



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:
05/24/12 - 06/07/12
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
0Y1205220698.A3L

FCC ID: A3LSCHR530

APPLICANT: SAMSUNG ELECTRONICS CO., LTD.

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model(s): SCH-R530

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	24.59	0.18	0.34	0.36
AWS CDMA/EVDO	1711.25 - 1753.75 MHz	24.67	0.13	0.57	0.60
PCS CDMA/EVDO	1851.25 - 1908.75 MHz	24.72	0.15	0.57	0.65
LTE Band 12	701.5 - 713.5 MHz	22.73	0.04	0.22	0.22
LTE Band 5 (Cell)	826.5 - 846.5 MHz	22.64	0.09	0.21	0.21
LTE Band 4 (AWS)	1712.5 - 1752.5 MHz	22.62	0.26	0.54	0.54
LTE Band 2 (PCS)	1852.5 - 1907.5 MHz	22.93	0.37	0.61	0.61
2.4 GHz WLAN	2412 - 2462 MHz	17.27	0.08	0.30	0.30
5.8 GHz WLAN	5745 - 5825 MHz	9.61	N/A	N/A	N/A
5.2 GHz WLAN	5180 - 5240 MHz	9.74	N/A	N/A	N/A
5.3 GHz WLAN	5260 - 5320 MHz	9.47	N/A	N/A	N/A
5.5 GHz WLAN	5500 - 5700 MHz	9.50	N/A	N/A	N/A
Bluetooth	2402 - 2480 MHz	7.11	N/A		
Simultaneous SAR per KDB 690783 D01:			0.60	1.47	1.47

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

This 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 the 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



FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset	Page 1 of 62	

T A B L E O F C O N T E N T S

1	DEVICE UNDER TEST	3
2	LTE CHECKLIST PER KDB 941225 D05	8
3	INTRODUCTION	9
4	SAR MEASUREMENT SETUP	10
5	DOSIMETRIC ASSESSMENT	13
6	DEFINITION OF REFERENCE POINTS	14
7	TEST CONFIGURATION POSITIONS FOR HANDSETS	15
8	FCC RF EXPOSURE LIMITS.....	18
9	FCC MEASUREMENT PROCEDURES.....	19
10	RF CONDUCTED POWERS.....	23
11	SYSTEM VERIFICATION.....	32
12	SAR DATA SUMMARY	35
13	FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS.....	49
14	EQUIPMENT LIST	58
15	MEASUREMENT UNCERTAINTIES	59
16	CONCLUSION.....	60
17	REFERENCES	61

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 2 of 62

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 and will be the only battery available from the manufacturer for this model. Therefore all SAR tests were performed with the standard battery which already integrates the NFC antenna. The device restricts the battery used to battery model: **EB-L1G6LLZ**.

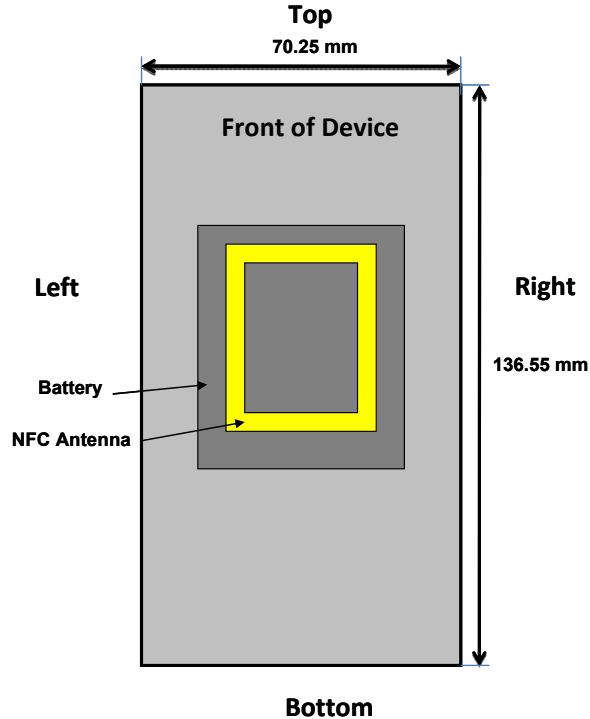


Figure 1-1
NFC Antenna Locations

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 3 of 62

1.3 DUT Antenna Locations

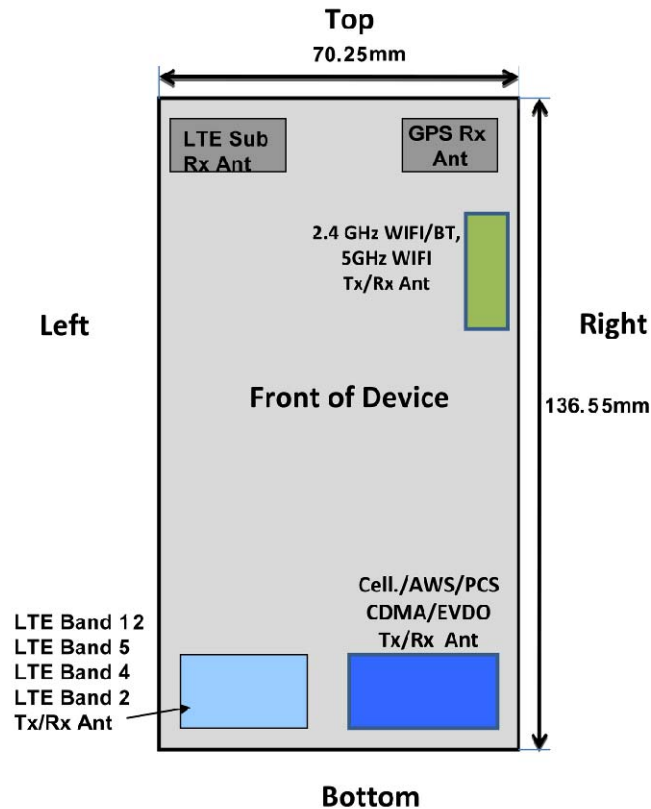


Figure 1-2
DUT Antenna Locations

Table 1-1
Mobile Hotspot Sides for SAR Testing

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

Note: Particular DUT edges were not required to be evaluated for Wireless Router SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 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.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 4 of 62

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.



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.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 5 of 62

Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configurations	Head	Body-Worn Accessory	Hot Spot	Note
		IEEE 1528, Supp C	Supplement C	FCC KDB 941225 D06 edges/sides	
1	1X CDMA 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	N/A	N/A	✓	EVDO+WIFI Hotspot
32	1X/EVDO 1700 Data + 2.4 GHz WIFI	N/A	N/A	✓	EVDO+WIFI Hotspot
33	1X/EVDO 1900 Data + 2.4 GHz WIFI	N/A	N/A	✓	EVDO+WIFI Hotspot
34	LTE 700 MHz Data + 2.4 GHz WIFI	N/A	N/A	✓	LTE+WIFI Hotspot
35	LTE 800 MHz Data + 2.4 GHz WIFI	N/A	N/A	✓	LTE+WIFI Hotspot
36	LTE 1700 MHz Data + 2.4 GHz WIFI	N/A	N/A	✓	LTE+WIFI Hotspot
37	LTE 1900 MHz Data + 2.4 GHz WIFI	N/A	N/A	✓	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 1900 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 1900 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 1900 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 1900 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 1900 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 Supported by HW
58	1X CDMA 1900 Voice + EVDO	N/A	N/A	N/A	Not Supported by HW
59	1X CDMA 1900 Voice + EVDO	N/A	N/A	N/A	Not Supported by HW
60	850/1900 EVDO data + LTE 700/800/1700/1900 MHz Data	N/A	N/A	N/A	Not Supported by HW

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 6 of 62

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 CDMA antenna and the Bluetooth/WLAN antenna is 86.3 mm. The separation between the LTE antenna and the Bluetooth/WLAN antenna is 92.1 mm.

RF Conducted Power of Bluetooth Tx is 5.14 mW (Please refer to the EMC DSS Report for a full set of Bluetooth conducted powers). RF Conducted Power of 5GHz WLAN is 9.42 mW.

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

Per KDB Publication 648474, **Bluetooth and 5GHz WLAN SAR were not required** based on the maximum conducted power, the Bluetooth/WLAN to CDMA and LTE antenna separation distances and Body-SAR of the CDMA and LTE antennas.

(B) Licensed Transmitter(s)

Simultaneous Voice and EVDO data ("SVDO") cannot transmit simultaneously since they utilize the same transmission path as illustrated in **Figure 1-3**.

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)

1.8 Samples Used for SAR Testing

Several samples were used with identical hardware to facilitate SAR Testing.

Mode/Band	Cell. CDMA/EVDO	AWS CDMA/EVDO	PCS CDMA/EVDO	LTE Band 12	LTE Band 5 (Cell.)	LTE Band 4 (AWS)	LTE Band 2 (PCS)	2.4 GHz WLAN
Serial Number	CDMA	AWS	PCS	B12	B5	B4	B2	B5

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 7 of 62

2

LTE CHECKLIST PER KDB 941225 D05

KDB 941225 Sec.	FCC ID:	A3LSCHR530		
	Form Factor	Portable Handset		
1)	Frequency Range of each LTE transmission band	BAND2: Tx (1852.5 - 1907.5 MHz) BAND5: Tx (826.5 - 846.5 MHz) BAND4: Tx (1712.5 - 1752.5 MHz) BAND12: Tx (701.5 - 713.5 MHz)		
2)	Channel Bandwidths (MHz)	Band2: 5MHz, 10 MHz Band5: 5MHz, 10 MHz Band4: 5MHz, 10 MHz Band12: 5MHz, 10 MHz		
3)	Channel Numbers and Frequencies (MHz)	Low	Mid	High
	LTE Band 2 and BW 5MHz	1852.5 MHz(18625)	1880 MHz(18900)	1907.5 MHz(19175)
	LTE Band 2 and BW 10MHz	1855 MHz (18650)	1880 MHz(18900)	1905 MHz (19150)
	LTE Band 5 and BW 5MHz	826.5 MHz (20425)	836.5 MHz (20525)	846.5 MHz (20625)
	LTE Band 5 and BW 10MHz	829 MHz (20450)	836.5 MHz (20525)	844 MHz (20600)
	LTE Band 4 and BW 5MHz	1712.5 MHz(19975)	1732.5 MHz(20175)	1752.5 MHz(20375)
	LTE Band 4 and BW 10MHz	1715MHz(20000)	1732.5MHz(20175)	1750 MHz(20350)
	LTE Band 12 and BW 5MHz	701.5MHz(23035)	707.5 MHz(23095)	713.5 MHz(23155)
	LTE Band 12 and BW 10MHz	704 MHz(23060)	707.5 MHz(23095)	711 MHz(23130)
4)(a)	UE Category	3		
(b)	Modulations Supported in UL	QPSK, 16QAM		
	LTE Transmitter and Antenna Implementation	LTE and CDMA/EVDO operate on separate antenna paths.		
5)	Description of LTE Tx and Ant. Implementation	1 Tx/Rx Ant, 1 Rx Ant only		
6)	LTE Voice available	NO		
	Hotspot with LTE+WIFI	Yes		
	Hotspot with LTE+WIFI with Voice	Yes		
7)	LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5?	YES		
	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	YES		
9-10)	Non-LTE US Wireless Operating Modes/Bands	RF Exposure Configurations		
	835 MHz CDMA	See Page 1		
	1750 MHz CDMA			
	1900 MHz CDMA			
	2.4 GHz Bluetooth			
	2.4 GHz WI-FI			
	5 GHz Wi-Fi			
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, preliminary	N/A		

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset	Page 8 of 62	

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]

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 9 of 62

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)	835	835	1750	1750	1900	1900	2450	2450
Tissue	Head	Body	Head	Body	Head	Body	Head	Body
Ingredients (% by weight)								
Bactericide	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	
Water	40.45	53.06	52.6	68.8	54.9	70.17	71.88	73.2

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 10 of 62

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 ₂ O	Water, 35 – 58%
Sucrose	Sugar, white, refined, 40 – 60%
NaCl	Sodium Chloride, 0 – 6%
Hydroxyethyl-cellulose	Medium Viscosity (CAS# 9004-82-0), <0.3%
Preventol-D7	Preservative: aqueous preparation, (CAS# 55965-84-9), containing 5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyl-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

f (MHz)	Measured			Target		Diff. to Target (%)	
	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	4.8
825	55.2	22.61	1.04	55.2	0.98	-0.2	6.1
850	55.0	22.52	1.05	55.2	0.98	-0.3	6.7
875	54.9	22.44	1.06	55.2	0.99	-0.4	7.3
900	54.7	22.30	1.09	55.1	1.02	-0.7	6.5
925	54.5	22.17	1.11	55.0	1.05	-1.0	5.7
950	54.2	22.05	1.13	55.0	1.06	-1.3	6.8
975	54.0	21.94	1.16	54.9	1.08	-1.7	7.8
1000	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

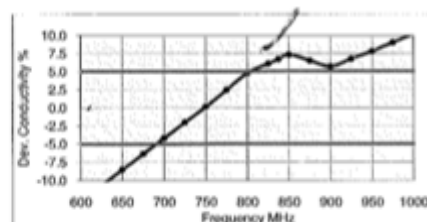
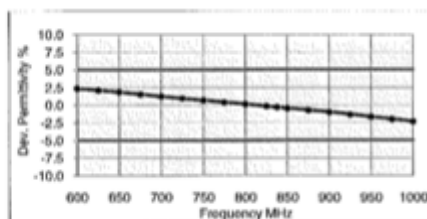


Figure 4-3
750MHz Body Tissue Equivalent Matter

FCC ID: A3LSCHR530	PCTEST Engineering Laboratory, Inc.	SAR EVALUATION REPORT	SAMSUNG	Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset	Page 11 of 62	

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/cm³
 TSL Heat-capacity 2.701 kJ/(kg*K)

Results

f [MHz]	Measured			Target		Diff. to Target [%]	
	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

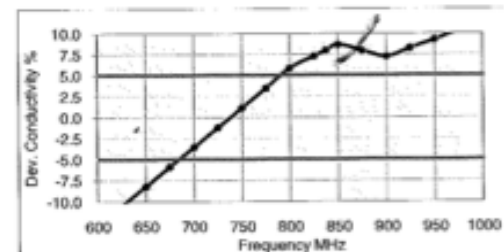
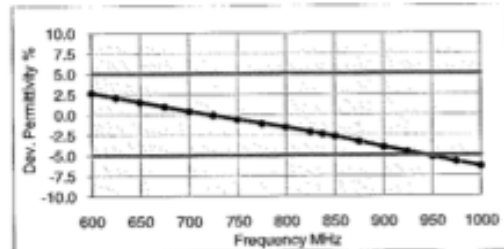


Figure 4-4
750MHz Head Tissue Equivalent Matter

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 12 of 62

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.
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.

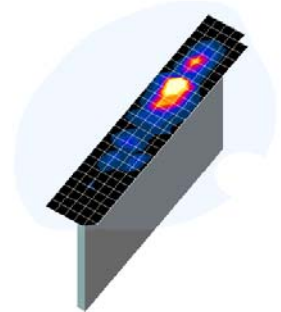


Figure 5-1
Sample SAR Area Scan

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 13 of 62

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].

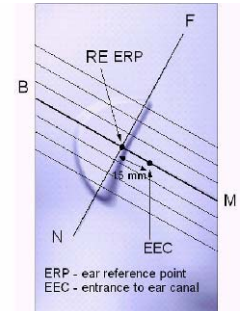


Figure 6-1
Close-Up Side view
of ERP

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 then located at the same level as the center of the ear reference point. The test device was positioned so that the “vertical centerline” was bisecting the front surface of the handset at 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

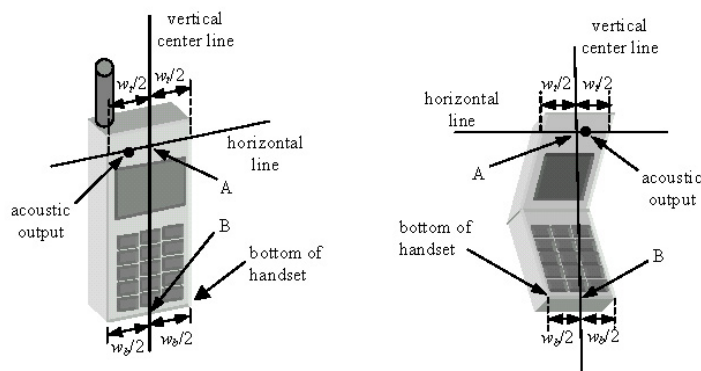


Figure 6-3
Handset Vertical Center & Horizontal Line Reference Points

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 14 of 62

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

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.

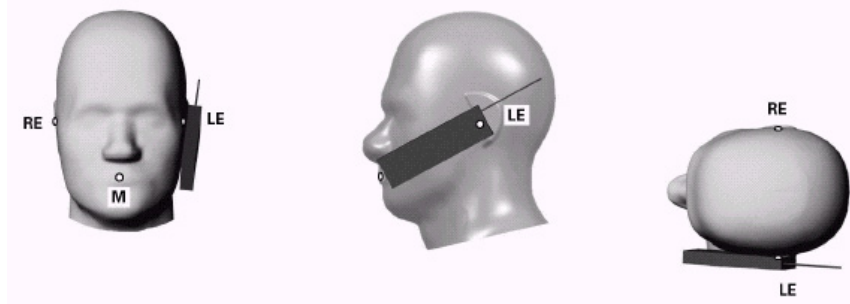


Figure 7-1 Front, Side and Top View of Cheek/Touch Position

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 with respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the 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 / 15° 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).

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 15 of 62

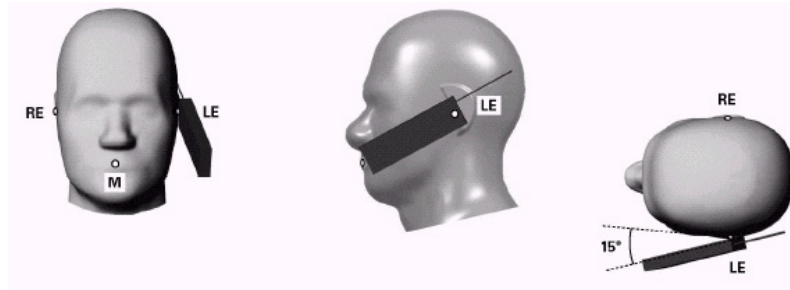


Figure 7-2 Front, Side and Top View of Ear/15° Tilt Position

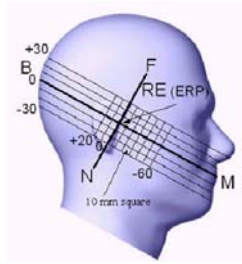


Figure 7-3
Side view w/ relevant markings



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 $\frac{1}{2}$ 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.

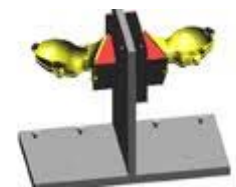


Figure 7-5 Twin SAM
Chin20

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.

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 16 of 62

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 ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10 mm from the front, back and edges of the device 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.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 17 of 62

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

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

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 18 of 62

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 SCH₀ and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 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
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	dB	-7.4

Table 9-2
Parameters for Max. Power for RC3

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

FCC ID: A3LSCHR530	 PCTEST Engineering Laboratory, Inc.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 19 of 62

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 SCH₀ enabled at 9600 bps using the exposure configuration that results in the highest SAR for that channel with FCH only. When multiple code channels are enabled, the DUT output may shift by more than 0.5 dB and lead to higher SAR drifts and SCH dropouts. Body SAR was measured using TDSO / SO32 with power control bits in the “All Up”

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

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.

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.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 20 of 62

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. The differences noted are not cases of implemented MPR but rather associated with measurement uncertainty and allowable tolerances per 3GPP standard and the manufacturer. 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 across high, mid., and low channels is < 0.5 dB, mid channel is tested. Low and high channel 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.
- 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.
- 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.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 21 of 62

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.

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.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 22 of 62

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	24.61	24.45	24.53	24.44	24.53	24.37
	384	836.52	24.54	24.40	24.48	24.50	24.59	24.58
	777	848.31	24.53	24.39	24.56	24.37	24.49	24.46
AWS	25	1711.25	24.70	24.73	24.68	24.66	24.70	24.68
	450	1732.5	24.65	24.67	24.62	24.62	24.66	24.63
	875	1753.75	24.59	24.60	24.57	24.56	24.56	24.55
PCS	25	1851.25	24.56	24.70	24.50	24.48	24.46	24.36
	600	1880	24.70	24.72	24.54	24.57	24.56	24.52
	1175	1908.75	24.47	24.49	24.22	24.21	24.33	24.25

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. 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 required to be evaluated for Hotspot exposure conditions to support simultaneous capabilities per Table 1-2.



Figure 10-1
Power Measurement Setup

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 23 of 62

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	22.72	0	0
	701.5	23035	5	QPSK	1	24	22.55	0	0
	701.5	23035	5	QPSK	12	6	21.45	1	0-1
	701.5	23035	5	QPSK	25	0	21.20	1	0-1
	701.5	23035	5	16-QAM	1	0	21.72	1	0-1
	701.5	23035	5	16-QAM	1	24	21.57	1	0-1
	701.5	23035	5	16-QAM	12	6	20.47	2	0-2
Mid	701.5	23035	5	16-QAM	25	0	20.20	2	0-2
	707.5	23095	5	QPSK	1	0	22.53	0	0
	707.5	23095	5	QPSK	1	24	22.68	0	0
	707.5	23095	5	QPSK	12	6	21.60	1	0-1
	707.5	23095	5	QPSK	25	0	21.39	1	0-1
	707.5	23095	5	16-QAM	1	0	21.31	1	0-1
	707.5	23095	5	16-QAM	1	24	21.51	1	0-1
High	707.5	23095	5	16-QAM	12	6	20.46	2	0-2
	707.5	23095	5	16-QAM	25	0	20.35	2	0-2
	713.5	23155	5	QPSK	1	0	22.43	0	0
	713.5	23155	5	QPSK	1	24	22.65	0	0
	713.5	23155	5	QPSK	12	6	21.50	1	0-1
	713.5	23155	5	QPSK	25	0	21.37	1	0-1
	713.5	23155	5	16-QAM	1	0	21.53	1	0-1
	713.5	23155	5	16-QAM	1	24	21.67	1	0-1
	713.5	23155	5	16-QAM	12	6	20.53	2	0-2
	713.5	23155	5	16-QAM	25	0	20.33	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	22.73	0	0
	704	23060	10	QPSK	1	49	22.67	0	0
	704	23060	10	QPSK	25	12	21.42	1	0-1
	704	23060	10	QPSK	50	0	21.29	1	0-1
	704	23060	10	16QAM	1	0	21.60	1	0-1
	704	23060	10	16QAM	1	49	21.63	1	0-1
	704	23060	10	16QAM	25	12	20.52	2	0-2
Mid	704	23060	10	16QAM	50	0	20.53	2	0-2
	707.5	23095	10	QPSK	1	0	22.60	0	0
	707.5	23095	10	QPSK	1	49	22.52	0	0
	707.5	23095	10	QPSK	25	12	21.53	1	0-1
	707.5	23095	10	QPSK	50	0	21.33	1	0-1
	707.5	23095	10	16QAM	1	0	21.19	1	0-1
	707.5	23095	10	16QAM	1	49	21.13	1	0-1
High	707.5	23095	10	16QAM	25	12	20.48	2	0-2
	707.5	23095	10	16QAM	50	0	20.26	2	0-2
	711	23130	10	QPSK	1	0	22.71	0	0
	711	23130	10	QPSK	1	49	22.66	0	0
	711	23130	10	QPSK	25	12	21.42	1	0-1
	711	23130	10	QPSK	50	0	21.37	1	0-1
	711	23130	10	16QAM	1	0	21.50	1	0-1
	711	23130	10	16QAM	1	49	21.43	1	0-1
	711	23130	10	16QAM	25	12	20.45	2	0-2
	711	23130	10	16QAM	50	0	20.31	2	0-2

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 24 of 62

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	22.05	0	0
	826.5	20425	5	QPSK	1	24	22.56	0	0
	826.5	20425	5	QPSK	12	6	21.20	1	0-1
	826.5	20425	5	QPSK	25	0	21.02	1	0-1
	826.5	20425	5	16-QAM	1	0	21.17	1	0-1
	826.5	20425	5	16-QAM	1	24	21.52	1	0-1
	826.5	20425	5	16-QAM	12	6	20.43	2	0-2
Mid	826.5	20425	5	16-QAM	25	0	20.11	2	0-2
	836.5	20525	5	QPSK	1	0	22.51	0	0
	836.5	20525	5	QPSK	1	24	22.31	0	0
	836.5	20525	5	QPSK	12	6	21.47	1	0-1
	836.5	20525	5	QPSK	25	0	21.35	1	0-1
	836.5	20525	5	16-QAM	1	0	21.84	1	0-1
	836.5	20525	5	16-QAM	1	24	21.65	1	0-1
High	836.5	20525	5	16-QAM	12	6	20.46	2	0-2
	836.5	20525	5	16-QAM	25	0	20.37	2	0-2
	846.5	20625	5	QPSK	1	0	22.53	0	0
	846.5	20625	5	QPSK	1	24	22.25	0	0
	846.5	20625	5	QPSK	12	6	21.37	1	0-1
	846.5	20625	5	QPSK	25	0	21.34	1	0-1
	846.5	20625	5	16-QAM	1	0	21.14	1	0-1
	846.5	20625	5	16-QAM	1	24	21.07	1	0-1
	846.5	20625	5	16-QAM	12	6	20.33	2	0-2
	846.5	20625	5	16-QAM	25	0	20.21	2	0-2
	846.5	20625	5	16-QAM	25	0	20.21	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	22.17	0	0
	829	20450	10	QPSK	1	49	22.62	0	0
	829	20450	10	QPSK	25	12	21.51	1	0-1
	829	20450	10	QPSK	50	0	21.29	1	0-1
	829	20450	10	16QAM	1	0	21.13	1	0-1
	829	20450	10	16QAM	1	49	21.55	1	0-1
	829	20450	10	16QAM	25	12	20.47	2	0-2
	829	20450	10	16QAM	50	0	20.33	2	0-2
Mid	836.5	20525	10	QPSK	1	0	22.64	0	0
	836.5	20525	10	QPSK	1	49	22.52	0	0
	836.5	20525	10	QPSK	25	12	21.45	1	0-1
	836.5	20525	10	QPSK	50	0	21.43	1	0-1
	836.5	20525	10	16QAM	1	0	21.22	1	0-1
	836.5	20525	10	16QAM	1	49	21.25	1	0-1
	836.5	20525	10	16QAM	25	12	20.53	2	0-2
	836.5	20525	10	16QAM	50	0	20.32	2	0-2
High	844	20600	10	QPSK	1	0	22.50	0	0
	844	20600	10	QPSK	1	49	22.41	0	0
	844	20600	10	QPSK	25	12	21.33	1	0-1
	844	20600	10	QPSK	50	0	21.36	1	0-1
	844	20600	10	16QAM	1	0	21.46	1	0-1
	844	20600	10	16QAM	1	49	21.38	1	0-1
	844	20600	10	16QAM	25	12	20.30	2	0-2
	844	20600	10	16QAM	50	0	20.31	2	0-2

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 25 of 62

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	22.34	0	0
	1712.5	19975	5	QPSK	1	24	22.41	0	0
	1712.5	19975	5	QPSK	12	6	21.52	1	0-1
	1712.5	19975	5	QPSK	25	0	21.40	1	0-1
	1712.5	19975	5	16-QAM	1	0	21.74	1	0-1
	1712.5	19975	5	16-QAM	1	24	21.69	1	0-1
	1712.5	19975	5	16-QAM	12	6	20.63	2	0-2
Mid	1712.5	19975	5	16-QAM	25	0	20.43	2	0-2
	1732.5	20175	5	QPSK	1	0	22.63	0	0
	1732.5	20175	5	QPSK	1	24	22.57	0	0
	1732.5	20175	5	QPSK	12	6	21.57	1	0-1
	1732.5	20175	5	QPSK	25	0	21.36	1	0-1
	1732.5	20175	5	16-QAM	1	0	21.40	1	0-1
	1732.5	20175	5	16-QAM	1	24	21.37	1	0-1
High	1732.5	20175	5	16-QAM	12	6	20.51	2	0-2
	1732.5	20175	5	16-QAM	25	0	20.40	2	0-2
	1752.5	20375	5	QPSK	1	0	22.53	0	0
	1752.5	20375	5	QPSK	1	24	22.51	0	0
	1752.5	20375	5	QPSK	12	6	21.42	1	0-1
	1752.5	20375	5	QPSK	25	0	21.28	1	0-1
	1752.5	20375	5	16-QAM	1	0	21.46	1	0-1
	1752.5	20375	5	16-QAM	1	24	21.44	1	0-1
	1752.5	20375	5	16-QAM	12	6	20.49	2	0-2
	1752.5	20375	5	16-QAM	25	0	20.30	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	22.45	0	0
	1715	20000	10	QPSK	1	49	22.56	0	0
	1715	20000	10	QPSK	25	12	21.43	1	0-1
	1715	20000	10	QPSK	50	0	21.35	1	0-1
	1715	20000	10	16QAM	1	0	21.34	1	0-1
	1715	20000	10	16QAM	1	49	21.40	1	0-1
	1715	20000	10	16QAM	25	12	20.36	2	0-2
Mid	1715	20000	10	16QAM	50	0	20.43	2	0-2
	1732.5	20175	10	QPSK	1	0	22.62	0	0
	1732.5	20175	10	QPSK	1	49	22.48	0	0
	1732.5	20175	10	QPSK	25	12	21.40	1	0-1
	1732.5	20175	10	QPSK	50	0	21.35	1	0-1
	1732.5	20175	10	16QAM	1	0	21.23	1	0-1
	1732.5	20175	10	16QAM	1	49	21.10	1	0-1
High	1732.5	20175	10	16QAM	25	12	20.57	2	0-2
	1732.5	20175	10	16QAM	50	0	20.33	2	0-2
	1750	20350	10	QPSK	1	0	22.45	0	0
	1750	20350	10	QPSK	1	49	22.44	0	0
	1750	20350	10	QPSK	25	12	21.32	1	0-1
	1750	20350	10	QPSK	50	0	21.20	1	0-1
	1750	20350	10	16QAM	1	0	21.35	1	0-1
	1750	20350	10	16QAM	1	49	21.41	1	0-1
	1750	20350	10	16QAM	25	12	20.50	2	0-2
	1750	20350	10	16QAM	50	0	20.33	2	0-2

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 26 of 62

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	22.11	0	0
	1852.5	18625	5	QPSK	1	24	22.87	0	0
	1852.5	18625	5	QPSK	12	6	21.99	1	0-1
	1852.5	18625	5	QPSK	25	0	21.89	1	0-1
	1852.5	18625	5	16-QAM	1	0	21.36	1	0-1
	1852.5	18625	5	16-QAM	1	24	21.26	1	0-1
	1852.5	18625	5	16-QAM	12	6	21.00	2	0-2
Mid	1852.5	18625	5	16-QAM	25	0	20.95	2	0-2
	1880.0	18900	5	QPSK	1	0	22.68	0	0
	1880.0	18900	5	QPSK	1	24	22.70	0	0
	1880.0	18900	5	QPSK	12	6	21.69	1	0-1
	1880.0	18900	5	QPSK	25	0	21.55	1	0-1
	1880.0	18900	5	16-QAM	1	0	21.38	1	0-1
	1880.0	18900	5	16-QAM	1	24	21.40	1	0-1
High	1880.0	18900	5	16-QAM	12	6	20.57	2	0-2
	1880.0	18900	5	16-QAM	25	0	20.47	2	0-2
	1907.5	19175	5	QPSK	1	0	22.85	0	0
	1907.5	19175	5	QPSK	1	24	22.77	0	0
	1907.5	19175	5	QPSK	12	6	21.89	1	0-1
	1907.5	19175	5	QPSK	25	0	21.92	1	0-1
	1907.5	19175	5	16-QAM	1	0	21.81	1	0-1
	1907.5	19175	5	16-QAM	1	24	21.78	1	0-1
	1907.5	19175	5	16-QAM	12	6	20.99	2	0-2
	1907.5	19175	5	16-QAM	25	0	20.93	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	22.30	0	0
	1855	18650	10	QPSK	1	49	22.93	0	0
	1855	18650	10	QPSK	25	12	21.97	1	0-1
	1855	18650	10	QPSK	50	0	21.92	1	0-1
	1855	18650	10	16QAM	1	0	21.13	1	0-1
	1855	18650	10	16QAM	1	49	21.68	1	0-1
	1855	18650	10	16QAM	25	12	21.00	2	0-2
Mid	1855	18650	10	16QAM	50	0	20.95	2	0-2
	1880.0	18900	10	QPSK	1	0	22.67	0	0
	1880.0	18900	10	QPSK	1	49	22.72	0	0
	1880.0	18900	10	QPSK	25	12	21.52	1	0-1
	1880.0	18900	10	QPSK	50	0	21.39	1	0-1
	1880.0	18900	10	16QAM	1	0	21.28	1	0-1
	1880.0	18900	10	16QAM	1	49	21.31	1	0-1
High	1880.0	18900	10	16QAM	25	12	20.59	2	0-2
	1880.0	18900	10	16QAM	50	0	20.33	2	0-2
	1905	19150	10	QPSK	1	0	22.91	0	0
	1905	19150	10	QPSK	1	49	22.72	0	0
	1905	19150	10	QPSK	25	12	21.72	1	0-1
	1905	19150	10	QPSK	50	0	21.86	1	0-1
	1905	19150	10	16QAM	1	0	21.55	1	0-1
	1905	19150	10	16QAM	1	49	21.30	1	0-1
	1905	19150	10	16QAM	25	12	20.87	2	0-2
	1905	19150	10	16QAM	50	0	20.72	2	0-2

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 27 of 62

According to FCC KDB Publication 941225 D05:

- 1) The output power across low, mid, and high channel was less than 0.5 dB for QPSK 50% RB, therefore mid channel was tested for QPSK 50% RB. Low and high channel SAR tests were not required since the SAR values for all configurations were less than 0.8 W/kg.
- 2) The average output power of QPSK 1 RB configurations was more than 0.5 dB higher than QPSK with 50% RB, therefore the channel with highest output power was tested for QPSK 1 RB configurations. SAR tests for other channels were not required since the SAR was <1.45 W/kg for all configurations.
- 3) The average output power of 16 QAM 50% RB is not more than 0.5 dB higher than QPSK, therefore the channel with highest SAR measured with QPSK 50% RB was tested for 16 QAM 50 % RB. SAR tests for other channels were not required since the SAR was <1.45 W/kg for all configurations.
- 4) The average output power of 16 QAM 1 RB configurations was more than 0.5 dB higher than 16 QAM with 50% RB, therefore the channel with highest output power was tested for 16 QAM 1 RB configurations. SAR tests for other channels were not required since the SAR was <1.45 W/kg for all configurations.
- 5) 100% RB Allocation SAR was not required to be tested since the 50% RB SAR was not > 1.45 W/kg.
- 6) The channels and bandwidth of bolded powers were tested for SAR.

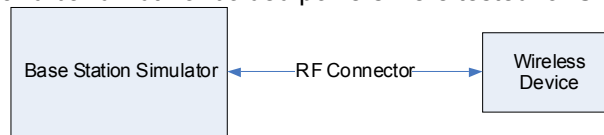


Figure 10-2
Power Measurement Setup

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	16.85	16.89	16.90	16.92
802.11b	2437	6	17.15	17.08	17.15	17.15
802.11b	2462	11	17.27	17.33	17.35	17.36

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	13.68	13.67	13.69	13.64	13.61	13.69	13.66	13.66
802.11g	2437	6	13.96	13.94	13.88	13.96	13.94	13.87	13.92	13.84
802.11g	2462	11	14.11	14.14	14.08	14.05	14.12	14.09	14.08	14.13

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 28 of 62

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	11.57	11.53	11.50	11.54	11.54	11.68	11.55	11.59
802.11n	2437	6	11.79	11.79	11.80	11.76	11.73	11.86	11.86	11.78
802.11n	2462	11	11.98	11.99	11.98	12.05	11.98	12.00	11.95	11.94

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*	9.54	9.50	9.60	9.67	9.55	9.65	9.64	9.57
802.11a	5200	40	9.52	9.51	9.55	9.58	9.61	9.63	9.60	9.59
802.11a	5220	44	9.53	9.55	9.57	9.53	9.54	9.60	9.61	9.56
802.11a	5240	48*	9.50	9.50	9.51	9.49	9.52	9.51	9.51	9.57
802.11a	5260	52*	9.36	9.37	9.30	9.31	9.32	9.36	9.37	9.38
802.11a	5280	56	9.31	9.29	9.31	9.36	9.33	9.32	9.35	9.43
802.11a	5300	60	9.26	9.27	9.26	9.37	9.32	9.32	9.36	9.25
802.11a	5320	64*	9.27	9.28	9.29	9.30	9.29	9.28	9.35	9.32
802.11a	5500	100	8.59	8.65	8.61	8.71	8.61	8.78	8.71	8.71
802.11a	5520	104*	8.67	8.70	8.67	8.69	8.67	8.73	8.79	8.75
802.11a	5540	108	8.66	8.72	8.72	8.73	8.75	8.74	8.84	8.82
802.11a	5560	112	8.85	8.73	8.80	8.75	8.83	8.90	8.95	8.91
802.11a	5580	116*	8.83	8.82	8.77	8.90	8.87	8.87	8.92	8.90
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	8.95	9.03	9.06	9.02	9.02	9.10	9.13	9.19
802.11a	5680	136*	9.08	9.09	9.01	9.06	9.10	9.14	9.11	9.14
802.11a	5700	140	9.09	9.07	9.10	9.10	9.17	9.13	9.14	9.11
802.11a	5745	149*	9.33	9.37	9.28	9.27	9.41	9.43	9.37	9.46
802.11a	5765	153	9.27	9.36	9.34	9.32	9.34	9.52	9.37	9.45
802.11a	5785	157*	9.41	9.23	9.35	9.40	9.51	9.57	9.51	9.49
802.11a	5805	161*	9.47	9.46	9.38	9.45	9.45	9.51	9.57	9.48
802.11a	5825	165	9.50	9.39	9.43	9.48	9.57	9.56	9.58	9.60

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.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset	Page 29 of 62	

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

Mode	Freq [MHz]	Channel	Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	20	26	39	52	58	65
802.11n	5180	36*	9.23	9.23	9.38	9.25	9.31	9.28	9.31	9.29
802.11n	5200	40	9.16	9.23	9.30	9.17	9.37	9.28	9.31	9.27
802.11n	5220	44	9.11	9.19	9.21	9.19	9.27	9.20	9.21	9.26
802.11n	5240	48*	9.12	9.11	9.09	9.12	9.17	9.18	9.21	9.17
802.11n	5260	52*	8.98	9.12	9.10	9.05	9.09	9.10	9.09	9.13
802.11n	5280	56	8.90	8.98	9.03	9.09	8.99	9.09	9.17	9.12
802.11n	5300	60	8.98	8.96	8.99	9.01	9.05	9.08	9.10	9.04
802.11n	5320	64*	8.96	9.00	8.95	8.94	9.04	9.05	9.08	9.09
802.11n	5500	100	8.52	8.52	8.51	8.62	8.65	8.60	8.66	8.63
802.11n	5520	104*	8.57	8.62	8.54	8.57	8.59	8.64	8.64	8.59
802.11n	5540	108	8.52	8.54	8.62	8.57	8.63	8.69	8.74	8.72
802.11n	5560	112	8.63	8.71	8.71	8.65	8.68	8.73	8.71	8.73
802.11n	5580	116*	8.66	8.70	8.71	8.80	8.82	8.79	8.83	8.80
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	8.98	8.89	8.96	8.91	9.02	8.98	9.00	8.96
802.11n	5680	136*	8.96	8.91	8.94	8.90	8.96	9.07	9.02	9.04
802.11n	5700	140	8.95	8.92	9.04	9.00	9.06	9.11	9.12	9.13
802.11n	5745	149*	9.16	9.10	9.12	9.14	9.19	9.18	9.28	9.24
802.11n	5765	153	9.14	9.12	9.22	9.19	9.14	9.25	9.18	9.24
802.11n	5785	157*	9.25	9.16	9.24	9.23	9.25	9.27	9.34	9.22
802.11n	5805	161*	9.26	9.22	9.32	9.30	9.30	9.33	9.29	9.35
802.11n	5825	165	9.29	9.28	9.34	9.25	9.27	9.39	9.41	9.37

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 than the default channels, these “required channels” are considered instead of the default channels for SAR testing.

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

Freq [MHz]	Channel	802.11n (40MHz Bandwidth) Conducted Power [dBm]							
		Data Rate [Mbps]							
		13.5/15	27/30	40.5/45	54/60	81/90	108/120	121.5/135	135/150
5190	38*	9.67	9.63	9.61	9.67	9.31	9.36	9.74	9.40
5230	46	9.26	9.40	9.31	9.08	9.23	9.36	9.46	9.47
5270	54	9.22	9.39	9.19	9.28	9.21	9.38	9.34	9.47
5310	62*	9.16	9.10	9.30	9.17	9.35	9.16	9.41	9.29
5510	102*	8.85	9.02	8.86	8.79	8.99	8.80	9.09	8.98
5550	110	8.74	9.21	9.09	8.90	8.97	8.97	9.24	9.28
5590	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5630	126	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5670	134	9.25	9.42	9.28	9.12	9.40	9.26	9.47	9.50
5755	151*	9.28	9.47	9.41	9.19	9.35	9.39	9.61	9.58
5795	159	9.27	9.52	9.30	9.24	9.25	9.35	9.52	9.53

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 than the default channels, these “required channels” are considered instead of the default channels for SAR testing.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset	Page 30 of 62	

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.
- 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

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 31 of 62

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
05/24/2012	750H	23.5	695	0.882	43.49	0.886	42.193	-0.45%	3.07%
			710	0.888	43.07	0.887	42.113	0.11%	2.27%
			725	0.894	43.05	0.888	42.033	0.68%	2.42%
			740	0.915	42.89	0.889	41.953	2.92%	2.23%
			755	0.931	42.47	0.891	41.876	4.49%	1.42%
05/25/2012	835H	23.1	820	0.927	42.74	0.898	41.571	3.23%	2.81%
			835	0.934	42.33	0.900	41.500	3.78%	2.00%
			850	0.953	42.10	0.916	41.500	4.04%	1.45%
06/07/2012	835H	22.8	820	0.903	41.70	0.898	41.571	0.56%	0.31%
			835	0.919	41.49	0.900	41.500	2.11%	-0.02%
			850	0.935	41.35	0.916	41.500	2.07%	-0.36%
05/30/2012	1750H	23.8	1710	1.342	39.78	1.348	40.136	-0.45%	-0.89%
			1750	1.390	39.61	1.370	40.100	1.46%	-1.22%
			1790	1.430	39.45	1.394	40.020	2.58%	-1.42%
06/07/2012	1750H	22.6	1710	1.291	39.12	1.348	40.136	-4.23%	-2.53%
			1750	1.333	38.87	1.370	40.100	-2.70%	-3.07%
			1790	1.374	38.72	1.394	40.020	-1.43%	-3.25%
05/29/2012	1900H	23.1	1850	1.358	38.68	1.400	40.000	-3.00%	-3.30%
			1880	1.388	38.57	1.400	40.000	-0.86%	-3.58%
			1910	1.412	38.45	1.400	40.000	0.86%	-3.87%
06/04/2012	1900H	22.6	1850	1.337	38.51	1.400	40.000	-4.50%	-3.73%
			1880	1.370	38.36	1.400	40.000	-2.14%	-4.10%
			1910	1.399	38.27	1.400	40.000	-0.07%	-4.32%
05/30/2012	2450H	23.5	2401	1.793	38.29	1.758	39.298	1.99%	-2.57%
			2450	1.848	38.12	1.800	39.200	2.67%	-2.76%
			2499	1.902	37.88	1.852	39.135	2.70%	-3.21%
05/29/2012	750B	22.7	695	0.939	55.29	0.957	55.985	-1.88%	-1.24%
			710	0.955	55.23	0.958	55.901	-0.31%	-1.20%
			725	0.967	55.03	0.960	55.817	0.73%	-1.41%
			740	0.980	54.95	0.961	55.733	1.98%	-1.40%
			755	0.996	54.79	0.963	55.649	3.43%	-1.54%
05/29/2012	835B	22.9	820	0.977	53.11	0.969	55.284	0.83%	-3.93%
			835	0.995	52.97	0.970	55.200	2.58%	-4.04%
			850	1.017	52.41	0.988	55.154	2.94%	-4.98%
06/07/2012	835B	22.8	820	0.981	53.39	0.969	55.284	1.24%	-3.43%
			835	0.996	53.23	0.970	55.200	2.68%	-3.57%
			850	1.013	53.04	0.988	55.154	2.53%	-3.83%
05/30/2012	1750B	23.0	1710	1.451	51.64	1.460	53.540	-0.62%	-3.55%
			1750	1.523	51.51	1.490	53.430	2.21%	-3.59%
			1790	1.563	51.31	1.510	53.330	3.51%	-3.79%
06/06/2012	1750B	22.9	1710	1.397	52.99	1.460	53.540	-4.32%	-1.03%
			1750	1.442	52.77	1.490	53.430	-3.22%	-1.24%
			1790	1.483	52.67	1.510	53.330	-1.79%	-1.24%
05/29/2012	1900B	23.2	1850	1.486	51.47	1.520	53.300	-2.24%	-3.43%
			1880	1.518	51.28	1.520	53.300	-0.13%	-3.79%
			1910	1.569	51.28	1.520	53.300	3.22%	-3.79%
06/03/2012	1900B	23.4	1850	1.477	51.74	1.520	53.300	-2.83%	-2.93%
			1880	1.508	51.66	1.520	53.300	-0.79%	-3.08%
			1910	1.542	51.57	1.520	53.300	1.45%	-3.25%
05/30/2012	2450B	22.1	2401	1.940	54.81	1.903	52.765	1.94%	3.88%
			2450	2.005	54.66	1.950	52.700	2.82%	3.72%
			2499	2.069	54.46	2.019	52.638	2.48%	3.46%

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 32 of 62

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.

11.2 Measurement Procedure for Tissue verification

- 7) The network analyzer and probe system was configured and calibrated.
- 8) 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.
- 9) The complex admittance with respect to the probe aperture was measured
- 10) The complex relative permittivity ϵ can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\epsilon_r\epsilon_0}{[\ln(b/a)]^2} \int_a^b \int_a^b \int_0^\pi \cos\phi' \frac{\exp[-j\omega r(\mu_0\epsilon_r'\epsilon_0)^{1/2}]}{r} d\phi' d\rho' d\rho$$

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 $j = \sqrt{-1}$.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 33 of 62

11.3 Test System Verification

Prior to assessment, the system is verified to $\pm 10\%$ 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 (mW)	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	05/24/2012	23.3	22.1	0.063	1046	3561	0.51	8.400	8.095	-3.63%
835	Head	05/25/2012	24.1	23.2	0.100	4d133	3209	0.935	9.450	9.350	-1.06%
835	Head	06/07/2012	23.1	22.4	0.100	4d119	3258	0.991	9.420	9.910	5.20%
1750	Head	05/30/2012	24.8	23.2	0.100	1051	3209	3.55	36.600	35.500	-3.01%
1750	Head	06/07/2012	22.6	22.1	0.100	1051	3561	3.53	36.600	35.300	-3.55%
1900	Head	05/29/2012	24.1	22.9	0.100	5d149	3561	3.92	39.300	39.200	-0.25%
1900	Head	06/04/2012	23.9	22.1	0.100	5d149	3288	4.00	39.300	40.000	1.78%
2450	Head	05/30/2012	24.9	23.2	0.040	719	3022	2.02	53.800	50.500	-6.13%
750	Body	05/29/2012	23.6	22.7	0.100	1003	3209	0.878	8.720	8.780	0.69%
835	Body	05/29/2012	22.7	22.0	0.100	4d119	3258	1.02	9.560	10.200	6.69%
835	Body	06/07/2012	23.3	23.0	0.100	4d133	3258	1.03	9.600	10.300	7.29%
1750	Body	05/30/2012	24.6	23.5	0.100	1051	3209	3.66	37.600	36.600	-2.66%
1750	Body	06/06/2012	22.9	21.4	0.100	1051	3561	3.5	37.600	35.000	-6.91%
1900	Body	05/29/2012	23.5	22.0	0.100	5d149	3288	4.02	39.300	40.200	2.29%
1900	Body	06/03/2012	24.2	23.6	0.100	5d080	3022	4.2	40.900	42.000	2.69%
2450	Body	05/30/2012	24.3	23.7	0.01259	719	3022	0.63	51.300	50.040	-2.46%

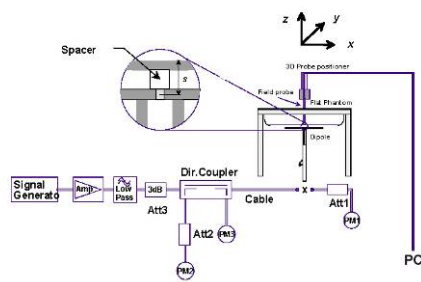


Figure 11-1
System Verification Setup Diagram



Figure 11-2
System Verification Setup Photo

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 34 of 62

12 SAR DATA SUMMARY

12.1 Standalone Head SAR Data

Table 12-1
Cell. CDMA Head SAR Results

MEASUREMENT RESULTS								
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	SAR (1g)
MHz	Ch.							(W/kg)
836.52	384	Cell. CDMA	24.40	-0.05	Right	Touch	CDMA	0.177
836.52	384	Cell. CDMA	24.40	0.05	Right	Tilt	CDMA	0.095
836.52	384	Cell. CDMA	24.40	0.10	Left	Touch	CDMA	0.155
836.52	384	Cell. CDMA	24.40	0.02	Left	Tilt	CDMA	0.086
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
AWS CDMA Head SAR Results

MEASUREMENT RESULTS								
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	SAR (1g)
MHz	Ch.							(W/kg)
1732.50	450	AWS CDMA	24.67	-0.08	Right	Touch	AWS	0.133
1732.50	450	AWS CDMA	24.67	0.01	Right	Tilt	AWS	0.065
1732.50	450	AWS CDMA	24.67	0.06	Left	Touch	AWS	0.102
1732.50	450	AWS CDMA	24.67	0.04	Left	Tilt	AWS	0.065
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram			

Table 12-3
PCS CDMA Head SAR Results

MEASUREMENT RESULTS								
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	SAR (1g)
MHz	Ch.							(W/kg)
1880.00	600	PCS CDMA	24.72	0.09	Right	Touch	PCS	0.150
1880.00	600	PCS CDMA	24.72	-0.19	Right	Tilt	PCS	0.064
1880.00	600	PCS CDMA	24.72	0.03	Left	Touch	PCS	0.144
1880.00	600	PCS CDMA	24.72	-0.03	Left	Tilt	PCS	0.068
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram			

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 35 of 62

Table 12-4
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) (W/kg)
MHz	Ch.													
707.50	23095	Mid	LTE Band 12	10	21.53	-0.13	1	Right	Touch	QPSK	25	12	B12	0.013
704.00	23060	Low	LTE Band 12	10	22.73	0.10	0	Right	Touch	QPSK	1	0	B12	0.036
704.00	23060	Low	LTE Band 12	10	22.67	0.03	0	Right	Touch	QPSK	1	49	B12	0.021
707.50	23095	Mid	LTE Band 12	10	20.48	0.11	2	Right	Touch	16 QAM	25	12	B12	0.011
704.00	23060	Low	LTE Band 12	10	21.60	0.03	1	Right	Touch	16 QAM	1	0	B12	0.030
704.00	23060	Low	LTE Band 12	10	21.63	0.07	1	Right	Touch	16 QAM	1	49	B12	0.015
707.50	23095	Mid	LTE Band 12	10	21.53	0.08	1	Right	Tilt	QPSK	25	12	B12	0.010
704.00	23060	Low	LTE Band 12	10	22.73	0.02	0	Right	Tilt	QPSK	1	0	B12	0.018
704.00	23060	Low	LTE Band 12	10	22.67	0.03	0	Right	Tilt	QPSK	1	49	B12	0.010
707.50	23095	Mid	LTE Band 12	10	20.48	0.14	2	Right	Tilt	16 QAM	25	12	B12	0.005
704.00	23060	Low	LTE Band 12	10	21.60	0.08	1	Right	Tilt	16 QAM	1	0	B12	0.014
704.00	23060	Low	LTE Band 12	10	21.63	0.03	1	Right	Tilt	16 QAM	1	49	B12	0.007
707.50	23095	Mid	LTE Band 12	10	21.53	0.05	1	Left	Touch	QPSK	25	12	B12	0.017
704.00	23060	Low	LTE Band 12	10	22.73	0.17	0	Left	Touch	QPSK	1	0	B12	0.044
704.00	23060	Low	LTE Band 12	10	22.67	-0.01	0	Left	Touch	QPSK	1	49	B12	0.029
707.50	23095	Mid	LTE Band 12	10	20.48	0.08	2	Left	Touch	16 QAM	25	12	B12	0.012
704.00	23060	Low	LTE Band 12	10	21.60	0.03	1	Left	Touch	16 QAM	1	0	B12	0.034
704.00	23060	Low	LTE Band 12	10	21.63	0.04	1	Left	Touch	16 QAM	1	49	B12	0.020
707.50	23095	Mid	LTE Band 12	10	21.53	0.11	1	Left	Tilt	QPSK	25	12	B12	0.006
704.00	23060	Low	LTE Band 12	10	22.73	0.04	0	Left	Tilt	QPSK	1	0	B12	0.019
704.00	23060	Low	LTE Band 12	10	22.67	0.03	0	Left	Tilt	QPSK	1	49	B12	0.016
707.50	23095	Mid	LTE Band 12	10	20.48	0.06	2	Left	Tilt	16 QAM	25	12	B12	0.010
704.00	23060	Low	LTE Band 12	10	21.60	0.04	1	Left	Tilt	16 QAM	1	0	B12	0.018
704.00	23060	Low	LTE Band 12	10	21.63	0.07	1	Left	Tilt	16 QAM	1	49	B12	0.016
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 KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% RB allocation, the highest output power for the 1 RB allocations is tested. Therefore, low channel was tested for the 1 RB allocation configurations.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 36 of 62

Table 12-5
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	21.45	0.02	1	Right	Touch	QPSK	25	12	B5	0.056
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.64	0.01	0	Right	Touch	QPSK	1	0	B5	0.076
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.52	0.11	0	Right	Touch	QPSK	1	49	B5	0.043
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.53	0.21	2	Right	Touch	16 QAM	25	12	B5	0.046
829.00	20450	Low	LTE Band 5 (Cell)	10	21.13	0.11	1	Right	Touch	16 QAM	1	0	B5	0.060
829.00	20450	Low	LTE Band 5 (Cell)	10	21.55	0.07	1	Right	Touch	16 QAM	1	49	B5	0.058
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.45	-0.06	1	Right	Tilt	QPSK	25	12	B5	0.037
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.64	0.03	0	Right	Tilt	QPSK	1	0	B5	0.048
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.52	0.15	0	Right	Tilt	QPSK	1	49	B5	0.031
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.53	-0.08	2	Right	Tilt	16 QAM	25	12	B5	0.032
829.00	20450	Low	LTE Band 5 (Cell)	10	21.13	0.03	1	Right	Tilt	16 QAM	1	0	B5	0.037
829.00	20450	Low	LTE Band 5 (Cell)	10	21.55	-0.12	1	Right	Tilt	16 QAM	1	49	B5	0.039
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.45	0.09	1	Left	Touch	QPSK	25	12	B5	0.071
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.64	0.09	0	Left	Touch	QPSK	1	0	B5	0.091
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.52	0.13	0	Left	Touch	QPSK	1	49	B5	0.056
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.53	0.01	2	Left	Touch	16 QAM	25	12	B5	0.058
829.00	20450	Low	LTE Band 5 (Cell)	10	21.13	0.07	1	Left	Touch	16 QAM	1	0	B5	0.066
829.00	20450	Low	LTE Band 5 (Cell)	10	21.55	0.10	1	Left	Touch	16 QAM	1	49	B5	0.071
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.45	0.11	1	Left	Tilt	QPSK	25	12	B5	0.037
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.64	-0.14	0	Left	Tilt	QPSK	1	0	B5	0.047
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.52	0.03	0	Left	Tilt	QPSK	1	49	B5	0.028
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.53	-0.09	2	Left	Tilt	16 QAM	25	12	B5	0.030
829.00	20450	Low	LTE Band 5 (Cell)	10	21.13	0.05	1	Left	Tilt	16 QAM	1	0	B5	0.033
829.00	20450	Low	LTE Band 5 (Cell)	10	21.55	0.04	1	Left	Tilt	16 QAM	1	49	B5	0.038
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 KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% RB allocation, the highest output power for the 1 RB allocations is tested. Therefore, mid channel was tested for the QPSK, 1 RB allocation and low channel was tested for 16 QAM, 1 RB allocation configurations.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 37 of 62

Table 12-6
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)	
1732.50	20175	Mid	LTE Band 4 (AWS)	10	21.40	-0.09	1	Right	Touch	QPSK	25	12	B4	0.191
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.62	-0.04	0	Right	Touch	QPSK	1	0	B4	0.242
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.48	0.06	0	Right	Touch	QPSK	1	49	B4	0.260
1732.50	20175	Mid	LTE Band 4 (AWS)	10	20.57	-0.05	2	Right	Touch	16 QAM	25	12	B4	0.155
1750.00	20350	High	LTE Band 4 (AWS)	10	21.35	0.07	1	Right	Touch	16 QAM	1	0	B4	0.122
1750.00	20350	High	LTE Band 4 (AWS)	10	21.41	0.02	1	Right	Touch	16 QAM	1	49	B4	0.139
1732.50	20175	Mid	LTE Band 4 (AWS)	10	21.40	-0.02	1	Right	Tilt	QPSK	25	12	B4	0.098
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.62	0.07	0	Right	Tilt	QPSK	1	0	B4	0.129
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.48	0.01	0	Right	Tilt	QPSK	1	49	B4	0.140
1732.50	20175	Mid	LTE Band 4 (AWS)	10	20.57	0.11	2	Right	Tilt	16 QAM	25	12	B4	0.082
1750.00	20350	High	LTE Band 4 (AWS)	10	21.35	-0.02	1	Right	Tilt	16 QAM	1	0	B4	0.070
1750.00	20350	High	LTE Band 4 (AWS)	10	21.41	-0.12	1	Right	Tilt	16 QAM	1	49	B4	0.081
1732.50	20175	Mid	LTE Band 4 (AWS)	10	21.40	0.04	1	Left	Touch	QPSK	25	12	B4	0.122
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.62	-0.12	0	Left	Touch	QPSK	1	0	B4	0.157
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.48	-0.13	0	Left	Touch	QPSK	1	49	B4	0.178
1732.50	20175	Mid	LTE Band 4 (AWS)	10	20.57	-0.14	2	Left	Touch	16 QAM	25	12	B4	0.099
1750.00	20350	High	LTE Band 4 (AWS)	10	21.35	-0.18	1	Left	Touch	16 QAM	1	0	B4	0.083
1750.00	20350	High	LTE Band 4 (AWS)	10	21.41	-0.12	1	Left	Touch	16 QAM	1	49	B4	0.095
1732.50	20175	Mid	LTE Band 4 (AWS)	10	21.40	0.07	1	Left	Tilt	QPSK	25	12	B4	0.100
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.62	-0.08	0	Left	Tilt	QPSK	1	0	B4	0.123
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.48	0.02	0	Left	Tilt	QPSK	1	49	B4	0.143
1732.50	20175	Mid	LTE Band 4 (AWS)	10	20.57	0.11	2	Left	Tilt	16 QAM	25	12	B4	0.083
1750.00	20350	High	LTE Band 4 (AWS)	10	21.35	0.08	1	Left	Tilt	16 QAM	1	0	B4	0.065
1750.00	20350	High	LTE Band 4 (AWS)	10	21.41	0.04	1	Left	Tilt	16 QAM	1	49	B4	0.076
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 KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% RB allocation, the highest output power for the 1 RB allocations is tested. Therefore, mid channel was tested for the QPSK, 1 RB allocation and high channel was tested for 16 QAM, 1 RB allocation configurations.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 38 of 62

Table 12-7
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	21.52	-0.07	1	Right	Touch	QPSK	25	12	B2	0.250
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.50	0.13	0	Right	Touch	QPSK	1	0	B2	0.368
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.93	-0.05	0	Right	Touch	QPSK	1	49	B2	0.318
1880.00	18900	Mid	LTE Band 2 (PCS)	10	20.59	-0.10	2	Right	Touch	16 QAM	25	12	B2	0.195
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.13	0.01	1	Right	Touch	16 QAM	1	0	B2	0.301
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.68	-0.01	1	Right	Touch	16 QAM	1	49	B2	0.257
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.52	0.05	1	Right	Tilt	QPSK	25	12	B2	0.100
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.50	0.09	0	Right	Tilt	QPSK	1	0	B2	0.162
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.93	-0.08	0	Right	Tilt	QPSK	1	49	B2	0.142
1880.00	18900	Mid	LTE Band 2 (PCS)	10	20.59	0.17	2	Right	Tilt	16 QAM	25	12	B2	0.082
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.13	0.01	1	Right	Tilt	16 QAM	1	0	B2	0.136
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.68	-0.08	1	Right	Tilt	16 QAM	1	49	B2	0.119
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.52	-0.05	1	Left	Touch	QPSK	25	12	B2	0.178
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.50	0.07	0	Left	Touch	QPSK	1	0	B2	0.234
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.93	-0.03	0	Left	Touch	QPSK	1	49	B2	0.230
1880.00	18900	Mid	LTE Band 2 (PCS)	10	20.59	-0.07	2	Left	Touch	16 QAM	25	12	B2	0.140
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.13	0.04	1	Left	Touch	16 QAM	1	0	B2	0.187
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.68	-0.01	1	Left	Touch	16 QAM	1	49	B2	0.187
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.52	0.00	1	Left	Tilt	QPSK	25	12	B2	0.109
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.50	0.03	0	Left	Tilt	QPSK	1	0	B2	0.171
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.93	0.19	0	Left	Tilt	QPSK	1	49	B2	0.145
1880.00	18900	Mid	LTE Band 2 (PCS)	10	20.59	0.03	2	Left	Tilt	16 QAM	25	12	B2	0.086
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.13	0.02	1	Left	Tilt	16 QAM	1	0	B2	0.138
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.68	0.00	1	Left	Tilt	16 QAM	1	49	B2	0.116
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 KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% RB allocation, the highest output power for the 1 RB allocations is tested. Therefore, low channel was tested for the 1 RB allocation configurations.

