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SAR EVALUATION REPORT

Applicant Name:
Samsung Electronics, Co. Ltd.
129, Samsung-ro, Maetan dong,
Yeongtong-gu, Suwon-si
Gyeonggi-do 443-742, Korea

Date of Testing:
09/30/14 - 10/13/14
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
0Y1409291965.A3L

FCC ID: **A3LSMN915R4**

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

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model(s): SM-N915R4

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1 gm Head (W/kg)	1 gm Body-Worn (W/kg)	1 gm Hotspot (W/kg)	10 gm Extremity (W/kg)
PCE	Cell. CDMA/EVDO	824.70 - 848.31 MHz	0.27	0.60	1.02	
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.23	0.33	1.10	2.94
PCE	LTE Band 12	699.7 - 715.3 MHz	0.10	0.36	0.41	
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.21	0.38	0.53	
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	0.28	0.35	0.82	
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	0.19	0.42	1.05	3.00
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.62	0.87	0.87	
DTS	5.8 GHz WLAN	5745 - 5825 MHz	0.14	0.11	0.16	
NII	5.2 GHz WLAN	5180 - 5240 MHz	0.27	0.24		0.55
NII	5.3 GHz WLAN	5260 - 5320 MHz	0.27	0.19		0.39
NII	5.5 GHz WLAN	5500 - 5700 MHz	0.32	0.18		0.41
DSS/DTS	Bluetooth	2402 - 2480 MHz	N/A			N/A
Simultaneous SAR per KDB 690783 D01v01r03:			0.84	1.47	1.48	3.29

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 1.8 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 Manufacturers Forum (MMF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MMF. Further details can be obtained by emailing: sartick@mmfai.info.

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
Cell. CDMA/EVDO	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
LTE Band 12	Data	699.7 - 715.3 MHz
LTE Band 17	Data	706.5 - 713.5 MHz
LTE Band 5 (Cell)	Data	824.7 - 848.3 MHz
LTE Band 4 (AWS)	Data	1710.7 - 1754.3 MHz
LTE Band 2 (PCS)	Data	1850.7 - 1909.3 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
5.8 GHz WLAN	Voice/Data	5745 - 5825 MHz
5.2 GHz WLAN	Voice/Data	5180 - 5240 MHz
5.3 GHz WLAN	Voice/Data	5260 - 5320 MHz
5.5 GHz WLAN	Voice/Data	5500 - 5700 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz

1.1 Power Reduction for SAR

The device utilizes power reduction under some portable hotspot conditions for SAR compliance. There is power reduction for PCS CDMA/EVDO, LTE Band 4, and LTE Band 2. There is no power reduction for Cell. CDMA/EVDO, LTE Band 12/17, LTE Band 5, and WLAN modes. The reduced powers were confirmed via conducted power measurements at the RF port (See Section 9). Detailed description of the hotspot power reduction mechanism is included in the operational description.

1.2 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 D01v05.

Mode / Band		Modulated Average (dBm)
Cell. CDMA/EVDO	Maximum	**25.0**
	Nominal	**24.5**
PCS CDMA/EVDO	Maximum	**25.0**
	Nominal	**24.5**

Mode / Band		Modulated Average (dBm)
LTE Band 12/17	Maximum	**24.5**
	Nominal	**24.0**
LTE Band 5 (Cell)	Maximum	**24.5**
	Nominal	**24.0**
LTE Band 4 (AWS)	Maximum	**23.5**
	Nominal	**23.0**
LTE Band 2 (PCS)	Maximum	**23.5**
	Nominal	**23.0**

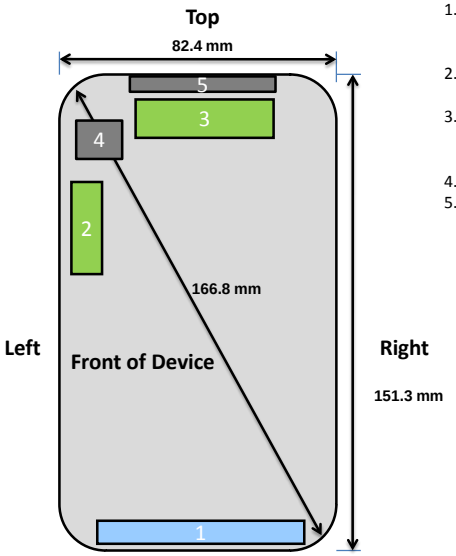
Mode / Band		Modulated Average (dBm)
IEEE 802.11b (2.4 GHz) - SISO	Maximum	**15.5**
	Nominal	**15.0**
IEEE 802.11g (2.4 GHz) - SISO	Maximum	**14.5**
	Nominal	**14.0**
IEEE 802.11n (2.4 GHz) - SISO	Maximum	**13.5**
	Nominal	**13.0**
IEEE 802.11n (2.4 GHz) - MIMO	Maximum	**16.5**
	Nominal	**16.0**
IEEE 802.11a (5 GHz) - SISO	Maximum	**12.5**
	Nominal	**12.0**
IEEE 802.11n/ac 20 MHz (5 GHz) - SISO	Maximum	**12.5**
	Nominal	**12.0**
IEEE 802.11n/ac 20 MHz (5 GHz) - MIMO	Maximum	**15.5**
	Nominal	**15.0**
IEEE 802.11n/ac 40 MHz (5 GHz) - SISO	Maximum	**9.5**
	Nominal	**9.0**
IEEE 802.11n/ac 40 MHz (5 GHz) - MIMO	Maximum	**12.5**
	Nominal	**12.0**
IEEE 802.11ac 80 MHz (5 GHz) - SISO	Maximum	**10.5**
	Nominal	**10.0**
IEEE 802.11ac 80 MHz (5 GHz) - MIMO	Maximum	**13.5**
	Nominal	**13.0**
Bluetooth	Maximum	**9.0**
	Nominal	**8.5**
Bluetooth LE	Maximum	**4.5**
	Nominal	**4.0**

1.2.1 Reduced Power

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	**22.0**
	Nominal	**21.5**

Mode / Band		Modulated Average (dBm)
LTE Band 4 (AWS)	Maximum	**22.0**
	Nominal	**21.5**
LTE Band 2 (PCS)	Maximum	**22.0**
	Nominal	**21.5**

1.3 DUT Antenna Locations



1. Main Antenna
   - CDMA/EVDO BC0/BC1 (Tx/Rx)
   - LTE B12/B17/B5/B4/B2 (Tx/Rx)
2. WIFI Antenna 1
   - 2.4/5 GHz WIFI (Tx/Rx)
3. WIFI Antenna 2
   - 2.4/5 GHz WIFI (Tx/Rx)
   - 2.4 GHz BT (Tx/Rx)
4. Diversity Antenna - LTE B4 (Rx Only)
5. Diversity Rx Only Antenna
   - GPS (Rx Only)
   - LTE B12/B17/B5/B2 (Rx Only)
   - CDMA/EVDO BC0/BC1 (Rx Only)

Note: Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC Filing. Since the diagonal dimension of this device is > 160 mm and <200 mm, it is considered a "phablet.".

Figure 1-1
DUT Antenna Locations

Table 1-1
Sides for SAR Testing for Mobile Hotspot and Extremity Exposure Conditions

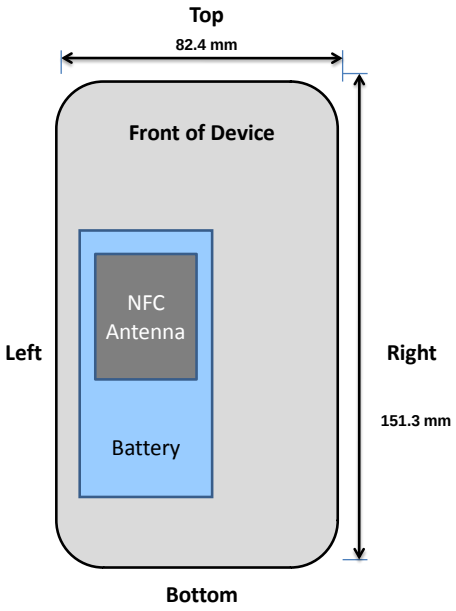
Mode	Back	Front	Top	Bottom	Right	Left
Cell. EVDO	Yes	Yes	No	Yes	Yes	Yes
PCS EVDO	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	Yes
LTE Band 5 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 4 (AWS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 2 (PCS)	Yes	Yes	No	Yes	Yes	Yes
2.4 GHz WLAN Ant#1	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN Ant#2 & MIMO	Yes	Yes	Yes	No	Yes	Yes
5 GHz WLAN Ant#1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant#2 & MIMO	Yes	Yes	Yes	No	Yes	Yes

Note: Particular DUT edges were not required to be evaluated for Wireless Router SAR or Extremity SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v01 guidance, page 2 and FCC KDB 648474 D04v01r01. The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, 5.2-5.7 GHz WLAN operations are disabled. Therefore, 5.2-5.7 GHz WLAN refers to extremity testing sides while 5.8 GHz WLAN refers to mobile hotspot testing sides.

1.4 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the specialized battery. The SAR tests were performed with the specialized battery (model: EB-BN915BBU).

Figure 1-2
NFC Antenna Locations



1.5 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D05v01, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the DUT are shown in Figure 1-3 and are color-coded to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

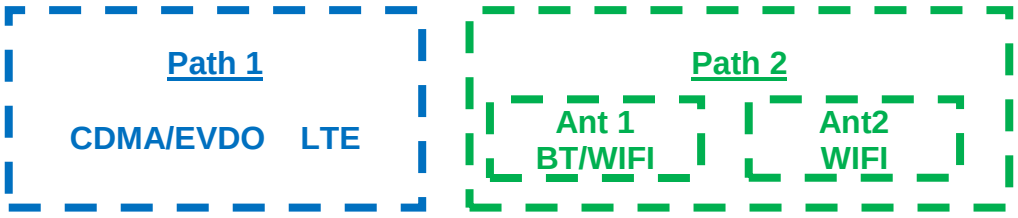


Figure 1-3
Simultaneous Transmission Paths

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v05 3) procedures.

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Extremity	Notes
1	1x CDMA voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	
2	1x CDMA voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
3	1x CDMA voice + 2.4 GHz Bluetooth	N/A	Yes	N/A	Yes	
4	LTE + 2.4 GHz WI-FI	Yes*	Yes*	Yes	Yes	*-Pre-installed VOIP applications are considered.
5	LTE + 5 GHz WI-FI	Yes*	Yes*	Yes	Yes	*-Pre-installed VOIP applications are considered.
6	LTE + 2.4 GHz Bluetooth	N/A	Yes*	N/A	Yes	*-Pre-installed VOIP applications are considered.
7	CDMA/EVDO data + 2.4 GHz WI-FI	Yes*	Yes*	Yes	Yes	*-Pre-installed VOIP applications are considered.
8	CDMA/EVDO data + 5 GHz WI-FI	Yes*	Yes*	Yes	Yes	*-Pre-installed VOIP applications are considered.
9	CDMA/EVDO data + 2.4 GHz Bluetooth	N/A	Yes*	N/A	Yes	*-Pre-installed VOIP applications are considered.
10	1x CDMA voice + CDMA/EVDO data	N/A	N/A	N/A	N/A	Not supported by HW
11	CDMA/EVDO data + LTE	N/A	N/A	N/A	N/A	Not supported by HW

1. 2.4 GHz WLAN, 5 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. (*) = for VOIP applications possibly used by the end-user
4. Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
5. 5 GHz Wireless Router is only supported for the 5.8 GHz Band by S/W, therefore 5.2-5.7 GHz Bands were not evaluated for wireless router conditions.
6. This device supports 2x2 MIMO Tx for WLAN 802.11n/ac. Each WLAN antenna can transmit independently or together when operating with MIMO.

1.6 SAR Test Exclusions Applied

(A) WIFI/BT

Since Wireless Router operations are not allowed by the chipset firmware using 5.2-5.7 GHz WIFI, only 2.4 GHz and 5.8 GHz WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v01.

Per FCC KDB 447498 D01v05, the 1g SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel\ (mW)}{Test\ Separation\ Dist\ (mm)} * \sqrt{Frequency(GHz)} \leq 3.0$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, body-worn Bluetooth SAR was not required; [(8/15)* √2.480] = 0.8< 3.0. Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.

Per FCC KDB 447498 D01v05, the 10g SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel\ (mW)}{Test\ Separation\ Dist\ (mm)} * \sqrt{Frequency(GHz)} \leq 7.5$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, extremity Bluetooth SAR was not required; [(8/ 5)* √2.480] = 2.5< 7.5. Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.

This device supports IEEE 802.11ac with the following features:
a) Up to 80 MHz Bandwidth only
b) No aggregate channel configurations
c) 2 Tx antenna output
d) 256 QAM is supported
e) No new 5 GHz channels

Per FCC KDB Publication 648474 D04v01r01, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg when scaled up to maximum output power. Since wireless router operations are not supported for 5.2 – 5.7 GHz WLAN, extremity SAR tests were performed. Extremity SAR was not evaluated for 2.4 GHz and 5.8 GHz WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

(B) Licensed Transmitter(s)

This device supports both LTE B12 and LTE B17. Since the supported frequency span for LTE B17 falls completely within the supported frequency span for LTE B12, both LTE bands have the same target power, and both LTE bands share the same transmission path, SAR was only assessed for LTE B12.

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 D05v02.

Per FCC KDB Publication 648474 D04v01r01, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Therefore, extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Extremity SAR was evaluated for PCS CDMA front side and bottom edge and LTE B2 bottom edge since wireless router 1g SAR was > 1.2 W/kg for these modes.

1.7 Wireless Charging Battery Cover

This DUT may be used with a standard battery cover or with an optional wireless charging battery cover. Per FCC KDB Publication 648474 D04, SAR was measured using the standard battery cover and then repeated with the wireless charging battery cover for the configuration with the highest reported SAR for each wireless technology, frequency band, operating mode, and exposure condition. Since reported SAR did not exceed 1.2 W/kg, additional testing with the wireless charging battery cover was not required.

1.8 Guidance Applied

- IEEE 1528-2003
- FCC KDB Publication 941225 D01v02, D03v01, D05v02r03, D06v01r01 (3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v01r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v05r02 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r03, D02v01r01 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D03-D04 (Phablet Procedures, Wireless Charging Cover)
- April 2013 TCB Workshop Notes (IEEE 802.11ac)

1.9 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.

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	Max Power Head Serial Number	Reduced Power Head Serial	Body-Worn Serial Number	Hotspot Serial Number	Extremity Serial Number
Cell. CDMA/EVDO	16	-	16	16	-
PCS CDMA/EVDO	16	20	16	19	16
LTE Band 12	15	-	15	15	-
LTE Band 5 (Cell)	13	-	12	12	-
LTE Band 4 (AWS)	12	20	13	20	-
LTE Band 2 (PCS)	12	20	13	20	13
2.4 GHz WLAN	1	-	1	1	-
5 GHz WLAN	17	-	5	5	5

2 LTE INFORMATION

LTE Information			
FCC ID	**A3LSMN915R4**		
Form Factor	Portable Handset		
Frequency Range of each LTE transmission band	LTE Band 12 (699.7 - 715.3 MHz)		
	LTE Band 17 (706.5 - 713.5 MHz)		
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)		
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)		
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)		
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz		
	LTE Band 17: 5 MHz, 10 MHz		
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz		
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz		
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz		
Channel Numbers and Frequencies (MHz)	Low	Mid	High
LTE Band 12: 1.4 MHz	699.7 (23017)	707.5 (23095)	715.3 (23173)
LTE Band 12: 3 MHz	700.5 (23025)	707.5 (23095)	714.5 (23165)
LTE Band 12: 5 MHz	701.5 (23035)	707.5 (23095)	713.5 (23155)
LTE Band 12: 10 MHz	704 (23060)	707.5 (23095)	711 (23130)
LTE Band 17: 5 MHz	706.5 (23755)	710 (23790)	713.5 (23825)
LTE Band 17: 10 MHz	709 (23780)	710 (23790)	711 (23800)
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)	836.5 (20525)	848.3 (20643)
LTE Band 5 (Cell): 3 MHz	825.5 (20415)	836.5 (20525)	847.5 (20635)
LTE Band 5 (Cell): 5 MHz	826.5 (20425)	836.5 (20525)	846.5 (20625)
LTE Band 5 (Cell): 10 MHz	829 (20450)	836.5 (20525)	844 (20600)
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)	1732.5 (20175)	1754.3 (20393)
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)	1732.5 (20175)	1753.5 (20385)
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)	1732.5 (20175)	1752.5 (20375)
LTE Band 4 (AWS): 10 MHz	1715 (20000)	1732.5 (20175)	1750 (20350)
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)	1732.5 (20175)	1747.5 (20325)
LTE Band 4 (AWS): 20 MHz	1720 (20050)	1732.5 (20175)	1745 (20300)
LTE Band 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)
UE Category	4		
Modulations Supported in UL	QPSK, 16QAM		
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		

3 INTRODUCTION

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

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

3.1 SAR Definition

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

Equation 3-1
SAR Mathematical Equation

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

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

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

where:

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

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

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01 and IEEE 1528-2013:

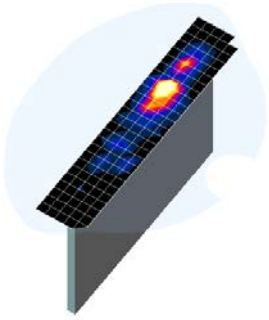

Figure 4-1
Sample SAR Area Scan

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 D01v01 (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 D01v01 (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 D01v01*

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].

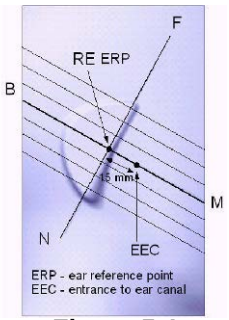

Figure 5-1
Close-Up Side view of ERP

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.

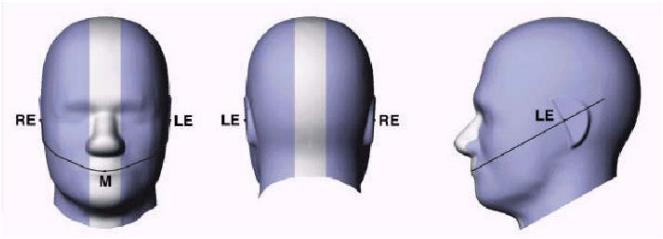

Figure 5-2
Front, back and side view of SAM Twin Phantom

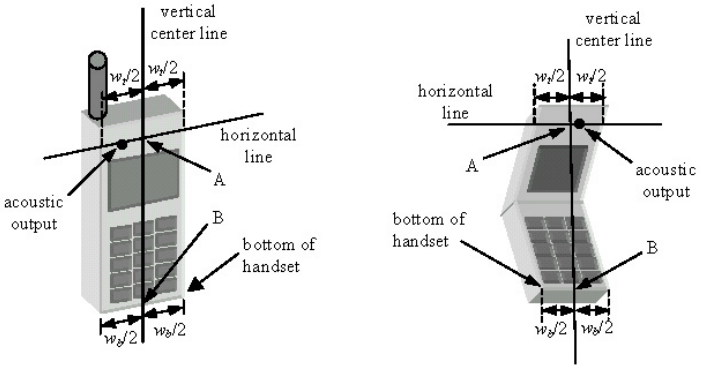

Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

6 TEST CONFIGURATION POSITIONS FOR HANDSETS

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).

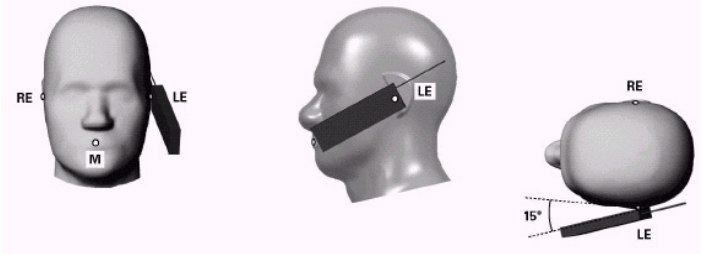

Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

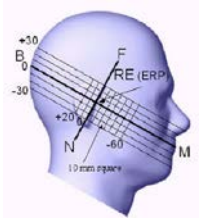

Figure 6-3
Side view w/ relevant markings

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 D04_v01. 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 D04v01, 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 D01v05 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.

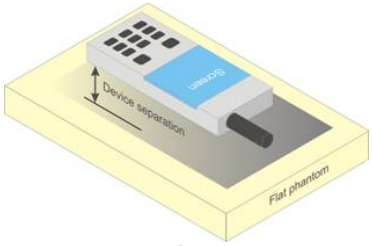

Figure 6-4
Sample Body-Worn Diagram

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 1-g body and 10-g extremity SAR Exclusion Thresholds found in KDB Publication 44798 D01v05 should be applied to determine SAR test requirements.

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC minitablets that support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04 v01r01DR04 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally required head and body-worn accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna <=25 mm from that surface or edge, in direct contact with the phantom, for 10-g SAR. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g SAR > 1.2 W/kg.

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 D06 v01 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 D01v05 publication 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.

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 were performed using a base station simulator under digital average power.

8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v05, 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 D01v01r02.

8.2 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01 "SAR Measurement Procedures for 3G Devices" v02, October 2007.

The device was 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 were 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 was 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 deviated by more than 5%, the SAR test and drift measurements were repeated.

8.3 SAR Measurement Conditions for CDMA2000

The following procedures were performed according to FCC KDB Publication 941225 D01 "SAR Measurement Procedures for 3G Devices" v02, October 2007.

8.3.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by "SAR Measurement Procedures for 3G Devices" v02, October 2007. 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.

8.3.2 Head SAR Measurements

SAR for head exposure configurations is measured in RC3 with the DUT configured to transmit at full rate using Loopback Service Option SO55. SAR for RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1 using the exposure configuration that results in the highest SAR for that channel in RC3.

Head SAR was additionally evaluated using EVDO Rev. A to support compliance for VoIP operations. See Section 8.3.4 for EVDO Rev. A configuration parameters.

8.3.3 Body SAR Measurements

SAR for body 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. SAR for multiple code channels (FCH + SCH_n) is not required when the maximum average output of each RF channel is less than ¼ dB higher than that measured with FCH only. Otherwise, SAR is measured on the maximum output channel (FCH + SCH_n) with FCH at full rate and SCH_0 enabled at 9600 bps using the exposure configuration that results in the highest SAR for that channel with FCH only. When multiple code channels are enabled, the DUT output may shift by more than 0.5 dB and lead to higher SAR drifts and SCH dropouts. Body SAR was measured using TDSO / SO32 with power control bits in the "All Up"

Body SAR in RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1; with Loopback Service Option SO55, at full rate, using the body exposure configuration that results in the highest SAR for that channel in RC3.

8.3.4 Handsets with EVDO

For handsets with Ev-Do capabilities, when the maximum average output of each channel in Rev. 0 is less than ¼ dB higher than that measured in RC3 (1x RTT), body SAR for EV-DO is not required. Otherwise, SAR for Rev. 0 is measured on the maximum output channel at 153.6 kbps using the body exposure configuration that results in the highest SAR for that channel in RC3. SAR for Rev. A is not required when the maximum average output of each channel is less than that measured in Rev. 0 or less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel for Rev. A using a Reverse Data Channel payload size of 4096 bits and a Termination Target of 16 slots defined for Subtype 2 Physical Layer configurations. A Forward Traffic Channel data rate corresponding to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots would be configured in the downlink for both Rev. 0 and Rev. A.

8.3.5 Body SAR Measurements for EVDO Hotspot

Hotspot Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 per KDB Publication 941225 D01 procedures for "1x Ev-Do data Devices". SAR for Subtype 2

Physical layer configurations is not required for Rev. A when the maximum average output of each RF channels is less than that measured in Subtype 0/1 Physical layer configurations. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for the RF channels 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.

SAR is not required for 1x RTT for Ev-Do devices that also support 1x RTT voice and/or data operations, when the maximum average output of each channel is less than ¼ dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0. Otherwise, CDMA "Body-SAR Measurement" procedures for "CDMA 2000 1x Handsets" were applied.

8.4 SAR Measurement Conditions for LTE

LTE modes were tested according to FCC KDB 941225 D05v02 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 was 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).

8.4.1 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.

8.4.2 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.

8.4.3 A-MPR

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

8.4.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r01:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
    i. The required channel and offset combination with the highest maximum output power is required for SAR.
    ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
    iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output

power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.

d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.

8.5 SAR Testing with 802.11 Transmitters

Normal network operating configurations are not suitable for measuring the SAR of 802.11 a/b/g/n/ac transmitters. 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 D01v01r02 for more details.

8.5.1 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. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

8.5.2 Frequency Channel Configurations [24]

For 2.4 GHz, the highest average RF output power channel between the low, mid and high channel at the lowest data rate was selected for SAR evaluation in 802.11b mode. 802.11g/n modes and higher data rates for 802.11b were additionally evaluated for SAR if the output power of the respective mode was 0.25 dB or higher than the powers of the SAR configurations tested in the 802.11b mode.

For 5 GHz, the highest average RF output power channel across the default test channels at the lowest data rate was selected for SAR evaluation in 802.11a. When the adjacent channels are higher in power then the default channels, these “required channels” were considered instead of the default channels for SAR testing. 802.11n modes and higher data rates for 802.11a/n were evaluated only if the respective mode was higher than 0.25 dB or more than the 802.11a mode. 802.11ac SAR was evaluated for highest 802.11a configuration in each 5 GHz SISO band and each exposure condition. 802.11ac modes were additionally evaluated for SAR if the output power for the respective mode was more than 0.25 dB higher than powers of 802.11a modes.

If the maximum extrapolated peak SAR of the zoom scan for the highest output channel was less than 1.6 W/kg and if the 1g averaged SAR was less than 0.8 W/kg, SAR testing was not required for the other test channels in the band.

8.5.3 MIMO SAR considerations

Per KDB 248227, SAR for MIMO was measured with both transmitting simultaneously and was evaluated independently of SISO operation. For 2.4 and 5 GHz MIMO, IEEE 802.11n 20 MHz bandwidth was evaluated. Other IEEE 802.11 modes and bandwidths were not investigated for MIMO operations since the maximum allowed output power (including tolerance) was not higher for these modes.

9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Maximum CDMA/EVDO Average RF Conducted Powers

Band	Channel	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	1013	824.7	24.09	24.01	24.05	24.05	24.08	24.02
	384	836.52	24.08	23.90	24.02	23.90	24.02	23.95
	777	848.31	23.95	23.88	24.01	23.87	23.88	23.86
PCS	25	1851.25	24.12	24.09	24.10	24.10	24.13	24.05
	600	1880	24.02	24.08	24.03	24.06	24.10	24.01
	1175	1908.75	24.06	24.15	24.05	24.08	24.11	24.01

Reduced CDMA/EVDO Average RF Conducted Powers (Representing Hotspot Mode)

Band	Channel	Frequency	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC	MHz	FCH+SCH	FCH	(RTAP)	(RETAP)
PCS	25	1851.25	21.60	21.59	21.68	21.65
	600	1880	21.46	21.49	21.59	21.58
	1175	1908.75	21.56	21.57	21.73	21.57

Note: RC1 is only applicable for IS-95 compatibility.

Per KDB Publication 941225 D01v02:

1. Head SAR was tested with SO55 RC3. SO55 RC1 was not required since the average output power was not more than 0.25 dB than the SO55 RC3 powers.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. Ev-Do and TDSO / SO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers.
3. Hotspot SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. If the average output power of Subtype 2 for Rev. A is less than the Rev. 0 power levels, then Rev. A SAR is not required. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for that RF channel in Rev. 0. SAR is not required for 1x RTT for Ev-Do hotspot devices when the maximum average output of each channel is less than ¼ dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0.
4. Head SAR was additionally evaluated with EVDO Rev. A to determine compliance for held-to-ear VoIP operations.

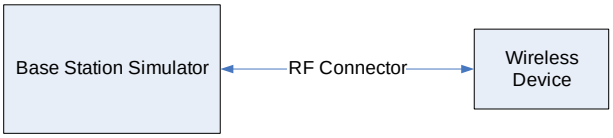

Figure 9-1
Power Measurement Setup

9.2 LTE Conducted Powers

9.2.1 LTE Band 12

Table 9-1
LTE Band 12 Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Mid	707.5	23095	10	QPSK	1	0	**24.35**	0	0
	707.5	23095	10	QPSK	1	25	24.27	0	0
	707.5	23095	10	QPSK	1	49	23.74	0	0
	707.5	23095	10	QPSK	25	0	**23.32**	0-1	1
	707.5	23095	10	QPSK	25	12	23.16	0-1	1
	707.5	23095	10	QPSK	25	25	23.13	0-1	1
	707.5	23095	10	QPSK	50	0	23.22	0-1	1
	707.5	23095	10	16QAM	1	0	23.13	0-1	1
	707.5	23095	10	16QAM	1	25	23.07	0-1	1
	707.5	23095	10	16QAM	1	49	23.18	0-1	1
	707.5	23095	10	16QAM	25	0	22.35	0-2	2
	707.5	23095	10	16QAM	25	12	22.29	0-2	2
	707.5	23095	10	16QAM	25	25	22.27	0-2	2
	707.5	23095	10	16QAM	50	0	22.30	0-2	2

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.

Table 9-2
LTE Band 12 Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	701.5	23035	5	QPSK	1	0	23.98	0	0
	701.5	23035	5	QPSK	1	12	24.04	0	0
	701.5	23035	5	QPSK	1	24	24.12	0	0
	701.5	23035	5	QPSK	12	0	23.08	0-1	1
	701.5	23035	5	QPSK	12	6	23.01	0-1	1
	701.5	23035	5	QPSK	12	13	23.02	0-1	1
	701.5	23035	5	QPSK	25	0	23.00	0-1	1
	701.5	23035	5	16-QAM	1	0	23.05	0-1	1
	701.5	23035	5	16-QAM	1	12	22.95	0-1	1
	701.5	23035	5	16-QAM	1	24	23.02	0-1	1
	701.5	23035	5	16-QAM	12	0	22.12	0-2	2
	701.5	23035	5	16-QAM	12	6	22.08	0-2	2
	701.5	23035	5	16-QAM	12	13	22.08	0-2	2
	701.5	23035	5	16-QAM	25	0	22.09	0-2	2
Mid	707.5	23095	5	QPSK	1	0	24.04	0	0
	707.5	23095	5	QPSK	1	12	24.10	0	0
	707.5	23095	5	QPSK	1	24	24.03	0	0
	707.5	23095	5	QPSK	12	0	23.09	0-1	1
	707.5	23095	5	QPSK	12	6	23.10	0-1	1
	707.5	23095	5	QPSK	12	13	23.08	0-1	1
	707.5	23095	5	QPSK	25	0	23.11	0-1	1
	707.5	23095	5	16-QAM	1	0	23.19	0-1	1
	707.5	23095	5	16-QAM	1	12	23.18	0-1	1
	707.5	23095	5	16-QAM	1	24	23.28	0-1	1
	707.5	23095	5	16-QAM	12	0	22.10	0-2	2
	707.5	23095	5	16-QAM	12	6	22.12	0-2	2
	707.5	23095	5	16-QAM	12	13	22.12	0-2	2
	707.5	23095	5	16-QAM	25	0	22.15	0-2	2
High	713.5	23155	5	QPSK	1	0	23.94	0	0
	713.5	23155	5	QPSK	1	12	23.51	0	0
	713.5	23155	5	QPSK	1	24	23.50	0	0
	713.5	23155	5	QPSK	12	0	22.73	0-1	1
	713.5	23155	5	QPSK	12	6	22.51	0-1	1
	713.5	23155	5	QPSK	12	13	22.50	0-1	1
	713.5	23155	5	QPSK	25	0	22.54	0-1	1
	713.5	23155	5	16-QAM	1	0	23.02	0-1	1
	713.5	23155	5	16-QAM	1	12	22.62	0-1	1
	713.5	23155	5	16-QAM	1	24	22.50	0-1	1
	713.5	23155	5	16-QAM	12	0	21.76	0-2	2
	713.5	23155	5	16-QAM	12	6	21.54	0-2	2
	713.5	23155	5	16-QAM	12	13	21.55	0-2	2
	713.5	23155	5	16-QAM	25	0	21.57	0-2	2

Table 9-3
LTE Band 12 Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	700.5	23025	3	QPSK	1	0	24.18	0	0
	700.5	23025	3	QPSK	1	7	24.13	0	0
	700.5	23025	3	QPSK	1	14	24.26	0	0
	700.5	23025	3	QPSK	8	0	23.10	0-1	1
	700.5	23025	3	QPSK	8	4	23.06	0-1	1
	700.5	23025	3	QPSK	8	7	23.13	0-1	1
	700.5	23025	3	QPSK	15	0	23.10	0-1	1
	700.5	23025	3	16-QAM	1	0	23.14	0-1	1
	700.5	23025	3	16-QAM	1	7	23.09	0-1	1
	700.5	23025	3	16-QAM	1	14	23.17	0-1	1
	700.5	23025	3	16-QAM	8	0	22.18	0-2	2
	700.5	23025	3	16-QAM	8	4	22.20	0-2	2
	700.5	23025	3	16-QAM	8	7	22.21	0-2	2
	700.5	23025	3	16-QAM	15	0	22.14	0-2	2
Mid	707.5	23095	3	QPSK	1	0	24.14	0	0
	707.5	23095	3	QPSK	1	7	24.12	0	0
	707.5	23095	3	QPSK	1	14	24.21	0	0
	707.5	23095	3	QPSK	8	0	23.12	0-1	1
	707.5	23095	3	QPSK	8	4	23.13	0-1	1
	707.5	23095	3	QPSK	8	7	23.07	0-1	1
	707.5	23095	3	QPSK	15	0	23.06	0-1	1
	707.5	23095	3	16-QAM	1	0	23.13	0-1	1
	707.5	23095	3	16-QAM	1	7	23.02	0-1	1
	707.5	23095	3	16-QAM	1	14	23.15	0-1	1
	707.5	23095	3	16-QAM	8	0	22.23	0-2	2
	707.5	23095	3	16-QAM	8	4	22.13	0-2	2
	707.5	23095	3	16-QAM	8	7	22.16	0-2	2
	707.5	23095	3	16-QAM	15	0	22.24	0-2	2
High	714.5	23165	3	QPSK	1	0	23.56	0	0
	714.5	23165	3	QPSK	1	7	23.50	0	0
	714.5	23165	3	QPSK	1	14	23.52	0	0
	714.5	23165	3	QPSK	8	0	22.55	0-1	1
	714.5	23165	3	QPSK	8	4	22.59	0-1	1
	714.5	23165	3	QPSK	8	7	22.51	0-1	1
	714.5	23165	3	QPSK	15	0	22.57	0-1	1
	714.5	23165	3	16-QAM	1	0	22.89	0-1	1
	714.5	23165	3	16-QAM	1	7	22.63	0-1	1
	714.5	23165	3	16-QAM	1	14	22.66	0-1	1
	714.5	23165	3	16-QAM	8	0	21.67	0-2	2
	714.5	23165	3	16-QAM	8	4	21.70	0-2	2
	714.5	23165	3	16-QAM	8	7	21.75	0-2	2
	714.5	23165	3	16-QAM	15	0	21.53	0-2	2

Table 9-4
LTE Band 12 Conducted Powers -1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	699.7	23017	1.4	QPSK	1	0	23.96	0	0
	699.7	23017	1.4	QPSK	1	2	24.14	0	0
	699.7	23017	1.4	QPSK	1	5	24.12	0	0
	699.7	23017	1.4	QPSK	3	0	23.97	0	0
	699.7	23017	1.4	QPSK	3	2	24.14	0	0
	699.7	23017	1.4	QPSK	3	3	24.09	0	0
	699.7	23017	1.4	QPSK	6	0	23.06	0-1	1
	699.7	23017	1.4	16-QAM	1	0	23.06	0-1	1
	699.7	23017	1.4	16-QAM	1	2	23.27	0-1	1
	699.7	23017	1.4	16-QAM	1	5	23.28	0-1	1
	699.7	23017	1.4	16-QAM	3	0	22.86	0-1	1
	699.7	23017	1.4	16-QAM	3	2	22.83	0-1	1
	699.7	23017	1.4	16-QAM	3	3	22.82	0-1	1
	699.7	23017	1.4	16-QAM	6	0	22.18	0-2	2
Mid	707.5	23095	1.4	QPSK	1	0	24.31	0	0
	707.5	23095	1.4	QPSK	1	2	24.26	0	0
	707.5	23095	1.4	QPSK	1	5	24.30	0	0
	707.5	23095	1.4	QPSK	3	0	24.15	0	0
	707.5	23095	1.4	QPSK	3	2	24.12	0	0
	707.5	23095	1.4	QPSK	3	3	24.18	0	0
	707.5	23095	1.4	QPSK	6	0	23.14	0-1	1
	707.5	23095	1.4	16-QAM	1	0	23.00	0-1	1
	707.5	23095	1.4	16-QAM	1	2	22.95	0-1	1
	707.5	23095	1.4	16-QAM	1	5	22.95	0-1	1
	707.5	23095	1.4	16-QAM	3	0	23.11	0-1	1
	707.5	23095	1.4	16-QAM	3	2	23.10	0-1	1
	707.5	23095	1.4	16-QAM	3	3	23.13	0-1	1
	707.5	23095	1.4	16-QAM	6	0	22.37	0-2	2
High	715.3	23173	1.4	QPSK	1	0	23.57	0	0
	715.3	23173	1.4	QPSK	1	2	23.74	0	0
	715.3	23173	1.4	QPSK	1	5	23.59	0	0
	715.3	23173	1.4	QPSK	3	0	23.78	0	0
	715.3	23173	1.4	QPSK	3	2	23.77	0	0
	715.3	23173	1.4	QPSK	3	3	23.67	0	0
	715.3	23173	1.4	QPSK	6	0	22.79	0-1	1
	715.3	23173	1.4	16-QAM	1	0	22.86	0-1	1
	715.3	23173	1.4	16-QAM	1	2	23.06	0-1	1
	715.3	23173	1.4	16-QAM	1	5	22.97	0-1	1
	715.3	23173	1.4	16-QAM	3	0	22.70	0-1	1
	715.3	23173	1.4	16-QAM	3	2	22.73	0-1	1
	715.3	23173	1.4	16-QAM	3	3	22.67	0-1	1
	715.3	23173	1.4	16-QAM	6	0	21.87	0-2	2

9.2.2 LTE Band 5 (Cell)

Table 9-5
LTE Band 5 (Cell) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Mid	836.5	20525	10	QPSK	1	0	**24.24**	0	0
	836.5	20525	10	QPSK	1	25	24.08	0	0
	836.5	20525	10	QPSK	1	49	24.12	0	0
	836.5	20525	10	QPSK	25	0	23.07	0-1	1
	836.5	20525	10	QPSK	25	12	23.11	0-1	1
	836.5	20525	10	QPSK	25	25	**23.12**	0-1	1
	836.5	20525	10	QPSK	50	0	23.11	0-1	1
	836.5	20525	10	16QAM	1	0	23.11	0-1	1
	836.5	20525	10	16QAM	1	25	23.16	0-1	1
	836.5	20525	10	16QAM	1	49	23.11	0-1	1
	836.5	20525	10	16QAM	25	0	22.08	0-2	2
	836.5	20525	10	16QAM	25	12	22.14	0-2	2
	836.5	20525	10	16QAM	25	25	22.23	0-2	2
	836.5	20525	10	16QAM	50	0	22.17	0-2	2

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

Table 9-6
LTE Band 5 (Cell) Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	826.5	20425	5	QPSK	1	0	24.28	0	0
	826.5	20425	5	QPSK	1	12	24.25	0	0
	826.5	20425	5	QPSK	1	24	23.97	0	0
	826.5	20425	5	QPSK	12	0	23.31	0-1	1
	826.5	20425	5	QPSK	12	6	23.27	0-1	1
	826.5	20425	5	QPSK	12	13	23.20	0-1	1
	826.5	20425	5	QPSK	25	0	23.31	0-1	1
	826.5	20425	5	16-QAM	1	0	23.50	0-1	1
	826.5	20425	5	16-QAM	1	12	23.47	0-1	1
	826.5	20425	5	16-QAM	1	24	23.35	0-1	1
	826.5	20425	5	16-QAM	12	0	22.32	0-2	2
	826.5	20425	5	16-QAM	12	6	22.36	0-2	2
	826.5	20425	5	16-QAM	12	13	22.17	0-2	2
	826.5	20425	5	16-QAM	25	0	22.31	0-2	2
Mid	836.5	20525	5	QPSK	1	0	23.76	0	0
	836.5	20525	5	QPSK	1	12	24.05	0	0
	836.5	20525	5	QPSK	1	24	23.89	0	0
	836.5	20525	5	QPSK	12	0	22.99	0-1	1
	836.5	20525	5	QPSK	12	6	23.17	0-1	1
	836.5	20525	5	QPSK	12	13	23.11	0-1	1
	836.5	20525	5	QPSK	25	0	23.13	0-1	1
	836.5	20525	5	16-QAM	1	0	22.94	0-1	1
	836.5	20525	5	16-QAM	1	12	23.30	0-1	1
	836.5	20525	5	16-QAM	1	24	23.14	0-1	1
	836.5	20525	5	16-QAM	12	0	22.02	0-2	2
	836.5	20525	5	16-QAM	12	6	22.23	0-2	2
	836.5	20525	5	16-QAM	12	13	22.18	0-2	2
	836.5	20525	5	16-QAM	25	0	22.11	0-2	2
High	846.5	20625	5	QPSK	1	0	24.23	0	0
	846.5	20625	5	QPSK	1	12	24.19	0	0
	846.5	20625	5	QPSK	1	24	23.85	0	0
	846.5	20625	5	QPSK	12	0	23.18	0-1	1
	846.5	20625	5	QPSK	12	6	23.19	0-1	1
	846.5	20625	5	QPSK	12	13	23.23	0-1	1
	846.5	20625	5	QPSK	25	0	23.26	0-1	1
	846.5	20625	5	16-QAM	1	0	23.22	0-1	1
	846.5	20625	5	16-QAM	1	12	23.26	0-1	1
	846.5	20625	5	16-QAM	1	24	23.17	0-1	1
	846.5	20625	5	16-QAM	12	0	22.30	0-2	2
	846.5	20625	5	16-QAM	12	6	22.27	0-2	2
	846.5	20625	5	16-QAM	12	13	22.35	0-2	2
	846.5	20625	5	16-QAM	25	0	22.31	0-2	2

Table 9-7
LTE Band 5 (Cell) Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	825.5	20415	3	QPSK	1	0	24.34	0	0
	825.5	20415	3	QPSK	1	7	24.24	0	0
	825.5	20415	3	QPSK	1	14	24.33	0	0
	825.5	20415	3	QPSK	8	0	23.24	0-1	1
	825.5	20415	3	QPSK	8	4	23.26	0-1	1
	825.5	20415	3	QPSK	8	7	23.29	0-1	1
	825.5	20415	3	QPSK	15	0	23.30	0-1	1
	825.5	20415	3	16-QAM	1	0	23.37	0-1	1
	825.5	20415	3	16-QAM	1	7	23.34	0-1	1
	825.5	20415	3	16-QAM	1	14	23.31	0-1	1
	825.5	20415	3	16-QAM	8	0	22.30	0-2	2
	825.5	20415	3	16-QAM	8	4	22.27	0-2	2
	825.5	20415	3	16-QAM	8	7	22.26	0-2	2
	825.5	20415	3	16-QAM	15	0	22.37	0-2	2
Mid	836.5	20525	3	QPSK	1	0	23.88	0	0
	836.5	20525	3	QPSK	1	7	24.10	0	0
	836.5	20525	3	QPSK	1	14	23.96	0	0
	836.5	20525	3	QPSK	8	0	23.04	0-1	1
	836.5	20525	3	QPSK	8	4	23.18	0-1	1
	836.5	20525	3	QPSK	8	7	23.14	0-1	1
	836.5	20525	3	QPSK	15	0	23.10	0-1	1
	836.5	20525	3	16-QAM	1	0	23.17	0-1	1
	836.5	20525	3	16-QAM	1	7	23.47	0-1	1
	836.5	20525	3	16-QAM	1	14	23.33	0-1	1
	836.5	20525	3	16-QAM	8	0	21.99	0-2	2
	836.5	20525	3	16-QAM	8	4	22.13	0-2	2
	836.5	20525	3	16-QAM	8	7	22.13	0-2	2
	836.5	20525	3	16-QAM	15	0	22.16	0-2	2
High	847.5	20635	3	QPSK	1	0	24.17	0	0
	847.5	20635	3	QPSK	1	7	24.16	0	0
	847.5	20635	3	QPSK	1	14	23.95	0	0
	847.5	20635	3	QPSK	8	0	23.23	0-1	1
	847.5	20635	3	QPSK	8	4	23.25	0-1	1
	847.5	20635	3	QPSK	8	7	23.23	0-1	1
	847.5	20635	3	QPSK	15	0	23.22	0-1	1
	847.5	20635	3	16-QAM	1	0	23.43	0-1	1
	847.5	20635	3	16-QAM	1	7	23.42	0-1	1
	847.5	20635	3	16-QAM	1	14	23.33	0-1	1
	847.5	20635	3	16-QAM	8	0	22.19	0-2	2
	847.5	20635	3	16-QAM	8	4	22.20	0-2	2
	847.5	20635	3	16-QAM	8	7	22.22	0-2	2
	847.5	20635	3	16-QAM	15	0	22.28	0-2	2

Table 9-8
LTE Band 5 (Cell) Conducted Powers -1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	824.7	20407	1.4	QPSK	1	0	24.36	0	0
	824.7	20407	1.4	QPSK	1	2	24.33	0	0
	824.7	20407	1.4	QPSK	1	5	24.35	0	0
	824.7	20407	1.4	QPSK	3	0	24.31	0	0
	824.7	20407	1.4	QPSK	3	2	24.27	0	0
	824.7	20407	1.4	QPSK	3	3	24.31	0	0
	824.7	20407	1.4	QPSK	6	0	23.28	0-1	1
	824.7	20407	1.4	16-QAM	1	0	23.43	0-1	1
	824.7	20407	1.4	16-QAM	1	2	23.40	0-1	1
	824.7	20407	1.4	16-QAM	1	5	23.46	0-1	1
	824.7	20407	1.4	16-QAM	3	0	23.25	0-1	1
	824.7	20407	1.4	16-QAM	3	2	23.26	0-1	1
	824.7	20407	1.4	16-QAM	3	3	23.32	0-1	1
	824.7	20407	1.4	16-QAM	6	0	22.37	0-2	2
Mid	836.5	20525	1.4	QPSK	1	0	24.05	0	0
	836.5	20525	1.4	QPSK	1	2	24.16	0	0
	836.5	20525	1.4	QPSK	1	5	24.12	0	0
	836.5	20525	1.4	QPSK	3	0	23.98	0	0
	836.5	20525	1.4	QPSK	3	2	24.03	0	0
	836.5	20525	1.4	QPSK	3	3	23.99	0	0
	836.5	20525	1.4	QPSK	6	0	23.06	0-1	1
	836.5	20525	1.4	16-QAM	1	0	22.87	0-1	1
	836.5	20525	1.4	16-QAM	1	2	23.02	0-1	1
	836.5	20525	1.4	16-QAM	1	5	22.99	0-1	1
	836.5	20525	1.4	16-QAM	3	0	23.02	0-1	1
	836.5	20525	1.4	16-QAM	3	2	23.10	0-1	1
	836.5	20525	1.4	16-QAM	3	3	23.07	0-1	1
	836.5	20525	1.4	16-QAM	6	0	22.21	0-2	2
High	848.3	20643	1.4	QPSK	1	0	24.13	0	0
	848.3	20643	1.4	QPSK	1	2	24.10	0	0
	848.3	20643	1.4	QPSK	1	5	23.86	0	0
	848.3	20643	1.4	QPSK	3	0	24.16	0	0
	848.3	20643	1.4	QPSK	3	2	24.13	0	0
	848.3	20643	1.4	QPSK	3	3	24.01	0	0
	848.3	20643	1.4	QPSK	6	0	23.17	0-1	1
	848.3	20643	1.4	16-QAM	1	0	23.22	0-1	1
	848.3	20643	1.4	16-QAM	1	2	23.21	0-1	1
	848.3	20643	1.4	16-QAM	1	5	23.17	0-1	1
	848.3	20643	1.4	16-QAM	3	0	23.18	0-1	1
	848.3	20643	1.4	16-QAM	3	2	23.18	0-1	1
	848.3	20643	1.4	16-QAM	3	3	23.09	0-1	1
	848.3	20643	1.4	16-QAM	6	0	22.20	0-2	2

9.2.3 LTE Band 4 (AWS)

Table 9-9
Maximum LTE Band 4 (AWS) Conducted Powers - 20 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Mid	1732.5	20175	20	QPSK	1	0	**23.44**	0	0
	1732.5	20175	20	QPSK	1	50	23.40	0	0
	1732.5	20175	20	QPSK	1	99	22.97	0	0
	1732.5	20175	20	QPSK	50	0	22.23	0-1	1
	1732.5	20175	20	QPSK	50	25	**22.29**	0-1	1
	1732.5	20175	20	QPSK	50	50	22.15	0-1	1
	1732.5	20175	20	QPSK	100	0	22.29	0-1	1
	1732.5	20175	20	16QAM	1	0	22.43	0-1	1
	1732.5	20175	20	16QAM	1	50	22.41	0-1	1
	1732.5	20175	20	16QAM	1	99	22.30	0-1	1
	1732.5	20175	20	16QAM	50	0	21.14	0-2	2
	1732.5	20175	20	16QAM	50	25	21.20	0-2	2
	1732.5	20175	20	16QAM	50	50	21.19	0-2	2
	1732.5	20175	20	16QAM	100	0	21.28	0-2	2

Note: LTE Band 4 (AWS) 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.

