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SAR EVALUATION REPORT

Applicant Name:
Samsung Electronics Co., Ltd.
416, Maetan 3-dong, Yeongtong-gu, Suwon-si
Gyeonggi-do, 443-742
Republic of Korea

Date of Testing:
08/27/12 - 09/05/12
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
0Y1208281249-R1.A3L

FCC ID: **A3LSCHR950**

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

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model(s): SCH-R950

Band & Mode	Tx Frequency	Conducted Power [dBm]	SAR		
			1 gm Head (W/kg)	1 gm Body-Worn (W/kg)	1 gm Hotspot (W/kg)
Cell. CDMA/EVDO	824.70 - 848.31 MHz	24.38	0.22	0.50	0.51
AWS CDMA/EVDO	1711.25 - 1753.75 MHz	24.44	0.16	0.23	0.39
PCS CDMA/EVDO	1851.25 - 1908.75 MHz	24.44	0.17	0.43	0.43
LTE Band 12	701.5 - 713.5 MHz	23.48	<0.1	0.15	0.15
LTE Band 5 (Cell)	826.5 - 846.5 MHz	23.25	0.16	0.38	0.40
LTE Band 4 (AWS)	1712.5 - 1752.5 MHz	23.30	<0.1	0.15	0.17
LTE Band 2 (PCS)	1852.5 - 1907.5 MHz	23.44	0.15	0.18	0.28
2.4 GHz WLAN	2412 - 2462 MHz	14.99	<0.1	0.24	0.24
5.8 GHz WLAN	5745 - 5825 MHz	7.32	<0.1	<0.1	
5.2 GHz WLAN	5180 - 5240 MHz	8.40	<0.1	<0.1	
5.3 GHz WLAN	5260 - 5320 MHz	8.67	<0.1	<0.1	
5.5 GHz WLAN	5500 - 5700 MHz	8.60	<0.1	<0.1	
Bluetooth	2402 - 2480 MHz	7.85	N/A		
Simultaneous SAR per KDB 690783 D01:			0.41	1.12	1.12

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.

Note: This revised Test Report (S/N: 0Y1208281249-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 or destroy the previously issued test report(s) and dispose of it accordingly.

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in FCC/OET Bulletin 65 Supplement C (2001), IEEE 1528-2003 and in applicable Industry Canada Radio Standards Specifications (RSS); 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.

PCTEST certifies that no party to this application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

Randy Ortanez
President

ACCREDITED
TESTING LABORATORY
CERTIFICATE #2041.01

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Tx Frequency
Cell. CDMA/EVDO	824.70 - 848.31 MHz
AWS CDMA/EVDO	1711.25 - 1753.75 MHz
PCS CDMA/EVDO	1851.25 - 1908.75 MHz
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
2.4 GHz WLAN	2412 - 2462 MHz
5.8 GHz WLAN	5745 - 5825 MHz
5.2 GHz WLAN	5180 - 5240 MHz
5.3 GHz WLAN	5260 - 5320 MHz
5.5 GHz WLAN	5500 - 5700 MHz
Bluetooth	2402 - 2480 MHz
NFC	13.56 MHz

1.2 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the standard battery cover and will be the only battery cover available from the manufacturer for this model. Therefore all SAR tests were performed with the standard battery cover which already integrates the NFC antenna.

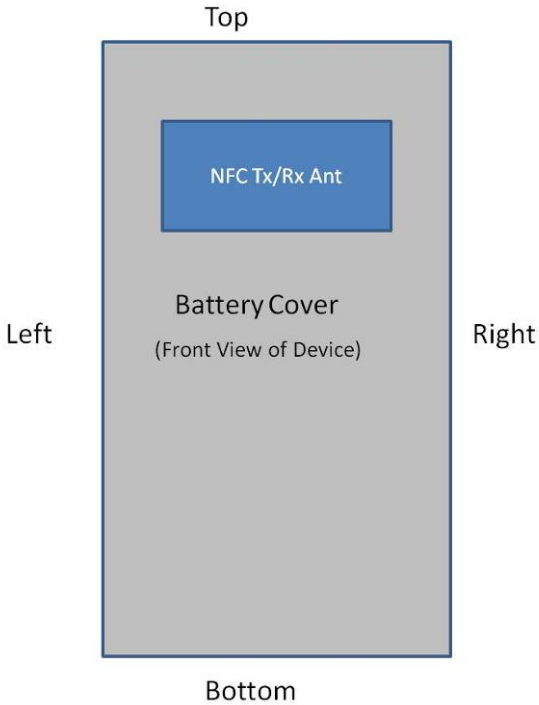


Figure 1-1
NFC Antenna Locations

1.3 DUT Antenna Locations

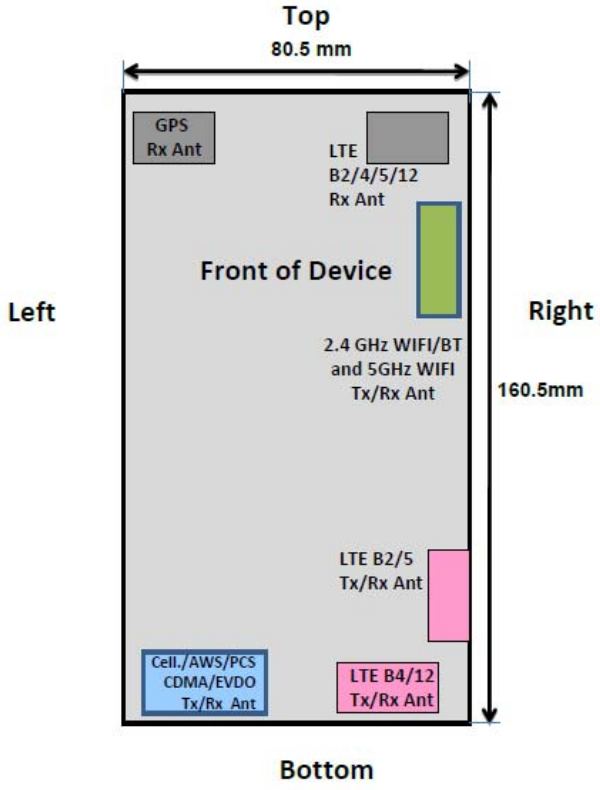


Figure 1-2
DUT Antenna Locations

Table 1-1
Mobile Hotspot Sides for SAR Testing

Mobile Hotspot Sides for SAR Testing						
Mode	Back	Front	Top	Bottom	Right	Left
Cell. CDMA/EVDO	Yes	Yes	No	Yes	No	Yes
AWS CDMA/EVDO	Yes	Yes	No	Yes	No	Yes
PCS CDMA/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	No	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 D06 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 Simultaneous Transmission Capabilities

According to KDB 648474, 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.

LTE Band 2/5 Antenna and LTE Band 4/12 Antenna share the same signal path and cannot transmit simultaneously.

Figure 1-3
Simultaneous Transmission Paths

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

Table 1-2
Simultaneous Transmission Scenarios Supported by DUT

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 850 Voice + LTE 700 MHz Data	√	√	N/A	SVLTE
2	1X CDMA 1700 Voice + LTE 700 MHz Data	√	√	N/A	SVLTE
3	1X CDMA 1900 Voice + LTE 700 MHz Data	√	√	N/A	SVLTE
4	1X CDMA 850 Voice + LTE 800 MHz Data	√	√	N/A	SVLTE
5	1X CDMA 1700 Voice + LTE 800 MHz Data	√	√	N/A	SVLTE
6	1X CDMA 1900 Voice + LTE 800 MHz Data	√	√	N/A	SVLTE
7	1X CDMA 850 Voice + LTE 1700 MHz Data	√	√	N/A	SVLTE
8	1X CDMA 1700 Voice + LTE 1700 MHz Data	√	√	N/A	SVLTE
9	1X CDMA 1900 Voice + LTE 1700 MHz Data	√	√	N/A	SVLTE
10	1X CDMA 850 Voice + LTE 1900 MHz Data	√	√	N/A	SVLTE
11	1X CDMA 1700 Voice + LTE 1900 MHz Data	√	√	N/A	SVLTE
12	1X CDMA 1900 Voice + LTE 1900 MHz Data	√	√	N/A	SVLTE
13	1X CDMA 850 Voice + LTE 700 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
14	1X CDMA 1700 Voice + LTE 700 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
15	1X CDMA 1900 Voice + LTE 700 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
16	1X CDMA 850 Voice + LTE 800 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
17	1X CDMA 1700 Voice + LTE 800 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
18	1X CDMA 1900 Voice + LTE 800 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
19	1X CDMA 850 Voice + LTE 1700 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
20	1X CDMA 1700 Voice + LTE 1700 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
21	1X CDMA 1900 Voice + LTE 1700 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
22	1X CDMA 850 Voice + LTE 1900 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
23	1X CDMA 1700 Voice + LTE 1900 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
24	1X CDMA 1900 Voice + LTE 1900 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
25	1X CDMA 850 Voice + 2.4 GHz WIFI	√	√	N/A	1X voice and WiFi Data
26	1X CDMA 1700 Voice + 2.4 GHz WIFI	√	√	N/A	1X voice and WiFi Data
27	1X CDMA 1900 Voice + 2.4 GHz WIFI	√	√	N/A	1X voice and WiFi Data
28	1X CDMA 850 Voice + 5 GHz WIFI	√	√	N/A	1X voice and WiFi Data
29	1X CDMA 1700 Voice + 5 GHz WIFI	√	√	N/A	1X voice and WiFi Data
30	1X CDMA 1900 Voice + 5 GHz WIFI	√	√	N/A	1X voice and WiFi Data
31	1X/EVDO 850 Data + 2.4 GHz WIFI	√	√	√	EVDO+WIFI Hotspot
32	1X/EVDO 1700 Data + 2.4 GHz WIFI	√	√	√	EVDO+WIFI Hotspot
33	1X/EVDO 1900 Data + 2.4 GHz WIFI	√	√	√	EVDO+WIFI Hotspot
34	LTE 700 MHz Data + 2.4 GHz WIFI	√	√	√	LTE+WIFI Hotspot
35	LTE 800 MHz Data + 2.4 GHz WIFI	√	√	√	LTE+WIFI Hotspot
36	LTE 1700 MHz Data + 2.4 GHz WIFI	√	√	√	LTE+WIFI Hotspot
37	LTE 1900 MHz Data + 2.4 GHz WIFI	√	√	√	LTE+WIFI Hotspot
38	LTE 700MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
39	LTE 800MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
40	LTE 1700MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
41	LTE 1800MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
42	1X/EVDO 850 Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
43	1X/EVDO 1700 Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
44	1X/EVDO 1900 Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
45	1X CDMA 850 Voice + LTE 700 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
46	1X CDMA 1700 Voice + LTE 700 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
47	1X CDMA 1900 Voice + LTE 700 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
48	1X CDMA 850 Voice + LTE 800 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
49	1X CDMA 1700 Voice + LTE 800 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
50	1X CDMA 1900 Voice + LTE 800 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
51	1X CDMA 850 Voice + LTE 1700 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
52	1X CDMA 1700 Voice + LTE 1700 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
53	1X CDMA 1900 Voice + LTE 1700 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
54	1X CDMA 850 Voice + LTE 1900 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
55	1X CDMA 1700 Voice + LTE 1900 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
56	1X CDMA 1900 Voice + LTE 1900 MHz Data + 5 GHz WIFI	N/A	N/A	N/A	5GHz WiFi Hotspot Not available by SW
57	1X CDMA 850 Voice + EVDO	N/A	N/A	N/A	Not available by HW (Non-SVDO)
58	1X CDMA 1700 Voice + EVDO	N/A	N/A	N/A	Not available by HW (Non-SVDO)
59	1X CDMA 1900 Voice + EVDO	N/A	N/A	N/A	Not available by HW (Non-SVDO)
60	850/1700 / 1900 EVDO data + LTE 700/800/1700/1900 MHz Data	N/A	N/A	N/A	Not available by SW

1.5 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 in KDB 941225 D06.

The separation between the LTE B2/5 antenna and the Bluetooth/WLAN antennas is 46.5 mm. The separation between the LTE B4/12 antenna and the Bluetooth/WLAN antennas is 85.4 mm. The separation between the CDMA/EVDO antenna and the Bluetooth/WLAN antennas is 105.2 mm.

RF Conducted Power of Bluetooth Tx is 6.095 mW (Please refer to the EMC DSS Report for a full set of Bluetooth conducted powers).

RF Conducted Power of 5GHz WLAN Tx is 7.413 mW. Although the maximum RF conducted power is less than 60/f, SAR testing was not required but additionally evaluated per manufacturer's request.

2.4 GHz and 5 GHz WIFI and Bluetooth share the same antenna path and cannot transmit simultaneously.

Per KDB Publication 648474, **Bluetooth SAR was not required** based on the maximum conducted power, the Bluetooth/WLAN to main antenna separation distance and Body-SAR of the main antenna.

This device supports 20 MHz and 40 MHz Bandwidths for IEEE 802.11n for 5 GHz WIFI only. 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 802.11a.

Per FCC Guidance, additional NFC SAR tests were not required due to the low output power of the transmitter.

(B) Licensed Transmitter(s)

LTE SAR for the lower BWs was not tested since the maximum average output power of all channels and configurations was not more than 0.5 dB higher than the highest bandwidth; and LTE SAR for the highest BW was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05.

1.6 Power Reduction for SAR

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

1.7 Guidance Applied

- FCC OET Bulletin 65 Supplement C [June 2001]
- IEEE 1528-2003
- FCC KDB 941225 (2G/3G/4G and Hotspot)
- FCC KDB 248227 (802.11)
- FCC KDB 648474 (Simultaneous)
- FCC KDB 865664 (5 GHz)

1.8 Samples Used for SAR Testing

Several samples were used to facilitate SAR Testing. All samples have the same physical, mechanical, and thermal characteristics and are within operational tolerances expected for production units.

Device Serial Number used for SAR Testing	Band/Mode
PCTEST_12	LTE Band 12
PCTEST_14	LTE Band 5
PCTEST_15	Cell./AWS/PCS CDMA/EVDO, 802.11a Head
PCTEST_16	LTE Band 2
PCTEST_17	LTE Band 4
PCTEST_19	802.11b, 802.11a Body-worn Accessory

2 LTE CHECKLIST PER KDB 941225 D05

KDB 941225 Pub LTE Information				
KDB 941225 Section	**FCC ID**	**A3LSCHR950**		
	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 17: 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 MHz (23035)	707 MHz (23095)	713.5 MHz (23155)
	LTE Band 12: 10 MHz	704 MHz (23060)	707 MHz (23095)	711 MHz (23130)
	LTE Band 5 (Cell): 5 MHz	826.5 MHz (20425)	836.5 MHz (20525)	846.5 MHz (20625)
	LTE Band 5 (Cell): 10 MHz	829 MHz (20450)	836.5 MHz (20525)	844 MHz (20600)
	LTE Band 4 (AWS): 5 MHz	1712.5 MHz (19975)	1732.5 MHz (20175)	1752.5 MHz (20375)
	LTE Band 4 (AWS): 10 MHz	1715 MHz (20000)	1732.5 MHz (20175)	1750 MHz (20350)
	LTE Band 2 (PCS): 5 MHz	1852.5 MHz (18625)	1880 MHz (18900)	1907.5 MHz (19175)
	LTE Band 2 (PCS): 10 MHz	1855 MHz (18650)	1880 MHz (18900)	1905 MHz (19150)
4)(a)	UE Category	3		
(b)	Modulations Supported in UL	QPSK, 16QAM		
	LTE Transmitter and Antenna Implementation	LTE and CDMA/EVDO operate on separate transmission paths.		
5)	Description of LTE Tx and Ant. Implementation	1 Tx/Rx Antenna for Band 2/5, 1 Tx/Rx Antenna for Band 4/12, and 1 Rx Only Antenna for all bands		
6)	LTE Voice available?	No		
	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)	See Section 10.2		
	A-MPR (Additional MPR) disabled for SAR Testing?	Yes		
8)	Conducted power Table provided for 1RB (low and high offset), 50% RB (centered), 100% RB	See Section 10.2		
9-10)	Non-LTE US Wireless Operating Modes/Band	RF Output Power	RF Exposure Configurations	
	Cell. CDMA/EVDO	See Page 1		
	AWS CDMA/EVDO			
	PCS CDMA/EVDO			
	2.4 GHz WLAN			
	5 GHz WLAN			
	Bluetooth			
11)	Simultaneous Tx Conditions (Voice and Data Configurations)	See Section 1.4		
12)	Power Reduction used for SAR Compliance?	No		
13)	Describe Power Reduction (LTE Modes)	N/A		
14)	SAR Test Plan	N/A		
15)	SAR test data	N/A		

3 INTRODUCTION

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 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/m^3)
E = Total RMS electric field strength (V/m)

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

4 SAR MEASUREMENT SETUP

4.1 Automated SAR Measurement System

Measurements are performed using the DASY automated dosimetric SAR assessment system. The DASY is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland and consists of a high precision robotics system (Staubli), robot controller, desktop computer, near-field probe, probe alignment sensor, and the SAM phantom containing the head or body equivalent material. The robot is a six-axis industrial robot, performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). See www.speag.com for more information about the specification of the SAR assessment system.

Figure 4-1
SAR Measurement System

Figure 4-2
Near-Field Probe

Table 4-1
Composition of the Tissue Equivalent Matter

Frequency (MHz)	750	750	835	835	1750	1750	1900	1900	2450	2450	5200-5800	5200-5800
Tissue	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Ingredients (% by weight)												
Bactericide	See Next Page		0.1	0.1								
DGBE					47	31	44.92	29.44	7.99	26.7		
HEC			1	1								
NaCl			1.45	0.94	0.4	0.2	0.18	0.39	0.16	0.1		
Sucrose			57	44.9								
Triton X-100									19.97		17.24	
Diethylenglycol monohexylether											17.24	
Polysorbate (Tween) 80												20
Water			40.45	53.06	52.6	68.8	54.9	70.17	71.88	73.2	65.52	80

Table 4-2
Composition of 750 MHz Head and Body Tissue Equivalent Matter

2 Composition / Information on ingredients	
The Item is composed of the following ingredients:	
H_2O	Water, 35 – 58%
Sucrose	Sugar, white, refined, 40 – 60%
NaCl	Sodium Chloride, 0 – 6%
Hydroxyethyl-cellulose	Medium Viscosity (CAS# 9004-62-0), <0.3%
Preventol-D7	Preservative: aqueous preparation, (CAS# 55965-84-9), containing 5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyyl-3(2H)-isothiazolone, 0.1 – 0.7% Relevant for safety; Refer to the respective Safety Data Sheet*.

Note: 750MHz liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

Measurement Certificate / Material Test

Item Name	**Body Tissue Simulating Liquid (MSL 750)**
Product No.	SL AAM 075 AA (Charge: 110606-1)
Manufacturer	SPEAG

Measurement Method

TSL dielectric parameters measured using calibrated OCP probe (type DAK).

Target Parameters

Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.

Test Condition

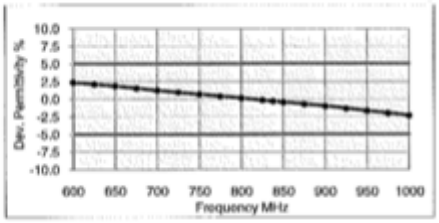
Ambient Condition	22°C ; 30% humidity
TSL Temperature	22°C
Test Date	8-Jun-11

Additional Information

TSL Density	1.212 g/cm³
TSL Heat-capacity	3.006 kJ/(kg*K)

Results

	Measured			Target		Diff.to Target [%]	
f [MHz]	HP-e'	HP-e"	sigma	eps	sigma	Δ-eps	Δ-sigma
600	57.4	24.88	0.83	56.1	0.95	2.4	-12.7
625	57.2	24.53	0.85	56.0	0.95	2.1	-10.6
650	57.0	24.18	0.87	55.9	0.96	1.8	-8.5
675	56.7	23.90	0.90	55.8	0.96	1.5	-6.3
700	56.4	23.61	0.92	55.7	0.96	1.2	-4.2
725	56.2	23.37	0.94	55.6	0.96	0.9	-2.0
750	55.9	23.12	0.96	55.5	0.96	0.7	0.1
775	55.7	22.95	0.99	55.4	0.97	0.4	2.5
800	55.4	22.78	1.01	55.3	0.97	0.1	4.6
825	55.2	22.61	1.04	55.2	0.98	-0.2	6.1
838	55.0	22.52	1.05	55.2	0.98	-0.3	6.7
850	54.9	22.44	1.06	55.2	0.99	-0.4	7.3
875	54.7	22.30	1.09	55.1	1.02	-0.7	6.5
900	54.5	22.17	1.11	55.0	1.05	-1.0	5.7
925	54.2	22.05	1.13	55.0	1.06	-1.3	6.8
950	54.0	21.94	1.16	54.9	1.08	-1.7	7.8
975	53.8	21.85	1.18	54.9	1.09	-2.0	9.0
1000	53.6	21.75	1.21	54.8	1.10	-2.3	10.2



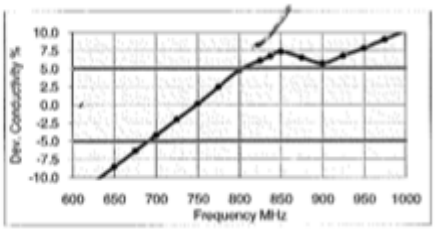


Figure 4-3
750MHz Body Tissue Equivalent Matter

Measurement Certificate / Material Test

Item Name	**Head Tissue Simulating Liquid (HSL 750)**
Product No.	SL AAH 075 (Charge: 110601-1)
Manufacturer	SPEAG

Measurement Method

TSL dielectric parameters measured using calibrated OCP probe (type DAK).

Target Parameters

Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.

Test Condition

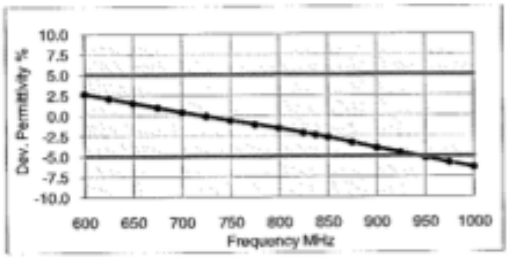
Ambient Condition	22°C ; 30% humidity
TSL Temperature	22°C
Test Date	8-Jun-11

Additional Information

TSL Density	1.284 g/cm^3
TSL Heat-capacity	2.701 kJ/(kg*K)

Results

	Measured			Target		Diff.to Target [%]	
f [MHz]	HP-e'	HP-e"	sigma	eps	sigma	Δ-eps	Δ-sigma
600	43.9	23.01	0.77	42.7	0.88	2.7	-12.9
625	43.5	22.75	0.79	42.6	0.88	2.1	-10.5
650	43.1	22.49	0.81	42.5	0.89	1.5	-8.2
675	42.7	22.26	0.84	42.3	0.89	1.0	-5.9
700	42.4	22.03	0.86	42.2	0.89	0.4	-3.5
725	42.0	21.84	0.88	42.1	0.89	-0.1	-1.2
750	**41.7**	**21.65**	**0.90**	**41.9**	**0.89**	**-0.6**	**1.1**
775	41.4	21.50	0.93	41.8	0.90	-1.1	3.5
800	41.0	21.34	0.95	41.7	0.90	-1.6	5.9
825	40.7	21.19	0.97	41.6	0.91	-2.1	7.3
838	40.5	21.12	0.98	41.5	0.91	-2.4	8.0
850	40.4	21.05	1.00	41.5	0.92	-2.7	8.6
875	40.1	20.91	1.02	41.5	0.94	-3.3	7.9
900	39.8	20.77	1.04	41.5	0.97	-4.0	7.2
925	39.6	20.66	1.06	41.5	0.98	-4.6	8.2
950	39.3	20.55	1.09	41.4	0.99	-5.2	9.2
975	39.0	20.44	1.11	41.4	1.00	-5.8	10.3
1000	38.7	20.32	1.13	41.3	1.01	-6.4	11.4



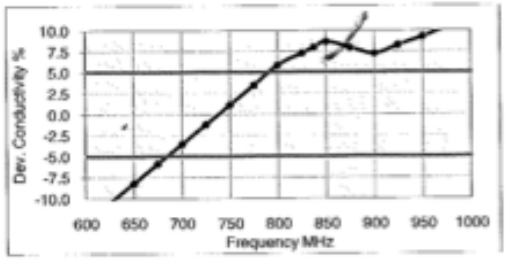


Figure 4-4
750MHz Head Tissue Equivalent Matter

5 DOSIMETRIC ASSESSMENT

5.1 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 interface and the horizontal grid resolution was 15mm and 15mm for frequencies < 3 GHz in the x and y directions respectively. When applicable, for frequencies above 3 GHz, a 10 mm by 10 mm resolution was used.
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 1 gram cube evaluation. SAR at this fixed point was measured and used as a reference value.

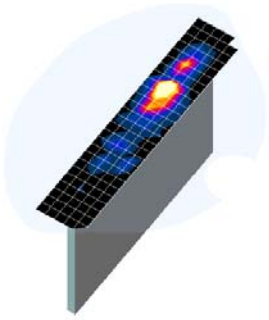


Figure 5-1
Sample SAR Area Scan

3. Based on the area scan data, the peak area of the maximum absorption was determined by spline interpolation. Around this point, a volume of 32mm x 32mm x 30mm (fine resolution volume scan, zoom scan) was assessed by measuring at least 5 x 5 x 7 points. On this 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.
5. For testing 5 GHz devices, finer resolution zoom scans were performed as specified by FCC SAR Measurement Requirements for 3 – 6 GHz, KDB 865664 publication. The 5 GHz zoom scan requires a minimum volume of 24mm x 24mm x 20mm and 7 x 7 x 11 points.

6 DEFINITION OF REFERENCE POINTS

6.1 EAR REFERENCE POINT

Figure 6-2 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 6-1. 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 6-2). 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].

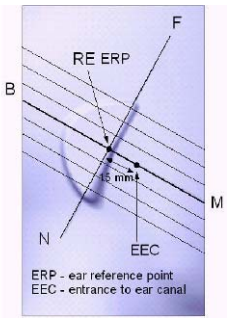


Figure 6-1
Close-Up Side view of ERP

6.2 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 6-3). The "test device reference point" was than located at the same level as the center of the ear reference point. The test device was positioned so that the "vertical centerline" was bisecting the front surface of the handset at it's 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.

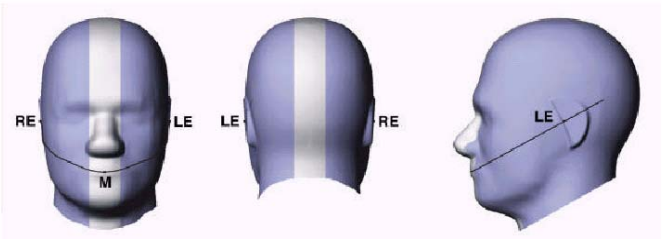


Figure 6-2
Front, back and side view of SAM Twin Phantom

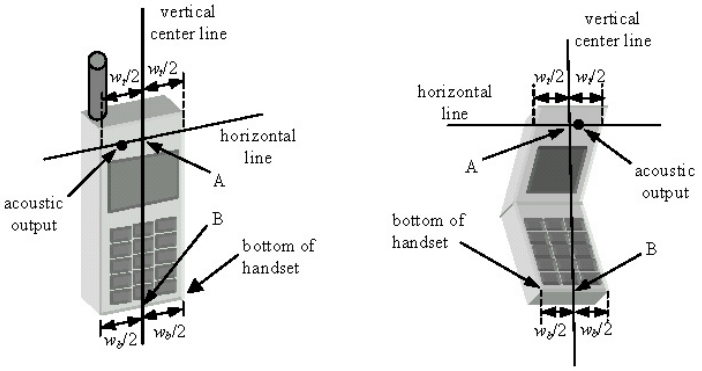


Figure 6-3
Handset Vertical Center & Horizontal Line Reference Points

7 TEST CONFIGURATION POSITIONS FOR HANDSETS

7.1 Device Holder

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

7.2 Positioning for Cheek/Touch

1. The test device was positioned with the handset 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 7-1), 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.

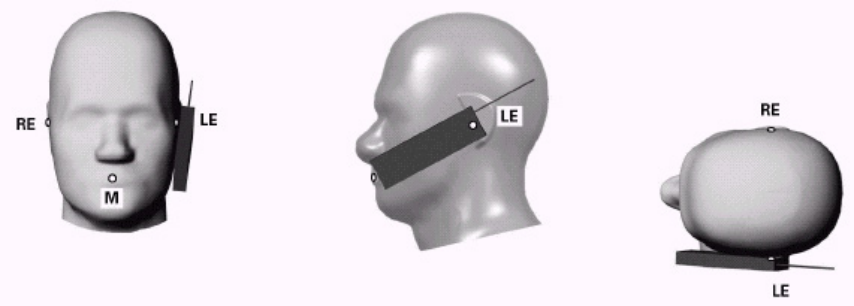


Figure 7-1 Front, Side and Top View of Cheek/Touch Position

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 was respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the phone contact with the ear, the handset was rotated about the line NF until any point on the handset made contact with a phantom point below the ear (cheek) (See Figure 7-2).

7.3 Positioning for Ear / 15º Tilt

With the test device aligned in the “Cheek/Touch 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 15degree.
2. The phone was then rotated around the horizontal line by 15 degree.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the phone touches 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 7-2).

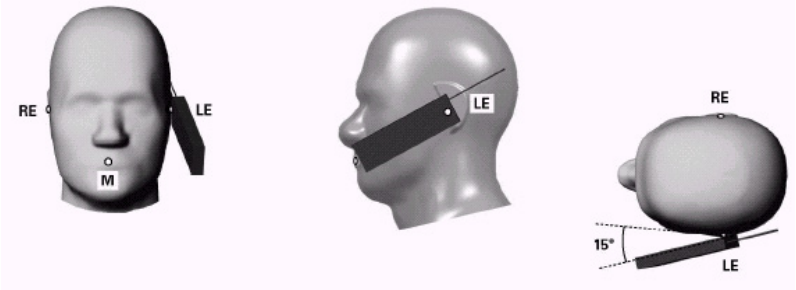


Figure 7-2 Front, Side and Top View of Ear/15º Tilt Position

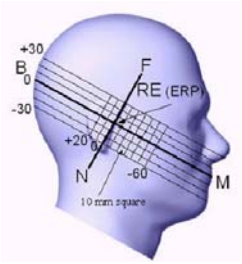


Figure 7-3
Side view w/ relevant markings

Figure 7-4 Body SAR Sample Photo
(Not Actual EUT)

7.4 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 publication 648474. The SAR required in these regions of SAM should be measured using a flat phantom. **Rectangular shaped phones** should be positioned with its bottom edge positioned from the flat phantom with the same distance provided by the cheek touching position using SAM. The ear reference point (ERP, as defined for SAM) of the phone should be positioned ½ cm from the flat phantom shell. **Clam-shell phones** should be positioned with the hinge against a smooth edge of the flat phantom where the upper half of the phone is unfolded and extended beyond the phantom side wall. The lower half of the phone is secured in the test device holder at a fixed distance below the flat phantom determined by the minimum separation along the lower edge of the phone in the cheek touching position using SAM. Any case with substantial variation in separation distance along the lower edge of a clam shell is discussed with the FCC for best-to-use methodology.

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.

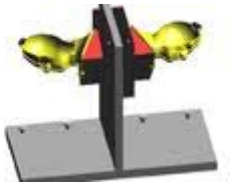


Figure 7-5 Twin SAM Chin20

7.5 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 7-4). A device with a headset output is tested with a headset connected to the device.

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.

7.6 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive internet connectivity through simultaneous transmission of WIFI in conjunction with a separate licensed transmitter. The FCC has provided guidance in KDB Publication 941225 D06 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front, back and edges of the device with antennas 2.5 cm or closer to the edge of the device, 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. Therefore, SAR must be evaluated for each frequency transmission and mode separately and summed with the WIFI transmitter according to KDB 648474 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.

8 FCC RF EXPOSURE LIMITS

8.1 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.

8.2 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 8-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *General Population* (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT *Occupational* (W/kg) or (mW/g)
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.

9 FCC MEASUREMENT PROCEDURES

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

9.1 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.

9.2 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.

9.2.1 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 9-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH_0 and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 9-2 was applied.
5. FCHs were configured at full rate for maximum SAR with "All Up" power control bits.

Table 9-1
Parameters for Max. Power for RC1

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

Table 9-2
Parameters for Max. Power for RC3

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

9.2.2 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 for

EVDO Rev A to determine VoIP compliance. See Section 9.2.5 for EVDO Rev A configuration parameters.

9.2.3 Body SAR Measurements

SAR for body exposure configurations is measured in RC3 with the DUT configured to transmit at full rate on FCH with all other code channels disabled using TDSO / SO32. SAR for multiple code channels (FCH + SCH_n) is not required when the maximum average output of each RF channel is less than ¼ dB higher than that measured with FCH only. Otherwise, SAR is measured on the maximum output channel (FCH + SCH_n) with FCH at full rate and SCH_0 enabled at 9600 bps using the exposure configuration that results in the highest SAR for that channel with FCH only. When multiple code channels are enabled, the DUT output may shift by more than 0.5 dB and lead to higher SAR drifts and SCH dropouts. Body SAR was measured using TDSO / SO32 with power control bits in the "All Up"

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

9.2.4 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.

9.2.5 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. Both FTAP and FETAP are configured with a Forward Traffic Channel data rate corresponding to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots. AT power control should be in "All Bits Up" conditions for TAP/ETAP

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.

9.3 SAR Measurement Conditions for LTE

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes following 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.

9.3.1 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. See Section 10.2 for MPR targets.

9.3.2 A-MPR

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

9.3.3 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05:

a. Per Page 4, 3) A), QPSK with 50% RB is required for the highest bandwidth.
b. Per Page 4, footnote 2, when the maximum output power deviation across high, mid., and low channels is < 0.5 dB, mid channel is tested. Otherwise, the highest output power channel is tested. Other channels SAR tests are not required for QPSK, 50% RB allocation when the SAR is < 0.8 W/kg.
c. Per Page 4, 3) B), QPSK with 1 RB for both channel edges are required for the highest bandwidth.
d. Per Page 4, footnote 6, QPSK 1 RB allocation SAR tests were performed on the highest output power channel for the RB allocation when the average output power of the 1 RB allocation was > 0.5 dB higher than the 50% RB allocation for QPSK. Otherwise, SAR tests are performed on the channel that produced the highest SAR for QPSK with 50% RB. Per Page 4, 3) B), QPSK with 1 RB for both channel edges are considered for a single channel selection.
e. Per Page 4, 3) B), I), when the SAR for QPSK 1 RB allocation tests is <1.45 W/kg, testing on the other channels is not required.
f. Per Page 4, 4) A), 16QAM with 50% RB is required for the highest bandwidth on the channel with the highest measured SAR for QPSK with 50% RB allocation.
g. Per Page 4, 4) A), I), when the SAR for 16 QAM, 50 % allocation tests is <1.45 W/kg, testing on the other channels is not required.
h. Per Page 4, 4) B) and Page 5 footnote 9, 16QAM with 1RB for both channel edges are required for the highest bandwidth on the highest output power channel for the 1 RB allocation when the average output power of the 1 RB allocation is >0.5 dB higher than the 50% allocation for 16 QAM. Otherwise, SAR tests are performed on the channel that produced the highest SAR for 16 QAM with 50% RB. Per Page 4, 3) B), QPSK with 1 RB for both channel edges are considered for a single channel selection.
i. Per Page 5, 4) B), I), when the SAR for 16 QAM 1 RB allocation tests is <1.45 W/kg, testing on the other channels is not required.
j. Per Page 4, 4), A) I) and Page 5, 4), A)I, 100% RB Allocation is not required to be tested when the SAR is not > 1.45 W/kg for the highest bandwidth.
k. Per Page 5, 5) B) I), smaller bandwidths are not required to be tested when SAR is not > 1.45 W/kg for the highest bandwidth and the maximum average output power of the

smaller bandwidths across all channels and configurations is not more than 0.5 dB higher than the higher bandwidths.

9.4 SAR Testing with 802.11 Transmitters

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

9.4.1 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.

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

10 RF CONDUCTED POWERS

10.1 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	24.56	24.45	24.42	24.44	24.36	24.34
	384	836.52	24.45	24.31	24.31	24.35	24.38	24.37
	777	848.31	24.48	24.32	24.32	24.34	24.31	24.30
AWS	25	1711.25	24.46	24.39	24.37	24.38	24.34	24.33
	450	1732.5	24.56	24.44	24.42	24.43	24.44	24.42
	875	1753.75	24.55	24.41	24.31	24.42	24.45	24.43
PCS	25	1851.25	24.57	24.47	24.45	24.45	24.50	24.46
	600	1880	24.55	24.43	24.42	24.41	24.44	24.32
	1175	1908.75	24.54	24.41	24.40	24.41	24.42	24.35

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

Per KDB Publication 941225 D01:
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. According to FCC KDB 941225, EVDO SAR (Hotspot) is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. When the maximum output power of Rev. A for each channel is greater than the Rev.0 power, Rev. A must additionally be tested using the highest output channel for the configuration that resulted in the highest SAR for Rev.0.
4. CDMA 1x-RTT SAR was additionally required to be evaluated for Hotspot exposure conditions to support simultaneous capabilities per Table 1-2.

VoIP Testing per KDB Publication 941225:
1. Head SAR was additionally evaluated for EVDO Rev A to determine SAR compliance for VoIP over EVDO.

Figure 10-1
Power Measurement Setup

10.2 LTE Conducted Powers

10.2.1 LTE Band 12

Table 10-1
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	22.97	0	0
	701.5	23035	5	QPSK	1	24	23.33	0	0
	701.5	23035	5	QPSK	12	6	22.46	1	0-1
	701.5	23035	5	QPSK	25	0	21.91	1	0-1
	701.5	23035	5	16-QAM	1	0	22.30	1	0-1
	701.5	23035	5	16-QAM	1	24	22.40	1	0-1
	701.5	23035	5	16-QAM	12	6	21.44	2	0-2
	701.5	23035	5	16-QAM	25	0	20.95	2	0-2
Mid	707.5	23095	5	QPSK	1	0	23.16	0	0
	707.5	23095	5	QPSK	1	24	23.40	0	0
	707.5	23095	5	QPSK	12	6	22.33	1	0-1
	707.5	23095	5	QPSK	25	0	22.13	1	0-1
	707.5	23095	5	16-QAM	1	0	22.48	1	0-1
	707.5	23095	5	16-QAM	1	24	22.31	1	0-1
	707.5	23095	5	16-QAM	12	6	21.37	2	0-2
	707.5	23095	5	16-QAM	25	0	21.24	2	0-2
High	713.5	23155	5	QPSK	1	0	23.08	0	0
	713.5	23155	5	QPSK	1	24	22.88	0	0
	713.5	23155	5	QPSK	12	6	21.90	1	0-1
	713.5	23155	5	QPSK	25	0	21.91	1	0-1
	713.5	23155	5	16-QAM	1	0	22.31	1	0-1
	713.5	23155	5	16-QAM	1	24	22.26	1	0-1
	713.5	23155	5	16-QAM	12	6	21.13	2	0-2
	713.5	23155	5	16-QAM	25	0	20.99	2	0-2

Table 10-2
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]
Low	704	23060	10	QPSK	1	0	**22.96**	0	0
	704	23060	10	QPSK	1	49	**23.48**	0	0
	704	23060	10	QPSK	25	12	22.13	1	0-1
	704	23060	10	QPSK	50	0	22.35	1	0-1
	704	23060	10	16QAM	1	0	**21.60**	1	0-1
	704	23060	10	16QAM	1	49	**22.20**	1	0-1
	704	23060	10	16QAM	25	12	21.19	2	0-2
	704	23060	10	16QAM	50	0	21.30	2	0-2
Mid	707.5	23095	10	QPSK	1	0	23.37	0	0
	707.5	23095	10	QPSK	1	49	23.45	0	0
	707.5	23095	10	QPSK	25	12	**22.17**	1	0-1
	707.5	23095	10	QPSK	50	0	21.98	1	0-1
	707.5	23095	10	16QAM	1	0	21.95	1	0-1
	707.5	23095	10	16QAM	1	49	22.01	1	0-1
	707.5	23095	10	16QAM	25	12	**21.29**	2	0-2
	707.5	23095	10	16QAM	50	0	21.02	2	0-2
High	711	23130	10	QPSK	1	0	23.43	0	0
	711	23130	10	QPSK	1	49	22.69	0	0
	711	23130	10	QPSK	25	12	22.12	1	0-1
	711	23130	10	QPSK	50	0	21.96	1	0-1
	711	23130	10	16QAM	1	0	22.16	1	0-1
	711	23130	10	16QAM	1	49	21.68	1	0-1
	711	23130	10	16QAM	25	12	21.02	2	0-2
	711	23130	10	16QAM	50	0	20.94	2	0-2

Note:
1. Please refer to Section 9.3.3 for LTE testing requirement per FCC KDB 941225 D05.
2. The bolded powers were tested for SAR.

10.2.2 LTE Band 5 (Cell)

Table 10-3
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	22.99	0	0
	826.5	20425	5	QPSK	1	24	23.01	0	0
	826.5	20425	5	QPSK	12	6	22.21	1	0-1
	826.5	20425	5	QPSK	25	0	22.01	1	0-1
	826.5	20425	5	16-QAM	1	0	22.32	1	0-1
	826.5	20425	5	16-QAM	1	24	22.37	1	0-1
	826.5	20425	5	16-QAM	12	6	21.00	2	0-2
	826.5	20425	5	16-QAM	25	0	21.05	2	0-2
Mid	836.5	20525	5	QPSK	1	0	23.01	0	0
	836.5	20525	5	QPSK	1	24	23.05	0	0
	836.5	20525	5	QPSK	12	6	21.95	1	0-1
	836.5	20525	5	QPSK	25	0	21.89	1	0-1
	836.5	20525	5	16-QAM	1	0	21.97	1	0-1
	836.5	20525	5	16-QAM	1	24	21.88	1	0-1
	836.5	20525	5	16-QAM	12	6	20.98	2	0-2
	836.5	20525	5	16-QAM	25	0	20.90	2	0-2
High	846.5	20625	5	QPSK	1	0	23.45	0	0
	846.5	20625	5	QPSK	1	24	23.24	0	0
	846.5	20625	5	QPSK	12	6	22.38	1	0-1
	846.5	20625	5	QPSK	25	0	22.20	1	0-1
	846.5	20625	5	16-QAM	1	0	22.01	1	0-1
	846.5	20625	5	16-QAM	1	24	21.95	1	0-1
	846.5	20625	5	16-QAM	12	6	21.30	2	0-2
	846.5	20625	5	16-QAM	25	0	21.08	2	0-2

Table 10-4
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]
Low	829	20450	10	QPSK	1	0	23.15	0	0
	829	20450	10	QPSK	1	49	23.07	0	0
	829	20450	10	QPSK	25	12	22.08	1	0-1
	829	20450	10	QPSK	50	0	21.99	1	0-1
	829	20450	10	16QAM	1	0	**22.10**	1	0-1
	829	20450	10	16QAM	1	49	**22.13**	1	0-1
	829	20450	10	16QAM	25	12	21.13	2	0-2
	829	20450	10	16QAM	50	0	21.01	2	0-2
Mid	836.5	20525	10	QPSK	1	0	**23.25**	0	0
	836.5	20525	10	QPSK	1	49	**23.21**	0	0
	836.5	20525	10	QPSK	25	12	**21.80**	1	0-1
	836.5	20525	10	QPSK	50	0	21.89	1	0-1
	836.5	20525	10	16QAM	1	0	21.76	1	0-1
	836.5	20525	10	16QAM	1	49	21.76	1	0-1
	836.5	20525	10	16QAM	25	12	**20.89**	2	0-2
	836.5	20525	10	16QAM	50	0	20.86	2	0-2
High	844	20600	10	QPSK	1	0	23.11	0	0
	844	20600	10	QPSK	1	49	23.01	0	0
	844	20600	10	QPSK	25	12	22.17	1	0-1
	844	20600	10	QPSK	50	0	22.10	1	0-1
	844	20600	10	16QAM	1	0	22.10	1	0-1
	844	20600	10	16QAM	1	49	22.08	1	0-1
	844	20600	10	16QAM	25	12	21.10	2	0-2
	844	20600	10	16QAM	50	0	21.12	2	0-2

Note:

1. Please refer to Section 9.3.3 for LTE testing requirement per FCC KDB 941225 D05.
2. The bolded powers were tested for SAR.

10.2.3 LTE Band 4 (AWS)

Table 10-5
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	23.14	0	0
	1712.5	19975	5	QPSK	1	24	23.27	0	0
	1712.5	19975	5	QPSK	12	6	22.19	1	0-1
	1712.5	19975	5	QPSK	25	0	22.04	1	0-1
	1712.5	19975	5	16-QAM	1	0	22.10	1	0-1
	1712.5	19975	5	16-QAM	1	24	22.30	1	0-1
	1712.5	19975	5	16-QAM	12	6	21.00	2	0-2
	1712.5	19975	5	16-QAM	25	0	20.97	2	0-2
Mid	1732.5	20175	5	QPSK	1	0	22.77	0	0
	1732.5	20175	5	QPSK	1	24	22.82	0	0
	1732.5	20175	5	QPSK	12	6	21.75	1	0-1
	1732.5	20175	5	QPSK	25	0	21.60	1	0-1
	1732.5	20175	5	16-QAM	1	0	21.77	1	0-1
	1732.5	20175	5	16-QAM	1	24	21.85	1	0-1
	1732.5	20175	5	16-QAM	12	6	20.67	2	0-2
	1732.5	20175	5	16-QAM	25	0	20.53	2	0-2
High	1752.5	20375	5	QPSK	1	0	23.35	0	0
	1752.5	20375	5	QPSK	1	24	23.30	0	0
	1752.5	20375	5	QPSK	12	6	22.38	1	0-1
	1752.5	20375	5	QPSK	25	0	22.42	1	0-1
	1752.5	20375	5	16-QAM	1	0	22.42	1	0-1
	1752.5	20375	5	16-QAM	1	24	22.45	1	0-1
	1752.5	20375	5	16-QAM	12	6	21.31	2	0-2
	1752.5	20375	5	16-QAM	25	0	21.22	2	0-2

Table 10-6
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	23.14	0	0
	1715	20000	10	QPSK	1	49	23.04	0	0
	1715	20000	10	QPSK	25	12	22.08	1	0-1
	1715	20000	10	QPSK	50	0	21.91	1	0-1
	1715	20000	10	16QAM	1	0	22.44	1	0-1
	1715	20000	10	16QAM	1	49	22.33	1	0-1
	1715	20000	10	16QAM	25	12	21.12	2	0-2
	1715	20000	10	16QAM	50	0	20.80	2	0-2
Mid	1732.5	20175	10	QPSK	1	0	22.85	0	0
	1732.5	20175	10	QPSK	1	49	22.84	0	0
	1732.5	20175	10	QPSK	25	12	21.75	1	0-1
	1732.5	20175	10	QPSK	50	0	21.67	1	0-1
	1732.5	20175	10	16QAM	1	0	22.12	1	0-1
	1732.5	20175	10	16QAM	1	49	22.05	1	0-1
	1732.5	20175	10	16QAM	25	12	20.76	2	0-2
	1732.5	20175	10	16QAM	50	0	20.53	2	0-2
High	1750	20350	10	QPSK	1	0	**23.30**	0	0
	1750	20350	10	QPSK	1	49	**23.25**	0	0
	1750	20350	10	QPSK	25	12	**22.35**	1	0-1
	1750	20350	10	QPSK	50	0	22.14	1	0-1
	1750	20350	10	16QAM	1	0	**22.50**	1	0-1
	1750	20350	10	16QAM	1	49	**22.44**	1	0-1
	1750	20350	10	16QAM	25	12	**21.37**	2	0-2
	1750	20350	10	16QAM	50	0	21.05	2	0-2

Note:
1. Please refer to Section 9.3.3 for LTE testing requirement per FCC KDB 941225 D05.
2. The bolded powers were tested for SAR.

