



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:

02/04/13 - 03/08/13

Test Site/Location:

PCTEST Lab, Columbia, MD, USA

Document Serial No.:

0Y1303040435-R1.A3L

FCC ID:

A3LSCHR970

APPLICANT:

SAMSUNG ELECTRONICS, CO. LTD.

DUT Type:

Portable Handset

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model(s):

SCH-R970

Equipment Class	Band & Mode	Tx Frequency	Measured Conducted Power [dBm]	SAR		
				1 gm Head (W/kg)	1 gm Body-Worn (W/kg)	1 gm Hotspot (W/kg)
PCE	Cell. CDMA/EVDO	824.70 - 848.31 MHz	24.81	0.36	0.52	0.57
PCE	AWS CDMA/EVDO	1711.25 - 1753.75 MHz	24.73	0.18	0.55	0.61
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	24.72	0.22	0.61	0.71
PCE	LTE Band 12	701.5 - 713.5 MHz	22.83	< 0.1	0.12	0.12
PCE	LTE Band 5 (Cell)	826.5 - 846.5 MHz	23.00	< 0.1	0.11	0.11
PCE	LTE Band 4 (AWS)	1712.5 - 1752.5 MHz	22.96	< 0.1	0.18	0.18
PCE	LTE Band 2 (PCS)	1852.5 - 1907.5 MHz	22.99	0.16	0.24	0.24
DTS	2.4 GHz WLAN	2412 - 2462 MHz	15.96	0.48	0.37	0.37
DTS	5.8 GHz WLAN	5745 - 5825 MHz	13.37	0.14	0.12	
UNII	5.2 GHz WLAN	5180 - 5240 MHz	13.08	0.22	0.31	
UNII	5.3 GHz WLAN	5260 - 5320 MHz	13.06	0.19	0.27	
UNII	5.5 GHz WLAN	5500 - 5700 MHz	13.04	0.13	0.22	
DSS/DTS	Bluetooth	2402 - 2480 MHz	8.86	N/A		
Simultaneous SAR per KDB 690783 D01v01r02:				0.96	1.23	1.23

Note: Powers in the above table represent output powers for the SAR test configurations and may not represent the highest output powers for all configurations for each mode.

This revised Test Report (S/ N: 0Y1303040435-R1.A3L) supersedes and replaces the previously issued test report on the same subject EUT for the same type of testing as indicated. Please discard and destroy the previously issued test report (S/N: 0Y1303040435.A3L) and dispose of it accordingly.

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

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


Randy Ortanez
President



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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
AWS CDMA/EVDO	Voice/Data	1711.25 - 1753.75 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
LTE Band 12	Data	701.5 - 713.5 MHz
LTE Band 5 (Cell)	Data	826.5 - 846.5 MHz
LTE Band 4 (AWS)	Data	1712.5 - 1752.5 MHz
LTE Band 2 (PCS)	Data	1852.5 - 1907.5 MHz
2.4 GHz WLAN	Data	2412 - 2462 MHz
5.8 GHz WLAN	Data	5745 - 5825 MHz
5.2 GHz WLAN	Data	5180 - 5240 MHz
5.3 GHz WLAN	Data	5260 - 5320 MHz
5.5 GHz WLAN	Data	5500 - 5700 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz

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.

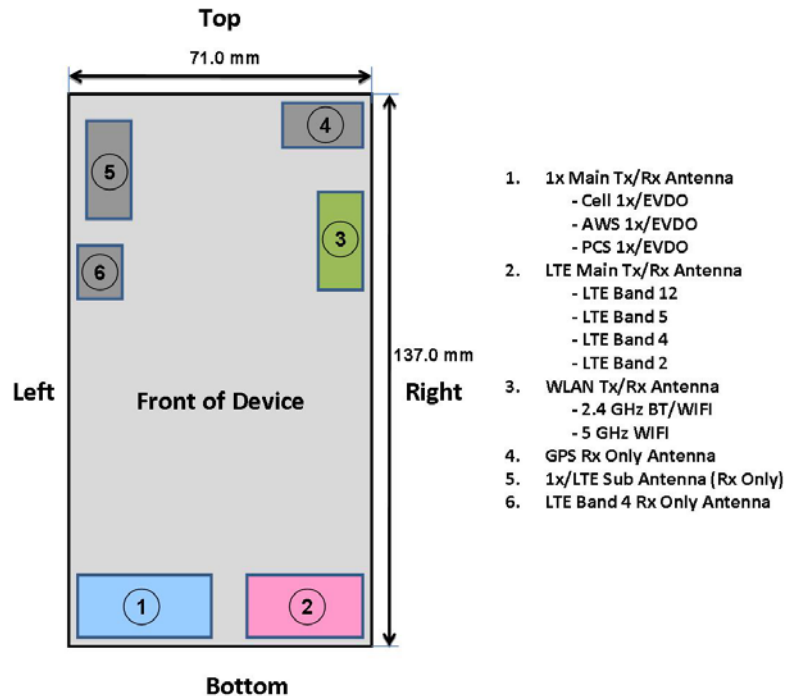
Mode / Band		Modulated Average (dBm)
Cell. CDMA/EVDO	Maximum	25.0
	Nominal	24.5
PCS CDMA/EVDO	Maximum	25.0
	Nominal	24.5
AWS CDMA/EVDO	Maximum	25.0
	Nominal	24.5

Mode / Band		Modulated Average (dBm)
LTE Band 12	Maximum	23.0
	Nominal	22.5
LTE Band 5 (Cell)	Maximum	23.0
	Nominal	22.5
LTE Band 4 (AWS)	Maximum	23.0
	Nominal	22.5
LTE Band 2 (PCS)	Maximum	23.0
	Nominal	22.5

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Mode / Band		Modulated Average (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	16.0
	Nominal	15.5
IEEE 802.11g (2.4 GHz)	Maximum	13.0
	Nominal	12.5
IEEE 802.11n (2.4 GHz)	Maximum	12.0
	Nominal	11.5
IEEE 802.11a (5.8 GHz)	Maximum	13.5
	Nominal	13.0
IEEE 802.11a (5.2, 5.3, 5.5 GHz)	Maximum	13.5
	Nominal	13.0
IEEE 802.11n (20 MHz)	Maximum	12.5
	Nominal	12.0
IEEE 802.11n (40 MHz)	Maximum	12.5
	Nominal	12.0
IEEE 802.11ac	Maximum	10.5
	Nominal	10.0
Bluetooth	Maximum	9.0
	Nominal	8.5

1.3 DUT Antenna Locations



Note: Specific antenna dimensions and separation distances are shown in the antenna distance document.

Figure 1-1
DUT Antenna Locations

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Table 1-1
Mobile Hotspot Sides for SAR Testing

Mobile Hotspot Sides for SAR Testing						
Mode	Back	Front	Top	Bottom	Right	Left
Cell. EVDO	Yes	Yes	No	Yes	No	Yes
AWS EVDO	Yes	Yes	No	Yes	No	Yes
PCS EVDO	Yes	Yes	No	Yes	No	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	No
LTE Band 5 (Cell)	Yes	Yes	No	Yes	Yes	No
LTE Band 4 (AWS)	Yes	Yes	No	Yes	Yes	No
LTE Band 2 (PCS)	Yes	Yes	No	Yes	Yes	No
2.4 GHz WLAN	Yes	Yes	Yes	No	Yes	No

Note: Particular DUT edges were not required to be evaluated for Wireless Router SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v01 guidance, page 2. The antenna document shows the distances between the transmit antennas and the edges of the device. When the wireless router mode is enabled, all 5 GHz bands are disabled. Therefore 5 GHz WIFI is not considered in this section.

1.4 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the standard battery. The SAR tests were performed with the standard battery (model: B600BU).

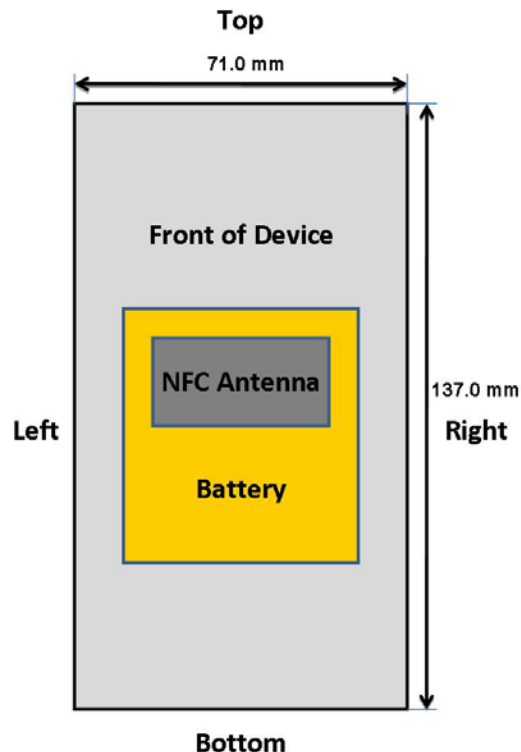


Figure 1-2
NFC Antenna Locations

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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 Configurations	Head	Body-Worn Accessory	Hot Spot	Note
		IEEE 1528, Supp C	Supplement C	FCC KDB 941225 D06 edges/sides	
1	1X CDMA Voice + LTE Data	✓	✓	N/A	SVLTE
2	1X CDMA Voice + LTE Data + 2.4 GHz WIFI	✓	✓	✓	Voice and LTE+WIFI Hotspot
3	1X CDMA Voice + LTE Data + 2.4 GHz Bluetooth	N/A	✓	N/A	Voice and LTE+Bluetooth
4	1X CDMA Voice + 2.4 GHz WIFI	✓	✓	N/A	1X voice and WIFI Data
5	1X CDMA Voice + 2.4 GHz Bluetooth	N/A	✓	N/A	1X voice and Bluetooth
6	1X CDMA Voice + 5 GHz WIFI	✓	✓	N/A	1X voice and WIFI Data
7	1X/EVDO Data + 2.4 GHz WIFI	✓	✓	✓	EVDO+WIFI Hotspot
8	1X/EVDO Data + 2.4 GHz Bluetooth	N/A	✓	N/A	EVDO+Bluetooth
9	LTE Data + 2.4 GHz WIFI	✓	✓	✓	LTE+WIFI Hotspot
10	LTE Data + 2.4 GHz Bluetooth	N/A	✓	N/A	LTE+Bluetooth
11	1X/EVDO Data + 5 GHz WIFI	N/A	N/A	N/A	
12	1X CDMA Voice + LTE Data + 5 GHz WIFI	N/A	N/A	N/A	
13	1X CDMA Voice + EVDO	N/A	N/A	N/A	Not available by HW (Non-SVDO)
14	EVDO data + LTE Data	N/A	N/A	N/A	Not available by SW
15	LTE Data + 5 GHz WIFI	N/A	N/A	N/A	Not available by SW

Notes:

1. CDMA and EVDO share the same antenna path and cannot transmit simultaneously. (Non-SVDO)
2. 2.4 GHz WLAN, 2.4 GHz Bluetooth, and 5 GHz WLAN share the same antenna path and cannot transmit simultaneously.

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1.6 SAR Test Exclusions Applied

(A) WIFI/BT

Since Wireless Router operations are not allowed by the chipset firmware using 5 GHz WIFI, only 2.4 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 D01 v05, the SAR exclusion threshold for distances <50mm is defined by the following equation:

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

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, Bluetooth SAR was not required; $[(8/10) * \sqrt{2.441}] = 1.2 < 3.0$.

This device supports 20 MHz and 40 MHz Bandwidths for IEEE 802.11n for 5 GHz WIFI only. IEEE 802.11n was not evaluated for SAR since the average output power of 20 MHz and 40 MHz bandwidths was not more than 0.25 dB higher than the average output power of IEEE 802.11a.

This device supports IEEE 802.11ac with the following features:

- a) 80 MHz Bandwidth only
- b) No aggregate channel configurations
- c) 1 Tx antenna output
- d) 256 QAM is supported
- e) No new 5 GHz channels

Per October 2012 TCB workshop notes, SAR testing for 802.11ac was not required since the average output power was not more than 0.25 dB higher than the output power of IEEE 802.11a mode.

(B) Licensed Transmitter(s)

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.

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 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 Power Reduction for SAR

There is no power reduction used for any band/mode implemented in this device for SAR purposes.

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1.9 Guidance Applied

- FCC OET Bulletin 65 Supplement C [June 2001]
- IEEE 1528-2003
- FCC KDB Publication 941225 D01-D06 (3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v01r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v05 (General SAR Guidance)
- FCC KDB Publication 865664 D01-D02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04 (Wireless Charging Battery Covers)
- Oct 2012 TCB workshop slides (802.11ac)

1.10 Device Serial Numbers

Several samples were used with identical hardware to support SAR testing. The manufacturer confirmed all samples have the same physical, mechanical and thermal characteristics and are electrically identical to production units.

	Head Serial Number	Body-Worn Serial Number	Hotspot Serial Number
Cell. CDMA/EVDO	FCC#7	FCC#8	FCC#8
AWS CDMA/EVDO	FCC#1	FCC#9	FCC#9
PCS CDMA/EVDO	FCC#4	FCC#4	FCC#4
LTE Band 12	FCC#6	FCC#5	FCC#5
LTE Band 5 (Cell)	FCC#6	FCC#6	FCC#6
LTE Band 4 (AWS)	FCC#6	FCC#5	FCC#5
LTE Band 2 (PCS)	FCC#5	FCC#5	FCC#5
2.4 GHz WLAN	FCC#C	FCC#C	FCC#C
5 GHz WLAN	FCC#B	FCC#B	-

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LTE INFORMATION

LTE Information				
FCC ID		A3LSCHR970		
Form Factor		Portable Handset		
1)	Frequency Range of each LTE transmission band	LTE Band 12 (701.5 - 713.5 MHz)		
		LTE Band 5 (Cell) (826.5 - 846.5 MHz)		
		LTE Band 4 (AWS) (1712.5 - 1752.5 MHz)		
		LTE Band 2 (PCS) (1852.5 - 1907.5 MHz)		
2)	Channel Bandwidths	LTE Band 12: 5 MHz, 10 MHz		
		LTE Band 5 (Cell): 5 MHz, 10 MHz		
		LTE Band 4 (AWS): 5 MHz, 10 MHz		
		LTE Band 2 (PCS): 5 MHz, 10 MHz		
3)	Channel Numbers and Frequencies (MHz)	Low	Mid	High
	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 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): 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 2 (PCS): 5 MHz	1852.5 (18625)	1880 (18900)	1907.5 (19175)
	LTE Band 2 (PCS): 10 MHz	1855 (18650)	1880 (18900)	1905 (19150)
4)(a)	UE Category	3		
(b)	Modulations Supported in UL	QPSK, 16QAM		
	LTE Transmitter and Antenna Implementation	This device uses 1 Tx/Rx and 1 Rx Only Antenna for LTE & 1 Tx/Rx Antenna and 1 Rx only antenna for CDMA/LTE		
5)	Description of LTE Tx and Ant. Implementation	CDMA/LTE operate on separate transmission paths		
	Hotspot with LTE+WIFI	YES		
	Hotspot with LTE+WIFI active with 1XVoice sessions?	YES		
7)	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		
8)	Conducted power Table provided for 1RB (low, mid and high offset), 50% RB (low, mid, and high offset), and 100% RB	YES		

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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 [24]. 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/m³)
- E = Total RMS electric field strength (V/m)

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

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DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

The evaluation was performed using the following procedure:

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).
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). 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. The data was extrapolated to the surface of the outer-shell of the phantom. The combined distance extrapolated was the combined distance from the center of the dipoles 2.7mm away from the tip of the probe housing plus the 1.2 mm distance between the surface and the lowest measuring point. 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.

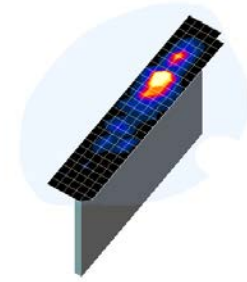


Figure 4-1
Sample SAR Area Scan

Table 4-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01

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

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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) is perpendicular to the reference plane and passing through the RE (or LE) is called the Reference Pivoting Line (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].

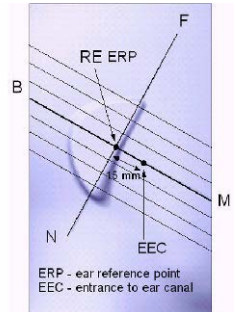


Figure 5-1
Close-Up Side view
of ERP

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 “test device reference point” located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (See Figure 5-3). The “test device reference point” was then located at the same level as the center of the ear reference point. The test device was positioned so that the “vertical centerline” was bisecting the front surface of the handset at its top and bottom edges, positioning the “ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point.



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

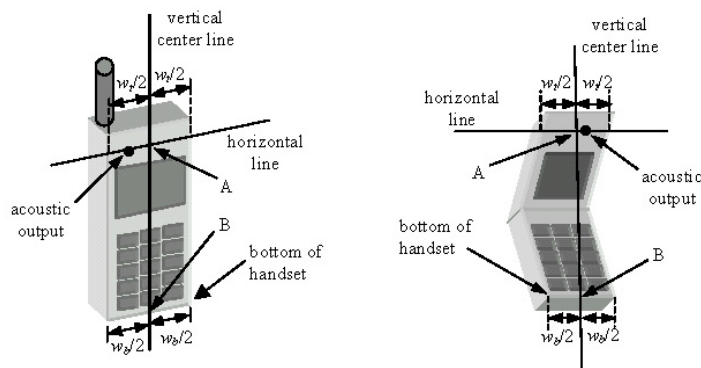


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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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 $\epsilon = 3$ and loss tangent $\delta = 0.02$.

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.

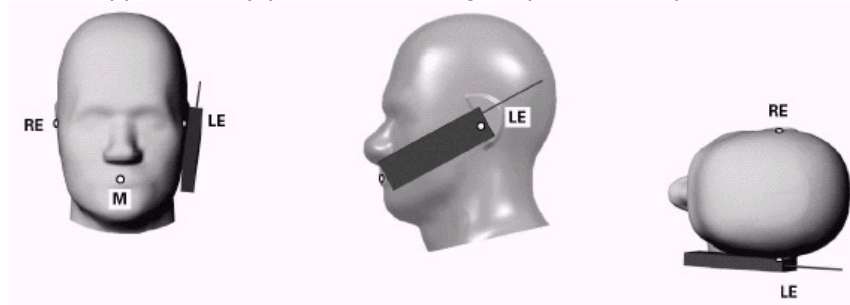


Figure 6-1 Front, Side and Top View of Cheek Position

2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the ear.
3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the plane normal to MB-NF including the line MB (reference plane).
4. The phone was then rotated around the vertical centerline until the phone (horizontal line) was symmetrical with 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 / 15° 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 15 degrees.
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. The tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 6-2).

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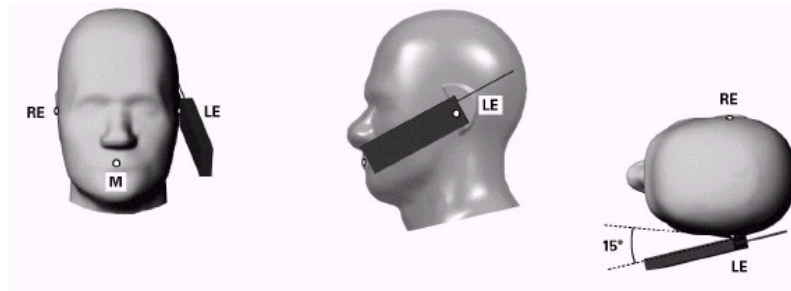


Figure 6-2 Front, Side and Top View of Ear/15° Tilt Position

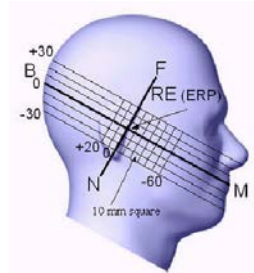


Figure 6-3
Side view w/ relevant markings

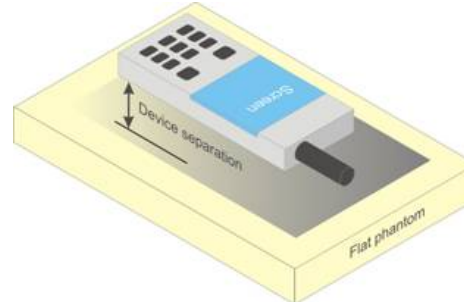


Figure 6-4
Sample Body-Worn Diagram

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.

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.

The latest IEEE 1528 committee developments propose the usage of a tilted phantom when the antenna of the phone is mounted at the bottom or in all cases the peak absorption is in the chin region. Both SAM heads of the TwinSAM-Chin20 are rotated 20 degrees around the NF line. Each head can be removed individually from the table for emptying and cleaning.

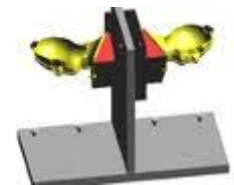


Figure 6-5 Twin SAM
Chin20

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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 D04_v01, 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 D01_v05 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.

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 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 ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) 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.

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7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (W/kg) or (mW/g)
SPATIAL PEAK SAR Brain	1.6	8.0
SPATIAL AVERAGE SAR Whole Body	0.08	0.4
SPATIAL PEAK SAR Hands, Feet, Ankles, Wrists	4.0	20

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

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8 FCC MEASUREMENT PROCEDURES

Power measurements 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 SCH₀ 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
I_{or}	dBm/1.23 MHz	-104
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	dB	-7.4

Table 8-2
Parameters for Max. Power for RC3

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

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

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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 SCH₀ 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.

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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.

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 $\frac{1}{2}$ 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.

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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 [27]

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 than the default channels, these “required channels” were considered instead of the default channels for SAR testing. 802.11n modes, higher data rates for 802.11a/n, and 802.11ac were evaluated only if the respective mode was 0.25 dB or higher than the 802.11a mode.

If the maximum extrapolated peak SAR of the zoom scan for the highest output channel was less than 1.6 W/kg or 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.

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9 RF CONDUCTED POWERS

9.1 CDMA 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	24.63	24.63	24.64	24.56	24.60	24.58
	384	836.52	24.82	24.78	24.80	24.79	24.81	24.79
	777	848.31	24.58	24.58	24.57	24.55	24.58	24.57
AWS	25	1711.25	24.48	24.49	24.51	24.53	24.51	24.50
	450	1732.5	24.63	24.66	24.68	24.73	24.71	24.66
	875	1753.75	24.40	24.44	24.44	24.49	24.44	24.43
PCS	25	1851.25	24.85	24.82	24.86	24.82	24.88	24.87
	600	1880	24.69	24.69	24.66	24.67	24.72	24.69
	1175	1908.75	24.99	24.98	24.95	24.97	24.98	24.95

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 1/4 dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0
4. CDMA 1x-RTT SAR was additionally required to be evaluated for Hotspot exposure conditions to support simultaneous transmission capabilities.
5. Head SAR was additionally evaluated with EVDO Rev. A to determine compliance for held-to-ear VoIP operations.

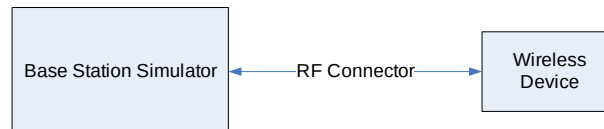


Figure 9-1
Power Measurement Setup

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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]	Target MPR [dB]	MPR Allowed per 3GPP [dB]
Mid	707.5	23095	10	QPSK	1	0	22.52	0	0
	707.5	23095	10	QPSK	1	25	22.71	0	0
	707.5	23095	10	QPSK	1	49	22.83	0	0
	707.5	23095	10	QPSK	25	0	21.48	1	0-1
	707.5	23095	10	QPSK	25	12	21.55	1	0-1
	707.5	23095	10	QPSK	25	25	21.69	1	0-1
	707.5	23095	10	QPSK	50	0	21.35	1	0-1
	707.5	23095	10	16QAM	1	0	21.43	1	0-1
	707.5	23095	10	16QAM	1	25	21.55	1	0-1
	707.5	23095	10	16QAM	1	49	21.77	1	0-1
	707.5	23095	10	16QAM	25	0	20.53	2	0-2
	707.5	23095	10	16QAM	25	12	20.65	2	0-2
	707.5	23095	10	16QAM	25	25	20.69	2	0-2
	707.5	23095	10	16QAM	50	0	20.37	2	0-2

Note: LTE Band 12 at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB 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]	Target MPR [dB]	MPR Allowed per 3GPP [dB]
Low	701.5	23035	5	QPSK	1	0	22.63	0	0
	701.5	23035	5	QPSK	1	12	22.79	0	0
	701.5	23035	5	QPSK	1	24	22.86	0	0
	701.5	23035	5	QPSK	12	0	21.53	1	0-1
	701.5	23035	5	QPSK	12	6	21.57	1	0-1
	701.5	23035	5	QPSK	12	13	21.66	1	0-1
	701.5	23035	5	QPSK	25	0	21.45	1	0-1
	701.5	23035	5	16-QAM	1	0	21.71	1	0-1
	701.5	23035	5	16-QAM	1	12	21.85	1	0-1
	701.5	23035	5	16-QAM	1	24	21.86	1	0-1
	701.5	23035	5	16-QAM	12	0	20.50	2	0-2
	701.5	23035	5	16-QAM	12	6	20.55	2	0-2
	701.5	23035	5	16-QAM	12	13	20.63	2	0-2
	701.5	23035	5	16-QAM	25	0	20.40	2	0-2
Mid	707.5	23095	5	QPSK	1	0	22.73	0	0
	707.5	23095	5	QPSK	1	12	22.74	0	0
	707.5	23095	5	QPSK	1	24	22.86	0	0
	707.5	23095	5	QPSK	12	0	21.62	1	0-1
	707.5	23095	5	QPSK	12	6	21.69	1	0-1
	707.5	23095	5	QPSK	12	13	21.70	1	0-1
	707.5	23095	5	QPSK	25	0	21.62	1	0-1
	707.5	23095	5	16-QAM	1	0	21.79	1	0-1
	707.5	23095	5	16-QAM	1	12	21.82	1	0-1
	707.5	23095	5	16-QAM	1	24	21.87	1	0-1
	707.5	23095	5	16-QAM	12	0	20.69	2	0-2
	707.5	23095	5	16-QAM	12	6	20.70	2	0-2
	707.5	23095	5	16-QAM	12	13	20.70	2	0-2
	707.5	23095	5	16-QAM	25	0	20.58	2	0-2
High	713.5	23155	5	QPSK	1	0	22.88	0	0
	713.5	23155	5	QPSK	1	12	22.81	0	0
	713.5	23155	5	QPSK	1	24	22.71	0	0
	713.5	23155	5	QPSK	12	0	21.63	1	0-1
	713.5	23155	5	QPSK	12	6	21.84	1	0-1
	713.5	23155	5	QPSK	12	13	21.70	1	0-1
	713.5	23155	5	QPSK	25	0	21.55	1	0-1
	713.5	23155	5	16-QAM	1	0	21.98	1	0-1
	713.5	23155	5	16-QAM	1	12	21.91	1	0-1
	713.5	23155	5	16-QAM	1	24	21.80	1	0-1
	713.5	23155	5	16-QAM	12	0	20.69	2	0-2
	713.5	23155	5	16-QAM	12	6	20.79	2	0-2
	713.5	23155	5	16-QAM	12	13	20.66	2	0-2
	713.5	23155	5	16-QAM	25	0	20.58	2	0-2

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9.2.2 LTE Band 5 (Cell)

Table 9-3
LTE Band 5 (Cell) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	Target MPR [dB]	MPR Allowed per 3GPP [dB]
Mid	836.5	20525	10	QPSK	1	0	22.98	0	0
	836.5	20525	10	QPSK	1	25	22.99	0	0
	836.5	20525	10	QPSK	1	49	23.00	0	0
	836.5	20525	10	QPSK	25	0	21.99	1	0-1
	836.5	20525	10	QPSK	25	12	21.97	1	0-1
	836.5	20525	10	QPSK	25	25	21.93	1	0-1
	836.5	20525	10	QPSK	50	0	21.85	1	0-1
	836.5	20525	10	16QAM	1	0	21.91	1	0-1
	836.5	20525	10	16QAM	1	25	21.92	1	0-1
	836.5	20525	10	16QAM	1	49	21.98	1	0-1
	836.5	20525	10	16QAM	25	0	20.96	2	0-2
	836.5	20525	10	16QAM	25	12	20.93	2	0-2
	836.5	20525	10	16QAM	25	25	20.89	2	0-2
	836.5	20525	10	16QAM	50	0	20.76	2	0-2

Note: LTE Band 5 at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB 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 9-4
LTE Band 5 (Cell) Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	Target MPR [dB]	MPR Allowed per 3GPP [dB]
Low	826.5	20425	5	QPSK	1	0	22.93	0	0
	826.5	20425	5	QPSK	1	12	22.89	0	0
	826.5	20425	5	QPSK	1	24	22.79	0	0
	826.5	20425	5	QPSK	12	0	21.90	1	0-1
	826.5	20425	5	QPSK	12	6	21.91	1	0-1
	826.5	20425	5	QPSK	12	13	21.86	1	0-1
	826.5	20425	5	QPSK	25	0	21.72	1	0-1
	826.5	20425	5	16-QAM	1	0	21.99	1	0-1
	826.5	20425	5	16-QAM	1	12	21.97	1	0-1
	826.5	20425	5	16-QAM	1	24	21.95	1	0-1
	826.5	20425	5	16-QAM	12	0	20.75	2	0-2
	826.5	20425	5	16-QAM	12	6	20.82	2	0-2
	826.5	20425	5	16-QAM	12	13	20.77	2	0-2
	826.5	20425	5	16-QAM	25	0	20.69	2	0-2
Mid	836.5	20525	5	QPSK	1	0	22.99	0	0
	836.5	20525	5	QPSK	1	12	22.98	0	0
	836.5	20525	5	QPSK	1	24	22.96	0	0
	836.5	20525	5	QPSK	12	0	21.85	1	0-1
	836.5	20525	5	QPSK	12	6	21.84	1	0-1
	836.5	20525	5	QPSK	12	13	21.79	1	0-1
	836.5	20525	5	QPSK	25	0	21.76	1	0-1
	836.5	20525	5	16-QAM	1	0	22.00	1	0-1
	836.5	20525	5	16-QAM	1	12	21.95	1	0-1
	836.5	20525	5	16-QAM	1	24	21.96	1	0-1
	836.5	20525	5	16-QAM	12	0	20.86	2	0-2
	836.5	20525	5	16-QAM	12	6	20.83	2	0-2
	836.5	20525	5	16-QAM	12	13	20.75	2	0-2
	836.5	20525	5	16-QAM	25	0	20.76	2	0-2
High	846.5	20625	5	QPSK	1	0	22.98	0	0
	846.5	20625	5	QPSK	1	12	22.93	0	0
	846.5	20625	5	QPSK	1	24	22.81	0	0
	846.5	20625	5	QPSK	12	0	22.00	1	0-1
	846.5	20625	5	QPSK	12	6	21.92	1	0-1
	846.5	20625	5	QPSK	12	13	21.97	1	0-1
	846.5	20625	5	QPSK	25	0	21.88	1	0-1
	846.5	20625	5	16-QAM	1	0	21.99	1	0-1
	846.5	20625	5	16-QAM	1	12	21.98	1	0-1
	846.5	20625	5	16-QAM	1	24	21.94	1	0-1
	846.5	20625	5	16-QAM	12	0	20.96	2	0-2
	846.5	20625	5	16-QAM	12	6	20.93	2	0-2
	846.5	20625	5	16-QAM	12	13	20.98	2	0-2
	846.5	20625	5	16-QAM	25	0	20.94	2	0-2

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9.2.3 LTE Band 4 (AWS)

Table 9-5

LTE Band 4 (AWS) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	Target MPR [dB]	MPR Allowed per 3GPP [dB]
Low	1715	20000	10	QPSK	1	0	22.32	0	0
	1715	20000	10	QPSK	1	25	22.37	0	0
	1715	20000	10	QPSK	1	49	22.25	0	0
	1715	20000	10	QPSK	25	0	21.13	1	0-1
	1715	20000	10	QPSK	25	12	21.16	1	0-1
	1715	20000	10	QPSK	25	25	21.29	1	0-1
	1715	20000	10	QPSK	50	0	21.16	1	0-1
	1715	20000	10	16QAM	1	0	21.33	1	0-1
	1715	20000	10	16QAM	1	25	21.19	1	0-1
	1715	20000	10	16QAM	1	49	21.40	1	0-1
	1715	20000	10	16QAM	25	0	20.23	2	0-2
	1715	20000	10	16QAM	25	12	20.22	2	0-2
	1715	20000	10	16QAM	25	25	20.35	2	0-2
	1715	20000	10	16QAM	50	0	20.05	2	0-2
Mid	1732.5	20175	10	QPSK	1	0	22.87	0	0
	1732.5	20175	10	QPSK	1	25	22.96	0	0
	1732.5	20175	10	QPSK	1	49	22.70	0	0
	1732.5	20175	10	QPSK	25	0	21.71	1	0-1
	1732.5	20175	10	QPSK	25	12	21.78	1	0-1
	1732.5	20175	10	QPSK	25	25	21.67	1	0-1
	1732.5	20175	10	QPSK	50	0	21.65	1	0-1
	1732.5	20175	10	16QAM	1	0	21.67	1	0-1
	1732.5	20175	10	16QAM	1	25	21.78	1	0-1
	1732.5	20175	10	16QAM	1	49	21.52	1	0-1
	1732.5	20175	10	16QAM	25	0	20.68	2	0-2
	1732.5	20175	10	16QAM	25	12	20.72	2	0-2
	1732.5	20175	10	16QAM	25	25	20.65	2	0-2
	1732.5	20175	10	16QAM	50	0	20.51	2	0-2
High	1750	20350	10	QPSK	1	0	22.49	0	0
	1750	20350	10	QPSK	1	25	22.43	0	0
	1750	20350	10	QPSK	1	49	22.52	0	0
	1750	20350	10	QPSK	25	0	21.19	1	0-1
	1750	20350	10	QPSK	25	12	21.21	1	0-1
	1750	20350	10	QPSK	25	25	21.39	1	0-1
	1750	20350	10	QPSK	50	0	21.10	1	0-1
	1750	20350	10	16QAM	1	0	21.25	1	0-1
	1750	20350	10	16QAM	1	25	21.33	1	0-1
	1750	20350	10	16QAM	1	49	21.39	1	0-1
	1750	20350	10	16QAM	25	0	20.27	2	0-2
	1750	20350	10	16QAM	25	12	20.24	2	0-2
	1750	20350	10	16QAM	25	25	20.42	2	0-2
	1750	20350	10	16QAM	50	0	20.13	2	0-2