Table 9-10
Maximum LTE Band 4 (AWS) Conducted Powers - 15 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1717.5	20025	15	QPSK	1	0	22.65	0	0
	1717.5	20025	15	QPSK	1	36	23.42	0	0
	1717.5	20025	15	QPSK	1	74	23.33	0	0
	1717.5	20025	15	QPSK	36	0	22.14	0-1	1
	1717.5	20025	15	QPSK	36	18	22.50	0-1	1
	1717.5	20025	15	QPSK	36	37	22.39	0-1	1
	1717.5	20025	15	QPSK	75	0	22.45	0-1	1
	1717.5	20025	15	16QAM	1	0	22.00	0-1	1
	1717.5	20025	15	16QAM	1	36	22.35	0-1	1
	1717.5	20025	15	16QAM	1	74	22.28	0-1	1
	1717.5	20025	15	16QAM	36	0	21.12	0-2	2
	1717.5	20025	15	16QAM	36	18	21.50	0-2	2
	1717.5	20025	15	16QAM	36	37	21.24	0-2	2
	1717.5	20025	15	16QAM	75	0	21.44	0-2	2
Mid	1732.5	20175	15	QPSK	1	0	23.24	0	0
	1732.5	20175	15	QPSK	1	36	23.25	0	0
	1732.5	20175	15	QPSK	1	74	23.30	0	0
	1732.5	20175	15	QPSK	36	0	22.33	0-1	1
	1732.5	20175	15	QPSK	36	18	22.36	0-1	1
	1732.5	20175	15	QPSK	36	37	22.50	0-1	1
	1732.5	20175	15	QPSK	75	0	22.40	0-1	1
	1732.5	20175	15	16QAM	1	0	22.13	0-1	1
	1732.5	20175	15	16QAM	1	36	22.17	0-1	1
	1732.5	20175	15	16QAM	1	74	22.28	0-1	1
	1732.5	20175	15	16QAM	36	0	21.23	0-2	2
	1732.5	20175	15	16QAM	36	18	21.22	0-2	2
	1732.5	20175	15	16QAM	36	37	21.36	0-2	2
	1732.5	20175	15	16QAM	75	0	21.40	0-2	2
High	1747.5	20325	15	QPSK	1	0	23.37	0	0
	1747.5	20325	15	QPSK	1	36	23.33	0	0
	1747.5	20325	15	QPSK	1	74	23.47	0	0
	1747.5	20325	15	QPSK	36	0	22.23	0-1	1
	1747.5	20325	15	QPSK	36	18	22.33	0-1	1
	1747.5	20325	15	QPSK	36	37	22.44	0-1	1
	1747.5	20325	15	QPSK	75	0	22.32	0-1	1
	1747.5	20325	15	16QAM	1	0	22.46	0-1	1
	1747.5	20325	15	16QAM	1	36	22.44	0-1	1
	1747.5	20325	15	16QAM	1	74	22.47	0-1	1
	1747.5	20325	15	16QAM	36	0	21.21	0-2	2
	1747.5	20325	15	16QAM	36	18	21.29	0-2	2
	1747.5	20325	15	16QAM	36	37	21.40	0-2	2
	1747.5	20325	15	16QAM	75	0	21.33	0-2	2

Table 9-11
Maximum LTE Band 4 (AWS) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1715	20000	10	QPSK	1	0	22.66	0	0
	1715	20000	10	QPSK	1	25	23.43	0	0
	1715	20000	10	QPSK	1	49	23.46	0	0
	1715	20000	10	QPSK	25	0	21.95	0-1	1
	1715	20000	10	QPSK	25	12	22.33	0-1	1
	1715	20000	10	QPSK	25	25	22.38	0-1	1
	1715	20000	10	QPSK	50	0	22.26	0-1	1
	1715	20000	10	16QAM	1	0	21.71	0-1	1
	1715	20000	10	16QAM	1	25	22.49	0-1	1
	1715	20000	10	16QAM	1	49	22.50	0-1	1
	1715	20000	10	16QAM	25	0	20.90	0-2	2
	1715	20000	10	16QAM	25	12	21.29	0-2	2
	1715	20000	10	16QAM	25	25	21.35	0-2	2
	1715	20000	10	16QAM	50	0	21.19	0-2	2
Mid	1732.5	20175	10	QPSK	1	0	23.37	0	0
	1732.5	20175	10	QPSK	1	25	23.36	0	0
	1732.5	20175	10	QPSK	1	49	23.41	0	0
	1732.5	20175	10	QPSK	25	0	22.21	0-1	1
	1732.5	20175	10	QPSK	25	12	22.23	0-1	1
	1732.5	20175	10	QPSK	25	25	22.39	0-1	1
	1732.5	20175	10	QPSK	50	0	22.32	0-1	1
	1732.5	20175	10	16QAM	1	0	22.27	0-1	1
	1732.5	20175	10	16QAM	1	25	22.25	0-1	1
	1732.5	20175	10	16QAM	1	49	22.28	0-1	1
	1732.5	20175	10	16QAM	25	0	21.22	0-2	2
	1732.5	20175	10	16QAM	25	12	21.26	0-2	2
	1732.5	20175	10	16QAM	25	25	21.33	0-2	2
	1732.5	20175	10	16QAM	50	0	21.26	0-2	2
High	1750	20350	10	QPSK	1	0	23.26	0	0
	1750	20350	10	QPSK	1	25	23.34	0	0
	1750	20350	10	QPSK	1	49	23.43	0	0
	1750	20350	10	QPSK	25	0	22.26	0-1	1
	1750	20350	10	QPSK	25	12	22.38	0-1	1
	1750	20350	10	QPSK	25	25	22.34	0-1	1
	1750	20350	10	QPSK	50	0	22.43	0-1	1
	1750	20350	10	16QAM	1	0	22.40	0-1	1
	1750	20350	10	16QAM	1	25	22.38	0-1	1
	1750	20350	10	16QAM	1	49	22.45	0-1	1
	1750	20350	10	16QAM	25	0	21.28	0-2	2
	1750	20350	10	16QAM	25	12	21.41	0-2	2
	1750	20350	10	16QAM	25	25	21.42	0-2	2
	1750	20350	10	16QAM	50	0	21.31	0-2	2

Table 9-12
Maximum LTE Band 4 (AWS) Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1712.5	19975	5	QPSK	1	0	22.50	0	0
	1712.5	19975	5	QPSK	1	12	22.89	0	0
	1712.5	19975	5	QPSK	1	24	23.28	0	0
	1712.5	19975	5	QPSK	12	0	21.62	0-1	1
	1712.5	19975	5	QPSK	12	6	21.79	0-1	1
	1712.5	19975	5	QPSK	12	13	22.10	0-1	1
	1712.5	19975	5	QPSK	25	0	21.84	0-1	1
	1712.5	19975	5	16-QAM	1	0	21.60	0-1	1
	1712.5	19975	5	16-QAM	1	12	22.09	0-1	1
	1712.5	19975	5	16-QAM	1	24	22.47	0-1	1
	1712.5	19975	5	16-QAM	12	0	20.55	0-2	2
	1712.5	19975	5	16-QAM	12	6	20.74	0-2	2
	1712.5	19975	5	16-QAM	12	13	21.04	0-2	2
	1712.5	19975	5	16-QAM	25	0	20.77	0-2	2
Mid	1732.5	20175	5	QPSK	1	0	23.27	0	0
	1732.5	20175	5	QPSK	1	12	23.40	0	0
	1732.5	20175	5	QPSK	1	24	23.42	0	0
	1732.5	20175	5	QPSK	12	0	22.25	0-1	1
	1732.5	20175	5	QPSK	12	6	22.24	0-1	1
	1732.5	20175	5	QPSK	12	13	22.34	0-1	1
	1732.5	20175	5	QPSK	25	0	22.23	0-1	1
	1732.5	20175	5	16-QAM	1	0	22.34	0-1	1
	1732.5	20175	5	16-QAM	1	12	22.45	0-1	1
	1732.5	20175	5	16-QAM	1	24	22.50	0-1	1
	1732.5	20175	5	16-QAM	12	0	21.19	0-2	2
	1732.5	20175	5	16-QAM	12	6	21.22	0-2	2
	1732.5	20175	5	16-QAM	12	13	21.29	0-2	2
	1732.5	20175	5	16-QAM	25	0	21.28	0-2	2
High	1752.5	20375	5	QPSK	1	0	23.31	0	0
	1752.5	20375	5	QPSK	1	12	23.32	0	0
	1752.5	20375	5	QPSK	1	24	23.33	0	0
	1752.5	20375	5	QPSK	12	0	22.30	0-1	1
	1752.5	20375	5	QPSK	12	6	22.36	0-1	1
	1752.5	20375	5	QPSK	12	13	22.37	0-1	1
	1752.5	20375	5	QPSK	25	0	22.40	0-1	1
	1752.5	20375	5	16-QAM	1	0	22.36	0-1	1
	1752.5	20375	5	16-QAM	1	12	22.28	0-1	1
	1752.5	20375	5	16-QAM	1	24	22.39	0-1	1
	1752.5	20375	5	16-QAM	12	0	21.26	0-2	2
	1752.5	20375	5	16-QAM	12	6	21.28	0-2	2
	1752.5	20375	5	16-QAM	12	13	21.30	0-2	2
	1752.5	20375	5	16-QAM	25	0	21.33	0-2	2

Table 9-13
Maximum LTE Band 4 (AWS) Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1711.5	19965	3	QPSK	1	0	22.50	0	0
	1711.5	19965	3	QPSK	1	7	22.77	0	0
	1711.5	19965	3	QPSK	1	14	23.03	0	0
	1711.5	19965	3	QPSK	8	0	21.50	0-1	1
	1711.5	19965	3	QPSK	8	4	21.66	0-1	1
	1711.5	19965	3	QPSK	8	7	21.76	0-1	1
	1711.5	19965	3	QPSK	15	0	21.61	0-1	1
	1711.5	19965	3	16-QAM	1	0	21.53	0-1	1
	1711.5	19965	3	16-QAM	1	7	21.84	0-1	1
	1711.5	19965	3	16-QAM	1	14	22.09	0-1	1
	1711.5	19965	3	16-QAM	8	0	20.50	0-2	2
	1711.5	19965	3	16-QAM	8	4	20.55	0-2	2
	1711.5	19965	3	16-QAM	8	7	20.64	0-2	2
	1711.5	19965	3	16-QAM	15	0	20.55	0-2	2
Mid	1732.5	20175	3	QPSK	1	0	23.28	0	0
	1732.5	20175	3	QPSK	1	7	23.39	0	0
	1732.5	20175	3	QPSK	1	14	23.40	0	0
	1732.5	20175	3	QPSK	8	0	22.26	0-1	1
	1732.5	20175	3	QPSK	8	4	22.29	0-1	1
	1732.5	20175	3	QPSK	8	7	22.39	0-1	1
	1732.5	20175	3	QPSK	15	0	22.31	0-1	1
	1732.5	20175	3	16-QAM	1	0	22.22	0-1	1
	1732.5	20175	3	16-QAM	1	7	22.24	0-1	1
	1732.5	20175	3	16-QAM	1	14	22.30	0-1	1
	1732.5	20175	3	16-QAM	8	0	21.26	0-2	2
	1732.5	20175	3	16-QAM	8	4	21.24	0-2	2
	1732.5	20175	3	16-QAM	8	7	21.37	0-2	2
	1732.5	20175	3	16-QAM	15	0	21.32	0-2	2
High	1753.5	20385	3	QPSK	1	0	23.40	0	0
	1753.5	20385	3	QPSK	1	7	23.39	0	0
	1753.5	20385	3	QPSK	1	14	23.45	0	0
	1753.5	20385	3	QPSK	8	0	22.36	0-1	1
	1753.5	20385	3	QPSK	8	4	22.34	0-1	1
	1753.5	20385	3	QPSK	8	7	22.38	0-1	1
	1753.5	20385	3	QPSK	15	0	22.40	0-1	1
	1753.5	20385	3	16-QAM	1	0	22.47	0-1	1
	1753.5	20385	3	16-QAM	1	7	22.44	0-1	1
	1753.5	20385	3	16-QAM	1	14	22.50	0-1	1
	1753.5	20385	3	16-QAM	8	0	21.23	0-2	2
	1753.5	20385	3	16-QAM	8	4	21.21	0-2	2
	1753.5	20385	3	16-QAM	8	7	21.21	0-2	2
	1753.5	20385	3	16-QAM	15	0	21.37	0-2	2

Table 9-14
Maximum LTE Band 4 (AWS) Conducted Powers -1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1710.7	19957	1.4	QPSK	1	0	22.50	0	0
	1710.7	19957	1.4	QPSK	1	2	22.50	0	0
	1710.7	19957	1.4	QPSK	1	5	22.51	0	0
	1710.7	19957	1.4	QPSK	3	0	22.50	0	0
	1710.7	19957	1.4	QPSK	3	2	22.51	0	0
	1710.7	19957	1.4	QPSK	3	3	22.52	0	0
	1710.7	19957	1.4	QPSK	6	0	21.62	0-1	1
	1710.7	19957	1.4	16-QAM	1	0	21.51	0-1	1
	1710.7	19957	1.4	16-QAM	1	2	21.62	0-1	1
	1710.7	19957	1.4	16-QAM	1	5	21.61	0-1	1
	1710.7	19957	1.4	16-QAM	3	0	21.58	0-1	1
	1710.7	19957	1.4	16-QAM	3	2	21.50	0-1	1
	1710.7	19957	1.4	16-QAM	3	3	21.53	0-1	1
	1710.7	19957	1.4	16-QAM	6	0	20.51	0-2	2
Mid	1732.5	20175	1.4	QPSK	1	0	23.48	0	0
	1732.5	20175	1.4	QPSK	1	2	23.50	0	0
	1732.5	20175	1.4	QPSK	1	5	23.50	0	0
	1732.5	20175	1.4	QPSK	3	0	23.31	0	0
	1732.5	20175	1.4	QPSK	3	2	23.29	0	0
	1732.5	20175	1.4	QPSK	3	3	23.45	0	0
	1732.5	20175	1.4	QPSK	6	0	22.33	0-1	1
	1732.5	20175	1.4	16-QAM	1	0	22.15	0-1	1
	1732.5	20175	1.4	16-QAM	1	2	22.20	0-1	1
	1732.5	20175	1.4	16-QAM	1	5	22.26	0-1	1
	1732.5	20175	1.4	16-QAM	3	0	22.28	0-1	1
	1732.5	20175	1.4	16-QAM	3	2	22.30	0-1	1
	1732.5	20175	1.4	16-QAM	3	3	22.48	0-1	1
	1732.5	20175	1.4	16-QAM	6	0	21.48	0-2	2
High	1754.3	20393	1.4	QPSK	1	0	23.42	0	0
	1754.3	20393	1.4	QPSK	1	2	23.36	0	0
	1754.3	20393	1.4	QPSK	1	5	23.43	0	0
	1754.3	20393	1.4	QPSK	3	0	23.44	0	0
	1754.3	20393	1.4	QPSK	3	2	23.44	0	0
	1754.3	20393	1.4	QPSK	3	3	23.41	0	0
	1754.3	20393	1.4	QPSK	6	0	22.40	0-1	1
	1754.3	20393	1.4	16-QAM	1	0	22.42	0-1	1
	1754.3	20393	1.4	16-QAM	1	2	22.45	0-1	1
	1754.3	20393	1.4	16-QAM	1	5	22.47	0-1	1
	1754.3	20393	1.4	16-QAM	3	0	22.38	0-1	1
	1754.3	20393	1.4	16-QAM	3	2	22.36	0-1	1
	1754.3	20393	1.4	16-QAM	3	3	22.40	0-1	1
	1754.3	20393	1.4	16-QAM	6	0	21.42	0-2	2

Table 9-15
Reduced LTE Band 4 (AWS) Conducted Powers - 20 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Mid	1732.5	20175	20	QPSK	1	0	**21.65**	0	0
	1732.5	20175	20	QPSK	1	50	21.61	0	0
	1732.5	20175	20	QPSK	1	99	21.61	0	0
	1732.5	20175	20	QPSK	50	0	20.64	0-1	1
	1732.5	20175	20	QPSK	50	25	**20.67**	0-1	1
	1732.5	20175	20	QPSK	50	50	20.65	0-1	1
	1732.5	20175	20	QPSK	100	0	20.66	0-1	1
	1732.5	20175	20	16QAM	1	0	20.98	0-1	1
	1732.5	20175	20	16QAM	1	50	20.88	0-1	1
	1732.5	20175	20	16QAM	1	99	20.89	0-1	1
	1732.5	20175	20	16QAM	50	0	19.60	0-2	2
	1732.5	20175	20	16QAM	50	25	19.59	0-2	2
	1732.5	20175	20	16QAM	50	50	19.59	0-2	2
	1732.5	20175	20	16QAM	100	0	19.65	0-2	2

Note: LTE Band 4 (AWS) 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.

Table 9-16
Reduced LTE Band 4 (AWS) Conducted Powers - 15 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1717.5	20025	15	QPSK	1	0	21.67	0	0
	1717.5	20025	15	QPSK	1	36	21.70	0	0
	1717.5	20025	15	QPSK	1	74	21.73	0	0
	1717.5	20025	15	QPSK	36	0	20.73	0-1	1
	1717.5	20025	15	QPSK	36	18	20.59	0-1	1
	1717.5	20025	15	QPSK	36	37	20.61	0-1	1
	1717.5	20025	15	QPSK	75	0	20.78	0-1	1
	1717.5	20025	15	16QAM	1	0	20.74	0-1	1
	1717.5	20025	15	16QAM	1	36	20.80	0-1	1
	1717.5	20025	15	16QAM	1	74	20.87	0-1	1
	1717.5	20025	15	16QAM	36	0	19.65	0-2	2
	1717.5	20025	15	16QAM	36	18	19.63	0-2	2
	1717.5	20025	15	16QAM	36	37	19.62	0-2	2
	1717.5	20025	15	16QAM	75	0	19.88	0-2	2
Mid	1732.5	20175	15	QPSK	1	0	21.66	0	0
	1732.5	20175	15	QPSK	1	36	21.58	0	0
	1732.5	20175	15	QPSK	1	74	21.65	0	0
	1732.5	20175	15	QPSK	36	0	20.65	0-1	1
	1732.5	20175	15	QPSK	36	18	20.62	0-1	1
	1732.5	20175	15	QPSK	36	37	20.59	0-1	1
	1732.5	20175	15	QPSK	75	0	20.71	0-1	1
	1732.5	20175	15	16QAM	1	0	20.56	0-1	1
	1732.5	20175	15	16QAM	1	36	20.49	0-1	1
	1732.5	20175	15	16QAM	1	74	20.56	0-1	1
	1732.5	20175	15	16QAM	36	0	19.62	0-2	2
	1732.5	20175	15	16QAM	36	18	19.61	0-2	2
	1732.5	20175	15	16QAM	36	37	19.60	0-2	2
	1732.5	20175	15	16QAM	75	0	19.72	0-2	2
High	1747.5	20325	15	QPSK	1	0	21.66	0	0
	1747.5	20325	15	QPSK	1	36	21.65	0	0
	1747.5	20325	15	QPSK	1	74	21.67	0	0
	1747.5	20325	15	QPSK	36	0	20.70	0-1	1
	1747.5	20325	15	QPSK	36	18	20.65	0-1	1
	1747.5	20325	15	QPSK	36	37	20.71	0-1	1
	1747.5	20325	15	QPSK	75	0	20.75	0-1	1
	1747.5	20325	15	16QAM	1	0	20.87	0-1	1
	1747.5	20325	15	16QAM	1	36	20.82	0-1	1
	1747.5	20325	15	16QAM	1	74	20.90	0-1	1
	1747.5	20325	15	16QAM	36	0	19.61	0-2	2
	1747.5	20325	15	16QAM	36	18	19.65	0-2	2
	1747.5	20325	15	16QAM	36	37	19.70	0-2	2
	1747.5	20325	15	16QAM	75	0	19.71	0-2	2

Table 9-17
Reduced LTE Band 4 (AWS) Conducted Powers - 10 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1715	20000	10	QPSK	1	0	21.69	0	0
	1715	20000	10	QPSK	1	25	21.71	0	0
	1715	20000	10	QPSK	1	49	21.61	0	0
	1715	20000	10	QPSK	25	0	20.63	0-1	1
	1715	20000	10	QPSK	25	12	20.72	0-1	1
	1715	20000	10	QPSK	25	25	20.60	0-1	1
	1715	20000	10	QPSK	50	0	20.74	0-1	1
	1715	20000	10	16QAM	1	0	20.66	0-1	1
	1715	20000	10	16QAM	1	25	20.69	0-1	1
	1715	20000	10	16QAM	1	49	20.63	0-1	1
	1715	20000	10	16QAM	25	0	19.70	0-2	2
	1715	20000	10	16QAM	25	12	19.68	0-2	2
	1715	20000	10	16QAM	25	25	19.61	0-2	2
	1715	20000	10	16QAM	50	0	19.68	0-2	2
Mid	1732.5	20175	10	QPSK	1	0	21.57	0	0
	1732.5	20175	10	QPSK	1	25	21.56	0	0
	1732.5	20175	10	QPSK	1	49	21.63	0	0
	1732.5	20175	10	QPSK	25	0	20.60	0-1	1
	1732.5	20175	10	QPSK	25	12	20.59	0-1	1
	1732.5	20175	10	QPSK	25	25	20.65	0-1	1
	1732.5	20175	10	QPSK	50	0	20.64	0-1	1
	1732.5	20175	10	16QAM	1	0	20.51	0-1	1
	1732.5	20175	10	16QAM	1	25	20.50	0-1	1
	1732.5	20175	10	16QAM	1	49	20.49	0-1	1
	1732.5	20175	10	16QAM	25	0	19.64	0-2	2
	1732.5	20175	10	16QAM	25	12	19.64	0-2	2
	1732.5	20175	10	16QAM	25	25	19.62	0-2	2
	1732.5	20175	10	16QAM	50	0	19.68	0-2	2
High	1750	20350	10	QPSK	1	0	21.60	0	0
	1750	20350	10	QPSK	1	25	21.67	0	0
	1750	20350	10	QPSK	1	49	21.61	0	0
	1750	20350	10	QPSK	25	0	20.63	0-1	1
	1750	20350	10	QPSK	25	12	20.60	0-1	1
	1750	20350	10	QPSK	25	25	20.64	0-1	1
	1750	20350	10	QPSK	50	0	20.65	0-1	1
	1750	20350	10	16QAM	1	0	20.61	0-1	1
	1750	20350	10	16QAM	1	25	20.56	0-1	1
	1750	20350	10	16QAM	1	49	20.52	0-1	1
	1750	20350	10	16QAM	25	0	19.61	0-2	2
	1750	20350	10	16QAM	25	12	19.62	0-2	2
	1750	20350	10	16QAM	25	25	19.71	0-2	2
	1750	20350	10	16QAM	50	0	19.63	0-2	2

Table 9-18
Reduced LTE Band 4 (AWS) Conducted Powers - 5 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1712.5	19975	5	QPSK	1	0	21.38	0	0
	1712.5	19975	5	QPSK	1	12	21.41	0	0
	1712.5	19975	5	QPSK	1	24	21.45	0	0
	1712.5	19975	5	QPSK	12	0	20.61	0-1	1
	1712.5	19975	5	QPSK	12	6	20.63	0-1	1
	1712.5	19975	5	QPSK	12	13	20.69	0-1	1
	1712.5	19975	5	QPSK	25	0	20.70	0-1	1
	1712.5	19975	5	16-QAM	1	0	20.74	0-1	1
	1712.5	19975	5	16-QAM	1	12	20.76	0-1	1
	1712.5	19975	5	16-QAM	1	24	20.83	0-1	1
	1712.5	19975	5	16-QAM	12	0	19.54	0-2	2
	1712.5	19975	5	16-QAM	12	6	19.56	0-2	2
	1712.5	19975	5	16-QAM	12	13	19.55	0-2	2
	1712.5	19975	5	16-QAM	25	0	19.63	0-2	2
Mid	1732.5	20175	5	QPSK	1	0	21.61	0	0
	1732.5	20175	5	QPSK	1	12	21.58	0	0
	1732.5	20175	5	QPSK	1	24	21.64	0	0
	1732.5	20175	5	QPSK	12	0	20.57	0-1	1
	1732.5	20175	5	QPSK	12	6	20.59	0-1	1
	1732.5	20175	5	QPSK	12	13	20.63	0-1	1
	1732.5	20175	5	QPSK	25	0	20.59	0-1	1
	1732.5	20175	5	16-QAM	1	0	20.72	0-1	1
	1732.5	20175	5	16-QAM	1	12	20.75	0-1	1
	1732.5	20175	5	16-QAM	1	24	20.77	0-1	1
	1732.5	20175	5	16-QAM	12	0	19.56	0-2	2
	1732.5	20175	5	16-QAM	12	6	19.60	0-2	2
	1732.5	20175	5	16-QAM	12	13	19.59	0-2	2
	1732.5	20175	5	16-QAM	25	0	19.63	0-2	2
High	1752.5	20375	5	QPSK	1	0	21.64	0	0
	1752.5	20375	5	QPSK	1	12	21.59	0	0
	1752.5	20375	5	QPSK	1	24	21.62	0	0
	1752.5	20375	5	QPSK	12	0	20.69	0-1	1
	1752.5	20375	5	QPSK	12	6	20.67	0-1	1
	1752.5	20375	5	QPSK	12	13	20.67	0-1	1
	1752.5	20375	5	QPSK	25	0	20.74	0-1	1
	1752.5	20375	5	16-QAM	1	0	20.83	0-1	1
	1752.5	20375	5	16-QAM	1	12	20.85	0-1	1
	1752.5	20375	5	16-QAM	1	24	20.79	0-1	1
	1752.5	20375	5	16-QAM	12	0	19.56	0-2	2
	1752.5	20375	5	16-QAM	12	6	19.58	0-2	2
	1752.5	20375	5	16-QAM	12	13	19.56	0-2	2
	1752.5	20375	5	16-QAM	25	0	19.61	0-2	2

Table 9-19
Reduced LTE Band 4 (AWS) Conducted Powers - 3 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1711.5	19965	3	QPSK	1	0	21.69	0	0
	1711.5	19965	3	QPSK	1	7	21.71	0	0
	1711.5	19965	3	QPSK	1	14	21.75	0	0
	1711.5	19965	3	QPSK	8	0	20.66	0-1	1
	1711.5	19965	3	QPSK	8	4	20.62	0-1	1
	1711.5	19965	3	QPSK	8	7	20.62	0-1	1
	1711.5	19965	3	QPSK	15	0	20.69	0-1	1
	1711.5	19965	3	16-QAM	1	0	20.67	0-1	1
	1711.5	19965	3	16-QAM	1	7	20.63	0-1	1
	1711.5	19965	3	16-QAM	1	14	20.69	0-1	1
	1711.5	19965	3	16-QAM	8	0	19.70	0-2	2
	1711.5	19965	3	16-QAM	8	4	19.74	0-2	2
	1711.5	19965	3	16-QAM	8	7	19.71	0-2	2
	1711.5	19965	3	16-QAM	15	0	19.63	0-2	2
Mid	1732.5	20175	3	QPSK	1	0	21.60	0	0
	1732.5	20175	3	QPSK	1	7	21.57	0	0
	1732.5	20175	3	QPSK	1	14	21.60	0	0
	1732.5	20175	3	QPSK	8	0	20.63	0-1	1
	1732.5	20175	3	QPSK	8	4	20.60	0-1	1
	1732.5	20175	3	QPSK	8	7	20.64	0-1	1
	1732.5	20175	3	QPSK	15	0	20.62	0-1	1
	1732.5	20175	3	16-QAM	1	0	20.56	0-1	1
	1732.5	20175	3	16-QAM	1	7	20.51	0-1	1
	1732.5	20175	3	16-QAM	1	14	20.58	0-1	1
	1732.5	20175	3	16-QAM	8	0	19.64	0-2	2
	1732.5	20175	3	16-QAM	8	4	19.67	0-2	2
	1732.5	20175	3	16-QAM	8	7	19.66	0-2	2
	1732.5	20175	3	16-QAM	15	0	19.70	0-2	2
High	1753.5	20385	3	QPSK	1	0	21.72	0	0
	1753.5	20385	3	QPSK	1	7	21.64	0	0
	1753.5	20385	3	QPSK	1	14	21.72	0	0
	1753.5	20385	3	QPSK	8	0	20.69	0-1	1
	1753.5	20385	3	QPSK	8	4	20.67	0-1	1
	1753.5	20385	3	QPSK	8	7	20.55	0-1	1
	1753.5	20385	3	QPSK	15	0	20.74	0-1	1
	1753.5	20385	3	16-QAM	1	0	20.64	0-1	1
	1753.5	20385	3	16-QAM	1	7	20.45	0-1	1
	1753.5	20385	3	16-QAM	1	14	20.59	0-1	1
	1753.5	20385	3	16-QAM	8	0	19.73	0-2	2
	1753.5	20385	3	16-QAM	8	4	19.72	0-2	2
	1753.5	20385	3	16-QAM	8	7	19.61	0-2	2
	1753.5	20385	3	16-QAM	15	0	19.75	0-2	2

Table 9-20
Reduced LTE Band 4 (AWS) Conducted Powers -1.4 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1710.7	19957	1.4	QPSK	1	0	21.71	0	0
	1710.7	19957	1.4	QPSK	1	2	21.69	0	0
	1710.7	19957	1.4	QPSK	1	5	21.75	0	0
	1710.7	19957	1.4	QPSK	3	0	21.64	0	0
	1710.7	19957	1.4	QPSK	3	2	21.65	0	0
	1710.7	19957	1.4	QPSK	3	3	21.71	0	0
	1710.7	19957	1.4	QPSK	6	0	20.65	0-1	1
	1710.7	19957	1.4	16-QAM	1	0	20.66	0-1	1
	1710.7	19957	1.4	16-QAM	1	2	20.68	0-1	1
	1710.7	19957	1.4	16-QAM	1	5	20.73	0-1	1
	1710.7	19957	1.4	16-QAM	3	0	20.59	0-1	1
	1710.7	19957	1.4	16-QAM	3	2	20.56	0-1	1
	1710.7	19957	1.4	16-QAM	3	3	20.55	0-1	1
	1710.7	19957	1.4	16-QAM	6	0	19.52	0-2	2
Mid	1732.5	20175	1.4	QPSK	1	0	21.78	0	0
	1732.5	20175	1.4	QPSK	1	2	21.71	0	0
	1732.5	20175	1.4	QPSK	1	5	21.80	0	0
	1732.5	20175	1.4	QPSK	3	0	21.66	0	0
	1732.5	20175	1.4	QPSK	3	2	21.65	0	0
	1732.5	20175	1.4	QPSK	3	3	21.67	0	0
	1732.5	20175	1.4	QPSK	6	0	20.64	0-1	1
	1732.5	20175	1.4	16-QAM	1	0	20.69	0-1	1
	1732.5	20175	1.4	16-QAM	1	2	20.71	0-1	1
	1732.5	20175	1.4	16-QAM	1	5	20.68	0-1	1
	1732.5	20175	1.4	16-QAM	3	0	20.57	0-1	1
	1732.5	20175	1.4	16-QAM	3	2	20.54	0-1	1
	1732.5	20175	1.4	16-QAM	3	3	20.57	0-1	1
	1732.5	20175	1.4	16-QAM	6	0	19.62	0-2	2
High	1754.3	20393	1.4	QPSK	1	0	21.65	0	0
	1754.3	20393	1.4	QPSK	1	2	21.58	0	0
	1754.3	20393	1.4	QPSK	1	5	21.66	0	0
	1754.3	20393	1.4	QPSK	3	0	21.62	0	0
	1754.3	20393	1.4	QPSK	3	2	21.61	0	0
	1754.3	20393	1.4	QPSK	3	3	21.62	0	0
	1754.3	20393	1.4	QPSK	6	0	20.64	0-1	1
	1754.3	20393	1.4	16-QAM	1	0	20.62	0-1	1
	1754.3	20393	1.4	16-QAM	1	2	20.53	0-1	1
	1754.3	20393	1.4	16-QAM	1	5	20.62	0-1	1
	1754.3	20393	1.4	16-QAM	3	0	20.48	0-1	1
	1754.3	20393	1.4	16-QAM	3	2	20.49	0-1	1
	1754.3	20393	1.4	16-QAM	3	3	20.54	0-1	1
	1754.3	20393	1.4	16-QAM	6	0	19.68	0-2	2

9.2.4 LTE Band 2 (PCS)

Table 9-21
Maximum LTE Band 2 (PCS) Conducted Powers - 20 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1860	18700	20	QPSK	1	0	22.56	0	0
	1860	18700	20	QPSK	1	50	23.17	0	0
	1860	18700	20	QPSK	1	99	23.22	0	0
	1860	18700	20	QPSK	50	0	21.80	0-1	1
	1860	18700	20	QPSK	50	25	22.05	0-1	1
	1860	18700	20	QPSK	50	50	22.10	0-1	1
	1860	18700	20	QPSK	100	0	21.94	0-1	1
	1860	18700	20	16QAM	1	0	22.17	0-1	1
	1860	18700	20	16QAM	1	50	22.46	0-1	1
	1860	18700	20	16QAM	1	99	22.36	0-1	1
	1860	18700	20	16QAM	50	0	20.76	0-2	2
	1860	18700	20	16QAM	50	25	21.01	0-2	2
	1860	18700	20	16QAM	50	50	21.13	0-2	2
	1860	18700	20	16QAM	100	0	20.93	0-2	2
Mid	1880.0	18900	20	QPSK	1	0	23.25	0	0
	1880.0	18900	20	QPSK	1	50	**23.49**	0	0
	1880.0	18900	20	QPSK	1	99	23.07	0	0
	1880.0	18900	20	QPSK	50	0	**22.28**	0-1	1
	1880.0	18900	20	QPSK	50	25	22.23	0-1	1
	1880.0	18900	20	QPSK	50	50	22.21	0-1	1
	1880.0	18900	20	QPSK	100	0	22.27	0-1	1
	1880.0	18900	20	16QAM	1	0	22.37	0-1	1
	1880.0	18900	20	16QAM	1	50	22.30	0-1	1
	1880.0	18900	20	16QAM	1	99	22.41	0-1	1
	1880.0	18900	20	16QAM	50	0	21.17	0-2	2
	1880.0	18900	20	16QAM	50	25	21.15	0-2	2
	1880.0	18900	20	16QAM	50	50	21.19	0-2	2
	1880.0	18900	20	16QAM	100	0	21.21	0-2	2
High	1900	19100	20	QPSK	1	0	23.12	0	0
	1900	19100	20	QPSK	1	50	23.36	0	0
	1900	19100	20	QPSK	1	99	22.82	0	0
	1900	19100	20	QPSK	50	0	22.26	0-1	1
	1900	19100	20	QPSK	50	25	22.26	0-1	1
	1900	19100	20	QPSK	50	50	21.94	0-1	1
	1900	19100	20	QPSK	100	0	22.06	0-1	1
	1900	19100	20	16QAM	1	0	22.39	0-1	1
	1900	19100	20	16QAM	1	50	22.31	0-1	1
	1900	19100	20	16QAM	1	99	22.46	0-1	1
	1900	19100	20	16QAM	50	0	21.30	0-2	2
	1900	19100	20	16QAM	50	25	21.30	0-2	2
	1900	19100	20	16QAM	50	50	20.94	0-2	2
	1900	19100	20	16QAM	100	0	21.08	0-2	2

Table 9-22
Maximum LTE Band 2 (PCS) Conducted Powers - 15 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1857.5	18675	15	QPSK	1	0	22.66	0	0
	1857.5	18675	15	QPSK	1	36	22.87	0	0
	1857.5	18675	15	QPSK	1	74	23.18	0	0
	1857.5	18675	15	QPSK	36	0	21.77	0-1	1
	1857.5	18675	15	QPSK	36	18	21.89	0-1	1
	1857.5	18675	15	QPSK	36	37	22.04	0-1	1
	1857.5	18675	15	QPSK	75	0	21.84	0-1	1
	1857.5	18675	15	16QAM	1	0	21.97	0-1	1
	1857.5	18675	15	16QAM	1	36	22.21	0-1	1
	1857.5	18675	15	16QAM	1	74	22.07	0-1	1
	1857.5	18675	15	16QAM	36	0	20.75	0-2	2
	1857.5	18675	15	16QAM	36	18	20.87	0-2	2
	1857.5	18675	15	16QAM	36	37	21.03	0-2	2
	1857.5	18675	15	16QAM	75	0	20.86	0-2	2
Mid	1880.0	18900	15	QPSK	1	0	23.12	0	0
	1880.0	18900	15	QPSK	1	36	23.09	0	0
	1880.0	18900	15	QPSK	1	74	23.14	0	0
	1880.0	18900	15	QPSK	36	0	22.17	0-1	1
	1880.0	18900	15	QPSK	36	18	22.13	0-1	1
	1880.0	18900	15	QPSK	36	37	22.16	0-1	1
	1880.0	18900	15	QPSK	75	0	22.24	0-1	1
	1880.0	18900	15	16QAM	1	0	22.14	0-1	1
	1880.0	18900	15	16QAM	1	36	22.21	0-1	1
	1880.0	18900	15	16QAM	1	74	22.18	0-1	1
	1880.0	18900	15	16QAM	36	0	21.06	0-2	2
	1880.0	18900	15	16QAM	36	18	21.07	0-2	2
	1880.0	18900	15	16QAM	36	37	21.10	0-2	2
	1880.0	18900	15	16QAM	75	0	21.11	0-2	2
High	1902.5	19125	15	QPSK	1	0	23.35	0	0
	1902.5	19125	15	QPSK	1	36	23.03	0	0
	1902.5	19125	15	QPSK	1	74	22.78	0	0
	1902.5	19125	15	QPSK	36	0	22.20	0-1	1
	1902.5	19125	15	QPSK	36	18	21.97	0-1	1
	1902.5	19125	15	QPSK	36	37	21.71	0-1	1
	1902.5	19125	15	QPSK	75	0	21.90	0-1	1
	1902.5	19125	15	16QAM	1	0	22.34	0-1	1
	1902.5	19125	15	16QAM	1	36	22.05	0-1	1
	1902.5	19125	15	16QAM	1	74	21.80	0-1	1
	1902.5	19125	15	16QAM	36	0	21.20	0-2	2
	1902.5	19125	15	16QAM	36	18	20.96	0-2	2
	1902.5	19125	15	16QAM	36	37	20.70	0-2	2
	1902.5	19125	15	16QAM	75	0	20.93	0-2	2

Table 9-23
Maximum LTE Band 2 (PCS) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1855	18650	10	QPSK	1	0	22.62	0	0
	1855	18650	10	QPSK	1	25	22.74	0	0
	1855	18650	10	QPSK	1	49	23.05	0	0
	1855	18650	10	QPSK	25	0	21.79	0-1	1
	1855	18650	10	QPSK	25	12	21.80	0-1	1
	1855	18650	10	QPSK	25	25	21.91	0-1	1
	1855	18650	10	QPSK	50	0	21.81	0-1	1
	1855	18650	10	16QAM	1	0	21.72	0-1	1
	1855	18650	10	16QAM	1	25	21.86	0-1	1
	1855	18650	10	16QAM	1	49	22.17	0-1	1
	1855	18650	10	16QAM	25	0	20.89	0-2	2
	1855	18650	10	16QAM	25	12	20.89	0-2	2
	1855	18650	10	16QAM	25	25	21.00	0-2	2
	1855	18650	10	16QAM	50	0	20.79	0-2	2
Mid	1880.0	18900	10	QPSK	1	0	23.15	0	0
	1880.0	18900	10	QPSK	1	25	23.16	0	0
	1880.0	18900	10	QPSK	1	49	23.10	0	0
	1880.0	18900	10	QPSK	25	0	22.14	0-1	1
	1880.0	18900	10	QPSK	25	12	22.08	0-1	1
	1880.0	18900	10	QPSK	25	25	22.15	0-1	1
	1880.0	18900	10	QPSK	50	0	22.17	0-1	1
	1880.0	18900	10	16QAM	1	0	22.17	0-1	1
	1880.0	18900	10	16QAM	1	25	22.17	0-1	1
	1880.0	18900	10	16QAM	1	49	22.11	0-1	1
	1880.0	18900	10	16QAM	25	0	21.00	0-2	2
	1880.0	18900	10	16QAM	25	12	21.00	0-2	2
	1880.0	18900	10	16QAM	25	25	21.05	0-2	2
	1880.0	18900	10	16QAM	50	0	21.02	0-2	2
High	1905	19150	10	QPSK	1	0	23.16	0	0
	1905	19150	10	QPSK	1	25	22.63	0	0
	1905	19150	10	QPSK	1	49	22.67	0	0
	1905	19150	10	QPSK	25	0	21.94	0-1	1
	1905	19150	10	QPSK	25	12	21.80	0-1	1
	1905	19150	10	QPSK	25	25	21.75	0-1	1
	1905	19150	10	QPSK	50	0	21.83	0-1	1
	1905	19150	10	16QAM	1	0	22.22	0-1	1
	1905	19150	10	16QAM	1	25	21.97	0-1	1
	1905	19150	10	16QAM	1	49	22.00	0-1	1
	1905	19150	10	16QAM	25	0	20.95	0-2	2
	1905	19150	10	16QAM	25	12	20.81	0-2	2
	1905	19150	10	16QAM	25	25	20.75	0-2	2
	1905	19150	10	16QAM	50	0	20.85	0-2	2