10.2.4 LTE Band 2 (PCS)

Table 10-7
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	23.00	0	0
	1852.5	18625	5	QPSK	1	24	22.86	0	0
	1852.5	18625	5	QPSK	12	6	21.82	1	0-1
	1852.5	18625	5	QPSK	25	0	21.78	1	0-1
	1852.5	18625	5	16-QAM	1	0	21.81	1	0-1
	1852.5	18625	5	16-QAM	1	24	21.95	1	0-1
	1852.5	18625	5	16-QAM	12	6	20.62	2	0-2
	1852.5	18625	5	16-QAM	25	0	20.71	2	0-2
Mid	1880.0	18900	5	QPSK	1	0	22.65	0	0
	1880.0	18900	5	QPSK	1	24	23.08	0	0
	1880.0	18900	5	QPSK	12	6	22.18	1	0-1
	1880.0	18900	5	QPSK	25	0	22.23	1	0-1
	1880.0	18900	5	16-QAM	1	0	21.75	1	0-1
	1880.0	18900	5	16-QAM	1	24	22.09	1	0-1
	1880.0	18900	5	16-QAM	12	6	20.97	2	0-2
	1880.0	18900	5	16-QAM	25	0	21.04	2	0-2
High	1907.5	19175	5	QPSK	1	0	22.69	0	0
	1907.5	19175	5	QPSK	1	24	23.10	0	0
	1907.5	19175	5	QPSK	12	6	21.82	1	0-1
	1907.5	19175	5	QPSK	25	0	21.70	1	0-1
	1907.5	19175	5	16-QAM	1	0	21.82	1	0-1
	1907.5	19175	5	16-QAM	1	24	22.23	1	0-1
	1907.5	19175	5	16-QAM	12	6	20.93	2	0-2
	1907.5	19175	5	16-QAM	25	0	20.84	2	0-2

Table 10-8
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	23.00	0	0
	1855	18650	10	QPSK	1	49	22.73	0	0
	1855	18650	10	QPSK	25	12	21.82	1	0-1
	1855	18650	10	QPSK	50	0	21.67	1	0-1
	1855	18650	10	16QAM	1	0	22.07	1	0-1
	1855	18650	10	16QAM	1	49	21.64	1	0-1
	1855	18650	10	16QAM	25	12	20.81	2	0-2
	1855	18650	10	16QAM	50	0	20.72	2	0-2
Mid	1880.0	18900	10	QPSK	1	0	**22.51**	0	0
	1880.0	18900	10	QPSK	1	49	**23.44**	0	0
	1880.0	18900	10	QPSK	25	12	**22.14**	1	0-1
	1880.0	18900	10	QPSK	50	0	21.89	1	0-1
	1880.0	18900	10	16QAM	1	0	**21.75**	1	0-1
	1880.0	18900	10	16QAM	1	49	**22.48**	1	0-1
	1880.0	18900	10	16QAM	25	12	**21.18**	2	0-2
	1880.0	18900	10	16QAM	50	0	20.85	2	0-2
High	1905	19150	10	QPSK	1	0	22.70	0	0
	1905	19150	10	QPSK	1	49	23.30	0	0
	1905	19150	10	QPSK	25	12	21.66	1	0-1
	1905	19150	10	QPSK	50	0	21.60	1	0-1
	1905	19150	10	16QAM	1	0	21.73	1	0-1
	1905	19150	10	16QAM	1	49	22.38	1	0-1
	1905	19150	10	16QAM	25	12	20.78	2	0-2
	1905	19150	10	16QAM	50	0	20.54	2	0-2

Note:

1. Please refer to Section 9.3.3 for LTE testing requirement per FCC KDB 941225 D05.
2. The bolded powers were tested for SAR.

Figure 10-2
Power Measurement Setup

10.3 WLAN Conducted Powers

Table 10-9
IEEE 802.11b Average RF Power

Mode	Freq [MHz]	Channel	Conducted Power [dBm] Data Rate [Mbps]			
			1	2	5.5	11
802.11b	2412	1	14.24	14.33	14.33	14.33
802.11b	2437	6	14.71	14.75	14.79	14.78
802.11b	2462	11	**14.99**	15.00	15.06	15.01

Table 10-10
IEEE 802.11g Average RF Power

Mode	Freq [MHz]	Channel	Conducted Power [dBm] Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11g	2412	1	13.22	13.24	13.24	13.23	13.24	13.26	13.28	13.24
802.11g	2437	6	13.67	13.64	13.65	13.64	13.74	13.66	13.70	13.69
802.11g	2462	11	13.92	13.93	13.92	13.95	13.94	13.92	13.85	13.91

Table 10-11
IEEE 802.11n Average RF Power

Mode	Freq [MHz]	Channel	Conducted Power [dBm] Data Rate [Mbps]							
			6.5	13	20	26	39	52	58	65
802.11n	2412	1	11.07	11.19	11.08	11.08	11.11	11.09	11.14	11.08
802.11n	2437	6	11.50	11.52	11.53	11.49	11.52	11.55	11.54	11.53
802.11n	2462	11	11.77	11.82	11.78	11.70	11.78	11.75	11.78	11.79

Table 10-12
IEEE 802.11a Average RF Power

Mode	Freq [MHz]	Channel	Conducted Power [dBm] Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11a	5180	36*	8.28	8.36	8.29	8.30	8.34	8.36	8.29	8.28
802.11a	5200	40	8.34	8.38	8.33	8.37	8.37	8.35	8.31	8.38
802.11a	5220	44	8.26	8.31	8.29	8.33	8.30	8.31	8.32	8.30
802.11a	5240	48*	**8.40**	8.47	8.41	8.43	8.43	8.46	8.46	8.40
802.11a	5260	52*	8.45	8.47	8.44	8.47	8.50	8.45	8.44	8.44
802.11a	5280	56	8.51	8.53	8.51	8.56	8.51	8.50	8.57	8.57
802.11a	5300	60	8.61	8.60	8.58	8.63	8.64	8.58	8.61	8.61
802.11a	5320	64*	**8.67**	8.65	8.64	8.67	8.70	8.64	8.65	8.69
802.11a	5500	100	8.48	8.48	8.51	8.47	8.47	8.45	8.51	8.52
802.11a	5520	104*	**8.60**	8.57	8.58	8.59	8.64	8.61	8.59	8.63
802.11a	5540	108	8.54	8.57	8.53	8.58	8.55	8.57	8.54	8.58
802.11a	5560	112	8.47	8.50	8.49	8.49	8.47	8.52	8.53	8.46
802.11a	5580	116*	8.40	8.41	8.39	8.42	8.43	8.42	8.39	8.43
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	8.15	8.11	8.14	8.13	8.16	8.13	8.14	8.17
802.11a	5680	136*	8.08	8.08	8.08	8.04	8.02	8.07	8.05	8.06
802.11a	5700	140	7.90	7.93	7.91	7.90	7.89	7.90	7.96	7.96
802.11a	5745	149*	**7.32**	7.33	7.30	7.35	7.30	7.32	7.33	7.34
802.11a	5765	153	7.12	7.15	7.18	7.16	7.13	7.17	7.14	7.18
802.11a	5785	157*	7.05	6.99	7.03	7.01	7.06	7.01	7.06	7.06
802.11a	5805	161*	6.92	6.91	6.93	6.91	6.86	6.86	6.92	6.88
802.11a	5825	165	6.77	6.75	6.82	6.81	6.75	6.79	6.80	6.76

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. When the adjacent channels are higher in power then the default channels, these “required channels” are considered instead of the default channels for SAR testing.

Table 10-13
IEEE 802.11n (20 MHz BW) Average RF Power

Mode	Freq	Channel	802.11n (5GHz) 20MHz BW Conducted Power [dBm]							
			Data Rate [Mbps]							
	[MHz]		6.5	13	20	26	39	52	58	65
802.11n	5180	36*	8.19	8.36	8.38	8.38	8.37	8.38	8.37	8.34
802.11n	5200	40	8.24	8.31	8.37	8.31	8.32	8.38	8.33	8.31
802.11n	5220	44	8.29	8.29	8.24	8.26	8.25	8.27	8.25	8.30
802.11n	5240	48*	8.32	8.34	8.31	8.33	8.34	8.31	8.31	8.29
802.11n	5260	52*	8.34	8.33	8.34	8.34	8.34	8.29	8.27	8.28
802.11n	5280	56	8.37	8.32	8.36	8.35	8.33	8.32	8.36	8.33
802.11n	5300	60	8.41	8.41	8.41	8.42	8.38	8.43	8.42	8.37
802.11n	5320	64*	8.52	8.48	8.48	8.53	8.51	8.49	8.49	8.50
802.11n	5500	100	8.48	8.48	8.49	8.50	8.50	8.46	8.48	8.49
802.11n	5520	104*	8.43	8.45	8.41	8.48	8.45	8.48	8.41	8.44
802.11n	5540	108	8.44	8.39	8.43	8.45	8.44	8.44	8.45	8.42
802.11n	5560	112	8.38	8.36	8.39	8.34	8.33	8.40	8.36	8.33
802.11n	5580	116*	8.34	8.33	8.35	8.29	8.35	8.35	8.33	8.30
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	7.92	7.99	7.95	7.99	7.93	7.96	7.99	7.98
802.11n	5680	136*	7.91	7.86	7.91	7.91	7.89	7.91	7.91	7.85
802.11n	5700	140	7.84	7.83	7.79	7.83	7.78	7.79	7.82	7.83
802.11n	5745	149*	7.10	7.11	7.09	7.09	7.13	7.08	7.15	7.08
802.11n	5765	153	6.98	6.98	6.94	6.96	6.96	6.94	7.00	6.94
802.11n	5785	157*	6.89	6.90	6.92	6.90	6.91	6.87	6.94	6.87
802.11n	5805	161*	6.83	6.86	6.84	6.81	6.85	6.82	6.84	6.79
802.11n	5825	165	6.66	6.65	6.62	6.67	6.65	6.62	6.65	6.66

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

Table 10-14
IEEE 802.11n (40MHz BW) Average RF Power

Mode	Freq	Channel	802.11n (5GHz) 40MHz BW Conducted Power [dBm]							
			Data Rate [Mbps]							
	[MHz]		13.5/15	27/30	40.5/45	54/60	81/90	108/120	121.5/135	135/150
802.11n	5190	38	8.16	8.19	8.32	8.33	8.20	8.21	8.21	8.23
802.11n	5230	46	8.24	8.35	8.30	8.37	8.29	8.39	8.40	8.39
802.11n	5270	54	8.36	8.51	8.42	8.49	8.53	8.56	8.46	8.56
802.11n	5310	62	8.61	8.57	8.57	8.65	8.54	8.67	8.58	8.67
802.11n	5510	102	8.60	8.61	8.66	8.64	8.61	8.66	8.66	8.71
802.11n	5550	110	8.49	8.51	8.49	8.48	8.45	8.47	8.53	8.63
802.11n	5590	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5630	126	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5670	134	8.04	8.08	8.13	8.14	8.03	8.08	8.12	8.16
802.11n	5755	151	7.12	7.16	7.24	7.14	7.11	7.24	7.22	7.21
802.11n	5795	159	6.84	6.95	6.93	6.90	6.96	6.93	6.97	7.00

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 Bands.

Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 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 20MHz and 40MHz Bandwidths) 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 1g averaged SAR is <0.8 W/kg, SAR testing on other channels is not required. Otherwise, the other default (or corresponding required) test channels were additionally tested using the lowest data rate.
- The bolded data rate and channel above were tested for SAR.

Figure 10-3
Power Measurement Setup

11 SYSTEM VERIFICATION

11.1 Tissue Verification

Table 11-1
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
09/04/2012	740H	23.7	680	0.867	40.87	0.885	42.273	-2.03%	-3.32%
			695	0.880	40.59	0.886	42.193	-0.68%	-3.80%
			710	0.890	40.43	0.887	42.113	0.34%	-4.00%
			725	0.907	40.25	0.888	42.033	2.14%	-4.24%
			740	0.921	39.99	0.889	41.953	3.60%	-4.68%
			755	0.931	39.79	0.891	41.876	4.49%	-4.98%
08/29/2012	835H	23.1	820	0.899	42.01	0.898	41.571	0.11%	1.06%
			835	0.911	42.02	0.900	41.500	1.22%	1.25%
			850	0.914	41.90	0.916	41.500	-0.22%	0.96%
09/05/2012	835H	23.7	820	0.887	41.30	0.898	41.571	-1.22%	-0.65%
			835	0.900	41.41	0.900	41.500	0.00%	-0.22%
			850	0.904	40.98	0.916	41.500	-1.31%	-1.25%
08/28/2012	1750H	22.6	1710	1.314	40.33	1.348	40.136	-2.52%	0.48%
			1750	1.344	40.01	1.370	40.100	-1.90%	-0.22%
			1790	1.386	40.00	1.394	40.020	-0.57%	-0.05%
08/30/2012	1750H	23.5	1710	1.315	39.63	1.348	40.136	-2.45%	-1.26%
			1750	1.360	39.47	1.370	40.100	-0.73%	-1.57%
			1790	1.391	39.28	1.394	40.020	-0.22%	-1.85%
08/27/2012	1900H	23.0	1850	1.370	38.62	1.400	40.000	-2.14%	-3.45%
			1880	1.403	38.42	1.400	40.000	0.21%	-3.95%
			1910	1.435	38.27	1.400	40.000	2.50%	-4.32%
09/03/2012	1900H	23.5	1850	1.400	41.35	1.400	40.000	0.00%	3.38%
			1880	1.424	41.20	1.400	40.000	1.71%	3.00%
			1910	1.452	40.91	1.400	40.000	3.71%	2.27%
09/05/2012	1900H	23.9	1850	1.343	38.46	1.400	40.000	-4.07%	-3.85%
			1880	1.385	38.24	1.400	40.000	-1.07%	-4.40%
			1910	1.401	38.11	1.400	40.000	0.07%	-4.73%
08/30/2012	2450H	23.8	2401	1.832	38.13	1.758	39.298	4.21%	-2.97%
			2450	1.885	37.95	1.800	39.200	4.72%	-3.19%
			2499	1.942	37.71	1.852	39.135	4.86%	-3.64%
09/02/2012	5200 - 5800H	23.7	5200	4.510	35.43	4.660	36.000	-3.22%	-1.58%
			5240	4.579	35.48	4.700	35.960	-2.57%	-1.33%
			5320	4.632	35.26	4.780	35.880	-3.10%	-1.73%
			5500	4.845	35.16	4.965	35.650	-2.42%	-1.37%
			5520	4.852	35.11	4.986	35.620	-2.69%	-1.43%
			5745	5.104	34.75	5.215	35.355	-2.13%	-1.71%
			5800	5.137	34.65	5.270	35.300	-2.52%	-1.84%
08/30/2012	740B	23.1	680	0.932	58.26	0.956	56.069	-2.51%	3.91%
			695	0.942	58.16	0.957	55.985	-1.57%	3.88%
			710	0.959	58.10	0.958	55.901	0.10%	3.93%
			725	0.975	57.89	0.960	55.817	1.56%	3.71%
			740	0.984	57.77	0.961	55.733	2.39%	3.65%
			755	0.998	57.77	0.963	55.649	3.63%	3.81%
08/27/2012	835B	24.9	820	0.966	54.30	0.969	55.284	-0.31%	-1.78%
			835	0.981	54.18	0.970	55.200	1.13%	-1.85%
			850	0.995	54.04	0.988	55.154	0.71%	-2.02%
09/02/2012	835B	23.9	820	0.958	54.17	0.969	55.284	-1.14%	-2.02%
			835	0.973	53.99	0.970	55.200	0.31%	-2.19%
			850	0.987	53.88	0.988	55.154	-0.10%	-2.31%
08/27/2012	1750B	22.8	1710	1.404	52.70	1.460	53.540	-3.84%	-1.57%
			1750	1.468	52.41	1.490	53.430	-1.48%	-1.91%
			1790	1.496	52.18	1.510	53.330	-0.93%	-2.16%
08/30/2012	1750B	24.2	1710	1.391	52.46	1.460	53.540	-4.73%	-2.02%
			1750	1.425	52.37	1.490	53.430	-4.36%	-1.98%
			1790	1.454	52.03	1.510	53.330	-3.71%	-2.44%
08/29/2012	1900B	22.9	1850	1.491	54.07	1.520	53.300	-1.91%	1.44%
			1880	1.525	53.75	1.520	53.300	0.33%	0.84%
			1910	1.525	53.48	1.520	53.300	0.33%	0.34%
08/31/2012	2450B	22.7	2401	1.928	51.03	1.903	52.765	1.31%	-3.29%
			2450	1.974	51.10	1.950	52.700	1.23%	-3.04%
			2499	2.024	50.60	2.019	52.638	0.25%	-3.87%
08/30/2012	5200 - 5800B	23.5	5200	5.337	48.49	5.299	49.014	0.72%	-1.07%
			5240	5.394	48.41	5.346	48.933	0.90%	-1.07%
			5320	5.514	48.26	5.439	48.607	1.38%	-0.71%
			5500	5.723	48.00	5.650	48.580	1.29%	-1.19%
			5520	5.758	47.89	5.673	48.553	1.50%	-1.37%
			5745	6.074	47.59	5.936	48.248	2.32%	-1.36%
			5800	6.146	47.40	6.000	48.200	2.43%	-1.66%

Note: KDB Publication 450824 was ensured to be applied for probe calibration frequencies greater than or equal to 50 MHz of the DUT frequencies.

The above measured tissue parameters were used in the DASY software to perform interpolation via the DASY software to determine actual dielectric parameters at the test frequencies (per IEEE 1528 6.6.1.2). The SAR test plots may slightly differ from the table above since the DASY software rounds to three significant digits.

Probe calibration used within ±100 MHz of the test frequency in either 5.725 - 5.85 or 5.47-5.725 GHz is acceptable per KDB Publication 865664 since the design of the SAR probe supports the extended frequency, provided the DASY software version recommended is used for the tests, and the expanded calibration uncertainty (k=2) is less than or equal to 15% (See SAR probe calibration certificate for this information). The dielectric and conductivities measured are within 10% and 5% respectively of the target parameters specified in Supplement C 01-01.

11.2 Measurement Procedure for Tissue verification

1) The network analyzer and probe system was configured and calibrated.
2) The probe was immersed in the sample which was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
3) The complex admittance with respect to the probe aperture was measured
4) The complex relative permittivity ε' can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\varepsilon_r\varepsilon_0}{\left[\ln(b/a)\right]^2}\int_a^b\int_a^b\int_0^\pi \cos\phi' \frac{\exp\left[-j\omega r(\mu_0\varepsilon_r'\varepsilon_0)^{1/2}\right]}{r} d\phi' d\rho' d\rho$$

where *Y* is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively, $r^2 = \rho^2 + \rho'^2 - 2\rho\rho'\cos\phi'$, ω is the angular frequency, and $j = \sqrt{-1}$.

11.3 Test System Verification

Prior to assessment, the system is verified to ±10% of the manufacturer SAR measurement on the reference dipole at the time of calibration.

Table 11-2
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	09/04/2012	24.4	23.4	0.100	1003	3209	0.832	8.400	8.320	-0.95%
835	Head	08/29/2012	24.4	23.5	0.100	4d132	3213	0.959	9.450	9.590	1.48%
835	Head	09/05/2012	24.8	24.1	0.100	4d047	3213	0.977	9.410	9.770	3.83%
1750	Head	08/28/2012	23.9	23.8	0.100	1051	3287	3.600	36.600	36.000	-1.64%
1750	Head	08/30/2012	24.3	23.6	0.100	1051	3287	3.510	36.600	35.100	-4.10%
1900	Head	08/27/2012	23.8	23.1	0.100	502	3561	3.920	39.200	39.200	0.00%
1900	Head	09/03/2012	21.9	21.7	0.100	5d149	3287	4.060	39.300	40.600	3.31%
1900	Head	09/05/2012	23.3	24.0	0.100	5d149	3288	4.220	39.300	42.200	7.38%
2450	Head	08/30/2012	24.5	22.8	0.010	797	3209	0.528	52.100	52.800	1.34%
5200	Head	09/02/2012	23.1	22.9	0.010	1057	3589	0.801	79.100	80.100	1.26%
5500	Head	09/02/2012	23.2	23.0	0.010	1057	3589	0.827	84.900	82.700	-2.59%
5800	Head	09/02/2012	23.2	23.1	0.010	1057	3589	0.825	79.500	82.500	3.77%
750	Body	08/30/2012	24.6	23.2	0.100	1003	3209	0.899	8.720	8.990	3.10%
835	Body	08/27/2012	24.9	24.2	0.100	4d119	3258	0.993	9.560	9.930	3.87%
835	Body	09/02/2012	24.6	23.9	0.100	4d119	3258	0.963	9.560	9.630	0.73%
1750	Body	08/27/2012	24.1	23.2	0.100	1051	3213	3.700	37.600	37.000	-1.60%
1750	Body	08/30/2012	24.0	23.9	0.100	1051	3213	3.850	37.600	38.500	2.39%
1900	Body	08/29/2012	24.1	23.4	0.100	5d149	3288	3.940	39.300	39.400	0.25%
2450	Body	08/31/2012	24.8	22.3	0.100	797	3258	5.310	50.800	53.100	4.53%
5200	Body	08/30/2012	23.7	22.1	0.0174	1120	3561	1.230	72.200	70.690	-2.09%
5500	Body	08/30/2012	23.7	22.2	0.0174	1120	3561	1.280	80.000	73.563	-8.05%
5800	Body	08/30/2012	23.8	22.4	0.016	1120	3561	1.170	73.800	73.125	-0.91%

Note: Per KDB Publication 865664, when a reference dipole is not defined within ±100MHz of the test frequency, the system verification may be conducted within ± 200 MHz of the center frequency of the measurement frequencies if the SAR probe calibration is valid and the same tissue-equivalent matter is used for verification and test measurements.

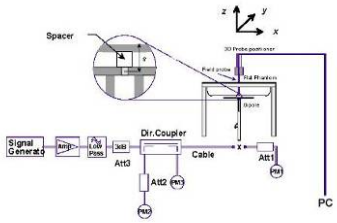


Figure 11-1
System Verification Setup Diagram

Figure 11-2
System Verification Setup Photo

12 SAR DATA SUMMARY

12.1 Standalone Head SAR Data

Table 12-1
CDMA Head SAR Results

MEASUREMENT RESULTS									
FREQUENCY		Mode/Band	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	SAR (1g)
MHz	Ch.								(W/kg)
836.52	384	Cell. CDMA	SO55	24.31	-0.02	Right	Cheek	PCTEST_15	0.214
836.52	384	Cell. CDMA	SO55	24.31	0.00	Right	Tilt	PCTEST_15	0.134
836.52	384	Cell. CDMA	SO55	24.31	-0.11	Left	Cheek	PCTEST_15	0.181
836.52	384	Cell. CDMA	SO55	24.31	0.09	Left	Tilt	PCTEST_15	0.113
836.52	384	Cell. CDMA	EVDO Rev. A	24.37	-0.10	Right	Cheek	PCTEST_15	**0.216**
836.52	384	Cell. CDMA	EVDO Rev. A	24.37	0.04	Right	Tilt	PCTEST_15	0.147
836.52	384	Cell. CDMA	EVDO Rev. A	24.37	0.07	Left	Cheek	PCTEST_15	0.196
836.52	384	Cell. CDMA	EVDO Rev. A	24.37	0.05	Left	Tilt	PCTEST_15	0.136
1732.50	450	AWS CDMA	SO55	24.44	0.05	Right	Cheek	PCTEST_15	0.098
1732.50	450	AWS CDMA	SO55	24.44	0.14	Right	Tilt	PCTEST_15	0.087
1732.50	450	AWS CDMA	SO55	24.44	-0.07	Left	Cheek	PCTEST_15	**0.158**
1732.50	450	AWS CDMA	SO55	24.44	0.10	Left	Tilt	PCTEST_15	0.068
1732.50	450	AWS CDMA	EVDO Rev. A	24.42	-0.02	Right	Cheek	PCTEST_15	0.091
1732.50	450	AWS CDMA	EVDO Rev. A	24.42	0.07	Right	Tilt	PCTEST_15	0.062
1732.50	450	AWS CDMA	EVDO Rev. A	24.42	0.13	Left	Cheek	PCTEST_15	0.113
1732.50	450	AWS CDMA	EVDO Rev. A	24.42	0.14	Left	Tilt	PCTEST_15	0.064
1880.00	600	PCS CDMA	SO55	24.43	-0.01	Right	Cheek	PCTEST_15	0.109
1880.00	600	PCS CDMA	SO55	24.43	0.05	Right	Tilt	PCTEST_15	0.090
1880.00	600	PCS CDMA	SO55	24.43	-0.09	Left	Cheek	PCTEST_15	**0.167**
1880.00	600	PCS CDMA	SO55	24.43	-0.16	Left	Tilt	PCTEST_15	0.077
1880.00	600	PCS CDMA	EVDO Rev. A	24.32	-0.13	Right	Cheek	PCTEST_15	0.098
1880.00	600	PCS CDMA	EVDO Rev. A	24.32	0.03	Right	Tilt	PCTEST_15	0.091
1880.00	600	PCS CDMA	EVDO Rev. A	24.32	-0.03	Left	Cheek	PCTEST_15	0.163
1880.00	600	PCS CDMA	EVDO Rev. A	24.32	0.00	Left	Tilt	PCTEST_15	0.092
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 12-2
LTE Band 12 Head SAR Results

MEASUREMENT RESULTS														
FREQUENCY			Mode	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	# of RB	RB Offset	Device Serial Number	SAR (1g)
MHz	Ch.													(W/kg)
707.50	23085	Mid	LTE Band 12	10	22.17	0.12	1	Right	Cheek	QPSK	25	12	PCTEST_12	0.019
704.00	23050	Low	LTE Band 12	10	22.96	0.02	0	Right	Cheek	QPSK	1	0	PCTEST_12	**0.028**
704.00	23050	Low	LTE Band 12	10	23.48	-0.03	0	Right	Cheek	QPSK	1	49	PCTEST_12	0.025
707.50	23085	Mid	LTE Band 12	10	21.29	0.21	2	Right	Cheek	16 QAM	25	12	PCTEST_12	0.015
704.00	23050	Low	LTE Band 12	10	21.60	0.08	1	Right	Cheek	16 QAM	1	0	PCTEST_12	0.022
704.00	23050	Low	LTE Band 12	10	22.20	0.05	1	Right	Cheek	16 QAM	1	49	PCTEST_12	0.017
707.50	23085	Mid	LTE Band 12	10	22.17	0.03	1	Right	Tilt	QPSK	25	12	PCTEST_12	0.011
704.00	23050	Low	LTE Band 12	10	22.96	0.03	0	Right	Tilt	QPSK	1	0	PCTEST_12	**0.016**
704.00	23050	Low	LTE Band 12	10	23.48	0.20	0	Right	Tilt	QPSK	1	49	PCTEST_12	0.015
707.50	23085	Mid	LTE Band 12	10	21.29	0.03	2	Right	Tilt	16 QAM	25	12	PCTEST_12	0.009
704.00	23050	Low	LTE Band 12	10	21.60	-0.06	1	Right	Tilt	16 QAM	1	0	PCTEST_12	0.013
704.00	23050	Low	LTE Band 12	10	22.20	0.02	1	Right	Tilt	16 QAM	1	49	PCTEST_12	0.011
707.50	23085	Mid	LTE Band 12	10	22.17	-0.07	1	Left	Cheek	QPSK	25	12	PCTEST_12	0.018
704.00	23050	Low	LTE Band 12	10	22.96	0.05	0	Left	Cheek	QPSK	1	0	PCTEST_12	**0.028**
704.00	23050	Low	LTE Band 12	10	23.48	0.11	0	Left	Cheek	QPSK	1	49	PCTEST_12	0.023
707.50	23085	Mid	LTE Band 12	10	21.29	0.03	2	Left	Cheek	16 QAM	25	12	PCTEST_12	0.014
704.00	23050	Low	LTE Band 12	10	21.60	0.04	1	Left	Cheek	16 QAM	1	0	PCTEST_12	0.023
704.00	23050	Low	LTE Band 12	10	22.20	0.05	1	Left	Cheek	16 QAM	1	49	PCTEST_12	0.018
707.50	23085	Mid	LTE Band 12	10	22.17	0.08	1	Left	Tilt	QPSK	25	12	PCTEST_12	0.008
704.00	23050	Low	LTE Band 12	10	22.96	0.03	0	Left	Tilt	QPSK	1	0	PCTEST_12	**0.016**
704.00	23050	Low	LTE Band 12	10	23.48	0.05	0	Left	Tilt	QPSK	1	49	PCTEST_12	0.012
707.50	23085	Mid	LTE Band 12	10	21.29	0.05	2	Left	Tilt	16 QAM	25	12	PCTEST_12	0.007
704.00	23050	Low	LTE Band 12	10	21.60	0.03	1	Left	Tilt	16 QAM	1	0	PCTEST_12	0.012
704.00	23050	Low	LTE Band 12	10	22.20	0.04	1	Left	Tilt	16 QAM	1	49	PCTEST_12	0.008
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Head** **1.6 W/kg (mW/g)** averaged over 1 gram						

Note: Per FCC KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% allocation, the highest output power for the 1 RB allocations is tested. Therefore low channel was tested for the QPSK and 16 QAM 1 RB allocation configurations.

Table 12-3
LTE Band 5 (Cell) Head SAR Results

MEASUREMENT RESULTS														
FREQUENCY			Mode	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	# of RB	RB Offset	Device Serial Number	SAR (1g)
MHz	Ch.													(W/kg)
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.80	0.08	1	Right	Cheek	QPSK	25	12	PCTEST_14	0.103
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.25	0.08	0	Right	Cheek	QPSK	1	0	PCTEST_14	0.157
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.21	-0.03	0	Right	Cheek	QPSK	1	49	PCTEST_14	**0.160**
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.89	0.04	2	Right	Cheek	16 QAM	25	12	PCTEST_14	0.080
829.00	20450	Low	LTE Band 5 (Cell)	10	22.10	0.10	1	Right	Cheek	16 QAM	1	0	PCTEST_14	0.105
829.00	20450	Low	LTE Band 5 (Cell)	10	22.13	0.08	1	Right	Cheek	16 QAM	1	49	PCTEST_14	0.118
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.80	0.04	1	Right	Tilt	QPSK	25	12	PCTEST_14	0.037
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.25	-0.01	0	Right	Tilt	QPSK	1	0	PCTEST_14	**0.058**
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.21	0.03	0	Right	Tilt	QPSK	1	49	PCTEST_14	0.055
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.89	0.02	2	Right	Tilt	16 QAM	25	12	PCTEST_14	0.030
829.00	20450	Low	LTE Band 5 (Cell)	10	22.10	0.11	1	Right	Tilt	16 QAM	1	0	PCTEST_14	0.040
829.00	20450	Low	LTE Band 5 (Cell)	10	22.13	0.02	1	Right	Tilt	16 QAM	1	49	PCTEST_14	0.045
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.80	0.08	1	Left	Cheek	QPSK	25	12	PCTEST_14	0.062
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.25	0.12	0	Left	Cheek	QPSK	1	0	PCTEST_14	**0.091**
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.21	0.16	0	Left	Cheek	QPSK	1	49	PCTEST_14	0.084
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.89	0.14	2	Left	Cheek	16 QAM	25	12	PCTEST_14	0.049
829.00	20450	Low	LTE Band 5 (Cell)	10	22.10	0.04	1	Left	Cheek	16 QAM	1	0	PCTEST_14	0.060
829.00	20450	Low	LTE Band 5 (Cell)	10	22.13	0.01	1	Left	Cheek	16 QAM	1	49	PCTEST_14	0.072
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.80	0.16	1	Left	Tilt	QPSK	25	12	PCTEST_14	0.030
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.25	-0.13	0	Left	Tilt	QPSK	1	0	PCTEST_14	**0.049**
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.21	0.05	0	Left	Tilt	QPSK	1	49	PCTEST_14	0.043
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.89	0.19	2	Left	Tilt	16 QAM	25	12	PCTEST_14	0.024
829.00	20450	Low	LTE Band 5 (Cell)	10	22.10	0.06	1	Left	Tilt	16 QAM	1	0	PCTEST_14	0.034
829.00	20450	Low	LTE Band 5 (Cell)	10	22.13	0.04	1	Left	Tilt	16 QAM	1	49	PCTEST_14	0.037
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram						

Note: Per FCC KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% allocation, the highest output power for the 1 RB allocations is tested. Therefore mid channel was tested for QPSK and low channel was tested for the 16 QAM 1 RB allocation configurations.

Table 12-4
LTE Band 4 (AWS) Head SAR Results

MEASUREMENT RESULTS														
FREQUENCY			Mode	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	# of RB	RB Offset	Device Serial Number	SAR (1g)
MHz	Ch.													(W/kg)
1750.00	20350	High	LTE Band 4 (AWS)	10	22.35	0.09	1	Right	Cheek	QPSK	25	12	PCTEST_17	0.005
1750.00	20350	High	LTE Band 4 (AWS)	10	23.30	0.15	0	Right	Cheek	QPSK	1	0	PCTEST_17	0.007
1750.00	20350	High	LTE Band 4 (AWS)	10	23.25	0.13	0	Right	Cheek	QPSK	1	49	PCTEST_17	**0.009**
1750.00	20350	High	LTE Band 4 (AWS)	10	21.37	0.07	2	Right	Cheek	16 QAM	25	12	PCTEST_17	0.004
1750.00	20350	High	LTE Band 4 (AWS)	10	22.50	0.06	1	Right	Cheek	16 QAM	1	0	PCTEST_17	0.006
1750.00	20350	High	LTE Band 4 (AWS)	10	22.44	0.19	1	Right	Cheek	16 QAM	1	49	PCTEST_17	0.007
1750.00	20350	High	LTE Band 4 (AWS)	10	22.35	0.08	1	Right	Tilt	QPSK	25	12	PCTEST_17	0.004
1750.00	20350	High	LTE Band 4 (AWS)	10	23.30	0.08	0	Right	Tilt	QPSK	1	0	PCTEST_17	**0.005**
1750.00	20350	High	LTE Band 4 (AWS)	10	23.25	0.04	0	Right	Tilt	QPSK	1	49	PCTEST_17	0.005
1750.00	20350	High	LTE Band 4 (AWS)	10	21.37	0.06	2	Right	Tilt	16 QAM	25	12	PCTEST_17	0.003
1750.00	20350	High	LTE Band 4 (AWS)	10	22.50	0.03	1	Right	Tilt	16 QAM	1	0	PCTEST_17	0.004
1750.00	20350	High	LTE Band 4 (AWS)	10	22.44	0.05	1	Right	Tilt	16 QAM	1	49	PCTEST_17	0.004
1750.00	20350	High	LTE Band 4 (AWS)	10	22.35	0.04	1	Left	Cheek	QPSK	25	12	PCTEST_17	0.009
1750.00	20350	High	LTE Band 4 (AWS)	10	23.30	0.03	0	Left	Cheek	QPSK	1	0	PCTEST_17	0.010
1750.00	20350	High	LTE Band 4 (AWS)	10	23.25	0.03	0	Left	Cheek	QPSK	1	49	PCTEST_17	**0.010**
1750.00	20350	High	LTE Band 4 (AWS)	10	21.37	0.04	2	Left	Cheek	16 QAM	25	12	PCTEST_17	0.069
1750.00	20350	High	LTE Band 4 (AWS)	10	22.50	0.05	1	Left	Cheek	16 QAM	1	0	PCTEST_17	0.007
1750.00	20350	High	LTE Band 4 (AWS)	10	22.44	0.07	1	Left	Cheek	16 QAM	1	49	PCTEST_17	0.008
1750.00	20350	High	LTE Band 4 (AWS)	10	22.35	0.07	1	Left	Tilt	QPSK	25	12	PCTEST_17	0.005
1750.00	20350	High	LTE Band 4 (AWS)	10	23.30	0.03	0	Left	Tilt	QPSK	1	0	PCTEST_17	0.006
1750.00	20350	High	LTE Band 4 (AWS)	10	23.25	0.03	0	Left	Tilt	QPSK	1	49	PCTEST_17	**0.007**
1750.00	20350	High	LTE Band 4 (AWS)	10	21.37	0.09	2	Left	Tilt	16 QAM	25	12	PCTEST_17	0.003
1750.00	20350	High	LTE Band 4 (AWS)	10	22.50	0.07	1	Left	Tilt	16 QAM	1	0	PCTEST_17	0.004
1750.00	20350	High	LTE Band 4 (AWS)	10	22.44	0.05	1	Left	Tilt	16 QAM	1	49	PCTEST_17	0.005
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Head 1.6 W/kg (mW/g) averaged over 1 gram**						

Per FCC KDB 941225 D05:

1. When the average output power deviation of QPSK 50% RB allocation across low, high, and mid channels is >0.5 dB, the highest output power channel (High Channel) for QPSK 50% RB allocation is tested. Therefore, for LTE Band 4, high channel was tested for QPSK 50% RB allocation.
2. When the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% allocation, the highest output power for the 1 RB allocations is tested. Therefore, high channel was tested for the QPSK and 16 QAM 1 RB allocation configurations.
3. 16 QAM 50% RB is measured on channel that produced the highest measured SAR for QPSK 50% RB allocation. Therefore, high channel was tested for 16 QAM 50% RB.

Table 12-5
LTE Band 2 (PCS) Head SAR Results

MEASUREMENT RESULTS														
FREQUENCY			Mode	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	# of RB	RB Offset	Device Serial Number	SAR (1g)
MHz	Ch.													(W/kg)
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.14	0.00	1	Right	Cheek	QPSK	25	12	PCTEST_16	0.125
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.51	0.03	0	Right	Cheek	QPSK	1	0	PCTEST_16	0.133
1880.00	18900	Mid	LTE Band 2 (PCS)	10	23.44	-0.06	0	Right	Cheek	QPSK	1	49	PCTEST_16	**0.151**
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.18	-0.14	2	Right	Cheek	16 QAM	25	12	PCTEST_16	0.100
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.75	-0.04	1	Right	Cheek	16 QAM	1	0	PCTEST_16	0.104
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.48	0.18	1	Right	Cheek	16 QAM	1	49	PCTEST_16	0.117
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.14	-0.01	1	Right	Tilt	QPSK	25	12	PCTEST_16	0.053
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.51	0.02	0	Right	Tilt	QPSK	1	0	PCTEST_16	**0.058**
1880.00	18900	Mid	LTE Band 2 (PCS)	10	23.44	0.00	0	Right	Tilt	QPSK	1	49	PCTEST_16	0.056
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.18	0.02	2	Right	Tilt	16 QAM	25	12	PCTEST_16	0.042
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.75	0.02	1	Right	Tilt	16 QAM	1	0	PCTEST_16	0.046
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.48	0.03	1	Right	Tilt	16 QAM	1	49	PCTEST_16	0.041
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.14	0.12	1	Left	Cheek	QPSK	25	12	PCTEST_16	0.078
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.51	0.04	0	Left	Cheek	QPSK	1	0	PCTEST_16	**0.101**
1880.00	18900	Mid	LTE Band 2 (PCS)	10	23.44	0.07	0	Left	Cheek	QPSK	1	49	PCTEST_16	0.093
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.18	0.04	2	Left	Cheek	16 QAM	25	12	PCTEST_16	0.062
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.75	0.20	1	Left	Cheek	16 QAM	1	0	PCTEST_16	0.074
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.48	0.04	1	Left	Cheek	16 QAM	1	49	PCTEST_16	0.068
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.14	0.07	1	Left	Tilt	QPSK	25	12	PCTEST_16	0.064
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.51	0.12	0	Left	Tilt	QPSK	1	0	PCTEST_16	**0.074**
1880.00	18900	Mid	LTE Band 2 (PCS)	10	23.44	0.03	0	Left	Tilt	QPSK	1	49	PCTEST_16	0.069
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.18	0.20	2	Left	Tilt	16 QAM	25	12	PCTEST_16	0.049
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.75	0.13	1	Left	Tilt	16 QAM	1	0	PCTEST_16	0.057
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.48	-0.17	1	Left	Tilt	16 QAM	1	49	PCTEST_16	0.055
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram						

Note: When the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% allocation, the highest output power for the 1 RB allocations is tested. Therefore mid channel was tested for the QPSK and 16 QAM 1 RB allocation configurations per FCC KDB 941225 D05.

Table 12-6
2.4 GHz WLAN Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
2462	11	IEEE 802.11b	DSSS	14.99	0.17	Right	Cheek	PCTEST_19	1	0.038
2462	11	IEEE 802.11b	DSSS	14.99	0.03	Right	Tilt	PCTEST_19	1	0.028
2462	11	IEEE 802.11b	DSSS	14.99	0.19	Left	Cheek	PCTEST_19	1	**0.078**
2462	11	IEEE 802.11b	DSSS	14.99	-0.17	Left	Tilt	PCTEST_19	1	0.063
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 12-7
5.8 GHz WLAN Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
5745	149	IEEE 802.11a	OFDM	7.32	0.11	Right	Cheek	PCTEST_15	6	0.000
5745	149	IEEE 802.11a	OFDM	7.32	0.09	Right	Tilt	PCTEST_15	6	0.000
5745	149	IEEE 802.11a	OFDM	7.32	-0.03	Left	Cheek	PCTEST_15	6	**0.014**
5745	149	IEEE 802.11a	OFDM	7.32	0.03	Left	Tilt	PCTEST_15	6	0.000
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 12-8
5.2 GHz WLAN Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
5240	48	IEEE 802.11a	OFDM	8.40	0.12	Right	Cheek	PCTEST_15	6	0.000
5240	48	IEEE 802.11a	OFDM	8.40	0.09	Right	Tilt	PCTEST_15	6	0.000
5240	48	IEEE 802.11a	OFDM	8.40	-0.02	Left	Cheek	PCTEST_15	6	**0.013**
5240	48	IEEE 802.11a	OFDM	8.40	0.00	Left	Tilt	PCTEST_15	6	0.006
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 12-9
5.3 GHz WLAN Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
5320	64	IEEE 802.11a	OFDM	8.67	0.11	Right	Cheek	PCTEST_15	6	0.000
5320	64	IEEE 802.11a	OFDM	8.67	0.06	Right	Tilt	PCTEST_15	6	0.000
5320	64	IEEE 802.11a	OFDM	8.67	-0.02	Left	Cheek	PCTEST_15	6	**0.015**
5320	64	IEEE 802.11a	OFDM	8.67	0.05	Left	Tilt	PCTEST_15	6	0.002
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 12-10
5.5 - 5.7 GHz WLAN Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
5520	104	IEEE 802.11a	OFDM	8.60	-0.03	Right	Cheek	PCTEST_15	6	0.001
5520	104	IEEE 802.11a	OFDM	8.60	-0.15	Right	Tilt	PCTEST_15	6	0.000
5520	104	IEEE 802.11a	OFDM	8.60	0.04	Left	Cheek	PCTEST_15	6	**0.012**
5520	104	IEEE 802.11a	OFDM	8.60	-0.20	Left	Tilt	PCTEST_15	6	0.000
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**Head 1.6 W/kg (mW/g) averaged over 1 gram**				

12.2 Standalone Body-Worn SAR Data

Table 12-11
CDMA Hotspot Representing Body-Worn SAR Results

MEASUREMENT RESULTS									
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Side	SAR (1g)
MHz	Ch.								(W/kg)
836.52	384	Cell. CDMA	TDSO / SO32	24.35	0.01	1.0 cm	PCTEST_15	back	0.496
1732.50	450	AWS CDMA	TDSO / SO32	24.43	0.02	1.0 cm	PCTEST_15	back	0.232
1880.00	600	PCS CDMA	TDSO / SO32	24.41	-0.03	1.0 cm	PCTEST_15	back	0.428
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**Body 1.6 W/kg (mW/g) averaged over 1 gram**			

Note: CDMA 1x-RTT SAR was additionally required to be evaluated for Hotspot exposure conditions to support simultaneous capabilities per Table 1-2. For 1x-RTT CDMA mode, when the reported SAR measured for 1 cm air-gap without headset cable is >1.2 W/kg, the highest reported SAR configuration for the mode and band should be repeated with headset attached, per past FCC guidance. Since the measured SAR was not >1.2 W/kg, the hotspot data for the back side configuration additionally shows body-worn compliance.

Table 12-12
LTE Hotspot Representing Body-Worn SAR Results

MEASUREMENT RESULTS														
FREQUENCY			Mode	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	# of RB	RB Offset	Spacing	Side	SAR (1g)
MHz	Ch.													(W/kg)
707.50	23085	Mid	LTE Band 12	10	22.17	0.04	1	PCTEST_12	QPSK	25	12	1.0 cm	back	0.091
704.00	23050	Low	LTE Band 12	10	22.96	-0.03	0	PCTEST_12	QPSK	1	0	1.0 cm	back	**0.148**
704.00	23050	Low	LTE Band 12	10	23.48	-0.04	0	PCTEST_12	QPSK	1	49	1.0 cm	back	0.125
707.50	23085	Mid	LTE Band 12	10	21.29	-0.01	2	PCTEST_12	16 QAM	25	12	1.0 cm	back	0.075
704.00	23050	Low	LTE Band 12	10	21.60	0.05	1	PCTEST_12	16 QAM	1	0	1.0 cm	back	0.111
704.00	23050	Low	LTE Band 12	10	22.20	0.12	1	PCTEST_12	16 QAM	1	49	1.0 cm	back	0.094
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.80	-0.02	1	PCTEST_14	QPSK	25	12	1.0 cm	back	0.237
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.25	0.04	0	PCTEST_14	QPSK	1	0	1.0 cm	back	0.344
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.21	0.01	0	PCTEST_14	QPSK	1	49	1.0 cm	back	**0.382**
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.89	-0.01	2	PCTEST_14	16 QAM	25	12	1.0 cm	back	0.193
829.00	20450	Low	LTE Band 5 (Cell)	10	22.10	-0.01	1	PCTEST_14	16 QAM	1	0	1.0 cm	back	0.244
829.00	20450	Low	LTE Band 5 (Cell)	10	22.13	-0.03	1	PCTEST_14	16 QAM	1	49	1.0 cm	back	0.251
1750.00	20350	High	LTE Band 4 (AWS)	10	22.35	0.04	1	PCTEST_17	QPSK	25	12	1.0 cm	back	0.096
1750.00	20350	High	LTE Band 4 (AWS)	10	23.30	0.04	0	PCTEST_17	QPSK	1	0	1.0 cm	back	0.130
1750.00	20350	High	LTE Band 4 (AWS)	10	23.25	0.06	0	PCTEST_17	QPSK	1	49	1.0 cm	back	**0.154**
1750.00	20350	High	LTE Band 4 (AWS)	10	21.37	0.10	2	PCTEST_17	16 QAM	25	12	1.0 cm	back	0.082
1750.00	20350	High	LTE Band 4 (AWS)	10	22.50	-0.01	1	PCTEST_17	16 QAM	1	0	1.0 cm	back	0.108
1750.00	20350	High	LTE Band 4 (AWS)	10	22.44	-0.01	1	PCTEST_17	16 QAM	1	49	1.0 cm	back	0.130
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.14	-0.03	1	PCTEST_16	QPSK	25	12	1.0 cm	back	0.141
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.51	0.00	0	PCTEST_16	QPSK	1	0	1.0 cm	back	**0.179**
1880.00	18900	Mid	LTE Band 2 (PCS)	10	23.44	0.11	0	PCTEST_16	QPSK	1	49	1.0 cm	back	0.136
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.18	-0.07	2	PCTEST_16	16 QAM	25	12	1.0 cm	back	0.108
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.75	0.17	1	PCTEST_16	16 QAM	1	0	1.0 cm	back	0.139
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.48	-0.04	1	PCTEST_16	16 QAM	1	49	1.0 cm	back	0.102
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**									**Body** **1.6 W/kg (mW/g)** averaged over 1 gram					

Per FCC Guidance:

1. For LTE Mode, when the reported SAR measured for 1 cm air-gap without headset cable is >1.2 W/kg, the highest reported SAR configuration for the mode and band should be repeated with headset attached, per past FCC guidance. Since the measured SAR was not >1.2 W/kg, the hotspot data for the back side configuration additionally shows body-worn compliance.
2. When the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% allocation, the highest output power for the 1 RB allocations is tested. Therefore:
    i. For LTE Band 12, low channel was tested for the QPSK and 16 QAM 1 RB allocation configurations.
    ii. For LTE Band 5, mid channel was tested for the QPSK and low channel was tested for 16 QAM 1 RB allocation configurations.
    iii. For LTE Band 4, high channel was tested for the QPSK and 16 QAM 1 RB allocation configurations.
    iv. For LTE Band 2, mid channel was tested for the QPSK and 16 QAM 1 RB allocation configurations.
3. When the average output power deviation of QPSK 50% RB allocation across low, high, and mid channels is >0.5 dB, the highest output power channel (High Channel) for QPSK 50% RB allocation is tested. Therefore, for LTE Band 4, high channel was tested for QPSK and 16 QAM 50% RB allocation.
4. 16 QAM 50% RB is measured on channel that produced the highest measured SAR for QPSK 50% RB allocation. Therefore, for LTE Band 4, high channel was tested for 16 QAM 50% RB.

Table 12-13
802.11b WLAN Hotspot Representing Body-Worn and 802.11a WLAN Body-Worn SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	SAR (1g)
MHz	Ch.									(W/kg)
2462	11	IEEE 802.11b	DSSS	14.99	-0.04	1.0 cm	PCTEST_19	1	back	**0.243**
5745	149	IEEE 802.11a	OFDM	7.32	-0.05	1.0 cm	PCTEST_19	6	back	0.000
5240	48	IEEE 802.11a	OFDM	8.40	0.16	1.0 cm	PCTEST_19	6	back	**0.072**
5320	64	IEEE 802.11a	OFDM	8.67	0.17	1.0 cm	PCTEST_19	6	back	0.004
5520	104	IEEE 802.11a	OFDM	8.60	0.03	1.0 cm	PCTEST_19	6	back	0.001
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**Body 1.6 W/kg (mW/g) averaged over 1 gram**				

Note: For IEEE 802.11b mode, when the reported SAR measured for 1 cm air-gap without headset cable is >1.2 W/kg, the highest reported SAR configuration for the mode and band should be repeated with headset attached, per past FCC guidance. Since the measured SAR was not >1.2 W/kg, the hotspot data for the back side configuration additionally shows body-worn compliance. IEEE 802.11a modes were evaluated for SAR using headset cable.

