



SAR COMPLIANCE EVALUATION REPORT

Applicant Name:

Samsung Electronics, Co. Ltd.
18600 Broadwick St.
Rancho Dominguez, CA 90220
United States

Date of Testing:

12/05/11 - 12/15/11

Test Site/Location:

PCTEST Lab, Columbia, MD, USA

Test Report Serial No.:

OY1112012074.A3L

FCC ID:

A3LSCHI905U

APPLICANT:

SAMSUNG ELECTRONICS, CO. LTD.

EUT Type:

Portable Tablet

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model(s):

SCH-I905U

Technology	Band & Mode	Tx Frequency	Conducted Power [dBm]	SAR
				1 gm Body (W/kg)
CDMA/EVDO	Cell. CDMA/EVDO	824.70 - 848.31 MHz	24.25	1.02
	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	24.44	0.77
LTE	LTE Band 12	701.5 - 713.5 MHz	22.95	0.45
	LTE Band 5 (Cell)	824.7 - 848.3 MHz	22.77	0.85
	LTE Band 4 (AWS)	1712.5 - 1752.5 MHz	22.86	1.09
	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	23.00	1.07
WIFI	2.4 GHz WLAN	2412 - 2462 MHz	12.45	N/A
	5.8 GHz WLAN	5745 - 5825 MHz	11.82	0.79
	5.2 GHz WLAN	5180 - 5240 MHz	12.43	0.95
	5.3 GHz WLAN	5260 - 5320 MHz	11.36	0.75
	5.5 GHz WLAN	5500 - 5700 MHz	11.18	0.72
Bluetooth	Bluetooth	2402 - 2480 MHz	7.81	N/A

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

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

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

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


Randy Ortanez
President



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1 EQUIPMENT UNDER TEST

1.1 Device Overview

Technology	Band & Mode	Tx Frequency
CDMA/EVDO	Cell. CDMA/EVDO	824.70 - 848.31 MHz
	PCS CDMA/EVDO	1851.25 - 1908.75 MHz
LTE	LTE Band 12	701.5 - 713.5 MHz
	LTE Band 5 (Cell)	824.7 - 848.3 MHz
	LTE Band 4 (AWS)	1712.5 - 1752.5 MHz
	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz
WIFI	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	Bluetooth	2402 - 2480 MHz

1.2 Antenna Locations

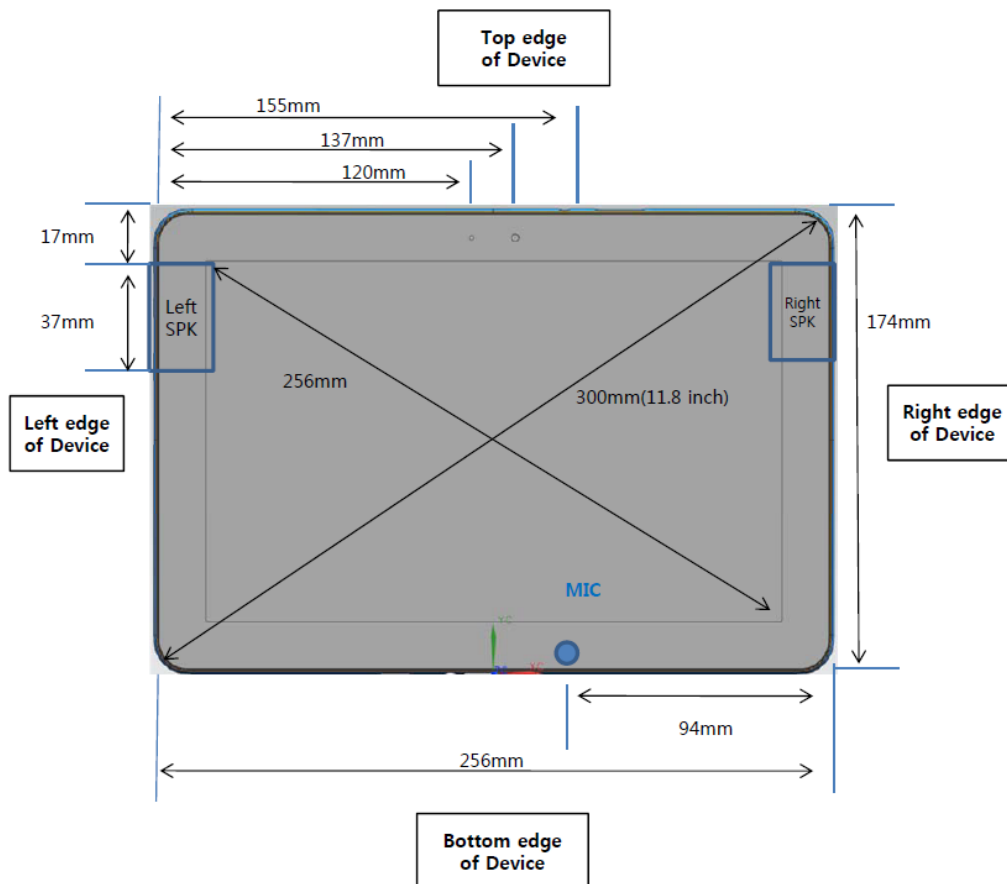


Figure 1-1
Front View of Device

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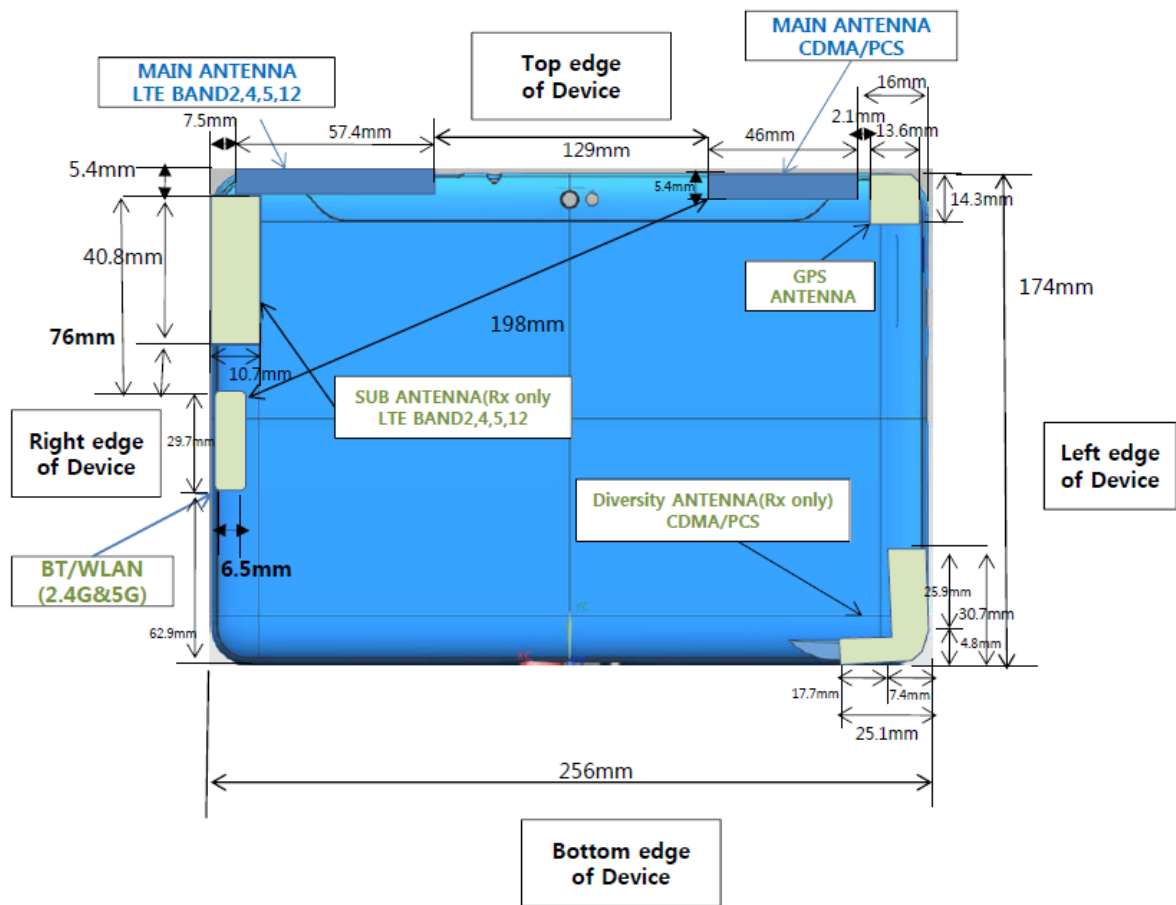


Figure 1-2
Back View of Device

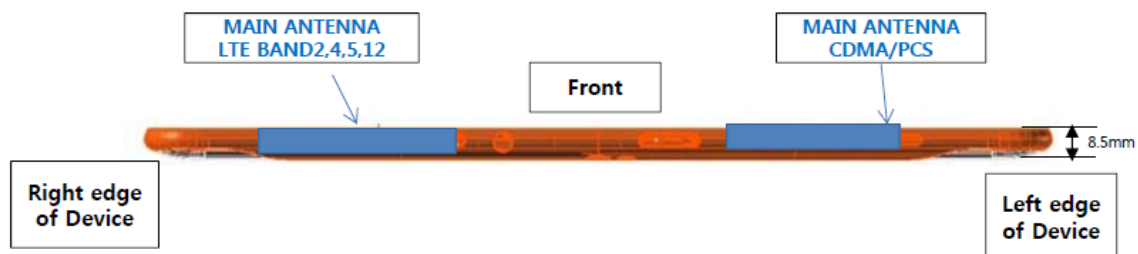


Figure 1-3
Top View of Device

Rear camera is not for video calls but for standard digital functions.

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1.3 Device Exclusions Applicable for SAR Testing

(A) WIFI/BT Testing

Per KDB Publication 447498 4) b), SAR is not required when the average output power is less than 60/f (GHz). Therefore, Bluetooth SAR was not required since the maximum conducted power of Bluetooth Tx is 6.035 mW. 2.4 GHz WIFI SAR was additionally not required since the maximum conducted power is 17.58 mW.

5 GHz WIFI cannot transmit simultaneously with the CDMA or LTE Antennas, as shown in **Table 1-1**.

(B) CDMA/LTE Testing

LTE SAR for the lower BWs were not tested for SAR since the maximum average output power over 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.

According to FCC KDB 941225 D01 publication, SAR for Subtype 2 Physical layer configurations is not required for Rev. A when the maximum average output of each RF channel is less than that measured in Subtype 0/1 Physical layer configurations.

1.4 Simultaneous Transmission Capabilities

Simultaneous transmissions according to KDB Publication 447498, except for transmissions during network hand-offs, with maximum hand-off duration less than 30 seconds, transmitters are considered to be transmitting simultaneously when there is overlapping transmission. The tablet procedures required by KDB publication 447498 generally do not require separate hotspot mode testing.

Table 1-1
Simultaneous Transmission Scenarios

No.	Simultaneous Transmission Scenarios	Body SAR	Note
1	Cell./PCS CDMA 1x Data + 2.4 GHz WIFI	Yes	2G Hotspot Only
2	Cell./PCS CDMA EVDO Data + 2.4 GHz WIFI	Yes	3G Hotspot Only
3	LTE Band 2/4/5/12 Data + 2.4 GHz WIFI	Yes	4G Hotspot Only
4	Cell./PCS CDMA 1x Data + 5 GHz WIFI	No	Not Supported by S/W
5	Cell./PCS CDMA EVDO Data + 5 GHz WIFI	No	Not Supported by S/W
6	LTE Band 2/4/5/12 Data + 5 GHz WIFI	No	Not Supported by S/W
7	Cell./PCS CDMA 1x Data + LTE Band 2/4/5/12 Data	No	Not Supported by S/W
8	Cell./PCS CDMA EVDO Data + LTE Band 2/4/5/12 Data	No	Not Supported by S/W
9	Cell./PCS CDMA 1x Data + LTE Band 2/4/5/12 Data + 2.4 GHz WIFI	No	Not Supported by S/W
10	Cell./PCS CDMA EVDO Data + LTE Band 2/4/5/12 Data + 2.4 GHz WIFI	No	Not Supported by S/W
11	Cell./PCS CDMA 1x Data + LTE Band 2/4/5/12 Data + 5 GHz WIFI	No	Not Supported by S/W
12	Cell./PCS CDMA EVDO Data + LTE Band 2/4/5/12 Data + 5 GHz WIFI	No	Not Supported by S/W
13	CDMA 1x Voice, VoLTE and SVLTE	No	Not Supported by S/W



Figure 1-4
Simultaneous Transmission Paths

Per KDB publication 447498 4) b) since the output power of the antenna is $\leq 60/f$ (GHz), **Bluetooth SAR tests and 2.4 GHz WIFI SAR tests are not required** for both back side and edge exposure conditions. No further analysis was necessary to determine if simultaneous transmission cases would exceed the SAR limit.

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1.5 Power Reduction for SAR

Proximity Sensors were utilized in the device for SAR purposes. April/October 2011 TCB Workshop Notes regarding Power reduction using proximity sensors were used for guidance for SAR Testing. See Section 11 for more information.

1.6 Samples Used for SAR Testing

Several samples with identical hardware were used to facilitate SAR testing only. For maximum power samples, power reduction was disabled via software (only available from the manufacturer) to ensure the device was always transmitting at maximum power when testing at a conservative distance. All reduced power samples were tuned to the reduced power levels. Power reduction was disabled via software (only available from the manufacturer) on this device to ensure the device was always transmitting at reduced power and to confirm reduced power levels. An additional sample was used for WIFI.

Table 1-2
SAR Test Sample Serial Numbers

	Cell. CDMA/EVDO	PCS CDMA/EVDO	LTE Band 12	LTE Band 5 (Cell.)	LTE Band 4 (AWS)	LTE Band 2 (PCS)	5 GHz WIFI
Maximum Power	#1	#3	#11	#7	#9	#5	#16
Reduced Power	#2	#4	#19	#8	#10	#6	

1.7 FCC Guidance Applied

- FCC OET Supplement C
- IEEE 1528-2003
- FCC KDB 447498 Section 4 (Tablet SAR Considerations)
- April/Oct 2011 TCB Workshop Notes for RF Exposure and Sensors with Power Reduction
- FCC KDB 941225 (2G/3G, LTE, Wireless Router)
- FCC KDB 248227 (802.11)
- FCC KDB 865664 (5-6 GHz techniques)

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LTE INFORMATION PER KDB 941225 D05

KDB Publication 941225 D05 LTE Information				
KDB 941225 Sec.	FCC ID	A3LSCHI905U		
	Form Factor	Portable Tablet		
1)	Frequency Range of each LTE transmission band	Band 2: Tx (1850.7 - 1909.3 MHz) Band 4: Tx (1712.5 - 1752.5 MHz) Band 5: Tx (824.7 - 848.3 MHz) Band 12: Tx (701.5 - 713.5 MHz)		
2)	Channel Bandwidths	Band 2: 1.4 MHz, 3 MHz, 5 MHz Band 4: 5 MHz, 10 MHz Band 5: 1.4 MHz, 3 MHz, 5 MHz Band 12: 5 MHz, 10 MHz		
3)	Channel Numbers and Frequencies (MHz)	Low	Mid	High
	LTE Band 2 and BW 1.4 MHz	1850.7 MHz (18607)	1880 MHz (18900)	1909.3 MHz (19193)
	LTE Band 2 and BW 3 MHz	1851.5 MHz (18615)	1880 MHz (18900)	1908.5 MHz (19185)
	LTE Band 2 and BW 5 MHz	1852.5 MHz (18625)	1880 MHz (18900)	1907.5 MHz (19175)
	LTE Band 4 and BW 5 MHz	1712.5 MHz (19975)	1732.5 MHz (20175)	1752.5 MHz (20375)
	LTE Band 4 and BW 10 MHz	1715 MHz (20000)	1732.5 MHz (20175)	1750 MHz (20350)
	LTE Band 5 and BW 1.4 MHz	824.7 MHz (20407)	836.5 MHz (20525)	848.3 MHz (20643)
	LTE Band 5 and BW 3 MHz	825.5 MHz (20415)	836.5 MHz (20525)	847.5 MHz (20635)
	LTE Band 5 and BW 5 MHz	826.5 MHz(20425)	707.5 Mhz (23095)	846.5 MHz (20625)
	LTE Band 12 and BW 5 MHz	701.5 MHz (23035)	707.5 Mhz (23095)	713.5 MHz (23155)
	LTE Band 12 and BW 10 MHz	704 MHz (23060)	707.5 Mhz (23095)	711 MHz (23130)
4)(a)	UE Category	UE Category 3		
(b)	Modulations Supported in UL	QPSK, 16QAM		
	LTE Transmitter and Antenna Implementation	Operational Description		
5)	Description of LTE Tx and Ant. Implementation	1Tx/Rx, 1Rx		
6)	LTE Voice available ?	Data Only		
	Hotspot with LTE+WIFI	Yes		
	Hotspot with LTE+WIFI active with Voice sessions?	NO		
7)	LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3-6.2.5? (manufacturer attestation to be provided)	See Section 13		
	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: See Section 13		
9-10)	Non-LTE US Wireless Operating Modes/Bands	Conducted RF Output Power	RF Exposure Configurations	
	835 MHz CDMA	See Page 1	Body	
	1900 MHz CDMA			
	2.4 GHz Bluetooth			
	2.4 GHz WI-FI			
	5 GHz WIFI			
11)	Simultaneous Tx conditions (Voice and Data Configurations)	See Section 1.3		
12)	Power Reduction used for SAR Compliance?	YES		
13)	Describe Power Reduction (LTE Modes)	See Section 11		
14)	SAR Test Plan	See Section 11		
15)	SAR Test Data	See Section 16		

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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 Fig. 1-1).

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

Figure 3-1
SAR Mathematical Equation

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]

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4 TEST SITE LOCATION

4.1 INTRODUCTION

The map at the right shows the location of the PCTEST LABORATORY in Columbia, Maryland. It is in proximity to the FCC Laboratory, the Baltimore-Washington International (BWI) airport, the city of Baltimore and Washington, DC.

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49' 38" W longitude. The facility is 1.5 miles north of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4 on January 27, 2006 and Industry Canada.



Figure 4-1

Map of the Greater Baltimore and Metropolitan Washington, D.C. area

4.2 Test Facility / Accreditations:

Measurements were performed at an independent accredited PCTEST Engineering Lab located in Columbia, MD 21045, U.S.A.



- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing-Aid Compatibility (HAC), Battery Safety, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (IC-2451).
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and all Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (IC-2451) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS and CDMA, and EvDO mobile phones.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO Data, CDMA 1xRTT Data

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5 SAR MEASUREMENT SETUP

5.1 Robotic System

Measurements are performed using the DASY4 automated dosimetric assessment system. The DASY4 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 Figure 5-1).

5.2 System Hardware

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and a remote control used to drive the robot motors. The PC consists of the SAR Measurement Software DASY4, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit that performs the signal amplification, signal multiplexing, A/D conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal from the DAE and transfers data to the PC card.

5.3 System Electronics

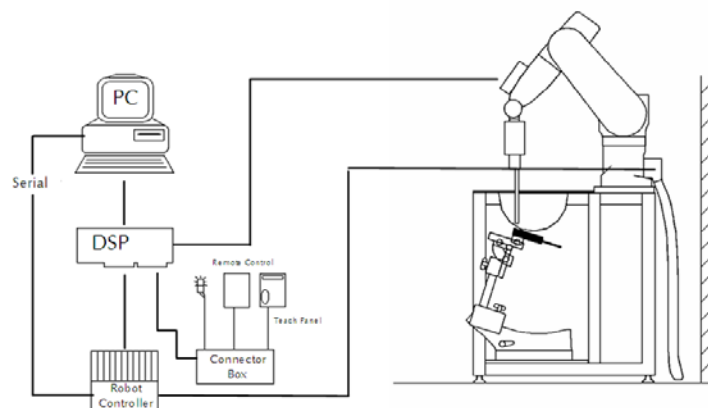


Figure 5-1
SAR Measurement System Setup

The DAE consists of a highly sensitive electrometer-grade auto-zeroing preamplifier, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

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5.4 Automated Test System Specifications

Test Software: SPEAG DASY4 version 4.7 Measurement Software
Robot: Stäubli Unimation Corp. Robot RX60L
Repeatability: 0.02 mm
No. of Axes: 6

Data Acquisition Electronic System (DAE)

Data Converter

Features: Signal Amplifier, multiplexer, A/D converter & control logic
Software: SEMCAD software
Connecting Lines: Optical Downlink for data and status info
Optical upload for commands and clock

PC Interface Card

Function: Link to DAE
16-bit A/D converter for surface detection system
Two Serial & Ethernet link to robotics
Direct emergency stop output for robot

Phantom

Type: SAM Twin Phantom (V4.0 and V 5.0)
Shell Material: Composite
Thickness: 2.0 ± 0.2 mm



Figure 5-2
SAR Measurement System

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6.1 Probe Measurement System



Figure 5-1
SAR System

The SAR measurements were conducted with the dosimetric probe designed in the classical triangular configuration (see Figure 6-3) and optimized for dosimetric evaluation [9]. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multi-fiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY4 software reads the reflection during a software approach and looks for the maximum using a 2nd order curve fitting. The approach is stopped at reaching the maximum.

6.2 Probe Specifications

Model(s):	ES3DV2, ES3DV3, EX3DV4
Frequency	10 MHz – 6.0 GHz (EX3DV4)
Range:	10 MHz – 4 GHz (ES3DV3, ES3DV2)
Calibration:	In head and body simulating tissue at Frequencies from 300 up to 6000MHz
Linearity:	± 0.2 dB (30 MHz to 6 GHz) for EX3DV4 ± 0.2 dB (30 MHz to 4 GHz) for ES3DV3, ES3DV2
Dynamic Range:	10 mW/kg – 100 W/kg
Probe Length:	330 mm
Probe Tip Length:	20 mm
Body Diameter:	12 mm
Tip Diameter:	2.5 mm (3.9mm for ES3DV3)
Tip-Center:	1 mm (2.0 mm for ES3DV3)
Application:	SAR Dosimetry Testing Compliance tests of mobile phones Dosimetry in strong gradient fields



Figure 6-2
Near-Field Probe



Figure 6-3
Triangular Probe Configuration

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7 PHANTOM AND EQUIVALENT TISSUES

7.1 SAM Phantoms



Figure 7-1
SAM Phantoms

The SAM Twin Phantom V4.0 and V5.0 is constructed of a fiberglass shell integrated in a table. The shape of the shell is based on data from an anatomical study designed to represent the 90th percentile of the population [12][13]. The phantom enables the dosimetric evaluation of SAR for both left and right handed handset usage, as well as body-worn usage using the flat phantom region. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. The shell phantom has a 2mm shell thickness (except the ear region where shell thickness increases to 6 mm).

7.2 Tissue Simulating Mixture Characterization

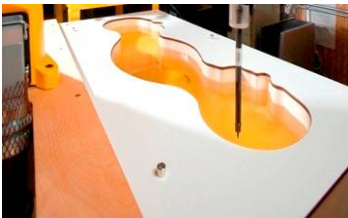


Figure 7-2
SAM Phantom with
Simulating Tissue

The mixture is characterized to obtain proper dielectric constant (permittivity) and conductivity of the tissue of interest. The tissue dielectric parameters recommended in IEEE 1528 and IEC 62209 have been used as targets for the compositions, and are to match within 5%, per the FCC recommendations.

Table 7-1
Composition of the Tissue Equivalent Matter

Frequency (MHz)	835	1750	1900	5200-5800
Tissue	Body	Body	Body	Body
Ingredients (% by weight)				
Bactericide	0.1			
DGBE		31	29.44	
HEC	1			
NaCl	0.94	0.2	0.39	
Sucrose	44.9			
Polysorbate (Tween) 80				20
Water	53.06	68.8	70.17	80

See next page for 750 MHz Tissue Composition

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Table 7-2
Composition of 750 MHz 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. The composition is approximate to the actual liquids utilized. Thus the manufacturer production 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
838	55.0	22.52	1.05	55.2	0.98		-0.3	6.7
850	54.9	22.44	1.06	55.2	0.99		-0.4	7.3
875	54.7	22.30	1.09	55.1	1.02		-0.7	6.5
900	54.5	22.17	1.11	55.0	1.05		-1.0	5.7
925	54.2	22.05	1.13	55.0	1.06		-1.3	6.8
950	54.0	21.94	1.16	54.9	1.08		-1.7	7.8
975	53.8	21.85	1.18	54.9	1.09		-2.0	9.0
1000	53.6	21.75	1.21	54.8	1.10		-2.3	10.2

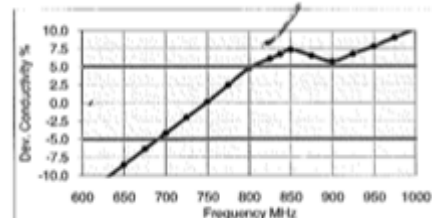
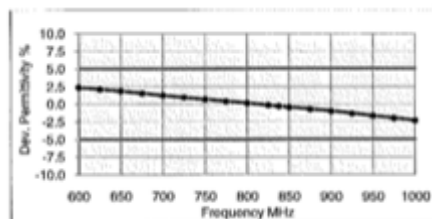


Figure 7-3
750MHz Body Tissue Equivalent Matter

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DOSIMETRIC ASSESSMENT

8.1 Measurement Procedure

The evaluation was performed using the following procedure:

1. The SAR distribution area was ensured to cover the entire dimension of the body phantom area with the DUT positioned against the phantom. The horizontal grid resolution was 15mm x 15mm for up to 3 GHz frequencies. The horizontal grid resolution was 10mm x 10mm for 5-6 GHz frequencies per KDB 865664 pub.
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 testing the 1 gram cube. This fixed point was measured and used as a reference value.
3. Based on the area scan data, the area of the maximum absorption was determined by spline interpolation. Around this point, a fine resolution volume scan, "zoom scan," was assessed. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual 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 diodes from the tip of the probe housing plus the distance between the phantom outer 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 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.

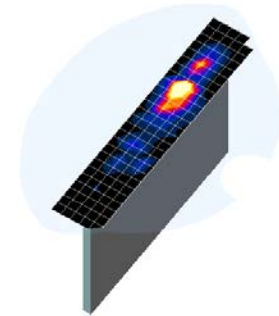


Figure 8-1
Sample SAR Area Scan

8.2 5 GHz SAR Testing Considerations per KDB 865664 Publication

For 5 GHz testing, finer resolution Area scans were performed as specified by FCC SAR Measurement Requirements for 3 – 6 GHz, KDB pub 865664. The 5 GHz Area Scan requires a minimum resolution of 10mm on the x and y axis for each grid measurement point.

For 5 GHz testing finer resolution zoom scans were performed as specified by FCC SAR Measurement Requirements for 3 – 6 GHz, KDB pub 865664. The 5 GHz zoom scan requires a minimum volume of 24mm x 24mm x 20mm and 7 x 7 x 11 points.

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9 FCC RF EXPOSURE LIMITS

9.1 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.

9.2 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 9-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

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

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

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10 FCC MEASUREMENT PROCEDURES

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

10.1 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. 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.

10.2 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.

10.2.1 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 10-1 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 10-2 was applied.
5. FCHs were configured at full rate for maximum SAR with "All Up" power control bits.

Table 10-1
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 10-2
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

10.2.2 Body SAR Measurements for EVDO Data Devices

Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. 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

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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.

For Ev-Do devices that also support 1x RTT data operations, SAR is not required for 1x RTT when the maximum average output of each channel is less than ¼ dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev.0. Otherwise, the body SAR measurements procedures for CDMA Handsets should be applied (See Sections 10.2.3 and 10.2.4).

10.2.3 Body SAR Measurements for CDMA2000 1x

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.

10.3 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.

10.3.1 MPR

MPR is implemented for this device by the manufacturer when the proximity sensor is not active (maximum power scenarios). 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. There is no MPR applied when the proximity sensor is active (reduced power scenarios). See Section 13 for MPR targets. This device will never operate at higher power levels than specified in the tune-up procedure.

10.3.2 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests

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10.3.3 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 QPSK with 50% RB.
- i. Per Page 4, 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 average output power of the smaller bandwidths is not more than 0.5 dB higher than the higher bandwidths.

10.4 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.

10.4.1 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.

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10.4.2 Frequency Channel Configurations [27]

802.11 a/b/g/n operating modes are tested independently according to the service requirements in each frequency band. 802.11 b/g/n modes are tested on channels 1, 6 and 11. 802.11a is tested for UNII operations on channels 36 and 48 in the 5.15-5.25 GHz band; channels 52 and 64 in the 5.25-5.35 GHz band; channels 104, 116 and 136 in the 5.470-5.725 GHz band; and channels 149 and 161 in the 5.8 GHz band. When 5.8 GHz §15.247 is also available, channels 149, 157 and 165 should be tested instead of the UNII channels. These are referred to as the “default test channels”. When the maximum average output channel in each frequency band is not included in the “default channels,” the maximum output channel should be tested instead of an adjacent “default test channel.” These are referred to as the “required test channels.” For 2.4 GHz, 802.11g/n modes were evaluated only if the output power was 0.25 dB higher than the 802.11b mode. For 5 GHz, 802.11n modes were evaluated only if the output power was 0.25 dB higher than the 802.11a mode.

Table 10-3
802.11 Test Channels per FCC KDB Publication 248227

Mode	GHz	Channel	Turbo Channel	“Default Test Channels”		
				§15.247 802.11b	802.11g	UNII
802.11 b/g	2.412	1		✓	✓	
	2.437	6	6	✓	✓	
	2.462	11		✓	✓	
802.11a	5.18	36				✓
	5.20	40	42 (5.21 GHz)			*
	5.22	44				*
	5.24	48	50 (5.25 GHz)			✓
	5.26	52				✓
	5.28	56	58 (5.29 GHz)			*
	5.30	60				*
	5.32	64				✓
	5.500	100	Unknown			*
	5.520	104				✓
	5.540	108				*
	5.560	112				*
	5.580	116				✓
	5.600	120				*
	5.620	124				✓
	5.640	128				*
	5.660	132				*
	5.680	136				✓
	5.700	140				*
UNII or §15.247	5.745	149		✓		✓
	5.765	153	152 (5.76 GHz)		*	*
	5.785	157		✓		*
	5.805	161	160 (5.80 GHz)		*	✓
	§15.247	5.825	165	✓		

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.

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11 SAR TABLET TESTING

11.1 SAR Testing for Tablet per KDB Publication 447498 Section 4

Lap-touching devices that have transmitting antennas located less than 20 cm from the body of the user require routine SAR evaluation. Such devices are considered portable, and are capable of being held to the body. Devices are to be setup according to KDB publication 447498 requirements and are configured with maximum output power during SAR assessment for a worst-case SAR evaluation.

Per KDB 447498 4) b) i), the bottom face (back of the device) is required to be tested touching the flat phantom.

Per KDB Publication 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user. According to KDB Publication 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition. Since the diagonal dimension of the device is more than 20 cm (30.0 cm), this device is a tablet.

11.2 Proximity Sensor Information

The sensors pads are located near the upper half of the device to cover exposure conditions to the CDMA and LTE antennas. The technical description contains information about sensors size and locations. Power reduction levels are provided in Section 11.4.

11.3 Display Orientation Capabilities

This device is capable of multiple display orientations supporting both portrait and landscape positions. Therefore per KDB 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user. According to KDB 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.

11.4 Additional SAR Testing for the Back and Top of the Device

Based on the type and implementation of the sensors, April 2011 FCC-TCB conference notes requires sensor information regarding: (1) additional SAR evaluation at a conservative distance from the device where power reduction is de-activated and (2) reliability sensor activation data. Reliability sensor activation data is provided by the manufacturer at several distances 0 degrees (normal) to the tissue-filled SAR flat phantom for each applicable side of the tablet with sensors, to cover conditions where the user would interface with the tablet sides (See Table 11-1 through Table 11-3). Additionally, reliability sensor activation data is provided at a manufacturer indicated viewing angle to cover possible angular usage while used near the body for antennas that have edge sensors (see Table 11-2).

Since the sensor reliability data from the manufacturer indicates a back-off sensor activation distance for the back side of 11 mm for the CDMA antenna, a conservative distance of 10 mm was tested for the back side for SAR (with maximum output power). Since the sensor reliability data from the manufacturer indicates a back-off sensor activation distance for the back side of 6 mm for the LTE antenna, a conservative distance of 6 mm was tested for the back side for SAR (with maximum output power). Since the back-off sensor activation distance is 6 mm for the top edge for the CDMA antenna, a conservative distance of 5 mm was tested for the top edge (with maximum output power). The sensors are designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions. Further details about the manufacturer's sensing mechanism and sensor coverage assessments are included in the technical descriptions.

The sensors are designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions.

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Table 11-1
Distance from Back of Tablet for CDMA

distance in mm	10	11	12	13	14	15
Condition of CDMA sensor with respect to the back of the device	on	on	off	off	off	off

Please See Figure 11-1 - Figure 11-2 for power vs. Back-off Distance plots for CDMA modes.

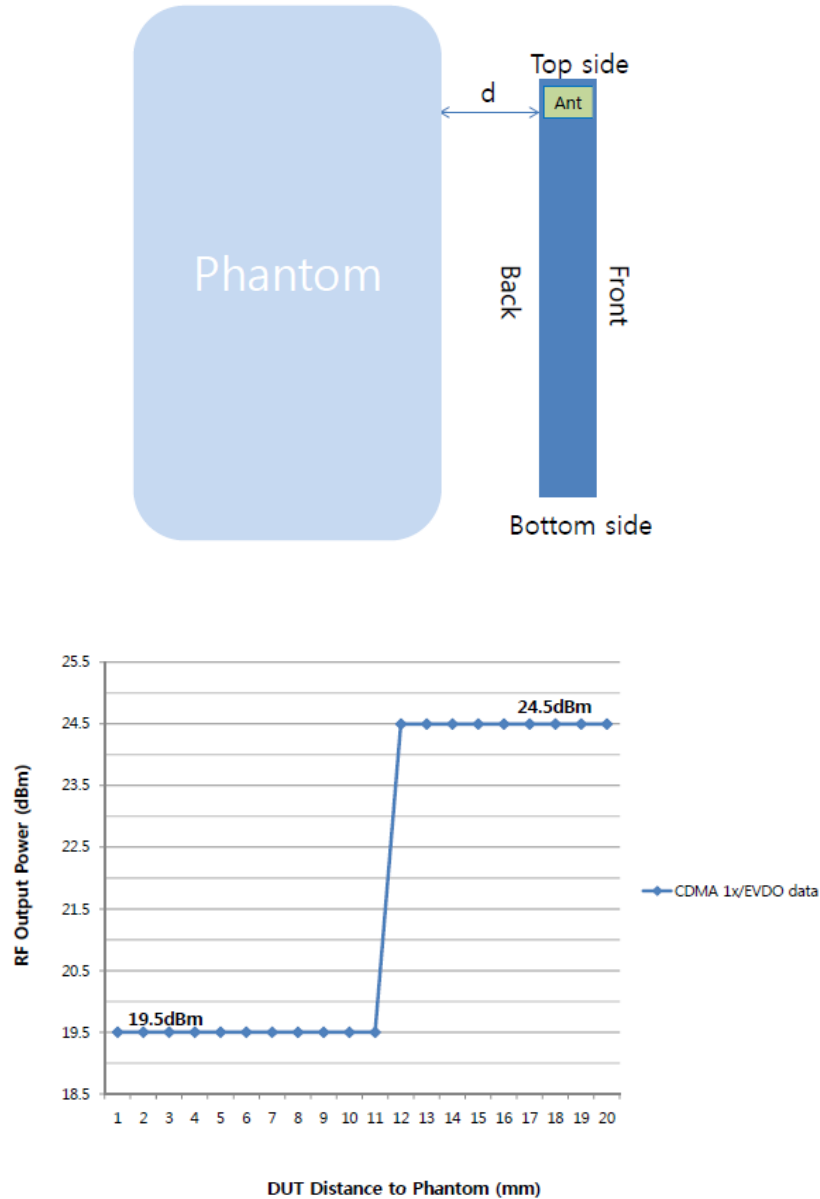


Figure 11-1
Cell. CDMA Back off Power Reduction Graph - Back Side

Data in Figure 11-1 demonstrates a power reduction to 19.5 dBm at a distance of 11 mm and less from the back, as shown in Table 11-1.

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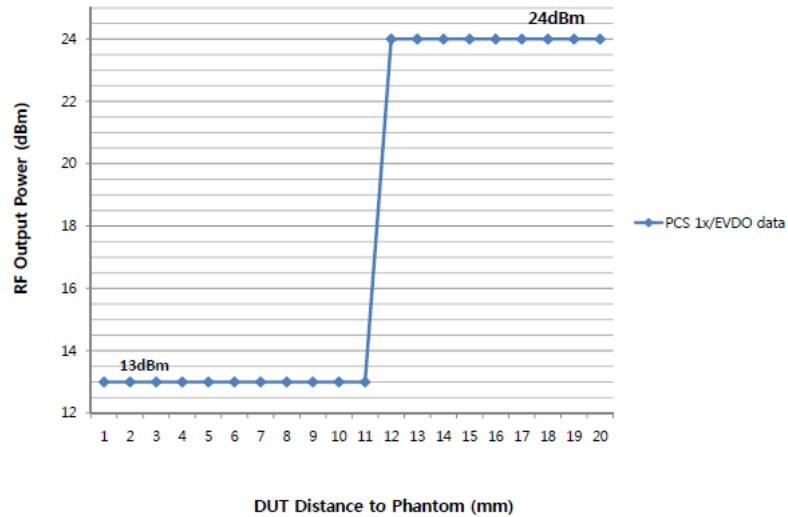


Figure 11-2

PCS CDMA Back off Power Reduction Graph - Back Side

Data in Figure 11-2 demonstrates a power reduction to 13 dBm at a distance of 11 mm and less from the back, as shown in Table 11-1.

Table 11-2
Distance from Back of Tablet for LTE

distance in mm	5	6	7	8	9	10
Condition of the LTE sensor with respect to the back of the device	on	on	off	off	off	off

Please See Figure 11-3 - Figure 11-6 for power vs. Back-off Distance plots for LTE modes.

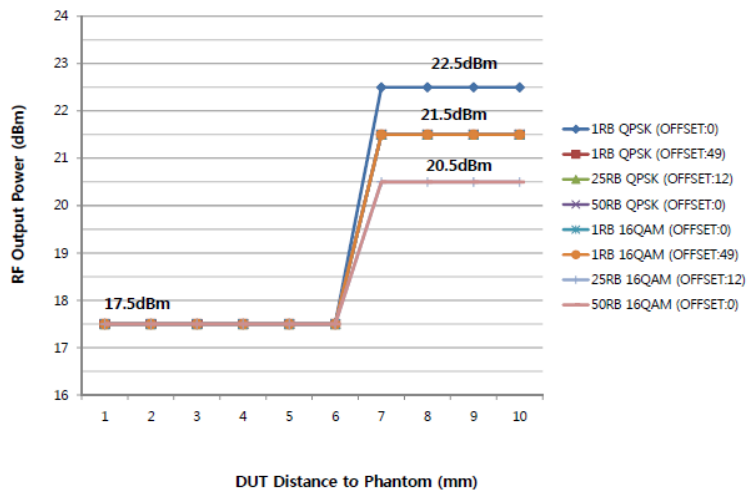


Figure 11-3

LTE Band 12 Back off Power Reduction Graph - Back Side

Data in Figure 11-3 demonstrates a power reduction to 17.5 dBm at a distance of 6 mm and less from the back, as shown in Table 11-2.