Table 9-24
Maximum LTE Band 2 (PCS) Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1852.5	18625	5	QPSK	1	0	22.60	0	0
	1852.5	18625	5	QPSK	1	12	22.80	0	0
	1852.5	18625	5	QPSK	1	24	22.78	0	0
	1852.5	18625	5	QPSK	12	0	21.72	0-1	1
	1852.5	18625	5	QPSK	12	6	21.80	0-1	1
	1852.5	18625	5	QPSK	12	13	21.80	0-1	1
	1852.5	18625	5	QPSK	25	0	21.75	0-1	1
	1852.5	18625	5	16-QAM	1	0	22.15	0-1	1
	1852.5	18625	5	16-QAM	1	12	21.93	0-1	1
	1852.5	18625	5	16-QAM	1	24	21.91	0-1	1
	1852.5	18625	5	16-QAM	12	0	20.66	0-2	2
	1852.5	18625	5	16-QAM	12	6	20.74	0-2	2
	1852.5	18625	5	16-QAM	12	13	20.75	0-2	2
	1852.5	18625	5	16-QAM	25	0	20.74	0-2	2
Mid	1880.0	18900	5	QPSK	1	0	23.17	0	0
	1880.0	18900	5	QPSK	1	12	23.10	0	0
	1880.0	18900	5	QPSK	1	24	23.16	0	0
	1880.0	18900	5	QPSK	12	0	22.15	0-1	1
	1880.0	18900	5	QPSK	12	6	22.12	0-1	1
	1880.0	18900	5	QPSK	12	13	22.13	0-1	1
	1880.0	18900	5	QPSK	25	0	22.08	0-1	1
	1880.0	18900	5	16-QAM	1	0	22.17	0-1	1
	1880.0	18900	5	16-QAM	1	12	22.22	0-1	1
	1880.0	18900	5	16-QAM	1	24	22.23	0-1	1
	1880.0	18900	5	16-QAM	12	0	21.00	0-2	2
	1880.0	18900	5	16-QAM	12	6	21.03	0-2	2
	1880.0	18900	5	16-QAM	12	13	21.05	0-2	2
	1880.0	18900	5	16-QAM	25	0	21.11	0-2	2
High	1907.5	19175	5	QPSK	1	0	22.69	0	0
	1907.5	19175	5	QPSK	1	12	22.64	0	0
	1907.5	19175	5	QPSK	1	24	22.67	0	0
	1907.5	19175	5	QPSK	12	0	21.67	0-1	1
	1907.5	19175	5	QPSK	12	6	21.67	0-1	1
	1907.5	19175	5	QPSK	12	13	21.72	0-1	1
	1907.5	19175	5	QPSK	25	0	21.67	0-1	1
	1907.5	19175	5	16-QAM	1	0	22.05	0-1	1
	1907.5	19175	5	16-QAM	1	12	22.00	0-1	1
	1907.5	19175	5	16-QAM	1	24	22.01	0-1	1
	1907.5	19175	5	16-QAM	12	0	20.68	0-2	2
	1907.5	19175	5	16-QAM	12	6	20.68	0-2	2
	1907.5	19175	5	16-QAM	12	13	20.72	0-2	2
	1907.5	19175	5	16-QAM	25	0	20.65	0-2	2

Table 9-25
Maximum LTE Band 2 (PCS) Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1851.5	18615	3	QPSK	1	0	22.66	0	0
	1851.5	18615	3	QPSK	1	7	22.76	0	0
	1851.5	18615	3	QPSK	1	14	22.85	0	0
	1851.5	18615	3	QPSK	8	0	21.63	0-1	1
	1851.5	18615	3	QPSK	8	4	21.76	0-1	1
	1851.5	18615	3	QPSK	8	7	21.80	0-1	1
	1851.5	18615	3	QPSK	15	0	21.72	0-1	1
	1851.5	18615	3	16-QAM	1	0	21.78	0-1	1
	1851.5	18615	3	16-QAM	1	7	21.89	0-1	1
	1851.5	18615	3	16-QAM	1	14	21.95	0-1	1
	1851.5	18615	3	16-QAM	8	0	20.60	0-2	2
	1851.5	18615	3	16-QAM	8	4	20.73	0-2	2
	1851.5	18615	3	16-QAM	8	7	20.75	0-2	2
	1851.5	18615	3	16-QAM	15	0	20.74	0-2	2
Mid	1880.0	18900	3	QPSK	1	0	23.13	0	0
	1880.0	18900	3	QPSK	1	7	23.13	0	0
	1880.0	18900	3	QPSK	1	14	23.19	0	0
	1880.0	18900	3	QPSK	8	0	22.11	0-1	1
	1880.0	18900	3	QPSK	8	4	22.14	0-1	1
	1880.0	18900	3	QPSK	8	7	22.13	0-1	1
	1880.0	18900	3	QPSK	15	0	22.09	0-1	1
	1880.0	18900	3	16-QAM	1	0	22.26	0-1	1
	1880.0	18900	3	16-QAM	1	7	22.19	0-1	1
	1880.0	18900	3	16-QAM	1	14	22.25	0-1	1
	1880.0	18900	3	16-QAM	8	0	20.95	0-2	2
	1880.0	18900	3	16-QAM	8	4	20.95	0-2	2
	1880.0	18900	3	16-QAM	8	7	21.00	0-2	2
	1880.0	18900	3	16-QAM	15	0	21.07	0-2	2
High	1908.5	19185	3	QPSK	1	0	22.64	0	0
	1908.5	19185	3	QPSK	1	7	22.65	0	0
	1908.5	19185	3	QPSK	1	14	22.66	0	0
	1908.5	19185	3	QPSK	8	0	21.67	0-1	1
	1908.5	19185	3	QPSK	8	4	21.72	0-1	1
	1908.5	19185	3	QPSK	8	7	21.69	0-1	1
	1908.5	19185	3	QPSK	15	0	21.69	0-1	1
	1908.5	19185	3	16-QAM	1	0	21.96	0-1	1
	1908.5	19185	3	16-QAM	1	7	21.94	0-1	1
	1908.5	19185	3	16-QAM	1	14	21.97	0-1	1
	1908.5	19185	3	16-QAM	8	0	20.68	0-2	2
	1908.5	19185	3	16-QAM	8	4	20.74	0-2	2
	1908.5	19185	3	16-QAM	8	7	20.71	0-2	2
	1908.5	19185	3	16-QAM	15	0	20.69	0-2	2

Table 9-26
Maximum LTE Band 2 (PCS) Conducted Powers -1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1850.7	18607	1.4	QPSK	1	0	22.54	0	0
	1850.7	18607	1.4	QPSK	1	2	22.66	0	0
	1850.7	18607	1.4	QPSK	1	5	22.59	0	0
	1850.7	18607	1.4	QPSK	3	0	22.54	0	0
	1850.7	18607	1.4	QPSK	3	2	22.62	0	0
	1850.7	18607	1.4	QPSK	3	3	22.61	0	0
	1850.7	18607	1.4	QPSK	6	0	21.61	0-1	1
	1850.7	18607	1.4	16-QAM	1	0	21.63	0-1	1
	1850.7	18607	1.4	16-QAM	1	2	21.77	0-1	1
	1850.7	18607	1.4	16-QAM	1	5	21.71	0-1	1
	1850.7	18607	1.4	16-QAM	3	0	21.51	0-1	1
	1850.7	18607	1.4	16-QAM	3	2	21.60	0-1	1
	1850.7	18607	1.4	16-QAM	3	3	21.58	0-1	1
	1850.7	18607	1.4	16-QAM	6	0	20.58	0-2	2
Mid	1880.0	18900	1.4	QPSK	1	0	23.37	0	0
	1880.0	18900	1.4	QPSK	1	2	23.30	0	0
	1880.0	18900	1.4	QPSK	1	5	23.35	0	0
	1880.0	18900	1.4	QPSK	3	0	23.18	0	0
	1880.0	18900	1.4	QPSK	3	2	23.19	0	0
	1880.0	18900	1.4	QPSK	3	3	23.23	0	0
	1880.0	18900	1.4	QPSK	6	0	22.15	0-1	1
	1880.0	18900	1.4	16-QAM	1	0	22.00	0-1	1
	1880.0	18900	1.4	16-QAM	1	2	21.96	0-1	1
	1880.0	18900	1.4	16-QAM	1	5	22.00	0-1	1
	1880.0	18900	1.4	16-QAM	3	0	22.13	0-1	1
	1880.0	18900	1.4	16-QAM	3	2	22.17	0-1	1
	1880.0	18900	1.4	16-QAM	3	3	22.21	0-1	1
	1880.0	18900	1.4	16-QAM	6	0	21.32	0-2	2
High	1909.3	19193	1.4	QPSK	1	0	22.55	0	0
	1909.3	19193	1.4	QPSK	1	2	22.64	0	0
	1909.3	19193	1.4	QPSK	1	5	22.50	0	0
	1909.3	19193	1.4	QPSK	3	0	22.61	0	0
	1909.3	19193	1.4	QPSK	3	2	22.67	0	0
	1909.3	19193	1.4	QPSK	3	3	22.61	0	0
	1909.3	19193	1.4	QPSK	6	0	21.65	0-1	1
	1909.3	19193	1.4	16-QAM	1	0	21.81	0-1	1
	1909.3	19193	1.4	16-QAM	1	2	21.92	0-1	1
	1909.3	19193	1.4	16-QAM	1	5	21.84	0-1	1
	1909.3	19193	1.4	16-QAM	3	0	21.55	0-1	1
	1909.3	19193	1.4	16-QAM	3	2	21.62	0-1	1
	1909.3	19193	1.4	16-QAM	3	3	21.57	0-1	1
	1909.3	19193	1.4	16-QAM	6	0	20.71	0-2	2

Table 9-27
Reduced LTE Band 2 (PCS) Conducted Powers - 20 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1860	18700	20	QPSK	1	0	21.39	0	0
	1860	18700	20	QPSK	1	50	21.53	0	0
	1860	18700	20	QPSK	1	99	21.42	0	0
	1860	18700	20	QPSK	50	0	**20.86**	0-1	1
	1860	18700	20	QPSK	50	25	20.69	0-1	1
	1860	18700	20	QPSK	50	50	20.64	0-1	1
	1860	18700	20	QPSK	100	0	20.61	0-1	1
	1860	18700	20	16QAM	1	0	20.37	0-1	1
	1860	18700	20	16QAM	1	50	20.45	0-1	1
	1860	18700	20	16QAM	1	99	20.40	0-1	1
	1860	18700	20	16QAM	50	0	19.81	0-2	2
	1860	18700	20	16QAM	50	25	19.65	0-2	2
	1860	18700	20	16QAM	50	50	19.61	0-2	2
	1860	18700	20	16QAM	100	0	19.63	0-2	2
Mid	1880.0	18900	20	QPSK	1	0	21.67	0	0
	1880.0	18900	20	QPSK	1	50	21.58	0	0
	1880.0	18900	20	QPSK	1	99	21.62	0	0
	1880.0	18900	20	QPSK	50	0	20.60	0-1	1
	1880.0	18900	20	QPSK	50	25	20.57	0-1	1
	1880.0	18900	20	QPSK	50	50	20.53	0-1	1
	1880.0	18900	20	QPSK	100	0	20.53	0-1	1
	1880.0	18900	20	16QAM	1	0	20.65	0-1	1
	1880.0	18900	20	16QAM	1	50	20.64	0-1	1
	1880.0	18900	20	16QAM	1	99	20.60	0-1	1
	1880.0	18900	20	16QAM	50	0	19.61	0-2	2
	1880.0	18900	20	16QAM	50	25	19.63	0-2	2
	1880.0	18900	20	16QAM	50	50	19.60	0-2	2
	1880.0	18900	20	16QAM	100	0	19.62	0-2	2
High	1900	19100	20	QPSK	1	0	21.52	0	0
	1900	19100	20	QPSK	1	50	21.57	0	0
	1900	19100	20	QPSK	1	99	**21.68**	0	0
	1900	19100	20	QPSK	50	0	20.61	0-1	1
	1900	19100	20	QPSK	50	25	20.58	0-1	1
	1900	19100	20	QPSK	50	50	20.65	0-1	1
	1900	19100	20	QPSK	100	0	20.63	0-1	1
	1900	19100	20	16QAM	1	0	20.83	0-1	1
	1900	19100	20	16QAM	1	50	20.86	0-1	1
	1900	19100	20	16QAM	1	99	20.97	0-1	1
	1900	19100	20	16QAM	50	0	19.55	0-2	2
	1900	19100	20	16QAM	50	25	19.61	0-2	2
	1900	19100	20	16QAM	50	50	19.73	0-2	2
	1900	19100	20	16QAM	100	0	19.66	0-2	2

Table 9-28
Reduced LTE Band 2 (PCS) Conducted Powers - 15 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1857.5	18675	15	QPSK	1	0	21.48	0	0
	1857.5	18675	15	QPSK	1	36	21.56	0	0
	1857.5	18675	15	QPSK	1	74	21.50	0	0
	1857.5	18675	15	QPSK	36	0	20.59	0-1	1
	1857.5	18675	15	QPSK	36	18	20.62	0-1	1
	1857.5	18675	15	QPSK	36	37	20.50	0-1	1
	1857.5	18675	15	QPSK	75	0	20.59	0-1	1
	1857.5	18675	15	16QAM	1	0	20.74	0-1	1
	1857.5	18675	15	16QAM	1	36	20.65	0-1	1
	1857.5	18675	15	16QAM	1	74	20.55	0-1	1
	1857.5	18675	15	16QAM	36	0	19.56	0-2	2
	1857.5	18675	15	16QAM	36	18	19.60	0-2	2
	1857.5	18675	15	16QAM	36	37	19.54	0-2	2
	1857.5	18675	15	16QAM	75	0	19.65	0-2	2
Mid	1880.0	18900	15	QPSK	1	0	21.36	0	0
	1880.0	18900	15	QPSK	1	36	21.35	0	0
	1880.0	18900	15	QPSK	1	74	21.36	0	0
	1880.0	18900	15	QPSK	36	0	20.41	0-1	1
	1880.0	18900	15	QPSK	36	18	20.42	0-1	1
	1880.0	18900	15	QPSK	36	37	20.37	0-1	1
	1880.0	18900	15	QPSK	75	0	20.49	0-1	1
	1880.0	18900	15	16QAM	1	0	20.30	0-1	1
	1880.0	18900	15	16QAM	1	36	20.28	0-1	1
	1880.0	18900	15	16QAM	1	74	20.35	0-1	1
	1880.0	18900	15	16QAM	36	0	19.42	0-2	2
	1880.0	18900	15	16QAM	36	18	19.43	0-2	2
	1880.0	18900	15	16QAM	36	37	19.33	0-2	2
	1880.0	18900	15	16QAM	75	0	19.47	0-2	2
High	1902.5	19125	15	QPSK	1	0	21.56	0	0
	1902.5	19125	15	QPSK	1	36	21.60	0	0
	1902.5	19125	15	QPSK	1	74	21.67	0	0
	1902.5	19125	15	QPSK	36	0	20.51	0-1	1
	1902.5	19125	15	QPSK	36	18	20.54	0-1	1
	1902.5	19125	15	QPSK	36	37	20.63	0-1	1
	1902.5	19125	15	QPSK	75	0	20.59	0-1	1
	1902.5	19125	15	16QAM	1	0	20.68	0-1	1
	1902.5	19125	15	16QAM	1	36	20.70	0-1	1
	1902.5	19125	15	16QAM	1	74	20.84	0-1	1
	1902.5	19125	15	16QAM	36	0	19.46	0-2	2
	1902.5	19125	15	16QAM	36	18	19.61	0-2	2
	1902.5	19125	15	16QAM	36	37	19.65	0-2	2
	1902.5	19125	15	16QAM	75	0	19.59	0-2	2

Table 9-29
Reduced LTE Band 2 (PCS) Conducted Powers - 10 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1855	18650	10	QPSK	1	0	21.44	0	0
	1855	18650	10	QPSK	1	25	21.57	0	0
	1855	18650	10	QPSK	1	49	21.63	0	0
	1855	18650	10	QPSK	25	0	20.52	0-1	1
	1855	18650	10	QPSK	25	12	20.55	0-1	1
	1855	18650	10	QPSK	25	25	20.58	0-1	1
	1855	18650	10	QPSK	50	0	20.56	0-1	1
	1855	18650	10	16QAM	1	0	20.61	0-1	1
	1855	18650	10	16QAM	1	25	20.66	0-1	1
	1855	18650	10	16QAM	1	49	20.73	0-1	1
	1855	18650	10	16QAM	25	0	19.55	0-2	2
	1855	18650	10	16QAM	25	12	19.57	0-2	2
	1855	18650	10	16QAM	25	25	19.60	0-2	2
	1855	18650	10	16QAM	50	0	19.54	0-2	2
Mid	1880.0	18900	10	QPSK	1	0	21.36	0	0
	1880.0	18900	10	QPSK	1	25	21.35	0	0
	1880.0	18900	10	QPSK	1	49	21.33	0	0
	1880.0	18900	10	QPSK	25	0	20.38	0-1	1
	1880.0	18900	10	QPSK	25	12	20.41	0-1	1
	1880.0	18900	10	QPSK	25	25	20.47	0-1	1
	1880.0	18900	10	QPSK	50	0	20.44	0-1	1
	1880.0	18900	10	16QAM	1	0	20.36	0-1	1
	1880.0	18900	10	16QAM	1	25	20.31	0-1	1
	1880.0	18900	10	16QAM	1	49	20.28	0-1	1
	1880.0	18900	10	16QAM	25	0	19.49	0-2	2
	1880.0	18900	10	16QAM	25	12	19.42	0-2	2
	1880.0	18900	10	16QAM	25	25	19.49	0-2	2
	1880.0	18900	10	16QAM	50	0	19.47	0-2	2
High	1905	19150	10	QPSK	1	0	21.50	0	0
	1905	19150	10	QPSK	1	25	21.61	0	0
	1905	19150	10	QPSK	1	49	21.69	0	0
	1905	19150	10	QPSK	25	0	20.54	0-1	1
	1905	19150	10	QPSK	25	12	20.64	0-1	1
	1905	19150	10	QPSK	25	25	20.59	0-1	1
	1905	19150	10	QPSK	50	0	20.66	0-1	1
	1905	19150	10	16QAM	1	0	20.67	0-1	1
	1905	19150	10	16QAM	1	25	20.77	0-1	1
	1905	19150	10	16QAM	1	49	20.75	0-1	1
	1905	19150	10	16QAM	25	0	19.69	0-2	2
	1905	19150	10	16QAM	25	12	19.77	0-2	2
	1905	19150	10	16QAM	25	25	19.75	0-2	2
	1905	19150	10	16QAM	50	0	19.68	0-2	2

Table 9-30
Reduced LTE Band 2 (PCS) Conducted Powers - 5 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1852.5	18625	5	QPSK	1	0	21.25	0	0
	1852.5	18625	5	QPSK	1	12	21.29	0	0
	1852.5	18625	5	QPSK	1	24	21.35	0	0
	1852.5	18625	5	QPSK	12	0	20.54	0-1	1
	1852.5	18625	5	QPSK	12	6	20.50	0-1	1
	1852.5	18625	5	QPSK	12	13	20.59	0-1	1
	1852.5	18625	5	QPSK	25	0	20.50	0-1	1
	1852.5	18625	5	16-QAM	1	0	20.62	0-1	1
	1852.5	18625	5	16-QAM	1	12	20.59	0-1	1
	1852.5	18625	5	16-QAM	1	24	20.69	0-1	1
	1852.5	18625	5	16-QAM	12	0	19.41	0-2	2
	1852.5	18625	5	16-QAM	12	6	19.40	0-2	2
	1852.5	18625	5	16-QAM	12	13	19.46	0-2	2
	1852.5	18625	5	16-QAM	25	0	19.48	0-2	2
Mid	1880.0	18900	5	QPSK	1	0	21.45	0	0
	1880.0	18900	5	QPSK	1	12	21.44	0	0
	1880.0	18900	5	QPSK	1	24	21.39	0	0
	1880.0	18900	5	QPSK	12	0	20.43	0-1	1
	1880.0	18900	5	QPSK	12	6	20.47	0-1	1
	1880.0	18900	5	QPSK	12	13	20.41	0-1	1
	1880.0	18900	5	QPSK	25	0	20.43	0-1	1
	1880.0	18900	5	16-QAM	1	0	20.54	0-1	1
	1880.0	18900	5	16-QAM	1	12	20.50	0-1	1
	1880.0	18900	5	16-QAM	1	24	20.49	0-1	1
	1880.0	18900	5	16-QAM	12	0	19.45	0-2	2
	1880.0	18900	5	16-QAM	12	6	19.47	0-2	2
	1880.0	18900	5	16-QAM	12	13	19.43	0-2	2
	1880.0	18900	5	16-QAM	25	0	19.56	0-2	2
High	1907.5	19175	5	QPSK	1	0	21.59	0	0
	1907.5	19175	5	QPSK	1	12	21.62	0	0
	1907.5	19175	5	QPSK	1	24	21.58	0	0
	1907.5	19175	5	QPSK	12	0	20.64	0-1	1
	1907.5	19175	5	QPSK	12	6	20.62	0-1	1
	1907.5	19175	5	QPSK	12	13	20.65	0-1	1
	1907.5	19175	5	QPSK	25	0	20.62	0-1	1
	1907.5	19175	5	16-QAM	1	0	20.59	0-1	1
	1907.5	19175	5	16-QAM	1	12	20.60	0-1	1
	1907.5	19175	5	16-QAM	1	24	20.62	0-1	1
	1907.5	19175	5	16-QAM	12	0	19.59	0-2	2
	1907.5	19175	5	16-QAM	12	6	19.63	0-2	2
	1907.5	19175	5	16-QAM	12	13	19.65	0-2	2
	1907.5	19175	5	16-QAM	25	0	19.67	0-2	2

Table 9-31
Reduced LTE Band 2 (PCS) Conducted Powers - 3 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1851.5	18615	3	QPSK	1	0	21.51	0	0
	1851.5	18615	3	QPSK	1	7	21.52	0	0
	1851.5	18615	3	QPSK	1	14	21.59	0	0
	1851.5	18615	3	QPSK	8	0	20.45	0-1	1
	1851.5	18615	3	QPSK	8	4	20.45	0-1	1
	1851.5	18615	3	QPSK	8	7	20.49	0-1	1
	1851.5	18615	3	QPSK	15	0	20.53	0-1	1
	1851.5	18615	3	16-QAM	1	0	20.59	0-1	1
	1851.5	18615	3	16-QAM	1	7	20.62	0-1	1
	1851.5	18615	3	16-QAM	1	14	20.68	0-1	1
	1851.5	18615	3	16-QAM	8	0	19.50	0-2	2
	1851.5	18615	3	16-QAM	8	4	19.52	0-2	2
	1851.5	18615	3	16-QAM	8	7	19.54	0-2	2
	1851.5	18615	3	16-QAM	15	0	19.48	0-2	2
Mid	1880.0	18900	3	QPSK	1	0	21.39	0	0
	1880.0	18900	3	QPSK	1	7	21.38	0	0
	1880.0	18900	3	QPSK	1	14	21.32	0	0
	1880.0	18900	3	QPSK	8	0	20.44	0-1	1
	1880.0	18900	3	QPSK	8	4	20.39	0-1	1
	1880.0	18900	3	QPSK	8	7	20.46	0-1	1
	1880.0	18900	3	QPSK	15	0	20.45	0-1	1
	1880.0	18900	3	16-QAM	1	0	20.35	0-1	1
	1880.0	18900	3	16-QAM	1	7	20.31	0-1	1
	1880.0	18900	3	16-QAM	1	14	20.26	0-1	1
	1880.0	18900	3	16-QAM	8	0	19.51	0-2	2
	1880.0	18900	3	16-QAM	8	4	19.45	0-2	2
	1880.0	18900	3	16-QAM	8	7	19.52	0-2	2
	1880.0	18900	3	16-QAM	15	0	19.52	0-2	2
High	1908.5	19185	3	QPSK	1	0	21.72	0	0
	1908.5	19185	3	QPSK	1	7	21.68	0	0
	1908.5	19185	3	QPSK	1	14	21.70	0	0
	1908.5	19185	3	QPSK	8	0	20.62	0-1	1
	1908.5	19185	3	QPSK	8	4	20.65	0-1	1
	1908.5	19185	3	QPSK	8	7	20.60	0-1	1
	1908.5	19185	3	QPSK	15	0	20.62	0-1	1
	1908.5	19185	3	16-QAM	1	0	20.82	0-1	1
	1908.5	19185	3	16-QAM	1	7	20.74	0-1	1
	1908.5	19185	3	16-QAM	1	14	20.70	0-1	1
	1908.5	19185	3	16-QAM	8	0	19.58	0-2	2
	1908.5	19185	3	16-QAM	8	4	19.54	0-2	2
	1908.5	19185	3	16-QAM	8	7	19.60	0-2	2
	1908.5	19185	3	16-QAM	15	0	19.72	0-2	2

Table 9-32
Reduced LTE Band 2 (PCS) Conducted Powers -1.4 MHz Bandwidth
(Representing Hotspot Mode)

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1850.7	18607	1.4	QPSK	1	0	21.49	0	0
	1850.7	18607	1.4	QPSK	1	2	21.50	0	0
	1850.7	18607	1.4	QPSK	1	5	21.54	0	0
	1850.7	18607	1.4	QPSK	3	0	21.40	0	0
	1850.7	18607	1.4	QPSK	3	2	21.39	0	0
	1850.7	18607	1.4	QPSK	3	3	21.47	0	0
	1850.7	18607	1.4	QPSK	6	0	20.51	0-1	1
	1850.7	18607	1.4	16-QAM	1	0	20.65	0-1	1
	1850.7	18607	1.4	16-QAM	1	2	20.60	0-1	1
	1850.7	18607	1.4	16-QAM	1	5	20.65	0-1	1
	1850.7	18607	1.4	16-QAM	3	0	20.27	0-1	1
	1850.7	18607	1.4	16-QAM	3	2	20.29	0-1	1
	1850.7	18607	1.4	16-QAM	3	3	20.35	0-1	1
	1850.7	18607	1.4	16-QAM	6	0	19.58	0-2	2
Mid	1880.0	18900	1.4	QPSK	1	0	21.58	0	0
	1880.0	18900	1.4	QPSK	1	2	21.52	0	0
	1880.0	18900	1.4	QPSK	1	5	21.62	0	0
	1880.0	18900	1.4	QPSK	3	0	21.45	0	0
	1880.0	18900	1.4	QPSK	3	2	21.43	0	0
	1880.0	18900	1.4	QPSK	3	3	21.49	0	0
	1880.0	18900	1.4	QPSK	6	0	20.53	0-1	1
	1880.0	18900	1.4	16-QAM	1	0	20.30	0-1	1
	1880.0	18900	1.4	16-QAM	1	2	20.28	0-1	1
	1880.0	18900	1.4	16-QAM	1	5	20.32	0-1	1
	1880.0	18900	1.4	16-QAM	3	0	20.50	0-1	1
	1880.0	18900	1.4	16-QAM	3	2	20.48	0-1	1
	1880.0	18900	1.4	16-QAM	3	3	20.55	0-1	1
	1880.0	18900	1.4	16-QAM	6	0	19.72	0-2	2
High	1909.3	19193	1.4	QPSK	1	0	21.68	0	0
	1909.3	19193	1.4	QPSK	1	2	21.65	0	0
	1909.3	19193	1.4	QPSK	1	5	21.66	0	0
	1909.3	19193	1.4	QPSK	3	0	21.73	0	0
	1909.3	19193	1.4	QPSK	3	2	21.68	0	0
	1909.3	19193	1.4	QPSK	3	3	21.71	0	0
	1909.3	19193	1.4	QPSK	6	0	20.68	0-1	1
	1909.3	19193	1.4	16-QAM	1	0	20.76	0-1	1
	1909.3	19193	1.4	16-QAM	1	2	20.73	0-1	1
	1909.3	19193	1.4	16-QAM	1	5	20.78	0-1	1
	1909.3	19193	1.4	16-QAM	3	0	20.66	0-1	1
	1909.3	19193	1.4	16-QAM	3	2	20.67	0-1	1
	1909.3	19193	1.4	16-QAM	3	3	20.63	0-1	1
	1909.3	19193	1.4	16-QAM	6	0	19.74	0-2	2

9.3 WLAN Conducted Powers

Table 9-33
SISO IEEE 802.11b Average RF Power- Antenna 1

Mode	Freq [MHz]	Channel	802.11b Conducted Power [dBm]			
			Data Rate [Mbps]			
			1	2	5.5	11
802.11b	2412	1*	14.75	15.09	15.12	15.13
802.11b	2437	6*	14.88	15.25	15.27	15.24
802.11b	2462	11*	**15.19**	15.39	15.43	15.42

Table 9-34
SISO IEEE 802.11b Average RF Power- Antenna 2

Mode	Freq [MHz]	Channel	802.11b Conducted Power [dBm]			
			Data Rate [Mbps]			
			1	2	5.5	11
802.11b	2412	1*	14.04	14.20	14.19	14.17
802.11b	2437	6*	14.71	14.92	14.82	14.87
802.11b	2462	11*	**14.72**	14.82	14.87	14.93

Table 9-35
SISO IEEE 802.11g Average RF Power- Antenna 1

Mode	Freq [MHz]	Channel	802.11g Conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11g	2412	1	14.20	14.23	14.20	14.14	14.31	14.24	14.17	14.03
802.11g	2437	6	14.41	14.49	14.41	14.37	14.48	14.42	14.33	14.18
802.11g	2462	11	14.41	14.41	14.45	14.27	14.48	14.41	14.43	14.19

Table 9-36
SISO IEEE 802.11g Average RF Power- Antenna 2

Mode	Freq [MHz]	Channel	802.11g Conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11g	2412	1	14.03	13.94	14.05	13.93	14.12	14.05	14.29	14.08
802.11g	2437	6	14.39	14.31	14.40	14.29	14.43	14.42	14.49	14.44
802.11g	2462	11	13.62	13.58	13.66	13.51	13.62	13.61	13.87	13.66

Table 9-37
SISO IEEE 802.11n Average RF Power- Antenna 1

Mode	Freq [MHz]	Channel	802.11n (2.4GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	2412	1	12.91	12.96	13.01	13.18	13.17	13.27	13.31	13.33
802.11n	2437	6	13.09	13.11	13.23	13.37	13.29	13.43	13.49	13.47
802.11n	2462	11	13.26	13.27	13.33	13.48	13.47	13.47	13.49	13.46

Table 9-38
SISO IEEE 802.11n Average RF Power- Antenna 2

Mode	Freq [MHz]	Channel	802.11n (2.4GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	2412	1	12.77	12.81	12.83	13.08	13.04	13.26	13.18	13.19
802.11n	2437	6	13.34	13.47	13.36	13.43	13.47	13.49	13.47	13.48
802.11n	2462	11	13.24	13.29	13.29	13.47	13.42	13.45	13.49	13.40

Table 9-39
MIMO IEEE 802.11n Average RF Power

20MHz BW 802.11n (2.4 GHz) Conducted Power [dBm]			
Mode	Freq [MHz]	Channel	Data Rate [Mbps]
			13
802.11n	2412	1	15.85
802.11n	2437	6	16.23
802.11n	2462	11	**16.26**

Table 9-40
SISO IEEE 802.11a Average RF Power-Antenna 1

Mode	Freq [MHz]	Channel	802.11a Conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11a	5180	36*	11.98	11.91	11.98	11.89	12.08	12.05	12.16	11.94
802.11a	5200	40	12.11	12.05	12.12	11.95	12.25	12.21	12.26	12.04
802.11a	5220	44	12.16	12.13	12.21	12.04	12.23	12.25	12.37	12.13
802.11a	5240	48*	**12.40**	12.30	12.39	12.33	12.42	12.44	12.49	12.30
802.11a	5260	52*	11.96	11.92	11.91	11.84	12.17	12.09	12.14	12.07
802.11a	5280	56	12.21	12.16	12.17	12.00	12.39	12.33	12.43	12.32
802.11a	5300	60	**12.38**	12.41	12.34	12.22	12.45	12.48	12.49	12.46
802.11a	5320	64*	12.32	12.30	12.28	12.14	12.46	12.49	12.49	12.46
802.11a	5500	100	**12.07**	12.06	12.09	12.06	12.29	12.17	12.28	12.06
802.11a	5520	104*	12.01	12.05	11.98	12.03	12.26	12.05	12.30	12.05
802.11a	5540	108	11.98	11.90	12.03	11.92	12.22	12.13	12.27	12.02
802.11a	5560	112	12.01	12.00	12.06	11.99	12.25	12.09	12.29	12.03
802.11a	5580	116*	12.03	12.06	12.08	12.01	12.28	12.17	12.19	11.98
802.11a	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5660	132	11.71	11.71	11.68	11.68	11.88	11.79	11.91	11.69
802.11a	5680	136*	11.57	11.60	11.63	11.59	11.80	11.72	11.81	11.59
802.11a	5700	140	11.67	11.62	11.69	11.62	11.92	11.82	11.89	11.62
802.11a	5745	149*	**12.03**	12.08	12.01	11.98	12.16	12.11	12.27	11.97
802.11a	5765	153	11.95	11.97	11.93	11.89	12.08	12.07	12.16	11.88
802.11a	5785	157*	11.92	11.99	11.93	11.90	11.97	12.01	12.17	11.84
802.11a	5805	161	11.84	11.91	11.78	11.83	12.05	11.97	12.04	11.87
802.11a	5825	165*	11.87	11.93	11.88	11.81	11.99	11.92	12.02	11.79

Per FCC KDB Publication 443999 and RSS-210 A9.2(3), transmission on channels which overlap the 5600-5650 MHz is prohibited as a client. This device does not transmit any beacons or initiate any transmissions in 5.3 and 5.5 GHz Band.

(*) – indicates default channels per KDB Publication 248227 D01v01r02. When the adjacent channels are higher in power then the default channels, these “required channels” are considered for SAR testing instead of the default channels.

Table 9-41
SISO IEEE 802.11a Average RF Power-Antenna 2

Mode	Freq [MHz]	Channel	802.11a Conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11a	5180	36*	**12.13**	12.23	12.19	12.08	12.34	12.29	12.37	12.29
802.11a	5200	40	12.09	12.24	12.17	12.04	12.23	12.30	12.37	12.31
802.11a	5220	44	12.01	12.15	12.05	11.89	12.18	12.19	12.26	12.22
802.11a	5240	48*	11.95	12.06	12.02	11.91	12.17	12.11	12.20	12.11
802.11a	5260	52*	**11.62**	11.61	11.64	11.61	11.83	11.69	11.86	11.73
802.11a	5280	56	11.59	11.65	11.55	11.50	11.80	11.65	11.84	11.64
802.11a	5300	60	11.41	11.41	11.43	11.35	11.64	11.46	11.56	11.53
802.11a	5320	64*	11.40	11.38	11.36	11.34	11.65	11.47	11.56	11.58
802.11a	5500	100	11.65	11.72	11.64	11.64	11.88	11.87	12.08	11.83
802.11a	5520	104*	11.79	11.85	11.77	11.81	12.01	12.01	12.26	11.91
802.11a	5540	108	11.73	11.77	11.69	11.77	11.95	11.96	12.22	11.90
802.11a	5560	112	11.74	11.80	11.78	11.69	11.94	11.88	12.21	11.93
802.11a	5580	116*	11.82	11.88	11.86	11.83	12.13	11.98	12.29	12.05
802.11a	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5660	132	12.01	12.08	11.99	11.95	12.23	12.26	12.30	12.20
802.11a	5680	136*	12.04	12.11	12.00	12.01	12.21	12.28	12.27	12.25
802.11a	5700	140	**12.06**	12.09	12.10	12.02	12.29	12.22	12.29	12.25
802.11a	5745	149*	12.11	11.91	12.03	11.95	12.21	12.09	12.35	12.06
802.11a	5765	153	12.04	11.90	11.89	11.93	12.20	12.02	12.27	12.06
802.11a	5785	157*	12.21	12.01	12.21	12.04	12.25	12.16	12.47	12.12
802.11a	5805	161	12.26	12.02	12.18	12.07	12.43	12.26	12.46	12.20
802.11a	5825	165*	**12.33**	12.14	12.18	12.18	12.49	12.30	12.49	12.23

Per FCC KDB Publication 443999 and RSS-210 A9.2(3), transmission on channels which overlap the 5600-5650 MHz is prohibited as a client. This device does not transmit any beacons or initiate any transmissions in 5.3 and 5.5 GHz Band.

(*) – indicates default channels per KDB Publication 248227 D01v01r02. When the adjacent channels are higher in power then the default channels, these “required channels” are considered for SAR testing instead of the default channels.

Table 9-42
SISO IEEE 802.11n Average RF Power – 20 MHz Bandwidth- Antenna 1

Mode	Freq [MHz]	Channel	20MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	5180	36	11.83	11.77	11.85	12.31	12.37	12.27	12.31	12.32
802.11n	5200	40	11.85	11.84	11.86	12.32	12.33	12.32	12.36	12.25
802.11n	5220	44	12.02	11.91	12.09	12.49	12.46	12.47	12.47	12.43
802.11n	5240	48	12.09	11.99	12.11	12.47	12.47	12.48	12.44	12.49
802.11n	5260	52	12.08	12.06	12.11	12.35	12.41	12.46	12.45	12.48
802.11n	5280	56	12.09	12.07	12.12	12.29	12.35	12.48	12.41	12.46
802.11n	5300	60	12.04	12.00	12.01	12.35	12.35	12.49	12.40	12.41
802.11n	5320	64	12.16	12.21	12.22	12.44	12.49	12.49	12.44	12.47
802.11n	5500	100	11.85	11.78	11.77	12.11	12.07	12.06	12.05	12.03
802.11n	5520	104	11.92	11.81	11.82	12.22	12.13	12.09	12.07	12.09
802.11n	5540	108	12.14	12.06	12.08	12.27	12.28	12.30	12.29	12.24
802.11n	5560	112	12.15	12.08	12.09	12.29	12.26	12.30	12.28	12.28
802.11n	5580	116	12.09	12.07	12.00	12.28	12.22	12.31	12.29	12.31
802.11n	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5660	132	12.27	12.16	12.22	12.24	12.30	12.28	12.29	12.19
802.11n	5680	136	12.29	12.24	12.16	12.26	12.31	12.31	12.30	12.28
802.11n	5700	140	12.31	12.17	12.16	12.29	12.29	12.27	12.26	12.30
802.11n	5745	149	11.99	11.33	11.29	11.58	11.53	11.58	11.47	11.10
802.11n	5765	153	11.86	11.23	11.19	11.44	11.34	11.49	11.34	11.02
802.11n	5785	157	11.78	11.19	11.04	11.37	11.31	11.38	11.24	10.94
802.11n	5805	161	11.74	11.12	11.05	11.30	11.31	11.37	11.23	10.91
802.11n	5825	165	11.81	11.21	11.17	11.44	11.36	11.46	11.24	10.90

Table 9-43
SISO IEEE 802.11n Average RF Power – 20 MHz Bandwidth- Antenna 2

Mode	Freq [MHz]	Channel	20MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	5180	36	12.04	12.11	12.04	12.31	12.22	12.25	12.33	12.37
802.11n	5200	40	11.97	12.01	12.01	12.21	12.16	12.11	12.33	12.26
802.11n	5220	44	12.03	12.10	12.10	12.24	12.18	12.24	12.26	12.37
802.11n	5240	48	11.81	11.84	11.80	12.01	12.07	12.06	12.09	12.11
802.11n	5260	52	11.51	11.42	11.64	11.65	11.73	11.74	11.71	11.77
802.11n	5280	56	11.41	11.32	11.45	11.52	11.55	11.70	11.61	11.66
802.11n	5300	60	11.38	11.34	11.45	11.53	11.57	11.63	11.61	11.65
802.11n	5320	64	11.29	11.26	11.42	11.43	11.52	11.46	11.50	11.59
802.11n	5500	100	11.62	11.56	11.48	11.74	11.77	11.83	11.87	11.93
802.11n	5520	104	11.63	11.56	11.48	11.70	11.74	11.83	11.90	12.01
802.11n	5540	108	11.67	11.65	11.59	11.86	11.77	11.93	11.92	11.96
802.11n	5560	112	11.57	11.47	11.43	11.72	11.70	11.80	11.78	11.89
802.11n	5580	116	11.67	11.62	11.49	11.79	11.89	11.95	11.92	11.98
802.11n	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5660	132	11.81	11.74	11.66	11.96	11.89	11.99	12.10	12.08
802.11n	5680	136	11.89	11.81	11.73	11.92	12.06	12.11	12.12	12.19
802.11n	5700	140	11.93	11.86	11.84	12.05	12.09	12.09	12.12	12.18
802.11n	5745	149	11.96	12.08	11.94	12.11	12.19	12.22	12.31	12.17
802.11n	5765	153	11.92	12.05	11.90	12.05	12.13	12.18	12.23	12.14
802.11n	5785	157	12.02	12.15	11.92	12.17	12.23	12.27	12.42	12.18
802.11n	5805	161	12.17	12.33	12.12	12.39	12.39	12.45	12.49	12.35
802.11n	5825	165	12.22	12.36	12.24	12.31	12.38	12.44	12.44	12.47

Table 9-44
MIMO IEEE 802.11n Average RF Power – 20 MHz Bandwidth

20MHz BW 802.11n (5GHz) Conducted Power [dBm]			
Mode	Freq [MHz]	Channel	Data Rate [Mbps]
			13
802.11n	5180	36	14.95
802.11n	5200	40	14.92
802.11n	5220	44	**15.04**
802.11n	5240	48	14.96
802.11n	5260	52	**14.81**
802.11n	5280	56	14.77
802.11n	5300	60	14.73
802.11n	5320	64	14.76
802.11n	5500	100	14.75
802.11n	5520	104	14.79
802.11n	5540	108	14.92
802.11n	5560	112	14.88
802.11n	5580	116	14.90
802.11n	5600	120	N/A
802.11n	5620	124	N/A
802.11n	5640	128	N/A
802.11n	5660	132	15.06
802.11n	5680	136	15.10
802.11n	5700	140	**15.13**
802.11n	5745	149	14.93
802.11n	5765	153	14.90
802.11n	5785	157	14.91
802.11n	5805	161	14.97
802.11n	5825	165	**15.03**

Table 9-45
SISO IEEE 802.11n Average RF Power – 40 MHz Bandwidth- Antenna 1

Mode	Freq [MHz]	Channel	40MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			13.5	27	40.5	54	81	108	121.5	135
802.11n	5190	38	8.85	8.69	8.91	8.95	8.96	9.03	9.08	8.91
802.11n	5230	46	9.01	8.78	9.04	9.09	9.19	9.20	9.22	9.09
802.11n	5270	54	9.17	9.22	9.14	9.03	8.85	9.16	9.39	9.38
802.11n	5310	62	9.42	9.47	9.46	9.27	9.08	9.44	9.42	9.48
802.11n	5510	102	9.19	9.17	9.13	9.17	9.46	9.32	9.15	9.33
802.11n	5550	110	8.91	8.81	8.91	8.91	9.21	9.01	8.87	9.04
802.11n	5590	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5630	126	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5670	134	8.83	8.79	8.72	8.79	9.07	9.00	8.84	8.98
802.11n	5755	151	8.73	8.63	8.67	8.89	8.83	8.82	8.84	8.81
802.11n	5795	159	8.67	8.48	8.57	8.78	8.78	8.78	8.76	8.78

Table 9-46
SISO IEEE 802.11n Average RF Power – 40 MHz Bandwidth- Antenna 2

Mode	Freq [MHz]	Channel	40MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			13.5	27	40.5	54	81	108	121.5	135
802.11n	5190	38	8.78	9.30	8.27	9.02	8.26	8.40	8.38	8.26
802.11n	5230	46	8.53	8.99	8.66	8.09	8.79	8.62	9.04	8.90
802.11n	5270	54	8.93	9.27	8.77	8.61	9.24	8.72	8.80	8.72
802.11n	5310	62	8.99	8.74	9.18	8.53	9.30	8.49	9.45	9.26
802.11n	5510	102	9.17	9.38	9.49	9.46	9.08	9.44	9.45	9.06
802.11n	5550	110	9.29	9.27	9.40	9.46	9.06	9.46	9.46	9.42
802.11n	5590	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5630	126	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5670	134	9.47	9.48	9.31	9.49	9.47	9.14	9.13	9.44
802.11n	5755	151	8.58	8.98	8.51	8.97	8.44	8.74	8.06	8.51
802.11n	5795	159	8.64	8.71	8.36	8.62	8.67	8.16	8.79	8.30

Table 9-47
MIMO IEEE 802.11n Average RF Power – 40 MHz Bandwidth

40MHz BW 802.11n (5GHz) Conducted Power [dBm]			
Mode	Freq [MHz]	Channel	Data Rate [Mbps]
			27
802.11n	5190	38	11.83
802.11n	5230	46	11.79
802.11n	5270	54	12.06
802.11n	5310	62	12.22
802.11n	5510	102	12.19
802.11n	5550	110	12.11
802.11n	5590	118	N/A
802.11n	5630	126	N/A
802.11n	5670	134	12.17
802.11n	5755	151	11.67
802.11n	5795	159	11.67

Table 9-48
SISO IEEE 802.11ac Average RF Power – 80 MHz Bandwidth- Antenna 1

Mode	Freq [MHz]	Channel	80MHz BW 802.11ac (5GHz) Conducted Power [dBm]									
			Data Rate [Mbps]									
			29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
802.11ac	5210	42	**10.18**	10.21	10.21	10.40	10.16	10.19	10.25	10.30	10.35	10.28
802.11ac	5290	58	**9.69**	9.74	9.78	9.83	9.72	9.77	9.83	9.86	9.88	9.79
802.11ac	5530	106	**10.31**	10.24	10.33	10.31	10.37	10.42	10.49	10.29	10.38	10.44
802.11ac	5775	155	**9.89**	9.86	9.94	10.11	10.03	9.93	10.03	10.11	9.84	9.91

Table 9-49
SISO IEEE 802.11ac Average RF Power – 80 MHz Bandwidth- Antenna 2

Mode	Freq [MHz]	Channel	80MHz BW 802.11ac (5GHz) Conducted Power [dBm]									
			Data Rate [Mbps]									
			29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
802.11ac	5210	42	**10.15**	10.28	10.09	9.92	9.96	10.33	9.91	9.95	9.90	10.30
802.11ac	5290	58	**9.67**	9.81	9.44	9.31	9.38	9.79	9.84	9.50	9.30	9.89
802.11ac	5530	106	**9.73**	9.77	9.50	9.46	9.71	9.69	9.42	9.39	9.45	9.38
802.11ac	5775	155	**10.06**	10.21	10.22	9.93	10.17	10.21	9.71	9.98	9.87	9.71

Table 9-50
MIMO IEEE 802.11ac Average RF Power – 80 MHz Bandwidth

80MHz BW 802.11ac (5GHz) Conducted Power [dBm]			
Mode	Freq [MHz]	Channel	Data Rate [Mbps]
			58.5
802.11ac	5210	42	13.18
802.11ac	5290	58	12.69
802.11ac	5530	106	13.04
802.11ac	5775	155	12.99

Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012/April 2013 FCC/TCB Meeting Notes:

- For 2.4 GHz SISO operations, highest average RF output power channel for the lowest data rate for IEEE 802.11b were selected for SAR evaluation. Other IEEE 802.11 SISO modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
- For 5 GHz SISO operations, highest average RF output power channel for the lowest data rate for IEEE 802.11a were selected for SAR evaluation. Other IEEE 802.11 SISO modes (including 802.11n 20 MHz and 40 MHz) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
- Full SAR tests for all SISO IEEE 802.11ac configurations were not required because the average output power was not more than 0.25 dB higher than IEEE 802.11a mode. IEEE 802.11ac in SISO mode was evaluated for the highest IEEE 802.11a position in each 5 GHz band and exposure condition.
- For MIMO 2.4 GHz and 5 GHz operations, the highest average RF output power channel for the lowest data rate for IEEE 802.11n (20 MHz bandwidth) was selected for SAR evaluation. Other IEEE 802.11 modes and bandwidths were not investigated for MIMO operations since the maximum allowed output power (including tolerance) was not higher for these modes.
- The individual spectra for each 2x2 MIMO WIFI Antenna were summed mathematically in linear power units for the MIMO output power measurements.
- When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the reported 1g averaged SAR is <0.8 W/kg, SAR testing on other channels is not required. Otherwise, the other default (or corresponding required) test channels were additionally tested using the lowest data rate.
- The bolded data rate and channel above were tested for SAR.