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Table 9-6
LTE Band 4 (AWS) Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	Target MPR [dB]	MPR Allowed per 3GPP [dB]
Low	1712.5	19975	5	QPSK	1	0	22.66	0	0
	1712.5	19975	5	QPSK	1	12	22.48	0	0
	1712.5	19975	5	QPSK	1	24	22.43	0	0
	1712.5	19975	5	QPSK	12	0	21.45	1	0-1
	1712.5	19975	5	QPSK	12	6	21.43	1	0-1
	1712.5	19975	5	QPSK	12	13	21.34	1	0-1
	1712.5	19975	5	QPSK	25	0	21.28	1	0-1
	1712.5	19975	5	16-QAM	1	0	21.71	1	0-1
	1712.5	19975	5	16-QAM	1	12	21.56	1	0-1
	1712.5	19975	5	16-QAM	1	24	21.52	1	0-1
	1712.5	19975	5	16-QAM	12	0	20.51	2	0-2
	1712.5	19975	5	16-QAM	12	6	20.41	2	0-2
	1712.5	19975	5	16-QAM	12	13	20.31	2	0-2
	1712.5	19975	5	16-QAM	25	0	20.24	2	0-2
Mid	1732.5	20175	5	QPSK	1	0	22.90	0	0
	1732.5	20175	5	QPSK	1	12	22.86	0	0
	1732.5	20175	5	QPSK	1	24	22.77	0	0
	1732.5	20175	5	QPSK	12	0	21.90	1	0-1
	1732.5	20175	5	QPSK	12	6	21.86	1	0-1
	1732.5	20175	5	QPSK	12	13	21.79	1	0-1
	1732.5	20175	5	QPSK	25	0	21.77	1	0-1
	1732.5	20175	5	16-QAM	1	0	21.95	1	0-1
	1732.5	20175	5	16-QAM	1	12	21.99	1	0-1
	1732.5	20175	5	16-QAM	1	24	21.89	1	0-1
	1732.5	20175	5	16-QAM	12	0	20.85	2	0-2
	1732.5	20175	5	16-QAM	12	6	20.84	2	0-2
	1732.5	20175	5	16-QAM	12	13	20.81	2	0-2
	1732.5	20175	5	16-QAM	25	0	20.68	2	0-2
High	1752.5	20375	5	QPSK	1	0	22.69	0	0
	1752.5	20375	5	QPSK	1	12	22.62	0	0
	1752.5	20375	5	QPSK	1	24	22.68	0	0
	1752.5	20375	5	QPSK	12	0	21.53	1	0-1
	1752.5	20375	5	QPSK	12	6	21.58	1	0-1
	1752.5	20375	5	QPSK	12	13	21.54	1	0-1
	1752.5	20375	5	QPSK	25	0	21.47	1	0-1
	1752.5	20375	5	16-QAM	1	0	21.53	1	0-1
	1752.5	20375	5	16-QAM	1	12	21.73	1	0-1
	1752.5	20375	5	16-QAM	1	24	21.78	1	0-1
	1752.5	20375	5	16-QAM	12	0	20.57	2	0-2
	1752.5	20375	5	16-QAM	12	6	20.58	2	0-2
	1752.5	20375	5	16-QAM	12	13	20.66	2	0-2
	1752.5	20375	5	16-QAM	25	0	20.43	2	0-2

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9.2.4 LTE Band 2 (PCS)

Table 9-7
LTE Band 2 (PCS) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	Target MPR [dB]	MPR Allowed per 3GPP [dB]
Low	1855	18650	10	QPSK	1	0	22.99	0	0
	1855	18650	10	QPSK	1	25	22.95	0	0
	1855	18650	10	QPSK	1	49	22.89	0	0
	1855	18650	10	QPSK	25	0	22.00	1	0-1
	1855	18650	10	QPSK	25	12	21.97	1	0-1
	1855	18650	10	QPSK	25	25	21.77	1	0-1
	1855	18650	10	QPSK	50	0	21.69	1	0-1
	1855	18650	10	16QAM	1	0	21.97	1	0-1
	1855	18650	10	16QAM	1	25	21.82	1	0-1
	1855	18650	10	16QAM	1	49	21.84	1	0-1
	1855	18650	10	16QAM	25	0	20.95	2	0-2
	1855	18650	10	16QAM	25	12	21.00	2	0-2
	1855	18650	10	16QAM	25	25	20.98	2	0-2
	1855	18650	10	16QAM	50	0	20.83	2	0-2
Mid	1880.0	18900	10	QPSK	1	0	22.57	0	0
	1880.0	18900	10	QPSK	1	25	22.66	0	0
	1880.0	18900	10	QPSK	1	49	22.65	0	0
	1880.0	18900	10	QPSK	25	0	21.51	1	0-1
	1880.0	18900	10	QPSK	25	12	21.53	1	0-1
	1880.0	18900	10	QPSK	25	25	21.67	1	0-1
	1880.0	18900	10	QPSK	50	0	21.29	1	0-1
	1880.0	18900	10	16QAM	1	0	21.45	1	0-1
	1880.0	18900	10	16QAM	1	25	21.51	1	0-1
	1880.0	18900	10	16QAM	1	49	21.58	1	0-1
	1880.0	18900	10	16QAM	25	0	20.53	2	0-2
	1880.0	18900	10	16QAM	25	12	20.57	2	0-2
	1880.0	18900	10	16QAM	25	25	20.69	2	0-2
	1880.0	18900	10	16QAM	50	0	20.33	2	0-2
High	1905	19150	10	QPSK	1	0	22.68	0	0
	1905	19150	10	QPSK	1	25	22.72	0	0
	1905	19150	10	QPSK	1	49	22.17	0	0
	1905	19150	10	QPSK	25	0	21.52	1	0-1
	1905	19150	10	QPSK	25	12	21.49	1	0-1
	1905	19150	10	QPSK	25	25	21.46	1	0-1
	1905	19150	10	QPSK	50	0	21.28	1	0-1
	1905	19150	10	16QAM	1	0	21.54	1	0-1
	1905	19150	10	16QAM	1	25	21.65	1	0-1
	1905	19150	10	16QAM	1	49	21.10	1	0-1
	1905	19150	10	16QAM	25	0	20.57	2	0-2
	1905	19150	10	16QAM	25	12	20.59	2	0-2
	1905	19150	10	16QAM	25	25	20.49	2	0-2
	1905	19150	10	16QAM	50	0	20.27	2	0-2

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Table 9-8
LTE Band 2 (PCS) Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	Target MPR [dB]	MPR Allowed per 3GPP [dB]
Low	1852.5	18625	5	QPSK	1	0	22.96	0	0
	1852.5	18625	5	QPSK	1	12	23.00	0	0
	1852.5	18625	5	QPSK	1	24	22.89	0	0
	1852.5	18625	5	QPSK	12	0	21.97	1	0-1
	1852.5	18625	5	QPSK	12	6	21.96	1	0-1
	1852.5	18625	5	QPSK	12	13	21.95	1	0-1
	1852.5	18625	5	QPSK	25	0	21.90	1	0-1
	1852.5	18625	5	16-QAM	1	0	21.91	1	0-1
	1852.5	18625	5	16-QAM	1	12	21.98	1	0-1
	1852.5	18625	5	16-QAM	1	24	21.89	1	0-1
	1852.5	18625	5	16-QAM	12	0	20.99	2	0-2
	1852.5	18625	5	16-QAM	12	6	20.96	2	0-2
Mid	1852.5	18625	5	16-QAM	12	13	20.95	2	0-2
	1852.5	18625	5	16-QAM	25	0	20.84	2	0-2
	1880.0	18900	5	QPSK	1	0	22.69	0	0
	1880.0	18900	5	QPSK	1	12	22.63	0	0
	1880.0	18900	5	QPSK	1	24	22.60	0	0
	1880.0	18900	5	QPSK	12	0	21.53	1	0-1
	1880.0	18900	5	QPSK	12	6	21.54	1	0-1
	1880.0	18900	5	QPSK	12	13	21.66	1	0-1
	1880.0	18900	5	QPSK	25	0	21.40	1	0-1
	1880.0	18900	5	16-QAM	1	0	21.66	1	0-1
	1880.0	18900	5	16-QAM	1	12	21.66	1	0-1
	1880.0	18900	5	16-QAM	1	24	21.67	1	0-1
High	1880.0	18900	5	16-QAM	12	0	20.57	2	0-2
	1880.0	18900	5	16-QAM	12	6	20.56	2	0-2
	1880.0	18900	5	16-QAM	12	13	20.62	2	0-2
	1880.0	18900	5	16-QAM	25	0	20.42	2	0-2
	1907.5	19175	5	QPSK	1	0	22.75	0	0
	1907.5	19175	5	QPSK	1	12	22.66	0	0
	1907.5	19175	5	QPSK	1	24	22.24	0	0
	1907.5	19175	5	QPSK	12	0	21.59	1	0-1
	1907.5	19175	5	QPSK	12	6	21.52	1	0-1
	1907.5	19175	5	QPSK	12	13	21.40	1	0-1
	1907.5	19175	5	QPSK	25	0	21.43	1	0-1
	1907.5	19175	5	16-QAM	1	0	21.76	1	0-1
	1907.5	19175	5	16-QAM	1	12	21.65	1	0-1
	1907.5	19175	5	16-QAM	1	24	21.37	1	0-1
	1907.5	19175	5	16-QAM	12	0	20.62	2	0-2
	1907.5	19175	5	16-QAM	12	6	20.56	2	0-2
	1907.5	19175	5	16-QAM	12	13	20.44	2	0-2
	1907.5	19175	5	16-QAM	25	0	20.45	2	0-2

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9.3 WLAN Conducted Powers

Table 9-9
IEEE 802.11b Average RF Power

Mode	Freq [MHz]	Channel	802.11b (2.4 GHz) Conducted Power [dBm]			
			Data Rate [Mbps]			
			1	2	5.5	11
802.11b	2412	1	14.88	14.48	14.51	14.53
802.11b	2437	6	15.96	15.57	15.52	15.51
802.11b	2462	11	14.13	13.48	13.45	13.47

Table 9-10
IEEE 802.11g Average RF Power

Mode	Freq	Channel	802.11g (2.4 GHz) Conducted Power [dBm]							
	[MHz]		Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11g	2412	1	11.85	11.86	11.83	11.91	11.89	11.73	11.94	11.65
802.11g	2437	6	12.81	12.67	12.74	12.67	12.55	12.64	12.60	12.43
802.11g	2462	11	11.92	11.97	12.02	12.01	11.92	11.90	12.01	11.81

Table 9-11
IEEE 802.11n Average RF Power

Mode	Freq	Channel	802.11n (2.4 GHz) Conducted Power [dBm]							
	[MHz]		Data Rate [Mbps]							
			6.5	13	20	26	39	52	58	65
802.11n	2412	1	11.14	11.04	11.06	11.21	11.12	11.17	11.21	11.14
802.11n	2437	6	11.77	11.81	11.73	11.98	11.92	11.88	11.99	11.78
802.11n	2462	11	11.12	11.21	11.27	11.24	11.15	11.18	11.08	11.23

Table 9-12
IEEE 802.11a Average RF Power

Mode	Freq	Channel	802.11a (5GHz) Conducted Power [dBm]							
	[MHz]		Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11a	5180	36*	13.08	13.04	13.05	12.99	13.05	12.95	12.91	13.11
802.11a	5200	40	12.97	12.75	13.01	12.72	12.92	12.76	12.62	12.99
802.11a	5220	44	12.93	12.72	12.67	12.56	12.85	12.70	12.99	12.98
802.11a	5240	48*	12.75	12.61	12.74	12.46	12.79	12.72	12.60	12.70
802.11a	5260	52*	13.06	12.81	12.86	12.76	12.95	12.79	12.87	13.04
802.11a	5280	56	12.88	12.71	12.60	12.52	12.83	12.70	12.75	13.02
802.11a	5300	60	12.74	12.74	12.81	12.58	12.86	12.62	12.72	12.92
802.11a	5320	64*	12.53	12.66	12.67	12.29	12.33	12.23	12.26	12.39
802.11a	5500	100	13.01	12.93	13.03	12.89	13.06	12.97	12.89	13.16
802.11a	5520	104*	12.96	13.07	13.08	12.88	13.16	12.93	12.97	13.19
802.11a	5540	108	13.04	12.88	12.93	12.82	12.95	12.79	12.78	13.05
802.11a	5560	112	12.88	12.77	12.89	12.77	12.89	12.65	12.78	12.95
802.11a	5580	116*	12.76	12.72	12.67	12.61	12.79	12.63	12.72	12.81
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	12.44	12.24	12.36	12.29	12.49	12.37	12.31	12.43
802.11a	5680	136*	12.29	12.24	12.32	12.14	12.42	12.17	12.13	12.33
802.11a	5700	140	12.23	12.26	12.25	12.11	12.36	12.13	12.20	12.34
802.11a	5745	149*	13.37	13.24	13.23	13.13	13.43	13.20	13.13	13.32
802.11a	5765	153	13.17	13.11	13.20	12.98	13.21	13.10	13.09	13.27
802.11a	5785	157*	13.06	13.15	13.14	13.01	13.17	13.00	13.17	13.18
802.11a	5805	161*	13.07	12.91	13.07	12.98	13.07	12.92	12.90	13.16
802.11a	5825	165	13.04	13.00	13.12	12.92	13.03	12.93	12.85	13.18

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.

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Table 9-13
IEEE 802.11n Average RF Power – 20 MHz Bandwidth

Mode	Freq	Channel	20MHz BW 802.11n (5GHz) Conducted Power [dBm]							
	[MHz]		Data Rate [Mbps]							
			6.5	13	20	26	39	52	58	65
802.11n	5180	36	12.26	12.22	12.33	12.30	12.33	12.27	12.33	12.21
802.11n	5200	40	12.04	12.03	12.09	12.17	12.15	11.99	12.21	12.12
802.11n	5220	44	11.94	11.82	11.98	12.05	12.05	11.96	11.90	11.93
802.11n	5240	48	11.76	11.90	11.88	11.85	11.97	11.84	11.97	11.92
802.11n	5260	52	11.94	11.87	12.05	11.97	12.03	11.87	11.99	11.76
802.11n	5280	56	11.90	11.71	11.67	11.54	11.62	11.69	11.74	11.81
802.11n	5300	60	11.53	11.19	11.56	11.62	11.63	11.68	11.64	11.54
802.11n	5320	64	11.42	11.55	11.61	11.69	11.68	11.66	11.49	11.63
802.11n	5500	100	12.17	12.19	12.28	12.19	12.29	12.24	12.31	12.27
802.11n	5520	104	12.07	12.06	12.06	12.21	12.19	12.10	12.20	12.12
802.11n	5540	108	11.91	11.91	11.92	12.07	12.04	12.02	12.19	12.15
802.11n	5560	112	11.87	11.82	12.01	12.03	12.12	11.97	11.93	11.96
802.11n	5580	116	11.72	11.82	11.84	11.94	11.95	11.89	11.97	11.91
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	11.45	11.48	11.55	11.37	11.61	11.40	11.46	11.54
802.11n	5680	136	11.42	11.49	11.44	11.42	11.44	11.40	11.39	11.44
802.11n	5700	140	11.36	11.89	11.95	11.99	12.00	11.99	11.96	11.97
802.11n	5745	149	11.98	12.01	11.47	11.35	11.43	11.32	11.39	11.38
802.11n	5765	153	11.94	11.67	11.97	12.05	11.95	12.03	12.03	12.02
802.11n	5785	157	11.88	11.93	11.85	11.72	12.02	11.86	11.98	11.86
802.11n	5805	161	11.74	11.74	11.82	11.74	11.92	11.86	11.72	11.47
802.11n	5825	165	11.77	11.76	11.71	11.86	11.85	11.62	11.77	11.57

Table 9-14
IEEE 802.11n Average RF Power – 40 MHz Bandwidth

Mode	Freq	Channel	40MHz BW 802.11n (5GHz) Conducted Power [dBm]							
	[MHz]		Data Rate [Mbps]							
			13.5/15	27/30	40.5/45	54/60	81/90	108/120	121.5/135	135/150
802.11n	5190	38	10.90	10.89	11.01	10.87	10.99	11.04	11.20	10.95
802.11n	5230	46	10.80	10.68	10.90	10.87	10.88	10.91	10.86	11.02
802.11n	5270	54	11.04	11.11	11.23	11.20	11.17	11.13	11.25	11.30
802.11n	5310	62	11.24	11.26	10.96	10.94	11.12	10.93	11.00	11.01
802.11n	5510	102	11.11	11.09	11.12	11.17	11.28	11.60	11.50	11.42
802.11n	5550	110	10.99	10.98	11.11	11.11	11.12	11.09	11.11	11.06
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	10.41	10.41	10.53	10.46	10.52	10.48	10.48	10.40
802.11n	5755	151	11.25	11.36	11.31	11.37	11.36	11.39	11.46	11.33
802.11n	5795	159	11.16	11.32	11.25	11.45	11.35	11.27	11.40	11.24

Table 9-15
IEEE 802.11ac Average RF Power – 80 MHz Bandwidth

Mode	Freq	Channel	80MHz BW 802.11ac (5GHz) Conducted Power [dBm]									
			Data Rate [Mbps]									
	29.3/32.5		58.5/65	87.8/97.5	117/130	175.5/195	234/260	263.3/292.5	292.5/325	351/390	390/433.3	
	[MHz]		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac	5210	42	10.34	10.25	10.24	10.29	10.35	10.18	10.32	10.20	10.19	10.22
802.11ac	5290	58	10.37	10.21	10.15	10.22	10.38	10.13	10.39	10.24	10.18	10.35
802.11ac	5530	106	10.15	10.13	10.11	10.03	10.09	10.18	10.11	10.08	9.23	10.05
802.11ac	5775	155	10.44	10.40	10.15	10.32	10.31	10.11	10.30	10.29	10.42	10.35

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

- For 2.4 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11b were selected for SAR evaluation. Other 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.
- For 5 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11a were selected for SAR evaluation. Other IEEE 802.11 modes (including 802.11n 20 MHz and 40 MHz and 802.11ac) 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.
- 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.
- The average output powers for 802.11ac -20MHz (VHT20) and 802.11ac - 40 MHz (VHT40) modes are equivalent to the 802.11n - 20 MHz (HT20) and 802.11n -40MHz (HT40). Therefore, no additional measurements were required for the lower bandwidths for 802.11ac

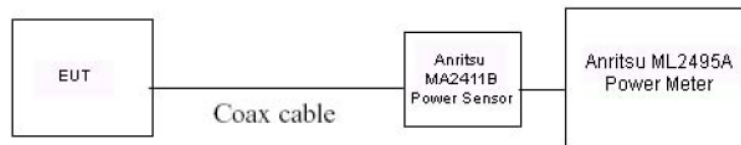


Figure 9-2
Power Measurement Setup

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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
02/11/2013	750H	23.2	695	0.853	41.389	0.87	41.88	-1.73%	-1.17%
			710	0.867	41.148	0.87	41.53	-0.80%	-0.91%
			725	0.880	40.945	0.888	42.033	-0.90%	-2.59%
			740	0.895	40.756	0.889	41.953	0.67%	-2.85%
			755	0.908	40.528	0.891	41.876	1.91%	-3.22%
02/04/2013	835H	24.4	820	0.927	42.860	0.898	41.571	3.23%	3.10%
			835	0.941	42.690	0.900	41.500	4.56%	2.87%
			850	0.955	42.510	0.916	41.500	4.26%	2.43%
03/05/2013	835H	22.4	820	0.918	41.577	0.898	41.571	2.23%	0.01%
			835	0.933	41.313	0.900	41.500	3.67%	-0.45%
			850	0.947	41.125	0.916	41.500	3.38%	-0.90%
02/04/2013	1750H	23.8	1710	1.379	38.380	1.348	40.136	2.30%	-4.38%
			1750	1.421	38.180	1.370	40.100	4.79%	-4.79%
			1790	1.461	38.060	1.394	40.020	4.81%	-4.90%
02/07/2013	1750H	19.9	1710	1.326	40.050	1.348	40.136	-1.63%	-0.21%
			1750	1.368	39.830	1.370	40.100	-0.15%	-0.67%
			1790	1.409	39.690	1.394	40.020	1.08%	-0.82%
02/09/2013	1900H	22.7	1850	1.404	39.310	1.400	40.000	0.29%	-1.72%
			1880	1.424	39.210	1.400	40.000	1.71%	-1.98%
			1910	1.463	39.100	1.400	40.000	4.50%	-2.25%
02/20/2013	1900H	23.8	1850	1.395	40.628	1.400	40.000	-0.36%	1.57%
			1880	1.425	40.521	1.400	40.000	1.79%	1.30%
			1910	1.454	40.398	1.400	40.000	3.86%	1.00%
03/04/2013	2450H	20.3	2401	1.800	37.894	1.758	39.298	2.39%	-3.57%
			2450	1.858	37.694	1.800	39.200	3.22%	-3.84%
			2499	1.915	37.514	1.852	39.135	3.40%	-4.14%
02/04/2013	5200H-5800H	23.7	5180	4.615	37.100	4.639	36.020	-0.52%	3.00%
			5200	4.602	37.460	4.660	36.000	-1.24%	4.06%
			5260	4.638	36.900	4.720	35.940	-1.74%	2.67%
			5300	4.794	36.730	4.760	35.900	0.71%	2.31%
			5500	4.910	36.620	4.965	35.650	-1.11%	2.72%
			5540	5.032	36.070	5.007	35.590	0.50%	1.35%
			5745	5.380	36.210	5.215	35.355	3.16%	2.42%
			5800	5.381	35.410	5.270	35.300	2.11%	0.31%
02/06/2013	750B	22.9	695	0.926	54.380	0.959	55.745	-3.44%	-2.45%
			710	0.941	54.240	0.960	55.687	-1.98%	-2.60%
			725	0.955	54.100	0.961	55.629	-0.62%	-2.75%
			740	0.968	53.890	0.963	55.570	0.52%	-3.02%
			755	0.980	53.740	0.964	55.512	1.66%	-3.19%
02/07/2013	835B	21.5	820	0.981	53.540	0.969	55.258	1.24%	-3.11%
			835	0.998	53.480	0.970	55.200	2.89%	-3.12%
			850	1.013	53.340	0.988	55.154	2.53%	-3.29%
02/12/2013	835B	22.5	820	0.999	53.880	0.969	55.258	3.10%	-2.49%
			835	1.014	53.732	0.970	55.200	4.54%	-2.66%
			850	1.027	53.546	0.988	55.154	3.95%	-2.92%
02/13/2013	835B	24.3	820	0.984	53.933	0.969	55.258	1.55%	-2.40%
			835	0.998	53.789	0.970	55.200	2.89%	-2.56%
			850	1.016	53.567	0.988	55.154	2.83%	-2.88%
02/07/2013	1750B	23.0	1710	1.417	52.920	1.460	53.540	-2.95%	-1.16%
			1750	1.498	52.570	1.490	53.430	0.54%	-1.61%
			1790	1.536	52.280	1.510	53.330	1.72%	-1.97%
03/08/2013	1750B	22.6	1710	1.431	52.855	1.460	53.540	-1.99%	-1.28%
			1750	1.471	52.747	1.490	53.430	-1.28%	-1.28%
			1790	1.515	52.635	1.510	53.330	0.33%	-1.30%
02/05/2013	1900B	22.2	1850	1.487	51.420	1.520	53.300	-2.17%	-3.53%
			1880	1.526	51.310	1.520	53.300	0.39%	-3.73%
			1910	1.558	51.160	1.520	53.300	2.50%	-4.02%
03/05/2013	1900B	21.3	1850	1.521	52.521	1.520	53.300	0.07%	-1.46%
			1880	1.552	52.420	1.520	53.300	2.11%	-1.65%
			1910	1.585	52.272	1.520	53.300	4.28%	-1.93%
03/04/2013	2450B	23.0	2401	1.915	51.521	1.903	52.765	0.63%	-2.36%
			2450	1.977	51.362	1.950	52.700	1.38%	-2.54%
			2499	2.042	51.164	2.019	52.638	1.14%	-2.80%
02/06/2013	5200B-5800B	23.9	5180	5.097	47.580	5.276	49.041	-3.39%	-2.98%
			5200	5.106	47.540	5.299	49.014	-3.64%	-3.01%
			5220	5.140	47.490	5.323	48.987	-3.44%	-3.06%
			5260	5.217	47.380	5.369	48.906	-2.83%	-3.12%
			5300	5.258	47.310	5.416	48.851	-2.92%	-3.15%
			5500	5.551	46.840	5.650	48.580	-1.75%	-3.58%
			5540	5.597	46.750	5.696	48.526	-1.74%	-3.66%
			5745	5.887	46.270	5.936	48.248	-0.83%	-4.10%
			5800	5.993	46.180	6.000	48.200	-0.12%	-4.19%

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 IEEE 1528 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

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10.2 Test System Verification

Prior to SAR assessment, the system is verified to $\pm 10\%$ 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											
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 (%)
750	HEAD	02/11/2013	21.9	22.0	0.170	1003	3022	1.430	8.460	8.412	-0.57%
835	HEAD	02/04/2013	22.8	22.6	0.100	4d026	3022	0.951	9.390	9.510	1.28%
835	HEAD	03/05/2013	22.2	23.5	0.100	4d026	3022	0.942	9.390	9.420	0.32%
1750	HEAD	02/04/2013	24.4	23.4	0.100	1008	3287	3.720	36.400	37.200	2.20%
1750	HEAD	02/07/2013	23.4	21.4	0.100	1051	3288	3.440	36.600	34.400	-6.01%
1900	HEAD	02/09/2013	22.8	21.3	0.100	5d149	3213	4.150	39.300	41.500	5.60%
1900	HEAD	02/20/2013	23.9	23.5	0.100	5d149	3288	3.940	39.300	39.400	0.25%
2450	HEAD	03/04/2013	22.8	20.3	0.100	882	3288	5.230	51.700	52.300	1.16%
5200	HEAD	02/04/2013	23.4	22.6	0.040	1007	3589	3.070	79.800	76.750	-3.82%
5300	HEAD	02/04/2013	23.4	22.6	0.040	1007	3589	3.120	83.100	78.000	-6.14%
5500	HEAD	02/04/2013	23.6	22.8	0.040	1007	3589	3.380	84.900	84.500	-0.47%
5800	HEAD	02/04/2013	23.7	22.9	0.100	1007	3589	7.650	79.800	76.500	-4.14%
750	BODY	02/06/2013	24.6	23.0	0.100	1003	3287	0.862	8.830	8.620	-2.38%
835	BODY	02/07/2013	23.0	22.4	0.100	4d133	3213	0.939	9.600	9.390	-2.19%
835	BODY	02/12/2013	24.5	22.4	0.100	4d133	3213	0.997	9.600	9.970	3.85%
835	BODY	02/13/2013	24.7	24.2	0.100	4d133	3213	0.957	9.600	9.570	-0.31%
1750	BODY	02/07/2013	23.9	23.1	0.100	1008	3287	3.950	37.400	39.500	5.61%
1750	BODY	03/08/2013	24.8	23.8	0.100	1051	3213	3.920	37.600	39.200	4.26%
1900	BODY	02/05/2013	24.0	22.5	0.100	5d149	3263	3.920	39.300	39.200	-0.25%
1900	BODY	03/05/2013	24.6	21.2	0.100	5d148	3920	4.160	40.800	41.600	1.96%
2450	BODY	03/04/2013	23.8	22.1	0.100	719	3287	4.910	51.600	49.100	-4.84%
5200	BODY	02/06/2013	24.1	23.2	0.100	1007	3589	6.830	73.300	68.300	-6.82%
5300	BODY	02/06/2013	24.2	23.0	0.100	1007	3589	7.080	75.600	70.800	-6.35%
5500	BODY	02/06/2013	24.1	23.2	0.100	1007	3589	7.580	78.500	75.800	-3.44%
5800	BODY	02/06/2013	24.2	23.0	0.100	1007	3589	7.000	74.300	70.000	-5.79%

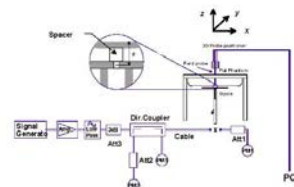


Figure 10-1
System Verification Setup Diagram



Figure 10-2
System Verification Setup Photo

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11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
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	24.78	0.02	Right	Cheek	Standard	FCC#7	1:1	0.293	1.052	0.308	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	24.78	-0.07	Right	Tilt	Standard	FCC#7	1:1	0.177	1.052	0.186	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	24.78	-0.06	Left	Cheek	Standard	FCC#7	1:1	0.338	1.052	0.356	A1
836.52	384	Cell. CDMA	RC3 / SO55	25.0	24.78	-0.02	Left	Cheek	Wireless Charging	FCC#7	1:1	0.081	1.052	0.085	
836.52	384	Cell. CDMA	RC3 / SO55	25.0	24.78	-0.02	Left	Tilt	Standard	FCC#7	1:1	0.203	1.052	0.214	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	24.79	0.05	Right	Cheek	Standard	FCC#7	1:1	0.253	1.050	0.266	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	24.79	0.06	Right	Tilt	Standard	FCC#7	1:1	0.158	1.050	0.166	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	24.79	-0.10	Left	Cheek	Standard	FCC#7	1:1	0.298	1.050	0.313	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	24.79	0.09	Left	Cheek	Wireless Charging	FCC#7	1:1	0.101	1.050	0.106	
836.52	384	Cell. CDMA	EVDO Rev. A	25.0	24.79	0.02	Left	Tilt	Standard	FCC#7	1:1	0.178	1.050	0.187	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-2
AWS 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)	
1732.50	450	AWS CDMA	RC3 / SO55	25.0	24.66	0.05	Right	Cheek	Standard	FCC#1	1:1	0.095	1.081	0.103	
1732.50	450	AWS CDMA	RC3 / SO55	25.0	24.66	0.13	Right	Tilt	Standard	FCC#1	1:1	0.075	1.081	0.081	
1732.50	450	AWS CDMA	RC3 / SO55	25.0	24.66	0.01	Left	Cheek	Standard	FCC#1	1:1	0.137	1.081	0.148	
1732.50	450	AWS CDMA	RC3 / SO55	25.0	24.66	-0.06	Left	Cheek	Wireless Charging	FCC#1	1:1	0.110	1.081	0.119	
1732.50	450	AWS CDMA	RC3 / SO55	25.0	24.66	-0.17	Left	Tilt	Standard	FCC#1	1:1	0.081	1.081	0.088	
1732.50	450	AWS CDMA	EVDO Rev. A	25.0	24.66	-0.02	Right	Cheek	Standard	FCC#1	1:1	0.109	1.081	0.118	
1732.50	450	AWS CDMA	EVDO Rev. A	25.0	24.66	0.12	Right	Tilt	Standard	FCC#1	1:1	0.074	1.081	0.080	
1732.50	450	AWS CDMA	EVDO Rev. A	25.0	24.66	-0.06	Left	Cheek	Standard	FCC#1	1:1	0.163	1.081	0.176	A2
1732.50	450	AWS CDMA	EVDO Rev. A	25.0	24.66	-0.07	Left	Cheek	Wireless Charging	FCC#1	1:1	0.116	1.081	0.125	
1732.50	450	AWS CDMA	EVDO Rev. A	25.0	24.66	-0.01	Left	Tilt	Standard	FCC#1	1:1	0.088	1.081	0.095	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-3
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	24.69	0.13	Right	Cheek	Standard	FCC#4	1:1	0.089	1.074	0.095	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.69	0.15	Right	Tilt	Standard	FCC#4	1:1	0.075	1.074	0.081	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.69	0.10	Left	Cheek	Standard	FCC#4	1:1	0.194	1.074	0.208	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.69	0.10	Left	Cheek	Wireless Charging	FCC#4	1:1	0.176	1.074	0.189	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.69	0.08	Left	Tilt	Standard	FCC#4	1:1	0.059	1.074	0.063	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.69	0.02	Right	Cheek	Standard	FCC#4	1:1	0.102	1.074	0.110	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.69	0.20	Right	Tilt	Standard	FCC#4	1:1	0.080	1.074	0.086	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.69	0.05	Left	Cheek	Standard	FCC#4	1:1	0.201	1.074	0.216	A3
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.69	0.02	Left	Cheek	Wireless Charging	FCC#4	1:1	0.175	1.074	0.188	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.69	-0.10	Left	Tilt	Standard	FCC#4	1:1	0.060	1.074	0.064	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-4
LTE Band 12 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Cover Type	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	23.0	22.83	0.08	0	Right	Cheek	Wireless Charging	QPSK	1	49	FCC#6	1:1	0.052	1.040	0.054	A4
707.50	23095	Mid	LTE Band 12	10	23.0	22.83	0.05	0	Right	Cheek		QPSK	1	49	FCC#6	1:1	0.044	1.040	0.046	
707.50	23095	Mid	LTE Band 12	10	22.0	21.69	0.13	1	Right	Cheek	Standard	QPSK	25	25	FCC#6	1:1	0.035	1.074	0.038	
707.50	23095	Mid	LTE Band 12	10	23.0	22.83	0.14	0	Right	Tilt	Standard	QPSK	1	49	FCC#6	1:1	0.028	1.040	0.029	
707.50	23095	Mid	LTE Band 12	10	22.0	21.69	0.05	1	Right	Tilt	Standard	QPSK	25	25	FCC#6	1:1	0.019	1.074	0.020	
707.50	23095	Mid	LTE Band 12	10	23.0	22.83	0.09	0	Left	Cheek	Standard	QPSK	1	49	FCC#6	1:1	0.040	1.040	0.042	
707.50	23095	Mid	LTE Band 12	10	22.0	21.69	0.17	1	Left	Cheek	Standard	QPSK	25	25	FCC#6	1:1	0.028	1.074	0.030	
707.50	23095	Mid	LTE Band 12	10	23.0	22.83	0.08	0	Left	Tilt	Standard	QPSK	1	49	FCC#6	1:1	0.024	1.040	0.025	
707.50	23095	Mid	LTE Band 12	10	22.0	21.69	0.04	1	Left	Tilt	Standard	QPSK	25	25	FCC#6	1:1	0.018	1.074	0.019	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

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

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Cover Type	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	23.0	23.00	0.15	0	Right	Cheek	Standard	QPSK	1	49	FCC#6	1:1	0.037	1.000	0.037	A5
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	0.11	0	Right	Cheek	Wireless Charging	QPSK	1	49	FCC#6	1:1	0.039	1.000	0.039	
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.0	21.99	0.13	1	Right	Cheek	Standard	QPSK	25	0	FCC#6	1:1	0.029	1.002	0.029	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	0.19	0	Right	Tilt	Standard	QPSK	1	49	FCC#6	1:1	0.020	1.000	0.020	
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.0	21.99	0.19	1	Right	Tilt	Standard	QPSK	25	0	FCC#6	1:1	0.017	1.002	0.017	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	0.11	0	Left	Cheek	Standard	QPSK	1	49	FCC#6	1:1	0.028	1.000	0.028	
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.0	21.99	0.12	1	Left	Cheek	Standard	QPSK	25	0	FCC#6	1:1	0.021	1.002	0.021	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	0.07	0	Left	Tilt	Standard	QPSK	1	49	FCC#6	1:1	0.018	1.000	0.018	
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.0	21.99	0.14	1	Left	Tilt	Standard	QPSK	25	0	FCC#6	1:1	0.014	1.002	0.014	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