Table 12-8
2.4 GHz WLAN Head SAR Results

MEASUREMENT RESULTS									
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	SAR (1g)
MHz	Ch.								(W/kg)
2462	11	IEEE 802.11b	DSSS	17.27	0.07	Right	Touch	B5	0.053
2462	11	IEEE 802.11b	DSSS	17.27	0.01	Right	Tilt	B5	0.044
2462	11	IEEE 802.11b	DSSS	17.27	0.02	Left	Touch	B5	0.082
2462	11	IEEE 802.11b	DSSS	17.27	0.09	Left	Tilt	B5	0.046
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram			

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 39 of 62

12.2 Standalone Body-Worn SAR Data

Table 12-9
CDMA 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	24.50	0.00	1.0 cm	CDMA	back	0.340
1732.50	450	AWS CDMA	TDSO / SO32	24.62	-0.03	1.0 cm	AWS	back	0.567
1880.00	600	PCS CDMA	TDSO / SO32	24.57	-0.15	1.0 cm	PCS	back	0.571
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram			

Note: For CDMA mode, hotspot back side SAR Data was used for supporting body-worn accessory compliance per FCC KDB Publication 941225 D06. CDMA 1x-RTT SAR was required to be evaluated for Hotspot exposure conditions to support simultaneous capabilities per Table 1-2.

Table 12-10
LTE 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	23095	Mid	LTE Band 12	10	21.53	0.02	1	B12	QPSK	25	12	1.0 cm	back	0.187
704.00	23060	Low	LTE Band 12	10	22.73	-0.10	0	B12	QPSK	1	0	1.0 cm	back	0.224
704.00	23060	Low	LTE Band 12	10	22.67	0.03	0	B12	QPSK	1	49	1.0 cm	back	0.195
707.50	23095	Mid	LTE Band 12	10	20.48	0.04	2	B12	16 QAM	25	12	1.0 cm	back	0.143
704.00	23060	Low	LTE Band 12	10	21.60	0.02	1	B12	16 QAM	1	0	1.0 cm	back	0.210
704.00	23060	Low	LTE Band 12	10	21.63	-0.08	1	B12	16 QAM	1	49	1.0 cm	back	0.184
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.45	0.03	1	B5	QPSK	25	12	1.0 cm	back	0.181
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.64	0.04	0	B5	QPSK	1	0	1.0 cm	back	0.213
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.52	0.13	0	B5	QPSK	1	49	1.0 cm	back	0.204
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.53	0.07	2	B5	QPSK	25	12	1.0 cm	back	0.146
829.00	20450	Low	LTE Band 5 (Cell)	10	21.13	0.04	1	B5	QPSK	1	0	1.0 cm	back	0.190
829.00	20450	Low	LTE Band 5 (Cell)	10	21.55	0.00	1	B5	QPSK	1	49	1.0 cm	back	0.173
1732.50	20175	Mid	LTE Band 4 (AWS)	10	21.40	0.11	1	B4	QPSK	25	12	1.0 cm	back	0.394
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.62	0.00	0	B4	QPSK	1	0	1.0 cm	back	0.503
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.48	0.07	0	B4	QPSK	1	49	1.0 cm	back	0.542
1732.50	20175	Mid	LTE Band 4 (AWS)	10	20.57	0.01	2	B4	16 QAM	25	12	1.0 cm	back	0.316
1750.00	20350	High	LTE Band 4 (AWS)	10	21.35	0.03	1	B4	16 QAM	1	0	1.0 cm	back	0.301
1750.00	20350	High	LTE Band 4 (AWS)	10	21.41	0.02	1	B4	16 QAM	1	49	1.0 cm	back	0.315
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.52	0.00	1	B2	QPSK	25	12	1.0 cm	back	0.547
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.50	0.03	0	B2	QPSK	1	0	1.0 cm	back	0.606
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.93	0.04	0	B2	QPSK	1	49	1.0 cm	back	0.534
1880.00	18900	Mid	LTE Band 2 (PCS)	10	20.59	0.08	2	B2	16 QAM	25	12	1.0 cm	back	0.427
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.13	0.01	1	B2	16 QAM	1	0	1.0 cm	back	0.498
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.68	0.00	1	B2	16 QAM	1	49	1.0 cm	back	0.429
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram						

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset	Page 40 of 62	

Note:

1. For LTE Mode, hotspot back side SAR Data was used for supporting body-worn accessory compliance per FCC KDB Publication 941225 D06.
2. Per KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% RB allocation, the highest output power for the 1 RB allocations is tested. Therefore, low channel was tested for QPSK and 16QAM 1 RB allocation configurations for LTE Band 12; mid channel was tested for QPSK 1 RB allocation and low channel was tested for 16QAM 1 RB allocation configurations for LTE Band 5; mid channel was tested for QPSK 1 RB allocation and high channel was tested for 16QAM 1 RB allocation configurations for LTE Band 4; low channel was tested for QPSK and 16QAM 1 RB allocation for LTE Band 2.

Table 12-11
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	17.27	0.04	1.0 cm	B5	1	back	0.297
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, hotspot back side SAR Data was used for supporting body-worn accessory compliance per FCC KDB Publication 941225 D06.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 41 of 62

12.3 Standalone Wireless Router SAR Data

Table 12-12
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	24.50	0.00	1.0 cm	CDMA	back	0.340
836.52	384	Cell. CDMA	TDSO / SO32	24.50	-0.04	1.0 cm	CDMA	front	0.250
836.52	384	Cell. CDMA	TDSO / SO32	24.50	-0.12	1.0 cm	CDMA	bottom	0.183
836.52	384	Cell. CDMA	TDSO / SO32	24.50	0.00	1.0 cm	CDMA	right	0.319
1732.50	450	AWS CDMA	TDSO / SO32	24.62	-0.03	1.0 cm	AWS	back	0.567
1732.50	450	AWS CDMA	TDSO / SO32	24.62	-0.11	1.0 cm	AWS	front	0.328
1732.50	450	AWS CDMA	TDSO / SO32	24.62	0.00	1.0 cm	AWS	bottom	0.421
1732.50	450	AWS CDMA	TDSO / SO32	24.62	-0.04	1.0 cm	AWS	right	0.093
1880.00	600	PCS CDMA	TDSO / SO32	24.57	-0.15	1.0 cm	PCS	back	0.571
1880.00	600	PCS CDMA	TDSO / SO32	24.57	-0.10	1.0 cm	PCS	front	0.325
1880.00	600	PCS CDMA	TDSO / SO32	24.57	-0.13	1.0 cm	PCS	bottom	0.483
1880.00	600	PCS CDMA	TDSO / SO32	24.57	0.00	1.0 cm	PCS	right	0.105
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram			

Note: CDMA 1x-RTT SAR was required to be evaluated for hotspot exposure configurations since there are simultaneous combinations in Table 1-2 that allow hotspot transmissions using CDMA 1x-RTT.

Table 12-13
EVDO 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	EVDO Rev. 0	24.59	0.00	1.0 cm	CDMA	back	0.329
836.52	384	Cell. CDMA	EVDO Rev. 0	24.59	0.03	1.0 cm	CDMA	front	0.293
836.52	384	Cell. CDMA	EVDO Rev. 0	24.59	-0.03	1.0 cm	CDMA	bottom	0.181
836.52	384	Cell. CDMA	EVDO Rev. 0	24.59	0.13	1.0 cm	CDMA	right	0.357
1732.50	450	AWS CDMA	EVDO Rev. 0	24.66	0.01	1.0 cm	AWS	back	0.595
1732.50	450	AWS CDMA	EVDO Rev. 0	24.66	-0.02	1.0 cm	AWS	front	0.367
1732.50	450	AWS CDMA	EVDO Rev. 0	24.66	0.03	1.0 cm	AWS	bottom	0.423
1732.50	450	AWS CDMA	EVDO Rev. 0	24.66	0.01	1.0 cm	AWS	right	0.087
1880.00	600	PCS CDMA	EVDO Rev. 0	24.56	-0.03	1.0 cm	PCS	back	0.654
1880.00	600	PCS CDMA	EVDO Rev. 0	24.56	-0.04	1.0 cm	PCS	front	0.365
1880.00	600	PCS CDMA	EVDO Rev. 0	24.56	-0.06	1.0 cm	PCS	bottom	0.534
1880.00	600	PCS CDMA	EVDO Rev. 0	24.56	-0.15	1.0 cm	PCS	right	0.109
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram			

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 42 of 62

Table 12-14
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.	High												(W/kg)
707.50	23095	Mid	LTE Band 12	10	21.53	0.02	1	B12	QPSK	25	12	1.0 cm	back	0.187
704.00	23060	Low	LTE Band 12	10	22.73	-0.10	0	B12	QPSK	1	0	1.0 cm	back	0.224
704.00	23060	Low	LTE Band 12	10	22.67	0.03	0	B12	QPSK	1	49	1.0 cm	back	0.195
707.50	23095	Mid	LTE Band 12	10	20.48	0.04	2	B12	16 QAM	25	12	1.0 cm	back	0.143
704.00	23060	Low	LTE Band 12	10	21.60	0.02	1	B12	16 QAM	1	0	1.0 cm	back	0.210
704.00	23060	Low	LTE Band 12	10	21.63	-0.08	1	B12	16 QAM	1	49	1.0 cm	back	0.184
707.50	23095	Mid	LTE Band 12	10	21.53	0.12	0	B12	QPSK	25	12	1.0 cm	front	0.059
704.00	23060	Low	LTE Band 12	10	22.73	-0.01	0	B12	QPSK	1	0	1.0 cm	front	0.096
704.00	23060	Low	LTE Band 12	10	22.67	0.10	2	B12	QPSK	1	49	1.0 cm	front	0.067
707.50	23095	Mid	LTE Band 12	10	20.48	0.18	1	B12	16 QAM	25	12	1.0 cm	front	0.047
704.00	23060	Low	LTE Band 12	10	21.60	0.09	1	B12	16 QAM	1	0	1.0 cm	front	0.091
704.00	23060	Low	LTE Band 12	10	21.63	0.02	0	B12	16 QAM	1	49	1.0 cm	front	0.061
707.50	23095	Mid	LTE Band 12	10	21.53	0.10	2	B12	QPSK	25	12	1.0 cm	bottom	0.099
704.00	23060	Low	LTE Band 12	10	22.73	0.17	1	B12	QPSK	1	0	1.0 cm	bottom	0.111
704.00	23060	Low	LTE Band 12	10	22.67	0.17	1	B12	QPSK	1	49	1.0 cm	bottom	0.110
707.50	23095	Mid	LTE Band 12	10	20.48	0.17	0	B12	16 QAM	25	12	1.0 cm	bottom	0.079
704.00	23060	Low	LTE Band 12	10	21.60	0.19	0	B12	16 QAM	1	0	1.0 cm	bottom	0.109
704.00	23060	Low	LTE Band 12	10	21.63	0.14	2	B12	16 QAM	1	49	1.0 cm	bottom	0.107
707.50	23095	Mid	LTE Band 12	10	21.53	0.12	1	B12	QPSK	25	12	1.0 cm	left	0.073
704.00	23060	Low	LTE Band 12	10	22.73	0.08	0	B12	QPSK	1	0	1.0 cm	left	0.091
704.00	23060	Low	LTE Band 12	10	22.67	-0.19	0	B12	QPSK	1	49	1.0 cm	left	0.083
707.50	23095	Mid	LTE Band 12	10	20.48	0.08	2	B12	16 QAM	25	12	1.0 cm	left	0.059
704.00	23060	Low	LTE Band 12	10	21.60	0.06	1	B12	16 QAM	1	0	1.0 cm	left	0.077
704.00	23060	Low	LTE Band 12	10	21.63	0.00	1	B12	16 QAM	1	49	1.0 cm	left	0.079
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body						
Spatial Peak								1.6 W/kg (mW/g)						
Uncontrolled Exposure/General Population								averaged over 1 gram						

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

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 43 of 62

Table 12-15
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	21.45	0.03	1	B5	QPSK	25	12	1.0 cm	back	0.181
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.64	0.04	0	B5	QPSK	1	0	1.0 cm	back	0.213
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.52	0.13	0	B5	QPSK	1	49	1.0 cm	back	0.204
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.53	0.07	2	B5	16QAM	25	12	1.0 cm	back	0.146
829.00	20450	Low	LTE Band 5 (Cell)	10	21.13	0.04	1	B5	16QAM	1	0	1.0 cm	back	0.190
829.00	20450	Low	LTE Band 5 (Cell)	10	21.55	0.00	1	B5	16QAM	1	49	1.0 cm	back	0.173
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.45	-0.02	1	B5	QPSK	25	12	1.0 cm	front	0.104
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.64	-0.18	0	B5	QPSK	1	0	1.0 cm	front	0.118
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.52	0.02	0	B5	QPSK	1	49	1.0 cm	front	0.132
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.53	0.03	2	B5	16QAM	25	12	1.0 cm	front	0.085
829.00	20450	Low	LTE Band 5 (Cell)	10	21.13	0.02	1	B5	16QAM	1	0	1.0 cm	front	0.106
829.00	20450	Low	LTE Band 5 (Cell)	10	21.55	-0.09	1	B5	16QAM	1	49	1.0 cm	front	0.107
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.45	0.13	1	B5	QPSK	25	12	1.0 cm	bottom	0.121
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.64	-0.14	0	B5	QPSK	1	0	1.0 cm	bottom	0.162
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.52	-0.20	0	B5	QPSK	1	49	1.0 cm	bottom	0.193
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.53	-0.13	2	B5	16QAM	25	12	1.0 cm	bottom	0.098
829.00	20450	Low	LTE Band 5 (Cell)	10	21.13	-0.13	1	B5	16QAM	1	0	1.0 cm	bottom	0.139
829.00	20450	Low	LTE Band 5 (Cell)	10	21.55	-0.13	1	B5	16QAM	1	49	1.0 cm	bottom	0.135
836.50	20525	Mid	LTE Band 5 (Cell)	10	21.45	0.03	1	B5	QPSK	25	12	1.0 cm	left	0.176
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.64	-0.02	0	B5	QPSK	1	0	1.0 cm	left	0.212
836.50	20525	Mid	LTE Band 5 (Cell)	10	22.52	0.12	0	B5	QPSK	1	49	1.0 cm	left	0.146
836.50	20525	Mid	LTE Band 5 (Cell)	10	20.53	-0.03	2	B5	16QAM	25	12	1.0 cm	left	0.143
829.00	20450	Low	LTE Band 5 (Cell)	10	21.13	-0.10	1	B5	16QAM	1	0	1.0 cm	left	0.151
829.00	20450	Low	LTE Band 5 (Cell)	10	21.55	-0.04	1	B5	16QAM	1	49	1.0 cm	left	0.181
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body						
Spatial Peak								1.6 W/kg (mW/g)						
Uncontrolled Exposure/General Population								averaged over 1 gram						

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

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 44 of 62

Table 12-16
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)
1732.50	20175	Mid	LTE Band 4 (AWS)	10	21.40	0.11	1	B4	QPSK	25	12	1.0 cm	back	0.394
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.62	0.00	0	B4	QPSK	1	0	1.0 cm	back	0.503
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.48	0.07	0	B4	QPSK	1	49	1.0 cm	back	0.542
1732.50	20175	Mid	LTE Band 4 (AWS)	10	20.57	0.01	2	B4	16 QAM	25	12	1.0 cm	back	0.316
1750.00	20350	High	LTE Band 4 (AWS)	10	21.35	0.03	1	B4	16 QAM	1	0	1.0 cm	back	0.301
1750.00	20350	High	LTE Band 4 (AWS)	10	21.41	0.02	1	B4	16 QAM	1	49	1.0 cm	back	0.315
1732.50	20175	Mid	LTE Band 4 (AWS)	10	21.40	0.13	1	B4	QPSK	25	12	1.0 cm	front	0.211
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.62	0.09	0	B4	QPSK	1	0	1.0 cm	front	0.271
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.48	-0.01	0	B4	QPSK	1	49	1.0 cm	front	0.294
1732.50	20175	Mid	LTE Band 4 (AWS)	10	20.57	0.00	2	B4	16 QAM	25	12	1.0 cm	front	0.173
1750.00	20350	High	LTE Band 4 (AWS)	10	21.35	0.01	1	B4	16 QAM	1	0	1.0 cm	front	0.168
1750.00	20350	High	LTE Band 4 (AWS)	10	21.41	0.05	1	B4	16 QAM	1	49	1.0 cm	front	0.172
1732.50	20175	Mid	LTE Band 4 (AWS)	10	21.40	0.10	1	B4	QPSK	25	12	1.0 cm	bottom	0.274
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.62	0.20	0	B4	QPSK	1	0	1.0 cm	bottom	0.342
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.48	0.11	0	B4	QPSK	1	49	1.0 cm	bottom	0.387
1732.50	20175	Mid	LTE Band 4 (AWS)	10	20.57	0.12	2	B4	16 QAM	25	12	1.0 cm	bottom	0.226
1750.00	20350	High	LTE Band 4 (AWS)	10	21.35	0.13	1	B4	16 QAM	1	0	1.0 cm	bottom	0.224
1750.00	20350	High	LTE Band 4 (AWS)	10	21.41	0.14	1	B4	16 QAM	1	49	1.0 cm	bottom	0.232
1732.50	20175	Mid	LTE Band 4 (AWS)	10	21.40	0.02	1	B4	QPSK	25	12	1.0 cm	left	0.104
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.62	-0.04	0	B4	QPSK	1	0	1.0 cm	left	0.129
1732.50	20175	Mid	LTE Band 4 (AWS)	10	22.48	0.04	0	B4	QPSK	1	49	1.0 cm	left	0.138
1732.50	20175	Mid	LTE Band 4 (AWS)	10	20.57	-0.02	2	B4	16 QAM	25	12	1.0 cm	left	0.018
1750.00	20350	High	LTE Band 4 (AWS)	10	21.35	0.13	1	B4	16 QAM	1	0	1.0 cm	left	0.069
1750.00	20350	High	LTE Band 4 (AWS)	10	21.41	0.05	1	B4	16 QAM	1	49	1.0 cm	left	0.077
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body						
Spatial Peak								1.6 W/kg (mW/g)						
Uncontrolled Exposure/General Population								averaged over 1 gram						

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

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 45 of 62

Table 12-17
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	21.52	0.00	1	B2	QPSK	25	12	1.0 cm	back	0.547
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.50	0.03	0	B2	QPSK	1	0	1.0 cm	back	0.606
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.93	0.04	0	B2	QPSK	1	49	1.0 cm	back	0.534
1880.00	18900	Mid	LTE Band 2 (PCS)	10	20.59	0.08	2	B2	16 QAM	25	12	1.0 cm	back	0.427
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.13	0.01	1	B2	16 QAM	1	0	1.0 cm	back	0.498
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.68	0.00	1	B2	16 QAM	1	49	1.0 cm	back	0.429
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.52	0.09	1	B2	QPSK	25	12	1.0 cm	front	0.381
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.50	0.03	0	B2	QPSK	1	0	1.0 cm	front	0.437
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.93	0.13	0	B2	QPSK	1	49	1.0 cm	front	0.405
1880.00	18900	Mid	LTE Band 2 (PCS)	10	20.59	0.06	2	B2	16 QAM	25	12	1.0 cm	front	0.301
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.13	0.10	1	B2	16 QAM	1	0	1.0 cm	front	0.354
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.68	0.00	1	B2	16 QAM	1	49	1.0 cm	front	0.331
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.52	-0.03	1	B2	QPSK	25	12	1.0 cm	bottom	0.431
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.50	-0.04	0	B2	QPSK	1	0	1.0 cm	bottom	0.513
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.93	0.04	0	B2	QPSK	1	49	1.0 cm	bottom	0.387
1880.00	18900	Mid	LTE Band 2 (PCS)	10	20.59	0.11	2	B2	16 QAM	25	12	1.0 cm	bottom	0.338
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.13	-0.02	1	B2	16 QAM	1	0	1.0 cm	bottom	0.416
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.68	0.04	1	B2	16 QAM	1	49	1.0 cm	bottom	0.320
1880.00	18900	Mid	LTE Band 2 (PCS)	10	21.52	-0.08	1	B2	QPSK	25	12	1.0 cm	left	0.167
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.50	0.01	0	B2	QPSK	1	0	1.0 cm	left	0.186
1855.00	18650	Low	LTE Band 2 (PCS)	10	22.93	0.02	0	B2	QPSK	1	49	1.0 cm	left	0.190
1880.00	18900	Mid	LTE Band 2 (PCS)	10	20.59	-0.08	2	B2	16 QAM	25	12	1.0 cm	left	0.132
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.13	0.01	1	B2	16 QAM	1	0	1.0 cm	left	0.152
1855.00	18650	Low	LTE Band 2 (PCS)	10	21.68	-0.01	1	B2	16 QAM	1	49	1.0 cm	left	0.155
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 KDB 941225 D05, when the maximum average output power of 1 RB allocation is more than 0.5 dB higher than the 50% RB allocation, the highest output power for the 1 RB allocations is tested. Therefore, low channel was tested for the 1 RB allocation configurations.

Table 12-18
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	17.27	0.04	1.0 cm	B5	1	back	0.297
2462	11	IEEE 802.11b	DSSS	17.27	0.00	1.0 cm	B5	1	front	0.030
2462	11	IEEE 802.11b	DSSS	17.27	0.11	1.0 cm	B5	1	top	0.008
2462	11	IEEE 802.11b	DSSS	17.27	-0.08	1.0 cm	B5	1	right	0.107
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram			

FCC ID: A3LSCHR530		SAR EVALUATION REPORT					Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset				Page 46 of 62	

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. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. This DUT has NFC operations. The NFC antenna is integrated into the standard battery and will be the only battery available from the manufacturer for this model. Therefore all SAR tests were performed with the standard battery which already integrates the NFC antenna. The device restricts the battery used to battery model: **EB-L1G6LLZ**.

CDMA Notes:

1. 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).
2. Head SAR for CDMA2000 mode was tested under RC3/SO55 per KDB Publication 941225 D01.
3. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. 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.
4. According to FCC KDB 941225 D01 publication, 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. CDMA 1x-RTT SAR was required to be evaluated for Hotspot exposure conditions to support simultaneous capabilities per Table 1-2.
5. Per FCC KDB Publication 941225 D06, when the same wireless modes and device transmission configurations are required for body-worn accessories and hotspot mode, it is not necessary to additionally test body-worn accessory SAR for the same device orientation. Therefore, the TDSO hotspot data for the back side configuration additionally shows body-worn compliance at the same distance.

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 for each test 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. The differences noted are not cases of implemented MPR but rather associated with measurement uncertainty and allowable tolerances per 3GPP standard and the manufacturer.
3. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator.
4. Per FCC KDB Publication 941225 D06, when the same wireless modes and device transmission configurations are required for body-worn accessories and hotspot mode, it is not necessary to additionally test body-worn accessory SAR for the same device orientation. Therefore, the

FCC ID: A3LSCHR530	 PCTEST Engineering Laboratory, Inc.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 47 of 62

hotspot data for the back side configuration additionally shows body-worn compliance at the same distance.

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. WLAN transmission was verified using an uncalibrated spectrum analyzer.
3. 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.
4. Per FCC KDB Publication 941225 D06, when the same wireless modes and device transmission configurations are required for body-worn accessories and hotspot mode, it is not necessary to additionally test body-worn accessory SAR for the same device orientation. Therefore, the hotspot data for the back side configuration additionally shows body-worn compliance at the same distance.

Hotspot Notes:

1. Top Edge and Left Edge for 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 Edge and Right Edge for the LTE 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).
3. Bottom Edge and Left Edge 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.)

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 48 of 62

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	<u>Routine evaluation required</u>	<u>SAR not required:</u> <u>Unlicensed only</u> - when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas <u>Licensed & Unlicensed</u> - 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
Unlicensed Transmitters	<u>When there is no simultaneous transmission –</u> - output ≤ 60/f: SAR not required - output > 60/f: stand-alone SAR required <u>When there is simultaneous transmission –</u> <u>Stand-alone SAR not required when</u> - output $\leq 2 \cdot P_{Ref}$ and antenna is ≥ 5.0 cm from other antennas - output $\leq P_{Ref}$ and antenna is ≥ 2.5 cm from other antennas - output $\leq P_{Ref}$ and antenna is < 2.5 cm from other antennas, each with either output power $\leq P_{Ref}$ or 1-g SAR < 1.2 W/kg <u>Otherwise stand-alone SAR is required</u> <u>When stand-alone SAR is required</u> - 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	<u>SAR required:</u> <u>Licensed & Unlicensed</u> 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 <u>Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply</u>

Figure 13-2
SAR Evaluation Requirements for Multiple Transmitter Handsets

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 49 of 62

13.3 Simultaneous Transmission Capabilities

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 13-1 were numerically summed using stand-alone SAR data and are shown in the following tables.

Per KDB Publication 648474, standalone Bluetooth and 5GHz WLAN SAR tests were not required. Standalone SAR tests for 2.4 GHz WLAN were required. See Section 1.5(A) for more information.

Table 13-1
Possible Simultaneous Transmission Scenarios

No.	Capable Transmit Configurations	Head	Body-Worn Accessory	Hot Spot	Note
		IEEE 1528, Supp C	Supplement C	FCC KDB 941225 D06 edges/sides	
1	1X CDMA 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	N/A	N/A	√	EVDO+WIFI Hotspot
32	1X/EVDO 1700 Data + 2.4 GHz WIFI	N/A	N/A	√	EVDO+WIFI Hotspot
33	1X/EVDO 1900 Data + 2.4 GHz WIFI	N/A	N/A	√	EVDO+WIFI Hotspot
34	LTE 700 MHz Data + 2.4 GHz WIFI	N/A	N/A	√	LTE+WIFI Hotspot
35	LTE 800 MHz Data + 2.4 GHz WIFI	N/A	N/A	√	LTE+WIFI Hotspot
36	LTE 1700 MHz Data + 2.4 GHz WIFI	N/A	N/A	√	LTE+WIFI Hotspot
37	LTE 1900 MHz Data + 2.4 GHz WIFI	N/A	N/A	√	LTE+WIFI Hotspot

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 50 of 62

13.4 Head SAR Simultaneous Transmission Analysis

Table 13-2
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	0.177	0.036	0.053	0.213	0.230	N/A	0.266
	Right Tilt	0.095	0.018	0.044	0.113	0.139	N/A	0.157
	Left Cheek	0.155	0.044	0.082	0.199	0.237	N/A	0.281
	Left Tilt	0.086	0.019	0.046	0.105	0.132	N/A	0.151
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	0.133	0.036	0.053	0.169	0.186	N/A	0.222
	Right Tilt	0.065	0.018	0.044	0.083	0.109	N/A	0.127
	Left Cheek	0.102	0.044	0.082	0.146	0.184	N/A	0.228
	Left Tilt	0.065	0.019	0.046	0.084	0.111	N/A	0.130
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	0.150	0.036	0.053	0.186	0.203	N/A	0.239
	Right Tilt	0.064	0.018	0.044	0.082	0.108	N/A	0.126
	Left Cheek	0.144	0.044	0.082	0.188	0.226	N/A	0.270
	Left Tilt	0.068	0.019	0.046	0.087	0.114	N/A	0.133
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	0.177	0.076	0.053	0.253	0.230	N/A	0.306
	Right Tilt	0.095	0.048	0.044	0.143	0.139	N/A	0.187
	Left Cheek	0.155	0.091	0.082	0.246	0.237	N/A	0.328
	Left Tilt	0.086	0.047	0.046	0.133	0.132	N/A	0.179
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	0.133	0.076	0.053	0.209	0.186	N/A	0.262
	Right Tilt	0.065	0.048	0.044	0.113	0.109	N/A	0.157
	Left Cheek	0.102	0.091	0.082	0.193	0.184	N/A	0.275
	Left Tilt	0.065	0.047	0.046	0.112	0.111	N/A	0.158
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	0.150	0.076	0.053	0.226	0.203	N/A	0.279
	Right Tilt	0.064	0.048	0.044	0.112	0.108	N/A	0.156
	Left Cheek	0.144	0.091	0.082	0.235	0.226	N/A	0.317
	Left Tilt	0.068	0.047	0.046	0.115	0.114	N/A	0.161

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 51 of 62

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	0.177	0.260	0.053	0.437	0.230	N/A	0.490
	Right Tilt	0.095	0.140	0.044	0.235	0.139	N/A	0.279
	Left Cheek	0.155	0.178	0.082	0.333	0.237	N/A	0.415
	Left Tilt	0.086	0.143	0.046	0.229	0.132	N/A	0.275
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	0.133	0.260	0.053	0.393	0.186	N/A	0.446
	Right Tilt	0.065	0.140	0.044	0.205	0.109	N/A	0.249
	Left Cheek	0.102	0.178	0.082	0.280	0.184	N/A	0.362
	Left Tilt	0.065	0.143	0.046	0.208	0.111	N/A	0.254
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	0.150	0.260	0.053	0.410	0.203	N/A	0.463
	Right Tilt	0.064	0.140	0.044	0.204	0.108	N/A	0.248
	Left Cheek	0.144	0.178	0.082	0.322	0.226	N/A	0.404
	Left Tilt	0.068	0.143	0.046	0.211	0.114	N/A	0.257
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	0.177	0.368	0.053	0.545	0.230	N/A	0.598
	Right Tilt	0.095	0.162	0.044	0.257	0.139	N/A	0.301
	Left Cheek	0.155	0.234	0.082	0.389	0.237	N/A	0.471
	Left Tilt	0.086	0.171	0.046	0.257	0.132	N/A	0.303
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	0.133	0.368	0.053	0.501	0.186	N/A	0.554
	Right Tilt	0.065	0.162	0.044	0.227	0.109	N/A	0.271
	Left Cheek	0.102	0.234	0.082	0.336	0.184	N/A	0.418
	Left Tilt	0.065	0.171	0.046	0.236	0.111	N/A	0.282
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	0.150	0.368	0.053	0.518	0.203	N/A	0.571
	Right Tilt	0.064	0.162	0.044	0.226	0.108	N/A	0.270
	Left Cheek	0.144	0.234	0.082	0.378	0.226	N/A	0.460
	Left Tilt	0.068	0.171	0.046	0.239	0.114	N/A	0.285

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 52 of 62

13.5 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	0.340	0.224	0.297	0.564	0.637	N/A	0.861
Back Side	AWS CDMA	0.567	0.224	0.297	0.791	0.864	N/A	1.088
Back Side	PCS CDMA	0.571	0.224	0.297	0.795	0.868	N/A	1.092

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	0.340	0.213	0.297	0.553	0.637	N/A	0.850
Back Side	AWS CDMA	0.567	0.213	0.297	0.780	0.864	N/A	1.077
Back Side	PCS CDMA	0.571	0.213	0.297	0.784	0.868	N/A	1.081

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	0.340	0.542	0.297	0.882	0.637	N/A	1.179
Back Side	AWS CDMA	0.567	0.542	0.297	1.109	0.864	N/A	1.406
Back Side	PCS CDMA	0.571	0.542	0.297	1.113	0.868	N/A	1.410

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	0.340	0.606	0.297	0.946	0.637	N/A	1.243
Back Side	AWS CDMA	0.567	0.606	0.297	1.173	0.864	N/A	1.470
Back Side	PCS CDMA	0.571	0.606	0.297	1.177	0.868	N/A	1.474

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 53 of 62

13.6 Hotspot SAR Simultaneous Transmission Analysis

Table 13-4
Simultaneous Transmission Scenario (Hotspot at 1.0 cm)

Simult Tx	Configuration	Cell. EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	AWS EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.329	0.297	0.626	Body SAR	Back	0.595	0.297	0.892
	Front	0.293	0.030	0.323		Front	0.367	0.030	0.397
	Top	-	0.008	0.008		Top	-	0.008	0.008
	Bottom	0.181	-	0.181		Bottom	0.423	-	0.423
	Right	0.357	0.107	0.464		Right	0.087	0.107	0.194
	Left	-	-	0.000		Left	-	-	0.000
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 12 SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.654	0.297	0.951	Body SAR	Back	0.224	0.297	0.521
	Front	0.365	0.030	0.395		Front	0.096	0.030	0.126
	Top	-	0.008	0.008		Top	-	0.008	0.008
	Bottom	0.534	-	0.534		Bottom	0.111	-	0.111
	Right	0.109	0.107	0.216		Right	-	0.107	0.107
	Left	-	-	0.000		Left	0.091	-	0.091
Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.213	0.297	0.510	Body SAR	Back	0.542	0.297	0.839
	Front	0.132	0.030	0.162		Front	0.294	0.030	0.324
	Top	-	0.008	0.008		Top	-	0.008	0.008
	Bottom	0.193	-	0.193		Bottom	0.387	-	0.387
	Right	-	0.107	0.107		Right	-	0.107	0.107
	Left	0.212	-	0.212		Left	0.138	-	0.138
		Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)			
		Body SAR	Back	0.606	0.297	0.903			
			Front	0.437	0.030	0.467			
			Top	-	0.008	0.008			
			Bottom	0.513	-	0.513			
			Right	-	0.107	0.107			
			Left	0.190	-	0.190			

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

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 54 of 62

Table 13-5
Simultaneous Transmission Scenario (Hotspot with 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	0.340	0.224	0.297	0.861
	Front	0.250	0.096	0.030	0.376
	Top	-	-	0.008	0.008
	Bottom	0.183	0.111	-	0.294
	Right	0.319	-	0.107	0.426
	Left	-	0.091	-	0.091
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	0.340	0.213	0.297	0.850
	Front	0.250	0.132	0.030	0.412
	Top	-	-	0.008	0.008
	Bottom	0.183	0.193	-	0.376
	Right	0.319	-	0.107	0.426
	Left	-	0.212	-	0.212
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	0.340	0.542	0.297	1.179
	Front	0.250	0.294	0.030	0.574
	Top	-	-	0.008	0.008
	Bottom	0.183	0.387	-	0.570
	Right	0.319	-	0.107	0.426
	Left	-	0.138	-	0.138
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	0.340	0.606	0.297	1.243
	Front	0.250	0.437	0.030	0.717
	Top	-	-	0.008	0.008
	Bottom	0.183	0.513	-	0.696
	Right	0.319	-	0.107	0.426
	Left	-	0.190	-	0.190
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	0.567	0.224	0.297	1.088
	Front	0.328	0.096	0.030	0.454
	Top	-	-	0.008	0.008
	Bottom	0.421	0.111	-	0.532
	Right	0.093	-	0.107	0.200
	Left	-	0.091	-	0.091

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	0.567	0.213	0.297	1.077
	Front	0.328	0.132	0.030	0.490
	Top	-	-	0.008	0.008
	Bottom	0.421	0.193	-	0.614
	Right	0.093	-	0.107	0.200
	Left	-	0.212	-	0.212
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	0.567	0.542	0.297	1.406
	Front	0.328	0.294	0.030	0.652
	Top	-	-	0.008	0.008
	Bottom	0.421	0.387	-	0.808
	Right	0.093	-	0.107	0.200
	Left	-	0.138	-	0.138
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	0.567	0.606	0.297	1.470
	Front	0.328	0.437	0.030	0.795
	Top	-	-	0.008	0.008
	Bottom	0.421	0.513	-	0.934
	Right	0.093	-	0.107	0.200
	Left	-	0.190	-	0.190
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	0.571	0.224	0.297	1.092
	Front	0.325	0.096	0.030	0.451
	Top	-	-	0.008	0.008
	Bottom	0.483	0.111	-	0.594
	Right	0.105	-	0.107	0.212
	Left	-	0.091	-	0.091
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	0.571	0.213	0.297	1.081
	Front	0.325	0.132	0.030	0.487
	Top	-	-	0.008	0.008
	Bottom	0.483	0.193	-	0.676
	Right	0.105	-	0.107	0.212
	Left	-	0.212	-	0.212

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 56 of 62

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	0.571	0.542	0.297	1.410
	Front	0.325	0.294	0.030	0.649
	Top	-	-	0.008	0.008
	Bottom	0.483	0.387	-	0.870
	Right	0.105	-	0.107	0.212
	Left	-	0.138	-	0.138
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	0.571	0.606	0.297	1.474
	Front	0.325	0.437	0.030	0.792
	Top	-	-	0.008	0.008
	Bottom	0.483	0.513	-	0.996
	Right	0.105	-	0.107	0.212
	Left	-	0.190	-	0.190

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.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 57 of 62

14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	E5515C	Wireless Communications Test Set	2/9/2012	Annual	2/9/2013	GB43460554
Agilent	E5515C	Wireless Communications Test Set	2/12/2012	Annual	2/12/2013	GB45360985
Agilent	E5515C	Wireless Communications Test Set	2/14/2012	Annual	2/14/2013	GB43304447
Agilent	E5515C	Wireless Communications Test Set	2/14/2012	Annual	2/14/2013	GB43163447
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	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	E5515C	Wireless Communications Tester	4/4/2012	Annual	4/4/2013	US41140256
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/5/2012	Annual	4/5/2013	MY45470194
Agilent	85047A	S-Parameter Test Set	N/A		N/A	2904A00579
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A		N/A	3051A00187
Amplifier Research	551G4	5W, 800MHz-4.2GHz	CBT	N/A	CBT	21910
Anritsu	ML2438A	Power Meter	10/13/2011	Annual	10/13/2012	1070030
Anritsu	MA2411B	Pulse Sensor	10/13/2011	Annual	10/13/2012	1027293
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
Anritsu	MT8820C	Radio Communication Tester	11/11/2011	Annual	11/11/2012	6200901190
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	5318
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	5442
Anritsu	ML2438A	Power Meter	2/14/2012	Annual	2/14/2013	1190013
Anritsu	ML2438A	Power Meter	2/14/2012	Annual	2/14/2013	98150041
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	5821
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
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	61220-416	Long-Stem Thermometer	2/15/2011	Biennial	2/15/2013	111331332
Control Company	61220-416	Long-Stem Thermometer	7/1/2011	Biennial	7/1/2013	111642834
Control Company	61220-416	Long-Stem Thermometer	7/1/2011	Biennial	7/1/2013	111642916
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
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
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 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	CMW500	LTE Radio Communication Tester	8/5/2011	Annual	8/5/2012	112347
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/25/2011	Annual	8/25/2012	100976
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	10/7/2011	Annual	10/7/2012	103962
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	11/30/2011	Annual	11/30/2012	101699
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	3/5/2012	Annual	3/5/2013	102060
Rohde & Schwarz	SMIQ03B	Signal Generator	4/5/2012	Annual	4/5/2013	DE27259
Rohde & Schwarz	NRVD	Dual Channel Power Meter	4/8/2011	Biennial	4/8/2013	101695
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
Seekonk	NC-100	Torque Wrench (8" lb)	3/5/2012	Triennial	3/5/2015	N/A
SPEAG	D1900V2	1900 MHz SAR Dipole	7/22/2011	Annual	7/22/2012	5d080
SPEAG	EX3DV4	SAR Probe	7/27/2011	Annual	7/27/2012	3561
SPEAG	D2450V2	2450 MHz SAR Dipole	8/19/2011	Annual	8/19/2012	719
SPEAG	ES3DV2	SAR Probe	8/25/2011	Annual	8/25/2012	3022
SPEAG	D750V3	750 MHz Dipole	10/27/2011	Annual	10/27/2012	1046
Speag	DAK-3.5	Dielectric Assessment Kit	12/1/2011	Annual	12/1/2012	1031
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/18/2012	Annual	1/18/2013	1272
SPEAG	D750V3	750 MHz Dipole	1/27/2012	Annual	1/27/2013	1003
SPEAG	ES3DV3	SAR Probe	2/7/2012	Annual	2/7/2013	3288
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2012	Annual	2/15/2013	1323
SPEAG	D835V2	835 MHz SAR Dipole	2/17/2012	Annual	2/17/2013	4d133
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/20/2012	Annual	2/20/2013	649
SPEAG	ES3DV3	SAR Probe	2/21/2012	Annual	2/21/2013	3258
SPEAG	D1900V2	1900 MHz SAR Dipole	2/22/2012	Annual	2/22/2013	5d149
SPEAG	ES3DV3	SAR Probe	3/16/2012	Annual	3/16/2013	3209
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	D835V2	835 MHz SAR Dipole	4/20/2012	Annual	4/20/2013	4d119
SPEAG	D1750V2	1750 MHz SAR Dipole	4/24/2012	Annual	4/24/2013	1051
Tektronix	RSA-6114A	Real Time Spectrum Analyzer	4/5/2012	Annual	4/5/2013	B010177
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286445
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286460
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286454

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.

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 58 of 62

15 MEASUREMENT UNCERTAINTIES

Applicable for frequencies less than 3000 MHz.

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

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

FCC ID: A3LSCHR530	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 59 of 62

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]

FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 60 of 62

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FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 61 of 62

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FCC ID: A3LSCHR530		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1205220698.A3L	Test Dates: 05/24/12 - 06/07/12	DUT Type: Portable Handset		Page 62 of 62

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B12

Communication System: LTE Band 12; Frequency: 704 MHz; Duty Cycle: 1:1

Medium: 695 Head Medium parameters used (interpolated):

$f = 704 \text{ MHz}$; $\sigma = 0.886 \text{ mho/m}$; $\epsilon_r = 43.238$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-24-2012; Ambient Temp: 23.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(8.38, 8.38, 8.38); Calibrated: 7/27/2011;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

**Mode: LTE Band 12, Right Head, Touch, Low ch.
10 MHz BW, QPSK, 1 RB, RB Offset 0**

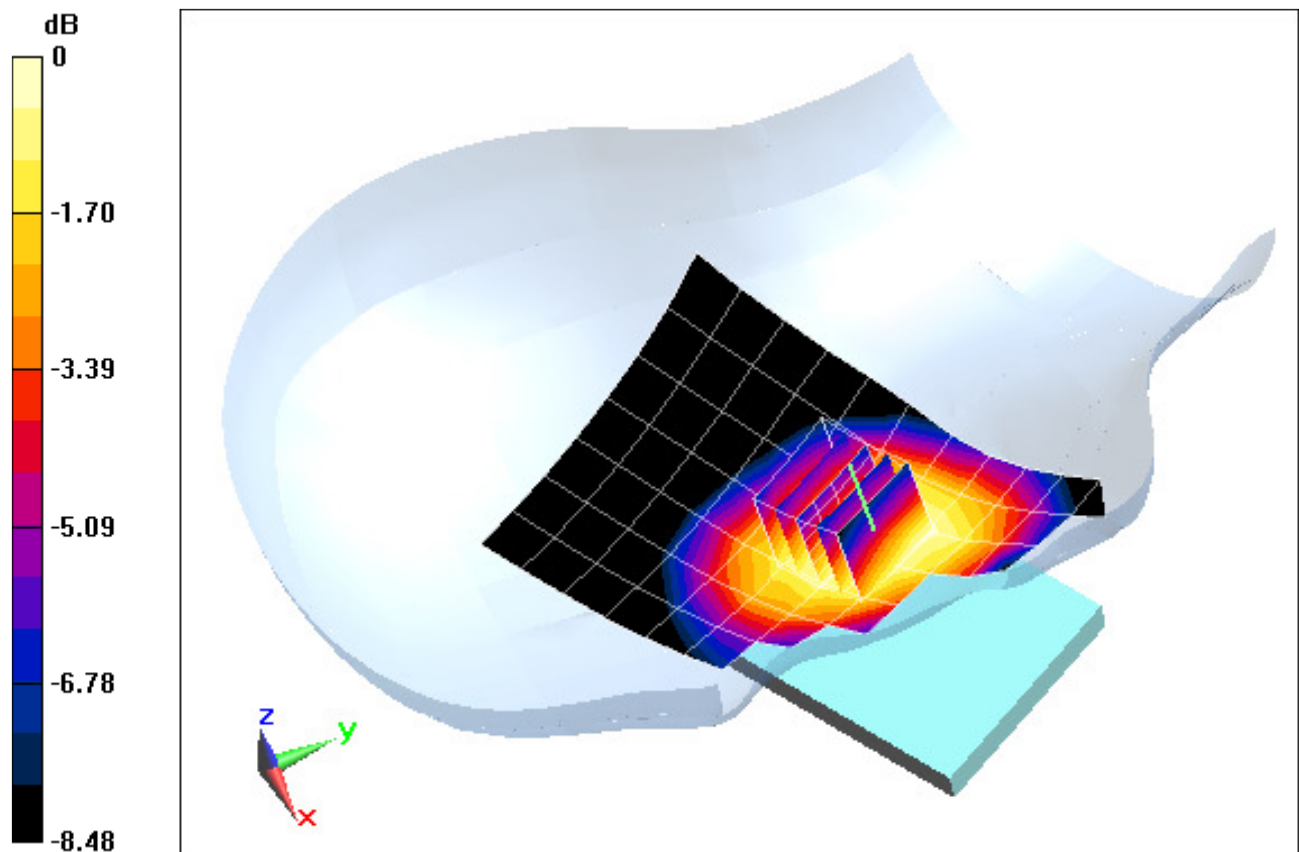
Area Scan (8x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 6.683 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.043 mW/g

SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.028 mW/g



0 dB = 0.0369 mW/g = -28.66 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B12

Communication System: LTE Band 12; Frequency: 704 MHz; Duty Cycle: 1:1

Medium: 695 Head Medium parameters used (interpolated):

$f = 704 \text{ MHz}$; $\sigma = 0.886 \text{ mho/m}$; $\epsilon_r = 43.238$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-24-2012; Ambient Temp: 23.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(8.38, 8.38, 8.38); Calibrated: 7/27/2011;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

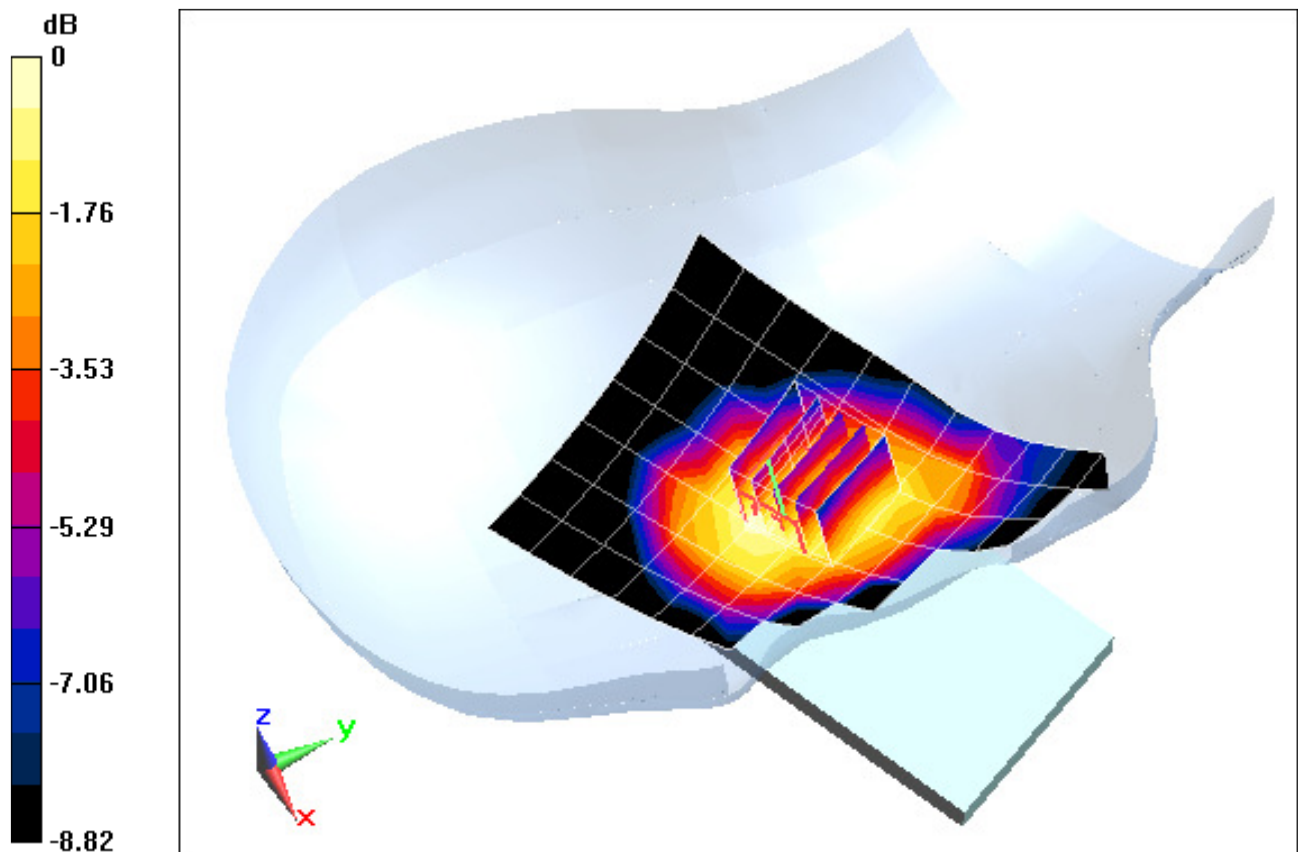
Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 4.493 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.021 mW/g

SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.014 mW/g



0 dB = 0.00681 mW/g = -43.34 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B12

Communication System: LTE Band 12; Frequency: 704 MHz; Duty Cycle: 1:1

Medium: 695 Head Medium parameters used (interpolated):

$f = 704 \text{ MHz}$; $\sigma = 0.886 \text{ mho/m}$; $\epsilon_r = 43.238$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-24-2012; Ambient Temp: 23.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(8.38, 8.38, 8.38); Calibrated: 7/27/2011;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

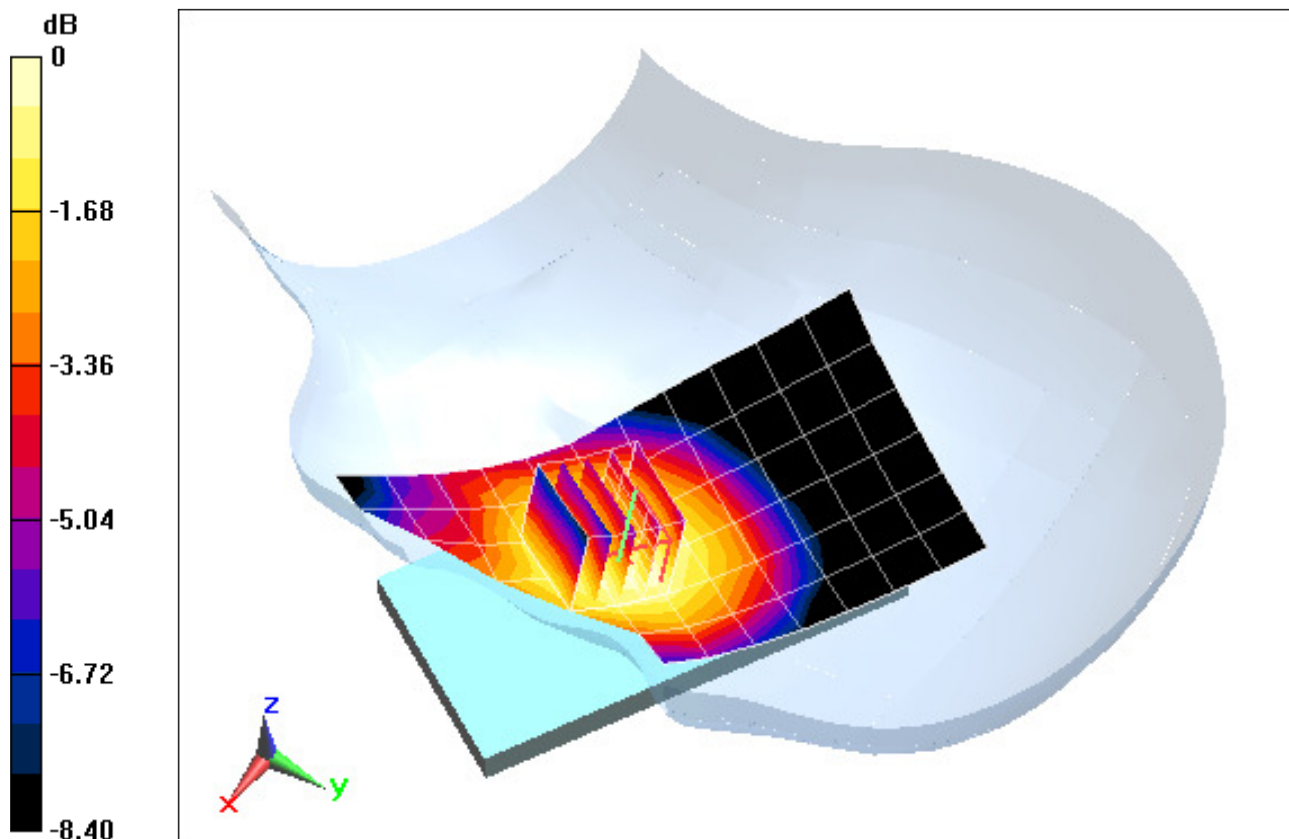
Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 7.259 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.051 mW/g

SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.035 mW/g



0 dB = 0.0459 mW/g = -26.76 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B12

Communication System: LTE Band 12; Frequency: 704 MHz; Duty Cycle: 1:1

Medium: 695 Head Medium parameters used (interpolated):

$f = 704 \text{ MHz}$; $\sigma = 0.886 \text{ mho/m}$; $\epsilon_r = 43.238$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-24-2012; Ambient Temp: 23.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(8.38, 8.38, 8.38); Calibrated: 7/27/2011;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

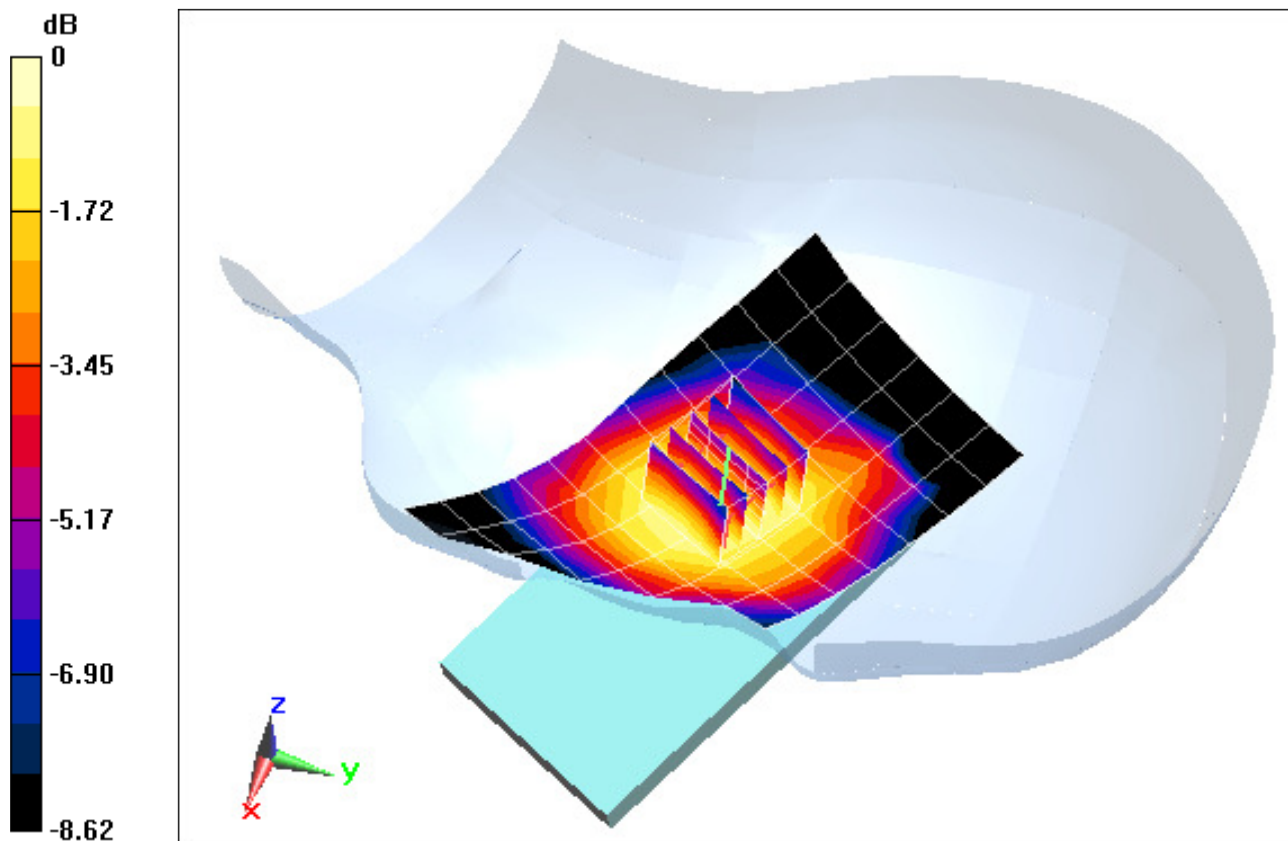
Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 4.754 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.021 mW/g

SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.015 mW/g



0 dB = 0.0194 mW/g = -34.24 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: CDMA

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

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.921 \text{ mho/m}$; $\epsilon_r = 41.476$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 06-07-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012;

Sensor-Surface: 4mm (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: Cellular CDMA, Right Head, Touch, Mid.ch

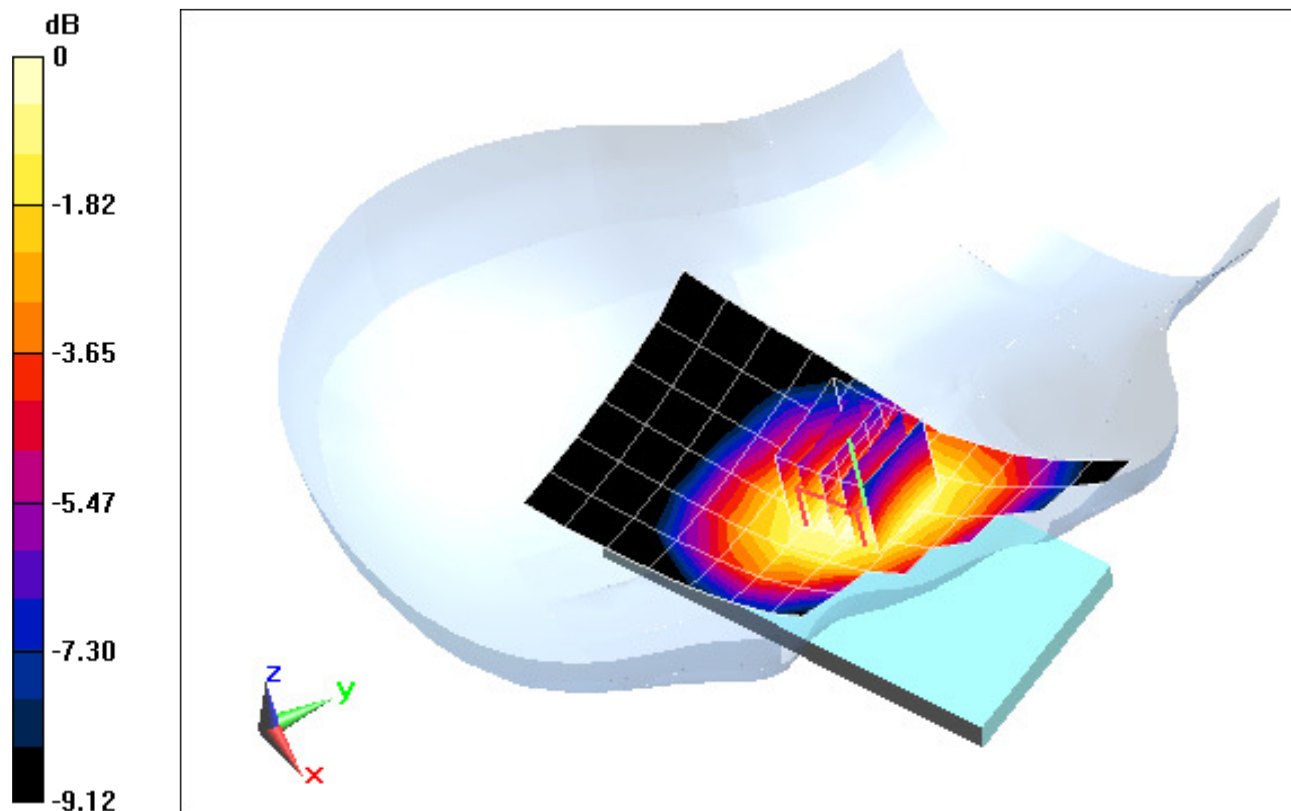
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 15.187 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.220 mW/g

SAR(1 g) = 0.177 mW/g; SAR(10 g) = 0.137 mW/g



0 dB = 0.186 mW/g = -14.61 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: CDMA

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

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.921 \text{ mho/m}$; $\epsilon_r = 41.476$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 06-07-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012;

Sensor-Surface: 4mm (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: Cellular CDMA, Right Head, Tilt, Mid.ch

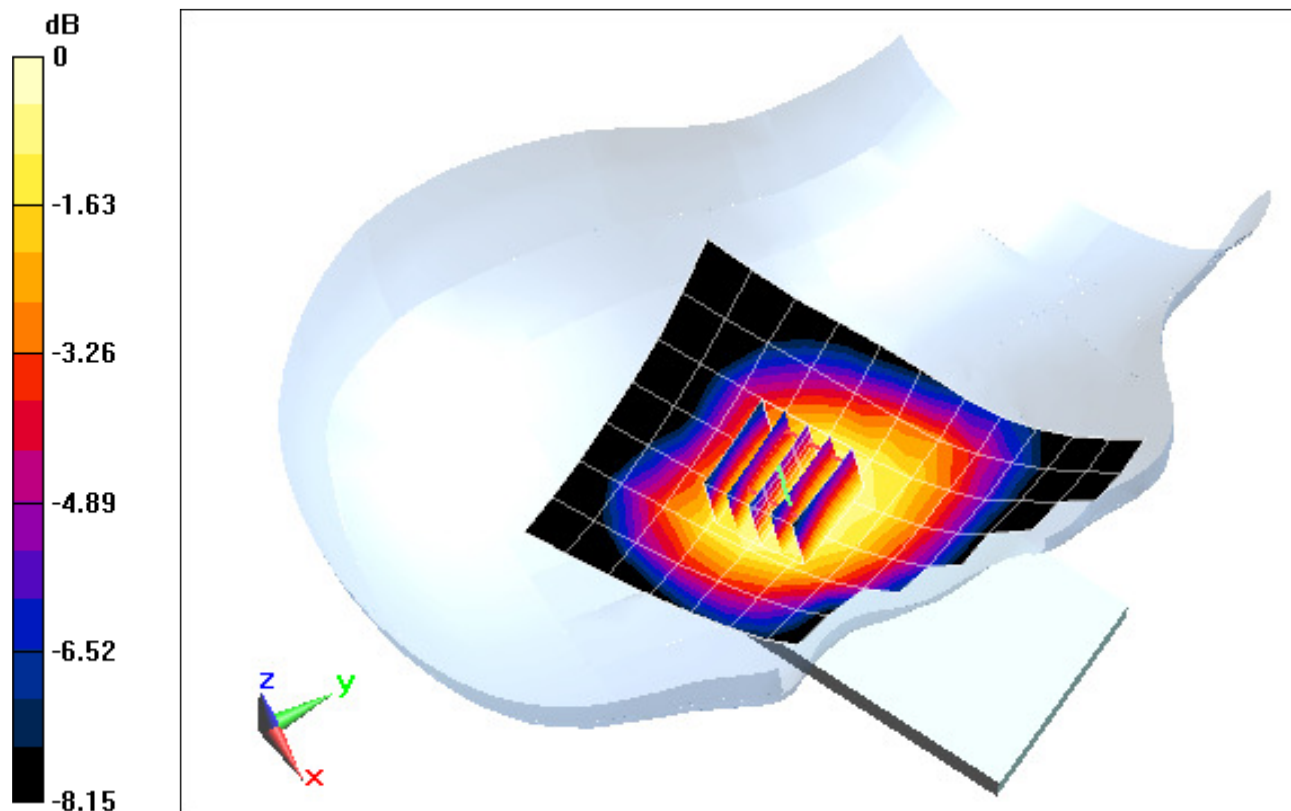
Area Scan (8x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 10.894 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.113 mW/g

SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.074 mW/g



0 dB = 0.0983 mW/g = -20.15 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: CDMA

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

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.921 \text{ mho/m}$; $\epsilon_r = 41.476$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 06-07-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012;

Sensor-Surface: 4mm (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: Cellular CDMA, Left Head, Touch, Mid.ch

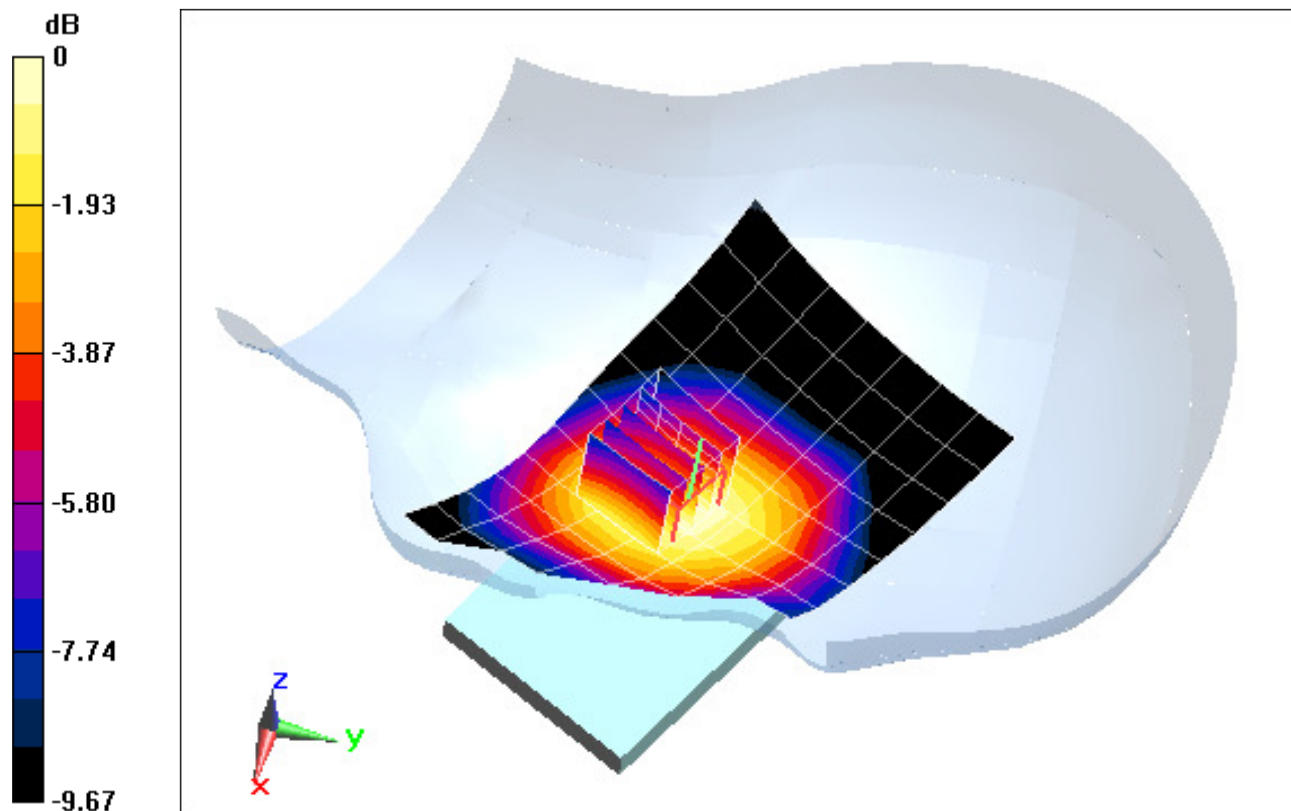
Area Scan (8x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 13.815 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.189 mW/g

SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.119 mW/g



0 dB = 0.161 mW/g = -15.86 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: CDMA

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

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.921 \text{ mho/m}$; $\epsilon_r = 41.476$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 06-07-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012;

Sensor-Surface: 4mm (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: Cellular CDMA, Left Head, Tilt, Mid.ch

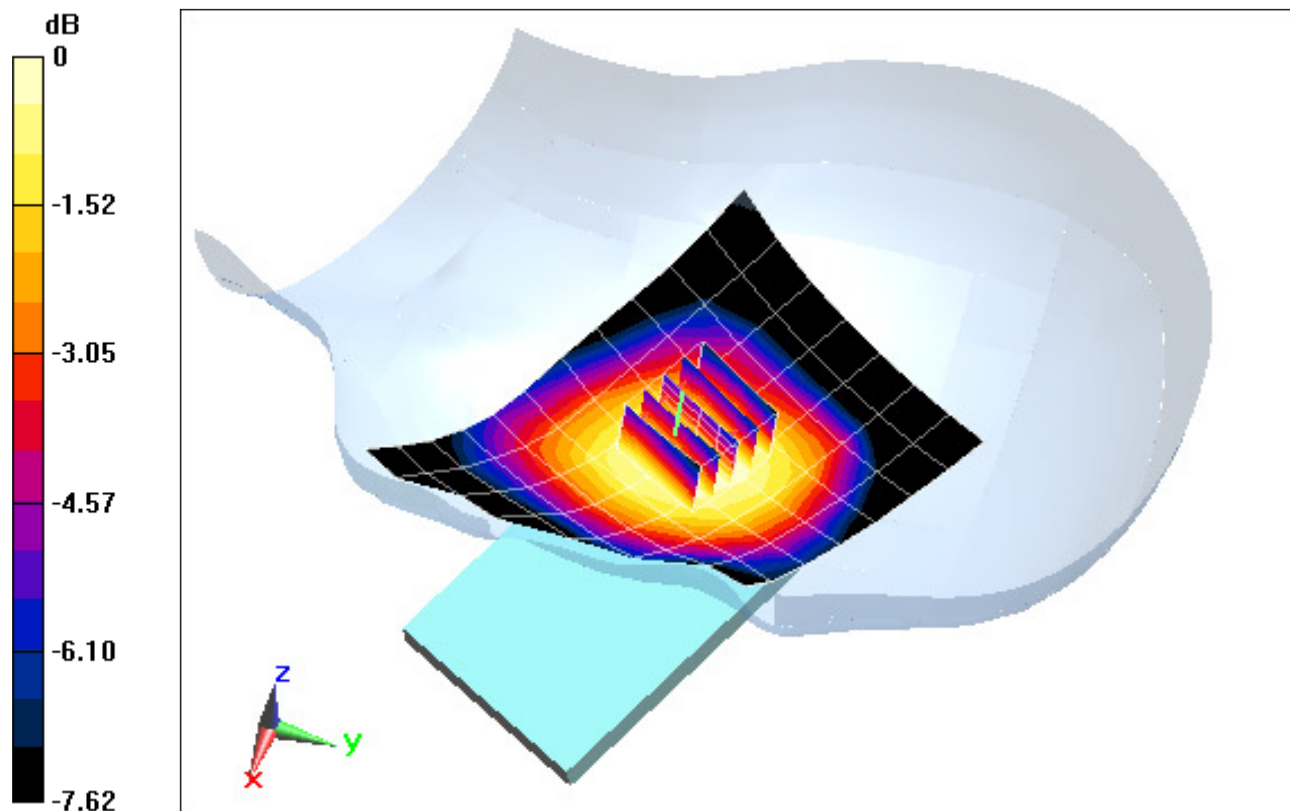
Area Scan (8x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 10.401 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.103 mW/g

SAR(1 g) = 0.086 mW/g; SAR(10 g) = 0.068 mW/g



0 dB = 0.0883 mW/g = -21.08 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

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

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.5$ MHz; $\sigma = 0.936$ mho/m; $\epsilon_r = 42.307$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Test Date: 05-25-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.22, 6.22, 6.22); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 5 (Cell), Right Head, Touch, Mid.ch
10 MHz BW, QPSK, 1 RB, 0 RB Offset

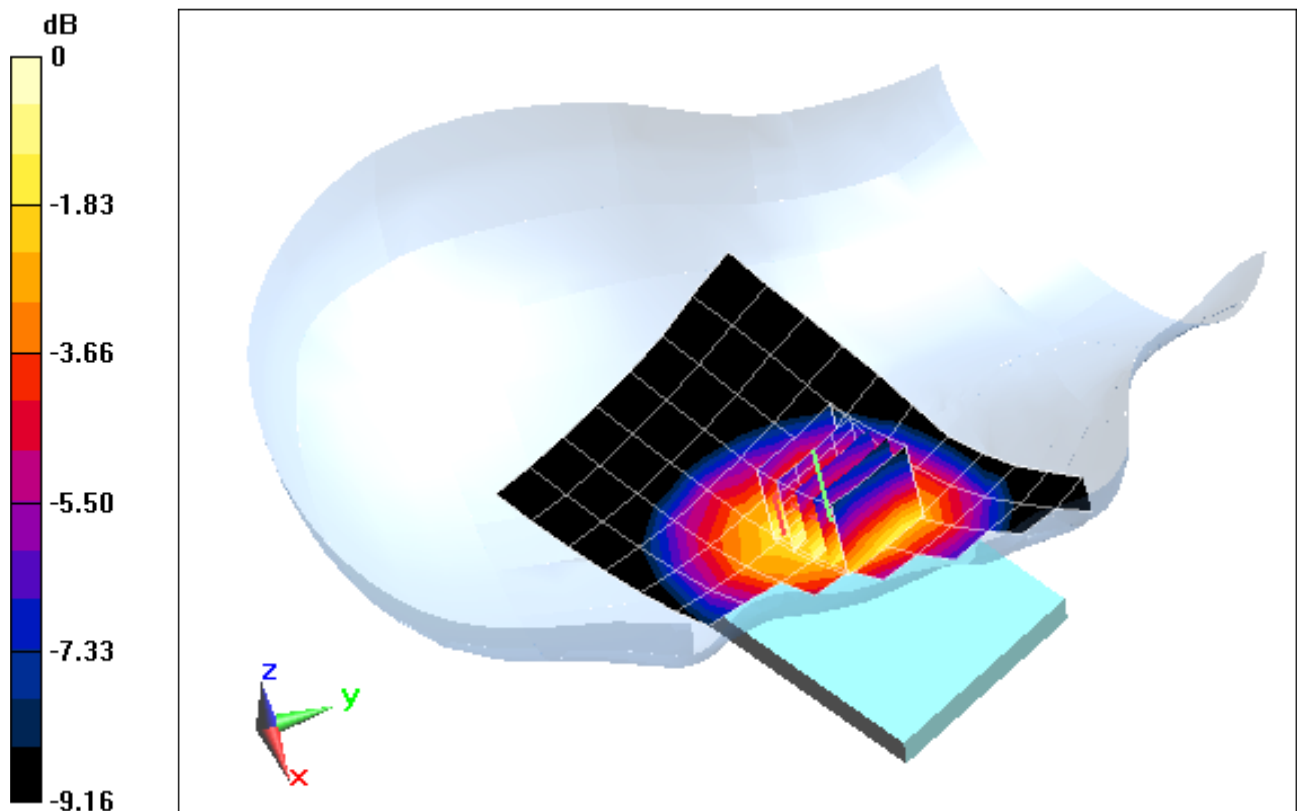
Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 9.630 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.091 mW/g

SAR(1 g) = 0.076 mW/g; SAR(10 g) = 0.057 mW/g



0 dB = 0.0792 mW/g = -22.03 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

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

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.5 \text{ MHz}$; $\sigma = 0.936 \text{ mho/m}$; $\epsilon_r = 42.307$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-25-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.22, 6.22, 6.22); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 5 (Cell), Right Head, Tilt, Mid.ch
10 MHz Bw, QPSK, 1 RB, 0 RB Offset

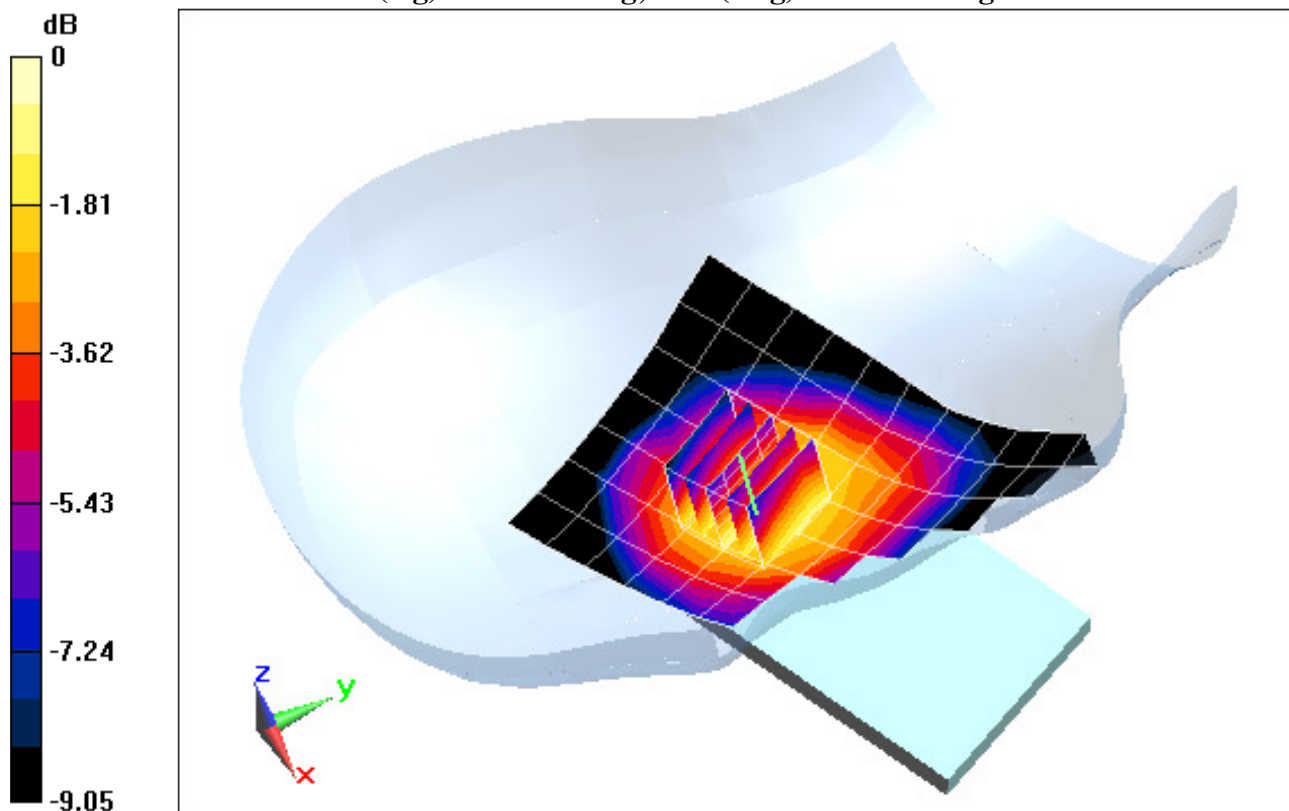
Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 7.579 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 0.057 mW/g

SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.038 mW/g



0 dB = 0.0507 mW/g = -25.90 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

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

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.5 \text{ MHz}$; $\sigma = 0.936 \text{ mho/m}$; $\epsilon_r = 42.307$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-25-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.22, 6.22, 6.22); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 5 (Cell), Left Head, Touch, Mid. Ch
10 MHz BW, QPSK, 1 RB, 0 RB Offset

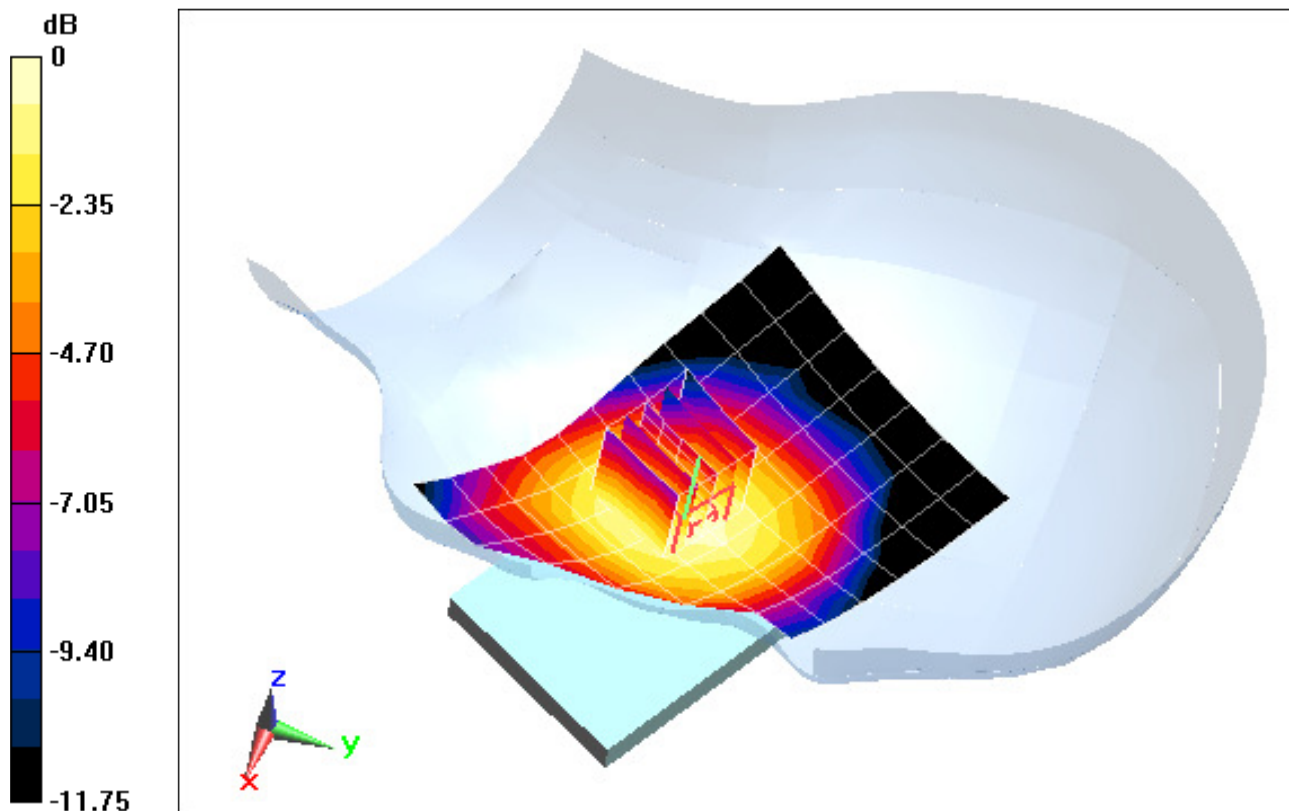
Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 9.426 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.086 mW/g

SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.054 mW/g



0 dB = 0.0748 mW/g = -22.52 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

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

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.5 \text{ MHz}$; $\sigma = 0.936 \text{ mho/m}$; $\epsilon_r = 42.307$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-25-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.22, 6.22, 6.22); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 5 (Cell), Left Head, Tilt, Mid.ch
10 MHz BW, QPSK, 1 RB, 0 RB Offset

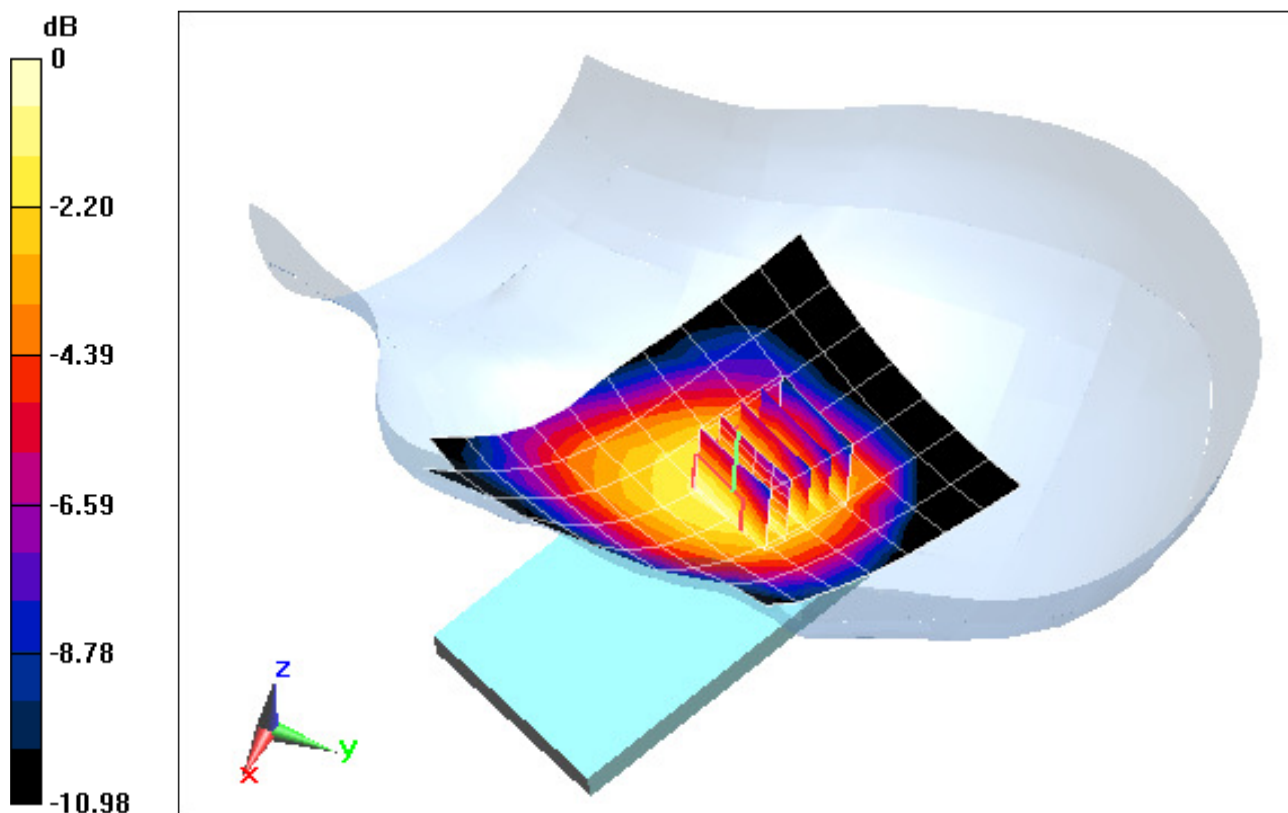
Area Scan (8x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 7.647 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.057 mW/g

SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.036 mW/g



0 dB = 0.0486 mW/g = -26.27 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: AWS

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

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.315 \text{ mho/m}$; $\epsilon_r = 38.979$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 06-07-2012; Ambient Temp: 22.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(7.37, 7.37, 7.37); Calibrated: 7/27/2011;

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 (0); SEMCAD X Version 14.6.5 (6469)

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

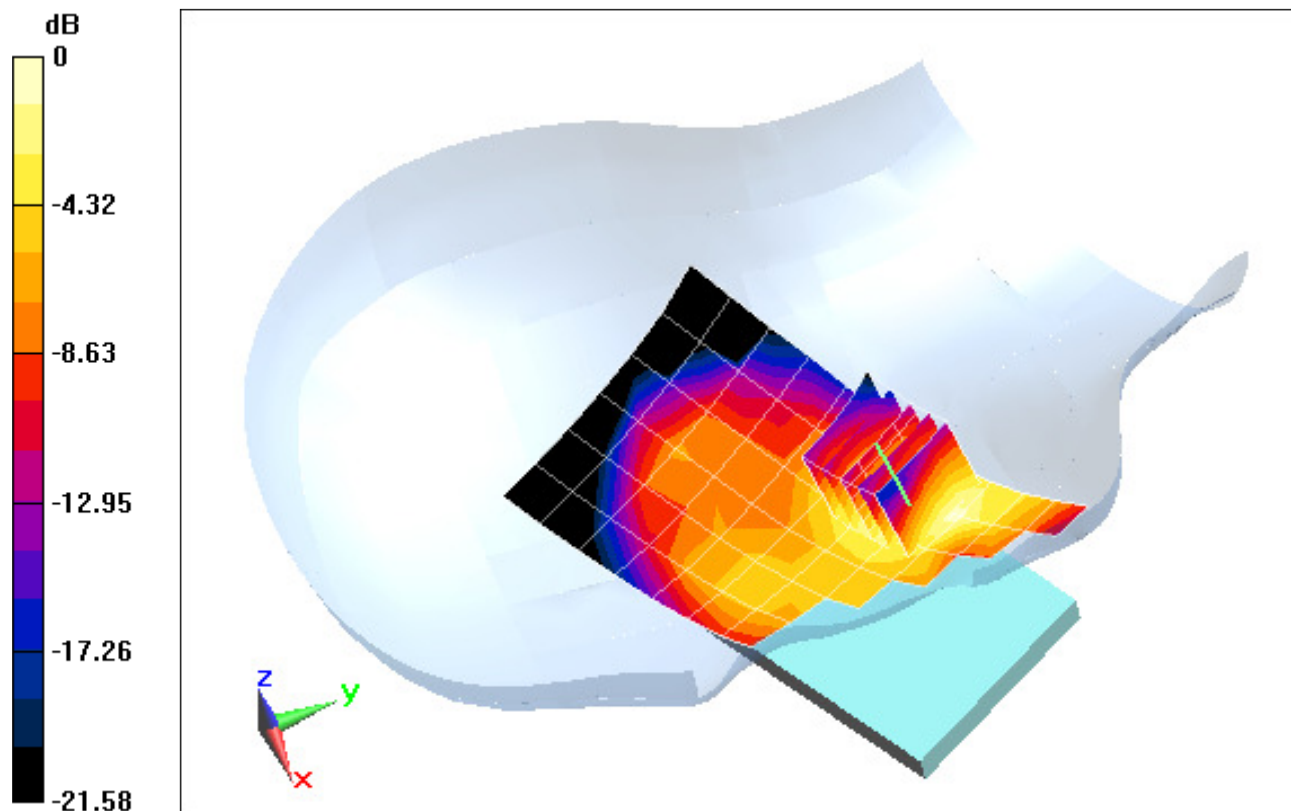
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 10.976 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.202 mW/g

SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.082 mW/g



0 dB = 0.144 mW/g = -16.83 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: AWS

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

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.315 \text{ mho/m}$; $\epsilon_r = 38.979$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 06-07-2012; Ambient Temp: 22.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(7.37, 7.37, 7.37); Calibrated: 7/27/2011;

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 (0); SEMCAD X Version 14.6.5 (6469)

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

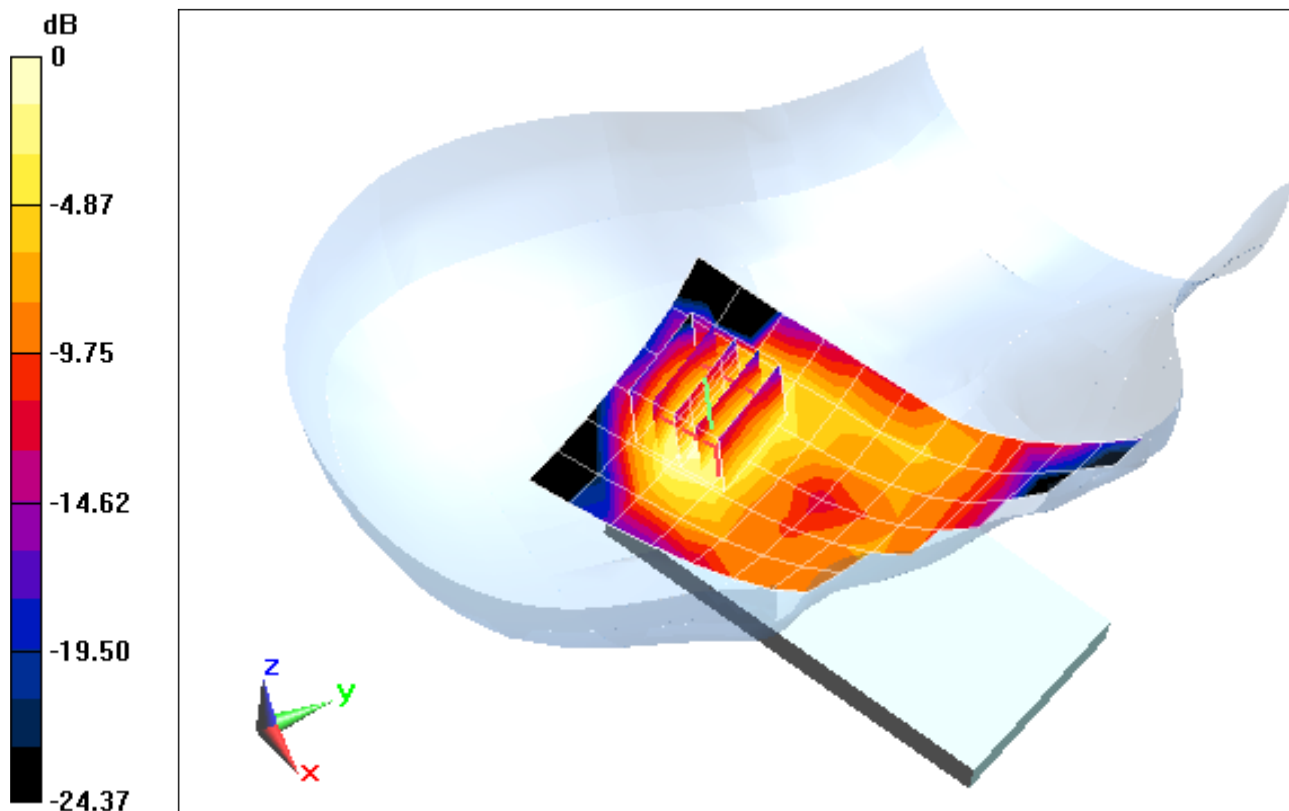
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 7.600 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.105 mW/g

SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.038 mW/g



0 dB = 0.0708 mW/g = -23.00 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: AWS

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

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.315 \text{ mho/m}$; $\epsilon_r = 38.979$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 06-07-2012; Ambient Temp: 22.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(7.37, 7.37, 7.37); Calibrated: 7/27/2011;

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 (0); SEMCAD X Version 14.6.5 (6469)

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

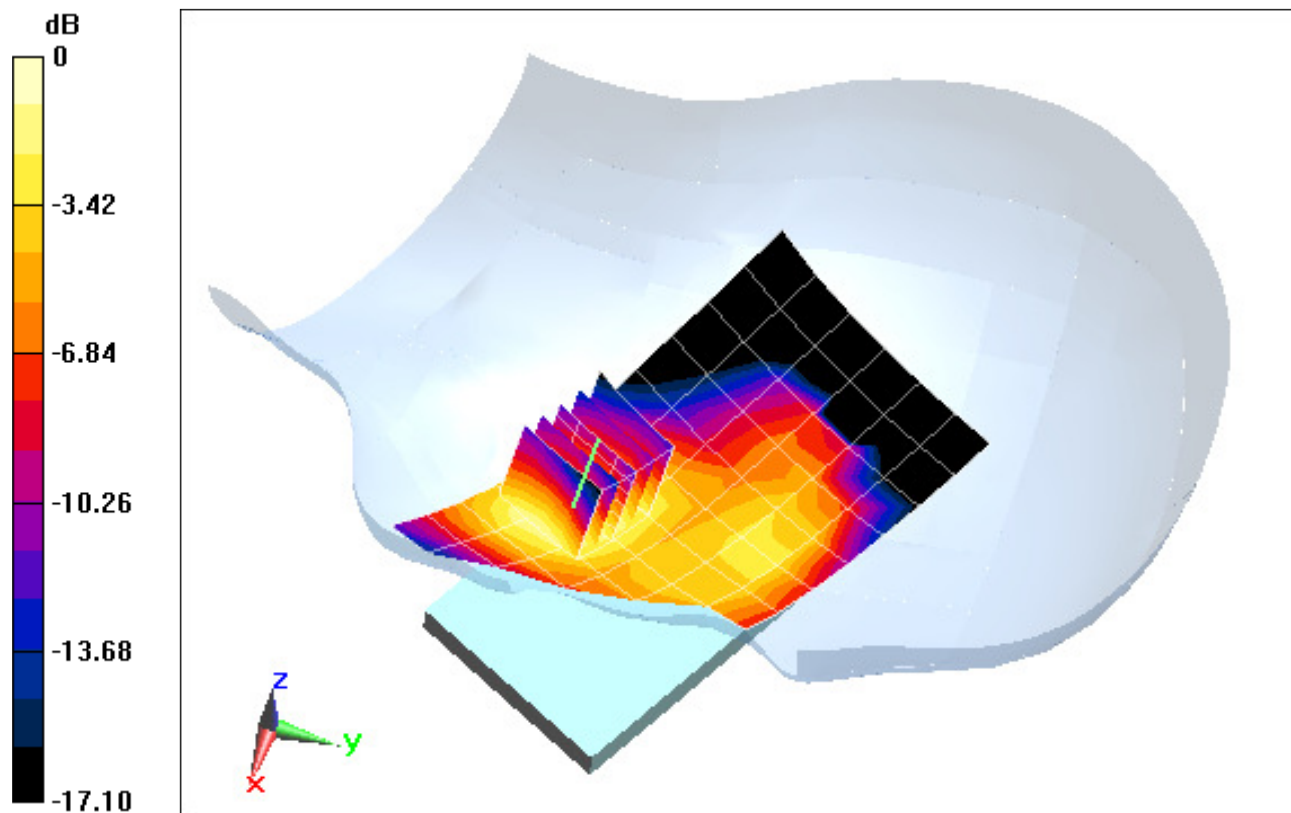
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 9.333 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.155 mW/g

SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.065 mW/g



0 dB = 0.109 mW/g = -19.25 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: AWS

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

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.315 \text{ mho/m}$; $\epsilon_r = 38.979$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 06-07-2012; Ambient Temp: 22.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(7.37, 7.37, 7.37); Calibrated: 7/27/2011;

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 (0); SEMCAD X Version 14.6.5 (6469)

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

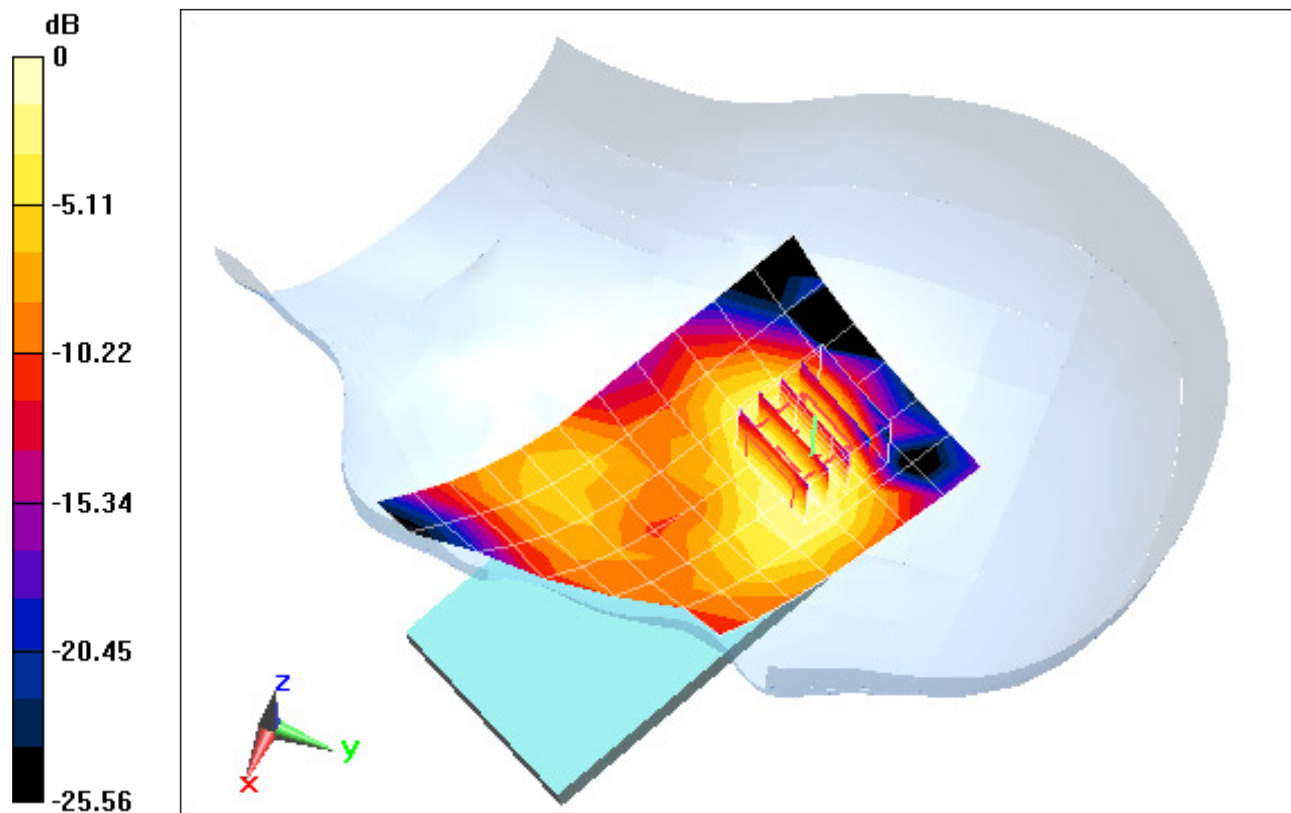
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 7.108 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.101 mW/g

SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.039 mW/g



0 dB = 0.0700 mW/g = -23.10 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B4

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

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.369 \text{ mho/m}$; $\epsilon_r = 39.684$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-30-2012; Ambient Temp: 24.8°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(5.26, 5.26, 5.26); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 4 (AWS), Right Head, Touch, Mid.ch
10 MHz BW, QPSK, 1 RB, 49 RB Offset

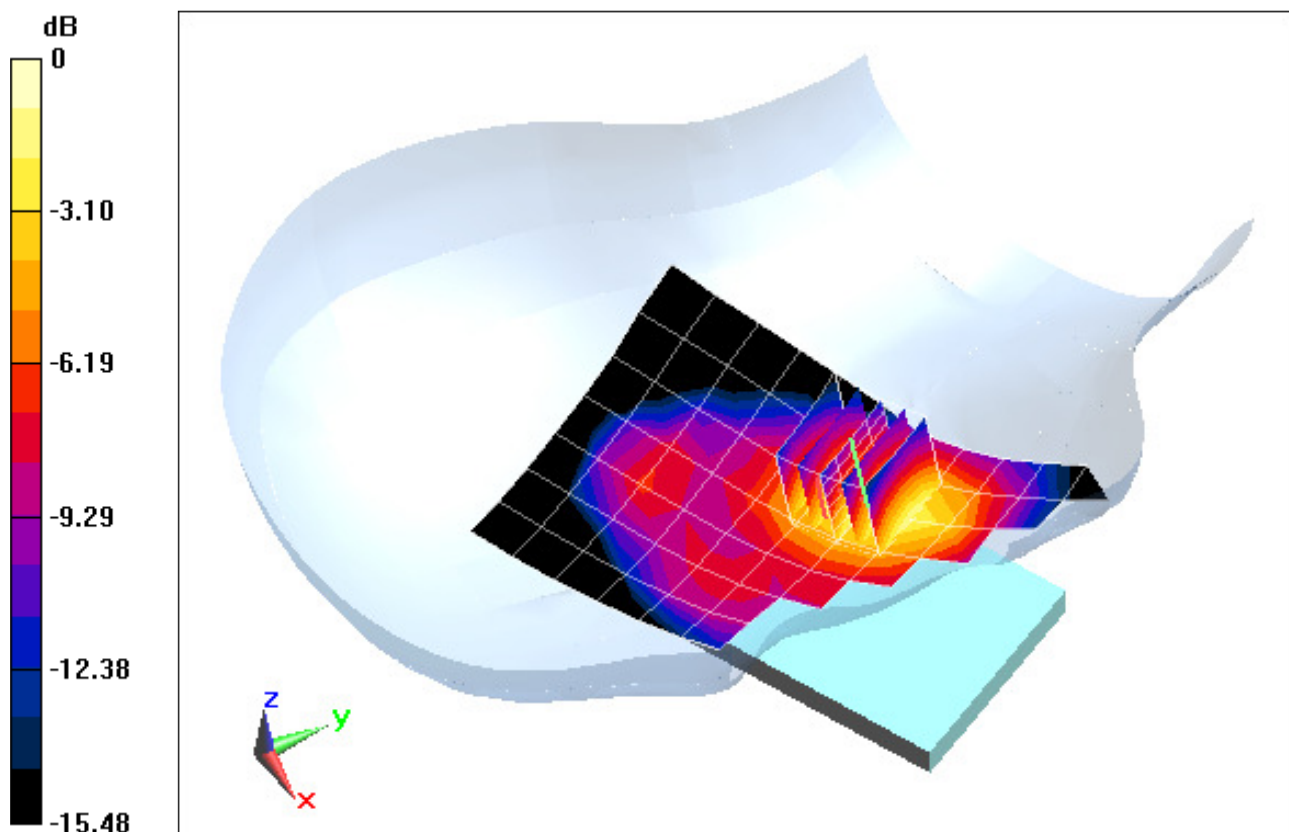
Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 15.438 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.383 mW/g

SAR(1 g) = 0.260 mW/g; SAR(10 g) = 0.164 mW/g



0 dB = 0.281 mW/g = -11.03 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B4

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

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.369 \text{ mho/m}$; $\epsilon_r = 39.684$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-30-2012; Ambient Temp: 24.8°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(5.26, 5.26, 5.26); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 4 (AWS), Right Head, Tilt, Mid.ch
10 MHz BW, QPSK, 1 RB, 49 RB Offset

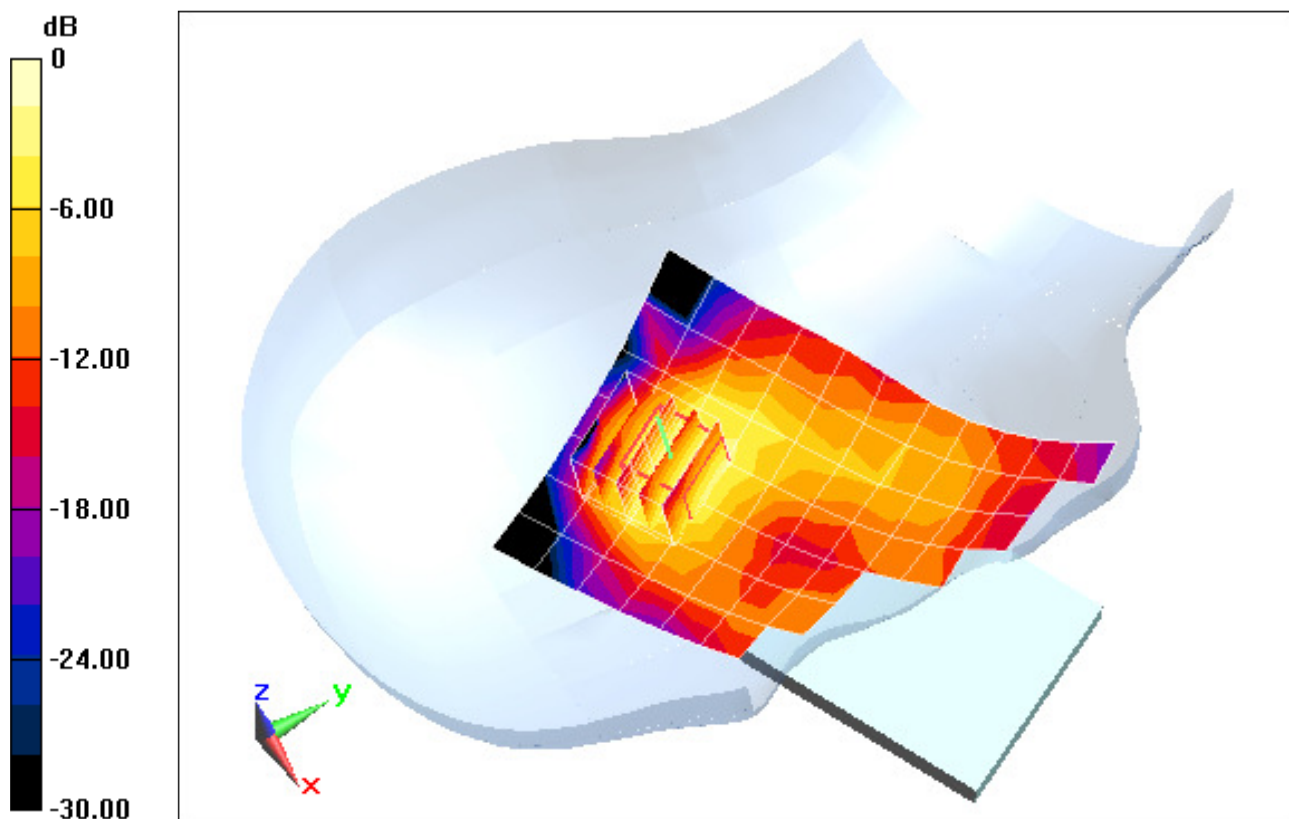
Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 10.968 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.220 mW/g

SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.080 mW/g



0 dB = 0.148 mW/g = -16.59 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B4