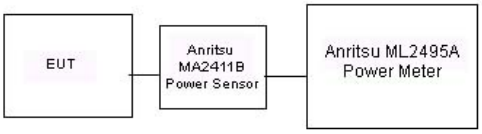

Figure 9-2
Power Measurement Setup for Bandwidths < 50 MHz

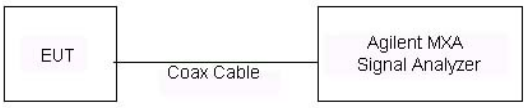

Figure 9-3
Power Measurement Setup for Bandwidths > 50 MHz

10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured 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
10/2/2014	750H	22.3	695	0.846	41.492	0.889	42.227	-4.84%	-1.74%
			710	0.860	41.304	0.890	42.149	-3.37%	-2.00%
			725	0.873	41.084	0.891	42.071	-2.02%	-2.35%
			740	0.887	40.868	0.893	41.994	-0.67%	-2.68%
			755	0.900	40.700	0.894	41.916	0.67%	-2.90%
9/30/2014	835H	22.1	820	0.897	41.532	0.899	41.578	-0.22%	-0.11%
			835	0.911	41.350	0.900	41.500	1.22%	-0.36%
			850	0.926	41.163	0.916	41.500	1.09%	-0.81%
10/13/2014	1750H	21.5	1710	1.322	39.367	1.348	40.142	-1.93%	-1.93%
			1750	1.363	39.190	1.371	40.079	-0.58%	-2.22%
			1790	1.401	38.978	1.394	40.016	0.50%	-2.59%
9/30/2014	1900H	22.9	1850	1.369	39.646	1.400	40.000	-2.21%	-0.88%
			1880	1.400	39.524	1.400	40.000	0.00%	-1.19%
			1910	1.432	39.402	1.400	40.000	2.29%	-1.50%
10/1/2014	2450H	22.3	2401	1.771	41.033	1.756	39.287	0.85%	4.44%
			2450	1.826	40.866	1.800	39.200	1.44%	4.25%
			2499	1.879	40.704	1.853	39.138	1.40%	4.00%
10/01/2014	5200H-5800H	23.9	5180	4.502	36.196	4.635	36.009	-2.87%	0.52%
			5200	4.508	36.165	4.655	35.986	-3.16%	0.50%
			5220	4.545	36.122	4.676	35.963	-2.80%	0.44%
			5240	4.570	36.086	4.696	35.940	-2.68%	0.41%
			5260	4.590	36.102	4.717	35.917	-2.69%	0.52%
			5280	4.597	36.083	4.737	35.894	-2.96%	0.53%
			5300	4.616	36.035	4.758	35.871	-2.98%	0.46%
			5500	4.808	35.764	4.963	35.643	-3.12%	0.34%
			5520	4.840	35.750	4.983	35.620	-2.87%	0.36%
			5540	4.857	35.731	5.004	35.597	-2.94%	0.38%
			5580	4.879	35.671	5.045	35.551	-3.29%	0.34%
			5600	4.909	35.654	5.065	35.529	-3.08%	0.35%
			5700	5.007	35.509	5.168	35.414	-3.12%	0.27%
			5745	5.075	35.493	5.214	35.363	-2.67%	0.37%
			5765	5.085	35.476	5.234	35.340	-2.85%	0.38%
			5785	5.097	35.469	5.255	35.317	-3.01%	0.43%
			5800	5.103	35.411	5.270	35.300	-3.17%	0.31%
			5825	5.132	35.368	5.296	35.271	-3.10%	0.28%
10/1/2014	750B	21.9	695	0.927	57.030	0.959	55.745	-3.34%	2.31%
			710	0.941	56.874	0.960	55.687	-1.98%	2.13%
			725	0.954	56.723	0.961	55.629	-0.73%	1.97%
			740	0.967	56.578	0.963	55.570	0.42%	1.81%
			755	0.982	56.466	0.964	55.512	1.87%	1.72%
9/30/2014	835B	21.4	820	0.931	53.389	0.969	55.258	-3.92%	-3.38%
			835	0.944	53.276	0.970	55.200	-2.68%	-3.49%
			850	0.960	53.155	0.988	55.154	-2.83%	-3.62%
10/6/2014	1750B	22.0	1710	1.443	51.778	1.463	53.537	-1.37%	-3.29%
			1750	1.488	51.603	1.488	53.432	0.00%	-3.42%
			1790	1.531	51.424	1.514	53.326	1.12%	-3.57%
10/6/2014	1900B	21.8	1850	1.516	51.021	1.520	53.300	-0.26%	-4.28%
			1880	1.549	50.915	1.520	53.300	1.91%	-4.47%
			1910	1.585	50.800	1.520	53.300	4.28%	-4.69%
10/9/2014	1900B	21.9	1850	1.513	50.981	1.520	53.300	-0.46%	-4.35%
			1880	1.546	50.899	1.520	53.300	1.71%	-4.50%
			1910	1.581	50.775	1.520	53.300	4.01%	-4.74%
10/6/2014	2450B	23.0	2401	1.936	51.417	1.903	52.765	1.73%	-2.55%
			2450	2.009	51.248	1.950	52.700	3.03%	-2.76%
			2499	2.071	51.082	2.019	52.638	2.58%	-2.96%
10/06/2014	5200B-5800B	19.6	5180	5.404	47.774	5.276	49.041	2.43%	-2.58%
			5200	5.420	47.805	5.299	49.014	2.28%	-2.47%
			5220	5.451	47.750	5.323	48.987	2.40%	-2.53%
			5240	5.473	47.679	5.346	48.960	2.38%	-2.62%
			5260	5.493	47.691	5.369	48.933	2.31%	-2.54%
			5280	5.531	47.698	5.393	48.906	2.56%	-2.47%
			5300	5.556	47.628	5.416	48.879	2.58%	-2.56%
			5500	5.831	47.472	5.650	48.607	3.20%	-2.34%
			5520	5.869	47.446	5.673	48.580	3.45%	-2.33%
			5540	5.892	47.380	5.696	48.553	3.44%	-2.42%
			5600	5.981	47.360	5.766	48.471	3.73%	-2.29%
			5700	6.115	47.175	5.883	48.336	3.94%	-2.40%
			5745	6.125	47.097	5.936	48.275	3.18%	-2.44%
			5765	6.163	46.993	5.959	48.248	3.42%	-2.60%
			5785	6.190	46.923	5.982	48.220	3.48%	-2.69%
			5800	6.213	46.890	6.000	48.200	3.55%	-2.72%
			5825	6.251	46.938	6.029	48.166	3.68%	-2.55%

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 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 E.

Table 10-2
System Verification Results

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Dipole SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	Deviation$_{1g}$ (%)
J	750	HEAD	10/02/2014	23.7	22.3	0.100	1003	3022	0.820	8.370	8.200	-2.03%
J	835	HEAD	09/30/2014	22.7	22.7	0.100	4d119	3022	0.999	9.220	9.990	8.35%
G	1750	HEAD	10/13/2014	24.1	22.0	0.100	1008	3258	3.450	36.900	34.500	-6.50%
D	1900	HEAD	09/30/2014	24.3	22.9	0.100	5d141	3263	4.100	40.100	41.000	2.24%
G	2450	HEAD	10/01/2014	24.1	22.7	0.100	797	3258	5.390	51.800	53.900	4.05%
E	5200	HEAD	10/01/2014	24.5	24.0	0.100	1057	3914	7.390	78.000	73.900	-5.26%
E	5300	HEAD	10/01/2014	24.5	24.0	0.100	1057	3914	7.720	83.000	77.200	-6.99%
E	5500	HEAD	10/01/2014	24.4	24.0	0.100	1057	3914	7.800	84.300	78.000	-7.47%
E	5600	HEAD	10/01/2014	24.4	24.1	0.100	1057	3914	8.370	83.500	83.700	0.24%
E	5800	HEAD	10/01/2014	24.4	24.1	0.100	1057	3914	7.460	79.300	74.600	-5.93%
J	750	BODY	10/01/2014	24.2	22.2	0.100	1003	3022	0.887	8.770	8.870	1.14%
C	835	BODY	09/30/2014	23.8	21.4	0.100	4d132	3213	1.020	9.580	10.200	6.47%
K	1750	BODY	10/06/2014	22.5	21.8	0.100	1008	3287	3.930	37.600	39.300	4.52%
H	1900	BODY	10/06/2014	23.9	22.5	0.100	5d141	3319	4.090	40.600	40.900	0.74%
H	1900	BODY	10/09/2014	22.8	22.1	0.100	5d141	3319	4.330	40.600	43.300	6.65%
D	2450	BODY	10/06/2014	24.5	23.0	0.100	797	3263	5.300	49.400	53.000	7.29%
A	5200	BODY	10/06/2014	20.6	21.5	0.100	1120	3920	7.770	74.000	77.700	5.00%
A	5300	BODY	10/06/2014	20.6	21.5	0.100	1120	3920	8.050	75.800	80.500	6.20%
A	5500	BODY	10/06/2014	20.6	21.5	0.100	1120	3920	8.410	79.200	84.100	6.19%
A	5600	BODY	10/06/2014	20.6	21.5	0.100	1120	3920	8.560	79.400	85.600	7.81%
A	5800	BODY	10/06/2014	20.6	21.5	0.100	1120	3920	7.630	74.400	76.300	2.55%

System Verification TARGET & MEASURED													
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Dipole SN	Probe SN	Measured SAR_{1g} (W/kg)	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g}	Deviation$_{10g}$ (%)
H	1900	BODY	10/06/2014	23.9	22.5	0.100	5d141	3319	4.090	2.150	21.600	21.500	-0.46%
H	1900	BODY	10/09/2014	22.8	22.1	0.100	5d141	3319	4.330	2.260	21.600	22.600	4.63%
A	5200	BODY	10/06/2014	20.6	21.5	0.100	1120	3920	7.770	2.180	20.700	21.800	5.31%
A	5300	BODY	10/06/2014	20.6	21.5	0.100	1120	3920	8.050	2.240	21.300	22.400	5.16%
A	5500	BODY	10/06/2014	20.6	21.5	0.100	1120	3920	8.410	2.330	22.000	23.300	5.91%
A	5600	BODY	10/06/2014	20.6	21.5	0.100	1120	3920	8.560	2.360	22.000	23.600	7.27%

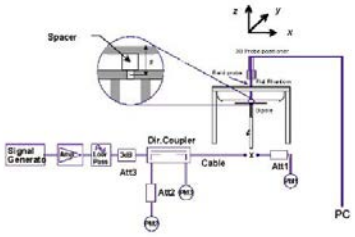

Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
Cell. CDMA Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	23.90	0.07	Right	Cheek	Standard	16	1:1	0.208	1.288	0.268	A1
836.52	384	Cell. CDMA	RC3 / SO55	25.0	23.90	-0.02	Right	Cheek	Wireless Charging	16	1:1	0.194	1.288	0.250	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	23.90	0.06	Right	Tilt	Standard	16	1:1	0.089	1.288	0.115	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	23.90	0.01	Left	Cheek	Standard	16	1:1	0.133	1.288	0.171	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	23.90	-0.02	Left	Tilt	Standard	16	1:1	0.091	1.288	0.117	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	23.95	0.08	Right	Cheek	Standard	16	1:1	0.193	1.274	0.246	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	23.95	-0.15	Right	Cheek	Wireless Charging	16	1:1	0.188	1.274	0.240	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	23.95	0.05	Right	Tilt	Standard	16	1:1	0.083	1.274	0.106	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	23.95	-0.04	Left	Cheek	Standard	16	1:1	0.123	1.274	0.157	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	23.95	0.19	Left	Tilt	Standard	16	1:1	0.078	1.274	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 11-2
PCS CDMA Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.08	0.06	Right	Cheek	Standard	16	1:1	0.175	1.236	0.216	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.08	0.05	Right	Tilt	Standard	16	1:1	0.088	1.236	0.109	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.08	-0.04	Left	Cheek	Standard	16	1:1	0.178	1.236	0.220	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.08	-0.07	Left	Cheek	Wireless Charging	16	1:1	0.175	1.236	0.216	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.08	0.10	Left	Tilt	Standard	16	1:1	0.086	1.236	0.106	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.01	-0.10	Right	Cheek	Standard	16	1:1	0.153	1.256	0.192	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.01	-0.02	Right	Tilt	Standard	16	1:1	0.075	1.256	0.094	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.01	-0.09	Left	Cheek	Standard	16	1:1	0.184	1.256	0.231	A2
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.01	-0.02	Left	Cheek	Wireless Charging	16	1:1	0.183	1.256	0.230	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.01	-0.01	Left	Tilt	Standard	16	1:1	0.088	1.256	0.111	
1880.00	600	PCS CDMA	EVDO Rev. A	22.0	21.58	0.04	Right	Cheek	Standard	20	1:1	0.090	1.102	0.099	
1880.00	600	PCS CDMA	EVDO Rev. A	22.0	21.58	-0.18	Right	Tilt	Standard	20	1:1	0.039	1.102	0.043	
1880.00	600	PCS CDMA	EVDO Rev. A	22.0	21.58	-0.03	Left	Cheek	Standard	20	1:1	0.101	1.102	0.111	
1880.00	600	PCS CDMA	EVDO Rev. A	22.0	21.58	0.13	Left	Tilt	Standard	20	1:1	0.046	1.102	0.051	
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
LTE Band 12 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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	Scaled SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	0.21	0	Right	Cheek	QPSK	1	0	15	1:1	0.089	1.035	0.092	
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	0.01	1	Right	Cheek	QPSK	25	0	15	1:1	0.069	1.042	0.072	
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	0.10	0	Right	Tilt	QPSK	1	0	15	1:1	0.047	1.035	0.049	
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	0.06	1	Right	Tilt	QPSK	25	0	15	1:1	0.036	1.042	0.038	
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	0.01	0	Left	Cheek	QPSK	1	0	15	1:1	0.090	1.035	0.093	
707.50	23095	Mid	LTE Band 12	10	Wireless Charging	24.5	24.35	0.07	0	Left	Cheek	QPSK	1	0	15	1:1	0.098	1.035	0.101	A3
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	-0.01	1	Left	Cheek	QPSK	25	0	15	1:1	0.071	1.042	0.074	
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	0.03	0	Left	Tilt	QPSK	1	0	15	1:1	0.052	1.035	0.054	
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	0.12	1	Left	Tilt	QPSK	25	0	15	1:1	0.039	1.042	0.041	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-4
LTE Band 5 (Cell) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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	Scaled SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	0.00	0	Right	Cheek	QPSK	1	0	13	1:1	0.193	1.062	0.205	A4
836.50	20525	Mid	LTE Band 5 (Cell)	10	Wireless Charging	24.5	24.24	-0.09	0	Right	Cheek	QPSK	1	0	13	1:1	0.184	1.062	0.195	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	0.03	1	Right	Cheek	QPSK	25	25	13	1:1	0.188	1.091	0.205	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	0.12	0	Right	Tilt	QPSK	1	0	13	1:1	0.085	1.062	0.090	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	0.09	1	Right	Tilt	QPSK	25	25	13	1:1	0.082	1.091	0.089	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	-0.09	0	Left	Cheek	QPSK	1	0	13	1:1	0.124	1.062	0.132	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	0.01	1	Left	Cheek	QPSK	25	25	13	1:1	0.118	1.091	0.129	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	0.15	0	Left	Tilt	QPSK	1	0	13	1:1	0.081	1.062	0.086	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	0.10	1	Left	Tilt	QPSK	25	25	13	1:1	0.069	1.091	0.075	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Head 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-5
LTE Band 4 (AWS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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	Scaled SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	23.5	23.44	-0.04	0	Right	Cheek	QPSK	1	0	12	1:1	0.186	1.014	0.189	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.5	22.29	0.04	1	Right	Cheek	QPSK	50	25	12	1:1	0.156	1.050	0.164	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	23.5	23.44	0.02	0	Right	Tilt	QPSK	1	0	12	1:1	0.123	1.014	0.125	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.5	22.29	0.13	1	Right	Tilt	QPSK	50	25	12	1:1	0.099	1.050	0.104	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	23.5	23.44	-0.01	0	Left	Cheek	QPSK	1	0	12	1:1	0.277	1.014	**0.281**	A5
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Wireless Charging	23.5	23.44	0.13	0	Left	Cheek	QPSK	1	0	12	1:1	0.254	1.014	0.258	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.5	22.29	0.01	1	Left	Cheek	QPSK	50	25	12	1:1	0.198	1.050	0.208	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	23.5	23.44	0.03	0	Left	Tilt	QPSK	1	0	12	1:1	0.108	1.014	0.110	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.5	22.29	0.19	1	Left	Tilt	QPSK	50	25	12	1:1	0.089	1.050	0.093	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.0	21.65	0.04	0	Right	Cheek	QPSK	1	0	20	1:1	0.106	1.084	0.115	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.67	0.19	1	Right	Cheek	QPSK	50	25	20	1:1	0.106	1.079	0.114	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.0	21.65	0.14	0	Right	Tilt	QPSK	1	0	20	1:1	0.060	1.084	0.065	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.67	0.00	1	Right	Tilt	QPSK	50	25	20	1:1	0.056	1.079	0.060	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.0	21.65	-0.12	0	Left	Cheek	QPSK	1	0	20	1:1	0.123	1.084	0.133	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.67	0.13	1	Left	Cheek	QPSK	50	25	20	1:1	0.118	1.079	0.127	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.0	21.65	0.14	0	Left	Tilt	QPSK	1	0	20	1:1	0.060	1.084	0.065	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.67	-0.14	1	Left	Tilt	QPSK	50	25	20	1:1	0.056	1.079	0.060	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Head 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-6
LTE Band 2 (PCS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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	Scaled SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	23.5	23.49	-0.06	0	Right	Cheek	QPSK	1	50	12	1:1	0.190	1.002	0.190	A6
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Wireless Charging	23.5	23.49	-0.05	0	Right	Cheek	QPSK	1	50	12	1:1	0.189	1.002	0.189	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	22.5	22.28	0.04	1	Right	Cheek	QPSK	50	0	12	1:1	0.159	1.052	0.167	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	23.5	23.49	-0.11	0	Right	Tilt	QPSK	1	50	12	1:1	0.096	1.002	0.096	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	22.5	22.28	0.02	1	Right	Tilt	QPSK	50	0	12	1:1	0.077	1.052	0.081	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	23.5	23.49	0.03	0	Left	Cheek	QPSK	1	50	12	1:1	0.176	1.002	0.176	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	22.5	22.28	0.04	1	Left	Cheek	QPSK	50	0	12	1:1	0.155	1.052	0.163	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	23.5	23.49	0.07	0	Left	Tilt	QPSK	1	50	12	1:1	0.094	1.002	0.094	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	22.5	22.28	0.04	1	Left	Tilt	QPSK	50	0	12	1:1	0.072	1.052	0.076	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.0	21.68	0.17	0	Right	Cheek	QPSK	1	99	20	1:1	0.114	1.076	0.123	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	21.0	20.86	0.01	1	Right	Cheek	QPSK	50	0	20	1:1	0.074	1.033	0.076	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.0	21.68	-0.07	0	Right	Tilt	QPSK	1	99	20	1:1	0.050	1.076	0.054	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	21.0	20.86	0.09	1	Right	Tilt	QPSK	50	0	20	1:1	0.032	1.033	0.033	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.0	21.68	-0.02	0	Left	Cheek	QPSK	1	99	20	1:1	0.092	1.076	0.099	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	21.0	20.86	0.08	1	Left	Cheek	QPSK	50	0	20	1:1	0.071	1.033	0.073	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.0	21.68	0.12	0	Left	Tilt	QPSK	1	99	20	1:1	0.028	1.076	0.030	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	21.0	20.86	0.20	1	Left	Tilt	QPSK	50	0	20	1:1	0.032	1.033	0.033	
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
DTS Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
2462	11	IEEE 802.11b	DSSS	15.5	15.19	0.12	Right	Cheek	1	Standard	1	1	1:1	0.080	1.074	0.086	
2462	11	IEEE 802.11b	DSSS	15.5	15.19	0.12	Right	Tilt	1	Standard	1	1	1:1	0.056	1.074	0.060	
2462	11	IEEE 802.11b	DSSS	15.5	15.19	0.13	Left	Cheek	1	Standard	1	1	1:1	0.061	1.074	0.066	
2462	11	IEEE 802.11b	DSSS	15.5	15.19	0.14	Left	Tilt	1	Standard	1	1	1:1	0.042	1.074	0.045	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	0.05	Right	Cheek	2	Standard	1	1	1:1	0.440	1.197	0.527	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	-0.03	Right	Tilt	2	Standard	1	1	1:1	0.252	1.197	0.302	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	0.18	Left	Cheek	2	Standard	1	1	1:1	0.467	1.197	0.559	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	0.19	Left	Cheek	2	Wireless Charging	1	1	1:1	0.520	1.197	**0.622**	A7
2462	11	IEEE 802.11b	DSSS	15.5	14.72	0.13	Left	Tilt	2	Standard	1	1	1:1	0.254	1.197	0.304	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	0.10	Right	Cheek	MIMO	Standard	1	13	1:1	0.313	1.057	0.331	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	-0.05	Right	Cheek	MIMO	Wireless Charging	1	13	1:1	0.352	1.057	0.372	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	0.08	Right	Tilt	MIMO	Standard	1	13	1:1	0.158	1.057	0.167	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	0.13	Left	Cheek	MIMO	Standard	1	13	1:1	0.300	1.057	0.317	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	0.14	Left	Tilt	MIMO	Standard	1	13	1:1	0.162	1.057	0.171	
5745	149	IEEE 802.11a	OFDM	12.5	12.03	-0.19	Right	Cheek	1	Standard	17	6	1:1	0.000	1.114	0.000	
5775	155	IEEE 802.11ac	OFDM	10.5	9.89	0.00	Right	Cheek	1	Standard	17	29.3	1:1	0.000	1.151	0.000	
5745	149	IEEE 802.11a	OFDM	12.5	12.03	0.00	Right	Tilt	1	Standard	17	6	1:1	0.000	1.114	0.000	
5745	149	IEEE 802.11a	OFDM	12.5	12.03	-0.17	Left	Cheek	1	Standard	17	6	1:1	0.000	1.114	0.000	
5745	149	IEEE 802.11a	OFDM	12.5	12.03	0.00	Left	Tilt	1	Standard	17	6	1:1	0.000	1.114	0.000	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.13	Right	Cheek	2	Standard	17	6	1:1	0.107	1.040	0.111	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.13	Right	Tilt	2	Standard	17	6	1:1	0.064	1.040	0.067	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.10	Left	Cheek	2	Standard	17	6	1:1	0.130	1.040	0.135	
5775	155	IEEE 802.11ac	OFDM	10.5	10.06	0.15	Left	Cheek	2	Standard	17	29.3	1:1	0.090	1.107	0.100	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.07	Left	Tilt	2	Standard	17	6	1:1	0.084	1.040	0.087	
5825	165	IEEE 802.11n	OFDM	15.5	15.03	0.13	Right	Cheek	MIMO	Standard	17	13	1:1	0.140	1.114	0.156	
5825	165	IEEE 802.11n	OFDM	15.5	15.03	0.15	Right	Tilt	MIMO	Standard	17	13	1:1	0.102	1.114	0.114	
5825	165	IEEE 802.11n	OFDM	15.5	15.03	0.12	Left	Cheek	MIMO	Standard	17	13	1:1	0.220	1.114	0.245	A8
5825	165	IEEE 802.11n	OFDM	15.5	15.03	0.07	Left	Tilt	MIMO	Standard	17	13	1:1	0.120	1.114	0.134	
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
NII Head SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	0.13	Right	Cheek	1	Standard	17	6	1:1	0.008	1.023	0.008	
5210	42	IEEE 802.11ac	OFDM	10.5	10.18	0.00	Right	Cheek	1	Standard	17	29.3	1:1	0.000	1.076	0.000	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	0.17	Right	Tilt	1	Standard	17	6	1:1	0.005	1.023	0.005	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	-0.19	Left	Cheek	1	Standard	17	6	1:1	0.003	1.023	0.003	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	-0.19	Left	Tilt	1	Standard	17	6	1:1	0.005	1.023	0.005	
5300	60	IEEE 802.11a	OFDM	12.5	12.38	0.16	Right	Cheek	1	Standard	17	6	1:1	0.007	1.028	0.007	
5290	58	IEEE 802.11ac	OFDM	10.5	9.69	0.19	Right	Cheek	1	Standard	17	29.3	1:1	0.000	1.205	0.000	
5300	60	IEEE 802.11a	OFDM	12.5	12.38	0.00	Right	Tilt	1	Standard	17	6	1:1	0.003	1.028	0.003	
5300	60	IEEE 802.11a	OFDM	12.5	12.38	-0.18	Left	Cheek	1	Standard	17	6	1:1	0.006	1.028	0.006	
5300	60	IEEE 802.11a	OFDM	12.5	12.38	-0.13	Left	Tilt	1	Standard	17	6	1:1	0.001	1.028	0.001	
5500	100	IEEE 802.11a	OFDM	12.5	12.07	-0.13	Right	Cheek	1	Standard	17	6	1:1	0.005	1.104	0.006	
5500	100	IEEE 802.11a	OFDM	12.5	12.07	0.19	Right	Tilt	1	Standard	17	6	1:1	0.001	1.104	0.001	
5500	100	IEEE 802.11a	OFDM	12.5	12.07	-0.19	Left	Cheek	1	Standard	17	6	1:1	0.000	1.104	0.000	
5500	100	IEEE 802.11a	OFDM	12.5	12.07	0.19	Left	Tilt	1	Standard	17	6	1:1	0.006	1.104	0.007	
5530	106	IEEE 802.11ac	OFDM	10.5	10.31	-0.14	Left	Tilt	1	Standard	17	29.3	1:1	0.006	1.045	0.006	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	0.15	Right	Cheek	2	Standard	17	6	1:1	0.093	1.089	0.101	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	-0.15	Right	Tilt	2	Standard	17	6	1:1	0.092	1.089	0.100	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	0.12	Left	Cheek	2	Standard	17	6	1:1	0.248	1.089	0.270	
5220	44	IEEE 802.11a	OFDM	12.5	12.01	0.12	Left	Cheek	2	Standard	17	6	1:1	0.232	1.119	0.260	
5210	42	IEEE 802.11ac	OFDM	10.5	10.15	0.12	Left	Cheek	2	Standard	17	29.3	1:1	0.131	1.084	0.142	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	0.17	Left	Tilt	2	Standard	17	6	1:1	0.099	1.089	0.108	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	0.17	Right	Cheek	2	Standard	17	6	1:1	0.101	1.225	0.124	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	0.12	Right	Tilt	2	Standard	17	6	1:1	0.104	1.225	0.127	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	-0.08	Left	Cheek	2	Standard	17	6	1:1	0.223	1.225	0.273	
5290	58	IEEE 802.11ac	OFDM	10.5	9.67	0.15	Left	Cheek	2	Standard	17	29.3	1:1	0.093	1.211	0.113	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	0.13	Left	Tilt	2	Standard	17	6	1:1	0.113	1.225	0.138	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	0.13	Right	Cheek	2	Standard	17	6	1:1	0.163	1.107	0.180	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	0.15	Right	Tilt	2	Standard	17	6	1:1	0.129	1.107	0.143	
5520	104	IEEE 802.11a	OFDM	12.5	11.79	0.16	Left	Cheek	2	Standard	17	6	1:1	0.233	1.178	0.274	
5580	116	IEEE 802.11a	OFDM	12.5	11.82	0.09	Left	Cheek	2	Standard	17	6	1:1	0.259	1.169	0.303	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	0.13	Left	Cheek	2	Standard	17	6	1:1	0.287	1.107	0.318	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	0.03	Left	Cheek	2	Wireless Charging	17	6	1:1	0.248	1.107	0.275	
5530	106	IEEE 802.11ac	OFDM	10.5	9.73	0.15	Left	Cheek	2	Standard	17	29.3	1:1	0.141	1.194	0.168	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	0.08	Left	Tilt	2	Standard	17	6	1:1	0.170	1.107	0.188	
5180	36	IEEE 802.11n	OFDM	15.5	14.95	-0.01	Right	Cheek	MIMO	Standard	17	13	1:1	0.205	1.135	0.233	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	0.09	Right	Cheek	MIMO	Standard	17	13	1:1	0.169	1.112	0.188	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	0.18	Right	Tilt	MIMO	Standard	17	13	1:1	0.127	1.112	0.141	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	-0.12	Left	Cheek	MIMO	Standard	17	13	1:1	0.310	1.112	0.345	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	0.13	Left	Tilt	MIMO	Standard	17	13	1:1	0.225	1.112	0.250	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	-0.09	Right	Cheek	MIMO	Standard	17	13	1:1	0.137	1.172	0.161	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	-0.19	Right	Tilt	MIMO	Standard	17	13	1:1	0.128	1.172	0.150	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	0.01	Left	Cheek	MIMO	Standard	17	13	1:1	0.276	1.172	0.323	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	-0.04	Left	Tilt	MIMO	Standard	17	13	1:1	0.232	1.172	0.272	
5700	140	IEEE 802.11n	OFDM	15.5	15.13	-0.02	Right	Cheek	MIMO	Standard	17	13	1:1	0.234	1.089	0.255	
5700	140	IEEE 802.11n	OFDM	15.5	15.13	0.16	Right	Tilt	MIMO	Standard	17	13	1:1	0.139	1.089	0.151	
5540	108	IEEE 802.11n	OFDM	15.5	14.92	0.14	Left	Cheek	MIMO	Standard	17	13	1:1	0.206	1.143	0.235	
5580	116	IEEE 802.11n	OFDM	15.5	14.90	0.12	Left	Cheek	MIMO	Standard	17	13	1:1	0.240	1.148	0.276	
5700	140	IEEE 802.11n	OFDM	15.5	15.13	0.15	Left	Cheek	MIMO	Standard	17	13	1:1	0.320	1.089	0.348	A9
5700	140	IEEE 802.11n	OFDM	15.5	15.13	0.08	Left	Cheek	MIMO	Wireless Charging	17	13	1:1	0.310	1.089	0.338	
5700	140	IEEE 802.11n	OFDM	15.5	15.13	0.14	Left	Tilt	MIMO	Standard	17	13	1:1	0.203	1.089	0.221	

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 11-9
CDMA Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Cover Type	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.52	384	Cell. CDMA	TDSO / SO32	25.0	23.90	-0.03	10 mm	Standard	16	1:1	back	0.467	1.288	**0.601**	A10
836.52	384	Cell. CDMA	TDSO / SO32	25.0	23.90	0.00	10 mm	Wireless Charging	16	1:1	back	0.339	1.288	0.437	
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.06	0.00	15 mm	Standard	16	1:1	back	0.269	1.242	0.334	A12
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.06	0.00	15 mm	Wireless Charging	16	1:1	back	0.247	1.242	0.307	
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 11-10
LTE Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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	Scaled SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	0.16	0	15	QPSK	1	0	10 mm	back	1:1	0.352	1.035	0.364	A14
707.50	23095	Mid	LTE Band 12	10	Wireless Charging	24.5	24.35	0.04	0	15	QPSK	1	0	10 mm	back	1:1	0.202	1.035	0.209	
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	0.04	1	15	QPSK	25	0	10 mm	back	1:1	0.269	1.042	0.280	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	-0.01	0	12	QPSK	1	0	10 mm	back	1:1	0.355	1.062	0.377	A16
836.50	20525	Mid	LTE Band 5 (Cell)	10	Wireless Charging	24.5	24.24	-0.01	0	12	QPSK	1	0	10 mm	back	1:1	0.314	1.062	0.333	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	-0.06	1	12	QPSK	25	25	10 mm	back	1:1	0.341	1.091	0.372	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	23.5	23.44	-0.04	0	13	QPSK	1	0	15 mm	back	1:1	0.347	1.014	0.352	A18
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Wireless Charging	23.5	23.44	-0.01	0	13	QPSK	1	0	15 mm	back	1:1	0.324	1.014	0.329	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.5	22.29	0.04	1	13	QPSK	50	25	15 mm	back	1:1	0.276	1.050	0.290	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	23.5	23.49	-0.01	0	13	QPSK	1	50	15 mm	back	1:1	0.418	1.002	0.419	A20
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Wireless Charging	23.5	23.49	0.04	0	13	QPSK	1	50	15 mm	back	1:1	0.358	1.002	0.359	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	22.5	22.28	0.00	1	13	QPSK	50	0	15 mm	back	1:1	0.331	1.052	0.348	
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 11-11
DTS Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
2462	11	IEEE 802.11b	DSSS	15.5	15.19	-0.02	10 mm	1	Standard	1	1	back	1:1	0.076	1.074	0.082	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	-0.18	10 mm	2	Standard	1	1	back	1:1	0.585	1.197	0.700	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	-0.04	10 mm	2	Wireless Charging	1	1	back	1:1	0.727	1.197	**0.870**	A22
2462	11	IEEE 802.11n	OFDM	16.5	16.26	-0.08	10 mm	MIMO	Standard	1	13	back	1:1	0.361	1.057	0.382	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	-0.10	10 mm	MIMO	Wireless Charging	1	13	back	1:1	0.434	1.057	0.459	
5745	149	IEEE 802.11a	OFDM	12.5	12.03	0.17	10 mm	1	Standard	5	6	back	1:1	0.090	1.114	0.100	
5775	155	IEEE 802.11ac	OFDM	10.5	9.89	0.13	10 mm	1	Standard	5	29.3	back	1:1	0.099	1.151	0.114	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.12	10 mm	2	Standard	5	6	back	1:1	0.105	1.040	0.109	
5775	155	IEEE 802.11ac	OFDM	10.5	10.06	0.14	10 mm	2	Standard	5	29.3	back	1:1	0.072	1.107	0.080	
5825	165	IEEE 802.11n	OFDM	15.5	15.03	-0.03	10 mm	MIMO	Standard	5	13	back	1:1	0.120	1.114	0.134	A23
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 11-12
NII Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	0.13	10 mm	1	Standard	5	6	back	1:1	0.235	1.023	**0.240**	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	0.12	10 mm	1	Wireless Charging	5	6	back	1:1	0.222	1.023	0.227	
5210	42	IEEE 802.11ac	OFDM	10.5	10.18	0.01	10 mm	1	Standard	5	29.3	back	1:1	0.135	1.076	0.145	
5300	60	IEEE 802.11a	OFDM	12.5	12.38	0.00	10 mm	1	Standard	5	6	back	1:1	0.187	1.028	0.192	
5290	58	IEEE 802.11ac	OFDM	10.5	9.69	-0.10	10 mm	1	Standard	5	29.3	back	1:1	0.094	1.205	0.113	
5500	100	IEEE 802.11a	OFDM	12.5	12.07	-0.12	10 mm	1	Standard	5	6	back	1:1	0.143	1.104	0.158	
5530	106	IEEE 802.11ac	OFDM	10.5	10.31	-0.08	10 mm	1	Standard	5	29.3	back	1:1	0.086	1.045	0.090	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	0.13	10 mm	2	Standard	5	6	back	1:1	0.042	1.089	0.046	
5210	42	IEEE 802.11ac	OFDM	10.5	10.15	0.16	10 mm	2	Standard	5	29.3	back	1:1	0.028	1.084	0.030	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	0.15	10 mm	2	Standard	5	6	back	1:1	0.047	1.225	0.058	
5290	58	IEEE 802.11ac	OFDM	10.5	9.67	0.15	10 mm	2	Standard	5	29.3	back	1:1	0.038	1.211	0.046	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	0.12	10 mm	2	Standard	5	6	back	1:1	0.166	1.107	0.184	
5530	106	IEEE 802.11ac	OFDM	10.5	9.73	0.12	10 mm	2	Standard	5	29.3	back	1:1	0.078	1.194	0.093	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	0.14	10 mm	MIMO	Standard	5	13	back	1:1	0.209	1.112	0.232	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	0.12	10 mm	MIMO	Standard	5	13	back	1:1	0.219	1.172	0.257	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	0.17	10 mm	MIMO	Wireless Charging	5	13	back	1:1	0.261	1.172	0.306	A25
5700	140	IEEE 802.11n	OFDM	15.5	15.13	0.15	10 mm	MIMO	Standard	5	13	back	1:1	0.167	1.089	0.182	

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 Wireless Router SAR Data

Table 11-13
CDMA Hotspot SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Cover Type	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.02	0.02	10 mm	Standard	16	1:1	back	0.488	1.253	0.611	
824.70	1013	Cell. CDMA	EVDO Rev. 0	25.0	24.08	0.01	10 mm	Standard	16	1:1	front	0.468	1.236	0.578	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.02	-0.01	10 mm	Standard	16	1:1	front	0.665	1.253	0.833	
848.31	777	Cell. CDMA	EVDO Rev. 0	25.0	23.88	0.08	10 mm	Standard	16	1:1	front	0.787	1.294	1.018	A11
848.31	777	Cell. CDMA	EVDO Rev. 0	25.0	23.88	0.08	10 mm	Wireless Charging	16	1:1	front	0.684	1.294	0.885	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.02	-0.02	10 mm	Standard	16	1:1	bottom	0.423	1.253	0.530	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.02	0.02	10 mm	Standard	16	1:1	right	0.233	1.253	0.292	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.02	0.02	10 mm	Standard	16	1:1	left	0.073	1.253	0.091	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.0	21.59	0.00	10 mm	Standard	19	1:1	back	0.478	1.099	0.525	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.0	21.59	-0.02	10 mm	Standard	19	1:1	front	0.636	1.099	0.699	
1851.25	25	PCS CDMA	EVDO Rev. 0	22.0	21.68	-0.02	10 mm	Standard	19	1:1	bottom	0.969	1.076	1.043	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.0	21.59	0.01	10 mm	Standard	19	1:1	bottom	0.936	1.099	1.029	
1908.75	1175	PCS CDMA	EVDO Rev. 0	22.0	21.73	0.01	10 mm	Standard	19	1:1	bottom	1.030	1.064	**1.096**	A13
1908.75	1175	PCS CDMA	EVDO Rev. 0	22.0	21.73	0.04	10 mm	Wireless Charging	19	1:1	bottom	0.985	1.064	1.048	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.0	21.59	0.04	10 mm	Standard	19	1:1	right	0.104	1.099	0.114	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.0	21.59	-0.04	10 mm	Standard	19	1:1	left	0.140	1.099	0.154	
1908.75	1175	PCS CDMA	EVDO Rev. 0	22.0	21.73	-0.01	10 mm	Standard	19	1:1	bottom	0.921	1.064	0.980	

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

Blue entry refers to variability testing.

Table 11-14
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																			
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	0.16	0	15	QPSK	1	0	10 mm	back	1:1	0.352	1.035	0.364	
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	0.04	1	15	QPSK	25	0	10 mm	back	1:1	0.269	1.042	0.280	
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	-0.02	0	15	QPSK	1	0	10 mm	front	1:1	0.396	1.035	0.410	A15
707.50	23095	Mid	LTE Band 12	10	Wireless Charging	24.5	24.35	0.01	0	15	QPSK	1	0	10 mm	front	1:1	0.287	1.035	0.297	
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	-0.01	1	15	QPSK	25	0	10 mm	front	1:1	0.310	1.042	0.323	
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	-0.05	0	15	QPSK	1	0	10 mm	bottom	1:1	0.192	1.035	0.199	
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	0.02	1	15	QPSK	25	0	10 mm	bottom	1:1	0.146	1.042	0.152	
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	-0.04	0	15	QPSK	1	0	10 mm	right	1:1	0.104	1.035	0.108	
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	-0.08	1	15	QPSK	25	0	10 mm	right	1:1	0.082	1.042	0.085	
707.50	23095	Mid	LTE Band 12	10	Standard	24.5	24.35	0.07	0	15	QPSK	1	0	10 mm	left	1:1	0.128	1.035	0.132	
707.50	23095	Mid	LTE Band 12	10	Standard	23.5	23.32	0.01	1	15	QPSK	25	0	10 mm	left	1:1	0.101	1.042	0.105	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-15
LTE Band 5 (Cell) Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																			
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	-0.01	0	12	QPSK	1	0	10 mm	back	1:1	0.355	1.062	0.377	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	-0.06	1	12	QPSK	25	25	10 mm	back	1:1	0.341	1.091	0.372	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	0.00	0	12	QPSK	1	0	10 mm	front	1:1	0.500	1.062	0.531	A17
836.50	20525	Mid	LTE Band 5 (Cell)	10	Wireless Charging	24.5	24.24	-0.02	0	12	QPSK	1	0	10 mm	front	1:1	0.471	1.062	0.500	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	-0.04	1	12	QPSK	25	25	10 mm	front	1:1	0.488	1.091	0.532	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	-0.03	0	12	QPSK	1	0	10 mm	bottom	1:1	0.400	1.062	0.425	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	0.00	1	12	QPSK	25	25	10 mm	bottom	1:1	0.369	1.091	0.403	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	0.05	0	12	QPSK	1	0	10 mm	right	1:1	0.246	1.062	0.261	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	-0.01	1	12	QPSK	25	25	10 mm	right	1:1	0.211	1.091	0.230	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	24.5	24.24	-0.03	0	12	QPSK	1	0	10 mm	left	1:1	0.093	1.062	0.099	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Standard	23.5	23.12	0.04	1	12	QPSK	25	25	10 mm	left	1:1	0.069	1.091	0.075	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-16
LTE Band 4 (AWS) Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																			
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.0	21.65	0.05	0	20	QPSK	1	0	10 mm	back	1:1	0.431	1.084	0.467	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.67	-0.06	1	20	QPSK	50	25	10 mm	back	1:1	0.326	1.079	0.352	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.0	21.65	0.05	0	20	QPSK	1	0	10 mm	front	1:1	0.499	1.084	0.541	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.67	0.05	1	20	QPSK	50	25	10 mm	front	1:1	0.377	1.079	0.407	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.0	21.65	0.00	0	20	QPSK	1	0	10 mm	bottom	1:1	0.750	1.084	0.813	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Wireless Charging	22.0	21.65	-0.05	0	20	QPSK	1	0	10 mm	bottom	1:1	0.758	1.084	0.822	A19
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.67	-0.12	1	20	QPSK	50	25	10 mm	bottom	1:1	0.586	1.079	0.632	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.66	-0.05	1	20	QPSK	100	0	10 mm	bottom	1:1	0.581	1.081	0.628	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.0	21.65	-0.03	0	20	QPSK	1	0	10 mm	right	1:1	0.114	1.084	0.124	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.67	0.01	1	20	QPSK	50	25	10 mm	right	1:1	0.087	1.079	0.094	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	22.0	21.65	-0.07	0	20	QPSK	1	0	10 mm	left	1:1	0.164	1.084	0.178	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	Standard	21.0	20.67	0.00	1	20	QPSK	50	25	10 mm	left	1:1	0.132	1.079	0.142	
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 11-17
LTE Band 2 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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	Scaled SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.0	21.68	0.00	0	20	QPSK	1	99	10 mm	back	1:1	0.516	1.076	0.555	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	21.0	20.86	-0.03	1	20	QPSK	50	0	10 mm	back	1:1	0.394	1.033	0.407	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.0	21.68	0.02	0	20	QPSK	1	99	10 mm	front	1:1	0.726	1.076	0.781	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	21.0	20.86	0.03	1	20	QPSK	50	0	10 mm	front	1:1	0.556	1.033	0.574	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	22.0	21.53	-0.01	0	20	QPSK	1	50	10 mm	bottom	1:1	0.908	1.114	1.012	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	22.0	21.67	0.01	0	20	QPSK	1	0	10 mm	bottom	1:1	0.878	1.079	0.947	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.0	21.68	0.00	0	20	QPSK	1	99	10 mm	bottom	1:1	0.975	1.076	1.049	A21
1900.00	19100	High	LTE Band 2 (PCS)	20	Wireless Charging	22.0	21.68	-0.02	1	20	QPSK	1	99	10 mm	bottom	1:1	0.928	1.076	0.999	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	21.0	20.86	-0.03	1	20	QPSK	50	0	10 mm	bottom	1:1	0.741	1.033	0.765	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	21.0	20.63	0.02	1	20	QPSK	100	0	10 mm	bottom	1:1	0.785	1.089	0.855	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.0	21.68	0.00	0	20	QPSK	1	99	10 mm	right	1:1	0.120	1.076	0.129	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	21.0	20.86	0.06	1	20	QPSK	50	0	10 mm	right	1:1	0.077	1.033	0.080	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.0	21.68	0.01	0	20	QPSK	1	99	10 mm	left	1:1	0.152	1.076	0.164	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	21.0	20.86	0.00	1	20	QPSK	50	0	10 mm	left	1:1	0.123	1.033	0.127	

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 11-18
WLAN Hotspot SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
2462	11	IEEE 802.11b	DSSS	15.5	15.19	-0.02	10 mm	1	Standard	1	1	back	1:1	0.076	1.074	0.082	
2462	11	IEEE 802.11b	DSSS	15.5	15.19	0.13	10 mm	1	Standard	1	1	front	1:1	0.017	1.074	0.018	
2462	11	IEEE 802.11b	DSSS	15.5	15.19	0.14	10 mm	1	Standard	1	1	top	1:1	0.022	1.074	0.024	
2462	11	IEEE 802.11b	DSSS	15.5	15.19	0.12	10 mm	1	Standard	1	1	left	1:1	0.024	1.074	0.026	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	-0.18	10 mm	2	Standard	1	1	back	1:1	0.585	1.197	0.700	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	-0.04	10 mm	2	Wireless Charging	1	1	back	1:1	0.727	1.197	**0.870**	A22
2462	11	IEEE 802.11b	DSSS	15.5	14.72	0.06	10 mm	2	Standard	1	1	front	1:1	0.075	1.197	0.090	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	-0.02	10 mm	2	Standard	1	1	top	1:1	0.167	1.197	0.200	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	-0.09	10 mm	2	Standard	1	1	right	1:1	0.012	1.197	0.014	
2462	11	IEEE 802.11b	DSSS	15.5	14.72	-0.02	10 mm	2	Standard	1	1	left	1:1	0.009	1.197	0.011	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	-0.08	10 mm	MIMO	Standard	1	13	back	1:1	0.361	1.057	0.382	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	-0.10	10 mm	MIMO	Wireless Charging	1	13	back	1:1	0.434	1.057	0.459	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	0.12	10 mm	MIMO	Standard	1	13	front	1:1	0.056	1.057	0.059	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	0.12	10 mm	MIMO	Standard	1	13	top	1:1	0.103	1.057	0.109	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	-0.02	10 mm	MIMO	Standard	1	13	right	1:1	0.008	1.057	0.008	
2462	11	IEEE 802.11n	OFDM	16.5	16.26	0.12	10 mm	MIMO	Standard	1	13	left	1:1	0.022	1.057	0.023	
5745	149	IEEE 802.11a	OFDM	12.5	12.03	0.17	10 mm	1	Standard	5	6	back	1:1	0.090	1.114	0.100	
5775	155	IEEE 802.11ac	OFDM	10.5	9.89	0.13	10 mm	1	Standard	5	29.3	back	1:1	0.099	1.151	0.114	
5745	149	IEEE 802.11a	OFDM	12.5	12.03	0.12	10 mm	1	Standard	5	6	front	1:1	0.024	1.114	0.027	
5745	149	IEEE 802.11a	OFDM	12.5	12.03	-0.13	10 mm	1	Standard	5	6	top	1:1	0.044	1.114	0.049	
5745	149	IEEE 802.11a	OFDM	12.5	12.03	0.17	10 mm	1	Standard	5	6	left	1:1	0.038	1.114	0.042	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.12	10 mm	2	Standard	5	6	back	1:1	0.105	1.040	0.109	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.00	10 mm	2	Wireless Charging	5	6	back	1:1	0.157	1.040	0.163	
5775	155	IEEE 802.11ac	OFDM	10.5	10.06	0.14	10 mm	2	Standard	5	29.3	back	1:1	0.072	1.107	0.080	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.12	10 mm	2	Standard	5	6	front	1:1	0.035	1.040	0.036	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	-0.13	10 mm	2	Standard	5	6	top	1:1	0.051	1.040	0.053	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.12	10 mm	2	Standard	5	6	right	1:1	0.026	1.040	0.027	
5825	165	IEEE 802.11a	OFDM	12.5	12.33	0.18	10 mm	2	Standard	5	6	left	1:1	0.027	1.040	0.028	
5825	165	IEEE 802.11n	OFDM	15.5	15.03	-0.03	10 mm	MIMO	Standard	5	13	back	1:1	0.120	1.114	0.134	
5825	165	IEEE 802.11n	OFDM	15.5	15.03	-0.12	10 mm	MIMO	Wireless Charging	5	13	back	1:1	0.179	1.114	0.199	A24
5825	165	IEEE 802.11n	OFDM	15.5	15.03	0.17	10 mm	MIMO	Standard	5	13	front	1:1	0.049	1.114	0.055	
5825	165	IEEE 802.11n	OFDM	15.5	15.03	0.12	10 mm	MIMO	Standard	5	13	top	1:1	0.049	1.114	0.055	
5825	165	IEEE 802.11n	OFDM	15.5	15.03	0.12	10 mm	MIMO	Standard	5	13	right	1:1	0.032	1.114	0.036	
5825	165	IEEE 802.11n	OFDM	15.5	15.03	0.14	10 mm	MIMO	Standard	5	13	left	1:1	0.047	1.114	0.052	

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 Extremity SAR Data

Table 11-19
CDMA Extremity SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Battery Type	Device Serial Number	Duty Cycle	Side	SAR (10g) (W/kg)	Scaling Factor	Scaled SAR (10g) (W/kg)	Plot #
MHz	Ch.														
1851.25	25	PCS CDMA	EVDO Rev. 0	25.0	24.13	-0.14	0 mm	Standard	16	1:1	front	2.340	1.222	2.859	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.10	0.14	0 mm	Standard	16	1:1	front	2.390	1.230	2.940	A26
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.0	24.11	-0.01	0 mm	Standard	16	1:1	front	2.390	1.227	2.933	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.10	-0.01	0 mm	Wireless Charging	16	1:1	front	2.330	1.230	2.866	
1851.25	25	PCS CDMA	EVDO Rev. 0	25.0	24.13	-0.09	0 mm	Standard	16	1:1	bottom	2.140	1.222	2.615	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.10	-0.03	0 mm	Standard	16	1:1	bottom	2.000	1.230	2.460	
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.0	24.11	-0.06	0 mm	Standard	16	1:1	bottom	2.090	1.227	2.564	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Extremity** **4.0 W/kg (mW/g)** averaged over 10 grams							

Table 11-20
LTE Extremity SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Battery Type	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 (10g) (W/kg)	Scaling Factor	Scaled SAR (10g) (W/kg)	Plot #
MHz	Ch.																			
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	23.5	23.22	-0.02	0	13	QPSK	1	99	0 mm	bottom	1:1	2.770	1.067	2.956	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	23.5	23.49	-0.03	0	13	QPSK	1	50	0 mm	bottom	1:1	2.880	1.002	2.886	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	23.5	23.36	-0.08	0	13	QPSK	1	50	0 mm	bottom	1:1	2.900	1.033	**2.996**	A27
1900.00	19100	High	LTE Band 2 (PCS)	20	Wireless Charging	23.5	23.36	0.03	0	13	QPSK	1	50	0 mm	bottom	1:1	2.900	1.033	2.996	
1860.00	18700	Low	LTE Band 2 (PCS)	20	Standard	22.5	22.10	-0.07	1	13	QPSK	50	50	0 mm	bottom	1:1	2.220	1.096	2.433	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	22.5	22.28	0.09	1	13	QPSK	50	0	0 mm	bottom	1:1	2.490	1.052	2.619	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	22.5	22.26	-0.07	1	13	QPSK	50	0	0 mm	bottom	1:1	2.260	1.057	2.389	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	Standard	22.5	22.27	-0.09	1	13	QPSK	100	0	0 mm	bottom	1:1	2.440	1.054	2.572	
1900.00	19100	High	LTE Band 2 (PCS)	20	Standard	23.5	23.36	-0.05	0	13	QPSK	1	50	0 mm	bottom	1:1	2.480	1.033	2.562	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**										**Extremity** **4.0 W/kg (mW/g)** averaged over 10 grams										

Blue entry refers to variability testing.

