	-3.22%	-4.45%
			5765	5.062	33.767	5.234	35.340	-3.29%	-4.45%
			5775	5.068	33.749	5.245	35.329	-3.37%	-4.47%
			5785	5.079	33.719	5.255	35.317	-3.35%	-4.52%
			5795	5.094	33.694	5.265	35.305	-3.25%	-4.56%
			5805	5.109	33.676	5.275	35.294	-3.15%	-4.58%
			5825	5.132	33.645	5.296	35.271	-3.10%	-4.61%

Table 10-4
Measured Body Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
12/28/2020	750 Body	20.5	680	0.920	54.381	0.958	55.804	-3.97%	-2.55%
			695	0.925	54.344	0.959	55.745	-3.55%	-2.51%
			700	0.927	54.333	0.959	55.726	-3.34%	-2.50%
			710	0.931	54.314	0.960	55.687	-3.02%	-2.47%
			725	0.937	54.287	0.961	55.629	-2.50%	-2.41%
			750	0.947	54.217	0.964	55.531	-1.76%	-2.37%
			770	0.954	54.164	0.965	55.453	-1.14%	-2.32%
			785	0.960	54.126	0.966	55.395	-0.62%	-2.29%
			800	0.967	54.091	0.967	55.336	0.00%	-2.25%
01/11/2021	835 Body	21.1	820	0.936	54.629	0.969	55.258	-3.41%	-1.14%
			835	0.950	54.481	0.970	55.200	-2.06%	-1.30%
			850	0.965	54.331	0.988	55.154	-2.33%	-1.49%
12/28/2020	1750 Body	23.0	1710	1.485	51.684	1.463	53.537	1.50%	-3.46%
			1720	1.495	51.637	1.469	53.511	1.77%	-3.50%
			1745	1.524	51.531	1.485	53.445	2.63%	-3.58%
			1750	1.529	51.512	1.488	53.432	2.76%	-3.59%
			1770	1.551	51.444	1.501	53.379	3.33%	-3.63%
			1790	1.571	51.369	1.514	53.326	3.76%	-3.67%
01/14/2021	1750 Body	22.4	1710	1.500	51.330	1.463	53.537	2.53%	-4.12%
			1720	1.511	51.276	1.469	53.511	2.86%	-4.18%
			1745	1.540	51.156	1.485	53.445	3.70%	-4.28%
			1750	1.546	51.138	1.488	53.432	3.90%	-4.29%
			1770	1.568	51.068	1.501	53.379	4.46%	-4.33%
			1790	1.589	50.997	1.514	53.326	4.95%	-4.37%
01/14/2021	1750 Body	23.7	1710	1.481	51.682	1.463	53.537	1.23%	-3.46%
			1720	1.492	51.634	1.469	53.511	1.57%	-3.51%
			1745	1.520	51.528	1.485	53.445	2.36%	-3.59%
			1750	1.526	51.508	1.488	53.432	2.55%	-3.60%
			1770	1.548	51.423	1.501	53.379	3.13%	-3.66%
			1790	1.570	51.337	1.514	53.326	3.70%	-3.73%
01/21/2021	1750 Body	22.8	1710	1.482	51.043	1.463	53.537	1.30%	-4.66%
			1720	1.492	50.983	1.469	53.511	1.57%	-4.72%
			1745	1.522	50.834	1.485	53.445	2.49%	-4.89%
			1750	1.528	50.808	1.488	53.432	2.69%	-4.91%
			1770	1.554	50.737	1.501	53.379	3.53%	-4.95%
			1790	1.575	50.696	1.514	53.326	4.03%	-4.93%
01/07/2021	1900 Body	24.2	1850	1.477	53.682	1.520	53.300	-2.83%	0.72%
			1860	1.488	53.647	1.520	53.300	-2.11%	0.65%
			1880	1.509	53.586	1.520	53.300	-0.72%	0.54%
			1900	1.531	53.531	1.520	53.300	0.72%	0.43%
			1905	1.536	53.516	1.520	53.300	1.05%	0.41%
			1910	1.541	53.502	1.520	53.300	1.38%	0.38%
			1950	1.587	53.389	1.520	53.300	4.41%	0.17%
01/11/2021	1900 Body	23.9	1850	1.460	53.524	1.520	53.300	-3.95%	0.42%
			1860	1.471	53.490	1.520	53.300	-3.22%	0.36%
			1880	1.492	53.435	1.520	53.300	-1.84%	0.25%
			1900	1.512	53.389	1.520	53.300	-0.53%	0.17%
			1905	1.517	53.378	1.520	53.300	-0.20%	0.15%
			1910	1.522	53.367	1.520	53.300	0.13%	0.13%
			1950	1.566	53.251	1.520	53.300	3.03%	-0.09%
01/14/2021	1900 Body	24.3	1850	1.480	53.734	1.520	53.300	-2.63%	0.81%
			1860	1.491	53.700	1.520	53.300	-1.91%	0.75%
			1880	1.514	53.649	1.520	53.300	-0.39%	0.65%
			1900	1.536	53.585	1.520	53.300	1.05%	0.53%
			1905	1.541	53.569	1.520	53.300	1.38%	0.50%
			1910	1.546	53.551	1.520	53.300	1.71%	0.47%
			1950	1.592	53.395	1.520	53.300	4.74%	0.18%

Table 10-5
Measured Body Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
01/04/2021	2450 Body	23.4	2400	1.937	51.877	1.902	52.767	1.84%	-1.69%
			2450	2.004	51.686	1.950	52.700	2.77%	-1.92%
			2480	2.049	51.601	1.993	52.662	2.81%	-2.01%
			2500	2.072	51.529	2.021	52.636	2.52%	-2.10%
01/06/2021	2450 Body	21.4	2450	2.040	51.171	1.950	52.700	4.62%	-2.90%
			2480	2.075	51.099	1.993	52.662	4.11%	-2.97%
			2500	2.097	51.036	2.021	52.636	3.76%	-3.04%
			2510	2.108	50.999	2.035	52.623	3.59%	-3.09%
			2535	2.139	50.910	2.071	52.592	3.28%	-3.20%
			2550	2.159	50.870	2.092	52.573	3.20%	-3.24%
			2560	2.171	50.847	2.106	52.560	3.09%	-3.26%
			2600	2.215	50.736	2.163	52.509	2.40%	-3.38%
			2650	2.278	50.572	2.234	52.445	1.97%	-3.57%
			2680	2.314	50.498	2.277	52.407	1.62%	-3.64%
			2700	2.337	50.427	2.305	52.382	1.39%	-3.73%
01/27/2021	2450 Body	22.6	2450	2.038	51.079	1.950	52.700	4.51%	-3.08%
			2480	2.070	50.989	1.993	52.662	3.86%	-3.18%
			2500	2.094	50.916	2.021	52.636	3.61%	-3.27%
			2510	2.108	50.883	2.035	52.623	3.59%	-3.31%
			2535	2.141	50.814	2.071	52.592	3.38%	-3.38%
			2550	2.158	50.764	2.092	52.573	3.15%	-3.44%
			2560	2.170	50.739	2.106	52.560	3.04%	-3.46%
			2600	2.212	50.627	2.163	52.509	2.27%	-3.58%
			2650	2.276	50.461	2.234	52.445	1.88%	-3.78%
			2680	2.309	50.386	2.277	52.407	1.41%	-3.86%
			2700	2.332	50.333	2.305	52.382	1.17%	-3.91%
01/30/2021	2450 Body	23.8	2450	2.043	51.089	1.950	52.700	4.77%	-3.06%
			2480	2.079	51.007	1.993	52.662	4.32%	-3.14%
			2500	2.103	50.947	2.021	52.636	4.06%	-3.21%
			2510	2.116	50.914	2.035	52.623	3.98%	-3.25%
			2535	2.148	50.832	2.071	52.592	3.72%	-3.35%
			2550	2.167	50.786	2.092	52.573	3.59%	-3.40%
			2560	2.179	50.755	2.106	52.560	3.47%	-3.43%
			2600	2.227	50.627	2.163	52.509	2.96%	-3.58%
			2650	2.286	50.446	2.234	52.445	2.33%	-3.81%
			2680	2.319	50.347	2.277	52.407	1.84%	-3.93%
			2700	2.341	50.278	2.305	52.382	1.56%	-4.02%
01/04/2021	5200-5800 Body	23.0	5180	5.435	47.372	5.276	49.041	3.01%	-3.40%
			5190	5.451	47.362	5.288	49.028	3.08%	-3.40%
			5200	5.465	47.362	5.299	49.014	3.13%	-3.37%
			5210	5.479	47.356	5.311	49.001	3.16%	-3.36%
			5220	5.492	47.346	5.323	48.987	3.17%	-3.35%
			5240	5.519	47.297	5.346	48.960	3.24%	-3.40%
			5250	5.531	47.268	5.358	48.947	3.23%	-3.43%
			5260	5.542	47.243	5.369	48.933	3.22%	-3.45%
			5270	5.554	47.223	5.381	48.919	3.22%	-3.47%
			5280	5.567	47.213	5.393	48.906	3.23%	-3.46%
			5290	5.584	47.198	5.404	48.892	3.33%	-3.46%
			5300	5.597	47.182	5.416	48.879	3.34%	-3.47%
			5310	5.609	47.160	5.428	48.865	3.33%	-3.49%
			5320	5.622	47.146	5.439	48.851	3.36%	-3.49%
			5500	5.849	46.861	5.650	48.607	3.52%	-3.59%
			5510	5.863	46.837	5.661	48.594	3.57%	-3.62%
			5520	5.880	46.815	5.673	48.580	3.65%	-3.63%
			5530	5.899	46.798	5.685	48.566	3.76%	-3.64%
			5540	5.915	46.795	5.696	48.553	3.84%	-3.62%
			5550	5.931	46.794	5.708	48.539	3.91%	-3.60%
			5560	5.943	46.788	5.720	48.526	3.90%	-3.58%
			5580	5.964	46.728	5.743	48.499	3.85%	-3.65%
			5600	5.989	46.681	5.766	48.471	3.87%	-3.69%
			5610	6.005	46.676	5.778	48.458	3.93%	-3.68%
			5620	6.023	46.669	5.790	48.444	4.02%	-3.66%
			5640	6.051	46.626	5.813	48.417	4.09%	-3.70%
			5660	6.081	46.593	5.837	48.390	4.18%	-3.71%
			5670	6.092	46.571	5.848	48.376	4.17%	-3.73%
			5680	6.102	46.543	5.860	48.363	4.13%	-3.76%
			5690	6.116	46.525	5.872	48.349	4.16%	-3.77%
			5700	6.134	46.514	5.883	48.336	4.27%	-3.77%
			5710	6.147	46.505	5.895	48.322	4.27%	-3.76%
			5720	6.159	46.490	5.907	48.309	4.27%	-3.77%
			5745	6.196	46.439	5.936	48.275	4.38%	-3.80%
			5750	6.203	46.430	5.942	48.268	4.39%	-3.81%
			5755	6.210	46.415	5.947	48.261	4.42%	-3.83%
			5765	6.223	46.399	5.959	48.248	4.43%	-3.83%
			5775	6.238	46.387	5.971	48.234	4.47%	-3.83%
			5785	6.256	46.375	5.982	48.220	4.58%	-3.83%
			5795	6.272	46.356	5.994	48.207	4.64%	-3.84%
			5800	6.279	46.345	6.000	48.200	4.65%	-3.85%
			5805	6.284	46.337	6.006	48.193	4.63%	-3.85%
			5825	6.306	46.310	6.029	48.166	4.59%	-3.85%

Table 10-6
Measured Body Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
01/18/2021	5200–5800 Body	23.1	5180	5.436	46.944	5.276	49.041	3.03%	-4.28%
			5190	5.451	46.923	5.288	49.028	3.08%	-4.29%
			5200	5.466	46.914	5.299	49.014	3.15%	-4.28%
			5210	5.480	46.911	5.311	49.001	3.18%	-4.27%
			5220	5.494	46.903	5.323	48.987	3.21%	-4.25%
			5240	5.518	46.857	5.346	48.960	3.22%	-4.30%
			5250	5.528	46.833	5.358	48.947	3.17%	-4.32%
			5260	5.539	46.811	5.369	48.933	3.17%	-4.34%
			5270	5.554	46.779	5.381	48.919	3.22%	-4.37%
			5280	5.572	46.757	5.393	48.906	3.32%	-4.39%
			5290	5.589	46.739	5.404	48.892	3.42%	-4.40%
			5300	5.604	46.729	5.416	48.879	3.47%	-4.40%
			5310	5.616	46.716	5.428	48.865	3.46%	-4.40%
			5320	5.630	46.697	5.439	48.851	3.51%	-4.41%
			5500	5.862	46.409	5.650	48.607	3.75%	-4.52%
			5510	5.880	46.385	5.661	48.594	3.87%	-4.55%
			5520	5.896	46.365	5.673	48.580	3.93%	-4.56%
			5530	5.911	46.359	5.685	48.566	3.98%	-4.54%
			5540	5.925	46.357	5.696	48.553	4.02%	-4.52%
			5550	5.939	46.352	5.708	48.539	4.05%	-4.51%
			5560	5.952	46.340	5.720	48.526	4.06%	-4.50%
			5580	5.973	46.290	5.743	48.499	4.00%	-4.55%
			5600	6.001	46.239	5.766	48.471	4.08%	-4.60%
			5610	6.018	46.219	5.778	48.458	4.15%	-4.62%
			5620	6.033	46.206	5.790	48.444	4.20%	-4.62%
			5640	6.066	46.188	5.813	48.417	4.35%	-4.60%
			5660	6.090	46.162	5.837	48.390	4.33%	-4.60%
			5670	6.098	46.142	5.848	48.376	4.27%	-4.62%
			5680	6.110	46.115	5.860	48.363	4.27%	-4.65%
			5690	6.124	46.090	5.872	48.349	4.29%	-4.67%
			5700	6.141	46.065	5.883	48.336	4.39%	-4.70%
			5710	6.157	46.045	5.895	48.322	4.44%	-4.71%
			5720	6.174	46.020	5.907	48.309	4.52%	-4.74%
			5745	6.213	45.988	5.936	48.275	4.67%	-4.74%
			5750	6.219	45.985	5.942	48.268	4.66%	-4.73%
			5755	6.225	45.983	5.947	48.261	4.67%	-4.72%
			5765	6.234	45.979	5.959	48.248	4.61%	-4.70%
			5775	6.243	45.959	5.971	48.234	4.56%	-4.72%
			5785	6.257	45.935	5.982	48.220	4.60%	-4.74%
			5795	6.273	45.907	5.994	48.207	4.65%	-4.77%
			5800	6.281	45.893	6.000	48.200	4.68%	-4.79%
			5805	6.290	45.879	6.006	48.193	4.73%	-4.80%
			5825	6.325	45.839	6.029	48.166	4.91%	-4.83%