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

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.369 \text{ mho/m}$; $\epsilon_r = 39.684$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-30-2012; Ambient Temp: 24.8°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(5.26, 5.26, 5.26); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 4 (AWS), Left Head, Touch, Mid. Ch
10 MHz BW, QPSK, 1 RB, 49 RB Offset

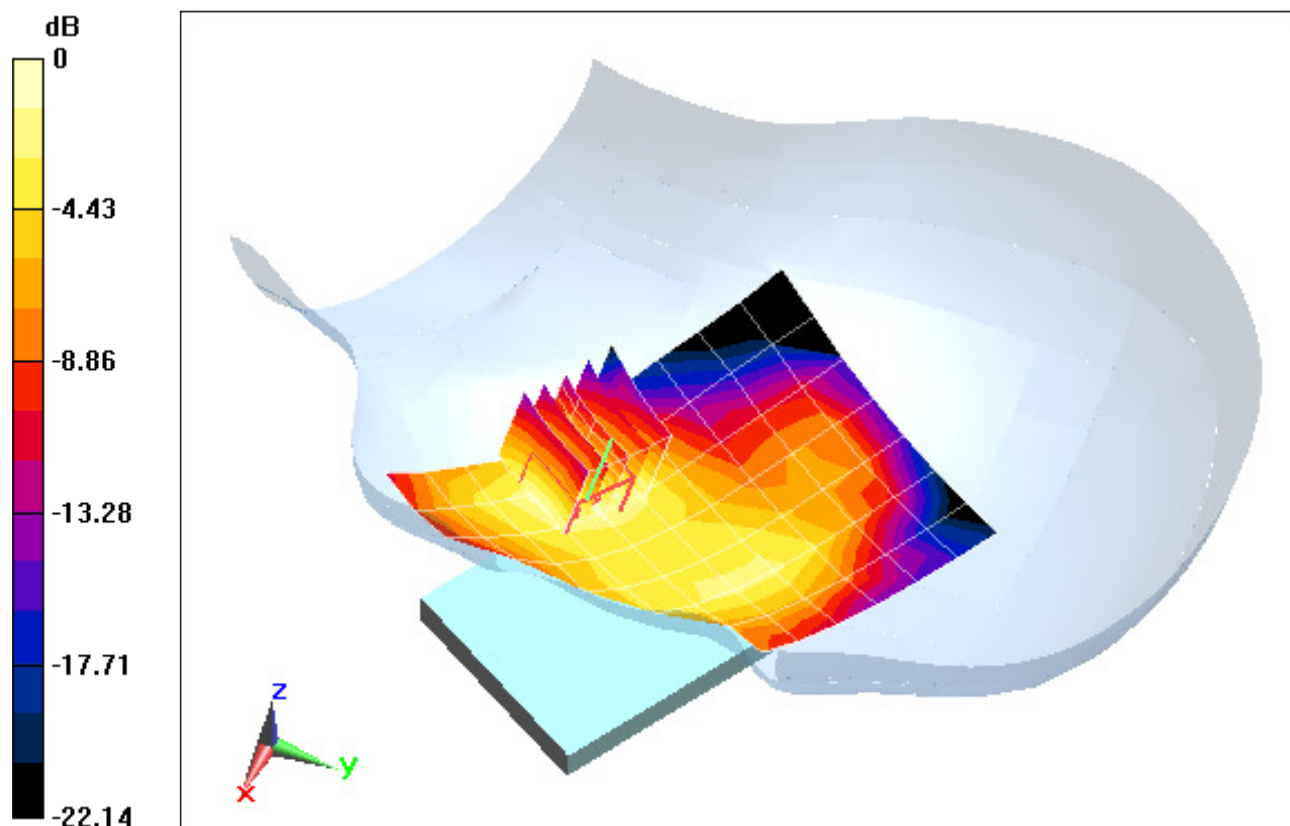
Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 11.826 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.266 mW/g

SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.113 mW/g



0 dB = 0.192 mW/g = -14.33 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B4

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

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.369 \text{ mho/m}$; $\epsilon_r = 39.684$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-30-2012; Ambient Temp: 24.8°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(5.26, 5.26, 5.26); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 4 (AWS), Left Head, Tilt, Mid.ch
10 MHz BW, QPSK, 1 RB, 49 RB Offset

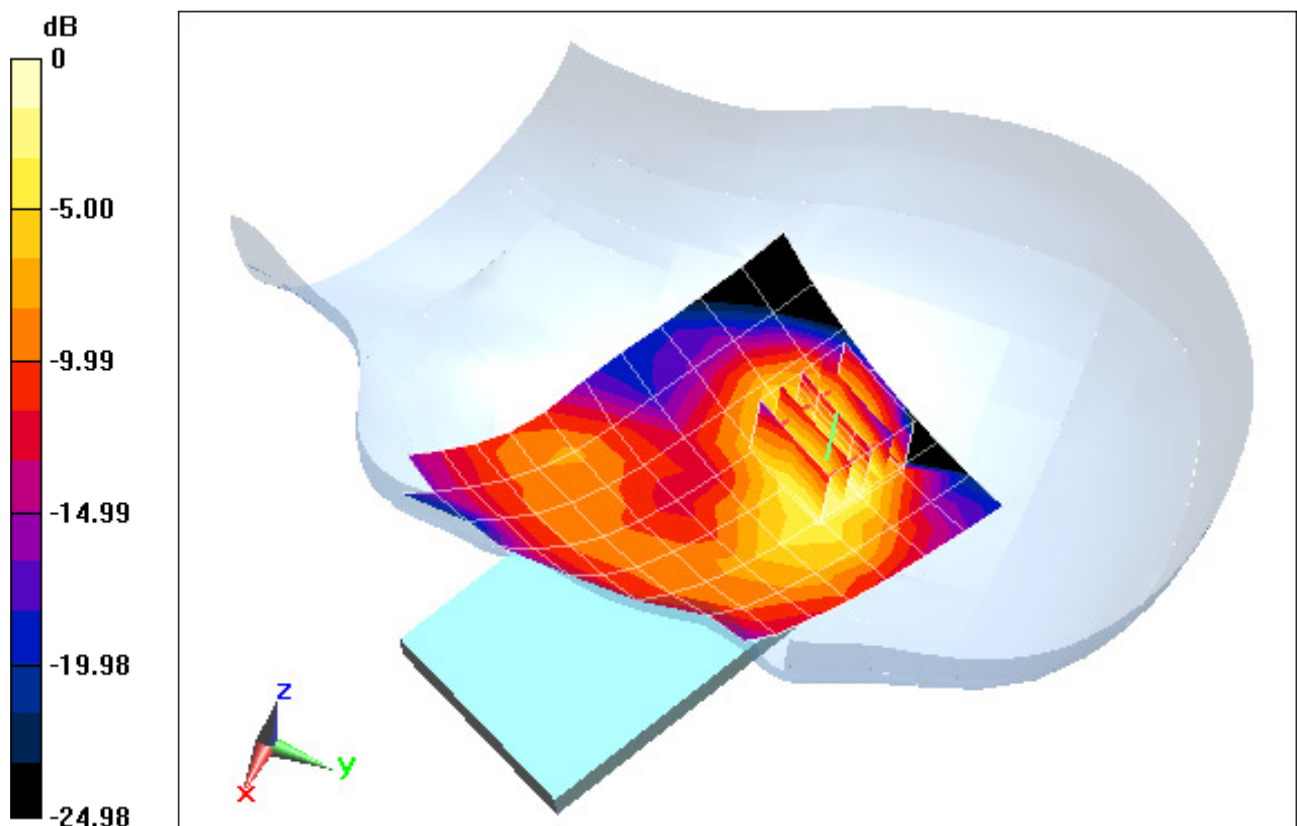
Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 11.344 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.222 mW/g

SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.086 mW/g



0 dB = 0.155 mW/g = -16.19 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: PCS

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

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 38.36$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 06-04-2012; Ambient Temp: 23.9°C; Tissue Temp: 22.1°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 (0); SEMCAD X Version 14.6.5 (6469)

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

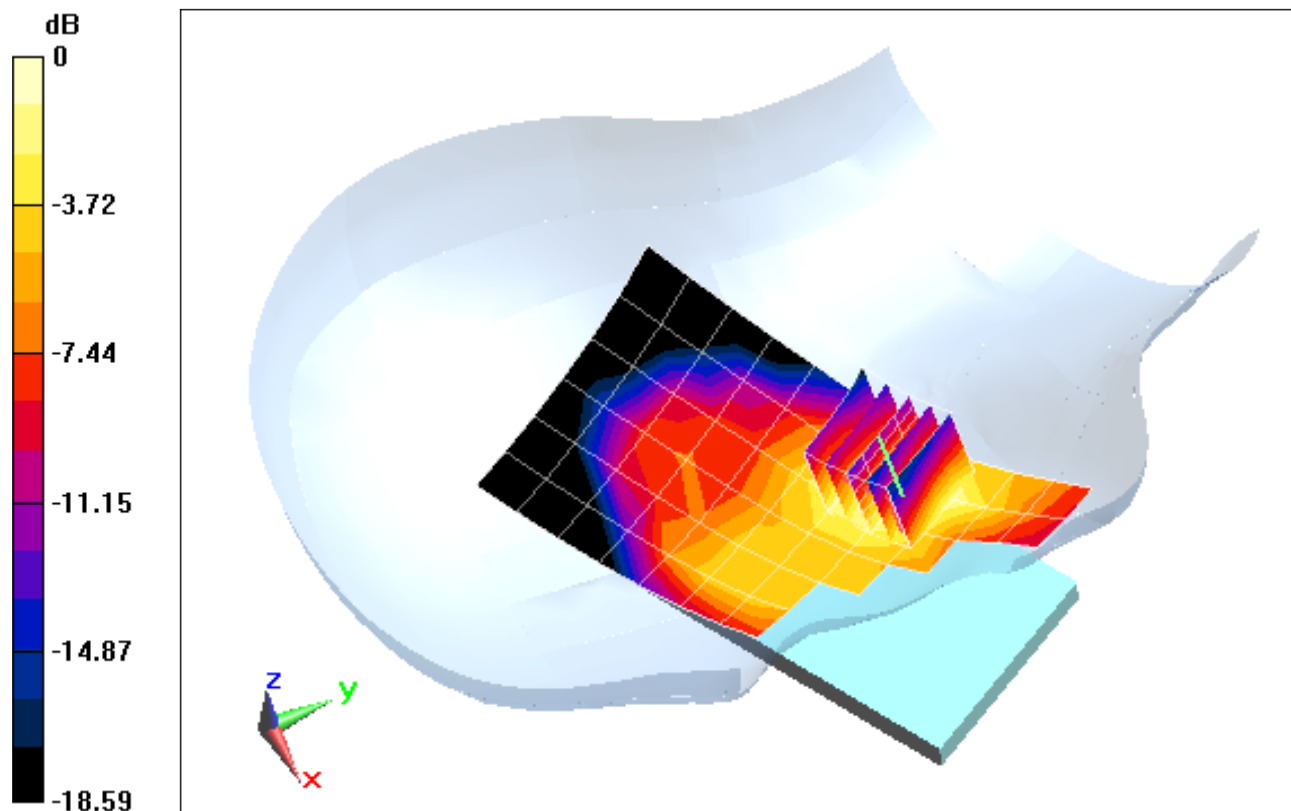
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 10.779 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.239 mW/g

SAR(1 g) = 0.150 mW/g; SAR(10 g) = 0.090 mW/g



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: PCS

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

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 38.36$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 06-04-2012; Ambient Temp: 23.9°C; Tissue Temp: 22.1°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 (0); SEMCAD X Version 14.6.5 (6469)

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

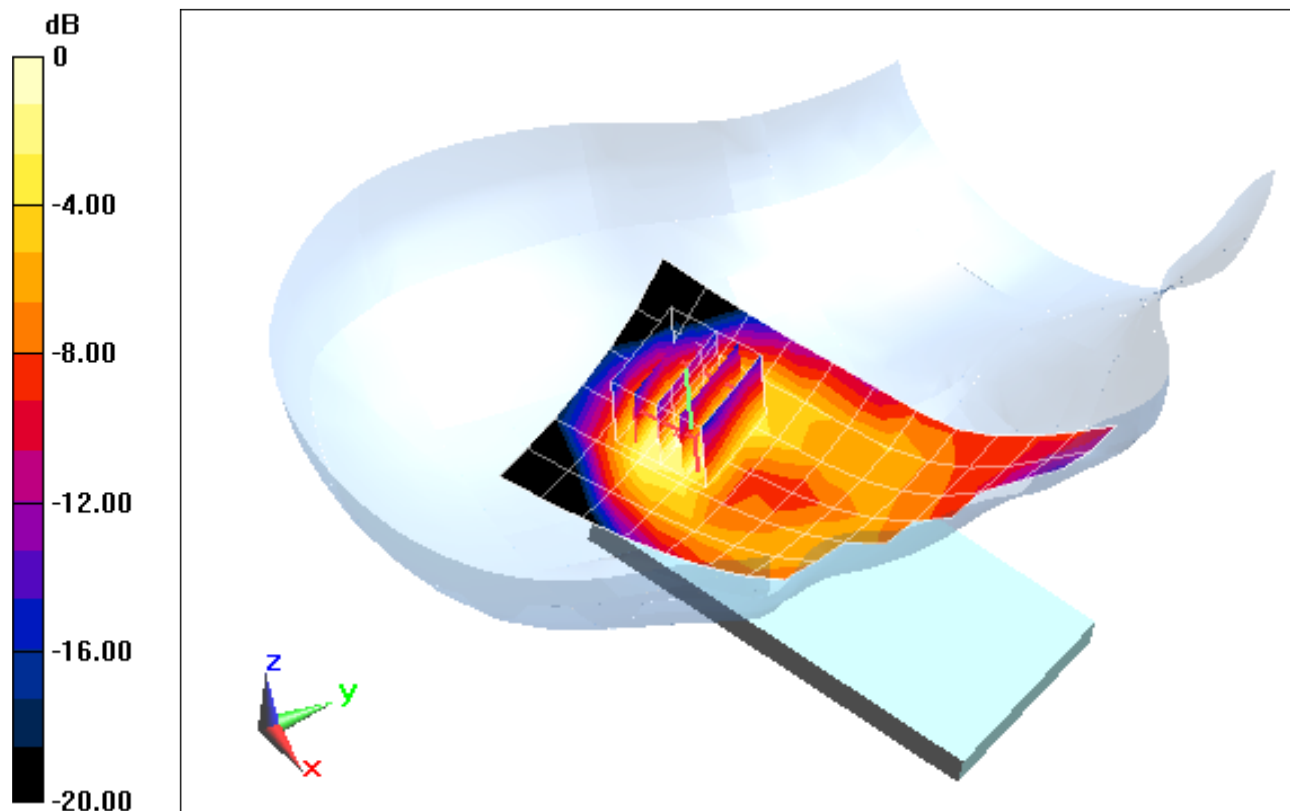
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 7.001 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.105 mW/g

SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.037 mW/g



0 dB = 0.0691 mW/g = -23.21 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: PCS

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

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 38.36$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 06-04-2012; Ambient Temp: 23.9°C; Tissue Temp: 22.1°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 (0); SEMCAD X Version 14.6.5 (6469)

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

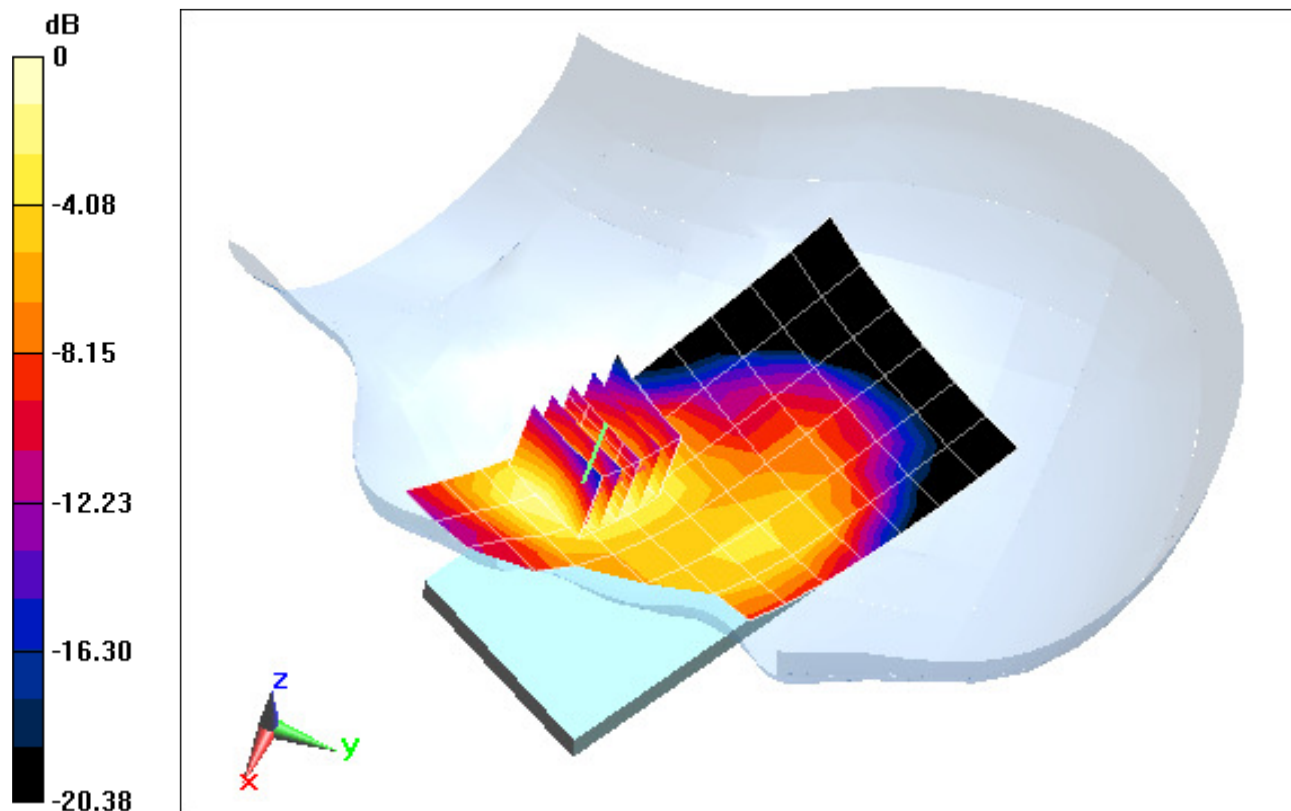
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 10.516 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.226 mW/g

SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.088 mW/g



0 dB = 0.158 mW/g = -16.03 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: PCS

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

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 38.36$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 06-04-2012; Ambient Temp: 23.9°C; Tissue Temp: 22.1°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 (0); SEMCAD X Version 14.6.5 (6469)

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

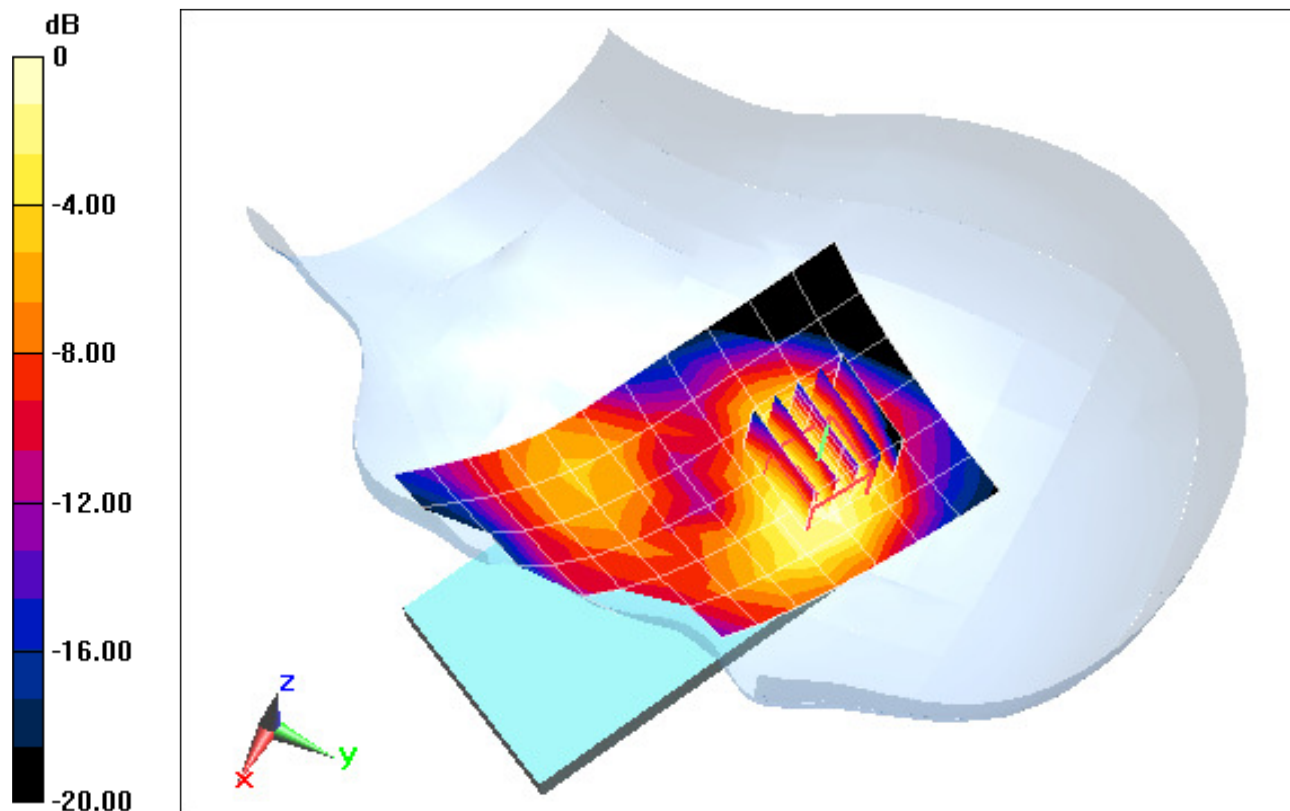
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 7.376 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.107 mW/g

SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.042 mW/g



0 dB = 0.0739 mW/g = -22.63 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B2

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

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.363 \text{ mho/m}$; $\epsilon_r = 38.662$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-29-2012; Ambient Temp: 24.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Right Head, Touch, Low.ch

10 MHz BW, QPSK, 1 RB, 0 RB Offset

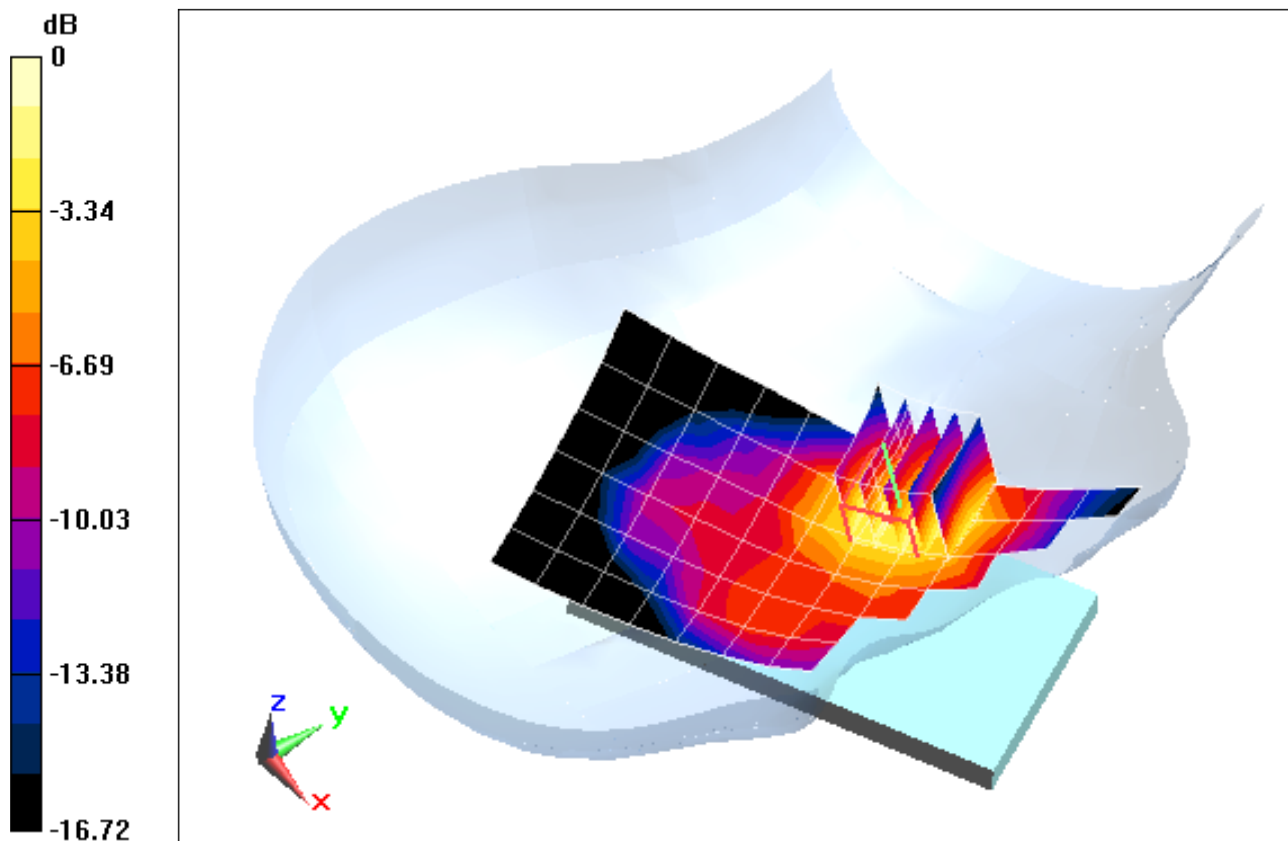
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 16.967 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.560 mW/g

SAR(1 g) = 0.368 mW/g; SAR(10 g) = 0.230 mW/g



0 dB = 0.383 mW/g = -8.34 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B2

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

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.363 \text{ mho/m}$; $\epsilon_r = 38.662$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-29-2012; Ambient Temp: 24.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Right Head, Tilt, Low.ch

10 MHz BW, QPSK, 1 RB, 0 RB Offset

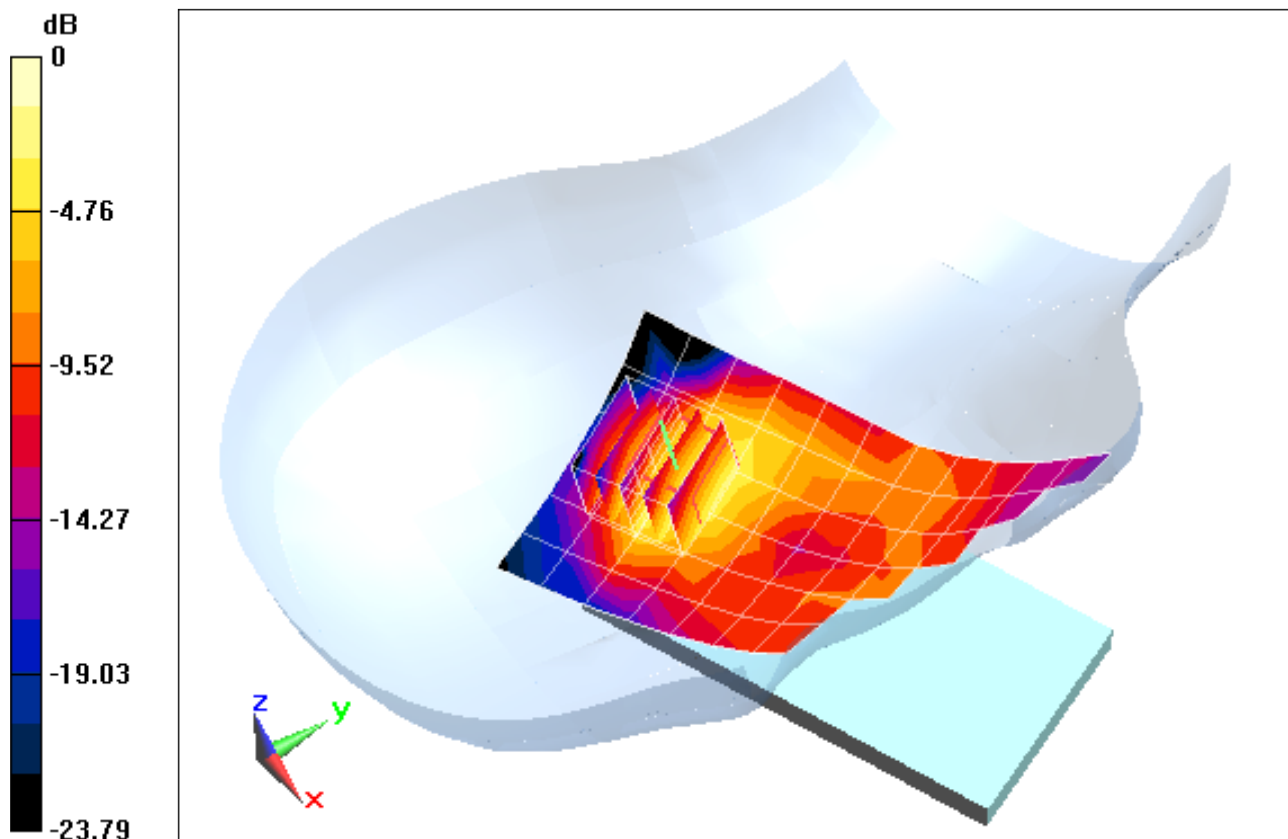
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 11.359 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.262 mW/g

SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.094 mW/g



0 dB = 0.167 mW/g = -15.55 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B2

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

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.363 \text{ mho/m}$; $\epsilon_r = 38.662$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-29-2012; Ambient Temp: 24.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Left Head, Touch, Low. Ch
10 MHz BW, QPSK, 1 RB, 0 RB Offset

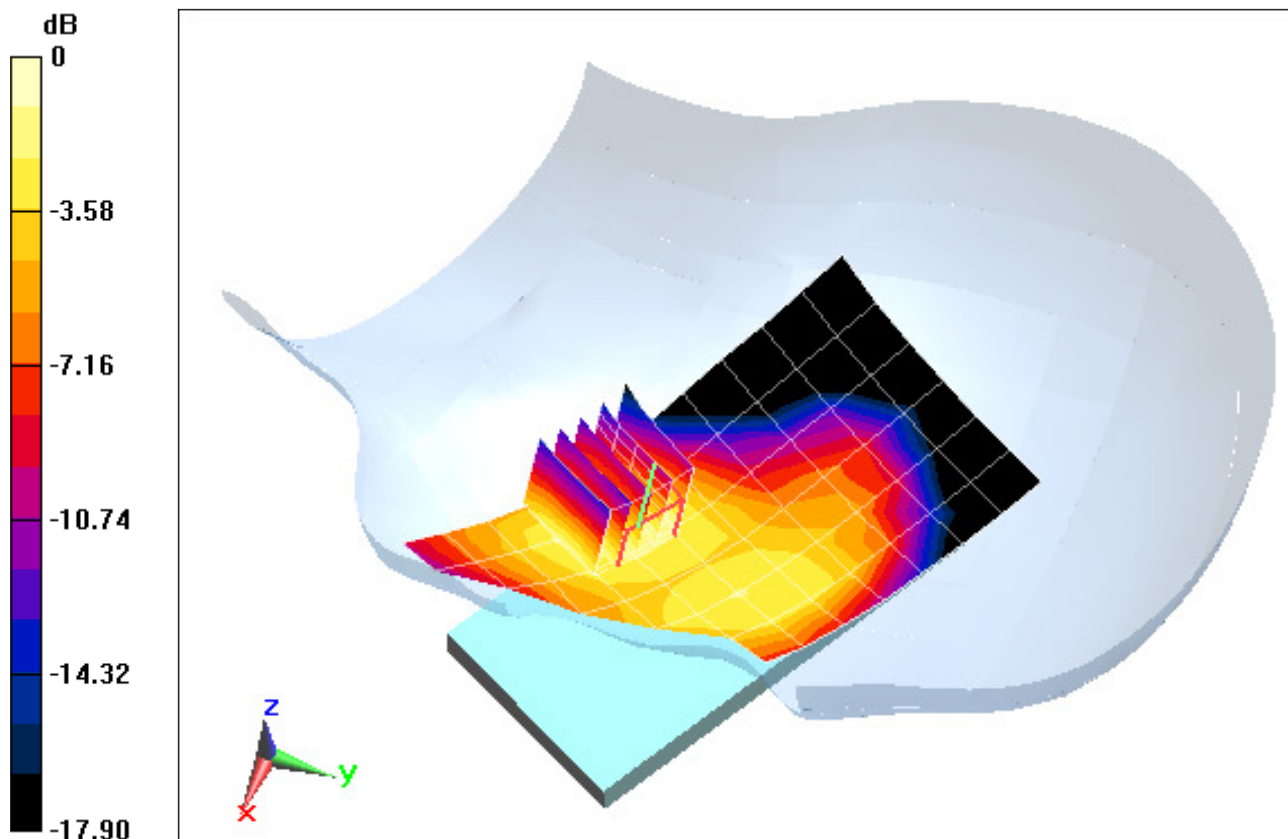
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 14.004 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.357 mW/g

SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.148 mW/g



0 dB = 0.251 mW/g = -12.01 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B2

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

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.363 \text{ mho/m}$; $\epsilon_r = 38.662$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-29-2012; Ambient Temp: 24.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 2 (PCS), Left Head, Tilt, Low.ch

10 MHz BW, QPSK, 1 RB, 0 RB Offset

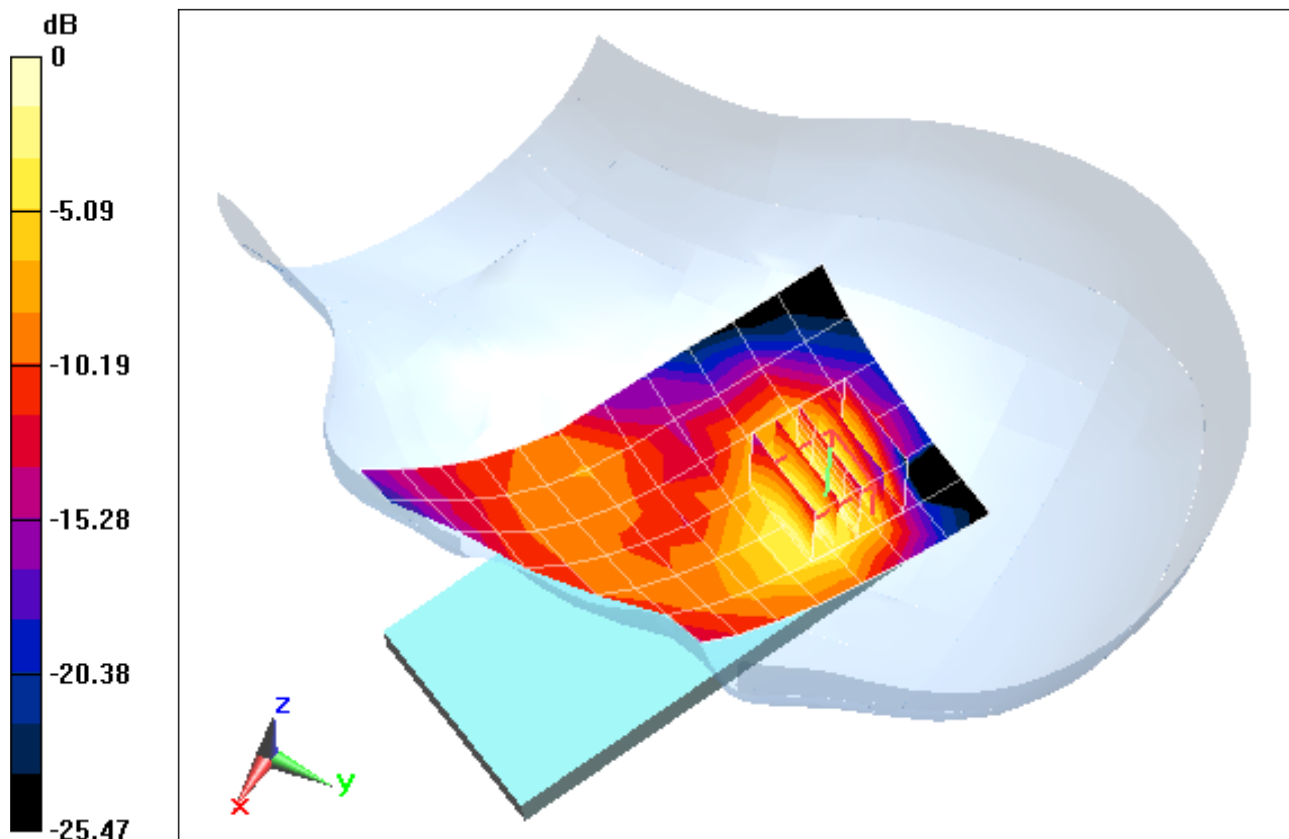
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 11.519 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.269 mW/g

SAR(1 g) = 0.171 mW/g; SAR(10 g) = 0.103 mW/g



0 dB = 0.186 mW/g = -14.61 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used (interpolated):

$f = 2462 \text{ MHz}$; $\sigma = 1.861 \text{ mho/m}$; $\epsilon_r = 38.061$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-30-2012; Ambient Temp: 24.9°C; Tissue Temp: 23.2°C

Probe: ES3DV2 - SN3022; ConvF(4.3, 4.3, 4.3); Calibrated: 8/25/2011;

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, Touch, Ch 11, 1 Mbps

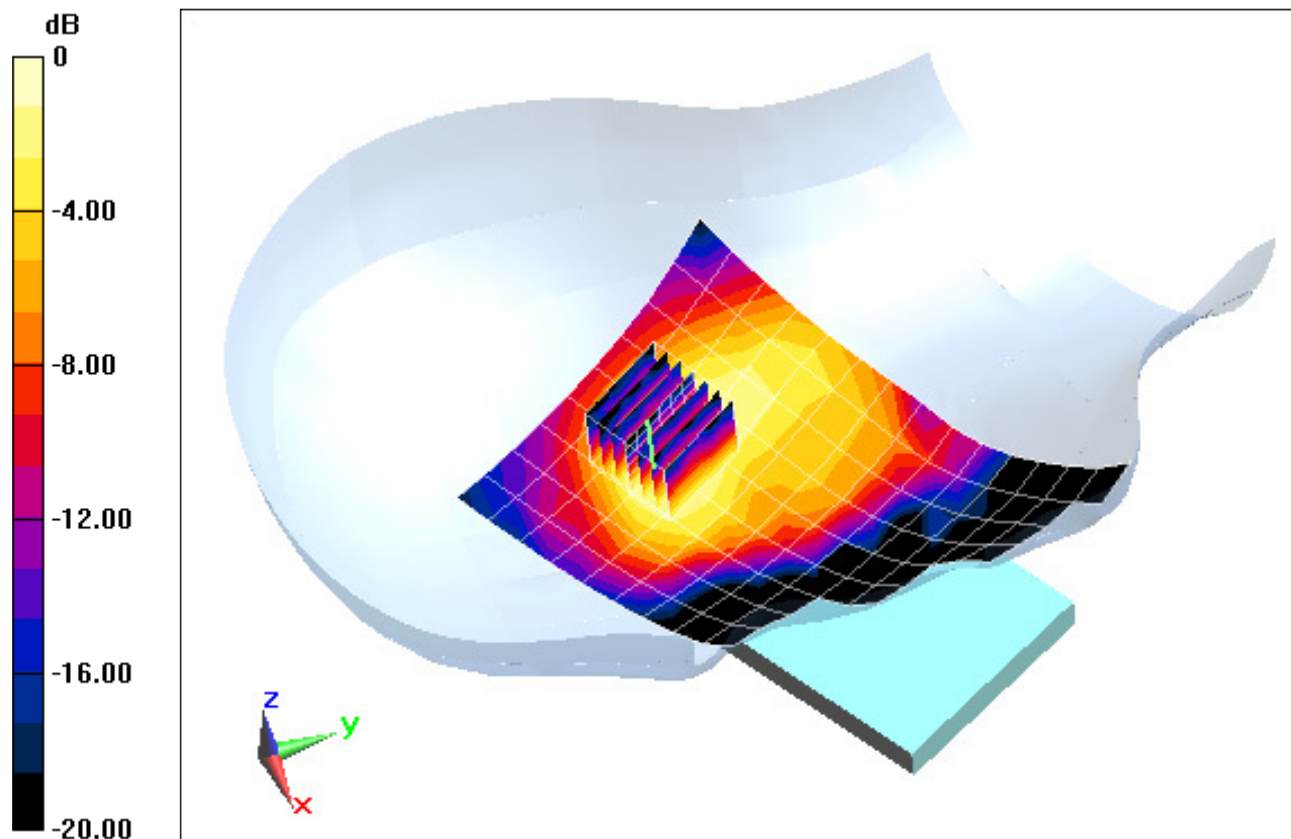
Area Scan (10x17x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 5.679 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.097 mW/g

SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.030 mW/g



0 dB = 0.0655 mW/g = -23.68 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used (interpolated):

$f = 2462 \text{ MHz}$; $\sigma = 1.861 \text{ mho/m}$; $\epsilon_r = 38.061$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-30-2012; Ambient Temp: 24.9°C; Tissue Temp: 23.2°C

Probe: ES3DV2 - SN3022; ConvF(4.3, 4.3, 4.3); Calibrated: 8/25/2011;

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

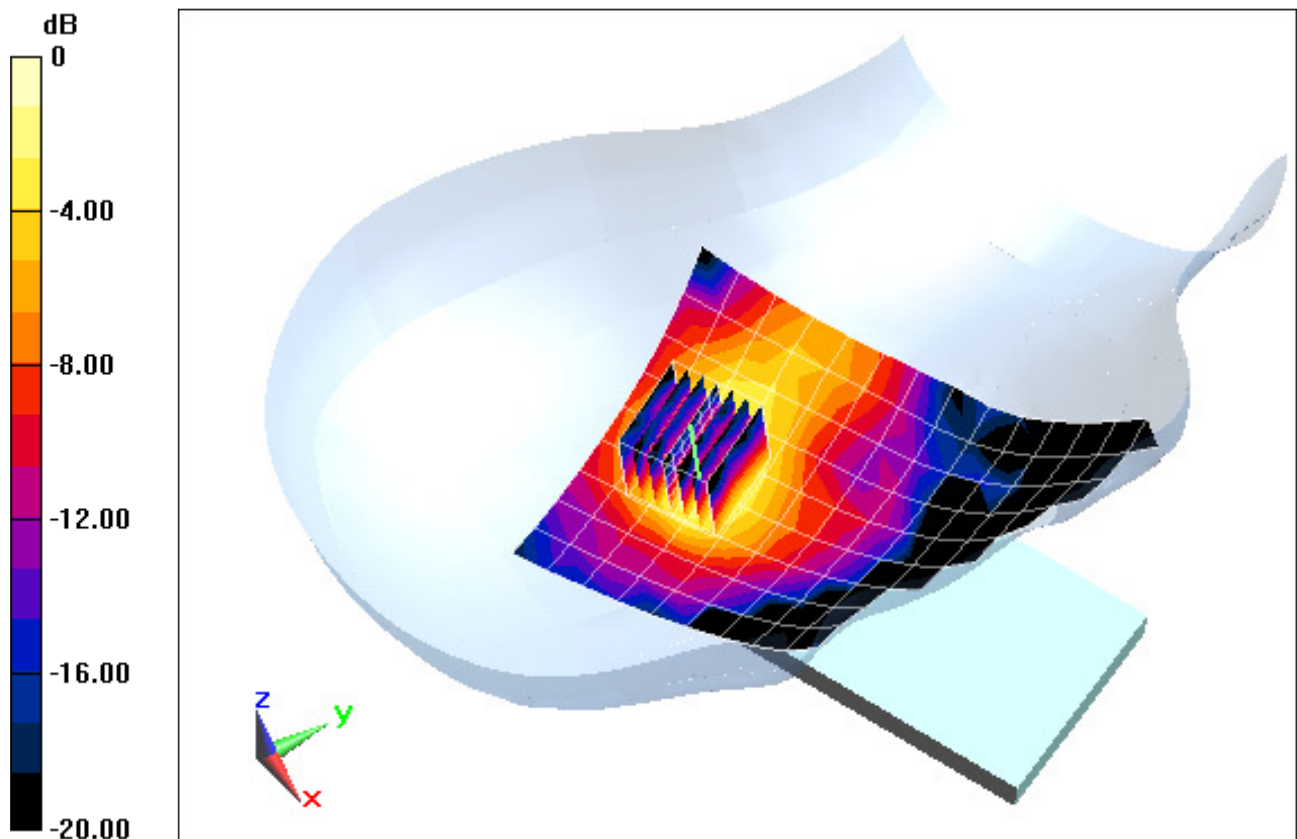
Area Scan (10x17x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 5.169 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.083 mW/g

SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.024 mW/g



0 dB = 0.0560 mW/g = -25.04 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used (interpolated):

$f = 2462 \text{ MHz}$; $\sigma = 1.861 \text{ mho/m}$; $\epsilon_r = 38.061$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-30-2012; Ambient Temp: 24.9°C; Tissue Temp: 23.2°C

Probe: ES3DV2 - SN3022; ConvF(4.3, 4.3, 4.3); Calibrated: 8/25/2011;

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, Touch, Ch 11, 1 Mbps

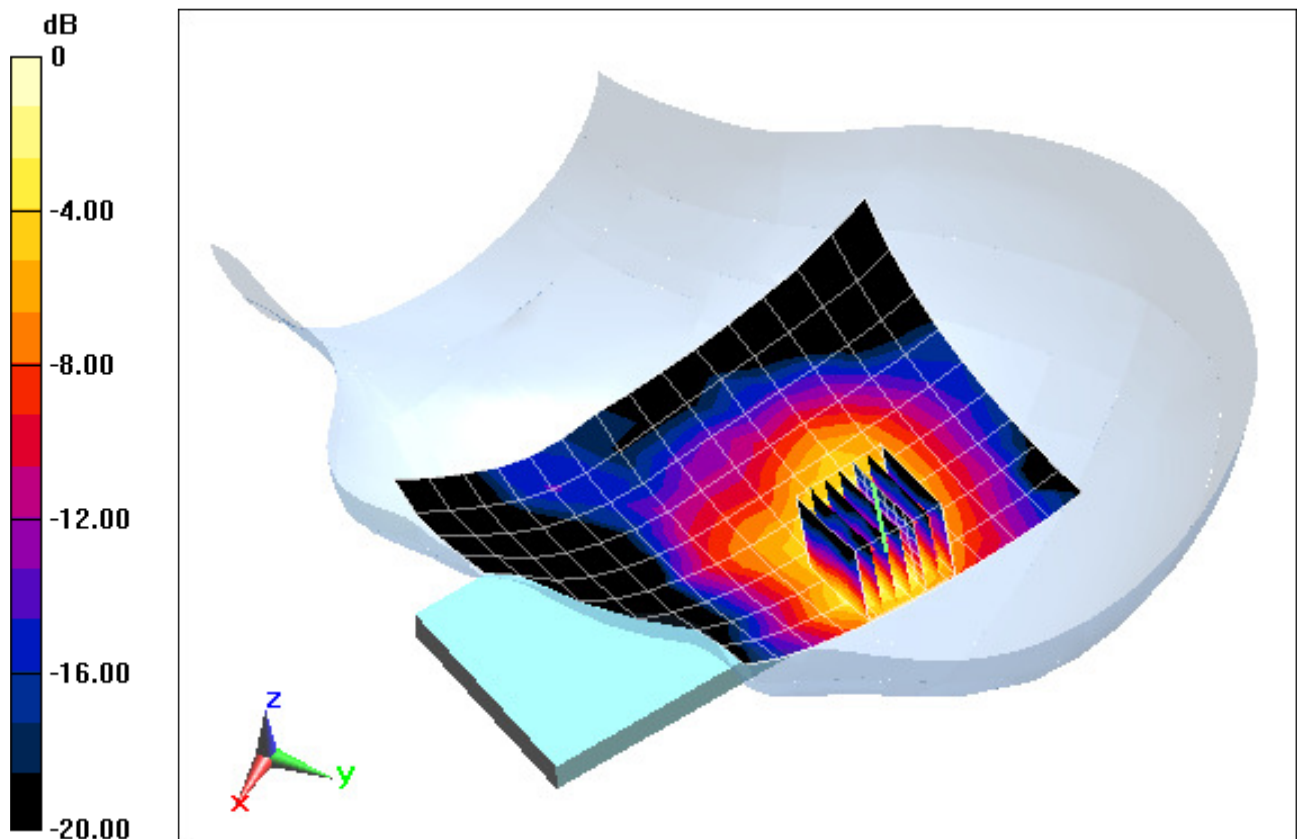
Area Scan (10x15x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 6.674 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.169 mW/g

SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.040 mW/g



0 dB = 0.107 mW/g = -19.41 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used (interpolated):

$f = 2462 \text{ MHz}$; $\sigma = 1.861 \text{ mho/m}$; $\epsilon_r = 38.061$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-30-2012; Ambient Temp: 24.9°C; Tissue Temp: 23.2°C

Probe: ES3DV2 - SN3022; ConvF(4.3, 4.3, 4.3); Calibrated: 8/25/2011;

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

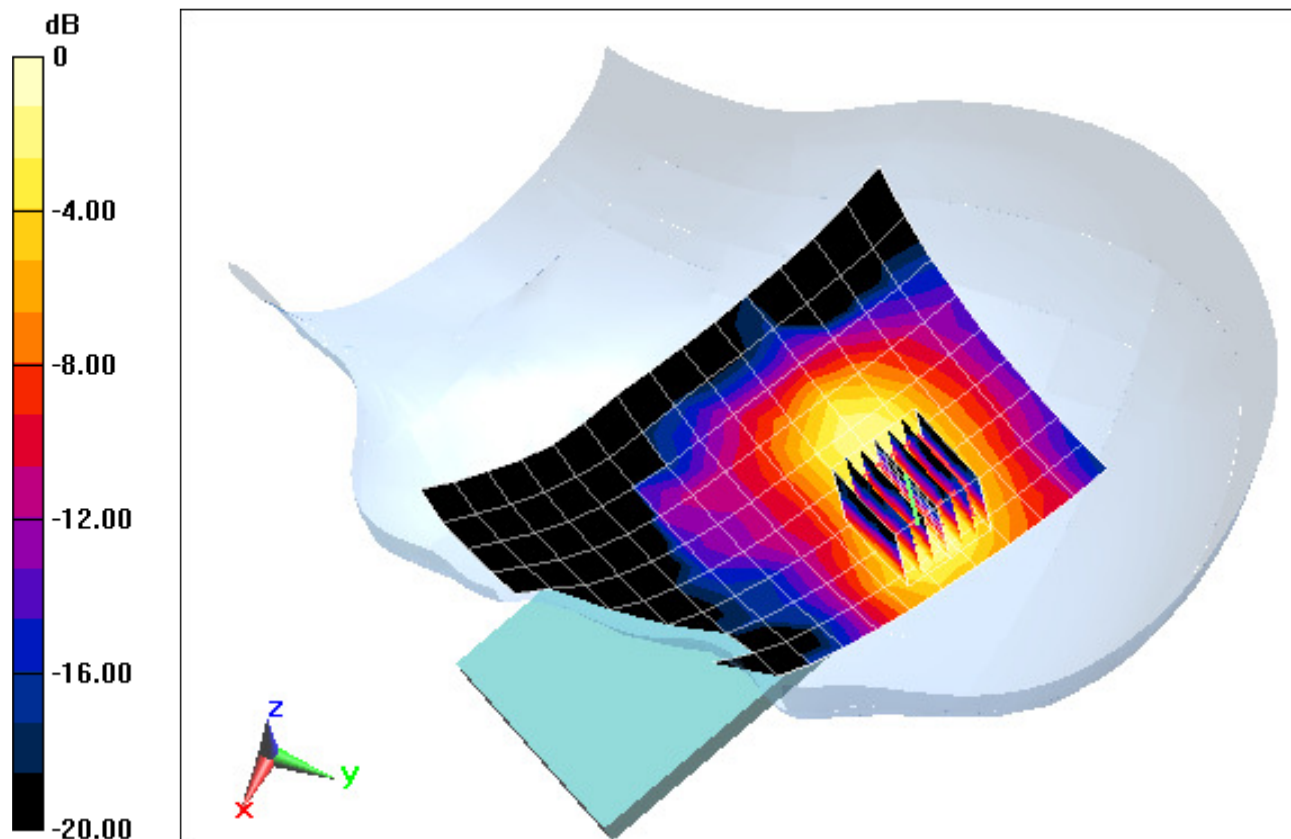
Area Scan (10x15x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 5.279 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.095 mW/g

SAR(1 g) = 0.046 mW/g; SAR(10 g) = 0.023 mW/g



0 dB = 0.0599 mW/g = -24.45 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B12

Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1

Medium: 695 Body Medium parameters used (interpolated):

$f = 704 \text{ MHz}$; $\sigma = 0.949 \text{ mho/m}$; $\epsilon_r = 55.254$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.6°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 12, Body SAR, Back side, Low.ch
10 MHz BW, QPSK, 1 RB, 0 RB Offset

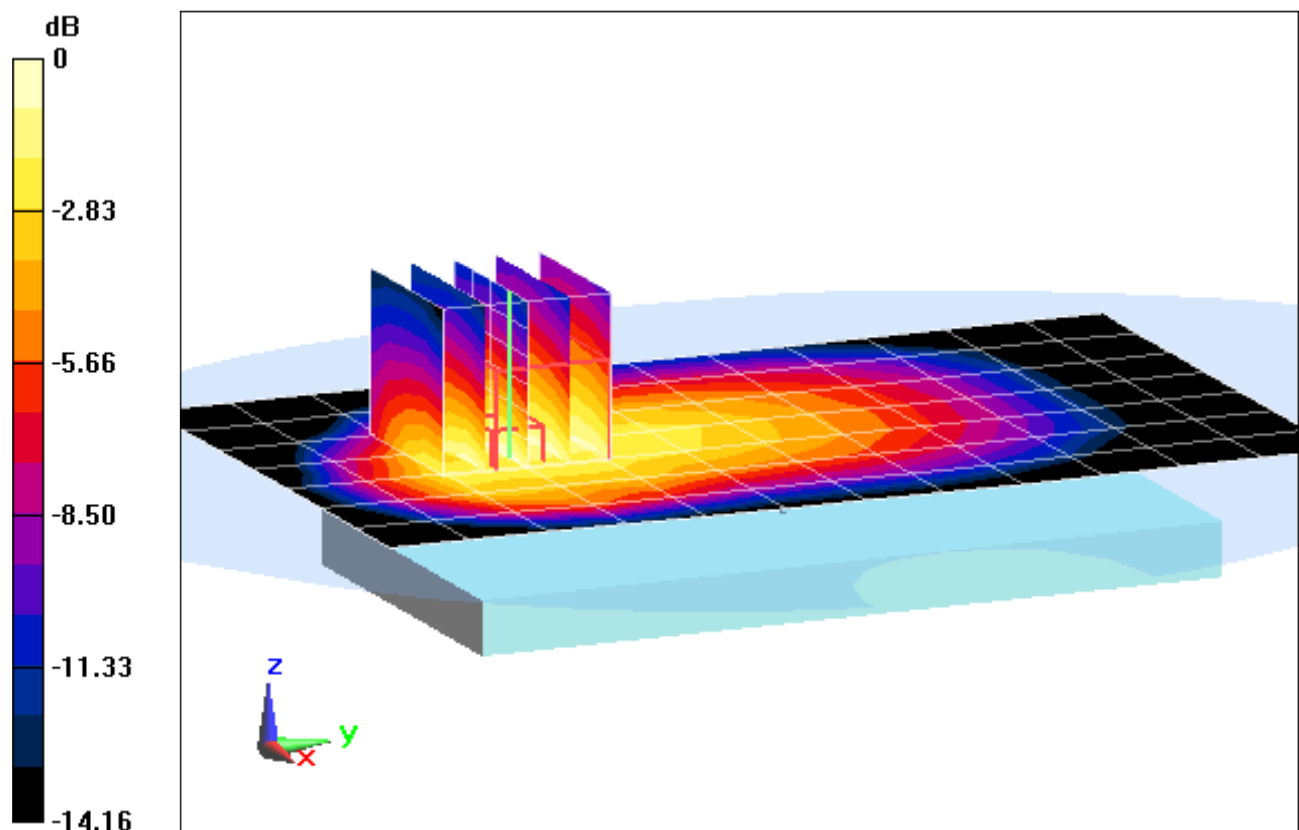
Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 15.657 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.371 mW/g

SAR(1 g) = 0.224 mW/g; SAR(10 g) = 0.140 mW/g



0 dB = 0.244 mW/g = -12.25 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B12

Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1

Medium: 695 Body Medium parameters used (interpolated):

$f = 704 \text{ MHz}$; $\sigma = 0.949 \text{ mho/m}$; $\epsilon_r = 55.254$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.6°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 12, Body SAR, Front side, Low.ch
10 MHz BW, QPSK, 1 RB, 0 RB Offset