Table 11-21
WLAN Extremity SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Battery Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (10g)	Scaling Factor	Scaled SAR (10g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	-0.03	0 mm	1	Standard	5	6	back	1:1	0.391	1.023	0.400	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	0.14	0 mm	1	Wireless Charging	5	6	back	1:1	0.539	1.023	0.551	
5210	42	IEEE 802.11ac	OFDM	10.5	10.18	0.02	0 mm	1	Standard	5	29.3	back	1:1	0.252	1.076	0.271	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	0.15	0 mm	1	Standard	5	6	front	1:1	0.023	1.023	0.024	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	0.10	0 mm	1	Standard	5	6	top	1:1	0.022	1.023	0.023	
5240	48	IEEE 802.11a	OFDM	12.5	12.40	-0.20	0 mm	1	Standard	5	6	left	1:1	0.090	1.023	0.092	
5300	60	IEEE 802.11a	OFDM	12.5	12.38	0.00	0 mm	1	Standard	5	6	back	1:1	0.376	1.028	0.387	
5290	58	IEEE 802.11ac	OFDM	10.5	9.69	-0.21	0 mm	1	Standard	5	29.3	back	1:1	0.190	1.205	0.229	
5300	60	IEEE 802.11a	OFDM	12.5	12.38	0.09	0 mm	1	Standard	5	6	front	1:1	0.020	1.028	0.021	
5300	60	IEEE 802.11a	OFDM	12.5	12.38	-0.15	0 mm	1	Standard	5	6	top	1:1	0.021	1.028	0.022	
5300	60	IEEE 802.11a	OFDM	12.5	12.38	-0.03	0 mm	1	Standard	5	6	left	1:1	0.086	1.028	0.088	
5500	100	IEEE 802.11a	OFDM	12.5	12.07	0.06	0 mm	1	Standard	5	6	back	1:1	0.311	1.104	0.343	
5530	106	IEEE 802.11ac	OFDM	10.5	10.31	-0.10	0 mm	1	Standard	5	29.3	back	1:1	0.169	1.045	0.177	
5500	100	IEEE 802.11a	OFDM	12.5	12.07	-0.13	0 mm	1	Standard	5	6	front	1:1	0.022	1.104	0.024	
5500	100	IEEE 802.11a	OFDM	12.5	12.07	0.16	0 mm	1	Standard	5	6	top	1:1	0.024	1.104	0.026	
5500	100	IEEE 802.11a	OFDM	12.5	12.07	0.12	0 mm	1	Standard	5	6	left	1:1	0.071	1.104	0.078	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	0.05	0 mm	2	Standard	5	6	back	1:1	0.198	1.089	0.216	
5210	42	IEEE 802.11ac	OFDM	10.5	10.15	0.14	0 mm	2	Standard	5	29.3	back	1:1	0.124	1.084	0.134	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	0.14	0 mm	2	Standard	5	6	front	1:1	0.096	1.089	0.105	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	0.15	0 mm	2	Standard	5	6	top	1:1	0.066	1.089	0.072	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	0.19	0 mm	2	Standard	5	6	right	1:1	0.032	1.089	0.035	
5180	36	IEEE 802.11a	OFDM	12.5	12.13	-0.13	0 mm	2	Standard	5	6	left	1:1	0.019	1.089	0.021	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	-0.13	0 mm	2	Standard	5	6	back	1:1	0.193	1.225	0.236	
5290	58	IEEE 802.11ac	OFDM	10.5	9.67	0.05	0 mm	2	Standard	5	29.3	back	1:1	0.132	1.211	0.160	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	0.12	0 mm	2	Standard	5	6	front	1:1	0.147	1.225	0.180	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	-0.13	0 mm	2	Standard	5	6	top	1:1	0.060	1.225	0.074	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	0.16	0 mm	2	Standard	5	6	right	1:1	0.030	1.225	0.037	
5260	52	IEEE 802.11a	OFDM	12.5	11.62	-0.05	0 mm	2	Standard	5	6	left	1:1	0.020	1.225	0.025	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	-0.12	0 mm	2	Standard	5	6	back	1:1	0.374	1.107	0.414	
5530	106	IEEE 802.11ac	OFDM	10.5	9.73	-0.01	0 mm	2	Standard	5	29.3	back	1:1	0.199	1.194	0.238	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	0.12	0 mm	2	Standard	5	6	front	1:1	0.253	1.107	0.280	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	-0.12	0 mm	2	Standard	5	6	top	1:1	0.129	1.107	0.143	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	0.13	0 mm	2	Standard	5	6	right	1:1	0.034	1.107	0.038	
5700	140	IEEE 802.11a	OFDM	12.5	12.06	0.17	0 mm	2	Standard	5	6	left	1:1	0.030	1.107	0.033	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	0.18	0 mm	MIMO	Standard	5	13	back	1:1	0.382	1.112	0.425	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	-0.06	0 mm	MIMO	Wireless Charging	5	13	back	1:1	0.666	1.112	0.741	A28
5220	44	IEEE 802.11n	OFDM	15.5	15.04	0.15	0 mm	MIMO	Standard	5	13	front	1:1	0.175	1.112	0.195	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	0.12	0 mm	MIMO	Standard	5	13	top	1:1	0.097	1.112	0.108	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	0.19	0 mm	MIMO	Standard	5	13	right	1:1	0.042	1.112	0.047	
5220	44	IEEE 802.11n	OFDM	15.5	15.04	0.13	0 mm	MIMO	Standard	5	13	left	1:1	0.068	1.112	0.076	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	0.02	0 mm	MIMO	Standard	5	13	back	1:1	0.354	1.172	0.415	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	0.06	0 mm	MIMO	Standard	5	13	front	1:1	0.170	1.172	0.199	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	0.05	0 mm	MIMO	Standard	5	13	top	1:1	0.098	1.172	0.115	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	0.12	0 mm	MIMO	Standard	5	13	right	1:1	0.039	1.172	0.046	
5260	52	IEEE 802.11n	OFDM	15.5	14.81	0.10	0 mm	MIMO	Standard	5	13	left	1:1	0.067	1.172	0.079	
5700	140	IEEE 802.11n	OFDM	15.5	15.13	0.02	0 mm	MIMO	Standard	5	13	back	1:1	0.362	1.089	0.394	
5700	140	IEEE 802.11n	OFDM	15.5	15.13	-0.09	0 mm	MIMO	Standard	5	13	front	1:1	0.325	1.089	0.354	
5700	140	IEEE 802.11n	OFDM	15.5	15.13	-0.14	0 mm	MIMO	Standard	5	13	top	1:1	0.143	1.089	0.156	
5700	140	IEEE 802.11n	OFDM	15.5	15.13	0.12	0 mm	MIMO	Standard	5	13	right	1:1	0.037	1.089	0.040	
5700	140	IEEE 802.11n	OFDM	15.5	15.13	0.14	0 mm	MIMO	Standard	5	13	left	1:1	0.075	1.089	0.082	

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

11.5 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2003, and FCC KDB Publication 447498 D01v05.
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 D01v05.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance. A test separation distance of 10 mm for body-worn SAR was also used for CDMA BC0, LTE Band 12, LTE Band 5 and 2.4/5 GHz WLAN as it is more conservative.
7. Per FCC KDB Publication 648474 D04v01, 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 D01 v01, variability SAR tests were performed when the measured SAR results for a frequency band were greater than 0.8 W/kg or when the measured 10 gram SAR results for a frequency band were greater than 2.0 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 D06v01, 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 D04v01r01, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. Per FCC KDB Publication 648474 D04, SAR was measured using the standard battery cover and then repeated with the wireless charging battery cover for the configuration with the highest reported SAR for each wireless technology, frequency band, operating mode, and exposure condition. Since reported SAR did not exceed 1.2 W/kg, additional testing with the wireless charging battery cover was not required.

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v02.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO and TDSO / SO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers, per FCC KDB Publication 941225 D01v02.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01 procedures for data devices. Since the average output power of Subtype 2 for Rev. A is less than the Rev. 0 power levels, EVDO Rev. A SAR is not required. SAR is not required for 1x RTT for Ev-Do hotspot devices when the maximum average output of each channel is less than ¼ dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
5. Per FCC KDB Publication 447498 D01v05, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg 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.

6. This device applies power reduction for PCS CDMA/EVDO when Hotspot is ON. Therefore, PCS EVDO was evaluated at hotspot reduced power levels. There is no power reduction applied to Cell. CDMA.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r01. The general test procedures used for testing can be found in Section 8.4.4.
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 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. This device applies power reduction for LTE Bands 4 and 2 modes when Hotspot is ON. Therefore, LTE Bands 4 and 2 modes were evaluated at hotspot reduced power levels. There is no power reduction applied to LTE Bands 12, 17 and 5.

WLAN Notes:

1. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012 FCC/TCB Meeting Notes for 2.4 GHz WIFI SISO operations: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11b. Other SISO IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
2. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012 FCC/TCB Meeting Notes for SISO 5 GHz WIFI operations: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11a. Other IEEE SISO 802.11 modes (including 802.11n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
3. Per April 2013 TCB Workshop notes, full SISO SAR tests for all IEEE 802.11ac configurations were not required because the average output power was not more than 0.25 dB higher than IEEE 802.11a mode. IEEE 802.11ac SISO was evaluated for the highest IEEE 802.11a position in each 5 GHz band and exposure condition.
4. When Hotspot is enabled, 5.2-5.7 GHz bands are disabled. Therefore no 5.2 – 5.7 GHz WIFI Wireless Router SAR Data was required.
5. Per KDB 248227, SAR for MIMO was measured with both transmitting simultaneously and was evaluated in dependently of SISO operation. For 2.4 GHz MIMO, IEEE 802.11n was evaluated. For 5 GHz MIMO, IEEE 802.11n 20 MHz bandwidth was evaluated.
6. WIFI transmission was verified using an uncalibrated spectrum analyzer.
7. When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the reported 1g averaged SAR is <0.8 W/kg, SAR testing on other default channels was required. Testing on other default channels was not required for 10 g Extremity SAR, since the reported 10g averaged SAR is <2.0 W/kg.

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v05 are applicable to handsets with built-in unlicensed transmitters such as 802.11a/b/g/n/ac 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 447498 D01v05 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤1.6 W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v05 4.3.2 2), the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$Estimated\ 1g\ SAR = \frac{\sqrt{\mathrm{f(GHz)}}}{7.5} * \frac{(\mathrm{Max\ Power\ of\ channel, mW})}{\mathrm{Min.\ Separation\ Distance, mm}}$$

$$Estimated\ 10g\ SAR = \frac{\sqrt{\mathrm{f(GHz}}}{18.75} * \frac{(\mathrm{Max\ Power\ of\ channel, mW})}{\mathrm{Min.\ Separation\ Distance, mm}}$$

Table 12-1
Estimated SAR

Mode	Frequency	Maximum Allowed Power	Configuration	Separation Distance (Body)	Estimated SAR (Body)	Estimated SAR (Extremity)
	[MHz]	[dBm]		[mm]	[W/kg]	[W/kg]
Bluetooth	2480	9.00	Body Worn	15	0.112	-
Bluetooth	2480	9.00	Front Side Touching*	5	-	0.134

Notes:
1. Held-to ear configurations are not applicable to Bluetooth operations and therefore were not considered for simultaneous transmission. Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.
2. (*) – Per FCC KDB 447498, when the test separation distance is < 5 mm, a distance of 5 mm is applied to determine estimated SAR.

12.3 Head SAR Simultaneous Transmission Analysis

Table 12-2
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 (Held to Ear)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.268	0.086	**0.354**
	Right Tilt	0.115	0.060	0.175
	Left Cheek	0.171	0.066	0.237
	Left Tilt	0.117	0.045	0.162

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.246	0.086	**0.332**
	Right Tilt	0.106	0.060	0.166
	Left Cheek	0.157	0.066	0.223
	Left Tilt	0.099	0.045	0.144

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.216	0.086	**0.302**
	Right Tilt	0.109	0.060	0.169
	Left Cheek	0.220	0.066	0.286
	Left Tilt	0.106	0.045	0.151

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.099	0.086	**0.185**
	Right Tilt	0.043	0.060	0.103
	Left Cheek	0.111	0.066	0.177
	Left Tilt	0.051	0.045	0.096

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.092	0.086	**0.178**
	Right Tilt	0.049	0.060	0.109
	Left Cheek	0.101	0.066	0.167
	Left Tilt	0.054	0.045	0.099

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.205	0.086	**0.291**
	Right Tilt	0.090	0.060	0.150
	Left Cheek	0.132	0.066	0.198
	Left Tilt	0.086	0.045	0.131

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.115	0.086	**0.201**
	Right Tilt	0.065	0.060	0.125
	Left Cheek	0.133	0.066	0.199
	Left Tilt	0.065	0.045	0.110

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.123	0.086	**0.209**
	Right Tilt	0.054	0.060	0.114
	Left Cheek	0.099	0.066	0.165
	Left Tilt	0.033	0.045	0.078

Table 12-3
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 2 (Held to Ear)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.268	0.527	**0.795**
	Right Tilt	0.115	0.302	0.417
	Left Cheek	0.171	0.622	0.793
	Left Tilt	0.117	0.304	0.421

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.246	0.527	0.773
	Right Tilt	0.106	0.302	0.408
	Left Cheek	0.157	0.622	**0.779**
	Left Tilt	0.099	0.304	0.403

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.216	0.527	0.743
	Right Tilt	0.109	0.302	0.411
	Left Cheek	0.220	0.622	**0.842**
	Left Tilt	0.106	0.304	0.410

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.099	0.527	0.626
	Right Tilt	0.043	0.302	0.345
	Left Cheek	0.111	0.622	**0.733**
	Left Tilt	0.051	0.304	0.355

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.092	0.527	0.619
	Right Tilt	0.049	0.302	0.351
	Left Cheek	0.101	0.622	**0.723**
	Left Tilt	0.054	0.304	0.358

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.205	0.527	0.732
	Right Tilt	0.090	0.302	0.392
	Left Cheek	0.132	0.622	**0.754**
	Left Tilt	0.086	0.304	0.390

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.115	0.527	0.642
	Right Tilt	0.065	0.302	0.367
	Left Cheek	0.133	0.622	**0.755**
	Left Tilt	0.065	0.304	0.369

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.123	0.527	0.650
	Right Tilt	0.054	0.302	0.356
	Left Cheek	0.099	0.622	**0.721**
	Left Tilt	0.033	0.304	0.337

Table 12-4
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO (Held to Ear)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	2.4 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.268	0.372	**0.640**
	Right Tilt	0.115	0.167	0.282
	Left Cheek	0.171	0.317	0.488
	Left Tilt	0.117	0.171	0.288

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	2.4 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.246	0.372	**0.618**
	Right Tilt	0.106	0.167	0.273
	Left Cheek	0.157	0.317	0.474
	Left Tilt	0.099	0.171	0.270

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	2.4 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.216	0.372	**0.588**
	Right Tilt	0.109	0.167	0.276
	Left Cheek	0.220	0.317	0.537
	Left Tilt	0.106	0.171	0.277

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.099	0.372	**0.471**
	Right Tilt	0.043	0.167	0.210
	Left Cheek	0.111	0.317	0.428
	Left Tilt	0.051	0.171	0.222

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.092	0.372	**0.464**
	Right Tilt	0.049	0.167	0.216
	Left Cheek	0.101	0.317	0.418
	Left Tilt	0.054	0.171	0.225

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.205	0.372	**0.577**
	Right Tilt	0.090	0.167	0.257
	Left Cheek	0.132	0.317	0.449
	Left Tilt	0.086	0.171	0.257

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.115	0.372	**0.487**
	Right Tilt	0.065	0.167	0.232
	Left Cheek	0.133	0.317	0.450
	Left Tilt	0.065	0.171	0.236

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.123	0.372	**0.495**
	Right Tilt	0.054	0.167	0.221
	Left Cheek	0.099	0.317	0.416
	Left Tilt	0.033	0.171	0.204

Table 12-5
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 1 (Held to Ear)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	5 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.268	0.008	**0.276**
	Right Tilt	0.115	0.005	0.120
	Left Cheek	0.171	0.006	0.177
	Left Tilt	0.117	0.007	0.124

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.246	0.008	**0.254**
	Right Tilt	0.106	0.005	0.111
	Left Cheek	0.157	0.006	0.163
	Left Tilt	0.099	0.007	0.106

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.216	0.008	0.224
	Right Tilt	0.109	0.005	0.114
	Left Cheek	0.220	0.006	**0.226**
	Left Tilt	0.106	0.007	0.113

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.099	0.008	0.107
	Right Tilt	0.043	0.005	0.048
	Left Cheek	0.111	0.006	**0.117**
	Left Tilt	0.051	0.007	0.058

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	5 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.092	0.008	0.100
	Right Tilt	0.049	0.005	0.054
	Left Cheek	0.101	0.006	**0.107**
	Left Tilt	0.054	0.007	0.061

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	5 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.205	0.008	**0.213**
	Right Tilt	0.090	0.005	0.095
	Left Cheek	0.132	0.006	0.138
	Left Tilt	0.086	0.007	0.093

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.115	0.008	0.123
	Right Tilt	0.065	0.005	0.070
	Left Cheek	0.133	0.006	**0.139**
	Left Tilt	0.065	0.007	0.072

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.123	0.008	**0.131**
	Right Tilt	0.054	0.005	0.059
	Left Cheek	0.099	0.006	0.105
	Left Tilt	0.033	0.007	0.040

The worst case 5 GHz WIFI reported SAR for each head configuration was considered for simultaneous SAR exclusion via summation of standalone SAR, regardless of whether the WIFI channel has WIFI Hotspot capability, for simplicity to determine compliance. Please note that the actual simultaneous transmission SAR will not exceed the summed levels indicated.

Table 12-6
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 2 (Held to Ear)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	5 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.268	0.180	0.448
	Right Tilt	0.115	0.143	0.258
	Left Cheek	0.171	0.318	**0.489**
	Left Tilt	0.117	0.188	0.305

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.246	0.180	0.426
	Right Tilt	0.106	0.143	0.249
	Left Cheek	0.157	0.318	**0.475**
	Left Tilt	0.099	0.188	0.287

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.216	0.180	0.396
	Right Tilt	0.109	0.143	0.252
	Left Cheek	0.220	0.318	**0.538**
	Left Tilt	0.106	0.188	0.294

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.099	0.180	0.279
	Right Tilt	0.043	0.143	0.186
	Left Cheek	0.111	0.318	**0.429**
	Left Tilt	0.051	0.188	0.239

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	5 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.092	0.180	0.272
	Right Tilt	0.049	0.143	0.192
	Left Cheek	0.101	0.318	**0.419**
	Left Tilt	0.054	0.188	0.242

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	5 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.205	0.180	0.385
	Right Tilt	0.090	0.143	0.233
	Left Cheek	0.132	0.318	**0.450**
	Left Tilt	0.086	0.188	0.274

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.115	0.180	0.295
	Right Tilt	0.065	0.143	0.208
	Left Cheek	0.133	0.318	**0.451**
	Left Tilt	0.065	0.188	0.253

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.123	0.180	0.303
	Right Tilt	0.054	0.143	0.197
	Left Cheek	0.099	0.318	**0.417**
	Left Tilt	0.033	0.188	0.221

The worst case 5 GHz WIFI reported SAR for each head configuration was considered for simultaneous SAR exclusion via summation of standalone SAR, regardless of whether the WIFI channel has WIFI Hotspot capability, for simplicity to determine compliance. Please note that the actual simultaneous transmission SAR will not exceed the summed levels indicated.

Table 12-7
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Held to Ear)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	5 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.268	0.255	**0.523**
	Right Tilt	0.115	0.151	0.266
	Left Cheek	0.171	0.348	0.519
	Left Tilt	0.117	0.272	0.389

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.246	0.255	0.501
	Right Tilt	0.106	0.151	0.257
	Left Cheek	0.157	0.348	**0.505**
	Left Tilt	0.099	0.272	0.371

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.216	0.255	0.471
	Right Tilt	0.109	0.151	0.260
	Left Cheek	0.220	0.348	**0.568**
	Left Tilt	0.106	0.272	0.378

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.099	0.255	0.354
	Right Tilt	0.043	0.151	0.194
	Left Cheek	0.111	0.348	**0.459**
	Left Tilt	0.051	0.272	0.323

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	5 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.092	0.255	0.347
	Right Tilt	0.049	0.151	0.200
	Left Cheek	0.101	0.348	**0.449**
	Left Tilt	0.054	0.272	0.326

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	5 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.205	0.255	0.460
	Right Tilt	0.090	0.151	0.241
	Left Cheek	0.132	0.348	**0.480**
	Left Tilt	0.086	0.272	0.358

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.115	0.255	0.370
	Right Tilt	0.065	0.151	0.216
	Left Cheek	0.133	0.348	**0.481**
	Left Tilt	0.065	0.272	0.337

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR	Σ SAR (W/kg)
Head SAR	Right Cheek	0.123	0.255	0.378
	Right Tilt	0.054	0.151	0.205
	Left Cheek	0.099	0.348	**0.447**
	Left Tilt	0.033	0.272	0.305

The worst case 5 GHz WIFI reported SAR for each head configuration was considered for simultaneous SAR exclusion via summation of standalone SAR, regardless of whether the WIFI channel has WIFI Hotspot capability, for simplicity to determine compliance. Please note that the actual simultaneous transmission SAR will not exceed the summed levels indicated.

12.4 Body-Worn Simultaneous Transmission Analysis

Notes:
1. For SAR summations for body-worn back side at 15 mm, Cell. CDMA, LTE Band 12, LTE Band 5 and WLAN SAR values for 1.0 cm were used since the 1.0 cm test distance for WLAN was more conservative. "<" denotes that the 1.0 cm WLAN SAR values were used for summation purposes.
2. For SAR summation for body-worn back side at 15 mm, LTE Band 4 and LTE Band 2 SAR values at maximum output power were used since it was more conservative than the reduced power scenario, regardless of whether the scenario is only supported in hotspot mode. "<" denotes that the maximum output power SAR values were used for LTE Band 4 and LTE Band 2 summation purposes.

Table 12-8
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 (Body-Worn at 1.5 cm))

Configuration	Mode	CDMA/LTE SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	<0.601	<0.082	**<0.683**
Back Side	PCS CDMA	0.334	<0.082	<0.416
Back Side	LTE Band 12	<0.364	<0.082	<0.446
Back Side	LTE Band 5 (Cell)	<0.377	<0.082	<0.459
Back Side	LTE Band 4 (AWS)	<0.352	<0.082	<0.434
Back Side	LTE Band 2 (PCS)	<0.419	<0.082	<0.501

Table 12-9
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 2 (Body-Worn at 1.5 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	<0.601	<0.870	**<1.471**
Back Side	PCS CDMA	0.334	<0.870	<1.204
Back Side	LTE Band 12	<0.364	<0.870	<1.234
Back Side	LTE Band 5 (Cell)	<0.377	<0.870	<1.247
Back Side	LTE Band 4 (AWS)	<0.352	<0.870	<1.222
Back Side	LTE Band 2 (PCS)	<0.419	<0.870	<1.289

Table 12-10
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	<0.601	<0.459	**<1.060**
Back Side	PCS CDMA	0.334	<0.459	<0.793
Back Side	LTE Band 12	<0.364	<0.459	<0.823
Back Side	LTE Band 5 (Cell)	<0.377	<0.459	<0.836
Back Side	LTE Band 4 (AWS)	<0.352	<0.459	<0.811
Back Side	LTE Band 2 (PCS)	<0.419	<0.459	<0.878

Table 12-11
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 1 (Body-Worn at 1.5 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	<0.601	<0.240	**<0.841**
Back Side	PCS CDMA	0.334	<0.240	<0.574
Back Side	LTE Band 12	<0.364	<0.240	<0.604
Back Side	LTE Band 5 (Cell)	<0.377	<0.240	<0.617
Back Side	LTE Band 4 (AWS)	<0.352	<0.240	<0.592
Back Side	LTE Band 2 (PCS)	<0.419	<0.240	<0.659

The worst case 5 GHz WIFI reported SAR for each body-worn configuration was considered for simultaneous SAR exclusion via summation of standalone SAR, regardless of whether the WIFI channel has WIFI Hotspot capability, for simplicity to determine compliance. Please note that the actual simultaneous transmission SAR will not exceed the summed levels indicated.

Table 12-12
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 2 (Body-Worn at 1.5 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	<0.601	<0.184	**<0.785**
Back Side	PCS CDMA	0.334	<0.184	<0.518
Back Side	LTE Band 12	<0.364	<0.184	<0.548
Back Side	LTE Band 5 (Cell)	<0.377	<0.184	<0.561
Back Side	LTE Band 4 (AWS)	<0.352	<0.184	<0.536
Back Side	LTE Band 2 (PCS)	<0.419	<0.184	<0.603

The worst case 5 GHz WIFI reported SAR for each body-worn configuration was considered for simultaneous SAR exclusion via summation of standalone SAR, regardless of whether the WIFI channel has WIFI Hotspot capability, for simplicity to determine compliance. Please note that the actual simultaneous transmission SAR will not exceed the summed levels indicated.

Table 12-13
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	<0.601	<0.306	**<0.907**
Back Side	PCS CDMA	0.334	<0.306	<0.640
Back Side	LTE Band 12	<0.364	<0.306	<0.670
Back Side	LTE Band 5 (Cell)	<0.377	<0.306	<0.683
Back Side	LTE Band 4 (AWS)	<0.352	<0.306	<0.658
Back Side	LTE Band 2 (PCS)	<0.419	<0.306	<0.725

The worst case 5 GHz WIFI reported SAR for each body-worn configuration was considered for simultaneous SAR exclusion via summation of standalone SAR, regardless of whether the WIFI channel has WIFI Hotspot capability, for simplicity to determine compliance. Please note that the actual simultaneous transmission SAR will not exceed the summed levels indicated.

Table 12-14
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.5 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	<0.601	0.112	**<0.713**
Back Side	PCS CDMA	0.334	0.112	0.446
Back Side	LTE Band 12	<0.364	0.112	<0.476
Back Side	LTE Band 5 (Cell)	<0.377	0.112	<0.489
Back Side	LTE Band 4 (AWS)	0.352	0.112	0.464
Back Side	LTE Band 2 (PCS)	0.419	0.112	0.531

Note: Bluetooth SAR was not required to be measured per FCC KDB 447498. Estimated SAR results were used in the above table to determine simultaneous transmission SAR test exclusion.

12.5 Hotspot SAR Simultaneous Transmission Analysis

Per FCC KDB Publication 941225 D06v01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR ("-").

Table 12-15
Simultaneous Transmission Scenario (2.4 GHz Ant 1 Hotspot at 1.0 cm)

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.611	0.082	0.693
	Front	1.018	0.018	**1.036**
	Top	-	0.024	0.024
	Bottom	0.530	-	0.530
	Right	0.292	-	0.292
	Left	0.091	0.026	0.117

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.525	0.082	0.607
	Front	0.699	0.018	0.717
	Top	-	0.024	0.024
	Bottom	1.096	-	**1.096**
	Right	0.114	-	0.114
	Left	0.154	0.026	0.180

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.364	0.082	**0.446**
	Front	0.410	0.018	0.428
	Top	-	0.024	0.024
	Bottom	0.199	-	0.199
	Right	0.108	-	0.108
	Left	0.132	0.026	0.158

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.377	0.082	0.459
	Front	0.532	0.018	**0.550**
	Top	-	0.024	0.024
	Bottom	0.425	-	0.425
	Right	0.261	-	0.261
	Left	0.099	0.026	0.125

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.467	0.082	0.549
	Front	0.541	0.018	0.559
	Top	-	0.024	0.024
	Bottom	0.822	-	**0.822**
	Right	0.124	-	0.124
	Left	0.178	0.026	0.204

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.555	0.082	0.637
	Front	0.781	0.018	0.799
	Top	-	0.024	0.024
	Bottom	1.049	-	**1.049**
	Right	0.129	-	0.129
	Left	0.164	0.026	0.190

Table 12-16
Simultaneous Transmission Scenario (2.4 GHz WLAN Ant 2 at 1.0 cm)

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.611	0.870	**1.481**
	Front	1.018	0.090	1.108
	Top	-	0.200	0.200
	Bottom	0.530	-	0.530
	Right	0.292	0.014	0.306
	Left	0.091	0.011	0.102

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.525	0.870	**1.395**
	Front	0.699	0.090	0.789
	Top	-	0.200	0.200
	Bottom	1.096	-	1.096
	Right	0.114	0.014	0.128
	Left	0.154	0.011	0.165

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.364	0.870	**1.234**
	Front	0.410	0.090	0.500
	Top	-	0.200	0.200
	Bottom	0.199	-	0.199
	Right	0.108	0.014	0.122
	Left	0.132	0.011	0.143

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.377	0.870	**1.247**
	Front	0.532	0.090	0.622
	Top	-	0.200	0.200
	Bottom	0.425	-	0.425
	Right	0.261	0.014	0.275
	Left	0.099	0.011	0.110

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.467	0.870	**1.337**
	Front	0.541	0.090	0.631
	Top	-	0.200	0.200
	Bottom	0.822	-	0.822
	Right	0.124	0.014	0.138
	Left	0.178	0.011	0.189

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.555	0.870	**1.425**
	Front	0.781	0.090	0.871
	Top	-	0.200	0.200
	Bottom	1.049	-	1.049
	Right	0.129	0.014	0.143
	Left	0.164	0.011	0.175

Table 12-17
Simultaneous Transmission Scenario (2.4 GHz WLAN MIMO at 1.0 cm)

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.611	0.459	1.070
	Front	1.018	0.059	**1.077**
	Top	-	0.109	0.109
	Bottom	0.530	-	0.530
	Right	0.292	0.008	0.300
	Left	0.091	0.023	0.114

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.525	0.459	0.984
	Front	0.699	0.059	0.758
	Top	-	0.109	0.109
	Bottom	1.096	-	**1.096**
	Right	0.114	0.008	0.122
	Left	0.154	0.023	0.177

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.364	0.459	**0.823**
	Front	0.410	0.059	0.469
	Top	-	0.109	0.109
	Bottom	0.199	-	0.199
	Right	0.108	0.008	0.116
	Left	0.132	0.023	0.155

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.377	0.459	**0.836**
	Front	0.532	0.059	0.591
	Top	-	0.109	0.109
	Bottom	0.425	-	0.425
	Right	0.261	0.008	0.269
	Left	0.099	0.023	0.122

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.467	0.459	**0.926**
	Front	0.541	0.059	0.600
	Top	-	0.109	0.109
	Bottom	0.822	-	0.822
	Right	0.124	0.008	0.132
	Left	0.178	0.023	0.201

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.555	0.459	1.014
	Front	0.781	0.059	0.840
	Top	-	0.109	0.109
	Bottom	1.049	-	**1.049**
	Right	0.129	0.008	0.137
	Left	0.164	0.023	0.187

Table 12-18
Simultaneous Transmission Scenario (5 GHz WLAN Ant 1 at 1.0 cm)

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.611	0.114	0.725
	Front	1.018	0.027	**1.045**
	Top	-	0.049	0.049
	Bottom	0.530	-	0.530
	Right	0.292	-	0.292
	Left	0.091	0.042	0.133

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.525	0.114	0.639
	Front	0.699	0.027	0.726
	Top	-	0.049	0.049
	Bottom	1.096	-	**1.096**
	Right	0.114	-	0.114
	Left	0.154	0.042	0.196

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.364	0.114	**0.478**
	Front	0.410	0.027	0.437
	Top	-	0.049	0.049
	Bottom	0.199	-	0.199
	Right	0.108	-	0.108
	Left	0.132	0.042	0.174

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.377	0.114	0.491
	Front	0.532	0.027	**0.559**
	Top	-	0.049	0.049
	Bottom	0.425	-	0.425
	Right	0.261	-	0.261
	Left	0.099	0.042	0.141

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.467	0.114	0.581
	Front	0.541	0.027	0.568
	Top	-	0.049	0.049
	Bottom	0.822	-	**0.822**
	Right	0.124	-	0.124
	Left	0.178	0.042	0.220

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.555	0.114	0.669
	Front	0.781	0.027	0.808
	Top	-	0.049	0.049
	Bottom	1.049	-	**1.049**
	Right	0.129	-	0.129
	Left	0.164	0.042	0.206

Table 12-19
Simultaneous Transmission Scenario (5 GHz WLAN Ant 2 at 1.0 cm)

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.611	0.163	0.774
	Front	1.018	0.036	**1.054**
	Top	-	0.053	0.053
	Bottom	0.530	-	0.530
	Right	0.292	0.027	0.319
	Left	0.091	0.028	0.119

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.525	0.163	0.688
	Front	0.699	0.036	0.735
	Top	-	0.053	0.053
	Bottom	1.096	-	**1.096**
	Right	0.114	0.027	0.141
	Left	0.154	0.028	0.182

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.364	0.163	**0.527**
	Front	0.410	0.036	0.446
	Top	-	0.053	0.053
	Bottom	0.199	-	0.199
	Right	0.108	0.027	0.135
	Left	0.132	0.028	0.160

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.377	0.163	0.540
	Front	0.532	0.036	**0.568**
	Top	-	0.053	0.053
	Bottom	0.425	-	0.425
	Right	0.261	0.027	0.288
	Left	0.099	0.028	0.127

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.467	0.163	0.630
	Front	0.541	0.036	0.577
	Top	-	0.053	0.053
	Bottom	0.822	-	**0.822**
	Right	0.124	0.027	0.151
	Left	0.178	0.028	0.206

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.555	0.163	0.718
	Front	0.781	0.036	0.817
	Top	-	0.053	0.053
	Bottom	1.049	-	**1.049**
	Right	0.129	0.027	0.156
	Left	0.164	0.028	0.192

Table 12-20
Simultaneous Transmission Scenario (5 GHz WLAN MIMO at 1.0 cm)

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.611	0.199	0.810
	Front	1.018	0.055	**1.073**
	Top	-	0.055	0.055
	Bottom	0.530	-	0.530
	Right	0.292	0.036	0.328
	Left	0.091	0.052	0.143

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.525	0.199	0.724
	Front	0.699	0.055	0.754
	Top	-	0.055	0.055
	Bottom	1.096	-	**1.096**
	Right	0.114	0.036	0.150
	Left	0.154	0.052	0.206

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.364	0.199	**0.563**
	Front	0.410	0.055	0.465
	Top	-	0.055	0.055
	Bottom	0.199	-	0.199
	Right	0.108	0.036	0.144
	Left	0.132	0.052	0.184

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.377	0.199	0.576
	Front	0.532	0.055	**0.587**
	Top	-	0.055	0.055
	Bottom	0.425	-	0.425
	Right	0.261	0.036	0.297
	Left	0.099	0.052	0.151

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.467	0.199	0.666
	Front	0.541	0.055	0.596
	Top	-	0.055	0.055
	Bottom	0.822	-	**0.822**
	Right	0.124	0.036	0.160
	Left	0.178	0.052	0.230

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.555	0.199	0.754
	Front	0.781	0.055	0.836
	Top	-	0.055	0.055
	Bottom	1.049	-	**1.049**
	Right	0.129	0.036	0.165
	Left	0.164	0.052	0.216

12.6 Extremity SAR Simultaneous Transmission Analysis

Per FCC KDB Publication 648474 D04 Handset SAR v01r01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR (“-“).

Table 12-21
Simultaneous Transmission Scenario with 2.4 GHz Bluetooth (Extremity at 0.0 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Front Side	PCS CDMA	2.940	0.134	**3.074**
Bottom Edge	PCS CDMA	2.615	-	2.615
Bottom Edge	LTE Band 2 (PCS)	2.996	-	2.996

Note: Per FCC KDB Publication 941225 D06v01, Bluetooth SAR is not required to be evaluated for Bottom Edge SAR ("-") since the antenna is greater than 2.5 cm from the edge.

Table 12-22
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Extremity at 0.0 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Front Side	PCS CDMA	2.940	-	2.940
Bottom Edge	PCS CDMA	2.615	-	2.615
Bottom Edge	LTE Band 2 (PCS)	2.996	-	**2.996**

Note:
1.Per FCC KDB Publication 941225 D06v01, 2.4 GHz WLAN SAR is not required to be evaluated for Bottom Edge SAR ("-") since the antenna is greater than 2.5 cm from the edge.
2. Per FCC KDB Publication 648474 D04v01r01, 2.4 GHz Hand Front side Hand SAR (“-”) was excluded since 2.4 GHz Hotspot SAR was <1.2 W/kg.

Table 12-23
Simultaneous Transmission Scenario with 5 GHz WLAN (Extremity at 0.0 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Front Side	PCS CDMA	2.940	0.354	**3.294**
Bottom Edge	PCS CDMA	2.615	-	2.615
Bottom Edge	LTE Band 2 (PCS)	2.996	-	2.996

Note: Per FCC KDB Publication 941225 D06v01, 5 GHz WLAN SAR is not required to be evaluated for Bottom Edge SAR ("-") since the antenna is greater than 2.5 cm from the edge.

For configurations and operating modes not required for extremity exposure conditions per FCC KDB 648474, no further analysis was required to determine that possible simultaneous scenarios would not exceed the SAR limit.

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 D01v05 and IEEE 1528-2013 Section 6.3.4.1.2.

13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01, 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 preformed 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 1-g 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) 10g Extremity SAR measurement variability analysis applies a factor of 2.5 to the procedures outlined above

Table 13-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS															
Band	FREQUENCY		Mode	Service	Cover	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)	
1900	1908.75	1175	PCS CDMA	EVDO Rev. 0	Standard	bottom	10 mm	1.030	0.921	1.12	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 13-2
Extremity SAR Measurement Variability Results

BODY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Cover	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)	
1900	1900.00	19100	LTE Band 2 (PCS)	QPSK, 1 RB, 50 RB Offset	Standard	bottom	0 mm	2.900	2.480	1.17	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Extremity 4.0 W/kg (mW/g) averaged over 10 grams						

13.2 Measurement Uncertainty

The measured SAR was <1.5 W/kg for all frequency bands. Therefore, per KDB Publication 865664 D01v01, the extended measurement uncertainty analysis per IEEE 1528-2003 was not required.