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

10.2 Test System Verification

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

Table 10-7
System Verification Results – 1g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
H	750	HEAD	01/11/2021	20.5	20.0	0.200	1003	7357	1.620	8.780	8.100	-7.74%
P	835	HEAD	01/06/2021	23.7	22.0	0.200	4d132	7308	1.940	9.650	9.700	0.52%
H	1750	HEAD	01/20/2021	22.6	22.6	0.100	1150	7357	3.790	36.500	37.900	3.84%
L	1900	HEAD	01/05/2021	23.7	21.8	0.100	5d148	7539	4.160	39.100	41.600	6.39%
E	2450	HEAD	01/07/2021	23.1	24.7	0.100	719	7571	5.180	51.400	51.800	0.78%
E	2450	HEAD	01/10/2021	22.2	22.3	0.100	719	7571	4.970	51.400	49.700	-3.31%
E	2450	HEAD	01/28/2021	22.9	21.7	0.100	981	7571	5.000	52.300	50.000	-4.40%
E	2600	HEAD	01/28/2021	22.9	21.7	0.100	1071	7571	5.790	56.100	57.900	3.21%
H	5250	HEAD	01/05/2021	20.7	20.8	0.050	1057	7357	3.860	79.200	77.200	-2.53%
H	5600	HEAD	01/05/2021	20.7	20.8	0.050	1057	7357	3.980	84.100	79.600	-5.35%
H	5750	HEAD	01/05/2021	20.7	20.8	0.050	1057	7357	3.790	80.500	75.800	-5.84%
H	5250	HEAD	01/22/2021	22.5	23.0	0.050	1237	7357	3.750	81.300	75.000	-7.75%
H	5600	HEAD	01/22/2021	22.5	23.0	0.050	1237	7357	3.890	85.700	77.800	-9.22%
H	5750	HEAD	01/22/2021	22.5	23.0	0.050	1237	7357	3.900	80.600	78.000	-3.23%
L	750	BODY	12/28/2020	20.1	20.5	0.200	1161	7539	1.740	8.430	8.700	3.20%
D	835	BODY	01/11/2021	22.0	21.1	0.200	4d133	7552	1.870	9.750	9.350	-4.10%
H	1750	BODY	12/28/2020	22.4	23.0	0.100	1008	7357	3.890	37.400	38.900	4.01%
H	1750	BODY	01/14/2021	21.0	21.5	0.100	1150	7357	3.840	36.600	38.400	4.92%
I	1900	BODY	01/07/2021	21.8	22.8	0.100	5d149	7551	4.060	39.400	40.600	3.05%
I	1900	BODY	01/11/2021	21.4	23.2	0.100	5d149	7551	4.020	39.400	40.200	2.03%
P	1900	BODY	01/14/2021	22.0	22.5	0.100	5d148	7308	3.930	39.100	39.300	0.51%
P	2450	BODY	01/04/2021	22.0	21.5	0.100	797	7308	4.950	49.400	49.500	0.20%
K	2450	BODY	01/06/2021	22.9	21.4	0.100	981	7409	5.340	50.900	53.400	4.91%
K	2600	BODY	01/06/2021	22.9	21.4	0.100	1004	7409	5.420	54.800	54.200	-1.09%
K	2450	BODY	01/27/2021	23.0	22.6	0.100	719	7409	5.280	50.700	52.800	4.14%
K	2600	BODY	01/27/2021	23.0	22.6	0.100	1004	7409	5.870	54.800	58.700	7.12%
K	2450	BODY	01/30/2021	23.0	23.0	0.100	719	7409	5.390	50.700	53.900	6.31%
K	2600	BODY	01/30/2021	23.0	23.0	0.100	1004	7409	5.580	54.800	55.800	1.82%
G	5250	BODY	01/04/2021	22.8	23.0	0.050	1237	7406	3.510	75.600	70.200	-7.14%
G	5600	BODY	01/04/2021	22.8	23.0	0.050	1237	7406	3.860	78.500	77.200	-1.66%
G	5750	BODY	01/04/2021	22.8	23.0	0.050	1237	7406	3.600	75.900	72.000	-5.14%
G	5250	BODY	01/18/2021	23.5	22.4	0.050	1191	7406	3.570	74.600	71.400	-4.29%
G	5600	BODY	01/18/2021	23.5	22.4	0.050	1191	7406	3.940	78.100	78.800	0.90%
G	5750	BODY	01/18/2021	23.5	22.4	0.050	1191	7406	3.590	74.900	71.800	-4.14%

Table 10-8
System Verification Results – 10g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
J	1750	BODY	01/14/2021	20.3	23.7	0.100	1008	7410	2.030	19.900	20.300	2.01%
P	1750	BODY	01/21/2021	21.3	20.8	0.100	1148	7308	2.000	19.300	20.000	3.63%
I	1900	BODY	01/07/2021	21.8	22.8	0.100	5d149	7551	2.110	20.700	21.100	1.93%
P	1900	BODY	01/14/2021	22.0	22.5	0.100	5d148	7308	2.020	20.500	20.200	-1.46%
K	2450	BODY	01/27/2021	23.0	22.6	0.100	719	7409	2.420	23.900	24.200	1.26%
K	2600	BODY	01/27/2021	23.0	22.6	0.100	1004	7409	2.580	24.700	25.800	4.45%
K	2450	BODY	01/30/2021	23.0	23.0	0.100	719	7409	2.470	23.900	24.700	3.35%
K	2600	BODY	01/30/2021	23.0	23.0	0.100	1004	7409	2.450	24.700	24.500	-0.81%
G	5250	BODY	01/04/2021	22.8	23.0	0.050	1237	7406	0.981	21.200	19.620	-7.45%
G	5600	BODY	01/04/2021	22.8	23.0	0.050	1237	7406	1.070	22.000	21.400	-2.73%
G	5750	BODY	01/04/2021	22.8	23.0	0.050	1237	7406	0.989	21.200	19.780	-6.70%

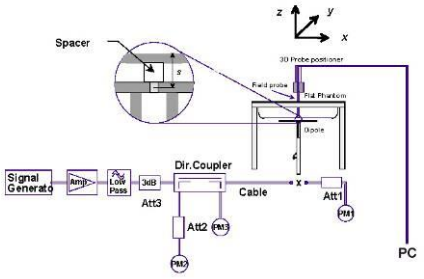


Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
CDMA BC10 (§90S) 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)	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	24.9	24.43	0.19	Right	Cheek	22733	1:1	0.151	1.114	0.168	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	24.9	24.43	0.02	Right	Tilt	22733	1:1	0.093	1.114	0.104	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	24.9	24.43	-0.11	Left	Cheek	22733	1:1	0.205	1.114	0.228	A1
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	24.9	24.43	0.14	Left	Tilt	22733	1:1	0.102	1.114	0.114	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	24.9	24.80	-0.01	Right	Cheek	22733	1:1	0.146	1.023	0.149	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	24.9	24.80	0.05	Right	Tilt	22733	1:1	0.078	1.023	0.080	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	24.9	24.80	0.18	Left	Cheek	22733	1:1	0.175	1.023	0.179	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	24.9	24.80	0.00	Left	Tilt	22733	1:1	0.089	1.023	0.091	
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
CDMA BC0 (§22H) 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)	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	24.9	24.54	0.11	Right	Cheek	22733	1:1	0.217	1.086	0.236	A2
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	24.9	24.54	0.12	Right	Tilt	22733	1:1	0.114	1.086	0.124	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	24.9	24.54	0.16	Left	Cheek	22733	1:1	0.188	1.086	0.204	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	24.9	24.54	0.07	Left	Tilt	22733	1:1	0.097	1.086	0.105	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	24.9	24.72	0.11	Right	Cheek	22733	1:1	0.184	1.042	0.192	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	24.9	24.72	0.01	Right	Tilt	22733	1:1	0.089	1.042	0.093	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	24.9	24.72	0.09	Left	Cheek	22733	1:1	0.181	1.042	0.189	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	24.9	24.72	0.00	Left	Tilt	22733	1:1	0.093	1.042	0.097	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-3
PCS CDMA 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	600	PCS CDMA	RC3 / SO55	24.7	24.31	0.07	Right	Cheek	23830	1:1	0.202	1.094	0.221	
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.31	0.05	Right	Tilt	23830	1:1	0.188	1.094	0.206	
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.31	0.04	Left	Cheek	23830	1:1	0.264	1.094	0.289	
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.31	-0.06	Left	Tilt	23830	1:1	0.212	1.094	0.232	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.30	-0.12	Right	Cheek	23830	1:1	0.205	1.096	0.225	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.30	-0.17	Right	Tilt	23830	1:1	0.204	1.096	0.224	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.30	-0.18	Left	Cheek	23830	1:1	0.281	1.096	0.308	A3
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.30	-0.17	Left	Tilt	23830	1:1	0.214	1.096	0.235	
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
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	33.7	33.49	0.13	Right	Cheek	23830	1	1:8.3	0.195	1.050	0.205	
836.60	190	GSM 850	GSM	33.7	33.49	0.05	Right	Tilt	23830	1	1:8.3	0.106	1.050	0.111	
836.60	190	GSM 850	GSM	33.7	33.49	0.04	Left	Cheek	23830	1	1:8.3	0.180	1.050	0.189	
836.60	190	GSM 850	GSM	33.7	33.49	-0.01	Left	Tilt	23830	1	1:8.3	0.106	1.050	0.111	
836.60	190	GSM 850	GPRS	29.2	29.20	0.10	Right	Cheek	23830	4	1:2.076	0.298	1.000	0.298	A4
836.60	190	GSM 850	GPRS	29.2	29.20	-0.03	Right	Tilt	23830	4	1:2.076	0.153	1.000	0.153	
836.60	190	GSM 850	GPRS	29.2	29.20	0.04	Left	Cheek	23830	4	1:2.076	0.279	1.000	0.279	
836.60	190	GSM 850	GPRS	29.2	29.20	-0.04	Left	Tilt	23830	4	1:2.076	0.159	1.000	0.159	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-5
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	29.7	29.70	-0.11	Right	Cheek	22782	1	1:8.3	0.076	1.000	0.076	
1880.00	661	GSM 1900	GSM	29.7	29.70	0.03	Right	Tilt	22782	1	1:8.3	0.075	1.000	0.075	
1880.00	661	GSM 1900	GSM	29.7	29.70	-0.18	Left	Cheek	22782	1	1:8.3	0.122	1.000	0.122	
1880.00	661	GSM 1900	GSM	29.7	29.70	-0.06	Left	Tilt	22782	1	1:8.3	0.082	1.000	0.082	
1880.00	661	GSM 1900	GPRS	26.2	26.19	0.13	Right	Cheek	22782	4	1:2.076	0.139	1.002	0.139	
1880.00	661	GSM 1900	GPRS	26.2	26.19	0.00	Right	Tilt	22782	4	1:2.076	0.134	1.002	0.134	
1880.00	661	GSM 1900	GPRS	26.2	26.19	-0.15	Left	Cheek	22782	4	1:2.076	0.226	1.002	0.226	A5
1880.00	661	GSM 1900	GPRS	26.2	26.19	-0.09	Left	Tilt	22782	4	1:2.076	0.151	1.002	0.151	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-6
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	25.2	25.16	0.14	Right	Cheek	22733	1:1	0.233	1.009	0.235	A6
836.60	4183	UMTS 850	RMC	25.2	25.16	0.13	Right	Tilt	22733	1:1	0.112	1.009	0.113	
836.60	4183	UMTS 850	RMC	25.2	25.16	0.14	Left	Cheek	22733	1:1	0.216	1.009	0.218	
836.60	4183	UMTS 850	RMC	25.2	25.16	0.13	Left	Tilt	22733	1:1	0.111	1.009	0.112	
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
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	24.88	0.13	Right	Cheek	21222	1:1	0.140	1.076	0.151	
1732.40	1412	UMTS 1750	RMC	25.2	24.88	0.17	Right	Tilt	21222	1:1	0.122	1.076	0.131	
1732.40	1412	UMTS 1750	RMC	25.2	24.88	0.12	Left	Cheek	21222	1:1	0.231	1.076	0.249	A7
1732.40	1412	UMTS 1750	RMC	25.2	24.88	0.07	Left	Tilt	21222	1:1	0.139	1.076	0.150	
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
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	24.7	24.59	-0.03	Right	Cheek	22782	1:1	0.198	1.026	0.203	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	0.08	Right	Tilt	22782	1:1	0.198	1.026	0.203	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	-0.01	Left	Cheek	22782	1:1	0.310	1.026	**0.318**	A8
1880.00	9400	UMTS 1900	RMC	24.7	24.59	-0.08	Left	Tilt	22782	1:1	0.221	1.026	0.227	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Head** **1.6 W/kg (mW/g)** averaged over 1 gram							

Table 11-9
LTE Band 71 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)	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	0.08	0	Right	Cheek	QPSK	1	50	23830	1:1	0.157	1.040	0.163	
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	0.12	1	Right	Cheek	QPSK	50	25	23830	1:1	0.128	1.035	0.132	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	0.14	0	Right	Tilt	QPSK	1	50	23830	1:1	0.072	1.040	0.075	
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	0.07	1	Right	Tilt	QPSK	50	25	23830	1:1	0.059	1.035	0.061	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	0.05	0	Left	Cheek	QPSK	1	50	23830	1:1	0.172	1.040	0.179	A9
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	0.08	1	Left	Cheek	QPSK	50	25	23830	1:1	0.129	1.035	0.134	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	0.10	0	Left	Tilt	QPSK	1	50	23830	1:1	0.088	1.040	0.092	
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	0.05	1	Left	Tilt	QPSK	50	25	23830	1:1	0.062	1.035	0.064	
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 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	25.2	25.01	0.05	0	Right	Cheek	QPSK	1	25	23830	1:1	0.201	1.045	0.210	
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	0.07	1	Right	Cheek	QPSK	25	25	23830	1:1	0.158	1.042	0.165	
707.50	23095	Mid	LTE Band 12	10	25.2	25.01	-0.01	0	Right	Tilt	QPSK	1	25	23830	1:1	0.059	1.045	0.062	
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	0.20	1	Right	Tilt	QPSK	25	25	23830	1:1	0.048	1.042	0.050	
707.50	23095	Mid	LTE Band 12	10	25.2	25.01	0.06	0	Left	Cheek	QPSK	1	25	23830	1:1	0.213	1.045	0.223	A10
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	0.06	1	Left	Cheek	QPSK	25	25	23830	1:1	0.164	1.042	0.171	
707.50	23095	Mid	LTE Band 12	10	25.2	25.01	0.09	0	Left	Tilt	QPSK	1	25	23830	1:1	0.108	1.045	0.113	
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	0.09	1	Left	Tilt	QPSK	25	25	23830	1:1	0.076	1.042	0.079	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**									**Head** **1.6 W/kg (mW/g)** averaged over 1 gram										