12.3 Standalone Wireless Router SAR Data

Table 12-14
CDMA Hotspot SAR Data

MEASUREMENT RESULTS									
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Side	SAR (1g)
MHz	Ch.								(W/kg)
836.52	384	Cell. CDMA	TDSO / SO32	24.35	0.01	1.0 cm	PCTEST_15	back	0.496
836.52	384	Cell. CDMA	TDSO / SO32	24.35	-0.01	1.0 cm	PCTEST_15	front	0.271
836.52	384	Cell. CDMA	TDSO / SO32	24.35	-0.05	1.0 cm	PCTEST_15	bottom	0.296
836.52	384	Cell. CDMA	TDSO / SO32	24.35	-0.06	1.0 cm	PCTEST_15	left	0.328
836.52	384	Cell. CDMA	EVDO Rev. 0	24.38	0.02	1.0 cm	PCTEST_15	back	**0.510**
836.52	384	Cell. CDMA	EVDO Rev. 0	24.38	0.01	1.0 cm	PCTEST_15	front	0.287
836.52	384	Cell. CDMA	EVDO Rev. 0	24.38	0.11	1.0 cm	PCTEST_15	bottom	0.278
836.52	384	Cell. CDMA	EVDO Rev. 0	24.38	-0.01	1.0 cm	PCTEST_15	left	0.240
1732.50	450	AWS CDMA	TDSO / SO32	24.43	0.02	1.0 cm	PCTEST_15	back	0.232
1732.50	450	AWS CDMA	TDSO / SO32	24.43	-0.05	1.0 cm	PCTEST_15	front	0.215
1732.50	450	AWS CDMA	TDSO / SO32	24.43	0.09	1.0 cm	PCTEST_15	bottom	0.266
1732.50	450	AWS CDMA	TDSO / SO32	24.43	0.05	1.0 cm	PCTEST_15	left	0.140
1732.50	450	AWS CDMA	EVDO Rev. 0	24.44	-0.15	1.0 cm	PCTEST_15	back	**0.392**
1732.50	450	AWS CDMA	EVDO Rev. 0	24.44	0.06	1.0 cm	PCTEST_15	front	0.186
1732.50	450	AWS CDMA	EVDO Rev. 0	24.44	0.02	1.0 cm	PCTEST_15	bottom	0.295
1732.50	450	AWS CDMA	EVDO Rev. 0	24.44	-0.06	1.0 cm	PCTEST_15	left	0.155
1880.00	600	PCS CDMA	TDSO / SO32	24.41	-0.03	1.0 cm	PCTEST_15	back	**0.428**
1880.00	600	PCS CDMA	TDSO / SO32	24.41	0.20	1.0 cm	PCTEST_15	front	0.240
1880.00	600	PCS CDMA	TDSO / SO32	24.41	-0.19	1.0 cm	PCTEST_15	bottom	0.293
1880.00	600	PCS CDMA	TDSO / SO32	24.41	-0.02	1.0 cm	PCTEST_15	left	0.246
1880.00	600	PCS CDMA	EVDO Rev. 0	24.44	-0.02	1.0 cm	PCTEST_15	back	0.417
1880.00	600	PCS CDMA	EVDO Rev. 0	24.44	0.03	1.0 cm	PCTEST_15	front	0.254
1880.00	600	PCS CDMA	EVDO Rev. 0	24.44	-0.06	1.0 cm	PCTEST_15	bottom	0.288
1880.00	600	PCS CDMA	EVDO Rev. 0	24.44	-0.02	1.0 cm	PCTEST_15	left	0.251
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 12-15
LTE Band 12 Hotspot SAR Data

MEASUREMENT RESULTS														
FREQUENCY			Mode	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	# of RB	RB Offset	Spacing	Side	SAR (1g)
MHz	Ch.													(W/kg)
707.50	23085	Mid	LTE Band 12	10	22.17	0.04	1	PCTEST_12	QPSK	25	12	1.0 cm	back	0.091
704.00	23050	Low	LTE Band 12	10	22.96	-0.03	0	PCTEST_12	QPSK	1	0	1.0 cm	back	**0.148**
704.00	23050	Low	LTE Band 12	10	23.48	-0.04	0	PCTEST_12	QPSK	1	49	1.0 cm	back	0.125
707.50	23085	Mid	LTE Band 12	10	21.29	-0.01	2	PCTEST_12	16 QAM	25	12	1.0 cm	back	0.075
704.00	23050	Low	LTE Band 12	10	21.60	0.05	1	PCTEST_12	16 QAM	1	0	1.0 cm	back	0.111
704.00	23050	Low	LTE Band 12	10	22.20	0.12	1	PCTEST_12	16 QAM	1	49	1.0 cm	back	0.094
707.50	23085	Mid	LTE Band 12	10	22.17	0.02	1	PCTEST_12	QPSK	25	12	1.0 cm	front	0.042
704.00	23050	Low	LTE Band 12	10	22.96	-0.01	0	PCTEST_12	QPSK	1	0	1.0 cm	front	**0.066**
704.00	23050	Low	LTE Band 12	10	23.48	0.01	0	PCTEST_12	QPSK	1	49	1.0 cm	front	0.047
707.50	23085	Mid	LTE Band 12	10	21.29	0.06	2	PCTEST_12	16 QAM	25	12	1.0 cm	front	0.033
704.00	23050	Low	LTE Band 12	10	21.60	-0.01	1	PCTEST_12	16 QAM	1	0	1.0 cm	front	0.048
704.00	23050	Low	LTE Band 12	10	22.20	0.11	1	PCTEST_12	16 QAM	1	49	1.0 cm	front	0.041
707.50	23085	Mid	LTE Band 12	10	22.17	-0.11	1	PCTEST_12	QPSK	25	12	1.0 cm	bottom	0.041
704.00	23050	Low	LTE Band 12	10	22.96	-0.04	0	PCTEST_12	QPSK	1	0	1.0 cm	bottom	**0.065**
704.00	23050	Low	LTE Band 12	10	23.48	0.06	0	PCTEST_12	QPSK	1	49	1.0 cm	bottom	0.057
707.50	23085	Mid	LTE Band 12	10	21.29	0.04	2	PCTEST_12	16 QAM	25	12	1.0 cm	bottom	0.033
704.00	23050	Low	LTE Band 12	10	21.60	-0.09	1	PCTEST_12	16 QAM	1	0	1.0 cm	bottom	0.047
704.00	23050	Low	LTE Band 12	10	22.20	-0.04	1	PCTEST_12	16 QAM	1	49	1.0 cm	bottom	0.043
707.50	23085	Mid	LTE Band 12	10	22.17	-0.08	1	PCTEST_12	QPSK	25	12	1.0 cm	right	0.026
704.00	23050	Low	LTE Band 12	10	22.96	-0.06	0	PCTEST_12	QPSK	1	0	1.0 cm	right	**0.048**
704.00	23050	Low	LTE Band 12	10	23.48	0.06	0	PCTEST_12	QPSK	1	49	1.0 cm	right	0.037
707.50	23085	Mid	LTE Band 12	10	21.29	-0.07	2	PCTEST_12	16 QAM	25	12	1.0 cm	right	0.022
704.00	23050	Low	LTE Band 12	10	21.60	0.04	1	PCTEST_12	16 QAM	1	0	1.0 cm	right	0.024
704.00	23050	Low	LTE Band 12	10	22.20	-0.03	1	PCTEST_12	16 QAM	1	49	1.0 cm	right	0.026
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

Note: Per FCC KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% allocation, the highest output power for the 1 RB allocations is tested. Therefore low channel was tested for the QPSK and 16 QAM 1 RB allocation configurations.

Table 12-16
LTE Band 5 (Cell) Hotspot SAR Data

MEASUREMENT RESULTS														
FREQUENCY			Mode	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	# of RB	RB Offset	Spacing	Side	SAR (1g)
MHz	Ch.													(W/kg)
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.80	-0.02	1	PCTEST_14	QPSK	25	12	1.0 cm	back	0.237
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.25	0.04	0	PCTEST_14	QPSK	1	0	1.0 cm	back	0.344
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.21	0.01	0	PCTEST_14	QPSK	1	49	1.0 cm	back	**0.382**
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.89	-0.01	2	PCTEST_14	16 QAM	25	12	1.0 cm	back	0.193
829.00	20450	Low	LTE Band 5 (Cell)	10	22.10	-0.01	1	PCTEST_14	16 QAM	1	0	1.0 cm	back	0.244
829.00	20450	Low	LTE Band 5 (Cell)	10	22.13	-0.03	1	PCTEST_14	16 QAM	1	49	1.0 cm	back	0.251
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.80	0.07	1	PCTEST_14	QPSK	25	12	1.0 cm	front	0.097
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.25	0.01	0	PCTEST_14	QPSK	1	0	1.0 cm	front	0.135
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.21	0.02	0	PCTEST_14	QPSK	1	49	1.0 cm	front	**0.179**
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.89	0.03	2	PCTEST_14	16 QAM	25	12	1.0 cm	front	0.122
829.00	20450	Low	LTE Band 5 (Cell)	10	22.10	0.04	1	PCTEST_14	16 QAM	1	0	1.0 cm	front	0.143
829.00	20450	Low	LTE Band 5 (Cell)	10	22.13	0.00	1	PCTEST_14	16 QAM	1	49	1.0 cm	front	0.144
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.80	0.00	1	PCTEST_14	QPSK	25	12	1.0 cm	bottom	0.023
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.25	-0.03	0	PCTEST_14	QPSK	1	0	1.0 cm	bottom	0.029
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.21	-0.10	0	PCTEST_14	QPSK	1	49	1.0 cm	bottom	**0.041**
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.89	0.14	2	PCTEST_14	16 QAM	25	12	1.0 cm	bottom	0.018
829.00	20450	Low	LTE Band 5 (Cell)	10	22.10	0.02	1	PCTEST_14	16 QAM	1	0	1.0 cm	bottom	0.023
829.00	20450	Low	LTE Band 5 (Cell)	10	22.13	0.00	1	PCTEST_14	16 QAM	1	49	1.0 cm	bottom	0.021
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.80	0.08	1	PCTEST_14	QPSK	25	12	1.0 cm	right	0.251
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.25	-0.19	0	PCTEST_14	QPSK	1	0	1.0 cm	right	**0.399**
836.50	20525	Mid	LTE Band 5 (Cell)	10	23.21	-0.18	0	PCTEST_14	QPSK	1	49	1.0 cm	right	0.328
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.89	0.17	2	PCTEST_14	16 QAM	25	12	1.0 cm	right	0.173
829.00	20450	Low	LTE Band 5 (Cell)	10	22.10	0.04	1	PCTEST_14	16 QAM	1	0	1.0 cm	right	0.187
829.00	20450	Low	LTE Band 5 (Cell)	10	22.13	0.09	1	PCTEST_14	16 QAM	1	49	1.0 cm	right	0.192
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram					

Note: Per FCC KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% allocation, the highest output power for the 1 RB allocations is tested. Therefore mid channel was tested for QPSK and low channel was tested for the 16 QAM 1 RB allocation configurations.

Table 12-17
LTE Band 4 (AWS) Hotspot SAR Data

MEASUREMENT RESULTS														
FREQUENCY			Mode	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	# of RB	RB Offset	Spacing	Side	SAR (1g)
MHz	Ch.													(W/kg)
1750.00	20350	High	LTE Band 4 (AWS)	10	22.35	0.04	1	PCTEST_17	QPSK	25	12	1.0 cm	back	0.096
1750.00	20350	High	LTE Band 4 (AWS)	10	23.30	0.04	0	PCTEST_17	QPSK	1	0	1.0 cm	back	0.130
1750.00	20350	High	LTE Band 4 (AWS)	10	23.25	0.06	0	PCTEST_17	QPSK	1	49	1.0 cm	back	**0.154**
1750.00	20350	High	LTE Band 4 (AWS)	10	21.37	0.10	2	PCTEST_17	16 QAM	25	12	1.0 cm	back	0.082
1750.00	20350	High	LTE Band 4 (AWS)	10	22.50	-0.01	1	PCTEST_17	16 QAM	1	0	1.0 cm	back	0.108
1750.00	20350	High	LTE Band 4 (AWS)	10	22.44	-0.01	1	PCTEST_17	16 QAM	1	49	1.0 cm	back	0.130
1750.00	20350	High	LTE Band 4 (AWS)	10	22.35	0.11	1	PCTEST_17	QPSK	25	12	1.0 cm	front	0.036
1750.00	20350	High	LTE Band 4 (AWS)	10	23.30	0.21	0	PCTEST_17	QPSK	1	0	1.0 cm	front	0.047
1750.00	20350	High	LTE Band 4 (AWS)	10	23.25	0.14	0	PCTEST_17	QPSK	1	49	1.0 cm	front	**0.055**
1750.00	20350	High	LTE Band 4 (AWS)	10	21.37	0.17	2	PCTEST_17	16 QAM	25	12	1.0 cm	front	0.029
1750.00	20350	High	LTE Band 4 (AWS)	10	22.50	0.09	1	PCTEST_17	16 QAM	1	0	1.0 cm	front	0.039
1750.00	20350	High	LTE Band 4 (AWS)	10	22.44	-0.07	1	PCTEST_17	16 QAM	1	49	1.0 cm	front	0.045
1750.00	20350	High	LTE Band 4 (AWS)	10	22.35	0.01	1	PCTEST_17	QPSK	25	12	1.0 cm	bottom	0.114
1750.00	20350	High	LTE Band 4 (AWS)	10	23.30	0.00	0	PCTEST_17	QPSK	1	0	1.0 cm	bottom	0.145
1750.00	20350	High	LTE Band 4 (AWS)	10	23.25	-0.03	0	PCTEST_17	QPSK	1	49	1.0 cm	bottom	**0.166**
1750.00	20350	High	LTE Band 4 (AWS)	10	21.37	0.09	2	PCTEST_17	16 QAM	25	12	1.0 cm	bottom	0.090
1750.00	20350	High	LTE Band 4 (AWS)	10	22.50	0.07	1	PCTEST_17	16 QAM	1	0	1.0 cm	bottom	0.121
1750.00	20350	High	LTE Band 4 (AWS)	10	22.44	-0.03	1	PCTEST_17	16 QAM	1	49	1.0 cm	bottom	0.137
1750.00	20350	High	LTE Band 4 (AWS)	10	22.35	0.05	1	PCTEST_17	QPSK	25	12	1.0 cm	right	0.014
1750.00	20350	High	LTE Band 4 (AWS)	10	23.30	0.10	0	PCTEST_17	QPSK	1	0	1.0 cm	right	0.018
1750.00	20350	High	LTE Band 4 (AWS)	10	23.25	0.07	0	PCTEST_17	QPSK	1	49	1.0 cm	right	**0.021**
1750.00	20350	High	LTE Band 4 (AWS)	10	21.37	0.17	2	PCTEST_17	16 QAM	25	12	1.0 cm	right	0.011
1750.00	20350	High	LTE Band 4 (AWS)	10	22.50	0.16	1	PCTEST_17	16 QAM	1	0	1.0 cm	right	0.015
1750.00	20350	High	LTE Band 4 (AWS)	10	22.44	0.04	1	PCTEST_17	16 QAM	1	49	1.0 cm	right	0.017
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram						

Per FCC KDB 941225 D05:

4. When the average output power deviation of QPSK 50% RB allocation across low, high, and mid channels is >0.5 dB, the highest output power channel (High Channel) for QPSK 50% RB allocation is tested. Therefore, for LTE Band 4, high channel was tested for QPSK 50% RB allocation.
5. When the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% allocation, the highest output power for the 1 RB allocations is tested. Therefore, high channel was tested for the QPSK and 16 QAM 1 RB allocation configurations.
6. 16 QAM 50% RB is measured on channel that produced the highest measured SAR for QPSK 50% RB allocation. Therefore, high channel was tested for 16 QAM 50% RB.

Table 12-18
LTE Band 2 (PCS) Hotspot SAR Data

MEASUREMENT RESULTS														
FREQUENCY			Mode	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	# of RB	RB Offset	Spacing	Side	SAR (1g)
MHz	Ch.													(W/kg)
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.14	-0.03	1	PCTEST_16	QPSK	25	12	1.0 cm	back	0.141
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.51	0.00	0	PCTEST_16	QPSK	1	0	1.0 cm	back	**0.179**
1880.00	18900	Mid	LTE Band 2 (PCS)	10	23.44	0.11	0	PCTEST_16	QPSK	1	49	1.0 cm	back	0.136
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.18	-0.07	2	PCTEST_16	16 QAM	25	12	1.0 cm	back	0.108
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.75	0.17	1	PCTEST_16	16 QAM	1	0	1.0 cm	back	0.139
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.48	-0.04	1	PCTEST_16	16 QAM	1	49	1.0 cm	back	0.102
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.14	-0.13	1	PCTEST_16	QPSK	25	12	1.0 cm	front	0.155
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.51	0.01	0	PCTEST_16	QPSK	1	0	1.0 cm	front	**0.199**
1880.00	18900	Mid	LTE Band 2 (PCS)	10	23.44	0.11	0	PCTEST_16	QPSK	1	49	1.0 cm	front	0.163
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.18	-0.20	2	PCTEST_16	16 QAM	25	12	1.0 cm	front	0.124
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.75	0.21	1	PCTEST_16	16 QAM	1	0	1.0 cm	front	0.155
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.48	0.02	1	PCTEST_16	16 QAM	1	49	1.0 cm	front	0.129
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.14	0.14	1	PCTEST_16	QPSK	25	12	1.0 cm	bottom	0.043
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.51	0.17	0	PCTEST_16	QPSK	1	0	1.0 cm	bottom	**0.054**
1880.00	18900	Mid	LTE Band 2 (PCS)	10	23.44	-0.11	0	PCTEST_16	QPSK	1	49	1.0 cm	bottom	0.040
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.18	-0.05	2	PCTEST_16	16 QAM	25	12	1.0 cm	bottom	0.034
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.75	0.03	1	PCTEST_16	16 QAM	1	0	1.0 cm	bottom	0.043
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.48	-0.20	1	PCTEST_16	16 QAM	1	49	1.0 cm	bottom	0.030
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.14	-0.03	1	PCTEST_16	QPSK	25	12	1.0 cm	right	0.252
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.51	0.10	0	PCTEST_16	QPSK	1	0	1.0 cm	right	**0.279**
1880.00	18900	Mid	LTE Band 2 (PCS)	10	23.44	0.03	0	PCTEST_16	QPSK	1	49	1.0 cm	right	0.271
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.18	0.06	2	PCTEST_16	16 QAM	25	12	1.0 cm	right	0.204
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.75	-0.01	1	PCTEST_16	16 QAM	1	0	1.0 cm	right	0.224
1880.00	18900	Mid	LTE Band 2 (PCS)	10	22.48	0.03	1	PCTEST_16	16 QAM	1	49	1.0 cm	right	0.221
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

Note: When the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% allocation, the highest output power for the 1 RB allocations is tested. Therefore mid channel was tested for the QPSK and 16 QAM 1 RB allocation configurations per FCC KDB 941225 D05.

Table 12-19
WLAN Hotspot SAR Data

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	SAR (1g)
MHz	Ch.									(W/kg)
2462	11	IEEE 802.11b	DSSS	14.99	-0.04	1.0 cm	PCTEST_19	1	back	**0.243**
2462	11	IEEE 802.11b	DSSS	14.99	-0.09	1.0 cm	PCTEST_19	1	front	0.028
2462	11	IEEE 802.11b	DSSS	14.99	0.04	1.0 cm	PCTEST_19	1	right	0.086
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**						**Body** **1.6 W/kg (mW/g)** averaged over 1 gram				

12.4 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR value with the position set in a typical configuration. Test procedures used were according to FCC/OET Bulletin 65, Supplement C [June 2001].
2. Batteries are fully charged for all readings. The standard battery was used.
3. Tissue parameters and temperatures are listed on the SAR plots.
4. Liquid tissue depth was at least 15.0 cm. To confirm the proper SAR liquid depth, the z-axis plots from the system verifications were included since the system verifications were performed using the same liquid, probe and DAE as the SAR tests in the same time period.
5. 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.
6. Per FCC/OET Bulletin 65 Supplement C and Public Notice DA-02-1438, if the SAR measured at the middle channel for each test configuration is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
7. 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.
8. The measured SAR when extrapolated to the maximum tune-up power tolerance levels remains compliance for all operating configurations.

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per KDB Publication 941225 D01.
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. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01 procedures for data devices. 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.
4. SAR is additionally required for 1x RTT for Hotspot exposure conditions to support simultaneous capabilities per Table 1-2. When the reported SAR measured for 1 cm air-gap without headset cable is >1.2 W/kg, the highest reported SAR configuration for the mode and band should be repeated with headset attached, per past FCC guidance. Since the measured SAR was not >1.2 W/kg, the hotspot data for the back side configuration additionally shows body-worn compliance.
5. AWS CDMA SAR was measured with a probe calibrated at 1750 MHz and is valid for measuring SAR from ± 50 MHz. The 1750MHz specific liquid was verified with specific probe calibration factors as required per FCC KDB Publication 450824 D01.
6. Head SAR was additionally evaluated for EVDO Rev. A to determine VoIP compliance.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Test Considerations for LTE handsets and Data Modems KDB 941225 D05 Publication and were evaluated independently of position. General test procedures can be found in Section 9.3.3.
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.
4. When the reported SAR measured for 1 cm air-gap without headset cable is >1.2 W/kg, the highest reported SAR configuration for the mode and band should be repeated with headset attached, per past FCC guidance. Since the measured SAR was not >1.2 W/kg, LTE hotspot data for the back side configuration additionally shows body-worn compliance.
5. LTE Band 4 (AWS) SAR was measured with a probe calibrated at 1750 MHz and is valid for measuring SAR from ± 50 MHz. The 1750MHz specific liquid was verified with specific probe calibration factors as required per FCC KDB Publication 450824 D01.

WLAN Notes:

1. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 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 and April 2010 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 20MHz and 40MHz bandwidths) 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.
4. WLAN transmission was verified using an uncalibrated spectrum analyzer.
5. When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the 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.
6. when the reported SAR measured for 1 cm air-gap without headset cable is >1.2 W/kg, the highest reported SAR configuration for the mode and band should be repeated with headset attached, per past FCC guidance. Since the measured SAR was not >1.2 W/kg, 802.11b hotspot data for the back side configuration additionally shows body-worn compliance.

Hotspot Notes:

1. Top and Right Edges for the CDMA/EVDO transmitter were not tested since the antenna distance from the edge was greater than 2.5 cm per FCC KDB Publication 941225 D06 guidance (see Section 1.3).
2. Top and Left Edges for the LTE transmitters were not tested since the antenna distance from the edge was greater than 2.5 cm per FCC KDB Publication 941225 D06 guidance (see Section 1.3).
3. Top, Bottom, and Left Edges for the WLAN transmitter were not tested since the antenna distance from the edge was greater than 2.5 cm per FCC KDB Publication 941225 D06 (see Section 1.3).
4. During SAR Testing for the Wireless Router conditions per KDB 941225 D06, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 7.6.)

13 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

13.1 Introduction

The following procedures adopted from "FCC SAR Considerations for Cell Phones with Multiple Transmitters" FCC KDB Publication 648474 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.

13.2 FCC Power Tables & Conditions

	2.45	5.15 - 5.35	5.47 - 5.85	GHz
P_{Ref}	12	6	5	mW
Device output power should be rounded to the nearest mW to compare with values specified in this table.				

Figure 13-1
Output Power Thresholds for Unlicensed Transmitters

	Individual Transmitter	Simultaneous Transmission
Licensed Transmitters	Routine evaluation required	SAR not required: Unlicensed only ○ when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas Licensed & Unlicensed ○ when the sum of the 1-g SAR is < 1.6 W/kg for all simultaneous transmitting antennas ○ when SAR to peak location separation ratio of simultaneous transmitting antenna pair is < 0.3 SAR required: Licensed & Unlicensed antenna pairs with SAR to peak location separation ratio ≥ 0.3; test is only required for the configuration that results in the highest SAR in stand-alone configuration for each wireless mode and exposure condition Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply
Unlicensed Transmitters	When there is no simultaneous transmission – ○ output ≤ 60/f: SAR not required ○ output > 60/f: stand-alone SAR required When there is simultaneous transmission – Stand-alone SAR not required when ○ output ≤ 2·P_{Ref} and antenna is ≥ 5.0 cm from other antennas ○ output ≤ P_{Ref} and antenna is ≥ 2.5 cm from other antennas ○ output ≤ P_{Ref} and antenna is < 2.5 cm from other antennas, each with either output power ≤ P_{Ref} or 1-g SAR < 1.2 W/kg Otherwise stand-alone SAR is required When stand-alone SAR is required ○ test SAR on highest output channel for each wireless mode and exposure condition ○ if SAR for highest output channel is > 50% of SAR limit, evaluate all channels according to normal procedures	

Figure 13-2
SAR Evaluation Requirements for Multiple Transmitter Handsets

According to Figure 13-1 and Figure 13-2, simultaneous transmission analysis of SAR may be required for this device for the licensed and unlicensed transmitters. Possible simultaneous transmissions for this device indicated in Table 1-2 were numerically summed using stand-alone SAR data and are shown in the following tables.

Per KDB Publication 648474, standalone Bluetooth SAR tests were not required. Standalone SAR tests for 2.4 GHz WLAN were required. Standalone SAR tests for 5GHz WLAN is not required but additionally evaluated per manufacturer's request. See Section 1.5(A) for more information.

13.3 Head SAR Simultaneous Transmission Analysis

Table 13-1
Simultaneous Transmission Scenario (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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.214	0.028	0.038	0.242	0.252	0.066	0.280
	Right Tilt	0.134	0.016	0.028	0.150	0.162	0.044	0.178
	Left Cheek	0.181	0.028	0.078	0.209	0.259	0.106	**0.287**
	Left Tilt	0.113	0.016	0.063	0.129	0.176	0.079	0.192

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.098	0.028	0.038	0.126	0.136	0.066	0.164
	Right Tilt	0.087	0.016	0.028	0.103	0.115	0.044	0.131
	Left Cheek	0.158	0.028	0.078	0.186	0.236	0.106	**0.264**
	Left Tilt	0.068	0.016	0.063	0.084	0.131	0.079	0.147

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.109	0.028	0.038	0.137	0.147	0.066	0.175
	Right Tilt	0.090	0.016	0.028	0.106	0.118	0.044	0.134
	Left Cheek	0.167	0.028	0.078	0.195	0.245	0.106	**0.273**
	Left Tilt	0.077	0.016	0.063	0.093	0.140	0.079	0.156

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.214	0.160	0.038	0.374	0.252	0.198	**0.412**
	Right Tilt	0.134	0.058	0.028	0.192	0.162	0.086	0.220
	Left Cheek	0.181	0.091	0.078	0.272	0.259	0.169	0.350
	Left Tilt	0.113	0.049	0.063	0.162	0.176	0.112	0.225

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.098	0.160	0.038	0.258	0.136	0.198	0.296
	Right Tilt	0.087	0.058	0.028	0.145	0.115	0.086	0.173
	Left Cheek	0.158	0.091	0.078	0.249	0.236	0.169	**0.327**
	Left Tilt	0.068	0.049	0.063	0.117	0.131	0.112	0.180

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.109	0.160	0.038	0.269	0.147	0.198	0.307
	Right Tilt	0.090	0.058	0.028	0.148	0.118	0.086	0.176
	Left Cheek	0.167	0.091	0.078	0.258	0.245	0.169	**0.336**
	Left Tilt	0.077	0.049	0.063	0.126	0.140	0.112	0.189

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.214	0.009	0.038	0.223	0.252	0.047	0.261
	Right Tilt	0.134	0.005	0.028	0.139	0.162	0.033	0.167
	Left Cheek	0.181	0.010	0.078	0.191	0.259	0.088	**0.269**
	Left Tilt	0.113	0.007	0.063	0.120	0.176	0.070	0.183

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.098	0.009	0.038	0.107	0.136	0.047	0.145
	Right Tilt	0.087	0.005	0.028	0.092	0.115	0.033	0.120
	Left Cheek	0.158	0.010	0.078	0.168	0.236	0.088	**0.246**
	Left Tilt	0.068	0.007	0.063	0.075	0.131	0.070	0.138

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.109	0.009	0.038	0.118	0.147	0.047	0.156
	Right Tilt	0.090	0.005	0.028	0.095	0.118	0.033	0.123
	Left Cheek	0.167	0.010	0.078	0.177	0.245	0.088	**0.255**
	Left Tilt	0.077	0.007	0.063	0.084	0.140	0.070	0.147

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.214	0.151	0.038	0.365	0.252	0.189	**0.403**
	Right Tilt	0.134	0.058	0.028	0.192	0.162	0.086	0.220
	Left Cheek	0.181	0.101	0.078	0.282	0.259	0.179	0.360
	Left Tilt	0.113	0.074	0.063	0.187	0.176	0.137	0.250

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.098	0.151	0.038	0.249	0.136	0.189	0.287
	Right Tilt	0.087	0.058	0.028	0.145	0.115	0.086	0.173
	Left Cheek	0.158	0.101	0.078	0.259	0.236	0.179	**0.337**
	Left Tilt	0.068	0.074	0.063	0.142	0.131	0.137	0.205

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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Head SAR	Right Cheek	0.109	0.151	0.038	0.260	0.147	0.189	0.298
	Right Tilt	0.090	0.058	0.028	0.148	0.118	0.086	0.176
	Left Cheek	0.167	0.101	0.078	0.268	0.245	0.179	**0.346**
	Left Tilt	0.077	0.074	0.063	0.151	0.140	0.137	0.214

Simult Tx	Configuration	Cell. EVDO Rev. A SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.216	0.038	0.254
	Right Tilt	0.147	0.028	0.175
	Left Cheek	0.196	0.078	**0.274**
	Left Tilt	0.136	0.063	0.199

Simult Tx	Configuration	AWS EVDO Rev. A SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.091	0.038	0.129
	Right Tilt	0.062	0.028	0.090
	Left Cheek	0.113	0.078	**0.191**
	Left Tilt	0.064	0.063	0.127

Simult Tx	Configuration	PCS EVDO Rev. A SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.098	0.038	0.136
	Right Tilt	0.091	0.028	0.119
	Left Cheek	0.163	0.078	**0.241**
	Left Tilt	0.092	0.063	0.155

Table 13-2
Simultaneous Transmission Scenario (Held to Ear)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.214	0.001	**0.215**
	Right Tilt	0.134	0.000	0.134
	Left Cheek	0.181	0.015	0.196
	Left Tilt	0.113	0.006	0.119

Simult Tx	Configuration	AWS CDMA SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.098	0.001	0.099
	Right Tilt	0.087	0.000	0.087
	Left Cheek	0.158	0.015	**0.173**
	Left Tilt	0.068	0.006	0.074

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.109	0.001	0.110
	Right Tilt	0.090	0.000	0.090
	Left Cheek	0.167	0.015	**0.182**
	Left Tilt	0.077	0.006	0.083

13.4 Body-Worn Simultaneous Transmission Analysis

Table 13-3
Simultaneous Transmission Scenario (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)			
		1	2	3	1+2	1+3	2+3	1+2+3
Back Side	Cell. CDMA	0.496	0.148	0.243	0.644	0.739	0.391	**0.887**
Back Side	AWS CDMA	0.232	0.148	0.243	0.380	0.475	0.391	0.623
Back Side	PCS CDMA	0.428	0.148	0.243	0.576	0.671	0.391	0.819
Configuration	Mode	CDMA SAR (W/kg)	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)			
		1	2	3	1+2	1+3	2+3	1+2+3
Back Side	Cell. CDMA	0.496	0.382	0.243	0.878	0.739	0.625	**1.121**
Back Side	AWS CDMA	0.232	0.382	0.243	0.614	0.475	0.625	0.857
Back Side	PCS CDMA	0.428	0.382	0.243	0.810	0.671	0.625	1.053
Configuration	Mode	CDMA SAR (W/kg)	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)			
		1	2	3	1+2	1+3	2+3	1+2+3
Back Side	Cell. CDMA	0.496	0.154	0.243	0.650	0.739	0.397	**0.893**
Back Side	AWS CDMA	0.232	0.154	0.243	0.386	0.475	0.397	0.629
Back Side	PCS CDMA	0.428	0.154	0.243	0.582	0.671	0.397	0.825
Configuration	Mode	CDMA SAR (W/kg)	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)			
		1	2	3	1+2	1+3	2+3	1+2+3
Back Side	Cell. CDMA	0.496	0.179	0.243	0.675	0.739	0.422	**0.918**
Back Side	AWS CDMA	0.232	0.179	0.243	0.411	0.475	0.422	0.654
Back Side	PCS CDMA	0.428	0.179	0.243	0.607	0.671	0.422	0.850

Table 13-4
Simultaneous Transmission Scenario (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	0.496	0.072	**0.568**
Back Side	AWS CDMA	0.232	0.072	0.304
Back Side	PCS CDMA	0.428	0.072	0.500

13.5 Hotspot SAR Simultaneous Transmission Analysis

Table 13-5
Simultaneous Transmission Scenario (Hotspot at 1.0 cm)

Simult Tx	Configuration	Cell. EVDO Rev. 0 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.510	0.243	**0.753**
	Front	0.287	0.028	0.315
	Top	-	-	0.000
	Bottom	0.278	-	0.278
	Right	-	0.086	0.086
	Left	0.240	-	0.240

Simult Tx	Configuration	AWS EVDO Rev. 0 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.392	0.243	**0.635**
	Front	0.186	0.028	0.214
	Top	-	-	0.000
	Bottom	0.295	-	0.295
	Right	-	0.086	0.086
	Left	0.155	-	0.155

Simult Tx	Configuration	PCS EVDO Rev. 0 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.417	0.243	**0.660**
	Front	0.254	0.028	0.282
	Top	-	-	0.000
	Bottom	0.288	-	0.288
	Right	-	0.086	0.086
	Left	0.251	-	0.251

Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.148	0.243	**0.391**
	Front	0.066	0.028	0.094
	Top	-	-	0.000
	Bottom	0.065	-	0.065
	Right	0.048	0.086	0.134
	Left	-	-	0.000

Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.382	0.243	**0.625**
	Front	0.179	0.028	0.207
	Top	-	-	0.000
	Bottom	0.041	-	0.041
	Right	0.399	0.086	0.485
	Left	-	-	0.000

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.154	0.243	**0.397**
	Front	0.055	0.028	0.083
	Top	-	-	0.000
	Bottom	0.166	-	0.166
	Right	0.021	0.086	0.107
	Left	-	-	0.000

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.179	0.243	**0.422**
	Front	0.199	0.028	0.227
	Top	-	-	0.000
	Bottom	0.054	-	0.054
	Right	0.279	0.086	0.365
	Left	-	-	0.000

Note: Per FCC KDB Publication 941225 D06, the edges with antennas more than 2.5 cm are not required to be evaluated for SAR ("-").

13.6 Hotspot with Voice Call SAR Simultaneous Transmission Analysis

Table 13-6
Simultaneous Transmission Scenario (Hotspot + Voice Call 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)
		1	2	3	1+2+3
Body SAR	Back	0.496	0.148	0.243	**0.887**
	Front	0.271	0.066	0.028	0.365
	Top	-	-	-	0.000
	Bottom	0.296	0.065	-	0.361
	Right	-	0.048	0.086	0.134
	Left	0.328	-	-	0.328
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)
		1	2	3	1+2+3
Body SAR	Back	0.232	0.148	0.243	**0.623**
	Front	0.215	0.066	0.028	0.309
	Top	-	-	-	0.000
	Bottom	0.266	0.065	-	0.331
	Right	-	0.048	0.086	0.134
	Left	0.140	-	-	0.140
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)
		1	2	3	1+2+3
Body SAR	Back	0.428	0.148	0.243	**0.819**
	Front	0.240	0.066	0.028	0.334
	Top	-	-	-	0.000
	Bottom	0.293	0.065	-	0.358
	Right	-	0.048	0.086	0.134
	Left	0.246	-	-	0.246
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)
		1	2	3	1+2+3
Body SAR	Back	0.496	0.382	0.243	**1.121**
	Front	0.271	0.179	0.028	0.478
	Top	-	-	-	0.000
	Bottom	0.296	0.041	-	0.337
	Right	-	0.399	0.086	0.485
	Left	0.328	-	-	0.328

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)
		1	2	3	1+2+3
Body SAR	Back	0.232	0.382	0.243	**0.857**
	Front	0.215	0.179	0.028	0.422
	Top	-	-	-	0.000
	Bottom	0.266	0.041	-	0.307
	Right	-	0.399	0.086	0.485
	Left	0.140	-	-	0.140

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)
		1	2	3	1+2+3
Body SAR	Back	0.428	0.382	0.243	**1.053**
	Front	0.240	0.179	0.028	0.447
	Top	-	-	-	0.000
	Bottom	0.293	0.041	-	0.334
	Right	-	0.399	0.086	0.485
	Left	0.246	-	-	0.246

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)
		1	2	3	1+2+3
Body SAR	Back	0.496	0.154	0.243	**0.893**
	Front	0.271	0.055	0.028	0.354
	Top	-	-	-	0.000
	Bottom	0.296	0.166	-	0.462
	Right	-	0.021	0.086	0.107
	Left	0.328	-	-	0.328

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)
		1	2	3	1+2+3
Body SAR	Back	0.232	0.154	0.243	**0.629**
	Front	0.215	0.055	0.028	0.298
	Top	-	-	-	0.000
	Bottom	0.266	0.166	-	0.432
	Right	-	0.021	0.086	0.107
	Left	0.140	-	-	0.140

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)
		1	2	3	1+2+3
Body SAR	Back	0.428	0.154	0.243	**0.825**
	Front	0.240	0.055	0.028	0.323
	Top	-	-	-	0.000
	Bottom	0.293	0.166	-	0.459
	Right	-	0.021	0.086	0.107
	Left	0.246	-	-	0.246

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)
		1	2	3	1+2+3
Body SAR	Back	0.496	0.179	0.243	**0.918**
	Front	0.271	0.199	0.028	0.498
	Top	-	-	-	0.000
	Bottom	0.296	0.054	-	0.350
	Right	-	0.279	0.086	0.365
	Left	0.328	-	-	0.328

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)
		1	2	3	1+2+3
Body SAR	Back	0.232	0.179	0.243	**0.654**
	Front	0.215	0.199	0.028	0.442
	Top	-	-	-	0.000
	Bottom	0.266	0.054	-	0.320
	Right	-	0.279	0.086	0.365
	Left	0.140	-	-	0.140

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)
		1	2	3	1+2+3
Body SAR	Back	0.428	0.179	0.243	**0.850**
	Front	0.240	0.199	0.028	0.467
	Top	-	-	-	0.000
	Bottom	0.293	0.054	-	0.347
	Right	-	0.279	0.086	0.365
	Left	0.246	-	-	0.246

Note: Per FCC KDB Publication 941225 D06, the edges with antennas more than 2.5 cm are not required to be evaluated for SAR ("-").

13.7 Simultaneous Transmission Conclusion

The above numerical summed SAR was below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit. No volumetric SAR summation is required per FCC KDB Publication 648474. The numerical summed SAR remains complaint when extrapolated to the maximum tune-up power tolerance levels.

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	4/3/2012	Annual	4/3/2013	US37390350
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	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	85070E	Dielectric Probe Kit	3/8/2012	Annual	3/8/2013	MY44300633
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	E5515C	Wireless Communications Test Set	2/14/2012	Annual	2/14/2013	GB43163447
Agilent	E5515C	Wireless Communications Tester	4/4/2012	Annual	4/4/2013	US41140256
Amplifier Research	5S1G4	5W, 800MHz-4.2GHz	CBT	N/A	CBT	21910
Anritsu	ML2438A	Power Meter	10/13/2011	Annual	10/13/2012	1070030
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	8013
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	2400
Anritsu	MA2481A	Power Sensor	4/5/2012	Annual	4/5/2013	5605
Anritsu	MA2411B	Pulse Sensor	10/13/2011	Annual	10/13/2012	1027293
Anritsu	MT8820C	Radio Communication Tester	11/11/2011	Annual	11/11/2012	6200901190
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1S5A00-009
Control Company	61220-416	Long-Stem Thermometer	2/15/2011	Biennial	2/15/2013	111331322
Control Company	61220-416	Long-Stem Thermometer	2/15/2011	Biennial	2/15/2013	111331323
Control Company	36934-158	Wall-Mounted Thermometer	1/4/2012	Biennial	1/4/2014	122014497
Control Company	36934-158	Wall-Mounted Thermometer	1/4/2012	Biennial	1/4/2014	122014488
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/12/2011	Annual	10/12/2012	1833460
Gigatronics	8651A	Universal Power Meter	10/12/2011	Annual	10/12/2012	8650319
Intelligent Weigh	PD-3000	Electronic Balance	3/27/2012	Annual	3/27/2013	11081534
Intelligent Weighing	PD-3000	Electronic Balance	6/29/2012	Annual	6/29/2013	120405017
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Rohde & Schwarz	NRVD	Dual Channel Power Meter	4/8/2011	Biennial	4/8/2013	101695
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	11/30/2011	Annual	11/30/2012	101699
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	10/7/2011	Biennial	10/7/2013	103962
Rohde & Schwarz	SMIQ03B	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	D1900V2	1900 MHz SAR Dipole	2/22/2012	Annual	2/22/2013	502
SPEAG	D1900V2	1900 MHz SAR Dipole	2/22/2012	Annual	2/22/2013	5d149
SPEAG	D2450V2	2450 MHz SAR Dipole	1/24/2012	Annual	1/24/2013	797
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/19/2012	Annual	1/19/2013	1057
SPEAG	D5GHzV2	5 GHz SAR Dipole	2/1/2012	Annual	2/1/2013	1120
SPEAG	D750V3	750 MHz Dipole	1/27/2012	Annual	1/27/2013	1003
SPEAG	D835V2	835 MHz SAR Dipole	1/25/2012	Annual	1/25/2013	4d047
SPEAG	D835V2	835 MHz SAR Dipole	2/3/2012	Annual	2/3/2013	4d132
SPEAG	D835V2	835 MHz SAR Dipole	4/20/2012	Annual	4/20/2013	4d119
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/18/2012	Annual	1/18/2013	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2012	Annual	2/15/2013	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/20/2012	Annual	2/20/2013	649
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/12/2012	Annual	4/12/2013	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/19/2012	Annual	4/19/2013	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/7/2012	Annual	5/7/2013	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/15/2012	Annual	5/15/2013	859
SPEAG	DAK-3.5	Dielectic Assessment Kit	6/19/2012	Annual	6/19/2013	1070
SPEAG	EX3DV4	SAR Probe	1/27/2012	Annual	1/27/2013	3589
SPEAG	ES3DV3	SAR Probe	2/7/2012	Annual	2/7/2013	3288
SPEAG	ES3DV3	SAR Probe	2/7/2012	Annual	2/7/2013	3287
SPEAG	ES3DV3	SAR Probe	2/21/2012	Annual	2/21/2013	3258
SPEAG	ES3DV3	SAR Probe	3/16/2012	Annual	3/16/2013	3209
SPEAG	ES3DV3	SAR Probe	4/24/2012	Annual	4/24/2013	3213
SPEAG	EX3DV4	SAR Probe	7/26/2012	Annual	7/26/2013	3561
Tektronix	RSA-6114A	Real Time Spectrum Analyzer	4/5/2012	Annual	4/5/2013	B010177
VWR	62344-925	Mini-Thermometer	10/24/2011	Biennial	10/24/2013	111886430
VWR	62344-925	Mini-Thermometer	10/24/2011	Biennial	10/24/2013	111886443

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

15 MEASUREMENT UNCERTAINTIES

Applicable for frequencies less than 3000 MHz.

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

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

Applicable for frequencies up to 6 GHz.