14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8648D	(9kHz-4GHz) Signal Generator	4/15/2014	Annual	4/15/2015	3629U00687
Agilent	E4407B	ESA Spectrum Analyzer	4/16/2014	Annual	4/16/2015	US39210313
Agilent	E4438C	ESG Vector Signal Generator	4/15/2014	Annual	4/15/2015	MY45091346
Agilent	E4432B	ESG-D Series Signal Generator	4/15/2014	Annual	4/15/2015	US40053896
Agilent	N9020A	MXA Signal Analyzer	10/29/2013	Annual	10/29/2014	US46470561
Agilent	N5182A	MXG Vector Signal Generator	4/15/2014	Annual	4/15/2015	MY47420800
Agilent	8753ES	S-Parameter Network Analyzer	5/22/2014	Annual	5/22/2015	US39170118
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433977
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433978
Anritsu	MA2481A	Power Sensor	10/30/2013	Annual	10/30/2014	3681
Anritsu	MA2411B	Pulse Power Sensor	3/25/2014	Annual	3/25/2015	1207470
Anritsu	MA2411B	Pulse Power Sensor	2/3/2014	Annual	2/3/2015	1339018
Anritsu	MT8820C	Radio Communication Analyzer	5/6/2014	Annual	5/6/2015	6201144419
Anritsu	MA24106A	USB Power Sensor	1/3/2014	Annual	1/3/2015	1344554
Anritsu	MA24106A	USB Power Sensor	1/3/2014	Annual	1/3/2015	1344557
Anritsu	ML2495A	Power Meter	7/12/2013	Biennial	7/12/2015	1328004
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1S5A00-009
Control Company	36934-158	Wall-Mounted Thermometer	4/29/2014	Biennial	4/29/2016	122014488
Fisher Scientific	15-077-960	Digital Thermometer	11/6/2012	Biennial	11/6/2014	122640025
Fisher Scientific	S97611	Thermometer	4/12/2013	Biennial	4/12/2015	130219304
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/30/2013	Annual	10/30/2014	1833460
Gigatronics	8651A	Universal Power Meter	10/30/2013	Annual	10/30/2014	8650319
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+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mitutoyo	CD-6"CSX	Digital Caliper	5/8/2014	Biennial	5/8/2016	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	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	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	NRV-Z32	Peak Power Sensor (100uW-2W)	10/31/2013	Annual	10/31/2014	100155
Rohde & Schwarz	NRV-Z32	Peak Power Sensor (1mW-20W)	10/31/2013	Annual	10/31/2014	100004
Rohde & Schwarz	CMW500	Radio Communication Tester	2/20/2014	Annual	2/20/2015	128633
Rohde & Schwarz	CMW500	Radio Communication Tester	6/3/2014	Annual	6/3/2015	108843
Rohde & Schwarz	SME06	Signal Generator	10/30/2013	Annual	10/30/2014	832026
Rohde & Schwarz	NRVS	Single Channel Power Meter	10/31/2013	Annual	10/31/2014	835360/0079
Seekonk	NC-100	Torque Wrench	3/18/2014	Biennial	3/18/2016	N/A
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/18/2014	Biennial	3/18/2016	N/A
SPEAG	D1765V2	1765 MHz SAR Dipole	5/7/2014	Annual	5/7/2015	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	4/9/2014	Annual	4/9/2015	5d141
SPEAG	D2450V2	2450 MHz SAR Dipole	1/21/2014	Annual	1/21/2015	797
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/27/2014	Annual	1/27/2015	1057
SPEAG	D5GHzV2	5 GHz SAR Dipole	2/26/2014	Annual	2/26/2015	1120
SPEAG	D750V3	750 MHz Dipole	1/20/2014	Annual	1/20/2015	1003
SPEAG	D835V2	835 MHz SAR Dipole	4/7/2014	Annual	4/7/2015	4d119
SPEAG	D835V2	835 MHz SAR Dipole	7/10/2014	Annual	7/10/2015	4d132
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/26/2014	Annual	2/26/2015	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	12/12/2013	Annual	12/12/2014	649
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/14/2014	Annual	5/14/2015	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/19/2013	Annual	11/19/2014	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/12/2014	Annual	8/12/2015	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2014	Annual	4/11/2015	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/18/2013	Annual	11/18/2014	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/19/2013	Annual	11/19/2014	1408
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/6/2014	Annual	5/6/2015	1070
SPEAG	DAK-3.5	Dielectric Assessment Kit	11/13/2013	Annual	11/13/2014	1091
SPEAG	ES3DV2	SAR Probe	8/19/2014	Annual	8/19/2015	3022
SPEAG	ES3DV3	SAR Probe	4/11/2014	Annual	4/11/2015	3213
SPEAG	ES3DV3	SAR Probe	2/25/2014	Annual	2/25/2015	3258
SPEAG	ES3DV3	SAR Probe	5/15/2014	Annual	5/15/2015	3263
SPEAG	ES3DV3	SAR Probe	11/20/2013	Annual	11/20/2014	3287
SPEAG	EX3DV4	SAR Probe	12/18/2013	Annual	12/18/2014	3920
SPEAG	EX3DV4	SAR Probe	10/23/2013	Annual	10/23/2014	3914
SPEAG	ES3DV3	SAR Probe	4/17/2014	Annual	4/17/2015	3319
Tektronix	RSA6114A	Real Time Spectrum Analyzer	4/16/2014	Annual	4/16/2015	B010177
VWR	36934-158	Wall-Mounted Thermometer	8/8/2013	Biennial	8/8/2015	130477866

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.

15 MEASUREMENT UNCERTAINTIES

Applicable for frequencies less than 3000 MHz.

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	**IEEE 1528 Sec.**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i 1gm**	**c_i 10 gms**	**1gm u_i (± %)**	**10gms u_i (± %)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	6.0	N	1	1.0	1.0	6.0	6.0	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	1.0	1.0	1.3	1.3	∞
Boundary Effect	E.2.3	0.4	N	1	1.0	1.0	0.4	0.4	∞
Linearity	E.2.4	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	E.2.5	5.1	N	1	1.0	1.0	5.1	5.1	∞
Readout Electronics	E.2.6	1.0	N	1	1.0	1.0	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	E.6.3	2.9	R	1.73	1.0	1.0	1.7	1.7	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1.0	1.0	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	6.0	N	1	1.0	1.0	6.0	6.0	287
Device Holder Uncertainty	E.4.1	3.32	R	1.73	1.0	1.0	1.9	1.9	∞
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	3.8	N	1	0.64	0.43	2.4	1.6	6
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - measurement uncertainty	E.3.3	4.5	N	1	0.60	0.49	2.7	2.2	6
Combined Standard Uncertainty (k=1)			RSS				12.1	11.7	299
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				24.2	23.5	

The above measurement uncertainties are according to IEEE Std. 1528-2003

Applicable for frequencies up to 6 GHz.

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	**IEEE 1528 Sec.**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i 1gm**	**c_i 10 gms**	**1gm u_i (± %)**	**10gms u_i (± %)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	1.0	1.0	1.3	1.3	∞
Boundary Effect	E.2.3	0.4	N	1	1.0	1.0	0.4	0.4	∞
Linearity	E.2.4	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	E.2.5	5.1	N	1	1.0	1.0	5.1	5.1	∞
Readout Electronics	E.2.6	1.0	N	1	1.0	1.0	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	E.6.3	2.9	R	1.73	1.0	1.0	1.7	1.7	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1.0	1.0	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	6.0	N	1	1.0	1.0	6.0	6.0	287
Device Holder Uncertainty	E.4.1	3.32	R	1.73	1.0	1.0	1.9	1.9	∞
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	3.8	N	1	0.64	0.43	2.4	1.6	6
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - measurement uncertainty	E.3.3	4.5	N	1	0.60	0.49	2.7	2.2	6
Combined Standard Uncertainty (k=1)			RSS				12.4	12.0	299
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				24.7	24.0	

The above measurement uncertainties are according to IEEE Std. 1528-2003

16 CONCLUSION

16.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry 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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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 16

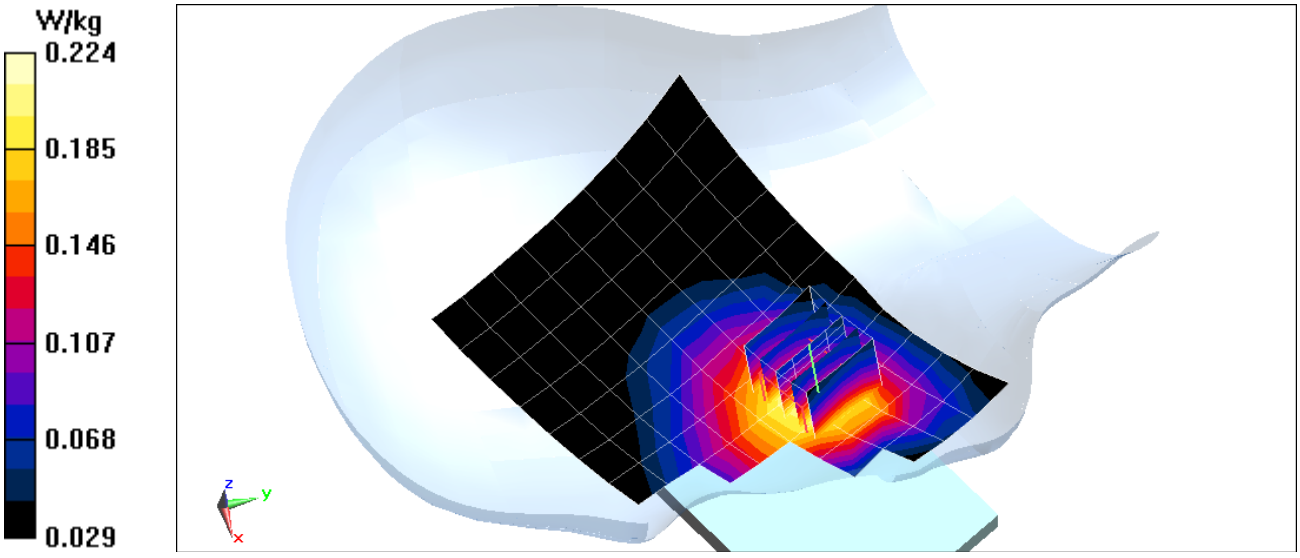
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.52$ MHz; $\sigma = 0.913$ S/m; $\varepsilon_r = 41.331$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 09-30-2014; Ambient Temp: 22.7°C; Tissue Temp: 22.7°C

Probe: ES3DV2 - SN3022; ConvF(6.18, 6.18, 6.18); Calibrated: 8/19/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 8/12/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: Cell. CDMA, Right Head, Cheek, Mid.ch, Standard Cover

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.37 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.208 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 16

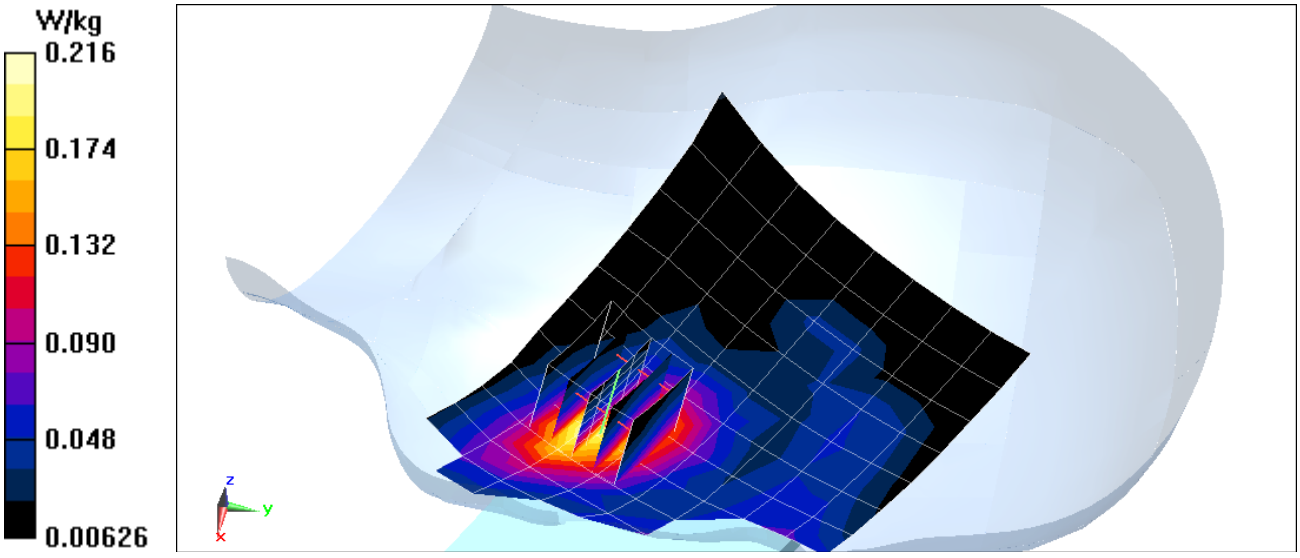
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.4 S/m; ε_r = 39.524; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-30-2014; Ambient Temp: 24.3°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3263; ConvF(5.08, 5.08, 5.08); Calibrated: 5/15/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/14/2014
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: PCS EVDO RevA, Left Head, Cheek, Mid.ch, Standard Cover

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.84 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.284 W/kg
SAR(1 g) = 0.184 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 15

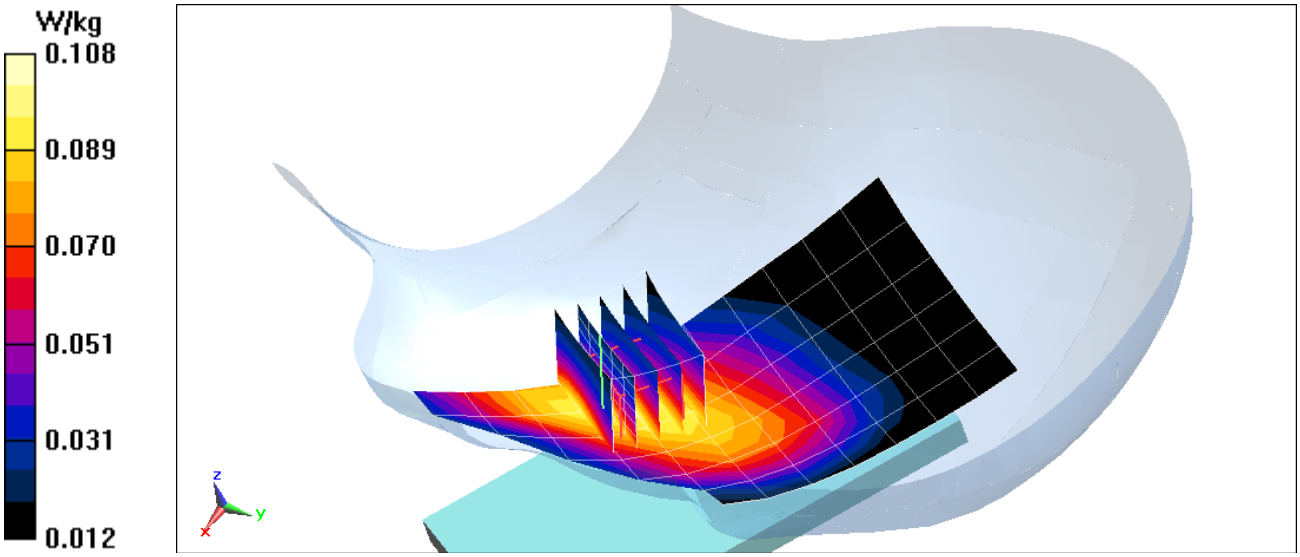
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
$f = 707.5$ MHz; $\sigma = 0.858$ S/m; $\varepsilon_r = 41.335$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 10-02-2014; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: ES3DV2 - SN3022; ConvF(6.39, 6.39, 6.39); Calibrated: 8/19/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 8/12/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 12, Left Head, Cheek, Mid.ch, QPSK,
10 MHz Bandwidth, 1 RB, 0 RB Offset, Wireless Charging Cover

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.46 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.124 W/kg
SAR(1 g) = 0.098 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 13

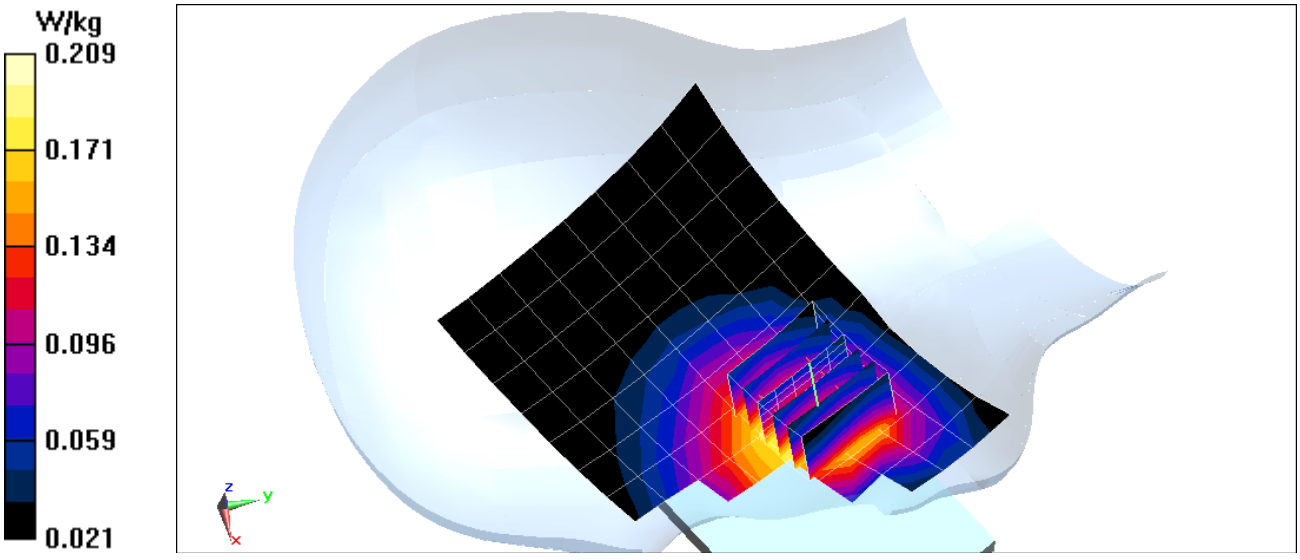
Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.5$ MHz; $\sigma = 0.912$ S/m; $\varepsilon_r = 41.331$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 09-30-2014; Ambient Temp: 22.7°C; Tissue Temp: 22.7°C

Probe: ES3DV2 - SN3022; ConvF(6.18, 6.18, 6.18); Calibrated: 8/19/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 8/12/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 5 (Cell.), Right Head, Cheek, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, Standard Cover

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.46 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.241 W/kg
SAR(1 g) = 0.193 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 12

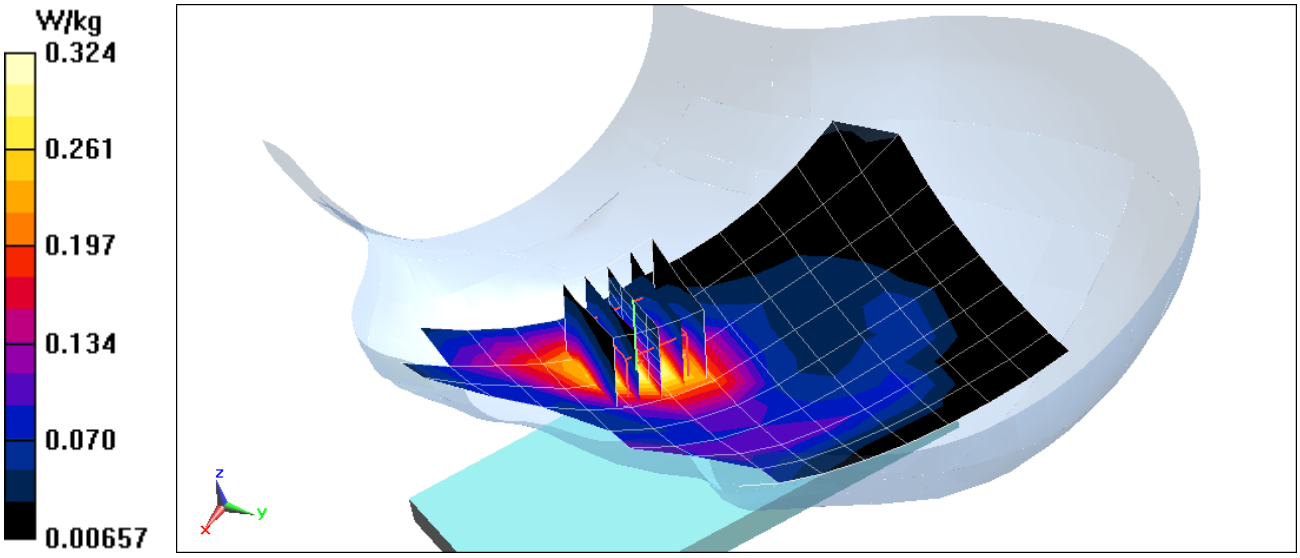
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.345$ S/m; $\varepsilon_r = 39.267$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 10-13-2014; Ambient Temp: 24.1°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3258; ConvF(5.19, 5.19, 5.19); Calibrated: 2/25/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/26/2014
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 4 (AWS), Left Head, Cheek, Mid.ch,
QPSK, 20 MHz Bandwidth, 1 RB, 0 RB Offset, Standard Cover

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.58 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.408 W/kg
SAR(1 g) = 0.277 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 12

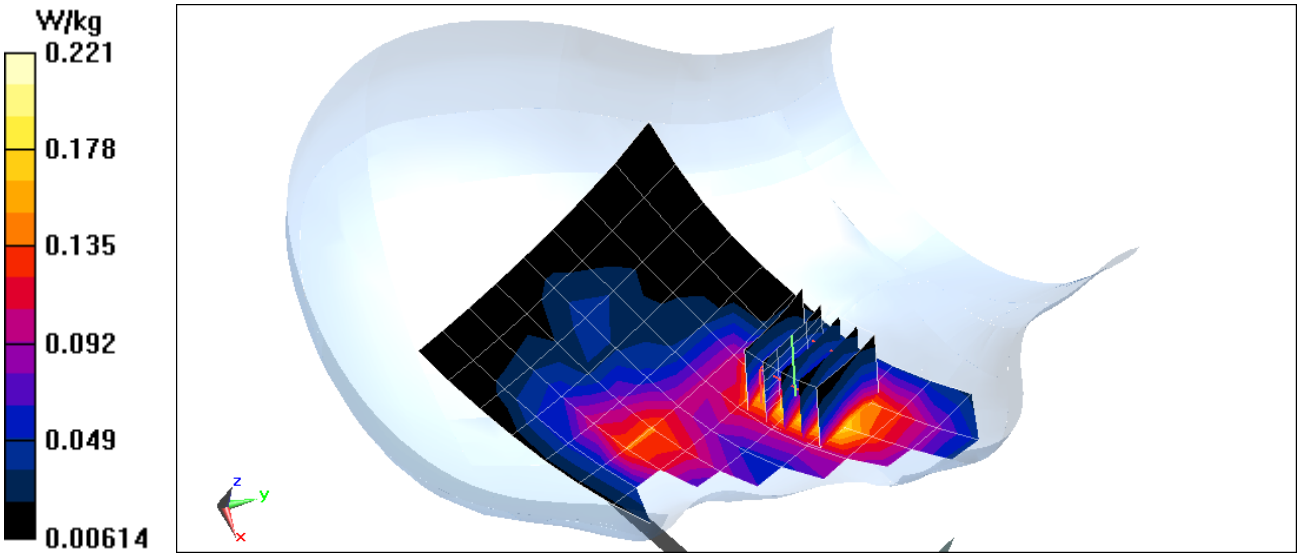
Communication System: UID 0, LTE Band 2 (PCS); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.4 S/m; ε_r = 39.524; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-30-2014; Ambient Temp: 24.3°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3263; ConvF(5.08, 5.08, 5.08); Calibrated: 5/15/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/14/2014
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 2 (PCS), Right Head, Cheek, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset, Standard Cover

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.79 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.281 W/kg
SAR(1 g) = 0.190 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 1

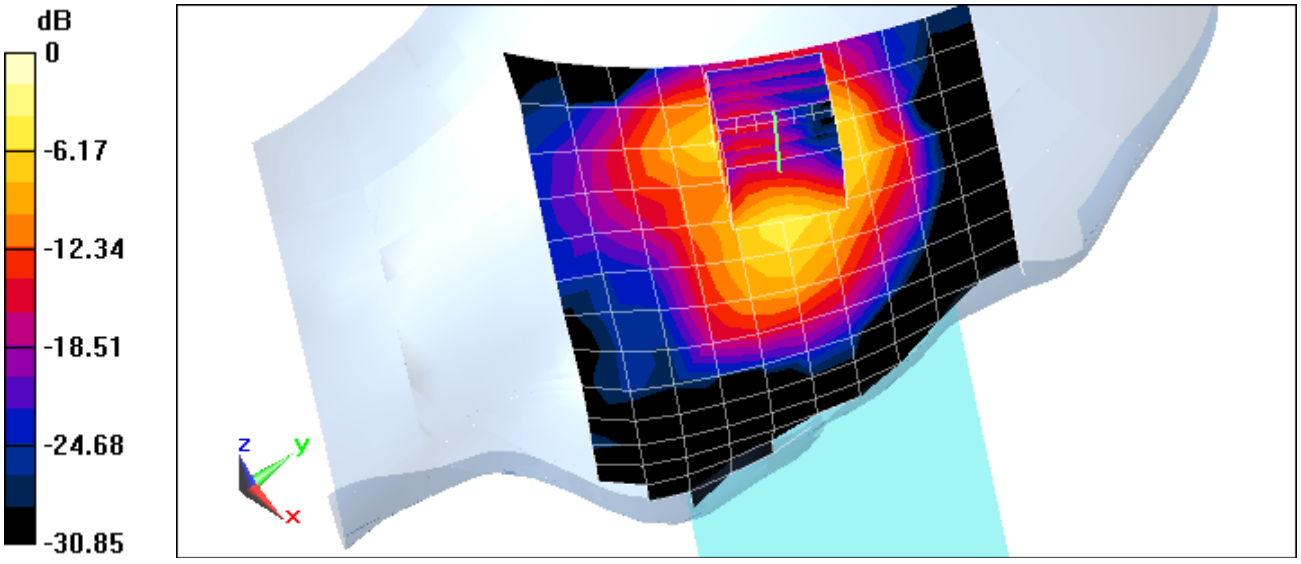
Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
$f = 2462$ MHz; $\sigma = 1.839$ S/m; $\varepsilon_r = 40.826$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 10-01-2014; Ambient Temp: 24.1°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3258; ConvF(4.52, 4.52, 4.52); Calibrated: 2/25/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/26/2014
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11b, Left Head, Cheek, Ch 11, 1 Mbps, Antenna 2, Wireless Charging Cover

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.149 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.520 W/kg



0 dB = 0.698 W/kg = -1.56 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 17

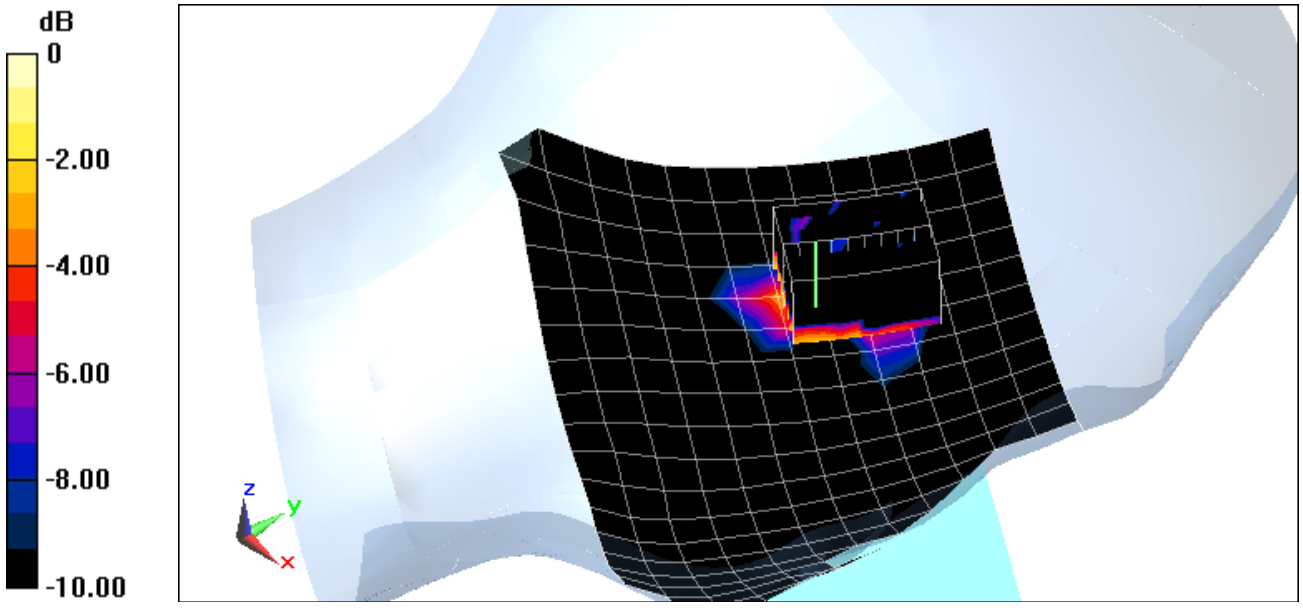
Communication System: UID 0, IEEE 802.11n; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used:
f = 5825 MHz; σ = 5.132 S/m; ε_r = 35.368; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 10-01-2014; Ambient Temp: 24.4°C; Tissue Temp: 24.1°C

Probe: EX3DV4 - SN3914; ConvF(4.52, 4.52, 4.52); Calibrated: 10/23/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 11/19/2013
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11n, 5.8 GHz, Left Head, Cheek, Ch 165, 13 Mbps, MIMO, Standard Cover

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (10x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 2.582 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.220 W/kg



0 dB = 0.633 W/kg = -1.99 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 17

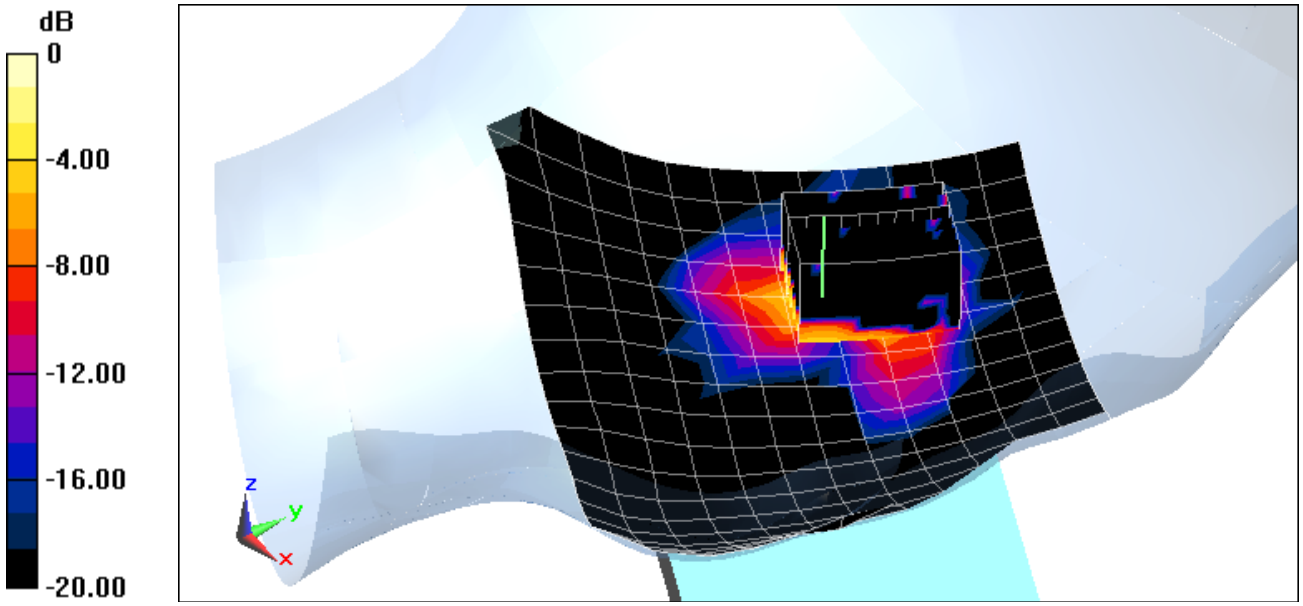
Communication System: UID 0, IEEE 802.11n; Frequency: 5700 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used:
f = 5700 MHz; σ = 5.007 S/m; ε_r = 35.509; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 10-01-2014; Ambient Temp: 24.4°C; Tissue Temp: 24.1°C

Probe: EX3DV4 - SN3914; ConvF(4.37, 4.37, 4.37); Calibrated: 10/23/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 11/19/2013
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6. 10 (7331)

Mode: IEEE 802.11n, 5.5 GHz, Left Head, Cheek, Ch 140, 13 Mbps, MIMO, Standard Cover

Area Scan (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (10x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 2.607 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 0.320 W/kg



0 dB = 0.935 W/kg = -0.29 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 16

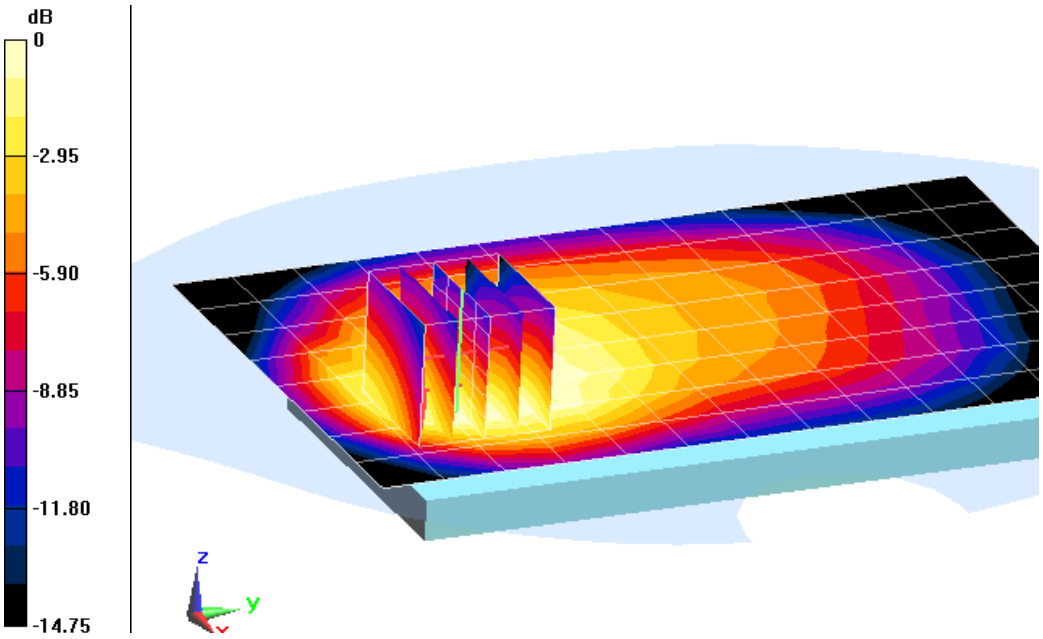
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.946 S/m; ε_r = 53.264; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-30-2014; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3213; ConvF(6.18, 6.18, 6.18); Calibrated: 4/11/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 11/18/2013
Phantom: Sub TWIN SAM; Type: QD000P40CC; Serial: TP-1357
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: Cell. CDMA, Body SAR, Back side, Mid.ch; Standard Cover

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.59 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.765 W/kg
SAR(1 g) = 0.467 W/kg



0 dB = 0.531 W/kg = -2.75 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 16

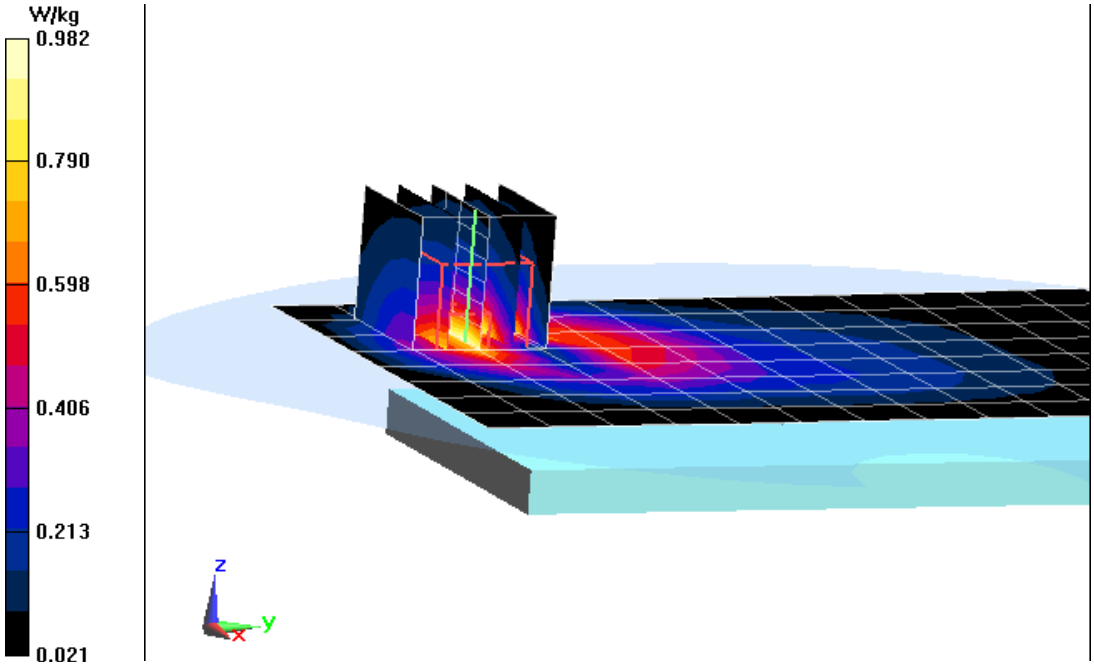
Communication System: UID 0, CDMA ; Frequency: 848.31 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
$f = 848.31$ MHz; $\sigma = 0.958$ S/m; $\varepsilon_r = 53.169$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-30-2014; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3213; ConvF(6.18, 6.18, 6.18); Calibrated: 4/11/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 11/18/2013
Phantom: Sub TWIN SAM; Type: QD000P40CC; Serial: TP-1357
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: Cell. EVDO Rev. 0, Body SAR, Front side, High.ch; Standard Cover

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.10 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.787 W/kg



DUT: A3LSMN915R4; Type: Portable Handset; Serial: 16

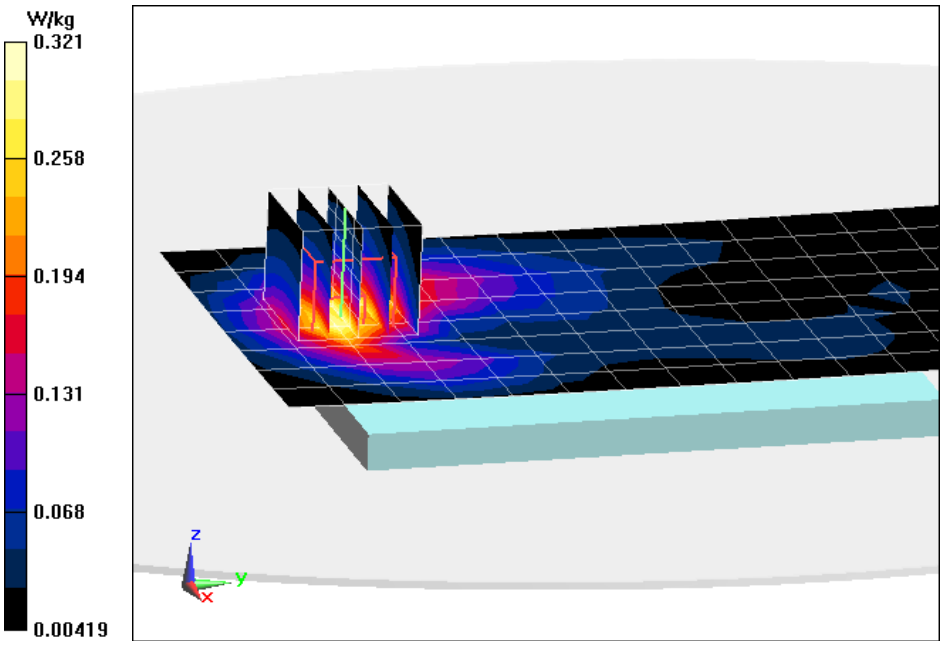
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.546 S/m; ε_r = 50.899; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-09-2014; Ambient Temp: 22.8°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 4/11/2014
Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202
Measurement SW DASY52, Version 52.8(8); SEMCAD X Version 14.6.10 (7331)

Mode: PCS CDMA, Body SAR, Back side, Mid.ch, Standard Cover

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.12 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.417 W/kg
SAR(1 g) = 0.269 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 19

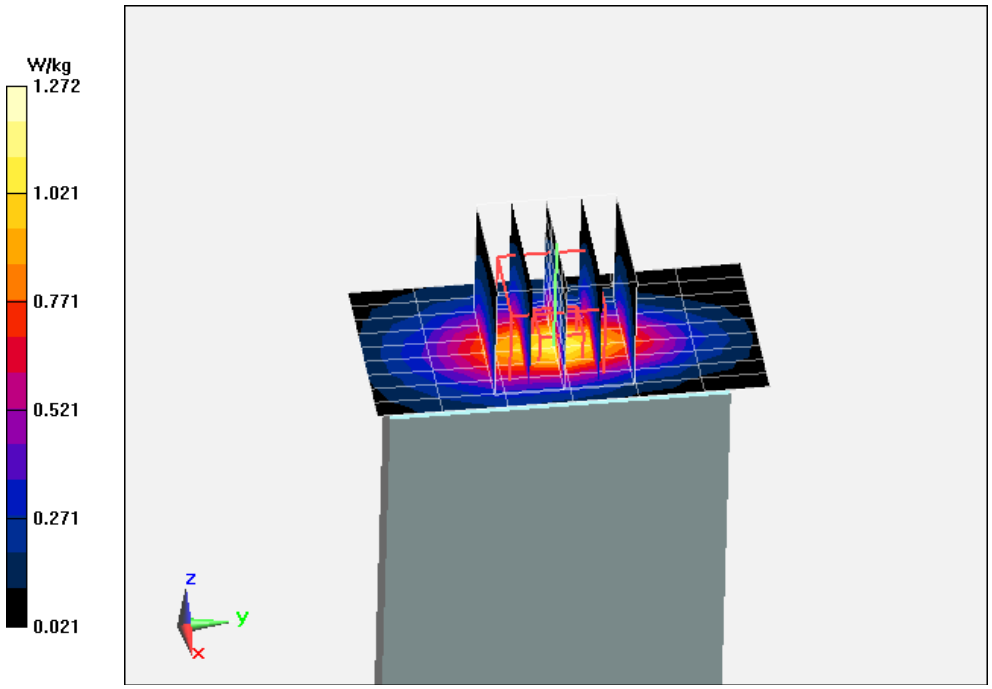
Communication System: UID 0, CDMA, Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1908.75$ MHz; $\sigma = 1.584$ S/m; $\varepsilon_r = 50.805$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 4/11/2014
Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: PCS EVDO Rev. 0, Body SAR, Bottom Edge, High.ch, Standard Cover

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.60 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 1.03 W/kg



DUT: A3LSMN915R4; Type: Portable Handset; Serial: 15

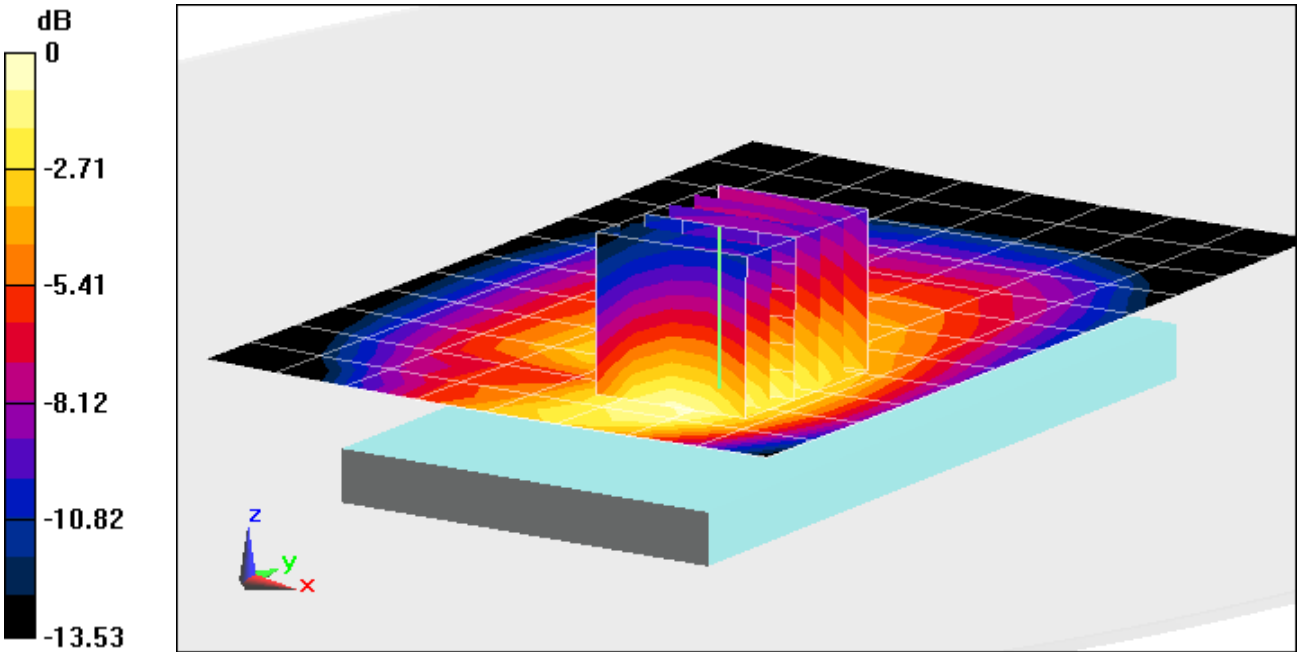
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.939 S/m; ε_r = 56.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-01-2014; Ambient Temp: 24.2°C; Tissue Temp: 22.2°C

Probe: ES3DV2 - SN3022; ConvF(6.02, 6.02, 6.02); Calibrated: 8/19/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 8/12/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1226
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6. 10 (7331)

Mode: LTE Band 12, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, Standard Cover

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.537 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.512 W/kg
SAR(1 g) = 0.352 W/kg



0 dB = 0.407 W/kg = -3.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 15

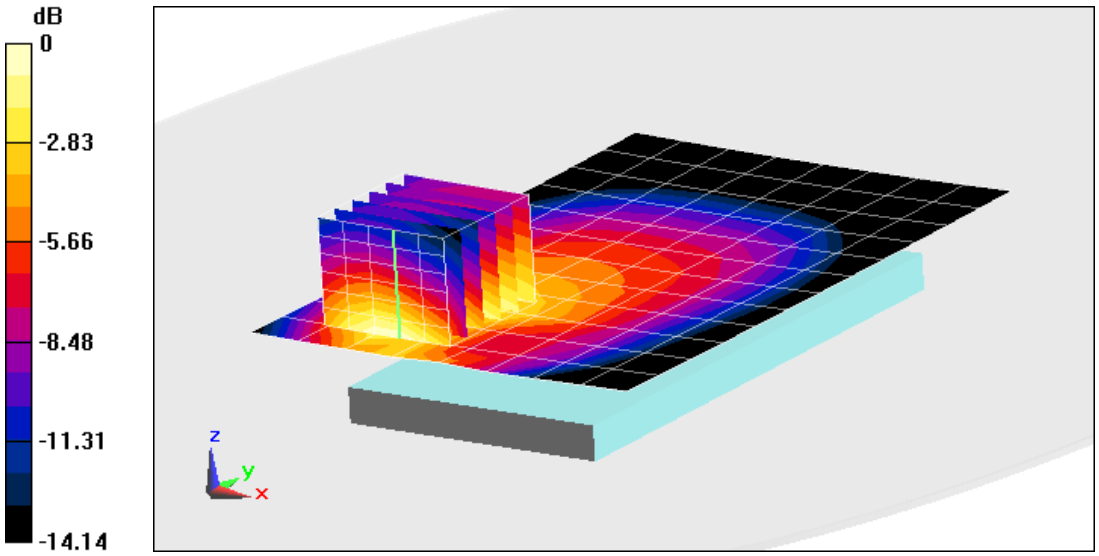
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.939 S/m; ε_r = 56.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-01-2014; Ambient Temp: 24.2°C; Tissue Temp: 22.2°C