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Table 11-6
LTE Band 4 (AWS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Cover Type	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)	10	23.0	22.96	0.04	0	Right	Cheek	Standard	QPSK	1	25	FCC#6	1:1	0.090	1.009	0.091	A6
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	0.02	0	Right	Cheek	Wireless Charging	QPSK	1	25	FCC#6	1:1	0.016	1.009	0.016	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.0	21.78	0.08	1	Right	Cheek		Standard	QPSK	25	12	FCC#6	1:1	0.067	1.052	0.071
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	-0.16	0	Right	Tilt	Standard	QPSK	1	25	FCC#6	1:1	0.041	1.009	0.041	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.0	21.78	0.06	1	Right	Tilt	Standard	QPSK	25	12	FCC#6	1:1	0.031	1.052	0.032	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	0.11	0	Left	Cheek	Standard	QPSK	1	25	FCC#6	1:1	0.053	1.009	0.053	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.0	21.78	0.16	1	Left	Cheek	Standard	QPSK	25	12	FCC#6	1:1	0.040	1.052	0.042	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	-0.02	0	Left	Tilt	Standard	QPSK	1	25	FCC#6	1:1	0.048	1.009	0.049	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.0	21.78	0.17	1	Left	Tilt	Standard	QPSK	25	12	FCC#6	1:1	0.037	1.052	0.039	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-7
LTE Band 2 (PCS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Cover Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
																	(W/kg)		(W/kg)	
MHz	Ch.																			
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	0.00	0	Right	Cheek	Standard	QPSK	1	0	FCC#5	1:1	0.158	1.002	0.158	A7
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	0.10	0	Right	Cheek	Wireless Charging	QPSK	1	0	FCC#5	1:1	0.127	1.002	0.127	
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.0	22.00	0.09	1	Right	Cheek		Standard	QPSK	25	0	FCC#5	1:1	0.125	1.000	0.125
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	0.05	0	Right	Tilt	Standard	QPSK	1	0	FCC#5	1:1	0.070	1.002	0.070	
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.0	22.00	0.12	1	Right	Tilt	Standard	QPSK	25	0	FCC#5	1:1	0.053	1.000	0.053	
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	0.01	0	Left	Cheek	Standard	QPSK	1	0	FCC#5	1:1	0.128	1.002	0.128	
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.0	22.00	0.09	1	Left	Cheek	Standard	QPSK	25	0	FCC#5	1:1	0.096	1.000	0.096	
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	0.10	0	Left	Tilt	Standard	QPSK	1	0	FCC#5	1:1	0.055	1.002	0.055	
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.0	22.00	0.06	1	Left	Tilt	Standard	QPSK	25	0	FCC#5	1:1	0.044	1.000	0.044	
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
DTS Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maxium Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	Device Serial Number	Data Rate (Mbps)	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
2437	6	IEEE 802.11b	DSSS	16.0	15.96	0.20	Right	Cheek	Standard	FCC#C	1	1:1	0.170	1.009	0.172	
2437	6	IEEE 802.11b	DSSS	16.0	15.96	0.11	Right	Tilt	Standard	FCC#C	1	1:1	0.141	1.009	0.142	
2437	6	IEEE 802.11b	DSSS	16.0	15.96	0.02	Left	Cheek	Standard	FCC#C	1	1:1	0.475	1.009	0.479	A8
2437	6	IEEE 802.11b	DSSS	16.0	15.96	-0.19	Left	Cheek	Wireless Charging	FCC#C	1	1:1	0.252	1.009	0.254	
2437	6	IEEE 802.11b	DSSS	16.0	15.96	-0.07	Left	Tilt	Standard	FCC#C	1	1:1	0.194	1.009	0.196	
5745	149	IEEE 802.11a	OFDM	13.5	13.37	0.08	Right	Cheek	Standard	FCC#B	6	1:1	0.063	1.030	0.065	
5745	149	IEEE 802.11a	OFDM	13.5	13.37	0.09	Right	Tilt	Standard	FCC#B	6	1:1	0.020	1.030	0.020	
5745	149	IEEE 802.11a	OFDM	13.5	13.37	0.14	Left	Cheek	Standard	FCC#B	6	1:1	0.134	1.030	0.138	A10
5745	149	IEEE 802.11a	OFDM	13.5	13.37	0.03	Left	Tilt	Standard	FCC#B	6	1:1	0.045	1.030	0.046	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram								

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Table 11-9
NII Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	Device Serial Number	Data Rate (Mbps)	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
5180	36	IEEE 802.11a	OFDM	13.5	13.08	0.13	Right	Cheek	Standard	FCC#B	6	1:1	0.060	1.102	0.066	
5180	36	IEEE 802.11a	OFDM	13.5	13.08	-0.17	Right	Tilt	Standard	FCC#B	6	1:1	0.022	1.102	0.024	
5180	36	IEEE 802.11a	OFDM	13.5	13.08	0.17	Left	Cheek	Standard	FCC#B	6	1:1	0.200	1.102	0.220	A9
5180	36	IEEE 802.11a	OFDM	13.5	13.08	-0.11	Left	Cheek	Wireless Charging	FCC#B	6	1:1	0.106	1.102	0.117	
5180	36	IEEE 802.11a	OFDM	13.5	13.08	0.20	Left	Tilt	Standard	FCC#B	6	1:1	0.033	1.102	0.036	
5260	52	IEEE 802.11a	OFDM	13.5	13.06	0.21	Right	Cheek	Standard	FCC#B	6	1:1	0.048	1.107	0.054	
5260	52	IEEE 802.11a	OFDM	13.5	13.06	-0.16	Right	Tilt	Standard	FCC#B	6	1:1	0.015	1.107	0.017	
5260	52	IEEE 802.11a	OFDM	13.5	13.06	0.19	Left	Cheek	Standard	FCC#B	6	1:1	0.170	1.107	0.188	
5260	52	IEEE 802.11a	OFDM	13.5	13.06	0.13	Left	Tilt	Standard	FCC#B	6	1:1	0.027	1.107	0.030	
5540	108	IEEE 802.11a	OFDM	13.5	13.04	-0.18	Right	Cheek	Standard	FCC#B	6	1:1	0.052	1.112	0.058	
5540	108	IEEE 802.11a	OFDM	13.5	13.04	0.15	Right	Tilt	Standard	FCC#B	6	1:1	0.015	1.112	0.017	
5540	108	IEEE 802.11a	OFDM	13.5	13.04	0.13	Left	Cheek	Standard	FCC#B	6	1:1	0.117	1.112	0.130	
5540	108	IEEE 802.11a	OFDM	13.5	13.04	0.19	Left	Tilt	Standard	FCC#B	6	1:1	0.028	1.112	0.031	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram									

11.2 Standalone Body-Worn SAR Data

Table 11-10
CDMA Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maxiumum 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	24.79	-0.10	10 mm	Standard	FCC#8	1:1	back	0.493	1.050	0.518	A11
836.52	384	Cell. CDMA	TDSO / SO32	25.0	24.79	-0.06	10 mm	Wireless Charging	FCC#8	1:1	back	0.213	1.050	0.224	
1732.50	450	AWS CDMA	TDSO / SO32	25.0	24.73	-0.09	10 mm	Standard	FCC#9	1:1	back	0.521	1.064	0.554	A13
1732.50	450	AWS CDMA	TDSO / SO32	25.0	24.73	0.03	10 mm	Wireless Charging	FCC#9	1:1	back	0.316	1.064	0.336	
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.67	-0.08	10 mm	Standard	FCC#4	1:1	back	0.567	1.079	0.612	A15
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.67	-0.02	10 mm	Wireless Charging	FCC#4	1:1	back	0.420	1.079	0.453	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram								

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Table 11-11
LTE Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Cover Type	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	23.0	22.83	0.00	0	Standard	FCC#5	QPSK	1	49	10 mm	back	1:1	0.116	1.040	0.121	A17
707.50	23095	Mid	LTE Band 12	10	23.0	22.83	-0.01	0	Wireless Charging	FCC#5	QPSK	1	49	10 mm	back	1:1	0.075	1.040	0.078	
707.50	23095	Mid	LTE Band 12	10	22.0	21.69	0.09	1	Standard	FCC#5	QPSK	25	25	10 mm	back	1:1	0.082	1.074	0.088	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	0.05	0	Standard	FCC#6	QPSK	1	49	10 mm	back	1:1	0.108	1.000	0.108	A18
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	-0.02	0	Wireless Charging	FCC#6	QPSK	1	49	10 mm	back	1:1	0.104	1.000	0.104	
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.0	21.99	0.04	1	Standard	FCC#6	QPSK	25	0	10 mm	back	1:1	0.083	1.002	0.083	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	0.00	0	Standard	FCC#5	QPSK	1	25	10 mm	back	1:1	0.175	1.009	0.177	A19
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	0.10	0	Wireless Charging	FCC5	QPSK	1	25	10 mm	back	1:1	0.073	1.009	0.074	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.0	21.78	0.01	1	Standard	FCC#5	QPSK	25	12	10 mm	back	1:1	0.129	1.052	0.136	
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	-0.06	0	Standard	FCC#5	QPSK	1	0	10 mm	back	1:1	0.243	1.002	0.243	A20
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	0.01	0	Wireless Charging	FCC#5	QPSK	1	0	10 mm	back	1:1	0.173	1.002	0.173	
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.0	22.00	-0.03	1	Standard	FCC#5	QPSK	25	0	10 mm	back	1:1	0.181	1.000	0.181	
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
DTS Body-Worn SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Cover Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.												(W/kg)			
2437	6	IEEE 802.11b	DSSS	16.0	15.96	0.01	10 mm	Standard	FCC#C	1	back	1:1	0.369	1.009	0.372	A21
2437	6	IEEE 802.11b	DSSS	16.0	15.96	-0.07	10 mm	Wireless Charging	FCC#C	1	back	1:1	0.180	1.009	0.182	
5745	149	IEEE 802.11a	OFDM	13.5	13.37	0.17	10 mm	Standard	FCC#B	6	back	1:1	0.116	1.030	0.119	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 11-13
NII Body-Worn SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Cover Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.												(W/kg)			
5180	36	IEEE 802.11a	OFDM	13.5	13.08	0.09	10 mm	Standard	FCC#B	6	back	1:1	0.282	1.102	0.311	A22
5180	36	IEEE 802.11a	OFDM	13.5	13.08	-0.04	10 mm	Wireless Charging	FCC#B	6	back	1:1	0.144	1.102	0.159	
5220	44	IEEE 802.11a	OFDM	13.5	12.93	0.21	10 mm	Standard	FCC#B	6	back	1:1	0.250	1.140	0.285	
5260	52	IEEE 802.11a	OFDM	13.5	13.06	0.14	10 mm	Standard	FCC#B	6	back	1:1	0.247	1.107	0.273	
5540	108	IEEE 802.11a	OFDM	13.5	13.04	0.03	10 mm	Standard	FCC#B	6	back	1:1	0.193	1.112	0.215	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram							

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11.3 Standalone Wireless Router SAR Data

Table 11-14
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	TDSO / SO32	25.0	24.79	-0.10	10 mm	Standard	FCC#8	1:1	back	0.493	1.050	0.518	
836.52	384	Cell. CDMA	TDSO / SO32	25.0	24.79	-0.06	10 mm	Wireless Charging	FCC#8	1:1	back	0.213	1.050	0.224	
836.52	384	Cell. CDMA	TDSO / SO32	25.0	24.79	-0.01	10 mm	Standard	FCC#8	1:1	front	0.408	1.050	0.428	
836.52	384	Cell. CDMA	TDSO / SO32	25.0	24.79	-0.05	10 mm	Standard	FCC#8	1:1	bottom	0.257	1.050	0.270	
836.52	384	Cell. CDMA	TDSO / SO32	25.0	24.79	0.00	10 mm	Standard	FCC#8	1:1	left	0.432	1.050	0.454	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.81	0.02	10 mm	Standard	FCC#8	1:1	back	0.494	1.045	0.516	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.81	0.00	10 mm	Standard	FCC#8	1:1	front	0.412	1.045	0.431	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.81	-0.15	10 mm	Standard	FCC#8	1:1	bottom	0.259	1.045	0.271	
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.81	0.21	10 mm	Standard	FCC#8	1:1	left	0.546	1.045	0.571	A12
836.52	384	Cell. CDMA	EVDO Rev. 0	25.0	24.81	0.02	10 mm	Wireless Charging	FCC#8	1:1	left	0.233	1.045	0.243	
1732.50	450	AWS CDMA	TDSO / SO32	25.0	24.73	-0.09	10 mm	Standard	FCC#9	1:1	back	0.521	1.064	0.554	
1732.50	450	AWS CDMA	TDSO / SO32	25.0	24.73	0.03	10 mm	Wireless Charging	FCC#9	1:1	back	0.316	1.064	0.336	
1732.50	450	AWS CDMA	TDSO / SO32	25.0	24.73	-0.03	10 mm	Standard	FCC#9	1:1	front	0.292	1.064	0.311	
1732.50	450	AWS CDMA	TDSO / SO32	25.0	24.73	-0.07	10 mm	Standard	FCC#9	1:1	bottom	0.351	1.064	0.373	
1732.50	450	AWS CDMA	TDSO / SO32	25.0	24.73	-0.01	10 mm	Standard	FCC#9	1:1	left	0.118	1.064	0.126	
1732.50	450	AWS CDMA	EVDO Rev. 0	25.0	24.71	0.00	10 mm	Standard	FCC#9	1:1	back	0.571	1.069	0.610	A14
1732.50	450	AWS CDMA	EVDO Rev. 0	25.0	24.71	0.01	10 mm	Wireless Charging	FCC#9	1:1	back	0.305	1.069	0.326	
1732.50	450	AWS CDMA	EVDO Rev. 0	25.0	24.71	0.03	10 mm	Standard	FCC#9	1:1	front	0.313	1.069	0.335	
1732.50	450	AWS CDMA	EVDO Rev. 0	25.0	24.71	-0.03	10 mm	Standard	FCC#9	1:1	bottom	0.289	1.069	0.309	
1732.50	450	AWS CDMA	EVDO Rev. 0	25.0	24.71	-0.02	10 mm	Standard	FCC#9	1:1	left	0.137	1.069	0.146	
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.67	-0.08	10 mm	Standard	FCC#4	1:1	back	0.567	1.079	0.612	
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.67	-0.02	10 mm	Wireless Charging	FCC#4	1:1	back	0.420	1.079	0.453	
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.67	-0.01	10 mm	Standard	FCC#4	1:1	front	0.314	1.079	0.339	
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.67	0.02	10 mm	Standard	FCC#4	1:1	bottom	0.369	1.079	0.398	
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.67	0.03	10 mm	Standard	FCC#4	1:1	left	0.158	1.079	0.170	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.72	0.00	10 mm	Standard	FCC#4	1:1	back	0.668	1.067	0.713	A16
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.72	-0.03	10 mm	Wireless Charging	FCC#4	1:1	back	0.424	1.067	0.452	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.72	-0.02	10 mm	Standard	FCC#4	1:1	front	0.330	1.067	0.352	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.72	-0.05	10 mm	Standard	FCC#4	1:1	bottom	0.345	1.067	0.368	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.72	-0.01	10 mm	Standard	FCC#4	1:1	left	0.162	1.067	0.173	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram								

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Table 11-15
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maxumum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Cover Type	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	23.0	22.83	0.00	0	Standard	FCC#5	QPSK	1	49	10 mm	back	1:1	0.116	1.040	0.121	A17
707.50	23095	Mid	LTE Band 12	10	23.0	22.83	-0.01	0	Wireless Charging	FCC#5	QPSK	1	49	10 mm	back	1:1	0.075	1.040	0.078	
707.50	23095	Mid	LTE Band 12	10	22.0	21.69	0.09	1	Standard	FCC#5	QPSK	25	25	10 mm	back	1:1	0.082	1.074	0.088	
707.50	23095	Mid	LTE Band 12	10	23.0	22.83	0.05	0	Standard	FCC#5	QPSK	1	49	10 mm	front	1:1	0.063	1.040	0.066	
707.50	23095	Mid	LTE Band 12	10	22.0	21.69	0.12	1	Standard	FCC#5	QPSK	25	25	10 mm	front	1:1	0.044	1.074	0.048	
707.50	23095	Mid	LTE Band 12	10	23.0	22.83	-0.02	0	Standard	FCC#5	QPSK	1	49	10 mm	bottom	1:1	0.059	1.040	0.061	
707.50	23095	Mid	LTE Band 12	10	22.0	21.69	-0.05	1	Standard	FCC#5	QPSK	25	25	10 mm	bottom	1:1	0.040	1.074	0.043	
707.50	23095	Mid	LTE Band 12	10	23.0	22.83	-0.18	0	Standard	FCC#5	QPSK	1	49	10 mm	right	1:1	0.112	1.040	0.116	
707.50	23095	Mid	LTE Band 12	10	22.0	21.69	0.04	1	Standard	FCC#5	QPSK	25	25	10 mm	right	1:1	0.071	1.074	0.076	
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 5 (Cell) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Cover Type	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)		
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	0.05	0	Standard	FCC#6	QPSK	1	49	10 mm	back	1:1	0.108	1.000	0.108	A18
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	-0.02	0	Wireless Charging	FCC#6	QPSK	1	49	10 mm	back	1:1	0.104	1.000	0.104	
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.0	21.99	0.04	1	Standard	FCC#6	QPSK	25	0	10 mm	back	1:1	0.083	1.002	0.083	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	-0.02	0	Standard	FCC#6	QPSK	1	49	10 mm	front	1:1	0.037	1.000	0.037	
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.0	21.99	-0.04	1	Standard	FCC#6	QPSK	25	0	10 mm	front	1:1	0.034	1.002	0.034	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	0.19	0	Standard	FCC#6	QPSK	1	49	10 mm	bottom	1:1	0.032	1.000	0.032	
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.0	21.99	0.05	1	Standard	FCC#6	QPSK	25	0	10 mm	bottom	1:1	0.026	1.002	0.026	
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.0	23.00	-0.20	0	Standard	FCC#6	QPSK	1	49	10 mm	right	1:1	0.094	1.000	0.094	
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.0	21.99	0.10	1	Standard	FCC#6	QPSK	25	0	10 mm	right	1:1	0.074	1.002	0.074	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT									Body											
Spatial Peak									1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population									averaged over 1 gram											

Table 11-17
LTE Band 4 (AWS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Cover Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Scaled SAR	Plot #	
MHz	Ch.																	(1g) (W/kg)		
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	0.00	0	Standard	FCC#5	QPSK	1	25	10 mm	back	1:1	0.175	1.009	0.177	A19
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	0.10	0	Wireless Charging	FCC5	QPSK	1	25	10 mm	back	1:1	0.073	1.009	0.074	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.0	21.78	0.01	1	Standard	FCC#5	QPSK	25	12	10 mm	back	1:1	0.129	1.052	0.136	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	-0.02	0	Standard	FCC#5	QPSK	1	25	10 mm	front	1:1	0.122	1.009	0.123	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.0	21.78	0.03	1	Standard	FCC#5	QPSK	25	12	10 mm	front	1:1	0.093	1.052	0.098	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	-0.15	0	Standard	FCC#5	QPSK	1	25	10 mm	bottom	1:1	0.072	1.009	0.073	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.0	21.78	-0.10	1	Standard	FCC#5	QPSK	25	12	10 mm	bottom	1:1	0.054	1.052	0.057	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	23.0	22.96	-0.02	0	Standard	FCC#5	QPSK	1	25	10 mm	right	1:1	0.079	1.009	0.079	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.0	21.78	-0.04	1	Standard	FCC#5	QPSK	25	12	10 mm	right	1:1	0.059	1.052	0.062	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram											

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Table 11-18
LTE Band 2 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Cover Type	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)		
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	-0.06	0	Standard	FCC#5	QPSK	1	0	10 mm	back	1:1	0.243	1.002	0.243	A20
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	0.01	0	Wireless Charging	FCC#5	QPSK	1	0	10 mm	back	1:1	0.173	1.002	0.173	
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.0	22.00	-0.03	1	Standard	FCC#5	QPSK	25	0	10 mm	back	1:1	0.181	1.000	0.181	
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	-0.07	0	Standard	FCC#5	QPSK	1	0	10 mm	front	1:1	0.200	1.002	0.200	
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.0	22.00	0.02	1	Standard	FCC#5	QPSK	25	0	10 mm	front	1:1	0.152	1.000	0.152	
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	0.07	0	Standard	FCC#5	QPSK	1	0	10 mm	bottom	1:1	0.133	1.002	0.133	
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.0	22.00	-0.01	1	Standard	FCC#5	QPSK	25	0	10 mm	bottom	1:1	0.106	1.000	0.106	
1855.00	18650	Low	LTE Band 2 (PCS)	10	23.0	22.99	0.01	0	Standard	FCC#5	QPSK	1	0	10 mm	right	1:1	0.165	1.002	0.165	
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.0	22.00	-0.01	1	Standard	FCC#5	QPSK	25	0	10 mm	right	1:1	0.121	1.000	0.121	
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 11-19
WLAN Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	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)	
2437	6	IEEE 802.11b	DSSS	16.0	15.96	0.01	10 mm	Standard	FCC#C	1	back	1:1	0.369	1.009	0.372	A21
2437	6	IEEE 802.11b	DSSS	16.0	15.96	-0.07	10 mm	Wireless Charging	FCC#C	1	back	1:1	0.180	1.009	0.182	
2437	6	IEEE 802.11b	DSSS	16.0	15.96	-0.01	10 mm	Standard	FCC#C	1	front	1:1	0.094	1.009	0.095	
2437	6	IEEE 802.11b	DSSS	16.0	15.96	-0.15	10 mm	Standard	FCC#C	1	top	1:1	0.072	1.009	0.073	
2437	6	IEEE 802.11b	DSSS	16.0	15.96	0.01	10 mm	Standard	FCC#C	1	right	1:1	0.208	1.009	0.210	
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 SAR Test Notes

General Notes:

- The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2003, FCC/OET Bulletin 65, Supplement C [June 2001] and FCC KDB Publication 447498 D01v05.
- Batteries are fully charged at the beginning of the SAR measurements. The SAR tests were performed with the standard battery (model: B600BU) which has NFC operations.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- 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.
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v05.
- Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
- Per FCC KDB Publication 648474 D04v01, SAR was evaluated without a headset connected to the device. Since the standalone reported SAR was ≤ 1.2 W/kg, no additional SAR evaluations using a headset cable were required.
- 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 6.6 for more details).

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9. 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 highest reported SAR for each wireless technology, frequency band, operating mode, and exposure condition. No other additional testing with the wireless charging battery cover was not required since all reported SAR were under 1.2 W/kg.

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 was measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01 procedures for data devices. Because the average output power of Subtype 2 for Rev. A was less than the Rev. 0 power levels, then EVDO Rev. A SAR was not required.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
5. CDMA 1x-RTT SAR was additionally evaluated for Hotspot exposure to support simultaneous capabilities.
6. 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 $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel must be used.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r01. Implementation of the general test procedures 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.

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: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11b. Other 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 5 GHz WIFI: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11a. Other IEEE 802.11 modes (including 802.11n 20 MHz and 40 MHz bandwidths and 802.11ac) 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. When Hotspot is enabled, all 5 GHz bands are disabled. Therefore no 5 GHz WIFI Wireless Router SAR Data was required.
4. WIFI transmission was verified using an uncalibrated spectrum analyzer.
5. Because the maximum extrapolated peak SAR of the zoom scan for the maximum output channel was >1.6 W/kg, SAR testing on other default channels was performed.

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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 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 IV.C.1.iii, 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.

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

Table 12-1
Estimated SAR

Mode	Frequency	Maximum Allowed Power	Separation Distance (Body)	Estimated SAR (Body)
	[MHz]	[dBm]	[mm]	[W/kg]
Bluetooth	2441	9.00	10	0.167

Note: Held-to ear configurations are not applicable to Bluetooth operations and therefore were not considered for simultaneous transmission.

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12.3 Head SAR Simultaneous Transmission Analysis

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

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.308	0.172	0.480	Head SAR	Right Cheek	0.266	0.172	0.438
	Right Tilt	0.186	0.142	0.328		Right Tilt	0.166	0.142	0.308
	Left Cheek	0.356	0.479	0.835		Left Cheek	0.313	0.479	0.792
	Left Tilt	0.214	0.196	0.410		Left Tilt	0.187	0.196	0.383
Simult Tx	Configuration	AWS CDMA SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	AWS EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.103	0.172	0.275	Head SAR	Right Cheek	0.118	0.172	0.290
	Right Tilt	0.081	0.142	0.223		Right Tilt	0.080	0.142	0.222
	Left Cheek	0.148	0.479	0.627		Left Cheek	0.176	0.479	0.655
	Left Tilt	0.088	0.196	0.284		Left Tilt	0.095	0.196	0.291
Simult Tx	Configuration	PCS CDMA SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.095	0.172	0.267	Head SAR	Right Cheek	0.110	0.172	0.282
	Right Tilt	0.081	0.142	0.223		Right Tilt	0.086	0.142	0.228
	Left Cheek	0.208	0.479	0.687		Left Cheek	0.216	0.479	0.695
	Left Tilt	0.063	0.196	0.259		Left Tilt	0.064	0.196	0.260
Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.054	0.172	0.226	Head SAR	Right Cheek	0.039	0.172	0.211
	Right Tilt	0.029	0.142	0.171		Right Tilt	0.020	0.142	0.162
	Left Cheek	0.042	0.479	0.521		Left Cheek	0.028	0.479	0.507
	Left Tilt	0.025	0.196	0.221		Left Tilt	0.018	0.196	0.214
Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.091	0.172	0.263	Head SAR	Right Cheek	0.158	0.172	0.330
	Right Tilt	0.041	0.142	0.183		Right Tilt	0.070	0.142	0.212
	Left Cheek	0.053	0.479	0.532		Left Cheek	0.128	0.479	0.607
	Left Tilt	0.049	0.196	0.245		Left Tilt	0.055	0.196	0.251

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

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	AWS CDMA SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.308	0.066	0.374	Head SAR	Right Cheek	0.103	0.066	0.169
	Right Tilt	0.186	0.024	0.210		Right Tilt	0.081	0.024	0.105
	Left Cheek	0.356	0.220	0.576		Left Cheek	0.148	0.220	0.368
	Left Tilt	0.214	0.046	0.260		Left Tilt	0.088	0.046	0.134

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.095	0.066	0.161
	Right Tilt	0.081	0.024	0.105
	Left Cheek	0.208	0.220	0.428
	Left Tilt	0.063	0.046	0.109

12.4 Body-Worn Simultaneous Transmission Analysis

Table 12-4
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn at 1.0 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	0.518	0.372	0.890
Back Side	AWS CDMA	0.554	0.372	0.926
Back Side	PCS CDMA	0.612	0.372	0.984
Back Side	LTE Band 12	0.121	0.372	0.493
Back Side	LTE Band 5 (Cell)	0.108	0.372	0.480
Back Side	LTE Band 4 (AWS)	0.177	0.372	0.549
Back Side	LTE Band 2 (PCS)	0.243	0.372	0.615

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

Configuration	Mode	CDMA SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	0.518	0.311	0.829
Back Side	AWS CDMA	0.554	0.311	0.865
Back Side	PCS CDMA	0.612	0.311	0.923

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Table 12-6
Simultaneous Transmission Scenario with 2.4 GHz Bluetooth (Body-Worn at 1.0 cm)

Configuration	Mode	CDMA/LTE SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	0.518	0.167	0.685
Back Side	AWS CDMA	0.554	0.167	0.721
Back Side	PCS CDMA	0.612	0.167	0.779
Back Side	LTE Band 12	0.121	0.167	0.288
Back Side	LTE Band 5 (Cell)	0.108	0.167	0.275
Back Side	LTE Band 4 (AWS)	0.177	0.167	0.344
Back Side	LTE Band 2 (PCS)	0.243	0.167	0.410

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 12-7
Simultaneous Transmission Scenario (Hotspot at 1.0 cm)

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	AWS EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.516	0.372	0.888	Body SAR	Back	0.610	0.372	0.982
	Front	0.431	0.095	0.526		Front	0.335	0.095	0.430
	Top	-	0.073	0.073		Top	-	0.073	0.073
	Bottom	0.271	-	0.271		Bottom	0.309	-	0.309
	Right	-	0.210	0.210		Right	-	0.210	0.210
	Left	0.571	-	0.571		Left	0.146	-	0.146

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.713	0.372	1.085
	Front	0.352	0.095	0.447
	Top	-	0.073	0.073
	Bottom	0.368	-	0.368
	Right	-	0.210	0.210
	Left	0.173	-	0.173

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.121	0.372	0.493	Body SAR	Back	0.108	0.372	0.480
	Front	0.066	0.095	0.161		Front	0.037	0.095	0.132
	Top	-	0.073	0.073		Top	-	0.073	0.073
	Bottom	0.061	-	0.061		Bottom	0.032	-	0.032
	Right	0.116	0.210	0.326		Right	0.094	0.210	0.304
	Left	-	-	-		Left	-	-	-
Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.177	0.372	0.549	Body SAR	Back	0.243	0.372	0.615
	Front	0.123	0.095	0.218		Front	0.200	0.095	0.295
	Top	-	0.073	0.073		Top	-	0.073	0.073
	Bottom	0.073	-	0.073		Bottom	0.133	-	0.133
	Right	0.079	0.210	0.289		Right	0.165	0.210	0.375
	Left	-	-	-		Left	-	-	-

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12.6 SVLTE Simultaneous Scenario Analysis

Table 12-8
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Held to Ear)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.308	0.054	0.172	0.362	0.534
	Right Tilt	0.186	0.029	0.142	0.215	0.357
	Left Cheek	0.356	0.042	0.479	0.398	0.877
	Left Tilt	0.214	0.025	0.196	0.239	0.435

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.308	0.039	0.172	0.347	0.519
	Right Tilt	0.186	0.020	0.142	0.206	0.348
	Left Cheek	0.356	0.028	0.479	0.384	0.863
	Left Tilt	0.214	0.018	0.196	0.232	0.428

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.308	0.091	0.172	0.399	0.571
	Right Tilt	0.186	0.041	0.142	0.227	0.369
	Left Cheek	0.356	0.053	0.479	0.409	0.888
	Left Tilt	0.214	0.049	0.196	0.263	0.459

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.308	0.158	0.172	0.466	0.638
	Right Tilt	0.186	0.070	0.142	0.256	0.398
	Left Cheek	0.356	0.128	0.479	0.484	0.963
	Left Tilt	0.214	0.055	0.196	0.269	0.465

Simult Tx	Configuration	AWS CDMA SAR (W/kg)	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.103	0.054	0.172	0.157	0.329
	Right Tilt	0.081	0.029	0.142	0.110	0.252
	Left Cheek	0.148	0.042	0.479	0.190	0.669
	Left Tilt	0.088	0.025	0.196	0.113	0.309

Simult Tx	Configuration	AWS CDMA SAR (W/kg)	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.103	0.091	0.172	0.194	0.366
	Right Tilt	0.081	0.041	0.142	0.122	0.264
	Left Cheek	0.148	0.053	0.479	0.201	0.680
	Left Tilt	0.088	0.049	0.196	0.137	0.333

Simult Tx	Configuration	AWS CDMA SAR (W/kg)	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.103	0.158	0.172	0.261	0.433
	Right Tilt	0.081	0.070	0.142	0.151	0.293
	Left Cheek	0.148	0.128	0.479	0.276	0.755
	Left Tilt	0.088	0.055	0.196	0.143	0.339

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.095	0.054	0.172	0.149	0.321
	Right Tilt	0.081	0.029	0.142	0.110	0.252
	Left Cheek	0.208	0.042	0.479	0.250	0.729
	Left Tilt	0.063	0.025	0.196	0.088	0.284

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.095	0.091	0.172	0.186	0.358
	Right Tilt	0.081	0.041	0.142	0.122	0.264
	Left Cheek	0.208	0.053	0.479	0.261	0.740
	Left Tilt	0.063	0.049	0.196	0.112	0.308

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
	Tx Antenna	1	2	3	1+2	1+2+3
Head SAR	Right Cheek	0.095	0.158	0.172	0.253	0.425
	Right Tilt	0.081	0.070	0.142	0.151	0.293
	Left Cheek	0.208	0.128	0.479	0.336	0.815
	Left Tilt	0.063	0.055	0.196	0.118	0.314

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

Configuration	Mode	CDMA SAR (W/kg)	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	
	Tx Antenna	1	2	3	1+2	1+2+3
Back Side	Cell. CDMA	0.518	0.121	0.372	0.639	1.011
Back Side	AWS CDMA	0.554	0.121	0.372	0.675	1.047
Back Side	PCS CDMA	0.612	0.121	0.372	0.733	1.105

Configuration	Mode	CDMA SAR (W/kg)	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	
	Tx Antenna	1	2	3	1+2	1+2+3
Back Side	Cell. CDMA	0.518	0.108	0.372	0.626	0.998
Back Side	AWS CDMA	0.554	0.108	0.372	0.662	1.034
Back Side	PCS CDMA	0.612	0.108	0.372	0.720	1.092

Configuration	Mode	CDMA SAR (W/kg)	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	
	Tx Antenna	1	2	3	1+2	1+2+3
Back Side	Cell. CDMA	0.518	0.177	0.372	0.695	1.067
Back Side	AWS CDMA	0.554	0.177	0.372	0.731	1.103
Back Side	PCS CDMA	0.612	0.177	0.372	0.789	1.161

Configuration	Mode	CDMA SAR (W/kg)	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	
	Tx Antenna	1	2	3	1+2	1+2+3
Back Side	Cell. CDMA	0.518	0.243	0.372	0.761	1.133
Back Side	AWS CDMA	0.554	0.243	0.372	0.797	1.169
Back Side	PCS CDMA	0.612	0.243	0.372	0.855	1.227

Table 12-10
Simultaneous Transmission Scenario with 2.4 GHz Bluetooth (Body-Worn at 1.0 cm)

Configuration	Mode	CDMA SAR (W/kg)	LTE Band 12 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	
	Tx Antenna	1	2	3	1+2	1+2+3
Back Side	Cell. CDMA	0.518	0.121	0.167	0.639	0.806
Back Side	AWS CDMA	0.554	0.121	0.167	0.675	0.842
Back Side	PCS CDMA	0.612	0.121	0.167	0.733	0.900

Configuration	Mode	CDMA SAR (W/kg)	LTE Band 5 (Cell) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	
	Tx Antenna	1	2	3	1+2	1+2+3
Back Side	Cell. CDMA	0.518	0.108	0.167	0.626	0.793
Back Side	AWS CDMA	0.554	0.108	0.167	0.662	0.829
Back Side	PCS CDMA	0.612	0.108	0.167	0.720	0.887

Configuration	Mode	CDMA SAR (W/kg)	LTE Band 4 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	
	Tx Antenna	1	2	3	1+2	1+2+3
Back Side	Cell. CDMA	0.518	0.177	0.167	0.695	0.862
Back Side	AWS CDMA	0.554	0.177	0.167	0.731	0.898
Back Side	PCS CDMA	0.612	0.177	0.167	0.789	0.956

Configuration	Mode	CDMA SAR (W/kg)	LTE Band 2 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	
	Tx Antenna	1	2	3	1+2	1+2+3
Back Side	Cell. CDMA	0.518	0.243	0.167	0.761	0.928
Back Side	AWS CDMA	0.554	0.243	0.167	0.797	0.964
Back Side	PCS CDMA	0.612	0.243	0.167	0.855	1.022

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.