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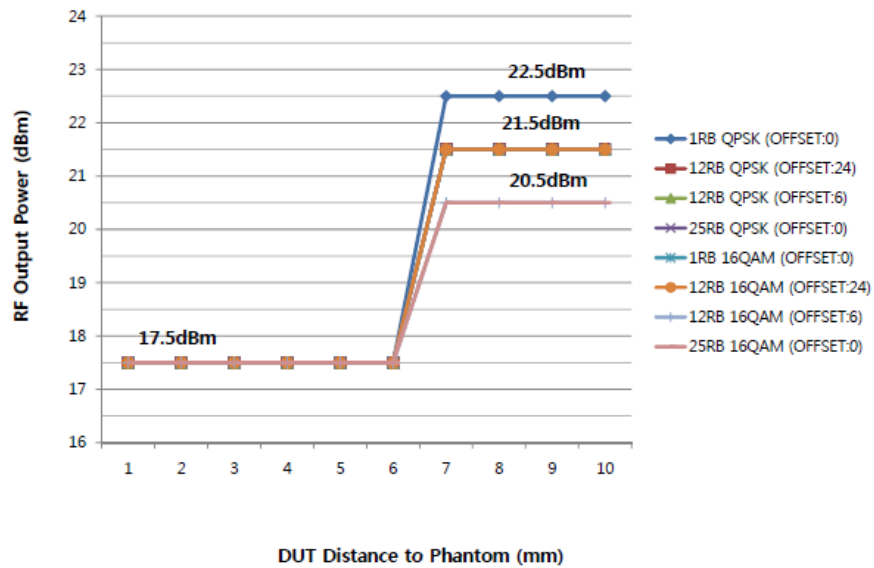


Figure 11-4

LTE Band 5 (Cell.) Back off Power Reduction Graph - Back Side

Data in Figure 11-4 demonstrates a power reduction to 17.5 dBm at a distance of 6 mm and less from the back, as shown in Table 11-2.

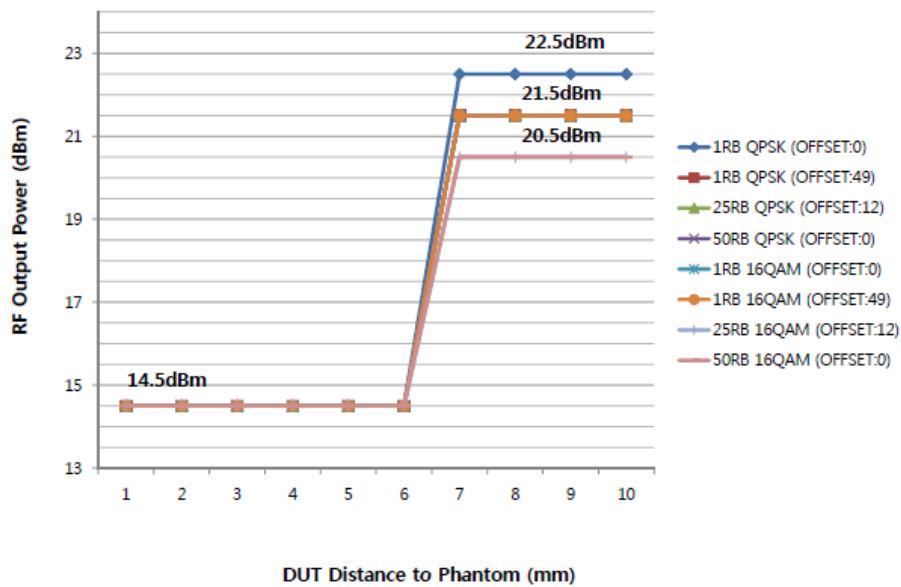


Figure 11-5

LTE Band 4 (AWS) Back off Power Reduction Graph - Back Side

Data in Figure 11-5 demonstrates a power reduction to 14.5 dBm at a distance of 6 mm and less from the back, as shown in Table 11-2.

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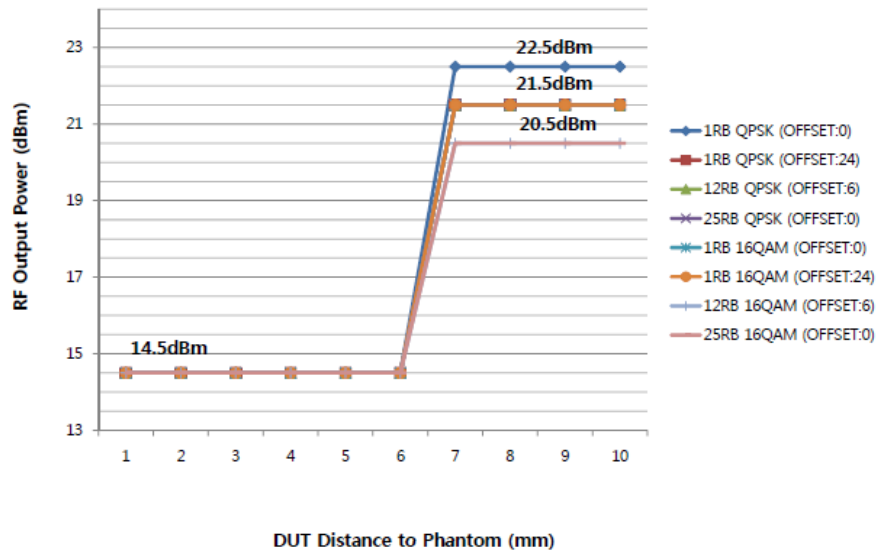


Figure 11-6

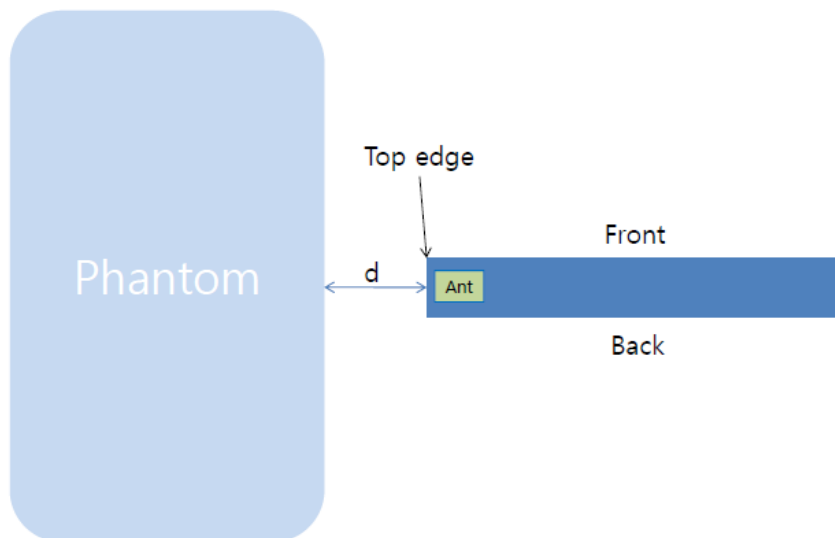
LTE Band 2 (PCS) Back off Power Reduction Graph - Back Side

Data in Figure 11-6 demonstrates a power reduction to 14.5 dBm at a distance of 6 mm and less from the back, as shown in Table 11-2.

Table 11-3
Distance from Top Edge of Tablet - 0° Angle

distance in mm	5	6	7	8	9	10
Condition of the CDMA sensor in the top edge of the device	on	on	off	off	off	off

Please see Figure 11-7 - Figure 11-8 power vs. back-off distance plots for CDMA modes.



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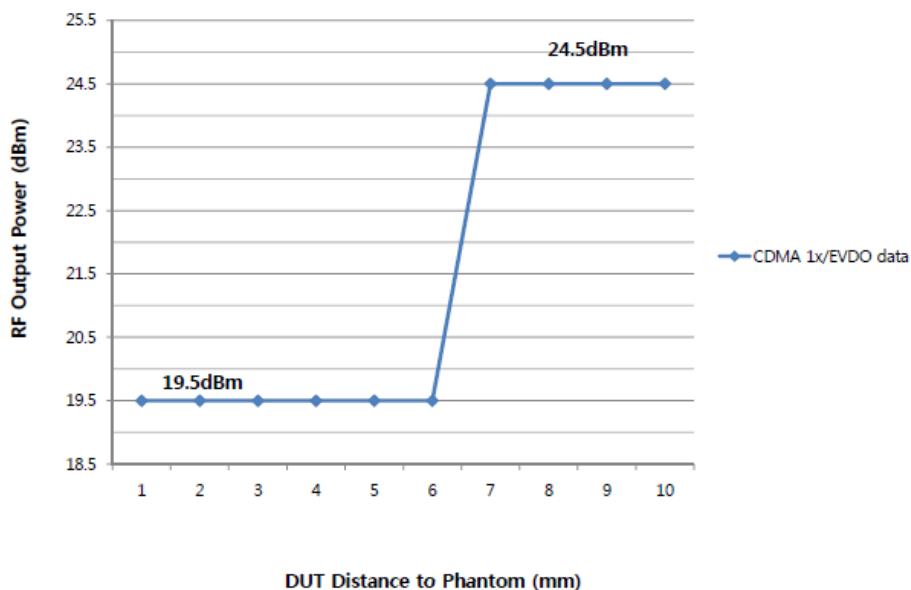


Figure 11-7

Cell. CDMA Back off Power Reduction Graph - Top at 0° Angle

Data in Figure 11-7 demonstrates a power reduction to 19.5 dBm at a distance of 6 mm and less, from the top edge of the device as shown in Table 11-3.

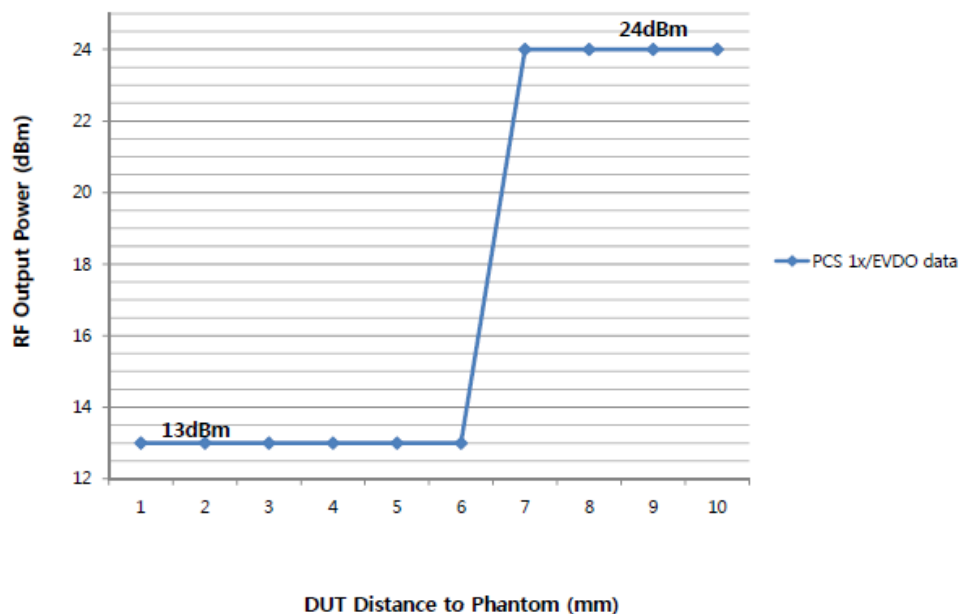


Figure 11-8

PCS CDMA Back off Power Reduction Graph - Top at 0° Angle

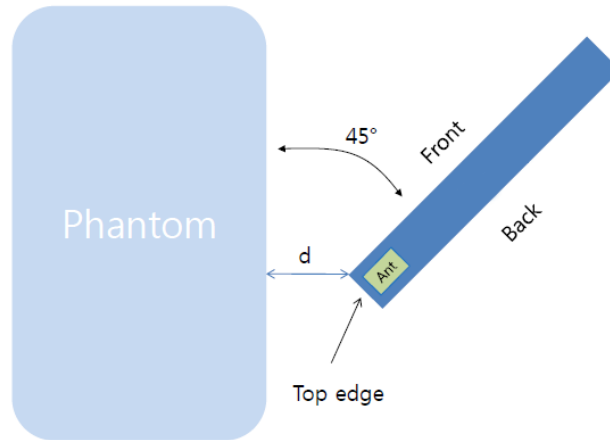
Data in Figure 11-8 demonstrates a power reduction to 13 dBm at a distance of 6 mm and less, from the top edge of the device as shown in Table 11-3.

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Table 11-4
Distance from Top Edge of Tablet - 45° Angle

distance in mm	5	6	7	8	9	10
Condition of the CDMA sensor in the top edge of the device	on	on	off	off	off	off

Please see Figure 11-9 - Figure 11-10 for power vs. back-off distance plots for CDMA modes.



Above figure represents “45 degrees” between the screen face and phantom face.

Please note that the 45 degree angle tilt has been used to identify proximity sensor coverage for the top edge, since this angle is consistent with device use conditions and sensor implementation according to the manufacturer. All relevant directions of coverage, as described in the April 2011 TCB workshop slides, have been considered in order to determine the worst case activation and deactivation test distances.

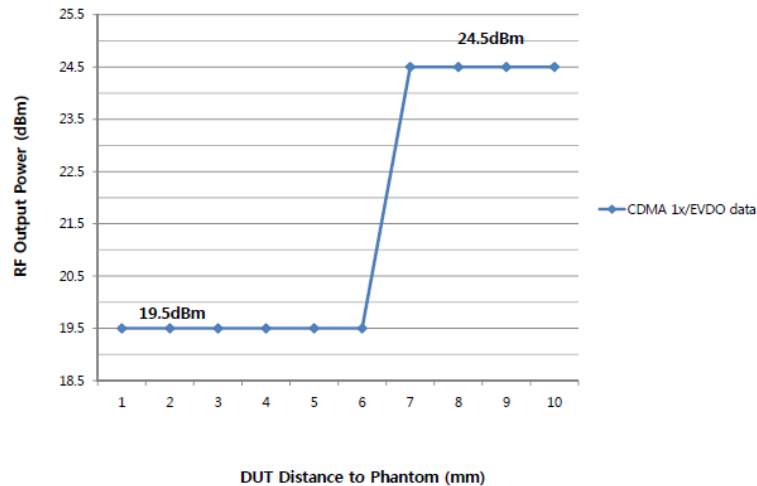


Figure 11-9

Cell. CDMA Back off Power Reduction Graph - Top Edge at 45° Angle

Data in Figure 11-9 demonstrates a power reduction to 19.5 dBm at a distance of 6 mm and less, from the top edge at a 45 degree angle as shown in Table 11-4.

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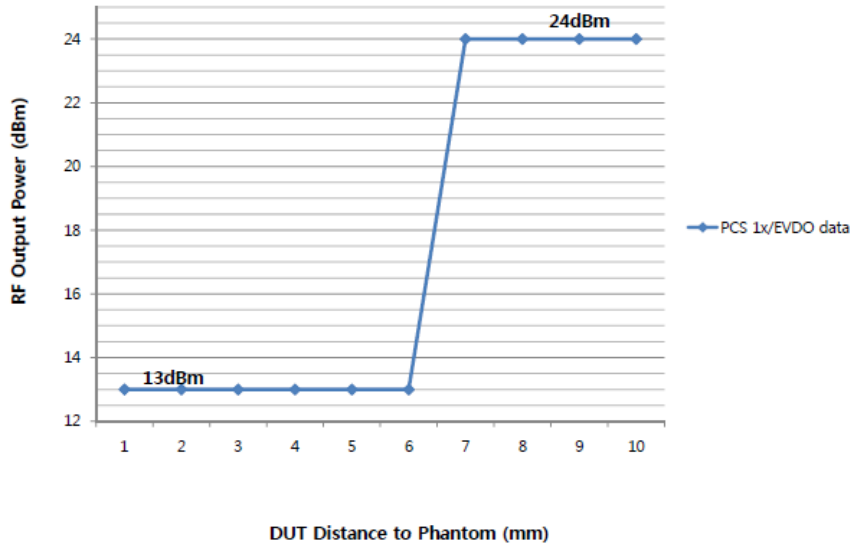


Figure 11-10
PCS CDMA Back off Power Reduction Graph - Top Edge at 45° Angle

Data in Figure 11-10 demonstrates a power reduction to 13.0 dBm at a distance of 6 mm and less, from the top edge at a 45 degree angle as shown in Table 11-4.

11.5 Method of SAR measurement with Power Reduction

This tablet was tested in accordance with April 2011 TCB workshop notes for proximity sensor and power reduction. See Section 1.6 for the configurations tested per sample.

For CDMA modes, based on the power-reduction activation vs. distance results for the sensors, the samples representative of the device with the sensors activated (reduced power) was tested for SAR at 0 mm from the back and top of the flat phantom. The device was additionally tested at a conservative 10 mm distance with the sensor de-activated (max power, no power reduction) from the back side; and 5 mm from the top edge with the sensor de-activated (max power, no power reduction).

For LTE modes, based on the power-reduction activation vs. distance results for the sensors, the samples representative of the device with the sensors activated (reduced power) was tested for SAR at 0 mm from the back of the flat phantom. The device was additionally tested at a conservative 5 mm distance with the sensor de-activated (max power, no power reduction) from the back side.

For the additional SAR measurements with the sensors de-activated when the device is positioned away from the user, SAR evaluation is required without power back-off at 10 mm (from the back) and 5mm (from the top edge) for CDMA. SAR evaluation is required without power back-off at 5 mm (from the back) for LTE. Since the device sensor detection mechanism is active at these distances, the power reduction was disabled via manufacturer test software, and the device was placed in maximum power transmit mode with a base station simulator under the tissue equivalent liquid- filled flat phantom at the required distances for testing.

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12 CDMA CONDUCTED POWERS

Table 12-1
Maximum CDMA Average RF Power (Representing Proximity Sensor Inactive)

Band	Channel	Frequency	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC	MHz	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	1013	824.7	24.05	24.28	24.10	23.98
	384	836.52	24.30	24.39	24.25	24.16
	777	848.31	24.20	24.27	24.12	24.02
PCS	25	1851.25	24.41	24.11	24.08	24.05
	600	1880	24.44	24.14	23.91	23.94
	1175	1908.75	24.48	24.16	24.05	24.05

Table 12-2
Reduced CDMA Average RF Power (Representing Proximity Sensor Active)

Band	Channel	Frequency	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC	MHz	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	1013	824.7	19.12	19.16	19.20	19.18
	384	836.52	19.20	19.17	19.21	19.20
	777	848.31	19.28	19.35	19.50	19.36
PCS	25	1851.25	12.94	12.89	12.51	12.59
	600	1880	13.03	12.91	12.72	12.74
	1175	1908.75	12.73	12.78	12.77	12.83

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Per KDB Publication 941225 D01:

1. For Cell. Band, Body SAR was evaluated with EVDO Rev 0. SAR was not required for 1x RTT for Ev-Do devices that also support 1x RTT data operations, when the maximum average output of each channel is less than 1/4 dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0. SAR for Subtype 2 Physical layer configurations is not required for Rev. A when the maximum average output of each RF channel is less than that measured in Subtype 0/1 Physical layer configurations. See Section 10.2 for more details.
2. For PCS CDMA, the average output power of 1xRTT operations was more than 0.25 dB higher than EVDO Rev 0. Therefore, PCS CDMA mode was tested with CDMA 1x procedures.
 - a. EVDO Rev. 0 or Rev. A was not required for SAR testing since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only output power.
 - b. For the reduced power condition, SAR was not required for TDSO / SO32 FCH+SCH since the average output power of were not more than 0.25 dB higher than the TDSO / SO32 FCH Only output power. See Section 10.2 for more details.
 - c. For the max power condition, since the average output power of TDSO / SO32 FCH+SCH was more than 0.25 dB higher than the TDSO / SO32 FCH only, the configuration with the highest SAR for TDSO / SO32 FCH only was additionally tested with TDSO / SO32 FCH+SCH. See Section 10.2 for more details.
3. The bolded modes in the Table 12-1 and Table 12-2 were tested for SAR.



Figure 12-1
Power Measurement Setup

Table 12-3
CDMA Power Reduction Summary

Band	Maximum Power Target [dBm]	Reduced Power Target [dBm]
Cellular	24.5	19.5
PCS	24	13

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13 LTE CONDUCTED POWERS

13.1 Conducted Powers of the Highest Bandwidth per LTE Mode

13.1.1 LTE Band 12

Table 13-1
Maximum LTE Band 12 Average RF Power (Representing Proximity Sensor Inactive)
10 MHz Bandwidth

	Freq. (MHz)	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Mid.	707.5	23095	QPSK	10	1	0	22.91	0	0
	707.5	23095	QSPK	10	1	49	22.95	0	0
	707.5	23095	QPSK	10	25	12	21.71	1	0-1
	707.5	23095	QSPK	10	50	0	21.54	1	0-1
	707.5	23095	16QAM	10	1	0	21.33	1	0-1
	707.5	23095	16QAM	10	1	49	21.33	1	0-1
	707.5	23095	16QAM	10	25	12	20.76	2	0-2
	707.5	23095	16QAM	10	50	0	20.45	2	0-2

Table 13-2
Reduced LTE Band 12 Average RF Power (Representing Proximity Sensor Active)
10 MHz Bandwidth

	Freq. (MHz)	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Mid.	707.5	23095	QPSK	10	1	0	17.80	0	0
	707.5	23095	QSPK	10	1	49	17.81	0	0
	707.5	23095	QPSK	10	25	12	17.89	0	0-1
	707.5	23095	QSPK	10	50	0	17.90	0	0-1
	707.5	23095	16QAM	10	1	0	17.70	0	0-1
	707.5	23095	16QAM	10	1	49	17.77	0	0-1
	707.5	23095	16QAM	10	25	12	17.90	0	0-2
	707.5	23095	16QAM	10	50	0	17.82	0	0-2

Per FCC KDB Publication 447498 6)c), only one channel is required for 10 MHz LTE Band 12 since the transmission bandwidth is from 699-716 MHz.

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13.1.2 LTE Band 5 (Cell.)

Table 13-3
Maximum LTE Band 5 (Cell.) Average RF Power (Representing Proximity Sensor Inactive)
5 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	826.5	20425	QPSK	5	1	0	22.68	0	0
	826.5	20425	QPSK	5	1	24	22.51	0	0
	826.5	20425	QPSK	5	12	6	21.64	1	0-1
	826.5	20425	QPSK	5	25	0	21.75	1	0-1
	826.5	20425	16-QAM	5	1	0	21.60	1	0-1
	826.5	20425	16-QAM	5	1	24	21.84	1	0-1
	826.5	20425	16-QAM	5	12	6	20.90	2	0-2
	826.5	20425	16-QAM	5	25	0	20.79	2	0-2
Mid.	836.5	20525	QPSK	5	1	0	22.77	0	0
	836.5	20525	QPSK	5	1	24	22.40	0	0
	836.5	20525	QPSK	5	12	6	21.78	1	0-1
	836.5	20525	QPSK	5	25	0	21.91	1	0-1
	836.5	20525	16-QAM	5	1	0	21.86	1	0-1
	836.5	20525	16-QAM	5	1	24	21.47	1	0-1
	836.5	20525	16-QAM	5	12	6	20.75	2	0-2
	836.5	20525	16-QAM	5	25	0	20.84	2	0-2
High	846.5	20625	QPSK	5	1	0	22.31	0	0
	846.5	20625	QPSK	5	1	24	22.62	0	0
	846.5	20625	QPSK	5	12	6	21.88	1	0-1
	846.5	20625	QPSK	5	25	0	21.76	1	0-1
	846.5	20625	16-QAM	5	1	0	21.51	1	0-1
	846.5	20625	16-QAM	5	1	24	21.79	1	0-1
	846.5	20625	16-QAM	5	12	6	20.57	2	0-2
	846.5	20625	16-QAM	5	25	0	20.85	2	0-2

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Table 13-4
Reduced LTE Band 5 (Cell.) Average RF Power (Representing Proximity Sensor Active)
5 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	826.5	20425	QPSK	5	1	0	17.66	0	0
	826.5	20425	QPSK	5	1	24	17.50	0	0
	826.5	20425	QPSK	5	12	6	17.72	0	0-1
	826.5	20425	QPSK	5	25	0	17.66	0	0-1
	826.5	20425	16-QAM	5	1	0	17.81	0	0-1
	826.5	20425	16-QAM	5	1	24	17.68	0	0-1
	826.5	20425	16-QAM	5	12	6	17.87	0	0-2
	826.5	20425	16-QAM	5	25	0	17.85	0	0-2
Mid.	836.5	20525	QPSK	5	1	0	17.41	0	0
	836.5	20525	QPSK	5	1	24	17.57	0	0
	836.5	20525	QPSK	5	12	6	17.30	0	0-1
	836.5	20525	QPSK	5	25	0	17.25	0	0-1
	836.5	20525	16-QAM	5	1	0	17.60	0	0-1
	836.5	20525	16-QAM	5	1	24	17.53	0	0-1
	836.5	20525	16-QAM	5	12	6	17.32	0	0-2
	836.5	20525	16-QAM	5	25	0	17.38	0	0-2
High	846.5	20625	QPSK	5	1	0	17.65	0	0
	846.5	20625	QPSK	5	1	24	17.59	0	0
	846.5	20625	QPSK	5	12	6	17.64	0	0-1
	846.5	20625	QPSK	5	25	0	17.42	0	0-1
	846.5	20625	16-QAM	5	1	0	17.30	0	0-1
	846.5	20625	16-QAM	5	1	24	17.47	0	0-1
	846.5	20625	16-QAM	5	12	6	17.38	0	0-2
	846.5	20625	16-QAM	5	25	0	17.18	0	0-2

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13.1.3 LTE Band 4 (AWS)

Table 13-5
Maximum LTE Band 4 (AWS) Average RF Power (Representing Proximity Sensor Inactive)
10 MHz Bandwidth

	Freq. (MHz)	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1715	20000	QPSK	10	1	0	22.60	0	0
	1715	20000	QPSK	10	1	49	22.50	0	0
	1715	20000	QPSK	10	25	12	21.38	1	0-1
	1715	20000	QPSK	10	50	0	21.47	1	0-1
	1715	20000	16QAM	10	1	0	21.24	1	0-1
	1715	20000	16QAM	10	1	49	21.87	1	0-1
	1715	20000	16QAM	10	25	12	20.40	2	0-2
	1715	20000	16QAM	10	50	0	20.65	2	0-2
Mid.	1732.5	20175	QPSK	10	1	0	22.51	0	0
	1732.5	20175	QPSK	10	1	49	22.86	0	0
	1732.5	20175	QPSK	10	25	12	21.67	1	0-1
	1732.5	20175	QPSK	10	50	0	21.74	1	0-1
	1732.5	20175	16QAM	10	1	0	21.45	1	0-1
	1732.5	20175	16QAM	10	1	49	21.52	1	0-1
	1732.5	20175	16QAM	10	25	12	20.63	2	0-2
	1732.5	20175	16QAM	10	50	0	20.65	2	0-2
High	1750	20350	QPSK	10	1	0	22.75	0	0
	1750	20350	QPSK	10	1	49	22.68	0	0
	1750	20350	QPSK	10	25	12	21.63	1	0-1
	1750	20350	QPSK	10	50	0	21.65	1	0-1
	1750	20350	16QAM	10	1	0	21.89	1	0-1
	1750	20350	16QAM	10	1	49	21.47	1	0-1
	1750	20350	16QAM	10	25	12	20.88	2	0-2
	1750	20350	16QAM	10	50	0	20.63	2	0-2

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Table 13-6
Reduced LTE Band 4 (AWS) Average RF Power (Representing Proximity Sensor Active)
10 MHz Bandwidth

	Freq. (MHz)	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1715	20000	QPSK	10	1	0	14.79	0	0
	1715	20000	QPSK	10	1	49	14.68	0	0
	1715	20000	QPSK	10	25	12	14.64	0	0-1
	1715	20000	QPSK	10	50	0	14.51	0	0-1
	1715	20000	16QAM	10	1	0	14.41	0	0-1
	1715	20000	16QAM	10	1	49	15.06	0	0-1
	1715	20000	16QAM	10	25	12	14.70	0	0-2
	1715	20000	16QAM	10	50	0	14.50	0	0-2
Mid.	1732.5	20175	QPSK	10	1	0	14.63	0	0
	1732.5	20175	QPSK	10	1	49	14.94	0	0
	1732.5	20175	QPSK	10	25	12	14.52	0	0-1
	1732.5	20175	QPSK	10	50	0	14.59	0	0-1
	1732.5	20175	16QAM	10	1	0	14.79	0	0-1
	1732.5	20175	16QAM	10	1	49	14.90	0	0-1
	1732.5	20175	16QAM	10	25	12	14.63	0	0-2
	1732.5	20175	16QAM	10	50	0	14.71	0	0-2
High	1750	20350	QPSK	10	1	0	14.63	0	0
	1750	20350	QPSK	10	1	49	14.79	0	0
	1750	20350	QPSK	10	25	12	14.58	0	0-1
	1750	20350	QPSK	10	50	0	14.41	0	0-1
	1750	20350	16QAM	10	1	0	14.67	0	0-1
	1750	20350	16QAM	10	1	49	14.43	0	0-1
	1750	20350	16QAM	10	25	12	14.75	0	0-2
	1750	20350	16QAM	10	50	0	14.54	0	0-2

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13.1.4 LTE Band 2 (PCS)

Table 13-7
Maximum LTE Band 2 (PCS) Average RF Power (Representing Proximity Sensor Inactive)
5 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1852.5	18625	QPSK	5	1	0	22.83	0	0
	1852.5	18625	QPSK	5	1	24	22.83	0	0
	1852.5	18625	QPSK	5	12	6	21.60	1	0-1
	1852.5	18625	QPSK	5	25	0	21.89	1	0-1
	1852.5	18625	16-QAM	5	1	0	22.00	1	0-1
	1852.5	18625	16-QAM	5	1	24	22.00	1	0-1
	1852.5	18625	16-QAM	5	12	6	20.79	2	0-2
	1852.5	18625	16-QAM	5	25	0	20.57	2	0-2
Mid.	1880	18900	QPSK	5	1	0	22.90	0	0
	1880	18900	QPSK	5	1	24	23.00	0	0
	1880	18900	QPSK	5	12	6	21.37	1	0-1
	1880	18900	QPSK	5	25	0	21.95	1	0-1
	1880	18900	16-QAM	5	1	0	21.90	1	0-1
	1880	18900	16-QAM	5	1	24	21.80	1	0-1
	1880	18900	16-QAM	5	12	6	20.90	2	0-2
	1880	18900	16-QAM	5	25	0	20.78	2	0-2
High	1907.5	19175	QPSK	5	1	0	22.80	0	0
	1907.5	19175	QPSK	5	1	24	22.50	0	0
	1907.5	19175	QPSK	5	12	6	21.65	1	0-1
	1907.5	19175	QPSK	5	25	0	21.80	1	0-1
	1907.5	19175	16-QAM	5	1	0	21.90	1	0-1
	1907.5	19175	16-QAM	5	1	24	21.80	1	0-1
	1907.5	19175	16-QAM	5	12	6	20.70	2	0-2
	1907.5	19175	16-QAM	5	25	0	20.60	2	0-2

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Table 13-8
Reduced LTE Band 2 (PCS) Average RF Power (Representing Proximity Sensor active)
5 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1852.5	18625	QPSK	5	1	0	14.05	0	0
	1852.5	18625	QPSK	5	1	24	14.40	0	0
	1852.5	18625	QPSK	5	12	6	14.10	0	0-1
	1852.5	18625	QPSK	5	25	0	14.05	0	0-1
	1852.5	18625	16-QAM	5	1	0	14.05	0	0-1
	1852.5	18625	16-QAM	5	1	24	14.10	0	0-1
	1852.5	18625	16-QAM	5	12	6	14.40	0	0-2
	1852.5	18625	16-QAM	5	25	0	14.17	0	0-2
Mid.	1880	18900	QPSK	5	1	0	14.80	0	0
	1880	18900	QPSK	5	1	24	14.69	0	0
	1880	18900	QPSK	5	12	6	14.60	0	0-1
	1880	18900	QPSK	5	25	0	14.65	0	0-1
	1880	18900	16-QAM	5	1	0	14.70	0	0-1
	1880	18900	16-QAM	5	1	24	14.73	0	0-1
	1880	18900	16-QAM	5	12	6	14.90	0	0-2
	1880	18900	16-QAM	5	25	0	14.80	0	0-2
High	1907.5	19175	QPSK	5	1	0	14.83	0	0
	1907.5	19175	QPSK	5	1	24	14.50	0	0
	1907.5	19175	QPSK	5	12	6	14.60	0	0-1
	1907.5	19175	QPSK	5	25	0	14.73	0	0-1
	1907.5	19175	16-QAM	5	1	0	14.35	0	0-1
	1907.5	19175	16-QAM	5	1	24	14.15	0	0-1
	1907.5	19175	16-QAM	5	12	6	14.60	0	0-2
	1907.5	19175	16-QAM	5	25	0	14.40	0	0-2

13.2 LTE Power Reduction Summary

Table 13-9
LTE Power Reduction Summary

Band	Maximum Power Target [dBm]	Reduced Power Target [dBm]
LTE Band 12	22.5	17.5
LTE Band 5 (Cell.)	22.5	17.5
LTE Band 4 (AWS)	22.5	14.5
LTE Band 2 (PCS)	22.5	14.5

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13.3 LTE SAR Test Requirements

Per FCC KDB Publication 941225 D05:

- 1) Per Page 4, 3) A), QPSK with 50% RB is required for the highest bandwidth.
- 2) 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.
- 3) Per Page 4, 3) B), QPSK with 1 RB for both channel edges are required for the highest bandwidth.
- 4) 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.
- 5) 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.
- 6) 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.
- 7) 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.
- 8) 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 QPSK with 50% RB.
- 9) Per Page 4, 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.
- 10) 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.
- 11) 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 average output power of the smaller bandwidths is not more than 0.5 dB higher than the higher bandwidths.

The bolded powers in Section 13.1 were evaluated for SAR.

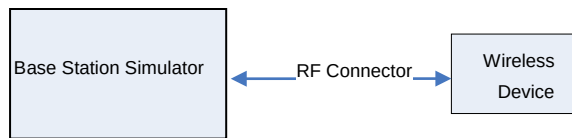


Figure 13-1
Power Measurement Setup

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13.4 Conducted Power of Lower Bandwidths

13.4.1 LTE Band 12

Table 13-10
Maximum LTE Band 12 Average RF Power (Representing Proximity Sensor Inactive)
5 MHz Bandwidth

	Freq. (MHz)	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	701.5	23035	QPSK	5	1	0	22.68	0	0
	701.5	23035	QSPK	5	1	24	22.47	0	0
	701.5	23035	QPSK	5	12	6	21.83	1	0-1
	701.5	23035	QSPK	5	25	0	21.35	1	0-1
	701.5	23035	16QAM	5	1	0	21.41	1	0-1
	701.5	23035	16QAM	5	1	24	21.24	1	0-1
	701.5	23035	16QAM	5	12	6	20.75	2	0-2
Mid	701.5	23035	16QAM	5	25	0	20.88	2	0-2
	707.5	23095	QPSK	5	1	0	22.61	0	0
	707.5	23095	QSPK	5	1	24	22.66	0	0
	707.5	23095	QPSK	5	12	6	21.46	1	0-1
	707.5	23095	QSPK	5	25	0	21.43	1	0-1
	707.5	23095	16QAM	5	1	0	21.26	1	0-1
	707.5	23095	16QAM	5	1	24	21.29	1	0-1
High	707.5	23095	16QAM	5	12	6	20.39	2	0-2
	707.5	23095	16QAM	5	25	0	20.53	2	0-2
	713.5	23155	QPSK	5	1	0	22.62	0	0
	713.5	23155	QPSK	5	1	24	22.72	0	0
	713.5	23155	QPSK	5	12	6	21.69	1	0-1
	713.5	23155	QPSK	5	25	0	21.84	1	0-1
	713.5	23155	16QAM	5	1	0	21.29	1	0-1
	713.5	23155	16QAM	5	1	24	20.93	1	0-1
	713.5	23155	16QAM	5	12	6	20.41	2	0-2
	713.5	23155	16QAM	5	25	0	20.44	2	0-2

Table 13-11
Reduced LTE Band 12 (PCS) Average RF Power (Representing Proximity Sensor Active)
5 MHz Bandwidth

	Freq. (MHz)	Channel	Modulation	Bandwidth [MHz]	# of Resource Blocks	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	701.5	23035	QPSK	5	1	0	17.06	0	0
	701.5	23035	QSPK	5	1	24	17.33	0	0
	701.5	23035	QPSK	5	12	6	17.48	0	0-1
	701.5	23035	QSPK	5	25	0	17.45	0	0-1
	701.5	23035	16QAM	5	1	0	17.05	0	0-1
	701.5	23035	16QAM	5	1	24	17.03	0	0-1
	701.5	23035	16QAM	5	12	6	17.28	0	0-2
Mid	701.5	23035	16QAM	5	25	0	17.14	0	0-2
	707.5	23095	QPSK	5	1	0	17.56	0	0
	707.5	23095	QSPK	5	1	24	17.31	0	0
	707.5	23095	QPSK	5	12	6	17.30	0	0-1
	707.5	23095	QSPK	5	25	0	17.40	0	0-1
	707.5	23095	16QAM	5	1	0	17.20	0	0-1
	707.5	23095	16QAM	5	1	24	17.33	0	0-1
High	707.5	23095	16QAM	5	12	6	17.53	0	0-2
	707.5	23095	16QAM	5	25	0	17.76	0	0-2
	713.5	23155	QPSK	5	1	0	17.08	0	0
	713.5	23155	QPSK	5	1	24	17.22	0	0
	713.5	23155	QPSK	5	12	6	17.35	0	0-1
	713.5	23155	QPSK	5	25	0	17.27	0	0-1
	713.5	23155	16QAM	5	1	0	17.20	0	0-1
	713.5	23155	16QAM	5	1	24	17.05	0	0-1
	713.5	23155	16QAM	5	12	6	17.29	0	0-2
	713.5	23155	16QAM	5	25	0	17.18	0	0-2

Per FCC KDB Publication 447498 6)c), only two channels are required for 5 MHz LTE Band 12 since the transmission bandwidth is from 699-716 MHz.

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13.4.2 LTE Band 5 (Cell.)