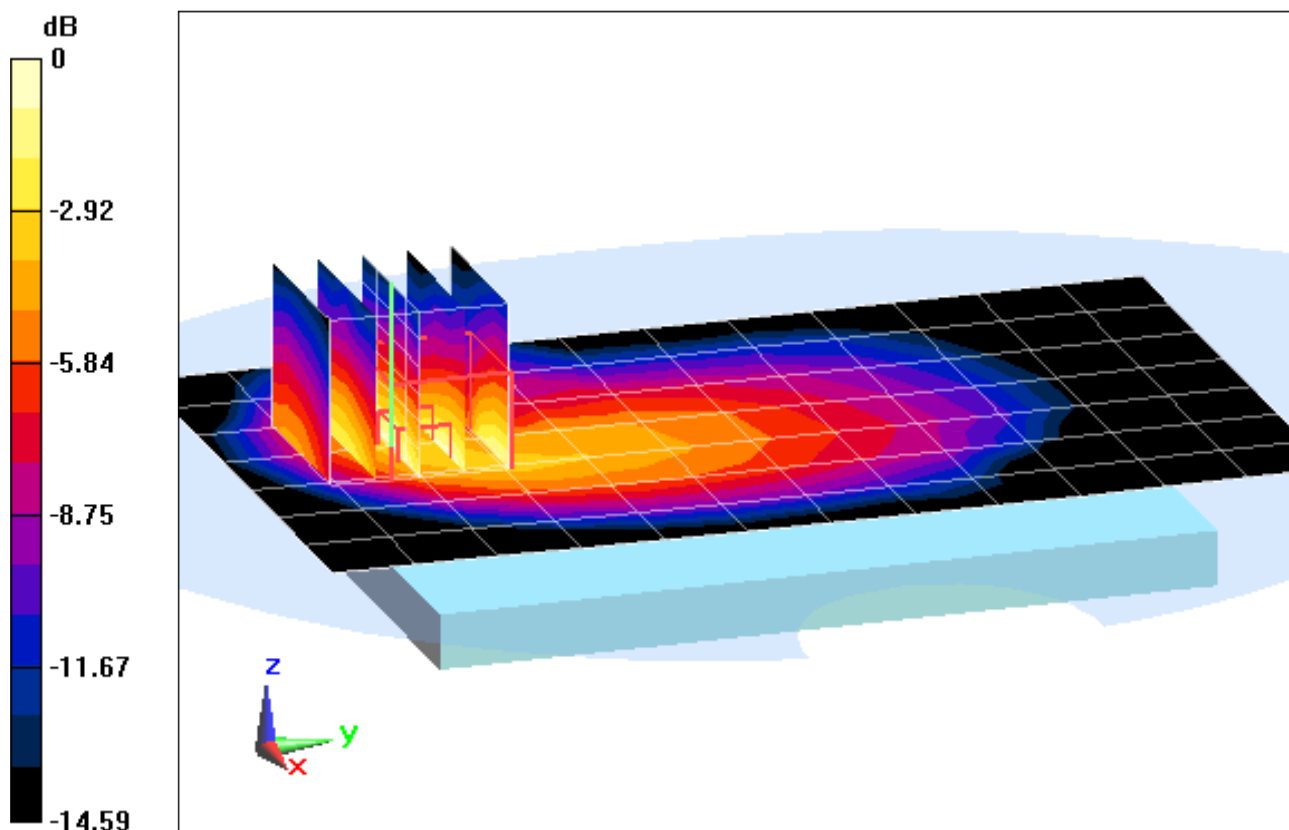
Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 10.659 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.167 mW/g

SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.056 mW/g



0 dB = 0.105 mW/g = -19.58 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B12

Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1

Medium: 695 Body Medium parameters used (interpolated):

$f = 704 \text{ MHz}$; $\sigma = 0.949 \text{ mho/m}$; $\epsilon_r = 55.254$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.6°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 12, Body SAR, Bottom Edge, Low.ch
10 MHz BW, QPSK, 1 RB, 0 RB Offset

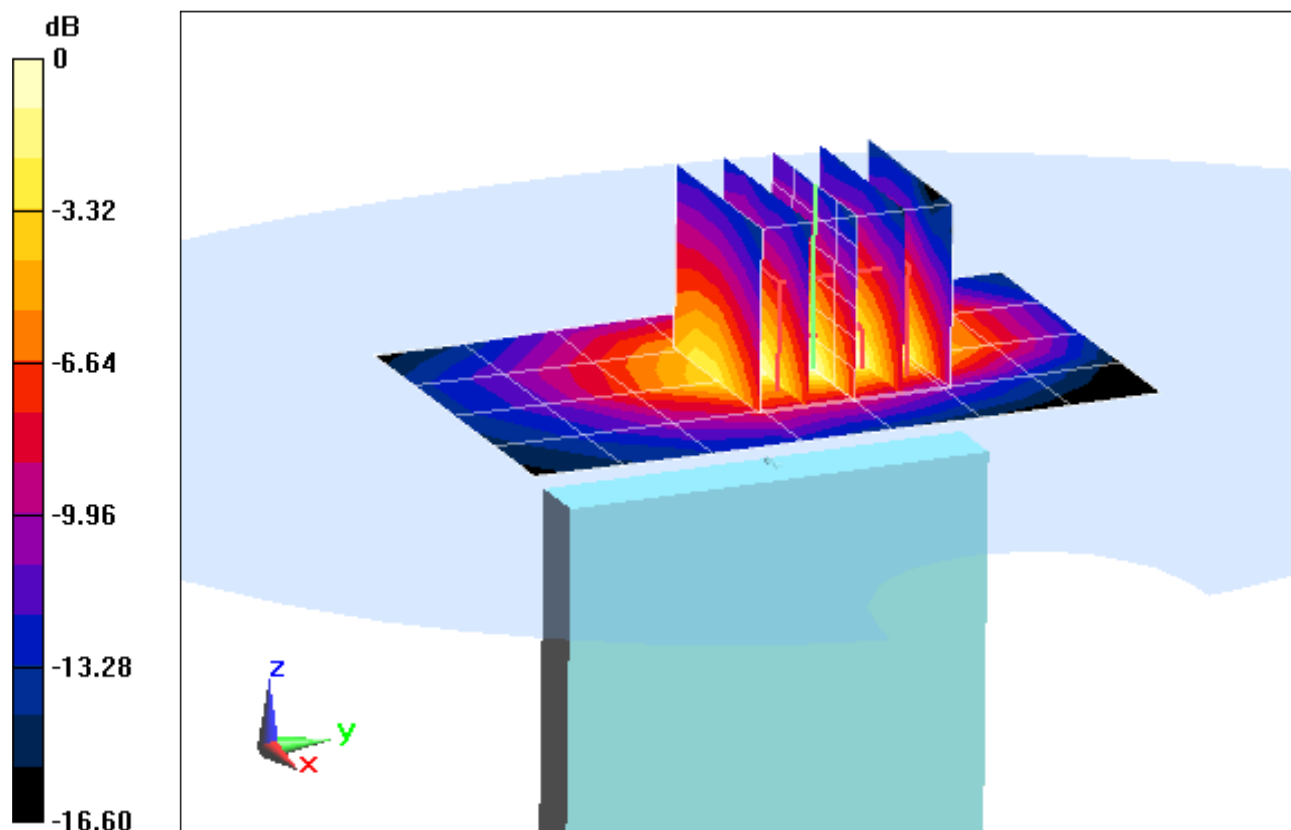
Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 11.231 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.211 mW/g

SAR(1 g) = 0.111 mW/g; SAR(10 g) = 0.057 mW/g



0 dB = 0.114 mW/g = -18.86 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B12

Communication System: LTE RF; Frequency: 704 MHz; Duty Cycle: 1:1

Medium: 695 Body Medium parameters used (interpolated):

$f = 704 \text{ MHz}$; $\sigma = 0.949 \text{ mho/m}$; $\epsilon_r = 55.254$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.6°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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: LTE Band 12, Body SAR, Left Edge, Low.ch
10 MHz BW, QPSK, 1 RB, 0 RB Offset

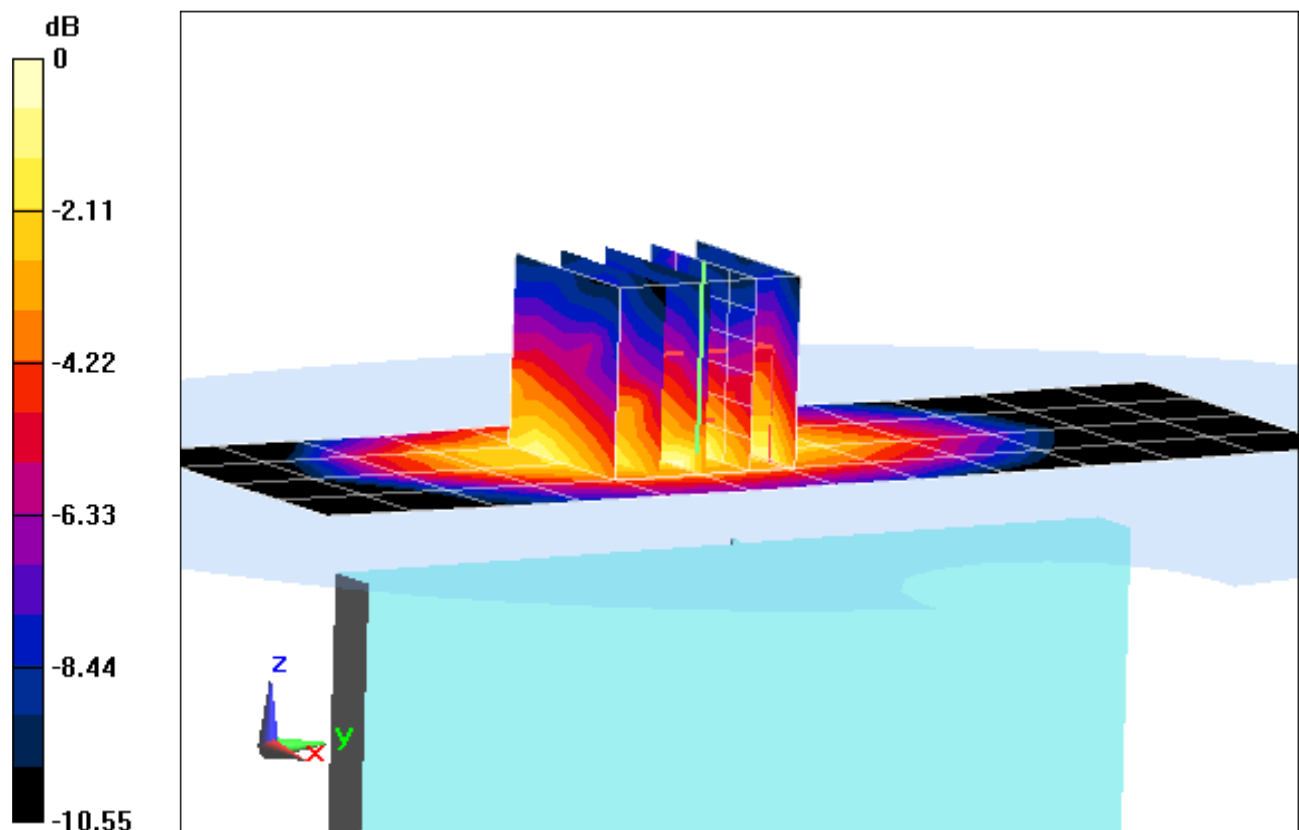
Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 9.666 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.160 mW/g

SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.060 mW/g



0 dB = 0.105 mW/g = -19.58 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: CDMA

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

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

$f = 836.52 \text{ MHz}$; $\sigma = 0.998 \text{ mho/m}$; $\epsilon_r = 53.211$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-07-2012; Ambient Temp: 23.3°C; Tissue Temp: 23.0°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 14.6.4 (4989)

Mode: Cellular CDMA, Body SAR, Back side, Mid.ch

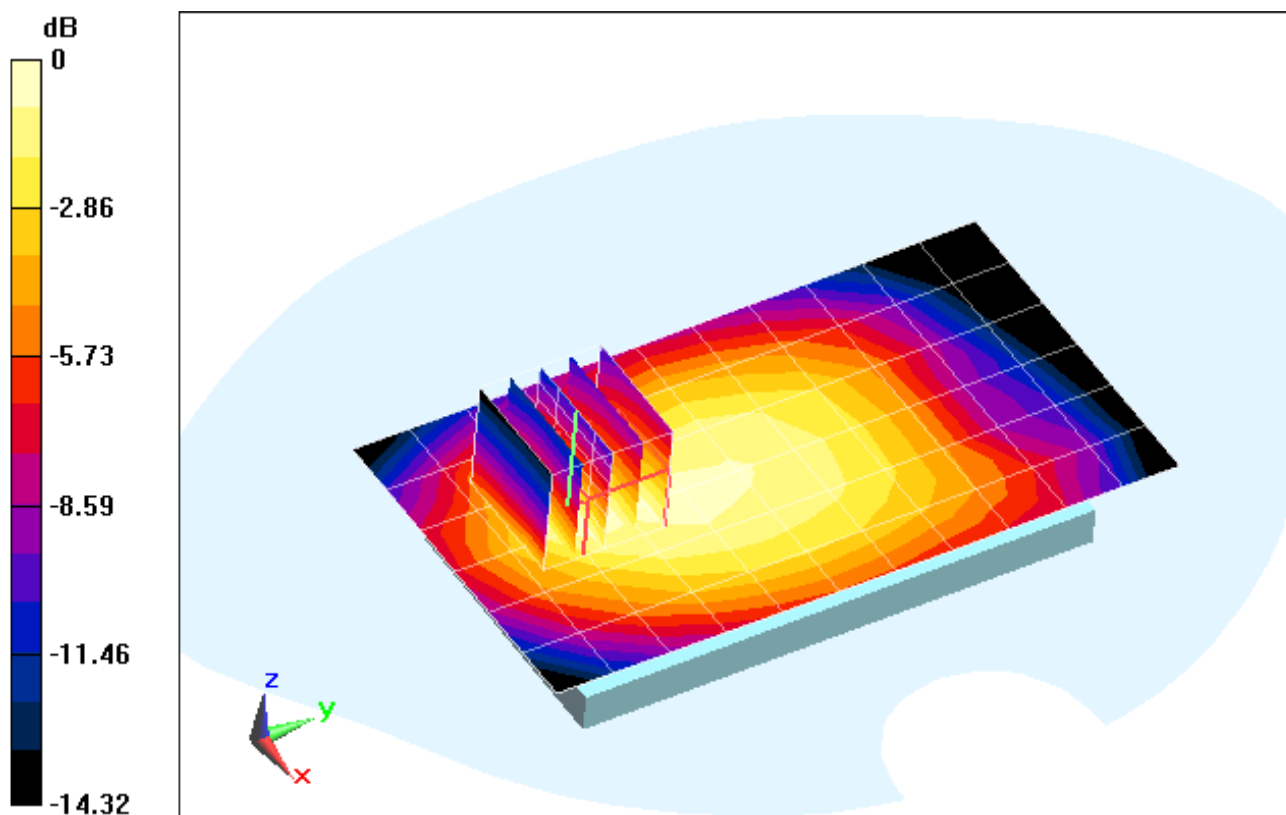
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 21.028 V/m; Power Drift = 0.0024 dB

Peak SAR (extrapolated) = 0.5400 W/kg

SAR(1 g) = 0.340 mW/g; SAR(10 g) = 0.218 mW/g



0 dB = 0.380mW/g = -8.40 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: CDMA

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

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

$f = 836.52 \text{ MHz}$; $\sigma = 0.998 \text{ mho/m}$; $\epsilon_r = 53.211$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-07-2012; Ambient Temp: 23.3°C; Tissue Temp: 23.0°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 14.6.4 (4989)

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

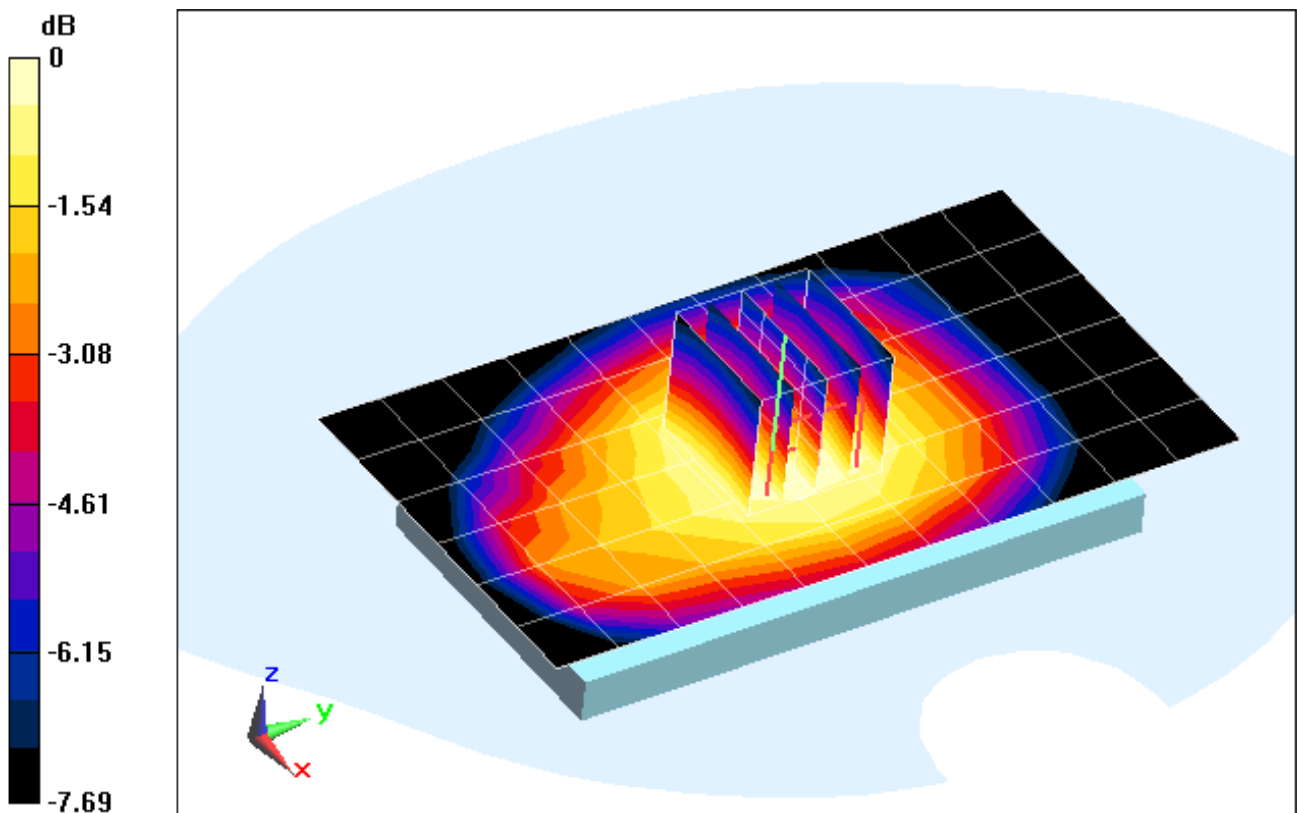
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 18.311 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.3580 W/kg

SAR(1 g) = 0.293 mW/g; SAR(10 g) = 0.227 mW/g



0 dB = 0.310mW/g = -10.17 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: CDMA

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

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

$f = 836.52 \text{ MHz}$; $\sigma = 0.998 \text{ mho/m}$; $\epsilon_r = 53.211$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-07-2012; Ambient Temp: 23.3°C; Tissue Temp: 23.0°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 14.6.4 (4989)

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

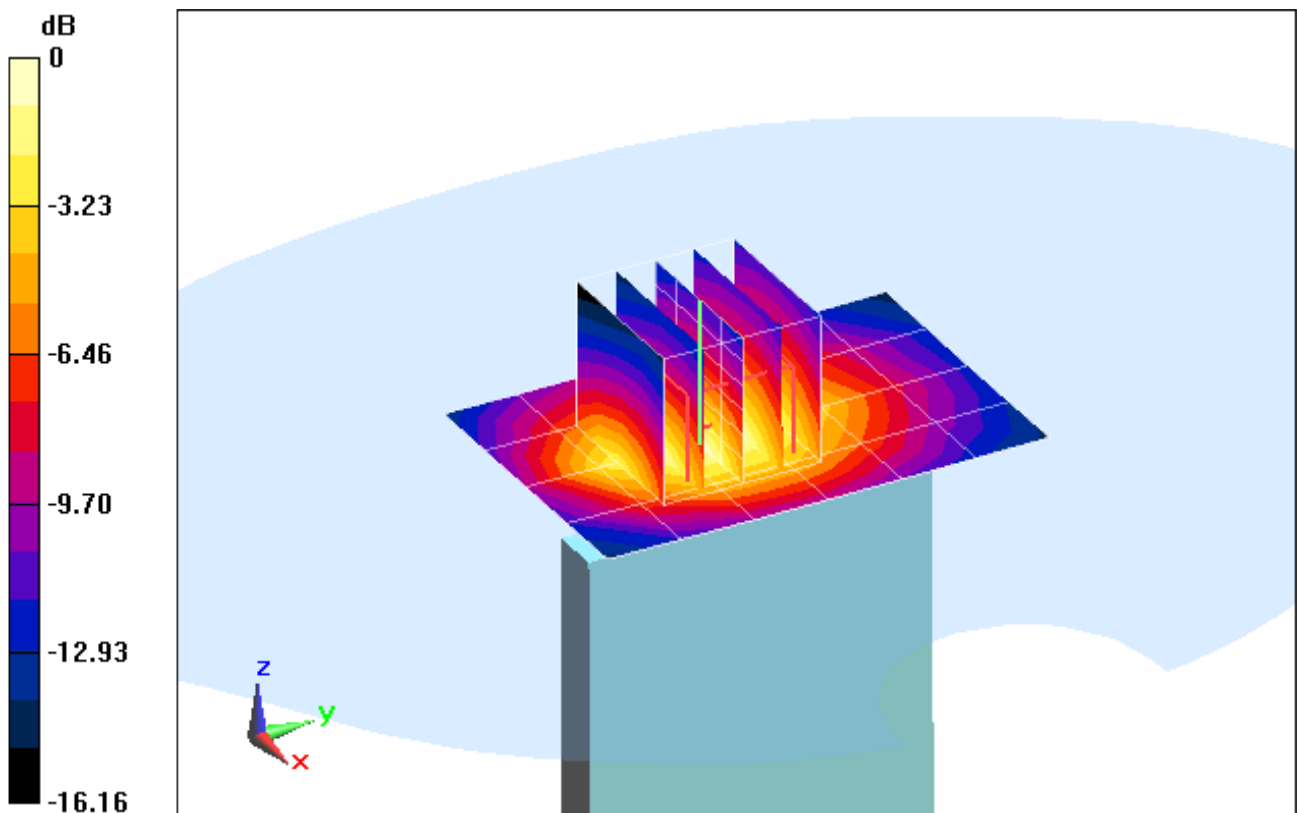
Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 16.179 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.3430 W/kg

SAR(1 g) = 0.183 mW/g; SAR(10 g) = 0.101 mW/g



0 dB = 0.200mW/g = -13.98 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: CDMA

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

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

$f = 836.52 \text{ MHz}$; $\sigma = 0.998 \text{ mho/m}$; $\epsilon_r = 53.211$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-07-2012; Ambient Temp: 23.3°C; Tissue Temp: 23.0°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 14.6.4 (4989)

Mode: Cellular EVDO, Body SAR, Right Edge, Mid.ch

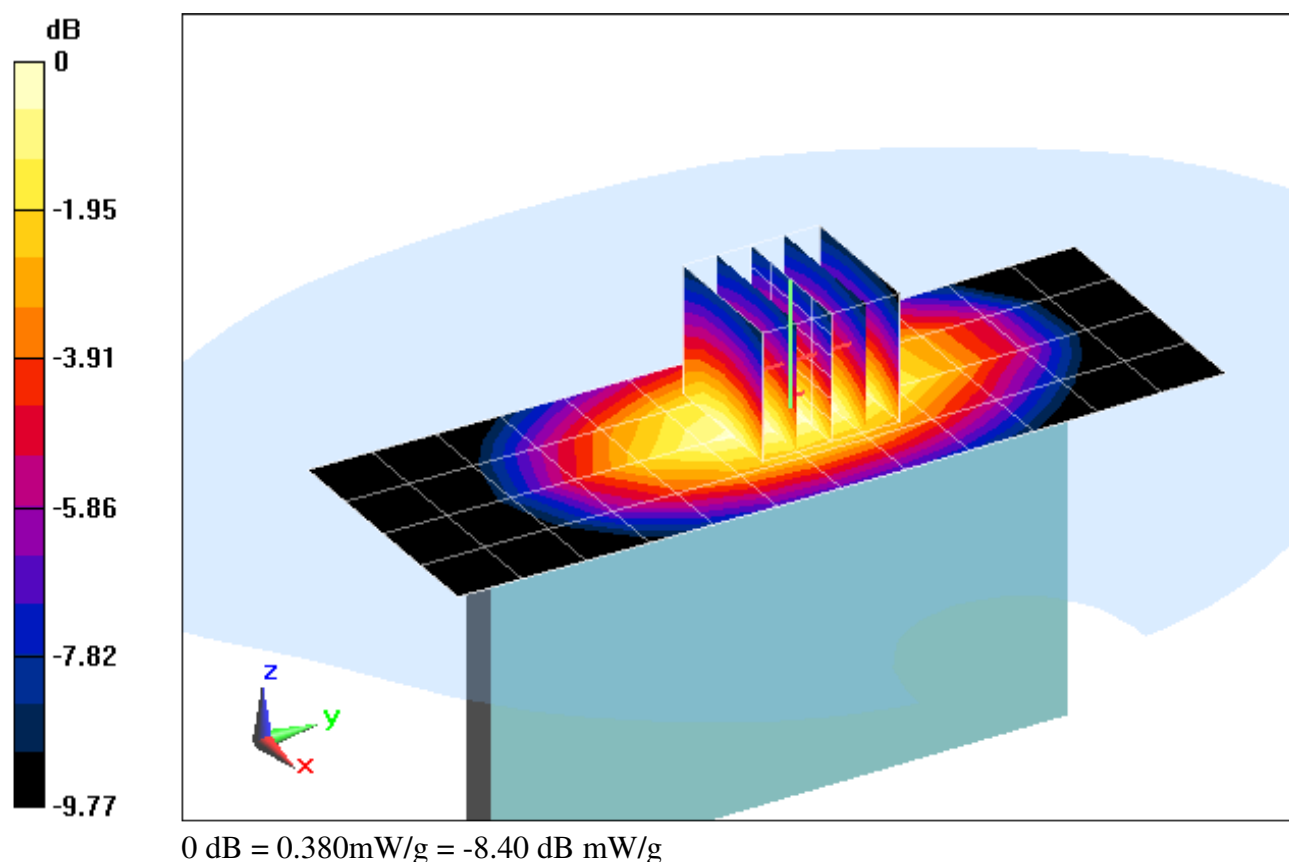
Area Scan (5x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 20.749 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.4970 W/kg

SAR(1 g) = 0.357 mW/g; SAR(10 g) = 0.246 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

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

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

$f = 836.5 \text{ MHz}$; $\sigma = 0.997 \text{ mho/m}$; $\epsilon_r = 52.914$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.7°C; Tissue Temp: 22.0°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 14.6.4 (4989)

**Mode: LTE Band 5, Body SAR, Back side, Mid.ch,
QPSK, 10 MHz Bandwidth, 1 RB, 0 RB Offset**

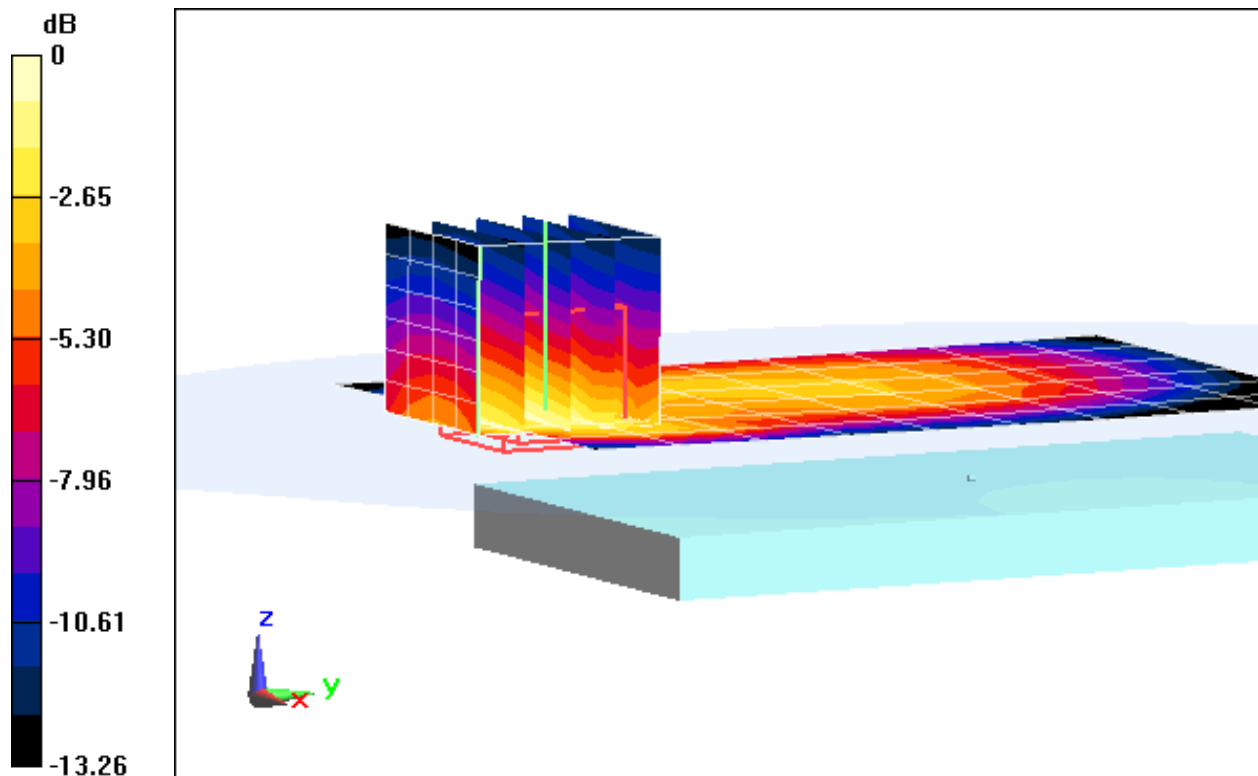
Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 15.130 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.359 mW/g

SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.126 mW/g



0 dB = 0.233 mW/g = -12.65 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

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

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

$f = 836.5 \text{ MHz}$; $\sigma = 0.997 \text{ mho/m}$; $\epsilon_r = 52.914$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 22.7°C; Tissue Temp: 22.0°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 14.6.4 (4989)

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

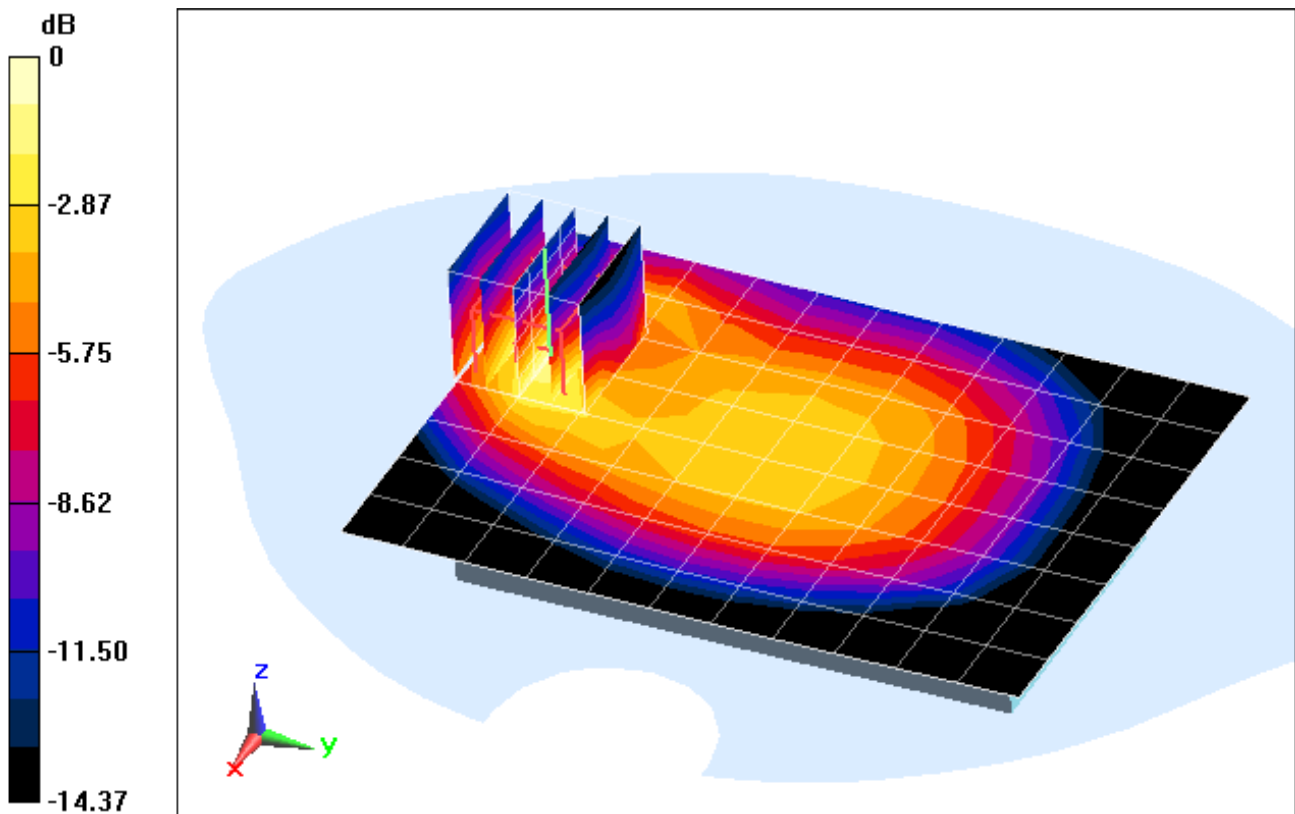
Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 12.210 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.2320 W/kg

SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.074 mW/g



0 dB = 0.150mW/g = -16.48 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

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

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

$f = 836.5$ MHz; $\sigma = 0.997$ mho/m; $\epsilon_r = 52.914$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 22.7°C; Tissue Temp: 22.0°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 14.6.4 (4989)

**Mode: LTE Band 5, Body SAR, Bottom Edge, Mid.ch,
QPSK, 10 MHz Bandwidth, 1 RB, 49 RB Offset**

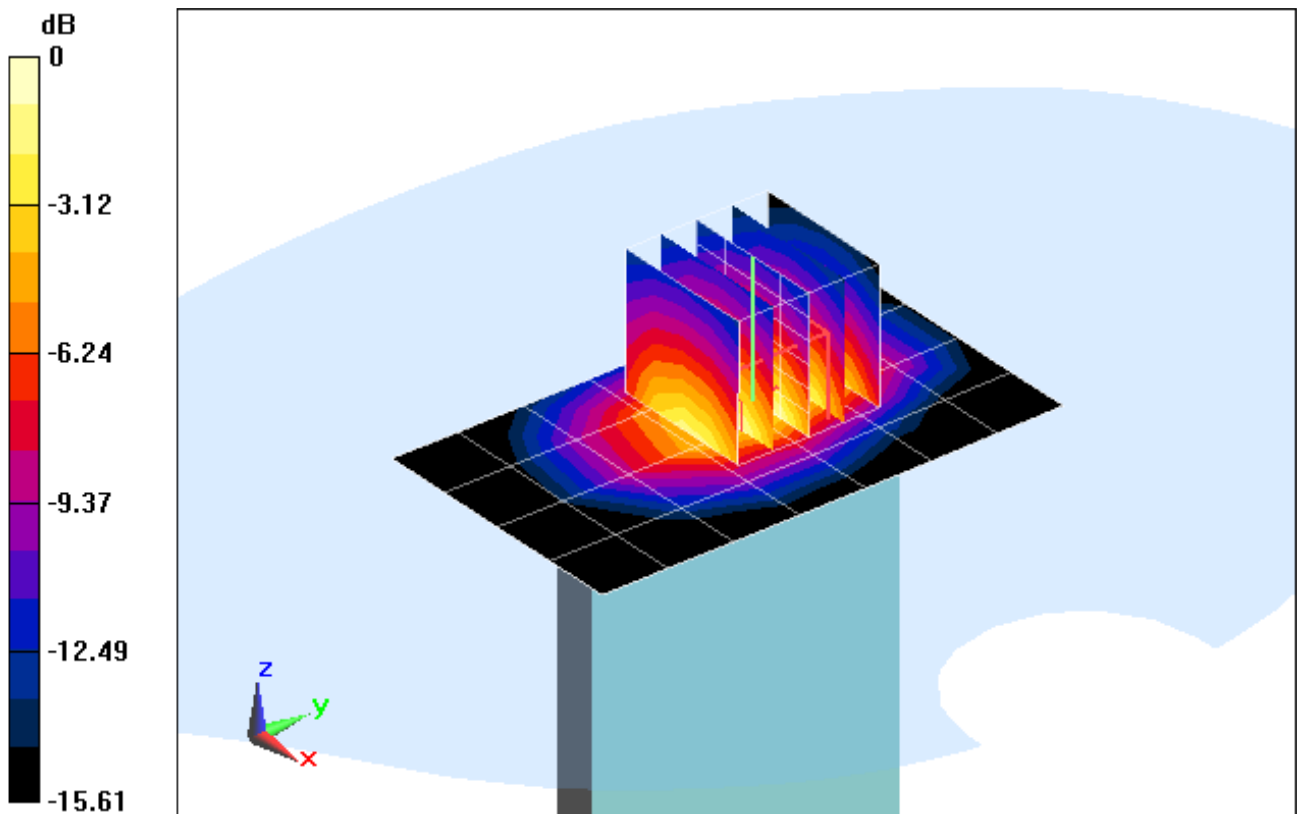
Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 14.623 V/m; Power Drift = -0.20 dB

Peak SAR (extrapolated) = 0.3420 W/kg

SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.105 mW/g



0 dB = 0.210mW/g = -13.56 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

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

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

$f = 836.5$ MHz; $\sigma = 0.997$ mho/m; $\epsilon_r = 52.914$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 22.7°C; Tissue Temp: 22.0°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 14.6.4 (4989)

**Mode: LTE Band 5, Body SAR, Left Edge, Mid.ch,
QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offset**

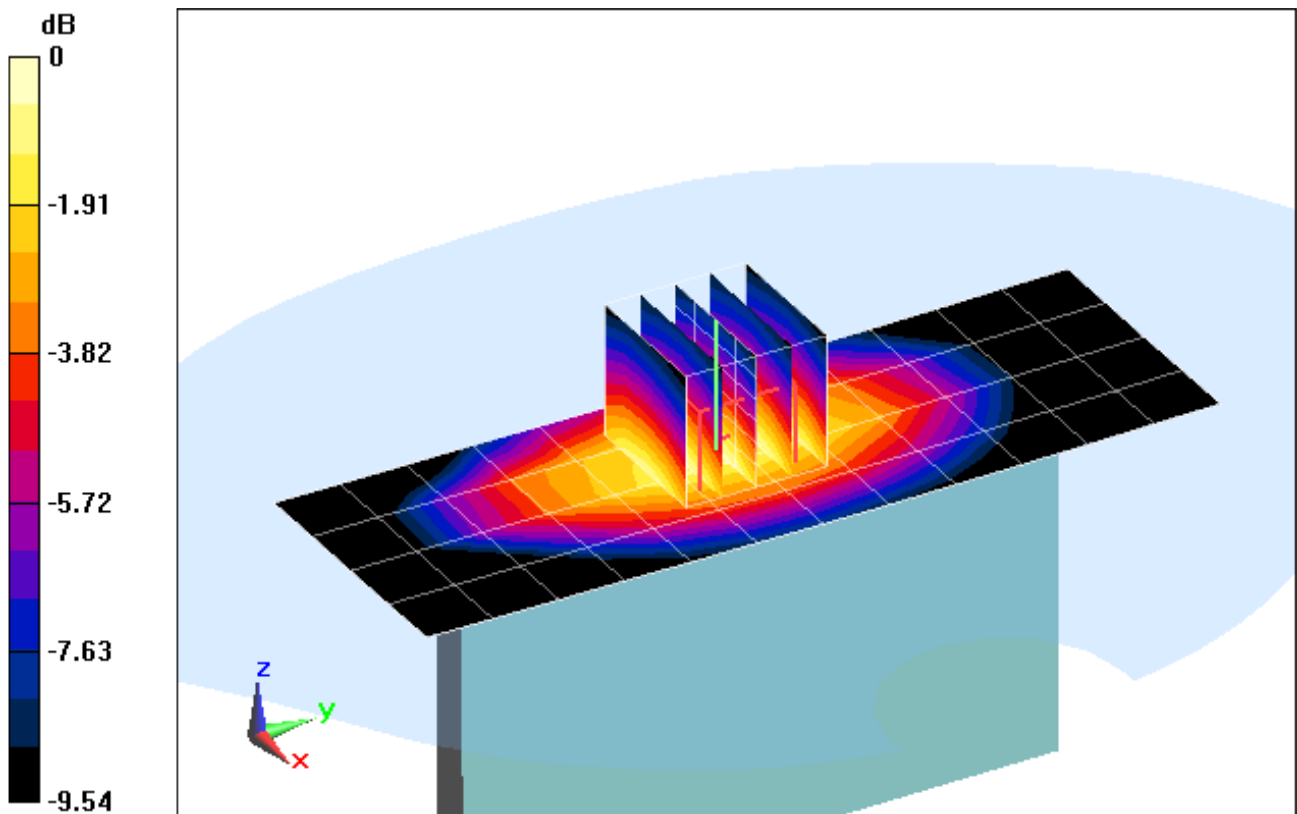
Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 15.167 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.2980 W/kg

SAR(1 g) = 0.212 mW/g; SAR(10 g) = 0.145 mW/g



0 dB = 0.230mW/g = -12.77 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: AWS

Communication System: CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.422 \text{ mho/m}$; $\epsilon_r = 52.866$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-06-2012; Ambient Temp: 22.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3561; ConvF(7.14, 7.14, 7.14); Calibrated: 7/27/2011

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 (0);SEMCAD X Version 14.6.4 (4989)

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

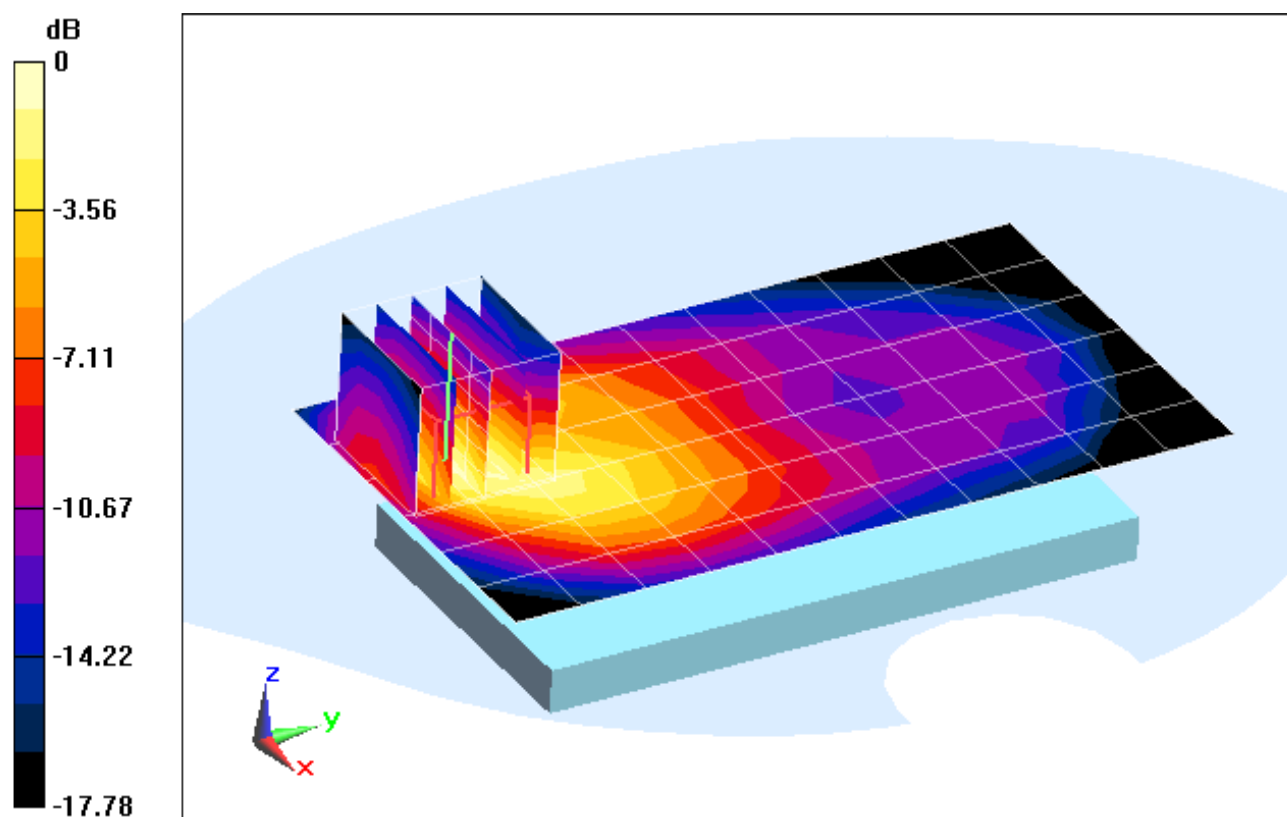
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 20.181 V/m; Power Drift = 0.0058 dB

Peak SAR (extrapolated) = 1.0270 W/kg

SAR(1 g) = 0.595 mW/g; SAR(10 g) = 0.322 mW/g



0 dB = 0.660mW/g = -3.61 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: AWS

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

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

$f = 1732.5 \text{ MHz}$; $\sigma = 1.422 \text{ mho/m}$; $\epsilon_r = 52.866$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-06-2012; Ambient Temp: 22.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3561; ConvF(7.14, 7.14, 7.14); Calibrated: 7/27/2011

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 (0);SEMCAD X Version 14.6.4 (4989)

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

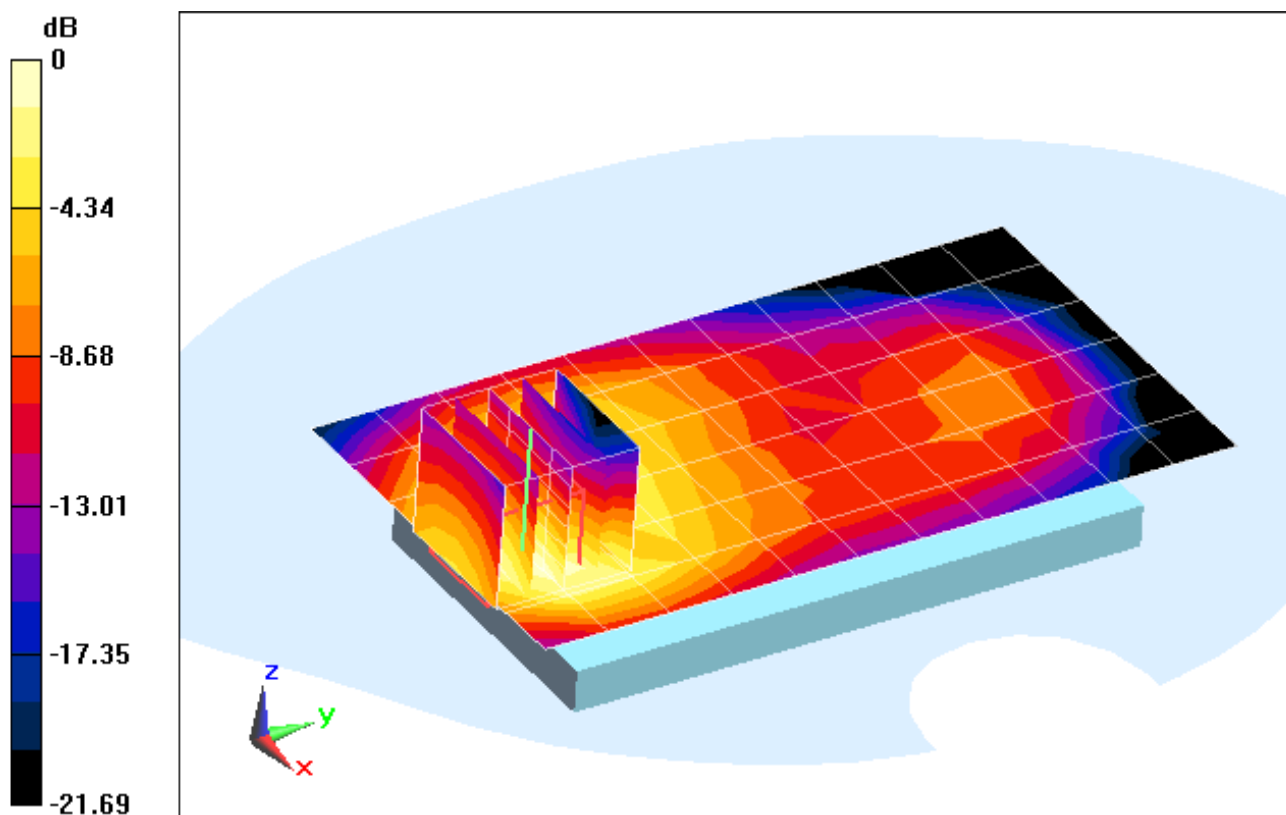
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 16.540 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.6180 W/kg

SAR(1 g) = 0.367 mW/g; SAR(10 g) = 0.200 mW/g



0 dB = 0.390mW/g = -8.18 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: AWS

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

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

$f = 1732.5 \text{ MHz}$; $\sigma = 1.422 \text{ mho/m}$; $\epsilon_r = 52.866$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-06-2012; Ambient Temp: 22.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3561; ConvF(7.14, 7.14, 7.14); Calibrated: 7/27/2011

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 (0);SEMCAD X Version 14.6.4 (4989)

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

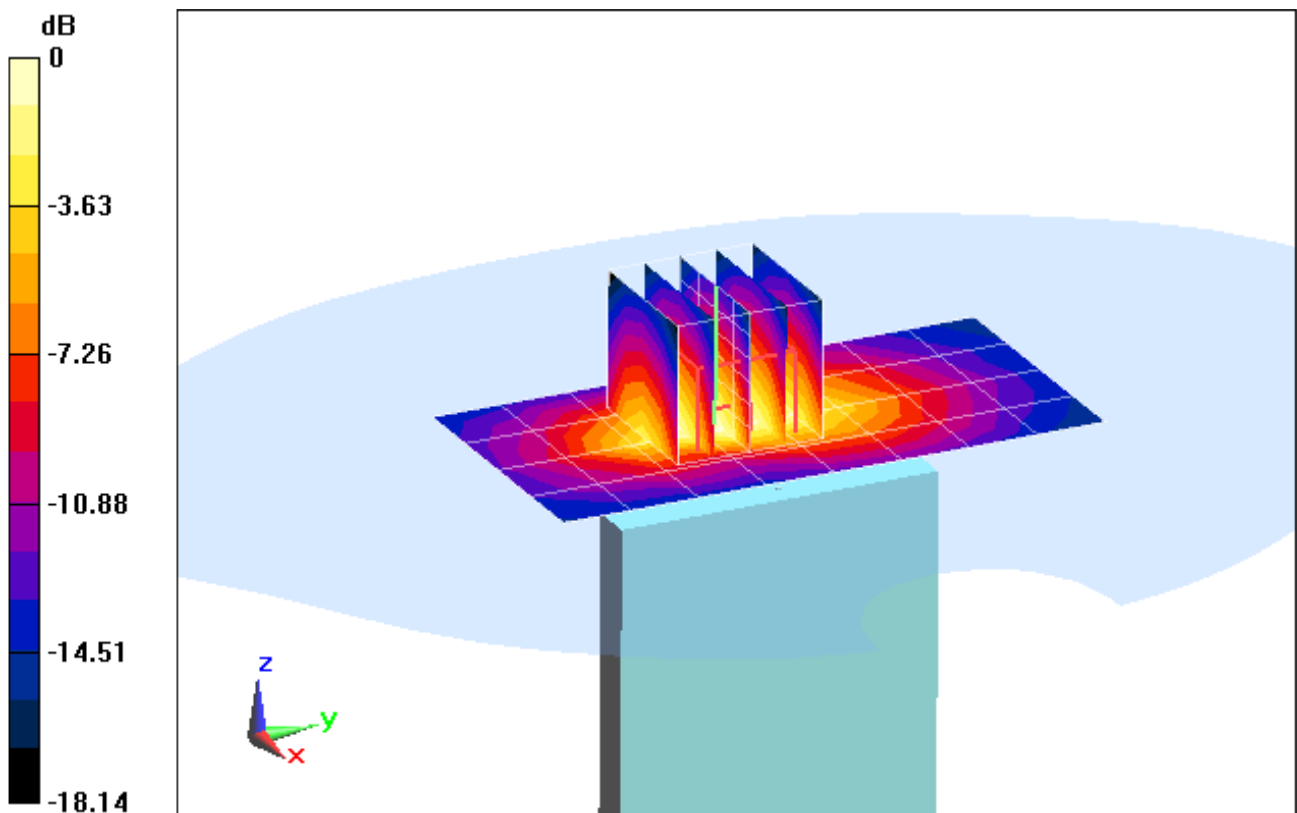
Area Scan (5x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 17.651 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.7350 W/kg

SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.220 mW/g



0 dB = 0.490mW/g = -6.20 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: AWS

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

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

$f = 1732.5 \text{ MHz}$; $\sigma = 1.422 \text{ mho/m}$; $\epsilon_r = 52.866$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-06-2012; Ambient Temp: 22.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3561; ConvF(7.14, 7.14, 7.14); Calibrated: 7/27/2011

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 (0); SEMCAD X Version 14.6.4 (4989)

Mode: AWS CDMA, Body SAR, Right Edge, Mid.ch

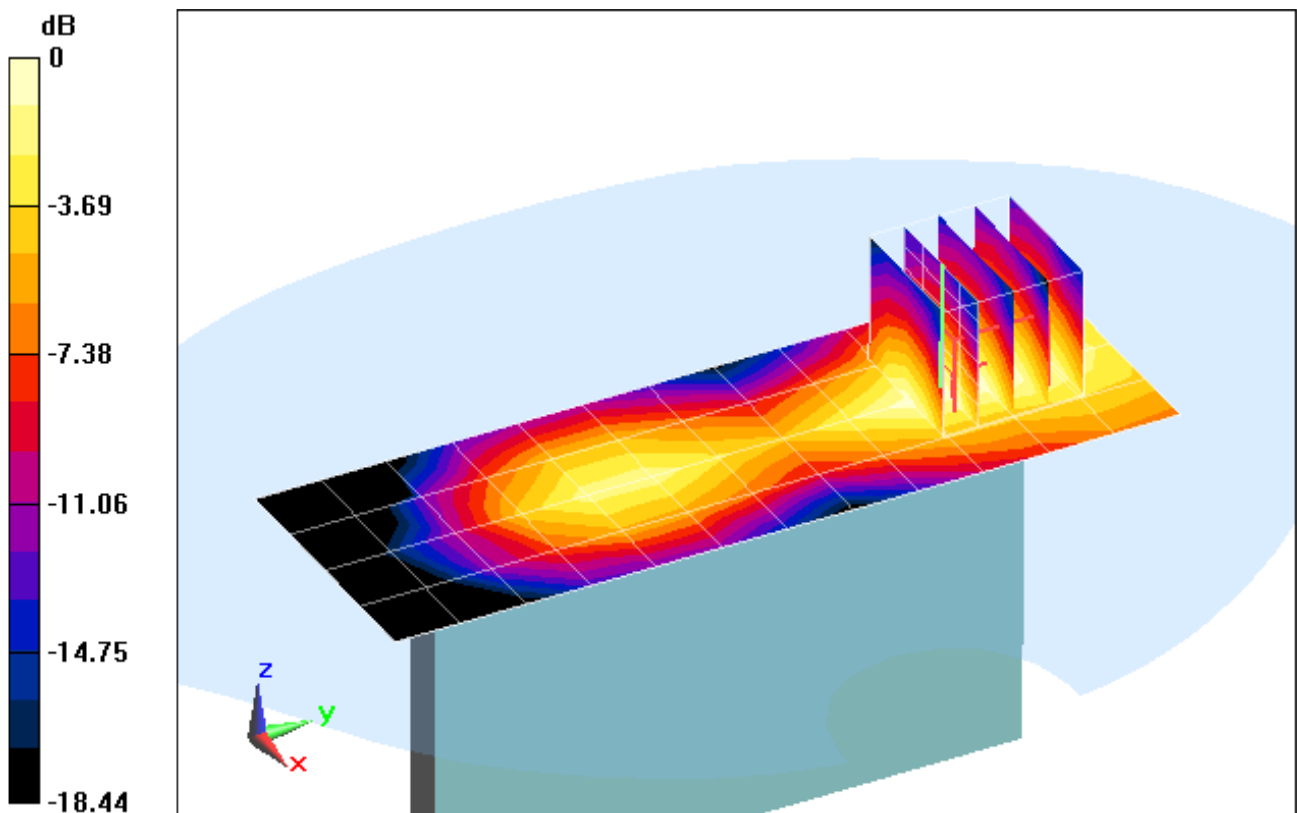
Area Scan (5x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 8.423 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.1540 W/kg

SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.055 mW/g



0 dB = 0.100mW/g = -20.00 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B4

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

Medium: 1750 Body Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.491 \text{ mho/m}$; $\epsilon_r = 51.567$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.83, 4.83, 4.83); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 2/15/2012

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

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

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

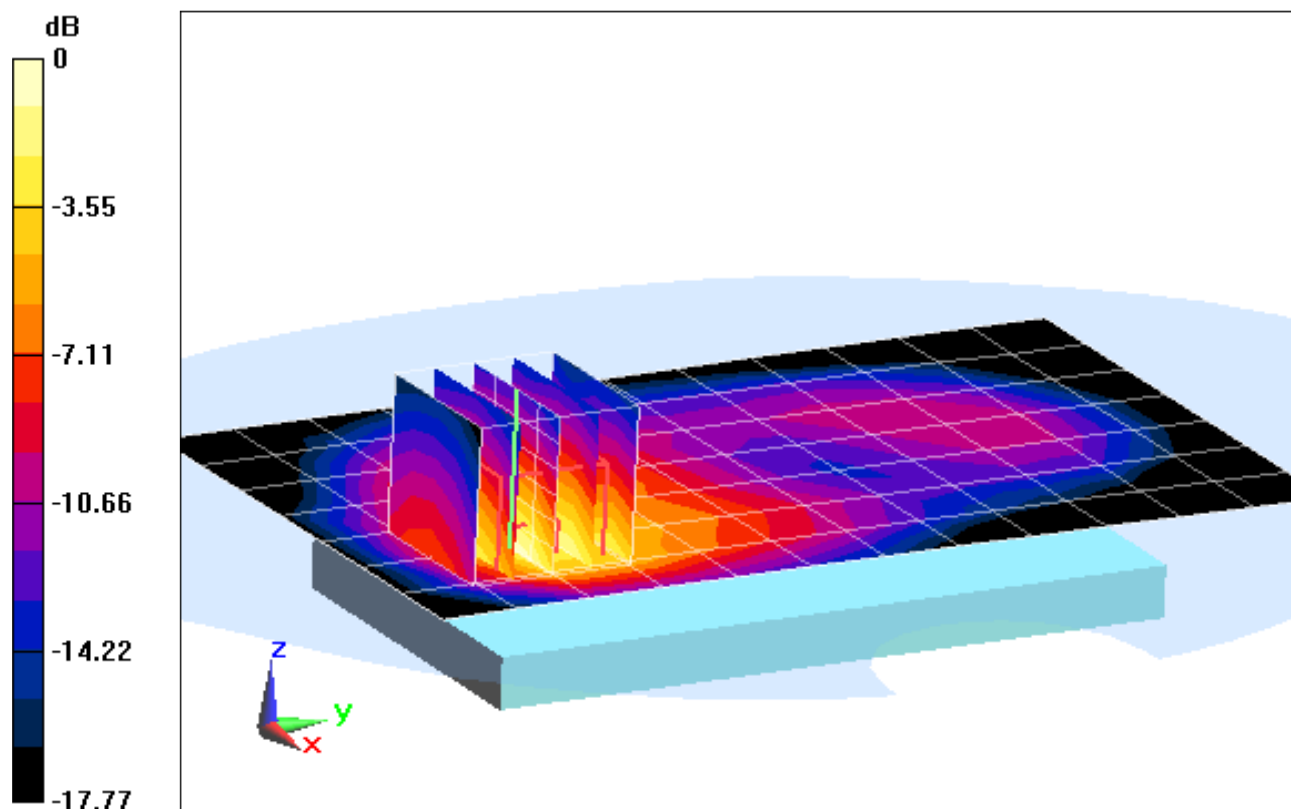
Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 20.429 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.916 mW/g

SAR(1 g) = 0.542 mW/g; SAR(10 g) = 0.298 mW/g



0 dB = 0.604 mW/g = -4.38 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B4

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

Medium: 1750 Body Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.491 \text{ mho/m}$; $\epsilon_r = 51.567$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.83, 4.83, 4.83); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 2/15/2012

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

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

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

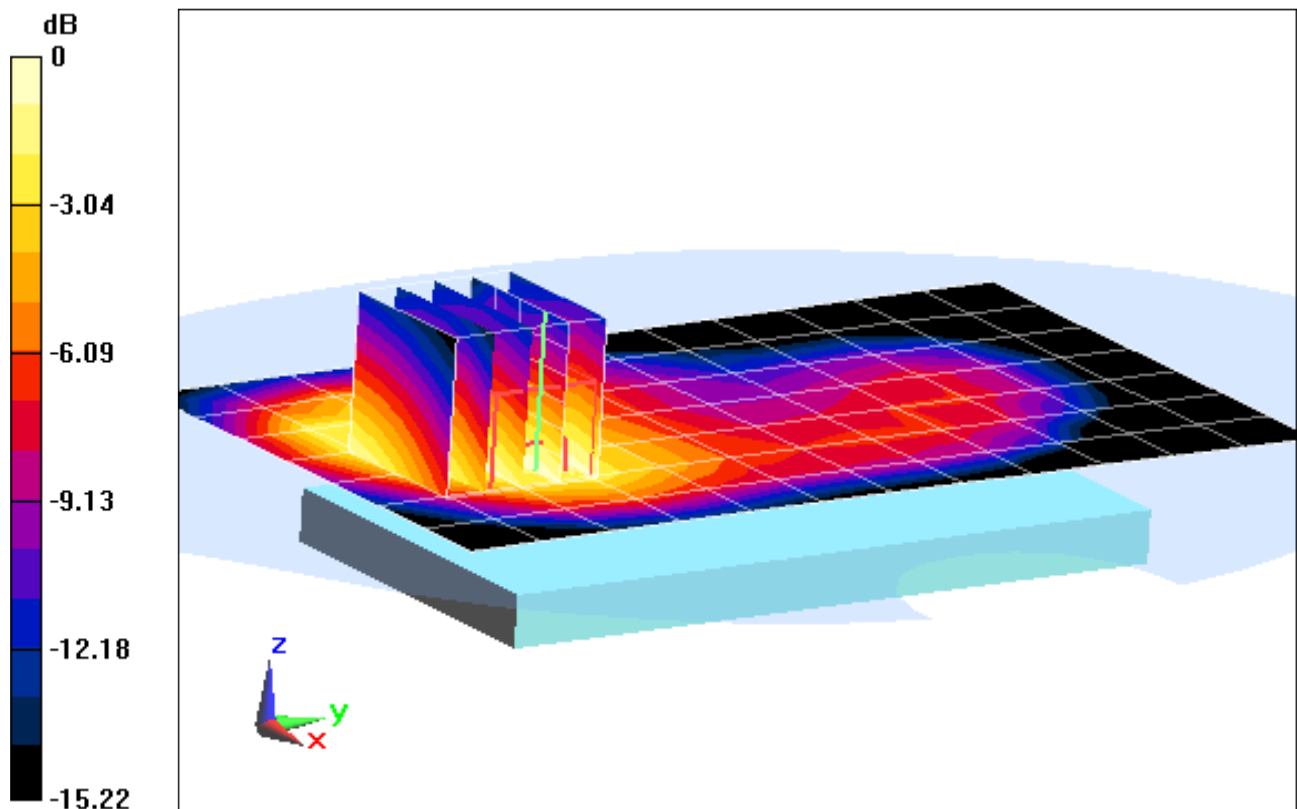
Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 14.583 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.457 mW/g

SAR(1 g) = 0.294 mW/g; SAR(10 g) = 0.183 mW/g



0 dB = 0.313 mW/g = -10.09 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B4

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

Medium: 1750 Body Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.491 \text{ mho/m}$; $\epsilon_r = 51.567$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.83, 4.83, 4.83); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 2/15/2012

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

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

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

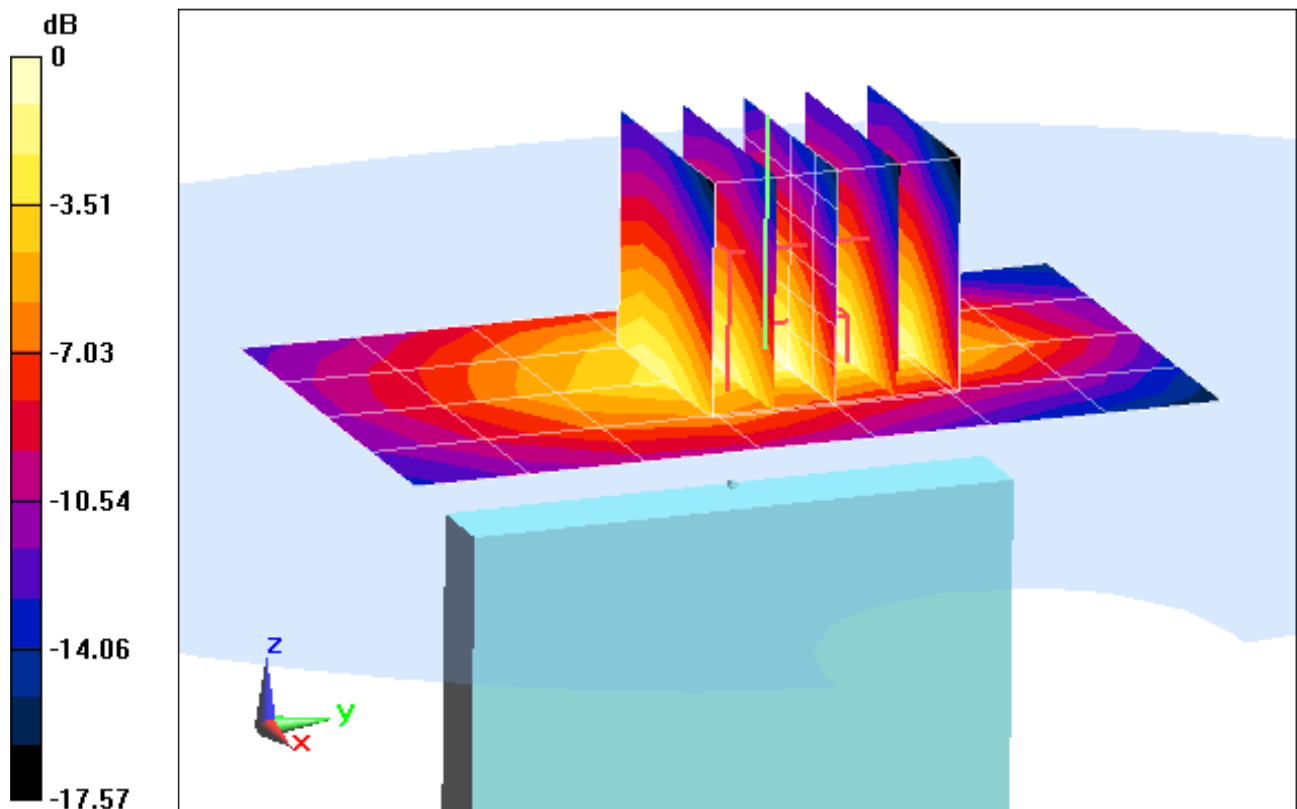
Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 15.953 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.656 mW/g

SAR(1 g) = 0.387 mW/g; SAR(10 g) = 0.218 mW/g



0 dB = 0.410 mW/g = -7.74 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B4

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

Medium: 1750 Body Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.491 \text{ mho/m}$; $\epsilon_r = 51.567$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.83, 4.83, 4.83); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 2/15/2012

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

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

Mode: LTE Band 4 (AWS), Body SAR, Left Edge, Mid.ch
10 MHz BW, QPSK, 1 RB, 49 RB Offset

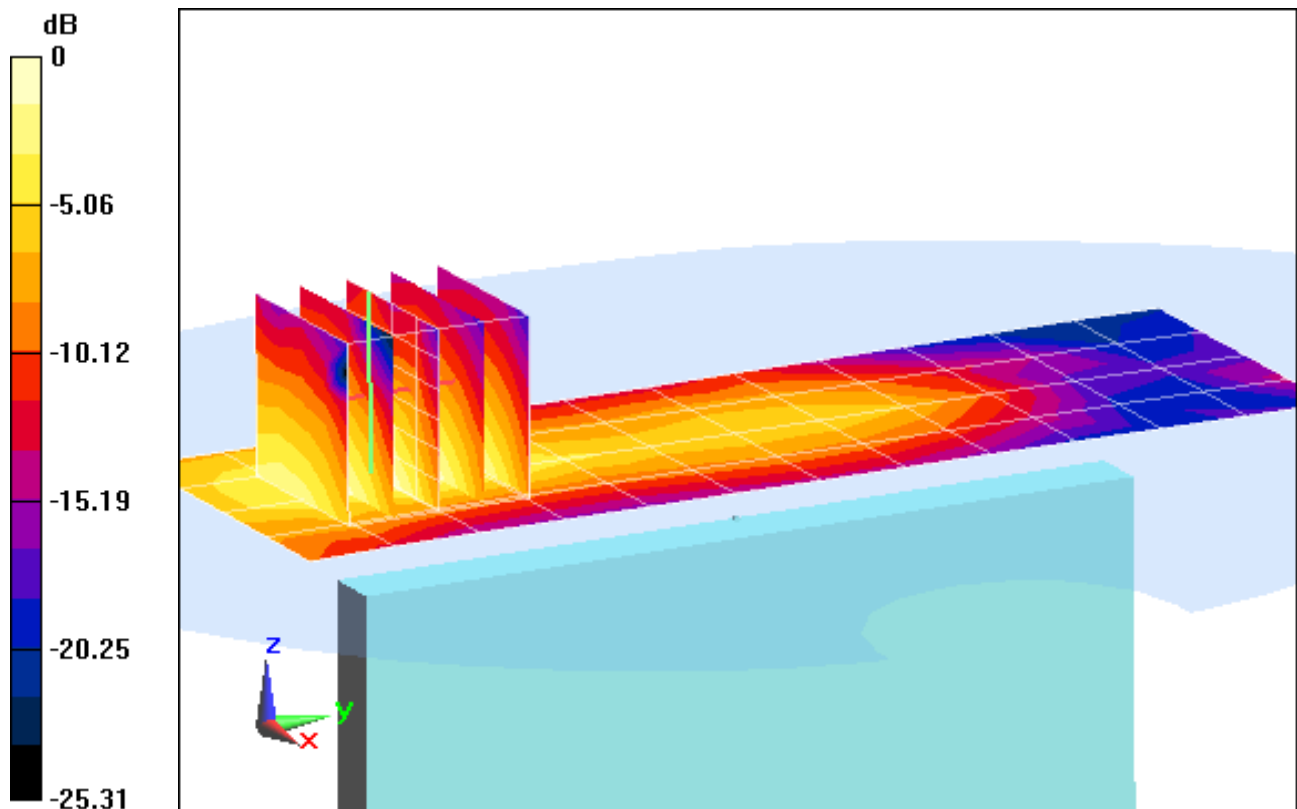
Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 9.694 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.236 mW/g

SAR(1 g) = 0.138 mW/g; SAR(10 g) = 0.077 mW/g



0 dB = 0.149 mW/g = -16.54 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: PCS

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.508 \text{ mho/m}$; $\epsilon_r = 51.66$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-03-2012; Ambient Temp: 24.2°C; Tissue Temp: 23.6°C

Probe: ES3DV2 - SN3022; ConvF(4.41, 4.41, 4.41); Calibrated: 8/25/2011

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 14.6.4 (4989)

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

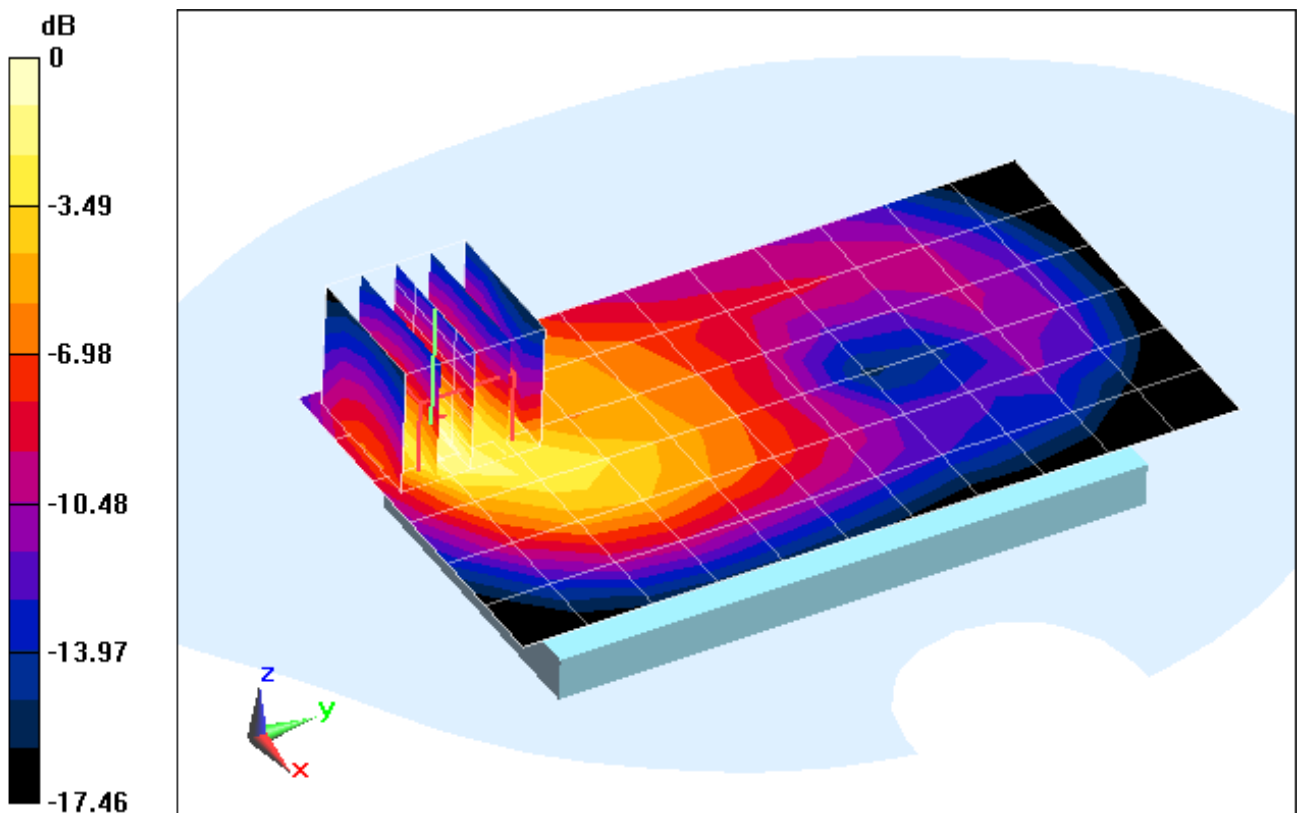
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 20.978 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.1390 W/kg

SAR(1 g) = 0.654 mW/g; SAR(10 g) = 0.350 mW/g



0 dB = 0.750mW/g = -2.50 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: PCS

Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.508 \text{ mho/m}$; $\epsilon_r = 51.66$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-03-2012; Ambient Temp: 24.2°C; Tissue Temp: 23.6°C

Probe: ES3DV2 - SN3022; ConvF(4.41, 4.41, 4.41); Calibrated: 8/25/2011

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 14.6.4 (4989)

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

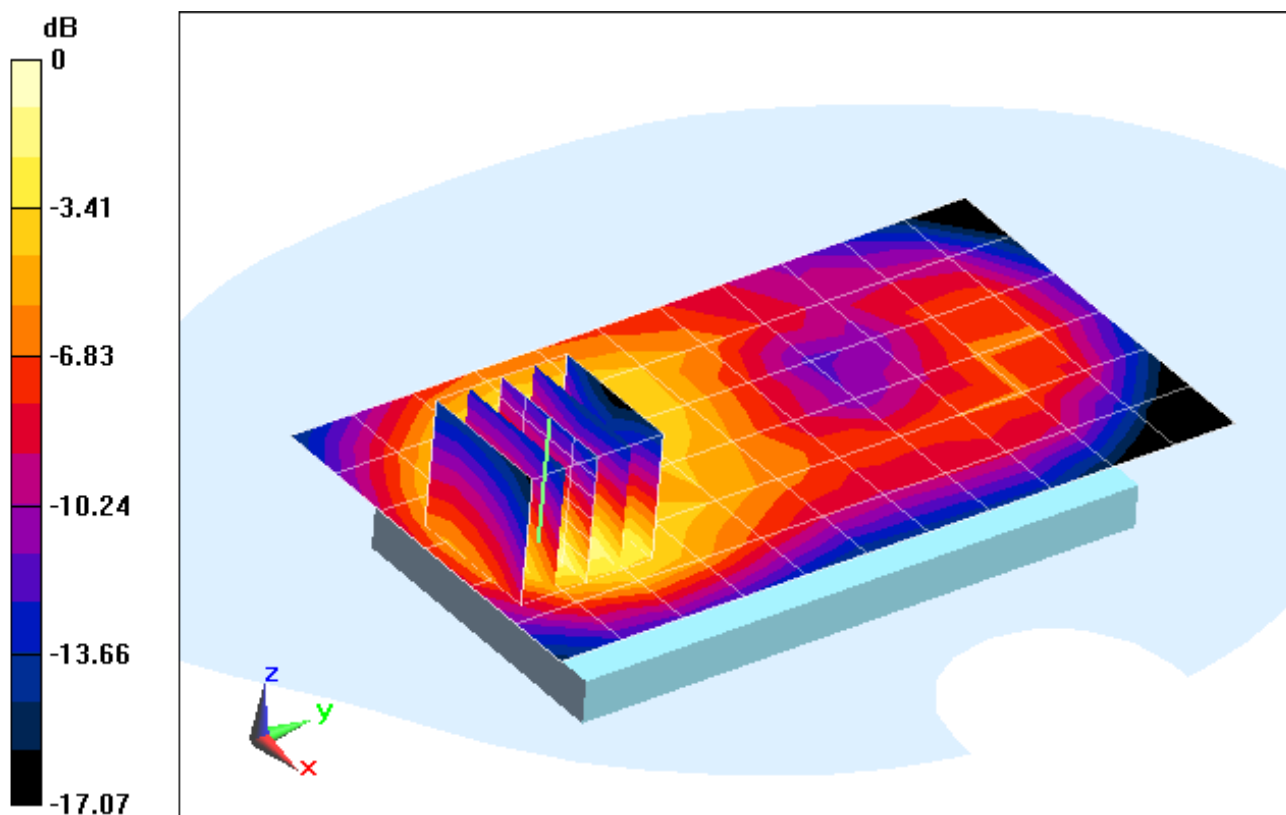
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 16.469 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.6100 W/kg

SAR(1 g) = 0.365 mW/g; SAR(10 g) = 0.205 mW/g



0 dB = 0.410mW/g = -7.74 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: PCS

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.508 \text{ mho/m}$; $\epsilon_r = 51.66$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-03-2012; Ambient Temp: 24.2°C; Tissue Temp: 23.6°C

Probe: ES3DV2 - SN3022; ConvF(4.41, 4.41, 4.41); Calibrated: 8/25/2011

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 14.6.4 (4989)

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

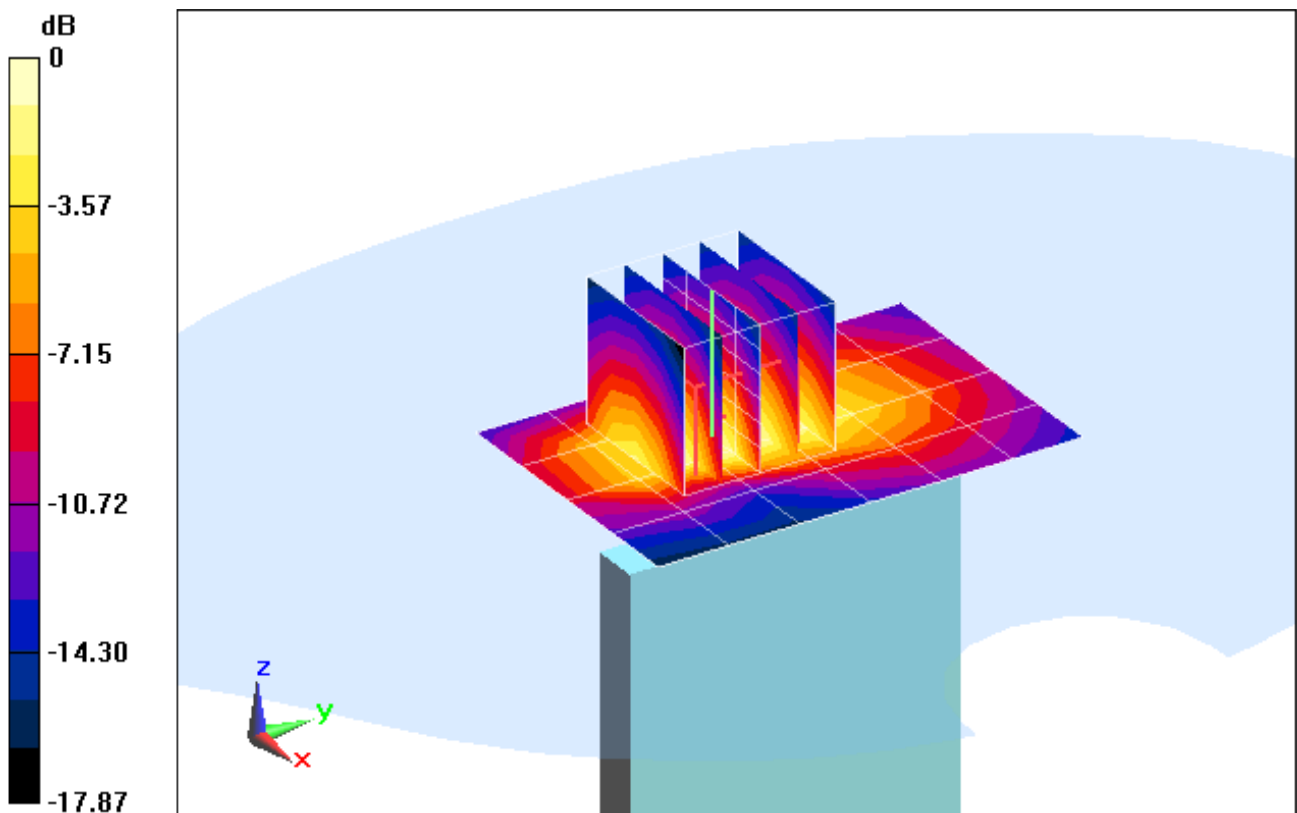
Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 17.977 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.9380 W/kg

SAR(1 g) = 0.534 mW/g; SAR(10 g) = 0.281 mW/g



0 dB = 0.610mW/g = -4.29 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: PCS

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.508 \text{ mho/m}$; $\epsilon_r = 51.66$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-03-2012; Ambient Temp: 24.2°C; Tissue Temp: 23.6°C

Probe: ES3DV2 - SN3022; ConvF(4.41, 4.41, 4.41); Calibrated: 8/25/2011

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 14.6.4 (4989)

Mode: PCS EVDO, Body SAR, Right Edge, Mid.ch

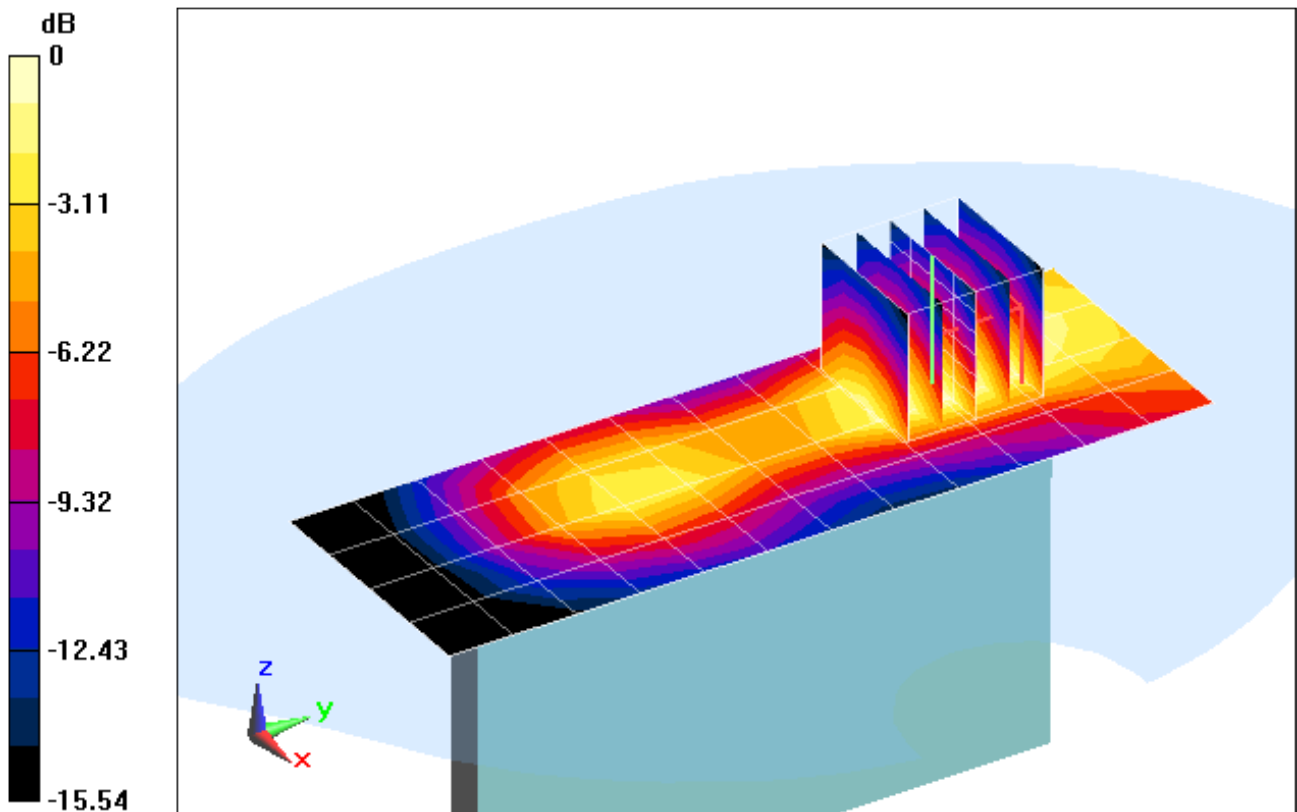
Area Scan (5x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 9.033 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.1750 W/kg

SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.064 mW/g



0 dB = 0.120mW/g = -18.42 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B2

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.491 \text{ mho/m}$; $\epsilon_r = 51.438$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.5°C; Tissue Temp: 22.0°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, Low.ch

10 MHz BW, QPSK, 1 RB, 0 RB Offset

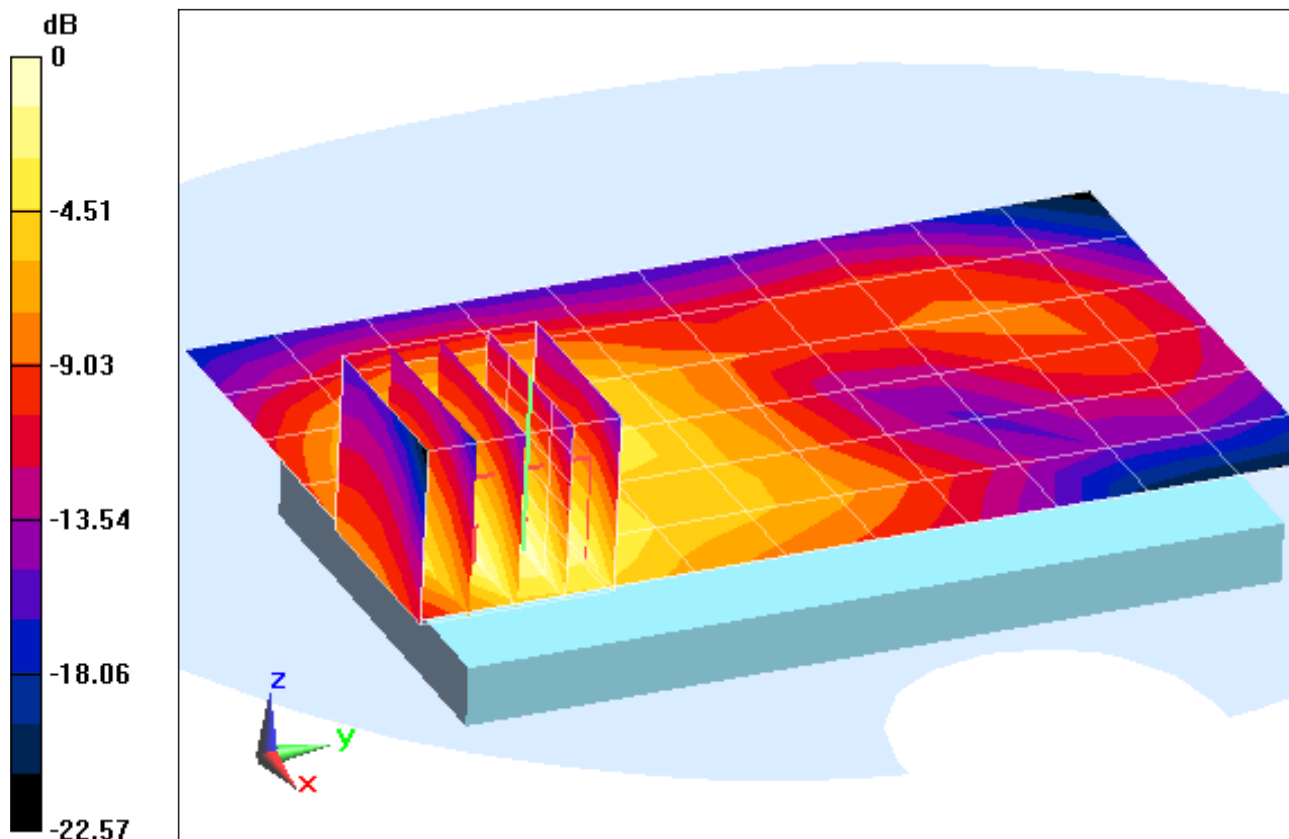
Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 19.812 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.992 mW/g

SAR(1 g) = 0.606 mW/g; SAR(10 g) = 0.339 mW/g



0 dB = 0.628 mW/g = -4.04 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B2

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.491 \text{ mho/m}$; $\epsilon_r = 51.438$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.5°C; Tissue Temp: 22.0°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, Low.ch

10 MHz BW, QPSK, 1 RB, 0 RB Offset

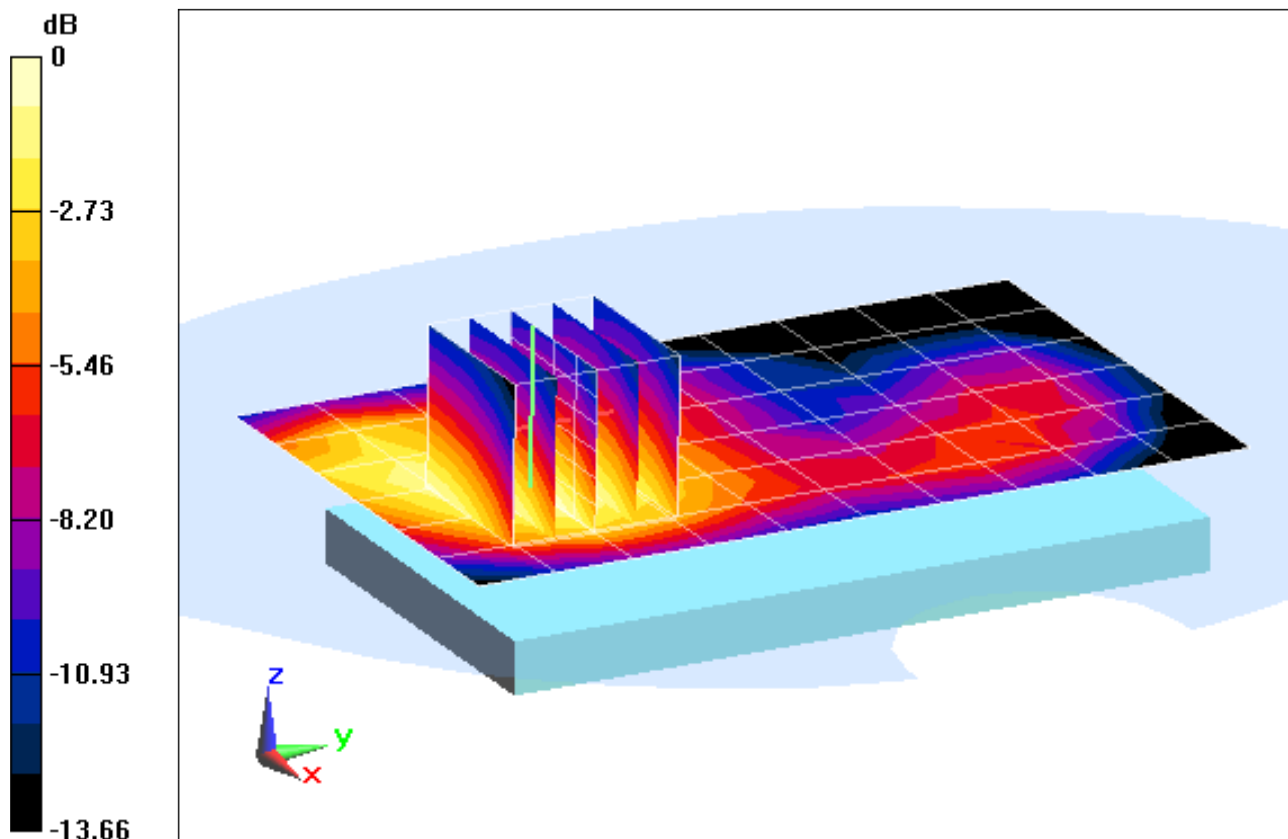
Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 17.976 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.658 mW/g

SAR(1 g) = 0.437 mW/g; SAR(10 g) = 0.279 mW/g



0 dB = 0.461 mW/g = -6.73 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B2

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.491 \text{ mho/m}$; $\epsilon_r = 51.438$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.5°C; Tissue Temp: 22.0°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, Low.ch

10 MHz BW, QPSK, 1 RB, 0 RB Offset

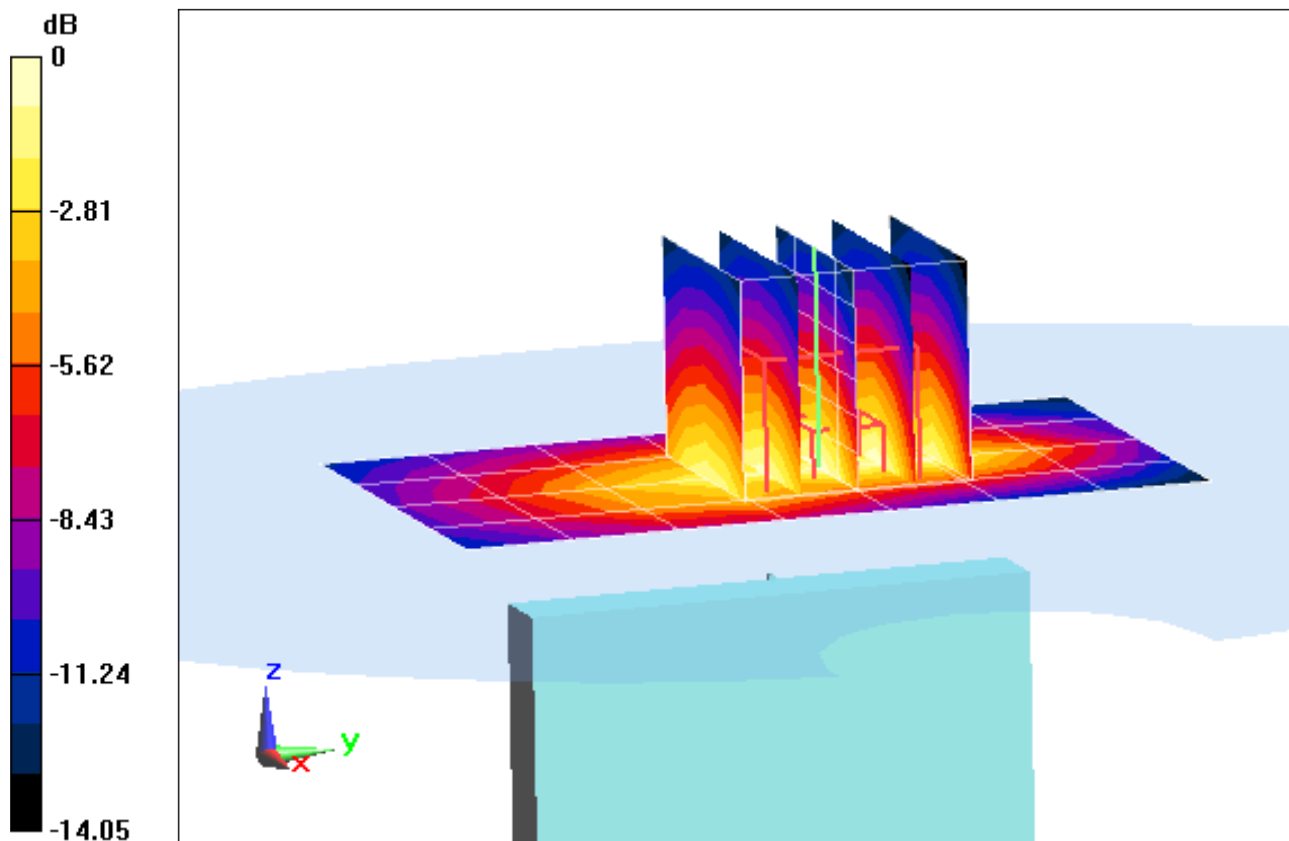
Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 19.900 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.859 mW/g

SAR(1 g) = 0.513 mW/g; SAR(10 g) = 0.296 mW/g



0 dB = 0.561 mW/g = -5.02 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B2

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1855 \text{ MHz}$; $\sigma = 1.491 \text{ mho/m}$; $\epsilon_r = 51.438$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.5°C; Tissue Temp: 22.0°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, Left Edge, Low.ch

10 MHz BW, QPSK, 1 RB, 49 RB Offset

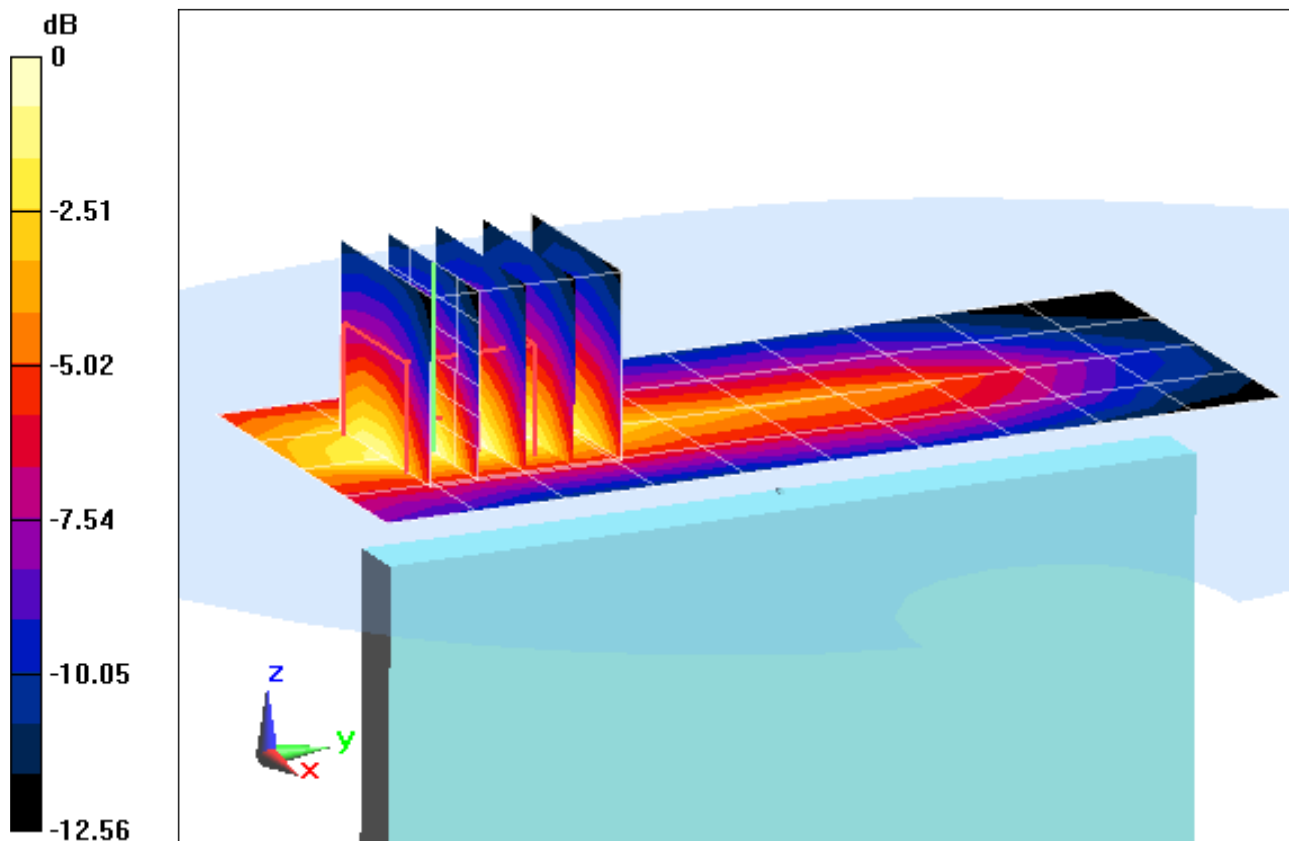
Area Scan (5x11x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 11.724 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.317 mW/g

SAR(1 g) = 0.190 mW/g; SAR(10 g) = 0.110 mW/g



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

Communication System: 2.4GHz WLAN; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2462 \text{ MHz}$; $\sigma = 2.021 \text{ mho/m}$; $\epsilon_r = 54.611$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.7°C

Probe: ES3DV2 - SN3022; ConvF(4.01, 4.01, 4.01); Calibrated: 8/25/2011;

Sensor-Surface: 3mm (Mechanical Surface Detection)

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

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

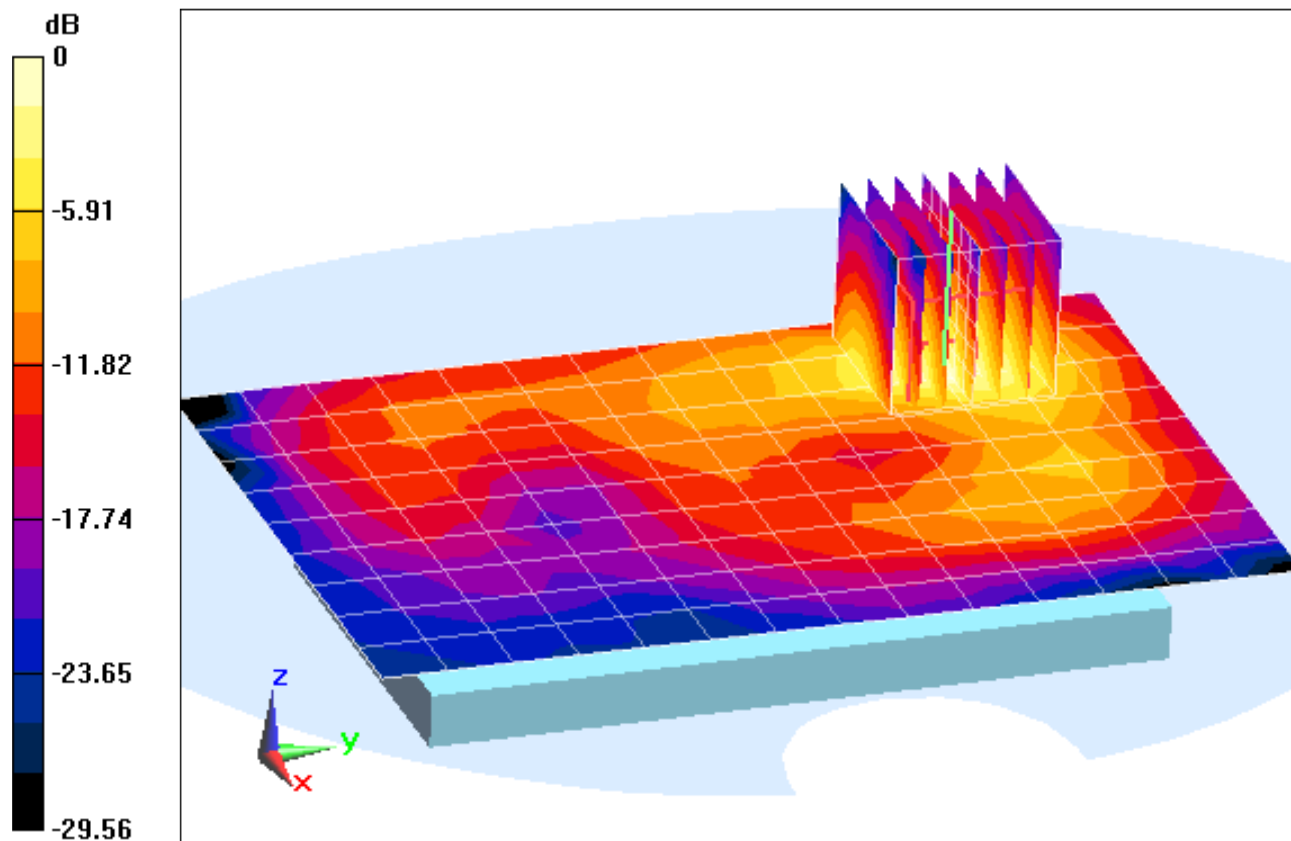
Area Scan (10x15x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 12.142 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.646 mW/g

SAR(1 g) = 0.297 mW/g; SAR(10 g) = 0.127 mW/g



0 dB = 0.391 mW/g = -8.16 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

Communication System: 2.4GHz WLAN; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2462 \text{ MHz}$; $\sigma = 2.021 \text{ mho/m}$; $\epsilon_r = 54.611$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.7°C

Probe: ES3DV2 - SN3022; ConvF(4.01, 4.01, 4.01); Calibrated: 8/25/2011;

Sensor-Surface: 3mm (Mechanical Surface Detection)

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

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

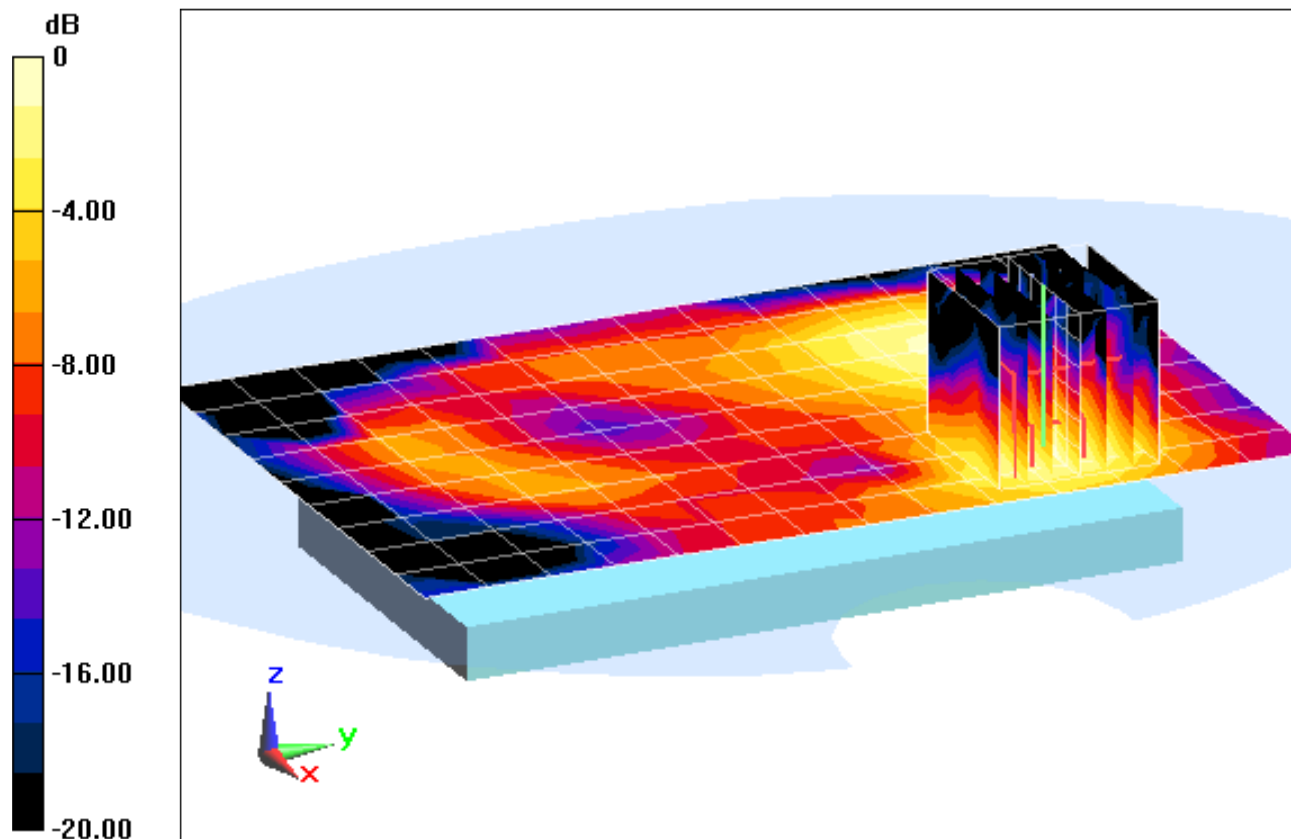
Area Scan (10x15x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 3.900 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.058 mW/g

SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.015 mW/g



0 dB = 0.0387 mW/g = -28.25 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2462 \text{ MHz}$; $\sigma = 2.021 \text{ mho/m}$; $\epsilon_r = 54.611$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.7°C

Probe: ES3DV2 - SN3022; ConvF(4.01, 4.01, 4.01); Calibrated: 8/25/2011;

Sensor-Surface: 3mm (Mechanical Surface Detection)

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

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

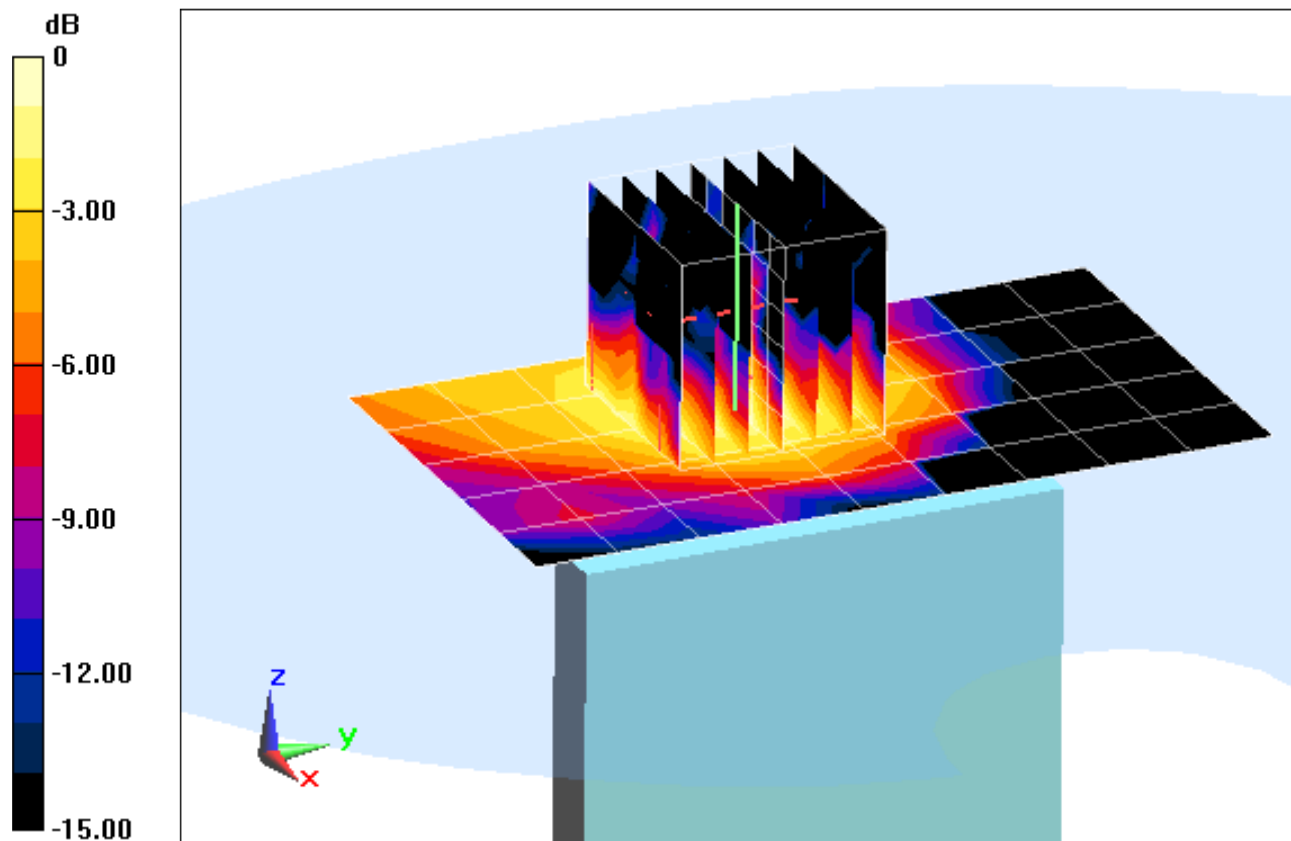
Area Scan (6x10x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 2.064 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.017 mW/g