Table 11-11
LTE Band 13 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)	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	-0.03	0	Right	Cheek	QPSK	1	25	23830	1:1	0.188	1.050	0.197	A11
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	0.05	1	Right	Cheek	QPSK	25	12	23830	1:1	0.147	1.062	0.156	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	0.18	0	Right	Tilt	QPSK	1	25	23830	1:1	0.100	1.050	0.105	
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	0.17	1	Right	Tilt	QPSK	25	12	23830	1:1	0.077	1.062	0.082	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	-0.05	0	Left	Cheek	QPSK	1	25	23830	1:1	0.168	1.050	0.176	
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	0.04	1	Left	Cheek	QPSK	25	12	23830	1:1	0.142	1.062	0.151	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	0.11	0	Left	Tilt	QPSK	1	25	23830	1:1	0.088	1.050	0.092	
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	0.10	1	Left	Tilt	QPSK	25	12	23830	1:1	0.073	1.062	0.078	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-12
LTE Band 26 (Cell) 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)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	0.09	0	Right	Cheek	QPSK	1	36	22733	1:1	0.211	1.062	0.224	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	0.12	1	Right	Cheek	QPSK	36	0	22733	1:1	0.176	1.028	0.181	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	0.10	0	Right	Tilt	QPSK	1	36	22733	1:1	0.114	1.062	0.121	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	0.18	1	Right	Tilt	QPSK	36	0	22733	1:1	0.091	1.028	0.094	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	0.06	0	Left	Cheek	QPSK	1	36	22733	1:1	0.246	1.062	0.261	A12
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	0.08	1	Left	Cheek	QPSK	36	0	22733	1:1	0.182	1.028	0.187	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	0.16	0	Left	Tilt	QPSK	1	36	22733	1:1	0.131	1.062	0.139	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	0.00	1	Left	Tilt	QPSK	36	0	22733	1:1	0.096	1.028	0.099	
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
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)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	0.13	0	Right	Cheek	QPSK	1	50	21222	1:1	0.155	1.096	0.170	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	0.15	1	Right	Cheek	QPSK	50	0	21222	1:1	0.130	1.047	0.136	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	0.10	0	Right	Tilt	QPSK	1	50	21222	1:1	0.183	1.096	0.201	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	0.13	1	Right	Tilt	QPSK	50	0	21222	1:1	0.143	1.047	0.150	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	0.08	0	Left	Cheek	QPSK	1	50	21222	1:1	0.246	1.096	0.270	A13
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	0.19	1	Left	Cheek	QPSK	50	0	21222	1:1	0.223	1.047	0.233	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	-0.13	0	Left	Tilt	QPSK	1	50	21222	1:1	0.169	1.096	0.185	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	0.13	1	Left	Tilt	QPSK	50	0	21222	1:1	0.149	1.047	0.156	
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
LTE Band 25 (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)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.06	0	Right	Cheek	QPSK	1	50	22782	1:1	0.189	1.074	0.203	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.03	1	Right	Cheek	QPSK	50	0	22782	1:1	0.147	1.064	0.156	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	0.21	0	Right	Tilt	QPSK	1	50	22782	1:1	0.188	1.074	0.202	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.02	1	Right	Tilt	QPSK	50	0	22782	1:1	0.161	1.064	0.171	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.04	0	Left	Cheek	QPSK	1	50	22782	1:1	0.284	1.074	0.305	A14
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.12	1	Left	Cheek	QPSK	50	0	22782	1:1	0.228	1.064	0.243	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.09	0	Left	Tilt	QPSK	1	50	22782	1:1	0.218	1.074	0.234	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.14	1	Left	Tilt	QPSK	50	0	22782	1:1	0.169	1.064	0.180	
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 11-15
LTE Band 41 Head SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	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.																		
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.11	0	Right	Cheek	QPSK	1	50	22733	1:1.58	0.075	1.000	0.075	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.16	1	Right	Cheek	QPSK	50	0	22733	1:1.58	0.053	1.000	0.053	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.16	0	Right	Tilt	QPSK	1	50	22733	1:1.58	0.066	1.000	0.066	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.11	1	Right	Tilt	QPSK	50	0	22733	1:1.58	0.050	1.000	0.050	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.17	-0.12	0	Left	Cheek	QPSK	1	0	21222	1:1.58	0.132	1.007	0.133	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.06	0	Left	Cheek	QPSK	1	50	22733	1:1.58	0.111	1.000	0.111	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.03	1	Left	Cheek	QPSK	50	0	22733	1:1.58	0.082	1.000	0.082	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	27.2	27.07	0.18	0	Left	Cheek	QPSK	1	0	21222	1:2.31	0.184	1.030	0.190	A15
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	27.2	27.20	0.03	0	Left	Cheek	QPSK	1	50	22733	1:2.31	0.154	1.000	0.154	
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	24.2	23.50	0.13	0	Left	Cheek	QPSK	1	0	21222	1:1.58	0.115	1.175	0.135	
	SCC	2660.20	41292											1	99						
2 CC Uplink - Power Class 2	PCC	2680.00	41490	High	LTE Band 41	20	27.2	26.55	0.13	0	Left	Cheek	QPSK	1	0	21222	1:2.31	0.159	1.161	0.185	
	SCC	2660.20	41292											1	99						
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.16	0	Left	Tilt	QPSK	1	50	22733	1:1.58	0.070	1.000	0.070	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.10	1	Left	Tilt	QPSK	50	0	22733	1:1.58	0.052	1.000	0.052	
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 SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	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.																	
2437	6	802.11b	DSSS	22	18.5	17.99	0.13	Right	Cheek	17451	1	99.0	0.366	-	1.125	1.010	-	
2437	6	802.11b	DSSS	22	18.5	17.99	-0.04	Right	Tilt	17451	1	99.0	0.302	-	1.125	1.010	-	
2412	1	802.11b	DSSS	22	18.5	17.70	0.21	Left	Cheek	17451	1	99.0	0.721	0.494	1.202	1.010	0.600	
2437	6	802.11b	DSSS	22	18.5	17.99	0.19	Left	Cheek	17451	1	99.0	0.999	0.625	1.125	1.010	**0.710**	A16
2462	11	802.11b	DSSS	22	18.5	17.77	0.13	Left	Cheek	17451	1	99.0	0.819	0.562	1.183	1.010	0.671	
2437	6	802.11b	DSSS	22	18.5	17.99	0.08	Left	Tilt	17451	1	99.0	0.902	0.544	1.125	1.010	0.618	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Head 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-17
NII Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	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	15.0	14.98	-0.18	Right	Cheek	20232	6	96.9	1.048	-	1.005	1.032	-	
5260	52	802.11a	OFDM	20	15.0	14.98	0.18	Right	Tilt	20232	6	96.9	1.242	0.671	1.005	1.032	0.696	
5260	52	802.11a	OFDM	20	15.0	14.98	0.16	Left	Cheek	20232	6	96.9	1.096	0.644	1.005	1.032	0.668	
5260	52	802.11a	OFDM	20	15.0	14.98	0.10	Left	Tilt	20232	6	96.9	2.111	0.792	1.005	1.032	0.821	
5320	64	802.11a	OFDM	20	15.0	14.98	0.16	Left	Tilt	20232	6	96.9	2.206	0.823	1.005	1.032	0.854	
5320	64	802.11a	OFDM	20	15.0	14.98	-0.15	Left	Tilt	20232	6	96.9	2.007	0.819	1.005	1.032	0.849	
5500	100	802.11a	OFDM	20	15.0	14.98	0.14	Right	Cheek	20232	6	96.9	1.474	0.724	1.005	1.032	0.751	
5500	100	802.11a	OFDM	20	15.0	14.98	0.18	Right	Tilt	20232	6	96.9	1.745	0.957	1.005	1.032	0.993	
5560	112	802.11a	OFDM	20	15.0	14.92	-0.12	Right	Tilt	20232	6	96.9	1.672	0.821	1.019	1.032	0.863	
5500	100	802.11a	OFDM	20	15.0	14.98	0.19	Left	Cheek	20232	6	96.9	1.585	0.888	1.005	1.032	0.921	
5560	112	802.11a	OFDM	20	15.0	14.92	-0.15	Left	Cheek	20232	6	96.9	1.625	0.932	1.019	1.032	0.980	
5500	100	802.11a	OFDM	20	15.0	14.98	0.11	Left	Tilt	20232	6	96.9	1.688	1.180	1.005	1.032	**1.224**	A17
5560	112	802.11a	OFDM	20	15.0	14.92	0.19	Left	Tilt	20232	6	96.9	2.006	1.140	1.019	1.032	1.199	
5620	124	802.11a	OFDM	20	14.5	13.92	0.18	Left	Tilt	20232	6	96.9	2.283	0.947	1.143	1.032	1.117	
5660	132	802.11a	OFDM	20	14.0	13.97	0.08	Left	Tilt	20232	6	96.9	1.623	1.070	1.007	1.032	1.112	
5500	100	802.11a	OFDM	20	15.0	14.98	0.08	Left	Tilt	20232	6	96.9	1.769	1.150	1.005	1.032	1.193	
5755	151	802.11n	OFDM	40	14.5	13.72	-0.15	Right	Cheek	20232	13.5	88.0	1.248	0.598	1.197	1.136	0.813	
5795	159	802.11n	OFDM	40	14.0	13.25	0.19	Right	Cheek	20232	13.5	88.0	1.235	0.532	1.189	1.136	0.719	
5755	151	802.11n	OFDM	40	14.5	13.72	0.15	Right	Tilt	20232	13.5	88.0	1.614	0.755	1.197	1.136	1.027	
5795	159	802.11n	OFDM	40	14.0	13.25	0.04	Right	Tilt	20232	13.5	88.0	1.455	0.674	1.189	1.136	0.910	
5755	151	802.11n	OFDM	40	14.5	13.72	0.13	Left	Cheek	20232	13.5	88.0	1.150	0.634	1.197	1.136	0.862	
5795	159	802.11n	OFDM	40	14.0	13.25	0.18	Left	Cheek	20232	13.5	88.0	0.808	0.541	1.189	1.136	0.731	
5755	151	802.11n	OFDM	40	14.5	13.72	0.19	Left	Tilt	20232	13.5	88.0	1.832	0.877	1.197	1.136	1.193	
5795	159	802.11n	OFDM	40	14.0	13.25	0.17	Left	Tilt	20232	13.5	88.0	1.539	0.761	1.189	1.136	1.028	
5755	151	802.11n	OFDM	40	14.5	13.72	0.16	Left	Tilt	20232	13.5	88.0	1.588	0.873	1.197	1.136	1.187	
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 measurement.

Table 11-18
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	10.5	10.15	0.08	Right	Cheek	17451	1	76.8	0.045	1.084	1.302	0.064	
2441.00	39	Bluetooth	FHSS	10.5	10.15	0.11	Right	Tilt	17451	1	76.8	0.039	1.084	1.302	0.055	
2441.00	39	Bluetooth	FHSS	10.5	10.15	0.05	Left	Cheek	17451	1	76.8	0.089	1.084	1.302	**0.126**	A18
2441.00	39	Bluetooth	FHSS	10.5	10.15	0.13	Left	Tilt	17451	1	76.8	0.069	1.084	1.302	0.097	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**												**Head** **1.6 W/kg (mW/g)** averaged over 1 gram				

11.2 Standalone Body-Worn SAR Data

Table 11-19
GSM/UMTS/CDMA Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	TDSO / SO32	24.9	24.43	0.00	10 mm	22782	N/A	1:1	back	0.300	1.114	0.334	A19
836.52	384	CDMA BC0 (§22H)	TDSO / SO32	24.9	24.60	0.05	10 mm	22782	N/A	1:1	back	0.369	1.072	0.396	A21
1851.25	25	PCS CDMA	TDSO / SO32	24.7	24.36	-0.15	10 mm	23830	N/A	1:1	back	0.648	1.081	0.700	
1880.00	600	PCS CDMA	TDSO / SO32	24.7	24.33	-0.11	10 mm	23830	N/A	1:1	back	0.686	1.089	0.747	
1908.75	1175	PCS CDMA	TDSO / SO32	24.7	24.28	-0.05	10 mm	23830	N/A	1:1	back	0.747	1.102	0.823	A23
836.60	190	GSM 850	GSM	33.7	33.49	-0.03	10 mm	22782	1	1:8.3	back	0.351	1.050	0.369	
836.60	190	GSM 850	GPRS	29.2	29.20	-0.06	10 mm	22782	4	1:2.076	back	0.500	1.000	0.500	A25
1880.00	661	GSM 1900	GSM	29.7	29.70	-0.06	10 mm	22733	1	1:8.3	back	0.276	1.000	0.276	
1880.00	661	GSM 1900	GPRS	26.2	26.19	-0.02	10 mm	22733	4	1:2.076	back	0.504	1.002	0.505	A26
836.60	4183	UMTS 850	RMC	25.2	25.16	-0.03	10 mm	22782	N/A	1:1	back	0.424	1.009	0.428	A27
1712.40	1312	UMTS 1750	RMC	25.2	24.92	-0.05	10 mm	22733	N/A	1:1	back	0.556	1.067	0.593	
1732.40	1412	UMTS 1750	RMC	25.2	24.88	-0.10	10 mm	22733	N/A	1:1	back	0.647	1.076	0.696	
1752.60	1513	UMTS 1750	RMC	25.2	24.98	-0.01	10 mm	22733	N/A	1:1	back	0.654	1.052	0.688	A28
1852.40	9262	UMTS 1900	RMC	24.7	24.66	-0.12	10 mm	21222	N/A	1:1	back	0.602	1.009	0.607	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	-0.01	10 mm	21222	N/A	1:1	back	0.641	1.026	0.658	A29
1907.60	9538	UMTS 1900	RMC	24.7	24.50	-0.18	10 mm	21222	N/A	1:1	back	0.624	1.047	0.653	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**												**Body** **1.6 W/kg (mW/g)** averaged over 1 gram			

Table 11-20
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)	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	-0.01	0	21222	QPSK	1	50	10 mm	back	1:1	0.414	1.040	0.431	A30
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	0.00	1	21222	QPSK	50	25	10 mm	back	1:1	0.334	1.035	0.346	
707.50	23095	Mid	LTE Band 12	10	25.2	25.01	-0.05	0	21222	QPSK	1	25	10 mm	back	1:1	0.414	1.045	0.433	A32
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	-0.01	1	21222	QPSK	25	25	10 mm	back	1:1	0.334	1.042	0.348	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	-0.03	0	21222	QPSK	1	25	10 mm	back	1:1	0.340	1.050	0.357	A34
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	-0.05	1	21222	QPSK	25	12	10 mm	back	1:1	0.269	1.062	0.286	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	0.01	0	22782	QPSK	1	36	10 mm	back	1:1	0.346	1.062	0.367	A36
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	-0.03	1	22782	QPSK	36	0	10 mm	back	1:1	0.276	1.028	0.284	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.75	-0.17	0	23830	QPSK	1	50	10 mm	back	1:1	0.514	1.109	0.570	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	24.79	0.02	0	23830	QPSK	1	50	10 mm	back	1:1	0.583	1.099	0.641	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	-0.11	0	23830	QPSK	1	50	10 mm	back	1:1	0.630	1.096	0.690	A37
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	-0.16	1	23830	QPSK	50	0	10 mm	back	1:1	0.487	1.047	0.510	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.7	24.38	-0.07	0	23830	QPSK	1	50	10 mm	back	1:1	0.710	1.076	0.764	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.05	0	23830	QPSK	1	50	10 mm	back	1:1	0.767	1.074	0.824	A39
1905.00	26590	High	LTE Band 25 (PCS)	20	24.7	24.31	-0.07	0	23830	QPSK	1	50	10 mm	back	1:1	0.702	1.094	0.768	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.11	1	23830	QPSK	50	0	10 mm	back	1:1	0.612	1.064	0.651	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.38	0.00	1	23830	QPSK	100	0	10 mm	back	1:1	0.586	1.076	0.631	

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 11-21
LTE B41 Body-Worn SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.2	23.88	-0.12	0	21222	QPSK	1	50	10 mm	back	1:1.58	0.414	1.076	0.445	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	23.83	-0.01	0	21222	QPSK	1	50	10 mm	back	1:1.58	0.398	1.089	0.433	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.2	23.83	-0.15	0	21222	QPSK	1	50	10 mm	back	1:1.58	0.388	1.089	0.423	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	24.2	23.99	0.15	0	21222	QPSK	1	50	10 mm	back	1:1.58	0.410	1.050	0.431	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.17	0.00	0	21222	QPSK	1	0	10 mm	back	1:1.58	0.611	1.007	0.615	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.01	0	21222	QPSK	1	50	10 mm	back	1:1.58	0.460	1.000	0.460	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	-0.03	1	21222	QPSK	50	0	10 mm	back	1:1.58	0.346	1.000	0.346	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.19	-0.16	1	21222	QPSK	100	0	10 mm	back	1:1.58	0.396	1.002	0.397	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	27.2	27.20	0.06	0	21222	QPSK	1	50	10 mm	back	1:2.31	0.657	1.000	0.657	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	27.2	27.07	0.06	0	21222	QPSK	1	0	10 mm	back	1:2.31	0.790	1.030	0.814	A40
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	24.2	23.50	-0.05	0	21222	QPSK	1	0	10 mm	back	1:1.58	0.546	1.175	0.642	
	SCC	2660.20	41292										1	99							
2 CC Uplink - Power Class 2	PCC	2680.00	41490	High	LTE Band 41	20	27.2	26.55	-0.04	0	21222	QPSK	1	0	10 mm	back	1:2.31	0.735	1.161	**0.853**	
	SCC	2660.20	41292										1	99							

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 11-22
DTS Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	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)	
2437	6	802.11b	DSSS	22	21.0	20.43	0.00	10 mm	20026	1	back	99.0	0.483	0.298	1.140	1.010	**0.343**	A42
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**													**Body** **1.6 W/kg (mW/g)** averaged over 1 gram						

Table 11-23
NII Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	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)	
5300	60	802.11a	OFDM	20	18.0	17.68	0.04	10 mm	20026	6	back	96.9	0.632	0.321	1.076	1.032	0.356	
5520	104	802.11a	OFDM	20	18.0	17.65	-0.14	10 mm	20026	6	back	96.9	1.049	0.572	1.084	1.032	**0.640**	A43
5540	108	802.11a	OFDM	20	18.0	17.71	-0.06	10 mm	20026	6	back	96.9	1.236	0.556	1.069	1.032	0.613	
5600	120	802.11a	OFDM	20	17.5	16.93	0.03	10 mm	20026	6	back	96.9	1.126	0.507	1.140	1.032	0.596	
5720	144	802.11a	OFDM	20	16.5	15.77	-0.14	10 mm	20026	6	back	96.9	0.919	0.396	1.183	1.032	0.483	
5785	157	802.11a	OFDM	20	17.0	16.66	0.15	10 mm	20026	6	back	96.9	1.047	0.478	1.081	1.032	0.533	
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 11-24
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	10.5	10.15	0.17	10 mm	20026	1	back	76.8	0.029	1.084	1.302	**0.041**	A45
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**												**Body** **1.6 W/kg (mW/g)** averaged over 1 gram				