Table 13-12
Maximum LTE Band 5 (Cell.) Average RF Power (Representing Proximity Sensor Inactive)
1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	824.7	20407	QPSK	1.4	1	0	22.44	0	0
	824.7	20407	QPSK	1.4	1	5	22.56	0	0
	824.7	20407	QPSK	1.4	3	2	22.56	0	0
	824.7	20407	QPSK	1.4	6	0	21.87	1	0-1
	824.7	20407	16-QAM	1.4	1	0	21.79	1	0-1
	824.7	20407	16-QAM	1.4	1	5	21.89	1	0-1
	824.7	20407	16-QAM	1.4	3	2	20.60	1	0-1
Mid.	824.7	20407	16-QAM	1.4	6	0	20.23	2	0-2
	836.5	20525	QPSK	1.4	1	0	22.83	0	0
	836.5	20525	QPSK	1.4	1	5	22.68	0	0
	836.5	20525	QPSK	1.4	3	2	22.61	0	0
	836.5	20525	QPSK	1.4	6	0	21.81	1	0-1
	836.5	20525	16-QAM	1.4	1	0	21.59	1	0-1
	836.5	20525	16-QAM	1.4	1	5	21.60	1	0-1
High	836.5	20525	16-QAM	1.4	3	2	20.80	1	0-1
	836.5	20525	16-QAM	1.4	6	0	20.38	2	0-2
	848.3	20643	QPSK	1.4	1	0	22.85	0	0
	848.3	20643	QPSK	1.4	1	5	22.66	0	0
	848.3	20643	QPSK	1.4	3	2	22.61	0	0
	848.3	20643	QPSK	1.4	6	0	21.65	1	0-1
	848.3	20643	16-QAM	1.4	1	0	21.66	1	0-1
	848.3	20643	16-QAM	1.4	1	5	21.88	1	0-1
	848.3	20643	16-QAM	1.4	3	2	20.79	1	0-1
	848.3	20643	16-QAM	1.4	6	0	20.84	2	0-2

Table 13-13
Maximum LTE Band 5 (Cell.) Average RF Power (Representing Proximity Sensor Inactive)
3 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	825.5	20415	QPSK	3	1	0	22.81	0	0
	825.5	20415	QPSK	3	1	14	22.38	0	0
	825.5	20415	QPSK	3	8	4	21.71	1	0-1
	825.5	20415	QPSK	3	15	0	21.54	1	0-1
	825.5	20415	16-QAM	3	1	0	21.77	1	0-1
	825.5	20415	16-QAM	3	1	14	21.68	1	0-1
	825.5	20415	16-QAM	3	8	4	20.60	2	0-2
Mid.	825.5	20415	16-QAM	3	15	0	20.48	2	0-2
	836.5	20525	QPSK	3	1	0	22.81	0	0
	836.5	20525	QPSK	3	1	14	22.78	0	0
	836.5	20525	QPSK	3	8	4	21.83	1	0-1
	836.5	20525	QPSK	3	15	0	21.72	1	0-1
	836.5	20525	16-QAM	3	1	0	21.76	1	0-1
	836.5	20525	16-QAM	3	1	14	21.62	1	0-1
High	836.5	20525	16-QAM	3	8	4	20.78	2	0-2
	836.5	20525	16-QAM	3	15	0	20.72	2	0-2
	847.5	20635	QPSK	3	1	0	22.74	0	0
	847.5	20635	QPSK	3	1	14	22.50	0	0
	847.5	20635	QPSK	3	8	4	21.64	0	0-1
	847.5	20635	QPSK	3	15	0	21.60	1	0-1
	847.5	20635	16-QAM	3	1	0	21.66	1	0-1
	847.5	20635	16-QAM	3	1	14	21.54	1	0-1
	847.5	20635	16-QAM	3	8	4	20.70	1	0-2
	847.5	20635	16-QAM	3	15	0	20.66	2	0-2

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Table 13-14
Reduced LTE Band 5 (Cell.) Average RF Power (Representing Proximity Sensor Active)
1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	824.7	20407	QPSK	1.4	1	0	17.10	0	0
	824.7	20407	QPSK	1.4	1	5	17.30	0	0
	824.7	20407	QPSK	1.4	3	2	17.20	0	0
	824.7	20407	QPSK	1.4	6	0	17.26	0	0-1
	824.7	20407	16-QAM	1.4	1	0	17.08	0	0-1
	824.7	20407	16-QAM	1.4	1	5	17.18	0	0-1
	824.7	20407	16-QAM	1.4	3	2	17.30	0	0-1
Mid.	824.7	20407	16-QAM	1.4	6	0	17.52	0	0-2
	836.5	20525	QPSK	1.4	1	0	17.36	0	0
	836.5	20525	QPSK	1.4	1	5	17.48	0	0
	836.5	20525	QPSK	1.4	3	2	17.76	0	0
	836.5	20525	QPSK	1.4	6	0	17.53	0	0-1
	836.5	20525	16-QAM	1.4	1	0	17.33	0	0-1
	836.5	20525	16-QAM	1.4	1	5	17.25	0	0-1
High	836.5	20525	16-QAM	1.4	3	2	17.24	0	0-1
	836.5	20525	16-QAM	1.4	6	0	17.37	0	0-2
	848.3	20643	QPSK	1.4	1	0	17.39	0	0
	848.3	20643	QPSK	1.4	1	5	17.43	0	0
	848.3	20643	QPSK	1.4	3	2	17.55	0	0
	848.3	20643	QPSK	1.4	6	0	17.61	0	0-1
	848.3	20643	16-QAM	1.4	1	0	17.57	0	0-1
	848.3	20643	16-QAM	1.4	1	5	17.43	0	0-1
	848.3	20643	16-QAM	1.4	3	2	17.30	0	0-1
	848.3	20643	16-QAM	1.4	6	0	17.39	0	0-2

Table 13-15
Reduced LTE Band 5 (Cell.) Average RF Power (Representing Proximity Sensor Active)
3 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	825.5	20415	QPSK	3	1	0	17.45	0	0
	825.5	20415	QPSK	3	1	14	17.32	0	0
	825.5	20415	QPSK	3	8	4	17.36	0	0-1
	825.5	20415	QPSK	3	15	0	17.30	0	0-1
	825.5	20415	16-QAM	3	1	0	17.12	0	0-1
	825.5	20415	16-QAM	3	1	14	17.22	0	0-1
	825.5	20415	16-QAM	3	8	4	17.28	0	0-2
	825.5	20415	16-QAM	3	15	0	17.25	0	0-2
Mid.	836.5	20525	QPSK	3	1	0	17.50	0	0
	836.5	20525	QPSK	3	1	14	17.74	0	0
	836.5	20525	QPSK	3	8	4	17.67	0	0-1
	836.5	20525	QPSK	3	15	0	17.59	0	0-1
	836.5	20525	16-QAM	3	1	0	17.40	0	0-1
	836.5	20525	16-QAM	3	1	14	17.50	0	0-1
	836.5	20525	16-QAM	3	8	4	17.32	0	0-2
	836.5	20525	16-QAM	3	15	0	17.48	0	0-2
High	847.5	20635	QPSK	3	1	0	17.54	0	0
	847.5	20635	QPSK	3	1	14	17.40	0	0
	847.5	20635	QPSK	3	8	4	17.55	0	0-1
	847.5	20635	QPSK	3	15	0	17.76	0	0-1
	847.5	20635	16-QAM	3	1	0	17.18	0	0-1
	847.5	20635	16-QAM	3	1	14	17.30	0	0-1
	847.5	20635	16-QAM	3	8	4	17.35	0	0-2
	847.5	20635	16-QAM	3	15	0	17.49	0	0-2

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13.4.3 LTE Band 4 (AWS)

Table 13-16
Maximum LTE Band 4 (AWS) Average RF Power (Proximity Sensor Inactive)
5 MHz Bandwidth

	Freq. (MHz)	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1712.5	19975	QPSK	5	1	0	22.52	0	0
	1712.5	19975	QSPK	5	1	24	22.72	0	0
	1712.5	19975	QPSK	5	12	6	21.43	1	0-1
	1712.5	19975	QSPK	5	25	0	21.40	1	0-1
	1712.5	19975	16QAM	5	1	0	21.42	1	0-1
	1712.5	19975	16QAM	5	1	24	21.43	1	0-1
	1712.5	19975	16QAM	5	12	6	20.39	2	0-2
Mid.	1712.5	19975	16QAM	5	25	0	20.36	2	0-2
	1732.5	20175	QPSK	5	1	0	22.40	0	0
	1732.5	20175	QPSK	5	1	24	22.44	0	0
	1732.5	20175	QPSK	5	12	6	21.53	1	0-1
	1732.5	20175	QPSK	5	25	0	21.46	1	0-1
	1732.5	20175	16QAM	5	1	0	21.65	1	0-1
	1732.5	20175	16QAM	5	1	24	21.23	1	0-1
High	1732.5	20175	16QAM	5	12	6	20.55	2	0-2
	1732.5	20175	16QAM	5	25	0	20.42	2	0-2
	1752.5	20375	QPSK	5	1	0	22.36	0	0
	1752.5	20375	QPSK	5	1	24	22.33	0	0
	1752.5	20375	QPSK	5	12	6	21.41	1	0-1
	1752.5	20375	QPSK	5	25	0	21.30	1	0-1
	1752.5	20375	16QAM	5	1	0	21.69	1	0-1
	1752.5	20375	16QAM	5	1	24	21.76	1	0-1
	1752.5	20375	16QAM	5	12	6	20.52	2	0-2
	1752.5	20375	16QAM	5	25	0	20.78	2	0-2

Table 13-17
Reduced LTE Band 4 (AWS) Average RF Power (Representing Proximity Sensor Active)
5 MHz Bandwidth

	Freq. (MHz)	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1712.5	19975	QPSK	5	1	0	14.14	0	0
	1712.5	19975	QSPK	5	1	24	14.32	0	0
	1712.5	19975	QPSK	5	12	6	14.23	0	0-1
	1712.5	19975	QSPK	5	25	0	14.21	0	0-1
	1712.5	19975	16QAM	5	1	0	14.22	0	0-1
	1712.5	19975	16QAM	5	1	24	14.35	0	0-1
	1712.5	19975	16QAM	5	12	6	14.18	0	0-2
Mid.	1712.5	19975	16QAM	5	25	0	14.10	0	0-2
	1732.5	20175	QPSK	5	1	0	14.10	0	0
	1732.5	20175	QPSK	5	1	24	14.53	0	0
	1732.5	20175	QPSK	5	12	6	14.30	0	0-1
	1732.5	20175	QPSK	5	25	0	14.59	0	0-1
	1732.5	20175	16QAM	5	1	0	14.13	0	0-1
	1732.5	20175	16QAM	5	1	24	14.45	0	0-1
High	1732.5	20175	16QAM	5	12	6	14.20	0	0-2
	1732.5	20175	16QAM	5	25	0	14.35	0	0-2
	1752.5	20375	QPSK	5	1	0	14.02	0	0
	1752.5	20375	QPSK	5	1	24	14.15	0	0
	1752.5	20375	QPSK	5	12	6	14.03	0	0-1
	1752.5	20375	QPSK	5	25	0	14.30	0	0-1
	1752.5	20375	16QAM	5	1	0	14.06	0	0-1
	1752.5	20375	16QAM	5	1	24	14.00	0	0-1
	1752.5	20375	16QAM	5	12	6	14.25	0	0-2
	1752.5	20375	16QAM	5	25	0	14.13	0	0-2

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13.4.4 LTE Band 2 (PCS)

Table 13-18
Maximum LTE Band 2 (PCS) Average RF Power (Representing Proximity Sensor Inactive)
1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1850.7	18607	QPSK	1.4	1	0	22.57	0	0
	1850.7	18607	QPSK	1.4	1	5	22.49	0	0
	1850.7	18607	QPSK	1.4	3	2	22.85	0	0
	1850.7	18607	QPSK	1.4	6	0	21.53	1	0-1
	1850.7	18607	16-QAM	1.4	1	0	21.68	1	0-1
	1850.7	18607	16-QAM	1.4	1	5	21.75	1	0-1
	1850.7	18607	16-QAM	1.4	3	2	20.72	1	0-1
Mid.	1850.7	18607	16-QAM	1.4	6	0	20.38	2	0-2
	1880	18900	QPSK	1.4	1	0	22.38	0	0
	1880	18900	QPSK	1.4	1	5	22.33	0	0
	1880	18900	QPSK	1.4	3	2	22.70	0	0
	1880	18900	QPSK	1.4	6	0	21.73	1	0-1
	1880	18900	16-QAM	1.4	1	0	21.87	1	0-1
	1880	18900	16-QAM	1.4	1	5	21.69	1	0-1
High	1880	18900	16-QAM	1.4	3	2	21.50	1	0-1
	1880	18900	16-QAM	1.4	6	0	20.88	2	0-2
	1909.3	19193	QPSK	1.4	1	0	22.48	0	0
	1909.3	19193	QPSK	1.4	1	5	22.35	0	0
	1909.3	19193	QPSK	1.4	3	2	22.80	0	0
	1909.3	19193	QPSK	1.4	6	0	21.40	1	0-1
	1909.3	19193	16-QAM	1.4	1	0	21.36	1	0-1
	1909.3	19193	16-QAM	1.4	1	5	21.35	1	0-1
	1909.3	19193	16-QAM	1.4	3	2	21.00	1	0-1
	1909.3	19193	16-QAM	1.4	6	0	20.24	2	0-2

Table 13-19
Maximum LTE Band 2 (PCS) Average RF Power (Representing Proximity Sensor Inactive)
3 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1851.5	18615	QPSK	3	1	0	22.23	0	0
	1851.5	18615	QPSK	3	1	14	22.46	0	0
	1851.5	18615	QPSK	3	8	4	21.37	1	0-1
	1851.5	18615	QPSK	3	15	0	21.47	1	0-1
	1851.5	18615	16-QAM	3	1	0	21.26	1	0-1
	1851.5	18615	16-QAM	3	1	14	21.37	1	0-1
	1851.5	18615	16-QAM	3	8	4	20.30	2	0-2
Mid.	1851.5	18615	16-QAM	3	15	0	20.38	2	0-2
	1880	18900	QPSK	3	1	0	22.53	0	0
	1880	18900	QPSK	3	1	14	22.64	0	0
	1880	18900	QPSK	3	8	4	21.46	1	0-1
	1880	18900	QPSK	3	15	0	21.48	1	0-1
	1880	18900	16-QAM	3	1	0	21.85	1	0-1
	1880	18900	16-QAM	3	1	14	21.60	1	0-1
High	1880	18900	16-QAM	3	8	4	20.52	2	0-2
	1880	18900	16-QAM	3	15	0	20.54	2	0-2
	1908.5	19185	QPSK	3	1	0	22.46	0	0
	1908.5	19185	QPSK	3	1	14	22.45	0	0
	1908.5	19185	QPSK	3	8	4	21.36	1	0-1
	1908.5	19185	QPSK	3	15	0	21.28	1	0-1
	1908.5	19185	16-QAM	3	1	0	21.78	1	0-1
	1908.5	19185	16-QAM	3	1	14	21.38	1	0-1
	1908.5	19185	16-QAM	3	8	4	20.31	2	0-2
	1908.5	19185	16-QAM	3	15	0	20.26	2	0-2

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Table 13-20
Reduced LTE Band 2 (PCS) Average RF Power (Representing Proximity Sensor active)
1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1850.7	18607	QPSK	1.4	1	0	14.60	0	0
	1850.7	18607	QPSK	1.4	1	5	14.17	0	0
	1850.7	18607	QPSK	1.4	3	2	14.43	0	0
	1850.7	18607	QPSK	1.4	6	0	14.62	0	0-1
	1850.7	18607	16-QAM	1.4	1	0	14.50	0	0-1
	1850.7	18607	16-QAM	1.4	1	5	14.30	0	0-1
	1850.7	18607	16-QAM	1.4	3	2	14.60	0	0-1
	1850.7	18607	16-QAM	1.4	6	0	14.47	0	0-2
Mid.	1880	18900	QPSK	1.4	1	0	14.01	0	0
	1880	18900	QPSK	1.4	1	5	14.05	0	0
	1880	18900	QPSK	1.4	3	2	14.40	0	0
	1880	18900	QPSK	1.4	6	0	14.27	0	0-1
	1880	18900	16-QAM	1.4	1	0	14.07	0	0-1
	1880	18900	16-QAM	1.4	1	5	14.17	0	0-1
	1880	18900	16-QAM	1.4	3	2	14.20	0	0-1
	1880	18900	16-QAM	1.4	6	0	14.10	0	0-2
High	1909.3	19193	QPSK	1.4	1	0	14.14	0	0
	1909.3	19193	QPSK	1.4	1	5	14.11	0	0
	1909.3	19193	QPSK	1.4	3	2	14.67	0	0
	1909.3	19193	QPSK	1.4	6	0	14.50	0	0-1
	1909.3	19193	16-QAM	1.4	1	0	14.15	0	0-1
	1909.3	19193	16-QAM	1.4	1	5	14.56	0	0-1
	1909.3	19193	16-QAM	1.4	3	2	14.70	0	0-1
	1909.3	19193	16-QAM	1.4	6	0	14.35	0	0-2

Table 13-21
Reduced LTE Band 2 (PCS) Average RF Power (Representing Proximity Sensor active)
3 MHz Bandwidth

	Frequency [MHz]	Channel	Modulation	Bandwidth [MHz]	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dB]	Allowed MPR [dB]
Low	1851.5	18615	QPSK	3	1	0	14.32	0	0
	1851.5	18615	QPSK	3	1	14	14.50	0	0
	1851.5	18615	QPSK	3	8	4	14.50	0	0-1
	1851.5	18615	QPSK	3	15	0	14.63	0	0-1
	1851.5	18615	16-QAM	3	1	0	14.03	0	0-1
	1851.5	18615	16-QAM	3	1	14	14.05	0	0-1
	1851.5	18615	16-QAM	3	8	4	14.22	0	0-2
	1851.5	18615	16-QAM	3	15	0	14.46	0	0-2
Mid.	1880	18900	QPSK	3	1	0	14.12	0	0
	1880	18900	QPSK	3	1	14	14.04	0	0
	1880	18900	QPSK	3	8	4	14.29	0	0-1
	1880	18900	QPSK	3	15	0	14.33	0	0-1
	1880	18900	16-QAM	3	1	0	14.10	0	0-1
	1880	18900	16-QAM	3	1	14	14.47	0	0-1
	1880	18900	16-QAM	3	8	4	14.06	0	0-2
	1880	18900	16-QAM	3	15	0	14.05	0	0-2
High	1908.5	19185	QPSK	3	1	0	14.67	0	0
	1908.5	19185	QPSK	3	1	14	14.46	0	0
	1908.5	19185	QPSK	3	8	4	14.16	0	0-1
	1908.5	19185	QPSK	3	15	0	14.28	0	0-1
	1908.5	19185	16-QAM	3	1	0	14.41	0	0-1
	1908.5	19185	16-QAM	3	1	14	14.45	0	0-1
	1908.5	19185	16-QAM	3	8	4	14.61	0	0-2
	1908.5	19185	16-QAM	3	15	0	14.38	0	0-2

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14 WLAN CONDUCTED POWERS

Table 14-1
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	9.39	9.41	10.20	10.20
802.11b	2437	6	10.48	10.73	10.18	10.13
802.11b	2462	11	10.06	10.24	10.36	10.27

Table 14-2
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	11.87	11.87	11.78	11.85	11.73	11.69	11.67	11.43
802.11g	2437	6	12.29	12.32	12.36	12.35	12.28	12.28	12.33	12.28
802.11g	2462	11	12.43	12.45	12.42	12.42	12.37	12.39	12.34	12.37

Table 14-3
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	11.80	11.72	11.72	11.80	11.77	11.79	11.79	11.77
802.11n	2437	6	12.24	12.17	12.12	12.20	12.20	12.19	12.18	12.17
802.11n	2462	11	12.34	12.33	12.30	12.32	12.18	12.31	12.33	12.27

Table 14-4
IEEE 802.11a Average RF Power

Mode	Freq	Channel	Conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11a	5180	36*	12.34	12.37	12.30	12.39	12.40	12.43	12.46	12.41
802.11a	5200	40	12.43	12.38	12.42	12.35	12.44	12.45	12.47	12.46
802.11a	5220	44	12.40	12.35	12.41	12.41	12.41	12.40	12.47	12.45
802.11a	5240	48*	12.33	12.40	12.47	12.47	12.43	12.46	12.50	12.48
802.11a	5260	52*	11.33	11.32	11.35	11.33	11.32	11.47	11.46	11.46
802.11a	5280	56	11.32	11.33	11.33	11.33	11.36	11.51	11.50	11.54
802.11a	5300	60	11.32	11.36	11.40	11.40	11.44	11.47	11.41	11.50
802.11a	5320	64*	11.36	11.41	11.43	11.40	11.44	11.46	11.52	11.48
802.11a	5500	100	11.02	11.08	11.05	10.99	11.14	11.15	11.16	11.25
802.11a	5520	104*	11.05	11.03	11.10	11.07	11.09	11.18	11.22	11.27
802.11a	5540	108	11.10	11.08	11.06	11.12	11.15	11.15	11.21	11.23
802.11a	5560	112	11.00	11.12	11.12	11.06	11.11	11.21	11.20	11.24
802.11a	5580	116*	11.02	11.10	11.06	11.16	11.20	11.18	11.24	11.21
802.11a	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5660	132	11.16	11.15	11.14	11.10	11.19	11.24	11.37	11.34
802.11a	5680	136*	11.17	11.21	11.16	11.26	11.17	11.18	11.32	11.39
802.11a	5700	140	11.18	11.17	11.19	11.26	11.29	11.26	11.19	11.33
802.11a	5745	149*	11.74	11.81	11.84	11.93	11.95	11.83	11.92	11.97
802.11a	5765	153	11.82	11.86	11.80	11.81	11.87	11.96	12.03	11.99
802.11a	5785	157*	11.82	11.81	11.90	11.88	11.95	11.88	11.92	11.92
802.11a	5805	161*	11.80	11.78	11.75	11.76	11.89	11.95	11.93	11.93
802.11a	5825	165	11.74	11.86	11.79	11.91	11.93	11.90	11.84	11.87

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.

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Table 14-5
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	5180	36*	10.46	10.80	10.74	10.80	10.90	10.94	10.94	10.99
802.11n	5200	40	10.30	10.89	10.71	10.87	10.88	10.98	11.03	10.99
802.11n	5220	44	10.50	10.78	10.88	10.69	10.85	10.72	10.74	10.91
802.11n	5240	48*	10.57	10.67	10.83	10.86	10.80	10.82	10.99	11.08
802.11n	5260	52*	10.45	10.67	10.86	10.75	10.88	11.00	10.91	10.91
802.11n	5280	56	10.58	10.76	10.71	10.81	10.86	10.98	10.92	10.94
802.11n	5300	60	10.49	10.68	10.90	10.74	10.73	10.90	10.94	10.95
802.11n	5320	64*	10.54	10.70	10.83	10.86	10.92	10.84	10.77	10.85
802.11n	5500	100	10.26	10.17	10.51	10.59	10.60	10.58	10.60	10.89
802.11n	5520	104*	10.44	10.25	10.32	10.37	10.57	10.52	10.49	10.59
802.11n	5540	108	10.47	10.26	10.22	10.29	10.56	10.35	10.47	10.62
802.11n	5560	112	10.22	10.49	10.31	10.39	10.57	10.65	10.59	10.55
802.11n	5580	116*	10.19	10.23	10.20	10.19	10.27	10.56	10.40	10.40
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
802.11n	5660	132	10.25	10.26	10.33	10.44	10.42	10.19	10.41	10.35
802.11n	5680	136*	10.15	9.98	10.14	10.24	10.37	10.21	10.36	10.42
802.11n	5700	140	10.15	10.05	10.09	10.18	10.24	10.46	10.22	10.24
802.11n	5745	149*	10.57	10.85	10.81	10.82	10.98	10.96	11.07	11.00
802.11n	5765	153	10.54	10.79	10.75	10.75	10.87	10.87	10.90	10.97
802.11n	5785	157*	10.44	10.74	10.78	10.73	10.68	10.88	10.91	10.94
802.11n	5805	161*	10.30	10.71	10.55	10.84	10.57	10.56	10.50	10.78
802.11n	5825	165	10.39	10.56	10.77	10.49	10.55	10.65	10.89	10.74

Per FCC KDB Publication 443999 and RSS-210 A9.2(3), transmission on channels which overlap the 5600-5650 MHz is prohibited as a client. This device does not transmit any beacons or initiate any transmissions in 5.3 and 5.5 GHz Bands. (*) – indicates default channels per KDB Publication 248227. When the adjacent channels are higher in power then the default channels, these “required channels” are considered instead of the default channels for SAR testing.

Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 FCC/TCB Meeting Notes:

- For 2.4 GHz modes, according to KDB 447498 4) b), SAR testing was not required because the maximum average output power was not greater than 60/f.
- Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 FCC/TCB Workshop Notes: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11a. Other IEEE 802.11 modes (including 802.11n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
- Per FCC Publication 248227 D01 when the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is >1.6 W/kg or the 1g averaged SAR is >0.8 W/kg, SAR testing was also performed in the other default or corresponding required test channels.
- The bolded configurations above were tested for SAR.
- There is no power reduction for WIFI.

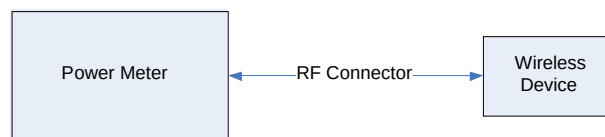


Figure 14-1
Power Measurement Setup

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15 SYSTEM VERIFICATION

15.1 Tissue Verification

Table 15-1
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
12/07/2011	750B	21.5	680	0.917	57.87	0.956	56.069	-4.08%	3.21%
			695	0.928	57.79	0.957	55.985	-3.03%	3.22%
			710	0.946	57.50	0.958	55.901	-1.25%	2.86%
			725	0.952	57.33	0.960	55.817	-0.83%	2.71%
			740	0.970	57.32	0.961	55.733	0.94%	2.85%
			755	0.986	57.10	0.963	55.649	2.39%	2.61%
12/05/2011	835B	21.1	820	0.960	54.23	0.969	55.284	-0.93%	-1.91%
			835	0.981	53.83	0.970	55.200	1.13%	-2.48%
			850	0.996	53.52	0.988	55.154	0.81%	-2.96%
12/07/2011	835B	23.0	820	0.963	53.41	0.969	55.284	-0.62%	-3.39%
			835	0.982	53.23	0.970	55.200	1.24%	-3.57%
			850	0.989	52.93	0.988	55.154	0.10%	-4.03%
12/07/2011	1750B	22.9	1710	1.509	51.91	1.460	53.540	3.36%	-3.04%
			1750	1.557	51.78	1.490	53.430	4.50%	-3.09%
			1790	1.585	51.62	1.510	53.330	4.97%	-3.21%
12/15/2011	1750B	24.7	1710	1.481	51.15	1.460	53.540	1.44%	-4.46%
			1750	1.515	51.02	1.490	53.430	1.68%	-4.51%
			1790	1.545	50.82	1.510	53.330	2.32%	-4.71%
12/05/2011	1900B	23.1	1850	1.487	52.41	1.520	53.300	-2.17%	-1.67%
			1880	1.523	52.37	1.520	53.300	0.20%	-1.74%
			1910	1.555	52.21	1.520	53.300	2.30%	-2.05%
12/12/2011	1900B	21.0	1850	1.513	51.01	1.520	53.300	-0.46%	-4.30%
			1880	1.548	50.89	1.520	53.300	1.84%	-4.52%
			1910	1.588	50.84	1.520	53.300	4.47%	-4.62%
12/12/2011	5200B-5800B	20.7	5200	5.328	47.80	5.299	49.014	0.55%	-2.48%
			5220	5.325	47.58	5.323	48.987	0.04%	-2.87%
			5260	5.413	47.48	5.369	48.906	0.82%	-2.92%
			5500	5.779	46.87	5.650	48.580	2.28%	-3.52%
			5540	5.878	46.86	5.696	48.526	3.20%	-3.43%
			5580	5.974	46.78	5.743	48.471	4.02%	-3.49%
			5680	6.098	46.33	5.860	48.336	4.06%	-4.15%
			5765	6.228	46.18	5.959	48.220	4.51%	-4.23%
			5785	6.255	46.13	5.982	48.242	4.56%	-4.38%
			5800	6.297	46.03	6.000	48.200	4.95%	-4.50%

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

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

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

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15.2 Measurement Procedure for Tissue verification

- 1) The network analyzer and probe system was configured and calibrated.
- 2) The probe was immersed in the sample which was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
- 3) The complex admittance with respect to the probe aperture was measured
- 4) The complex relative permittivity , for example 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 $j = \sqrt{-1}$.

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15.3 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 15-2
System Verification Results

System Verification											
TARGET & MEASURED											
Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Probe SN	Dipole SN	Measured SAR _{1g} (W/kg)	1 W Target SAR _{1g} (W/kg)	1 W Normalized SAR _{1g} (W/kg)	Deviation (%)
750	Body	12/07/2011	22.7	21.4	0.100	3258	1003	0.854	8.850	8.540	-3.50%
835	Body	12/05/2011	22.4	20.8	0.100	3258	4d119	1.01	9.460	10.100	6.77%
835	Body	12/07/2011	21.4	21.5	0.100	3258	4d119	1	9.460	10.000	5.71%
1750	Body	12/07/2011	23.3	21.9	0.100	3209	1008	3.97	37.000	39.700	7.30%
1750	Body	12/15/2011	24.2	22.9	0.100	3258	1051	3.96	37.000	39.600	7.03%
1900	Body	12/05/2011	23.2	21.3	0.100	3209	502	4.41	41.100	44.100	7.30%
1900	Body	12/12/2011	21.1	19.2	0.100	3209	502	4.43	41.100	44.300	7.79%
5200	Body	12/12/2011	21.3	19.6	0.100	3561	1057	8.25	77.700	82.500	6.18%
5500	Body	12/12/2011	21.5	19.8	0.100	3561	1057	8.54	84.400	85.400	1.18%
5800	Body	12/12/2011	22.7	21.4	0.100	3561	1057	7.64	75.000	76.400	1.87%

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

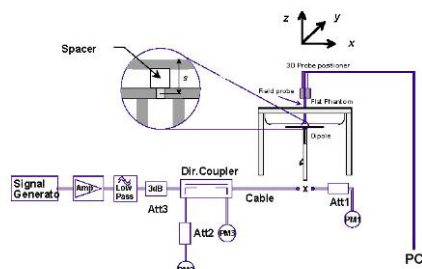


Figure 15-1
System Verification Setup Diagram



Figure 15-2
System Verification Setup Photo

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16 SAR DATA SUMMARY

16.1 SAR Data

Table 16-1
CDMA Body SAR Data

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Target Power [dBm]	Spacing	Tablet Serial Number	Side	SAR (1g)
MHz	Ch.									(W/kg)
824.70	1013	Cell. CDMA	EVDO	19.20	0.20	19.5	0.0 cm	#2	back*	1.010
836.52	384	Cell. CDMA	EVDO	19.21	-0.10	19.5	0.0 cm	#2	back*	1.010
848.31	777	Cell. CDMA	EVDO	19.50	-0.08	19.5	0.0 cm	#2	back*	1.020
824.70	1013	Cell. CDMA	EVDO	24.10	0.06	24.5	1.0 cm	#1	back	0.901
836.52	384	Cell. CDMA	EVDO	24.25	0.01	24.5	1.0 cm	#1	back	0.883
848.31	777	Cell. CDMA	EVDO	24.12	-0.14	24.5	1.0 cm	#1	back	0.889
836.52	384	Cell. CDMA	EVDO	19.21	0.05	19.5	0.0 cm	#2	top*	0.343
836.52	384	Cell. CDMA	EVDO	24.25	0.00	24.5	0.5 cm	#1	top	0.398
836.52	384	Cell. CDMA	EVDO	24.25	0.03	24.5	0.0 cm	#1	left	0.303
1880.00	600	PCS CDMA	TDSO / SO32 FCH Only	12.91	0.15	13.0	0.0 cm	#4	back*	0.665
1880.00	600	PCS CDMA	TDSO / SO32 FCH Only	24.14	-0.12	24.0	1.0 cm	#3	back	0.690
1880.00	600	PCS CDMA	TDSO / SO32 FCH + SCH	24.44	0.04	24.0	1.0 cm	#3	back	0.766
1880.00	600	PCS CDMA	TDSO / SO32 FCH Only	12.91	0.05	13.0	0.0 cm	#4	top*	0.161
1880.00	600	PCS CDMA	TDSO / SO32 FCH Only	24.14	-0.07	24.0	0.5 cm	#3	top	0.505
1880.00	600	PCS CDMA	TDSO / SO32 FCH Only	24.14	0.09	24.0	0.0 cm	#3	left	0.087
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram			

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Table 16-2
LTE Band 12 Body SAR Data

MEASUREMENT RESULTS															
FREQUENCY			Mode	Modulation	Conducted Power [dBm]	Power Drift [dB]	Target MPR [dB]	Target Power [dBm]	Bandwidth [MHz]	RB Size	RB Offset	Spacing	Tablet Serial Number	Side	SAR (1g)
MHz	Ch.														(W/kg)
707.50	23095	Mid.	LTE Band 12	QPSK	17.89	0.16	0	17.5	10	25	12	0.0 cm	#19	back*	0.369
707.50	23095	Mid.	LTE Band 12	QPSK	17.80	0.02	0	17.5	10	1	0	0.0 cm	#19	back*	0.346
707.50	23095	Mid.	LTE Band 12	QPSK	17.81	-0.04	0	17.5	10	1	49	0.0 cm	#19	back*	0.433
707.50	23095	Mid.	LTE Band 12	16 QAM	17.90	0.10	0	17.5	10	25	12	0.0 cm	#19	back*	0.383
707.50	23095	Mid.	LTE Band 12	16 QAM	17.70	0.13	0	17.5	10	1	0	0.0 cm	#19	back*	0.328
707.50	23095	Mid.	LTE Band 12	16 QAM	17.77	0.17	0	17.5	10	1	49	0.0 cm	#19	back*	0.451
707.50	23095	Mid.	LTE Band 12	QPSK	21.71	0.01	1	21.5	10	25	12	0.5 cm	#11	back	0.266
707.50	23095	Mid.	LTE Band 12	QPSK	22.91	0.04	0	22.5	10	1	0	0.5 cm	#11	back	0.288
707.50	23095	Mid.	LTE Band 12	QPSK	22.95	0.16	0	22.5	10	1	49	0.5 cm	#11	back	0.326
707.50	23095	Mid.	LTE Band 12	16 QAM	20.76	0.06	2	20.5	10	25	12	0.5 cm	#11	back	0.192
707.50	23095	Mid.	LTE Band 12	16 QAM	21.33	-0.06	1	21.5	10	1	0	0.5 cm	#11	back	0.174
707.50	23095	Mid.	LTE Band 12	16 QAM	21.33	-0.06	1	21.5	10	1	49	0.5 cm	#11	back	0.264
707.50	23095	Mid.	LTE Band 12	QPSK	21.71	-0.12	1	21.5	10	25	12	0.0 cm	#11	top	0.351
707.50	23095	Mid.	LTE Band 12	QPSK	22.91	0.00	0	22.5	10	1	0	0.0 cm	#11	top	0.323
707.50	23095	Mid.	LTE Band 12	QPSK	22.95	-0.22	0	22.5	10	1	49	0.0 cm	#11	top	0.448
707.50	23095	Mid.	LTE Band 12	16 QAM	20.76	0.02	2	20.5	10	25	12	0.0 cm	#11	top	0.278
707.50	23095	Mid.	LTE Band 12	16 QAM	21.33	0.20	1	21.5	10	1	0	0.0 cm	#11	top	0.232
707.50	23095	Mid.	LTE Band 12	16 QAM	21.33	0.19	1	21.5	10	1	49	0.0 cm	#11	top	0.393
707.50	23095	Mid.	LTE Band 12	QPSK	21.71	-0.18	1	21.5	10	25	12	0.0 cm	#11	right	0.127
707.50	23095	Mid.	LTE Band 12	QPSK	22.91	-0.18	0	22.5	10	1	0	0.0 cm	#11	right	0.133
707.50	23095	Mid.	LTE Band 12	QPSK	22.95	-0.12	0	22.5	10	1	49	0.0 cm	#11	right	0.164
707.50	23095	Mid.	LTE Band 12	16 QAM	20.76	-0.04	2	20.5	10	25	12	0.0 cm	#11	right	0.100
707.50	23095	Mid.	LTE Band 12	16 QAM	21.33	-0.07	1	21.5	10	1	0	0.0 cm	#11	right	0.088
707.50	23095	Mid.	LTE Band 12	16 QAM	21.33	0.13	1	21.5	10	1	49	0.0 cm	#11	right	0.141
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Body					
Spatial Peak										1.6 W/kg (mW/g)					
Uncontrolled Exposure/General Population										averaged over 1 gram					

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Table 16-3
LTE Band 5 (Cell.) Body SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Modulation	Conducted Power [dBm]	Power Drift [dB]	Target MPR [dB]	Target Power [dBm]	Bandwidth [MHz]	RB Size	RB Offset	Spacing	Tablet Serial Number	Side	SAR (1g)	
MHz	Ch.													(W/kg)	
826.50	20425	Mid.	LTE Band 5 (Cell)	QPSK	17.72	-0.22	0	17.5	5	12	6	0.0 cm	#8	back*	0.377
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	17.30	-0.03	0	17.5	5	12	6	0.0 cm	#8	back*	0.850
846.50	20625	Mid.	LTE Band 5 (Cell)	QPSK	17.64	0.18	0	17.5	5	12	6	0.0 cm	#8	back*	0.469
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	17.41	0.05	0	17.5	5	1	0	0.0 cm	#8	back*	0.797
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	17.57	-0.04	0	17.5	5	1	24	0.0 cm	#8	back*	0.725
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	17.32	-0.17	0	17.5	5	12	6	0.0 cm	#8	back*	0.762
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	17.60	0.05	0	17.5	5	1	0	0.0 cm	#8	back*	0.679
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	17.53	0.07	0	17.5	5	1	24	0.0 cm	#8	back*	0.676
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	21.78	0.02	1	21.5	5	12	6	0.5 cm	#7	back	0.588
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	22.77	0.03	0	22.5	5	1	0	0.5 cm	#7	back	0.623
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	22.40	-0.16	0	22.5	5	1	24	0.5 cm	#7	back	0.611
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	20.75	-0.20	2	20.5	5	12	6	0.5 cm	#7	back	0.441
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	21.86	-0.05	1	21.5	5	1	0	0.5 cm	#7	back	0.507
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	21.47	0.01	1	21.5	5	1	24	0.5 cm	#7	back	0.494
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	21.78	0.14	1	21.5	5	12	6	0.0 cm	#7	top	0.509
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	22.77	-0.15	0	22.5	5	1	0	0.0 cm	#7	top	0.626
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	22.40	0.11	0	22.5	5	1	24	0.0 cm	#7	top	0.559
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	20.75	0.10	2	20.5	5	12	6	0.0 cm	#7	top	0.408
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	21.86	-0.02	1	21.5	5	1	0	0.0 cm	#7	top	0.493
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	21.47	0.11	1	21.5	5	1	24	0.0 cm	#7	top	0.401
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	21.78	0.00	1	21.5	5	12	6	0.0 cm	#7	right	0.403
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	22.77	0.06	0	22.5	5	1	0	0.0 cm	#7	right	0.421
836.50	20525	Mid.	LTE Band 5 (Cell)	QPSK	22.40	-0.04	0	22.5	5	1	24	0.0 cm	#7	right	0.457
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	20.75	0.16	2	20.5	5	12	6	0.0 cm	#7	right	0.311
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	21.86	0.05	1	21.5	5	1	0	0.0 cm	#7	right	0.332
836.50	20525	Mid.	LTE Band 5 (Cell)	16 QAM	21.47	0.19	1	21.5	5	1	24	1.0 cm	#7	right	0.342
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Body					
Spatial Peak										1.6 W/kg (mW/g)					
Uncontrolled Exposure/General Population										averaged over 1 gram					