Table 12-11
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Hotspot at 1.0 cm)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.518	0.121	0.372	1.011
	Front	0.428	0.066	0.095	0.589
	Top	-	-	0.073	0.073
	Bottom	0.270	0.061	-	0.331
	Right	-	0.116	0.210	0.326
	Left	0.454	-	-	0.454

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.518	0.108	0.372	0.998
	Front	0.428	0.037	0.095	0.560
	Top	-	-	0.073	0.073
	Bottom	0.270	0.032	-	0.302
	Right	-	0.094	0.210	0.304
	Left	0.454	-	-	0.454

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Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.518	0.177	0.372	1.067	Body SAR	Back	0.518	0.243	0.372	1.133
	Front	0.428	0.123	0.095	0.646		Front	0.428	0.200	0.095	0.723
	Top	-	-	0.073	0.073		Top	-	-	0.073	0.073
	Bottom	0.270	0.073	-	0.343		Bottom	0.270	0.133	-	0.403
	Right	-	0.079	0.210	0.289		Right	-	0.165	0.210	0.375
	Left	0.454	-	-	0.454		Left	0.454	-	-	0.454
Simult Tx	Configuration	AWS CDMA SAR (W/kg)	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	AWS CDMA SAR (W/kg)	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.554	0.121	0.372	1.047	Body SAR	Back	0.554	0.108	0.372	1.034
	Front	0.311	0.066	0.095	0.472		Front	0.311	0.037	0.095	0.443
	Top	-	-	0.073	0.073		Top	-	-	0.073	0.073
	Bottom	0.373	0.061	-	0.434		Bottom	0.373	0.032	-	0.405
	Right	-	0.116	0.210	0.326		Right	-	0.094	0.210	0.304
	Left	0.126	-	-	0.126		Left	0.126	-	-	0.126
Simult Tx	Configuration	AWS CDMA SAR (W/kg)	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	AWS CDMA SAR (W/kg)	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.554	0.177	0.372	1.103	Body SAR	Back	0.554	0.243	0.372	1.169
	Front	0.311	0.123	0.095	0.529		Front	0.311	0.200	0.095	0.606
	Top	-	-	0.073	0.073		Top	-	-	0.073	0.073
	Bottom	0.373	0.073	-	0.446		Bottom	0.373	0.133	-	0.506
	Right	-	0.079	0.210	0.289		Right	-	0.165	0.210	0.375
	Left	0.126	-	-	0.126		Left	0.126	-	-	0.126
Simult Tx	Configuration	PCS CDMA SAR (W/kg)	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS CDMA SAR (W/kg)	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.612	0.121	0.372	1.105	Body SAR	Back	0.612	0.108	0.372	1.092
	Front	0.339	0.066	0.095	0.500		Front	0.339	0.037	0.095	0.471
	Top	-	-	0.073	0.073		Top	-	-	0.073	0.073
	Bottom	0.398	0.061	-	0.459		Bottom	0.398	0.032	-	0.430
	Right	-	0.116	0.210	0.326		Right	-	0.094	0.210	0.304
	Left	0.170	-	-	0.170		Left	0.170	-	-	0.170
Simult Tx	Configuration	PCS CDMA SAR (W/kg)	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS CDMA SAR (W/kg)	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.612	0.177	0.372	1.161	Body SAR	Back	0.612	0.243	0.372	1.227
	Front	0.339	0.123	0.095	0.557		Front	0.339	0.200	0.095	0.634
	Top	-	-	0.073	0.073		Top	-	-	0.073	0.073
	Bottom	0.398	0.073	-	0.471		Bottom	0.398	0.133	-	0.531
	Right	-	0.079	0.210	0.289		Right	-	0.165	0.210	0.375
	Left	0.170	-	-	0.170		Left	0.170	-	-	0.170

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.

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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 performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ 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

Note: All measured SAR values were < 0.8 W/kg. Therefore, no SAR measurement variability analysis was required

13.2 Measurement Uncertainty

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

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14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/5/2012	Annual	4/5/2013	MY45470194
Agilent	8753E	(30kHz-6GHz) Network Analyzer	4/4/2012	Annual	4/4/2013	JP38020182
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2012	Annual	10/10/2013	3613A00315
Agilent	8648D	Signal Generator	4/3/2012	Annual	4/3/2013	3629U00687
Agilent	85047A	S-Parameter Test Set	N/A	N/A	N/A	2904A00579
Agilent	MA24106A	USB Power Sensor	12/7/2012	Annual	12/7/2013	1244512
Agilent	MA24106A	USB Power Sensor	12/7/2012	Annual	12/7/2013	1244515
Agilent	MA24106A	USB Power Sensor	12/7/2012	Annual	12/7/2013	1244524
Agilent	MA24106A	USB Power Sensor	12/6/2012	Annual	12/6/2013	1248508
Agilent	E5515C	Wireless Communications Test Set	9/24/2012	Annual	9/24/2013	GB43163447
Agilent	E5515C	Wireless Communications Test Set	10/18/2012	Biennial	10/18/2014	GB43193563
Amplifier Research	5S1G4	SW, 800MHz-4.2GHz	CBT	N/A	CBT	21910
Anritsu	ML2495A	Power Meter	10/11/2012	Annual	10/11/2013	1039008
Anritsu	MA2411B	Pulse Power Sensor	12/5/2012	Annual	12/5/2013	1126066
Anritsu	MA2411B	Pulse Power Sensor	12/4/2012	Annual	12/4/2013	1207364
Anritsu	MT8820C	Radio Communication Tester	11/6/2012	Annual	11/6/2013	6200901190
Anritsu	MA2481D	Universal Sensor	12/17/2012	Annual	12/17/2013	1204343
Anritsu	MA2481D	Universal Sensor	12/17/2012	Annual	12/17/2013	1204419
Anritsu	MA24106A	USB Power Sensor	8/22/2012	Annual	8/22/2013	1231535
Anritsu	MA24106A	USB Power Sensor	8/22/2012	Annual	8/22/2013	1231538
COMTECH	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M155A00-009
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4353	Long Stem Thermometer	9/25/2012	Biennial	9/25/2014	122539615
Control Company	36934-158	Wall-Mounted Thermometer	1/4/2012	Biennial	1/4/2014	122014497
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/10/2012	Annual	10/10/2013	1833460
Gigatronics	8651A	Universal Power Meter	10/10/2012	Annual	10/10/2013	8650319
Intelligent Weigh	PD-3000	Electronic Balance	3/27/2012	Annual	3/27/2013	11081534
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
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
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	5/22/2012	Annual	5/22/2013	109892
Rohde & Schwarz	NRVD	Dual Channel Power Meter	10/12/2012	Biennial	10/12/2014	101695
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	2/8/2013	Annual	2/8/2014	101699
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	10/7/2011	Biennial	10/7/2013	103962
Rohde & Schwarz	SME06	Signal Generator	10/11/2012	Annual	10/11/2013	832026
Rohde & Schwarz	SMI003B	Signal Generator	4/5/2012	Annual	4/5/2013	DE27259
Seekonk	NC-100	Torque Wrench (8" lb)	11/29/2011	Triennial	11/29/2014	21053
Seekonk	NC-100	Torque Wrench (8" lb)	3/5/2012	Triennial	3/5/2015	N/A
SPEAG	D1750V2	1750 MHz SAR Dipole	4/24/2012	Annual	4/24/2013	1051
SPEAG	D1765V2	1765 MHz SAR Dipole	5/18/2012	Annual	5/18/2013	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	2/6/2013	Annual	2/6/2014	5d148
SPEAG	D1900V2	1900 MHz SAR Dipole	2/22/2012	Annual	2/22/2013	5d149
SPEAG	D2450V2	2450 MHz SAR Dipole	8/23/2012	Annual	8/23/2013	719
SPEAG	D2450V2	2450 MHz SAR Dipole	2/11/2013	Annual	2/11/2014	882
SPEAG	D750V3	750 MHz Dipole	1/7/2013	Annual	1/7/2014	1003
SPEAG	D5GHZV2	5 GHz SAR Dipole	10/30/2012	Annual	10/30/2013	1007
SPEAG	D835V2	835 MHz SAR Dipole	8/23/2012	Annual	8/23/2013	4d026
SPEAG	D835V2	835 MHz SAR Dipole	2/17/2012	Annual	2/17/2013	4d133
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/6/2013	Annual	2/6/2014	649
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/19/2012	Annual	4/19/2013	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/17/2013	Annual	1/17/2014	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/24/2012	Annual	8/24/2013	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/19/2012	Annual	9/19/2013	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/13/2012	Annual	11/13/2013	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/7/2012	Annual	5/7/2013	1334
SPEAG	DAK-3.5	Dielectric Assessment Kit	6/19/2012	Annual	6/19/2013	1070
SPEAG	DAK-3.5	Dielectric Assessment Kit	12/11/2012	Annual	12/11/2013	1091
SPEAG	ES3DV2	SAR Probe	8/28/2012	Annual	8/28/2013	3022
SPEAG	ES3DV3	SAR Probe	4/24/2012	Annual	4/24/2013	3213
SPEAG	ES3DV3	SAR Probe	5/18/2012	Annual	5/18/2013	3263
SPEAG	ES3DV3	SAR Probe	11/15/2012	Annual	11/15/2013	3287
SPEAG	ES3DV3	SAR Probe	9/20/2012	Annual	9/20/2013	3288
SPEAG	EX3DV4	SAR Probe	1/17/2013	Annual	1/17/2014	3589
SPEAG	EX3DV4	SAR Probe	2/27/2013	Annual	2/27/2014	3920
Tektronix	RSA-6114A	Real Time Spectrum Analyzer	4/5/2012	Annual	4/5/2013	8010177
VWR	23226-658	Long Stem Thermometer	3/30/2012	Biennial	3/30/2014	122179874
VWR	62344-925	Mini-Thermometer	10/24/2011	Biennial	10/24/2013	111886430
VWR	36934-158	Wall-Mounted Thermometer	9/30/2011	Biennial	9/30/2013	111859332

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.
- All equipment was used within its calibration date:
 - o 835 MHz SAR Dipole unit 4d133 was used solely for testing before its calibration due date of 2/17/2013
 - o 1900 MHz SAR Dipole unit 5d149 was used solely for testing before its calibration due date of 2/22/2013

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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
Expanded Uncertainty (95% CONFIDENCE LEVEL)							k=2	24.2	23.5
									299

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

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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
Expanded Uncertainty (95% CONFIDENCE LEVEL)							k=2	24.7	24.0

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

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16 CONCLUSION

16.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and 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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17 REFERENCES

- [1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.
- [2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.
- [3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.
- [4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.
- [5] Federal Communications Commission, OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01), Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, June 2001.
- [6] IEEE Standards Coordinating Committee 34 – IEEE Std. 1528-2003, Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices.
- [7] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.
- [8] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.
- [9] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. -124.
- [10] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.
- [11] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.
- [12] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.
- [13] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.
- [14] G. Hartsgrrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.
- [15] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.
- [16] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.
- [17] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.

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- [18] Federal Communications Commission, OET Bulletin 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields. Supplement C, Dec. 1997.
- [19] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.
- [20] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.
- [21] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hochschule Zürich, Dosimetric Evaluation of the Cellular Phone.
- [22] IEC 62209-1, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz), Feb. 2005.
- [23] Industry Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 4, March 2010.
- [24] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2009
- [25] FCC Public Notice DA-02-1438. Office of Engineering and Technology Announces a Transition Period for the Phantom Requirements of Supplement C to OET Bulletin 65, June 19, 2002
- [26] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07
- [27] SAR Measurement procedures for IEEE 802.11a/b/g KDB Publication 248227 D01v01r02
- [28] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D02-D04
- [29] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04
- [30] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02
- [31] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D02
- [32] Anexo à Resolução No. 533, de 10 de Setembro de 2009.
- [33] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz), Mar. 2010.

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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#7

Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Head, Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.942 \text{ S/m}$; $\epsilon_r = 42.672$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 02-04-2013; Ambient Temp: 22.8°C; Tissue Temp: 22.6°C

Probe: ES3DV2 - SN3022; ConvF(6.03, 6.03, 6.03); Calibrated: 8/28/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 8/24/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

Mode: Cellular CDMA, Left Head, Cheek, Mid.ch, Standard Battery Cover

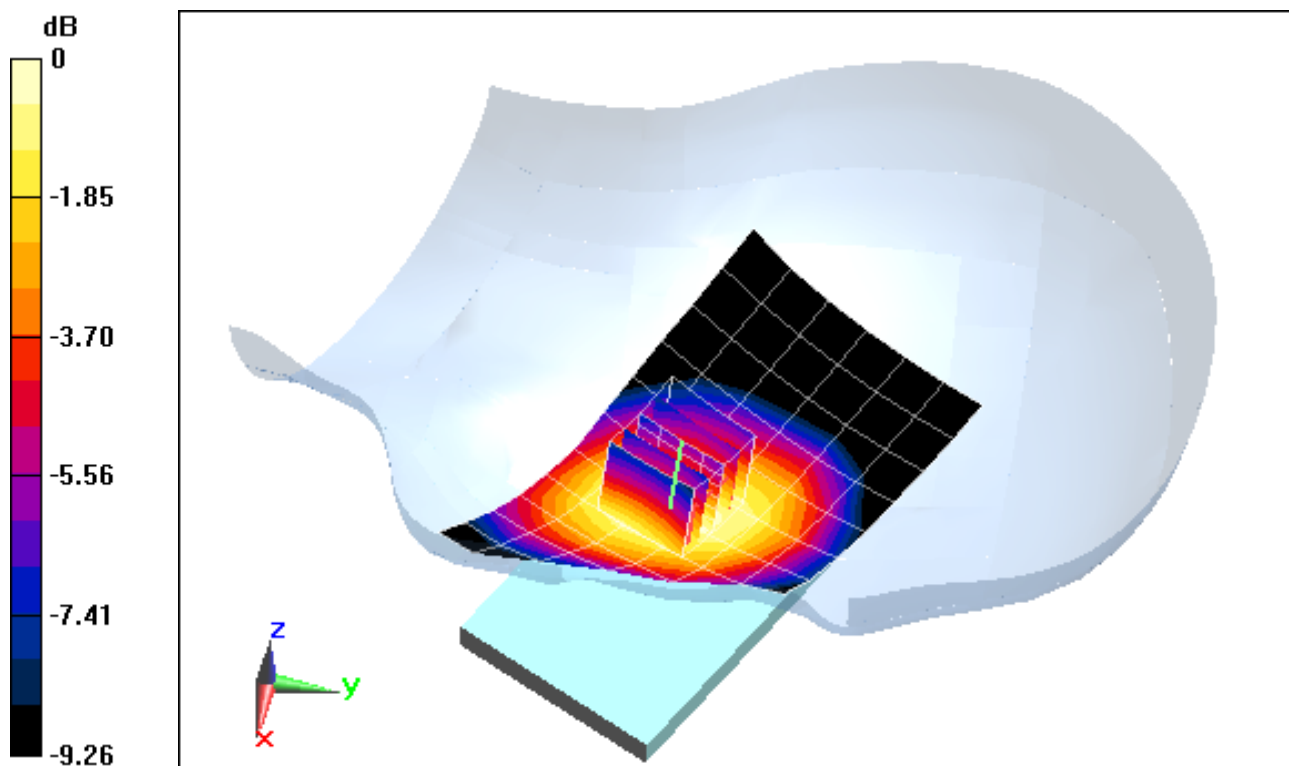
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.205 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.414 W/kg

SAR(1 g) = 0.338 W/kg; SAR(10 g) = 0.255 W/kg



0 dB = 0.356 W/kg = -4.49 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#1

Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Head, Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.403 \text{ S/m}$; $\epsilon_r = 38.267$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 02-04-2013; Ambient Temp: 24.4°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3287; ConvF(5.16, 5.16, 5.16); Calibrated: 11/15/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/13/2012

Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

Mode: AWS EVDO Rev A. Left Head, Cheek, Mid.ch, Standard Battery Cover

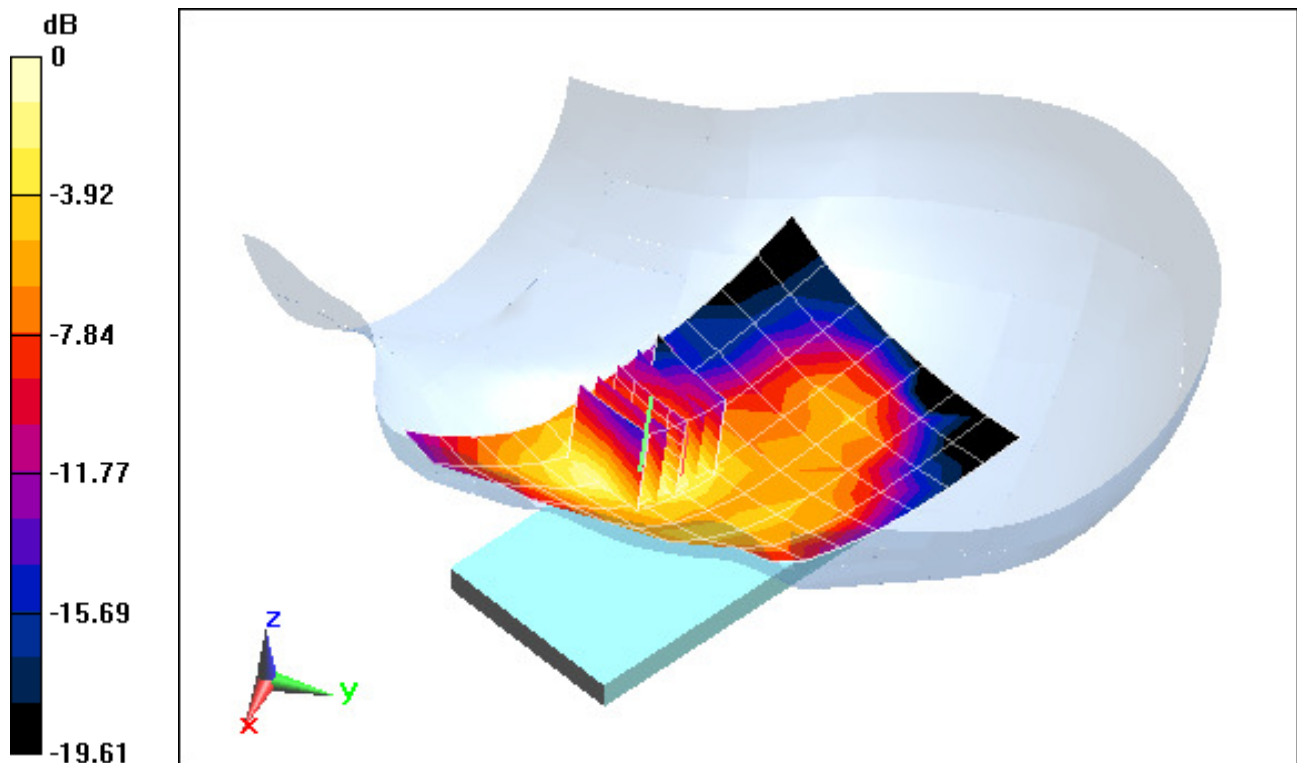
Area Scan (8x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.983 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.251 W/kg

SAR(1 g) = 0.163 W/kg; SAR(10 g) = 0.099 W/kg



0 dB = 0.178 W/kg = -7.50 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#4

Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Head, Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.425 \text{ S/m}$; $\epsilon_r = 40.521$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 02-20-2013; Ambient Temp: 23.9°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3288; ConvF(5.28, 5.28, 5.28); Calibrated: 9/20/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/19/2012

Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

Mode: PCS EVDO Rev A., Left Head, Cheek, Mid.ch, Standard Battery Cover

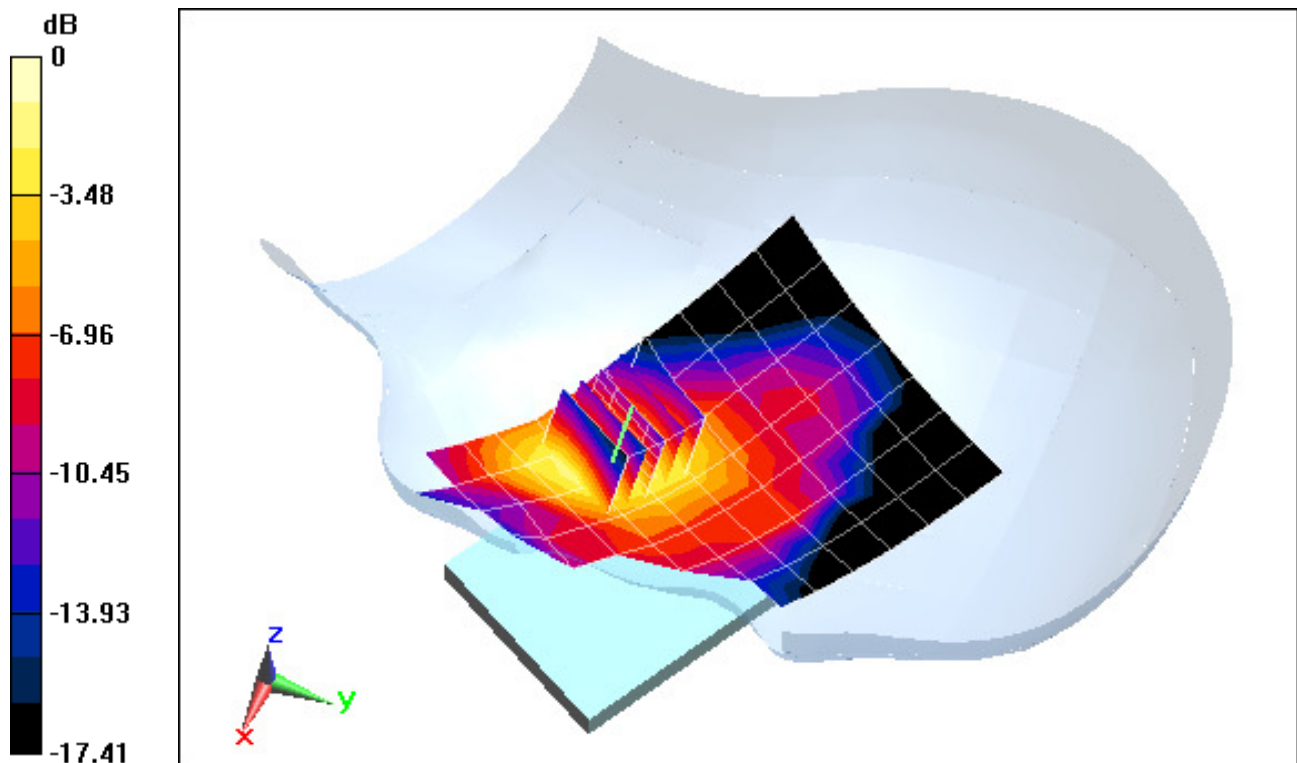
Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.805 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.315 W/kg

SAR(1 g) = 0.201 W/kg



0 dB = 0.218 W/kg = -6.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#6

Communication System: LTE RF; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: 750 Head, Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.865 \text{ S/m}$; $\epsilon_r = 41.188$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 02-11-2013; Ambient Temp: 21.9°C; Tissue Temp: 22.0°C

Probe: ES3DV2 - SN3022; ConvF(6.3, 6.3, 6.3); Calibrated: 8/28/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 8/24/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

**Mode: LTE Band 12, Right Head, Cheek, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 49 RB Offset, Standard Battery Cover**

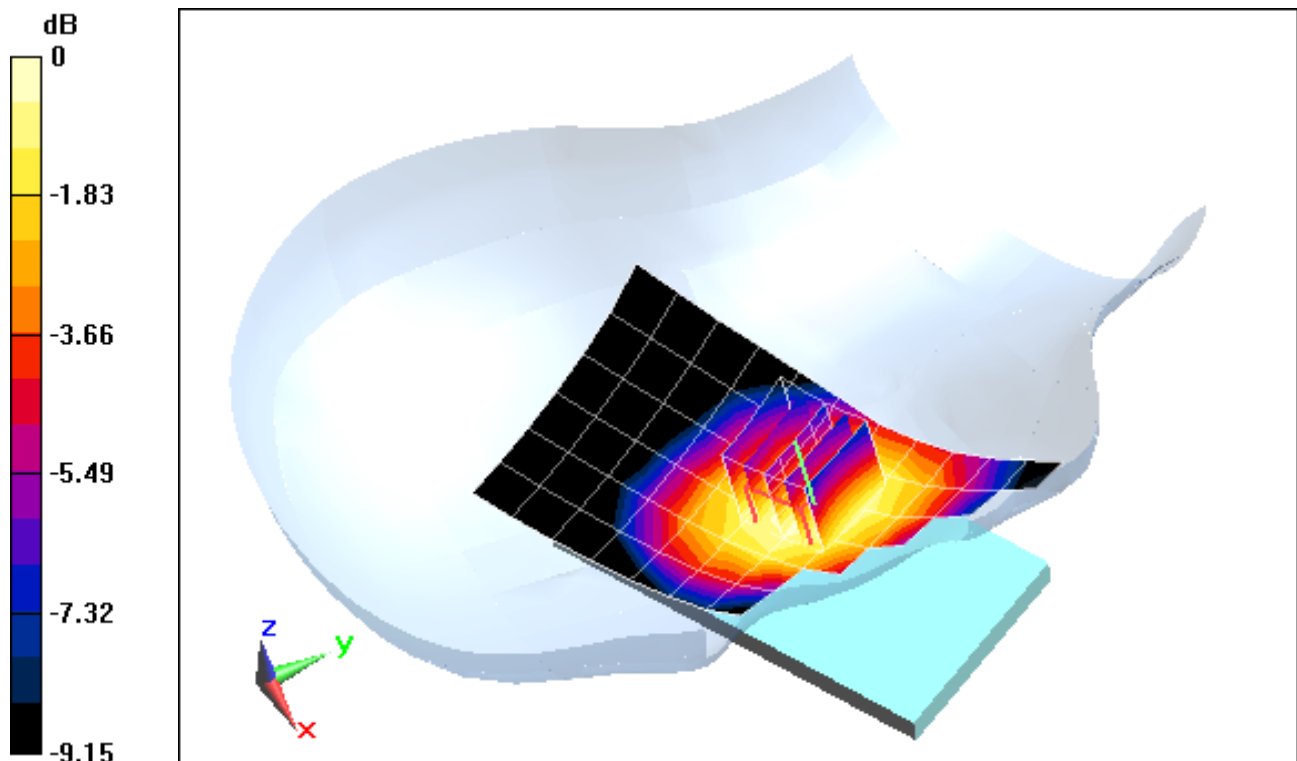
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.253 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.0640 W/kg

SAR(1 g) = 0.052 W/kg; SAR(10 g) = 0.040 W/kg



0 dB = 0.0547 W/kg = -12.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#6

Communication System: LTE BAND 5; Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: 835 Head, Medium parameters used (interpolated):

$f = 836.5 \text{ MHz}$; $\sigma = 0.934 \text{ S/m}$; $\epsilon_r = 41.294$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 03-05-2013; Ambient Temp: 22.2°C; Tissue Temp: 23.5°C

Probe: ES3DV2 - SN3022; ConvF(6.03, 6.03, 6.03); Calibrated: 8/28/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 8/24/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

**Mode: LTE Band 5 (Cell), Right Head, Cheek, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 49 RB Offset, Wireless Charging Cover**

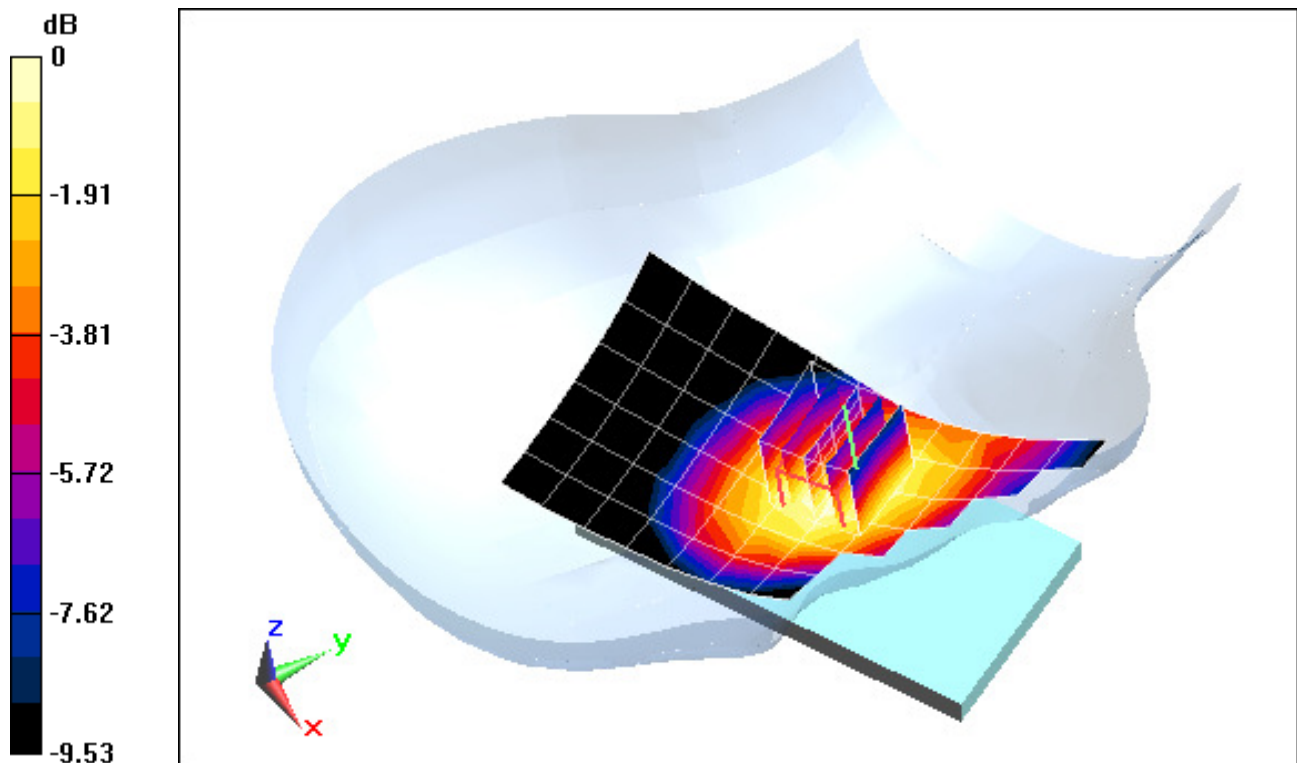
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.987 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.0520 W/kg

SAR(1 g) = 0.039 W/kg; SAR(10 g) = 0.030 W/kg



0 dB = 0.0411 W/kg = -13.86 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#6

Communication System: LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Head, Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.35 \text{ S/m}$; $\epsilon_r = 39.926$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 02-07-2013; Ambient Temp: 23.4°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3288; ConvF(5.51, 5.51, 5.51); Calibrated: 9/20/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/19/2012

Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Mode: LTE Band 4 (AWS), Right Head, Cheek, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 25 RB Offset, Standard Battery Cover**

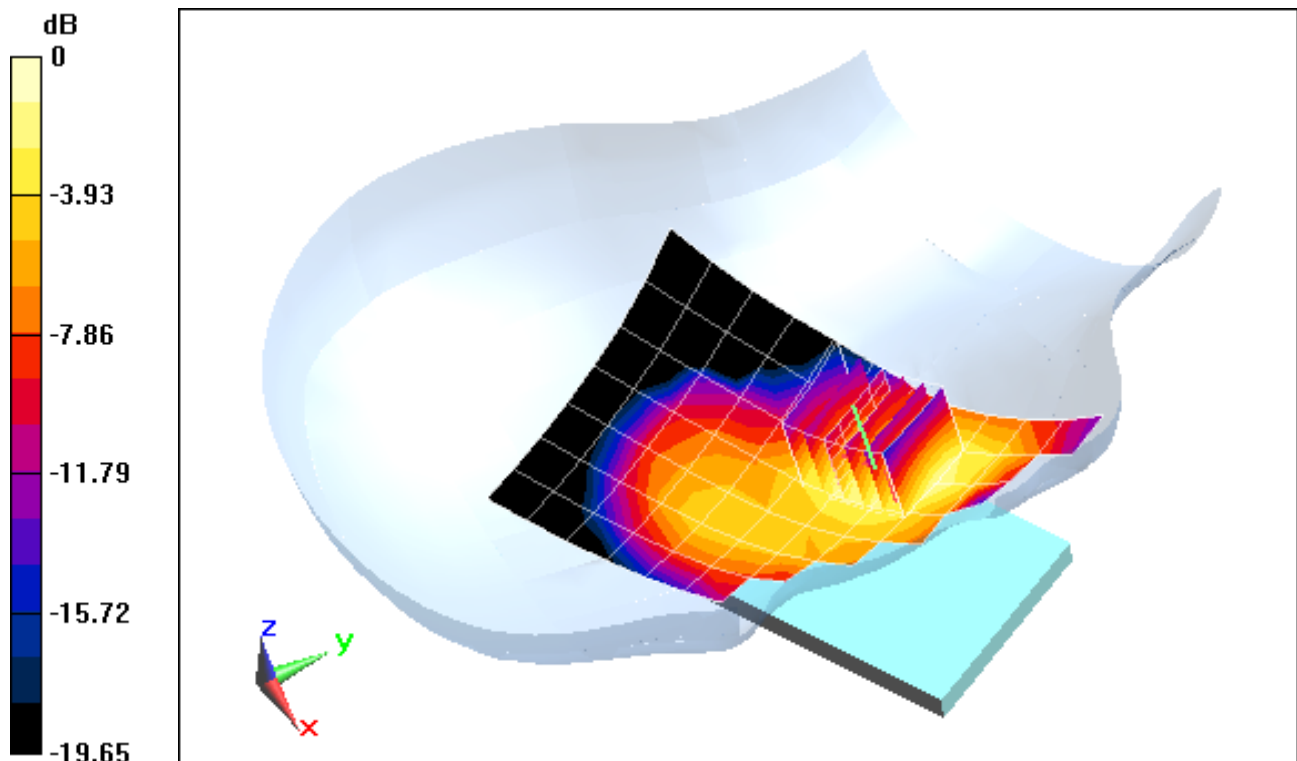
Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.054 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.141 W/kg

SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.056 W/kg



0 dB = 0.0966 W/kg = -10.15 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#5

Communication System: LTE Band 2 (PCS); Frequency: 1855 MHz; Duty Cycle: 1:1

Medium: 1900 Head, Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.407 \text{ S/m}$; $\epsilon_r = 39.293$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 02-09-2013; Ambient Temp: 22.8°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3213; ConvF(5.02, 5.02, 5.02); Calibrated: 4/24/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/19/2012