SAR(1 g) = 0.00764 mW/g; SAR(10 g) = 0.00355 mW/g



0 dB = 0.0103 mW/g = -39.74 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR530; Type: Portable Handset; Serial: B5

Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2462 \text{ MHz}$; $\sigma = 2.021 \text{ mho/m}$; $\epsilon_r = 54.611$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.7°C

Probe: ES3DV2 - SN3022; ConvF(4.01, 4.01, 4.01); Calibrated: 8/25/2011;

Sensor-Surface: 3mm (Mechanical Surface Detection)

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

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

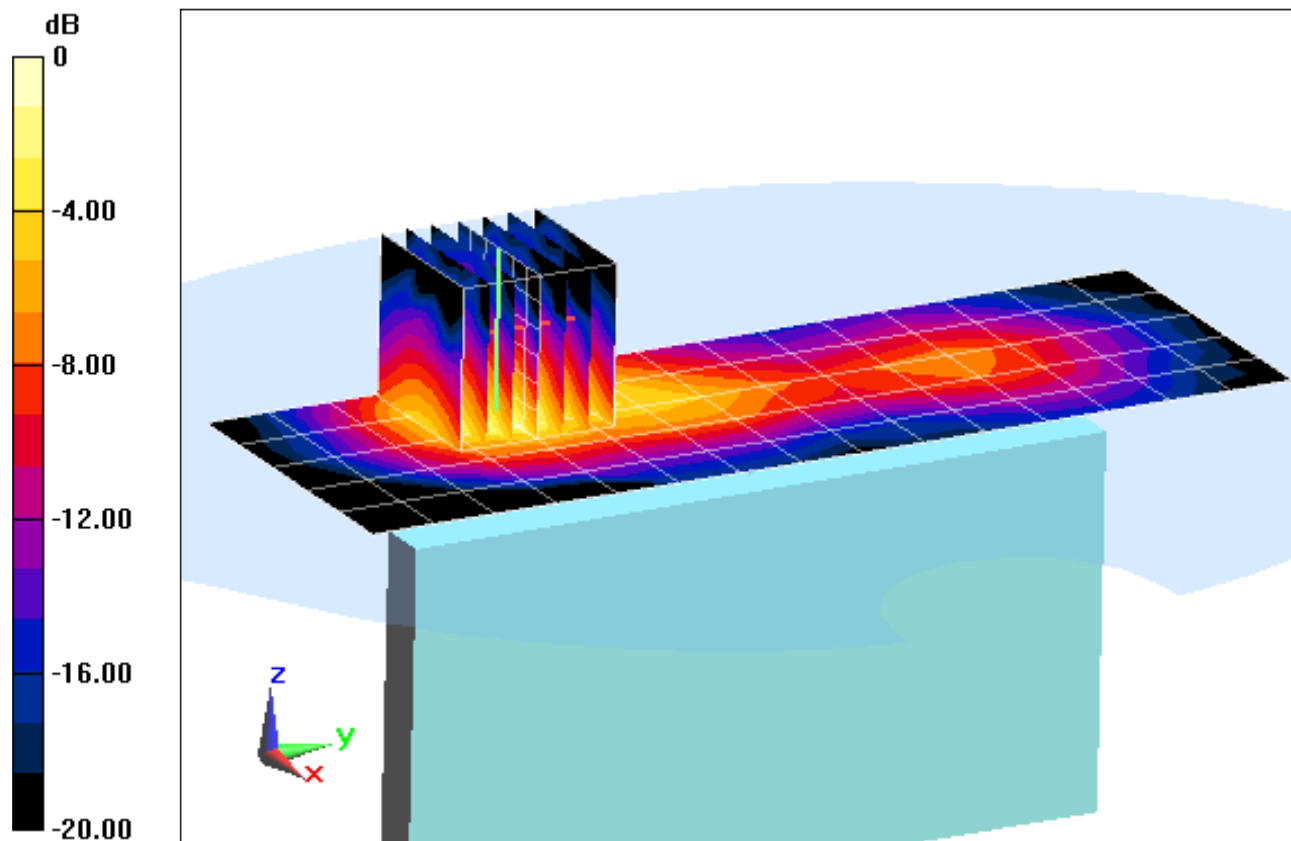
Area Scan (6x16x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 7.849 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.211 mW/g

SAR(1 g) = 0.107 mW/g; SAR(10 g) = 0.051 mW/g



0 dB = 0.139 mW/g = -17.14 dB mW/g

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1046

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

Medium: 740 Head; Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.926 \text{ mho/m}$; $\epsilon_r = 42.61$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-24-2012; Ambient Temp: 23.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(8.38, 8.38, 8.38); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (0);SEMCAD X Version 14.6.4 (4989)

750 MHz System Verification

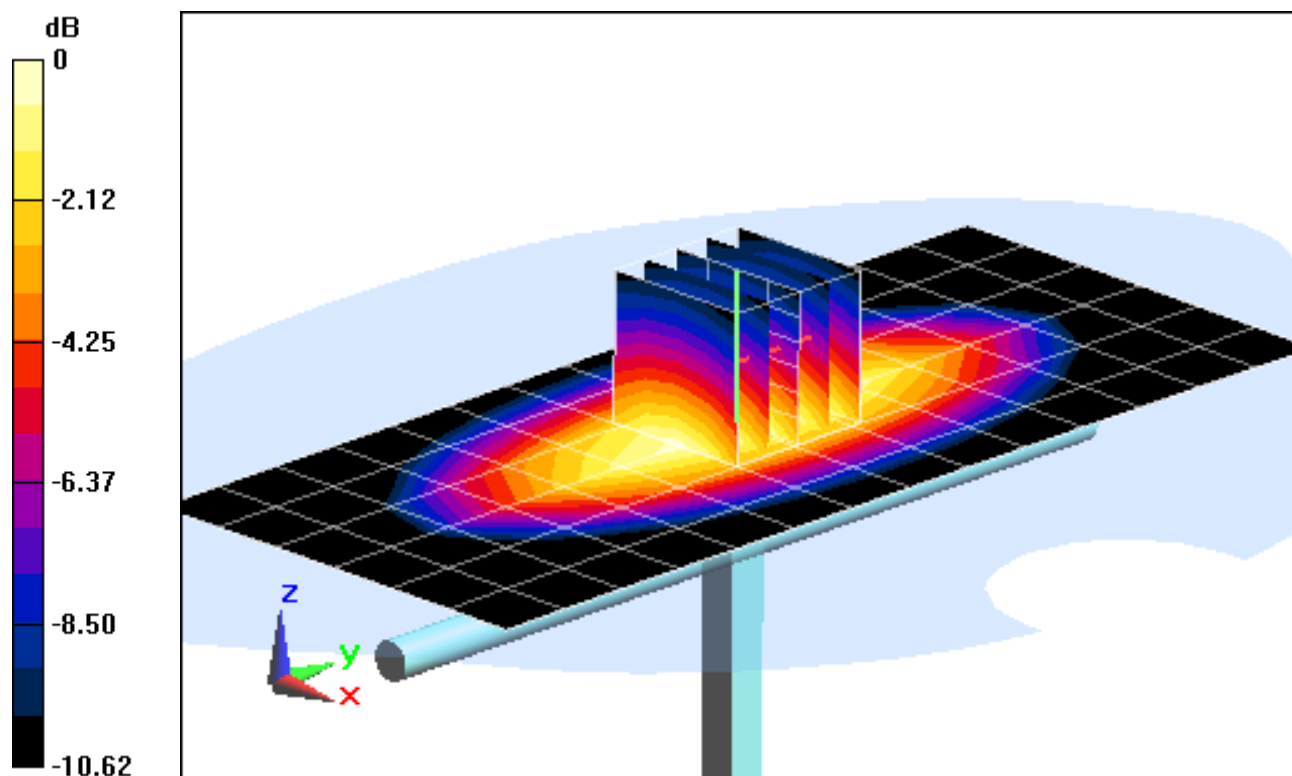
Area Scan (7x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 18.0 dBm (63 mW)

SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.333 mW/g

Deviation = -3.63%



0 dB = 0.550mW/g = -5.19 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1046

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

Medium: 740 Head; Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.926 \text{ mho/m}$; $\epsilon_r = 42.61$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-24-2012; Ambient Temp: 23.3°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(8.38, 8.38, 8.38); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

750 MHz System Verification

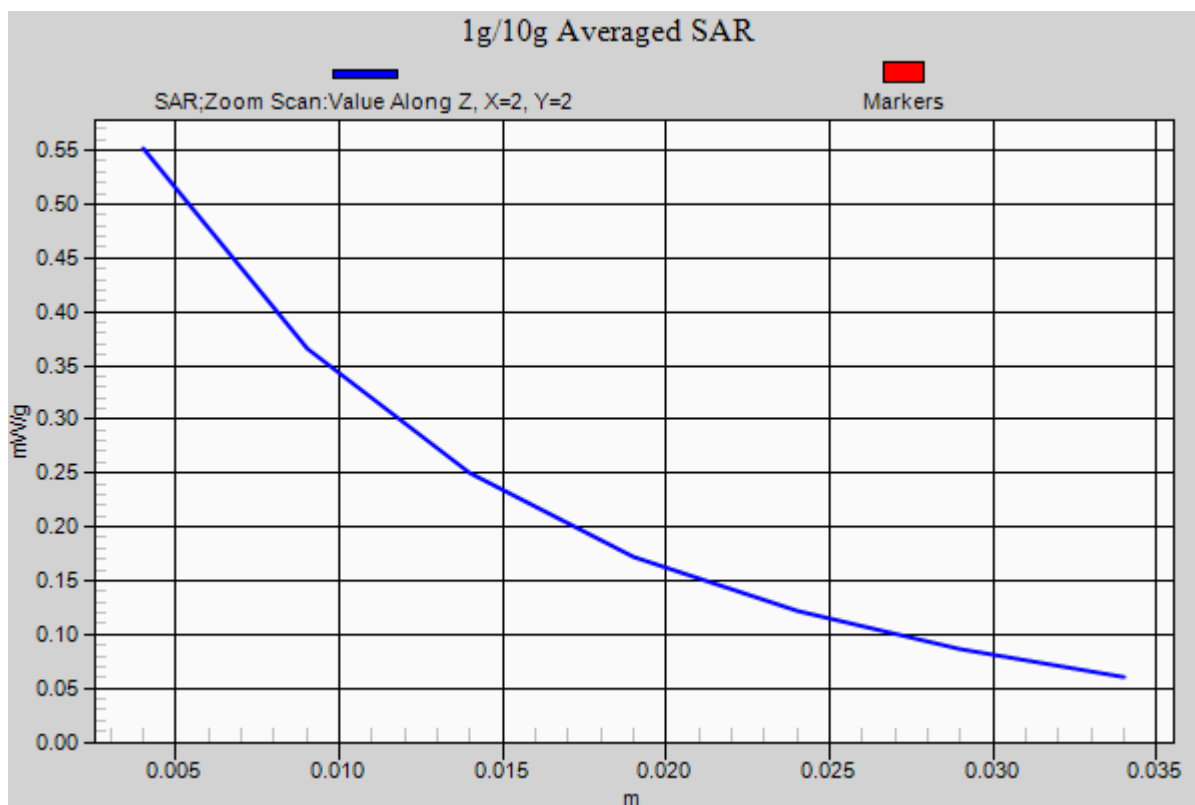
Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 18.0 dBm (63 mW)

SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.333 mW/g

Deviation = -3.63%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.934 \text{ mho/m}$; $\epsilon_r = 42.33$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-25-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.22, 6.22, 6.22); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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)

835MHz System Verification

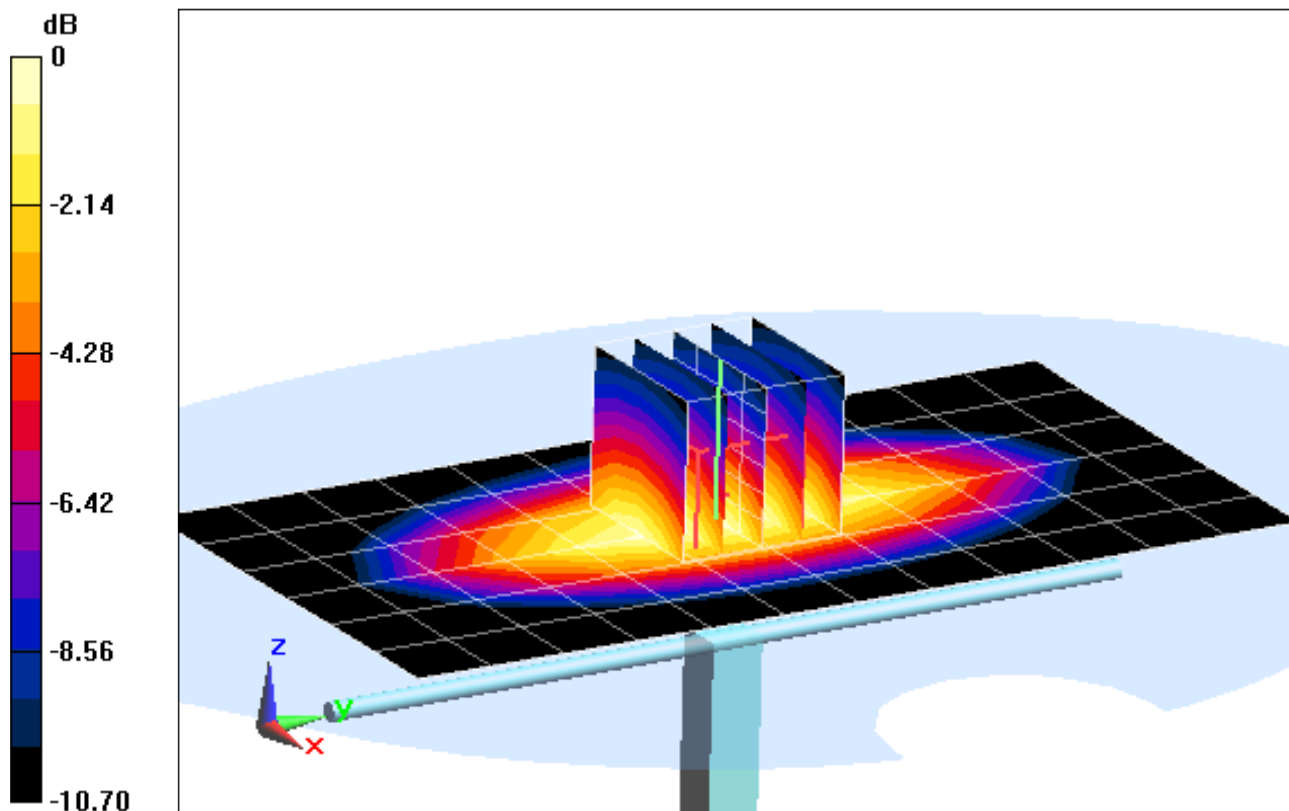
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 0.935 mW/g; SAR(10 g) = 0.612 mW/g

Deviation = -1.06%



0 dB = 1.01 mW/g = 0.09 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.934 \text{ mho/m}$; $\epsilon_r = 42.33$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-25-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(6.22, 6.22, 6.22); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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)

835MHz System Verification

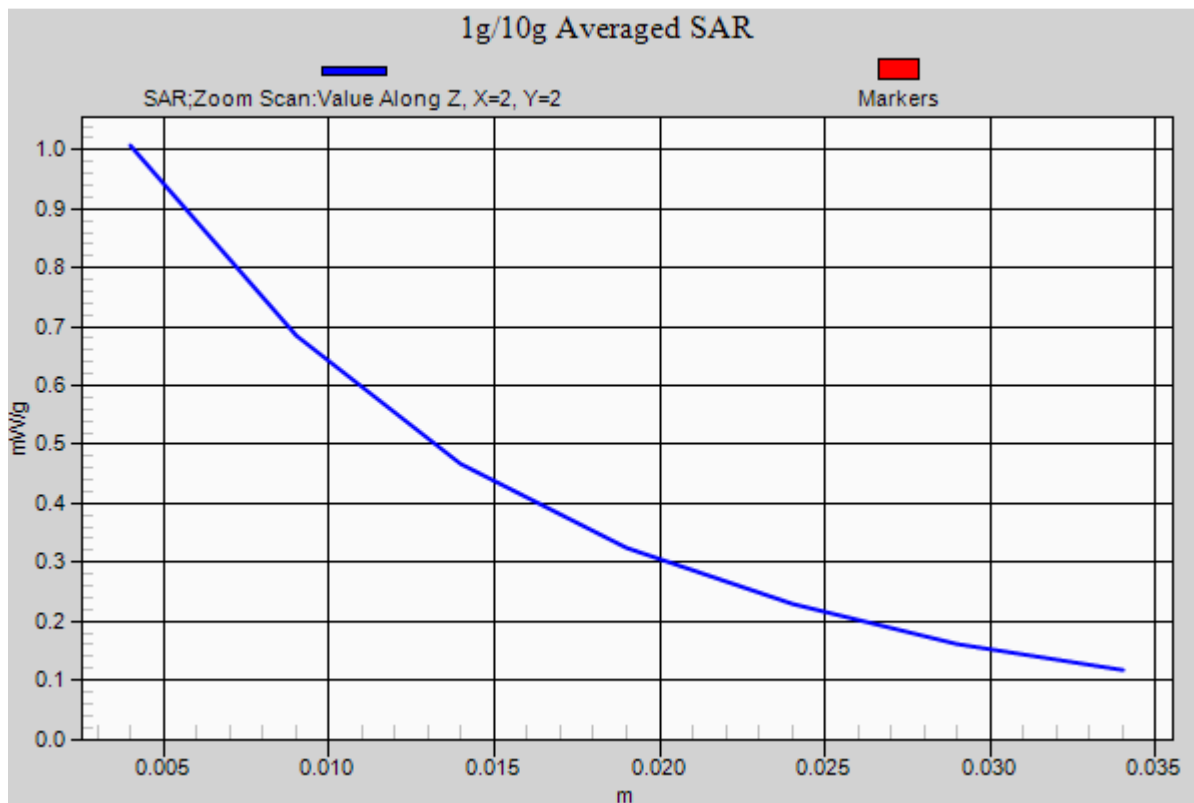
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 0.935 mW/g; SAR(10 g) = 0.612 mW/g

Deviation = -1.06%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.919 \text{ mho/m}$; $\epsilon_r = 41.49$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-07-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012;

Sensor-Surface: 4mm (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)

835MHz System Verification

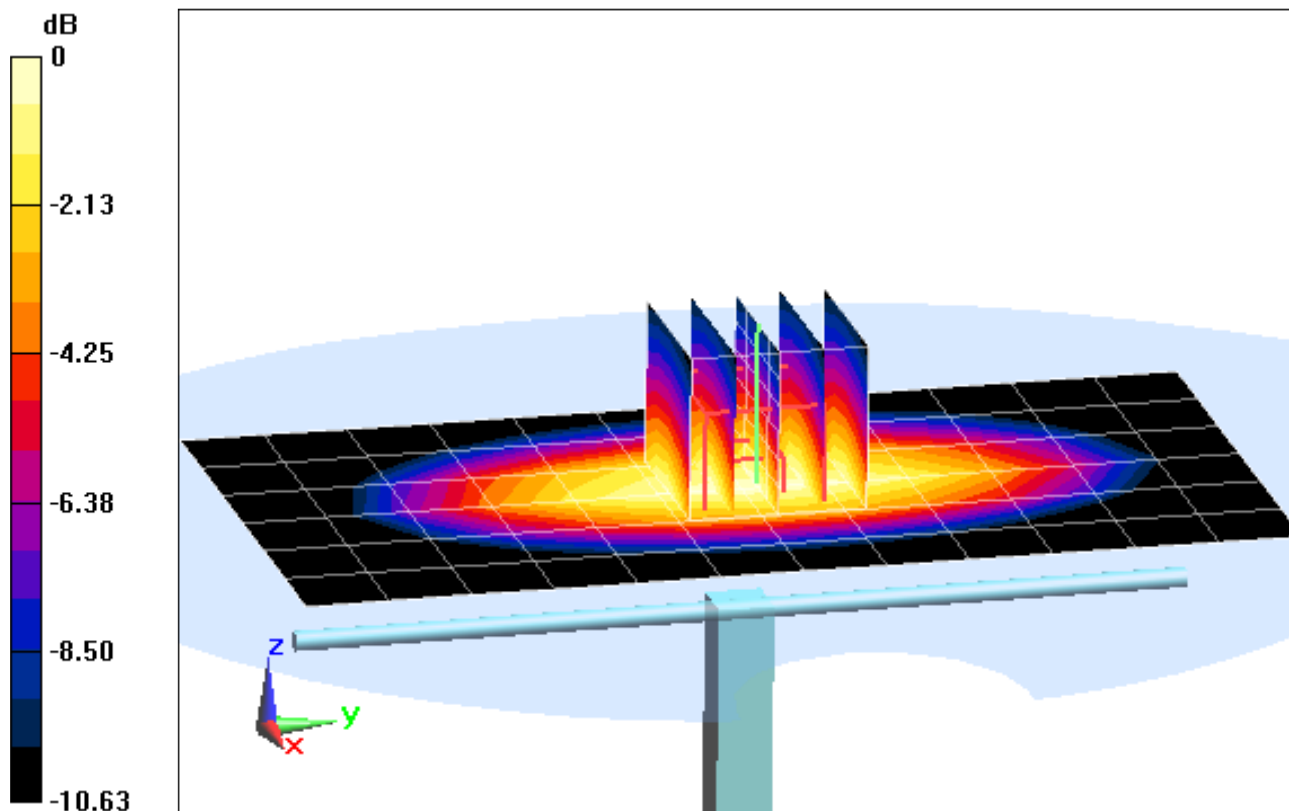
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 0.991 mW/g; SAR(10 g) = 0.646 mW/g

Deviation = 5.20%



0 dB = 1.07 mW/g = 0.59 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.919 \text{ mho/m}$; $\epsilon_r = 41.49$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-07-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012;

Sensor-Surface: 4mm (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)

835MHz System Verification

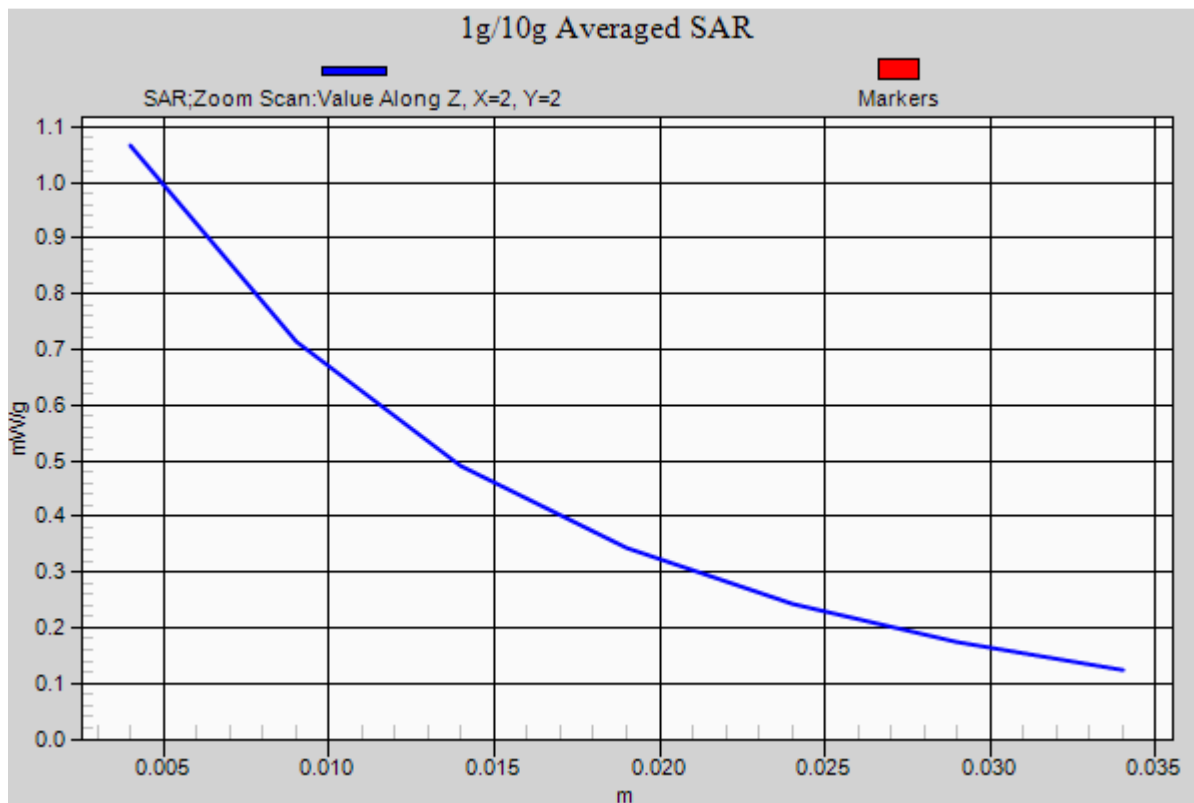
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 0.991 mW/g; SAR(10 g) = 0.646 mW/g

Deviation = 5.20%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1750 Head Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 39.61$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.8°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(5.26, 5.26, 5.26); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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)

1750 MHz System Verification

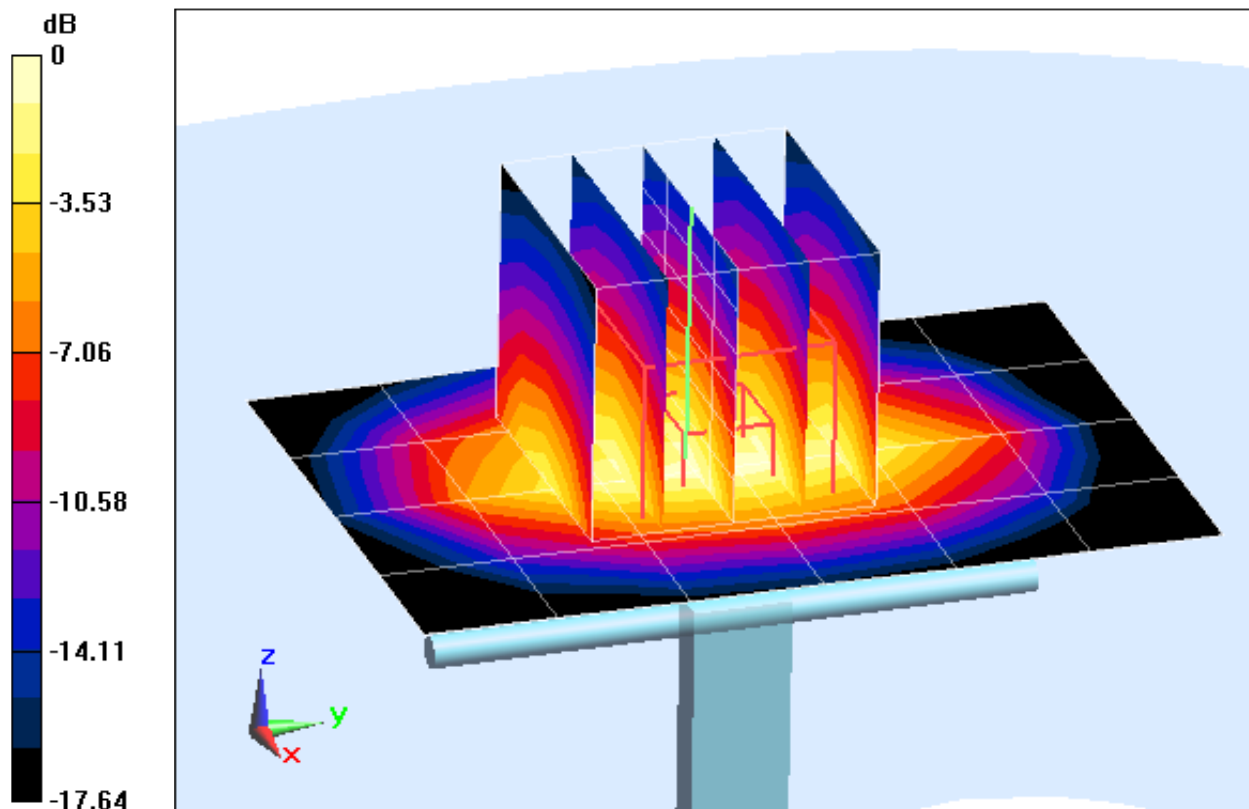
Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 3.55 mW/g; SAR(10 g) = 1.86 mW/g

Deviation = -3.01%



0 dB = 3.95 mW/g = 11.93 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1750 Head Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 39.61$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.8°C; Tissue Temp: 23.2°C

Probe: ES3DV3 - SN3209; ConvF(5.26, 5.26, 5.26); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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)

1750 MHz System Verification

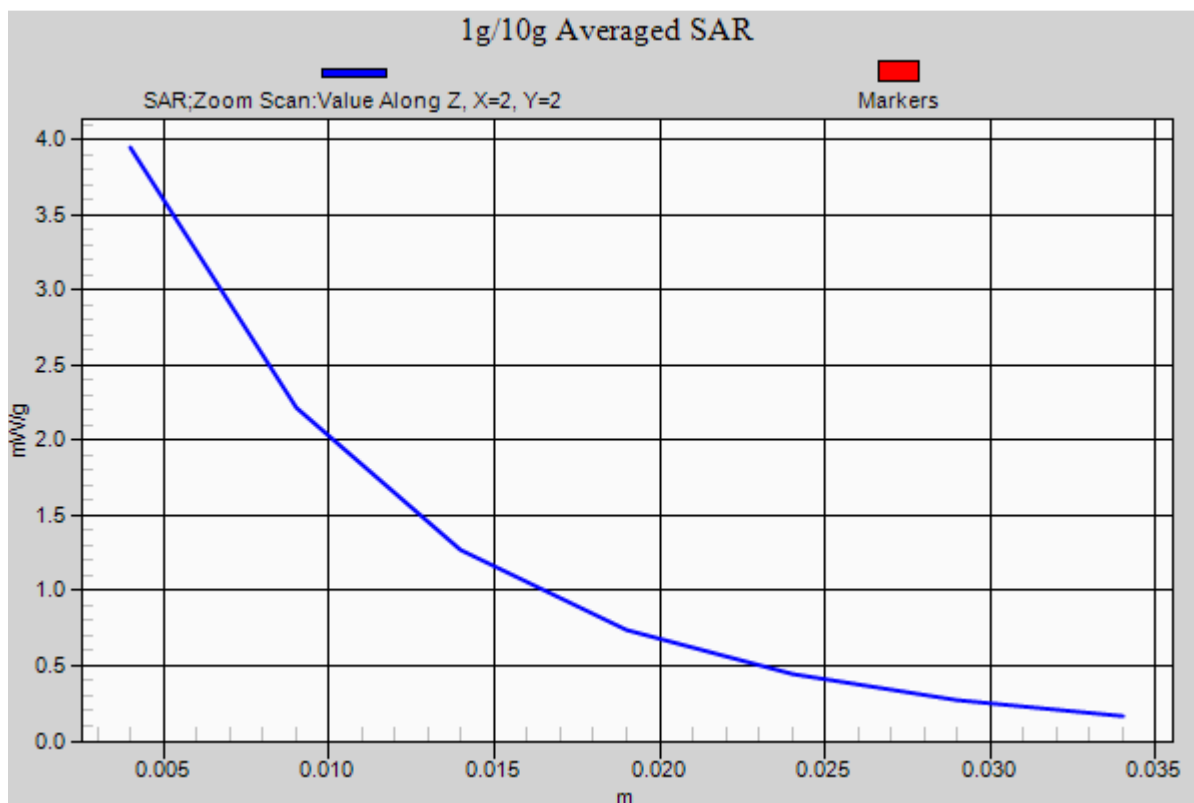
Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 3.55 mW/g; SAR(10 g) = 1.86 mW/g

Deviation = -3.01%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1750 Head; Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.333 \text{ mho/m}$; $\epsilon_r = 38.87$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-07-2012; Ambient Temp: 22.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(7.37, 7.37, 7.37); Calibrated: 7/27/2011

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 (0);SEMCAD X Version 14.6.4 (4989)

1750 MHz System Verification

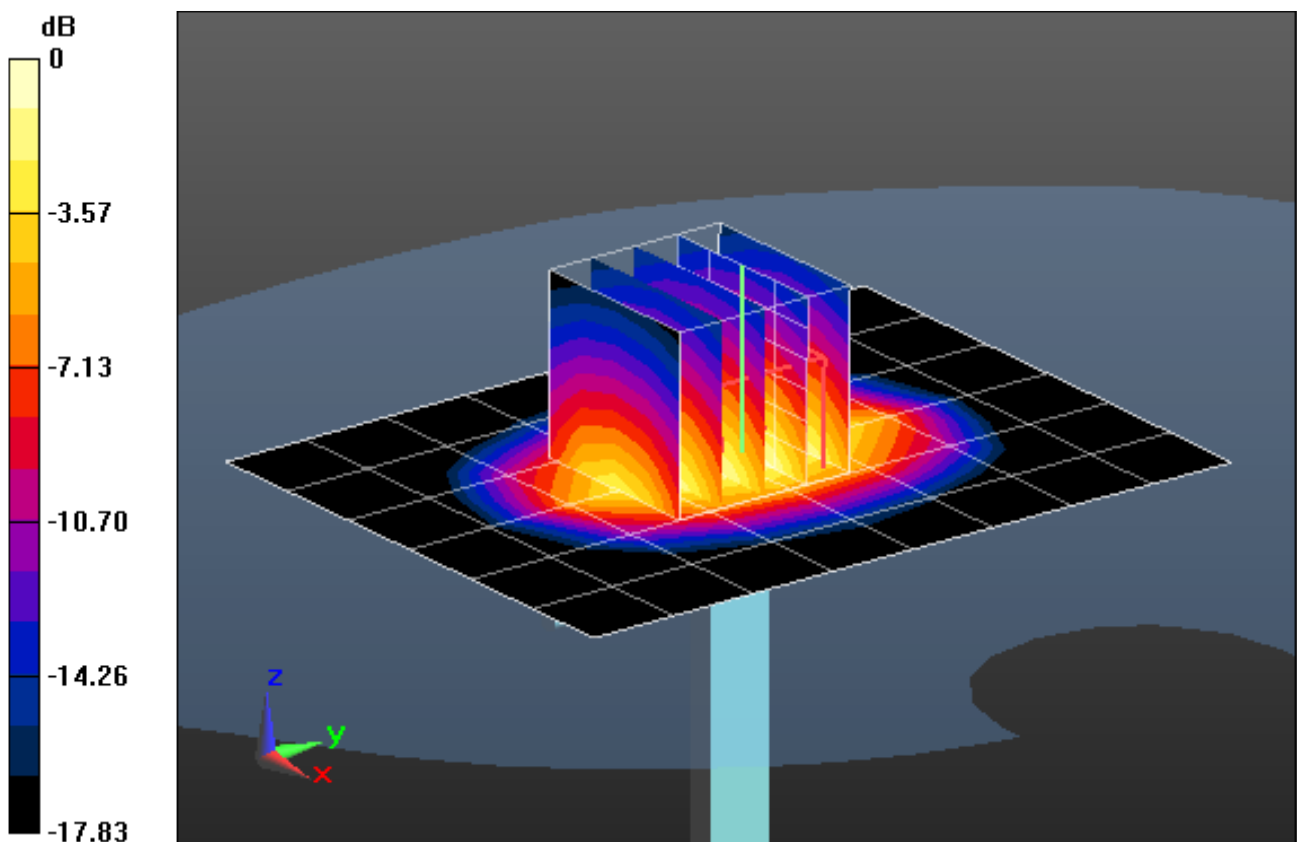
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.53 mW/g; SAR(10 g) = 1.88 mW/g

Deviation = -3.55%



0 dB = 3.860mW/g = 11.73 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1750 Head; Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.333 \text{ mho/m}$; $\epsilon_r = 38.87$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-07-2012; Ambient Temp: 22.6°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(7.37, 7.37, 7.37); Calibrated: 7/27/2011

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 (0); SEMCAD X Version 14.6.4 (4989)

1750 MHz System Verification

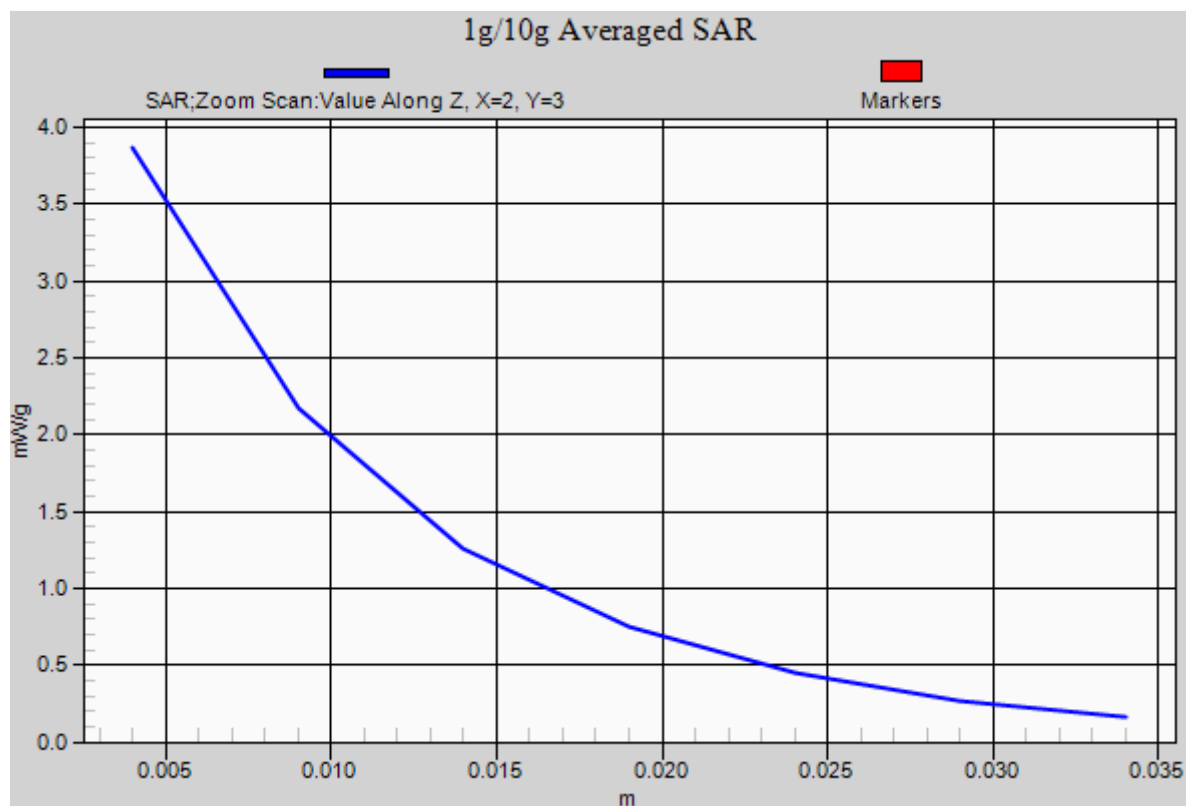
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.53 mW/g; SAR(10 g) = 1.88 mW/g

Deviation = -3.55%



PCTEST ENGINEERING LABORATORY, INC.

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

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

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

$f = 1900 \text{ MHz}$; $\sigma = 1.404 \text{ mho/m}$; $\epsilon_r = 38.49$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 24.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

1900 MHz System Verification

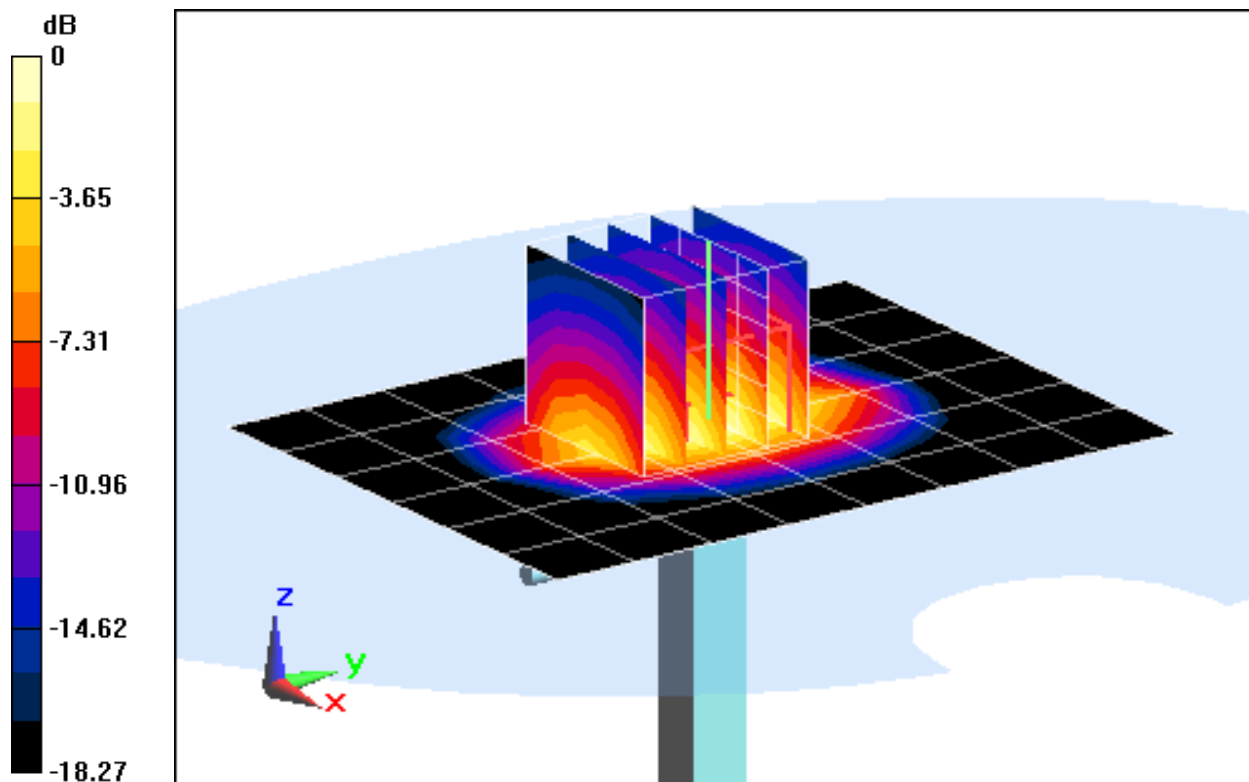
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.92 mW/g; SAR(10 g) = 2.06 mW/g

Deviation = -0.25%



0 dB = 4.280mW/g = 12.63 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

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

$f = 1900 \text{ MHz}$; $\sigma = 1.404 \text{ mho/m}$; $\epsilon_r = 38.49$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 24.1°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

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

Measurement SW: DASY52, Version 52.8 (1);SEMCAD X Version 14.6.5 (6469)

1900 MHz System Verification

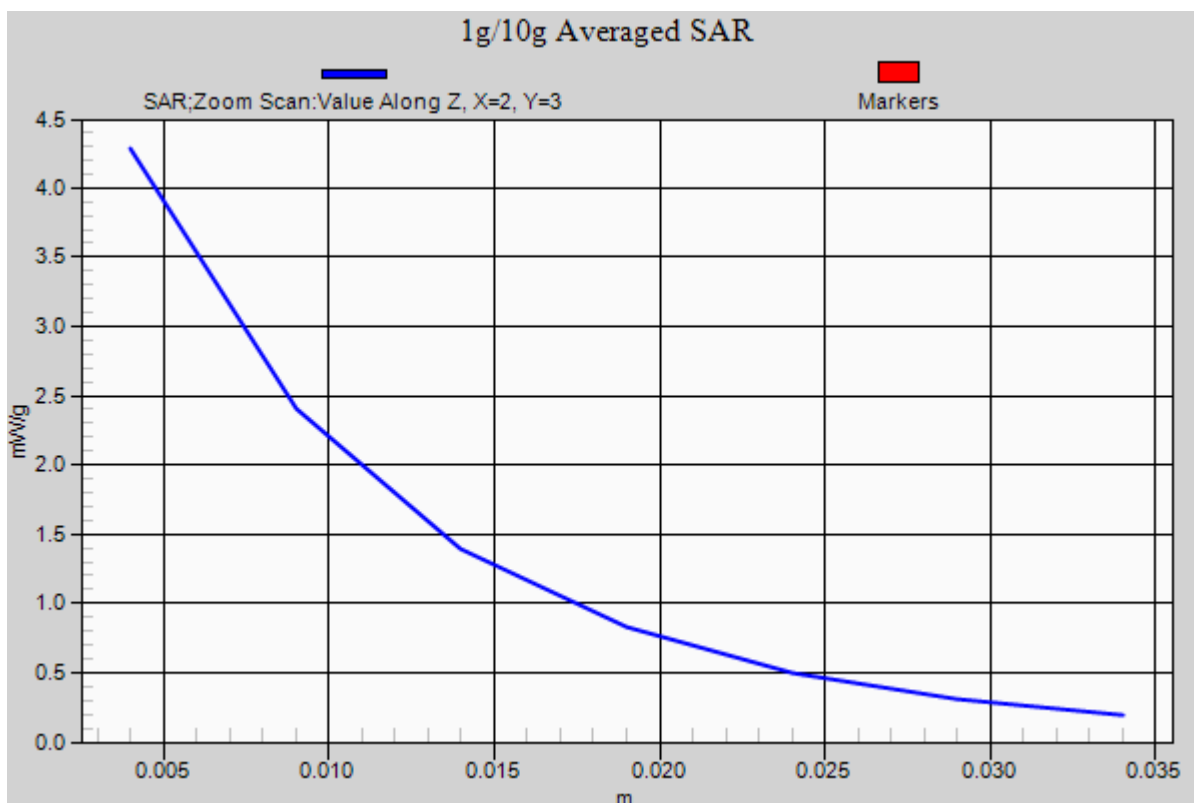
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.92 mW/g; SAR(10 g) = 2.06 mW/g

Deviation = -0.25%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.389 \text{ mho/m}$; $\epsilon_r = 38.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-04-2012; Ambient Temp: 23.9°C; Tissue Temp: 22.1°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 (0); SEMCAD X Version 14.6.4 (4989)

1900 MHz System Verification

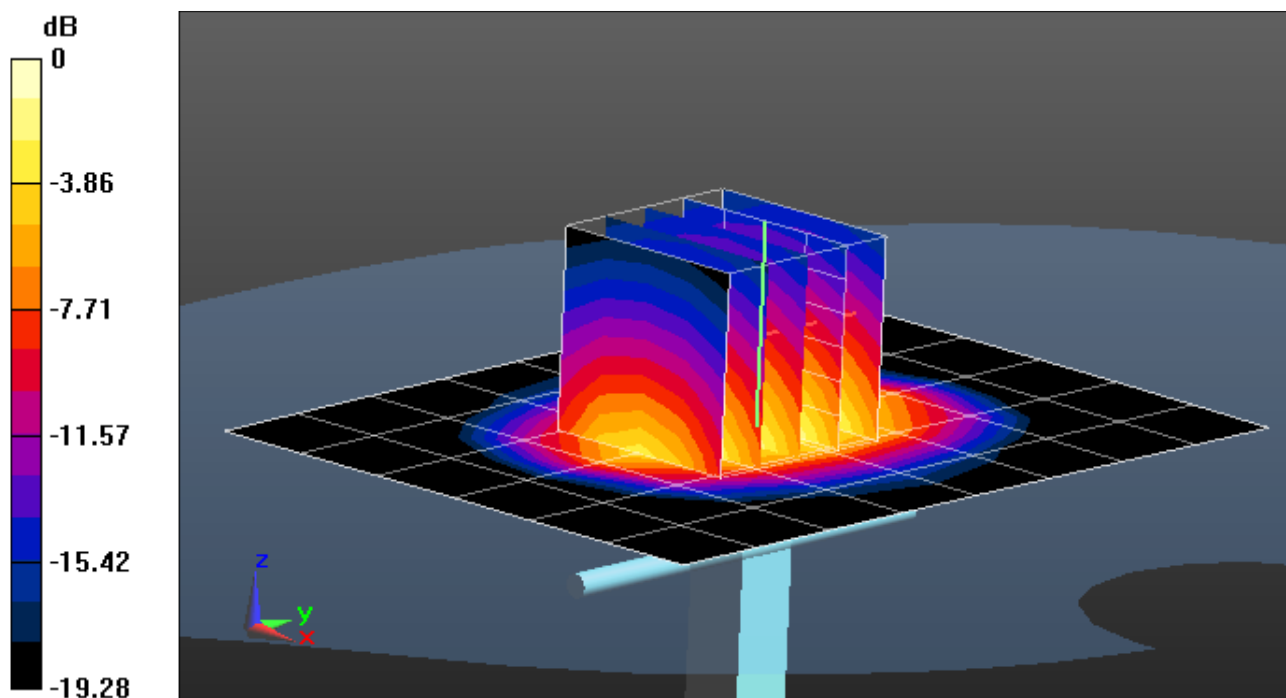
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4 mW/g; SAR(10 g) = 2.06 mW/g

Deviation = 1.78 %



0 dB = 4.460mW/g = 12.99 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.389 \text{ mho/m}$; $\epsilon_r = 38.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-04-2012; Ambient Temp: 23.9°C; Tissue Temp: 22.1°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 (0); SEMCAD X Version 14.6.4 (4989)

1900 MHz System Verification

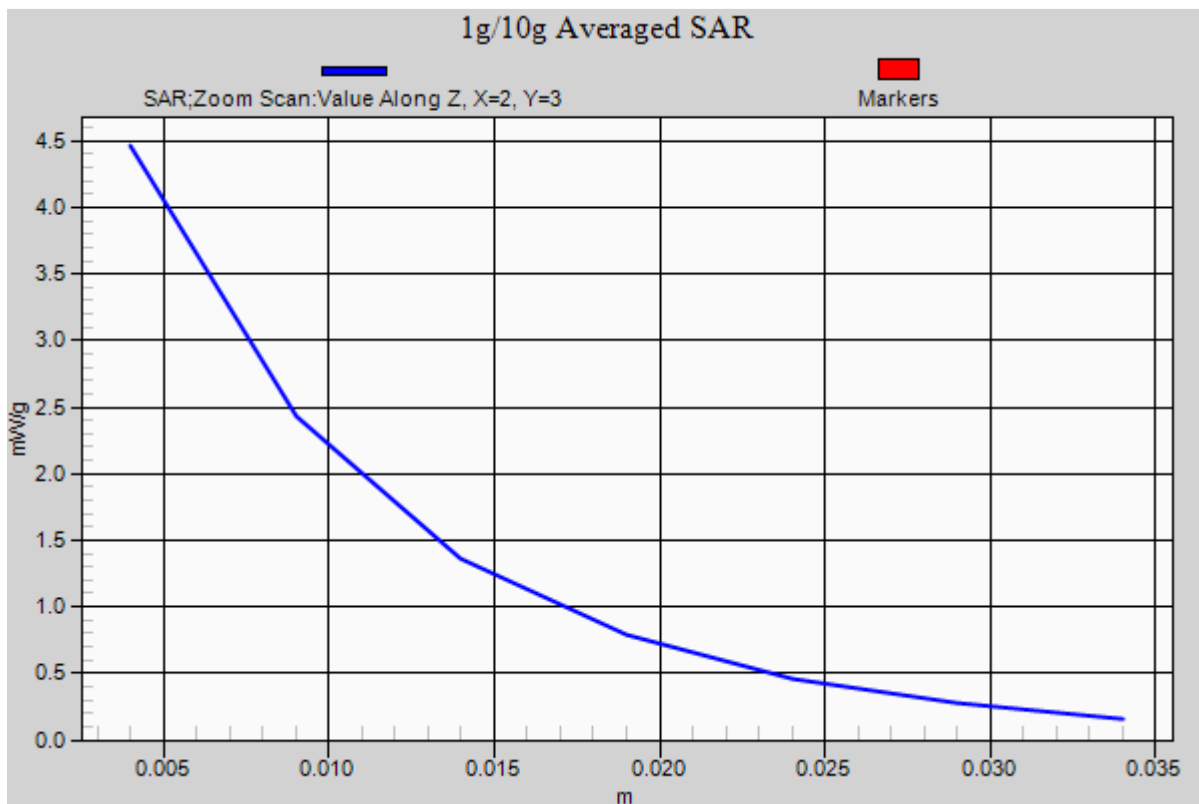
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4 mW/g; SAR(10 g) = 2.06 mW/g

Deviation = 1.78 %



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 2450 Head Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.848 \text{ mho/m}$; $\epsilon_r = 38.12$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.9°C; Tissue Temp: 23.2°C

Probe: ES3DV2 - SN3022; ConvF(4.3, 4.3, 4.3); Calibrated: 8/25/2011;

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)

2450MHz System Verification

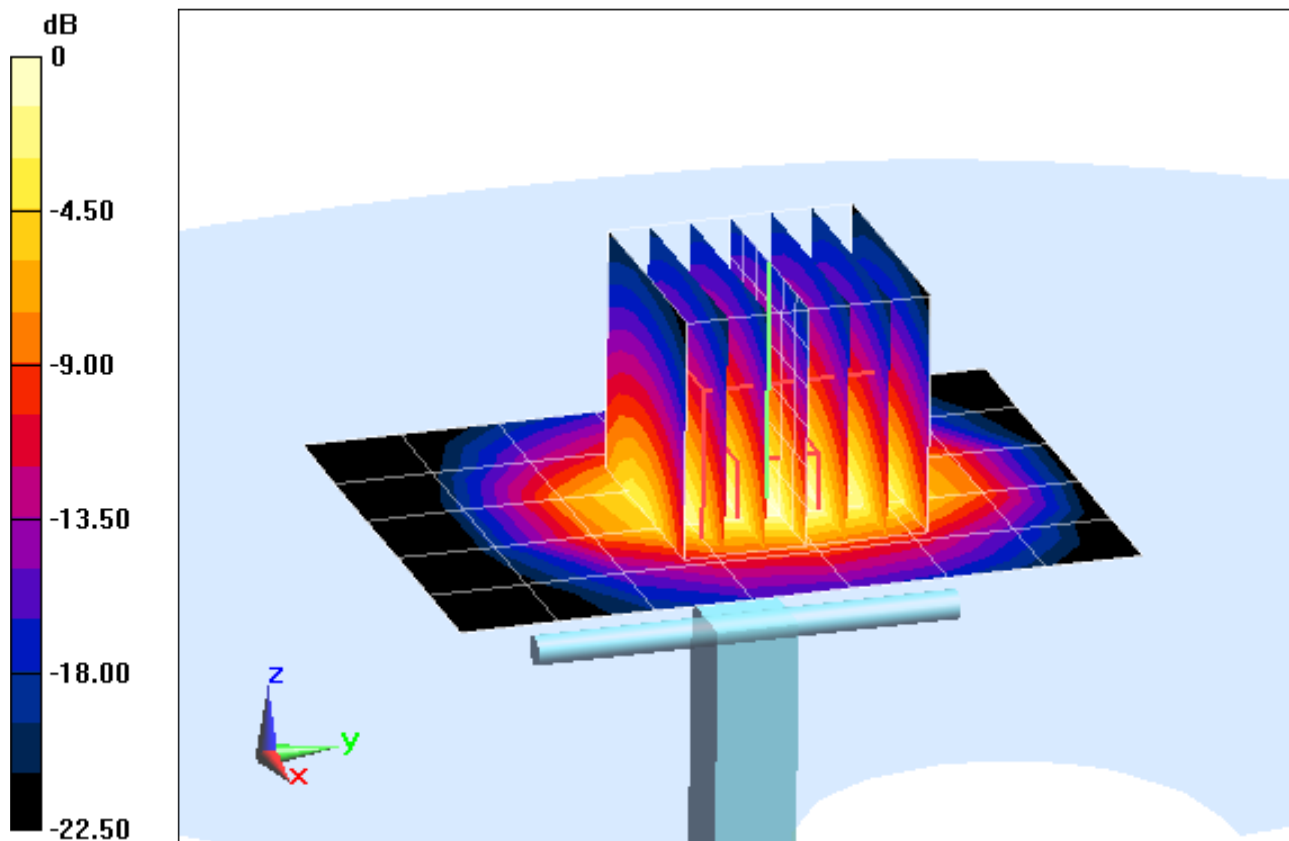
Area Scan (6x8x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Input Power = 16 dBm (40 mW)

SAR(1 g) = 2.02 mW/g; SAR(10 g) = 0.935 mW/g

Deviation = -6.13%



0 dB = 2.66 mW/g = 8.50 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 2450 Head Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.848 \text{ mho/m}$; $\epsilon_r = 38.12$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.9°C; Tissue Temp: 23.2°C

Probe: ES3DV2 - SN3022; ConvF(4.3, 4.3, 4.3); Calibrated: 8/25/2011;

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)