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Table 16-4
LTE Band 4 (AWS) Body SAR Data

MEASUREMENT RESULTS															
FREQUENCY			Mode	Modulation	Conducted Power [dBm]	Power Drift [dB]	Target MPR [dB]	Target Power [dBm]	Bandwidth [MHz]	RB Size	RB Offset	Spacing	Tablet Serial Number	Side	SAR (1g)
MHz	Ch.	(W/kg)													
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	14.52	-0.20	0	14.5	10	25	12	0.0 cm	#10	back*	0.775
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	14.63	0.04	0	14.5	10	1	0	0.0 cm	#10	back*	0.663
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	14.94	-0.01	0	14.5	10	1	49	0.0 cm	#10	back*	0.958
1732.50	20175	Mid	LTE Band 4 (AWS)	16 QAM	14.63	0.02	0	14.5	10	25	12	0.0 cm	#10	back*	0.843
1732.50	20175	Mid	LTE Band 4 (AWS)	16 QAM	14.79	0.06	0	14.5	10	1	0	0.0 cm	#10	back*	0.654
1732.50	20175	Mid	LTE Band 4 (AWS)	16 QAM	14.90	-0.01	0	14.5	10	1	49	0.0 cm	#10	back*	0.965
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	21.67	0.15	1	21.5	10	25	12	0.5 cm	#9	back	0.423
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	22.51	-0.02	0	22.5	10	1	0	0.5 cm	#9	back	0.465
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	22.86	0.02	0	22.5	10	1	49	0.5 cm	#9	back	0.694
1732.50	20175	Mid	LTE Band 4 (AWS)	16 QAM	20.63	-0.15	2	20.5	10	25	12	0.5 cm	#9	back	0.330
1750.00	20350	High	LTE Band 4 (AWS)	16 QAM	21.89	0.07	1	21.5	10	1	0	0.5 cm	#9	back	0.327
1750.00	20350	High	LTE Band 4 (AWS)	16 QAM	21.47	0.07	1	21.5	10	1	49	0.5 cm	#9	back	0.408
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	21.67	0.11	1	21.5	10	25	12	0.0 cm	#9	top	0.656
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	22.51	-0.03	0	22.5	10	1	0	0.0 cm	#9	top	0.700
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	22.86	-0.01	0	22.5	10	1	49	0.0 cm	#9	top	1.090
1732.50	20175	Mid	LTE Band 4 (AWS)	16 QAM	20.63	-0.13	2	20.5	10	25	12	0.0 cm	#9	top	0.512
1750.00	20350	High	LTE Band 4 (AWS)	16 QAM	21.89	0.10	1	21.5	10	1	0	0.0 cm	#9	top	0.469
1750.00	20350	High	LTE Band 4 (AWS)	16 QAM	21.47	-0.18	1	21.5	10	1	49	0.0 cm	#9	top	0.324
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	21.67	0.06	1	21.5	10	25	12	0.0 cm	#9	right	0.077
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	22.51	-0.01	0	22.5	10	1	0	0.0 cm	#9	right	0.086
1732.50	20175	Mid	LTE Band 4 (AWS)	QPSK	22.86	0.04	0	22.5	10	1	49	0.0 cm	#9	right	0.125
1732.50	20175	Mid	LTE Band 4 (AWS)	16 QAM	20.63	0.22	2	20.5	10	25	12	0.0 cm	#9	right	0.060
1750.00	20350	High	LTE Band 4 (AWS)	16 QAM	21.89	0.08	1	21.5	10	1	0	0.0 cm	#9	right	0.057
1750.00	20350	High	LTE Band 4 (AWS)	16 QAM	21.47	0.07	1	21.5	10	1	49	0.0 cm	#9	right	0.046
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Body					
Spatial Peak										1.6 W/kg (mW/g)					
Uncontrolled Exposure/General Population										averaged over 1 gram					

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Table 16-5
LTE Band 2 (PCS) Body SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Modulation	Conducted Power [dBm]	Power Drift [dB]	Target MPR [dB]	Target Power [dBm]	Bandwidth [MHz]	RB Size	RB Offset	Spacing	Tablet Serial Number	Side	SAR (1g)	
MHz	Ch.													(W/kg)	
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	14.60	-0.02	0	14.5	5	12	6	0.0 cm	#6	back*	0.597
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	14.80	-0.10	0	14.5	5	1	0	0.0 cm	#6	back*	0.546
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	14.69	-0.07	0	14.5	5	1	24	0.0 cm	#6	back*	0.506
1880.00	18900	Mid	LTE Band 2 (PCS)	16 QAM	14.90	0.01	0	14.5	5	12	6	0.0 cm	#6	back*	0.569
1880.00	18900	Mid	LTE Band 2 (PCS)	16 QAM	14.70	-0.01	0	14.5	5	1	0	0.0 cm	#6	back*	0.526
1880.00	18900	Mid	LTE Band 2 (PCS)	16 QAM	14.73	0.01	0	14.5	5	1	24	0.0 cm	#6	back*	0.558
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	21.37	0.01	1	21.5	5	12	6	0.5 cm	#5	back	0.437
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	22.90	-0.04	0	22.5	5	1	0	0.5 cm	#5	back	0.472
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	23.00	0.03	0	22.5	5	1	24	0.5 cm	#5	back	0.532
1880.00	18900	Mid	LTE Band 2 (PCS)	16 QAM	20.90	0.07	2	20.5	5	12	6	0.5 cm	#5	back	0.323
1852.50	18625	Low	LTE Band 2 (PCS)	16 QAM	22.00	-0.03	1	21.5	5	1	0	0.5 cm	#5	back	0.383
1852.50	18625	Low	LTE Band 2 (PCS)	16 QAM	22.00	0.02	1	21.5	5	1	24	0.5 cm	#5	back	0.383
1852.50	18625	Low	LTE Band 2 (PCS)	QPSK	21.60	0.05	1	21.5	5	12	6	0.0 cm	#5	top	0.649
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	21.37	0.03	1	21.5	5	12	6	0.0 cm	#5	top	0.819
1907.50	19175	High	LTE Band 2 (PCS)	QPSK	21.65	0.18	1	21.5	5	12	6	0.0 cm	#5	top	0.645
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	22.90	0.00	0	22.5	5	1	0	0.0 cm	#5	top	1.050
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	23.00	0.07	0	22.5	5	1	24	0.0 cm	#5	top	1.070
1880.00	18900	Mid	LTE Band 2 (PCS)	16 QAM	20.90	0.01	2	20.5	5	12	6	0.0 cm	#5	top	0.666
1852.50	18625	High	LTE Band 2 (PCS)	16 QAM	22.00	0.03	1	21.5	5	1	0	0.0 cm	#5	top	0.730
1852.50	18625	High	LTE Band 2 (PCS)	16 QAM	22.00	0.00	1	21.5	5	1	24	0.0 cm	#5	top	0.717
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	21.37	0.20	1	21.5	5	12	6	0.0 cm	#5	right	0.252
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	22.90	0.09	0	22.5	5	1	0	0.0 cm	#5	right	0.304
1880.00	18900	Mid	LTE Band 2 (PCS)	QPSK	23.00	-0.02	0	22.5	5	1	24	0.0 cm	#5	right	0.283
1880.00	18900	Mid	LTE Band 2 (PCS)	16 QAM	20.90	-0.01	2	20.5	5	12	6	0.0 cm	#5	right	0.191
1852.50	18625	High	LTE Band 2 (PCS)	16 QAM	22.00	0.02	1	21.5	5	1	0	0.0 cm	#5	right	0.221
1852.50	18625	High	LTE Band 2 (PCS)	16 QAM	22.00	0.02	1	21.5	5	1	24	0.0 cm	#5	right	0.196
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Body					
Spatial Peak										1.6 W/kg (mW/g)					
Uncontrolled Exposure/General Population										averaged over 1 gram					

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Table 16-6
WLAN Body SAR Data

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Tablet Serial Number	Data Rate (Mbps)	Side	SAR (1g)
MHz	Ch.									(W/kg)
5765	153	IEEE 802.11a	OFDM	11.82	0.08	0.0 cm	#16	6	back	0.784
5785	157	IEEE 802.11a	OFDM	11.82	0.09	0.0 cm	#16	6	back	0.788
5805	161	IEEE 802.11a	OFDM	11.80	0.15	0.0 cm	#16	6	back	0.712
5765	153	IEEE 802.11a	OFDM	11.82	-0.03	0.0 cm	#16	6	right	0.575
5785	157	IEEE 802.11a	OFDM	11.82	-0.19	0.0 cm	#16	6	right	0.530
5805	161	IEEE 802.11a	OFDM	11.80	-0.02	0.0 cm	#16	6	right	0.474
5200	40	IEEE 802.11a	OFDM	12.43	-0.07	0.0 cm	#16	6	back	0.945
5220	44	IEEE 802.11a	OFDM	12.40	-0.06	0.0 cm	#16	6	back	0.891
5200	40	IEEE 802.11a	OFDM	12.43	0.00	0.0 cm	#16	6	right	0.934
5220	44	IEEE 802.11a	OFDM	12.40	0.18	0.0 cm	#16	6	right	0.812
5260	52	IEEE 802.11a	OFDM	11.33	-0.04	0.0 cm	#16	6	back	0.685
5320	64	IEEE 802.11a	OFDM	11.36	-0.01	0.0 cm	#16	6	back	0.627
5260	52	IEEE 802.11a	OFDM	11.33	0.18	0.0 cm	#16	6	right	0.754
5320	64	IEEE 802.11a	OFDM	11.36	0.17	0.0 cm	#16	6	right	0.499
5540	108	IEEE 802.11a	OFDM	11.10	0.14	0.0 cm	#16	6	back	0.629
5580	116	IEEE 802.11a	OFDM	11.02	0.07	0.0 cm	#16	6	back	0.718
5700	140	IEEE 802.11a	OFDM	11.18	0.03	0.0 cm	#16	6	back	0.525
5540	108	IEEE 802.11a	OFDM	11.10	-0.18	0.0 cm	#16	6	right	0.509
5580	116	IEEE 802.11a	OFDM	11.02	-0.18	0.0 cm	#16	6	right	0.605
5700	140	IEEE 802.11a	OFDM	11.18	-0.18	0.0 cm	#16	6	right	0.700
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram				

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16.2 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR value with the position of the device configured for SAR testing according to KDB 447498 Section 4. Test procedures used were according to FCC/OET Bulletin 65, Supplement C [June 2001].
2. Batteries are fully charged for all readings.
3. Tissue parameters and temperatures are listed on the SAR plots.
4. Liquid tissue depth was at least 15.0 cm.
5. Per KDB Publication 447498 4) b) i) the back side is required to be tested touching the flat phantom for large sized tablet devices.
6. This device is capable of multiple display orientations supporting both portrait and landscape positions. Therefore per KDB 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user. According to KDB 447498 4) b) ii) (2), for each antenna, SAR is required for the edge with the most conservative exposure condition.
7. 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, DAE and probe as the SAR tests in the same time period.
8. The measured SAR when extrapolated to the maximum tune-up power tolerance levels remains compliant for all operating configurations.
9. Asterisk (*) denotes power reduction active

CDMA Notes:

1. Justification for reduced test configurations: Per FCC/OET Bulletin 65 Supplement C (June 2001) 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. Per KDB Publication 941225 D01, for Cell. Band, Body SAR was evaluated with EVDO Rev 0. SAR was not required for 1x RTT for Ev-Do devices that also support 1x RTT data operations, when the maximum average output of each channel is less than 1/4 dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0. SAR for Subtype 2 Physical layer configurations is not required for Rev. A when the maximum average output of each RF channel is less than that measured in Subtype 0/1 Physical layer configurations. See Section 10.2 for more details.
3. Per KDB Publication 941225 D01, for PCS CDMA, the average output power of 1xRTT operations was more than 0.25 dB higher than EVDO Rev 0. Therefore, PCS CDMA mode was tested with Body SAR Measurements CDMA 2000 1x procedures.
 - a. EVDO Rev. 0 or Rev. A modes were not required for SAR testing since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only output power.
 - b. For the reduced power condition, SAR was not required for TDSO / SO32 FCH+SCH since the average output power of were not more than 0.25 dB higher than the TDSO / SO32 FCH Only output power. See Section 10.2 for more details.
 - c. For the max power condition, since the average output power of TDSO / SO32 FCH+SCH was more than 0.25 dB higher than the TDSO / SO32 FCH only, the configuration with the highest SAR for TDSO / SO32 FCH only was additionally tested with TDSO / SO32 FCH+SCH. See Section 10.2 for more details.
4. Vertex SAR was not measured for this device since the CDMA antenna is not located on the corner of the device.
5. Per April 2011 TCB-FCC Workshop Notes, in addition to the 0 mm test distance required for tablet devices under KDB 447498, a conservative additional test distance of 10 mm from the back and 5 mm from the top edge were tested for SAR at maximum output power with the sensor deactivated. See Section 11.4 for more details.
6. Only the primary Tx/Rx CDMA antenna was transmitting during testing. The secondary antenna was for receive-only and cannot transmit.

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LTE Notes:

1. Considerations: LTE test configurations are determined according to SAR Test Considerations for LTE handsets and Data Modems KDB 941225 D05 Publication. General test procedures can be found in Section 10.3.3.
2. MPR is implemented for this device by the manufacturer when the proximity sensor is not active (maximum power scenarios). 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. There is no MPR applied when the proximity sensor is active (reduced power scenarios).
4. Only the primary Tx/Rx LTE antenna was transmitting during testing. The secondary LTE antenna was for receive-only and cannot transmit.
5. A-MPR was disabled for all SAR tests.
6. LTE Band 4 (AWS) SAR was measured with a probe calibrated at 1750 MHz and is valid for measuring SAR from ± 50 MHz. The 1750MHz specific liquid was verified with specific probe calibration factors as required per FCC KDB Publication 450824 D01.
7. Per April 2011 TCB-FCC Workshop Notes, in addition to the 0 mm test distance required for tablet devices under KDB 447498, a conservative additional test distance of 5 mm from the back with the sensor deactivated. See Section 11.4 for more details.
8. Vertex SAR was not measured for this device since there are no edge sensors applicable for the LTE antenna and because the LTE antenna is not located on the corner of the device.

WLAN Notes:

1. For 2.4 GHz modes, according to KDB 447498 4) b), SAR testing was not required because the maximum average output power was not greater than 60/f.
2. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 FCC/TCB Workshop Notes: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11a. Other IEEE 802.11 modes (including 802.11n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
3. Per FCC Publication 248227 D01 when the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is >1.6 W/kg or the 1g averaged SAR is >0.8 W/kg, SAR testing was also performed in the other default or corresponding required test channels.
4. There is no power reduction for WIFI.

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17 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	8753E	(30kHz-6GHz) Network Analyzer	4/21/2011	Annual	4/21/2012	JP38020182
Agilent	E5515C	Wireless Communications Test Set	10/10/2011	Annual	10/10/2012	GB46110872
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB41450275
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
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
Index SAR	IXTL-010	Dielectric Measurement Kit	N/A		N/A	N/A
Index SAR	IXTL-030	30MM TEM line for 6 GHz	N/A		N/A	N/A
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Pasternack	PE2209-10	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	6/1/2011	Annual	6/1/2012	833855/0010
Rohde & Schwarz	CMU200	Base Station Simulator	4/19/2011	Annual	4/19/2012	107826
Rohde & Schwarz	NRVD	Dual Channel Power Meter	4/8/2011	Biennial	4/8/2013	101695
SPEAG	D1765V2	1765 MHz SAR Dipole	6/16/2011	Annual	6/16/2012	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	2/17/2011	Annual	2/17/2012	502
SPEAG	D5GHzV2	5 GHz SAR Dipole	2/11/2011	Annual	2/11/2012	1057
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/20/2011	Annual	4/20/2012	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/21/2011	Annual	2/21/2012	649
SPEAG	EX3DV4	SAR Probe	7/27/2011	Annual	7/27/2012	3561
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/19/2011	Annual	5/19/2012	859
SPEAG	D750V3	750 MHz Dipole	2/14/2011	Annual	2/14/2012	1003
SPEAG	ES3DV3	SAR Probe	4/18/2011	Annual	4/18/2012	3209
Rohde & Schwarz	SMIQ03B	Signal Generator	4/6/2011	Annual	4/6/2012	DE27259
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/25/2011	Annual	8/25/2012	100976
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5318
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5442
Anritsu	ML2438A	Power Meter	2/7/2011	Annual	2/7/2012	1190013
Anritsu	ML2438A	Power Meter	2/7/2011	Annual	2/7/2012	98150041
Agilent	8648D	Signal Generator	4/5/2011	Annual	4/5/2012	3629U00687
Anritsu	ML2438A	Power Meter	2/7/2011	Annual	2/7/2012	1070030
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5821
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	8013
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5605
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	2400
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB43304447
Agilent	E5515C	Wireless Communications Tester	4/21/2011	Annual	4/21/2012	US41140256
Amplifier Research	551G4	5W, 800MHz-4.2GHz	N/A		N/A	21910
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	N/A		N/A	N/A
Agilent	E5515C	Wireless Communications Test Set	2/8/2011	Annual	2/8/2012	GB45360985
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	10/7/2011	Annual	10/7/2012	103962
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	111331330
Control Company	61220-416	Long-Stem Thermometer	2/15/2011	Biennial	2/15/2013	111331332
Control Company	61220-416	Long-Stem Thermometer	3/16/2011	Biennial	3/16/2013	111391601
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	5/26/2010	Biennial	5/26/2012	101718589
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286454
VWR	36934-158	Wall-Mounted Thermometer	2/26/2010	Biennial	2/26/2012	101536273
SPEAG	ES3DV3	SAR Probe	4/8/2011	Annual	4/8/2012	3258
SPEAG	D1750V2	1750 MHz SAR Dipole	5/24/2011	Annual	5/24/2012	1051
MiniCircuits	SLP-2400+	Low Pass Filter	N/A		N/A	R8979500903
Narda	4772-3	Attenuator (3dB)	N/A		N/A	9406
Narda	BW-S3W2	Attenuator (3dB)	N/A		N/A	120
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/5/2011	Annual	8/5/2012	112347
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	N/A		N/A	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	N/A		N/A	N/A
SPEAG	D835V2	835 MHz SAR Dipole	7/8/2011	Annual	7/8/2012	4d119
Anritsu	MT8820C	Radio Communication Tester	11/11/2011	Annual	11/11/2012	6200901190
MiniCircuits	VLF-6000+	Low Pass Filter	N/A		N/A	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	N/A		N/A	N/A

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18 MEASUREMENT UNCERTAINTIES

Applicable for frequencies less than 3000 MHz.

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

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

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Applicable for frequencies up to 6 GHz.

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

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

FCC ID: A3LSCHI905U		SAR COMPLIANCE REPORT		Reviewed by: Quality Manager
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19 CONCLUSION

19.1 Measurement Conclusion

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

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

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FCC ID: A3LSCHI905U		SAR COMPLIANCE REPORT		Reviewed by: Quality Manager
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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #19

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

Medium: 695 Body; Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.943 \text{ mho/m}$; $\epsilon_r = 57.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-07-2011; Ambient Temp: 22.7 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: LTE Band 12, Body SAR, Back side, Mid.ch, 16 QAM,
10 MHz Bandwidth, 1 RB, 49 RB Offset**

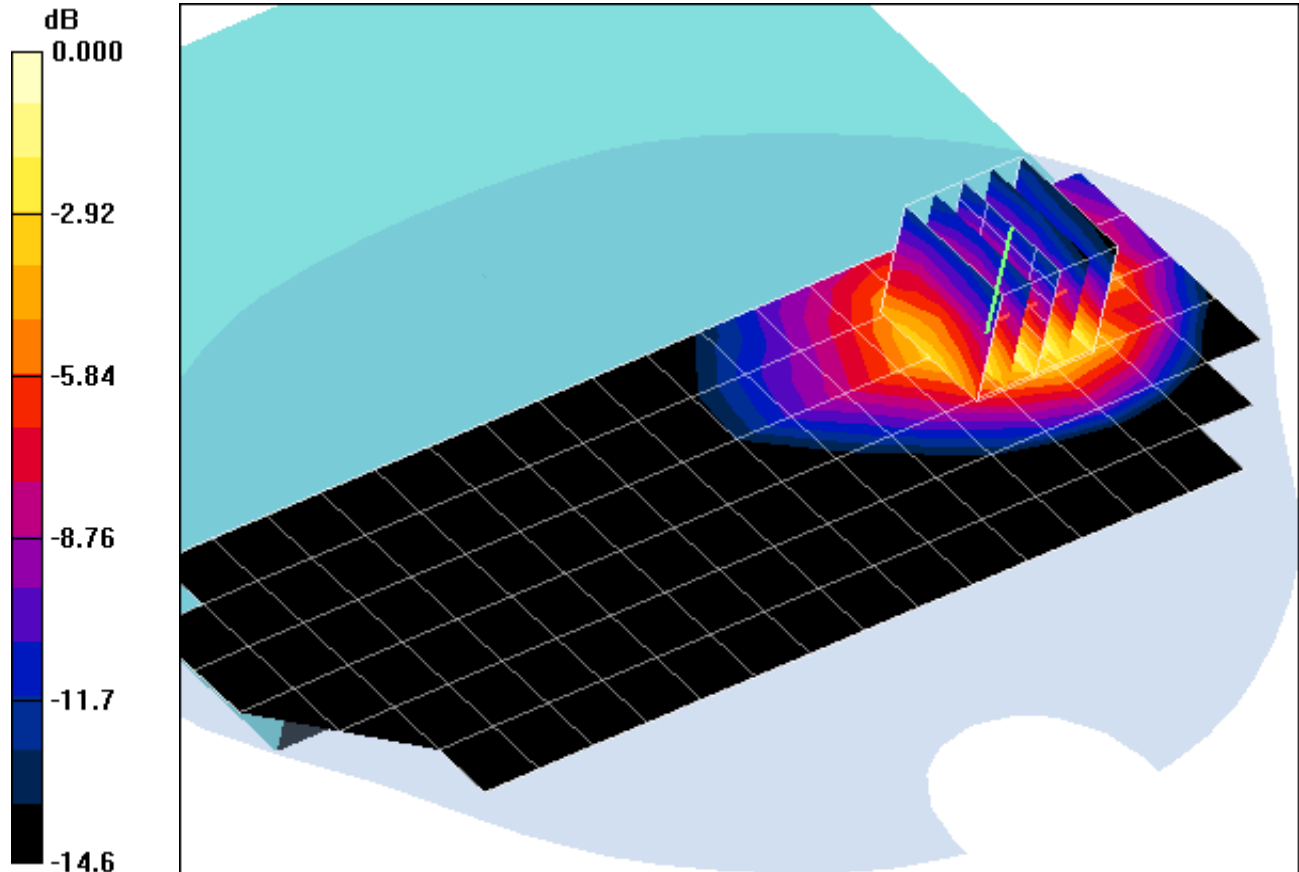
Area Scan (7x19x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 24.9 V/m; Power Drift = 0.170 dB

Peak SAR (extrapolated) = 0.831 W/kg

SAR(1 g) = 0.451 mW/g; SAR(10 g) = 0.251 mW/g



0 dB = 0.520mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #11

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

Medium: 695 Body; Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.943 \text{ mho/m}$; $\epsilon_r = 57.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.5 cm

Test Date: 12-07-2011; Ambient Temp: 22.7 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

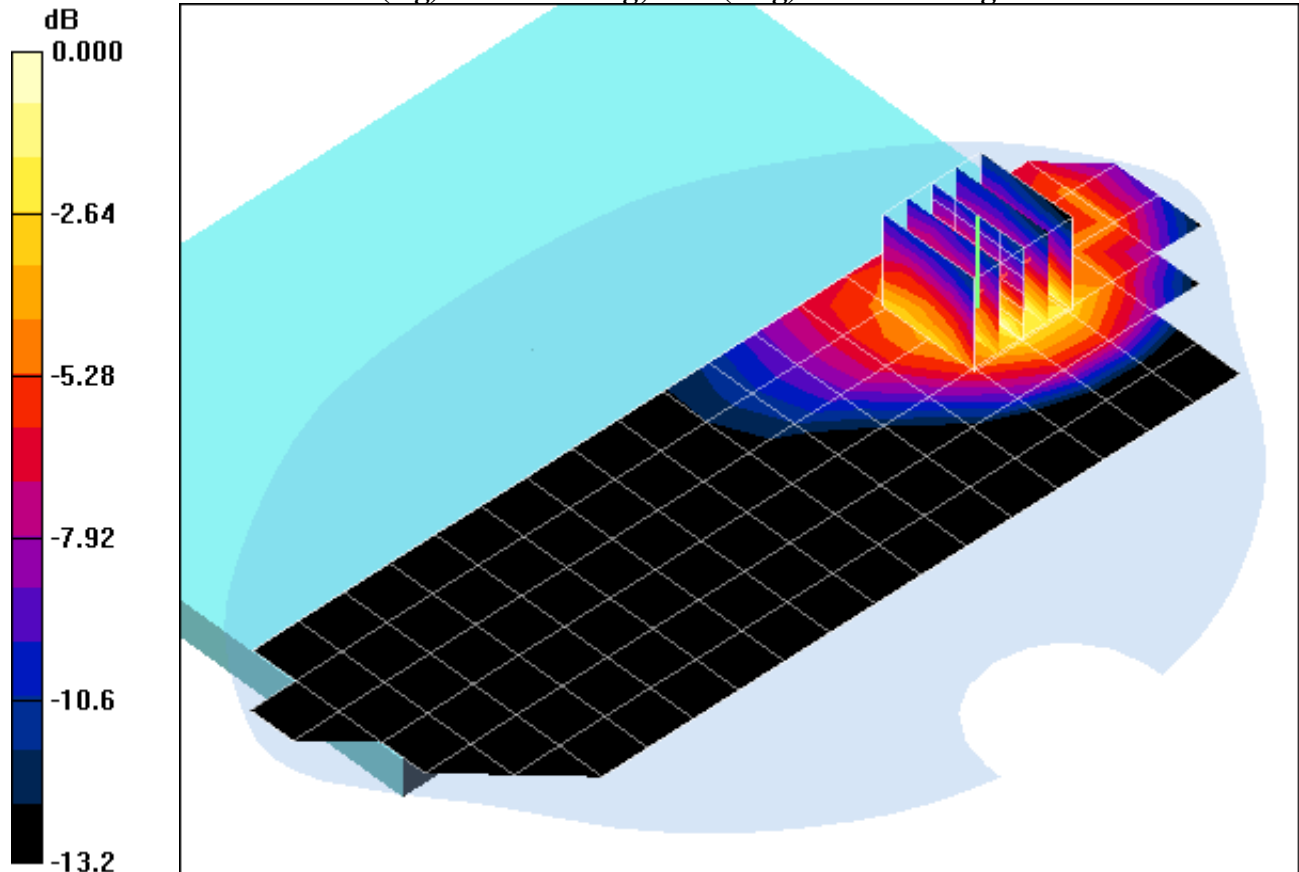
Area Scan (7x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 19.0 V/m; Power Drift = 0.162 dB

Peak SAR (extrapolated) = 0.586 W/kg

SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.198 mW/g



0 dB = 0.359mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #11

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

Medium: 695 Body; Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.943 \text{ mho/m}$; $\epsilon_r = 57.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-07-2011; Ambient Temp: 22.7 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: LTE Band 12, Body SAR, Top Edge, Mid.ch, QPSK,
10MHz Bandwidth, 1 RB, 49 RB Offset**

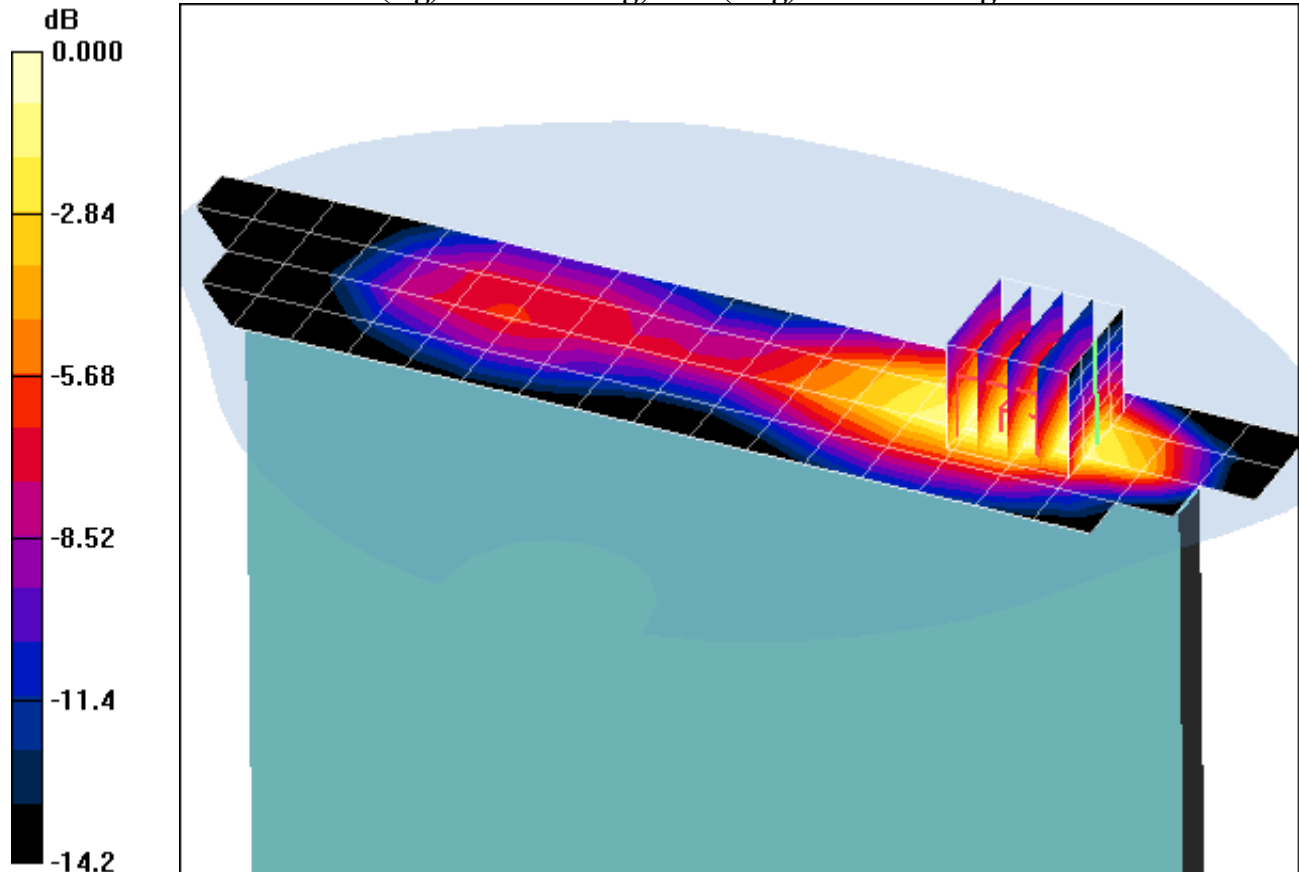
Area Scan (5x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 21.7 V/m; Power Drift = -0.216 dB

Peak SAR (extrapolated) = 0.910 W/kg

SAR(1 g) = 0.448 mW/g; SAR(10 g) = 0.271 mW/g



0 dB = 0.502mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #11

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

Medium: 695 Body; Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.943 \text{ mho/m}$; $\epsilon_r = 57.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-07-2011; Ambient Temp: 22.7 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode:LTE Band 12, Body SAR, Right Edge, Mid.ch, QPSK,
10MHz Bandwidth, 1 RB, 49 RB Offset**

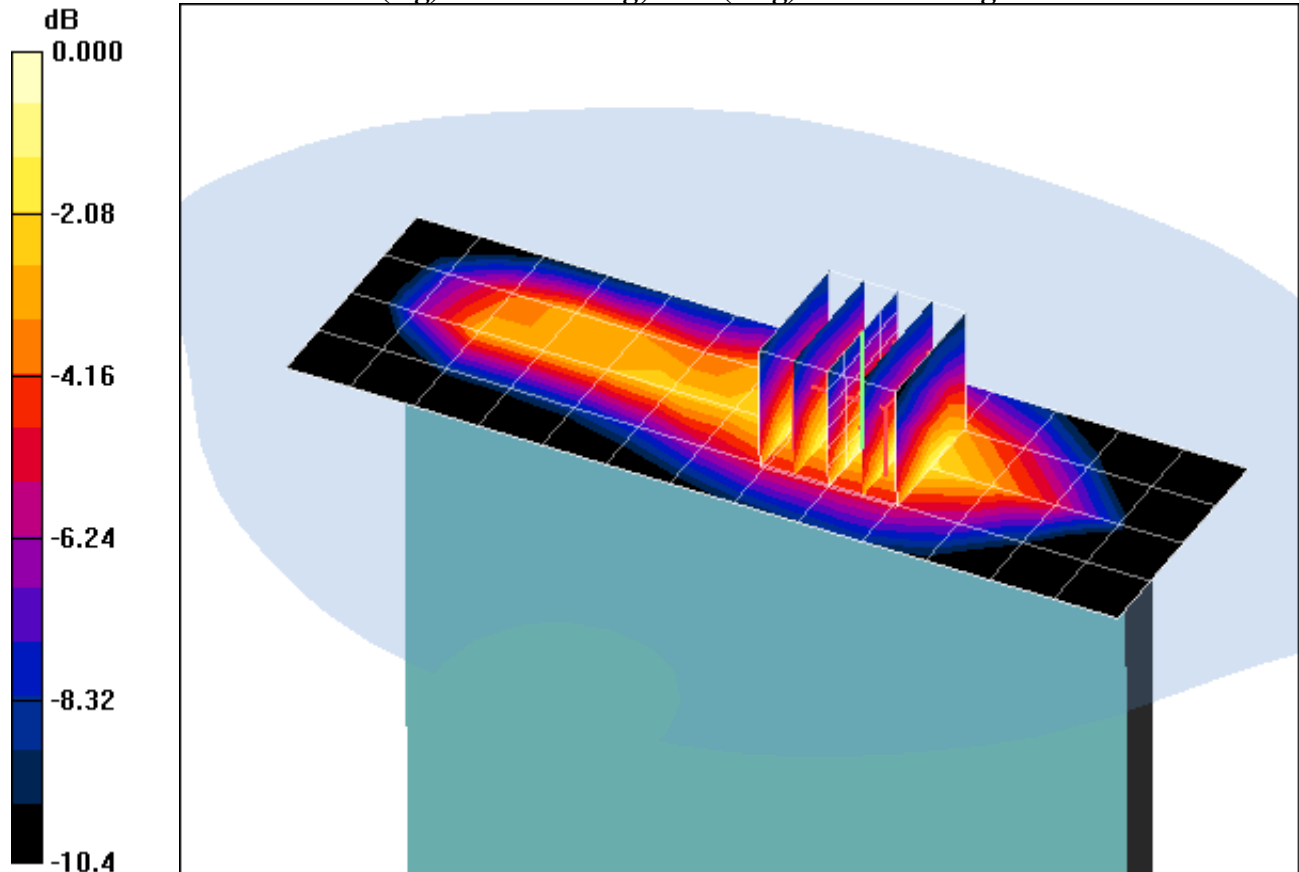
Area Scan (5x14x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 14.0 V/m; Power Drift = -0.116 dB

Peak SAR (extrapolated) = 0.227 W/kg

SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.107 mW/g



0 dB = 0.178mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #2

Communication System: Cellular CDMA; Frequency: 848.31 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 848.31 \text{ MHz}$; $\sigma = 0.994 \text{ mho/m}$; $\epsilon_r = 53.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-05-2011; Ambient Temp: 22.4 °C; Tissue Temp: 20.8 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular EVDO, Body SAR, Back side, High.ch

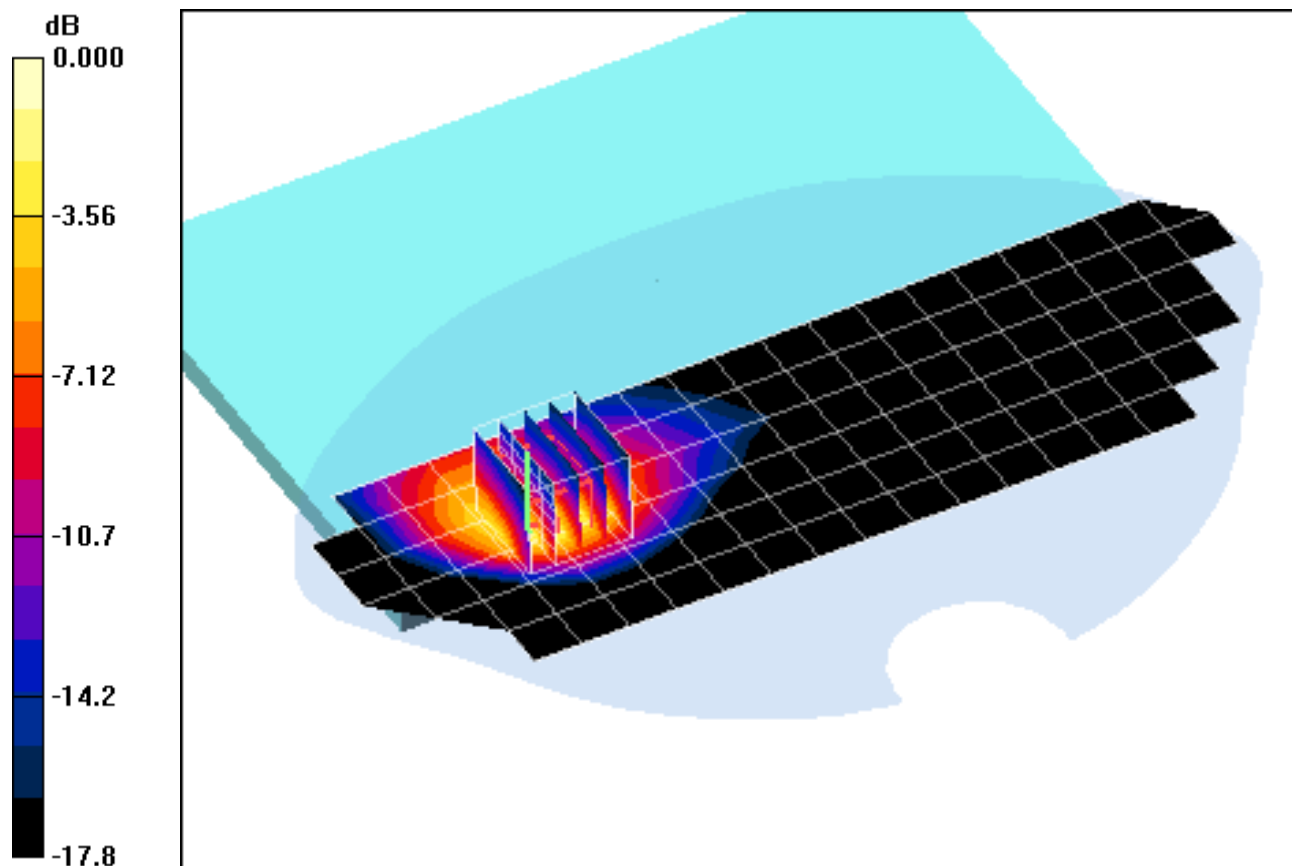
Area Scan (7x20x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 33.8 V/m; Power Drift = -0.079 dB