Phantom: SAM Right; Type: QD000P40CD; Serial: 1686

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Mode: LTE Band 2 (PCS), Right Head, Cheek, Low.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset, Standard Battery Cover**

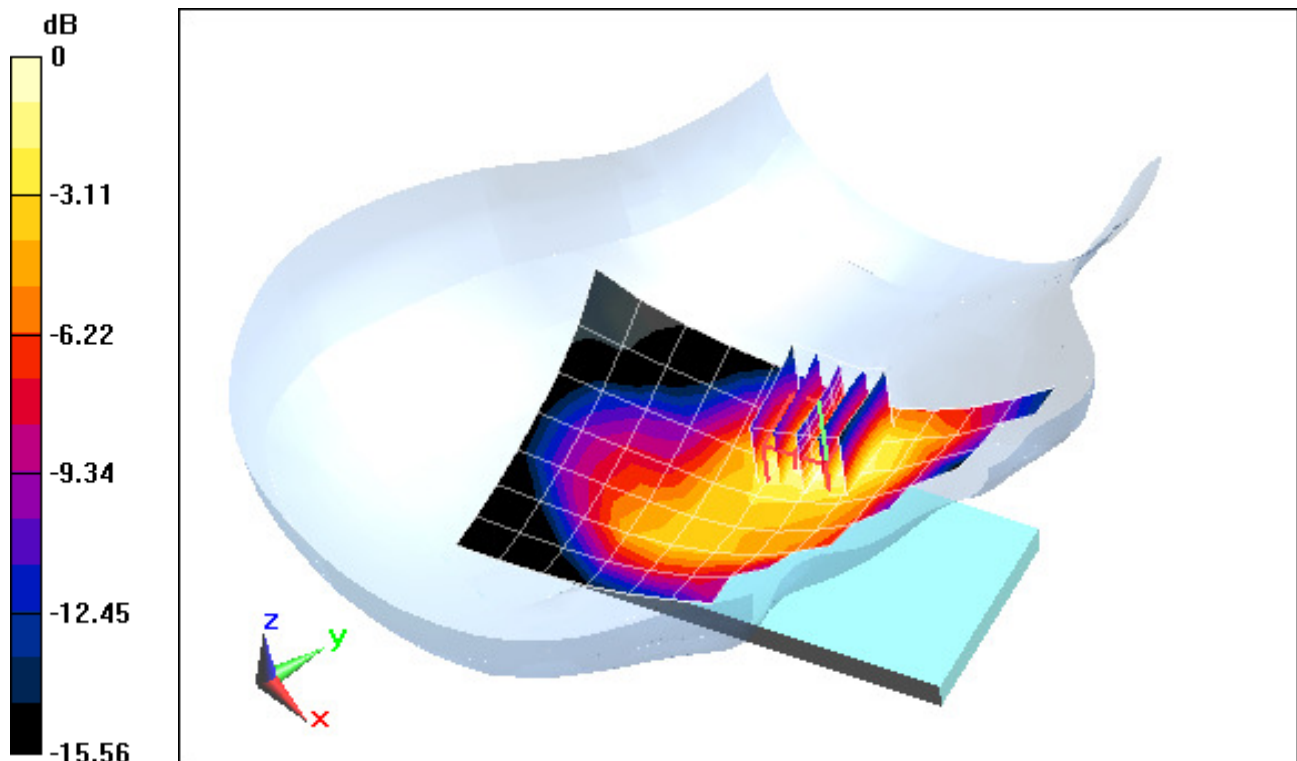
Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.911 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.254 W/kg

SAR(1 g) = 0.158 W/kg; SAR(10 g) = 0.096 W/kg



0 dB = 0.170 W/kg = -7.70 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#C

Communication System: IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: 2450 Head, Medium parameters used (interpolated):

$f = 2437 \text{ MHz}$; $\sigma = 1.843 \text{ S/m}$; $\epsilon_r = 37.747$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 03-04-2013; Ambient Temp: 22.8°C; Tissue Temp: 20.3°C

Probe: ES3DV3 - SN3288; ConvF(4.61, 4.61, 4.61); Calibrated: 9/20/2012;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/19/2012

Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

Mode: IEEE 802.11b, Left Head, Cheek, Ch 06, 1 Mbps, Standard Battery Cover

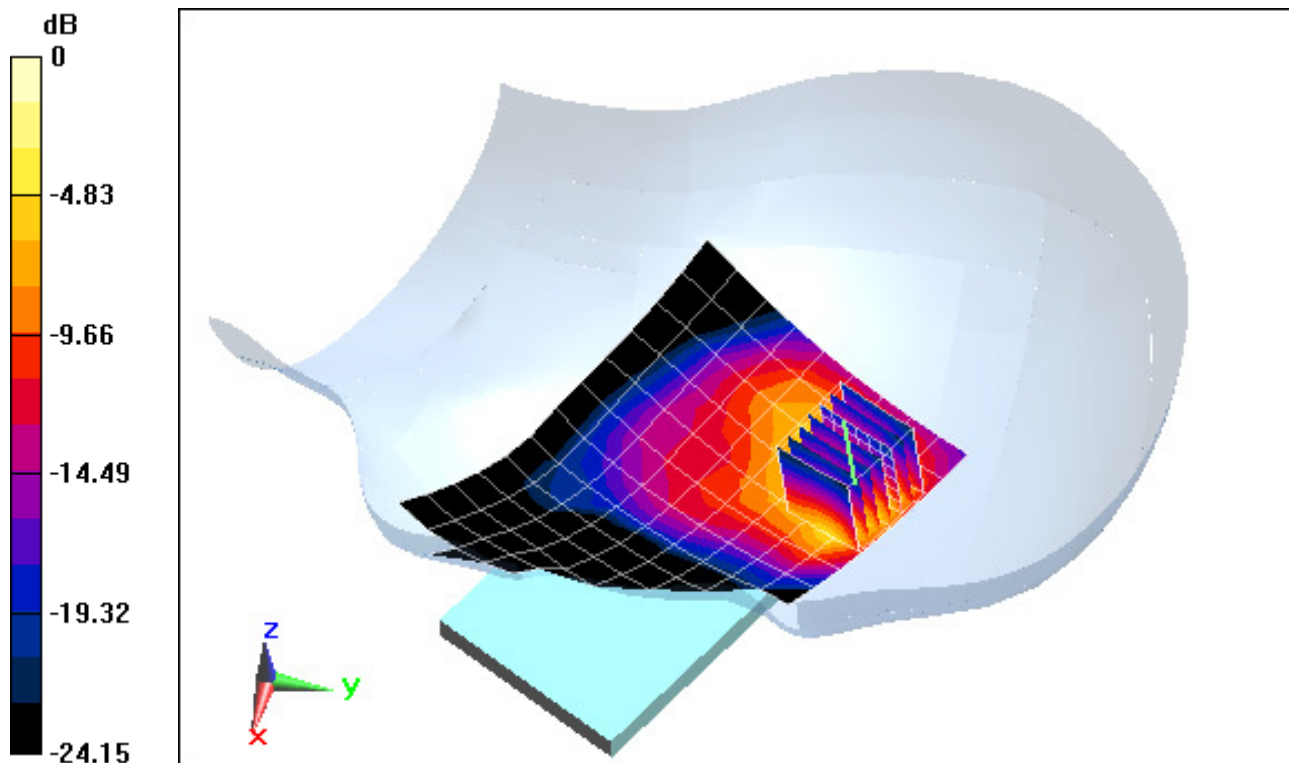
Area Scan (10x15x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.862 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.475 W/kg



0 dB = 0.645 W/kg = -1.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#B

Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head, Medium parameters used:

$f = 5180 \text{ MHz}$; $\sigma = 4.615 \text{ S/m}$; $\epsilon_r = 37.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 02-04-2013; Ambient Temp: 23.4°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3589, ConvF(4.48, 4.48, 4.48); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

Mode: IEEE 802.11a, 5.2 GHz Left Head, Cheek, Ch 36, 6 Mbps, Standard Battery Cover

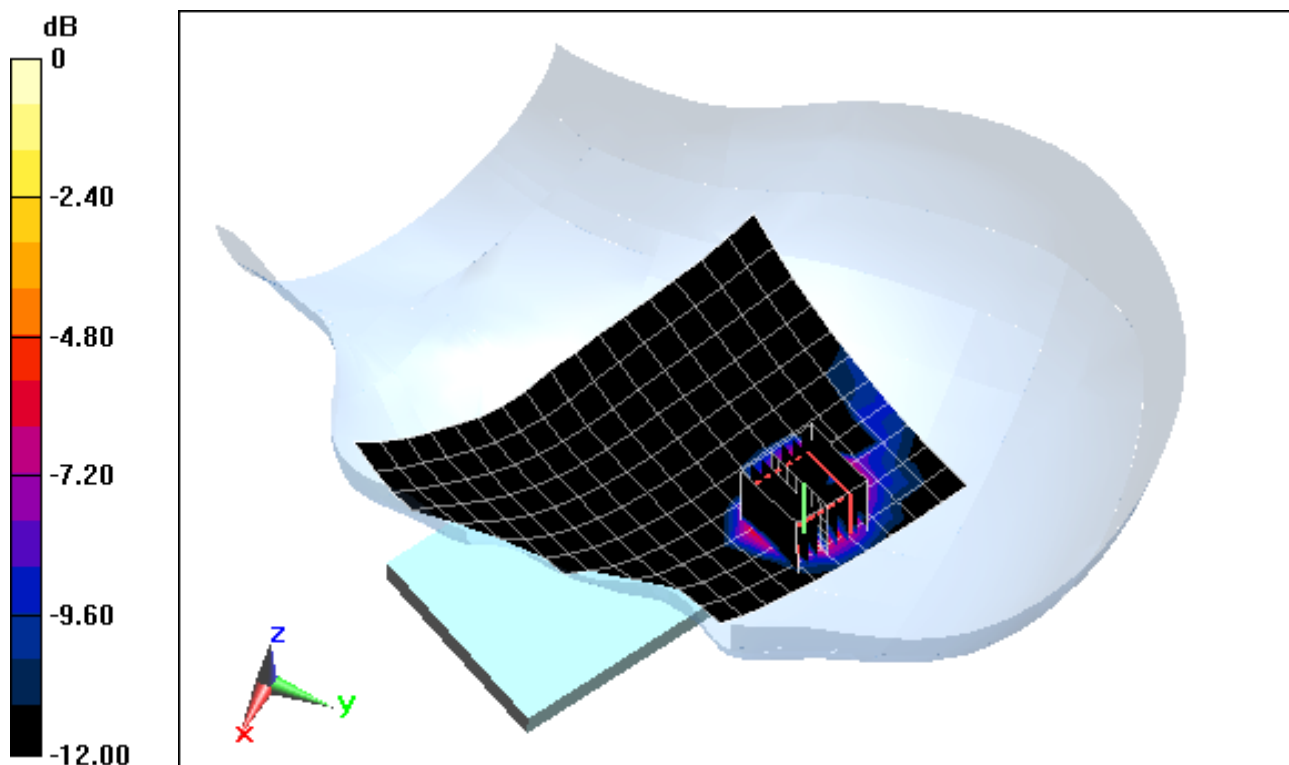
Area Scan (12x17x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Reference Value = 6.847 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.868 W/kg

SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.065 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#B

Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head, Medium parameters used:

$f = 5745 \text{ MHz}$; $\sigma = 5.38 \text{ S/m}$; $\epsilon_r = 36.21$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 02-04-2013; Ambient Temp: 23.7°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3589; ConvF(3.85, 3.85, 3.85); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

Mode: IEEE 802.11a, 5.8 GHz Left Head, Cheek, Ch 149, 6 Mbps, Standard Battery Cover

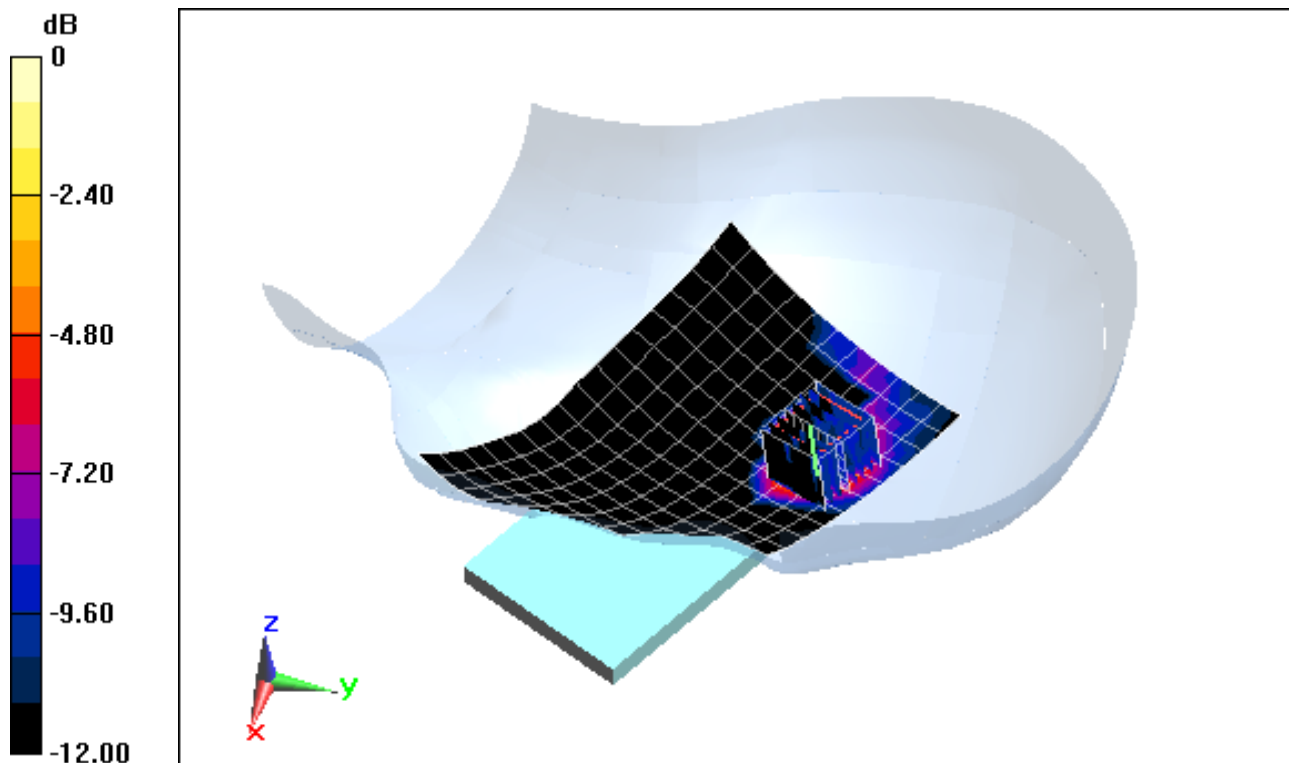
Area Scan (12x17x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 1.259 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.647 W/kg

SAR(1 g) = 0.134 W/kg; SAR(10 g) = 0.039 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#8

Communication System: CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Body, Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 1 \text{ S/m}$; $\epsilon_r = 53.767$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-13-2013; Ambient Temp: 24.7°C; Tissue Temp: 24.2°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/19/2012

Phantom: ELI v5.0 Door; Type: QDOVA002BB; Serial: TP-1158

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

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

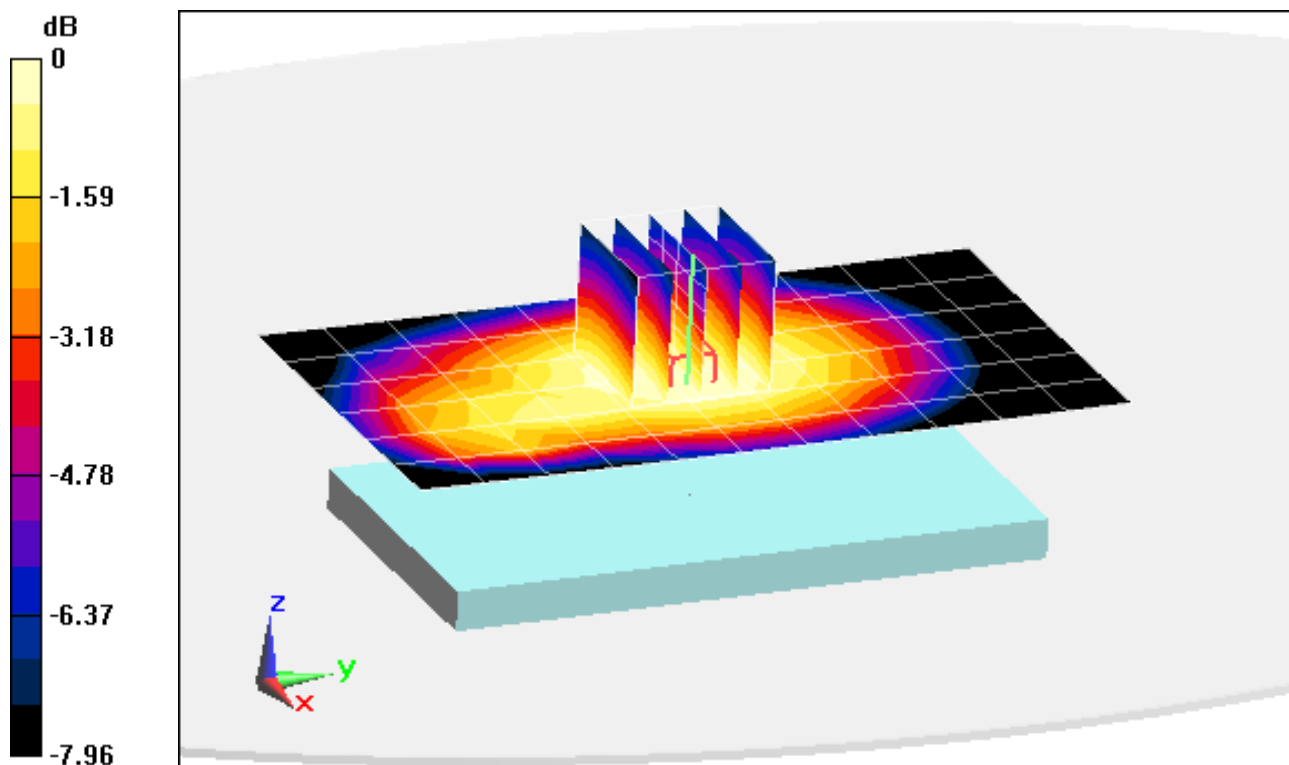
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.365 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.597 W/kg

SAR(1 g) = 0.493 W/kg



0 dB = 0.512 W/kg = -2.91 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#8

Communication System: CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Body, Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 1 \text{ S/m}$; $\epsilon_r = 53.466$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-07-2013; Ambient Temp: 23.0°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/19/2012

Phantom: ELI v5.0 Door; Type: QDOVA002BB; Serial: TP-1158

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

Mode: Cell. EVDO Rev. 0, Body SAR, Left Edge, Mid.ch, Standard Battery Cover

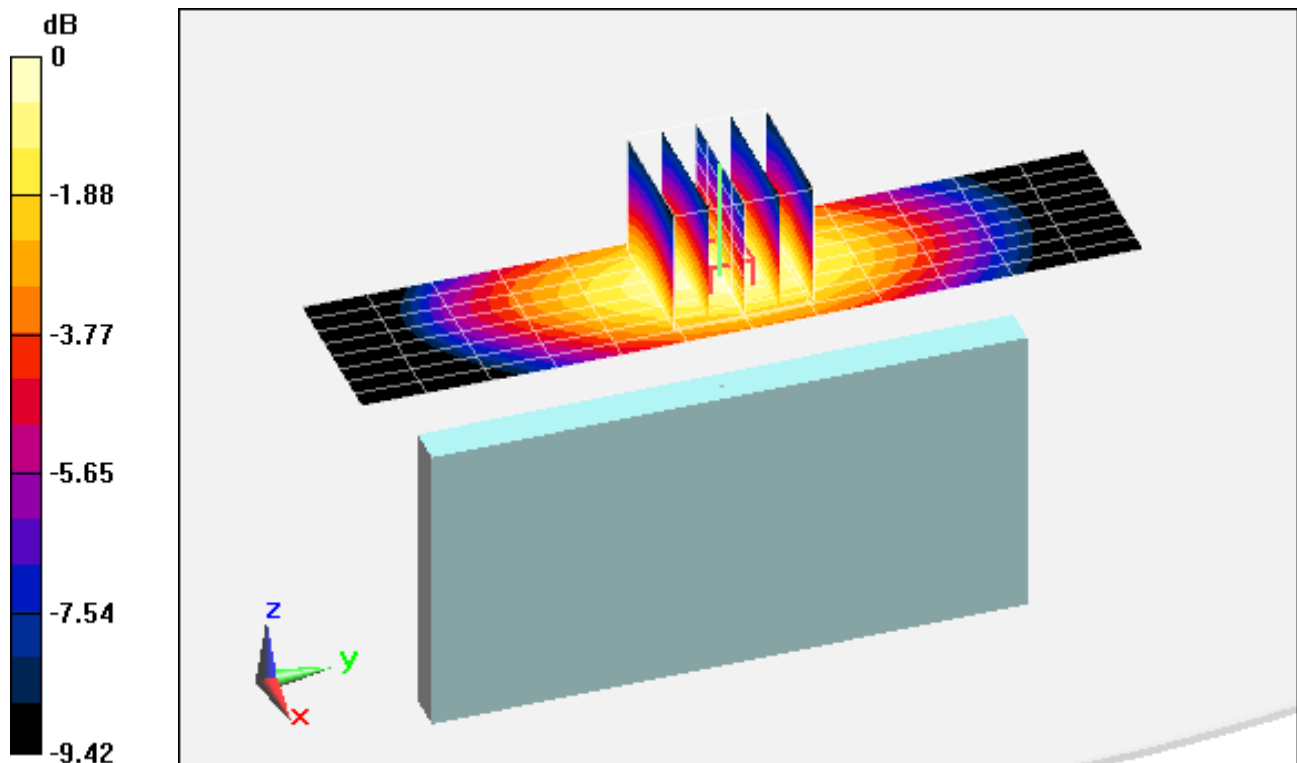
Area Scan (9x13x1): Measurement grid: $dx=5\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.826 V/m; Power Drift = 0.21 dB

Peak SAR (extrapolated) = 0.745 W/kg

SAR(1 g) = 0.546 W/kg



0 dB = 0.586 W/kg = -2.32 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#9

Communication System: CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Body, Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.454 \text{ S/m}$; $\epsilon_r = 52.794$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-08-2013; Ambient Temp: 24.8°C; Tissue Temp: 23.8°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/19/2012

Phantom: SAM Right; Type: QD000P40CD; Serial: 1686

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

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

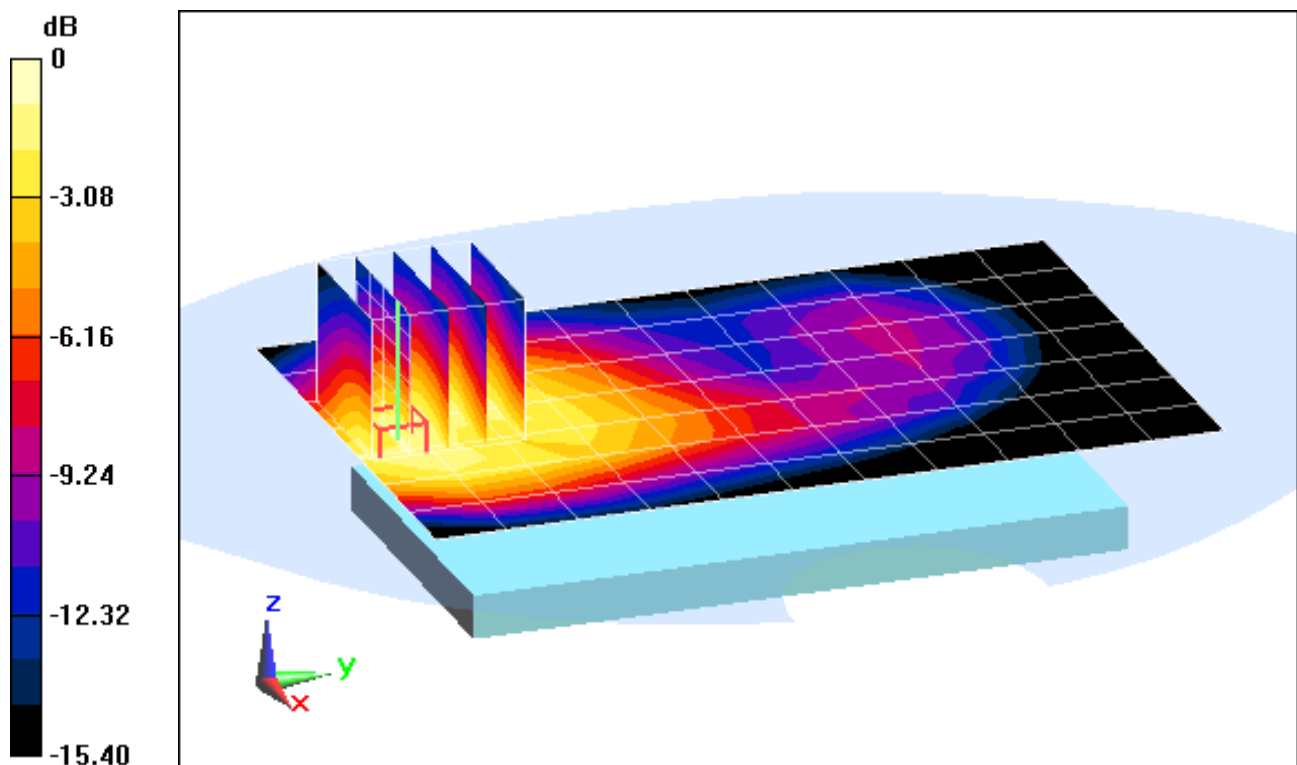
Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.382 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.869 W/kg

SAR(1 g) = 0.521 W/kg



0 dB = 0.594 W/kg = -2.26 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#9

Communication System: CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Body, Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.454 \text{ S/m}$; $\epsilon_r = 52.794$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-08-2013; Ambient Temp: 24.8°C; Tissue Temp: 23.8°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/19/2012

Phantom: SAM Right; Type: QD000P40CD; Serial: 1686

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

Mode: AWS EVDO Rev 0, Body SAR, Back side, Mid.ch, Standard Battery Cover

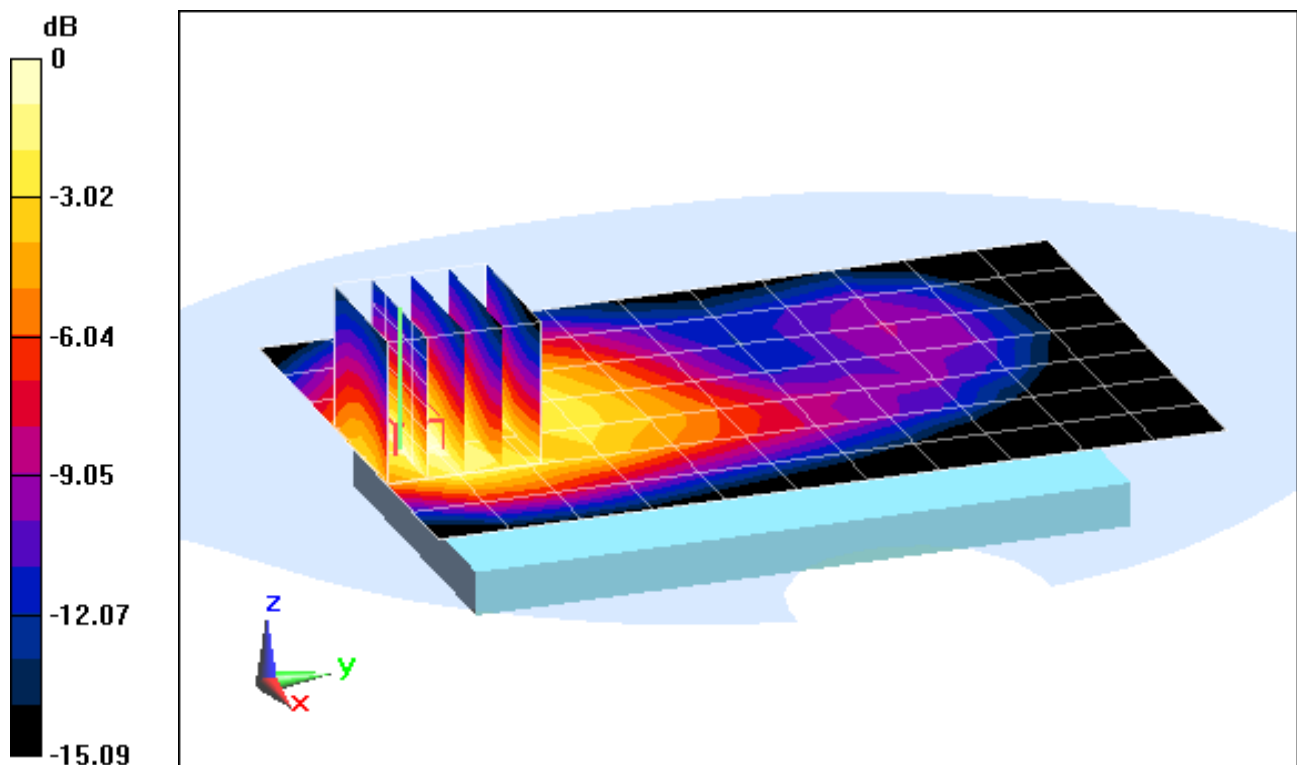
Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.076 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.974 W/kg

SAR(1 g) = 0.571 W/kg



0 dB = 0.628 W/kg = -2.02 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#4

Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body, Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.552 \text{ S/m}$; $\epsilon_r = 52.42$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-05-2013; Ambient Temp: 24.6°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN3920; ConvF(7.38, 7.38, 7.38); Calibrated: 2/27/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/6/2013

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

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

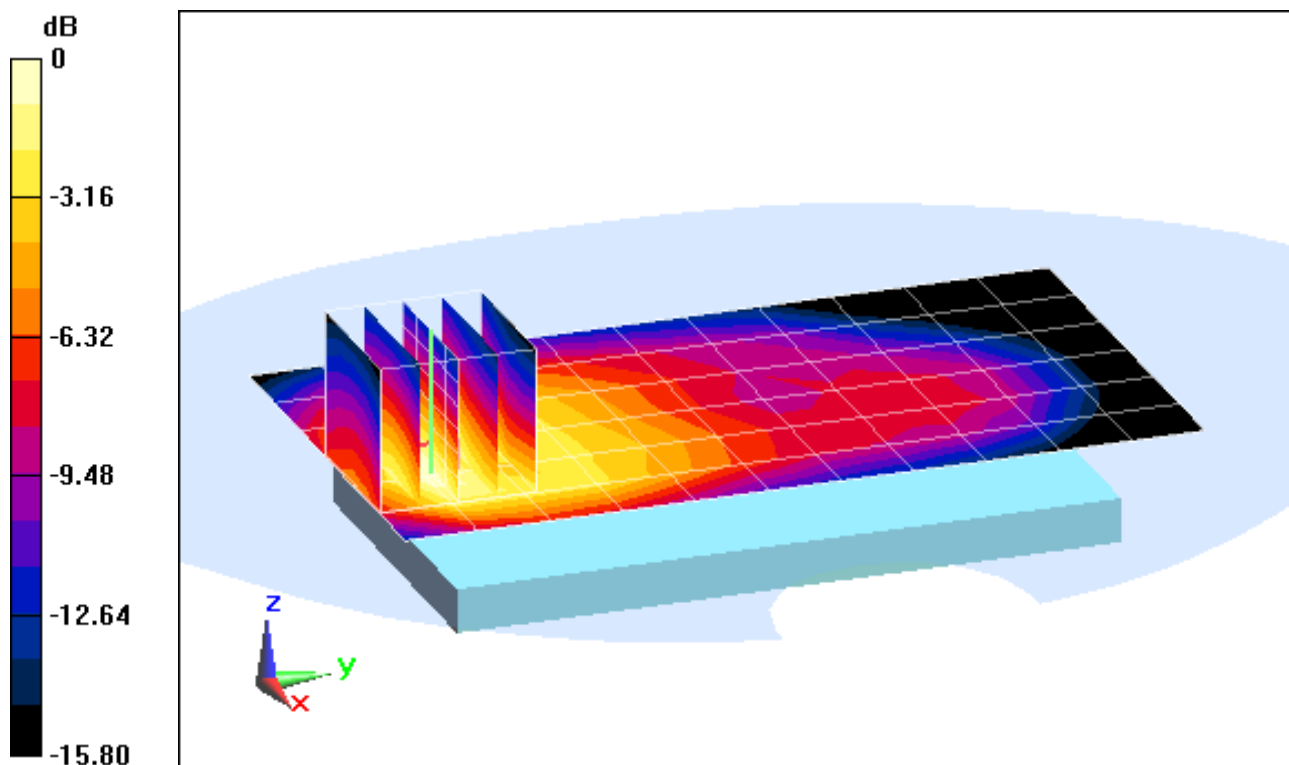
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.102 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.942 W/kg

SAR(1 g) = 0.567 W/kg



0 dB = 0.631 W/kg = -2.00 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#4

Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body, Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.552 \text{ S/m}$; $\epsilon_r = 52.42$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-05-2013; Ambient Temp: 24.6°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN3920; ConvF(7.38, 7.38, 7.38); Calibrated: 2/27/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/6/2013