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

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

16 CONCLUSION

16.1 Measurement Conclusion

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

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

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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_12

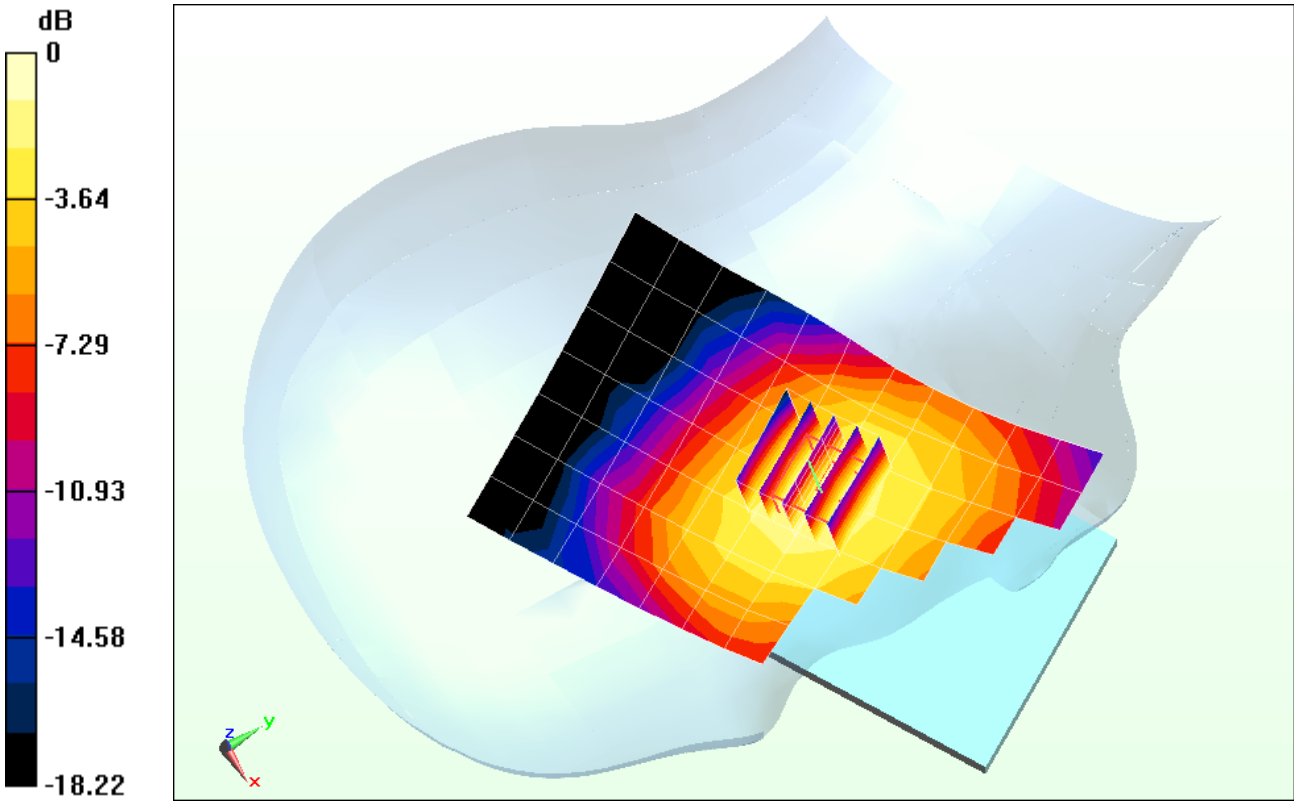
Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1
Medium: 740 Head; Medium parameters used (interpolated):
f = 704 MHz; σ = 0.886 mho/m; ε_r = 40.494; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-04-2012; Ambient Temp: 24.4°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3209; ConvF(6.47, 6.47, 6.47); Calibrated: 3/16/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 12, Right Head, Cheek, Low.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.155 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.035 mW/g
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.023 mW/g



0 dB = 0.0293 mW/g = -30.66 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_12

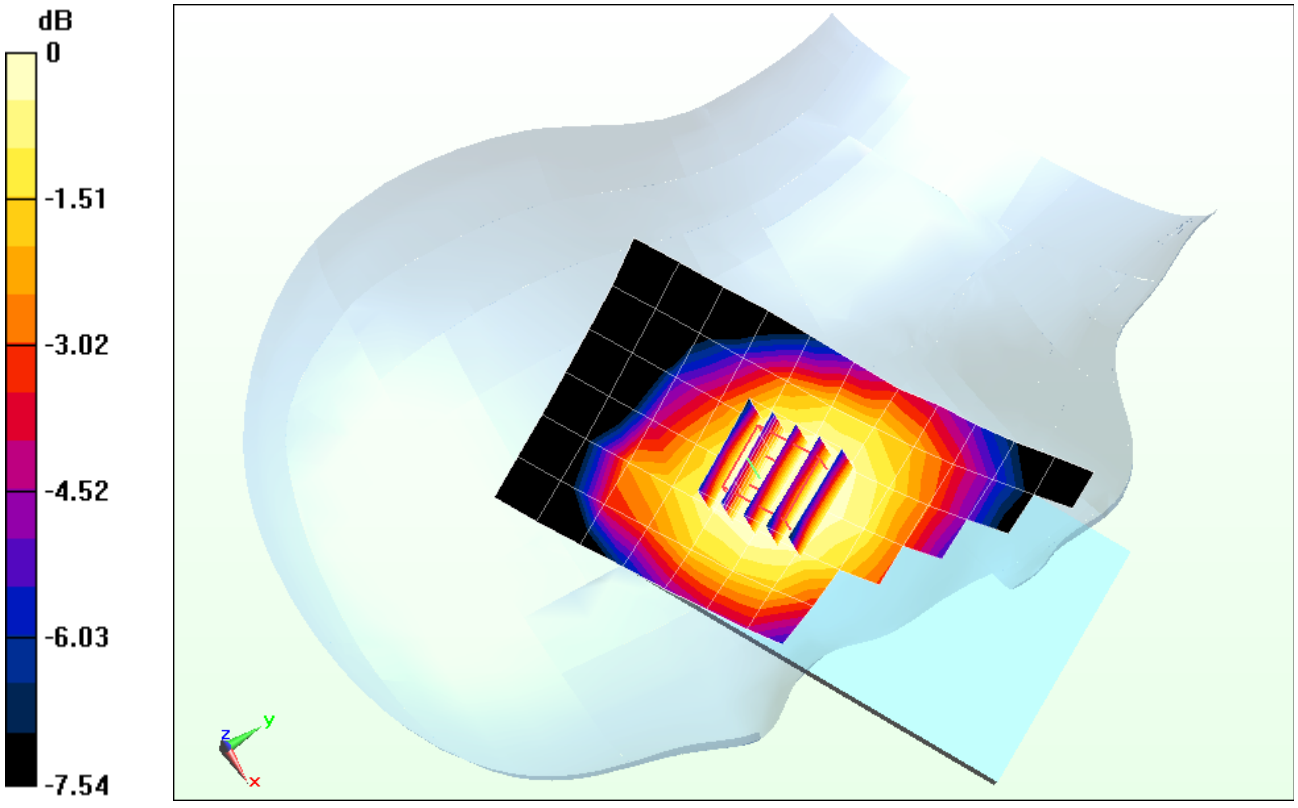
Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1
Medium: 740 Head; Medium parameters used (interpolated):
f = 704 MHz; σ = 0.886 mho/m; ε_r = 40.494; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-04-2012; Ambient Temp: 24.4°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3209; ConvF(6.47, 6.47, 6.47); Calibrated: 3/16/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 12, Right Head, Tilt, Low.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.556 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 0.019 mW/g
SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.013 mW/g



0 dB = 0.0167 mW/g = -35.55 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_12

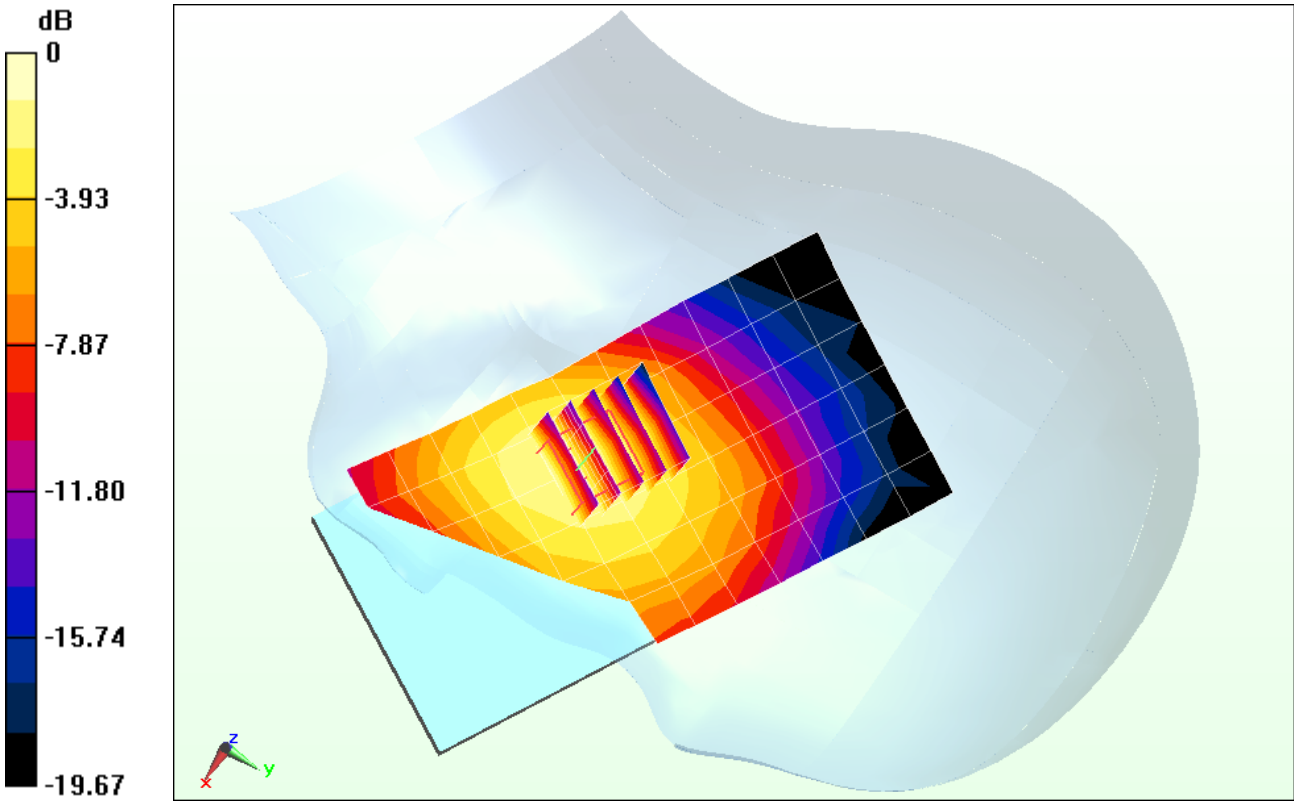
Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1
Medium: 740 Head; Medium parameters used (interpolated):
f = 704 MHz; σ = 0.886 mho/m; ε_r = 40.494; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-04-2012; Ambient Temp: 24.4°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3209; ConvF(6.47, 6.47, 6.47); Calibrated: 3/16/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 12, Left Head, Cheek, Low.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.873 V/m; Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.035 mW/g
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.021 mW/g



0 dB = 0.0287 mW/g = -30.84 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_12

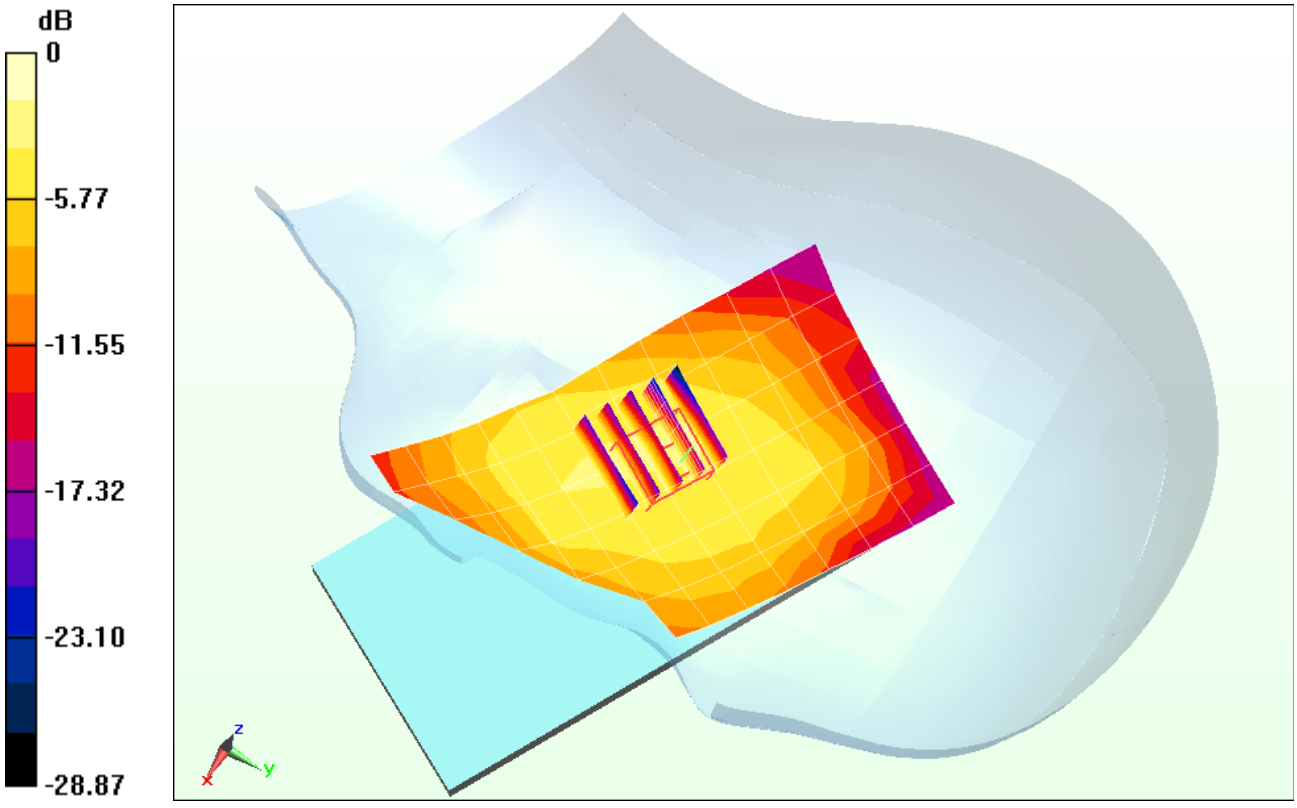
Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1
Medium: 740 Head; Medium parameters used (interpolated):
f = 704 MHz; σ = 0.886 mho/m; ε_r = 40.494; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-04-2012; Ambient Temp: 24.4°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3209; ConvF(6.47, 6.47, 6.47); Calibrated: 3/16/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 12, Left Head, Tilt, Low.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.430 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 0.019 mW/g
SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.012 mW/g



0 dB = 0.0163 mW/g = -35.76 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_14

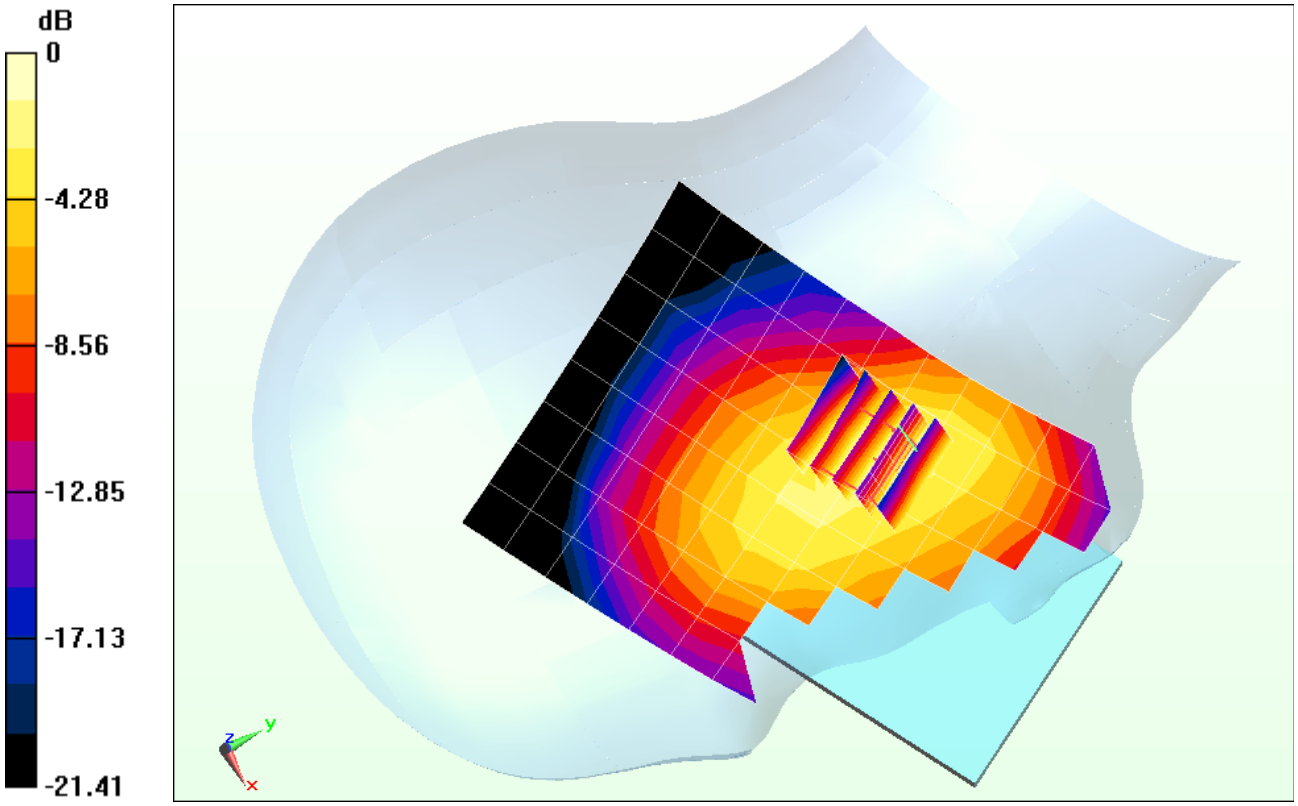
Communication System: LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
$f = 836.5$ MHz; $\sigma = 0.911$ mho/m; $\varepsilon_r = 42.008$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 08-29-2012; Ambient Temp: 24.4°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Front; Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.535 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.222 mW/g
SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.114 mW/g



0 dB = 0.169 mW/g = -15.44 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_14

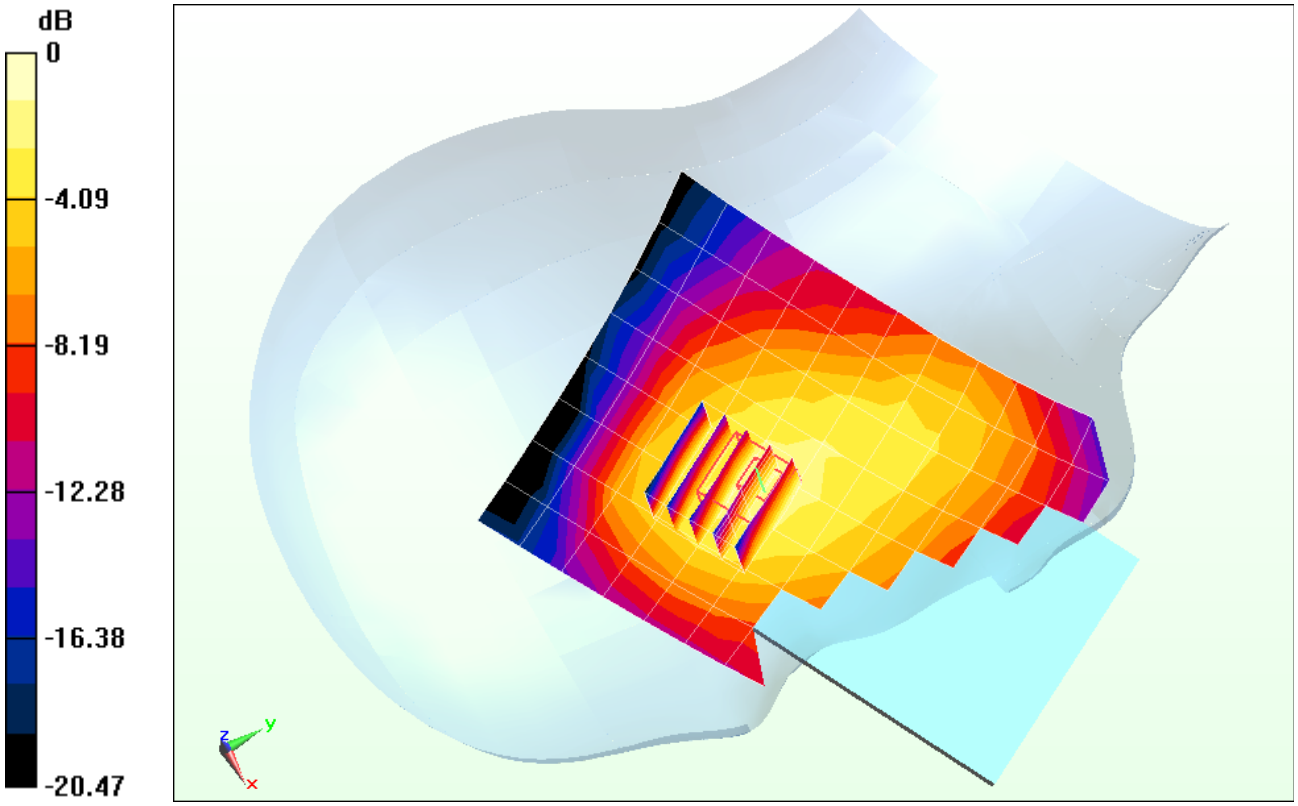
Communication System: LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
$f = 836.5$ MHz; $\sigma = 0.911$ mho/m; $\varepsilon_r = 42.008$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 08-29-2012; Ambient Temp: 24.4°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Front; Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.369 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.072 mW/g
SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.044 mW/g



0 dB = 0.0612 mW/g = -24.26 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_14

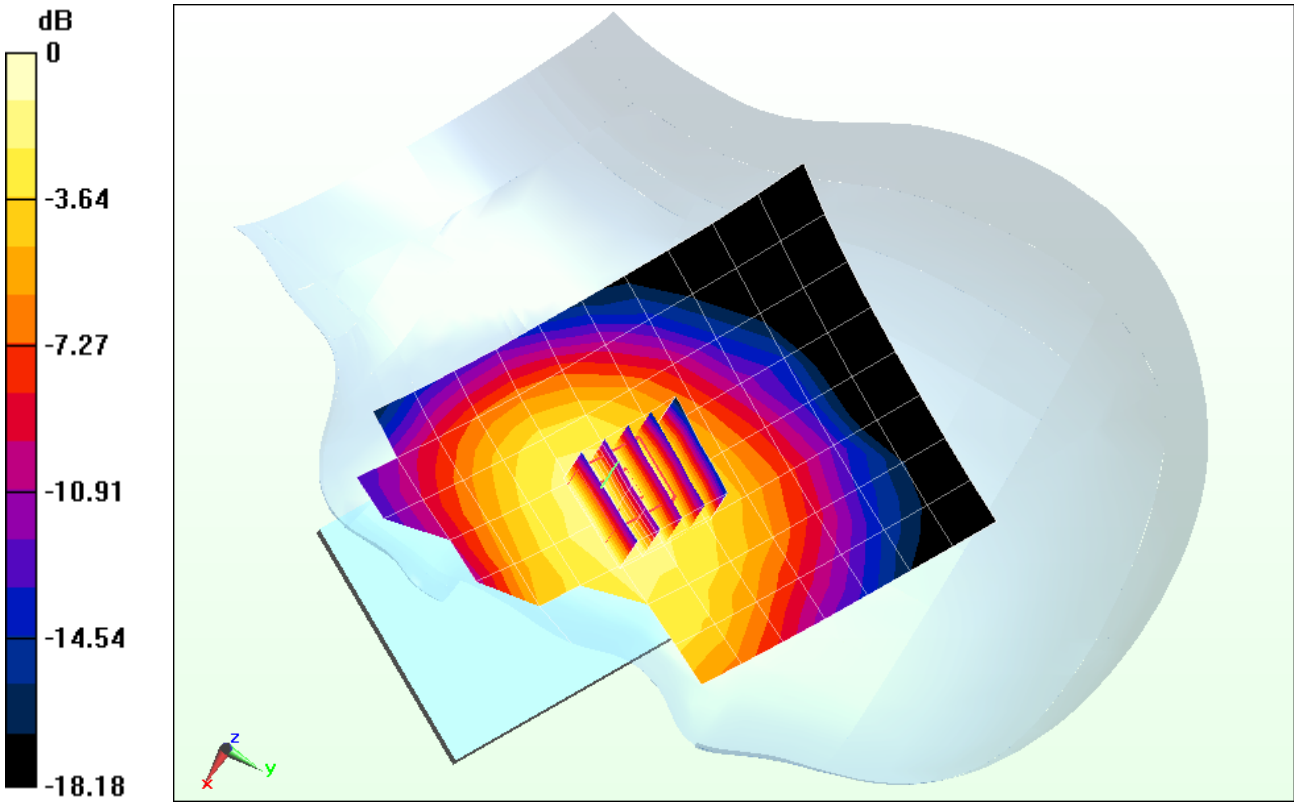
Communication System: LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
$f = 836.5$ MHz; $\sigma = 0.911$ mho/m; $\varepsilon_r = 42.008$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 08-29-2012; Ambient Temp: 24.4°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Front; Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.674 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.110 mW/g
SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.071 mW/g



0 dB = 0.0933 mW/g = -20.60 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_14

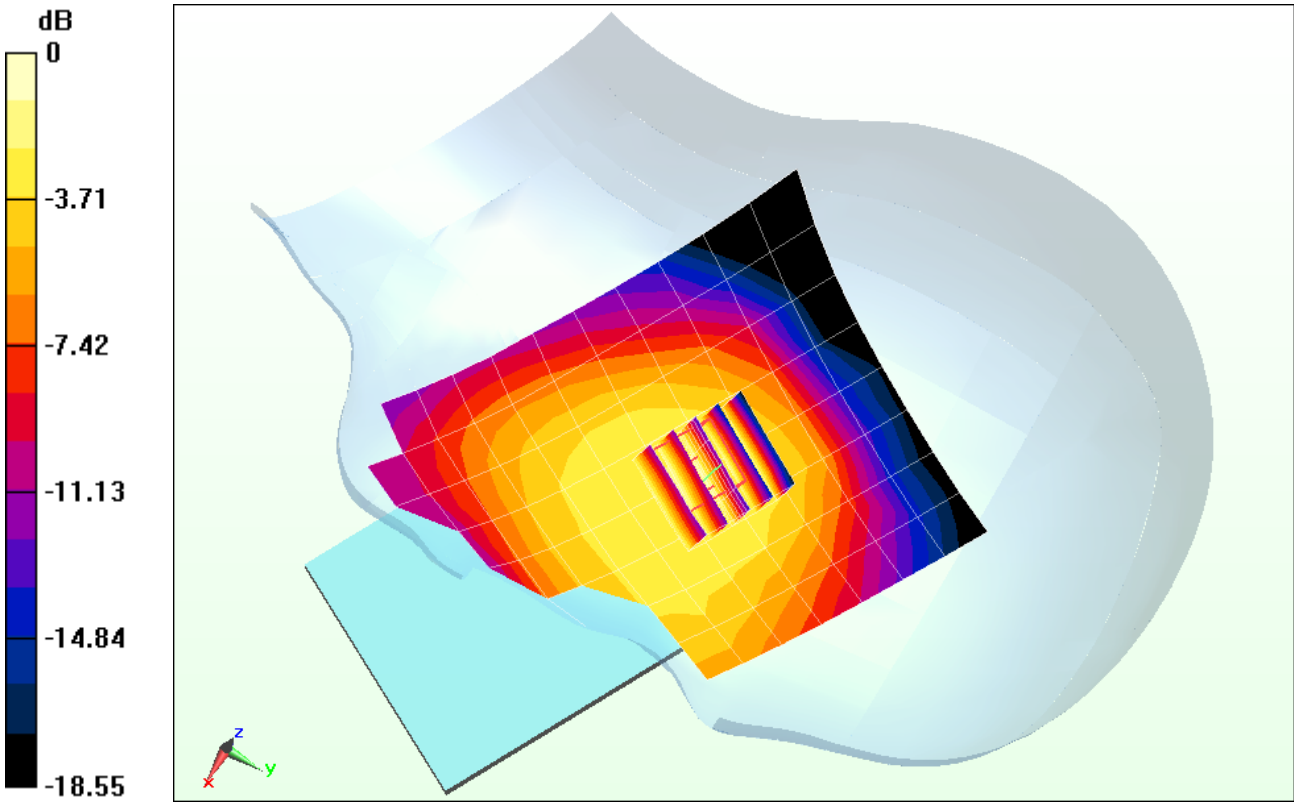
Communication System: LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
$f = 836.5$ MHz; $\sigma = 0.911$ mho/m; $\varepsilon_r = 42.008$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 08-29-2012; Ambient Temp: 24.4°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Front; Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 5 (Cell.), Left Head, Tilt, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.891 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.061 mW/g
SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.038 mW/g



0 dB = 0.0512 mW/g = -25.81 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

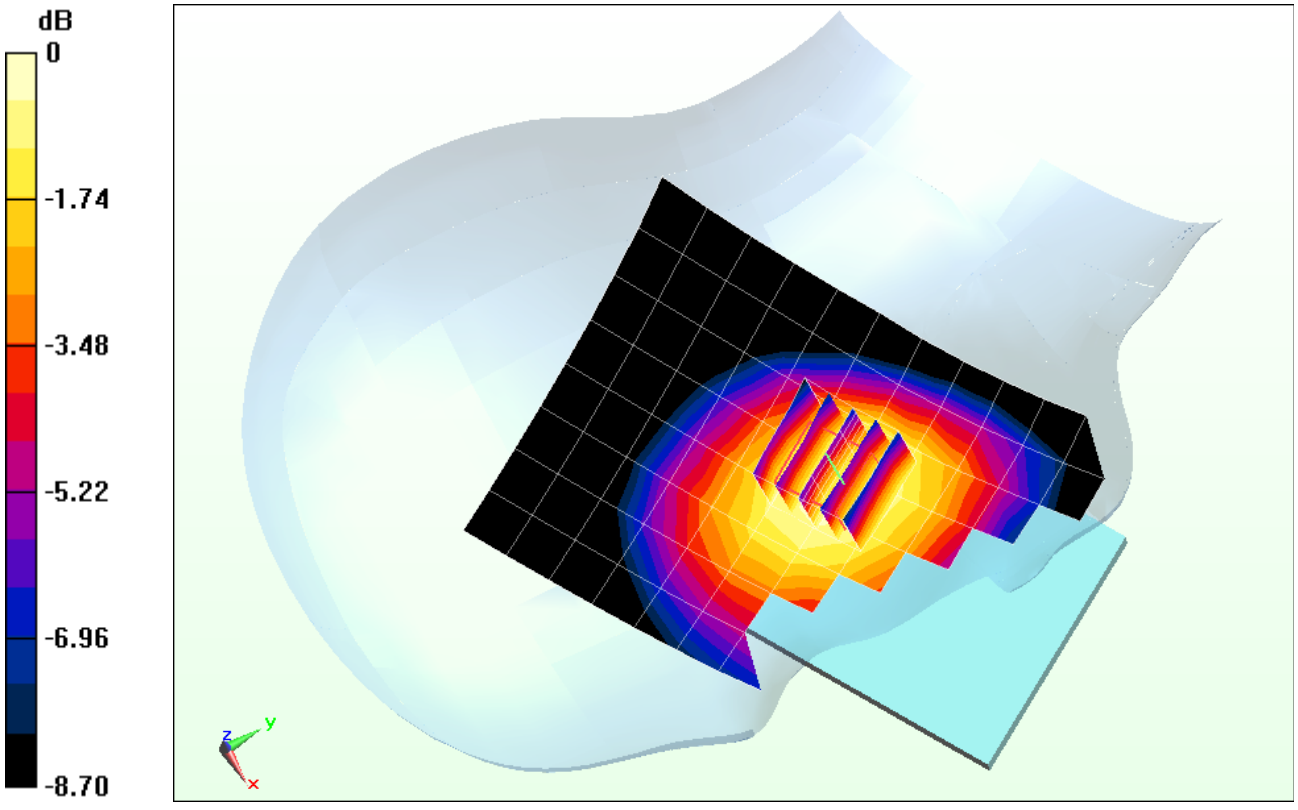
Communication System: CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
$f = 836.52$ MHz; $\sigma = 0.9$ mho/m; $\varepsilon_r = 41.366$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 09-05-2012; Ambient Temp: 24.8°C; Tissue Temp: 24.1°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Front; Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: Cell. EVDO Rev. A, Right Head, Cheek, Mid.ch

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.092 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.264 mW/g
SAR(1 g) = 0.216 mW/g; SAR(10 g) = 0.168 mW/g



0 dB = 0.225 mW/g = -12.96 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

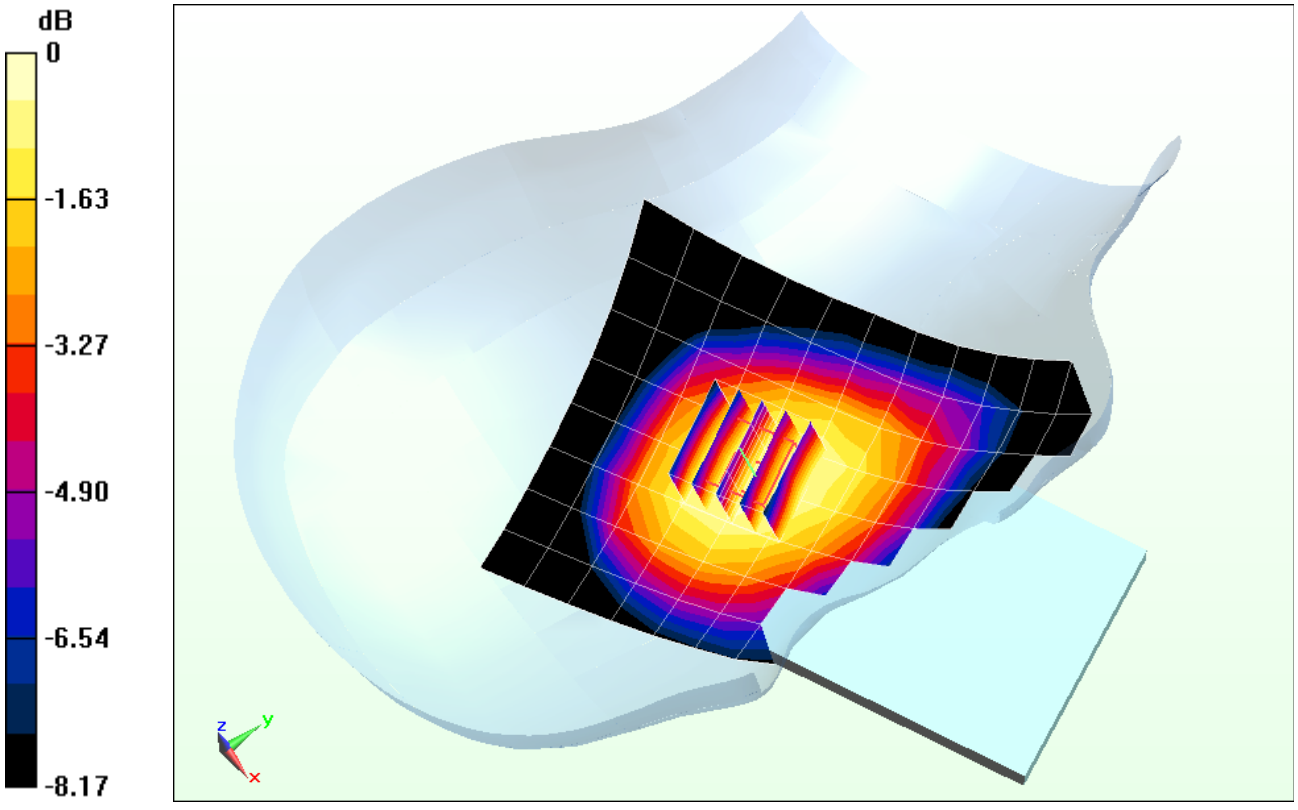
Communication System: CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.9 mho/m; ε_r = 41.366; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-05-2012; Ambient Temp: 24.8°C; Tissue Temp: 24.1°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Front; Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: Cell. EVDO Rev. A, Right Head, Tilt, Mid.ch

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.319 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.179 mW/g
SAR(1 g) = 0.147 mW/g; SAR(10 g) = 0.115 mW/g



0 dB = 0.153 mW/g = -16.31 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

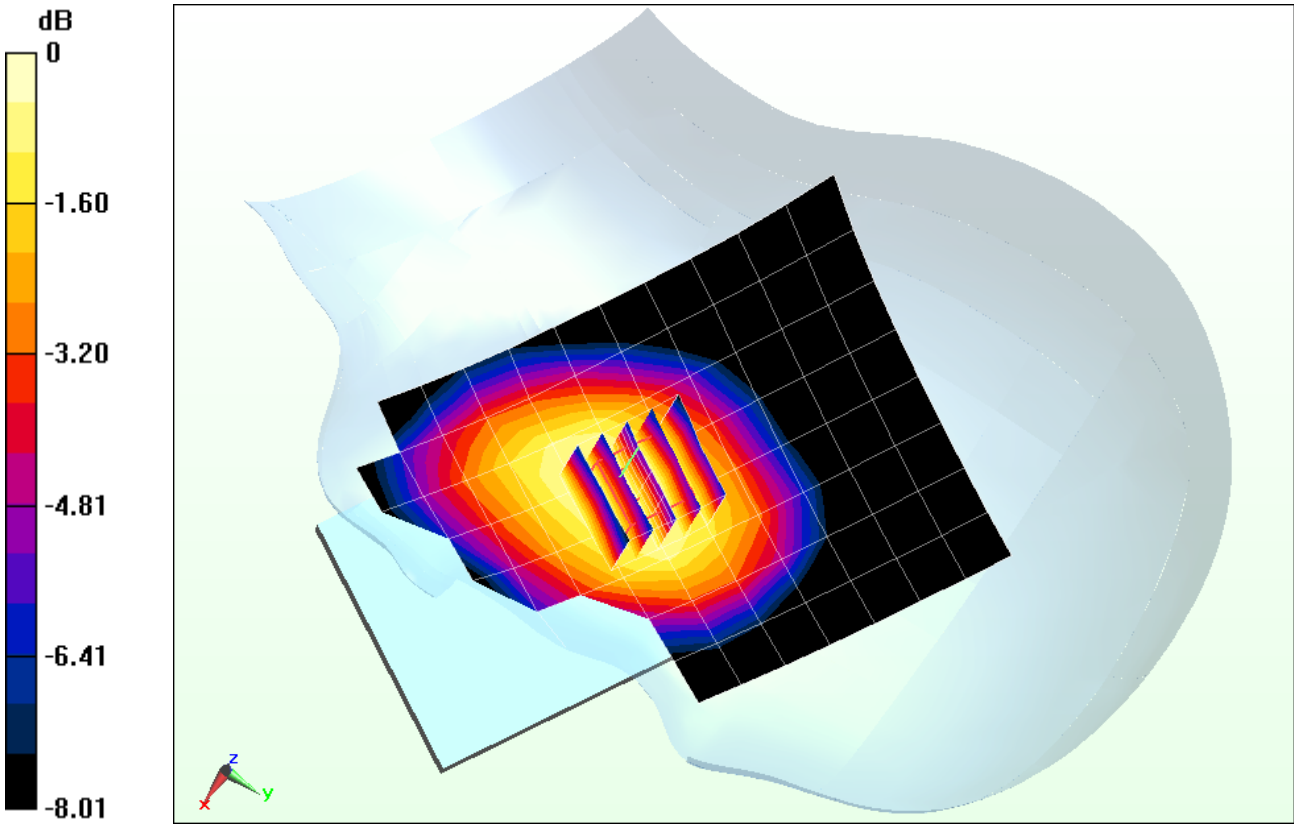
Communication System: CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.9 mho/m; ε_r = 41.366; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-05-2012; Ambient Temp: 24.8°C; Tissue Temp: 24.1°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Front; Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: Cell. EVDO Rev. A, Left Head, Cheek, Mid.ch

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.047 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.235 mW/g
SAR(1 g) = 0.196 mW/g; SAR(10 g) = 0.153 mW/g



0 dB = 0.204 mW/g = -13.81 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

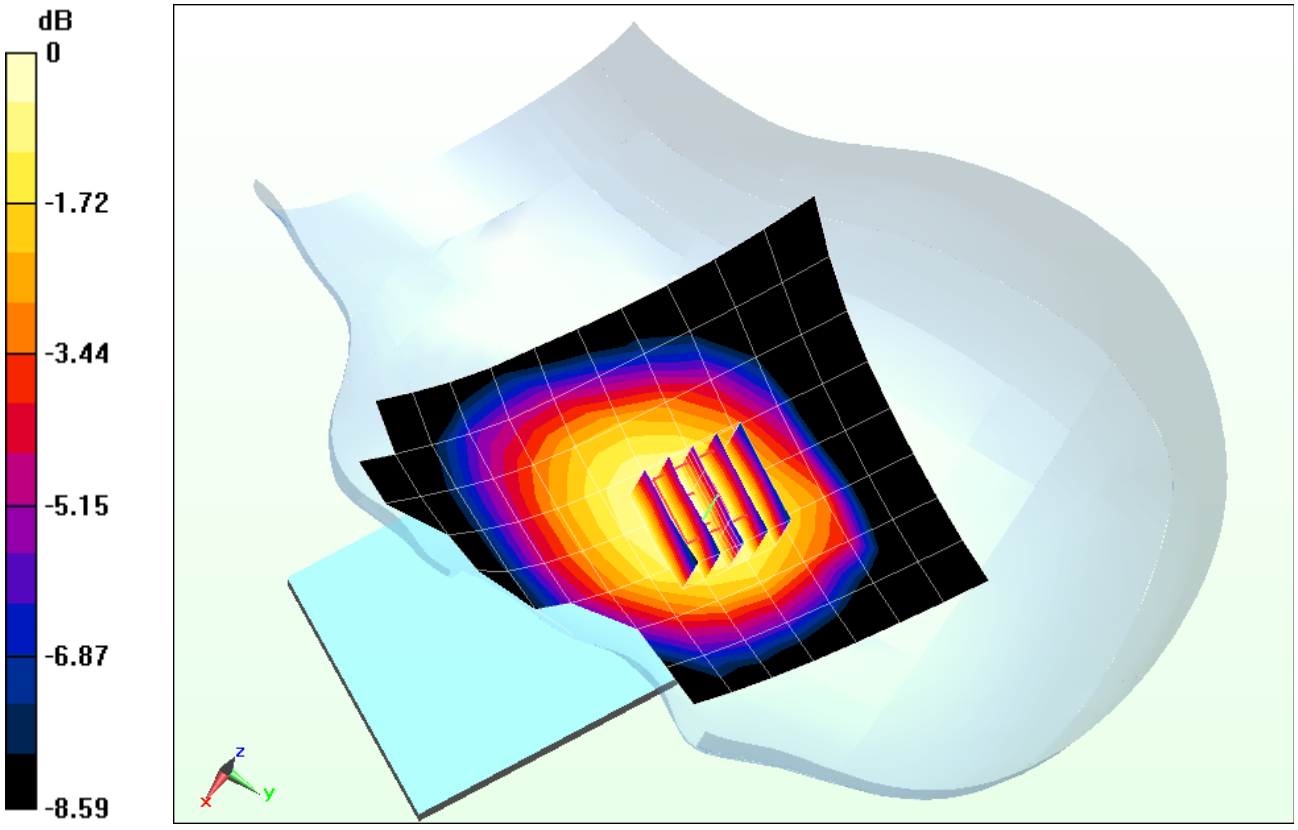
Communication System: CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
$f = 836.52$ MHz; $\sigma = 0.9$ mho/m; $\varepsilon_r = 41.366$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 09-05-2012; Ambient Temp: 24.8°C; Tissue Temp: 24.1°C

Probe: ES3DV3 - SN3213; ConvF(6.07, 6.07, 6.07); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Front; Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: Cell. EVDO Rev. A, Left Head, Tilt, Mid.ch

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.533 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.164 mW/g
SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.106 mW/g



0 dB = 0.142 mW/g = -16.95 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_17

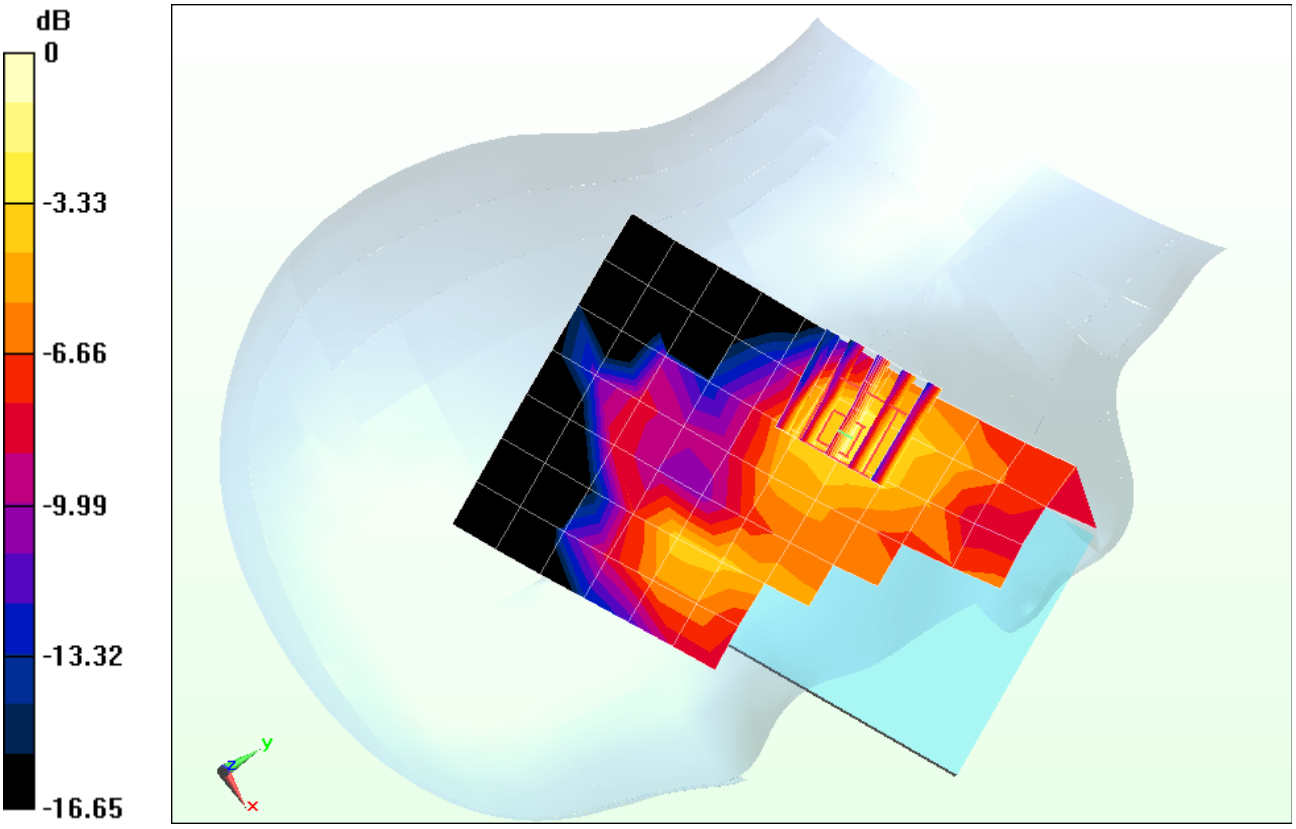
Communication System: LTE Band 4 (AWS); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used:
f = 1750 MHz; σ = 1.344 mho/m; ε_r = 40.01; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-28-2012; Ambient Temp: 23.9°C; Tissue Temp: 23.8°C

Probe: ES3DV3 - SN3287; ConvF(5.42, 5.42, 5.42); Calibrated: 7/9/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 4 (AWS), Right Head, Cheek, High.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 49

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.583 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.014 mW/g
SAR(1 g) = 0.00906 mW/g; SAR(10 g) = 0.00541 mW/g



0 dB = 0.00967 mW/g = -40.29 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_17

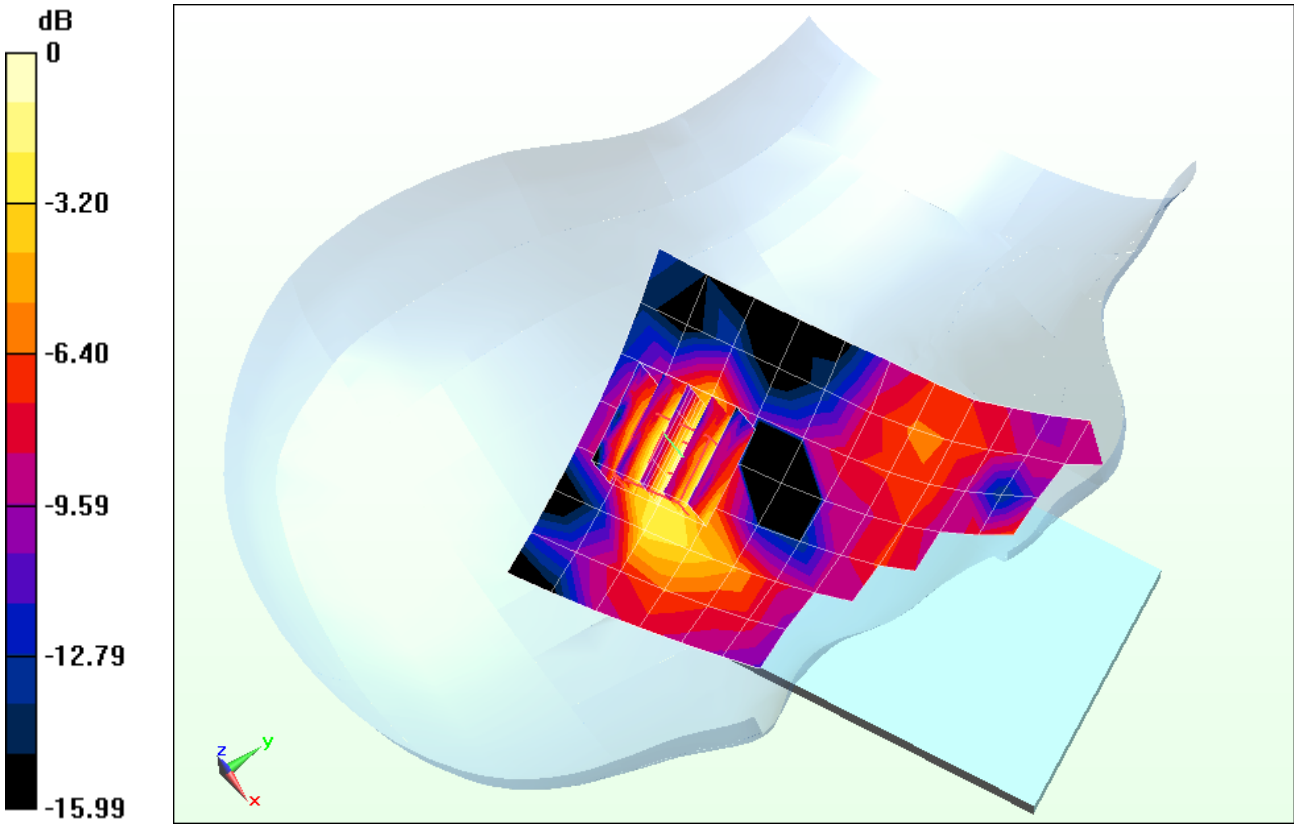
Communication System: LTE Band 4 (AWS); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used:
f = 1750 MHz; σ = 1.344 mho/m; ε_r = 40.01; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-28-2012; Ambient Temp: 23.9°C; Tissue Temp: 23.8°C

Probe: ES3DV3 - SN3287; ConvF(5.42, 5.42, 5.42); Calibrated: 7/9/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 4 (AWS), Right Head, Tilt, High.ch,
QPSK, 10 MHz Bandwidth, 1 RB, RB Offset 0

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.078 V/m; Power Drift = 0.081 dB
Peak SAR (extrapolated) = 0.019 mW/g
SAR(1 g) = 0.00543 mW/g; SAR(10 g) = 0.00323 mW/g



0 dB = 0.00607 mW/g = -44.34 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_17

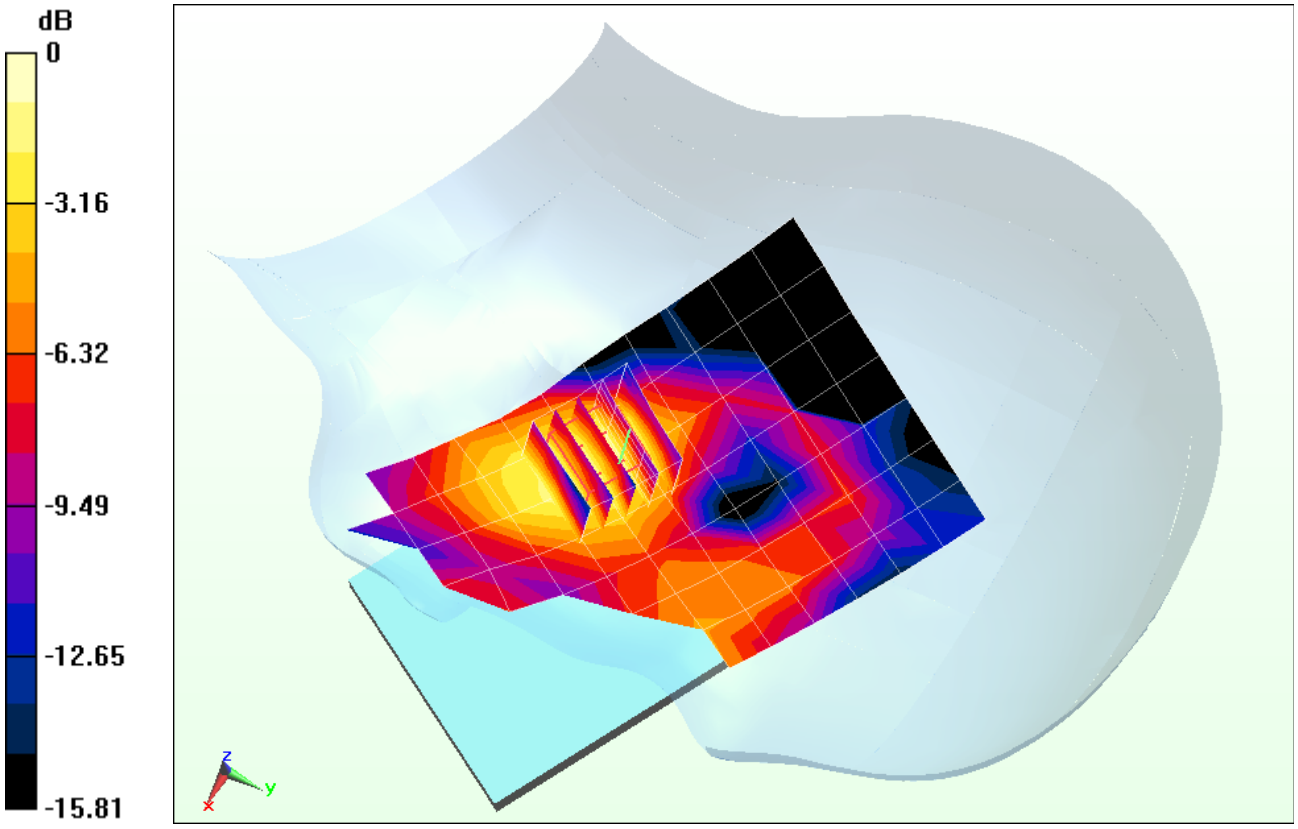
Communication System: LTE Band 4 (AWS); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used:
f = 1750 MHz; σ = 1.344 mho/m; ε_r = 40.01; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-28-2012; Ambient Temp: 23.9°C; Tissue Temp: 23.8°C