Peak SAR (extrapolated) = 2.45 W/kg

SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.495 mW/g



0 dB = 1.30mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #1

Communication System: Cellular CDMA; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 824.7 \text{ MHz}$; $\sigma = 0.967 \text{ mho/m}$; $\epsilon_r = 54.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-05-2011; Ambient Temp: 22.4 °C; Tissue Temp: 20.8 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular EVDO, Body SAR, Back side, Low.ch

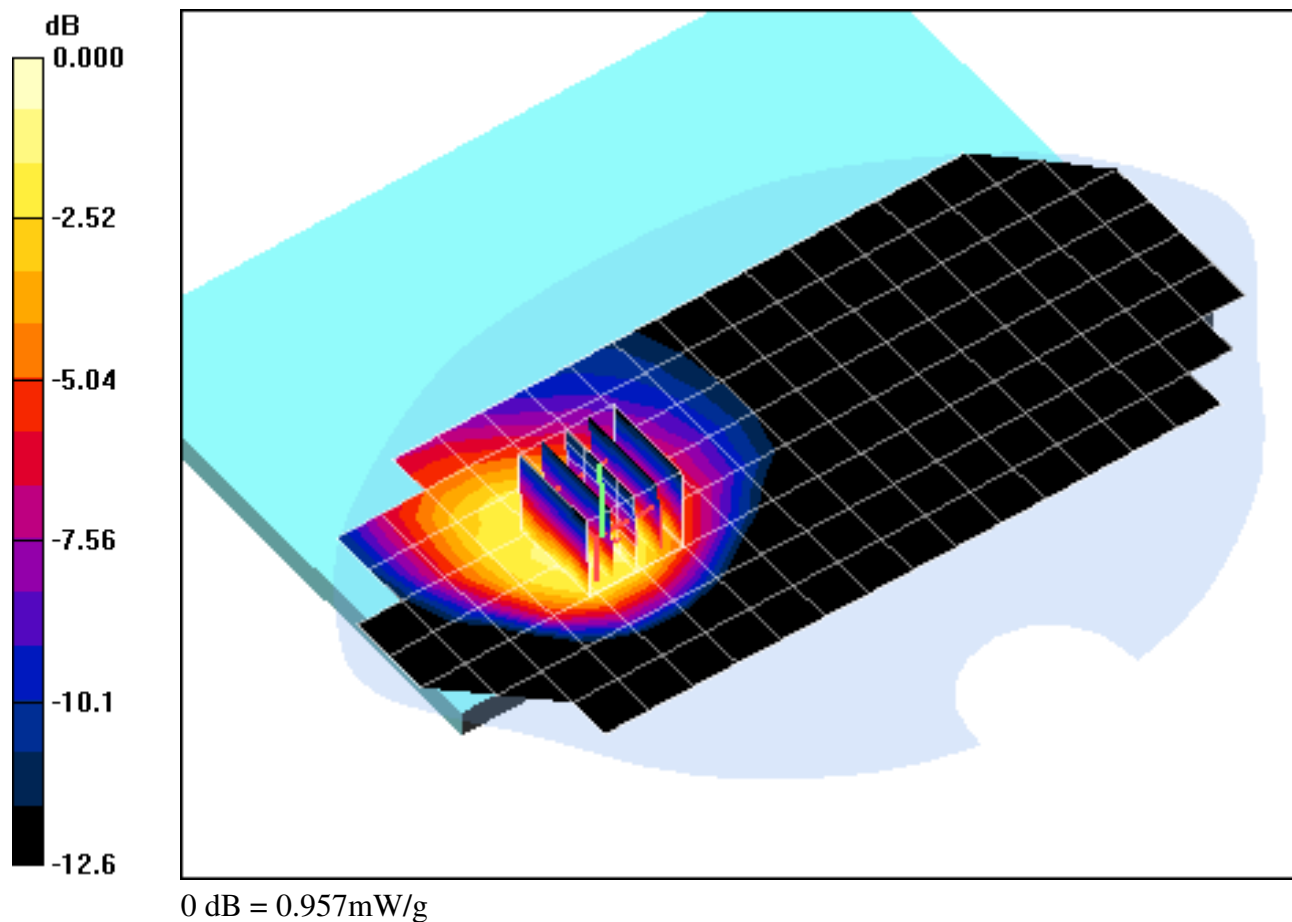
Area Scan (9x19x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 34.7 V/m; Power Drift = 0.059 dB

Peak SAR (extrapolated) = 1.65 W/kg

SAR(1 g) = 0.901 mW/g; SAR(10 g) = 0.522 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #2

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

Medium: 835 Body Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.983 \text{ mho/m}$; $\epsilon_r = 53.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-05-2011; Ambient Temp: 22.4 °C; Tissue Temp: 20.8 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

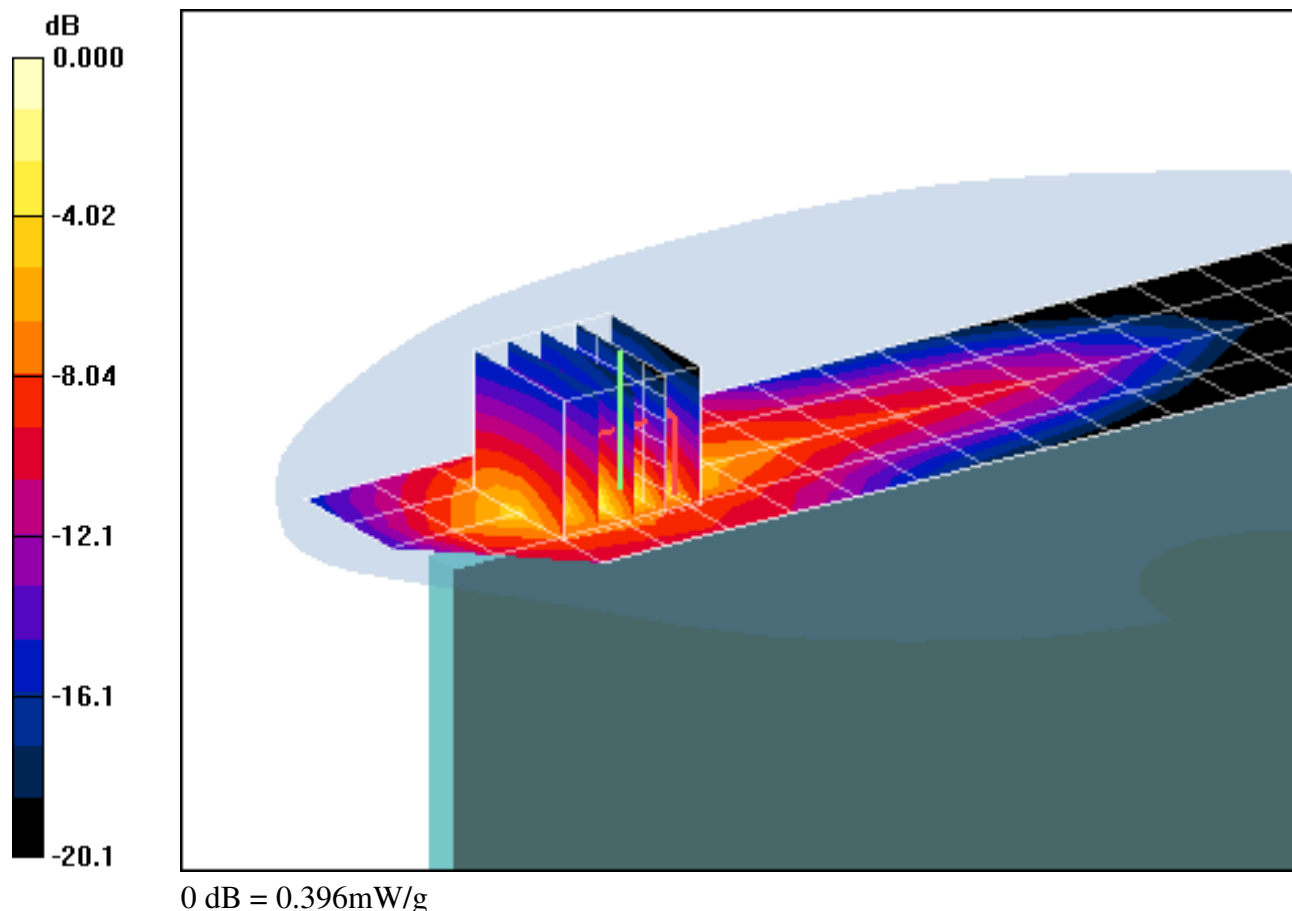
Area Scan (5x20x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 23.2 V/m; Power Drift = 0.049 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.343 mW/g; SAR(10 g) = 0.131 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #1

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

Medium: 835 Body Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.983 \text{ mho/m}$; $\epsilon_r = 53.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.5 cm

Test Date: 12-05-2011; Ambient Temp: 22.4 °C; Tissue Temp: 20.8 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

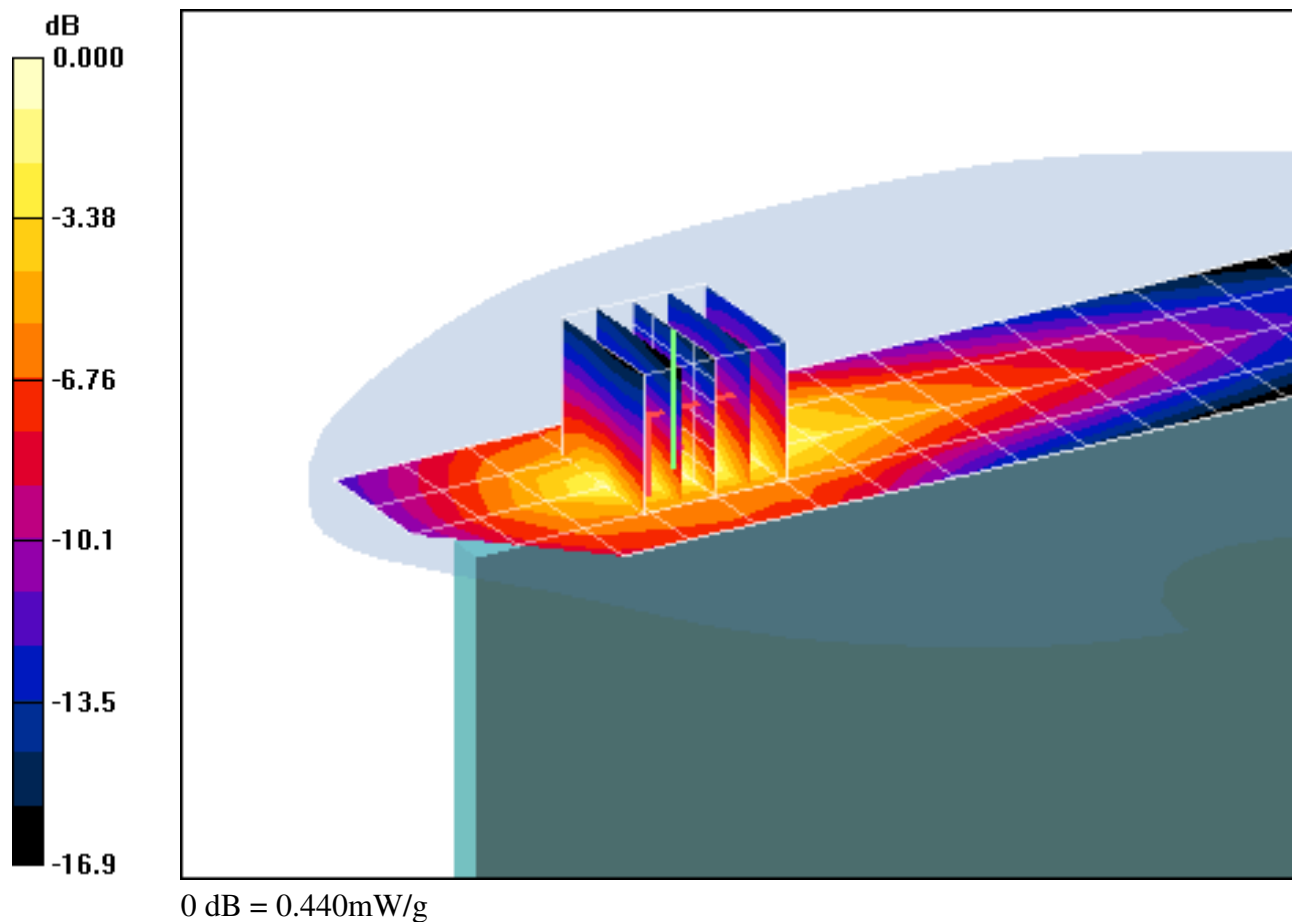
Area Scan (5x19x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 23.2 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 0.919 W/kg

SAR(1 g) = 0.398 mW/g; SAR(10 g) = 0.193 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #1

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

Medium: 835 Body Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.983 \text{ mho/m}$; $\epsilon_r = 53.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-05-2011; Ambient Temp: 22.4 °C; Tissue Temp: 20.8 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

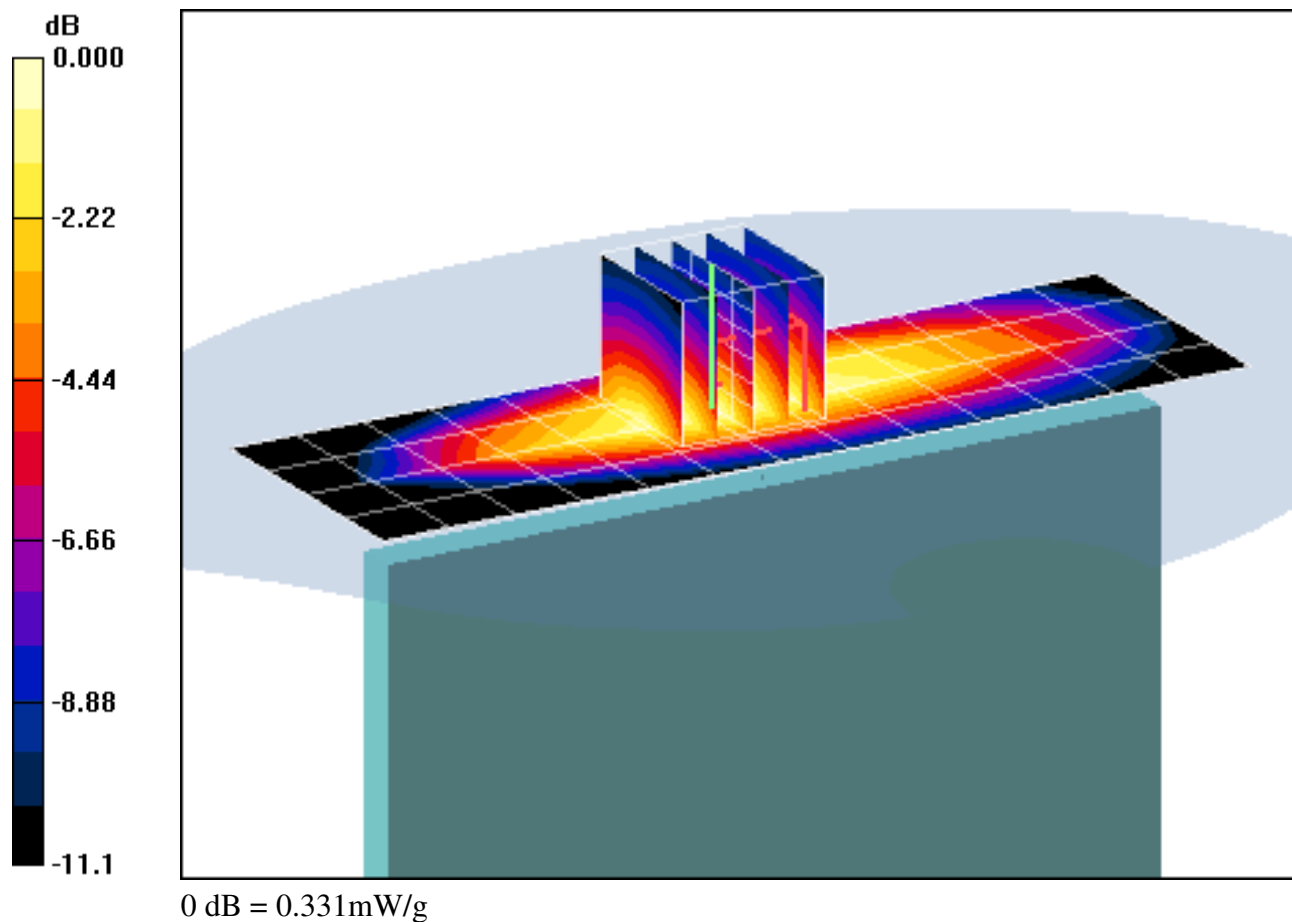
Area Scan (5x14x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 18.9 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 0.496 W/kg

SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.191 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #8

Communication System: LTE RF; Frequency: 836.5 MHz; Duty Cycle: 1:1

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

$f = 836.5 \text{ MHz}$; $\sigma = 0.983 \text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-07-2011; Ambient Temp: 21.4 °C; Tissue Temp: 21.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch, QPSK,
5 MHz Bandwidth, 12 RB, 6 RB Offset**

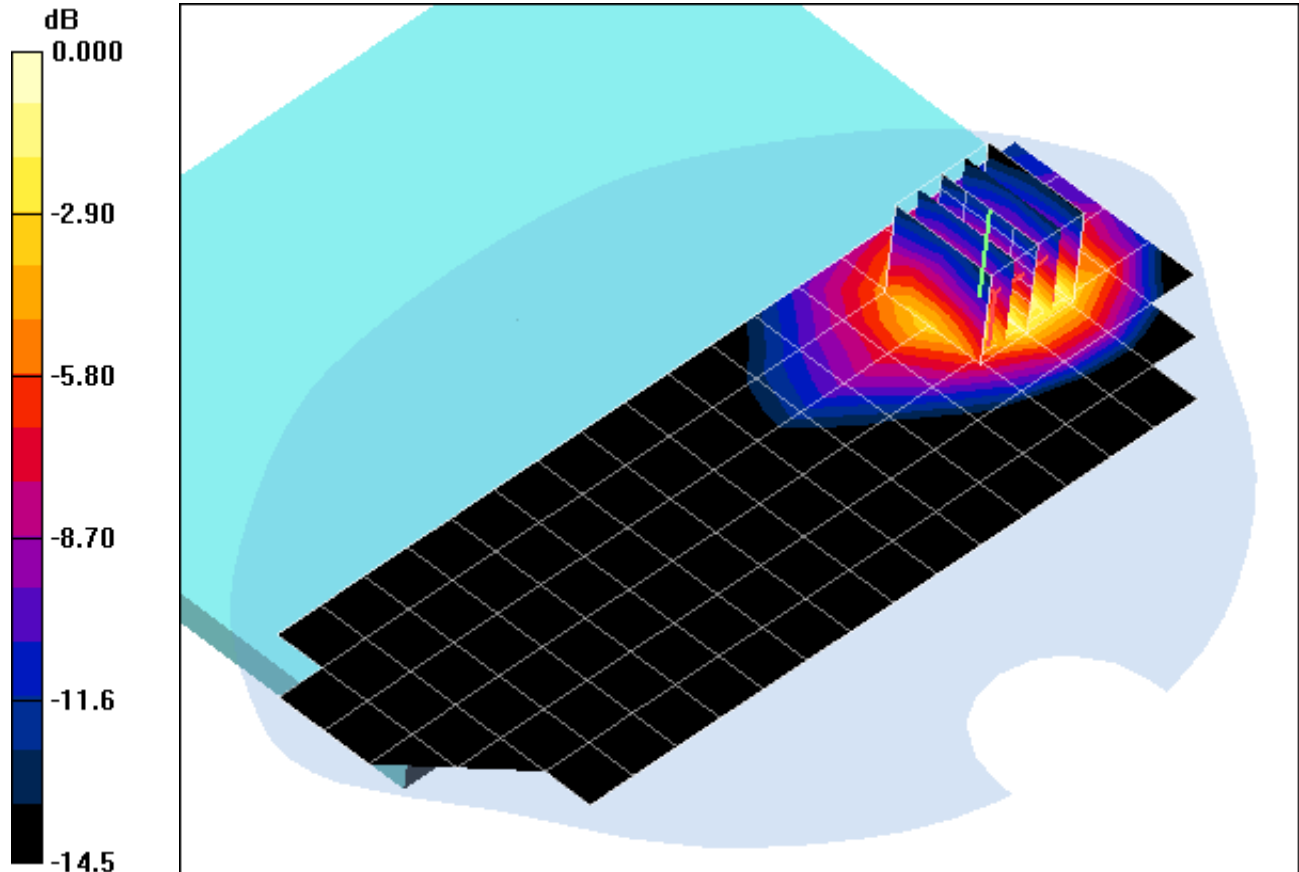
Area Scan (7x19x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 34.1 V/m; Power Drift = -0.034 dB

Peak SAR (extrapolated) = 1.61 W/kg

SAR(1 g) = 0.850 mW/g; SAR(10 g) = 0.474 mW/g



0 dB = 0.992mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #7

Communication System: LTE RF; Frequency: 836.5 MHz; Duty Cycle: 1:1

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

$f = 836.5 \text{ MHz}$; $\sigma = 0.983 \text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.5 cm

Test Date: 12-07-2011; Ambient Temp: 21.4 °C; Tissue Temp: 21.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

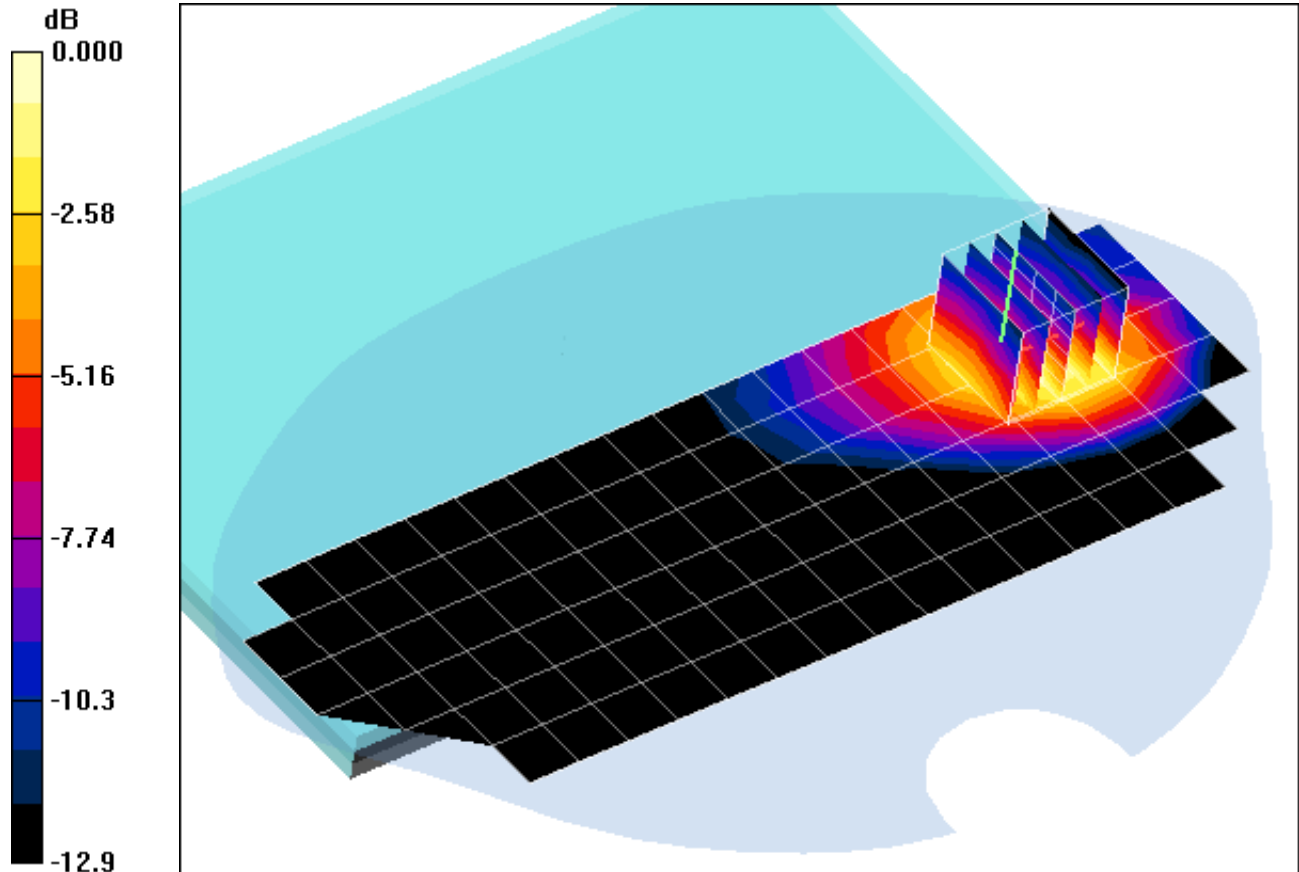
Area Scan (7x19x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 28.1 V/m; Power Drift = 0.0279 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.623 mW/g; SAR(10 g) = 0.375 mW/g



0 dB = 0.665mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #7

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

Medium: 835 Body Medium parameters used (interpolated):

$f = 836.5 \text{ MHz}$; $\sigma = 0.983 \text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-07-2011; Ambient Temp: 21.4 °C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE Band 5 (Cell.), Body SAR, Top Edge, Mid.ch, QPSK
5 MHz Bandwidth, 1 RB, 0 RB Offset

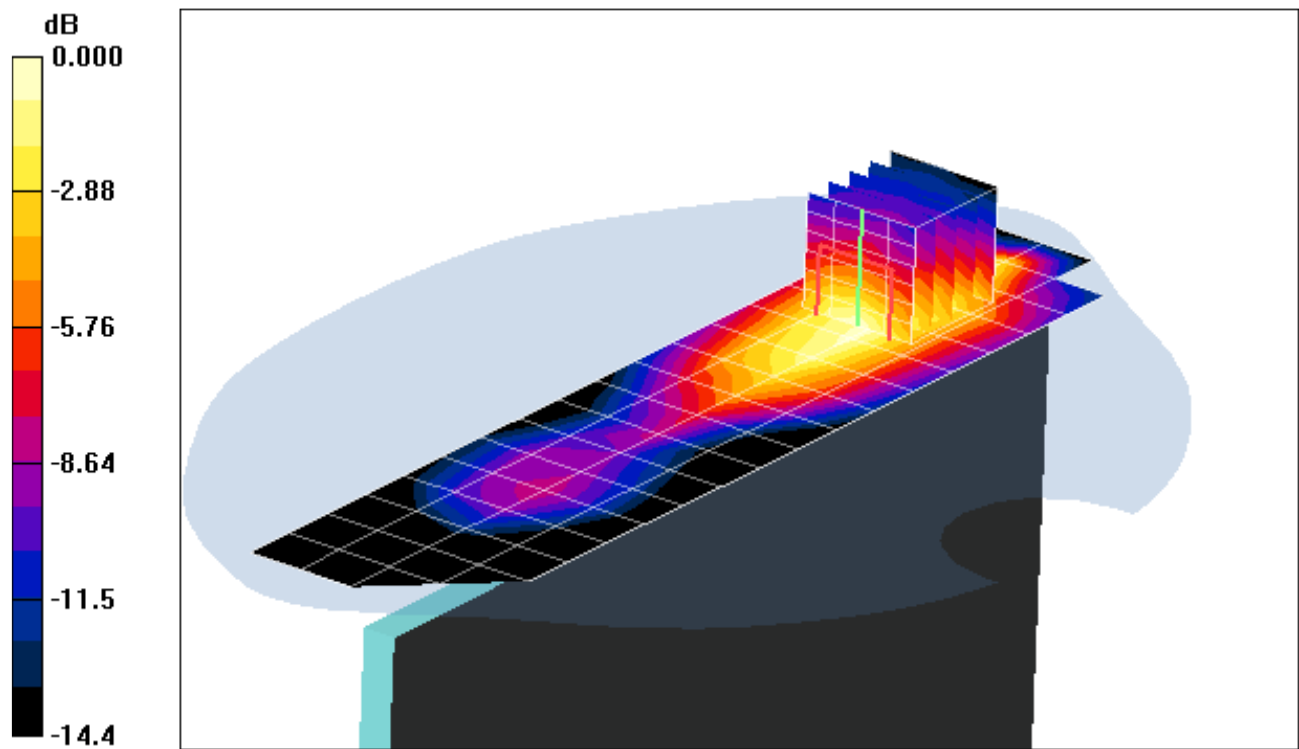
Area Scan (5x19x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 30.0 V/m; Power Drift = -0.153 dB

Peak SAR (extrapolated) = 1.50 W/kg

SAR(1 g) = 0.626 mW/g; SAR(10 g) = 0.379 mW/g



0 dB = 0.710mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #7

Communication System: LTE RF; Frequency: 836.5 MHz; Duty Cycle: 1:1

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

$f = 836.5 \text{ MHz}$; $\sigma = 0.983 \text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-07-2011; Ambient Temp: 21.4 °C; Tissue Temp: 21.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: LTE Band 5 (Cell.), Body SAR, Right Edge, Mid.ch, QPSK,
5 MHz Bandwidth, 1 RB, 24 RB Offset**

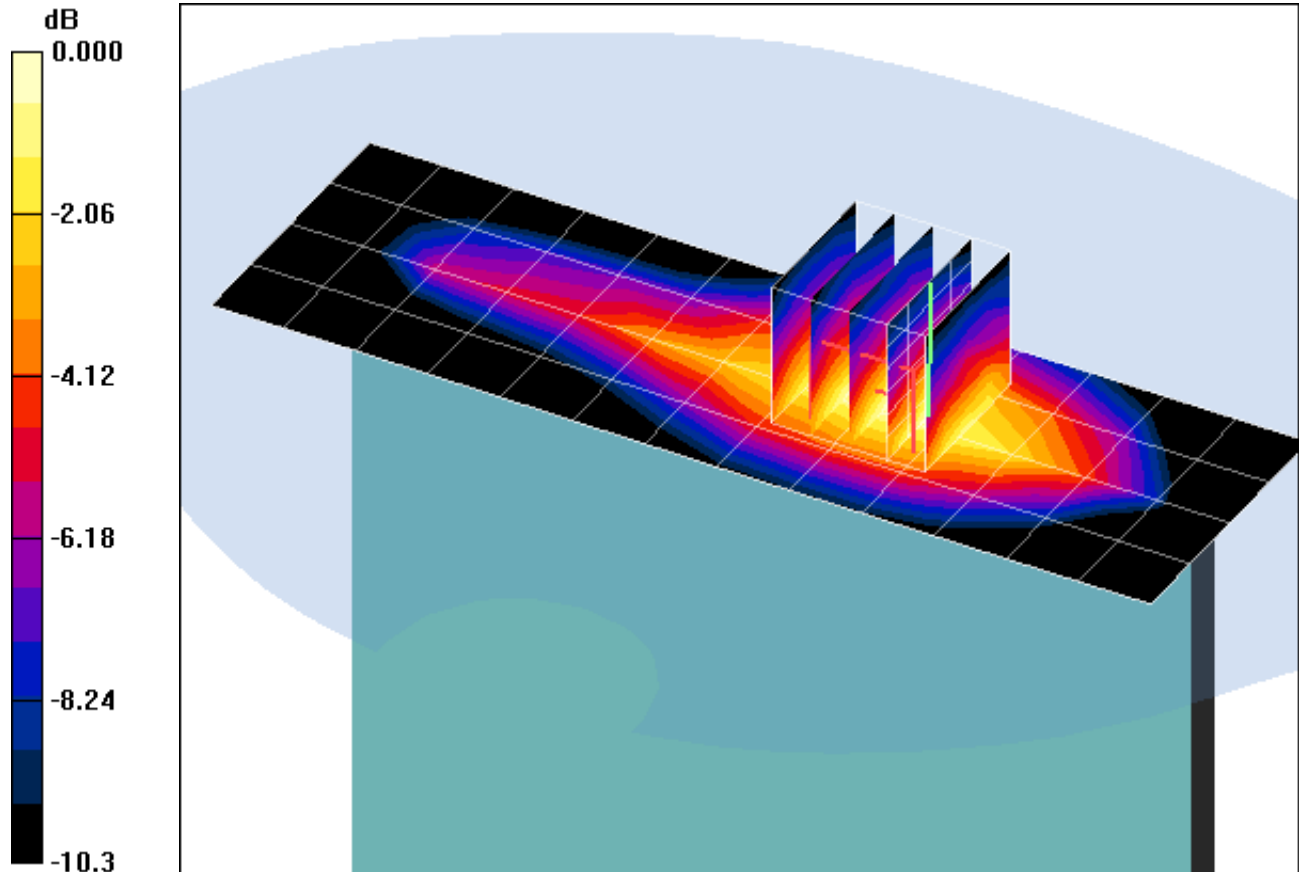
Area Scan (5x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 24.7 V/m; Power Drift = -0.037 dB

Peak SAR (extrapolated) = 0.723 W/kg

SAR(1 g) = 0.457 mW/g; SAR(10 g) = 0.293 mW/g



0 dB = 0.496mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: FCC #10

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

Medium: 1750 Body Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.54 \text{ mho/m}$; $\epsilon_r = 51.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-07-2011; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: LTE Band 4 (AWS), Body SAR, Back side, Mid.ch, 16 QAM,
10 MHz Bandwidth, 1 RB, 49 RB Offset**

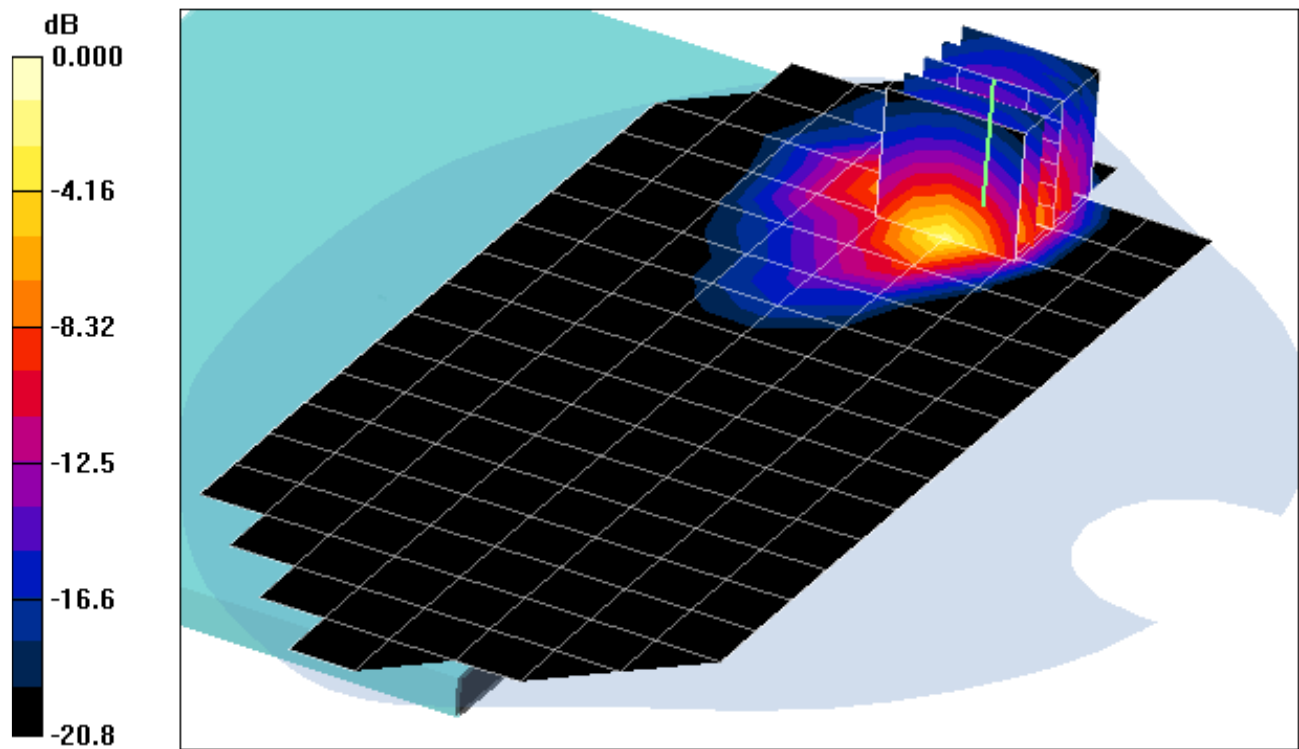
Area Scan (9x22x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 27.2 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 2.04 W/kg

SAR(1 g) = 0.965 mW/g; SAR(10 g) = 0.435 mW/g



0 dB = 1.09mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #9

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

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

$f = 1732.5 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 51.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.5 cm

Test Date: 12-15-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE Band 4 (AWS), Body SAR, Back side, Mid.ch, QPSK