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

Mode: PCS EVDO Rev 0, Body SAR, Back side, Mid.ch, Standard Battery Cover

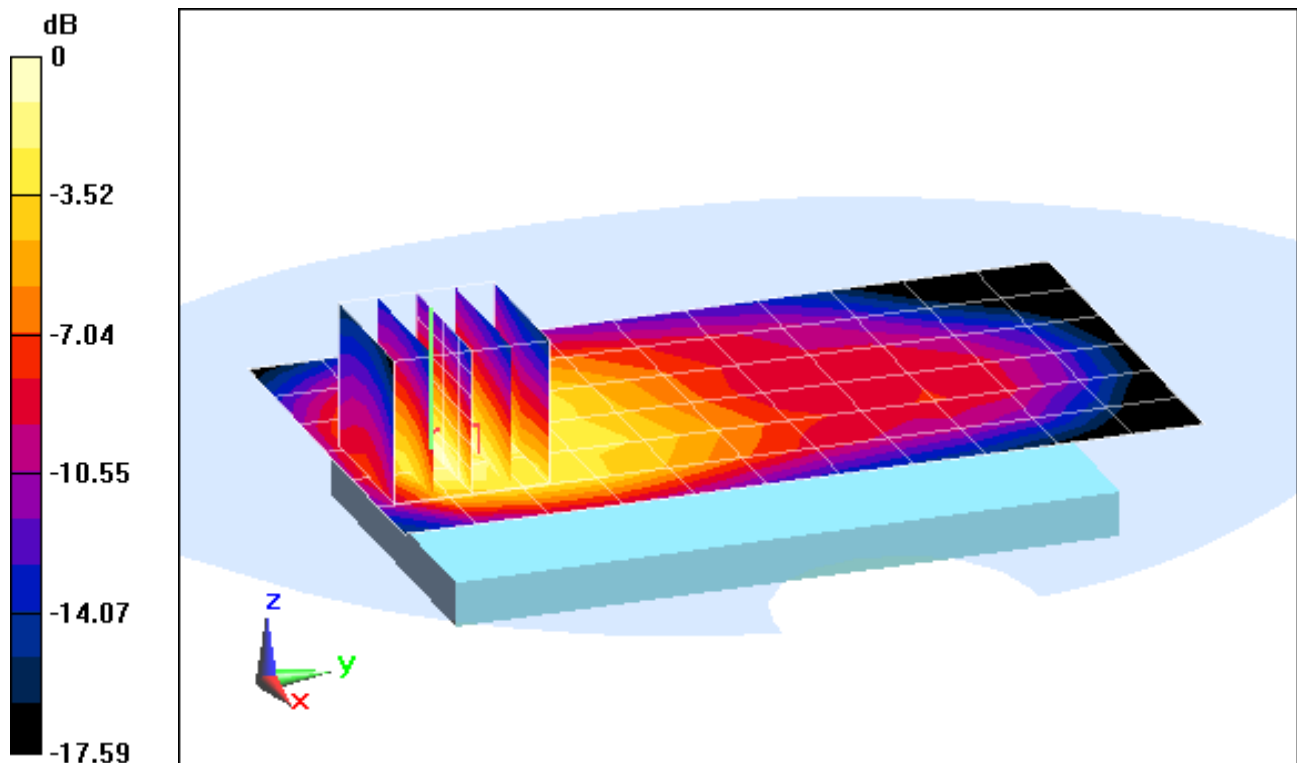
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.609 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.668 W/kg



0 dB = 0.714 W/kg = -1.46 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#5

Communication System: LTE RF; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: 750 Body, Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.938 \text{ S/m}$; $\epsilon_r = 54.263$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-06-2013; Ambient Temp: 24.6°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3287; ConvF(6.14, 6.14, 6.14); Calibrated: 11/15/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/13/2012

Phantom: SAM with CRP; Type: SAM 4.0; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

**Mode: LTE Band 12, Body SAR, Back side, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 49 RB Offset, Standard Battery Cover**

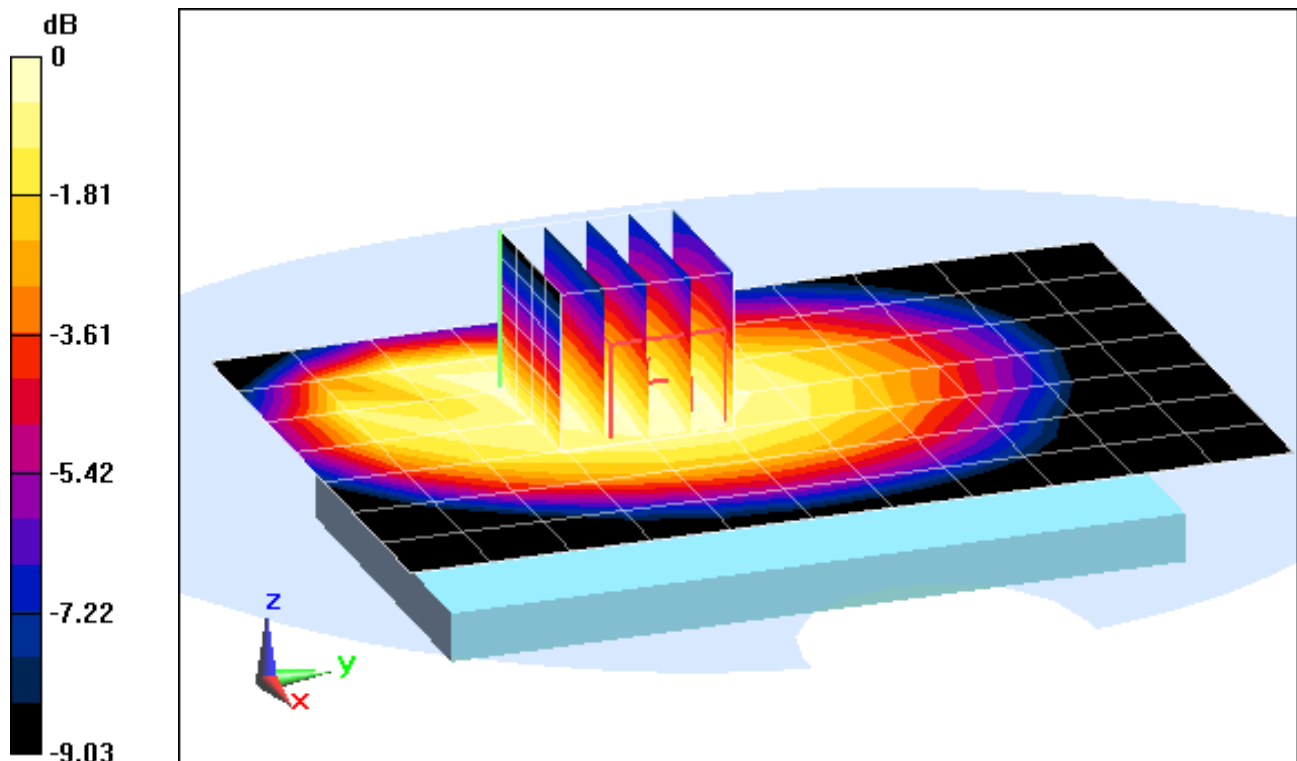
Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.578 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.167 W/kg

SAR(1 g) = 0.116 W/kg; SAR(10 g) = 0.088 W/kg



0 dB = 0.126 W/kg = -9.00 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#6

Communication System: LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: 835 Body, Medium parameters used (interpolated):

$f = 836.5 \text{ MHz}$; $\sigma = 1.015 \text{ S/m}$; $\epsilon_r = 53.713$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-12-2013; Ambient Temp: 24.5°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/19/2012

Phantom: ELI v5.0 Door; Type: QDOVA002BB; Serial: TP-1158

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 49 RB Offset, Standard Battery Cover**

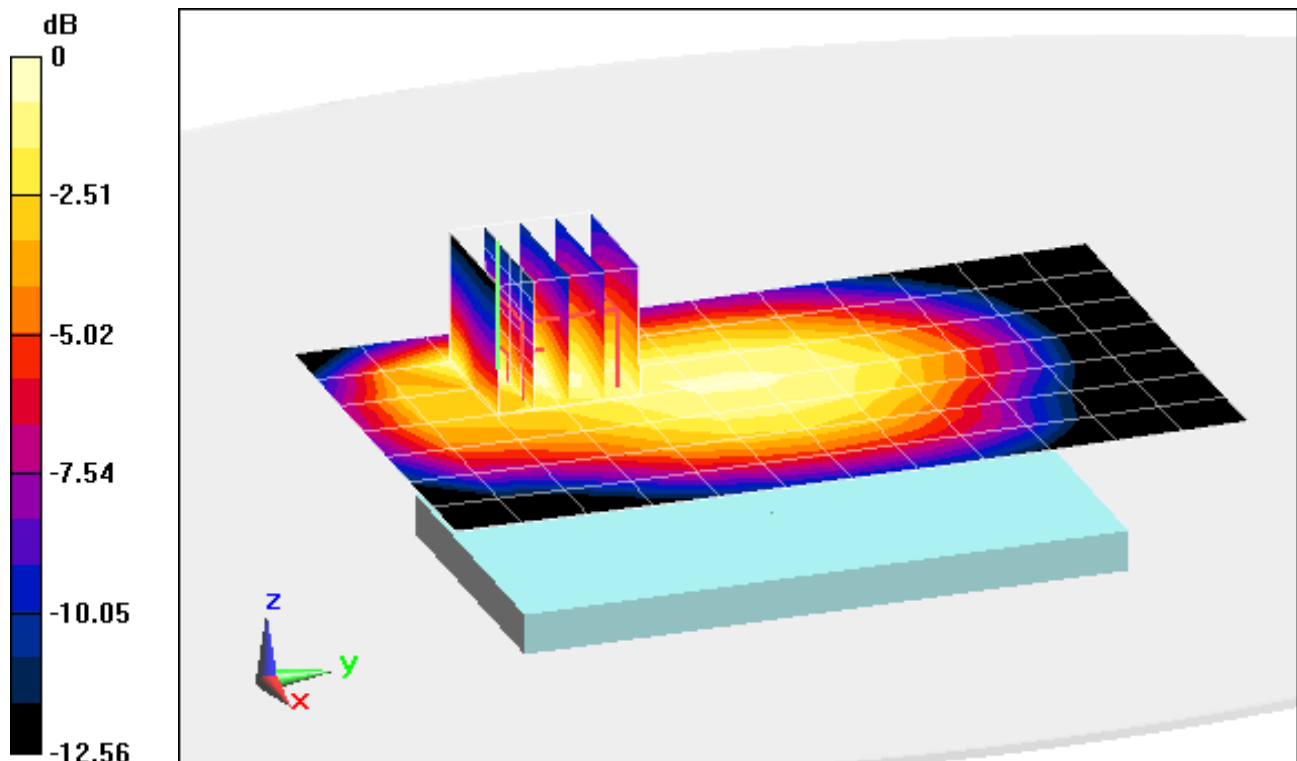
Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.615 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.179 W/kg

SAR(1 g) = 0.108 W/kg; SAR(10 g) = 0.066 W/kg



0 dB = 0.118 W/kg = -9.28 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#5

Communication System: LTE RF; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Body, Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.463 \text{ S/m}$; $\epsilon_r = 52.723$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-07-2013; Ambient Temp: 23.9°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3287; ConvF(4.86, 4.86, 4.86); Calibrated: 11/15/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/13/2012

Phantom: SAM with CRP; Type: SAM 4.0; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

**Mode: LTE Band 4 (AWS), Body SAR, Back side, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 25 RB Offset, Standard Battery Cover**

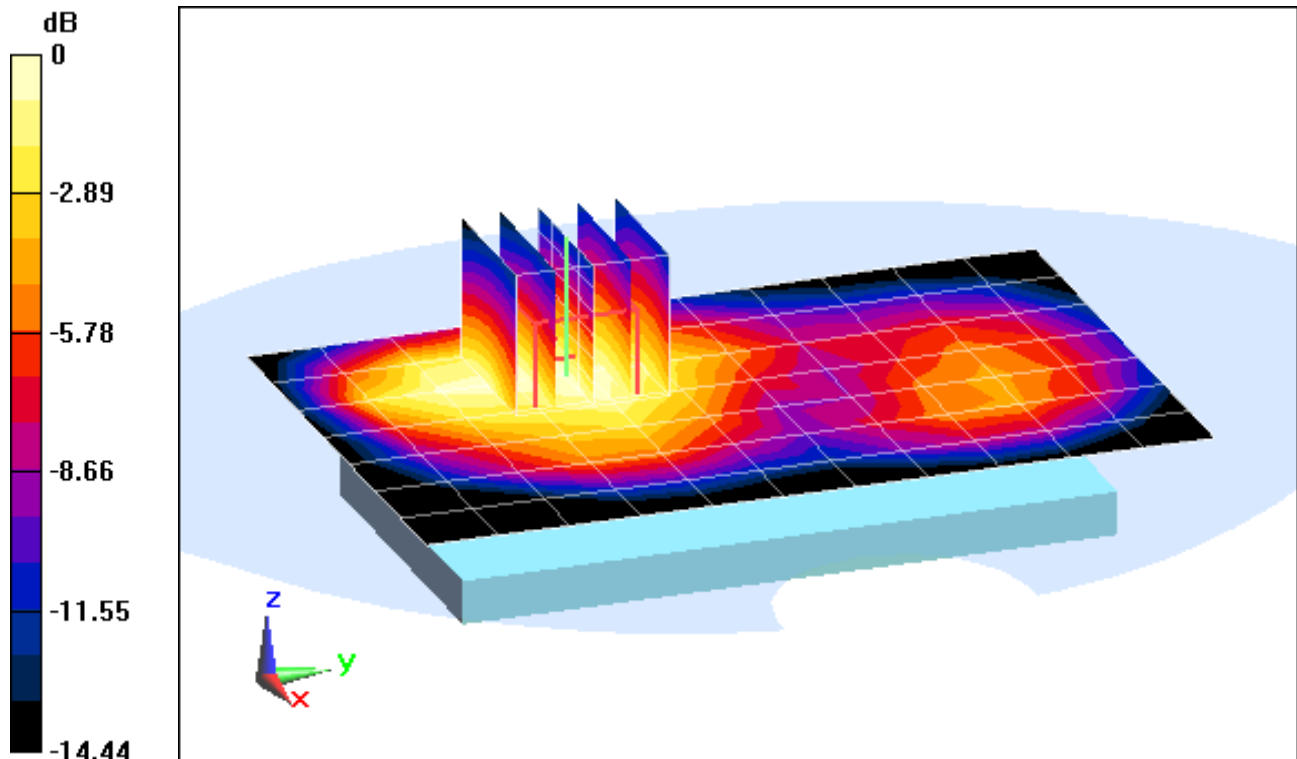
Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.201 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.280 W/kg

SAR(1 g) = 0.175 W/kg; SAR(10 g) = 0.108 W/kg



0 dB = 0.189 W/kg = -7.24 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#5

Communication System: LTE Band 2 (PCS); Frequency: 1855 MHz; Duty Cycle: 1:1

Medium: 1900 Body, Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.494 \text{ S/m}$; $\epsilon_r = 51.402$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-05-2013; Ambient Temp: 24.0°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3263; ConvF(4.76, 4.76, 4.76); Calibrated: 5/18/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 5/7/2012

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Mode: LTE Band 2 (PCS), Body SAR, Back side, Low.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset, Standard Battery Cover**

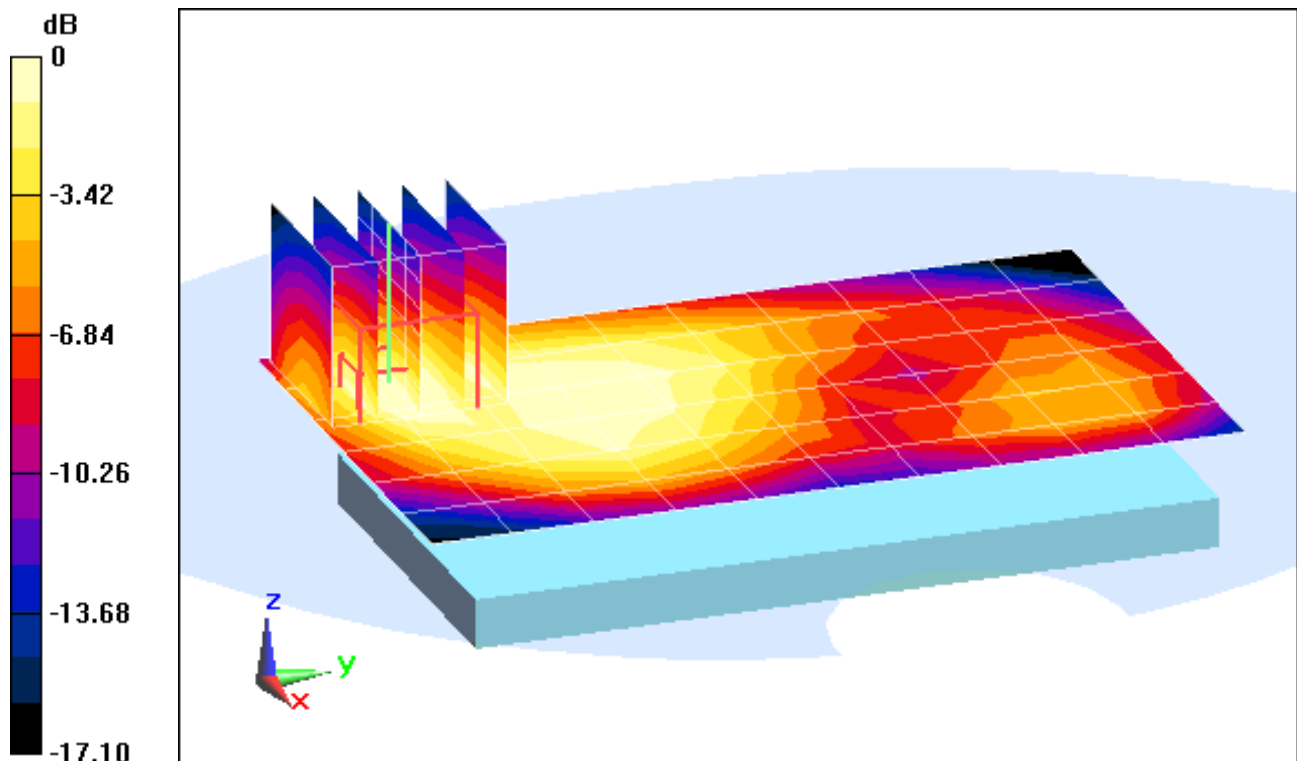
Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.277 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.442 W/kg

SAR(1 g) = 0.243 W/kg; SAR(10 g) = 0.135 W/kg



0 dB = 0.254 W/kg = -5.95 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#C

Communication System: IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: 2450 Body, Medium parameters used (interpolated):

$f = 2437 \text{ MHz}$; $\sigma = 1.961 \text{ S/m}$; $\epsilon_r = 51.404$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-04-2013; Ambient Temp: 23.8°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3287; ConvF(4.29, 4.29, 4.29); Calibrated: 11/15/2012;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/13/2012

Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

Mode: IEEE 802.11b, Body SAR, Ch 06, 1 Mbps, Back Side, Standard Battery Cover

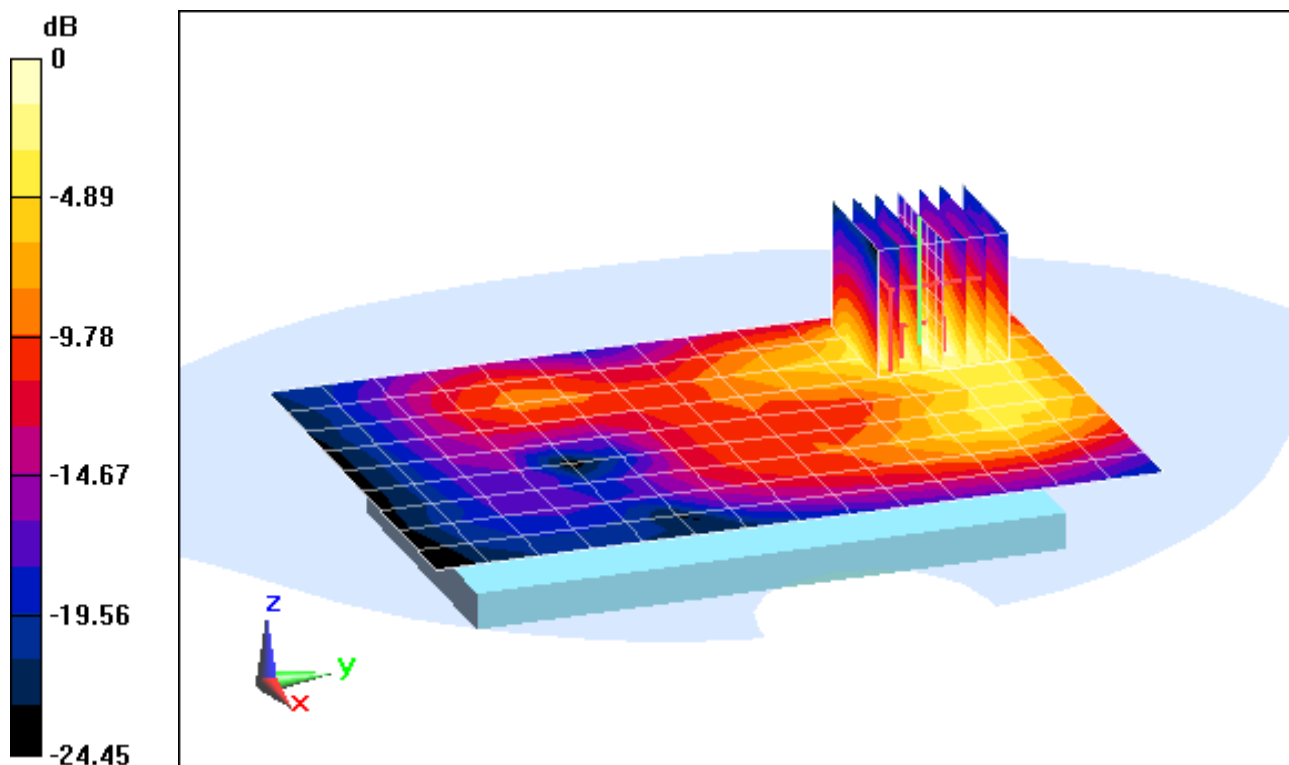
Area Scan (10x15x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.227 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.809 W/kg

SAR(1 g) = 0.369 W/kg; SAR(10 g) = 0.172 W/kg



0 dB = 0.487 W/kg = -3.12 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#B

Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body, Medium parameters used:

$f = 5180 \text{ MHz}$; $\sigma = 5.097 \text{ S/m}$; $\epsilon_r = 47.58$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-06-2013; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: EX3DV4 - SN3589; ConvF(3.99, 3.99, 3.99); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

**Mode: IEEE 802.11a, 5.2 GHz, Body SAR, Ch 36, 6 Mbps,
Back Side, Standard Battery Cover**

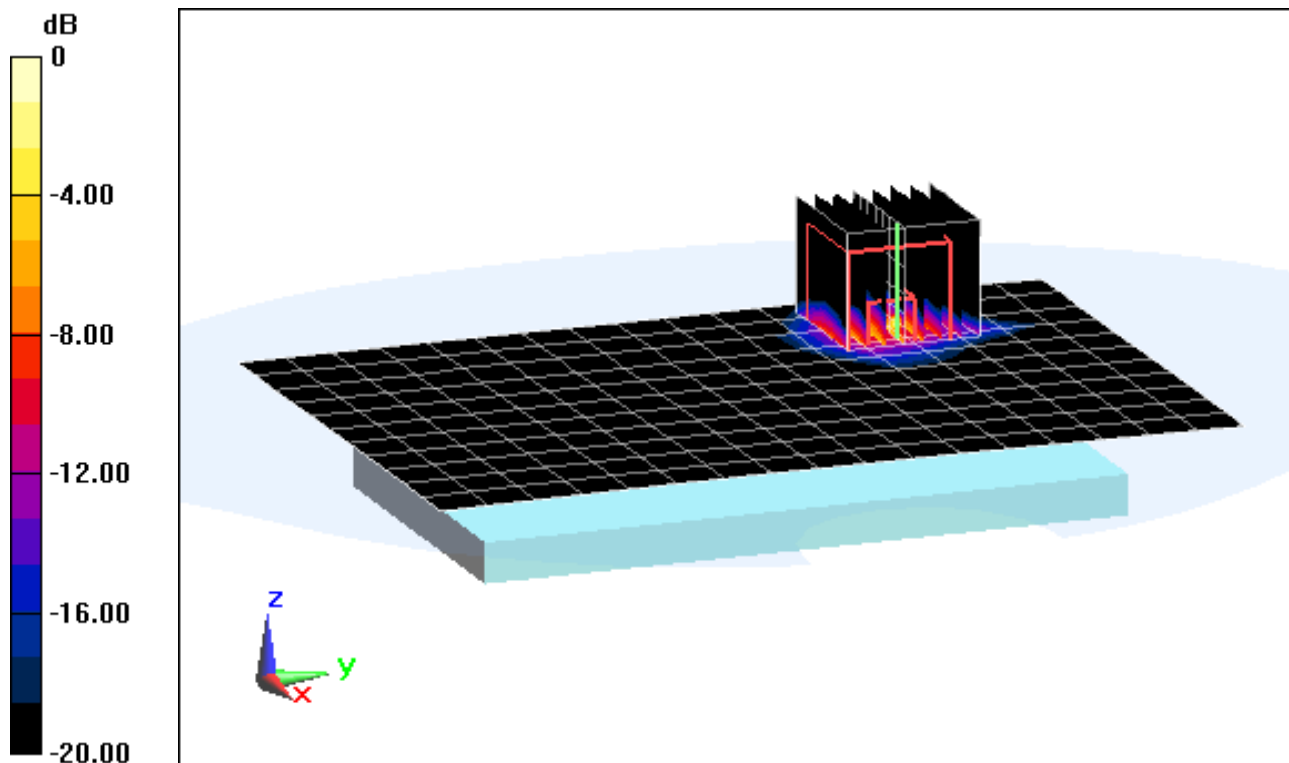
Area Scan (12x18x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 6.500 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.65 W/kg

SAR(1 g) = 0.282 W/kg; SAR(10 g) = 0.079 W/kg



0 dB = 1.64 W/kg = 2.15 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR970; Type: Portable Handset; Serial: FCC#B

Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body, Medium parameters used:

$f = 5745 \text{ MHz}$; $\sigma = 5.887 \text{ S/m}$; $\epsilon_r = 46.27$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-06-2013; Ambient Temp: 24.2°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3589; ConvF(3.66, 3.66, 3.66); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

**Mode: IEEE 802.11a, 5.8 GHz, Body SAR, Ch 149, 6 Mbps,
Back Side, Standard Battery Cover**

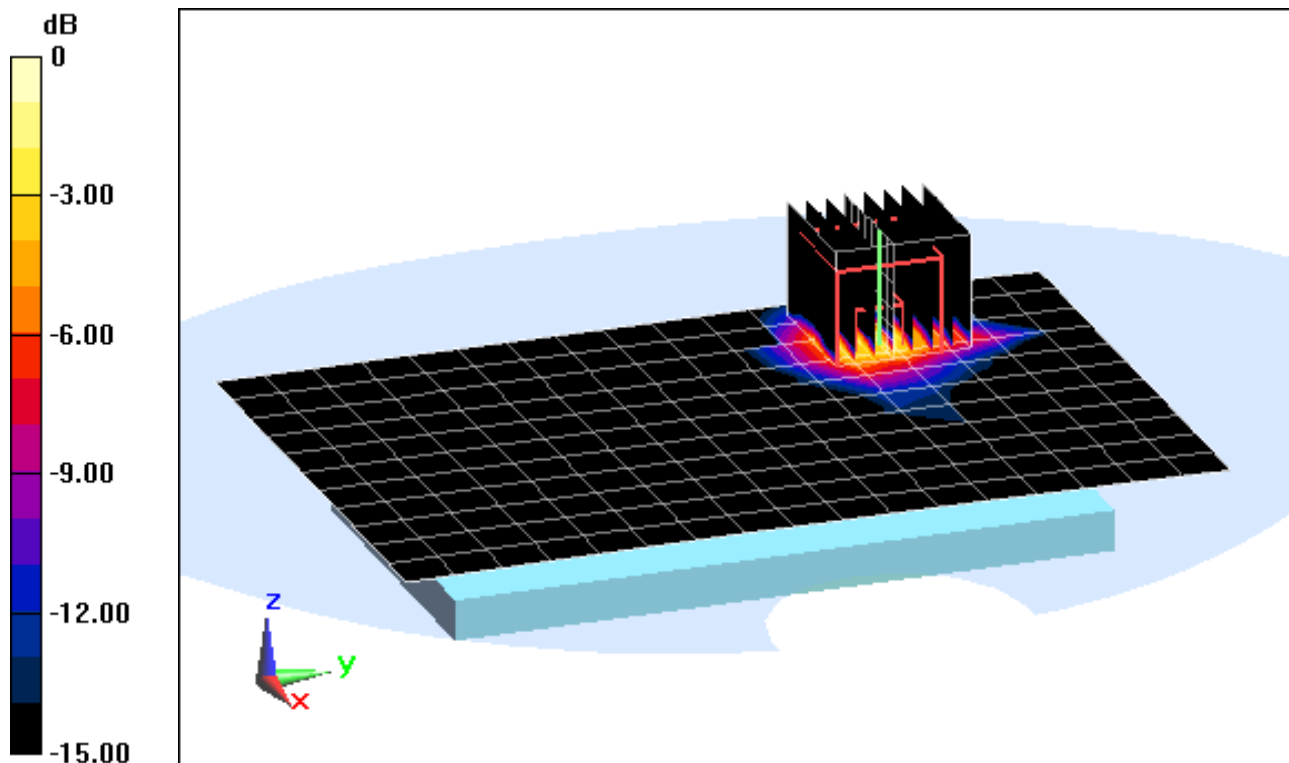
Area Scan (12x18x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 4.178 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.572 W/kg

SAR(1 g) = 0.116 W/kg; SAR(10 g) = 0.036 W/kg



0 dB = 0.333 W/kg = -4.78 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 Head Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.904 \text{ S/m}$; $\epsilon_r = 40.604$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.5 cm

Test Date: 02-11-2013; Ambient Temp: 21.9°C; Tissue Temp: 22.0°C

Probe: ES3DV2 - SN3022; ConvF(6.3, 6.3, 6.3); Calibrated: 8/28/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 8/24/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

750MHz System Verification

Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

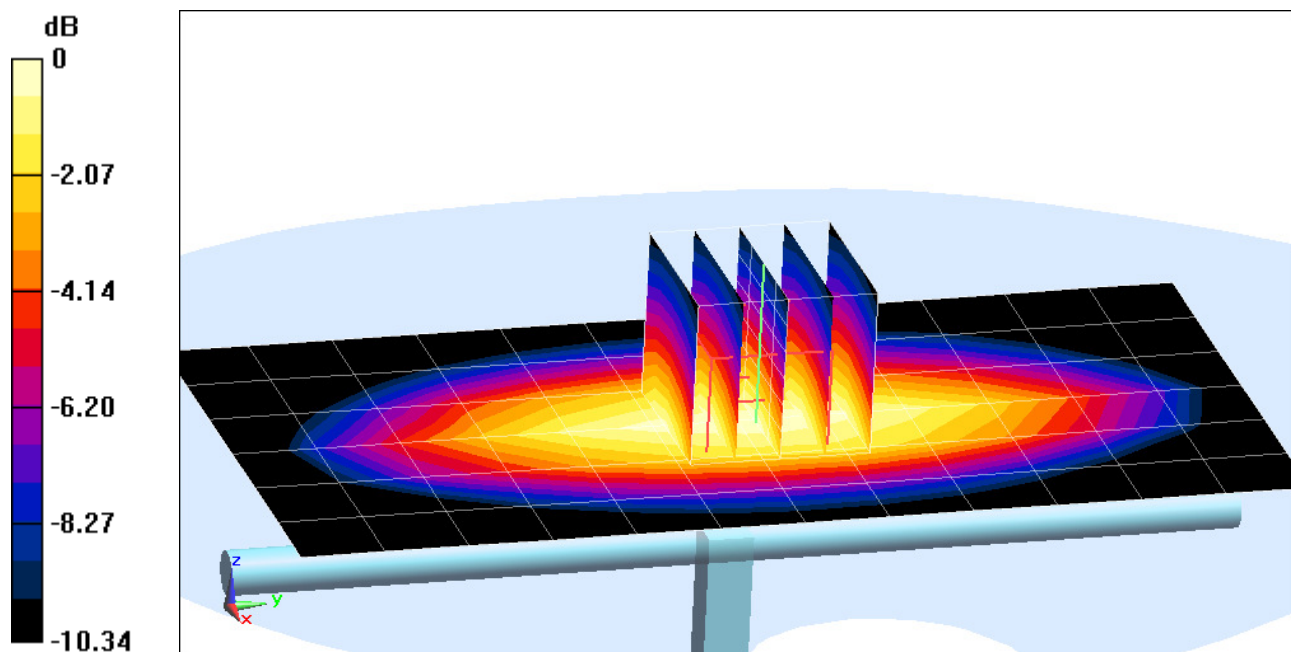
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 22.3 dBm (170 mW)

Peak SAR (extrapolated) = 2.10 W/kg

SAR(1 g) = 1.43 W/kg; SAR(10 g) = 0.941 W/kg

Deviation = -0.57 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d026

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.941 \text{ S/m}$; $\epsilon_r = 42.69$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.5 cm

Test Date: 02-04-2013; Ambient Temp: 22.8°C; Tissue Temp: 22.6°C

Probe: ES3DV2 - SN3022; ConvF(6.03, 6.03, 6.03); Calibrated: 8/28/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 8/24/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

835MHz System Verification

Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

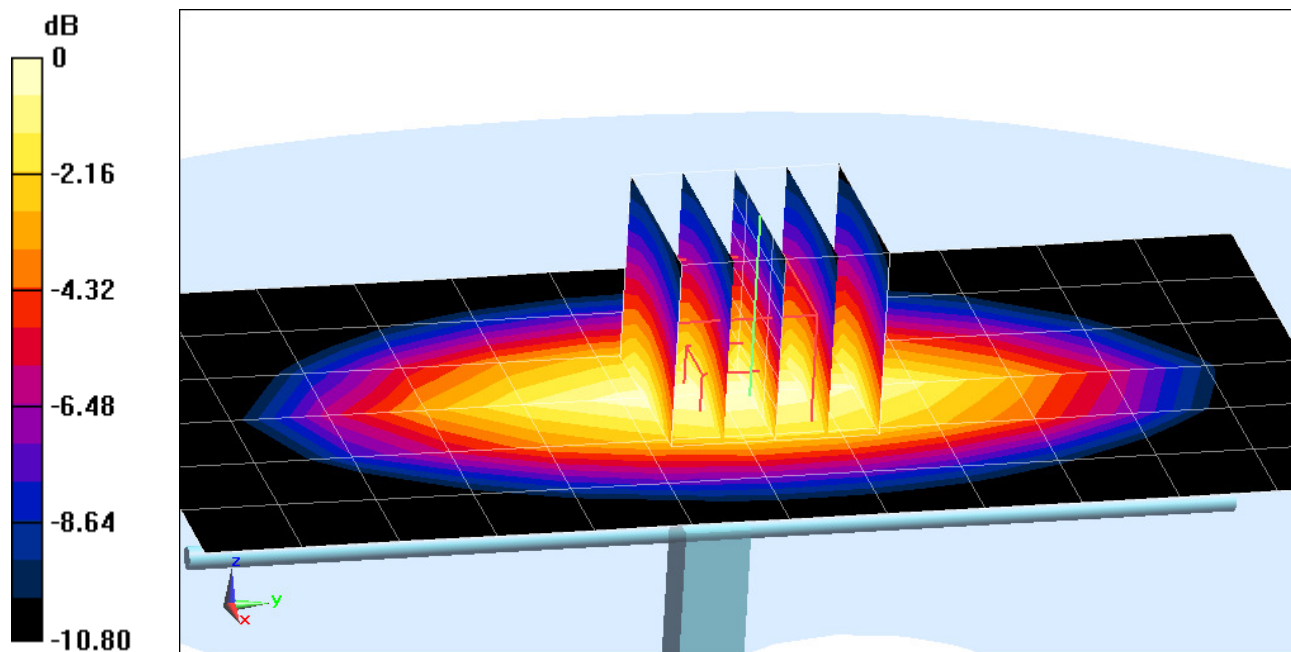
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.951 W/kg; SAR(10 g) = 0.618 W/kg