Probe: ES3DV3 - SN3287; ConvF(5.42, 5.42, 5.42); Calibrated: 7/9/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 4 (AWS), Left Head, Cheek, High.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 49

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.997 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 0.016 mW/g
SAR(1 g) = 0.010 mW/g; SAR(10 g) = 0.00661 mW/g



0 dB = 0.0105 mW/g = -39.58 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_17

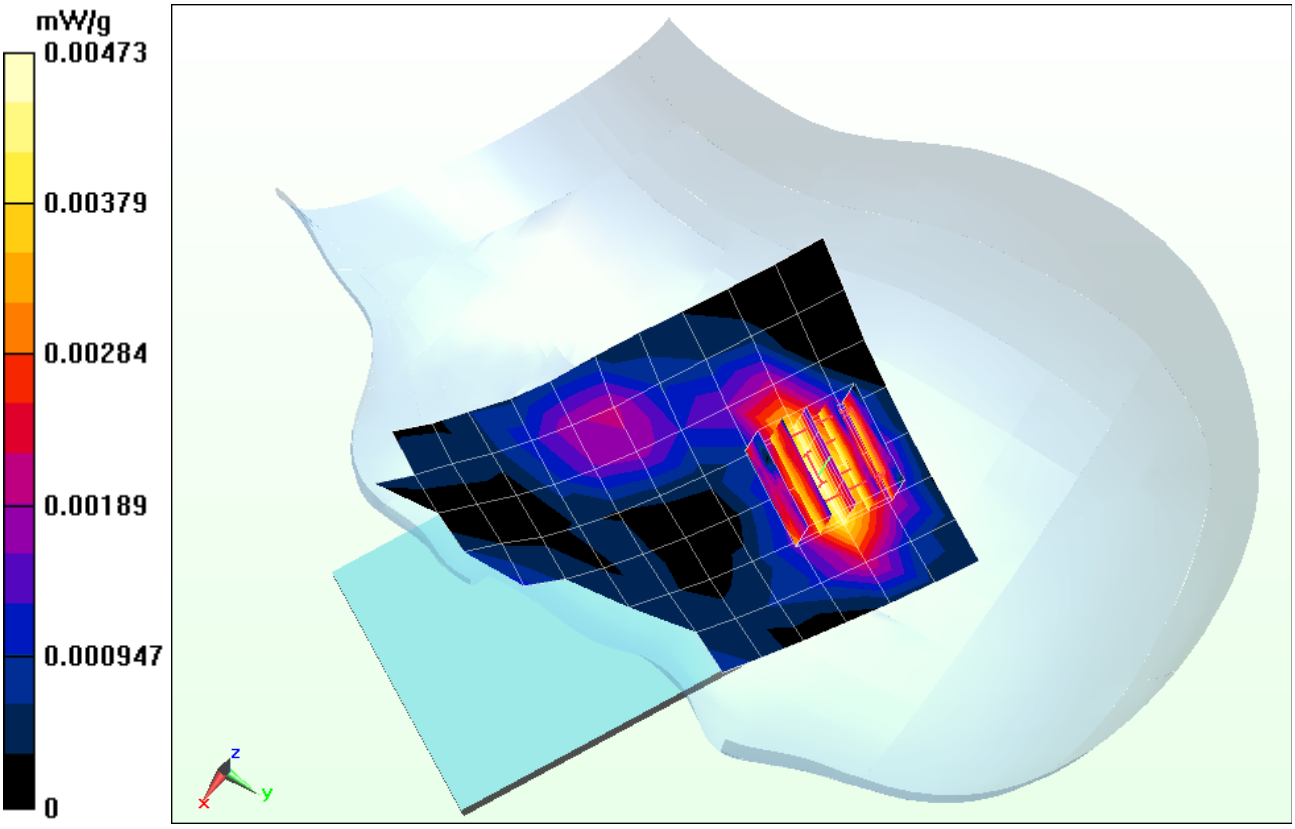
Communication System: LTE Band 4 (AWS); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used:
f = 1750 MHz; σ = 1.344 mho/m; ε_r = 40.01; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-28-2012; Ambient Temp: 23.9°C; Tissue Temp: 23.8°C

Probe: ES3DV3 - SN3287; ConvF(5.42, 5.42, 5.42); Calibrated: 7/9/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 4 (AWS), Left Head, Tilt, High.ch,
QPSK, 10 MHz Bandwidth, 1 RB, RB Offset 49

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.485 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.011 mW/g
SAR(1 g) = 0.00661 mW/g; SAR(10 g) = 0.00378 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

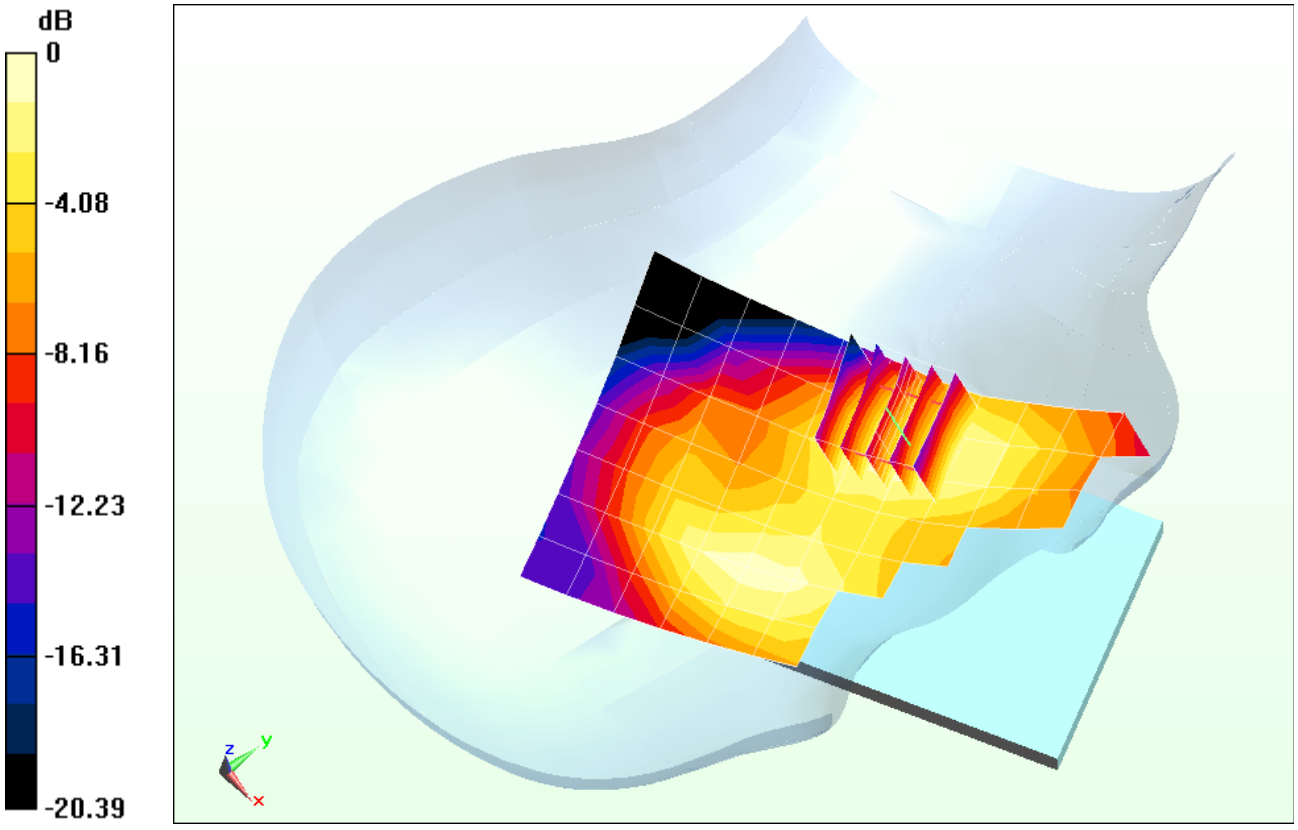
Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.34 mho/m; ε_r = 39.54; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.6°C

Probe: ES3DV3 - SN3287; ConvF(5.42, 5.42, 5.42); Calibrated: 7/9/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: AWS CDMA, Right Head, Cheek, Mid.ch

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.010 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.157 mW/g
SAR(1 g) = 0.098 mW/g; SAR(10 g) = 0.060 mW/g



0 dB = 0.106 mW/g = -19.49 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

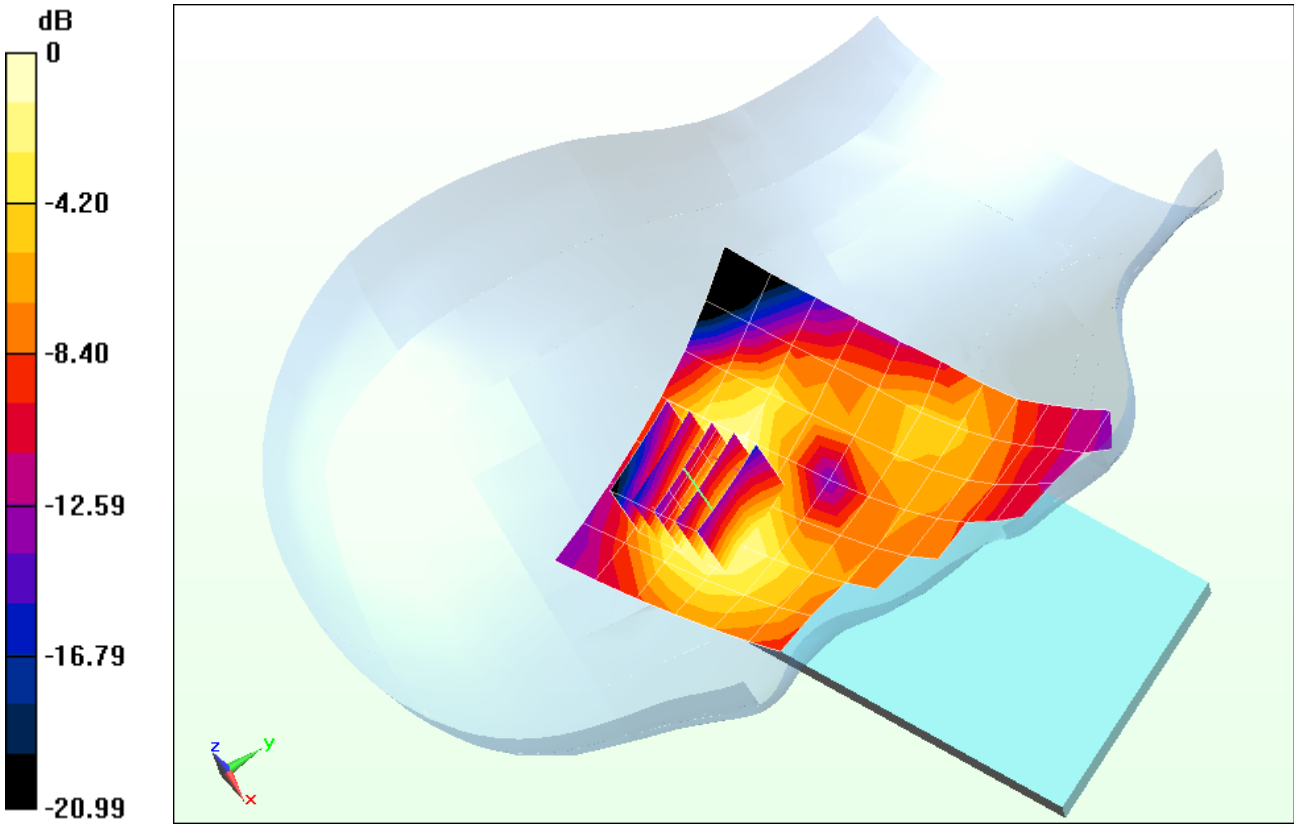
Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.34$ mho/m; $\varepsilon_r = 39.54$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 08-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.6°C

Probe: ES3DV3 - SN3287; ConvF(5.42, 5.42, 5.42); Calibrated: 7/9/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: AWS CDMA, Right Head, Tilt, Mid.ch

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.623 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.145 mW/g
SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.051 mW/g



0 dB = 0.0926 mW/g = -20.67 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

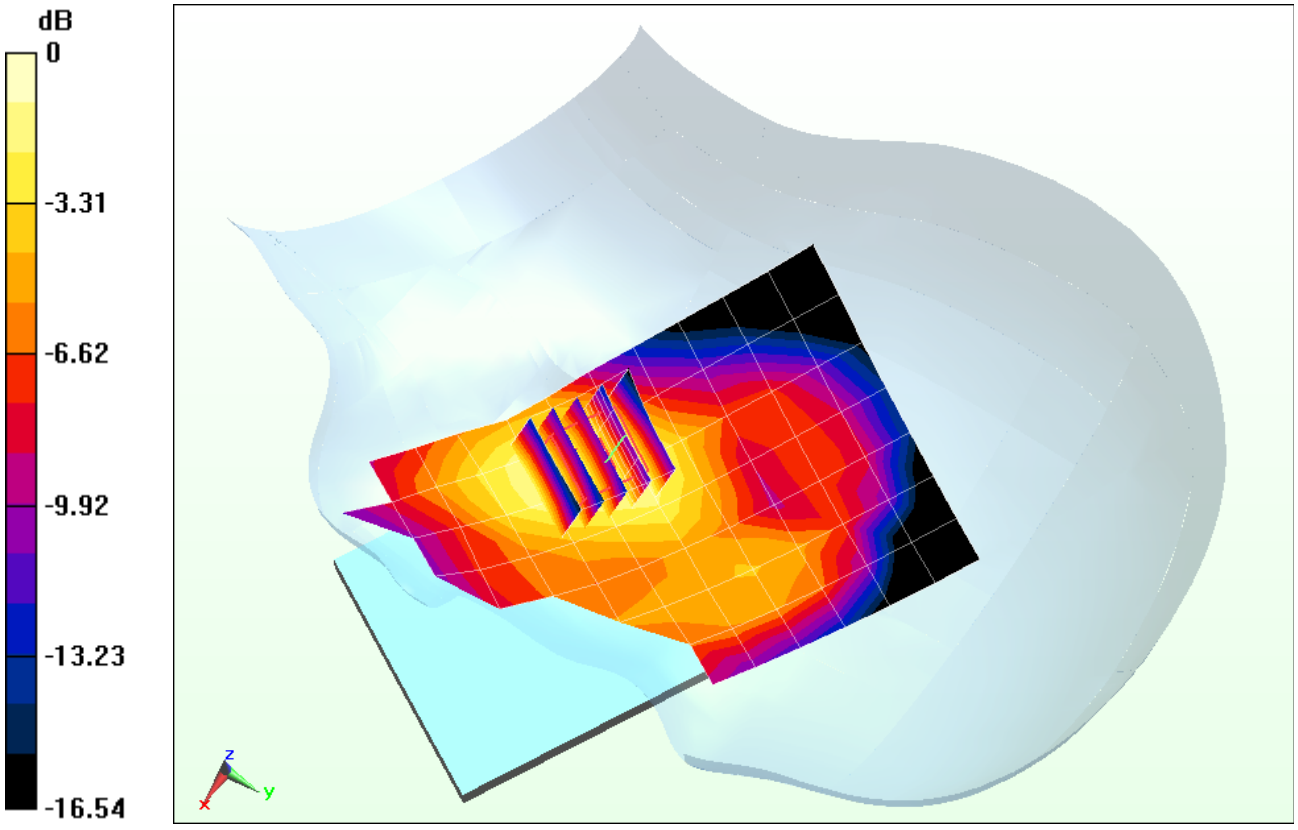
Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.34$ mho/m; $\varepsilon_r = 39.54$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 08-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.6°C

Probe: ES3DV3 - SN3287; ConvF(5.42, 5.42, 5.42); Calibrated: 7/9/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: AWS CDMA, Left Head, Cheek, Mid.ch

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.649 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.261 mW/g
SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.096 mW/g



0 dB = 0.166 mW/g = -15.60 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

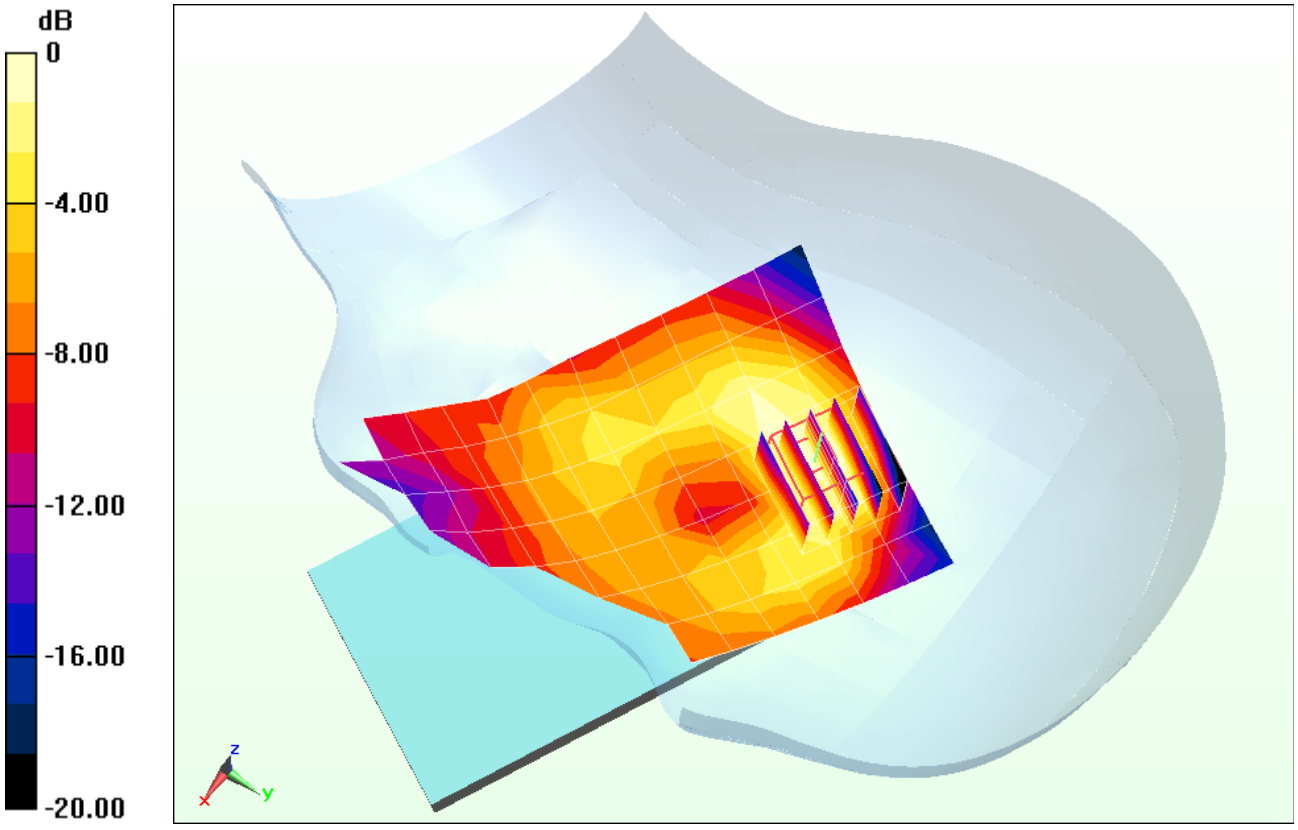
Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.34$ mho/m; $\varepsilon_r = 39.54$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 08-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.6°C

Probe: ES3DV3 - SN3287; ConvF(5.42, 5.42, 5.42); Calibrated: 7/9/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: AWS CDMA, Left Head, Tilt, Mid.ch

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.943 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.120 mW/g
SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.038 mW/g



0 dB = 0.0743 mW/g = -22.58 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_16

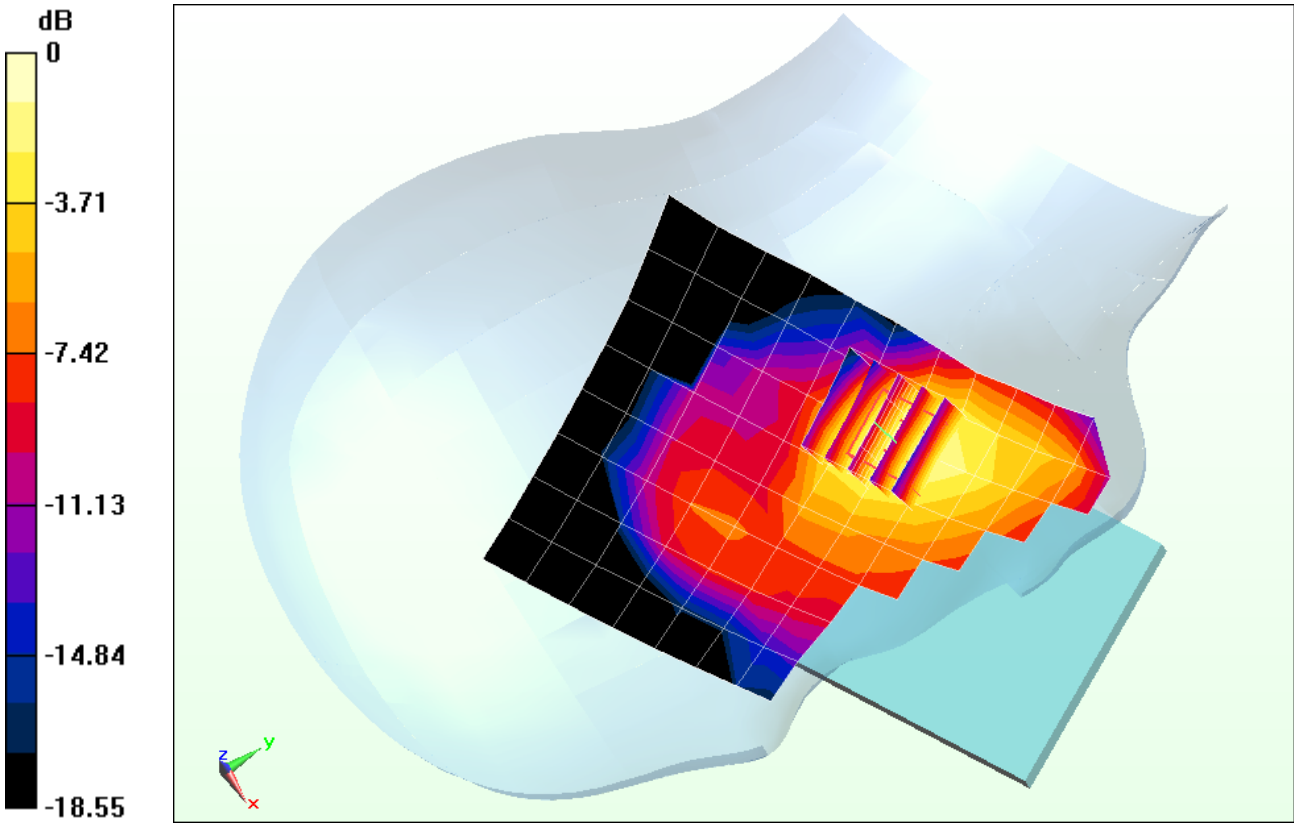
Communication System: LTE PCS 10 Mhz; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.403 mho/m; ε_r = 38.42; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-27-2012; Ambient Temp: 23.8°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN3561; ConvF(6.95, 6.95, 6.95); Calibrated: 7/26/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Right Head, Cheek, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 49

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.097 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.231 mW/g
SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.094 mW/g



0 dB = 0.163 mW/g = -15.76 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_16

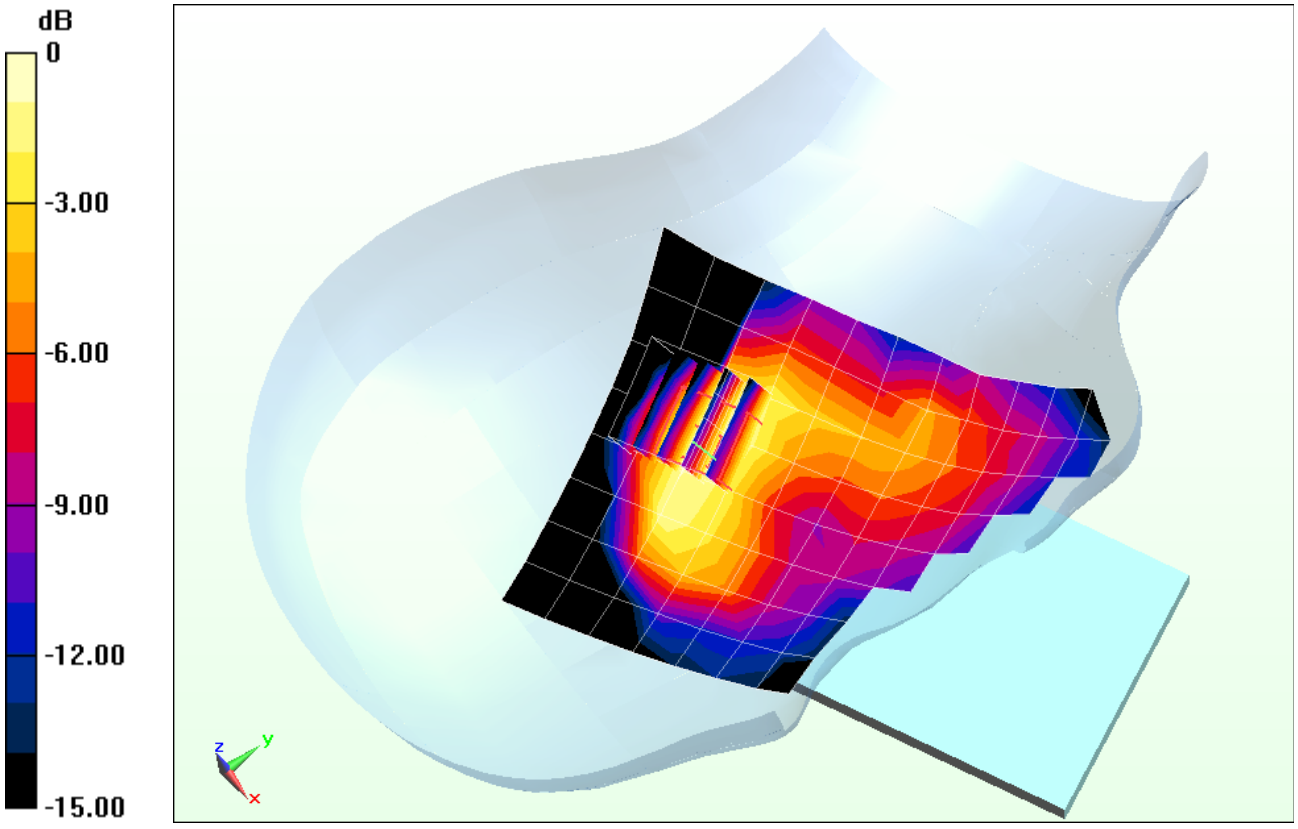
Communication System: LTE PCS 10 Mhz; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.403 mho/m; ε_r = 38.42; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-27-2012; Ambient Temp: 23.8°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN3561; ConvF(6.95, 6.95, 6.95); Calibrated: 7/26/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Right Head, Tilt, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.767 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.094 mW/g
SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.035 mW/g



0 dB = 0.0600 mW/g = -24.44 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_16

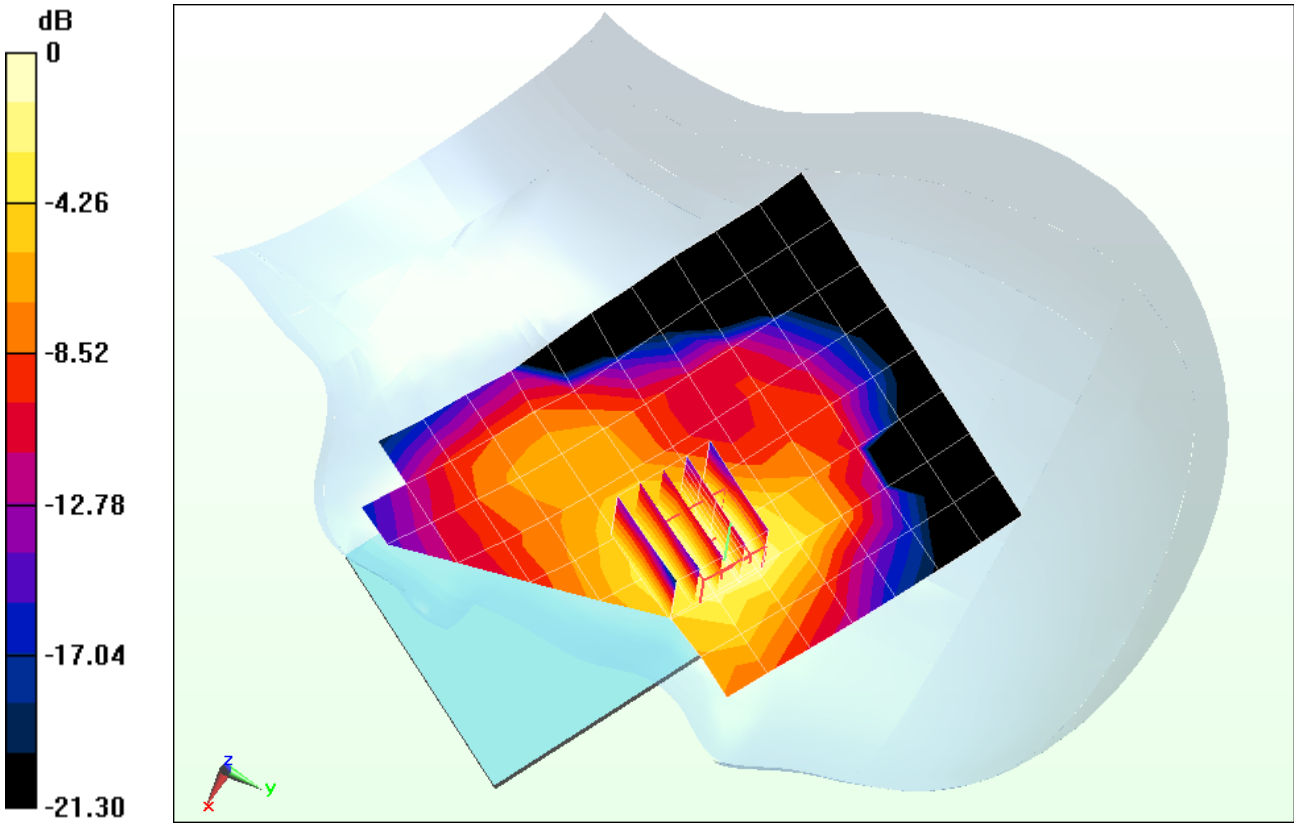
Communication System: LTE PCS 10 Mhz; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.403 mho/m; ε_r = 38.42; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-27-2012; Ambient Temp: 23.8°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN3561; ConvF(6.95, 6.95, 6.95); Calibrated: 7/26/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Left Head, Cheek, Mid.Ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.626 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.154 mW/g
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.062 mW/g



0 dB = 0.110 mW/g = -19.17 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_16

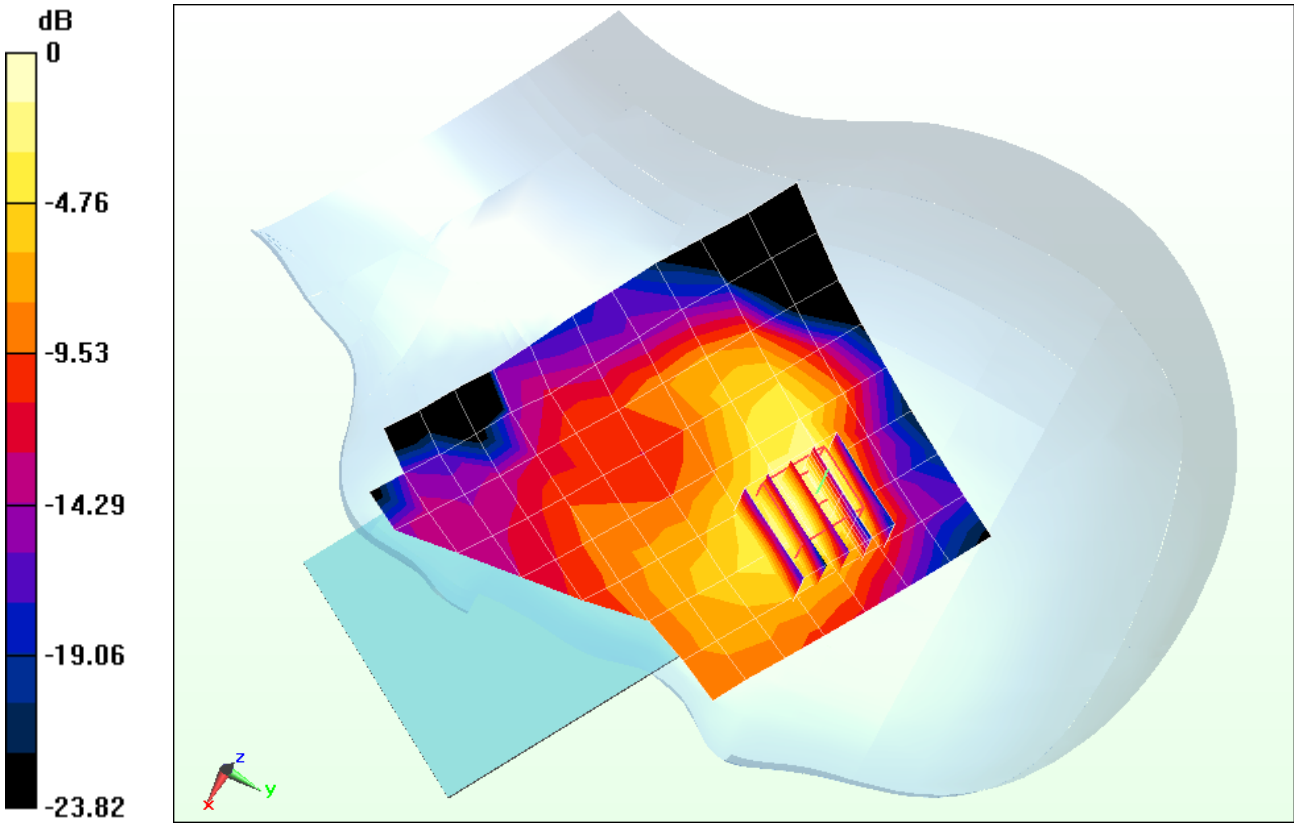
Communication System: LTE PCS 10 Mhz; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.403 mho/m; ε_r = 38.42; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-27-2012; Ambient Temp: 23.8°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN3561; ConvF(6.95, 6.95, 6.95); Calibrated: 7/26/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Left Head, Tilt, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.059 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.117 mW/g
SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.041 mW/g



0 dB = 0.0804 mW/g = -21.89 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

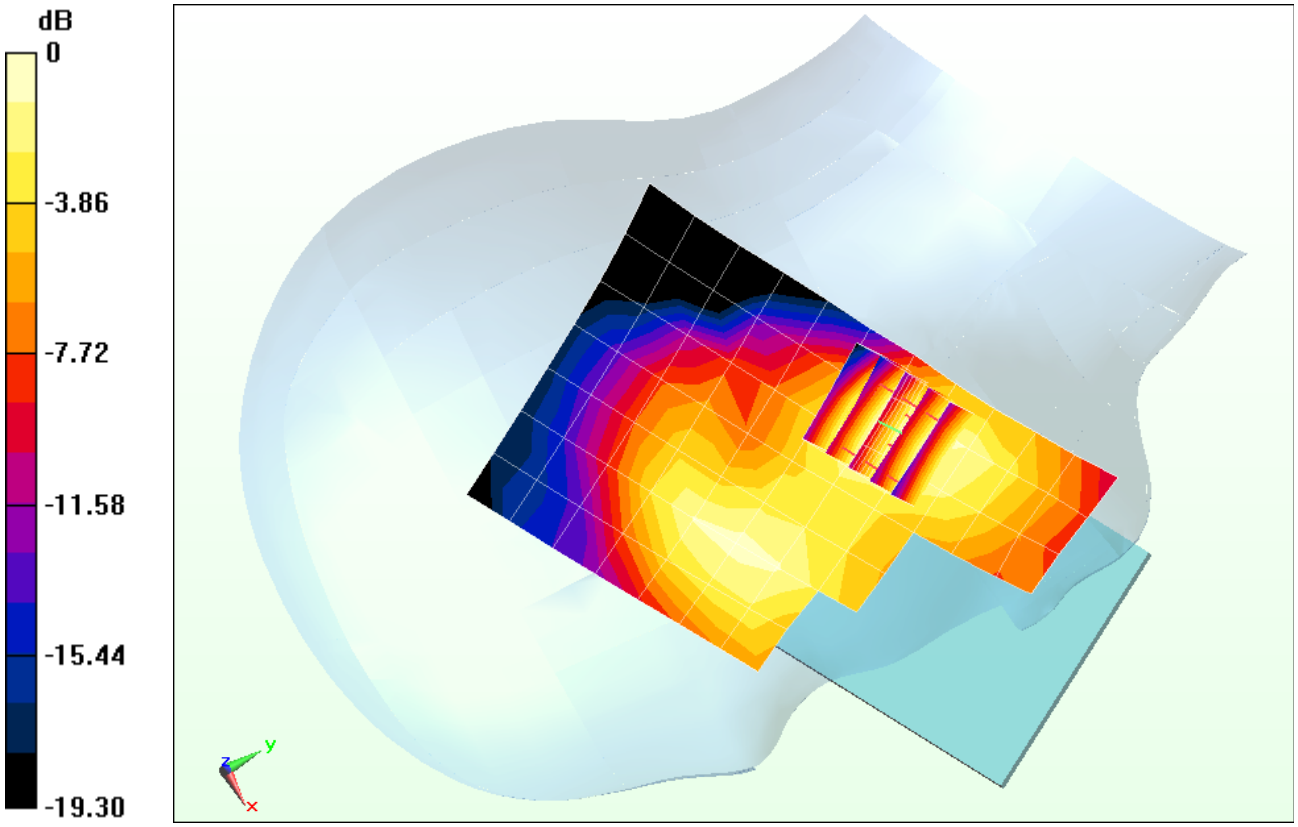
Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.424 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-03-2012; Ambient Temp: 21.9°C; Tissue Temp: 21.7°C

Probe: ES3DV3 - SN3287; ConvF(5.06, 5.06, 5.06); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: PCS CDMA, Right Head, Cheek, Mid.ch

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.683 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.165 mW/g
SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.068 mW/g



0 dB = 0.119 mW/g = -18.49 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

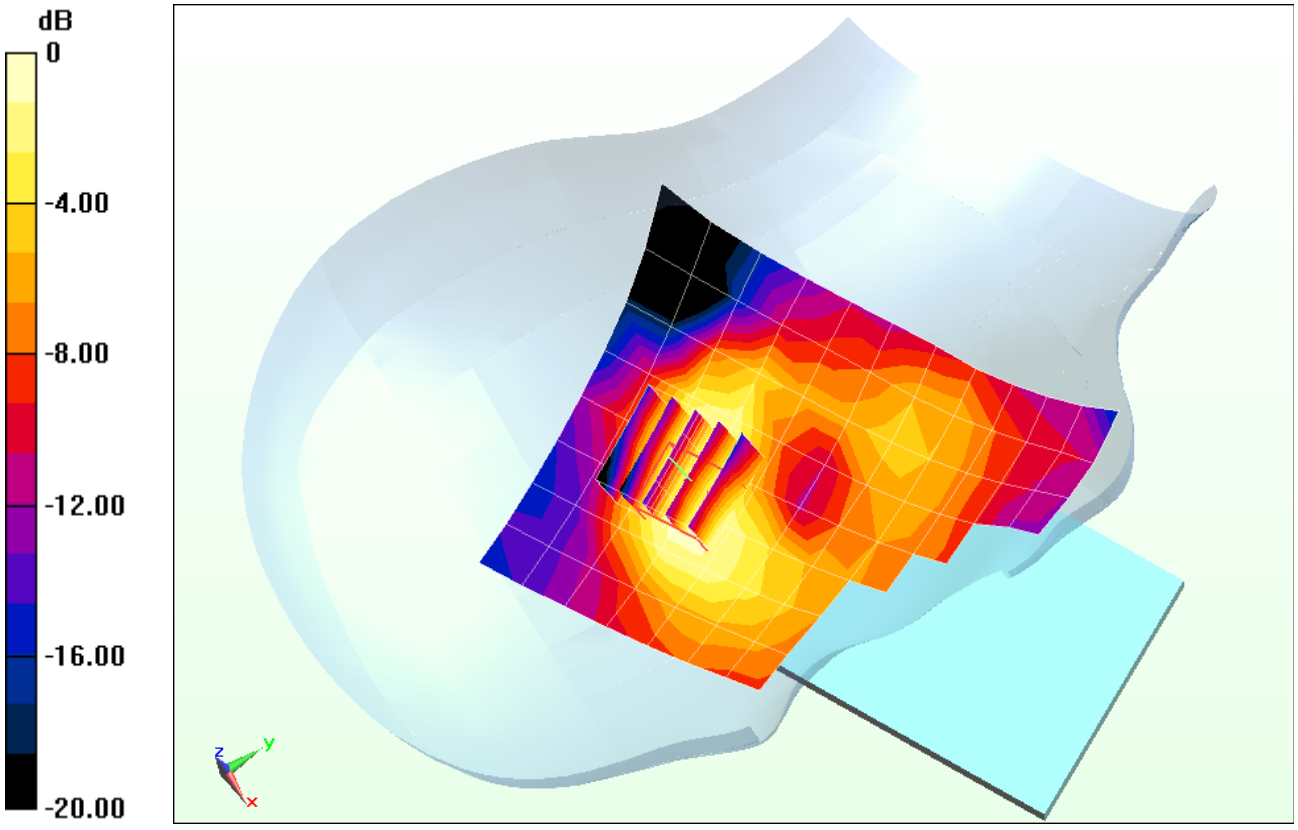
Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.385 mho/m; ε_r = 38.24; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-05-2012; Ambient Temp: 23.3°C; Tissue Temp: 24.0°C

Probe: ES3DV3 - SN3288; ConvF(5.16, 5.16, 5.16); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: PCS EVDO Rev. A, Right Head, Tilt, Mid.ch

Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.455 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.143 mW/g
SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.055 mW/g



0 dB = 0.0964 mW/g = -20.32 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

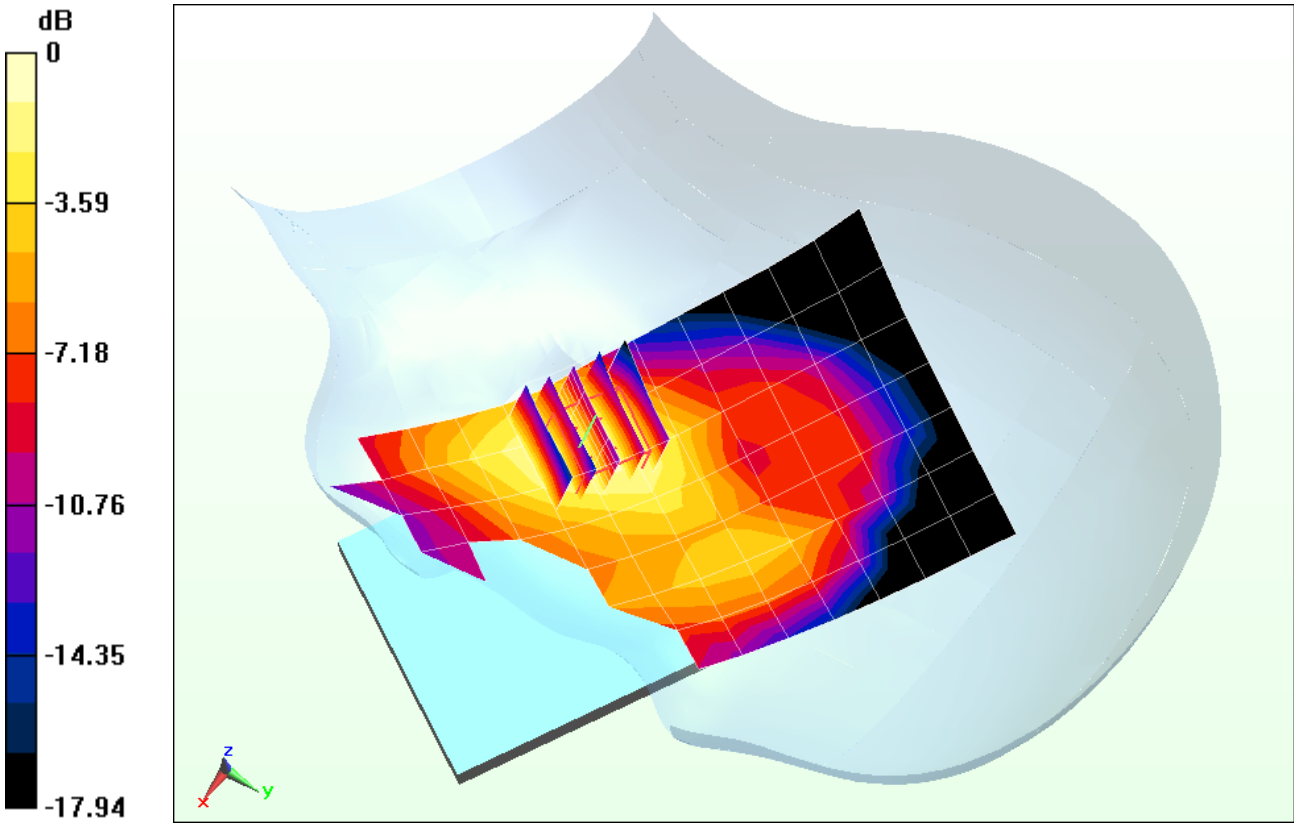
Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.424 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-03-2012; Ambient Temp: 21.9°C; Tissue Temp: 21.7°C

Probe: ES3DV3 - SN3287; ConvF(5.06, 5.06, 5.06); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/20/2012
Phantom: SAM v5.0 Left; Type: QD000P40CD; Serial: TP: 1687
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: PCS CDMA, Left Head, Cheek, Mid.ch

Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.666 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.259 mW/g
SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.102 mW/g



0 dB = 0.182 mW/g = -14.80 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

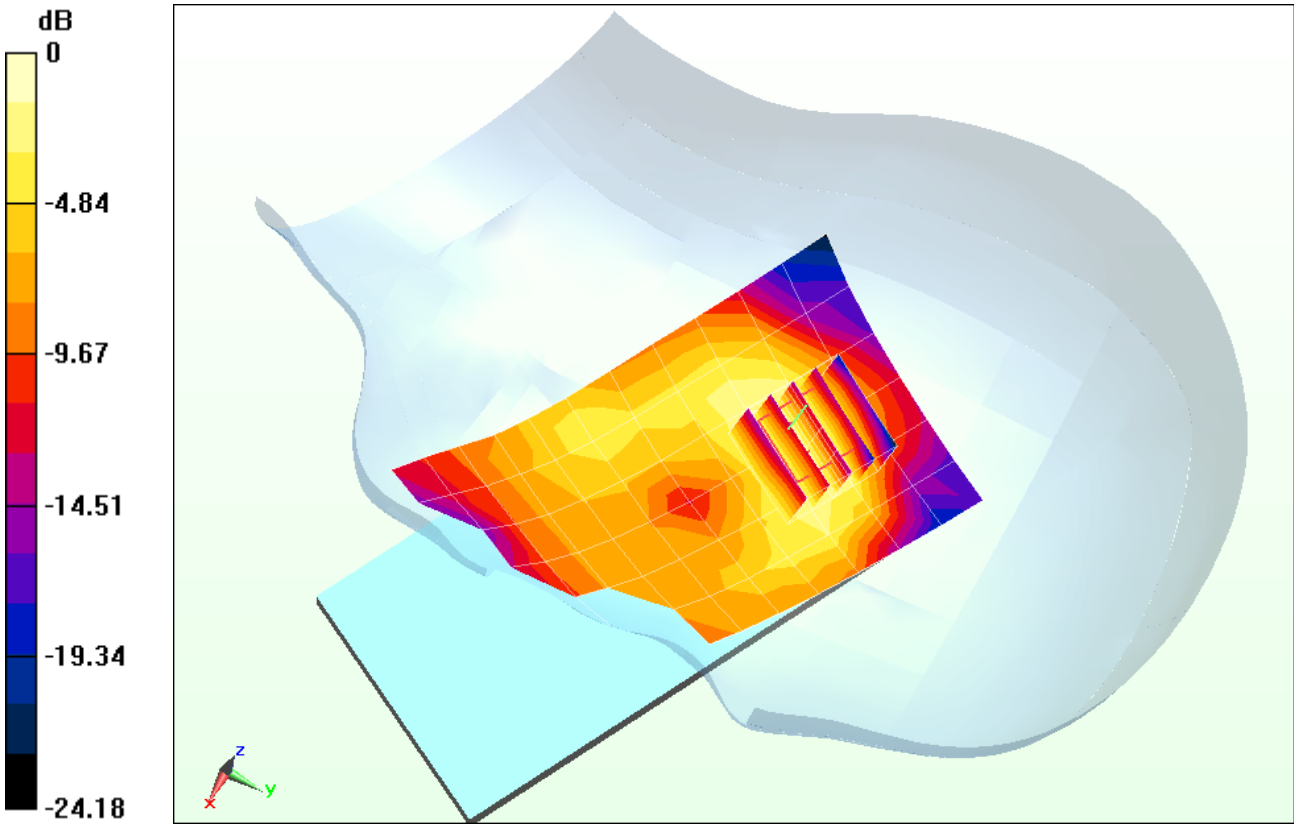
Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.385 mho/m; ε_r = 38.24; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-05-2012; Ambient Temp: 23.3°C; Tissue Temp: 24.0°C