10 MHz Bandwidth, 1 RB, 49 RB Offset

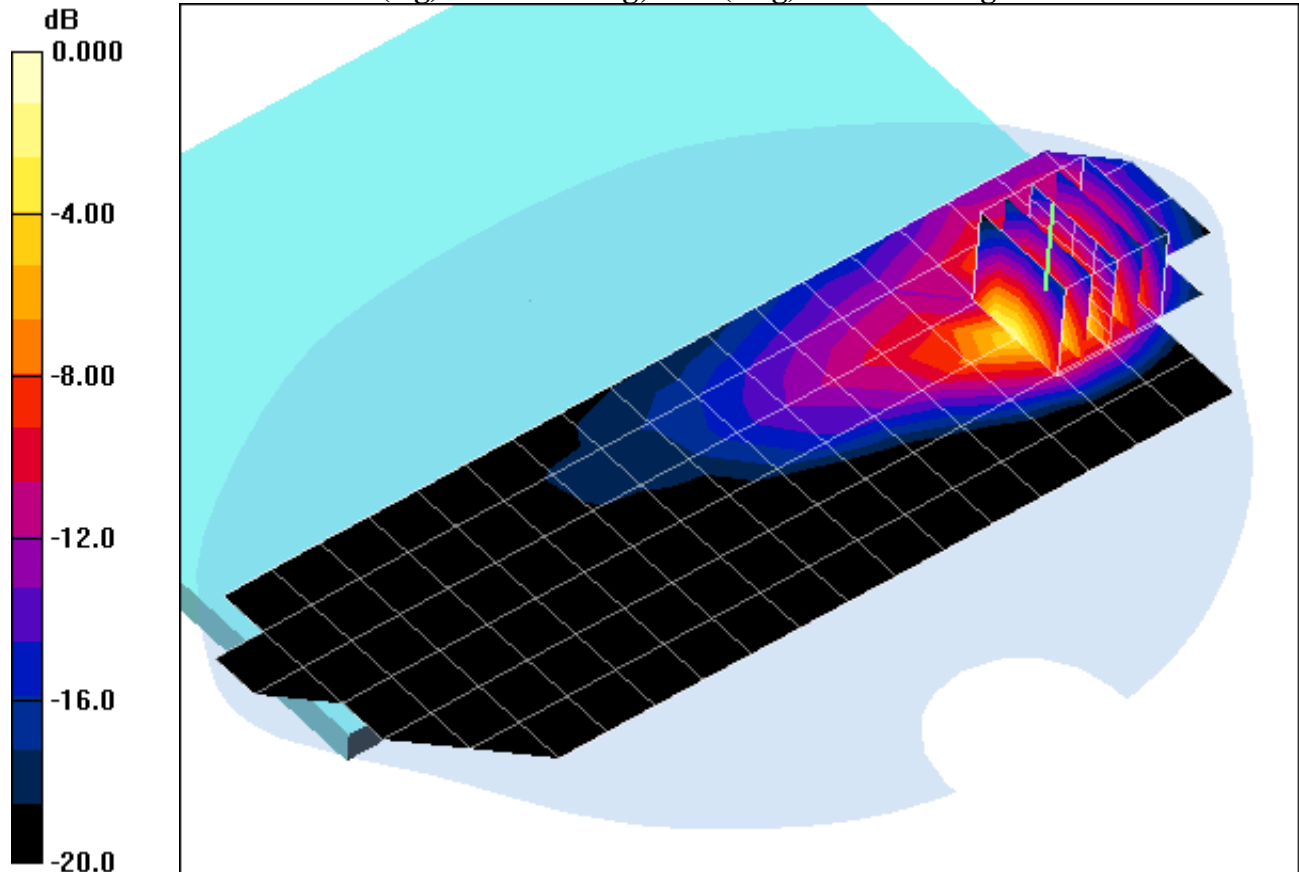
Area Scan (7x22x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 22.2 V/m; Power Drift = 0.022 dB

Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.694 mW/g; SAR(10 g) = 0.331 mW/g



0 dB = 0.696mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #9

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

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

$f = 1732.5 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 51.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-15-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

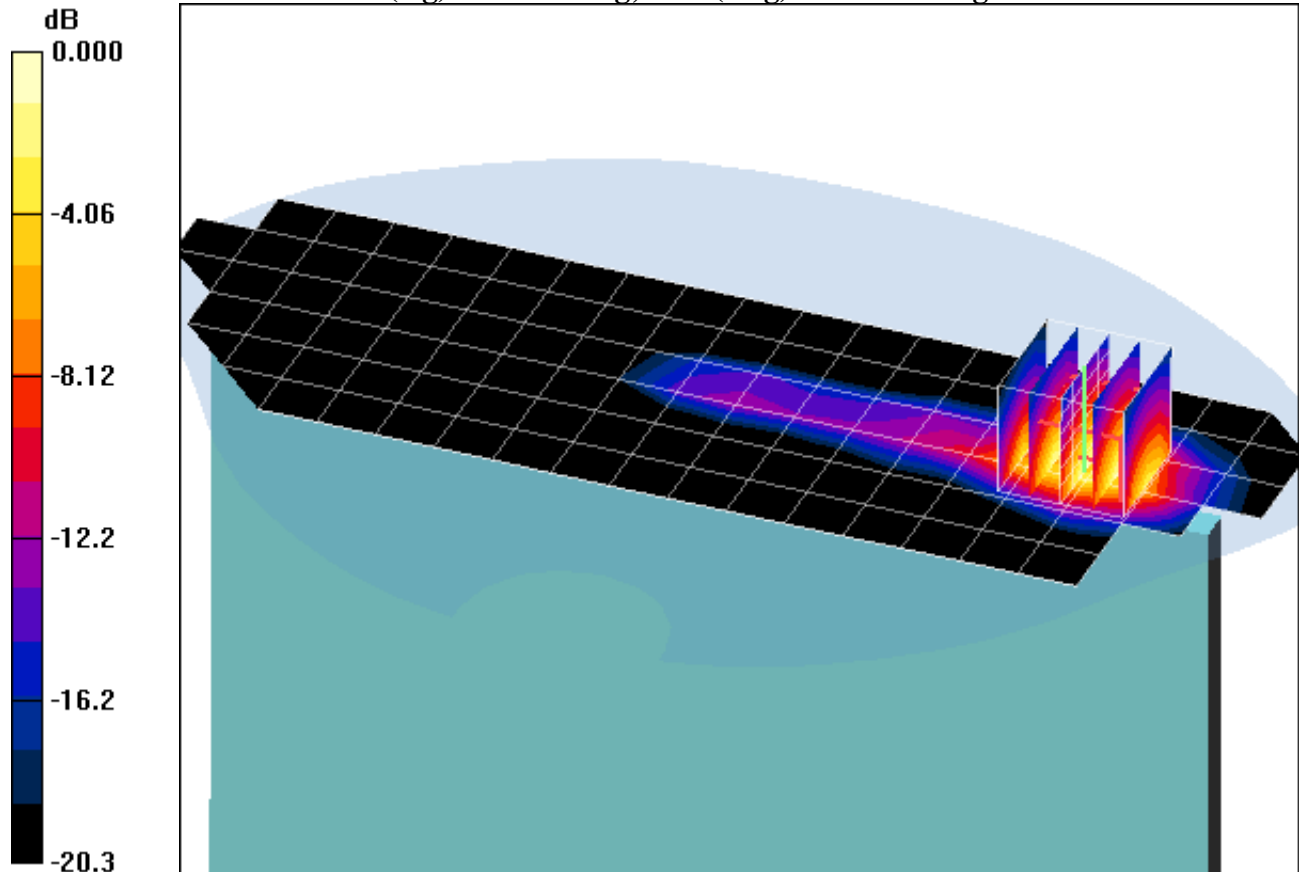
Area Scan (7x22x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 29.8 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 2.19 W/kg

SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.505 mW/g



0 dB = 1.23mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #9

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

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

$f = 1732.5 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 51.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-15-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

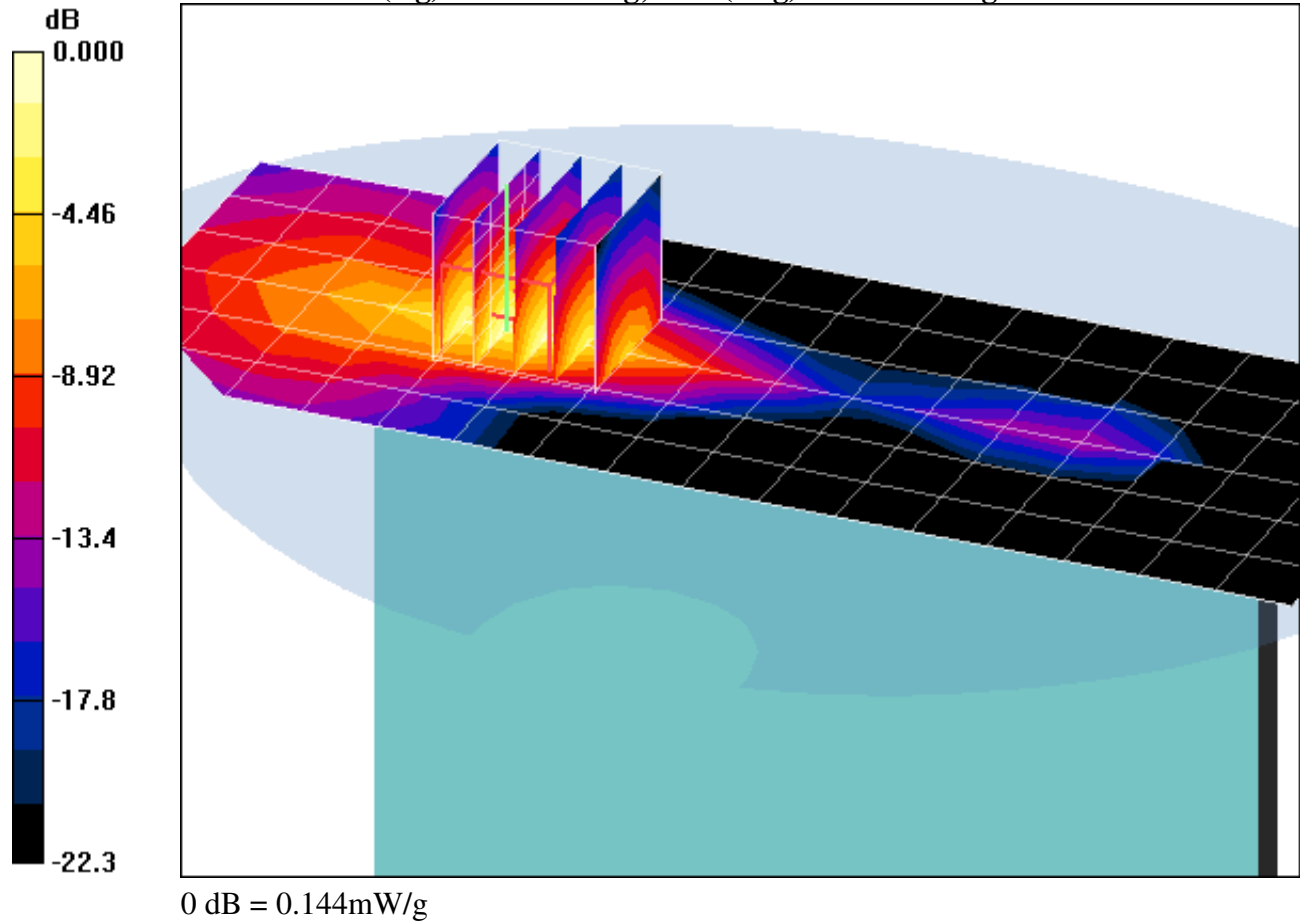
Area Scan (7x18x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 9.52 V/m; Power Drift = 0.0443 dB

Peak SAR (extrapolated) = 0.243 W/kg

SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.060 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #4

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

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 50.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.1 °C; Tissue Temp: 19.2 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO / SO32 FCH Only, Body SAR, Back side, Mid.ch

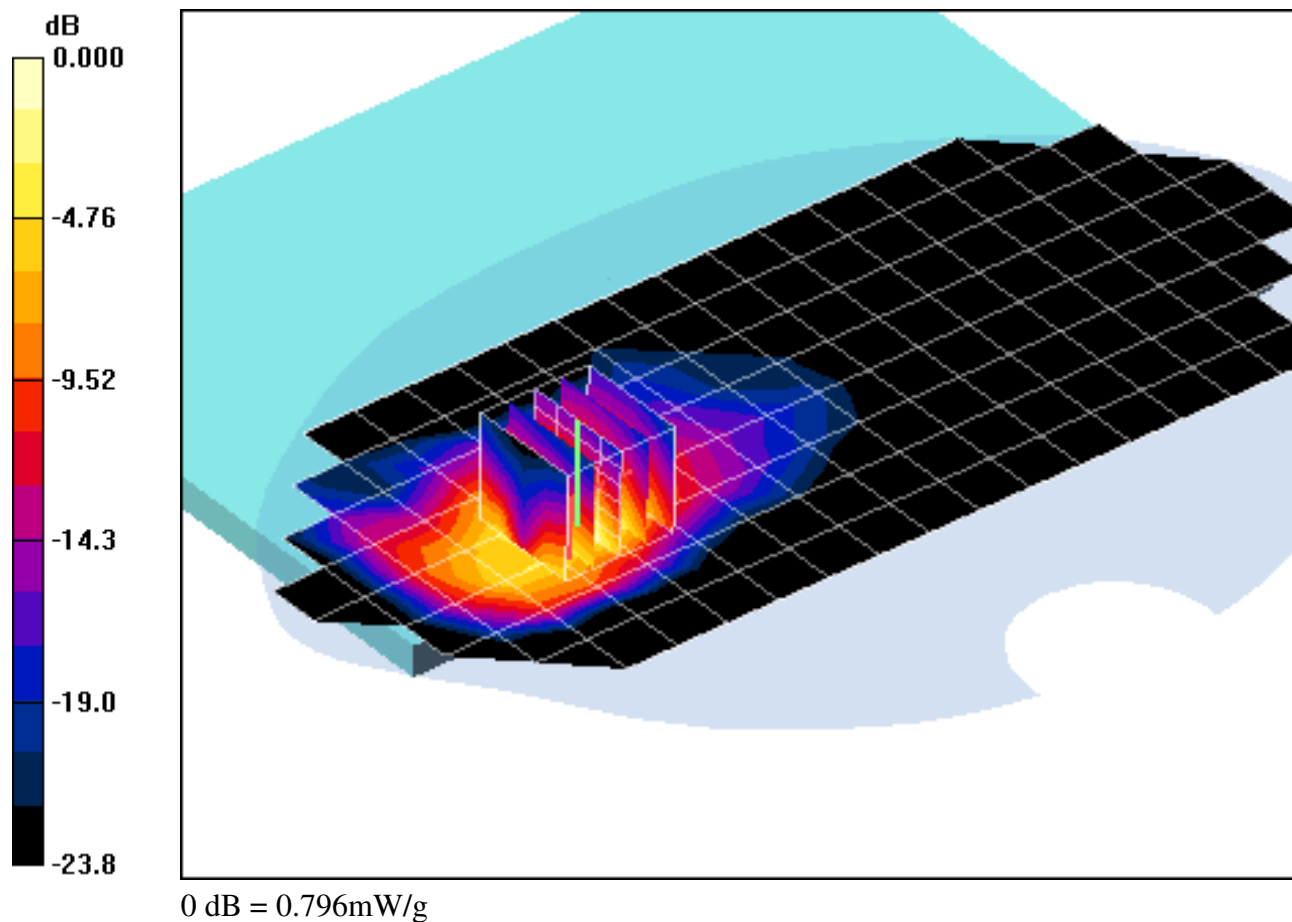
Area Scan (9x22x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 25.2 V/m; Power Drift = 0.147 dB

Peak SAR (extrapolated) = 1.40 W/kg

SAR(1 g) = 0.665 mW/g; SAR(10 g) = 0.302 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #3

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

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-05-2011; Ambient Temp: 23.2 °C; Tissue Temp: 21.3 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO / SO32 FCH+SCH, Body SAR, Back side, Mid.ch

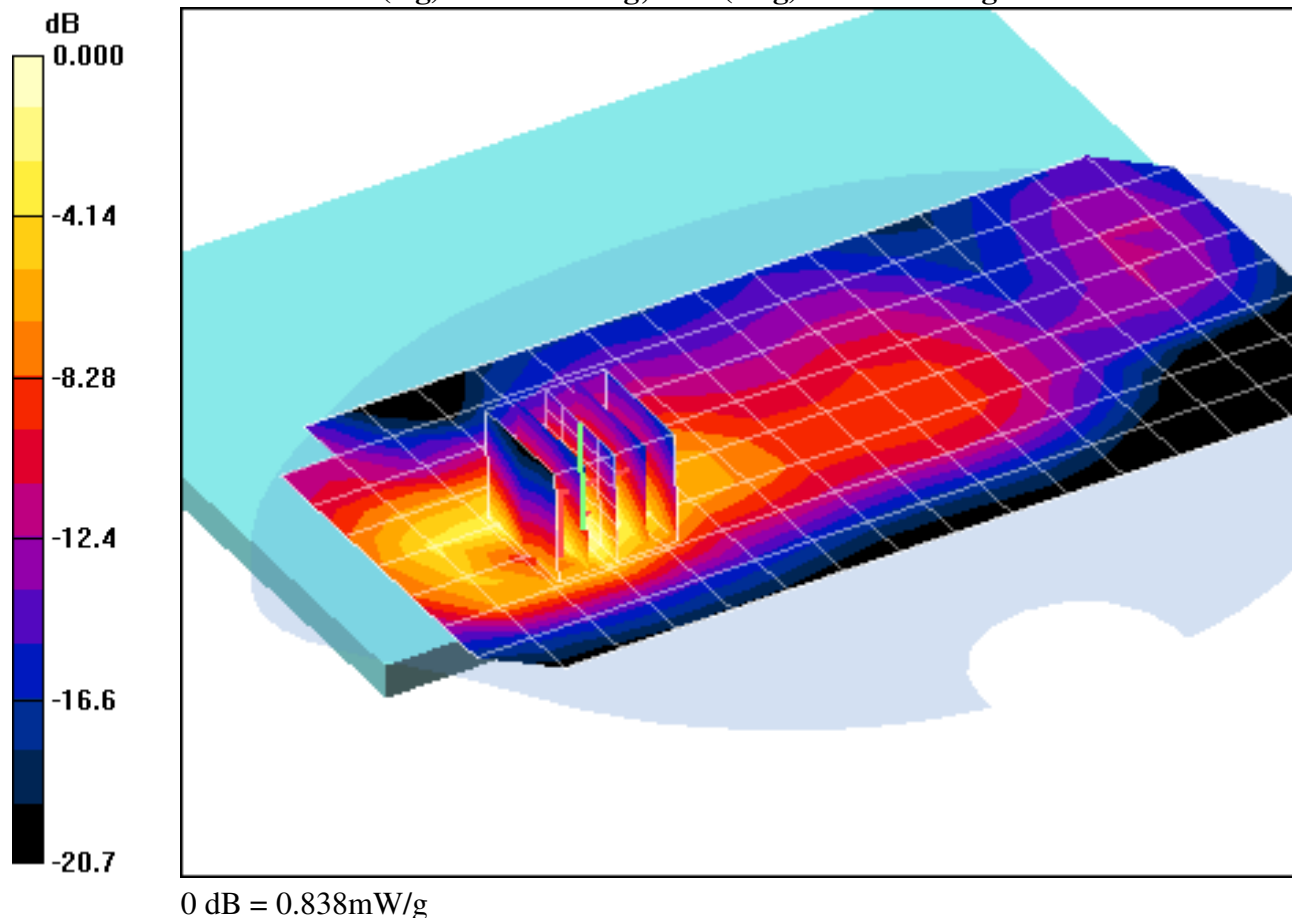
Area Scan (9x17x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 24.0 V/m; Power Drift = 0.042 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.766 mW/g; SAR(10 g) = 0.392 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #4

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

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 50.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.1 °C; Tissue Temp: 19.2 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO / SO32 FCH Only, Body SAR, Top Edge, Mid.ch

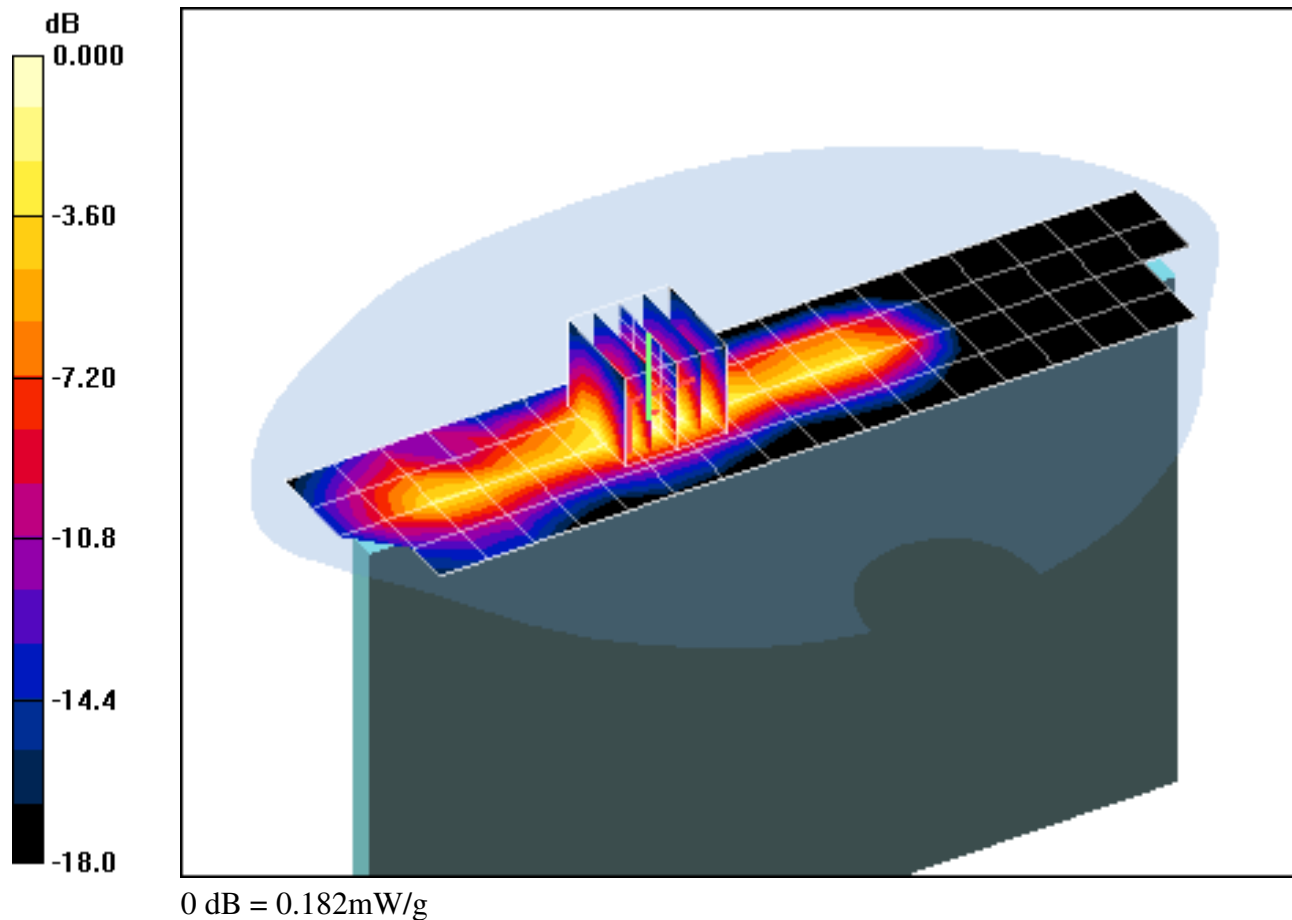
Area Scan (5x21x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 11.0 V/m; Power Drift = 0.051 dB

Peak SAR (extrapolated) = 0.298 W/kg

SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.083 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #3

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

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.5 cm

Test Date: 12-05-2011; Ambient Temp: 23.2 °C; Tissue Temp: 21.3 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO / SO32 FCH Only, Body SAR, Top Edge, Mid.ch

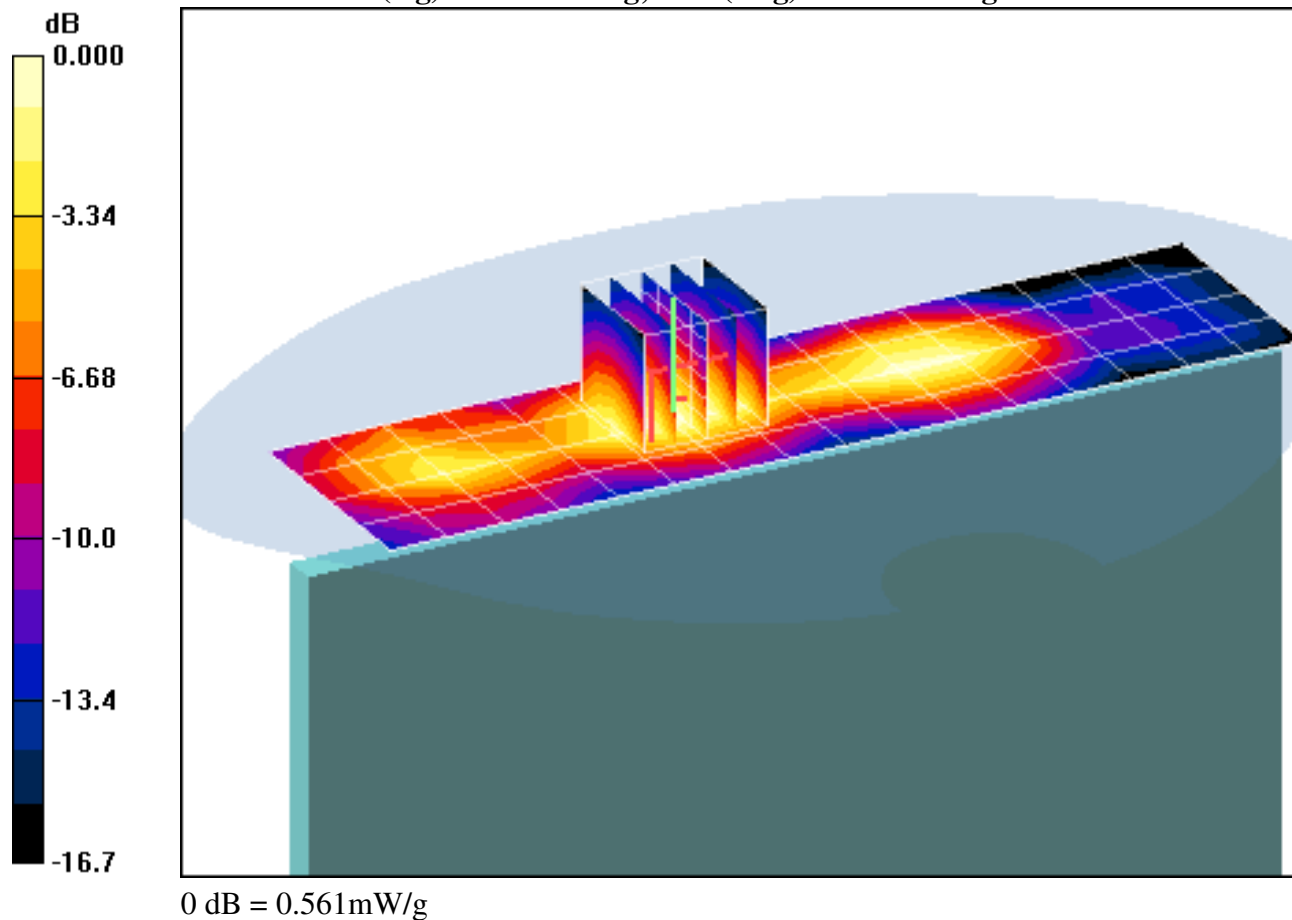
Area Scan (5x17x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 19.8 V/m; Power Drift = -0.069 dB

Peak SAR (extrapolated) = 0.851 W/kg

SAR(1 g) = 0.505 mW/g; SAR(10 g) = 0.286 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #3

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

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-05-2011; Ambient Temp: 23.2 °C; Tissue Temp: 21.3 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO / SO32 FCH Only, Body SAR, Left Edge, Mid.ch

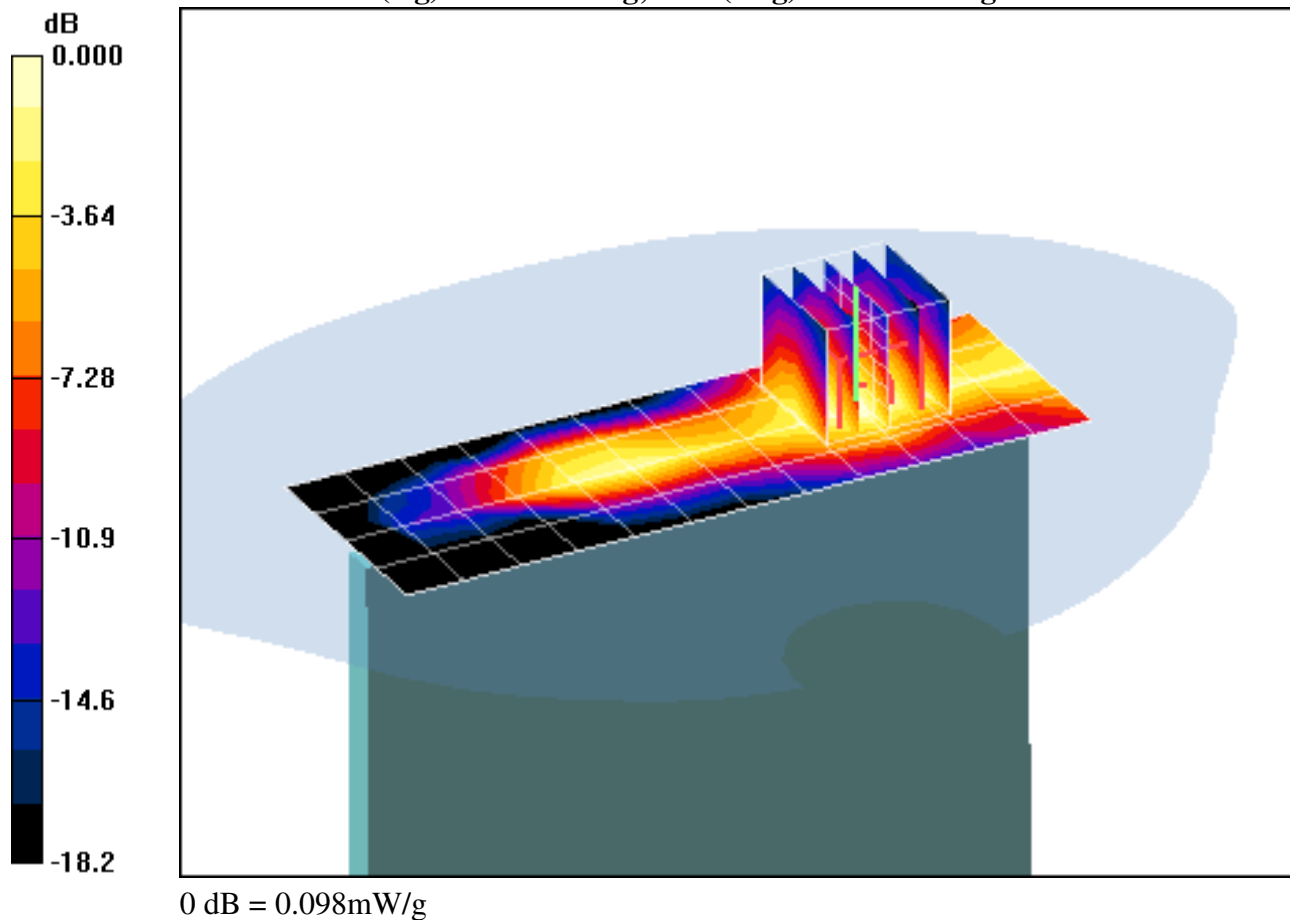
Area Scan (5x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 8.76 V/m; Power Drift = 0.093 dB

Peak SAR (extrapolated) = 0.144 W/kg

SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.048 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #6

Communication System: LTE RF; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-05-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE Band 2 (PCS), Body SAR, Back side, Mid.ch, QPSK
5 MHz Bandwidth, 12 RB, 6 RB Offset

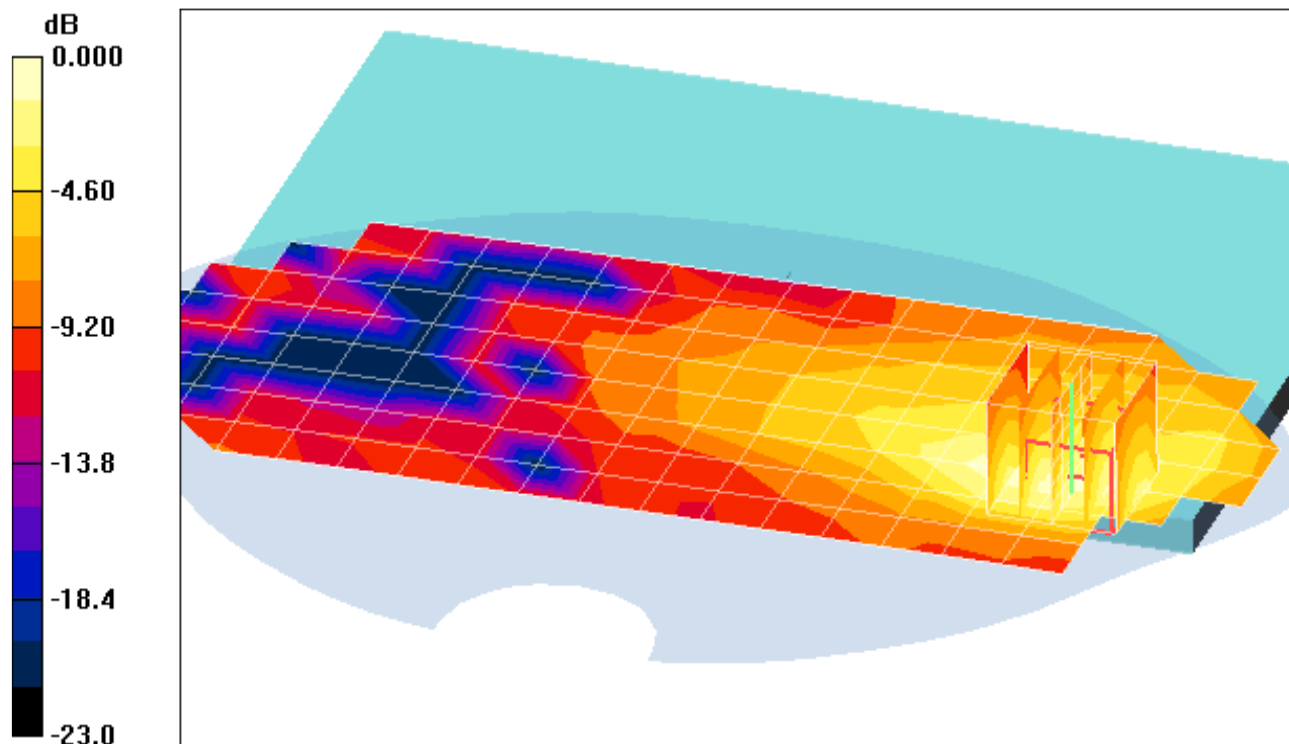
Area Scan (9x22x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 19.0 V/m; Power Drift = -0.015 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.268 mW/g



0 dB = 0.662mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #5

Communication System: LTE RF; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.5 cm

Test Date: 12-05-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: LTE Band 2 (PCS), Body SAR, Back side, Mid.ch, QPSK,
5 MHz Bandwidth, 1 RB, 24 RB Offset**

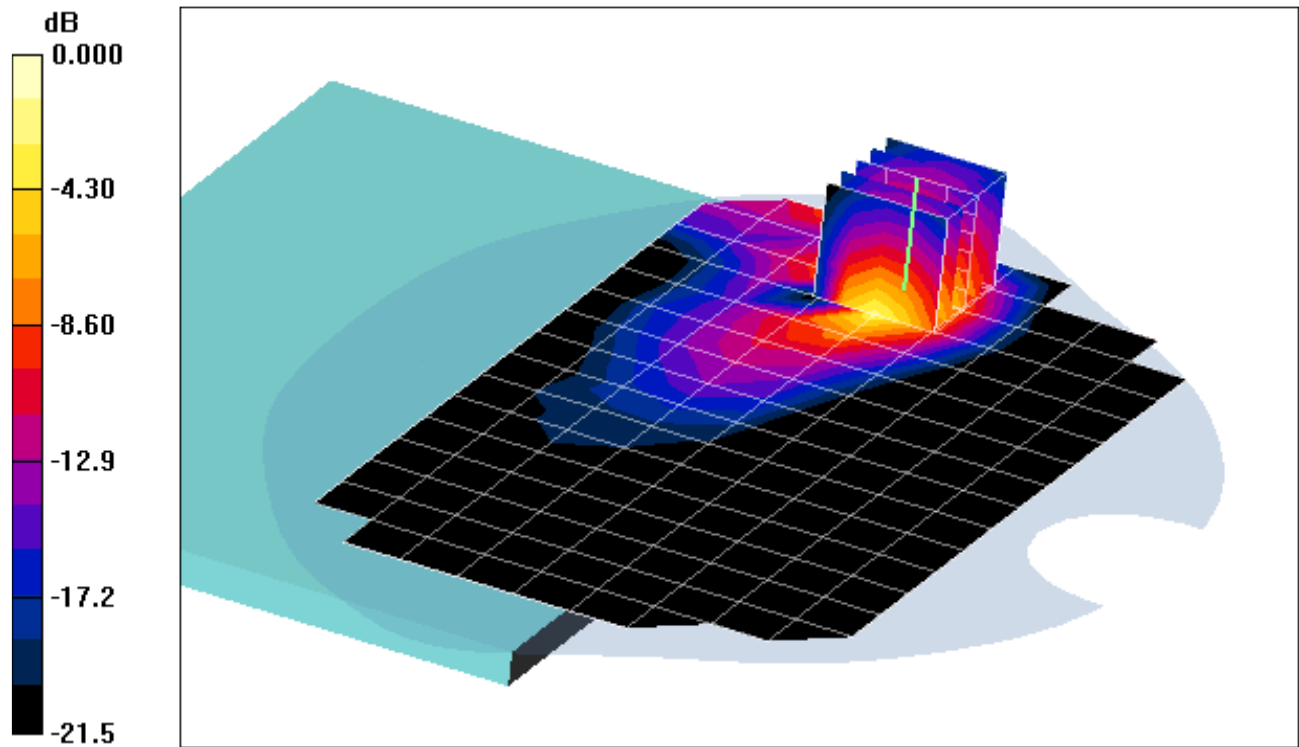
Area Scan (10x17x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 20.0 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.254 mW/g



0 dB = 0.591mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: # 5

Communication System: LTE RF; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-05-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Mode: LTE Band 2 (PCS), Body SAR, Top Edge, Mid.ch, QPSK
5 MHz Bandwidth, 1 RB, 24 RB Offset**