2450MHz System Verification

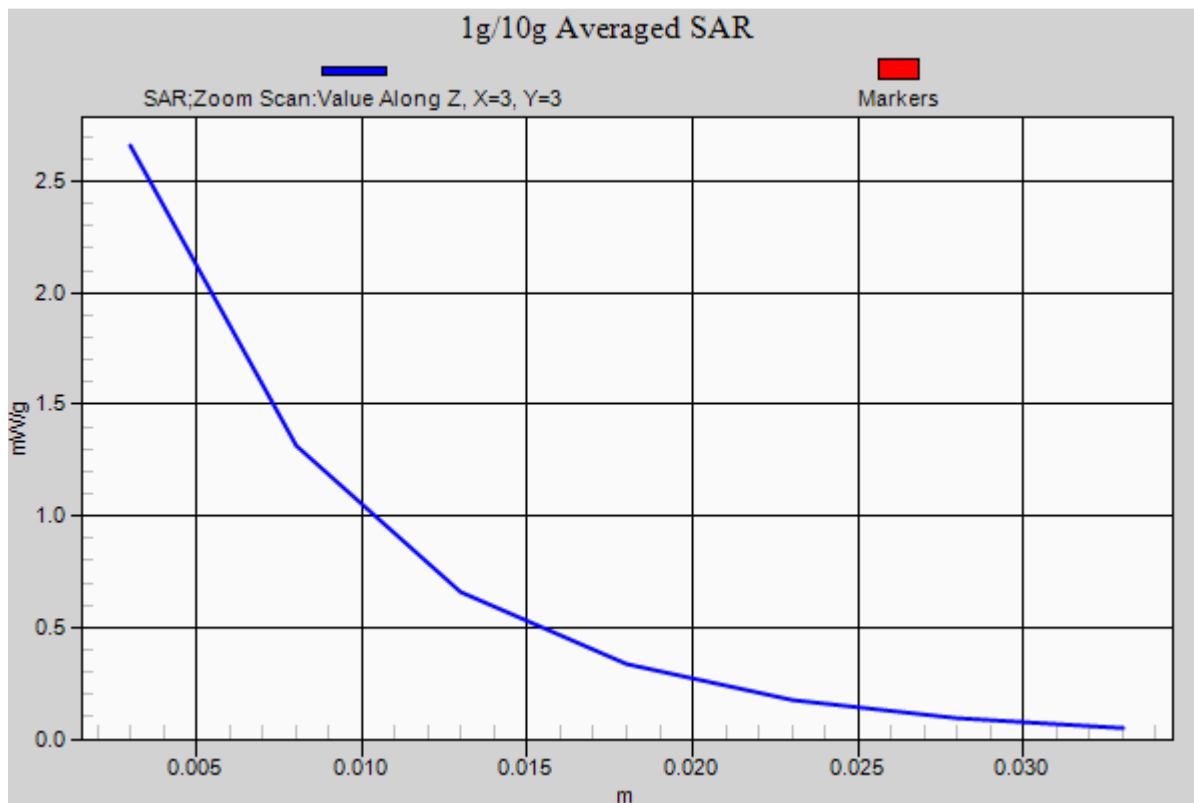
Area Scan (6x8x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Input Power = 16 dBm (40 mW)

SAR(1 g) = 2.02 mW/g; SAR(10 g) = 0.935 mW/g

Deviation = -6.13%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 740 Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.991 \text{ mho/m}$; $\epsilon_r = 54.843$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-29-2012; Ambient Temp: 23.6°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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)

750MHz System Verification

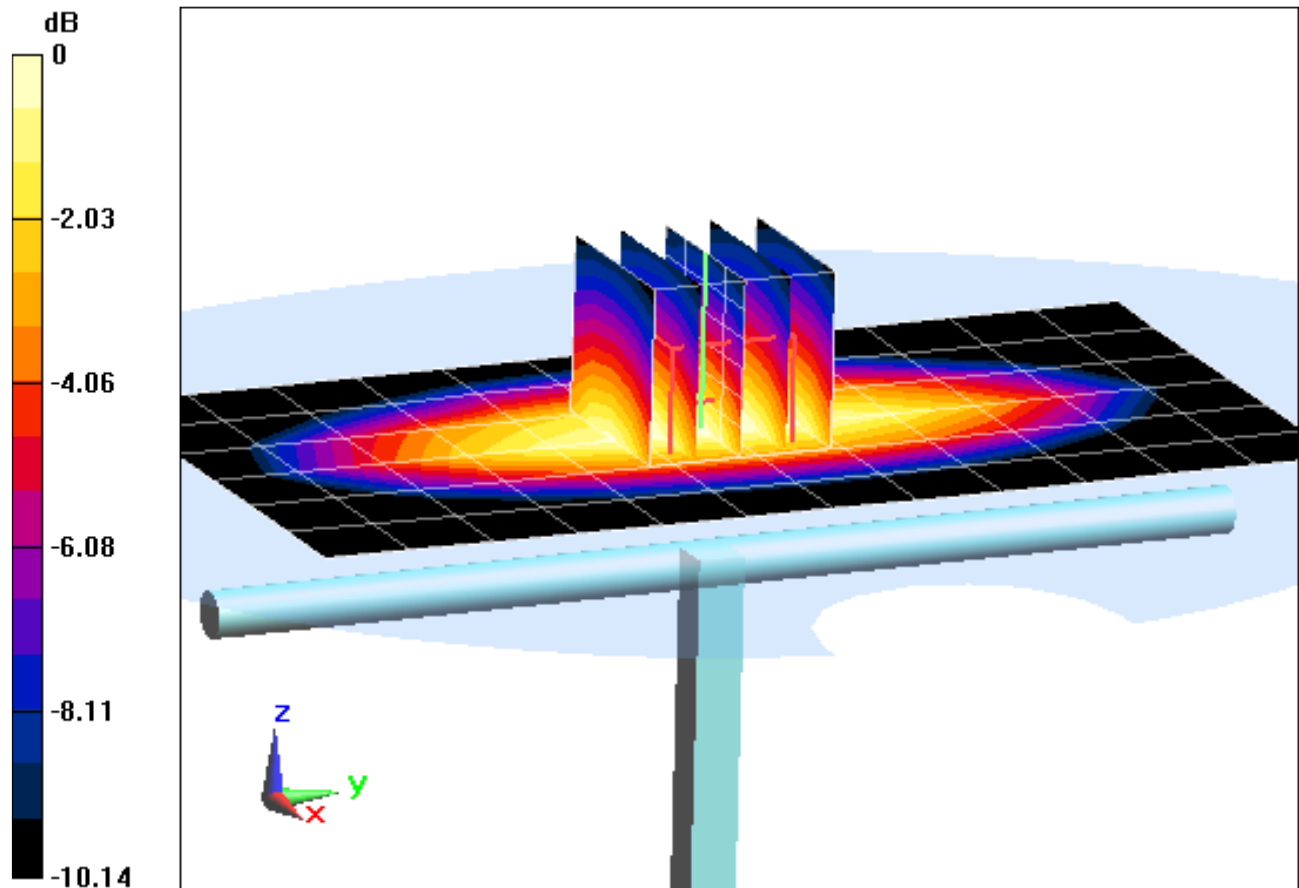
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 0.878 mW/g; SAR(10 g) = 0.584 mW/g

Deviation = 0.69%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 740 Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.991 \text{ mho/m}$; $\epsilon_r = 54.843$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-29-2012; Ambient Temp: 23.6°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3209; ConvF(6.23, 6.23, 6.23); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (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)

750MHz System Verification

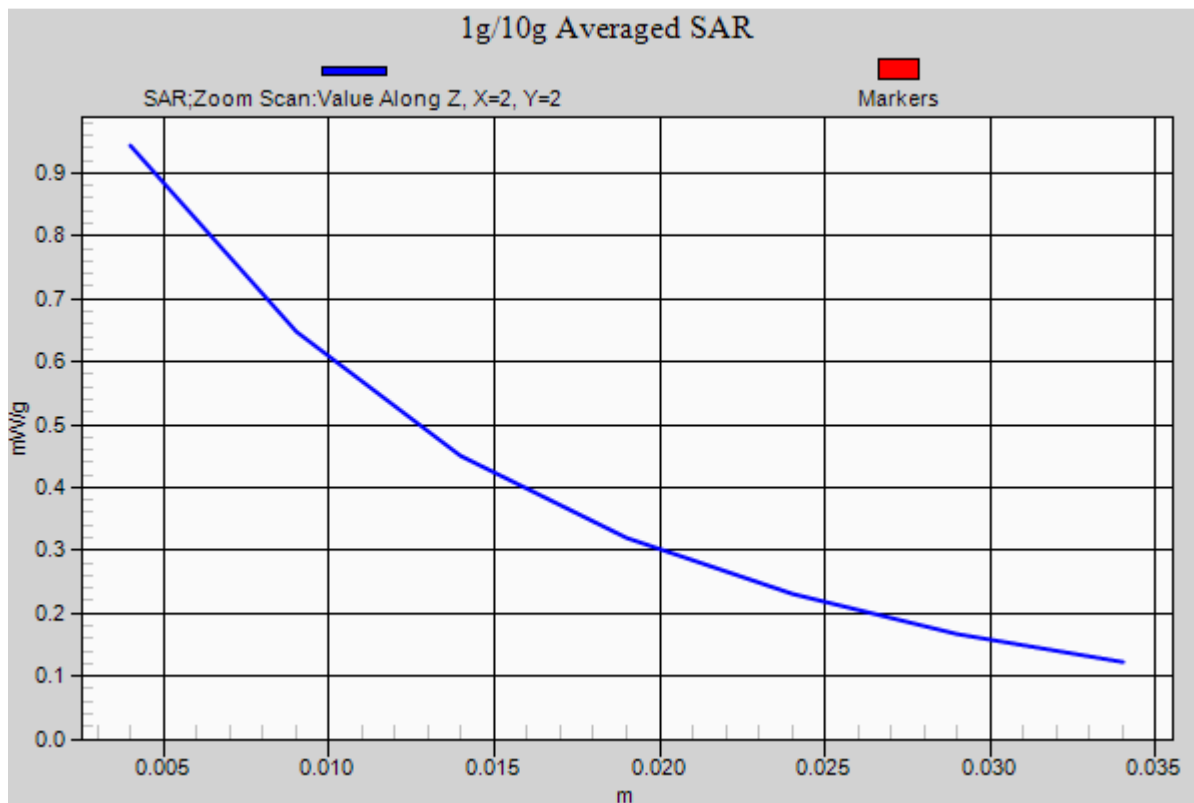
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 0.878 mW/g; SAR(10 g) = 0.584 mW/g

Deviation = 0.69%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.995 \text{ mho/m}$; $\epsilon_r = 52.97$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-29-2012; Ambient Temp: 22.7°C; Tissue Temp: 22.0°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 14.6.4 (4989)

835MHz System Verification

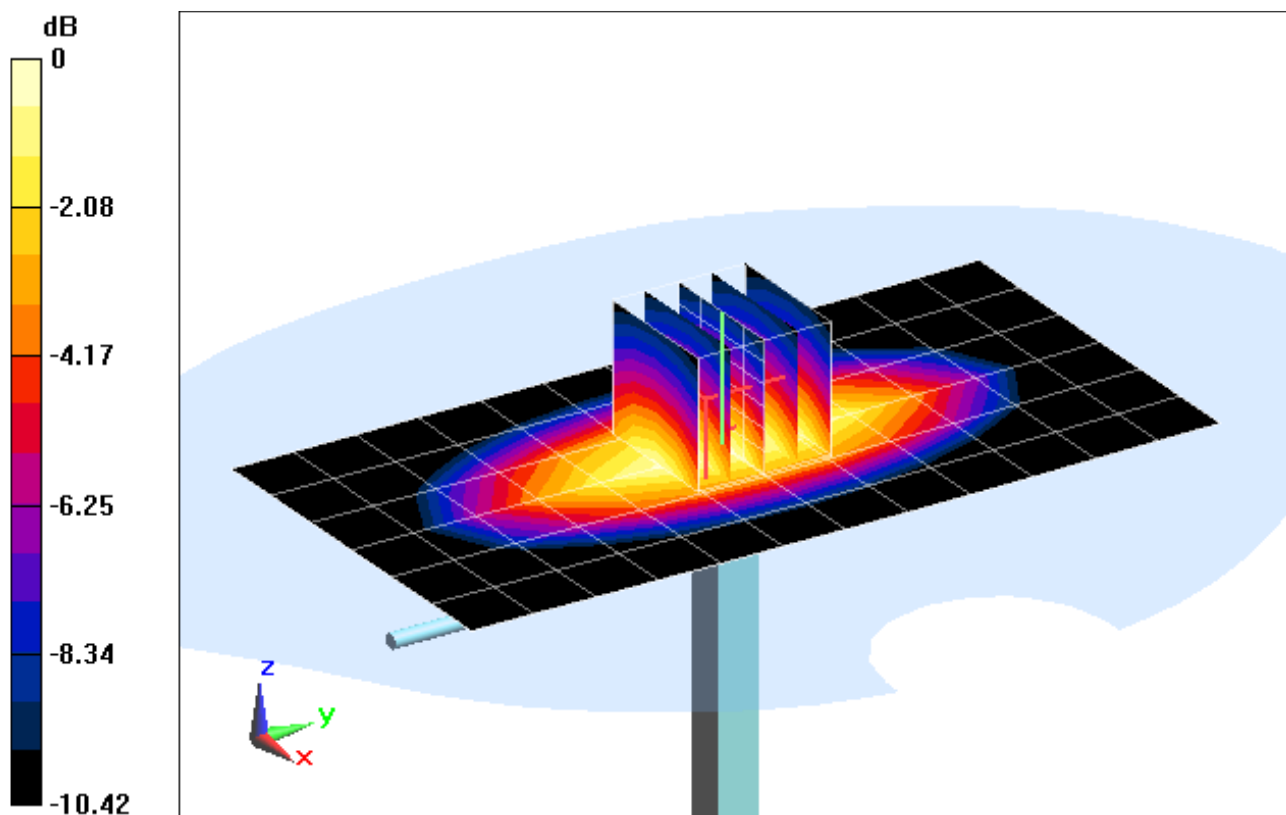
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.664 mW/g

Deviation = 6.69%



0 dB = 1.110mW/g = 0.91 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.995 \text{ mho/m}$; $\epsilon_r = 52.97$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-29-2012; Ambient Temp: 22.7°C; Tissue Temp: 22.0°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 14.6.4 (4989)

835MHz System Verification

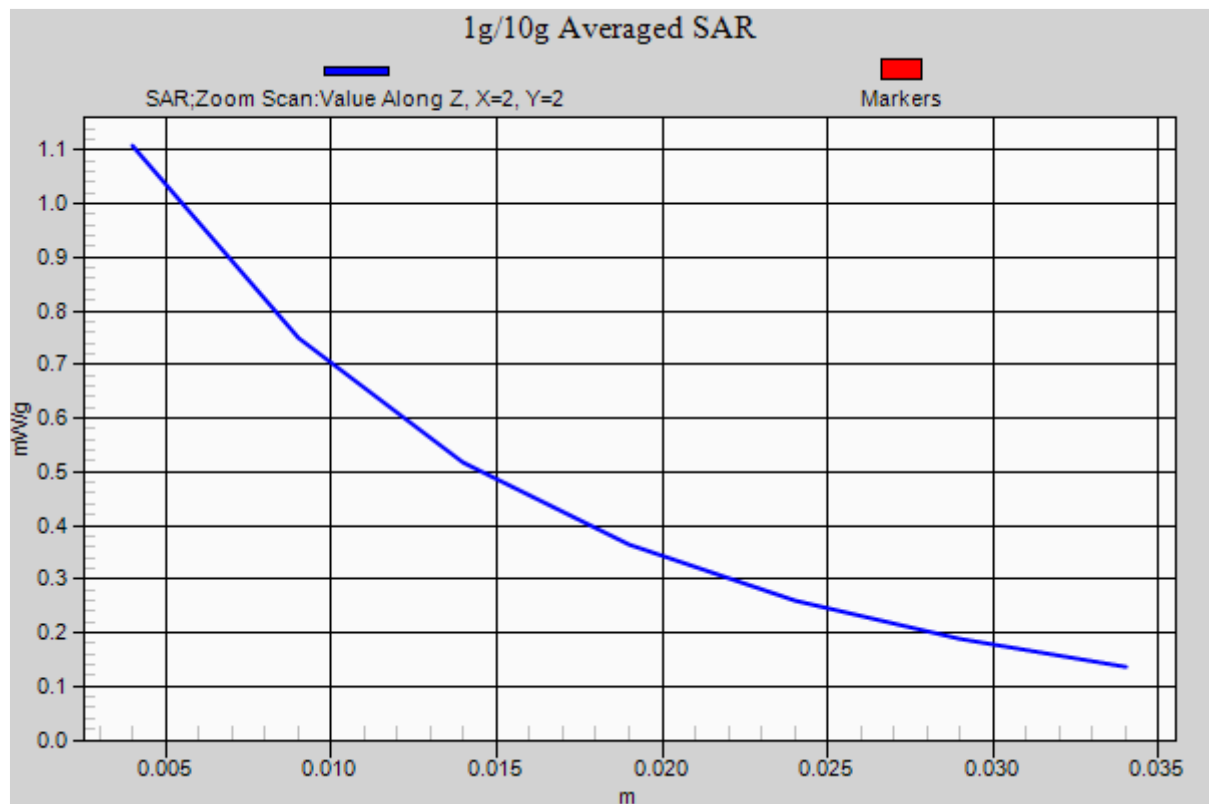
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.664 mW/g

Deviation = 6.69%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 835 Body; Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.996 \text{ mho/m}$; $\epsilon_r = 53.23$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-07-2012; Ambient Temp: 23.3°C; Tissue Temp: 23.0°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 14.6.4 (4989)

835MHz System Verification

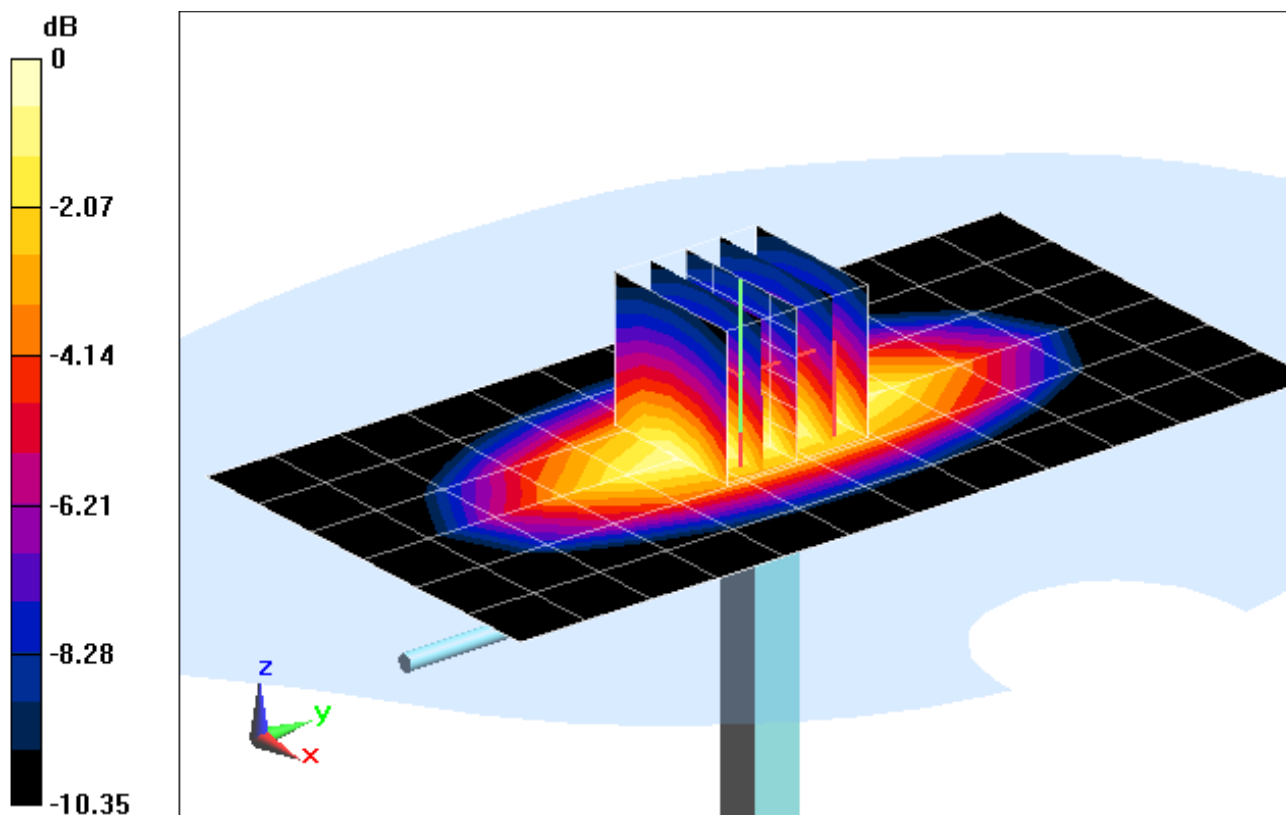
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.678 mW/g

Deviation = 7.29 %



0 dB = 1.120mW/g = 0.98 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 835 Body; Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.996 \text{ mho/m}$; $\epsilon_r = 53.23$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-07-2012; Ambient Temp: 23.3°C; Tissue Temp: 23.0°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 14.6.4 (4989)

835MHz System Verification

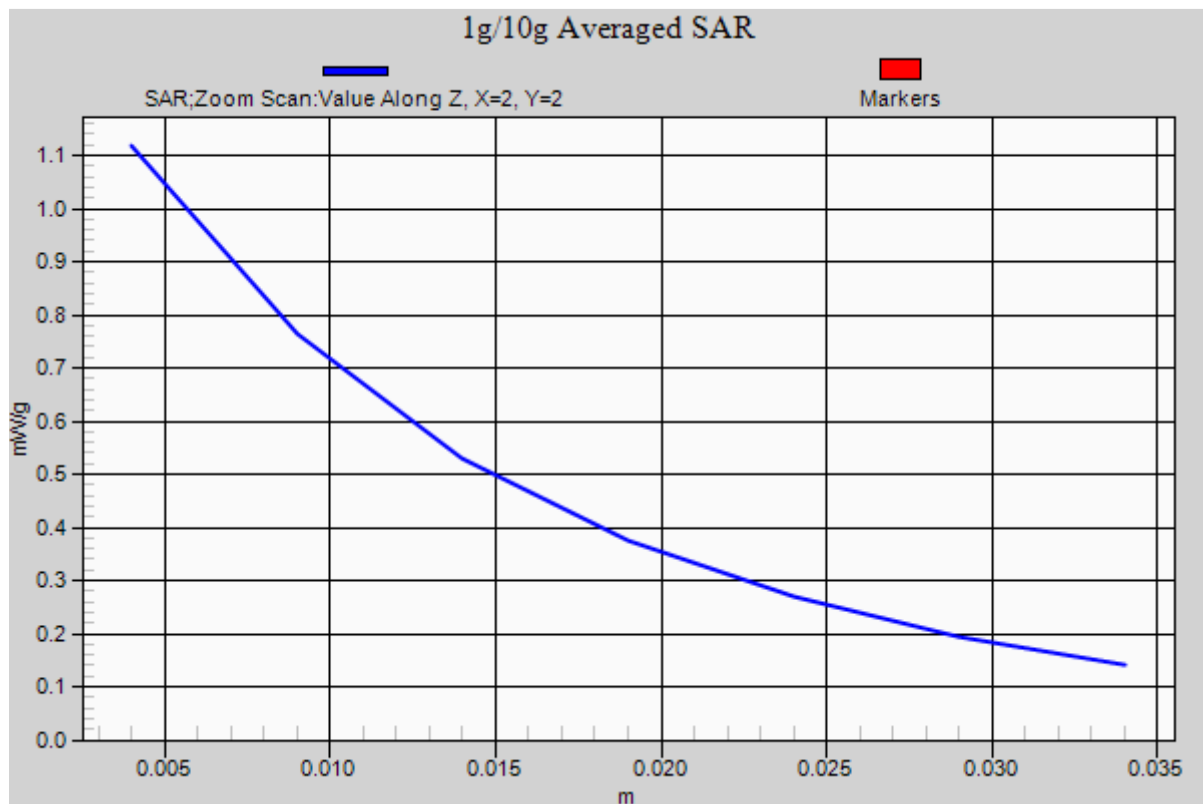
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.678 mW/g

Deviation = 7.29 %



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.523 \text{ mho/m}$; $\epsilon_r = 51.51$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.83, 4.83, 4.83); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 2/15/2012

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

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

1750 MHz System Verification

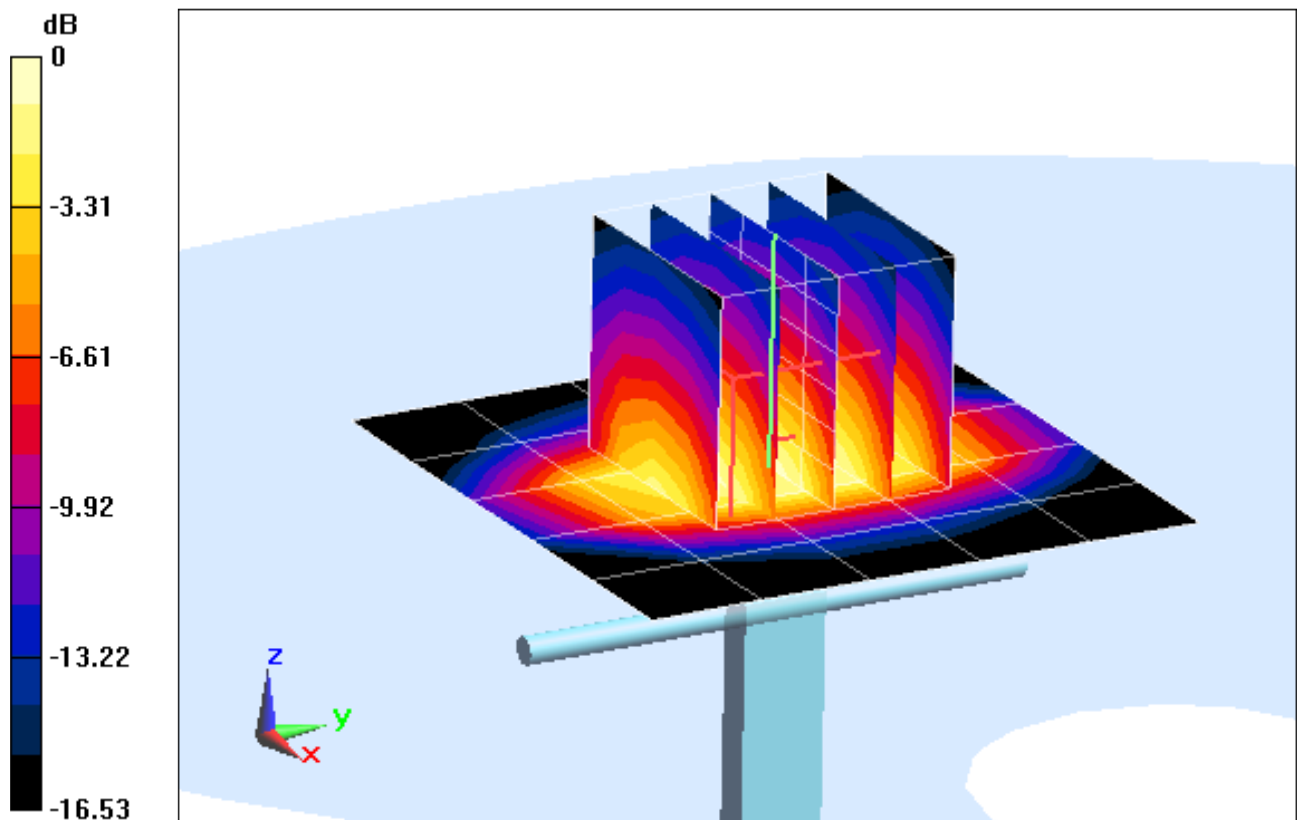
Area Scan (6x6x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 3.66 mW/g; SAR(10 g) = 1.94 mW/g

Deviation = -2.66%



0 dB = 4.12 mW/g = 12.30 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.523 \text{ mho/m}$; $\epsilon_r = 51.51$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.6°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.83, 4.83, 4.83); Calibrated: 3/16/2012;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 2/15/2012

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

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.5 (6469)

1750 MHz System Verification

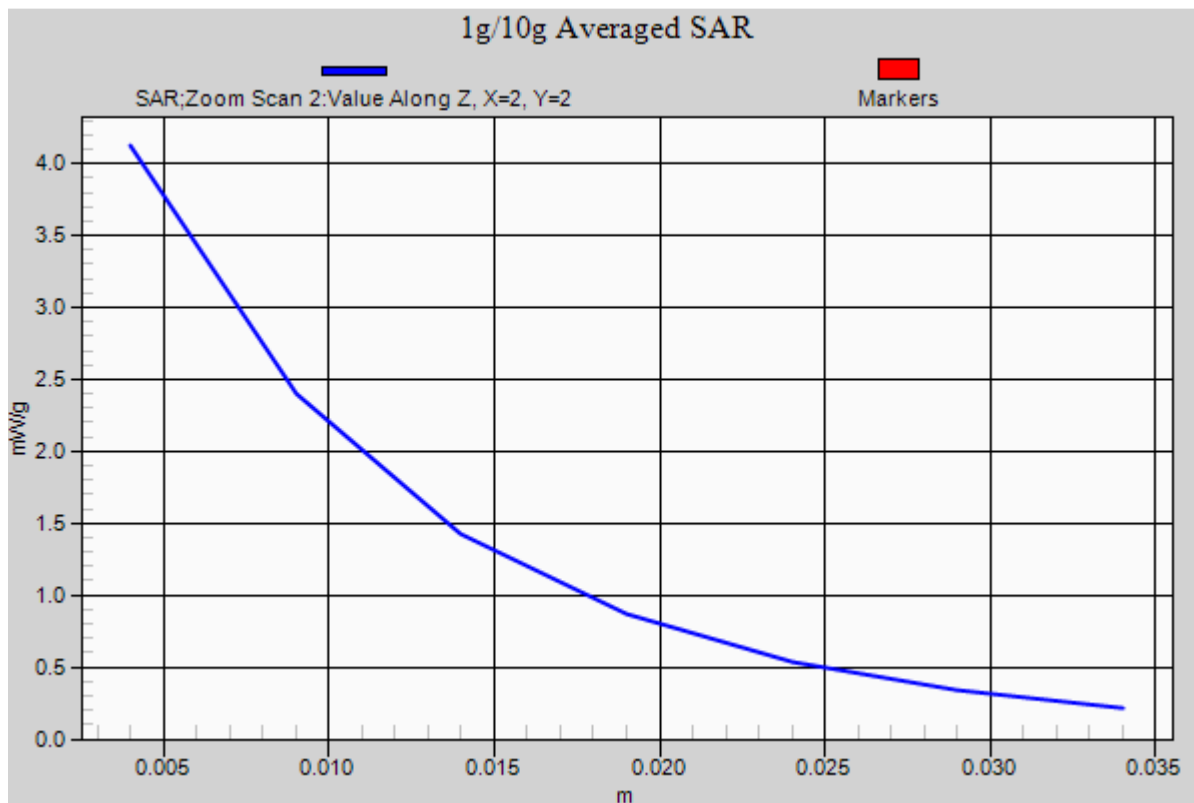
Area Scan (6x6x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20 dBm (100 mW)

SAR(1 g) = 3.66 mW/g; SAR(10 g) = 1.94 mW/g

Deviation = -2.66%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1750 Body; Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.442 \text{ mho/m}$; $\epsilon_r = 52.77$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 06-06-2012; Ambient Temp: 22.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3561; ConvF(7.14, 7.14, 7.14); Calibrated: 7/27/2011

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 (0);SEMCAD X Version 14.6.4 (4989)

1750 MHz System Verification

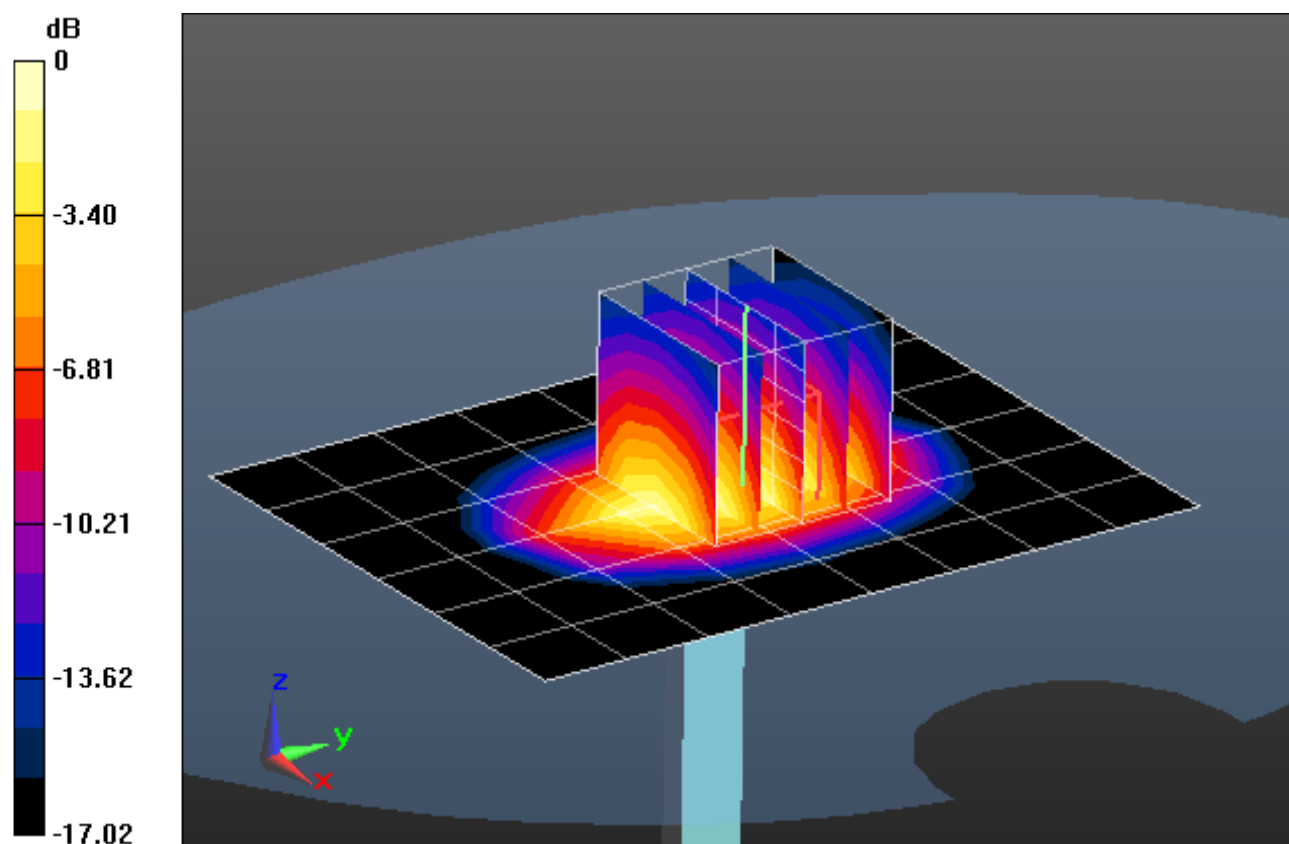
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.5 mW/g; SAR(10 g) = 1.87 mW/g

Deviation = -6.91%



0 dB = 3.840mW/g = 11.69 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1750 Body; Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.442 \text{ mho/m}$; $\epsilon_r = 52.77$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Space: 1.0 cm

Test Date: 06-06-2012; Ambient Temp: 22.9°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3561; ConvF(7.14, 7.14, 7.14); Calibrated: 7/27/2011

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 (0);SEMCAD X Version 14.6.4 (4989)

1750 MHz System Verification

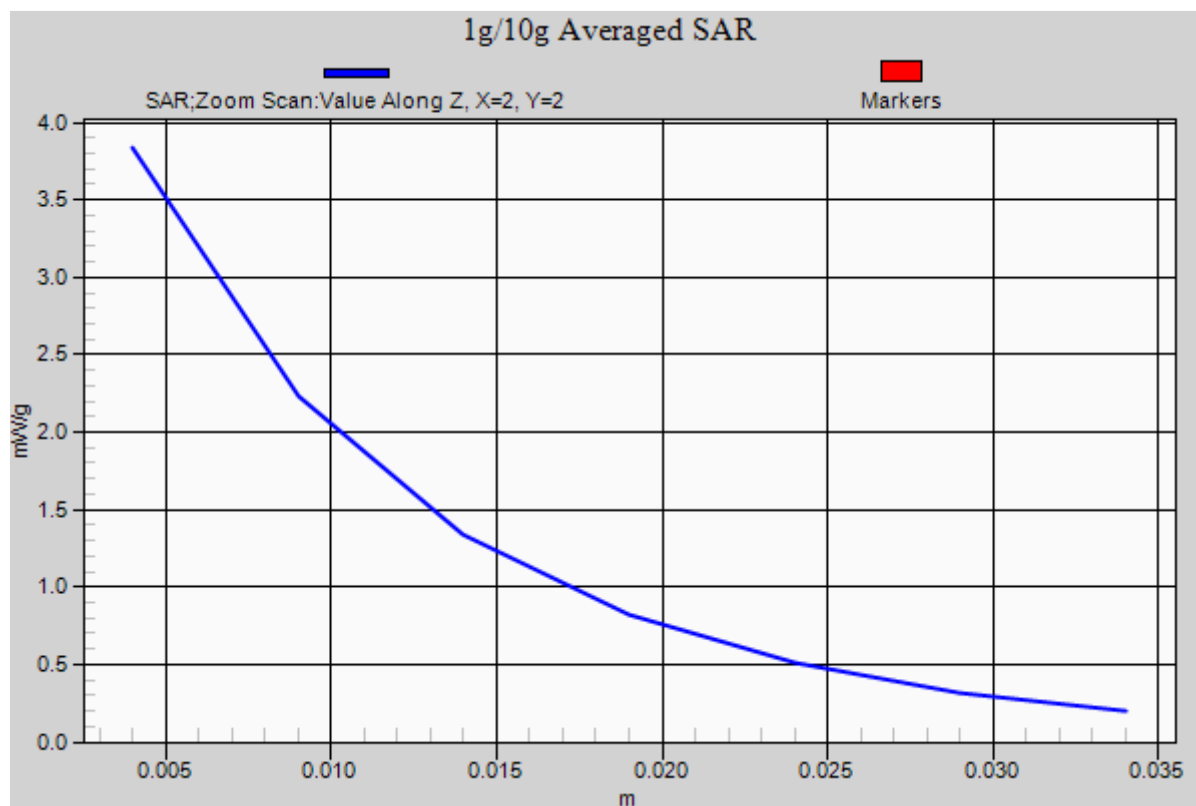
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.5 mW/g; SAR(10 g) = 1.87 mW/g

Deviation = -6.91%



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.552 \text{ mho/m}$; $\epsilon_r = 51.28$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.5°C; Tissue Temp: 22.0°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)

1900 MHz System Verification

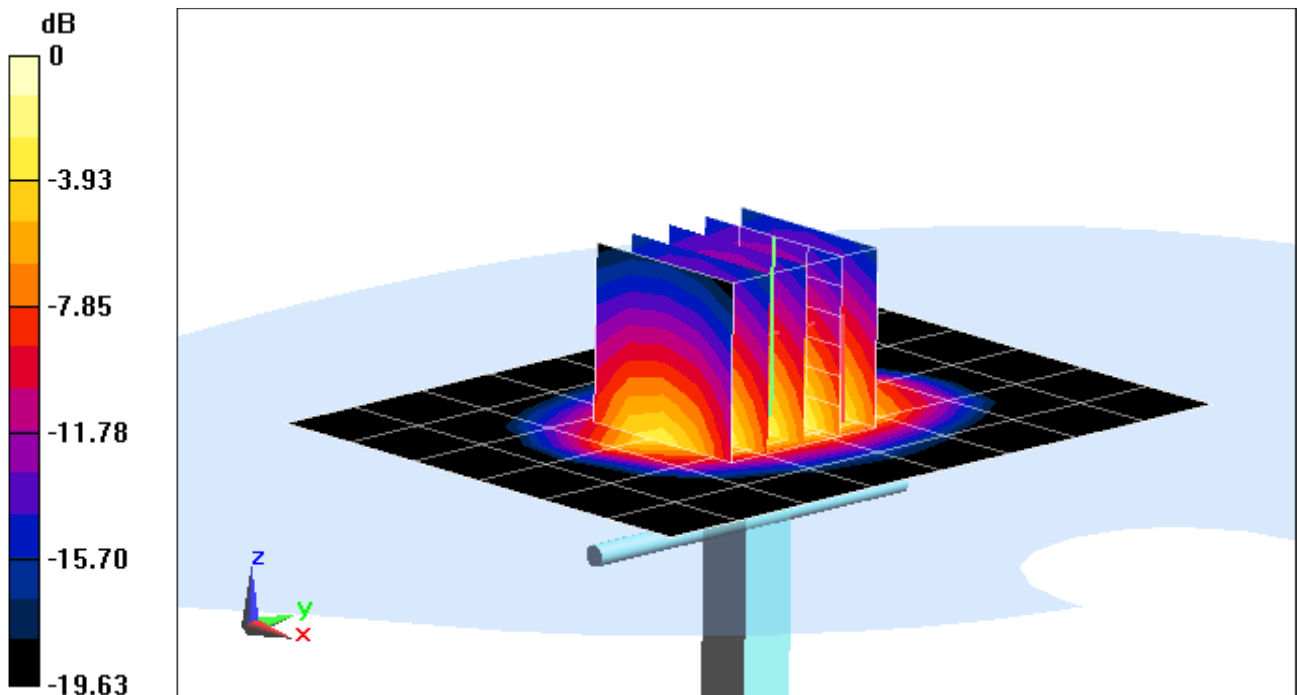
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.02 mW/g; SAR(10 g) = 2.09 mW/g

Deviation = 2.29 %



0 dB = 4.420mW/g = 12.91 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.552 \text{ mho/m}$; $\epsilon_r = 51.28$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-29-2012; Ambient Temp: 23.5°C; Tissue Temp: 22.0°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)

1900 MHz System Verification

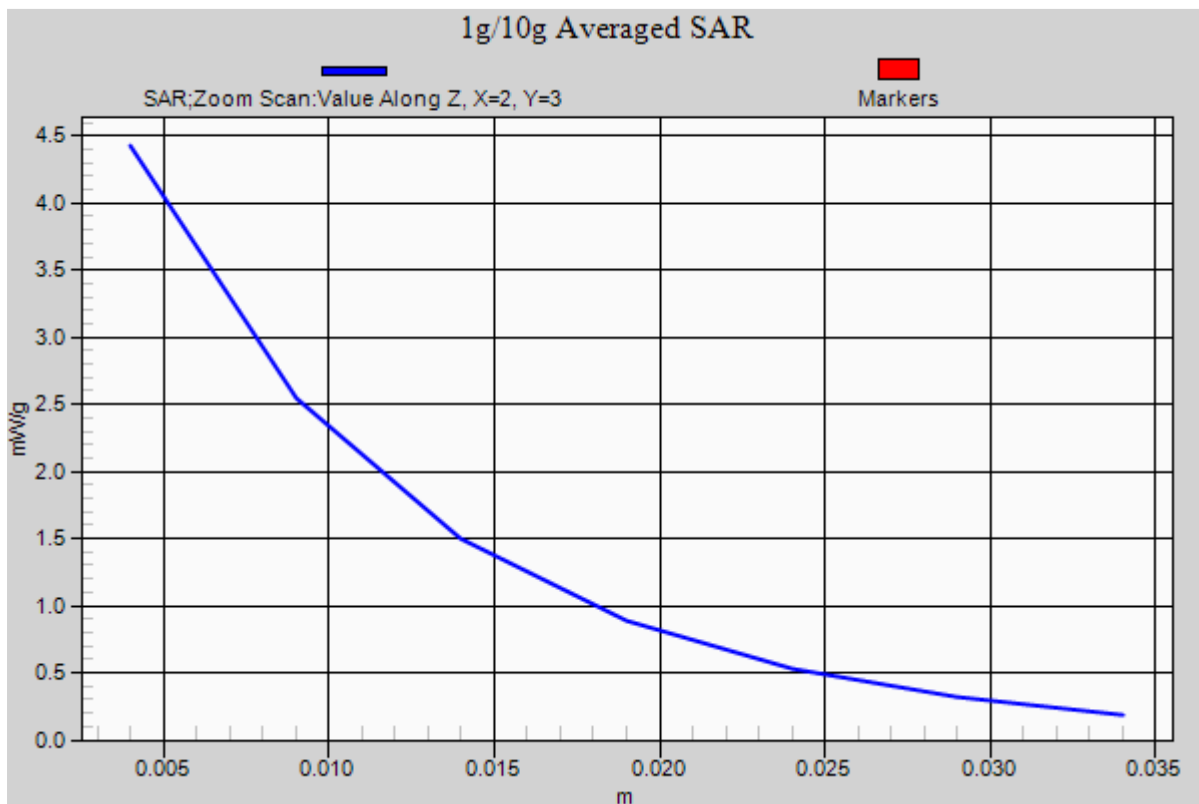
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.02 mW/g; SAR(10 g) = 2.09 mW/g

Deviation = 2.29 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

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

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

$f = 1900 \text{ MHz}$; $\sigma = 1.531 \text{ mho/m}$; $\epsilon_r = 51.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-03-2012; Ambient Temp: 24.2°C; Tissue Temp: 23.6°C

Probe: ES3DV2 - SN3022; ConvF(4.41, 4.41, 4.41); Calibrated: 8/25/2011

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 14.6.4 (4989)

1900MHz System Verification

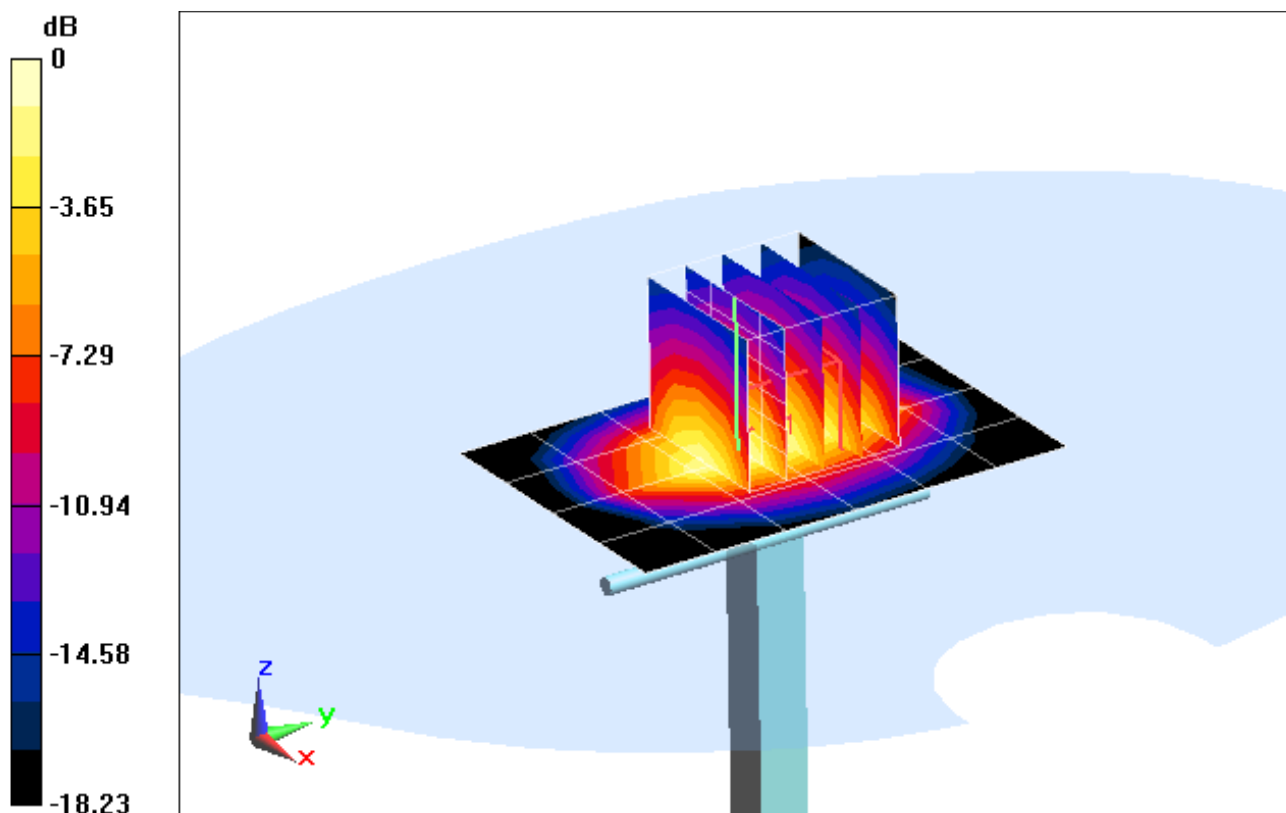
Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.2 mW/g; SAR(10 g) = 2.21 mW/g

Deviation = 2.69 %



0 dB = 4.670mW/g = 13.39 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

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

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

$f = 1900 \text{ MHz}$; $\sigma = 1.531 \text{ mho/m}$; $\epsilon_r = 51.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-03-2012; Ambient Temp: 24.2°C; Tissue Temp: 23.6°C

Probe: ES3DV2 - SN3022; ConvF(4.41, 4.41, 4.41); Calibrated: 8/25/2011

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 14.6.4 (4989)

1900MHz System Verification

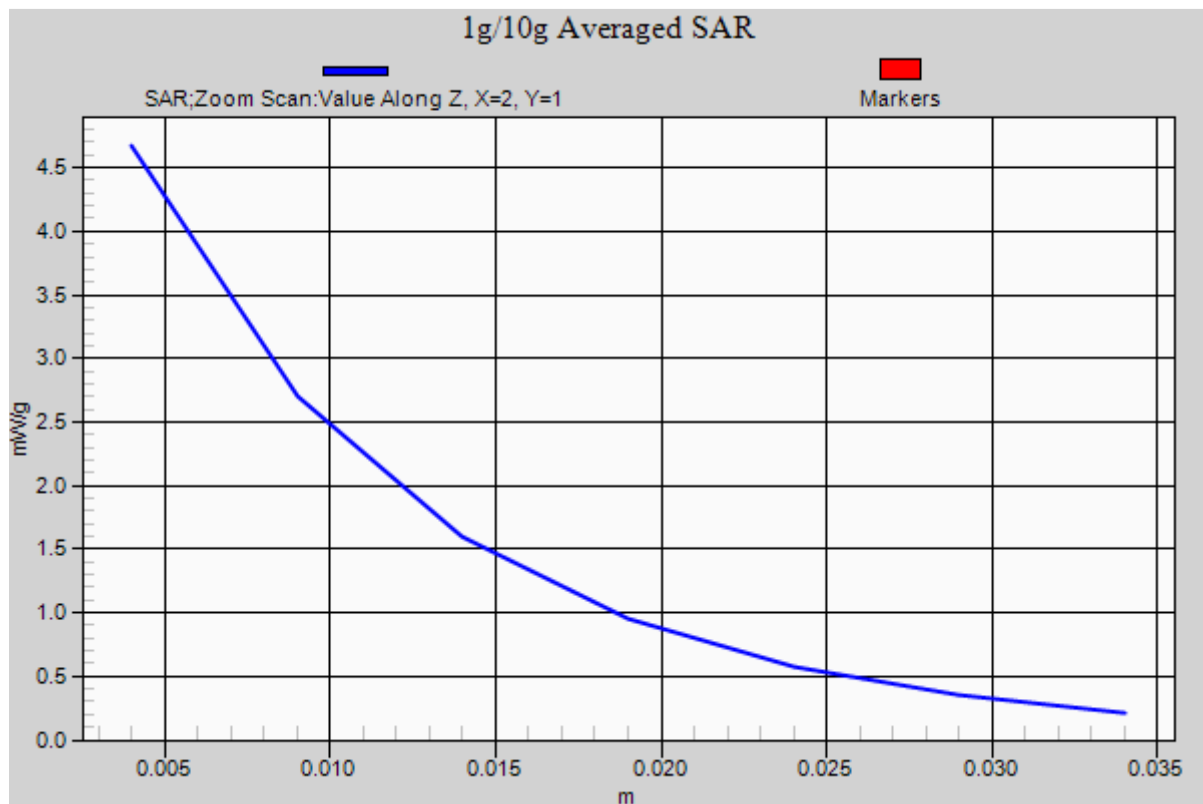
Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.2 mW/g; SAR(10 g) = 2.21 mW/g

Deviation = 2.69 %



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 2450 Body Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 2.005 \text{ mho/m}$; $\epsilon_r = 54.66$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.7°C

Probe: ES3DV2 - SN3022; ConvF(4.01, 4.01, 4.01); Calibrated: 8/25/2011;

Sensor-Surface: 3mm (Mechanical Surface Detection)

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

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

2450MHz System Verification

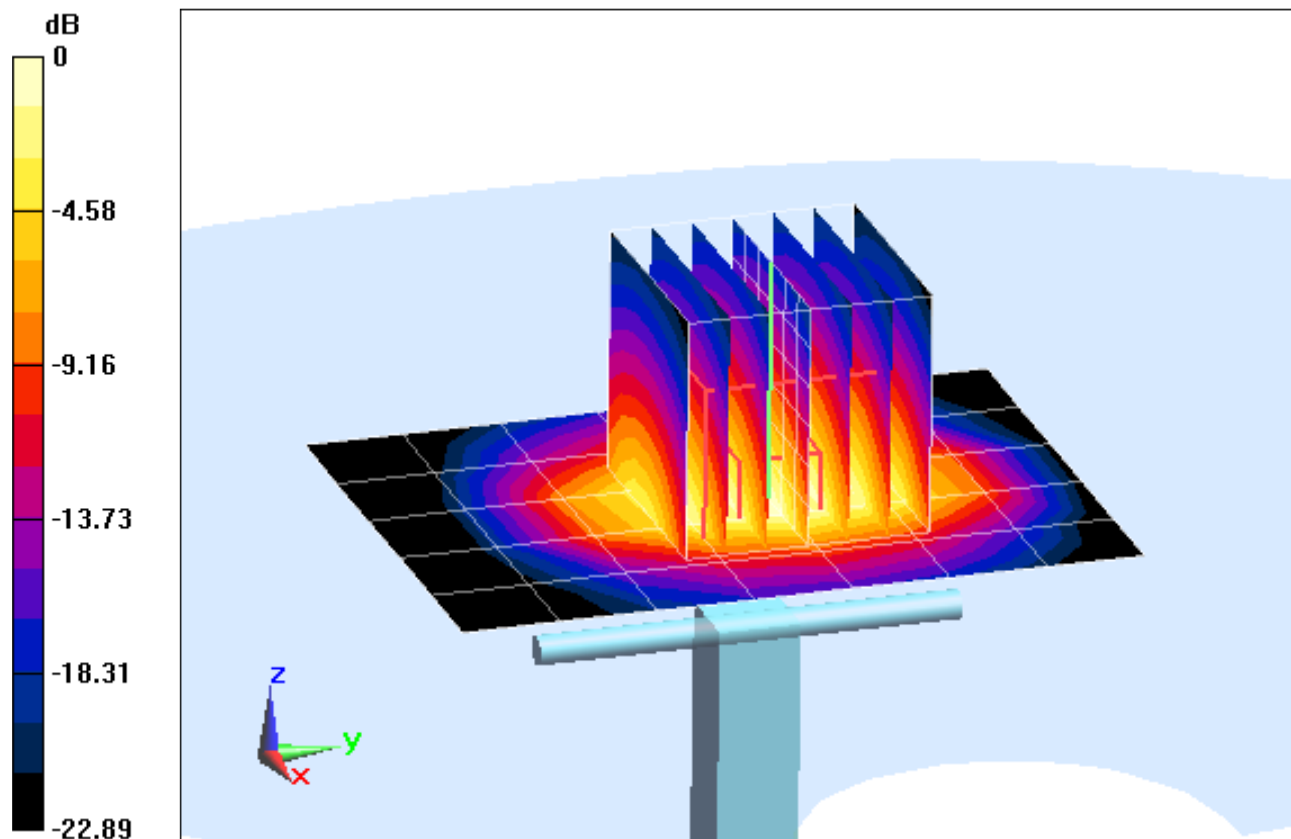
Area Scan (6x8x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Input Power = 11 dBm (12.59 mW)

SAR(1 g) = 0.630 mW/g; SAR(10 g) = 0.296 mW/g

Deviation = -2.46%



0 dB = 0.818 mW/g = -1.74 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 2450 Body Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 2.005 \text{ mho/m}$; $\epsilon_r = 54.66$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-30-2012; Ambient Temp: 24.3°C; Tissue Temp: 23.7°C

Probe: ES3DV2 - SN3022; ConvF(4.01, 4.01, 4.01); Calibrated: 8/25/2011;

Sensor-Surface: 3mm (Mechanical Surface Detection)

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

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

Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

2450MHz System Verification

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

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

Input Power = 11 dBm (12.59 mW)

SAR(1 g) = 0.630 mW/g; SAR(10 g) = 0.296 mW/g

Deviation = -2.46%