11.3 Standalone Hotspot SAR Data

Table 11-25
GPRS/UMTS/CDMA Hotspot SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	24.9	24.75	0.02	10 mm	22782	N/A	1:1	back	0.259	1.035	0.268	A20
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	24.9	24.75	0.00	10 mm	22782	N/A	1:1	front	0.178	1.035	0.184	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	24.9	24.75	0.00	10 mm	22782	N/A	1:1	bottom	0.172	1.035	0.178	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	24.9	24.75	0.07	10 mm	22782	N/A	1:1	right	0.220	1.035	0.228	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	24.9	24.75	0.01	10 mm	22782	N/A	1:1	left	0.159	1.035	0.165	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	24.9	24.82	0.08	10 mm	22782	N/A	1:1	back	0.308	1.019	0.314	A22
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	24.9	24.82	0.02	10 mm	22782	N/A	1:1	front	0.179	1.019	0.182	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	24.9	24.82	0.00	10 mm	22782	N/A	1:1	bottom	0.217	1.019	0.221	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	24.9	24.82	-0.01	10 mm	22782	N/A	1:1	right	0.257	1.019	0.262	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	24.9	24.82	-0.11	10 mm	22782	N/A	1:1	left	0.178	1.019	0.181	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.7	24.32	-0.01	10 mm	23830	N/A	1:1	back	0.554	1.091	0.604	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.28	-0.03	10 mm	23830	N/A	1:1	back	0.601	1.102	0.662	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.7	24.26	-0.01	10 mm	23830	N/A	1:1	back	0.650	1.107	0.720	A24
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.28	0.04	10 mm	23830	N/A	1:1	front	0.519	1.102	0.572	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.28	-0.13	10 mm	23830	N/A	1:1	bottom	0.481	1.102	0.530	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.28	-0.03	10 mm	23830	N/A	1:1	left	0.544	1.102	0.599	
836.60	190	GSM 850	GPRS	29.2	29.20	-0.06	10 mm	22782	4	1:2.076	back	0.500	1.000	0.500	A25
836.60	190	GSM 850	GPRS	29.2	29.20	0.10	10 mm	22782	4	1:2.076	front	0.299	1.000	0.299	
836.60	190	GSM 850	GPRS	29.2	29.20	-0.09	10 mm	22782	4	1:2.076	bottom	0.295	1.000	0.295	
836.60	190	GSM 850	GPRS	29.2	29.20	-0.09	10 mm	22782	4	1:2.076	right	0.431	1.000	0.431	
836.60	190	GSM 850	GPRS	29.2	29.20	-0.04	10 mm	22782	4	1:2.076	left	0.266	1.000	0.266	
1880.00	661	GSM 1900	GPRS	26.2	26.19	-0.02	10 mm	22733	4	1:2.076	back	0.504	1.002	0.505	A26
1880.00	661	GSM 1900	GPRS	26.2	26.19	0.02	10 mm	22733	4	1:2.076	front	0.298	1.002	0.299	
1880.00	661	GSM 1900	GPRS	26.2	26.19	0.03	10 mm	22733	4	1:2.076	bottom	0.348	1.002	0.349	
1880.00	661	GSM 1900	GPRS	26.2	26.19	0.00	10 mm	22733	4	1:2.076	left	0.352	1.002	0.353	
836.60	4183	UMTS 850	RMC	25.2	25.16	-0.03	10 mm	22782	N/A	1:1	back	0.424	1.009	0.428	A27
836.60	4183	UMTS 850	RMC	25.2	25.16	0.04	10 mm	22782	N/A	1:1	front	0.224	1.009	0.226	
836.60	4183	UMTS 850	RMC	25.2	25.16	0.03	10 mm	22782	N/A	1:1	bottom	0.252	1.009	0.254	
836.60	4183	UMTS 850	RMC	25.2	25.16	-0.02	10 mm	22782	N/A	1:1	right	0.301	1.009	0.304	
836.60	4183	UMTS 850	RMC	25.2	25.16	0.01	10 mm	22782	N/A	1:1	left	0.203	1.009	0.205	
1712.40	1312	UMTS 1750	RMC	25.2	24.92	-0.05	10 mm	22733	N/A	1:1	back	0.556	1.067	0.593	
1732.40	1412	UMTS 1750	RMC	25.2	24.88	-0.10	10 mm	22733	N/A	1:1	back	0.647	1.076	0.696	
1752.60	1513	UMTS 1750	RMC	25.2	24.98	-0.01	10 mm	22733	N/A	1:1	back	0.654	1.052	0.688	A28
1732.40	1412	UMTS 1750	RMC	25.2	24.88	0.02	10 mm	22733	N/A	1:1	front	0.511	1.076	0.550	
1732.40	1412	UMTS 1750	RMC	25.2	24.88	-0.05	10 mm	22733	N/A	1:1	bottom	0.439	1.076	0.472	
1732.40	1412	UMTS 1750	RMC	25.2	24.88	0.04	10 mm	22733	N/A	1:1	left	0.614	1.076	0.661	
1852.40	9262	UMTS 1900	RMC	24.7	24.66	-0.12	10 mm	21222	N/A	1:1	back	0.602	1.009	0.607	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	-0.01	10 mm	21222	N/A	1:1	back	0.641	1.026	0.658	A29
1907.60	9538	UMTS 1900	RMC	24.7	24.50	-0.18	10 mm	21222	N/A	1:1	back	0.624	1.047	0.653	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	0.06	10 mm	21222	N/A	1:1	front	0.522	1.026	0.536	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	0.05	10 mm	21222	N/A	1:1	bottom	0.475	1.026	0.487	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	-0.05	10 mm	21222	N/A	1:1	left	0.504	1.026	0.517	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram				

Table 11-26
LTE Band 71 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)	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	-0.01	0	21222	QPSK	1	50	10 mm	back	1:1	0.414	1.040	0.431	
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	0.00	1	21222	QPSK	50	25	10 mm	back	1:1	0.334	1.035	0.346	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	0.00	0	21222	QPSK	1	50	10 mm	front	1:1	0.265	1.040	0.276	
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	-0.01	1	21222	QPSK	50	25	10 mm	front	1:1	0.214	1.035	0.221	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	-0.06	0	21222	QPSK	1	50	10 mm	bottom	1:1	0.122	1.040	0.127	
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	-0.01	1	21222	QPSK	50	25	10 mm	bottom	1:1	0.103	1.035	0.107	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	-0.04	0	21222	QPSK	1	50	10 mm	right	1:1	0.474	1.040	0.493	A31
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	0.02	1	21222	QPSK	50	25	10 mm	right	1:1	0.347	1.035	0.359	
680.50	133297	Mid	LTE Band 71	20	25.2	25.03	-0.05	0	21222	QPSK	1	50	10 mm	left	1:1	0.318	1.040	0.331	
680.50	133297	Mid	LTE Band 71	20	24.2	24.05	-0.03	1	21222	QPSK	50	25	10 mm	left	1:1	0.232	1.035	0.240	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 11-27
LTE Band 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	25.2	25.01	-0.05	0	21222	QPSK	1	25	10 mm	back	1:1	0.414	1.045	0.433	
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	-0.01	1	21222	QPSK	25	25	10 mm	back	1:1	0.334	1.042	0.348	
707.50	23095	Mid	LTE Band 12	10	25.2	25.01	0.04	0	21222	QPSK	1	25	10 mm	front	1:1	0.264	1.045	0.276	
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	0.03	1	21222	QPSK	25	25	10 mm	front	1:1	0.217	1.042	0.226	
707.50	23095	Mid	LTE Band 12	10	25.2	25.01	-0.08	0	21222	QPSK	1	25	10 mm	bottom	1:1	0.135	1.045	0.141	
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	-0.01	1	21222	QPSK	25	25	10 mm	bottom	1:1	0.113	1.042	0.118	
707.50	23095	Mid	LTE Band 12	10	25.2	25.01	-0.03	0	21222	QPSK	1	25	10 mm	right	1:1	0.437	1.045	0.457	A33
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	-0.03	1	21222	QPSK	25	25	10 mm	right	1:1	0.347	1.042	0.362	
707.50	23095	Mid	LTE Band 12	10	25.2	25.01	-0.04	0	21222	QPSK	1	25	10 mm	left	1:1	0.294	1.045	0.307	
707.50	23095	Mid	LTE Band 12	10	24.2	24.02	-0.05	1	21222	QPSK	25	25	10 mm	left	1:1	0.237	1.042	0.247	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 11-28
LTE Band 13 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)	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	-0.03	0	21222	QPSK	1	25	10 mm	back	1:1	0.340	1.050	0.357	
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	-0.05	1	21222	QPSK	25	12	10 mm	back	1:1	0.269	1.062	0.286	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	0.00	0	21222	QPSK	1	25	10 mm	front	1:1	0.228	1.050	0.239	
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	-0.03	1	21222	QPSK	25	12	10 mm	front	1:1	0.184	1.062	0.195	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	-0.09	0	21222	QPSK	1	25	10 mm	bottom	1:1	0.175	1.050	0.184	
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	0.02	1	21222	QPSK	25	12	10 mm	bottom	1:1	0.137	1.062	0.145	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	-0.09	0	21222	QPSK	1	25	10 mm	right	1:1	0.345	1.050	0.362	A35
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	0.03	1	21222	QPSK	25	12	10 mm	right	1:1	0.281	1.062	0.298	
782.00	23230	Mid	LTE Band 13	10	24.2	23.99	-0.02	0	21222	QPSK	1	25	10 mm	left	1:1	0.193	1.050	0.203	
782.00	23230	Mid	LTE Band 13	10	23.2	22.94	0.07	1	21222	QPSK	25	12	10 mm	left	1:1	0.153	1.062	0.162	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-29
LTE Band 26 (Cell) 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)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	0.01	0	22782	QPSK	1	36	10 mm	back	1:1	0.346	1.062	0.367	A36
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	-0.03	1	22782	QPSK	36	0	10 mm	back	1:1	0.276	1.028	0.284	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	-0.02	0	22782	QPSK	1	36	10 mm	front	1:1	0.231	1.062	0.245	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	0.00	1	22782	QPSK	36	0	10 mm	front	1:1	0.192	1.028	0.197	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	0.03	0	22782	QPSK	1	36	10 mm	bottom	1:1	0.232	1.062	0.246	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	0.02	1	22782	QPSK	36	0	10 mm	bottom	1:1	0.181	1.028	0.186	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	0.06	0	22782	QPSK	1	36	10 mm	right	1:1	0.286	1.062	0.304	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	0.03	1	22782	QPSK	36	0	10 mm	right	1:1	0.248	1.028	0.255	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.94	-0.07	0	22782	QPSK	1	36	10 mm	left	1:1	0.205	1.062	0.218	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	24.08	0.02	1	22782	QPSK	36	0	10 mm	left	1:1	0.175	1.028	0.180	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-30
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)	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	-0.11	0	23830	QPSK	1	50	10 mm	back	1:1	0.630	1.096	0.690	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	-0.16	1	23830	QPSK	50	0	10 mm	back	1:1	0.487	1.047	0.510	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	-0.01	0	23830	QPSK	1	50	10 mm	front	1:1	0.525	1.096	0.575	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	0.01	1	23830	QPSK	50	0	10 mm	front	1:1	0.428	1.047	0.448	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	0.01	0	23830	QPSK	1	50	10 mm	bottom	1:1	0.524	1.096	0.574	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	0.02	1	23830	QPSK	50	0	10 mm	bottom	1:1	0.423	1.047	0.443	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.75	-0.01	0	23830	QPSK	1	50	10 mm	left	1:1	0.406	1.109	0.450	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	24.79	0.02	0	23830	QPSK	1	50	10 mm	left	1:1	0.591	1.099	0.650	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	0.01	0	23830	QPSK	1	50	10 mm	left	1:1	0.642	1.096	0.704	A38
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	-0.01	1	23830	QPSK	50	0	10 mm	left	1:1	0.518	1.047	0.542	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-31
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.7	24.38	-0.07	0	23830	QPSK	1	50	10 mm	back	1:1	0.710	1.076	0.764	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.05	0	23830	QPSK	1	50	10 mm	back	1:1	0.767	1.074	0.824	A39
1905.00	26590	High	LTE Band 25 (PCS)	20	24.7	24.31	-0.07	0	23830	QPSK	1	50	10 mm	back	1:1	0.702	1.094	0.768	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.11	1	23830	QPSK	50	0	10 mm	back	1:1	0.612	1.064	0.651	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.38	0.00	1	23830	QPSK	100	0	10 mm	back	1:1	0.586	1.076	0.631	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	0.03	0	23830	QPSK	1	50	10 mm	front	1:1	0.514	1.074	0.552	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	0.00	1	23830	QPSK	50	0	10 mm	front	1:1	0.401	1.064	0.427	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.01	0	23830	QPSK	1	50	10 mm	bottom	1:1	0.554	1.074	0.595	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.03	1	23830	QPSK	50	0	10 mm	bottom	1:1	0.433	1.064	0.461	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.02	0	23830	QPSK	1	50	10 mm	left	1:1	0.497	1.074	0.534	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.02	1	23830	QPSK	50	0	10 mm	left	1:1	0.394	1.064	0.419	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-32
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.01	0	21222	QPSK	1	50	10 mm	back	1:1.58	0.460	1.000	0.460	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	-0.03	1	21222	QPSK	50	0	10 mm	back	1:1.58	0.346	1.000	0.346	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.10	0	21222	QPSK	1	50	10 mm	front	1:1.58	0.281	1.000	0.281	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.04	1	21222	QPSK	50	0	10 mm	front	1:1.58	0.217	1.000	0.217	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.2	23.88	-0.02	0	21222	QPSK	1	50	10 mm	bottom	1:1.58	0.917	1.076	0.987	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.2	23.51	-0.03	0	21222	QPSK	1	99	10 mm	bottom	1:1.58	0.825	1.172	0.967	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	23.83	0.04	0	21222	QPSK	1	50	10 mm	bottom	1:1.58	0.792	1.089	0.862	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.2	23.83	0.09	0	21222	QPSK	1	50	10 mm	bottom	1:1.58	0.642	1.089	0.699	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	24.2	23.99	0.04	0	21222	QPSK	1	50	10 mm	bottom	1:1.58	0.641	1.050	0.673	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	-0.07	0	21222	QPSK	1	50	10 mm	bottom	1:1.58	0.674	1.000	0.674	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	-0.12	1	21222	QPSK	50	0	10 mm	bottom	1:1.58	0.512	1.000	0.512	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.19	0.11	1	21222	QPSK	100	0	10 mm	bottom	1:1.58	0.515	1.002	0.516	
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	27.2	27.00	0.02	0	21222	QPSK	1	50	10 mm	bottom	1:2.31	1.230	1.047	**1.288**	A41
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	27.2	26.70	0.02	0	21222	QPSK	1	99	10 mm	bottom	1:2.31	1.080	1.122	1.212	
2 CC Uplink - Power Class 3	PCC	2506.00	39750	Low	LTE Band 41	20	24.2	23.24	-0.04	0	21222	QPSK	1	50	10 mm	bottom	1:1.58	0.748	1.247	0.933	
	SCC	2525.80	39948										1	0							
2 CC Uplink - Power Class 2	PCC	2506.00	39750	Low	LTE Band 41	20	27.2	26.22	-0.05	0	21222	QPSK	1	99	10 mm	bottom	1:2.31	0.988	1.253	1.238	
	SCC	2525.80	39948										1	0							
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.21	0	21222	QPSK	1	50	10 mm	right	1:1.58	0.145	1.000	0.145	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.20	1	21222	QPSK	50	0	10 mm	right	1:1.58	0.109	1.000	0.109	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	-0.06	0	21222	QPSK	1	50	10 mm	left	1:1.58	0.196	1.000	0.196	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.19	1	21222	QPSK	50	0	10 mm	left	1:1.58	0.145	1.000	0.145	
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	27.2	27.00	0.00	0	21222	QPSK	1	50	10 mm	bottom	1:2.31	1.170	1.047	1.225	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**													**Body** **1.6 W/kg (mW/g)** averaged over 1 gram								

Note: Blue entry represent variability measurement.