Probe: ES3DV2 - SN3022; ConvF(6.02, 6.02, 6.02); Calibrated: 8/19/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 8/12/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1226
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6. 10 (7331)

Mode: LTE Band 12, Body SAR, Front side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset, Standard Cover

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.448 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.665 W/kg
SAR(1 g) = 0.396 W/kg



0 dB = 0.463 W/kg = -3.34 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 12

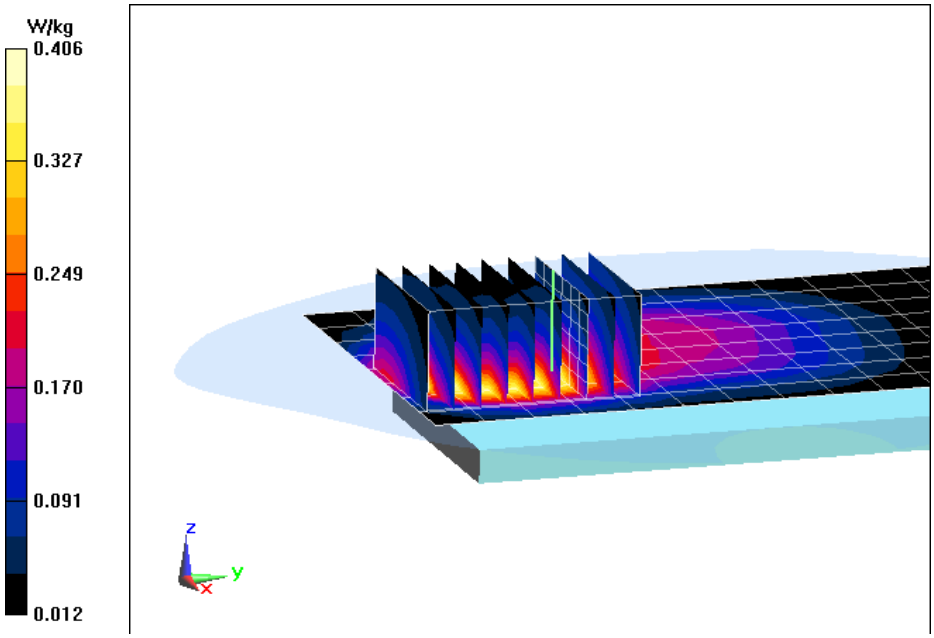
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.946 S/m; ε_r = 53.264; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-30-2014; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3213; ConvF(6.18, 6.18, 6.18); Calibrated: 4/11/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 11/18/2013
Phantom: Sub TWIN SAM; Type: QD000P40CC; Serial: TP-1357
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset; Standard Cover

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x9x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.94 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.560 W/kg
SAR(1 g) = 0.355 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 12

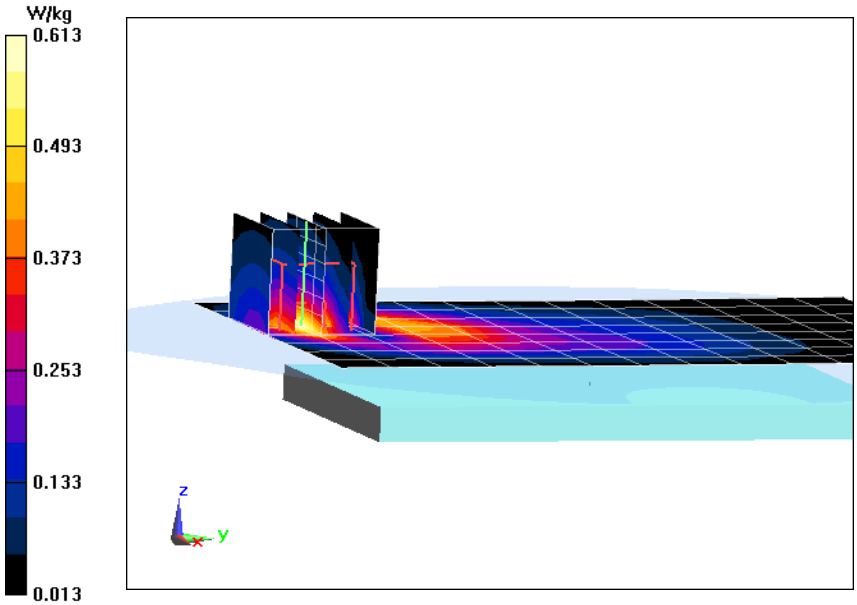
Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
$f = 836.5$ MHz; $\sigma = 0.946$ S/m; $\varepsilon_r = 53.264$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-30-2014; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3213; ConvF(6.18, 6.18, 6.18); Calibrated: 4/11/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 11/18/2013
Phantom: Sub TWIN SAM; Type: QD000P40CC; Serial: TP-1357
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 5 (Cell.), Body SAR, Front side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset; Standard Cover

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.38 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.842 W/kg
SAR(1 g) = 0.500 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 13

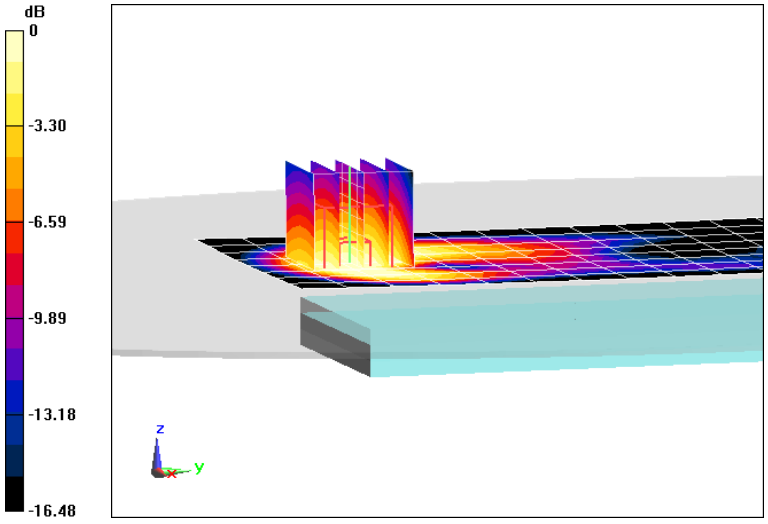
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.468$ S/m; $\varepsilon_r = 51.68$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-06-2014; Ambient Temp: 22.5°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3287; ConvF(4.93, 4.93, 4.93); Calibrated: 11/20/2013;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 11/19/2013
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 4 (AWS), Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset; Standard Cover

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.41 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.532 W/kg
SAR(1 g) = 0.347 W/kg



0 dB = 0.411 W/kg = -3.86 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 20

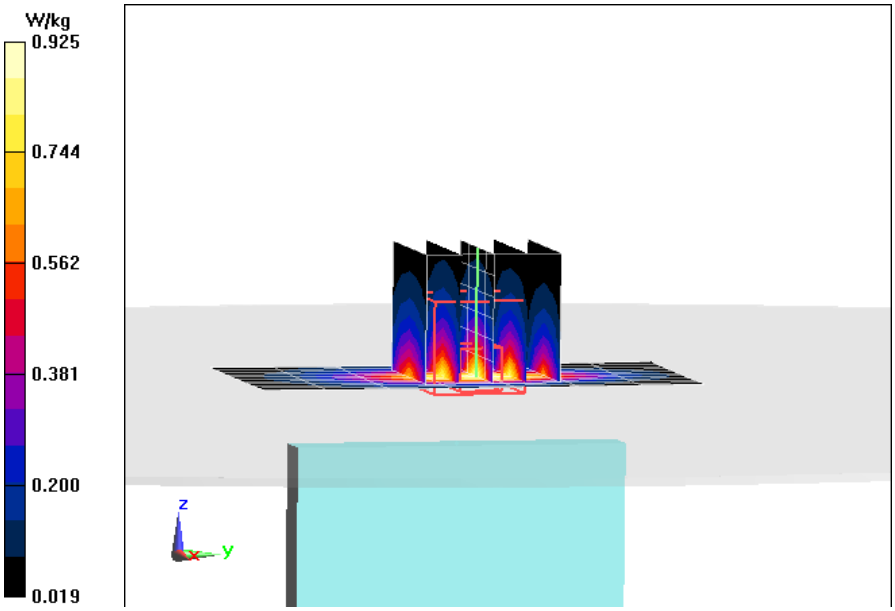
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.468$ S/m; $\varepsilon_r = 51.68$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 22.5°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3287; ConvF(4.93, 4.93, 4.93); Calibrated: 11/20/2013;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 11/19/2013
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 4 (AWS), Body SAR, Bottom Edge, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset; Wireless Charging Cover

Area Scan (11x8x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.45 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.758 W/kg



DUT: A3LSMN915R4; Type: Portable Handset; Serial: 13

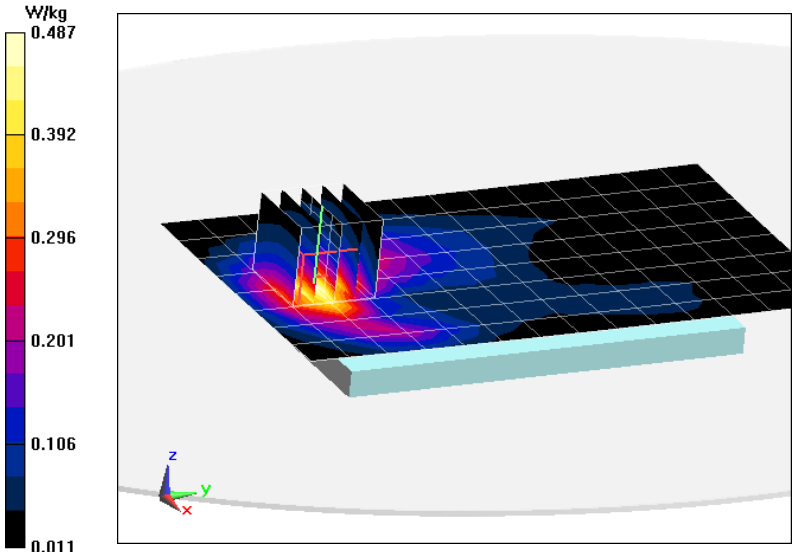
Communication System: UID 0, LTE Band 2 (PCS); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.549 S/m; ε_r = 50.915; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Space: 1.5 cm

Test Date: 10-06-2014; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 4/11/2014
Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 2 (PCS), Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset; Standard Cover

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.34 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.641 W/kg
SAR(1 g) = 0.418 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 20

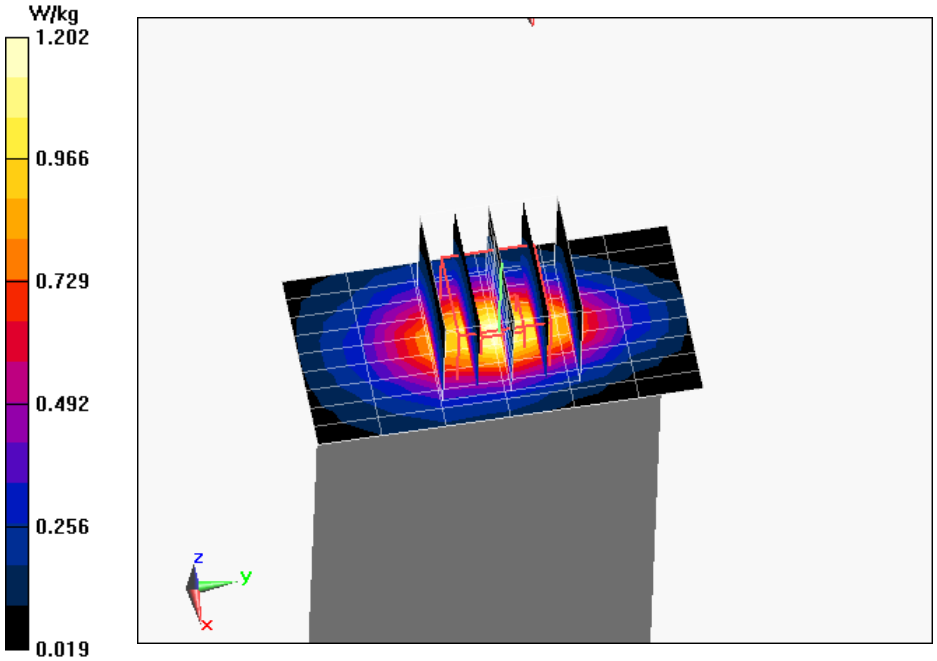
Communication System: UID 0, LTE Band 2 (PCS); Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1900$ MHz; $\sigma = 1.573$ S/m; $\varepsilon_r = 50.838$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 4/11/2014
Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 2 (PCS), Body SAR, Bottom Edge, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset; Standard Cover

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.88 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.60 W/kg
SAR(1 g) = 0.975 W/kg



DUT: A3LSMN915R4; Type: Portable Handset; Serial: 1

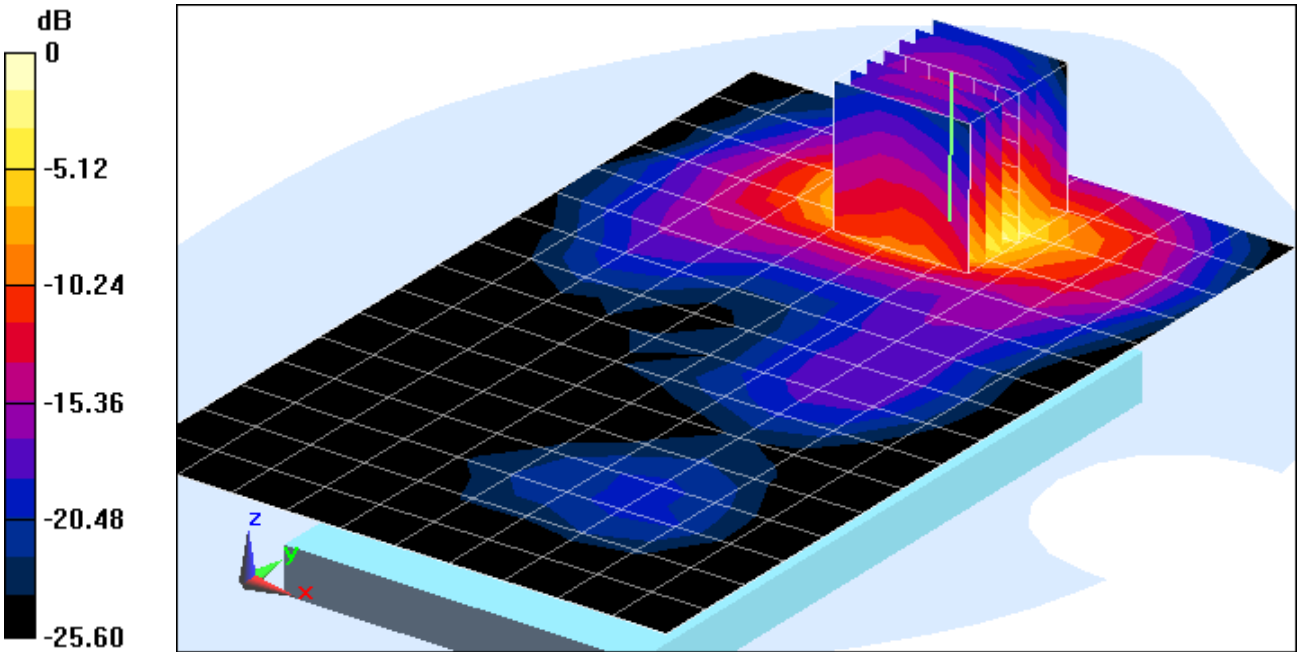
Communication System: UID 0, IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.024 S/m; ε_r = 51.207; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 24.5°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3263; ConvF(4.27, 4.27, 4.27); Calibrated: 5/15/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/14/2014
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11b, Body SAR, Ch 11, 1 Mbps, Back Side, Antenna 2,Wireless Charging Cover

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.596 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.727 W/kg



0 dB = 0.980 W/kg = -0.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 5

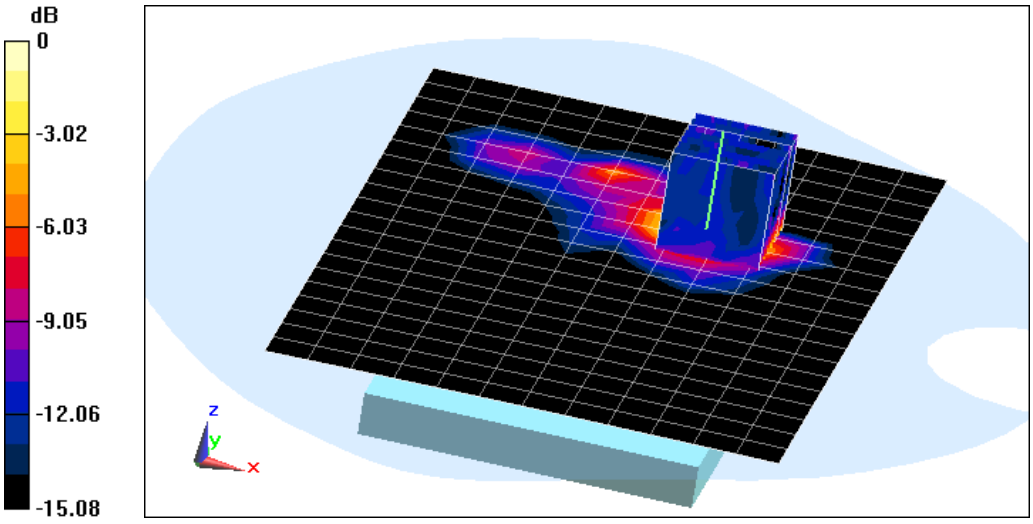
Communication System: UID 0, IEEE 802.11n 5.2-5.8 GHz Band Frequency: 5825 MHz, Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5825 MHz; σ = 6.251 S/m; ε_r = 46.938; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 20.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3920; ConvF(4, 4, 4); Calibrated: 12/18/2013
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 12/12/2013
Phantom: SAM Sub with CRP v4.0; Type: QD000P40CC; Serial: TP:1357
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11n, 5.8 GHz, Body SAR, Ch 165, 13 Mbps, Back Side, MIMO, Standard Cover

Area Scan (13x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 4.270 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.494 W/kg
SAR(1 g) = 0.120 W/kg



0 dB = 0.342 W/kg = -4.66 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 5

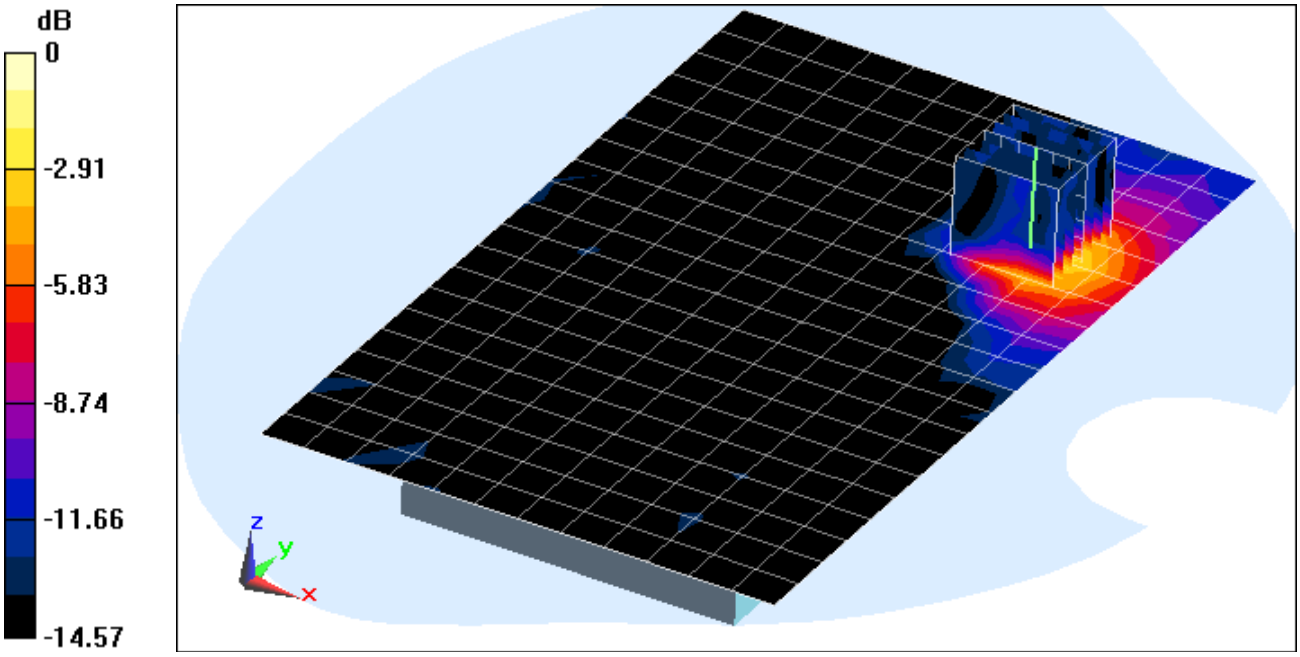
Communication System: UID 0, IEEE 802.11n; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5825 MHz; σ = 6.251 S/m; ε_r = 46.938; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 20.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3920; ConvF(4, 4, 4); Calibrated: 12/18/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 12/12/2013
Phantom: SAM Sub with CRP v4.0; Type: QD000P40CC; Serial: TP:1357
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11n, 5.8 GHz, Body SAR, Ch 165, 13 Mbps, Back Side, MIMO,Wireless Charging Cover

Area Scan (13x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 5.587 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.727 W/kg
SAR(1 g) = 0.179 W/kg



0 dB = 0.445 W/kg = -3.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 5

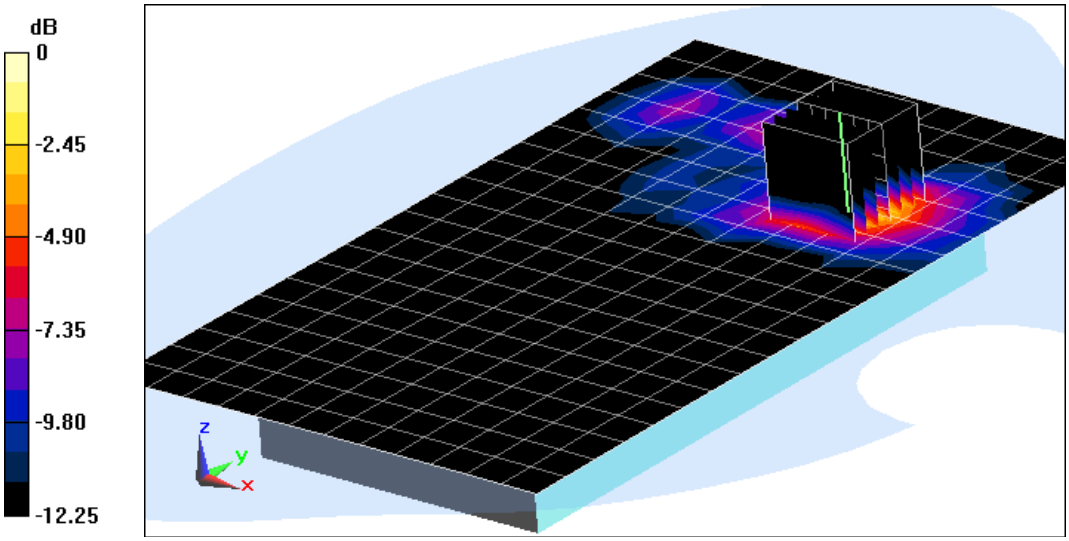
Communication System: UID 0, IEEE 802.11n 5.2-5.8 GHz Band; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5260 MHz; σ = 5.493 S/m; ε_r = 47.691; ρ = 1000 kg/m^3
Phantom section: Flat Section, Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 20.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3920; ConvF(4.11, 4.11, 4.11); Calibrated: 12/18/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 12/12/2013
Phantom: SAM Sub with CRP v4.0; Type: QD000P40CC; Serial: TP:1357
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11n, 5.3 GHz, Body SAR, Ch 52, 13 Mbps, Back Side, MIMO, Wireless Charging Cover

Area Scan (13x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 7.173 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.856 W/kg
SAR(1 g) = 0.261 W/kg



0 dB = 0.558 W/kg = -2.53 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 16

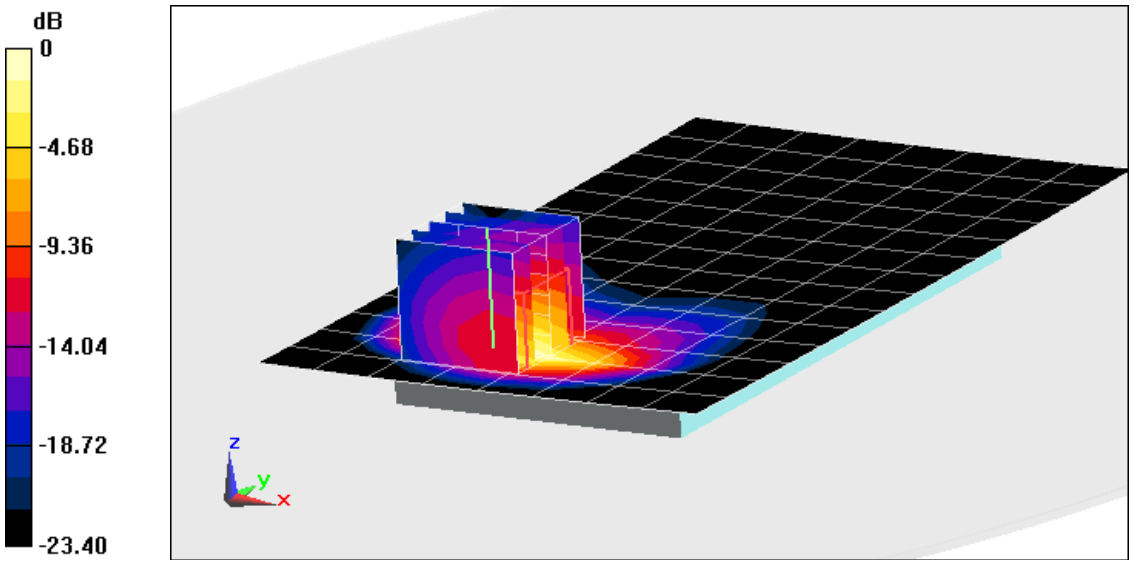
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.546 S/m; ε_r = 50.899; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-09-2014; Ambient Temp: 22.8°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 4/11/2014
Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: PCS EVDO Rev. 0, Extremity SAR, Front side, Mid.ch, Standard Cover

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (9x15x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.838 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 10.8 W/kg
SAR(10 g) = 2.39 W/kg



0 dB = 7.65 W/kg = 8.84 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 13

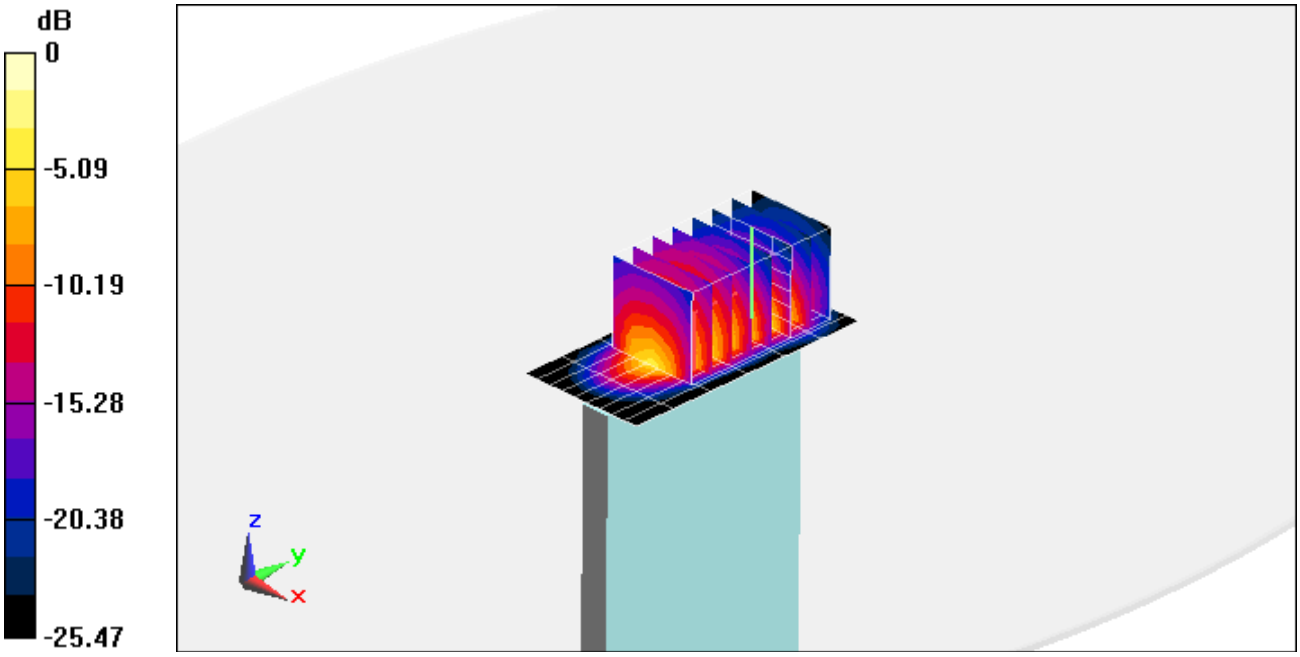
Communication System: UID 0, LTE Band 2 (PCS); Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1900$ MHz; $\sigma = 1.573$ S/m; $\varepsilon_r = 50.838$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-06-2014; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 4/11/2014
Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 2 (PCS), Extremity SAR, Bottom Edge, High.ch, 20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset, Standard Cover

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x8x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 75.490 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 18.9 W/kg
SAR(10 g) = 2.90 W/kg



0 dB = 10.5 W/kg = 10.21 dBW/kg

DUT: A3LSMN915R4; Type: Portable Handset; Serial: 5

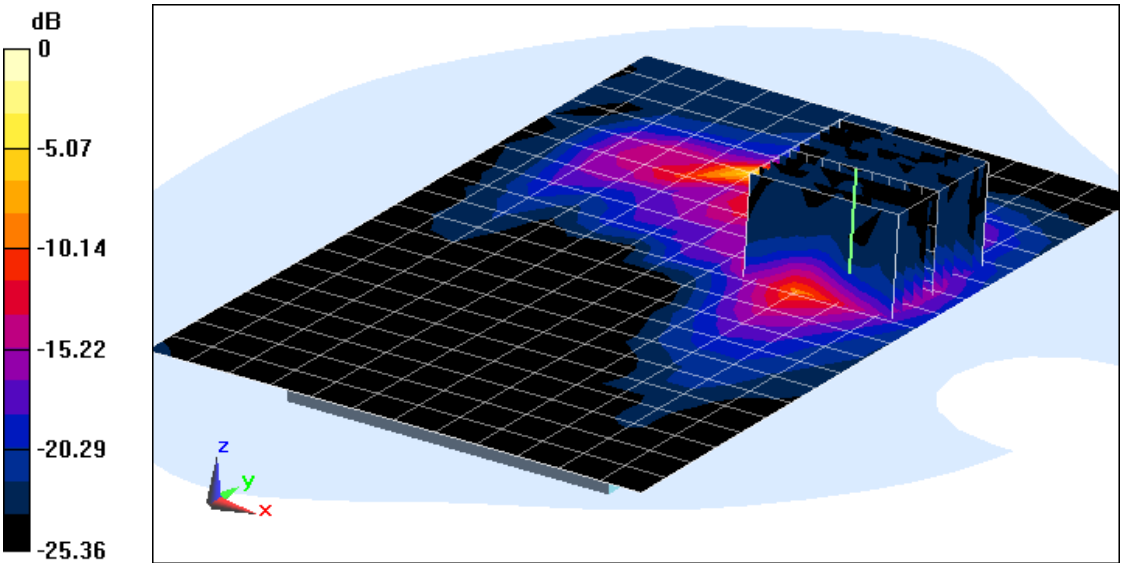
Communication System: UID 0, IEEE 802.11n 5.2-5.8 GHz Band; Frequency: 5220 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5220 MHz; σ = 5.451 S/m; ε_r = 47.75; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-06-2014; Ambient Temp: 20.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3920; ConvF(4.23, 4.23, 4.23); Calibrated: 12/18/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 12/12/2013
Phantom: SAM Sub with CRP v4.0; Type: QD000P40CC; Serial: TP:1357
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11n, 5.2 GHz, Extremity SAR, Ch 44, 13 Mbps, Back Side, MIMO, Wireless Charging Cover

Area Scan (13x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (10x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 19.936 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 11.6 W/kg
SAR(10 g) = 0.666 W/kg



0 dB = 6.09 W/kg = 7.85 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1003

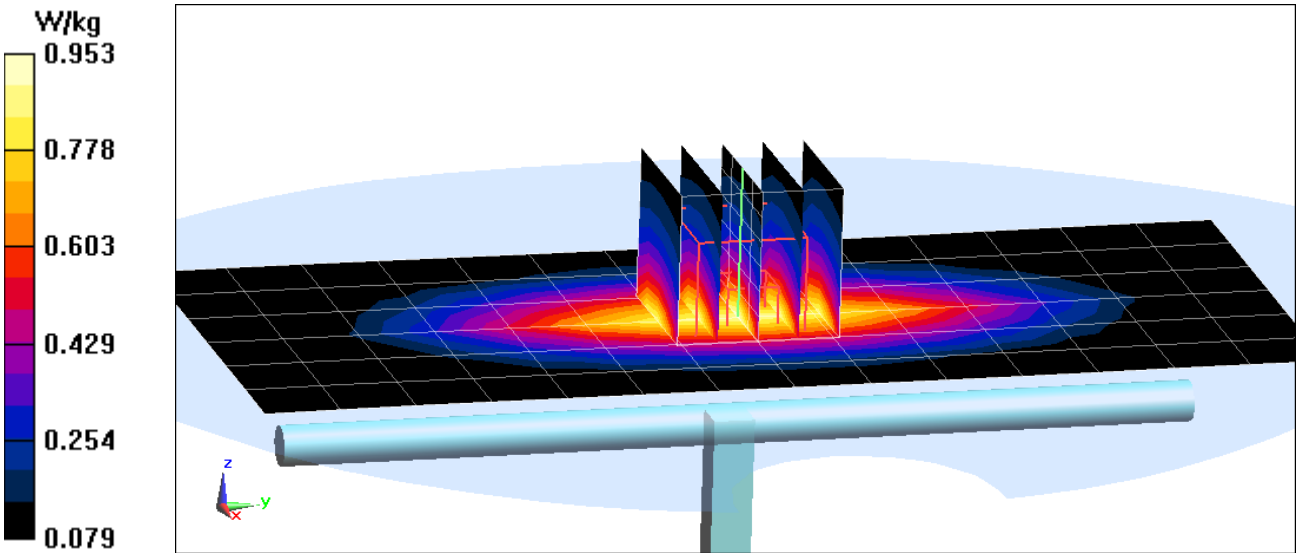
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
$f = 750$ MHz; $\sigma = 0.896$ S/m; $\varepsilon_r = 40.756$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-02-2014; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: ES3DV2 - SN3022; ConvF(6.39, 6.39, 6.39); Calibrated: 8/19/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 8/12/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW DASY52, Version 52.8(8); SEMCAD X Version 14.6.10 (7331)

750 MHz System Verification

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.820 W/kg
Deviation = -2.03 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d119

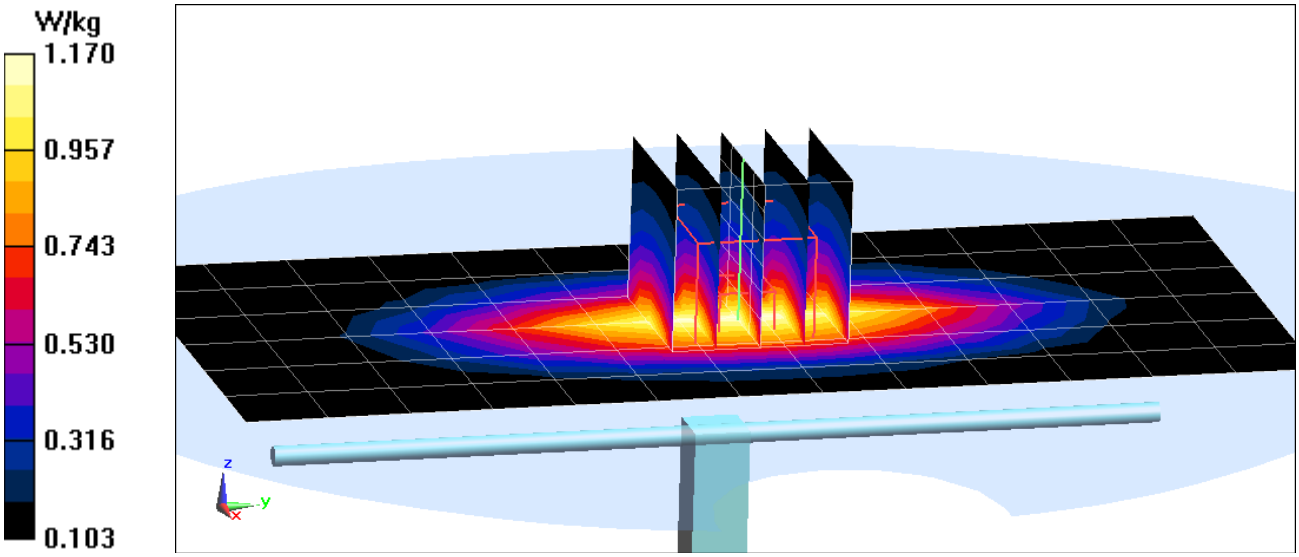
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.911 S/m; ε_r = 41.35; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-30-2014; Ambient Temp: 22.7°C; Tissue Temp: 22.7°C

Probe: ES3DV2 - SN3022; ConvF(6.18, 6.18, 6.18); Calibrated: 8/19/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 8/12/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1800
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.999 W/kg
Deviation = 8.35 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1765V2; Serial: 1008

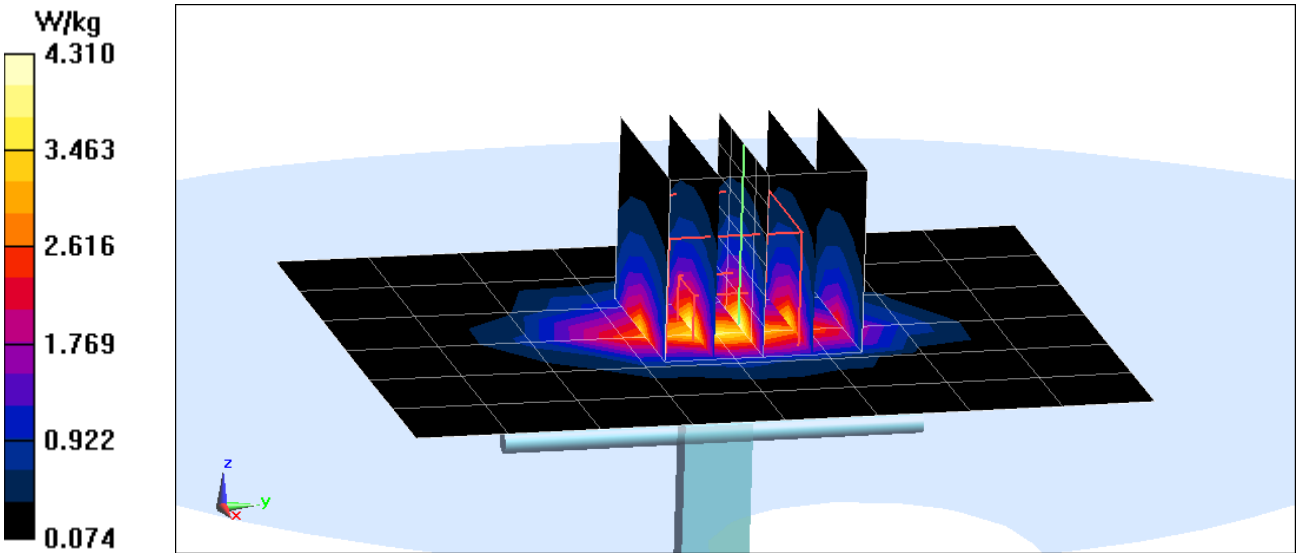
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used:
f = 1750 MHz; σ = 1.363 S/m; ε_r = 39.19; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-13-2014; Ambient Temp: 24.1°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3258; ConvF(5.19, 5.19, 5.19); Calibrated: 2/25/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/26/2014
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

1750 MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 6.30 W/kg
SAR(1 g) = 3.45 W/kg
Deviation = -6.50 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d141

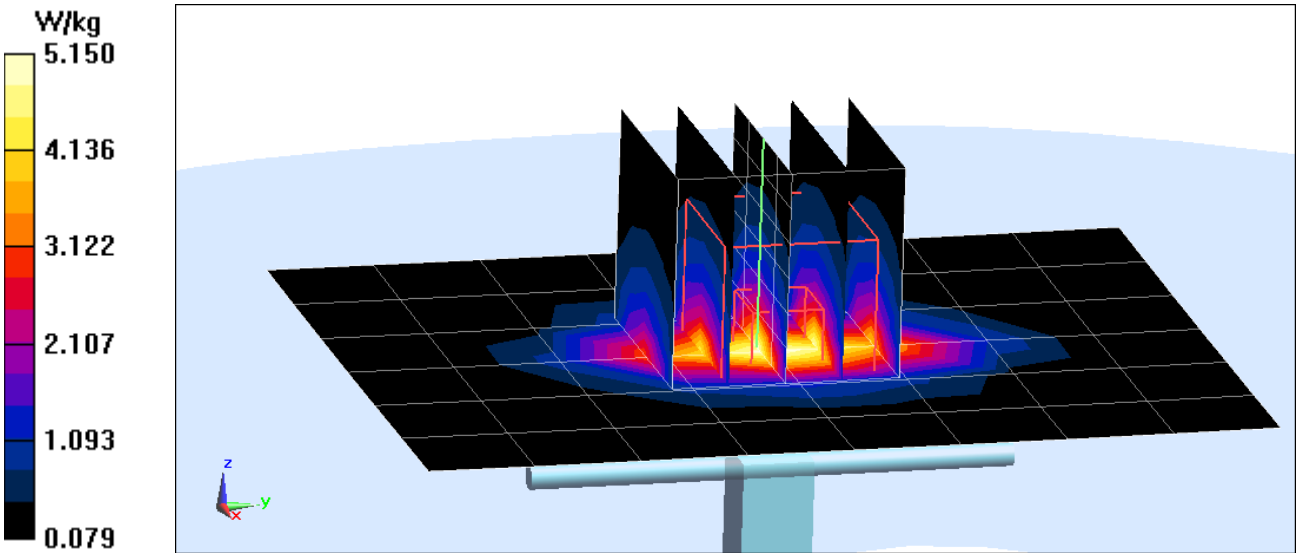
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.421 S/m; ε_r = 39.443; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-30-2014; Ambient Temp: 24.3°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3263; ConvF(5.08, 5.08, 5.08); Calibrated: 5/15/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/14/2014
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

1900 MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 7.50 W/kg
SAR(1 g) = 4.10 W/kg
Deviation = 2.24 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 797

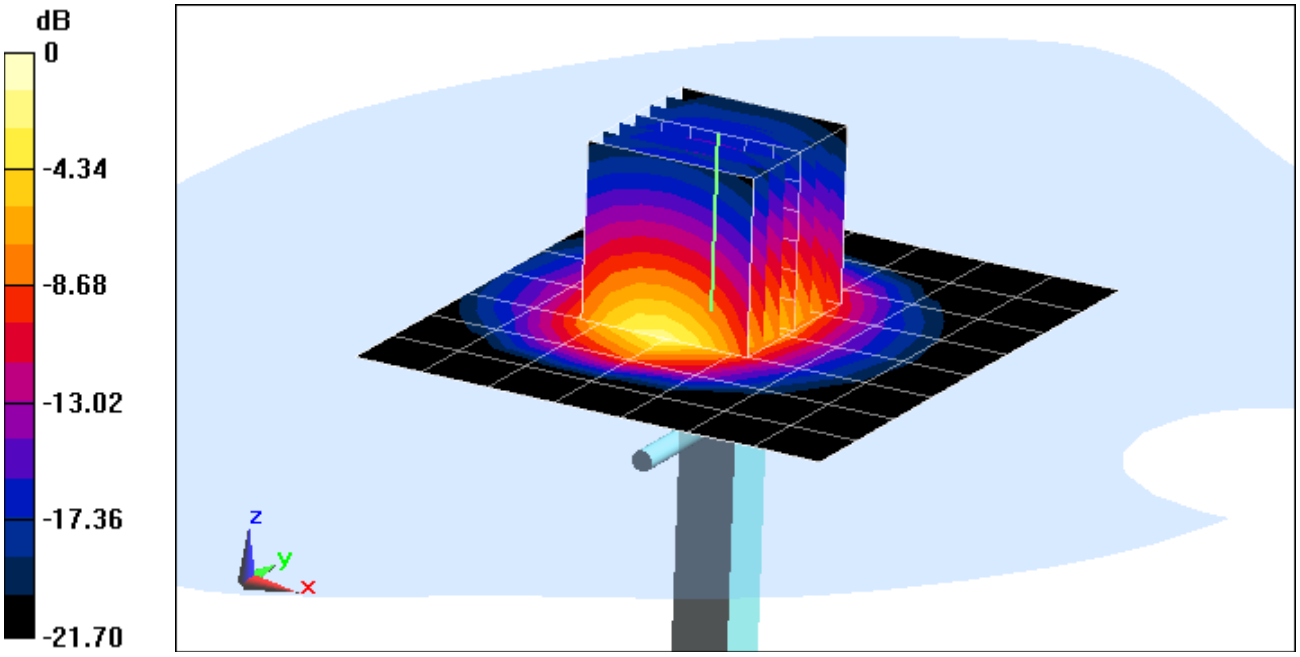
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.826 S/m; ε_r = 40.866; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-01-2014; Ambient Temp: 24.1°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3258; ConvF(4.52, 4.52, 4.52); Calibrated: 2/25/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/26/2014
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