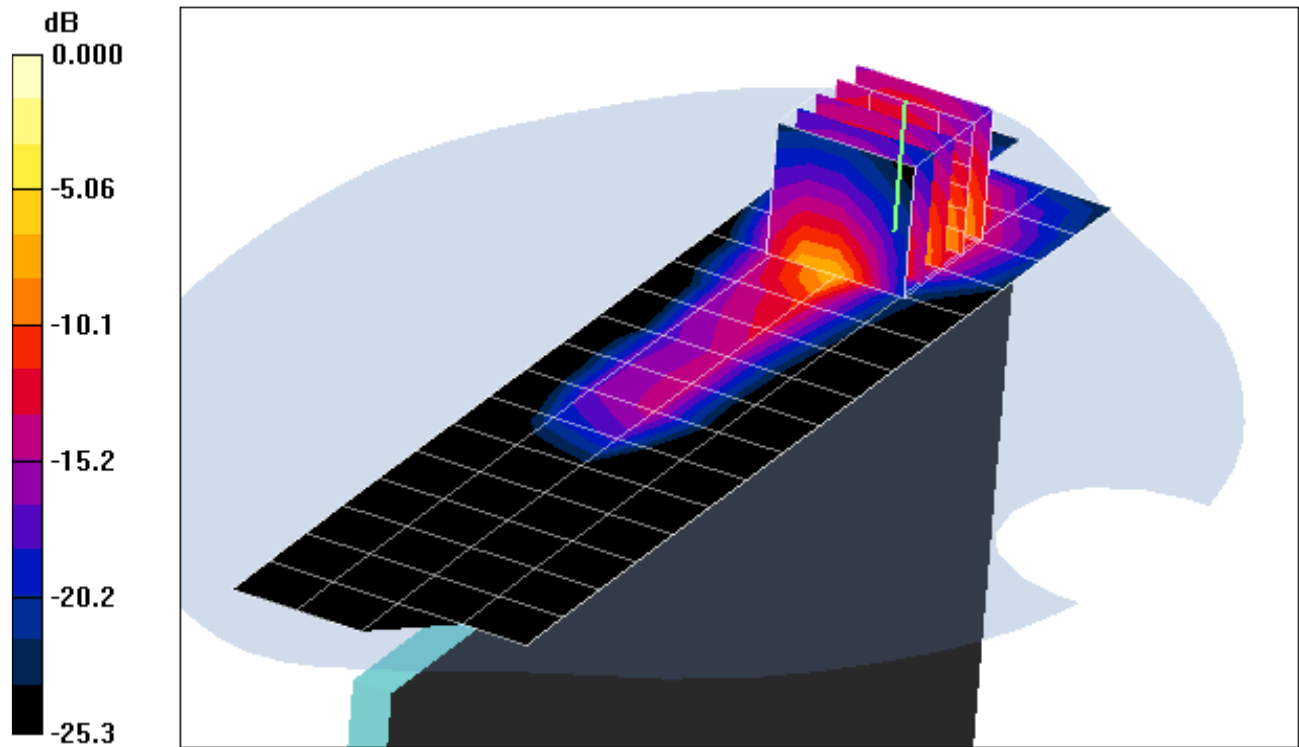
Area Scan (5x21x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 27.1 V/m; Power Drift = 0.066 dB

Peak SAR (extrapolated) = 2.35 W/kg

SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.513 mW/g



0 dB = 1.19mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #5

Communication System: LTE RF; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-05-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

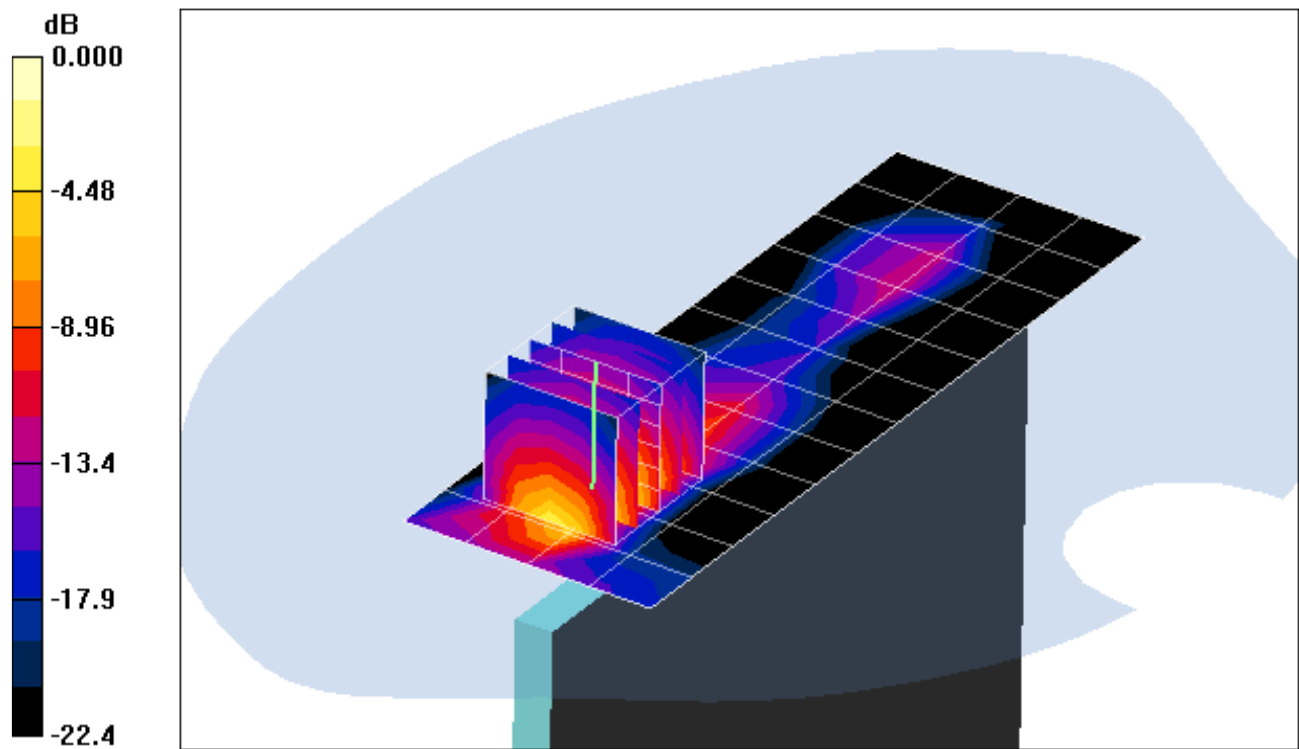
Area Scan (5x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 15.3 V/m; Power Drift = 0.086 dB

Peak SAR (extrapolated) = 0.621 W/kg

SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.133 mW/g



0 dB = 0.357mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #16

Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5200 \text{ MHz}$; $\sigma = 5.328 \text{ mho/m}$; $\epsilon_r = 47.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.3°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN3561; ConvF(3.70, 3.70, 3.70); Calibrated: 7/27/2011

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/20/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11a, 5.2 GHz, Body SAR, Ch 40, 6 Mbps, Back Side

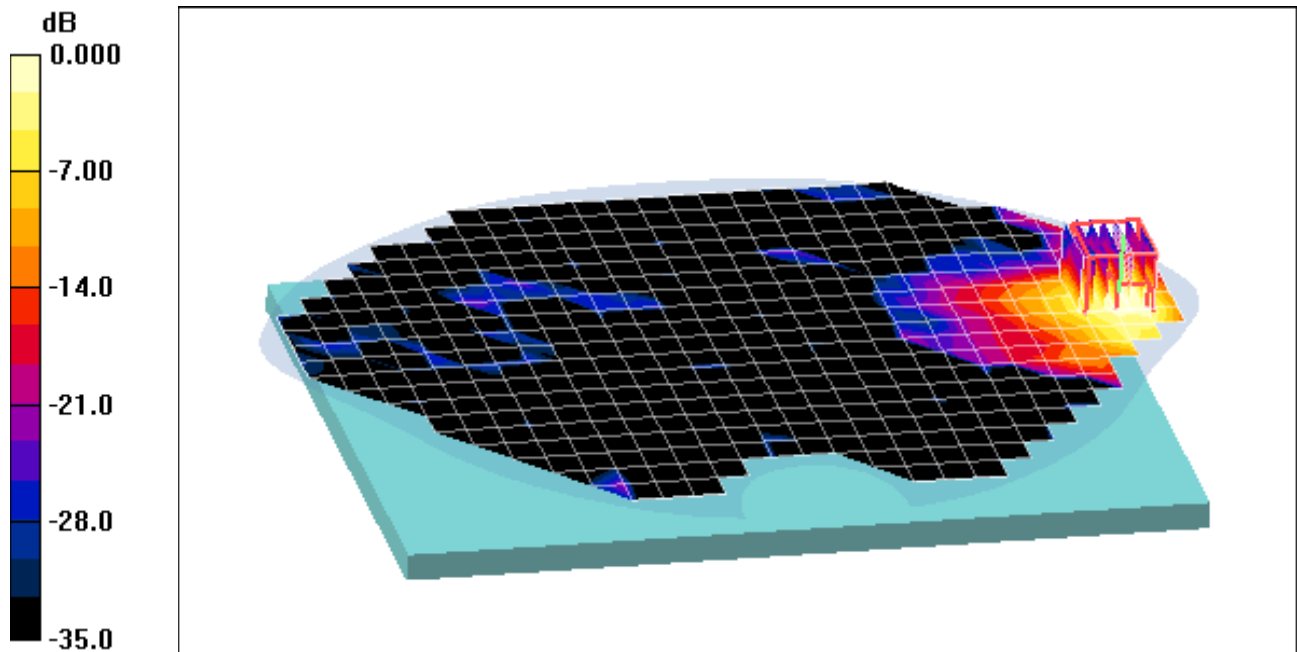
Area Scan (20x29x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 12.7 V/m; Power Drift = -0.069 dB

Peak SAR (extrapolated) = 4.42 W/kg

SAR(1 g) = 0.945 mW/g; SAR(10 g) = 0.248 mW/g



0 dB = 1.33mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI905U; Type: Portable Tablet; Serial: #16

Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: 5GHz Body Medium parameters used:

$f = 5200 \text{ MHz}$; $\sigma = 5.328 \text{ mho/m}$; $\epsilon_r = 47.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.3°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN3561; ConvF(3.70, 3.70, 3.70); Calibrated: 7/27/2011

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/20/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11a, 5.2 GHz, Body SAR, Ch 40, 6 Mbps, Right Edge

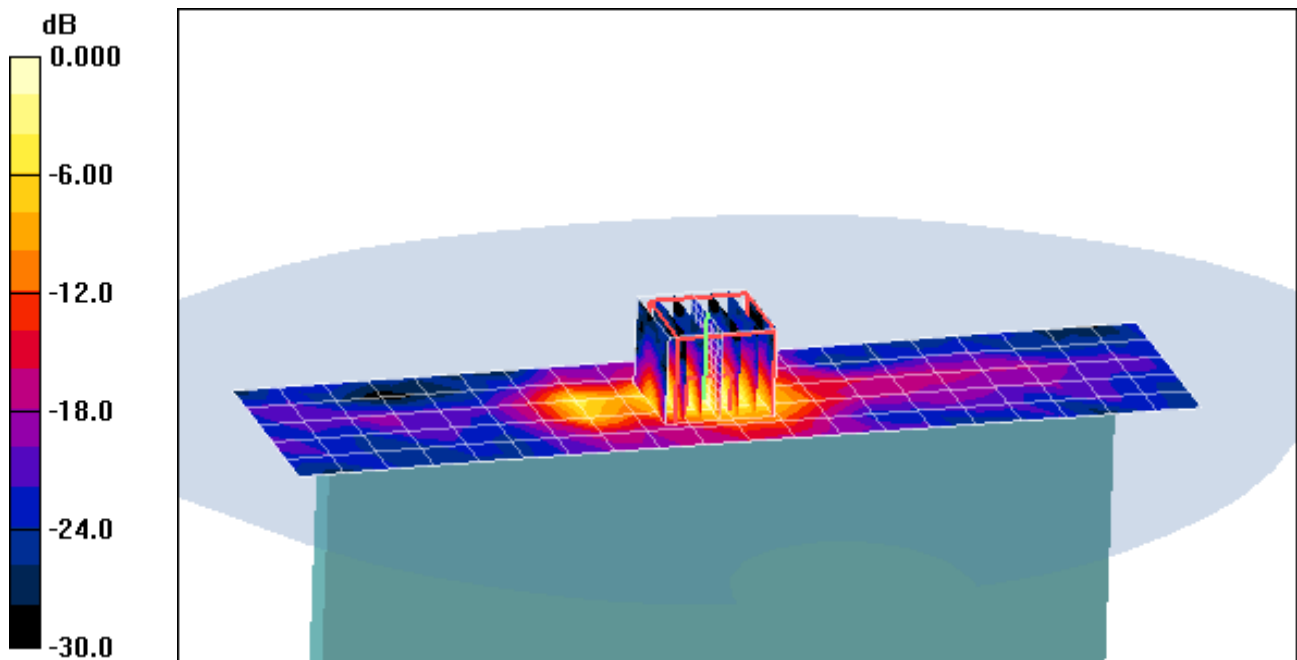
Area Scan (6x21x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 11.8 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 5.16 W/kg

SAR(1 g) = 0.934 mW/g; SAR(10 g) = 0.238 mW/g



0 dB = 2.08mW/g

APPENDIX B: DIPOLE VALIDATION

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):

$f = 750 \text{ MHz}$; $\sigma = 0.981 \text{ mho/m}$; $\epsilon_r = 57.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-07-2011; Ambient Temp: 22.7°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

750MHz System Verification

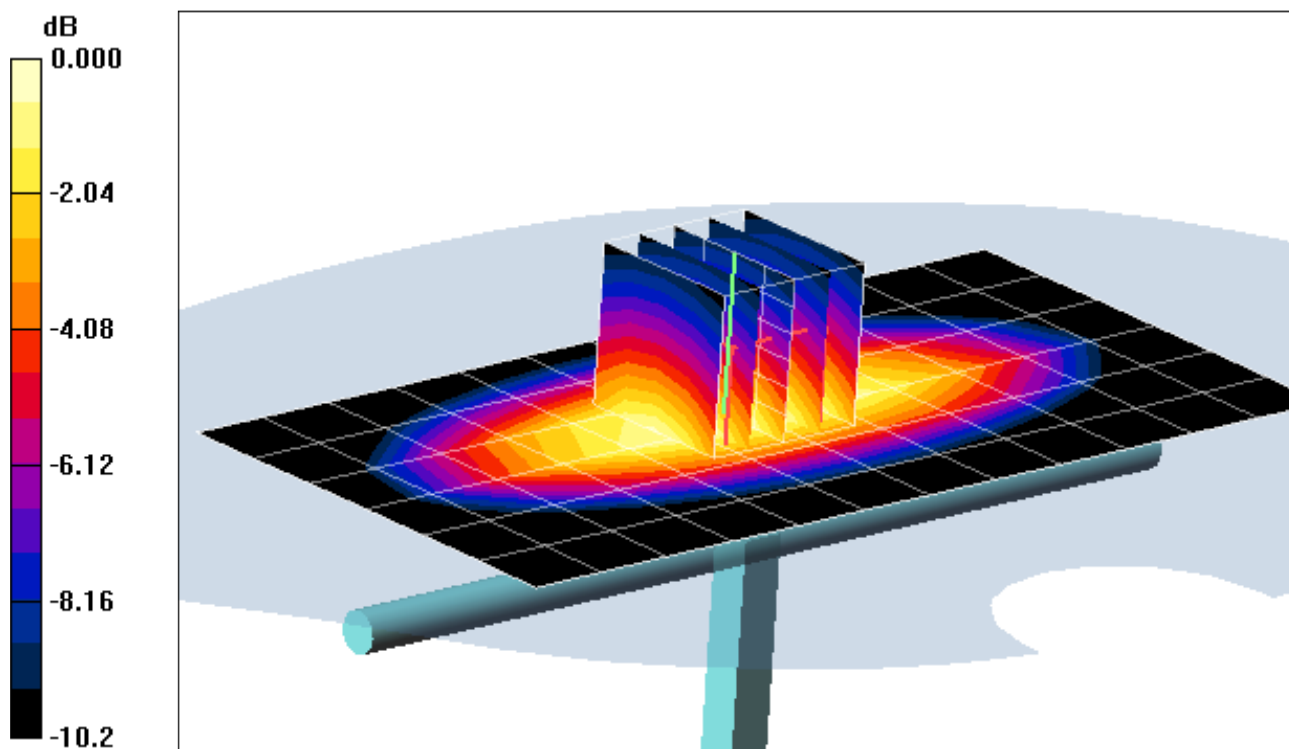
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 0.854 mW/g; SAR(10 g) = 0.563 mW/g

Deviation = -3.50 %



0 dB = 0.922mW/g

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):

$f = 750 \text{ MHz}$; $\sigma = 0.981 \text{ mho/m}$; $\epsilon_r = 57.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-07-2011; Ambient Temp: 22.7°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

750MHz System Verification

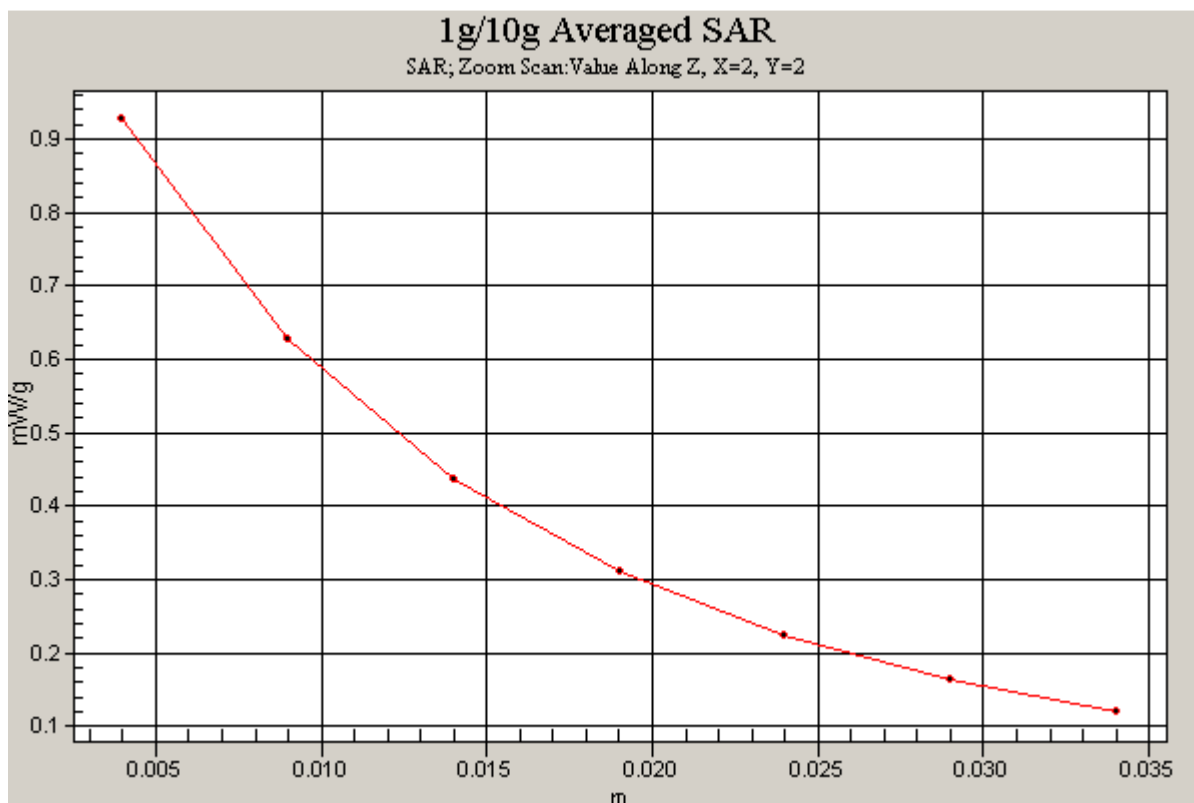
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 0.854 mW/g; SAR(10 g) = 0.563 mW/g

Deviation = -3.50 %



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:

$f = 835 \text{ MHz}$; $\sigma = 0.981 \text{ mho/m}$; $\epsilon_r = 53.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-05-2011; Ambient Temp: 22.4°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

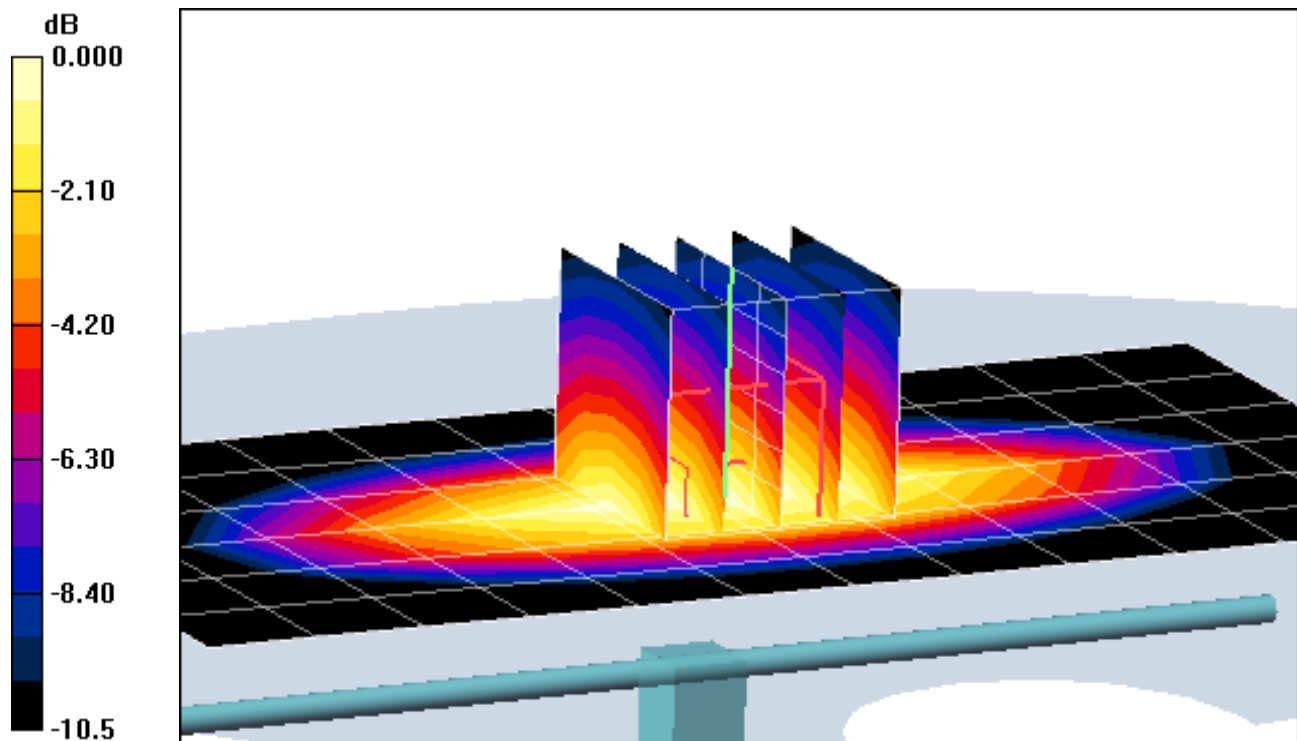
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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) = 1.01 mW/g; SAR(10 g) = 0.657 mW/g

Deviation: 6.77%



0 dB = 1.08mW/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:

$f = 835 \text{ MHz}$; $\sigma = 0.981 \text{ mho/m}$; $\epsilon_r = 53.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-05-2011; Ambient Temp: 22.4°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

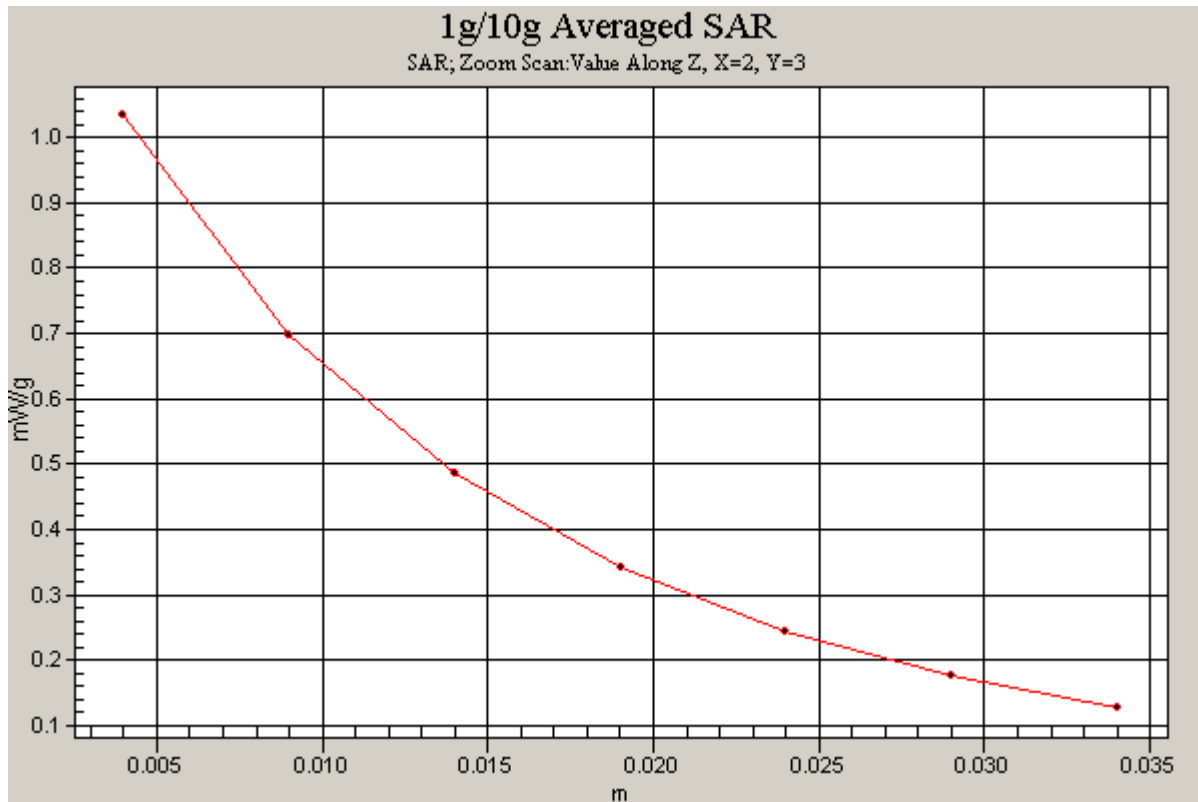
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power: 20.0 dBm (100 mW)

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.657 mW/g

Deviation: 6.77%



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:

$f = 835 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-07-2011; Ambient Temp: 21.4°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

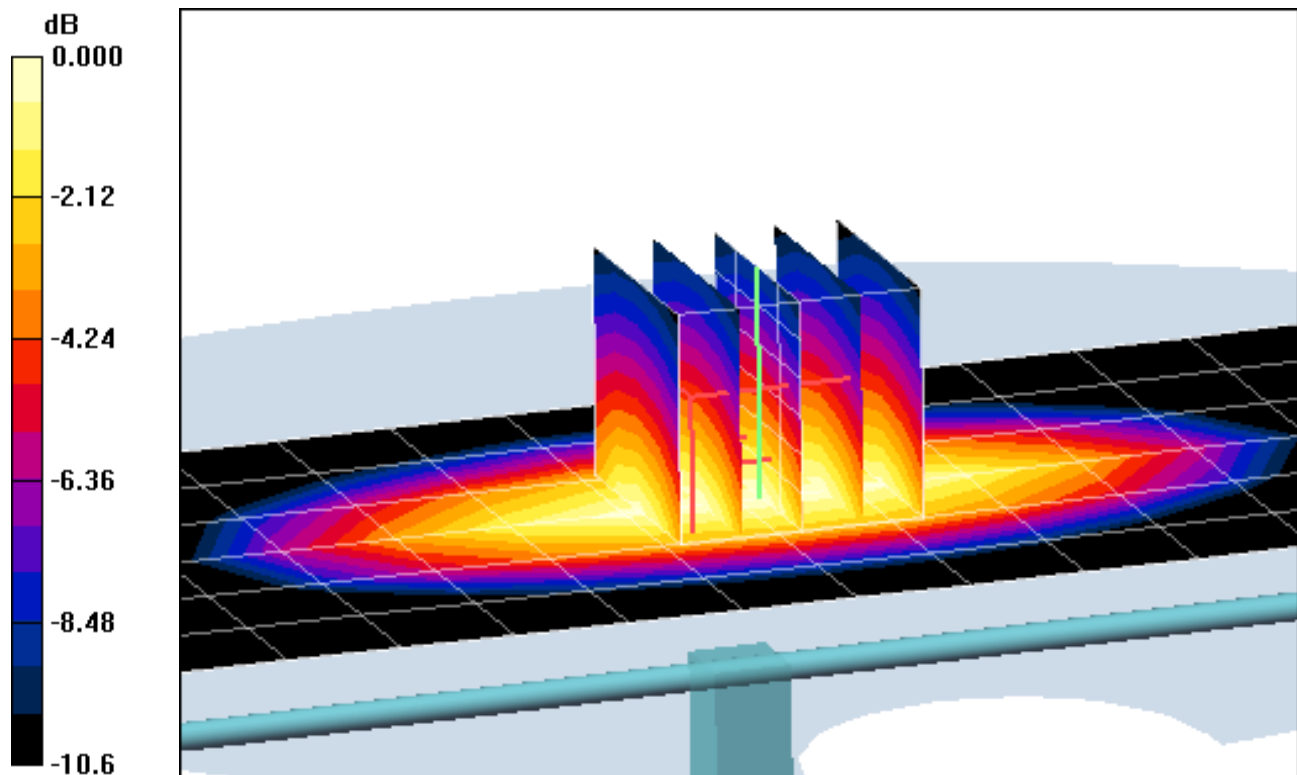
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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 mW/g; SAR(10 g) = 0.656 mW/g

Deviation: 5.71%



0 dB = 1.08mW/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:

$f = 835 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-07-2011; Ambient Temp: 21.4°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

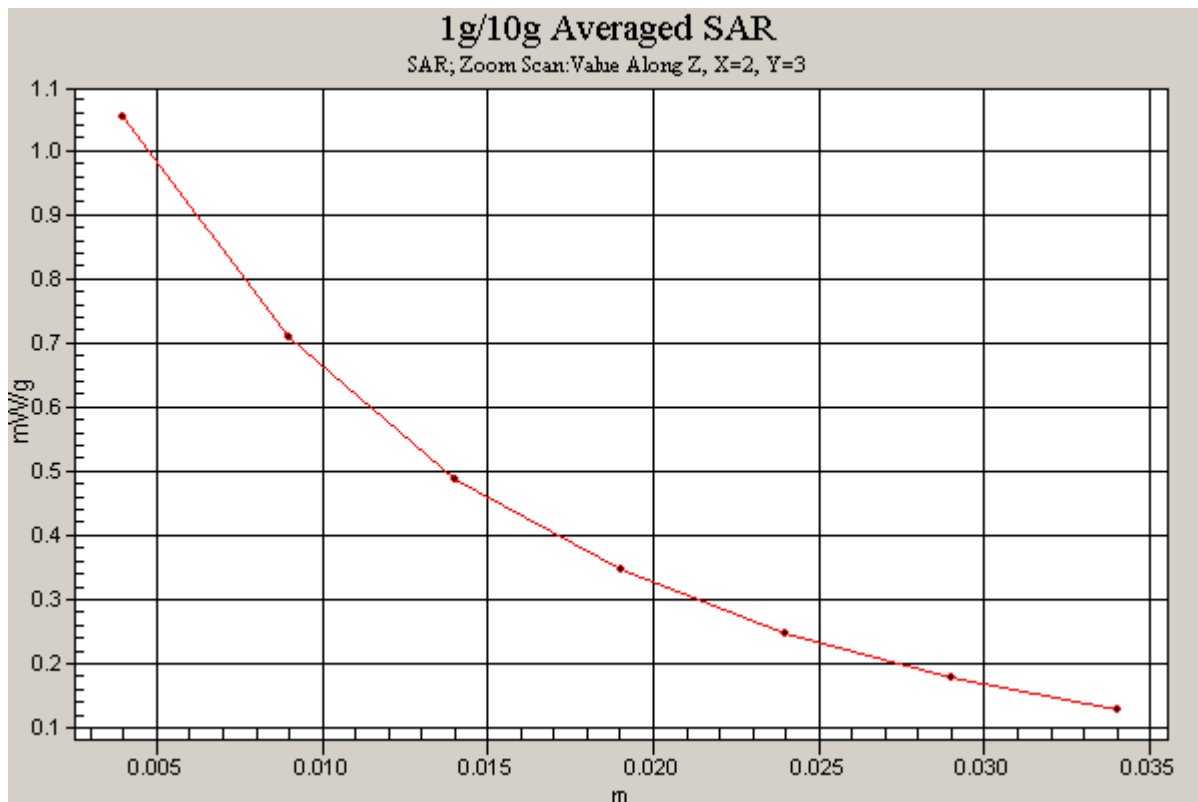
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power: 20.0 dBm (100 mW)

SAR(1 g) = 1 mW/g; SAR(10 g) = 0.656 mW/g

Deviation: 5.71%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1765 MHz; Type: D1765V2; Serial: 1008

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

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 51.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-07-2011; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

Phantom: SAM with CRP; Type: SAM V4.0; Serial: TP1375

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1750 MHz System Verification

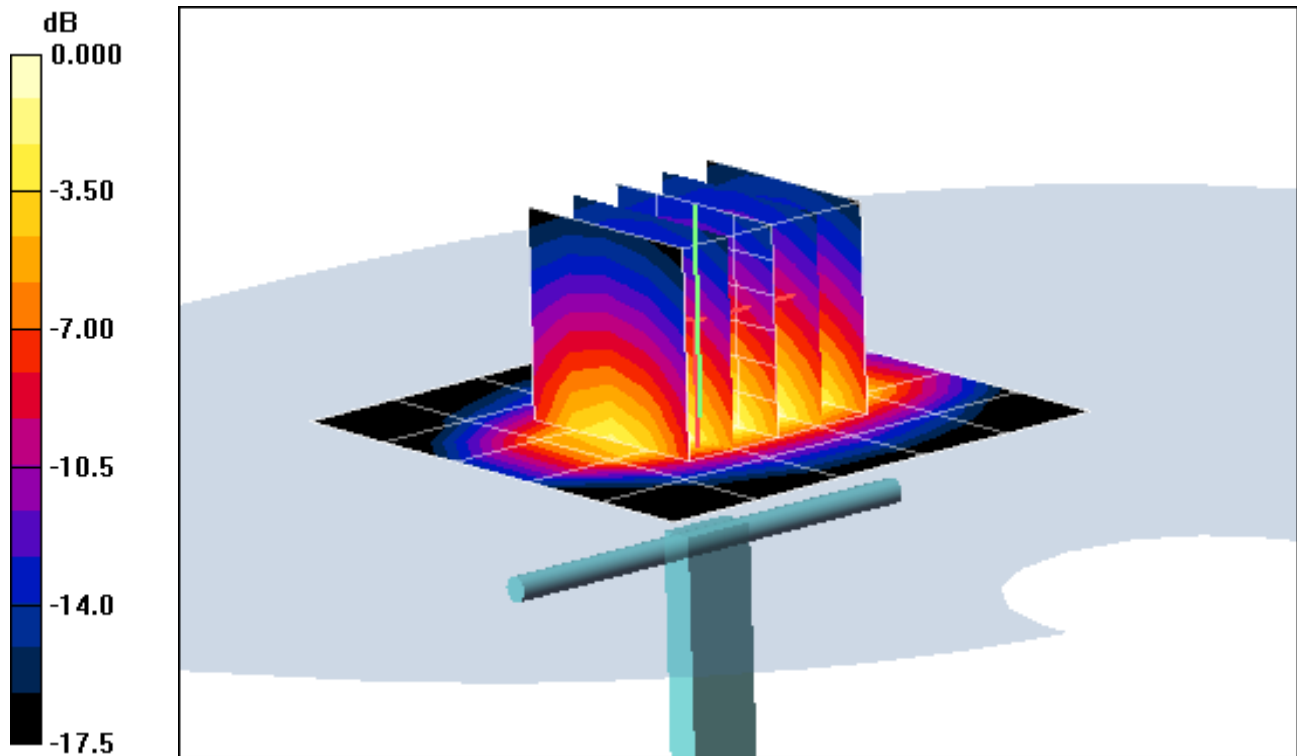
Area Scan (6x6x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.97 mW/g; SAR(10 g) = 2.08 mW/g

Deviation = 7.30 %



0 dB = 4.48mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1765 MHz; Type: D1765V2; Serial: 1008

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

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 51.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-07-2011; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

Phantom: SAM with CRP; Type: SAM V4.0; Serial: TP1375

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1750 MHz System Verification

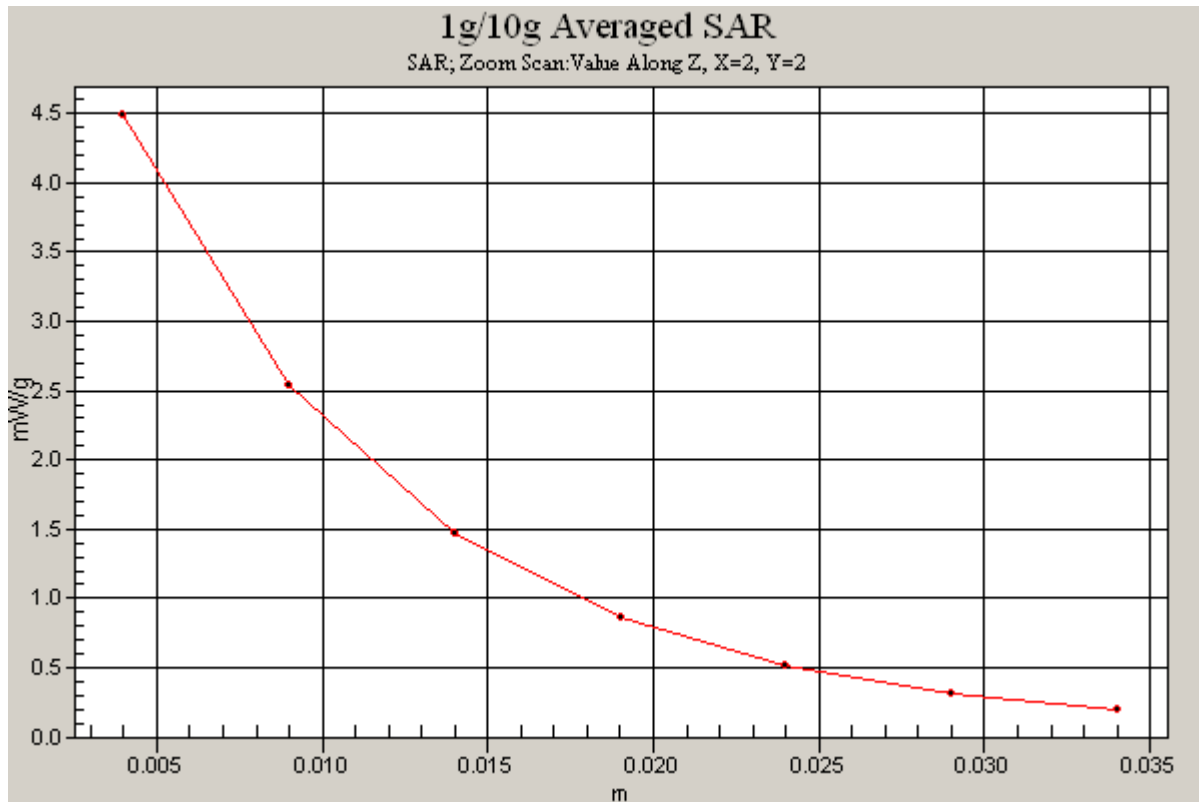
Area Scan (6x6x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.97 mW/g; SAR(10 g) = 2.08 mW/g