Table 11-33
WLAN Hotspot SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	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)	
2437	6	802.11b	DSSS	22	21.0	20.43	0.00	10 mm	20026	1	back	99.0	0.483	0.298	1.140	1.010	**0.343**	A42
2437	6	802.11b	DSSS	22	21.0	20.43	0.11	10 mm	20026	1	front	99.0	0.316	-	1.140	1.010	-	
2437	6	802.11b	DSSS	22	21.0	20.43	0.20	10 mm	20026	1	top	99.0	0.242	-	1.140	1.010	-	
2437	6	802.11b	DSSS	22	21.0	20.43	0.14	10 mm	20026	1	right	99.0	0.472	-	1.140	1.010	-	
5200	40	802.11a	OFDM	20	17.5	17.17	0.15	10 mm	20026	6	back	96.9	0.544	0.281	1.079	1.032	0.313	
5200	40	802.11a	OFDM	20	17.5	17.17	0.15	10 mm	20026	6	front	96.9	0.323	-	1.079	1.032	-	
5200	40	802.11a	OFDM	20	17.5	17.17	0.19	10 mm	20026	6	top	96.9	1.312	0.567	1.079	1.032	0.631	
5200	40	802.11a	OFDM	20	17.5	17.17	0.11	10 mm	20026	6	right	96.9	0.183	-	1.079	1.032	-	
5785	157	802.11a	OFDM	20	17.0	16.66	0.15	10 mm	20026	6	back	96.9	1.047	0.478	1.081	1.032	0.533	
5785	157	802.11a	OFDM	20	17.0	16.66	0.18	10 mm	20026	6	front	96.9	0.336	-	1.081	1.032	-	
5745	149	802.11a	OFDM	20	17.0	16.56	0.10	10 mm	20026	6	top	96.9	1.764	0.794	1.107	1.032	**0.907**	A44
5785	157	802.11a	OFDM	20	17.0	16.66	0.15	10 mm	20026	6	top	96.9	1.774	0.710	1.081	1.032	0.792	
5805	161	802.11a	OFDM	20	17.0	16.32	-0.14	10 mm	20026	6	top	96.9	1.252	0.572	1.169	1.032	0.690	
5785	157	802.11a	OFDM	20	17.0	16.66	0.16	10 mm	20026	6	right	96.9	0.241	-	1.081	1.032	-	

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

Table 11-34
DSS Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	10.5	10.15	0.17	10 mm	20026	1	back	76.8	0.029	1.084	1.302	**0.041**	A45
2441	39	Bluetooth	FHSS	10.5	10.15	0.07	10 mm	20026	1	front	76.8	0.017	1.084	1.302	0.024	
2441	39	Bluetooth	FHSS	10.5	10.15	0.04	10 mm	20026	1	top	76.8	0.011	1.084	1.302	0.016	
2441	39	Bluetooth	FHSS	10.5	10.15	-0.01	10 mm	20026	1	right	76.8	0.024	1.084	1.302	0.034	

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

11.4 Standalone Phablet SAR Data

Table 11-35
UMTS/CDMA 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)	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.28	-0.08	2 mm	23830	1:1	back	1.640	1.102	1.807	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.7	24.32	0.00	0 mm	23830	1:1	front	1.830	1.091	1.997	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.28	0.03	0 mm	23830	1:1	front	1.890	1.102	2.083	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.7	24.26	0.13	0 mm	23830	1:1	front	1.990	1.107	2.203	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.28	0.06	2 mm	23830	1:1	bottom	0.958	1.102	1.056	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.7	24.32	0.04	0 mm	23830	1:1	left	2.170	1.091	2.367	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.28	0.02	0 mm	23830	1:1	left	2.240	1.102	2.468	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.7	24.26	0.02	0 mm	23830	1:1	left	2.310	1.107	2.557	A46
1851.25	25	PCS CDMA	EVDO Rev. 0	23.2	22.65	-0.01	0 mm	23830	1:1	back	2.050	1.135	2.327	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.2	22.74	-0.09	0 mm	23830	1:1	back	2.090	1.112	2.324	
1908.75	1175	PCS CDMA	EVDO Rev. 0	23.2	22.70	-0.03	0 mm	23830	1:1	back	2.110	1.122	2.367	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.2	22.74	-0.17	0 mm	23830	1:1	bottom	1.060	1.112	1.179	
1732.40	1412	UMTS 1750	RMC	25.2	24.88	-0.07	2 mm	22782	1:1	back	1.560	1.076	1.679	
1712.40	1312	UMTS 1750	RMC	25.2	24.92	0.09	0 mm	22782	1:1	front	1.950	1.067	2.081	
1732.40	1412	UMTS 1750	RMC	25.2	24.88	0.08	0 mm	22782	1:1	front	2.170	1.076	2.335	
1752.60	1513	UMTS 1750	RMC	25.2	24.98	0.09	0 mm	22782	1:1	front	2.290	1.052	2.409	A47
1732.40	1412	UMTS 1750	RMC	25.2	24.88	-0.09	2 mm	22782	1:1	bottom	0.778	1.076	0.837	
1712.40	1312	UMTS 1750	RMC	25.2	24.92	0.02	0 mm	22782	1:1	left	1.830	1.067	1.953	
1732.40	1412	UMTS 1750	RMC	25.2	24.88	0.07	0 mm	22782	1:1	left	2.080	1.076	2.238	
1752.60	1513	UMTS 1750	RMC	25.2	24.98	-0.01	0 mm	22782	1:1	left	2.250	1.052	2.367	
1712.40	1312	UMTS 1750	RMC	23.2	22.82	-0.13	0 mm	22782	1:1	back	1.800	1.091	1.964	
1732.40	1412	UMTS 1750	RMC	23.2	22.76	-0.11	0 mm	22782	1:1	back	1.890	1.107	2.092	
1752.60	1513	UMTS 1750	RMC	23.2	22.87	-0.10	0 mm	22782	1:1	back	1.960	1.079	2.115	
1732.40	1412	UMTS 1750	RMC	23.2	22.76	-0.12	0 mm	22782	1:1	bottom	0.800	1.107	0.886	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	-0.07	2 mm	21222	1:1	back	1.610	1.026	1.652	
1852.40	9262	UMTS 1900	RMC	24.7	24.66	0.06	0 mm	21222	1:1	front	2.110	1.009	2.129	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	0.05	0 mm	21222	1:1	front	2.190	1.026	2.247	
1907.60	9538	UMTS 1900	RMC	24.7	24.50	0.08	0 mm	21222	1:1	front	2.100	1.047	2.199	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	0.01	2 mm	21222	1:1	bottom	0.921	1.026	0.945	
1852.40	9262	UMTS 1900	RMC	24.7	24.66	0.03	0 mm	21222	1:1	left	2.290	1.009	2.311	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	0.03	0 mm	21222	1:1	left	2.360	1.026	2.421	A48
1907.60	9538	UMTS 1900	RMC	24.7	24.50	-0.03	0 mm	21222	1:1	left	2.240	1.047	2.345	
1880.00	9400	UMTS 1900	RMC	23.2	23.01	-0.12	0 mm	22733	1:1	back	1.880	1.045	1.965	
1880.00	9400	UMTS 1900	RMC	23.2	23.01	-0.19	0 mm	22733	1:1	bottom	1.080	1.045	1.129	
1880.00	9400	UMTS 1900	RMC	24.7	24.59	0.02	0 mm	21222	1:1	left	2.360	1.026	2.421	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams						

Note: Blue entry represent variability measurement.

Table 11-36
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)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.75	-0.11	0	23830	QPSK	1	50	2 mm	back	1:1	1.930	1.109	2.140	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	24.79	-0.02	0	23830	QPSK	1	50	2 mm	back	1:1	1.990	1.099	2.187	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	-0.01	0	23830	QPSK	1	50	2 mm	back	1:1	2.110	1.096	2.313	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	-0.02	1	23830	QPSK	50	0	2 mm	back	1:1	1.700	1.047	1.780	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	23.90	-0.01	1	23830	QPSK	100	0	2 mm	back	1:1	1.710	1.072	1.833	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.75	0.12	0	23830	QPSK	1	50	0 mm	front	1:1	1.950	1.109	2.163	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	24.79	0.15	0	23830	QPSK	1	50	0 mm	front	1:1	2.190	1.099	2.407	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	0.11	0	23830	QPSK	1	50	0 mm	front	1:1	2.330	1.096	2.554	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	0.11	1	23830	QPSK	50	0	0 mm	front	1:1	1.860	1.047	1.947	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	23.90	0.18	1	23830	QPSK	100	0	0 mm	front	1:1	1.850	1.072	1.983	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	-0.11	0	23830	QPSK	1	50	2 mm	bottom	1:1	1.030	1.096	1.129	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	-0.01	1	23830	QPSK	50	0	2 mm	bottom	1:1	0.856	1.047	0.896	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.75	0.05	0	23830	QPSK	1	50	0 mm	left	1:1	1.970	1.109	2.185	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	24.79	0.09	0	23830	QPSK	1	50	0 mm	left	1:1	2.230	1.099	2.451	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	0.12	0	23830	QPSK	1	50	0 mm	left	1:1	2.390	1.096	**2.619**	A49
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.80	0.05	1	23830	QPSK	50	25	0 mm	left	1:1	1.630	1.096	1.786	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	23.91	0.06	1	23830	QPSK	50	0	0 mm	left	1:1	1.870	1.069	1.999	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.00	0.06	1	23830	QPSK	50	0	0 mm	left	1:1	1.980	1.047	2.073	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	23.90	0.07	1	23830	QPSK	100	0	0 mm	left	1:1	1.980	1.072	2.123	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.2	22.80	0.01	0	23830	QPSK	1	50	0 mm	back	1:1	1.770	1.096	1.940	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.2	22.91	0.00	0	23830	QPSK	1	50	0 mm	back	1:1	1.980	1.069	2.117	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.2	22.89	0.01	0	23830	QPSK	1	50	0 mm	back	1:1	2.020	1.074	2.169	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.2	22.78	0.00	0	23830	QPSK	50	25	0 mm	back	1:1	1.770	1.102	1.951	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.2	22.91	0.00	0	23830	QPSK	50	0	0 mm	back	1:1	1.990	1.069	2.127	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.2	22.88	0.00	0	23830	QPSK	50	0	0 mm	back	1:1	2.050	1.076	2.206	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.2	22.89	0.00	0	23830	QPSK	100	0	0 mm	back	1:1	2.020	1.074	2.169	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.2	22.91	0.20	0	23830	QPSK	1	50	0 mm	bottom	1:1	0.798	1.069	0.853	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.2	22.91	0.14	0	23830	QPSK	50	0	0 mm	bottom	1:1	0.809	1.069	0.865	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.80	-0.11	0	23830	QPSK	1	50	0 mm	left	1:1	2.240	1.096	2.455	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**														**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams						

Note: Blue entry represent variability measurement.

Table 11-37
LTE Band 25 (PCS) 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)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.04	0	23830	QPSK	1	50	2 mm	back	1:1	1.410	1.074	1.514	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.02	1	23830	QPSK	50	0	2 mm	back	1:1	1.110	1.064	1.181	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	0.02	0	23830	QPSK	1	50	0 mm	front	1:1	1.770	1.074	1.901	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.01	1	23830	QPSK	50	0	0 mm	front	1:1	1.410	1.064	1.500	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.04	0	23830	QPSK	1	50	2 mm	bottom	1:1	0.979	1.074	1.051	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	-0.04	1	23830	QPSK	50	0	2 mm	bottom	1:1	0.801	1.064	0.852	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.7	24.38	-0.02	0	23830	QPSK	1	50	0 mm	left	1:1	2.050	1.076	2.206	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.7	24.39	-0.02	0	23830	QPSK	1	50	0 mm	left	1:1	2.070	1.074	2.223	A50
1905.00	26590	High	LTE Band 25 (PCS)	20	24.7	24.31	0.01	0	23830	QPSK	1	50	0 mm	left	1:1	2.040	1.094	2.232	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.39	-0.04	1	23830	QPSK	50	50	0 mm	left	1:1	1.850	1.074	1.987	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.43	0.04	1	23830	QPSK	50	0	0 mm	left	1:1	1.910	1.064	2.032	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.7	23.33	-0.05	1	23830	QPSK	50	0	0 mm	left	1:1	1.840	1.089	2.004	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.38	-0.06	1	23830	QPSK	100	0	0 mm	left	1:1	1.890	1.076	2.034	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.2	22.94	-0.07	0	23830	QPSK	1	50	0 mm	back	1:1	1.510	1.062	1.604	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.2	22.91	-0.04	0	23830	QPSK	50	0	0 mm	back	1:1	1.470	1.069	1.571	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.2	22.94	-0.02	0	23830	QPSK	1	50	0 mm	bottom	1:1	1.090	1.062	1.158	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.2	22.91	-0.04	0	23830	QPSK	50	0	0 mm	bottom	1:1	1.120	1.069	1.197	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	Phablet
Spatial Peak	4.0 W/kg (mW/g)
Uncontrolled Exposure/General Population	averaged over 10 grams

Table 11-38
LTE B41 Phablet SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	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)	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	-0.14	0	21222	QPSK	1	50	2 mm	back	1:1.58	1.130	1.000	1.130	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	-0.14	1	21222	QPSK	50	0	2 mm	back	1:1.58	0.866	1.000	0.866	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.13	0	21222	QPSK	1	50	0 mm	front	1:1.58	0.955	1.000	0.955	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.11	1	21222	QPSK	50	0	0 mm	front	1:1.58	0.724	1.000	0.724	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	-0.11	0	21222	QPSK	1	50	2 mm	bottom	1:1.58	1.220	1.000	1.220	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	-0.15	1	21222	QPSK	50	0	2 mm	bottom	1:1.58	0.948	1.000	0.948	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	-0.07	0	21222	QPSK	1	50	0 mm	right	1:1.58	0.401	1.000	0.401	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	-0.09	1	21222	QPSK	50	0	0 mm	right	1:1.58	0.303	1.000	0.303	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.20	-0.03	0	21222	QPSK	1	50	0 mm	left	1:1.58	0.434	1.000	0.434	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.01	1	21222	QPSK	50	0	0 mm	left	1:1.58	0.329	1.000	0.329	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.2	22.91	0.09	0	21222	QPSK	1	50	0 mm	back	1:1.58	1.560	1.069	1.668	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.2	22.86	-0.10	0	21222	QPSK	1	50	0 mm	back	1:1.58	1.590	1.081	1.719	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	23.2	22.91	-0.13	0	21222	QPSK	1	50	0 mm	back	1:1.58	1.580	1.069	1.689	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.2	22.95	-0.11	0	21222	QPSK	1	50	0 mm	back	1:1.58	1.640	1.059	1.737	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.19	-0.19	0	21222	QPSK	1	0	0 mm	back	1:1.58	1.810	1.002	1.814	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	-0.18	0	21222	QPSK	1	50	0 mm	back	1:1.58	2.020	1.000	2.020	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.2	22.80	-0.01	0	21222	QPSK	50	0	0 mm	back	1:1.58	1.540	1.096	1.688	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.2	22.72	-0.10	0	21222	QPSK	50	25	0 mm	back	1:1.58	1.570	1.117	1.754	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	23.2	22.77	-0.13	0	21222	QPSK	50	0	0 mm	back	1:1.58	1.570	1.104	1.733	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.2	23.00	-0.19	0	21222	QPSK	50	50	0 mm	back	1:1.58	1.630	1.047	1.707	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	-0.11	0	21222	QPSK	50	0	0 mm	back	1:1.58	1.970	1.000	1.970	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.18	-0.21	0	21222	QPSK	100	0	0 mm	back	1:1.58	1.910	1.005	1.920	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	26.2	26.20	-0.12	0	21222	QPSK	1	0	0 mm	back	1:2.31	2.400	1.000	2.400	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	26.2	26.19	-0.20	0	21222	QPSK	1	50	0 mm	back	1:2.31	2.590	1.002	2.595	A51
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	23.2	23.00	-0.19	0	21222	QPSK	1	0	0 mm	back	1:1.58	1.670	1.047	1.748	
	SCC	2660.20	41292										1	99							
2 CC Uplink - Power Class 2	PCC	2680.00	41490	High	LTE Band 41	20	26.2	25.95	-0.13	0	21222	QPSK	1	0	0 mm	back	1:2.31	2.170	1.059	2.298	
	SCC	2660.20	41292										1	99							
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.2	22.91	-0.08	0	21222	QPSK	1	50	0 mm	bottom	1:1.58	1.840	1.069	1.967	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.2	22.86	0.07	0	21222	QPSK	1	50	0 mm	bottom	1:1.58	1.570	1.081	1.697	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	23.2	22.91	-0.09	0	21222	QPSK	1	50	0 mm	bottom	1:1.58	1.540	1.069	1.646	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.2	22.95	0.05	0	21222	QPSK	1	50	0 mm	bottom	1:1.58	1.600	1.059	1.694	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	0.06	0	21222	QPSK	1	50	0 mm	bottom	1:1.58	1.760	1.000	1.760	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	23.2	22.80	-0.11	0	21222	QPSK	50	0	0 mm	bottom	1:1.58	1.830	1.096	2.006	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.2	22.72	-0.12	0	21222	QPSK	50	25	0 mm	bottom	1:1.58	1.570	1.117	1.754	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	23.2	22.77	-0.12	0	21222	QPSK	50	0	0 mm	bottom	1:1.58	1.560	1.104	1.722	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	23.2	23.00	-0.12	0	21222	QPSK	50	50	0 mm	bottom	1:1.58	1.630	1.047	1.707	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.20	-0.09	0	21222	QPSK	50	0	0 mm	bottom	1:1.58	1.730	1.000	1.730	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	23.2	23.18	-0.10	0	21222	QPSK	100	0	0 mm	bottom	1:1.58	1.740	1.005	1.749	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	26.2	26.19	-0.20	0	21222	QPSK	1	50	0 mm	back	1:2.31	2.580	1.002	2.585	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Phablet 4.0 W/kg (mW/g) averaged over 10 grams			

Note: Blue entry represent variability measurement.