Deviation = 1.28 %



0 dB = 1.02 W/kg = 0.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Head Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.421 \text{ S/m}$; $\epsilon_r = 38.18$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 02-04-2013; Ambient Temp: 24.4°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3287; ConvF(5.16, 5.16, 5.16); Calibrated: 11/15/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/13/2012

Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

1750 MHz System Verification

Area Scan (6x6x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

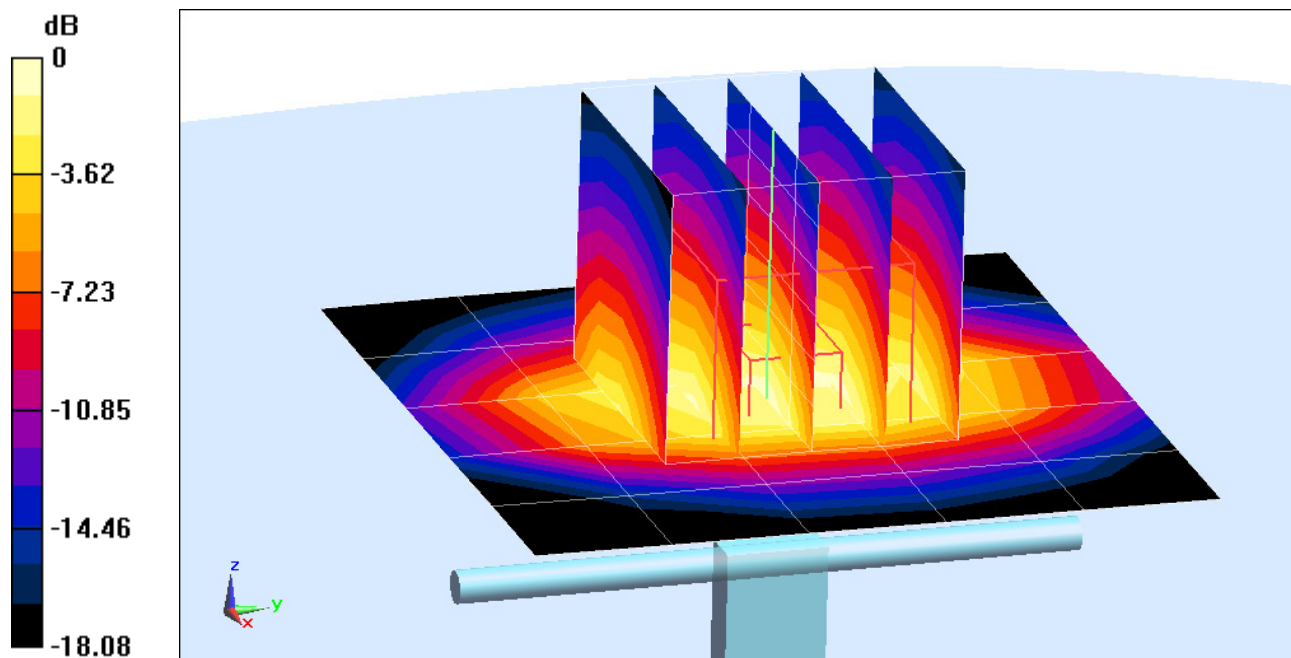
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 6.84 W/kg

SAR(1 g) = 3.72 W/kg; SAR(10 g) = 1.96 W/kg

Deviation = 2.20 %



0 dB = 4.12 W/kg = 6.15 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1051

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Head Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.368 \text{ S/m}$; $\epsilon_r = 39.83$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 02-07-2013; Ambient Temp: 23.4°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3288; ConvF(5.51, 5.51, 5.51); Calibrated: 9/20/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/19/2012

Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

1750 MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

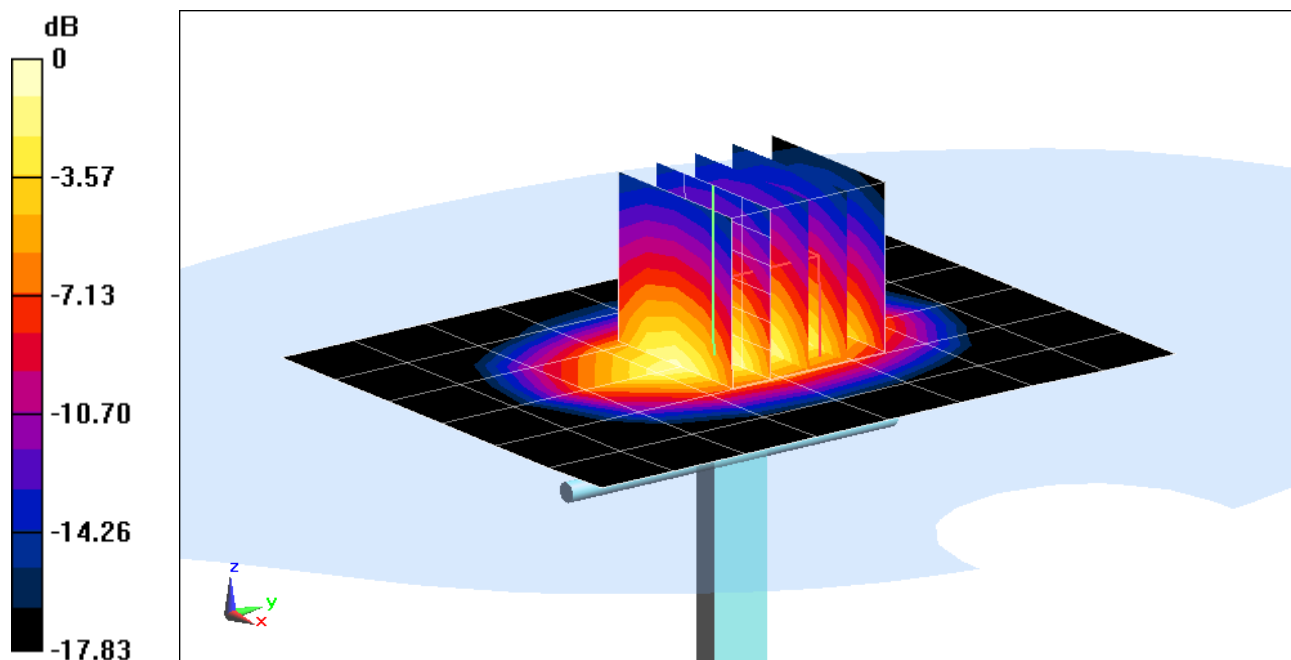
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power: 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 6.24 W/kg

SAR(1 g) = 3.44 W/kg; SAR(10 g) = 1.82 W/kg

Deviation: -6.01%



0 dB = 3.79 W/kg = 5.79 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d149

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Head, Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.45 \text{ S/m}$; $\epsilon_r = 39.137$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-09-2013; Ambient Temp: 22.8°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3213; ConvF(5.02, 5.02, 5.02); Calibrated: 4/24/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/19/2012

Phantom: SAM Right; Type: QD000P40CD; Serial: 1686

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

1900 MHz System Verification

Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

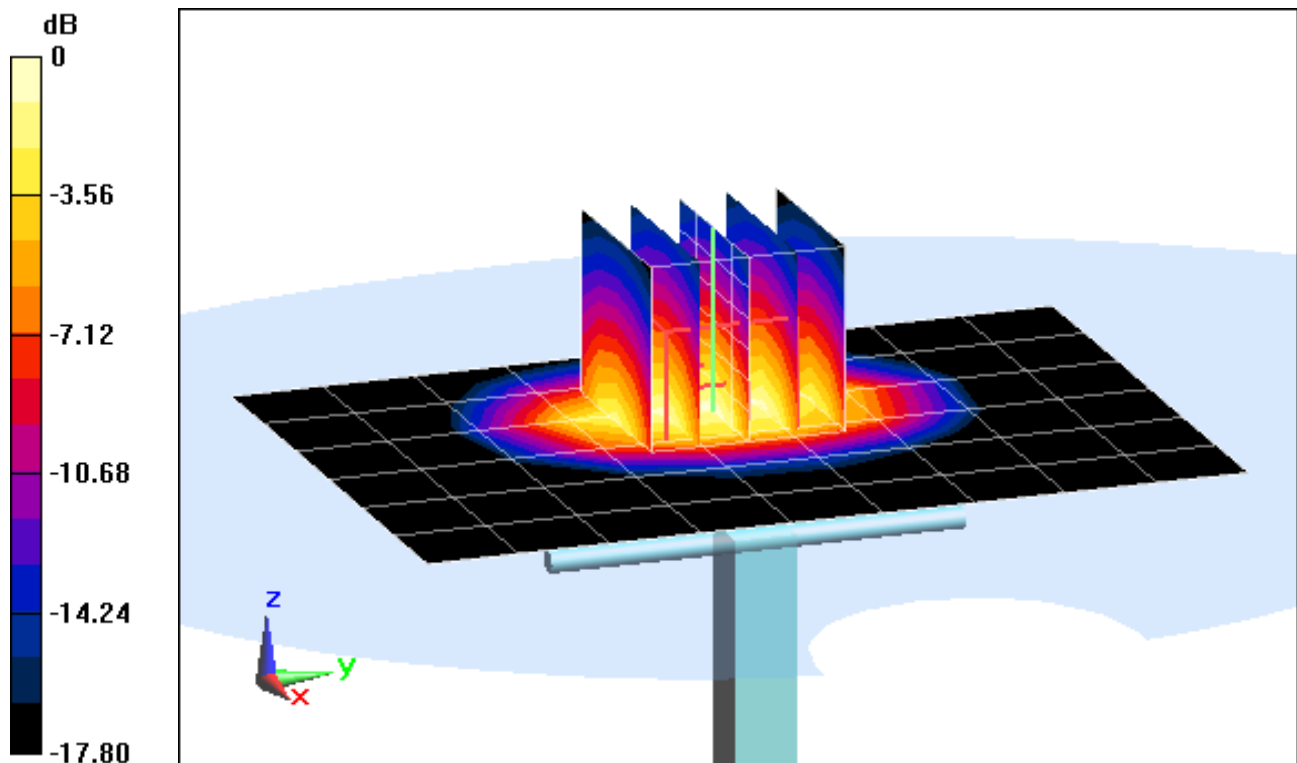
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 7.69 W/kg

SAR(1 g) = 4.15 W/kg; SAR(10 g) = 2.14 W/kg

Deviation = 5.60%



0 dB = 4.67 W/kg = 6.69 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d149

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.444 \text{ S/m}$; $\epsilon_r = 40.439$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 02-20-2013; Ambient Temp: 23.9°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3288; ConvF(5.28, 5.28, 5.28); Calibrated: 9/20/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/19/2012

Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

1900 MHz System Verification

Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

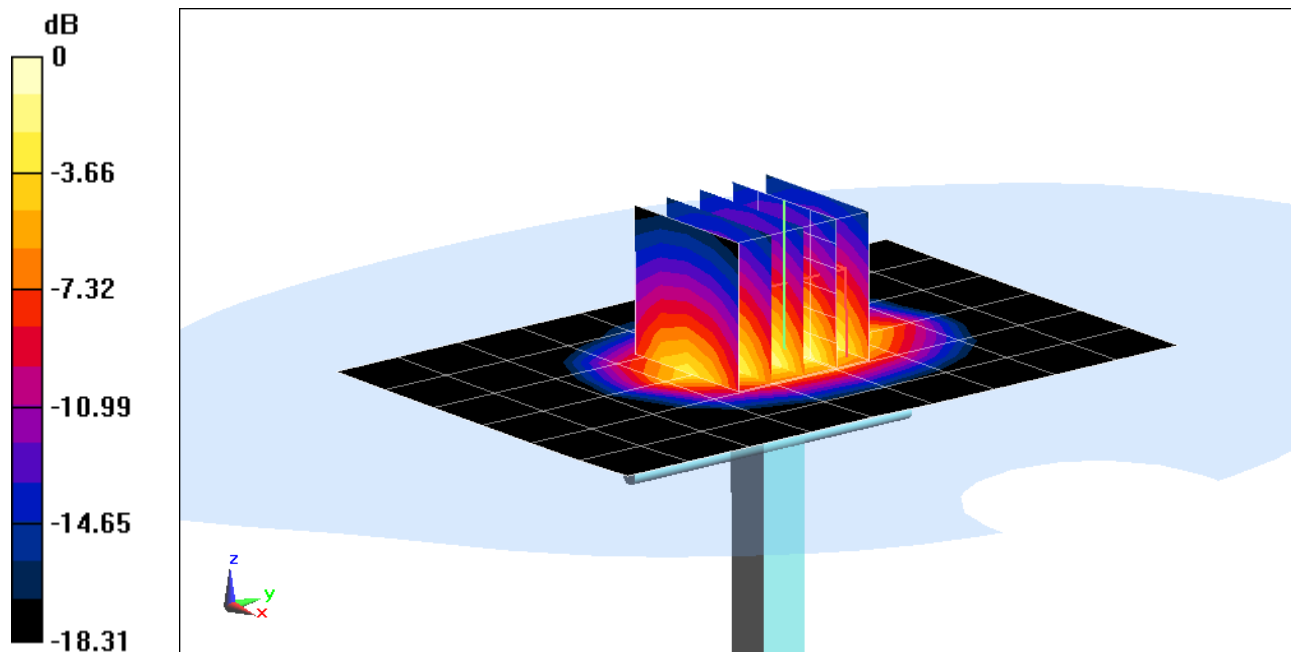
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power: 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 7.29 W/kg

SAR(1 g) = 3.94 W/kg; SAR(10 g) = 2.05 W/kg

Deviation: 0.25%



0 dB = 4.33 W/kg = 6.36 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 882

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.858 \text{ S/m}$; $\epsilon_r = 37.694$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 03-04-2013; Ambient Temp: 22.8°C; Tissue Temp: 20.3°C

Probe: ES3DV3 - SN3288; ConvF(4.61, 4.61, 4.61); Calibrated: 9/20/2012;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 9/19/2012

Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

2450 MHz System Verification

Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

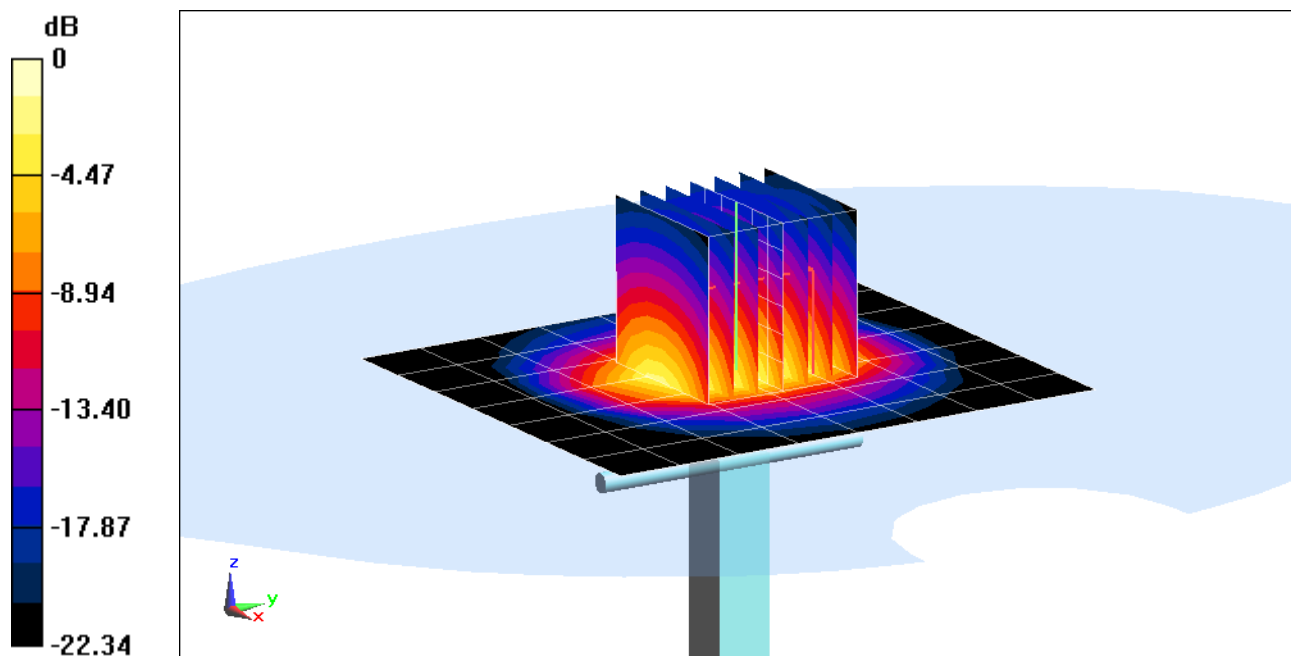
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Input Power: 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 10.8 W/kg

SAR(1 g) = 5.23 W/kg; SAR(10 g) = 2.42 W/kg

Deviation: 1.16%



0 dB = 6.77 W/kg = 8.31 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1007

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head Medium parameters used:

$f = 5200 \text{ MHz}$; $\sigma = 4.602 \text{ S/m}$; $\epsilon_r = 37.46$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-04-2013; Ambient Temp: 23.4°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3589; ConvF(4.48, 4.48, 4.48); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

5200MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

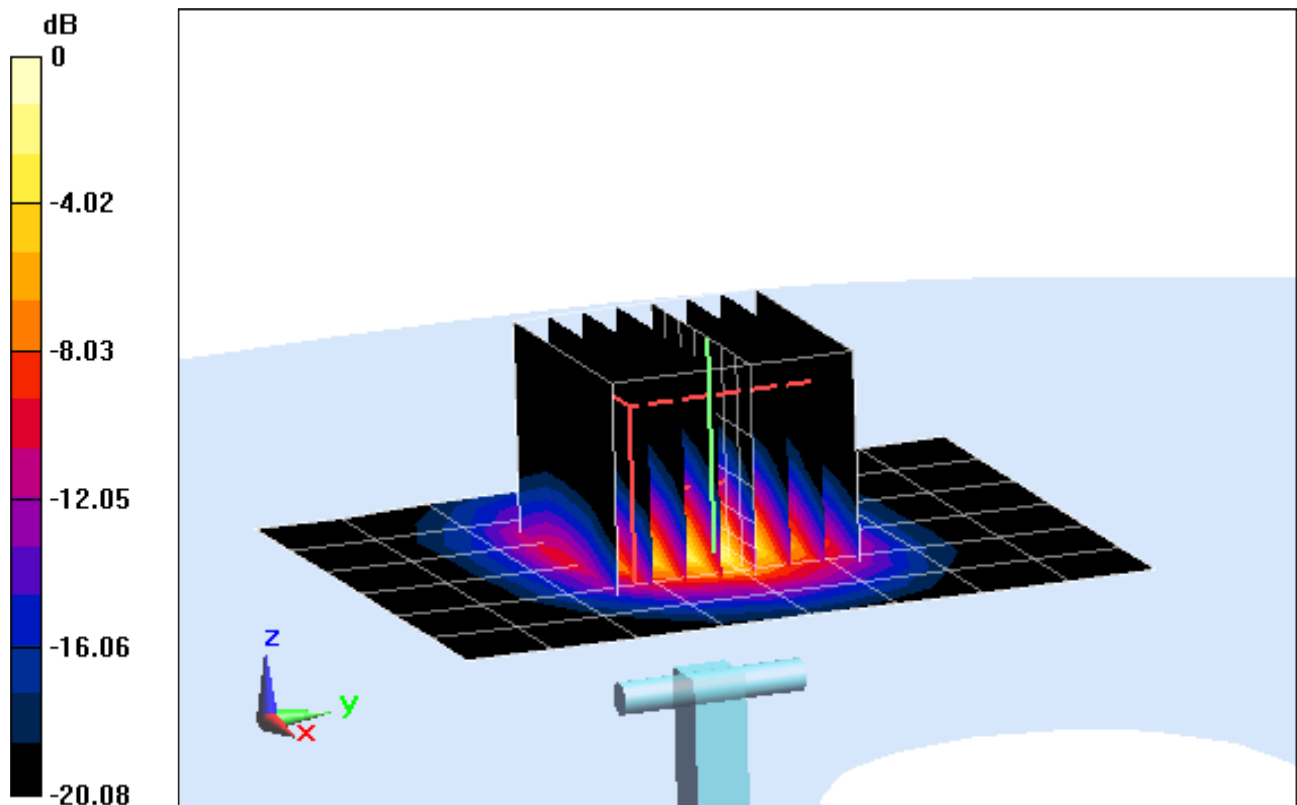
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$, Graded Ratio=1.4

Input Power = 16 dBm (40 mW)

Peak SAR (extrapolated) = 13.4 W/kg

SAR(1 g) = 3.07 W/kg; SAR(10 g) = 0.889 W/kg

Deviation = -3.82%



0 dB = 6.94 W/kg = 8.41 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5300 MHz; Type: D5GHzV2; Serial: 1007

Communication System: CW; Frequency: 5300 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head Medium parameters used:

$f = 5300 \text{ MHz}$; $\sigma = 4.794 \text{ S/m}$; $\epsilon_r = 36.73$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-04-2013; Ambient Temp: 23.4°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3589; ConvF(4.27, 4.27, 4.27); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

5300MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

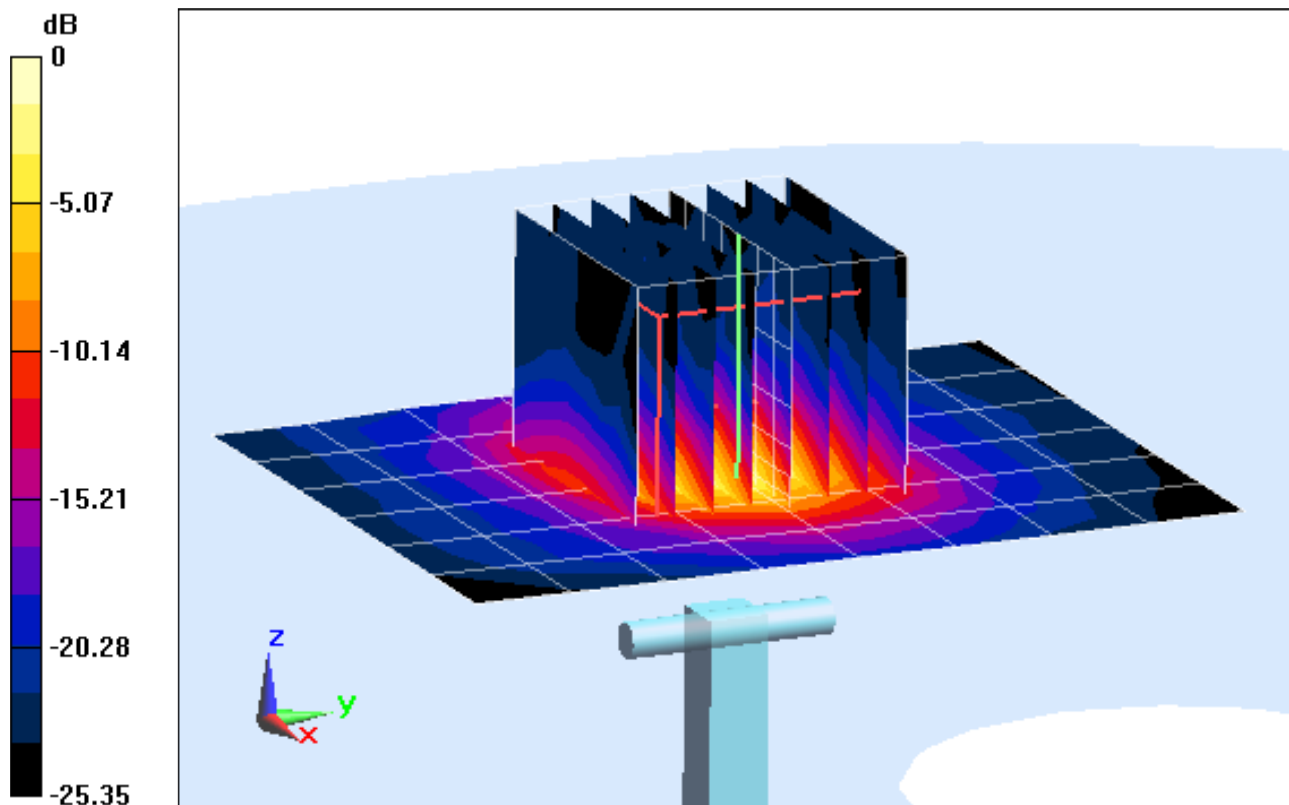
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$, Graded Ratio=1.4

Input Power = 16 dBm (40 mW)

Peak SAR (extrapolated) = 14.6 W/kg

SAR(1 g) = 3.12 W/kg; SAR(10 g) = 0.892 W/kg

Deviation = -6.14%



0 dB = 7.71 W/kg = 8.87 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1007

Communication System: CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 4.91 \text{ S/m}$; $\epsilon_r = 36.62$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-04-2013; Ambient Temp: 23.6°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3589; ConvF(4.14, 4.14, 4.14); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

5500MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm

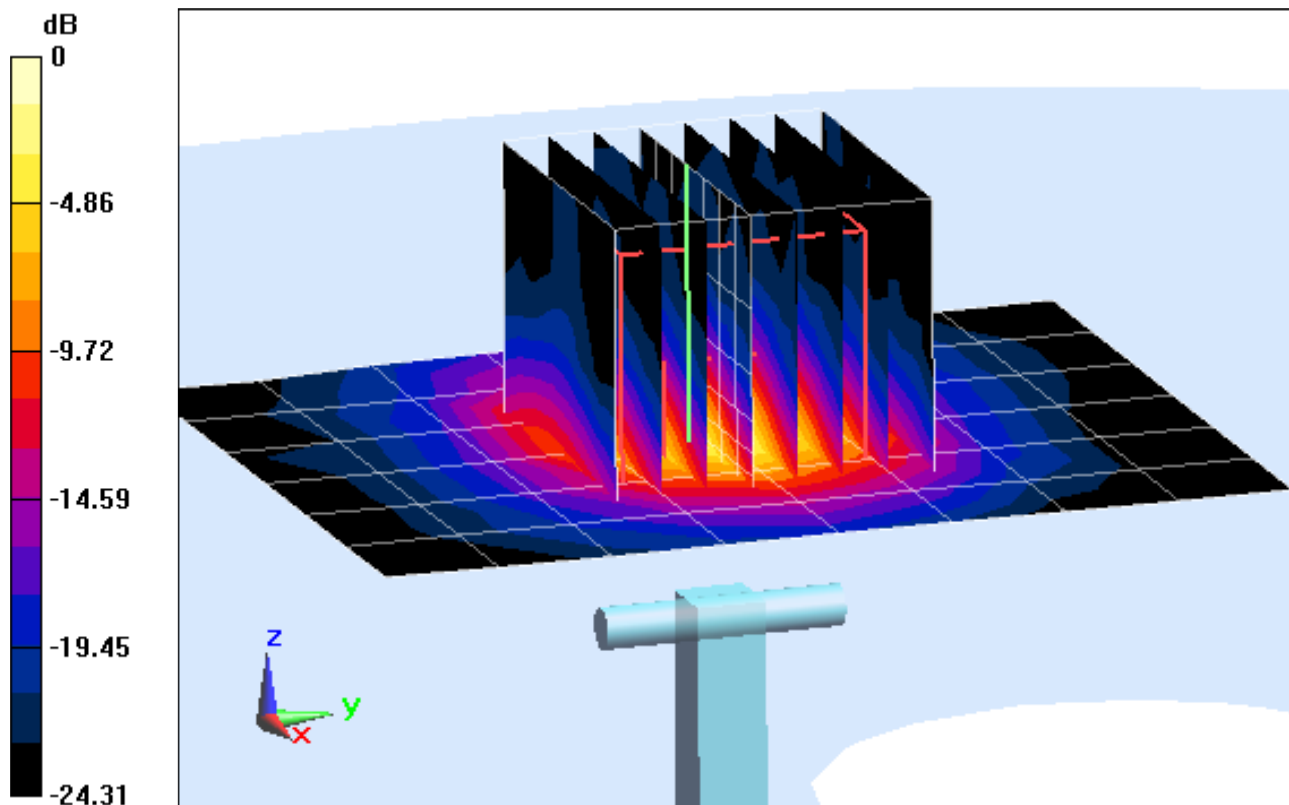
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm, Graded Ratio=1.4

Input Power = 16 dBm (40 mW)

Peak SAR (extrapolated) = 15.1 W/kg

SAR(1 g) = 3.38 W/kg; SAR(10 g) = 0.969 W/kg

Deviation = -0.47%



0 dB = 8.84 W/kg = 9.46 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1007

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head Medium parameters used:

$f = 5800 \text{ MHz}$; $\sigma = 5.381 \text{ S/m}$; $\epsilon_r = 35.41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-04-2013; Ambient Temp: 23.7°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3589; ConvF(3.85, 3.85, 3.85); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

5800MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

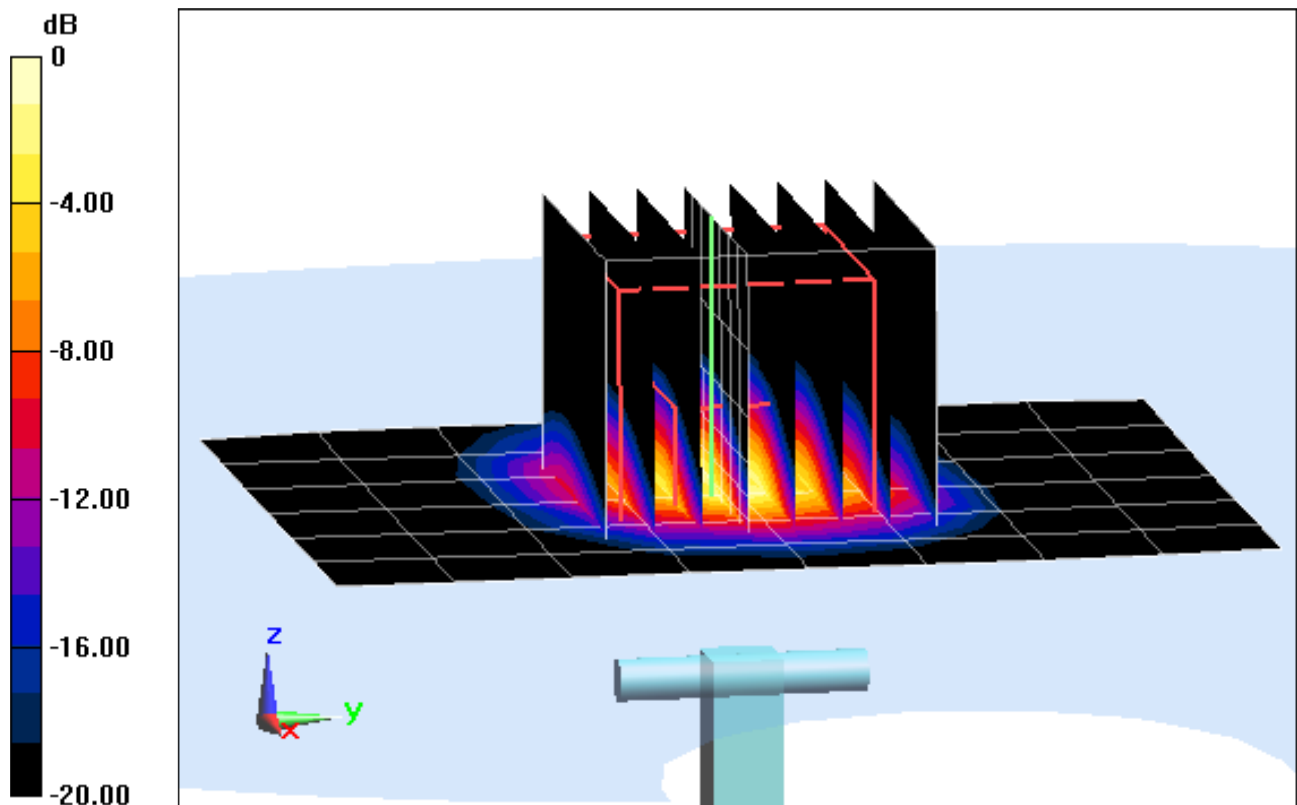
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$, Graded Ratio=1.4

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 38.3 W/kg

SAR(1 g) = 7.65 W/kg; SAR(10 g) = 2.14 W/kg

Deviation = -4.14%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.976 \text{ S/m}$; $\epsilon_r = 53.79$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.5 cm

Test Date: 02-06-2013; Ambient Temp: 24.6°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3287; ConvF(6.14, 6.14, 6.14); Calibrated: 11/15/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/13/2012

Phantom: SAM with CRP; Type: SAM 4.0; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

750MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

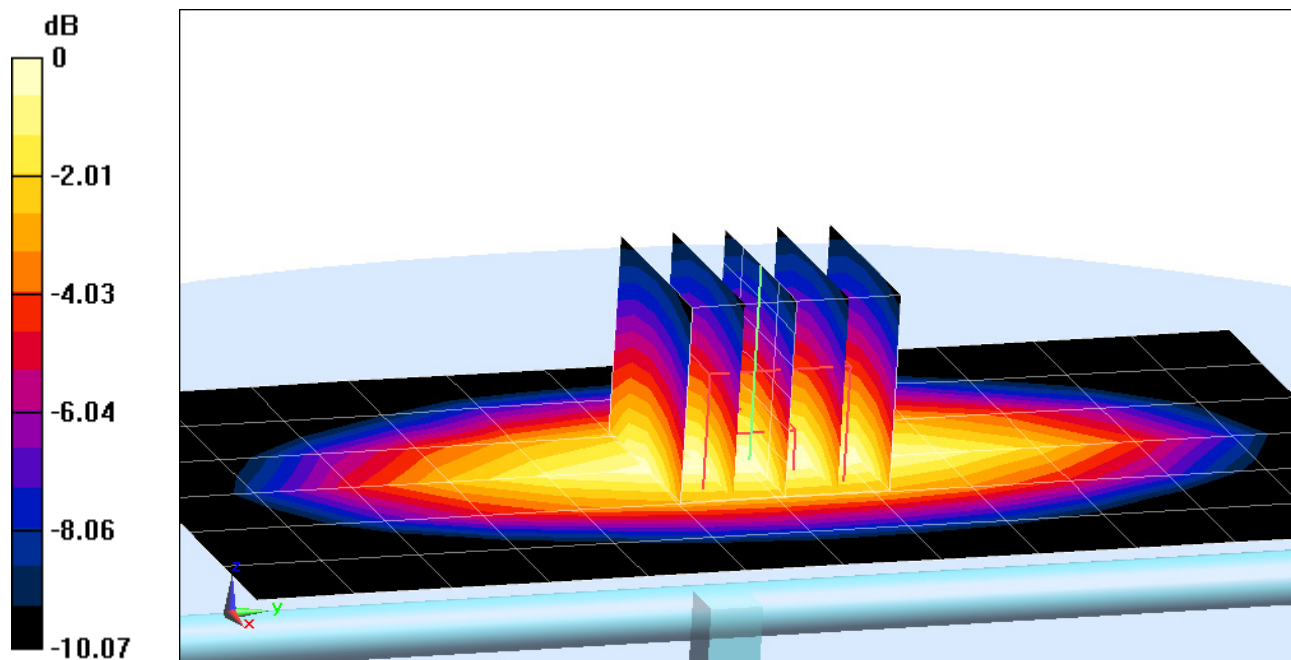
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.862 W/kg; SAR(10 g) = 0.575 W/kg