Probe: ES3DV3 - SN3288; ConvF(5.16, 5.16, 5.16); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: PCS EVDO Rev. A, Left Head, Tilt, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.671 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.155 mW/g
SAR(1 g) = 0.092 mW/g; SAR(10 g) = 0.053 mW/g



0 dB = 0.0986 mW/g = -20.12 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_19

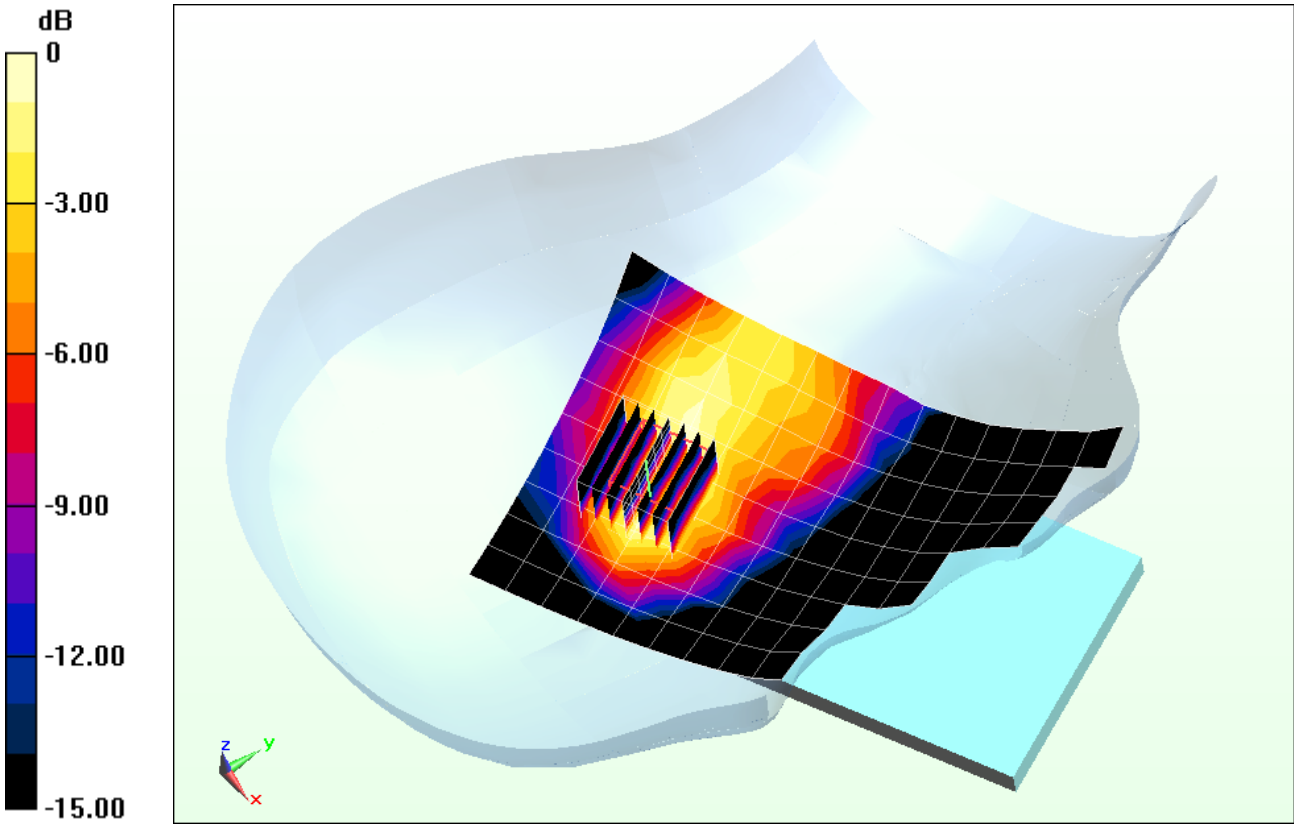
Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.899 mho/m; ε_r = 37.891; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-30-2012; Ambient Temp: 24.5°C; Tissue Temp: 22.8°C

Probe: ES3DV3 - SN3209; ConvF(4.46, 4.46, 4.46); Calibrated: 3/16/2012;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11b, Right Head, Cheek, Ch 11, 1 Mbps

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.564 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.069 mW/g
SAR(1 g) = 0.038 mW/g; SAR(10 g) = 0.019 mW/g



0 dB = 0.0489 mW/g = -26.21 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_19

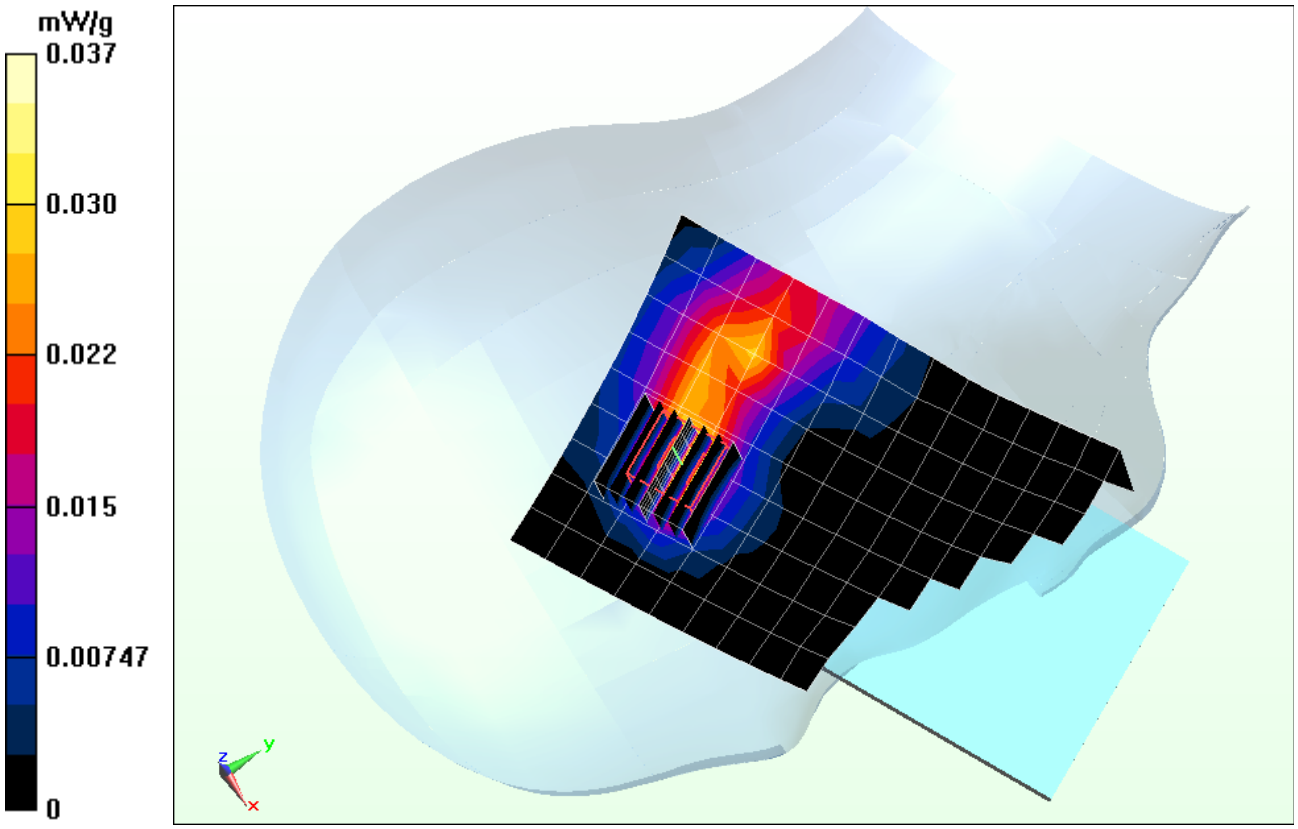
Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.899 mho/m; ε_r = 37.891; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-30-2012; Ambient Temp: 24.5°C; Tissue Temp: 22.8°C

Probe: ES3DV3 - SN3209; ConvF(4.46, 4.46, 4.46); Calibrated: 3/16/2012;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11b, Right Head, Tilt, Ch 11, 1 Mbps

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.165 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.055 mW/g
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.013 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_19

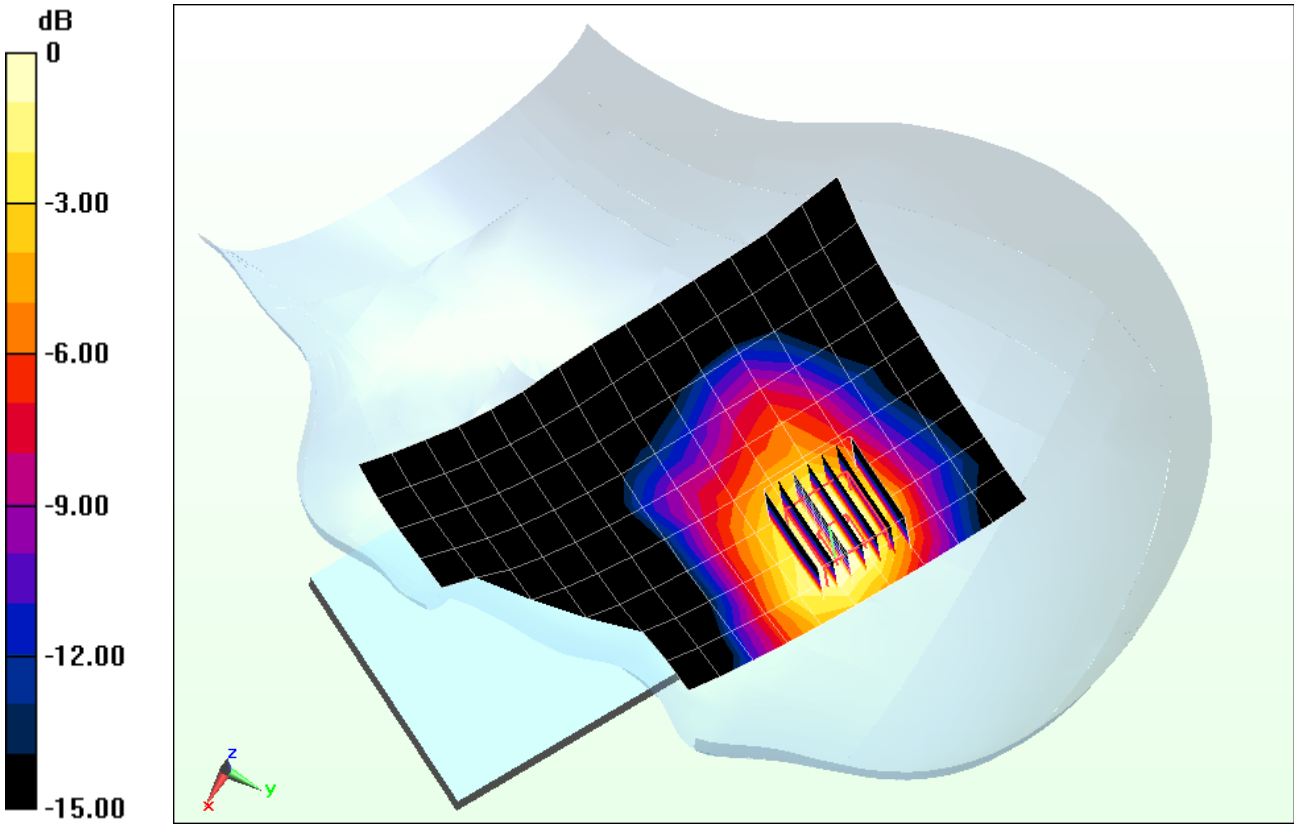
Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.899 mho/m; ε_r = 37.891; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-30-2012; Ambient Temp: 24.5°C; Tissue Temp: 22.8°C

Probe: ES3DV3 - SN3209; ConvF(4.46, 4.46, 4.46); Calibrated: 3/16/2012;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11b, Left Head, Cheek, Ch 11, 1 Mbps

Area Scan (10x15x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.869 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.159 mW/g
SAR(1 g) = 0.078 mW/g; SAR(10 g) = 0.040 mW/g



0 dB = 0.0980 mW/g = -20.18 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_19

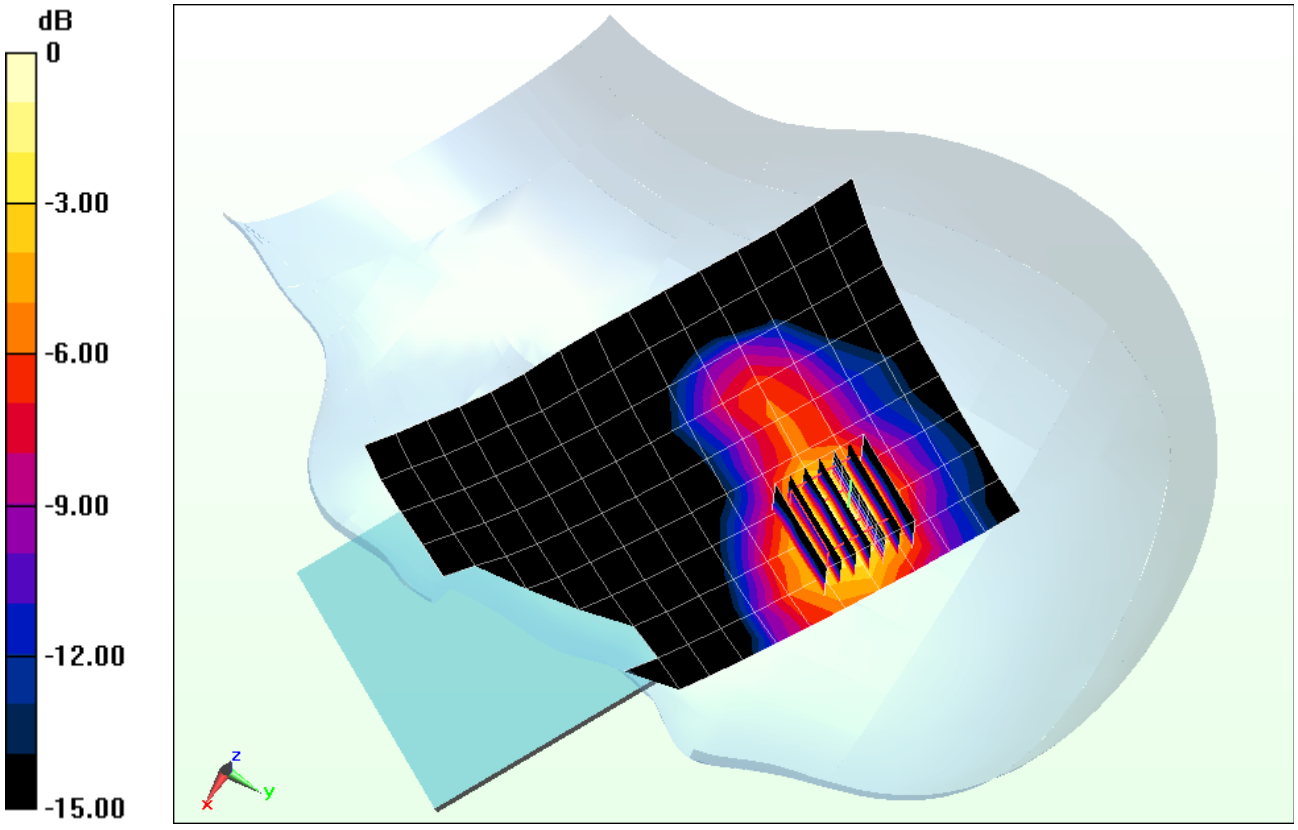
Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.899 mho/m; ε_r = 37.891; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-30-2012; Ambient Temp: 24.5°C; Tissue Temp: 22.8°C

Probe: ES3DV3 - SN3209; ConvF(4.46, 4.46, 4.46); Calibrated: 3/16/2012;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11b, Left Head, Tilt, Ch 11, 1 Mbps

Area Scan (10x15x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.134 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.129 mW/g
SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.030 mW/g



0 dB = 0.0807 mW/g = -21.86 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

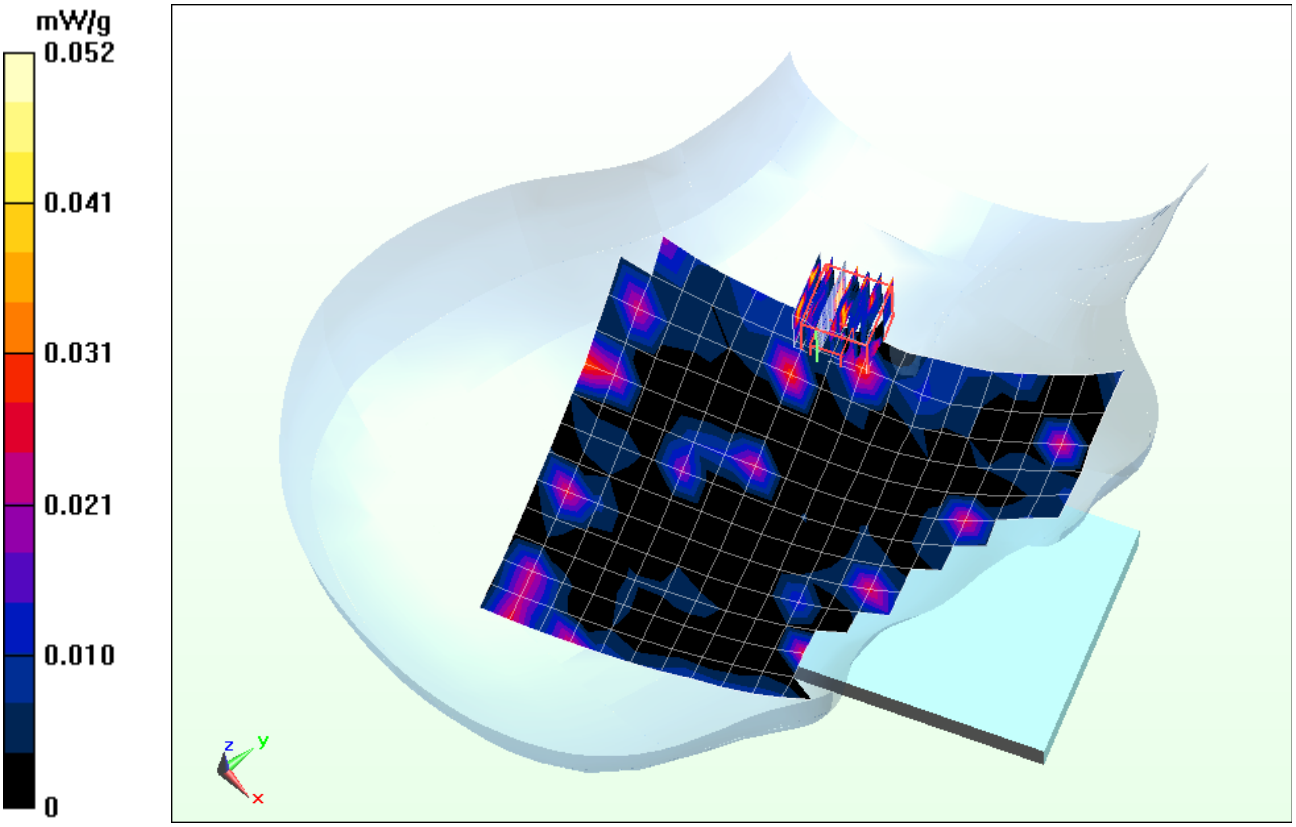
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5520 MHz; Duty Cycle: 1:1
Medium: 5GHz Head; Medium parameters used:
f = 5520 MHz; σ = 4.852 mho/m; ε_r = 35.11; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-02-2012; Ambient Temp: 23.2°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3589; ConvF(4.33, 4.33, 4.33); Calibrated: 1/27/2012;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 2/15/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11a 5.5 GHz, Right Head, Cheek, Ch 104, 6 Mbps

Area Scan (14x17x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.429 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.052 mW/g
SAR(1 g) = 0.000693 mW/g; SAR(10 g) = 7.39e-005 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

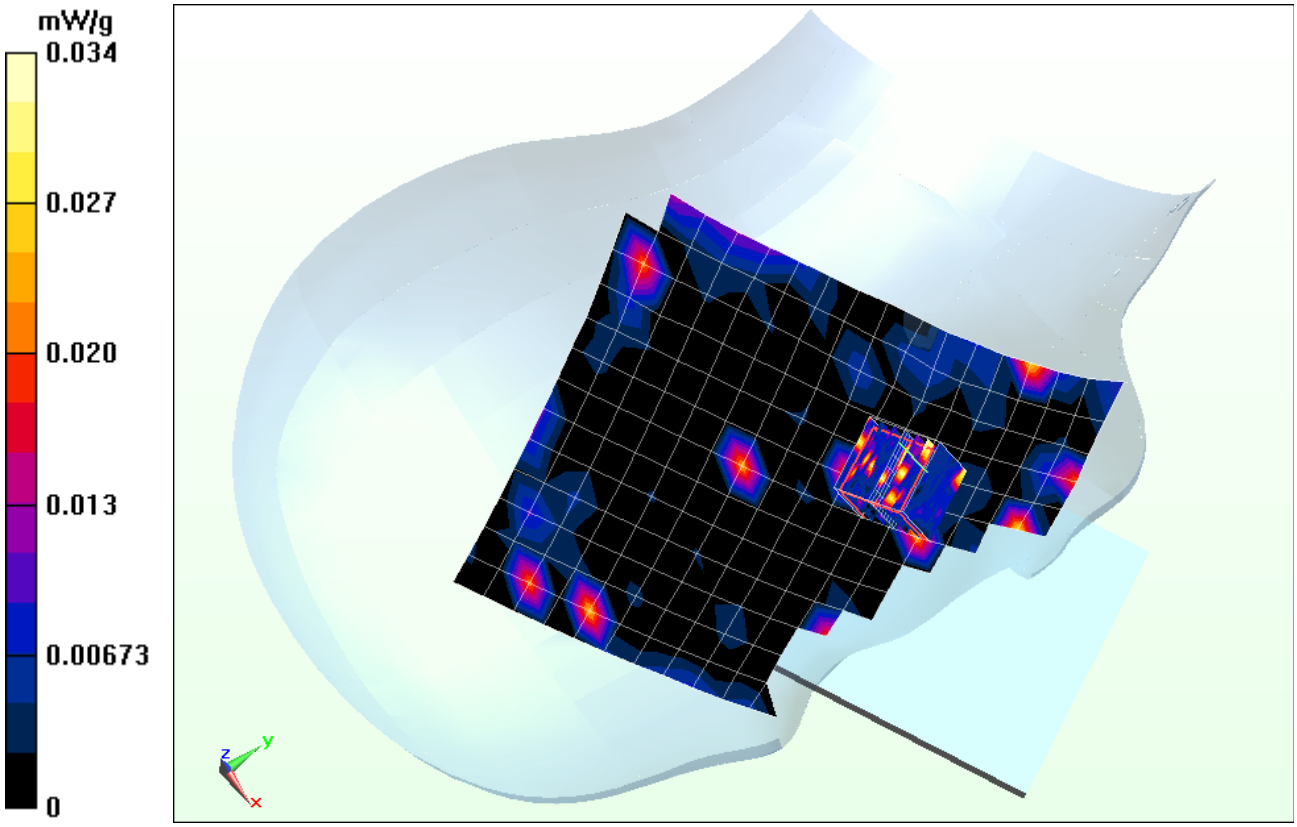
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium: 5GHz Head; Medium parameters used:
f = 5320 MHz; σ = 4.632 mho/m; ε_r = 35.26; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-02-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3589; ConvF(4.36, 4.36, 4.36); Calibrated: 1/27/2012;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 2/15/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11a 5.3 GHz, Right Head, Tilt, Ch 64, 6 Mbps

Area Scan (14x17x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.204 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 0.013 mW/g
SAR(1 g) = 0.000322 mW/g; SAR(10 g) = 3.27e-005 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

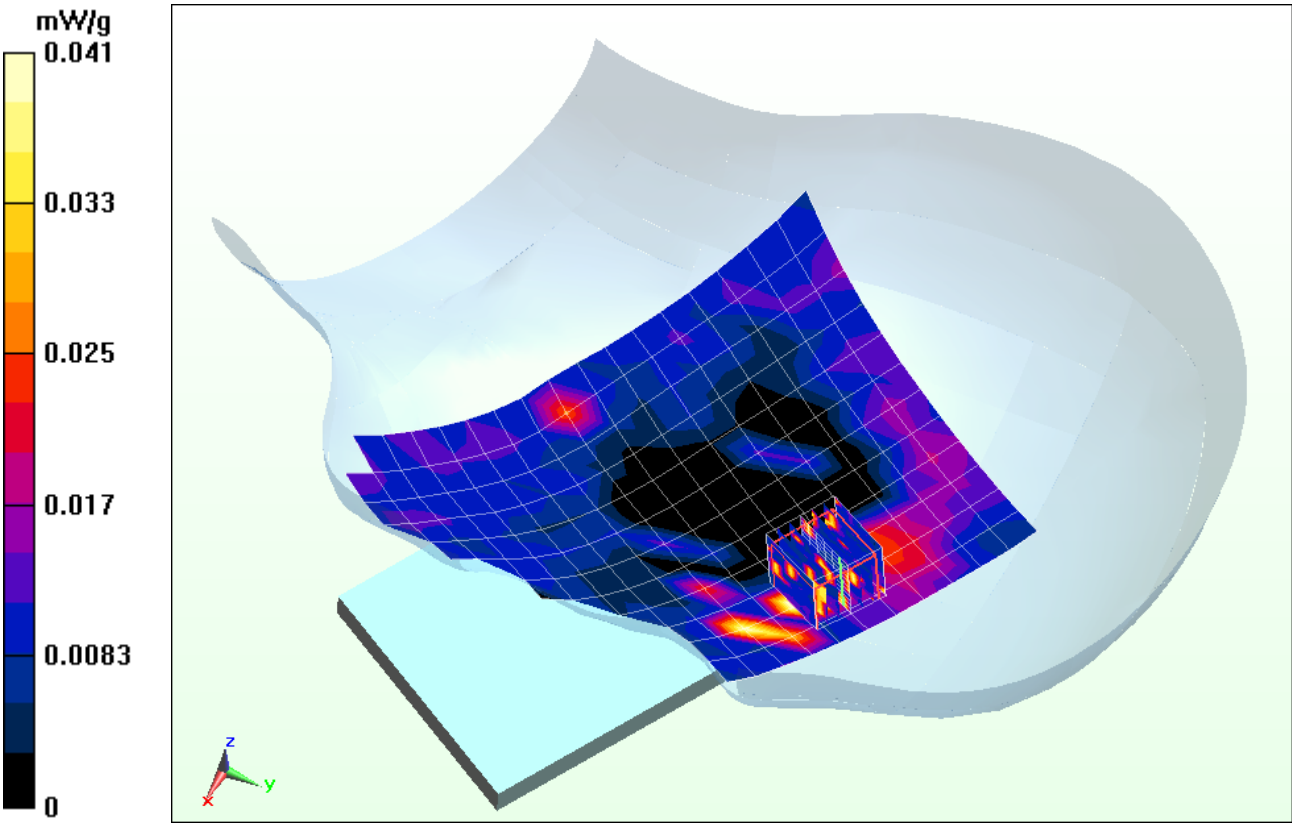
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium: 5GHz Head; Medium parameters used:
f = 5320 MHz; σ = 4.632 mho/m; ε_r = 35.26; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-02-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3589; ConvF(4.36, 4.36, 4.36); Calibrated: 1/27/2012;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 2/15/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11a, 5.3 GHz Left Head, Cheek, Ch 64, 6 Mbps

Area Scan (13x19x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.142 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.230 mW/g
SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.0024 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

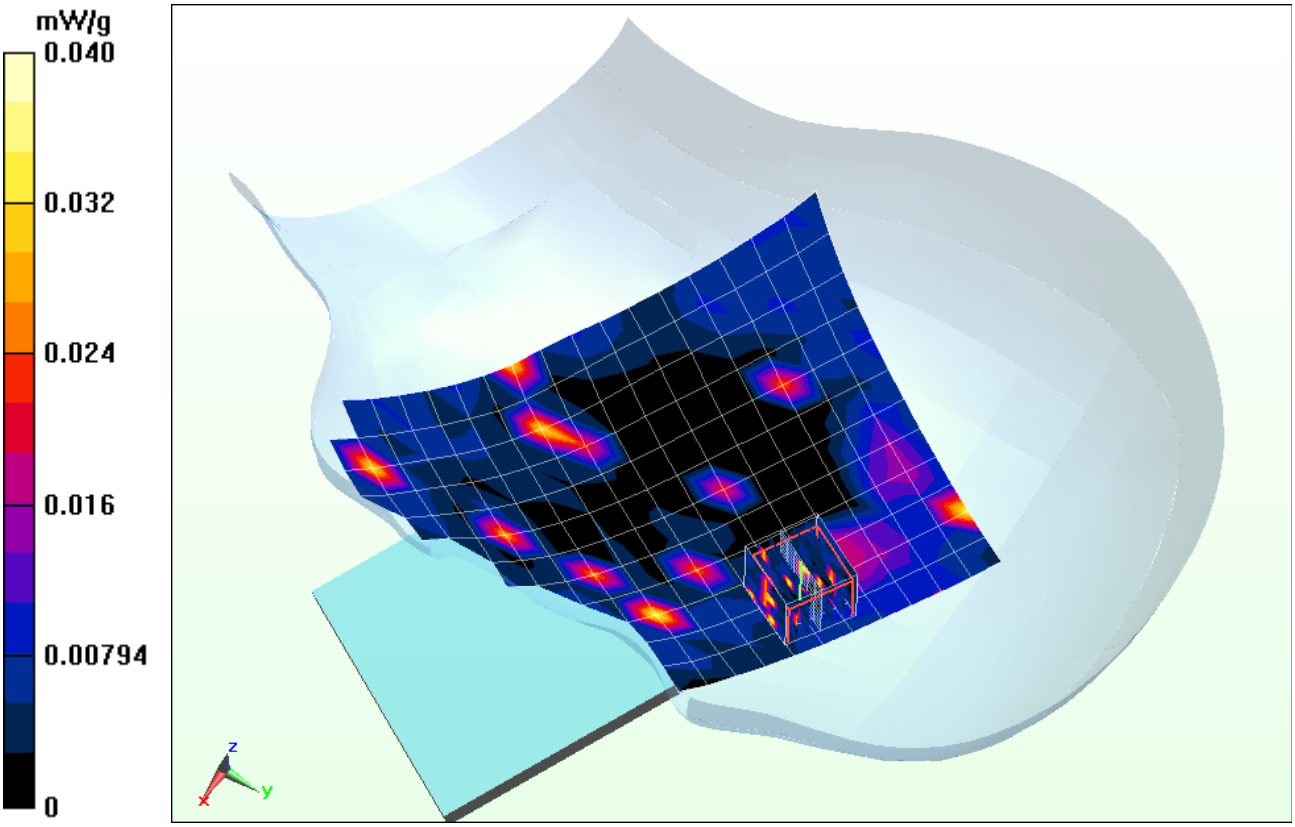
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5240 MHz; Duty Cycle: 1:1
Medium: 5GHz Head; Medium parameters used:
f = 5240 MHz; σ = 4.579 mho/m; ε_r = 35.48; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-02-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3589; ConvF(4.59, 4.59, 4.59); Calibrated: 1/27/2012;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 2/15/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11a, 5.2 GHz Left Head, Tilt, Ch 48, 6 Mbps

Area Scan (13x19x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.097 mW/g
SAR(1 g) = 0.00559 mW/g; SAR(10 g) = 0.00094 mW/g



DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_12

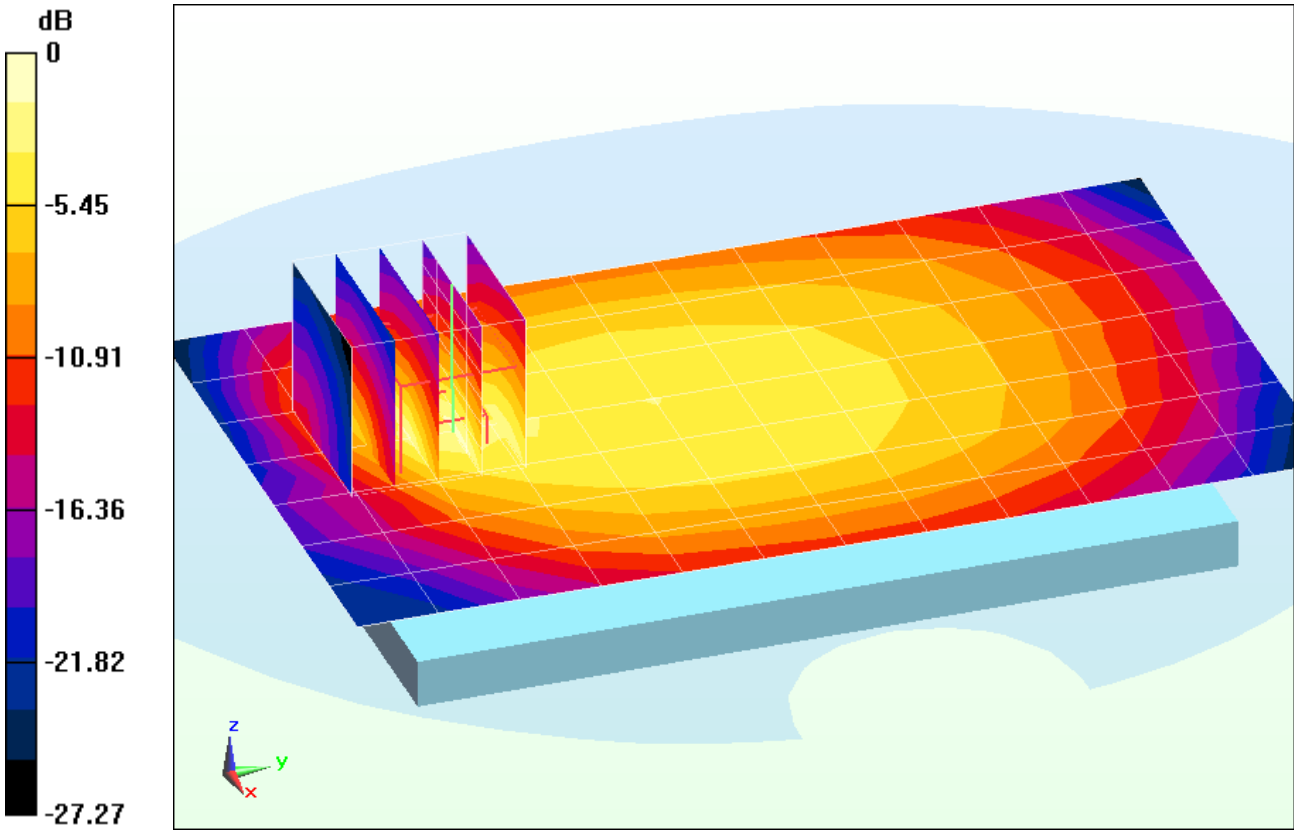
Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1
Medium: 740 Body; Medium parameters used (interpolated):
f = 704 MHz; σ = 0.952 mho/m; ε_r = 58.124; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

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

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.289 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.260 mW/g
SAR(1 g) = 0.148 mW/g; SAR(10 g) = 0.083 mW/g



0 dB = 0.165 mW/g = -15.65 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_12

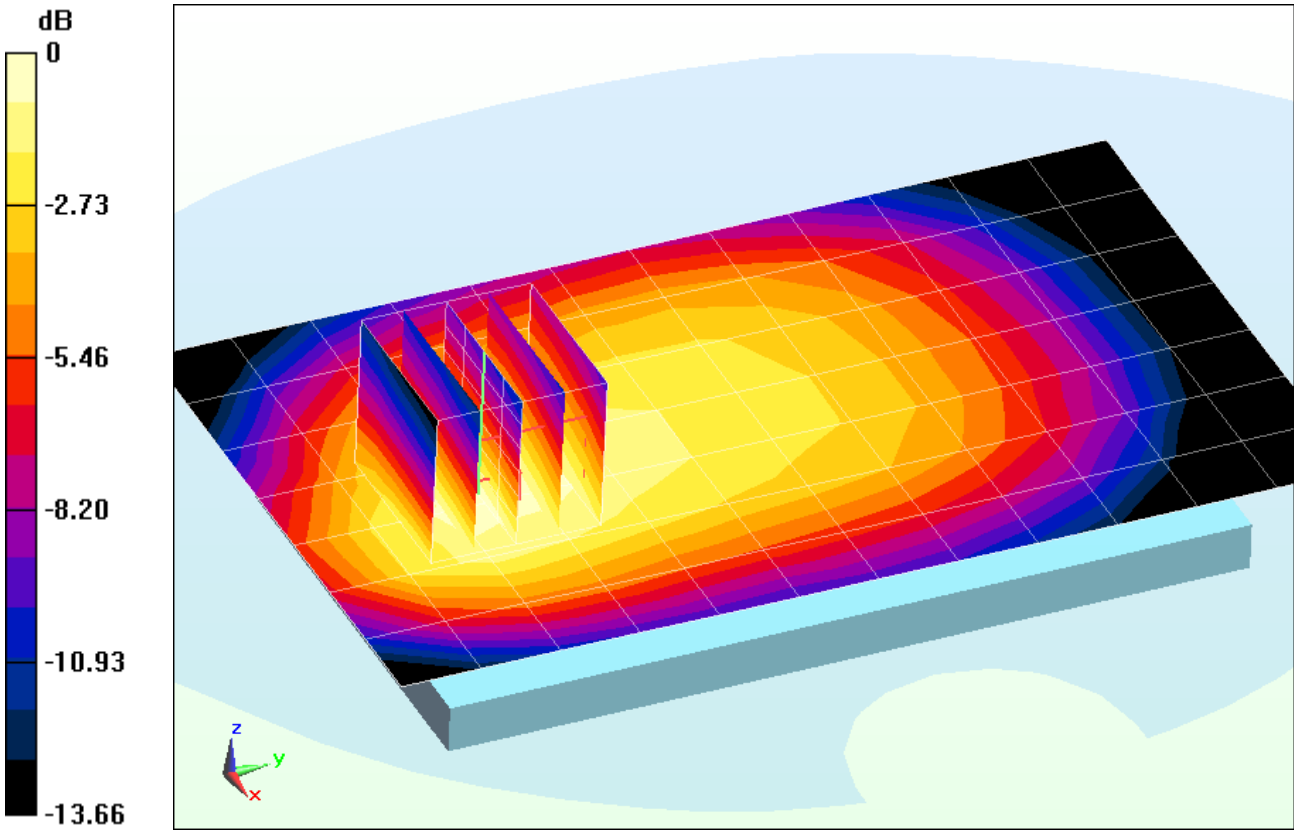
Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1
Medium: 740 Body; Medium parameters used (interpolated):
f = 704 MHz; σ = 0.952 mho/m; ε_r = 58.124; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

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

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.506 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.097 mW/g
SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.045 mW/g



0 dB = 0.0712 mW/g = -22.95 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_12

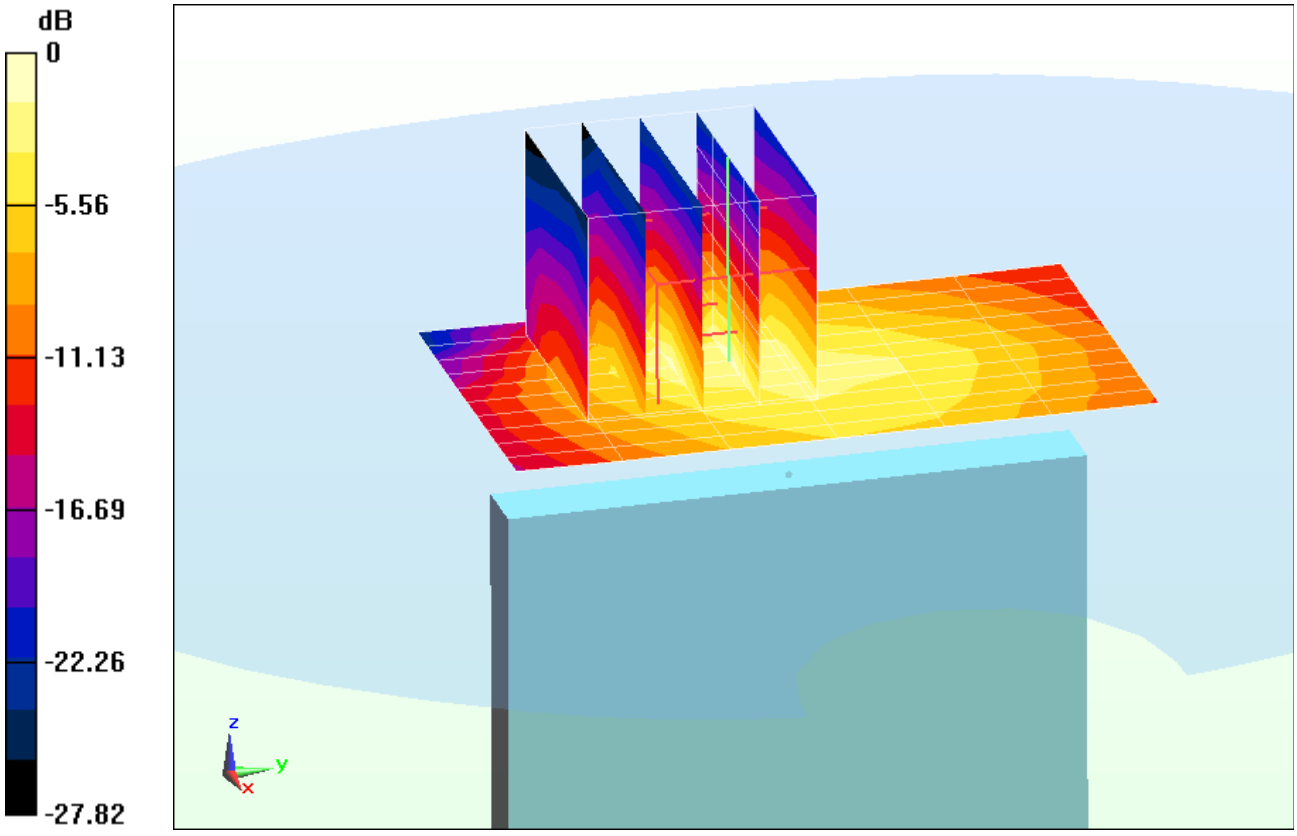
Communication System: LTE RF; Frequency: 704 MHz;Duty Cycle: 1:1
Medium: 740 Body; Medium parameters used (interpolated):
f = 704 MHz; σ = 0.952 mho/m; ε_r = 58.124; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 12, Body SAR, Bottom Edge, Low.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (11x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.513 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.147 mW/g
SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.032 mW/g



0 dB = 0.0726 mW/g = -22.78 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_12

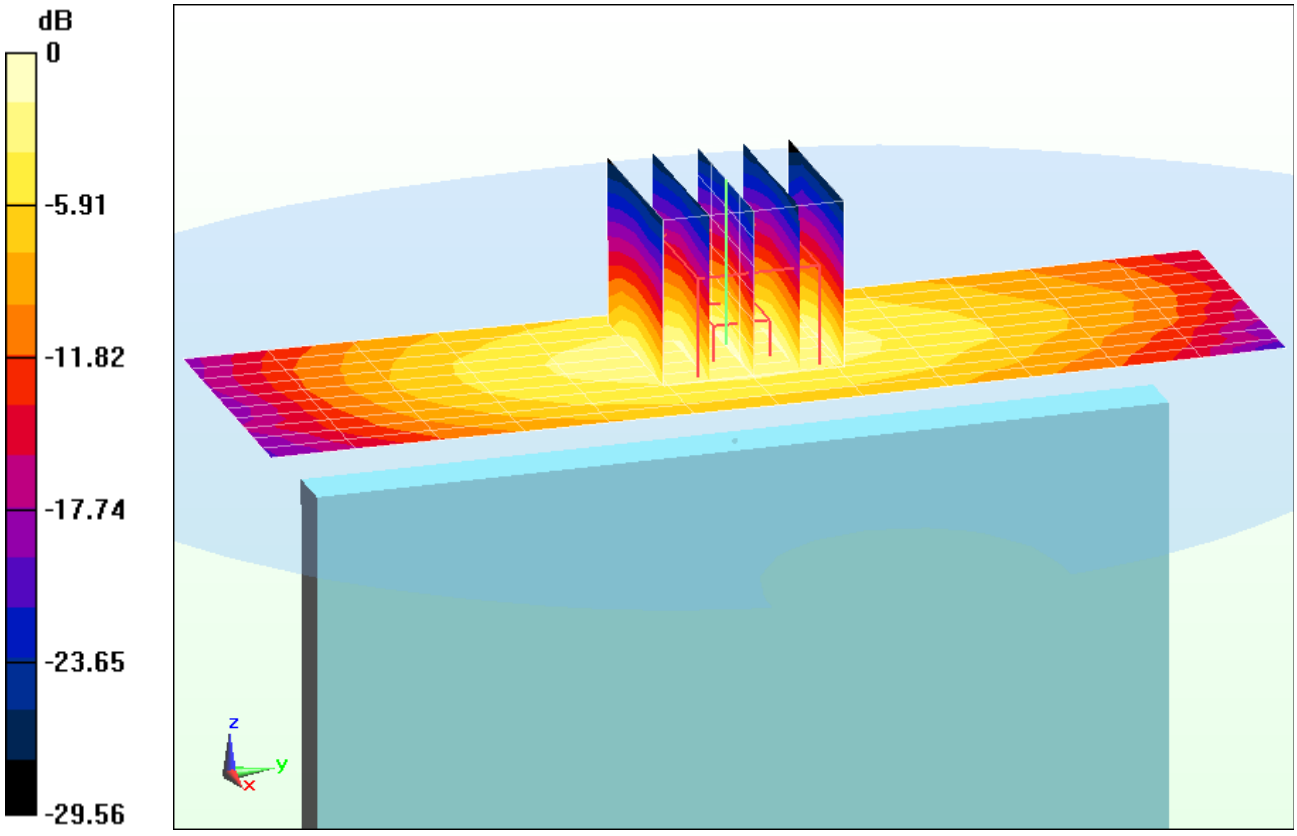
Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1
Medium: 740 Body; Medium parameters used (interpolated):
f = 704 MHz; σ = 0.952 mho/m; ε_r = 58.124; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/19/2012
Phantom: SAM Sub Dasy B; Type: SAM 5.0; Serial: TP-1626
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 12, Body SAR, Right Edge, Low.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (11x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.470 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.065 mW/g
SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.033 mW/g



0 dB = 0.0511 mW/g = -25.83 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_14