Table 11-39
WLAN Phablet SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	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)	
5300	60	802.11a	OFDM	20	18.0	17.68	0.08	0 mm	20026	6	back	96.9	7.951	0.824	1.076	1.032	0.915	
5300	60	802.11a	OFDM	20	18.0	17.68	0.20	0 mm	20026	6	front	96.9	3.983	0.435	1.076	1.032	0.483	
5300	60	802.11a	OFDM	20	18.0	17.68	0.10	0 mm	20026	6	top	96.9	39.455	1.690	1.076	1.032	1.877	
5300	60	802.11a	OFDM	20	18.0	17.68	-0.15	0 mm	20026	6	right	96.9	0.660	-	1.076	1.032	-	
5540	108	802.11a	OFDM	20	18.0	17.71	0.13	0 mm	20026	6	back	96.9	14.605	1.150	1.069	1.032	1.269	
5540	108	802.11a	OFDM	20	18.0	17.71	0.11	0 mm	20026	6	front	96.9	6.161	0.610	1.069	1.032	0.673	
5520	104	802.11a	OFDM	20	18.0	17.65	0.10	0 mm	20026	6	top	96.9	36.805	1.910	1.084	1.032	2.137	
5540	108	802.11a	OFDM	20	18.0	17.71	0.10	0 mm	20026	6	top	96.9	46.467	2.010	1.069	1.032	2.217	A52
5600	120	802.11a	OFDM	20	17.5	16.93	0.19	0 mm	20026	6	top	96.9	35.794	1.990	1.140	1.032	2.341	
5720	144	802.11a	OFDM	20	16.5	15.77	0.14	0 mm	20026	6	top	96.9	34.575	1.990	1.183	1.032	**2.430**	
5540	108	802.11a	OFDM	20	18.0	17.71	0.14	0 mm	20026	6	right	96.9	1.049	-	1.069	1.032	-	
5540	108	802.11a	OFDM	20	18.0	17.71	0.10	0 mm	20026	6	top	96.9	46.513	1.880	1.069	1.032	2.074	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**	**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams

Note: Blue entry represent variability measurement.

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. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information).
11. This device utilizes power reduction for some wireless modes and technologies, as outlined in Section 1.3. 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.

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 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.

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v03r01.

2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO Rev0 and RevA and TDSO / SO32 FCH+SCH SAR tests were not required per the 3G SAR Test Reduction Procedure in FCC KDB Publication 941225 D01v03r01.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01v03r01 procedures for data devices. Wireless Router SAR tests for Subtype 2 of Rev.A and 1x RTT configurations were not required per the 3G SAR Test Reduction Policy in KDB Publication 941225 D01v03r01.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
5. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.

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 8.6.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 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. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions. Please see Section 14 for linearity results.
7. For LTE Band 41, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The

two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

WLAN Notes:

1. For held-to-ear, hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.7.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.7.6 for more information.
4. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.

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.

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.

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.

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 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10 (§90S)	0.228	0.710	0.938
	CDMA/EVDO BC0 (§22H)	0.236	0.710	0.946
	PCS CDMA/EVDO	0.308	0.710	1.018
	GSM/GPRS 850	0.298	0.710	1.008
	GSM/GPRS 1900	0.226	0.710	0.936
	UMTS 850	0.235	0.710	0.945
	UMTS 1750	0.249	0.710	0.959
	UMTS 1900	0.318	0.710	**1.028**
	LTE Band 71	0.179	0.710	0.889
	LTE Band 12	0.223	0.710	0.933
	LTE Band 13	0.197	0.710	0.907
	LTE Band 26 (Cell)	0.261	0.710	0.971
	LTE Band 66 (AWS)	0.270	0.710	0.980
	LTE Band 25 (PCS)	0.305	0.710	1.015
	LTE Band 41	0.190	0.710	0.900

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10 (§90S)	0.228	1.224	1.452
	CDMA/EVDO BC0 (§22H)	0.236	1.224	1.460
	PCS CDMA/EVDO	0.308	1.224	1.532
	GSM/GPRS 850	0.298	1.224	1.522
	GSM/GPRS 1900	0.226	1.224	1.450
	UMTS 850	0.235	1.224	1.459
	UMTS 1750	0.249	1.224	1.473
	UMTS 1900	0.318	1.224	**1.542**
	LTE Band 71	0.179	1.224	1.403
	LTE Band 12	0.223	1.224	1.447
	LTE Band 13	0.197	1.224	1.421
	LTE Band 26 (Cell)	0.261	1.224	1.485
	LTE Band 66 (AWS)	0.270	1.224	1.494
	LTE Band 25 (PCS)	0.305	1.224	1.529
	LTE Band 41	0.190	1.224	1.414

Table 12-3
Simultaneous Transmission Scenario with Bluetooth (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10 (§90S)	0.228	0.126	0.354
	CDMA/EVDO BC0 (§22H)	0.236	0.126	0.362
	PCS CDMA/EVDO	0.308	0.126	0.434
	GSM/GPRS 850	0.298	0.126	0.424
	GSM/GPRS 1900	0.226	0.126	0.352
	UMTS 850	0.235	0.126	0.361
	UMTS 1750	0.249	0.126	0.375
	UMTS 1900	0.318	0.126	**0.444**
	LTE Band 71	0.179	0.126	0.305
	LTE Band 12	0.223	0.126	0.349
	LTE Band 13	0.197	0.126	0.323
	LTE Band 26 (Cell)	0.261	0.126	0.387
	LTE Band 66 (AWS)	0.270	0.126	0.396
	LTE Band 25 (PCS)	0.305	0.126	0.431
	LTE Band 41	0.190	0.126	0.316

Table 12-4
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.228	0.126	1.224	1.578
	CDMA/EVDO BC0 (§22H)	0.236	0.126	1.224	**1.586**
	PCS CDMA/EVDO	0.308	0.126	1.224	See Table Below
	GSM/GPRS 850	0.298	0.126	1.224	See Table Below
	GSM/GPRS 1900	0.226	0.126	1.224	1.576
	UMTS 850	0.235	0.126	1.224	**1.585**
	UMTS 1750	0.249	0.126	1.224	See Table Below
	UMTS 1900	0.318	0.126	1.224	See Table Below
	LTE Band 71	0.179	0.126	1.224	1.529
	LTE Band 12	0.223	0.126	1.224	1.573
	LTE Band 13	0.197	0.126	1.224	1.547
	LTE Band 26 (Cell)	0.261	0.126	1.224	See Table Below
	LTE Band 66 (AWS)	0.270	0.126	1.224	See Table Below
	LTE Band 25 (PCS)	0.305	0.126	1.224	See Table Below
	LTE Band 41	0.190	0.126	1.224	1.540

Simult Tx	Configuration	PCS CDMA/EVDO SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.225	0.064	0.813	1.102
	Right Tilt	0.224	0.055	1.027	1.306
	Left Cheek	0.308	0.126	0.980	1.414
	Left Tilt	0.235	0.097	1.224	**1.556**

Simult Tx	Configuration	GSM/GPRS /GPRS 850 SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.298	0.064	0.813	1.175
	Right Tilt	0.153	0.055	1.027	1.235
	Left Cheek	0.279	0.126	0.980	1.385
	Left Tilt	0.159	0.097	1.224	**1.480**

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.151	0.064	0.813	1.028
	Right Tilt	0.131	0.055	1.027	1.213
	Left Cheek	0.249	0.126	0.980	1.355
	Left Tilt	0.150	0.097	1.224	**1.471**

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.203	0.064	0.813	1.080
	Right Tilt	0.203	0.055	1.027	1.285
	Left Cheek	0.318	0.126	0.980	1.424
	Left Tilt	0.227	0.097	1.224	**1.548**

Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.224	0.064	0.813	1.101
	Right Tilt	0.121	0.055	1.027	1.203
	Left Cheek	0.261	0.126	0.980	1.367
	Left Tilt	0.139	0.097	1.224	**1.460**

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.170	0.064	0.813	1.047
	Right Tilt	0.201	0.055	1.027	1.283
	Left Cheek	0.270	0.126	0.980	1.376
	Left Tilt	0.185	0.097	1.224	**1.506**

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	Right Cheek	0.203	0.064	0.813	1.080
	Right Tilt	0.202	0.055	1.027	1.284
	Left Cheek	0.305	0.126	0.980	1.411
	Left Tilt	0.234	0.097	1.224	**1.555**

12.4 Body-Worn Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body - Worn SAR	CDMA BC10 (§90S)	0.334	0.343	0.677
	CDMA BC0 (§22H)	0.396	0.343	0.739
	PCS CDMA	0.823	0.343	1.166
	GSM/GPRS 850	0.500	0.343	0.843
	GSM/GPRS 1900	0.505	0.343	0.848
	UMTS 850	0.428	0.343	0.771
	UMTS 1750	0.696	0.343	1.039
	UMTS 1900	0.658	0.343	1.001
	LTE Band 71	0.431	0.343	0.774
	LTE Band 12	0.433	0.343	0.776
	LTE Band 13	0.357	0.343	0.700
	LTE Band 26 (Cell)	0.367	0.343	0.710
	LTE Band 66 (AWS)	0.690	0.343	1.033
	LTE Band 25 (PCS)	0.824	0.343	1.167
	LTE Band 41	0.853	0.343	**1.196**

Table 12-6
Simultaneous Transmission Scenario with 5 GHz WLAN (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body - Worn SAR	CDMA BC10 (§90S)	0.334	0.640	0.974
	CDMA BC0 (§22H)	0.396	0.640	1.036
	PCS CDMA	0.823	0.640	1.463
	GSM/GPRS 850	0.500	0.640	1.140
	GSM/GPRS 1900	0.505	0.640	1.145
	UMTS 850	0.428	0.640	1.068
	UMTS 1750	0.696	0.640	1.336
	UMTS 1900	0.658	0.640	1.298
	LTE Band 71	0.431	0.640	1.071
	LTE Band 12	0.433	0.640	1.073
	LTE Band 13	0.357	0.640	0.997
	LTE Band 26 (Cell)	0.367	0.640	1.007
	LTE Band 66 (AWS)	0.690	0.640	1.330
	LTE Band 25 (PCS)	0.824	0.640	1.464
	LTE Band 41	0.853	0.640	**1.493**

Table 12-7
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body - Worn SAR	CDMA BC10 (§90S)	0.334	0.041	0.375
	CDMA BC0 (§22H)	0.396	0.041	0.437
	PCS CDMA	0.823	0.041	0.864
	GSM/GPRS 850	0.500	0.041	0.541
	GSM/GPRS 1900	0.505	0.041	0.546
	UMTS 850	0.428	0.041	0.469
	UMTS 1750	0.696	0.041	0.737
	UMTS 1900	0.658	0.041	0.699
	LTE Band 71	0.431	0.041	0.472
	LTE Band 12	0.433	0.041	0.474
	LTE Band 13	0.357	0.041	0.398
	LTE Band 26 (Cell)	0.367	0.041	0.408
	LTE Band 66 (AWS)	0.690	0.041	0.731
	LTE Band 25 (PCS)	0.824	0.041	0.865
	LTE Band 41	0.853	0.041	**0.894**

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body - Worn SAR	CDMA BC10 (§90S)	0.334	0.041	0.640	1.015
	CDMA BC0 (§22H)	0.396	0.041	0.640	1.077
	PCS CDMA	0.823	0.041	0.640	1.504
	GSM/GPRS 850	0.500	0.041	0.640	1.181
	GSM/GPRS 1900	0.505	0.041	0.640	1.186
	UMTS 850	0.428	0.041	0.640	1.109
	UMTS 1750	0.696	0.041	0.640	1.377
	UMTS 1900	0.658	0.041	0.640	1.339
	LTE Band 71	0.431	0.041	0.640	1.112
	LTE Band 12	0.433	0.041	0.640	1.114
	LTE Band 13	0.357	0.041	0.640	1.038
	LTE Band 26 (Cell)	0.367	0.041	0.640	1.048
	LTE Band 66 (AWS)	0.690	0.041	0.640	1.371
	LTE Band 25 (PCS)	0.824	0.041	0.640	1.505
	LTE Band 41	0.853	0.041	0.640	**1.534**

12.5 Hotspot SAR Simultaneous Transmission Analysis

Table 12-9
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.268	0.343	0.611
	EVDO BC0 (§22H)	0.314	0.343	0.657
	PCS EVDO	0.720	0.343	1.063
	GPRS/GPRS 850	0.500	0.343	0.843
	GPRS/GPRS 1900	0.505	0.343	0.848
	UMTS 850	0.428	0.343	0.771
	UMTS 1750	0.696	0.343	1.039
	UMTS 1900	0.658	0.343	1.001
	LTE Band 71	0.493	0.343	0.836
	LTE Band 12	0.457	0.343	0.800
	LTE Band 13	0.362	0.343	0.705
	LTE Band 26 (Cell)	0.367	0.343	0.710
	LTE Band 66 (AWS)	0.704	0.343	1.047
	LTE Band 25 (PCS)	0.824	0.343	**1.167**
	LTE Band 41	1.288	0.343	See Table Below

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.460	0.343	0.803
	Front	0.281	0.343*	0.624
	Top	-	0.343*	0.343
	Bottom	1.288	-	**1.288**
	Right	0.145	0.343*	0.488
	Left	0.196	-	0.196

Table 12-10
Simultaneous Transmission Scenario with 5 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.268	0.907	1.175
	EVDO BC0 (§22H)	0.314	0.907	1.221
	PCS EVDO	0.720	0.907	See Table Below
	GPRS/GPRS 850	0.500	0.907	1.407
	GPRS/GPRS 1900	0.505	0.907	1.412
	UMTS 850	0.428	0.907	1.335
	UMTS 1750	0.696	0.907	See Table Below
	UMTS 1900	0.658	0.907	**1.565**
	LTE Band 71	0.493	0.907	1.400
	LTE Band 12	0.457	0.907	1.364
	LTE Band 13	0.362	0.907	1.269
	LTE Band 26 (Cell)	0.367	0.907	1.274
	LTE Band 66 (AWS)	0.704	0.907	See Table Below
	LTE Band 25 (PCS)	0.824	0.907	See Table Below
	LTE Band 41	1.288	0.907	See Table Below

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.720	0.533	1.253	Hotspot SAR	Back	0.696	0.533	1.229
	Front	0.572	0.907*	**1.479**		Front	0.550	0.907*	**1.457**
	Top	-	0.907	0.907		Top	-	0.907	0.907
	Bottom	0.530	-	0.530		Bottom	0.472	-	0.472
	Right	-	0.907*	0.907		Right	-	0.907*	0.907
	Left	0.599	-	0.599		Left	0.661	-	0.661