2450 MHz System Verification

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 11.0 W/kg
SAR(1 g) = 5.39 W/kg
Deviation = 4.05 %



0 dB = 7.01 W/kg = 8.46 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1057

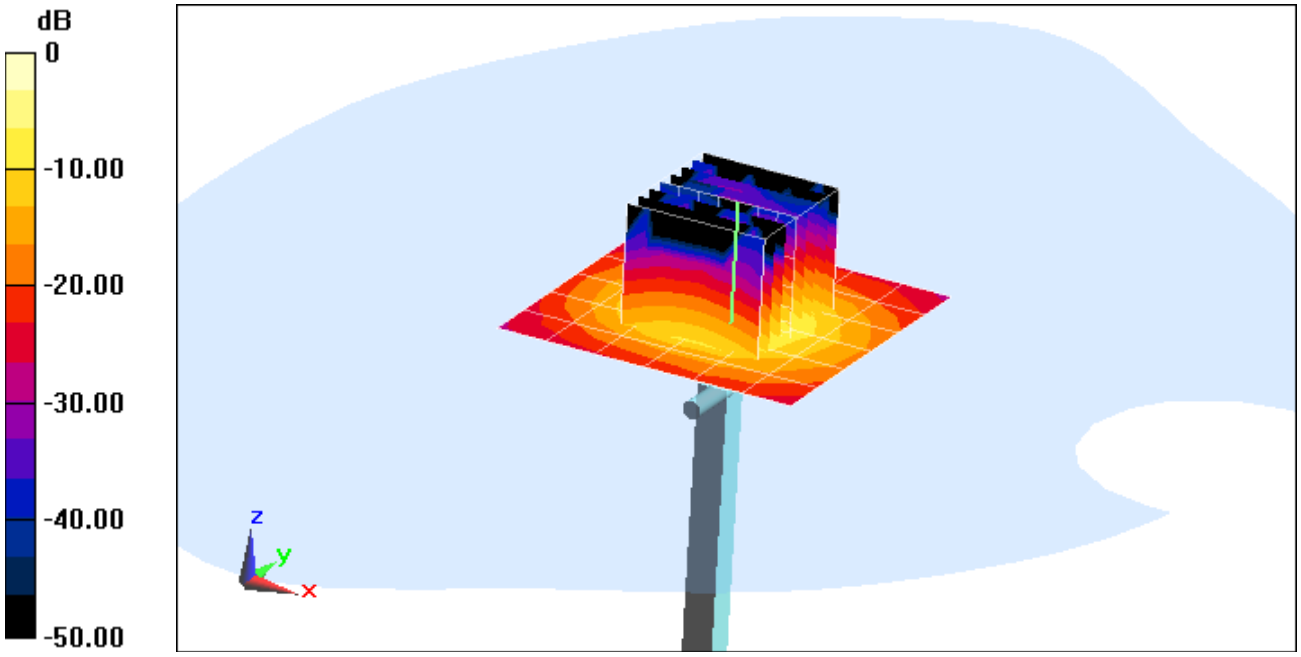
Communication System: UID 0, CW; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used:
f = 5200 MHz; σ = 4.508 S/m; ε_r = 36.165; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-01-2014; Ambient Temp: 24.5°C; Tissue Temp: 24.0°C

Probe: EX3DV4 - SN3914; ConvF(4.99, 4.99, 4.99); Calibrated: 10/23/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 11/19/2013
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

5200 MHz System Verification

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 31.2 W/kg
SAR(1 g) = 7.39 W/kg
Deviation = -5.26 %



0 dB = 17.7 W/kg = 12.48 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5300 MHz; Type: D5GHzV2; Serial: 1057

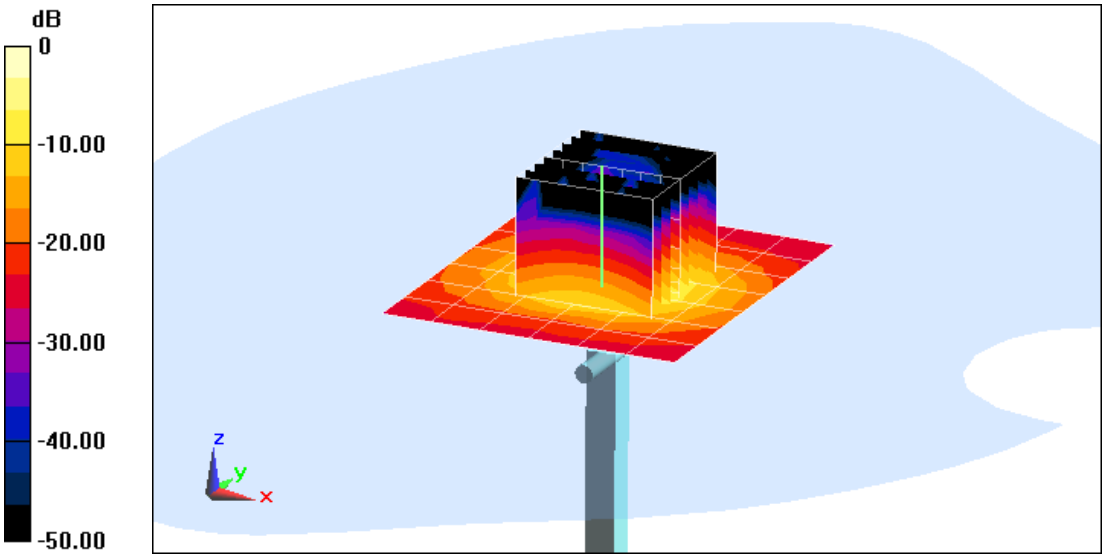
Communication System: UID 0, CW; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used:
f = 5300 MHz; σ = 4.616 S/m; ε_r = 36.035; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-01-2014; Ambient Temp: 24.5°C; Tissue Temp: 24.0°C

Probe: EX3DV4 - SN3914; ConvF(4.82, 4.82, 4.82); Calibrated: 10/23/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 11/19/2013
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

5300 MHz System Verification

Area Scan (7x8x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 34.0 W/kg
SAR(1 g) = 7.72 W/kg
Deviation = -6.99 %



0 dB = 18.7 W/kg = 12.72 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1057

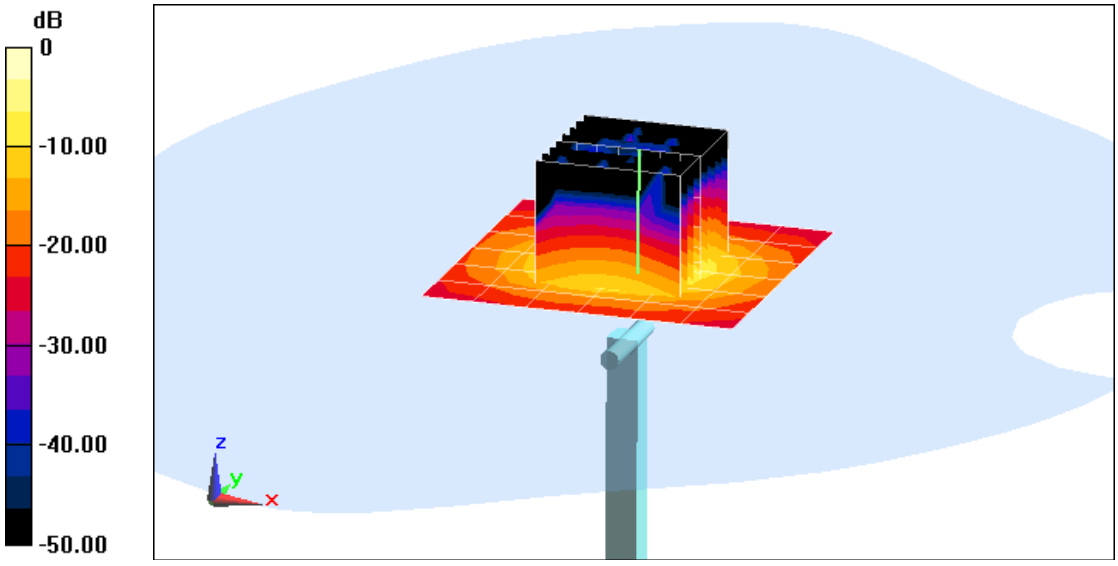
Communication System: UID 0, CW; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used:
f = 5500 MHz; σ = 4.808 S/m; ε_r = 35.764; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-01-2014; Ambient Temp: 24.4°C; Tissue Temp: 24.0°C

Probe: EX3DV4 - SN3914; ConvF(4.55, 4.55, 4.55); Calibrated: 10/23/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 11/19/2013
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

5500 MHz System Verification

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 34.5 W/kg
SAR(1 g) = 7.80 W/kg
Deviation = -7.47 %



0 dB = 18.6 W/kg = 12.70 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5600 MHz; Type: D5GHzV2; Serial: 1057

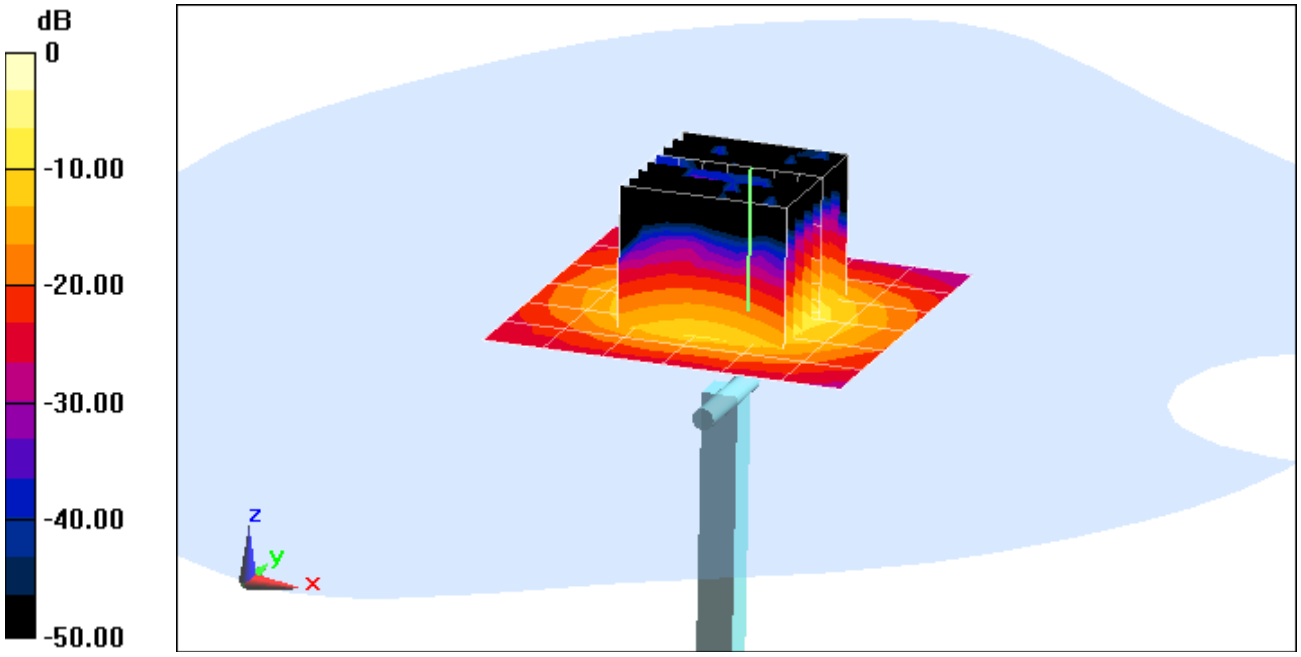
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used:
f = 5600 MHz; σ = 4.909 S/m; ε_r = 35.654; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-01-2014; Ambient Temp: 24.4°C; Tissue Temp: 24.1°C

Probe: EX3DV4 - SN3914; ConvF(4.37, 4.37, 4.37); Calibrated: 10/23/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 11/19/2013
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

5600 MHz System Verification

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 37.9 W/kg
SAR(1 g) = 8.37 W/kg
Deviation = 0.24 %



0 dB = 20.2 W/kg = 13.05 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1057

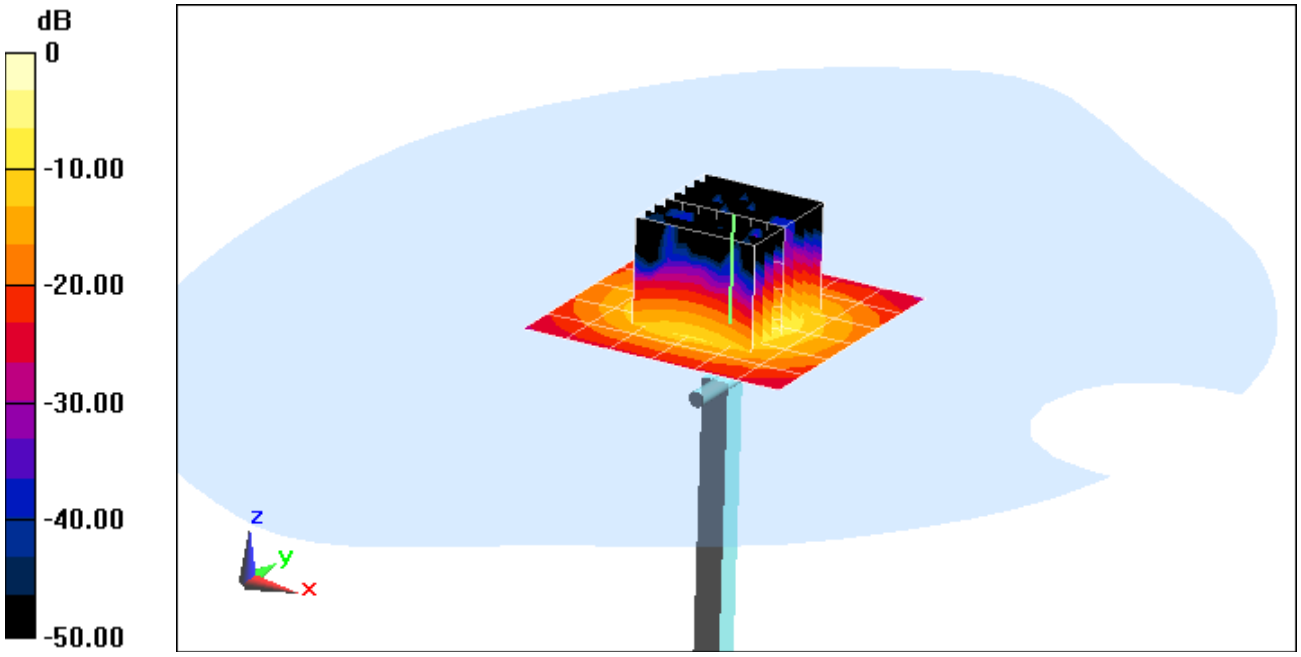
Communication System: UID 0, CW; Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used:
f = 5800 MHz; σ = 5.103 S/m; ε_r = 35.411; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-01-2014; Ambient Temp: 24.4°C; Tissue Temp: 24.1°C

Probe: EX3DV4 - SN3914; ConvF(4.52, 4.52, 4.52); Calibrated: 10/23/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 11/19/2013
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5800 MHz System Verification

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 35.2 W/kg
SAR(1 g) = 7.46 W/kg
Deviation = -5.93 %



0 dB = 18.3 W/kg = 12.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1003

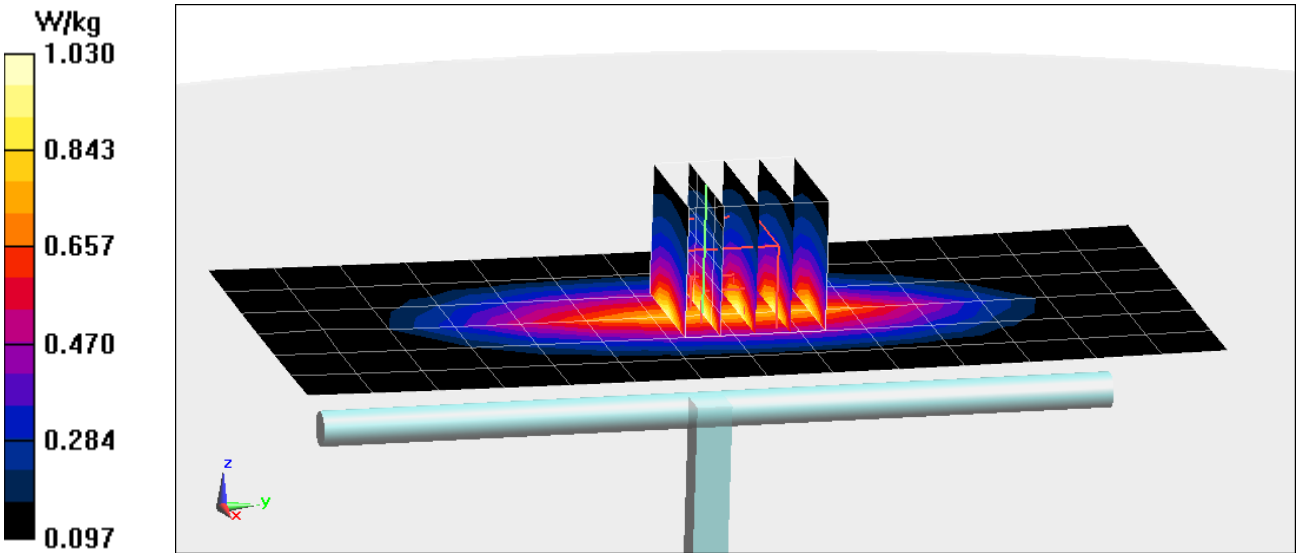
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
$f = 750$ MHz; $\sigma = 0.977$ S/m; $\varepsilon_r = 56.503$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-01-2014; Ambient Temp: 24.2°C; Tissue Temp: 22.2°C

Probe: ES3DV2 - SN3022; ConvF(6.02, 6.02, 6.02); Calibrated: 8/19/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 8/12/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1226
Measurement SW DASY52, Version 52.8(8); SEMCAD X Version 14.6.10 (7331)

750 MHz System Verification

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.887 W/kg
Deviation = 1.14 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

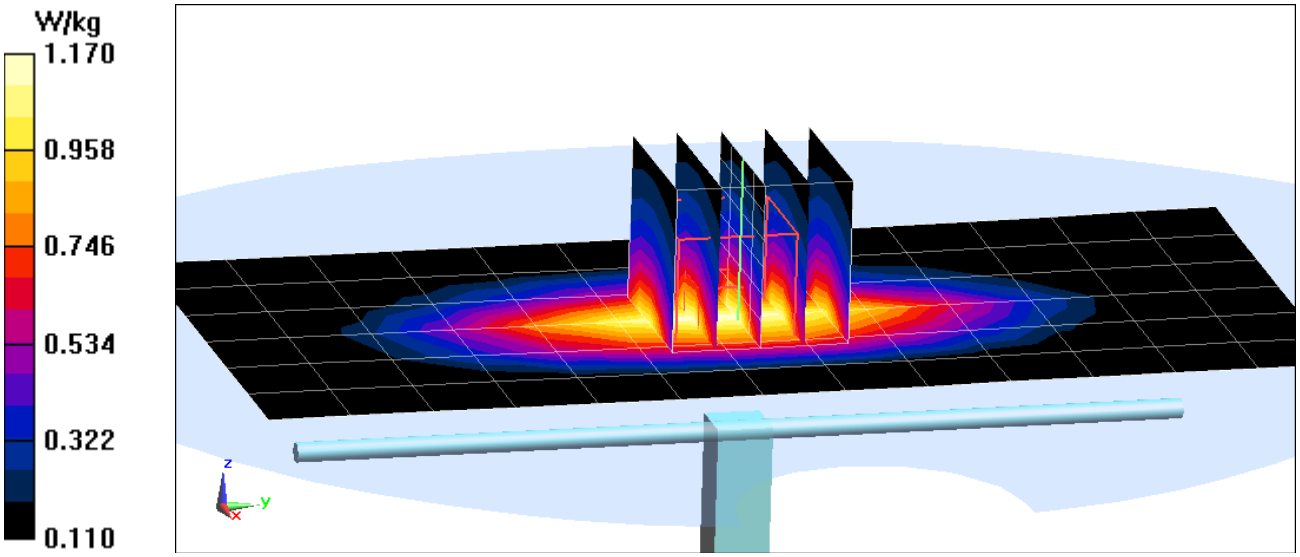
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.944 S/m; ε_r = 53.276; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-30-2014; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3213; ConvF(6.18, 6.18, 6.18); Calibrated: 4/11/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 11/18/2013
Phantom: Sub TWIN SAM; Type: QD000P40CC; Serial: TP-1357
Measurement SW DASY52, Version 52.8(7); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 1.02 W/kg
Deviation = 6.47 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1765V2; Serial: 1008

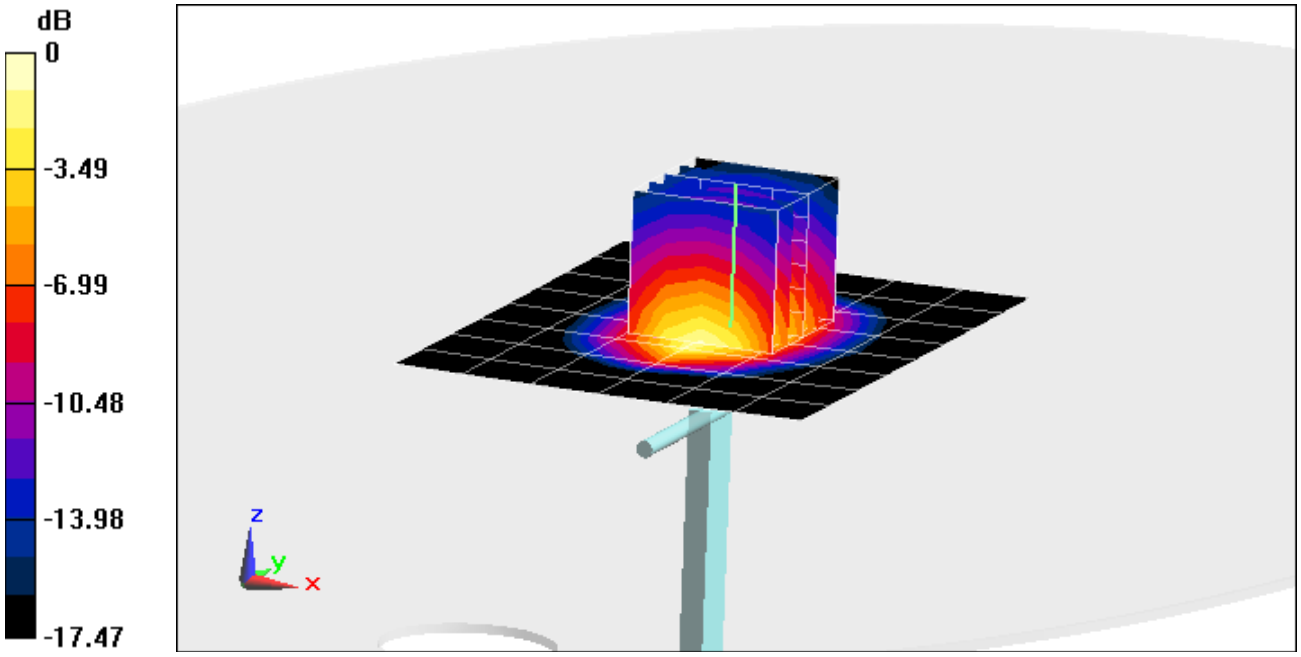
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.488 S/m; ε_r = 51.603; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 22.5°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3287; ConvF(4.93, 4.93, 4.93); Calibrated: 11/20/2013;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 11/19/2013
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

1750 MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 6.93 W/kg
SAR(1 g) = 3.93 W/kg
Deviation = 4.52 %



0 dB = 4.84 W/kg = 6.85 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d141

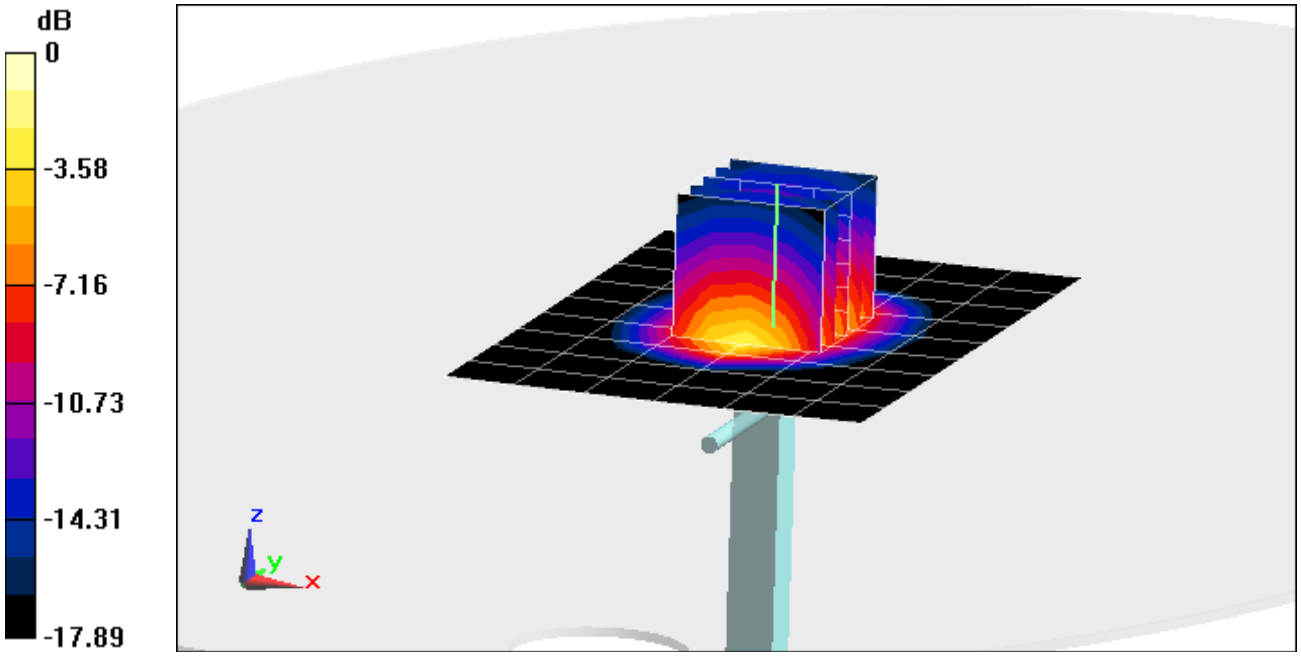
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.569 S/m; ε_r = 50.816; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-09-2014; Ambient Temp: 22.8°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 4/11/2014
Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

1900 MHz System Verification

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 7.69 W/kg
SAR(1 g) = 4.33 W/kg; SAR(10 g) = 2.26 W/kg
Deviation (1g) = 6.65 %; Deviation (10g) = 4.63%



0 dB = 5.46 W/kg = 7.37 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 797

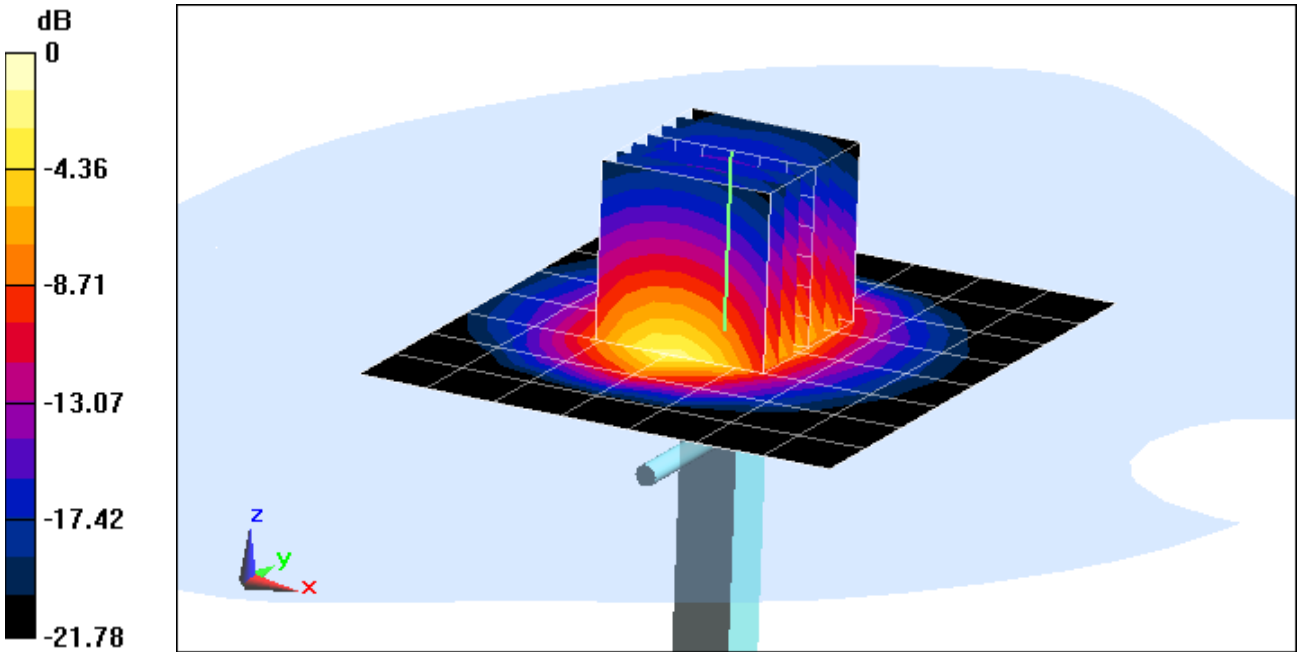
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.009 S/m; ε_r = 51.248; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 24.5°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3263; ConvF(4.27, 4.27, 4.27); Calibrated: 5/15/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/14/2014
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2450 MHz System Verification

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 11.3 W/kg
SAR(1 g) = 5.30 W/kg
Deviation = 7.29 %



0 dB = 6.98 W/kg = 8.44 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1120

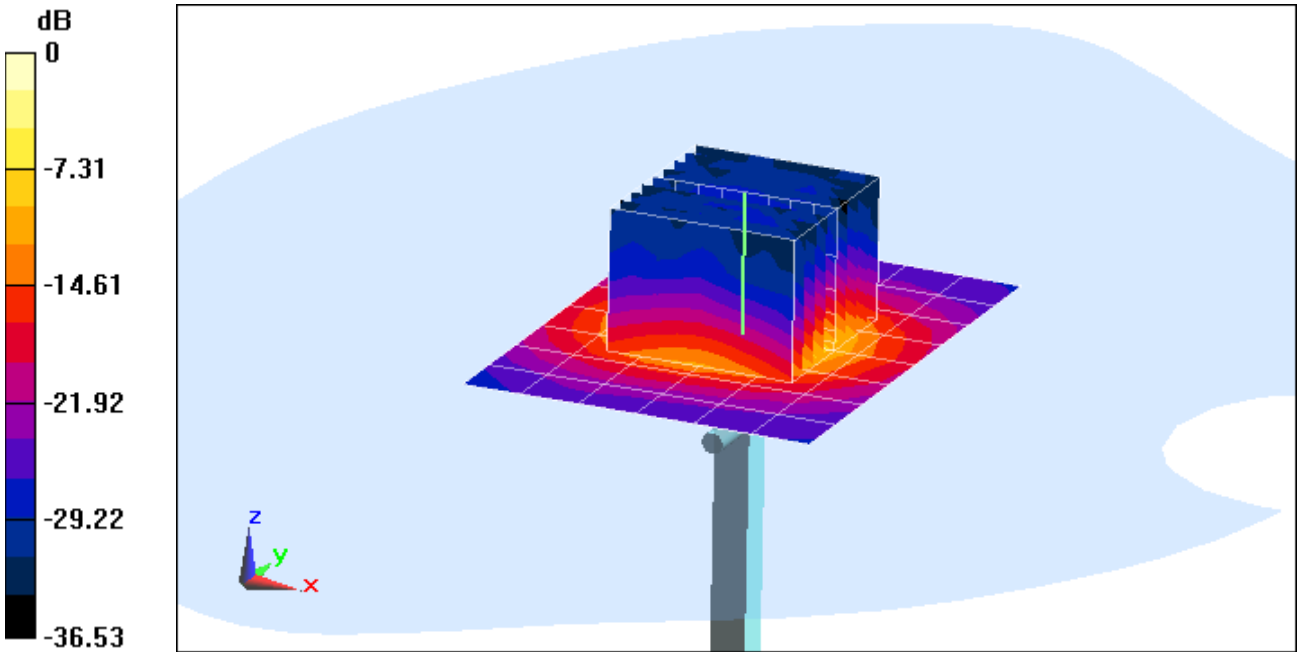
Communication System: UID 0, CW; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5200 MHz; σ = 5.42 S/m; ε_r = 47.805; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 20.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3920; ConvF(4.23, 4.23, 4.23); Calibrated: 12/18/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 12/12/2013
Phantom: SAM Sub with CRP v4.0; Type: QD000P40CC; Serial: TP:1357
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

5200MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 30.7 W/kg
SAR(1 g) = 7.77 W/kg; SAR(10 g) = 2.18 W/kg
Deviation (1g) = 5.00 %; Deviation (10g) = 5.31%



0 dB = 19.6 W/kg = 12.92 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5300 MHz; Type: D5GHzV2; Serial: 1120

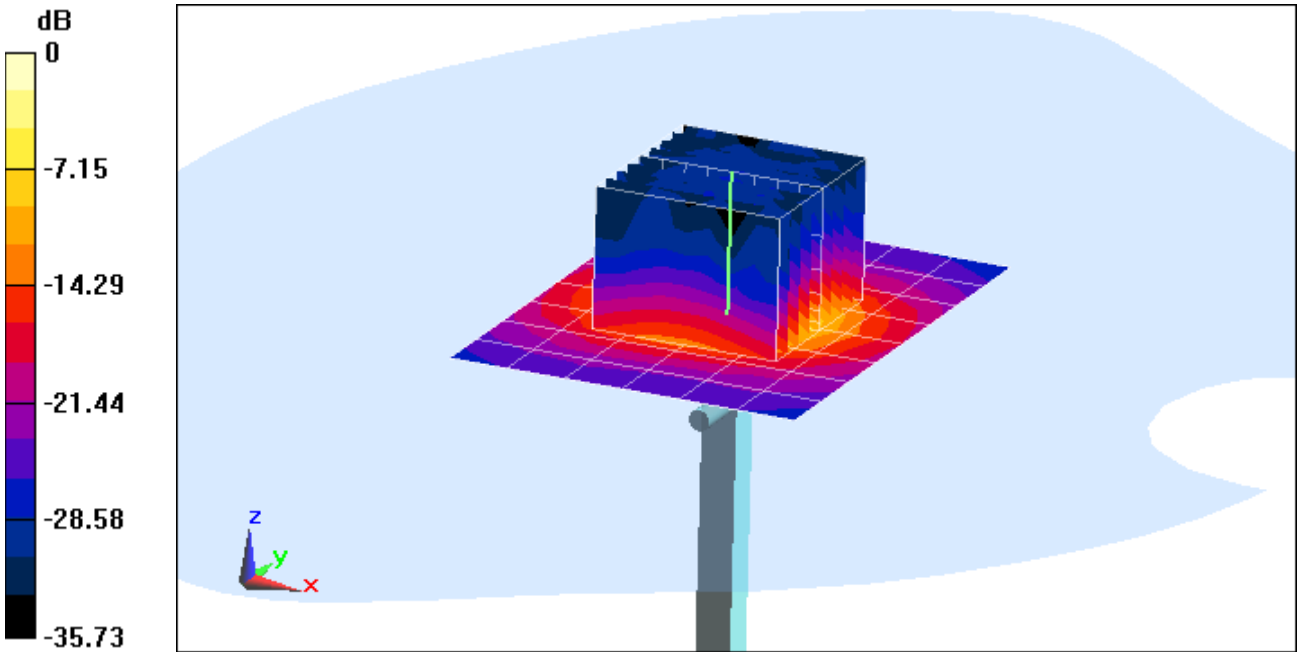
Communication System: UID 0, CW; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5300 MHz; σ = 5.556 S/m; ε_r = 47.628; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 20.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3920; ConvF(4.11, 4.11, 4.11); Calibrated: 12/18/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 12/12/2013
Phantom: SAM Sub with CRP v4.0; Type: QD000P40CC; Serial: TP:1357
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

5300MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 32.7 W/kg
SAR(1 g) = 8.05 W/kg; SAR(10 g) = 2.24 W/kg
Deviation (1g) = 6.20 %; Deviation (10g) = 5.16%



0 dB = 20.5 W/kg = 13.12 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1120

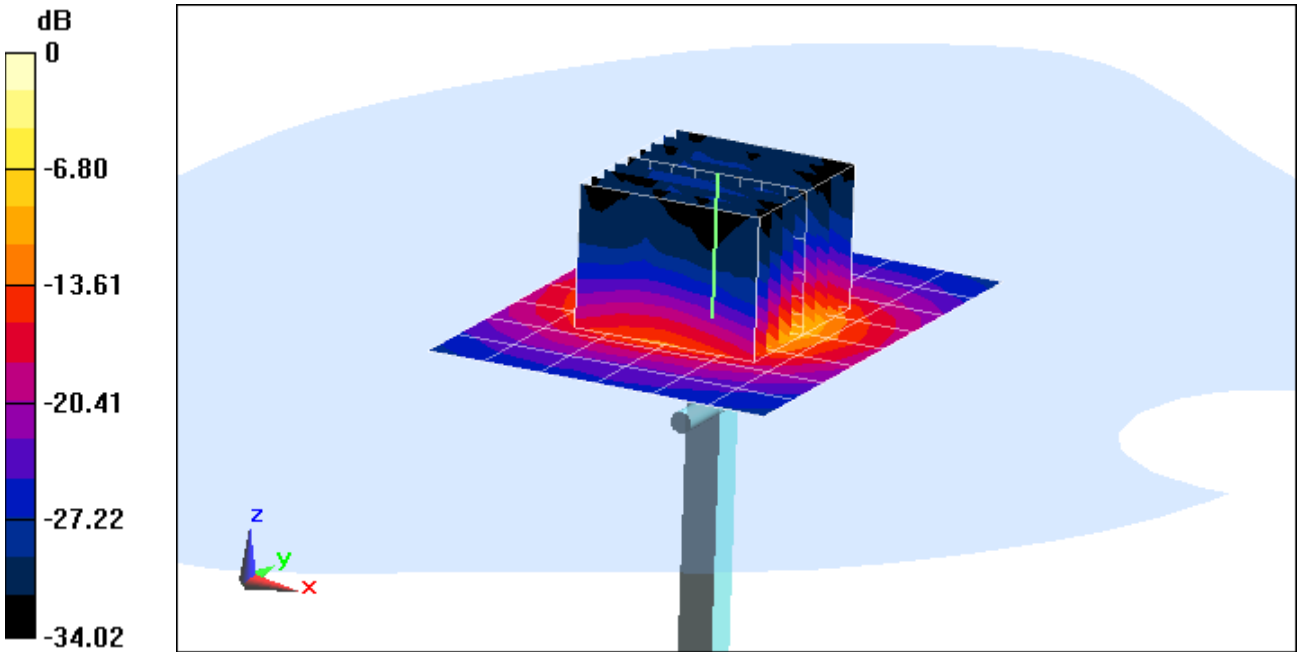
Communication System: UID 0, CW; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5500 MHz; σ = 5.831 S/m; ε_r = 47.472; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 20.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3920; ConvF(3.8, 3.8, 3.8); Calibrated: 12/18/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 12/12/2013
Phantom: SAM Sub with CRP v4.0; Type: QD000P40CC; Serial: TP:1357
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

5500MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 36.1 W/kg
SAR(1 g) = 8.41 W/kg; SAR(10 g) = 2.33 W/kg
Deviation (1g) = 6.19 %; Deviation (10g) = 5.91%



0 dB = 21.9 W/kg = 13.40 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5600 MHz; Type: D5GHzV2; Serial: 1120

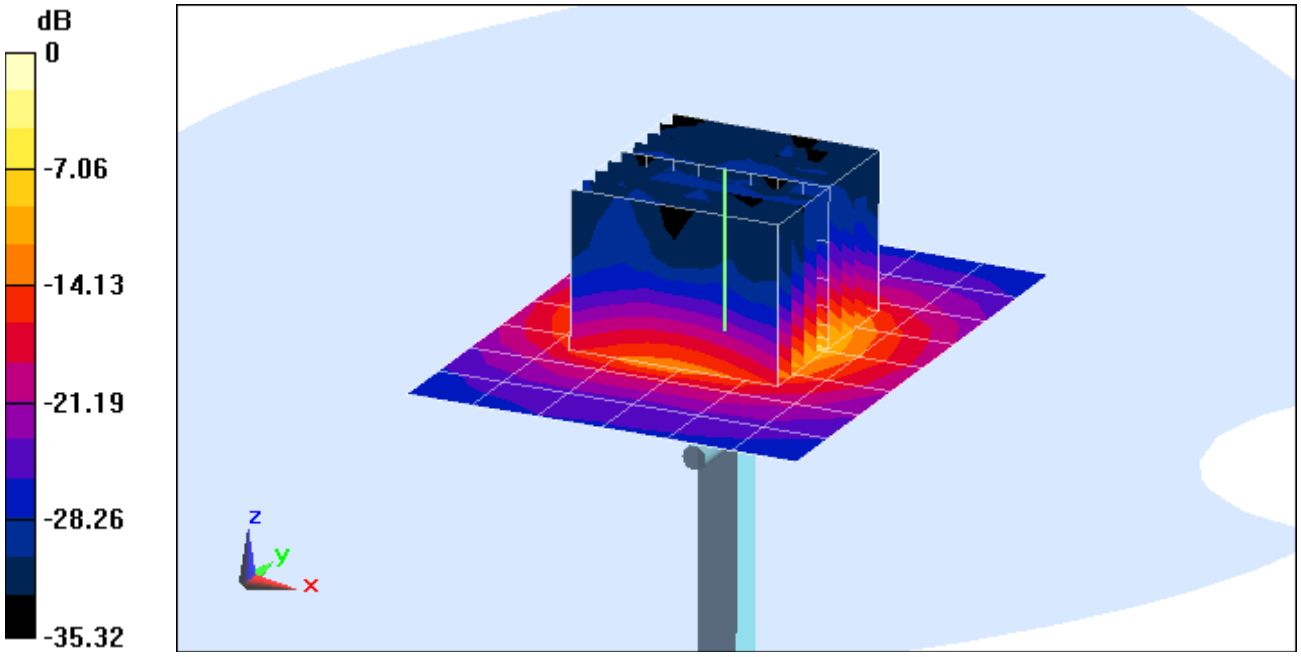
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.981 S/m; ε_r = 47.36; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 20.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3920; ConvF(3.62, 3.62, 3.62); Calibrated: 12/18/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 12/12/2013
Phantom: SAM Sub with CRP v4.0; Type: QD000P40CC; Serial: TP:1357
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

5600MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 37.4 W/kg
SAR(1 g) = 8.56 W/kg; SAR(10 g) = 2.36 W/kg
Deviation (1g) = 7.81 %; Deviation (10g) = 7.27%



0 dB = 22.5 W/kg = 13.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1120

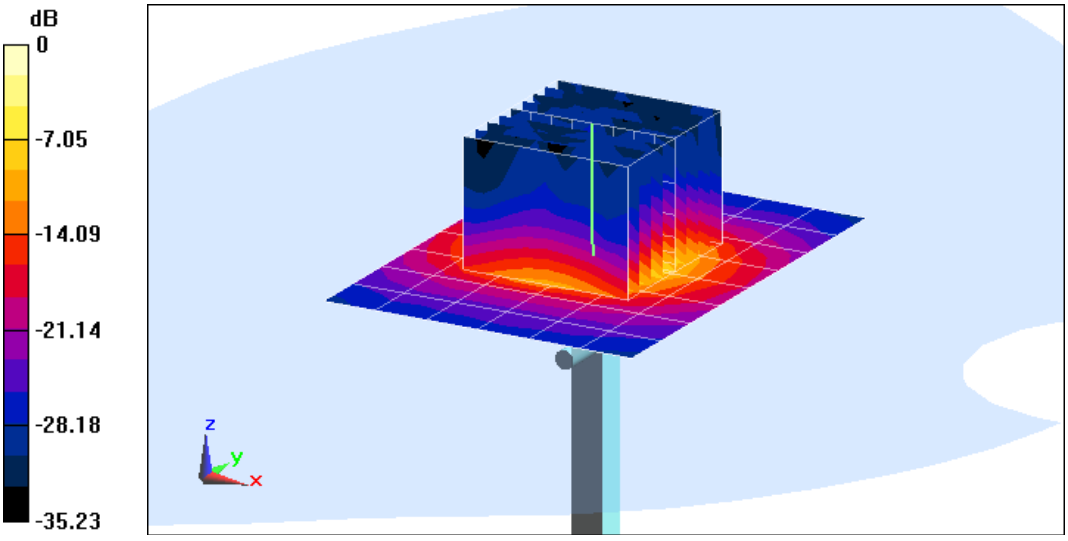
Communication System: UID 0, CW; Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5800 MHz; σ = 6.213 S/m; ε_r = 46.89; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 20.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3920; ConvF(4, 4, 4); Calibrated: 12/18/2013;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 12/12/2013
Phantom: SAM Sub with CRP v4.0; Type: QD000P40CC; Serial: TP:1357
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

5800MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 35.9 W/kg
SAR(1 g) = 7.63 W/kg
Deviation = 2.55 %



0 dB = 19.6 W/kg = 12.92 dBW/kg