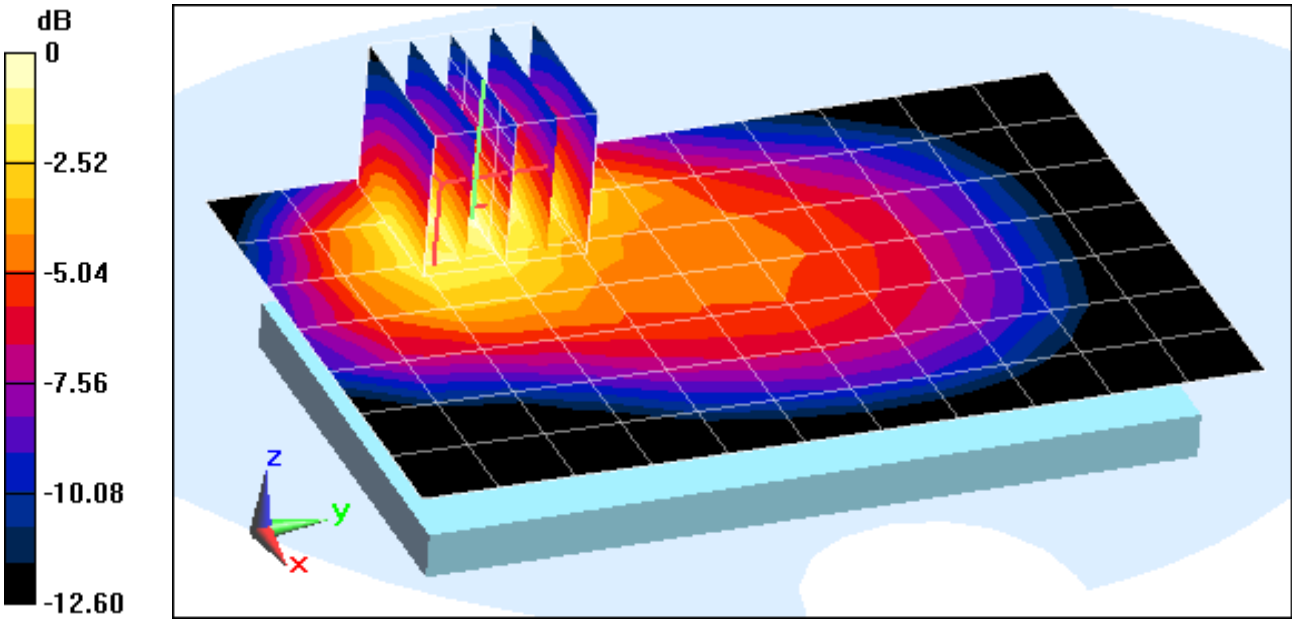
Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.982 mho/m; ε_r = 54.166; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2012; Ambient Temp: 24.9°C; Tissue Temp: 24.2°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

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

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.683 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.613 mW/g
SAR(1 g) = 0.382 mW/g; SAR(10 g) = 0.234 mW/g



0 dB = 0.422 mW/g = -7.49 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_14

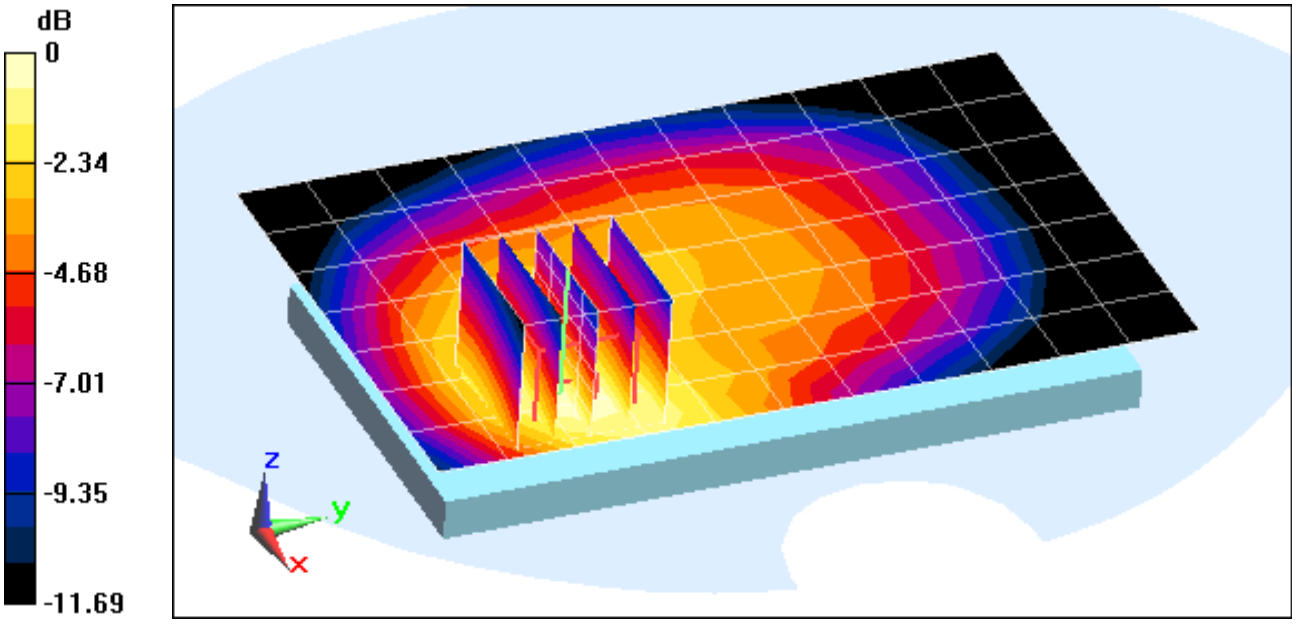
Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.982 mho/m; ε_r = 54.166; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2012; Ambient Temp: 24.9°C; Tissue Temp: 24.2°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 5 (Cell), Body SAR, Front side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.676 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.254 mW/g
SAR(1 g) = 0.179 mW/g; SAR(10 g) = 0.122 mW/g



0 dB = 0.191 mW/g = -14.38 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_14

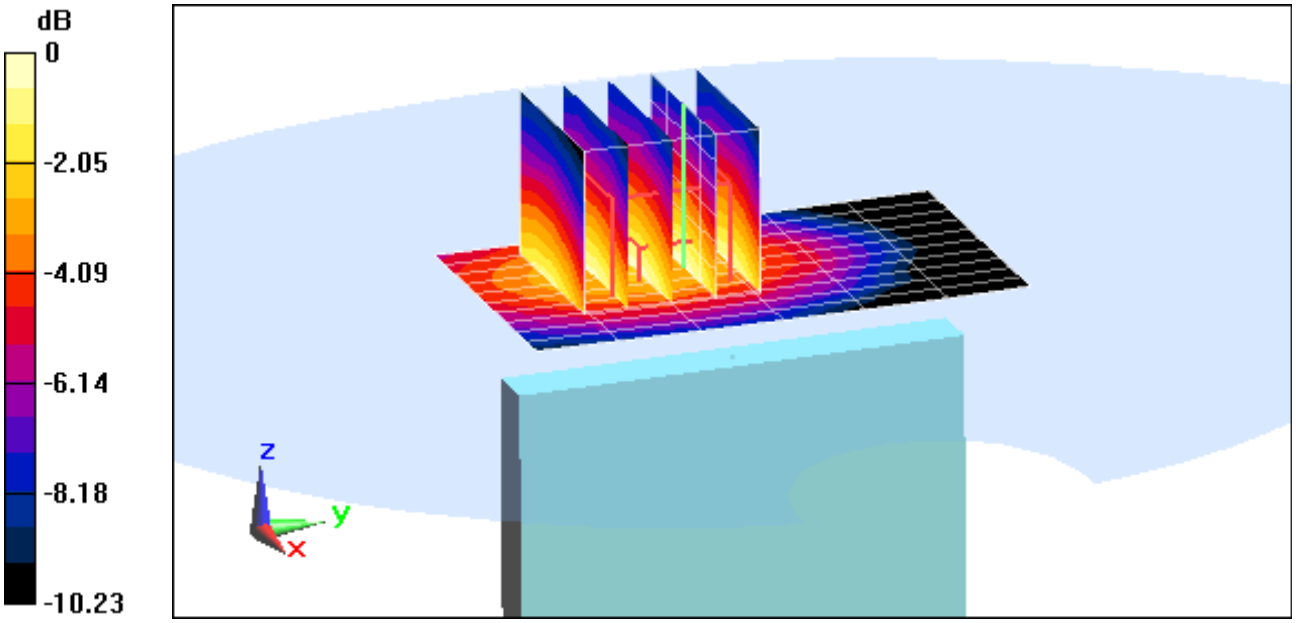
Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.982 mho/m; ε_r = 54.166; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2012; Ambient Temp: 24.9°C; Tissue Temp: 24.2°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 5 (Cell), Body SAR, Bottom Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 25 RB, 12 RB Offset

Area Scan (11x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.773 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.056 mW/g
SAR(1 g) = 0.041 mW/g; SAR(10 g) = 0.028 mW/g



0 dB = 0.0432 mW/g = -27.29 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_14

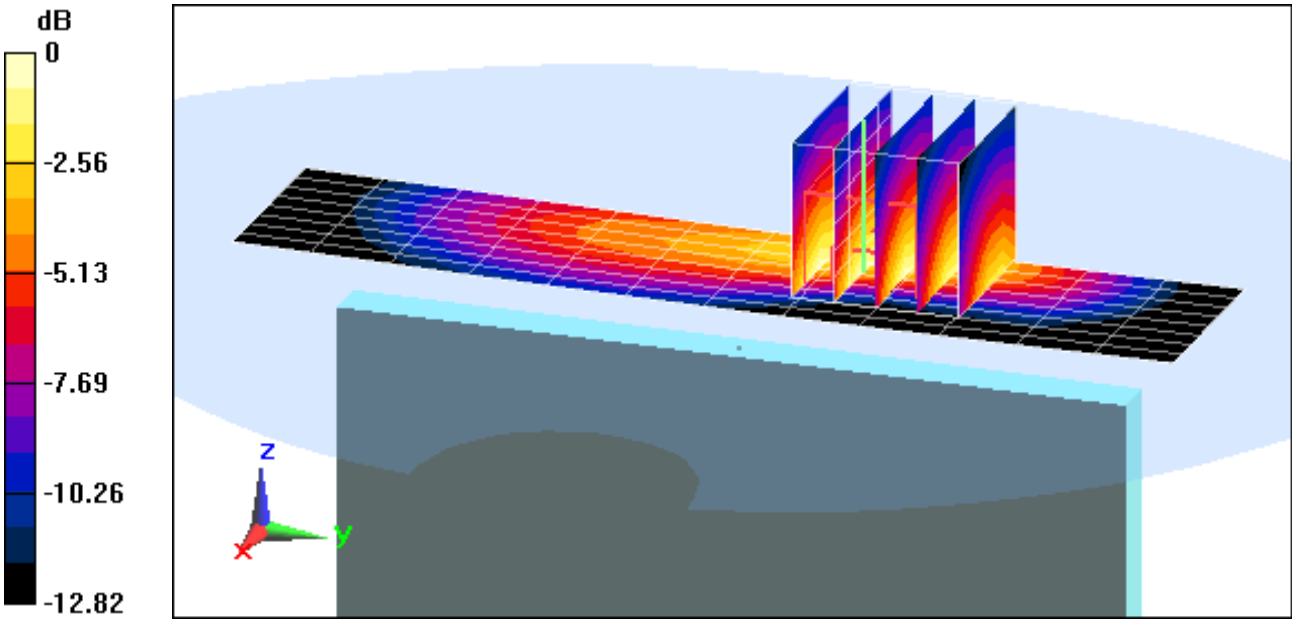
Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.982 mho/m; ε_r = 54.166; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2012; Ambient Temp: 24.9°C; Tissue Temp: 24.2°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 5 (Cell), Body SAR, Right Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 25 RB, 12 RB Offset

Area Scan (9x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.119 V/m; Power Drift = -0.54 dB
Peak SAR (extrapolated) = 0.634 mW/g
SAR(1 g) = 0.399 mW/g; SAR(10 g) = 0.240 mW/g



0 dB = 0.441 mW/g = -7.11 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

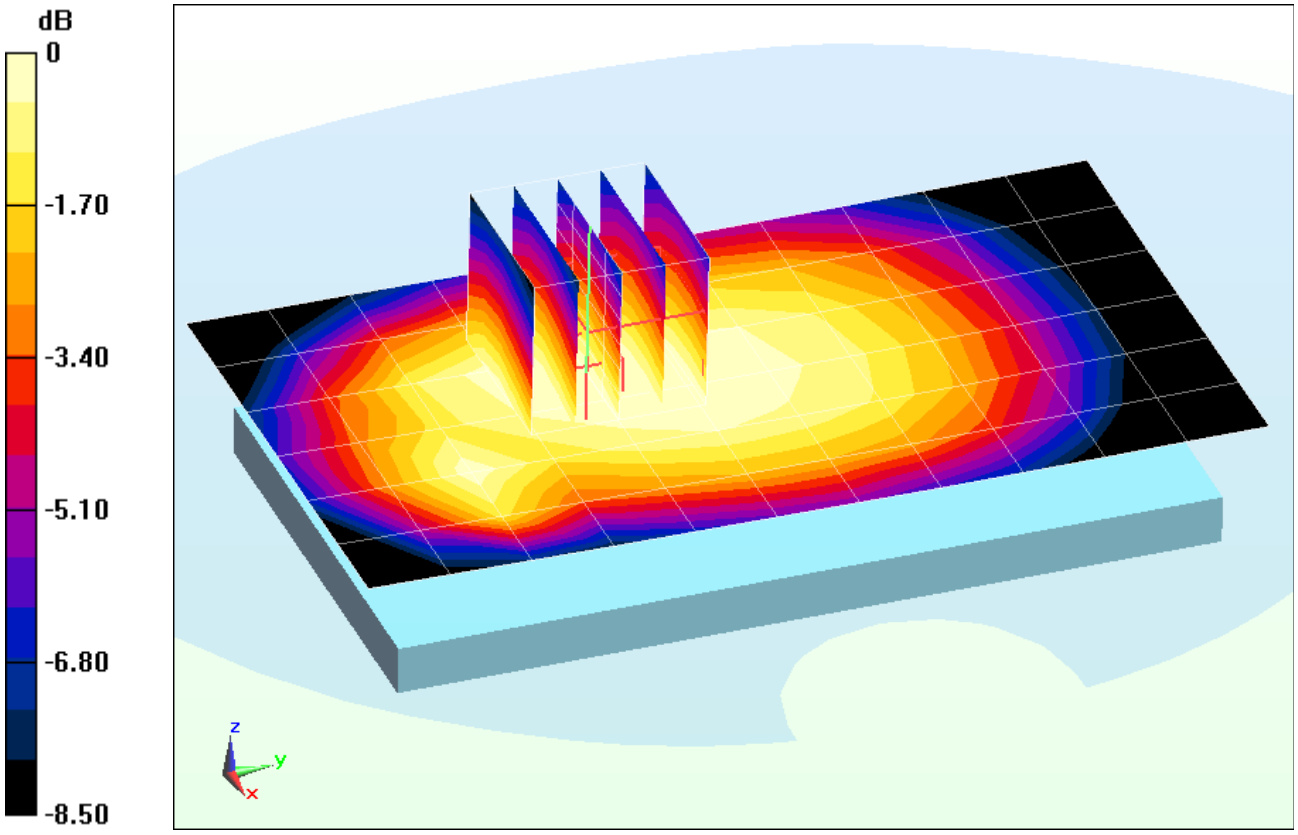
Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.974 mho/m; ε_r = 53.979; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-02-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.9°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: Cellular EVDO Rev. 0, Body SAR, Back side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.614 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.620 mW/g
SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.397 mW/g



0 dB = 0.532 mW/g = -5.48 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

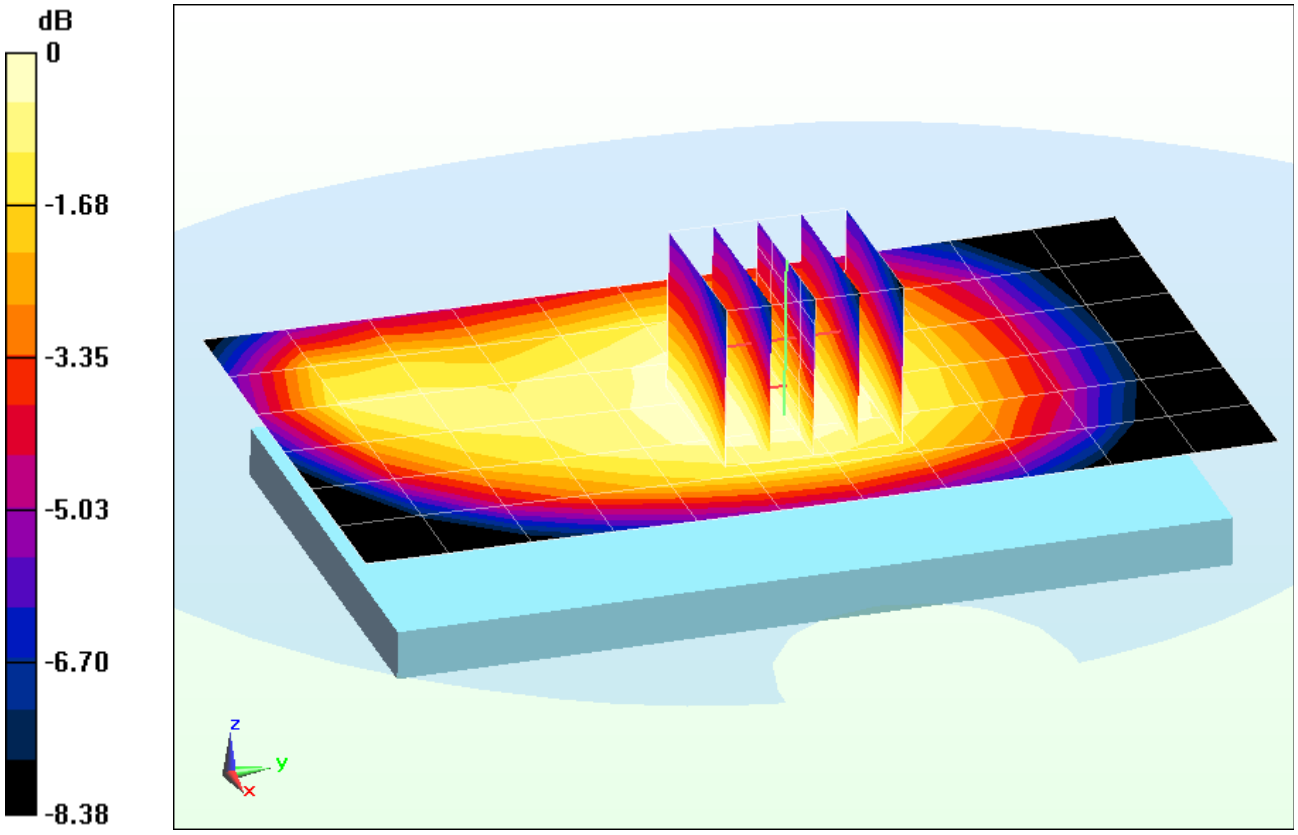
Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
$f = 836.52$ MHz; $\sigma = 0.974$ mho/m; $\varepsilon_r = 53.979$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-02-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.9°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: Cellular EVDO Rev. 0, Body SAR, Front side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.609 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.352 mW/g
SAR(1 g) = 0.287 mW/g; SAR(10 g) = 0.227 mW/g



0 dB = 0.299 mW/g = -10.49 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

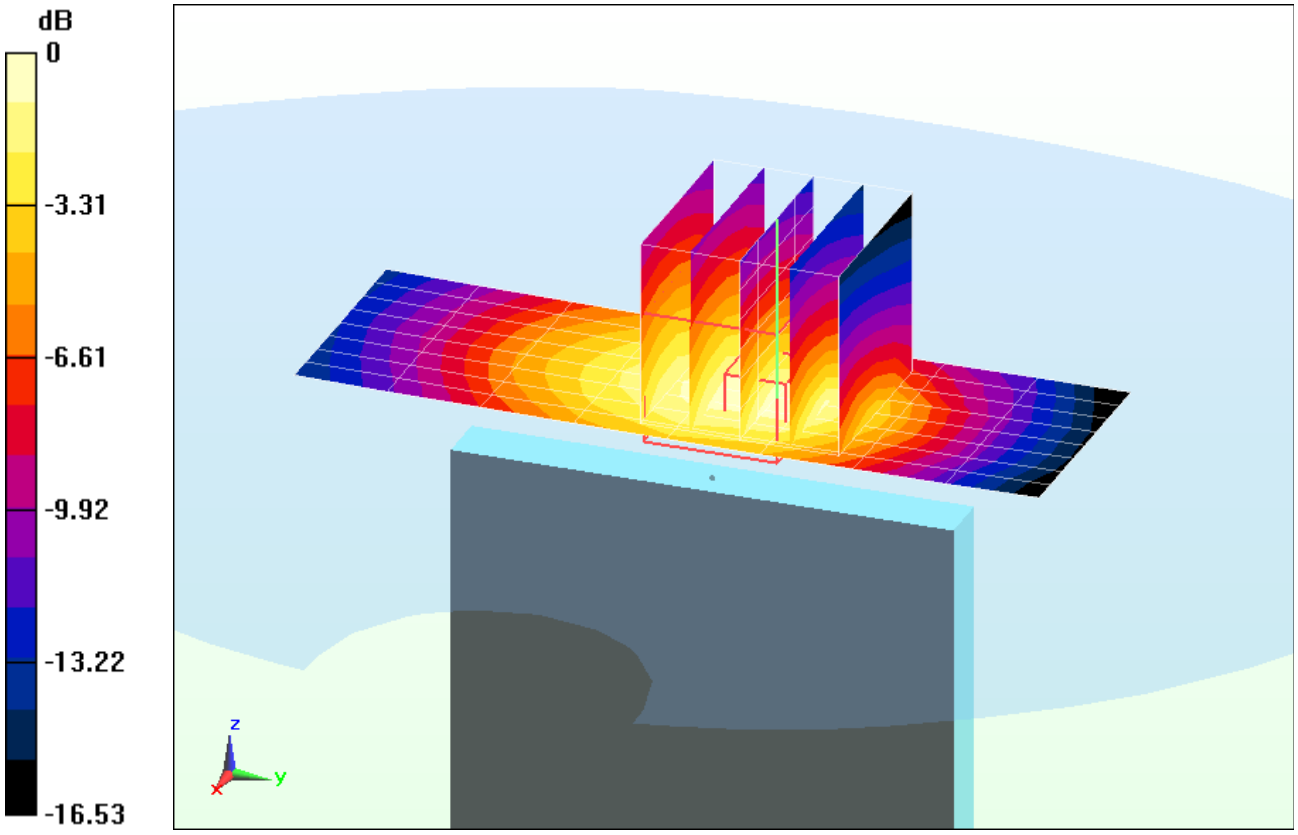
Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
$f = 836.52$ MHz; $\sigma = 0.974$ mho/m; $\varepsilon_r = 53.979$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-02-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.9°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: Cellular TDSO, Body SAR, Bottom Edge, Mid.ch

Area Scan (9x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.359 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.548 mW/g
SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.179 mW/g



0 dB = 0.327 mW/g = -9.71 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

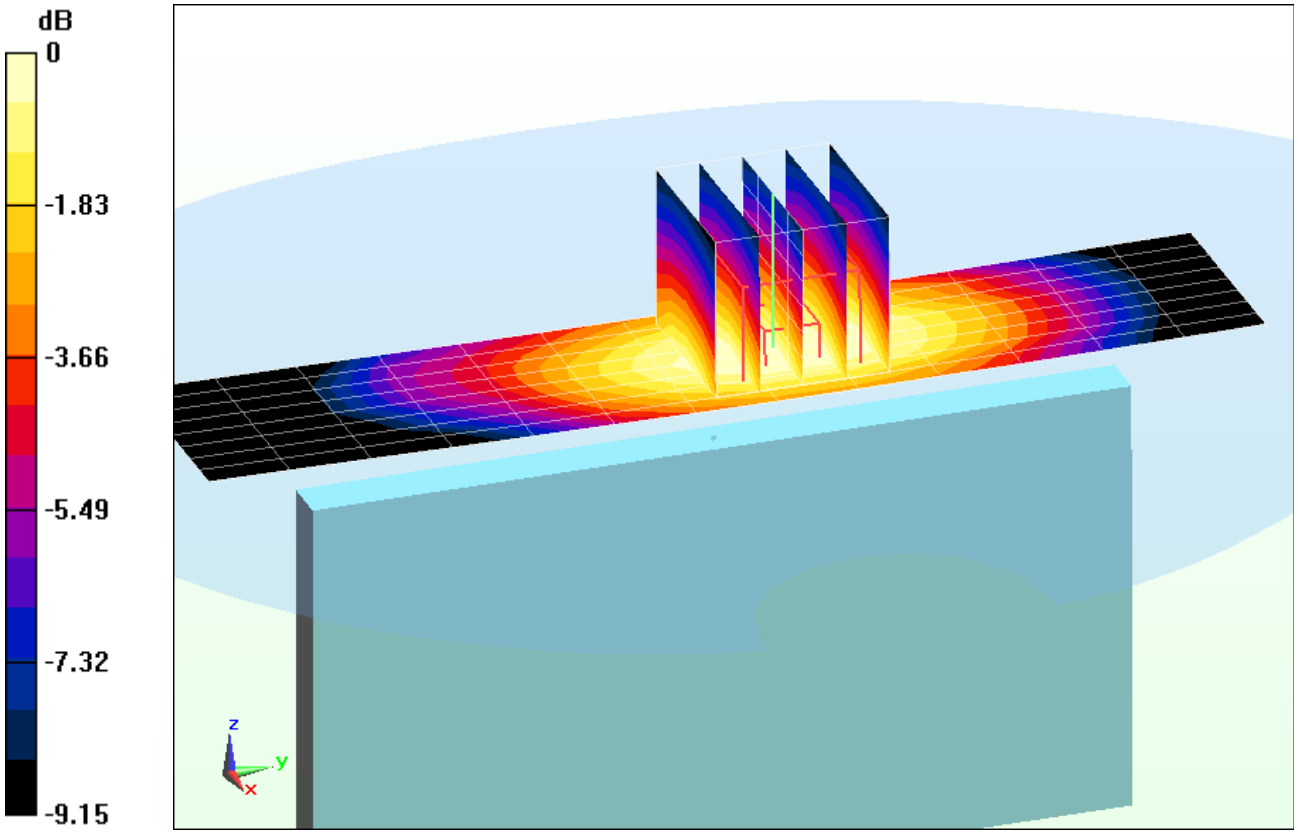
Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.974 mho/m; ε_r = 53.979; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-02-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.9°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: Cellular TDSO, Body SAR, Left Edge, Mid.ch

Area Scan (9x14x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.402 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.456 mW/g
SAR(1 g) = 0.328 mW/g; SAR(10 g) = 0.231 mW/g



0 dB = 0.348 mW/g = -9.17 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_17

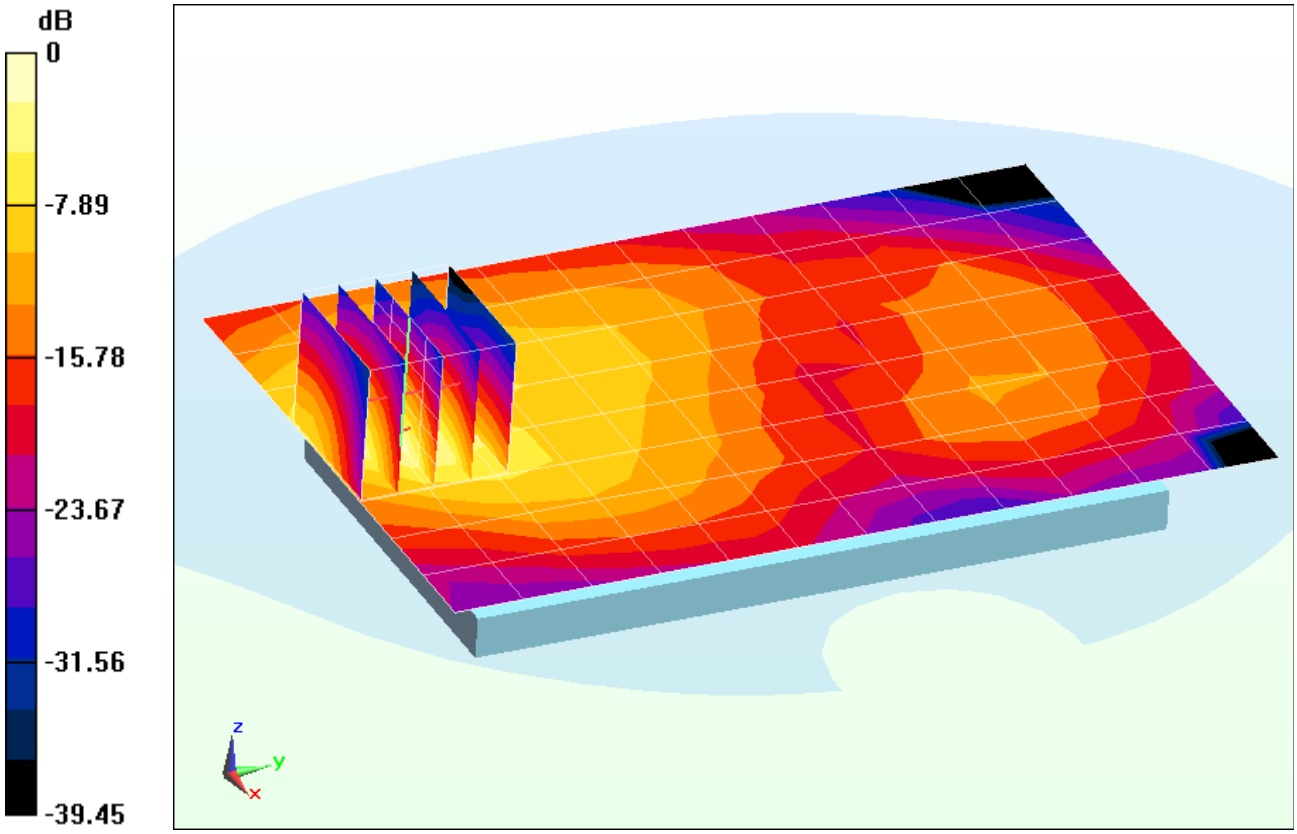
Communication System: LTE Band 4 (AWS); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.468 mho/m; ε_r = 52.41; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Right; Type: QD000P40CD; Serial: 1686
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 4 (AWS), Body SAR, Back side, High.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 49

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.922 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.273 mW/g
SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.079 mW/g



0 dB = 0.176 mW/g = -15.09 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_17

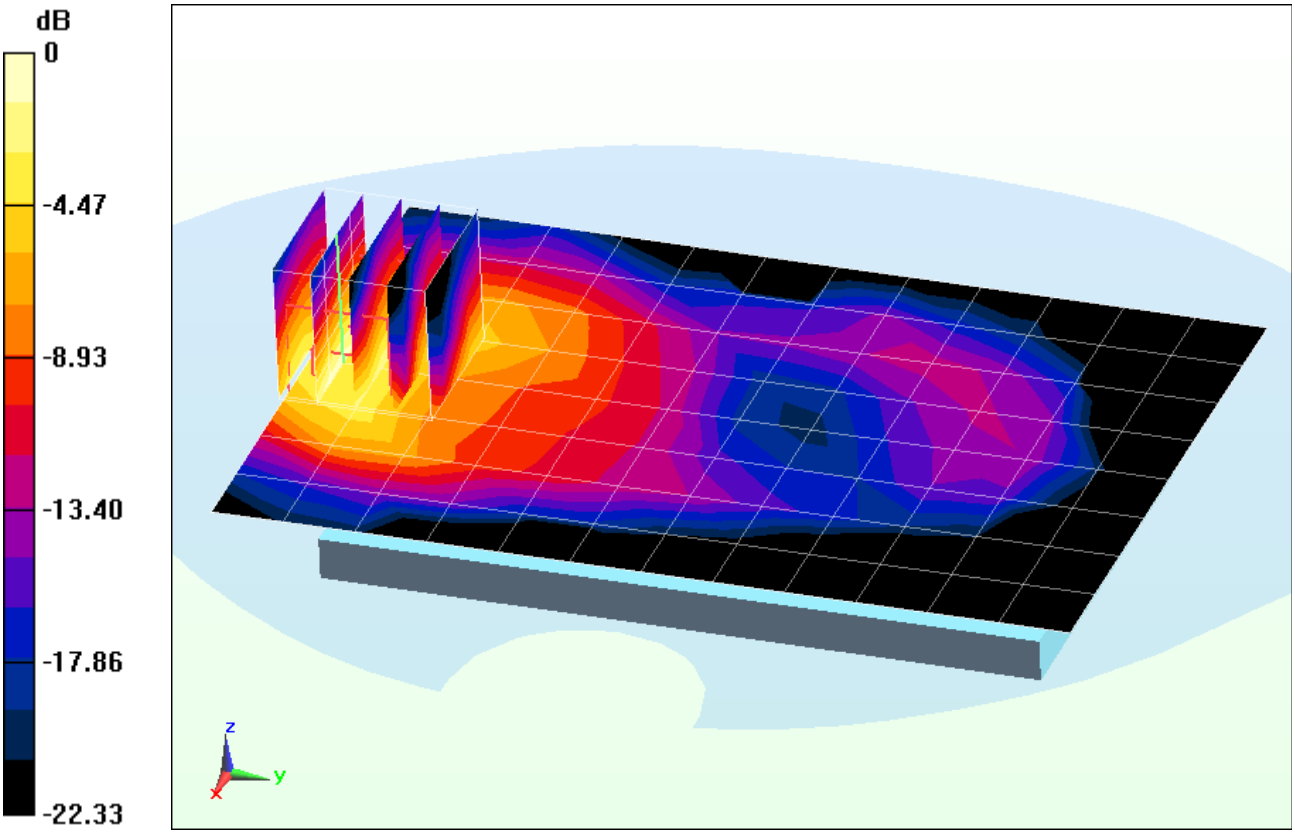
Communication System: LTE Band 4 (AWS); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.468 mho/m; ε_r = 52.41; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Right; Type: QD000P40CD; Serial: 1686
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode:LTE Band 4 (AWS), Body SAR, Front side, High.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 49

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.737 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.095 mW/g
SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.030 mW/g



0 dB = 0.0629 mW/g = -24.03 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_17

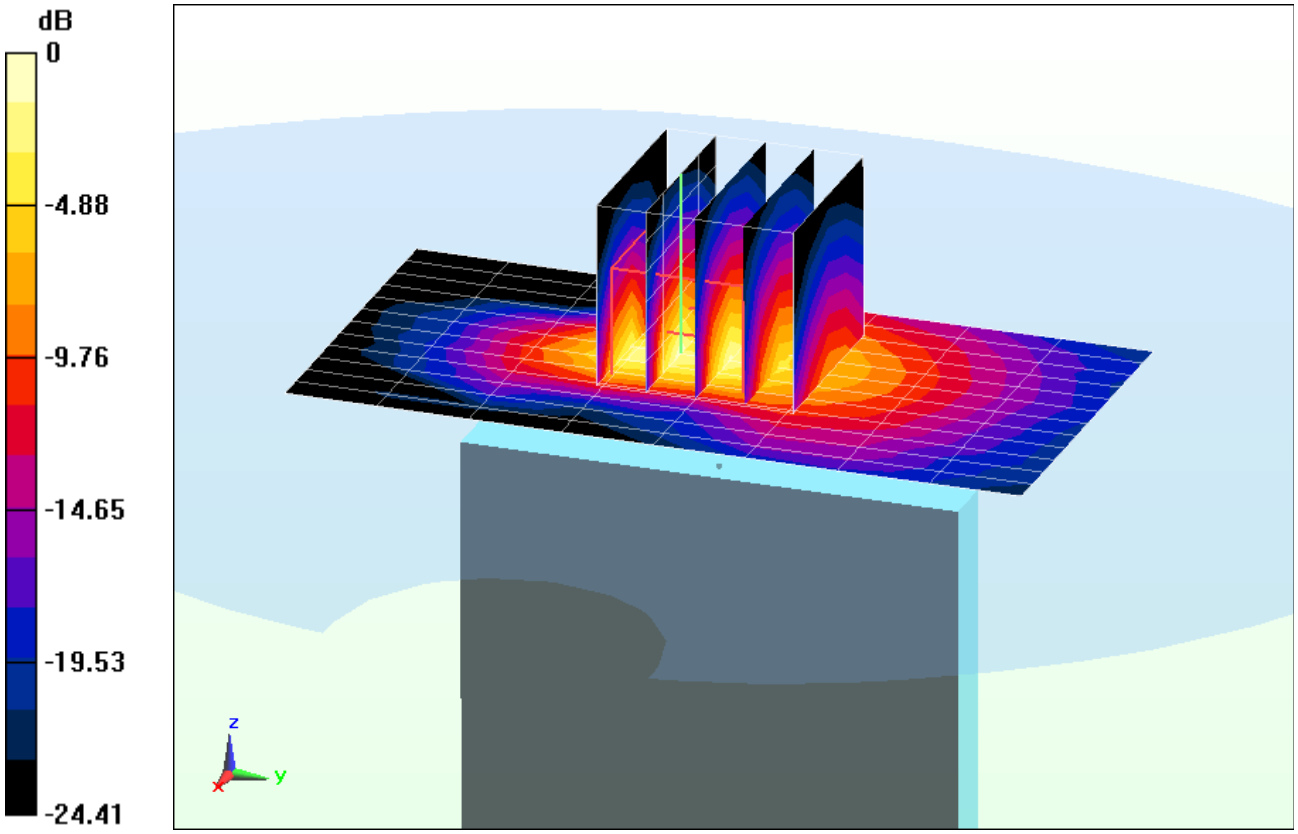
Communication System: LTE Band 4 (AWS); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.468 mho/m; ε_r = 52.41; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Right; Type: QD000P40CD; Serial: 1686
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 4 (AWS), Body SAR, Bottom Edge, High.ch, 10 MHz Bandwidth, QPSK, 1 RB, RB Offset 49

Area Scan (13x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.989 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.324 mW/g
SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.077 mW/g



0 dB = 0.196 mW/g = -14.15 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_17

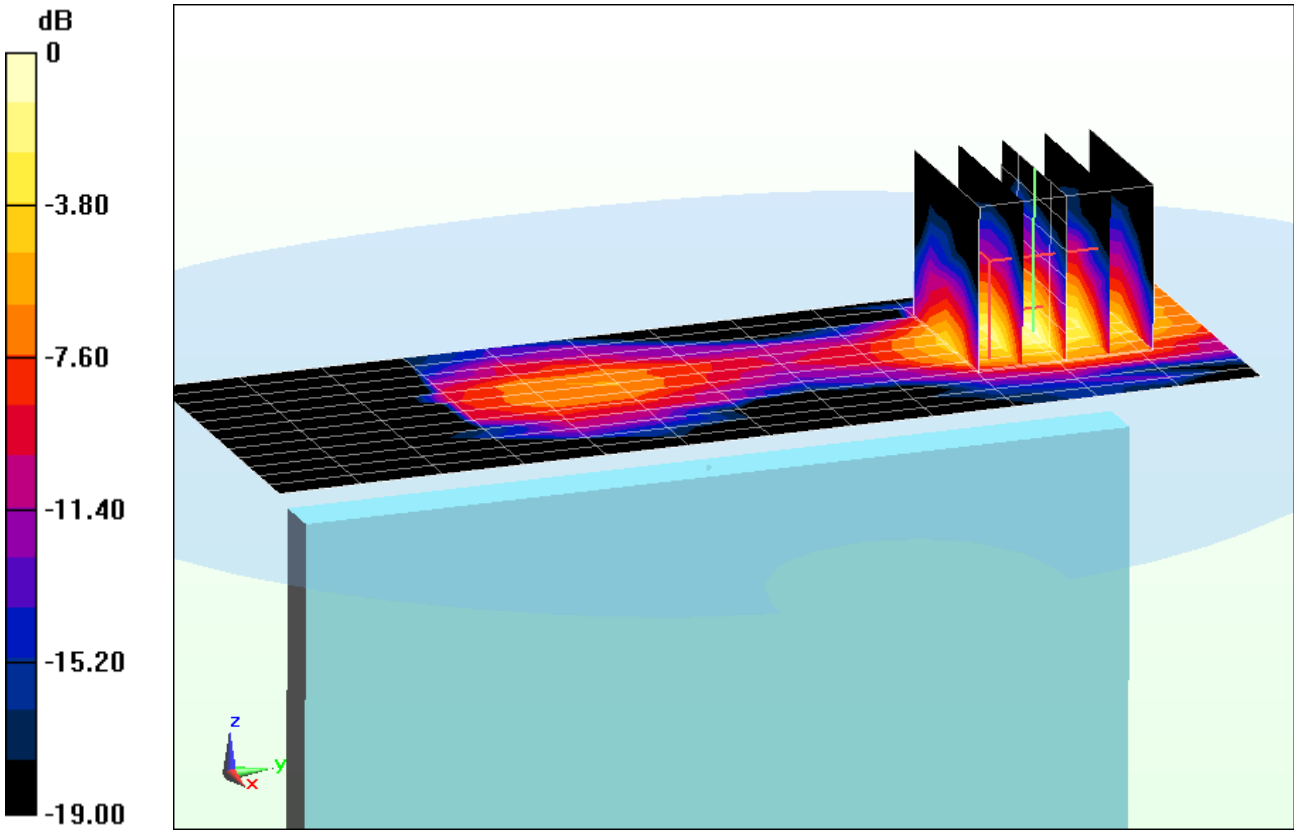
Communication System: LTE Band 4 (AWS); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.468 mho/m; ε_r = 52.41; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Right; Type: QD000P40CD; Serial: 1686
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

**Mode: LTE Band 4 (AWS), Body SAR, Right Edge, High.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 49**

Area Scan (13x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.068 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.034 mW/g
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.011 mW/g



0 dB = 0.0232 mW/g = -32.69 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

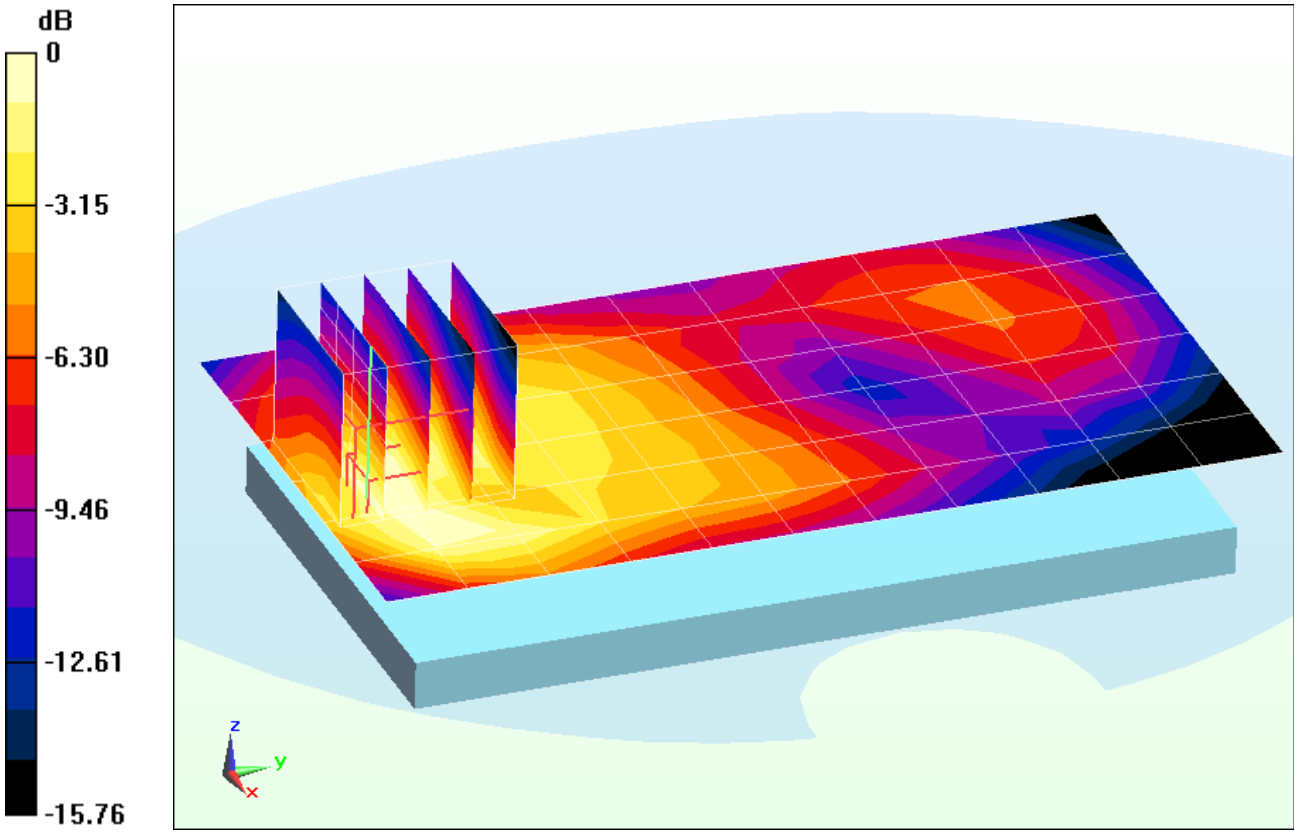
Communication System: CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.41$ mho/m; $\varepsilon_r = 52.409$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.9°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Right; Type: QD000P40CD; Serial: 1686
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

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

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.929 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.671 mW/g
SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.222 mW/g



0 dB = 0.415 mW/g = -7.64 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

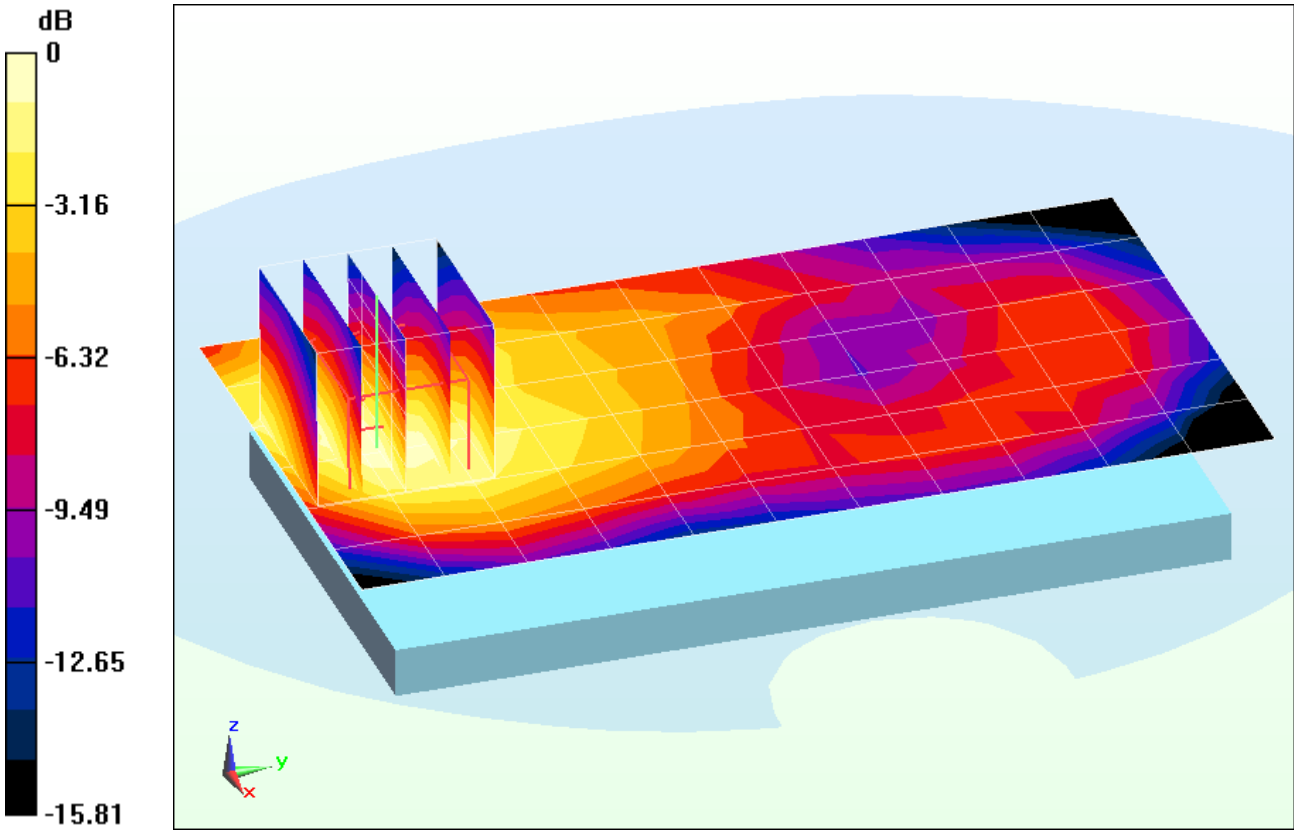
Communication System: CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.41$ mho/m; $\varepsilon_r = 52.409$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.9°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Right; Type: QD000P40CD; Serial: 1686
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: AWS TDSO, Body SAR, Front side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.811 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.334 mW/g
SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.133 mW/g