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.690	0.533	1.223	Hotspot SAR	Back	0.824	0.533	1.357
	Front	0.575	0.907*	**1.482**		Front	0.552	0.907*	**1.459**
	Top	-	0.907	0.907		Top	-	0.907	0.907
	Bottom	0.574	-	0.574		Bottom	0.595	-	0.595
	Right	-	0.907*	0.907		Right	-	0.907*	0.907
	Left	0.704	-	0.704		Left	0.534	-	0.534

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.460	0.533	0.993
	Front	0.281	0.907*	1.188
	Top	-	0.907	0.907
	Bottom	1.288	-	**1.288**
	Right	0.145	0.907*	1.052
	Left	0.196	-	0.196

Table 12-11
Simultaneous Transmission Scenario with Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.268	0.041	0.309
	EVDO BC0 (§22H)	0.314	0.041	0.355
	PCS EVDO	0.720	0.041	0.761
	GPRS/GPRS 850	0.500	0.041	0.541
	GPRS/GPRS 1900	0.505	0.041	0.546
	UMTS 850	0.428	0.041	0.469
	UMTS 1750	0.696	0.041	0.737
	UMTS 1900	0.658	0.041	0.699
	LTE Band 71	0.493	0.041	0.534
	LTE Band 12	0.457	0.041	0.498
	LTE Band 13	0.362	0.041	0.403
	LTE Band 26 (Cell)	0.367	0.041	0.408
	LTE Band 66 (AWS)	0.704	0.041	0.745
	LTE Band 25 (PCS)	0.824	0.041	0.865
	LTE Band 41	1.288	0.041	**1.329**

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	2	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.268	0.041	0.907	1.216
	EVDO BC0 (§22H)	0.314	0.041	0.907	1.262
	PCS EVDO	0.720	0.041	0.907	See Table Below
	GPRS/GPRS 850	0.500	0.041	0.907	1.448
	GPRS/GPRS 1900	0.505	0.041	0.907	**1.453**
	UMTS 850	0.428	0.041	0.907	1.376
	UMTS 1750	0.696	0.041	0.907	See Table Below
	UMTS 1900	0.658	0.041	0.907	See Table Below
	LTE Band 71	0.493	0.041	0.907	1.441
	LTE Band 12	0.457	0.041	0.907	1.405
	LTE Band 13	0.362	0.041	0.907	1.310
	LTE Band 26 (Cell)	0.367	0.041	0.907	1.315
	LTE Band 66 (AWS)	0.704	0.041	0.907	See Table Below
	LTE Band 25 (PCS)	0.824	0.041	0.907	See Table Below
	LTE Band 41	1.288	0.041	0.907	See Table Below

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body SAR	Back	0.720	0.041	0.533	1.294
	Front	0.572	0.024	0.907*	**1.503**
	Top	-	0.016	0.907	0.923
	Bottom	0.530	-	-	0.530
	Right	-	0.034	0.907*	0.941
	Left	0.599	-	-	0.599

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body SAR	Back	0.696	0.041	0.533	1.270
	Front	0.550	0.024	0.907*	**1.481**
	Top	-	0.016	0.907	0.923
	Bottom	0.472	-	-	0.472
	Right	-	0.034	0.907*	0.941
	Left	0.661	-	-	0.661

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body SAR	Back	0.658	0.041	0.533	1.232
	Front	0.536	0.024	0.907*	**1.467**
	Top	-	0.016	0.907	0.923
	Bottom	0.487	-	-	0.487
	Right	-	0.034	0.907*	0.941
	Left	0.517	-	-	0.517

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body SAR	Back	0.690	0.041	0.533	1.264
	Front	0.575	0.024	0.907*	**1.506**
	Top	-	0.016	0.907	0.923
	Bottom	0.574	-	-	0.574
	Right	-	0.034	0.907*	0.941
	Left	0.704	-	-	0.704

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Body SAR	Back	0.824	0.041	0.533	1.398	Body SAR	Back	0.460	0.041	0.533	1.034
	Front	0.552	0.024	0.907*	**1.483**		Front	0.281	0.024	0.907*	1.212
	Top	-	0.016	0.907	0.923		Top	-	0.016	0.907	0.923
	Bottom	0.595	-	-	0.595		Bottom	1.288	-	-	**1.288**
	Right	-	0.034	0.907*	0.941		Right	0.145	0.034	0.907*	1.086
	Left	0.534	-	-	0.534		Left	0.196	-	-	0.196

12.6 Phablet Simultaneous Transmission Analysis

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

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 12-13
Simultaneous Transmission Scenario with 5 GHz WLAN (Phablet)

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Phablet SAR	Back	2.367	1.269	**3.636**	Phablet SAR	Back	2.115	1.269	**3.384**
	Front	2.203	0.673	2.876		Front	2.409	0.673	3.082
	Top	-	2.430	2.430		Top	-	2.430	2.430
	Bottom	1.179	-	1.179		Bottom	0.886	-	0.886
	Right	-	2.430*	2.430		Right	-	2.430*	2.430
	Left	2.557	-	2.557		Left	2.367	-	2.367

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Phablet SAR	Back	1.965	1.269	**3.234**	Phablet SAR	Back	2.313	1.269	**3.582**
	Front	2.247	0.673	2.920		Front	2.554	0.673	3.227
	Top	-	2.430	2.430		Top	-	2.430	2.430
	Bottom	1.129	-	1.129		Bottom	1.129	-	1.129
	Right	-	2.430*	2.430		Right	-	2.430*	2.430
	Left	2.421	-	2.421		Left	2.619	-	2.619

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Phablet SAR	Back	1.604	1.269	**2.873**	Phablet SAR	Back	2.595	1.269	**3.864**
	Front	1.901	0.673	2.574		Front	0.955	0.673	1.628
	Top	-	2.430	2.430		Top	-	2.430	2.430
	Bottom	1.197	-	1.197		Bottom	2.006	-	2.006
	Right	-	2.430*	2.430		Right	0.401	2.430*	2.831
	Left	2.232	-	2.232		Left	0.434	-	0.434

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.

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)	
5250	5320.00	64	802.11a, 20 MHz Bandwidth	OFDM	Left	Tilt	6	0.823	0.819	1.00	N/A	N/A	N/A	N/A
5600	5500.00	100	802.11a, 20 MHz Bandwidth	OFDM	Left	Tilt	6	1.180	1.150	1.03	N/A	N/A	N/A	N/A
5750	5755.00	151	802.11n, 40 MHz Bandwidth	OFDM	Left	Tilt	13.5	0.877	0.873	1.00	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)	
2450	2506.00	39750	LTE Band 41 Power Class 2, 20 MHz Bandwidth	QPSK, 1 RB, 50 RB Offset	bottom	10 mm	1.230	1.170	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						

Table 13-3
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	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, 50 RB Offset	N/A	left	0 mm	2.390	2.240	1.07	N/A	N/A	N/A	N/A
1900	1880.00	9400	UMTS 1900	RMC	N/A	left	0 mm	2.360	2.360	1.00	N/A	N/A	N/A	N/A
2600	2680.00	41490	LTE Band 41 Power Class 2, 20 MHz Bandwidth	QPSK, 1 RB, 50 RB Offset	N/A	back	0 mm	2.590	2.580	1.00	N/A	N/A	N/A	N/A
5600	5540.00	108	802.11a, 20 MHz Bandwidth	OFDM	6	top	0 mm	2.010	1.880	1.07	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.

14 ADDITIONAL TESTING PER FCC GUIDANCE

14.1 LTE Band 41 Power Class 2 and Power Class 3 Linearity

This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per May 2017 TCB Workshop Notes based on the device behavior, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the highest power and available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR for each exposure condition. The linearity between the Power Class 2 and Power Class 3 SAR results and the respective frame averaged powers was calculated to determine that the results were linear.
Per May 2017 TCB Workshop, no additional SAR measurements were required since the linearity between power classes was < 10% and all reported SAR values were < 1.4 W/kg for 1g and < 3.5 W/kg for 10g. When ULCA is active, the linearity between the Power Class 2 with ULCA active and Power Class 3 with ULCA active SAR results and the respective frame averaged powers was calculated to determine that the results were linear.

Table 14-1
LTE Band 41 Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.20	27.20
Measured Output Power (dBm)	24.17	27.07
Measured SAR (W/kg)	0.132	0.184
Measured Power (mW)	261.22	509.33
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	165.35	220.54
% deviation from expected linearity		4.51%

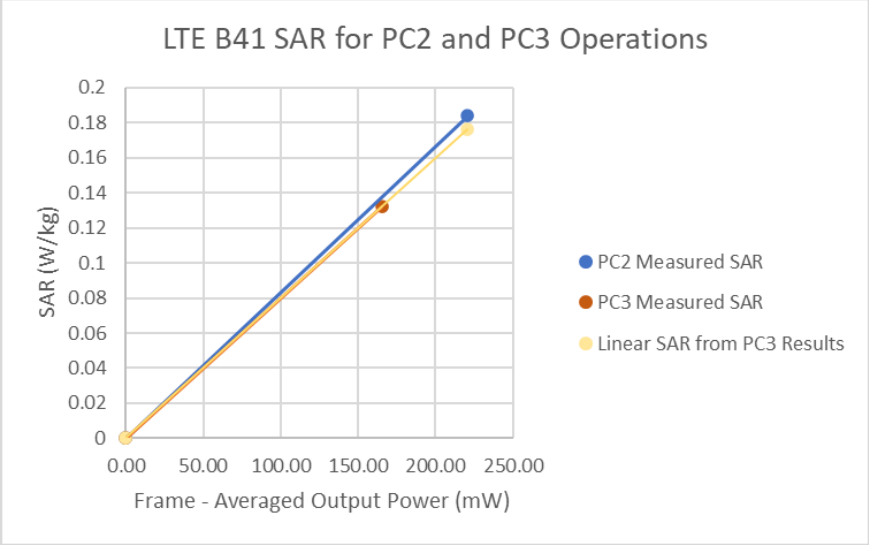


Figure 14-1
LTE Band 41 Head Linearity

Table 14-2
LTE Band 41 ULCA Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.20	27.20
Measured Output Power (dBm)	23.50	26.55
Measured SAR (W/kg)	0.115	0.159
Measured Power (mW)	223.87	451.86
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	141.71	195.65
% deviation from expected linearity		0.14%

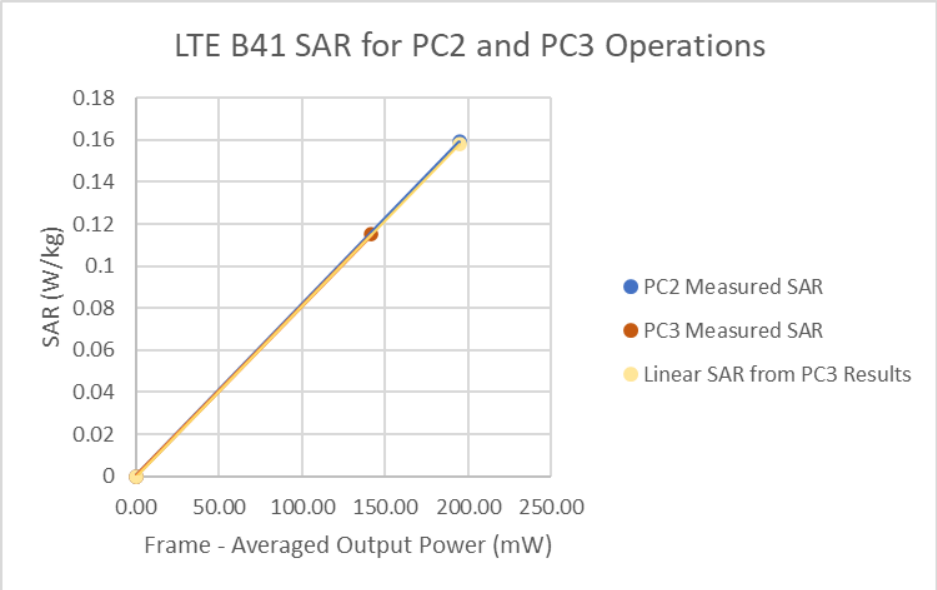


Figure 14-2
LTE Band 41 ULCA Head Linearity

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

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.20	27.20
Measured Output Power (dBm)	24.20	27.20
Measured SAR (W/kg)	0.460	0.657
Measured Power (mW)	263.03	524.81
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	166.50	227.24
% deviation from expected linearity		4.65%

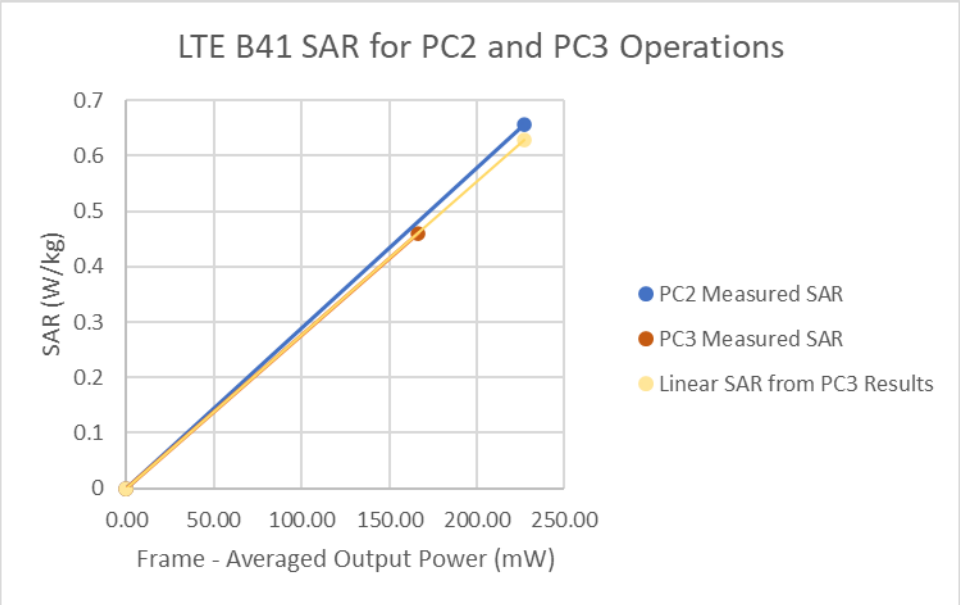


Figure 14-3
LTE Band 41 Body-Worn Linearity

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

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.20	27.20
Measured Output Power (dBm)	23.50	26.55
Measured SAR (W/kg)	0.546	0.735
Measured Power (mW)	223.87	451.86
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	141.71	195.65
% deviation from expected linearity		-2.50%

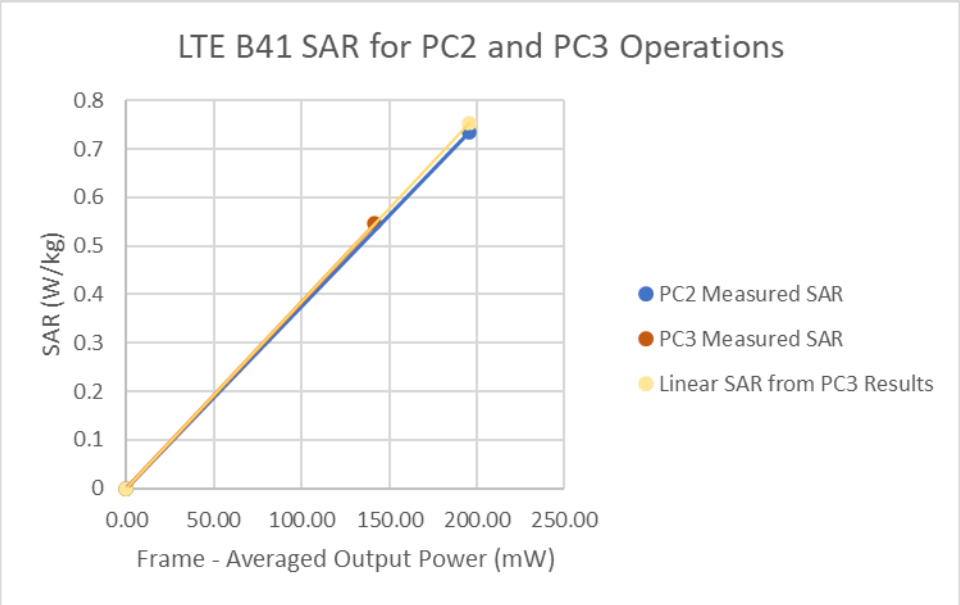


Figure 14-4
LTE Band 41 ULCA Body-Worn Linearity

Table 14-5
LTE Band 41 Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.20	27.20
Measured Output Power (dBm)	23.88	27.00
Measured SAR (W/kg)	0.917	1.170
Measured Power (mW)	244.34	501.19
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	154.67	217.01
% deviation from expected linearity		-9.06%