Deviation = -2.38 %



0 dB = 0.931 W/kg = -0.31 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 835 MHz; Type: D835V2; Serial: 4d133

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 1.014 \text{ S/m}$; $\epsilon_r = 53.732$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.5 cm

Test Date: 02-12-2013; Ambient Temp: 24.5°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/19/2012

Phantom: ELI v5.0 Door; Type: QDOVA002BB; Serial: TP-1158

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

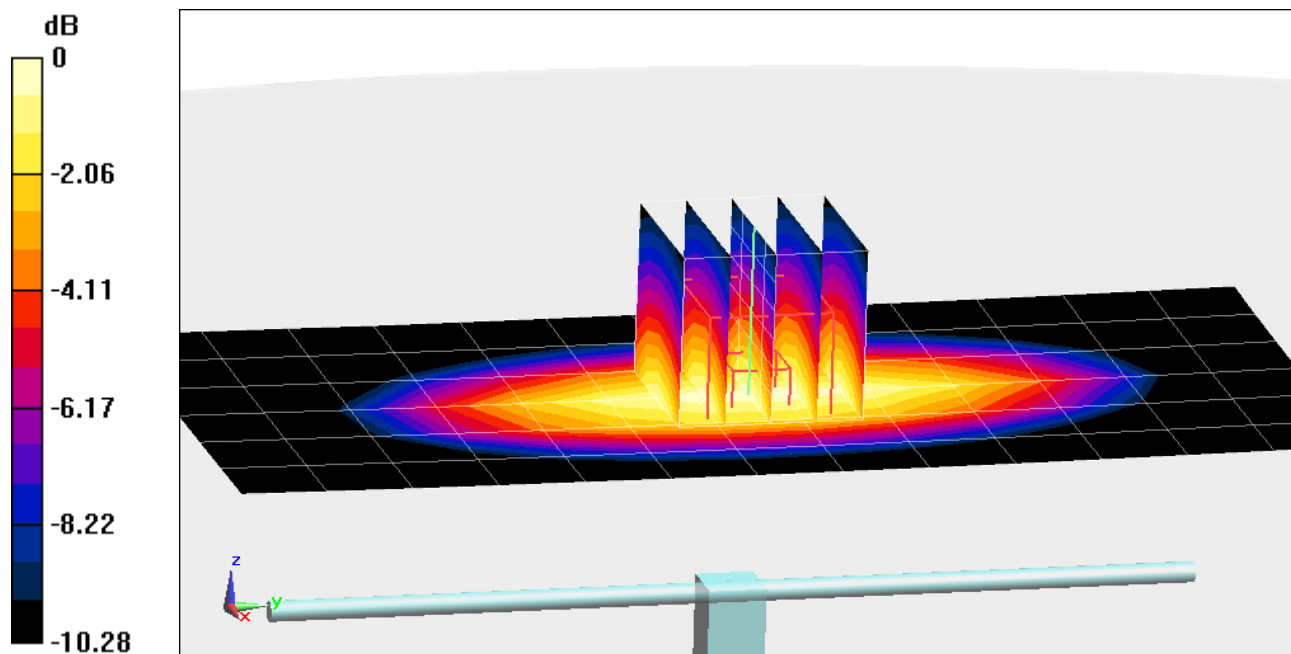
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 0.997 W/kg; SAR(10 g) = 0.658 W/kg

Deviation = 3.85 %



0 dB = 1.08 W/kg = 0.33 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.498 \text{ S/m}$; $\epsilon_r = 52.57$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 02-07-2013; Ambient Temp: 23.9°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3287; ConvF(4.86, 4.86, 4.86); Calibrated: 11/15/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/13/2012

Phantom: SAM with CRP; Type: SAM 4.0; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

1750 MHz System Verification

Area Scan (6x6x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

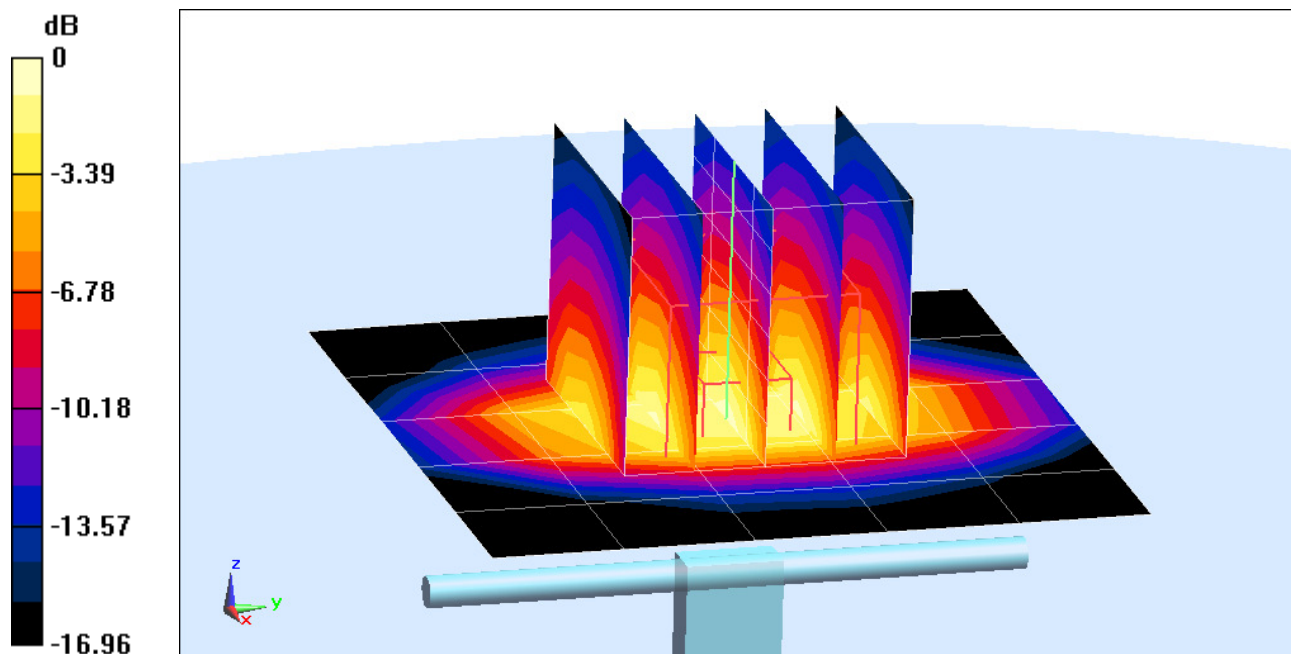
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 7.06 W/kg

SAR(1 g) = 3.95 W/kg; SAR(10 g) = 2.08 W/kg

Deviation = 5.61 %



0 dB = 4.45 W/kg = 6.48 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1051

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body, Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.471 \text{ S/m}$; $\epsilon_r = 52.747$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-08-2013; Ambient Temp: 24.8°C; Tissue Temp: 23.8°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/19/2012

Phantom: SAM Right; Type: QD000P40CD; Serial: 1686

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

1750 MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

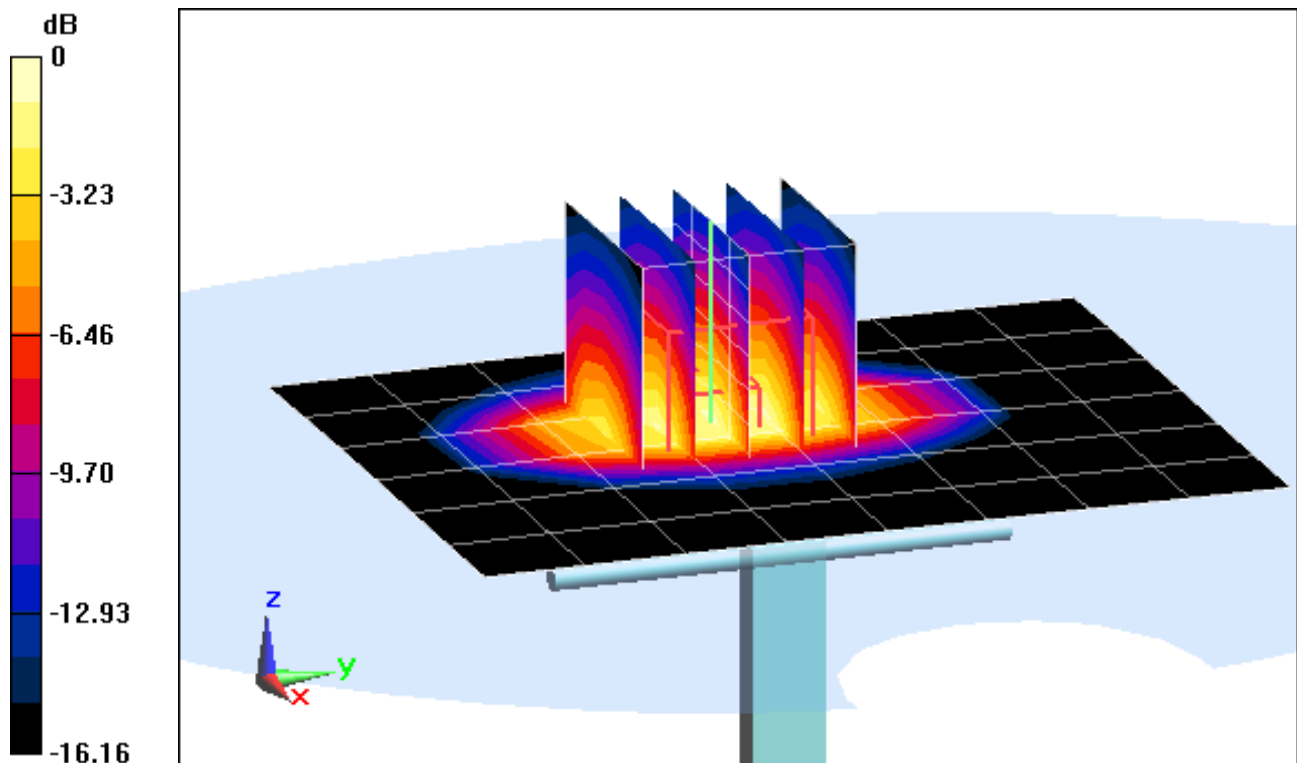
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 6.87 W/kg

SAR(1 g) = 3.92 W/kg; SAR(10 g) = 2.09 W/kg

Deviation = 4.26%



0 dB = 4.40 W/kg = 6.43 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d149

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body, Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.547 \text{ S/m}$; $\epsilon_r = 51.21$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-05-2013; Ambient Temp: 24.0°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3263; ConvF(4.76, 4.76, 4.76); Calibrated: 5/18/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 5/7/2012

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

1900 MHz System Verification

Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

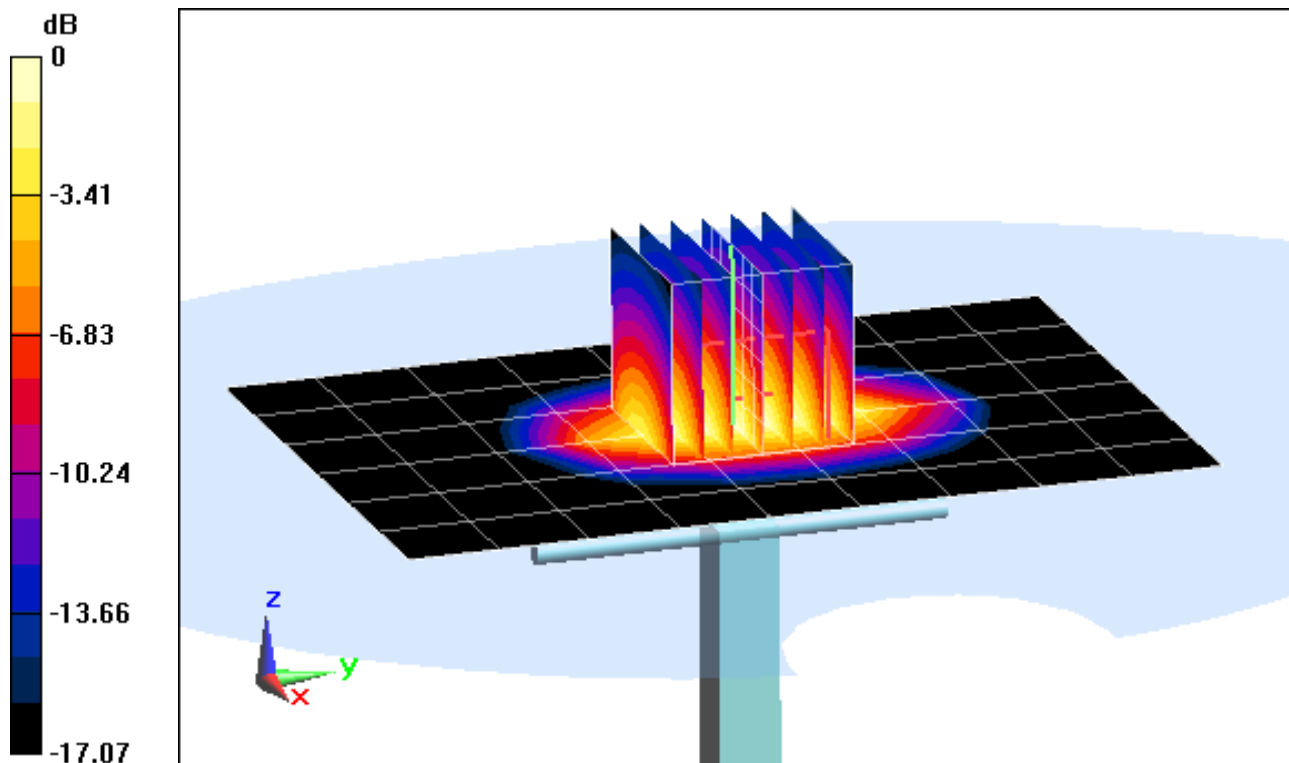
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 7.09 W/kg

SAR(1 g) = 3.92 W/kg; SAR(10 g) = 2.06 W/kg

Deviation = -0.25%



0 dB = 4.40 W/kg = 6.43 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body; Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.574 \text{ S/m}$; $\epsilon_r = 52.321$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-05-2013; Ambient Temp: 24.6°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN3920; ConvF(7.38, 7.38, 7.38); Calibrated: 2/27/2013;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/6/2013

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

1900 MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

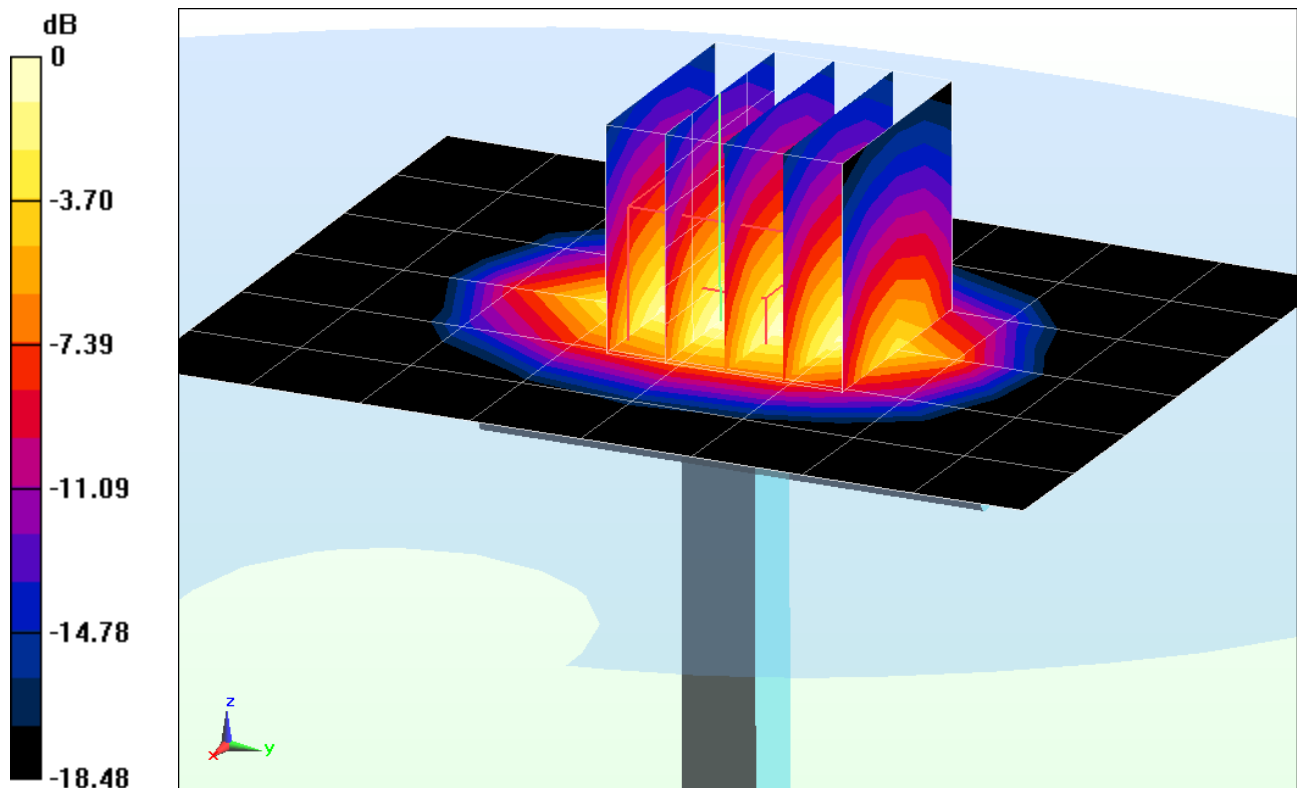
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 7.66 W/kg

SAR(1 g) = 4.16 W/kg; SAR(10 g) = 2.15 W/kg

Deviation = 1.96%



0 dB = 4.59 W/kg = 6.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 2450 MHz; Type: D2450V2; Serial: 719

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Body; Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.977 \text{ S/m}$; $\epsilon_r = 51.362$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-04-2013; Ambient Temp: 23.8°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3287; ConvF(4.29, 4.29, 4.29); Calibrated: 11/15/2012;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/13/2012

Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626

Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.8 (7028)

2450MHz System Verification

Area Scan (6x8x1): Measurement grid: dx=12mm, dy=12mm

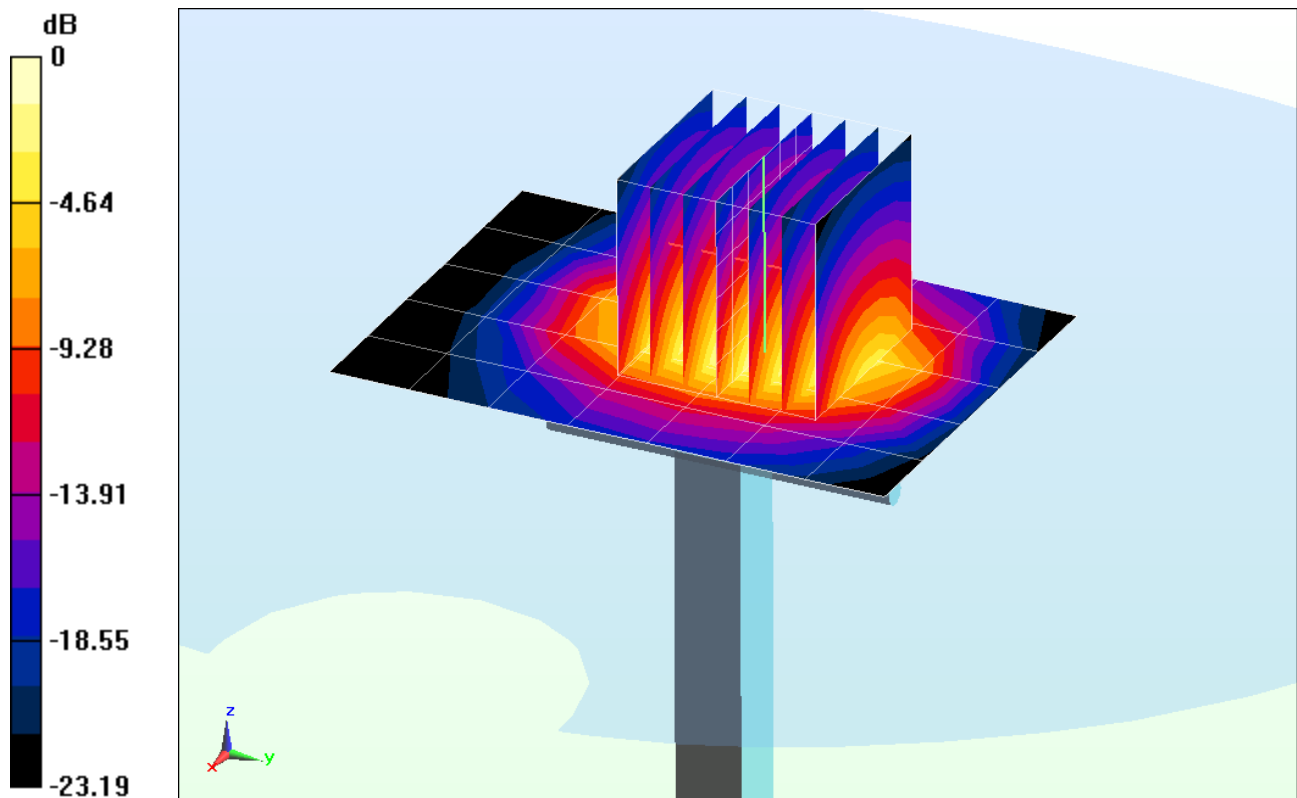
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 10.7 W/kg

SAR(1 g) = 4.91 W/kg; SAR(10 g) = 2.25 W/kg

Deviation = -4.84%



0 dB = 6.17 W/kg = 7.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1007

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5200 \text{ MHz}$; $\sigma = 5.106 \text{ S/m}$; $\epsilon_r = 47.54$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 02-06-2013; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: EX3DV4 - SN3589; ConvF(3.99, 3.99, 3.99); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

5200MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

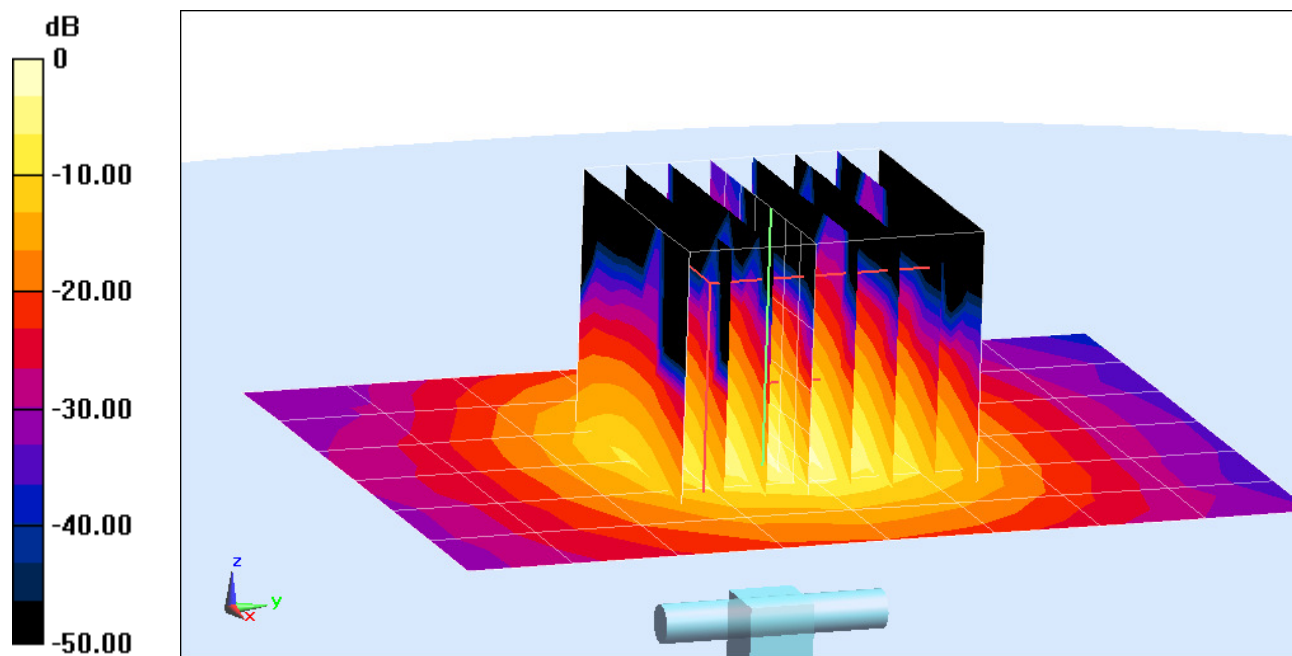
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$, Graded Ratio = 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 31.2 W/kg

SAR(1 g) = 6.83 W/kg; SAR(10 g) = 1.94 W/kg

Deviation = -6.82 %



0 dB = 15.3 W/kg = 11.85 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5300 MHz; Type: D5GHzV2; Serial: 1007

Communication System: CW; Frequency: 5300 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5300 \text{ MHz}$; $\sigma = 5.258 \text{ S/m}$; $\epsilon_r = 47.31$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 02-06-2013; Ambient Temp: 24.2°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3589; ConvF(3.81, 3.81, 3.81); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

5300MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm

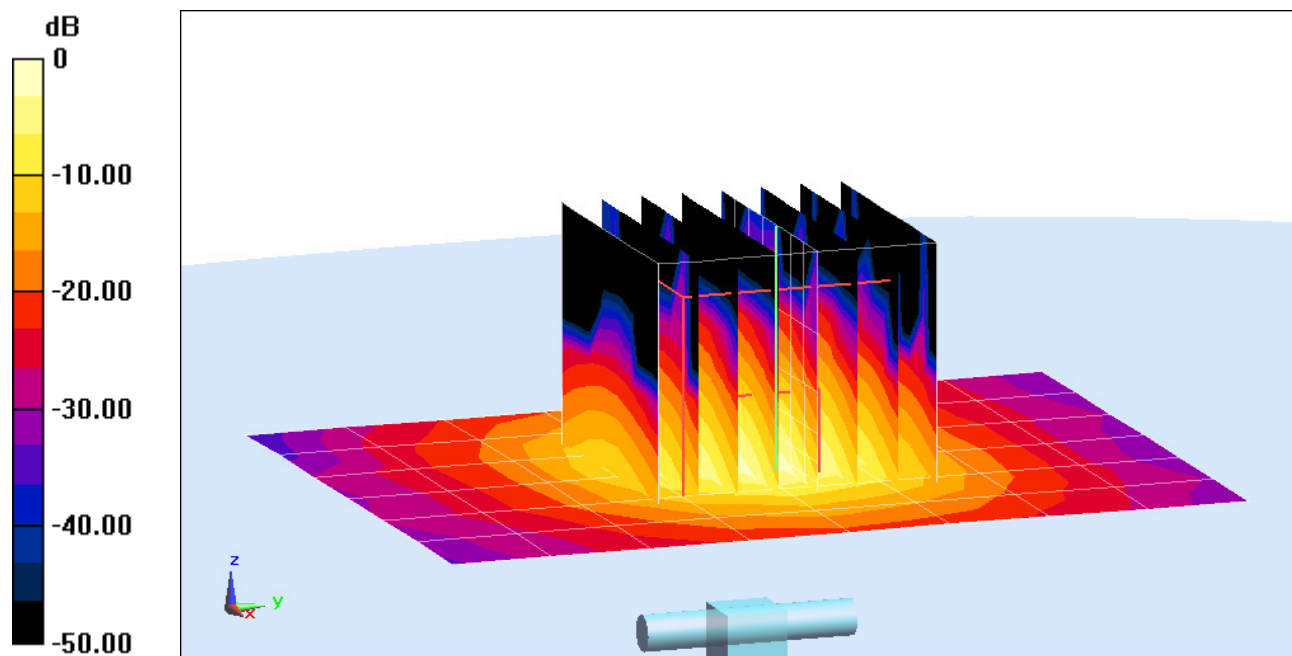
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm, Graded Ratio = 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 35.8 W/kg

SAR(1 g) = 7.08 W/kg; SAR(10 g) = 1.98 W/kg

Deviation = -6.35 %



0 dB = 16.6 W/kg = 12.20 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1007

Communication System: CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 5.551 \text{ S/m}$; $\epsilon_r = 46.84$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 02-06-2013; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: EX3DV4 - SN3589; ConvF(3.52, 3.52, 3.52); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

5500MHz System Verification

Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

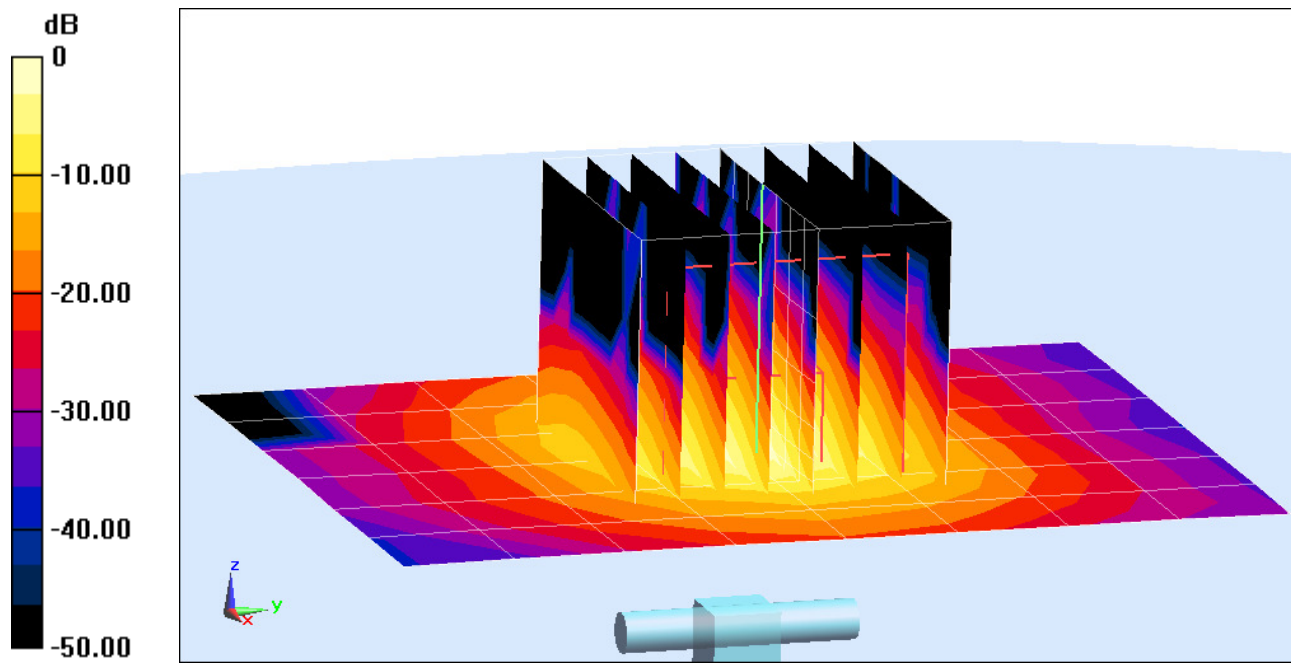
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$, Graded Ratio = 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 33.2 W/kg

SAR(1 g) = 7.58 W/kg; SAR(10 g) = 2.14 W/kg

Deviation = -3.44 %



0 dB = 18.5 W/kg = 12.67 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1007

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5800 \text{ MHz}$; $\sigma = 5.993 \text{ S/m}$; $\epsilon_r = 46.18$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 02-06-2013; Ambient Temp: 24.2°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3589; ConvF(3.66, 3.66, 3.66); Calibrated: 1/17/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/17/2013

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.8 (7028)

5800MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm

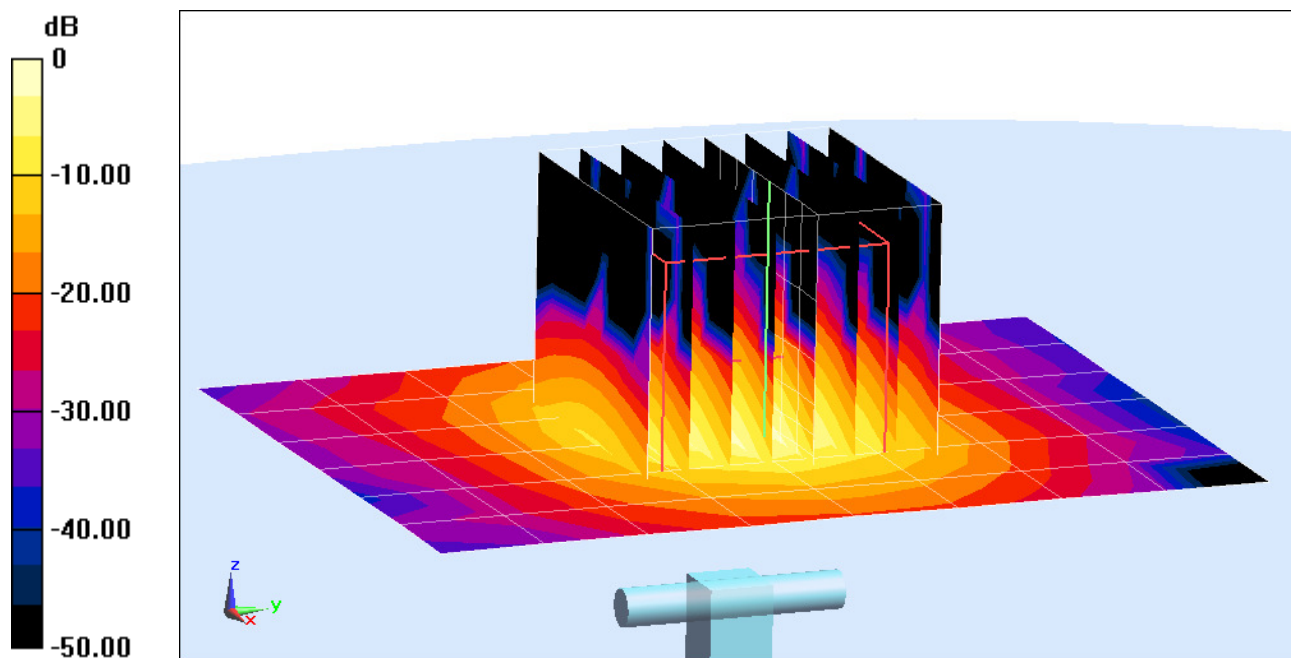
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm, Graded Ratio = 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 40.4 W/kg

SAR(1 g) = 7 W/kg; SAR(10 g) = 1.93 W/kg

Deviation = -5.79 %



0 dB = 16.9 W/kg = 12.28 dBW/kg