0 dB = 0.235 mW/g = -12.58 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

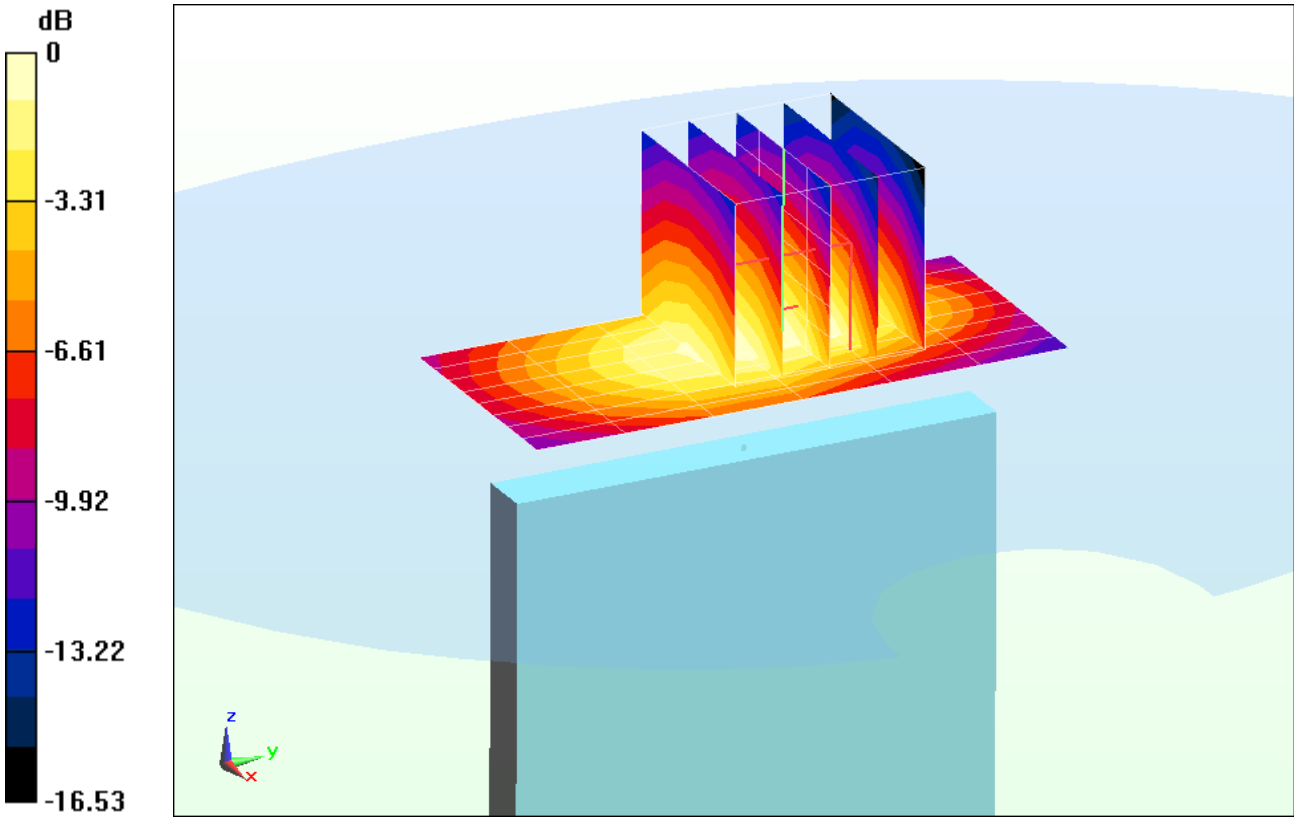
Communication System: CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.41$ mho/m; $\varepsilon_r = 52.409$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.9°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Right; Type: QD000P40CD; Serial: 1686
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: AWS EVDO Rev. 0, Body SAR, Bottom Edge, Mid.ch

Area Scan (9x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.094 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.467 mW/g
SAR(1 g) = 0.295 mW/g; SAR(10 g) = 0.177 mW/g



0 dB = 0.325 mW/g = -9.76 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

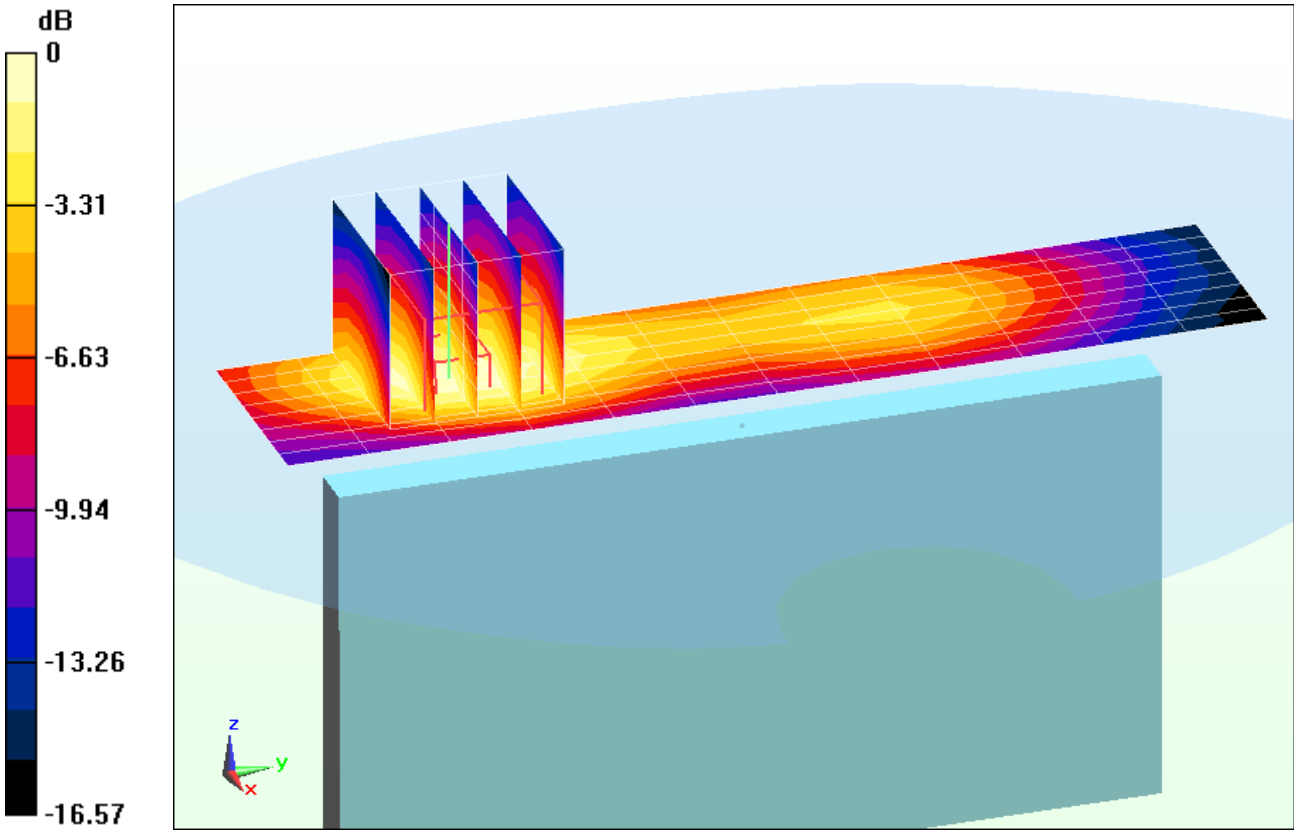
Communication System: CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.41$ mho/m; $\varepsilon_r = 52.409$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.9°C

Probe: ES3DV3 - SN3213; ConvF(4.68, 4.68, 4.68); Calibrated: 4/24/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 5/7/2012
Phantom: SAM Right; Type: QD000P40CD; Serial: 1686
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: AWS EVDO Rev. 0, Body SAR, Left Edge, Mid.ch

Area Scan (9x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.971 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.255 mW/g
SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.089 mW/g



0 dB = 0.172 mW/g = -15.29 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_16

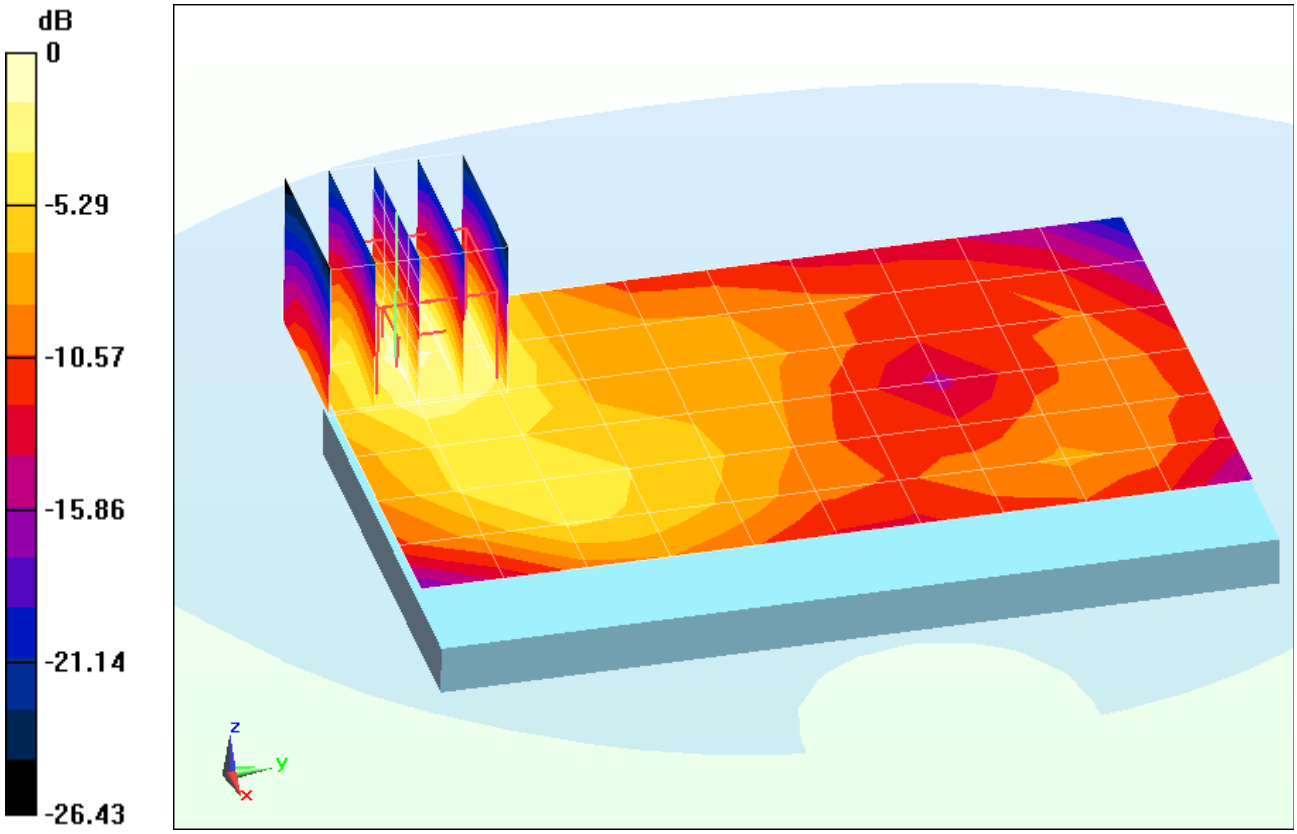
Communication System: LTE Band 2; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.525 mho/m; ε_r = 53.75; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2012; Ambient Temp: 24.1 °C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.02, 5.02, 5.02); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.097 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 0.302 mW/g
SAR(1 g) = 0.179 mW/g; SAR(10 g) = 0.101 mW/g



0 dB = 0.187 mW/g = -14.56 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_16

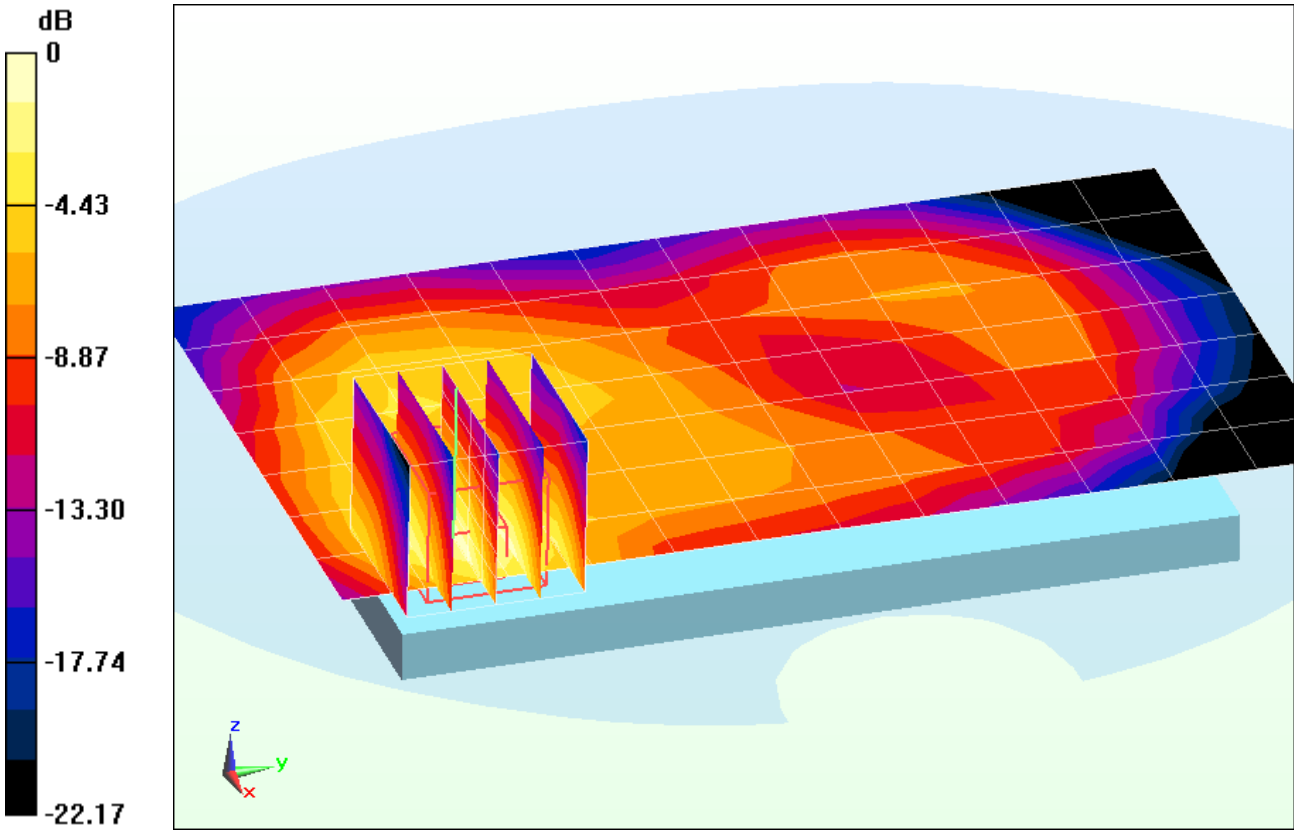
Communication System: LTE Band 2; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.525 mho/m; ε_r = 53.75; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2012; Ambient Temp: 24.1 °C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.02, 5.02, 5.02); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Body SAR, Front side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.535 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.344 mW/g
SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.110 mW/g



0 dB = 0.213 mW/g = -13.43 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_16

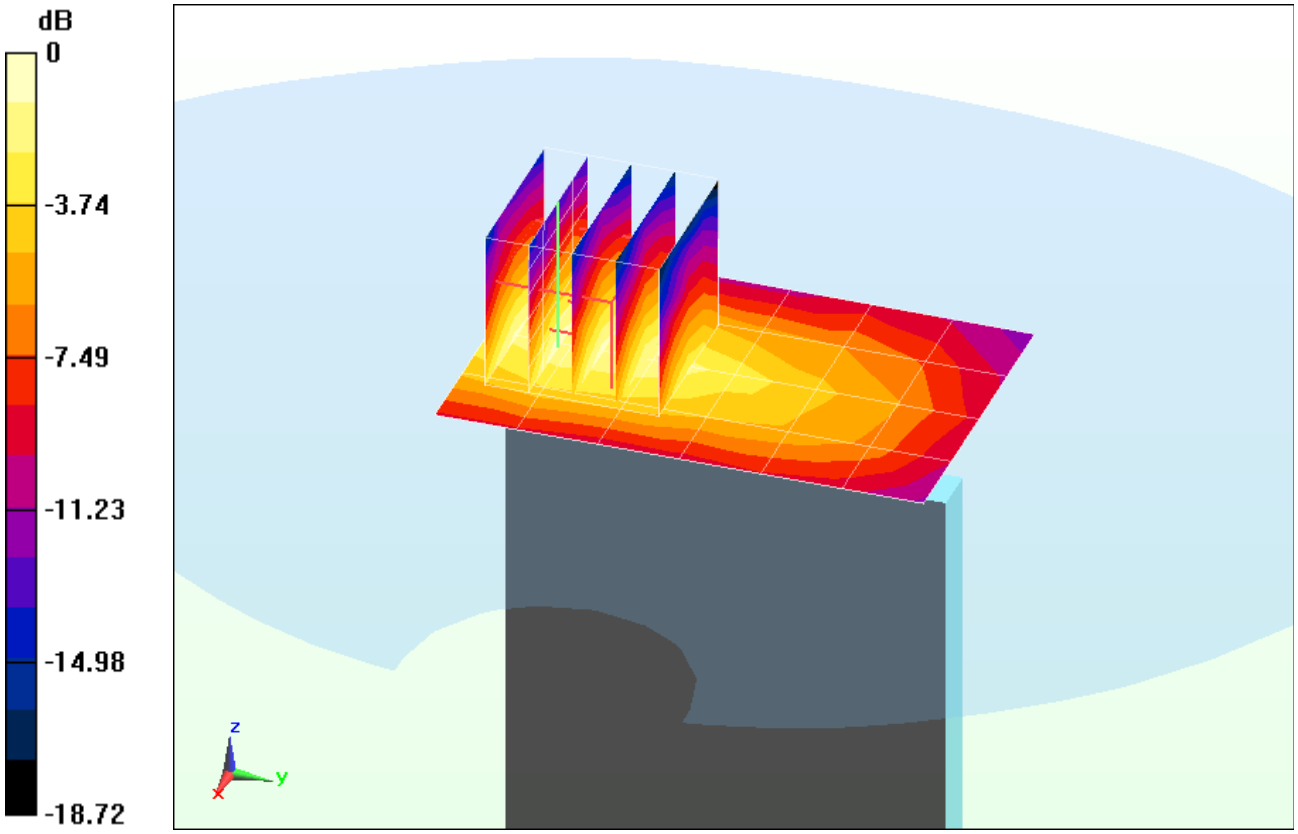
Communication System: LTE Band 2; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.525 mho/m; ε_r = 53.75; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2012; Ambient Temp: 24.1 °C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.02, 5.02, 5.02); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Body SAR, Bottom Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.174 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.087 mW/g
SAR(1 g) = 0.054 mW/g; SAR(10 g) = 0.032 mW/g



0 dB = 0.0608 mW/g = -24.32 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_16

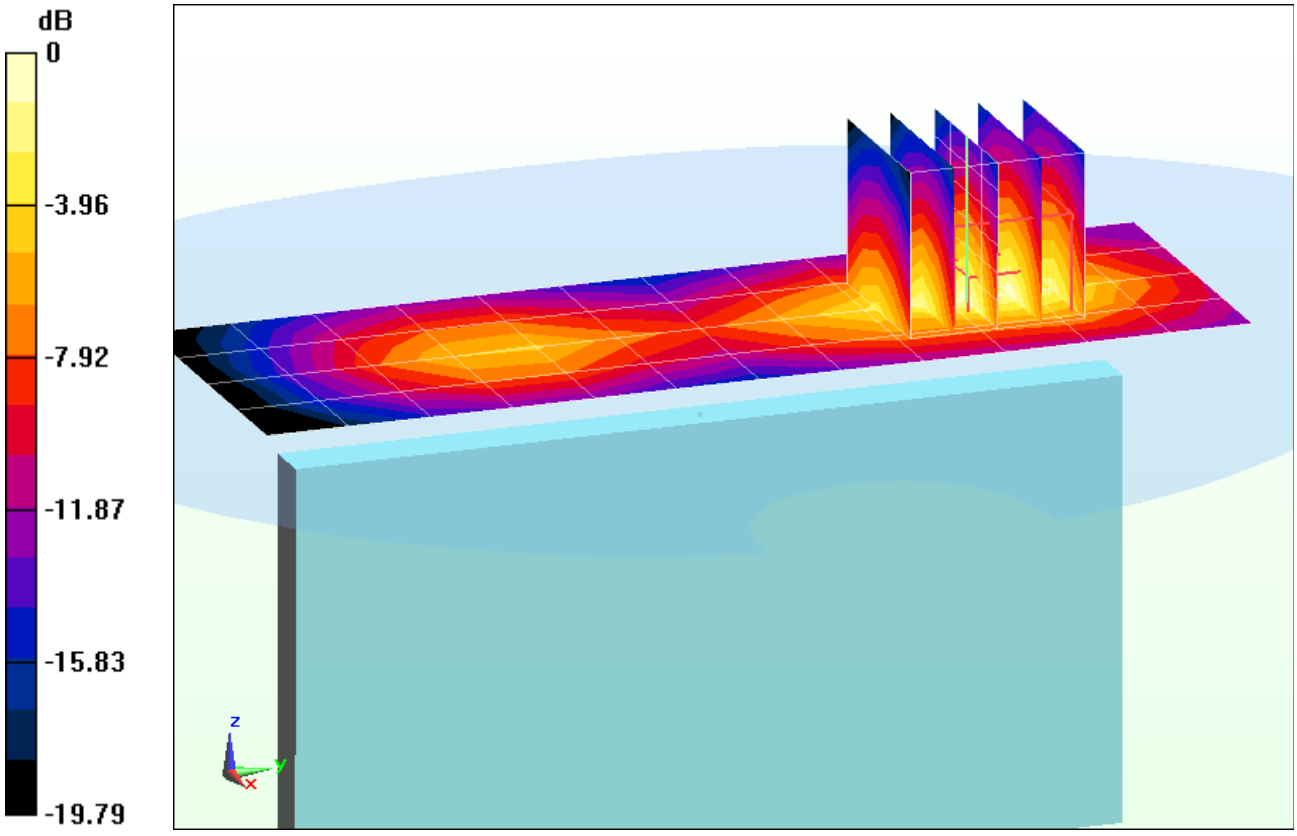
Communication System: LTE Band 2; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.525 mho/m; ε_r = 53.75; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2012; Ambient Temp: 24.1 °C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.02, 5.02, 5.02); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

**Mode: LTE Band 2 (PCS), Body SAR, Right Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, RB Offset 0**

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.866 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.503 mW/g
SAR(1 g) = 0.279 mW/g; SAR(10 g) = 0.140 mW/g



0 dB = 0.321 mW/g = -9.87 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

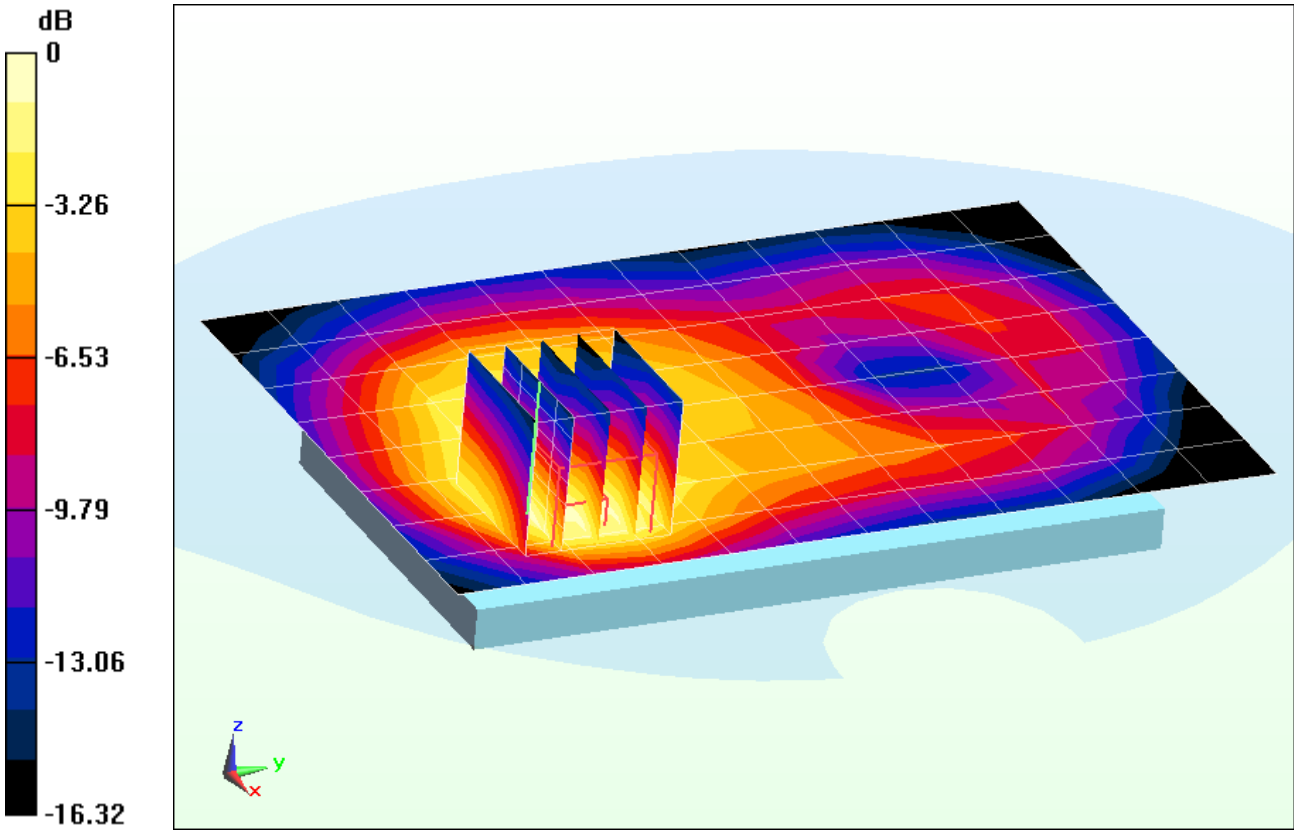
Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.525 mho/m; ε_r = 53.75; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2012; Ambient Temp: 24.1 °C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.02, 5.02, 5.02); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: PCS TDSO, Body SAR, Back side, Mid.ch

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.025 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.765 mW/g
SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.232 mW/g



0 dB = 0.446 mW/g = -7.01 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

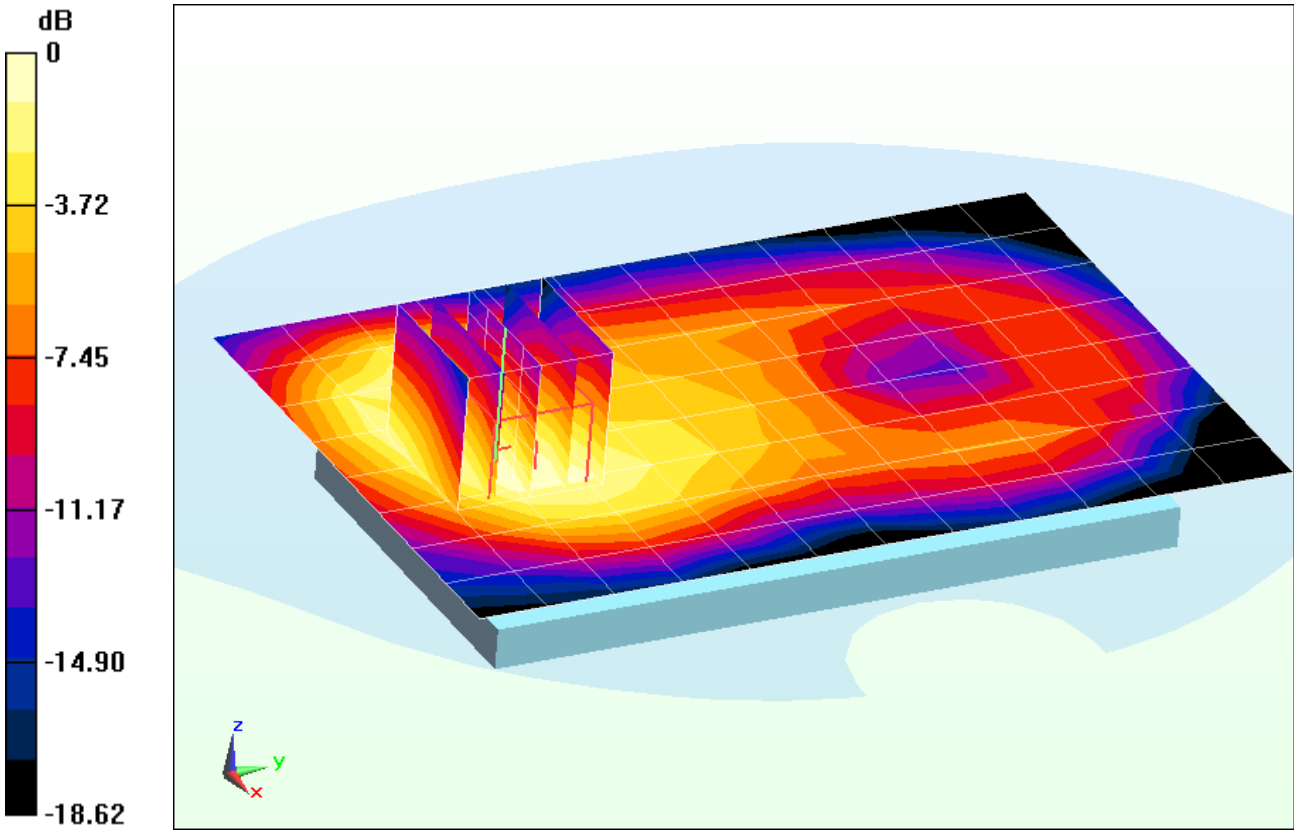
Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.525 mho/m; ε_r = 53.75; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2012; Ambient Temp: 24.1 °C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.02, 5.02, 5.02); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: PCS EVDO Rev. 0, Body SAR, Front side, Mid.ch

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.879 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.395 mW/g
SAR(1 g) = 0.254 mW/g; SAR(10 g) = 0.156 mW/g



0 dB = 0.280 mW/g = -11.06 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

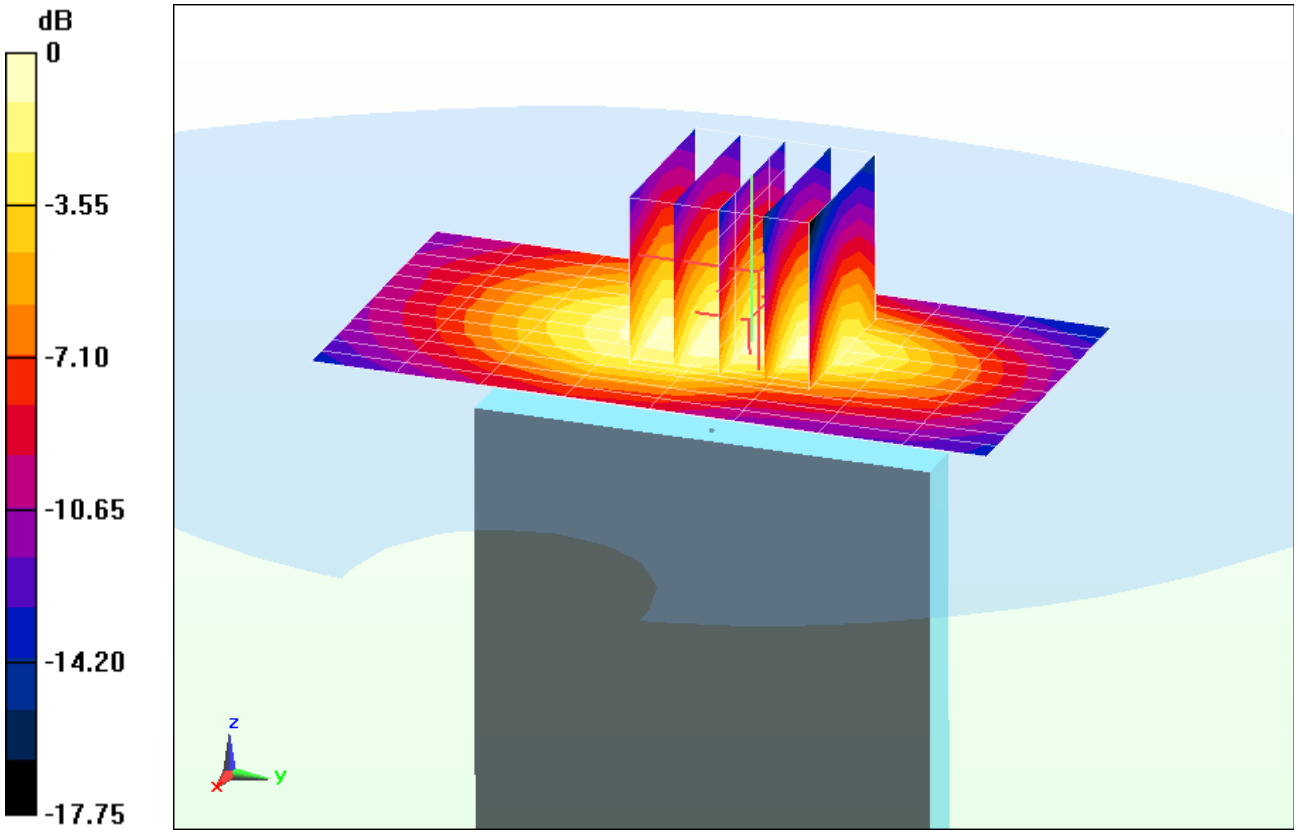
Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.525 mho/m; ε_r = 53.75; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2012; Ambient Temp: 24.1 °C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.02, 5.02, 5.02); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: PCS TDSO, Body SAR, Bottom Edge, Mid.ch

Area Scan (13x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.833 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.463 mW/g
SAR(1 g) = 0.293 mW/g; SAR(10 g) = 0.178 mW/g



0 dB = 0.325 mW/g = -9.76 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_15

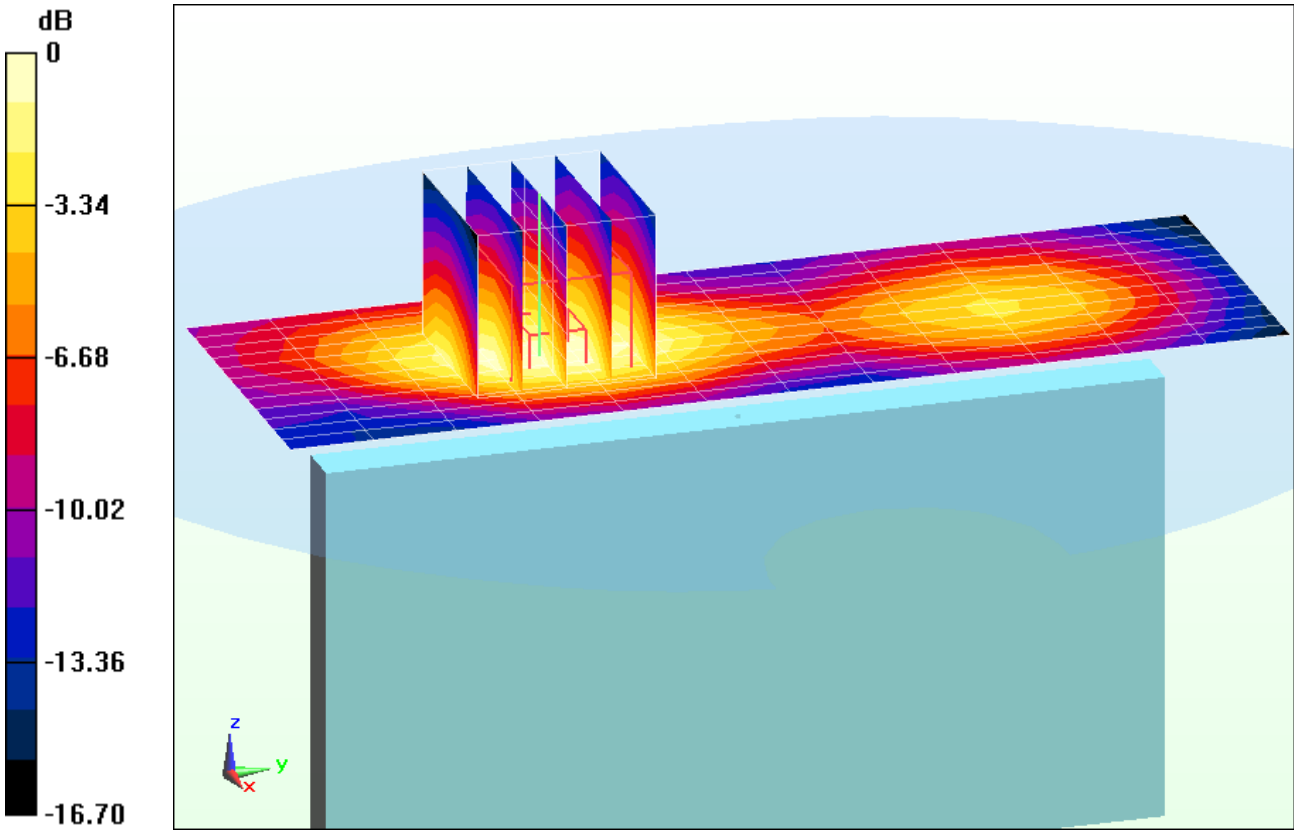
Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.525 mho/m; ε_r = 53.75; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2012; Ambient Temp: 24.1 °C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.02, 5.02, 5.02); Calibrated: 2/7/2012;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 4/12/2012
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: PCS EVDO Rev. 0, Body SAR, Left Edge, Mid.ch

Area Scan (13x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.684 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 0.409 mW/g
SAR(1 g) = 0.251 mW/g; SAR(10 g) = 0.147 mW/g



0 dB = 0.277 mW/g = -11.15 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_19

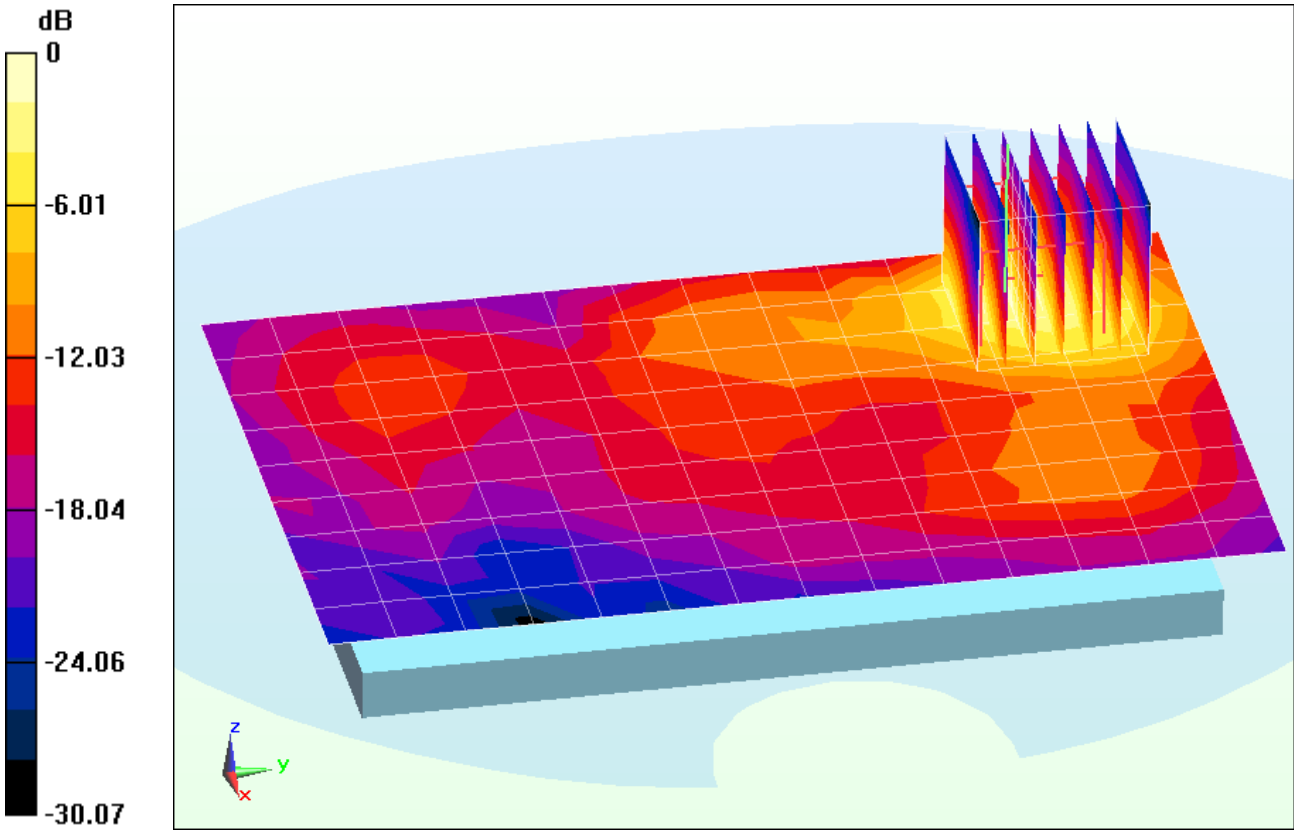
Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.986 mho/m; ε_r = 50.978; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-31-2012; Ambient Temp: 24.8°C; Tissue Temp: 22.3°C

Probe: ES3DV3 - SN3258; ConvF(4.28, 4.28, 4.28); Calibrated: 2/21/2012;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11b, Body SAR, Ch 11, 1 Mbps, Back Side

Area Scan (10x15x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.875 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 0.553 mW/g
SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.112 mW/g



0 dB = 0.311 mW/g = -10.14 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_19

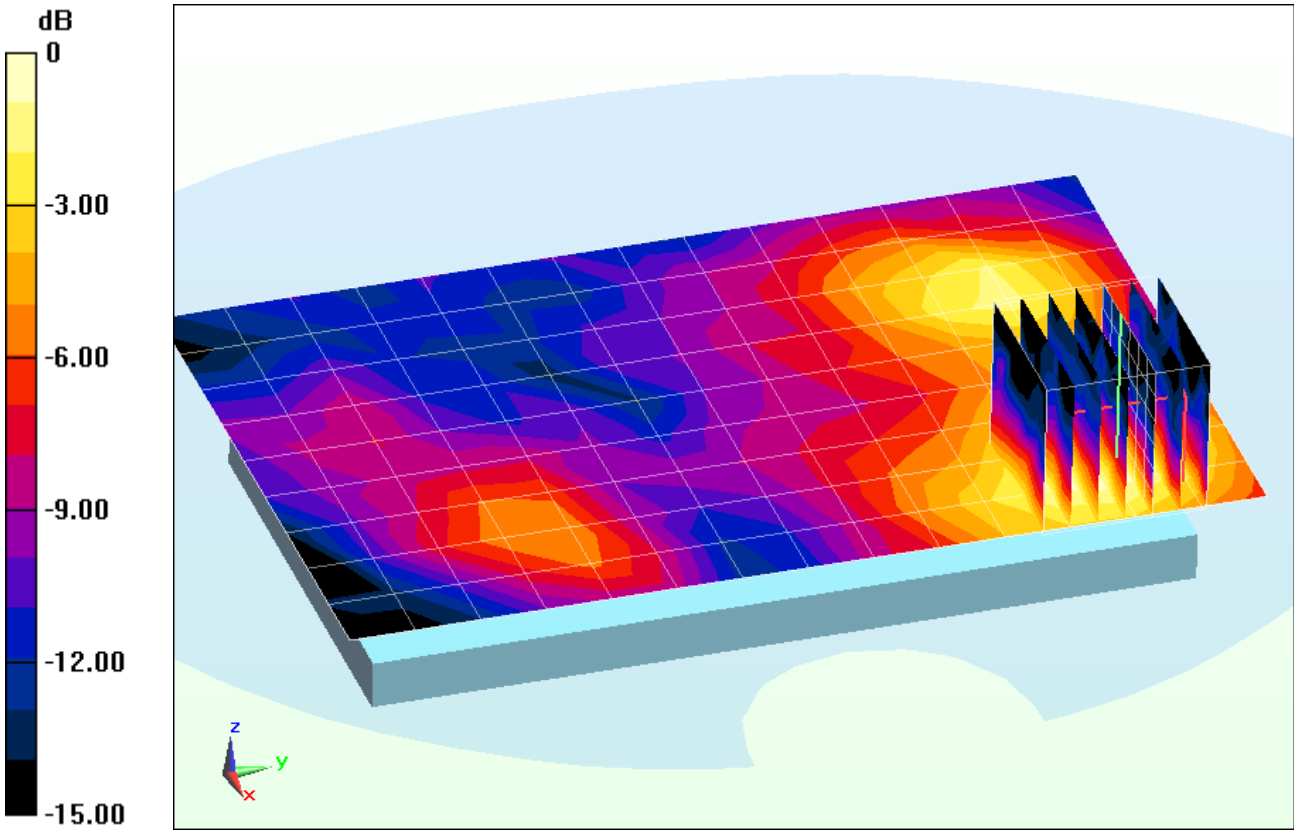
Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.986 mho/m; ε_r = 50.978; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-31-2012; Ambient Temp: 24.8°C; Tissue Temp: 22.3°C

Probe: ES3DV3 - SN3258; ConvF(4.28, 4.28, 4.28); Calibrated: 2/21/2012;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11b, Body SAR, Ch 11, 1 Mbps, Front Side

Area Scan (10x15x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.939 V/m; Power Drift = -0.090 dB
Peak SAR (extrapolated) = 0.057 mW/g
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.015 mW/g



0 dB = 0.0365 mW/g = -28.75 dB mW/g

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_19

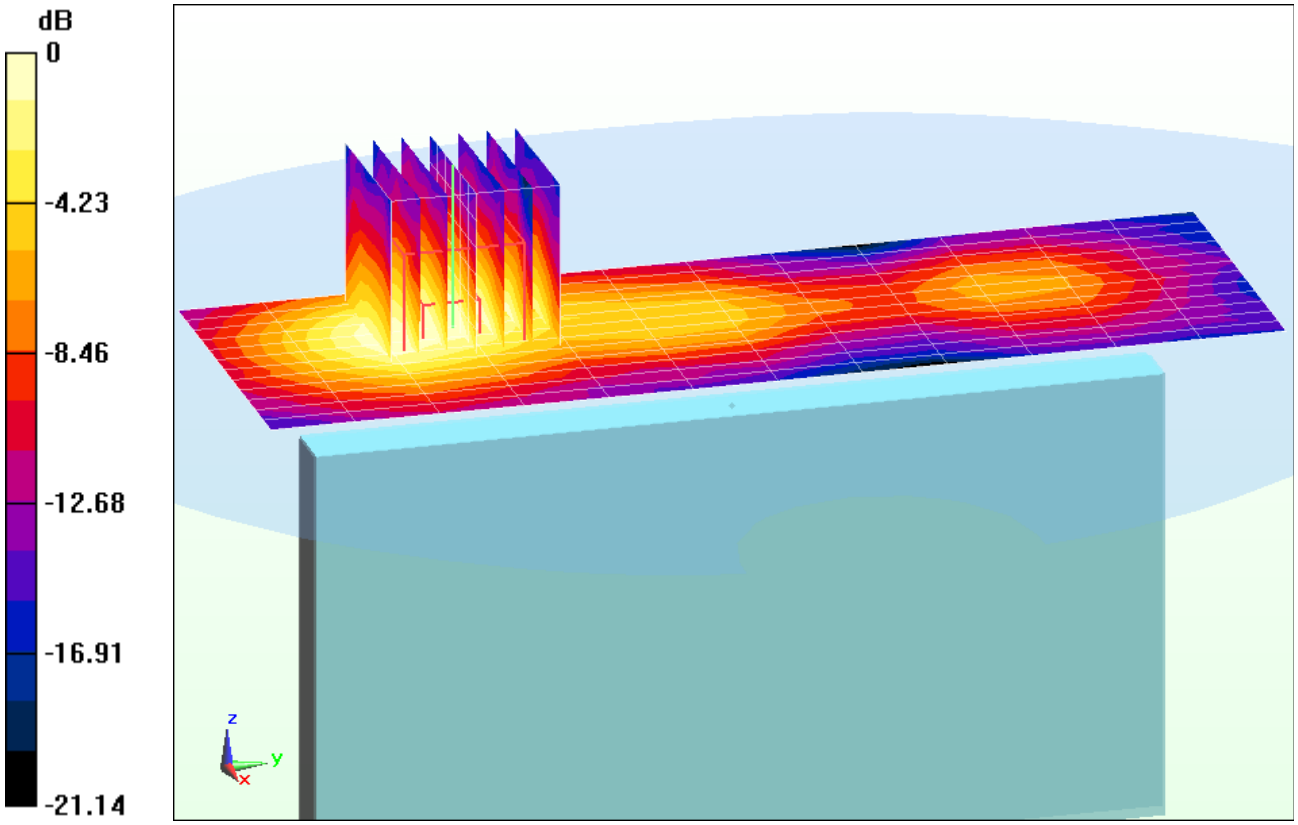
Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.986 mho/m; ε_r = 50.978; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-31-2012; Ambient Temp: 24.8°C; Tissue Temp: 22.3°C

Probe: ES3DV3 - SN3258; ConvF(4.28, 4.28, 4.28); Calibrated: 2/21/2012;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/18/2012
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, Version 4.7 (80);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11b, Body SAR, Ch 11, 1 Mbps, Right Edge

Area Scan (13x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.667 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 0.183 mW/g
SAR(1 g) = 0.086 mW/g; SAR(10 g) = 0.041 mW/g



0 dB = 0.0756 mW/g = -22.43 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR950; Type: Portable Handset; Serial: PCTEST_19

Communication System: IEEE 802.11a; Frequency: 5240 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used:
f = 5240 MHz; σ = 5.394 mho/m; ε_r = 48.41; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2012; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(3.76, 3.76, 3.76); Calibrated: 7/26/2012;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/15/2012
Phantom: SAM Left; Type: SAM; Serial: 1688
Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

Mode: IEEE 802.11a, 5.2 GHz, Body SAR, Ch 48, 6 Mbps, Back Side

Area Scan (13x19x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.705 V/m; Power Drift = 0.164 dB
Peak SAR (extrapolated) = 0.849 mW/g
SAR(1 g) = 0.072 mW/g; SAR(10 g) = 0.025 mW/g