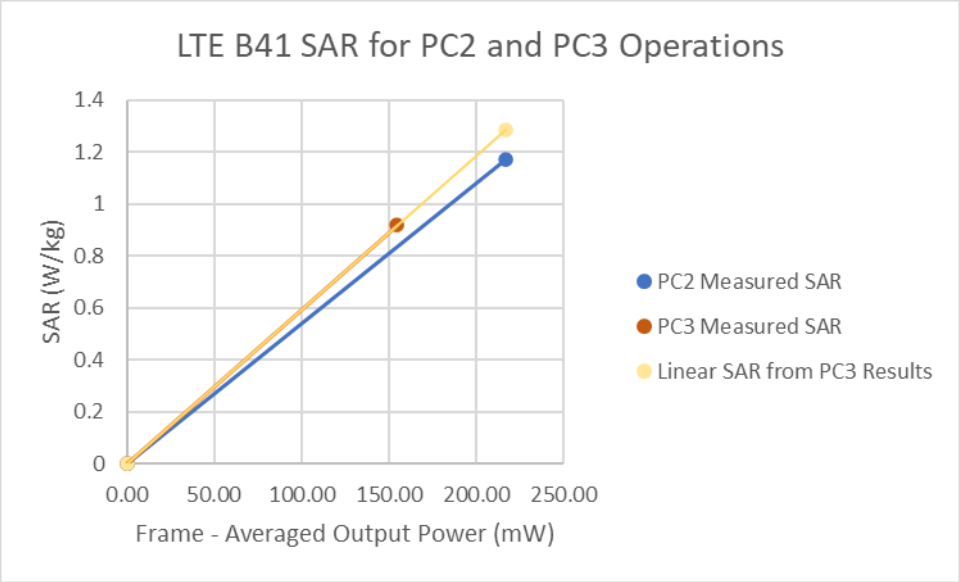


Figure 14-5
LTE Band 41 Hotspot Linearity

Table 14-6
LTE Band 41 ULCA Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.20	27.20
Measured Output Power (dBm)	23.24	26.22
Measured SAR (W/kg)	0.748	0.988
Measured Power (mW)	210.86	418.79
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	133.48	181.34
% deviation from expected linearity		-2.78%

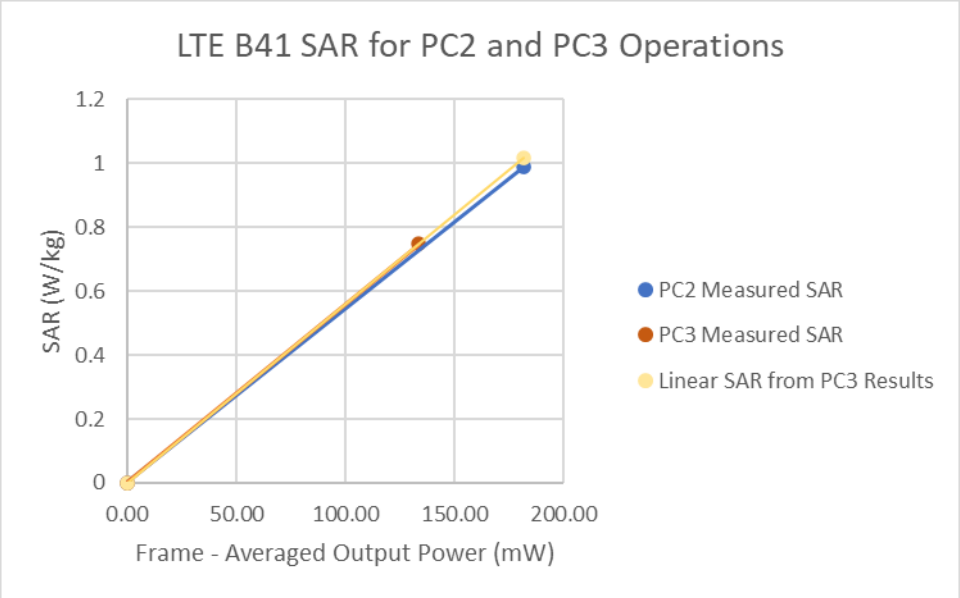


Figure 14-6
LTE Band 41 ULCA Hotspot Linearity

Table 14-7
LTE Band 41 Phablet Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	23.20	26.20
Measured Output Power (dBm)	23.20	26.19
Measured SAR (W/kg)	2.020	2.580
Measured Power (mW)	208.93	415.91
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	132.25	180.09
% deviation from expected linearity		-6.20%

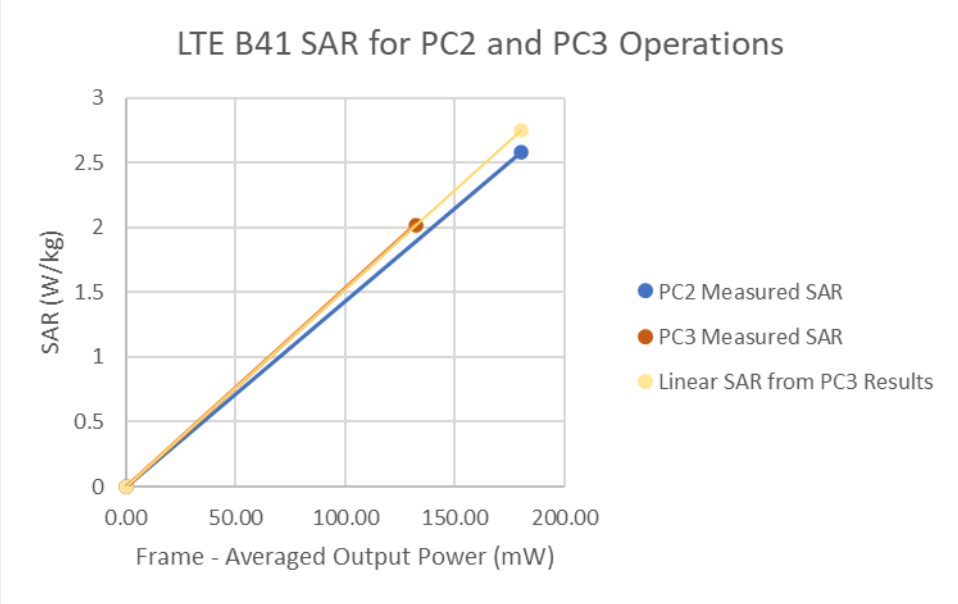


Figure 14-7
LTE Band 41 Phablet Linearity

Table 14-8
LTE Band 41 ULCA Phablet Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	23.20	26.20
Measured Output Power (dBm)	23.00	25.95
Measured SAR (W/kg)	1.670	2.170
Measured Power (mW)	199.53	393.55
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	126.30	170.41
% deviation from expected linearity		-3.69%

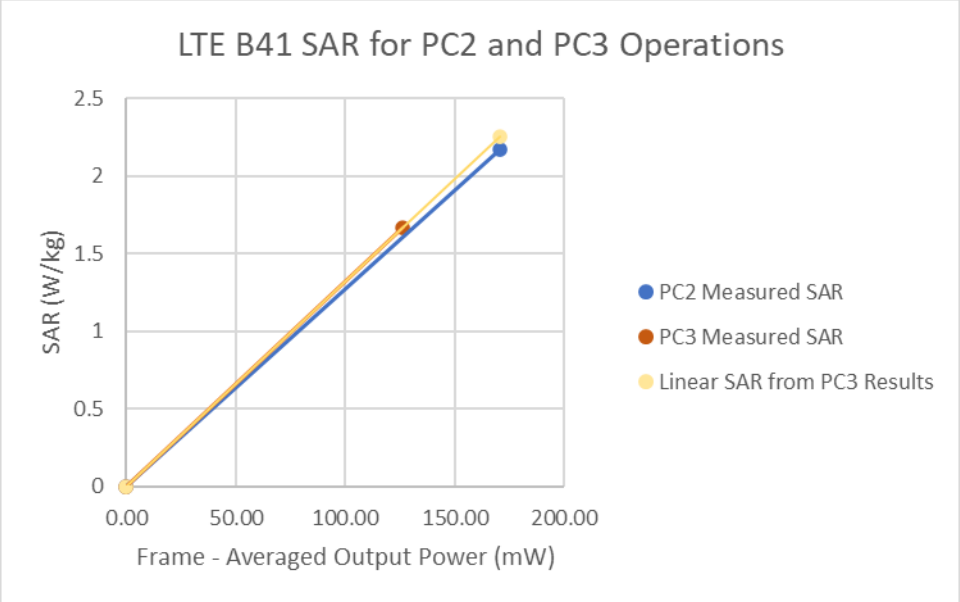


Figure 14-8
LTE Band 41 ULCA Phablet Linearity

15 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85033E	3.5mm Standard Calibration Kit	6/6/2020	Annual	6/6/2021	MY53402352
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8753ES	S-Parameter Network Analyzer	9/16/2020	Annual	9/16/2021	MY40000670
Agilent	8753ES	S-Parameter Vector Network Analyzer	12/15/2020	Annual	12/15/2021	MY40003841
Agilent	E4438C	ESG Vector Signal Generator	9/8/2020	Biennial	9/8/2022	MY45090700
Agilent	E4438C	ESG Vector Signal Generator	12/14/2020	Biennial	12/14/2022	MY42082385
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	2/10/2020	Annual	2/10/2021	GB42230325
Agilent	E5515C	Wireless Communications Test Set	2/26/2020	Annual	2/26/2021	GB44400860
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Agilent	N5182A	MXG Vector Signal Generator	2/19/2020	Annual	2/19/2021	MY47420651
Agilent	N5182A	MXG Vector Signal Generator	5/13/2020	Annual	5/13/2021	MY47420603
Amplifier Research	150A100C	DC Amplifier	CBT	N/A	CBT	348812
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433976
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433978
Anritsu	MA24106A	USB Power Sensor	1/15/2021	Annual	1/15/2022	1349503
Anritsu	MA24106A	USB Power Sensor	1/15/2021	Annual	1/15/2022	1344554
Anritsu	MA2411B	Pulse Power Sensor	9/22/2020	Annual	9/22/2021	1339008
Anritsu	MA2411B	Pulse Power Sensor	12/18/2020	Annual	12/18/2021	1126066
Anritsu	ML2495A	Power Meter	1/18/2021	Annual	1/18/2022	941001
Anritsu	MT8820C	Radio Communication Analyzer	9/17/2020	Annual	9/17/2021	6201300731
Anritsu	MT8821C	Radio Communication Analyzer	2/22/2020	Annual	2/22/2021	6261895213
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4040	Therm./Clock/Humidity Monitor	6/29/2019	Biennial	6/29/2021	192291460
Control Company	4040	Therm./Clock/Humidity Monitor	6/29/2019	Biennial	6/29/2021	192291463
Control Company	4352	Long Stem Thermometer	5/16/2020	Biennial	5/16/2022	200294430
Control Company	4352	Long Stem Thermometer	5/16/2020	Biennial	5/16/2022	200294416
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	9/1/2020	Annual	9/1/2021	MY53401181
Keysight Technologies	N6705B	DC Power Analyzer	4/27/2019	Biennial	4/27/2021	MY53004059
Keysight Technologies	N9020A	MXA Signal Analyzer	8/14/2020	Annual	8/14/2021	US46470561
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	8/17/2020	Annual	8/17/2021	MY52350166
Keysight Technologies	U3401A	Digital Multimeter	5/14/2020	Biennial	5/14/2022	MY57201470
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	8/4/2020	Biennial	8/4/2022	N/A
Pasternack	NC-100	Torque Wrench (8in-lbs)	8/5/2020	Biennial	8/5/2022	47639-47
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	6/9/2020	Annual	6/9/2021	109892
Rohde & Schwarz	CMW500	Radio Communication Tester	11/4/2020	Annual	11/4/2021	100976
Rohde & Schwarz	CMW500	Radio Communication Tester	11/5/2020	Annual	11/5/2021	112347
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	2/4/2020	Annual	2/4/2021	162125
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	6/23/2020	Annual	6/23/2021	161662
Rohde & Schwarz	ZNLE6	Vector Network Analyzer	9/29/2020	Annual	9/29/2021	101307
SPEAG	D1750V2	1750 MHz SAR Dipole	5/12/2020	Annual	5/12/2021	1148
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2018	Triennial	10/22/2021	1150
SPEAG	D1765V2	1765 MHz SAR Dipole	5/23/2018	Triennial	5/23/2021	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	2/21/2019	Biennial	2/21/2021	5d148
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Triennial	10/23/2021	5d149
SPEAG	D2450V2	2450 MHz SAR Dipole	8/14/2020	Annual	8/14/2021	719
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Triennial	8/16/2021	981
SPEAG	D2450V2	2450 MHz SAR Dipole	1/19/2021	Annual	1/19/2022	981
SPEAG	D2450V2	2450 MHz SAR Dipole	9/9/2020	Annual	9/9/2021	797
SPEAG	D2600V2	2600 MHz SAR Dipole	4/11/2018	Triennial	4/11/2021	1004
SPEAG	D2600V2	2600 MHz SAR Dipole	11/12/2019	Biennial	11/12/2021	1071
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/16/2018	Triennial	1/16/2021	1057
SPEAG	D5GHzV2	5 GHz SAR Dipole	8/10/2018	Triennial	8/10/2021	1237
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/10/2020	Annual	9/10/2021	1191
SPEAG	D750V3	750 MHz SAR Dipole	3/16/2020	Annual	3/16/2021	1003
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2018	Triennial	10/19/2021	1161
SPEAG	D835V2	835 MHz SAR Dipole	1/13/2020	Annual	1/13/2021	4d132
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Triennial	10/19/2021	4d133
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/15/2020	Annual	4/15/2021	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/14/2020	Annual	5/14/2021	1583
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/20/2020	Annual	5/20/2021	728
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2020	Annual	6/18/2021	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/15/2020	Annual	7/15/2021	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/11/2020	Annual	8/11/2021	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/10/2020	Annual	9/10/2021	1449
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/16/2020	Annual	10/16/2021	1333
SPEAG	DAE4	Data Acquisition Electronics	12/7/2020	Annual	12/7/2021	1533
SPEAG	DAE4ip	Intergrated Power Supply	11/17/2020	Annual	11/17/2021	1638
SPEAG	DAE4ip	Intergrated Power Supply	11/17/2020	Annual	11/17/2021	1639
SPEAG	DAK-12	Dielectric Assessment Kit (10MHz - 3GHz)	3/17/2020	Annual	3/17/2021	1102
SPEAG	DAK-3.5	Dielectric Assessment Kit	10/14/2020	Annual	10/14/2021	1091
SPEAG	DAK-3.5	Dielectric Parameter Probes	12/9/2020	Annual	12/9/2021	1278
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	8/12/2020	Annual	8/12/2021	1041
SPEAG	EX3DV4	SAR Probe	4/21/2020	Annual	4/21/2021	7357
SPEAG	EX3DV4	SAR Probe	6/23/2020	Annual	6/23/2021	7406
SPEAG	EX3DV4	SAR Probe	6/23/2020	Annual	6/23/2021	7409
SPEAG	EX3DV4	SAR Probe	7/20/2020	Annual	7/20/2021	7410
SPEAG	EX3DV4	SAR Probe	7/31/2020	Annual	7/31/2021	7308
SPEAG	EX3DV4	SAR Probe	9/11/2020	Annual	9/11/2021	7552
SPEAG	EX3DV4	SAR Probe	10/20/2020	Annual	10/20/2021	7551
SPEAG	EX3DV4	SAR Probe	10/20/2020	Annual	10/20/2021	7539
SPEAG	EX3DV4	SAR Probe	12/11/2020	Annual	12/11/2021	7571

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 respective calibration period.

16 MEASUREMENT UNCERTAINTIES

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

17 CONCLUSION

17.1 Measurement Conclusion

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

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

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