Deviation = 7.30 %



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:

$f = 1750 \text{ MHz}$; $\sigma = 1.515 \text{ mho/m}$; $\epsilon_r = 51$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-15-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1750 MHz System Verification

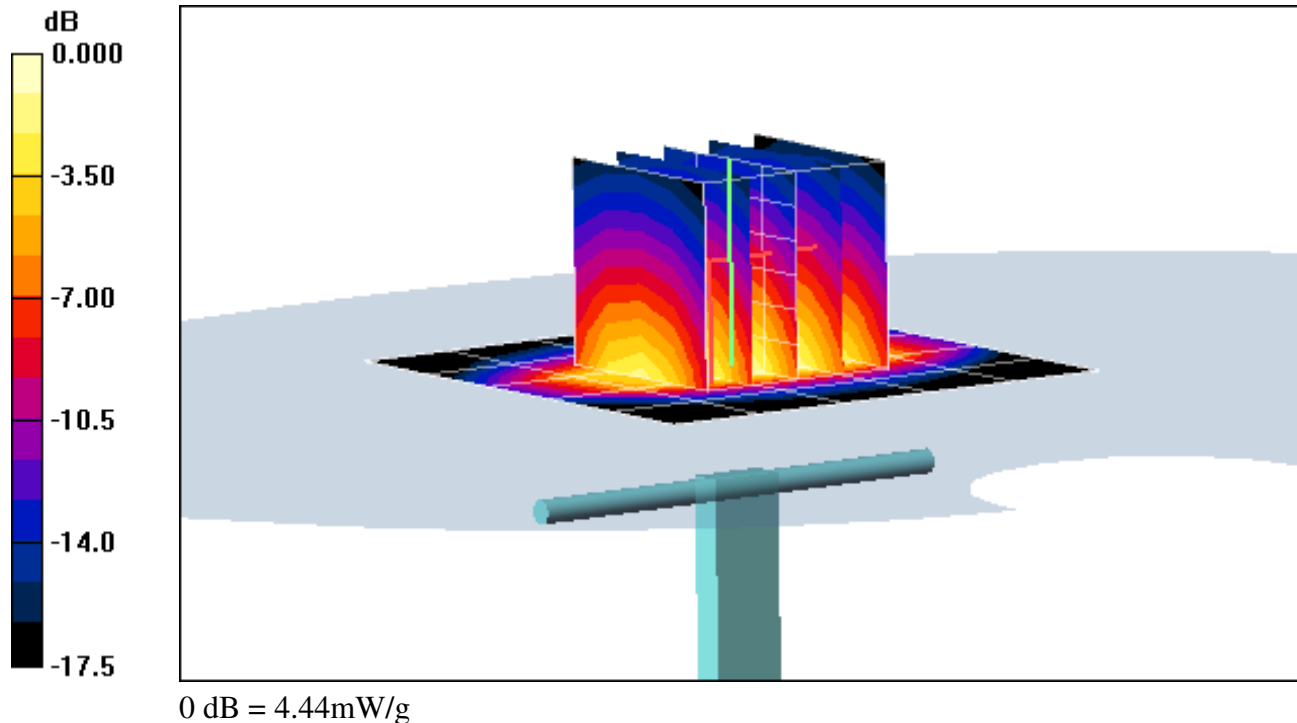
Area Scan (6x6x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.96 mW/g; SAR(10 g) = 2.05 mW/g

Deviation = 7.03 %



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:

$f = 1750 \text{ MHz}$; $\sigma = 1.515 \text{ mho/m}$; $\epsilon_r = 51$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-15-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); Calibrated: 4/8/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/21/2011

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1750 MHz System Verification

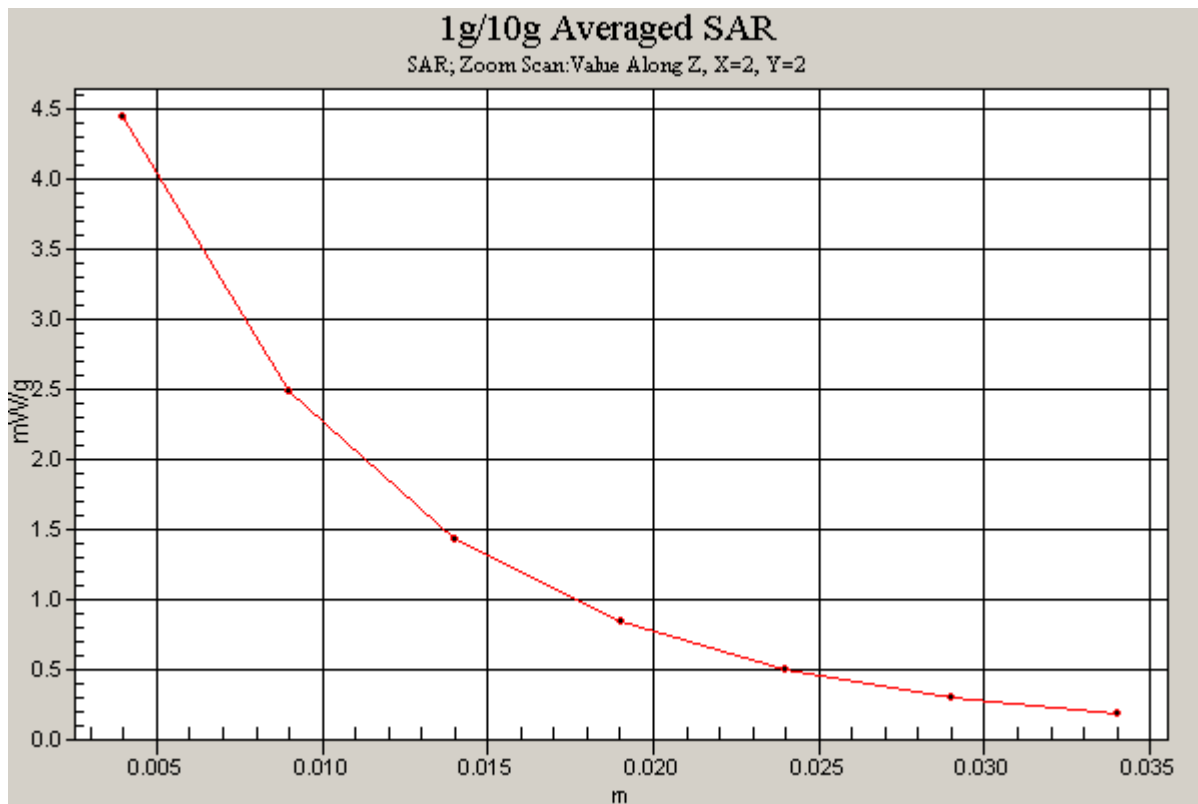
Area Scan (6x6x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.96 mW/g; SAR(10 g) = 2.05 mW/g

Deviation = 7.03 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 502

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.54 \text{ mho/m}$; $\epsilon_r = 52.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-05-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1900MHz System Verification

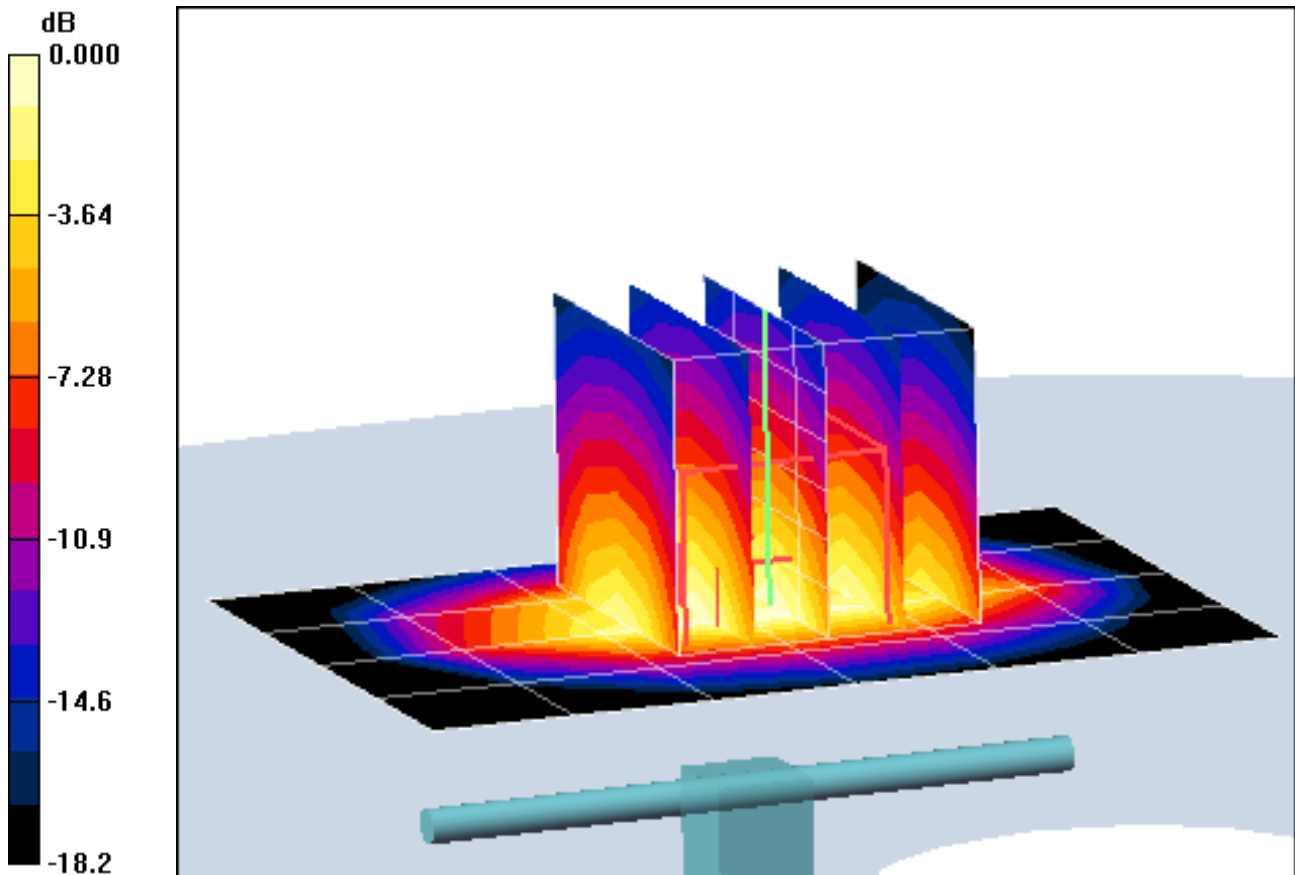
Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.41 mW/g; SAR(10 g) = 2.31 mW/g

Deviation = 7.30 %



0 dB = 4.89mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 502

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.54 \text{ mho/m}$; $\epsilon_r = 52.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-05-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1900MHz System Verification

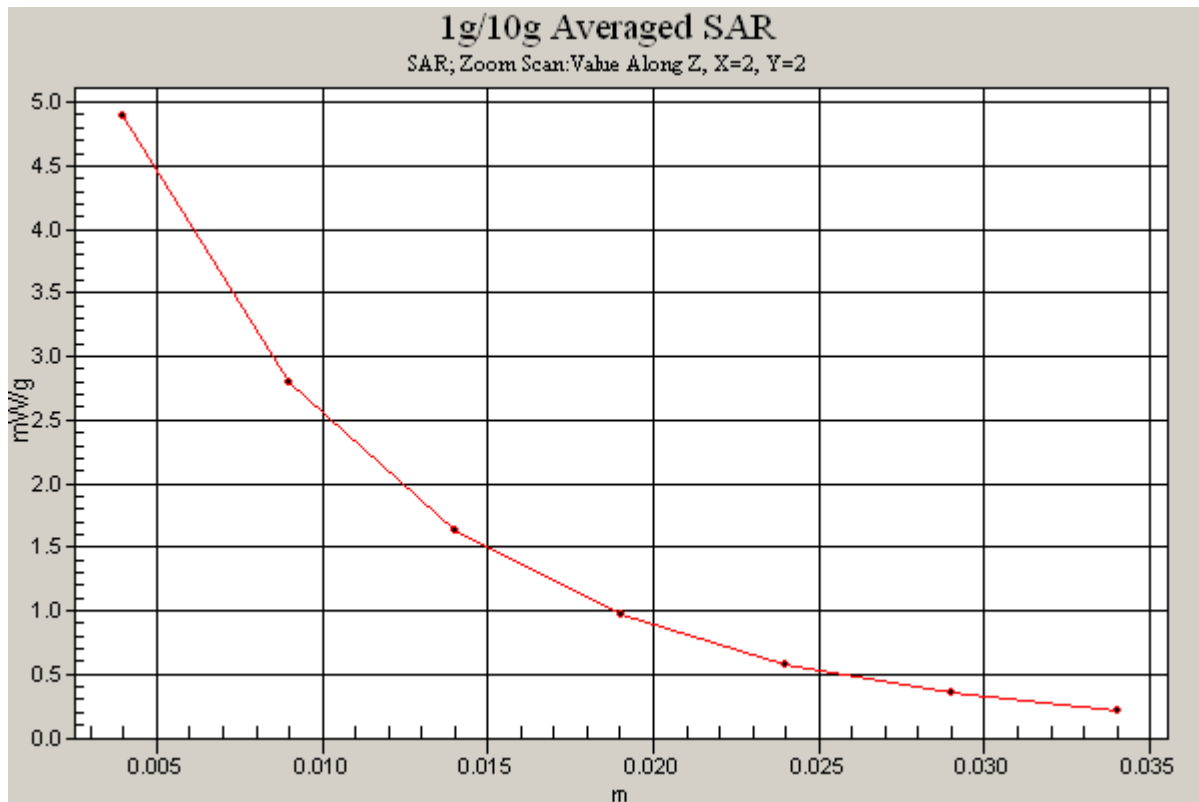
Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.41 mW/g; SAR(10 g) = 2.31 mW/g

Deviation = 7.30 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 502

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 50.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.1°C; Tissue Temp: 19.2 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 172

1900MHz System Verification

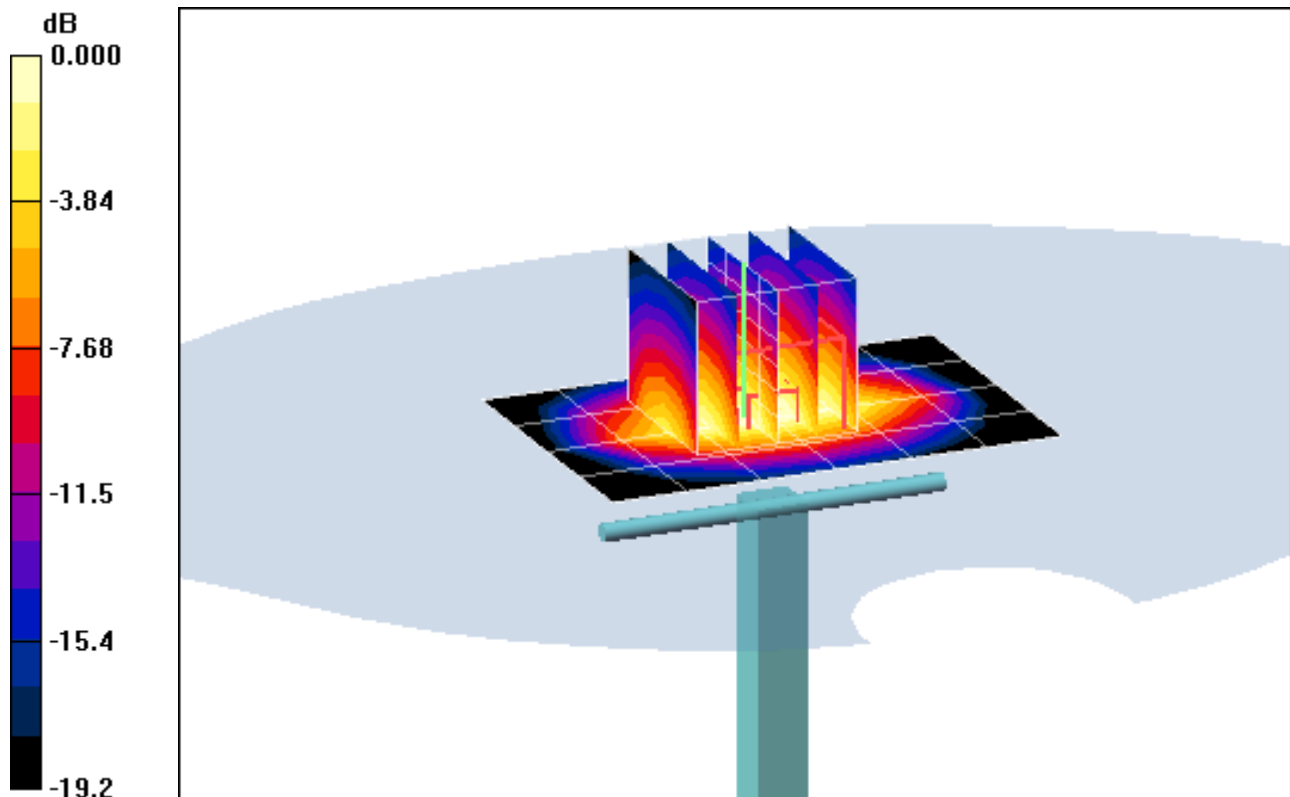
Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.43 mW/g; SAR(10 g) = 2.3 mW/g

Deviation = 7.79 %



0 dB = 4.87mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 502

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

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 50.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.1°C; Tissue Temp: 19.2 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 172

1900MHz System Verification

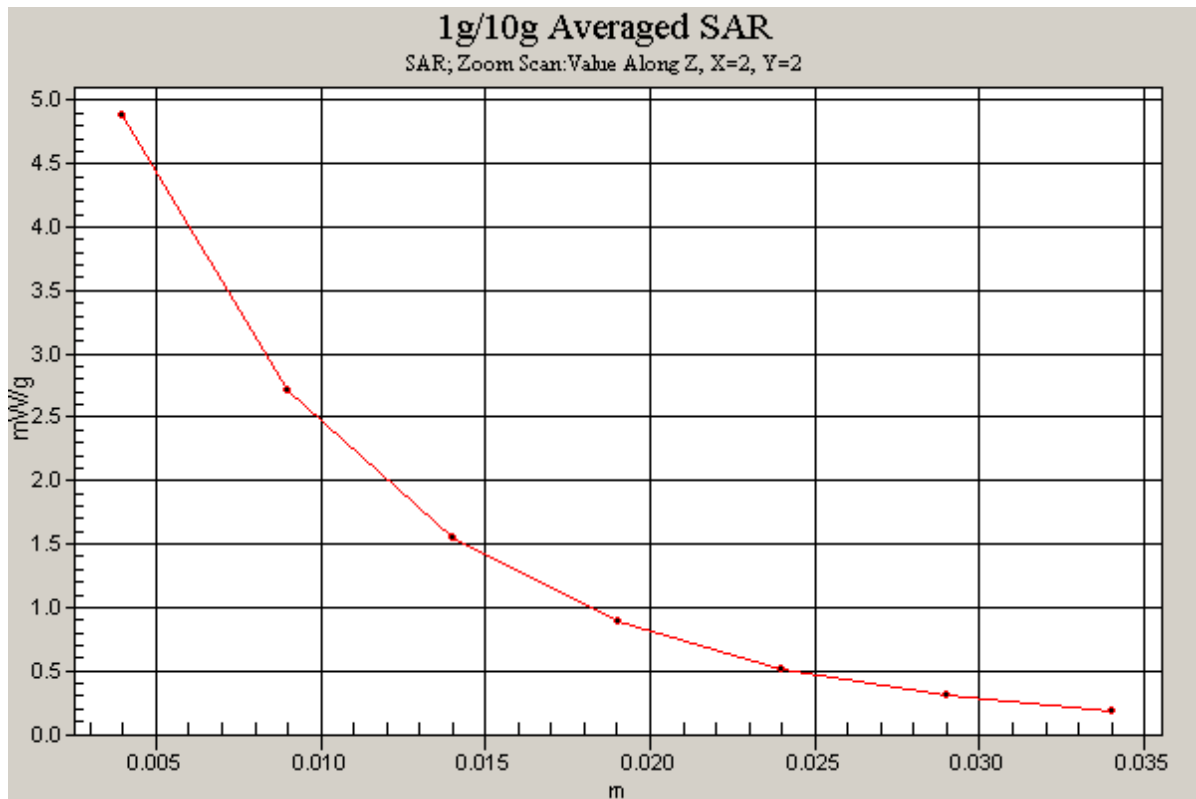
Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

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

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.43 mW/g; SAR(10 g) = 2.3 mW/g

Deviation = 7.79 %



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 5GHz Body Medium parameters used:

$f = 5200 \text{ MHz}$; $\sigma = 5.328 \text{ mho/m}$; $\epsilon_r = 47.80$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.3°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN3561; ConvF(3.7, 3.7, 3.7); Calibrated: 7/27/2011

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/20/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5200MHz System Verification

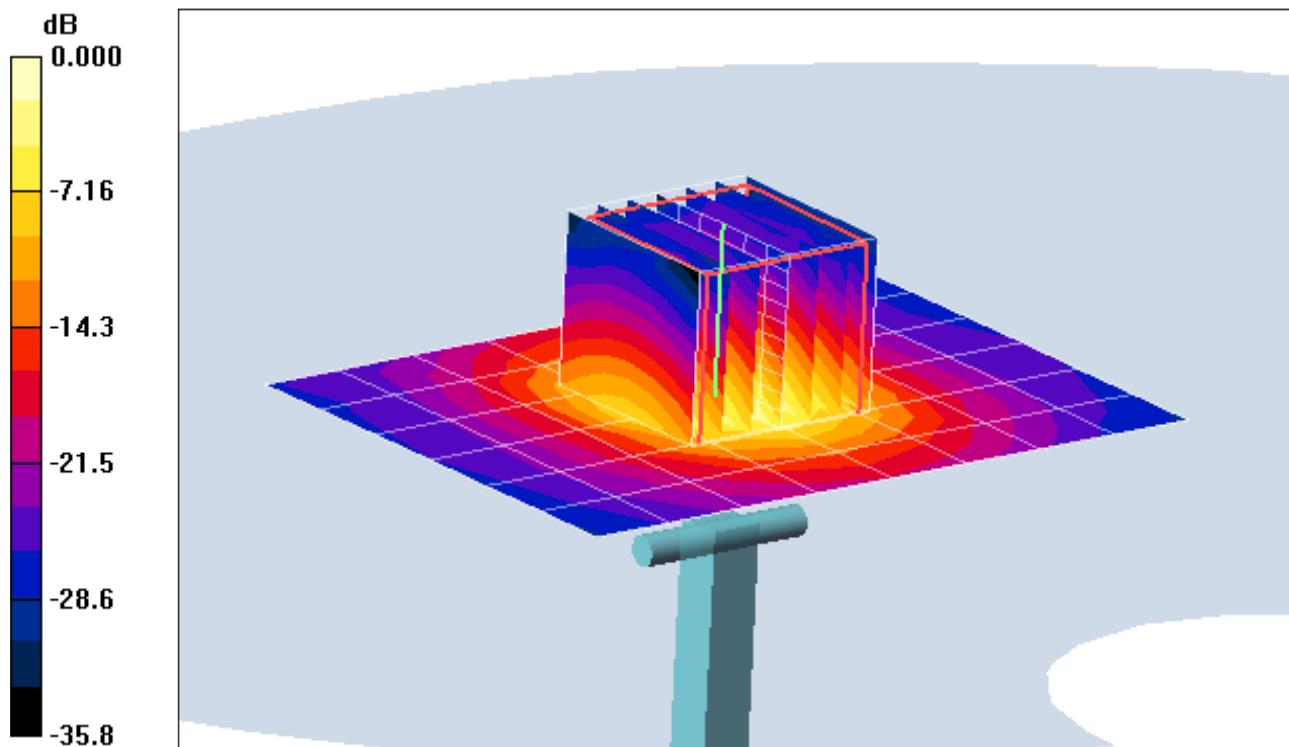
Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (7x7x11)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 8.25 mW/g; SAR(10 g) = 2.31 mW/g

Deviation = 6.18 %



0 dB = 16.6mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 5GHz Body Medium parameters used:

$f = 5200 \text{ MHz}$; $\sigma = 5.328 \text{ mho/m}$; $\epsilon_r = 47.80$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.3°C; Tissue Temp: 19.6°C

Probe: EX3DV4 - SN3561; ConvF(3.7, 3.7, 3.7); Calibrated: 7/27/2011

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/20/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5200MHz System Verification

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

Zoom Scan (7x7x11)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

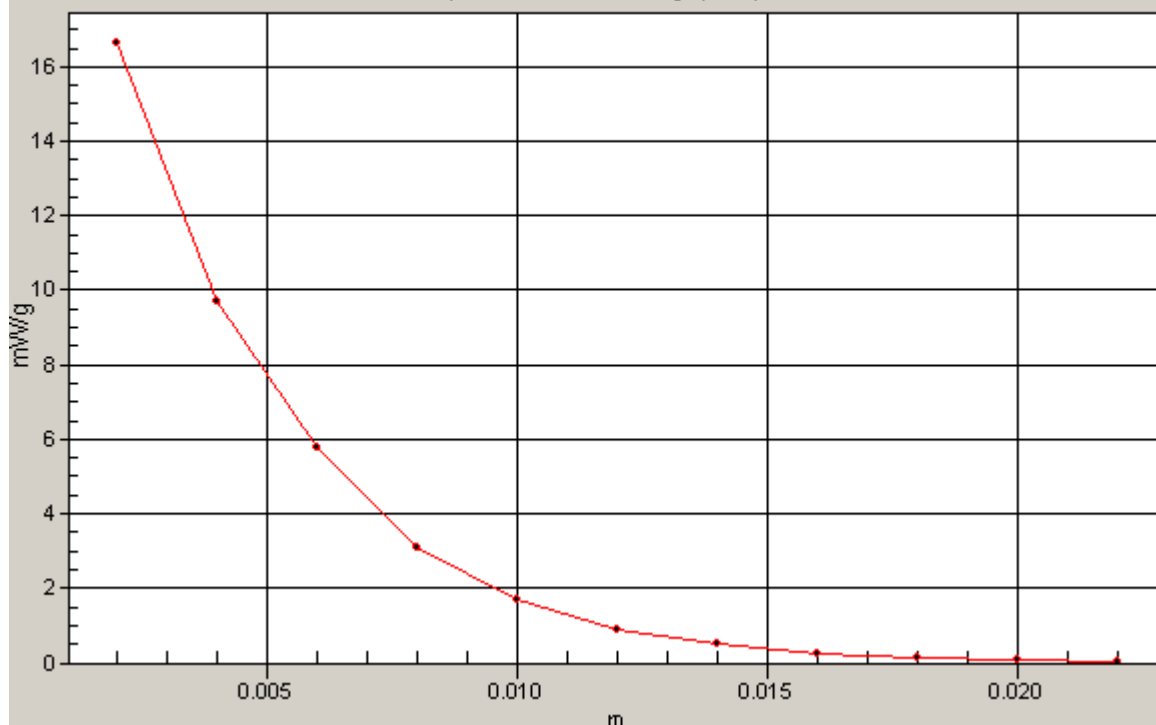
Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 8.25 mW/g; SAR(10 g) = 2.31 mW/g

Deviation = 6.18 %

1g/10g Averaged SAR

SAR; Zoom Scan: Value Along Z, X=3, Y=3



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 5GHz Body Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 5.779 \text{ mho/m}$; $\epsilon_r = 46.87$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.5°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN3561; ConvF(3.28, 3.28, 3.28); Calibrated: 7/27/2011

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/20/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5500MHz System Verification

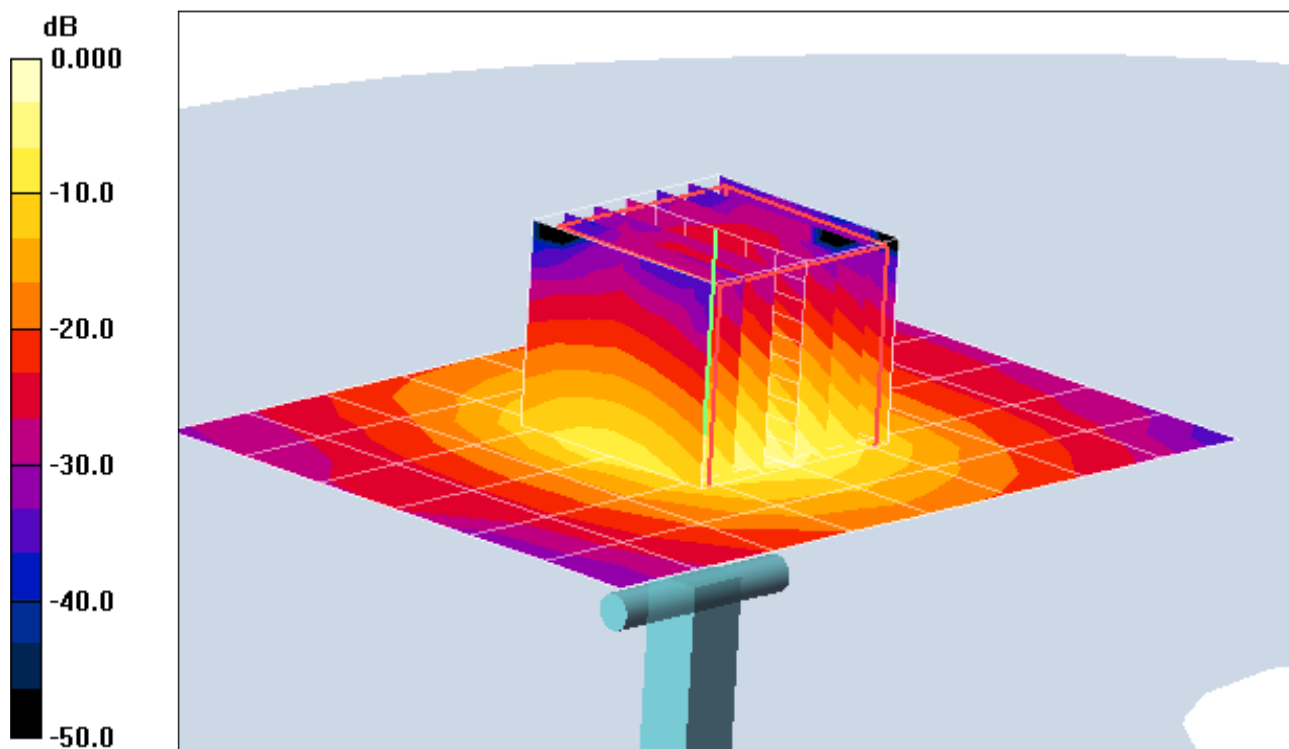
Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 8.54 mW/g; SAR(10 g) = 2.35 mW/g

Deviation = 1.18 %



0 dB = 17.8mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 5GHz Body Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 5.779 \text{ mho/m}$; $\epsilon_r = 46.87$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2011; Ambient Temp: 21.5°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN3561; ConvF(3.28, 3.28, 3.28); Calibrated: 7/27/2011

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/20/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5500MHz System Verification

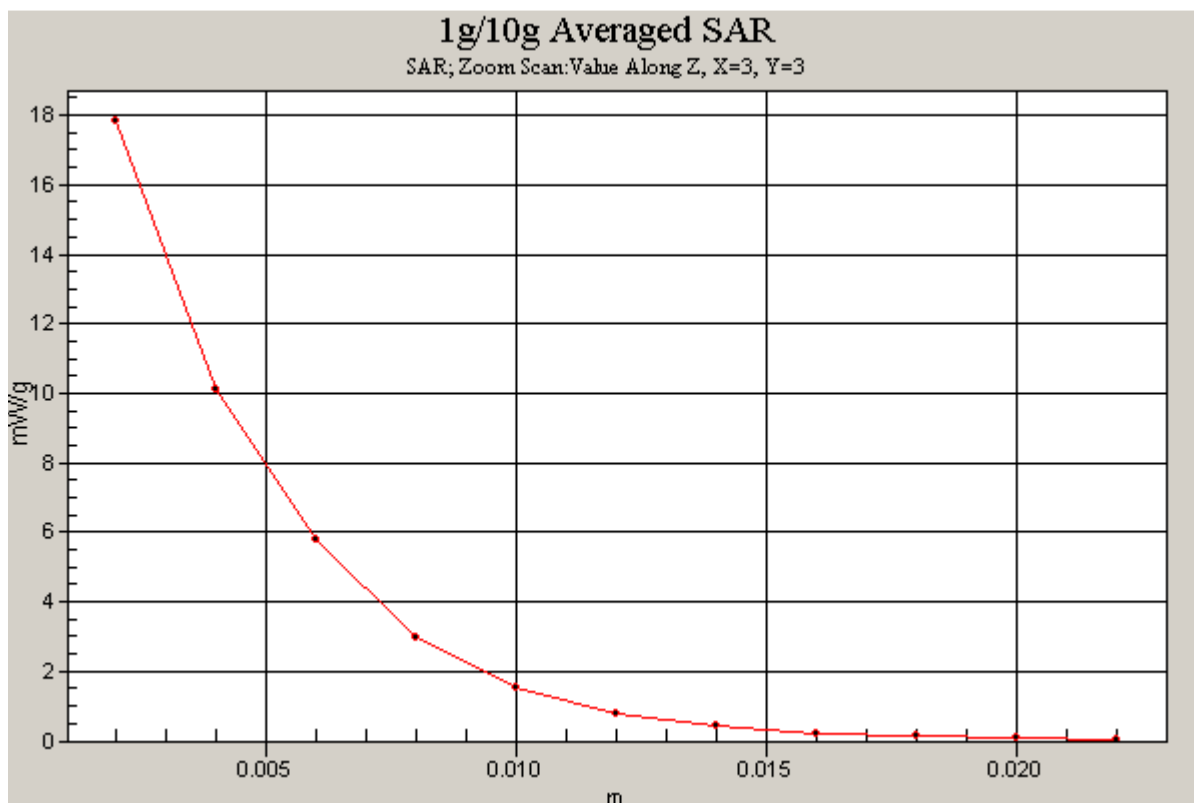
Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (7x7x11)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 8.54 mW/g; SAR(10 g) = 2.35 mW/g

Deviation = 1.18 %



PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 5GHz Body Medium parameters used:

$f = 5800 \text{ MHz}$; $\sigma = 6.297 \text{ mho/m}$; $\epsilon_r = 46.03$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2011; Ambient Temp: 22.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3561; ConvF(3.34, 3.34, 3.34); Calibrated: 7/27/2011

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/20/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5800MHz System Verification

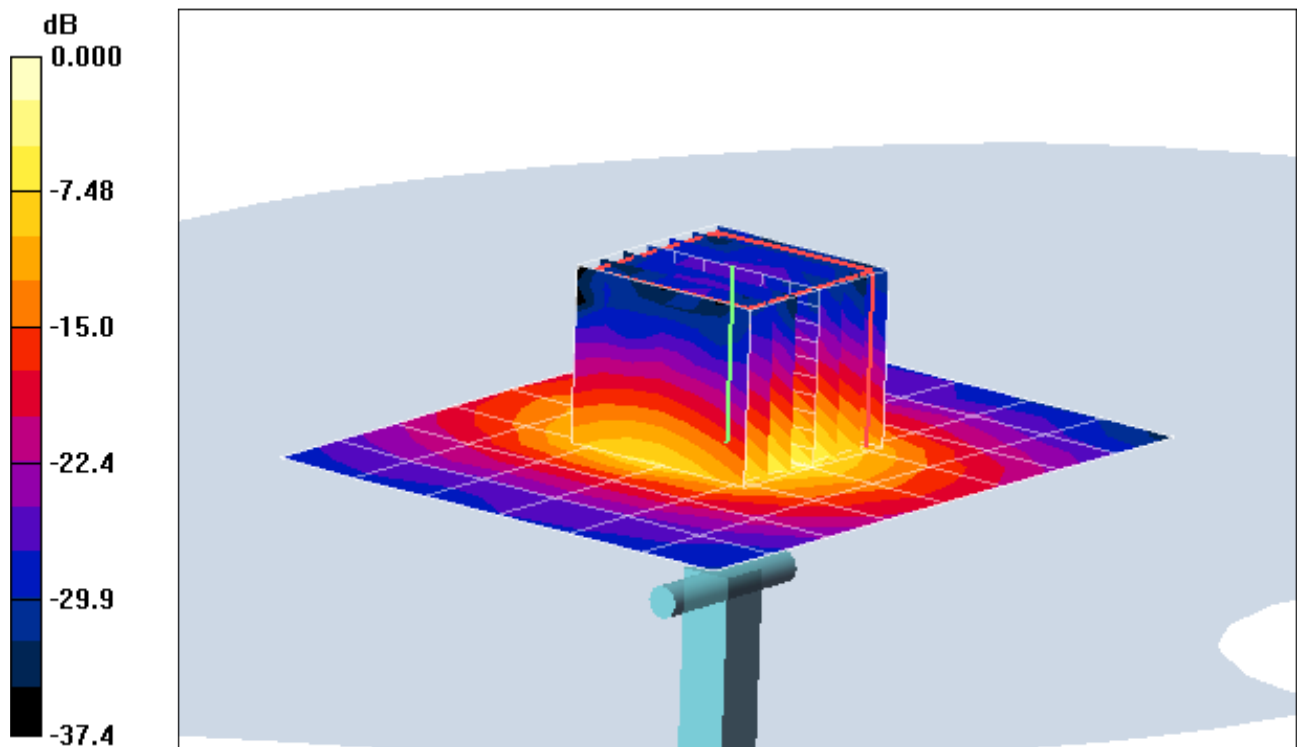
Area Scan (7x9x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (7x7x11)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 7.64 mW/g; SAR(10 g) = 2.13 mW/g

Deviation = 1.87 %



0 dB = 16.1mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

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

Medium: 5GHz Body Medium parameters used:

$f = 5800 \text{ MHz}$; $\sigma = 6.297 \text{ mho/m}$; $\epsilon_r = 46.03$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2011; Ambient Temp: 22.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3561; ConvF(3.34, 3.34, 3.34); Calibrated: 7/27/2011

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 4/20/2011

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

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5800MHz System Verification

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

Zoom Scan (7x7x11)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 7.64 mW/g; SAR(10 g) = 2.13 mW/g

Deviation = 1.87 %

