Exhibit 11: SAR Test Report IHDT6EG1

Date of test: 7 & 8 August, 2004
Date of Report: 26 August, 2004

Laboratory:
Motorola Personal Communications Sector Product Safety & Compliance Laboratory
600 N. US Highway 45
Room: MW113
Libertyville, Illinois 60048

Test Responsible:
Steven Hauswirth
Principal Staff Engineer

Accreditation: This laboratory is accredited to ISO/IEC 17025-1999 to perform the following tests:

Tests:	Procedures:
Electromagnetic Specific Absorption Rate	ANSI/IEEE C95.1-1992, 1999 (SAR) IEEE C95.3-1991 IEEE P1528 (*DRAFT*) FCC OET Bulletin 65 (*including Supplements A, B, C*) Australian Communications Authority Radio Communications (Electromagnetic Radiation – Human Exposure) Standard 1999 CENELEC EN 50361 (2001)
Simulated Tissue Preparation	APP-0247
RF Power Measurement	DOI-0876, 0900, 0902, 0904, 0915

On the following products or types of products:
Wireless Communications Devices (Examples): Two Way Radios; Portable Phones (including Cellular,
Licensed Non-Broadcast and PCS); Low Frequency Readers; and Pagers

A2LA certificate #1651-01

Statement of Compliance:
Motorola declares under its sole responsibility that portable cellular telephone FCC ID IHDT6EG1 to which this declaration relates, is in conformity with the appropriate General Population/Uncontrolled RF exposure standards, recommendations and guidelines (FCC 47 CFR §2.1093). It also declares that the product was tested in accordance with the appropriate measurement standards, guidelines and recommended practices. Any deviations from these standards, guidelines and recommended practices are noted below:

(none)

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1 Introduction

The Motorola Personal Communications Sector Product Safety Laboratory has performed measurements of the maximum potential exposure to the user of portable cellular phone (FCC ID IHDT6EG1). The Specific Absorption Rate (SAR) of this product was measured. The portable cellular phone was tested in accordance with FCC OET Bulletin 65 Supplement C 01-01.

2 Description of the Device Under Test

2.1 Antenna description

Type	External – Rotating About Endpoint	
Location	End of Unit	
Dimensions	Length	50mm
	Width	8mm
Configuration	Helix	

2.2 Device description

FCC ID Number	IHDT6EG1			
Serial number	4400005932072 & 4400005932379			
Mode(s) of Operation	EGSM900	GSM 1800	GSM 1900	UMTS
Modulation Mode(s)	GSM	GSM	GSM	WCDMA
Maximum Output Power Setting	33.00dBm	30.00dBm	29.70dBm	22.00dBm
Duty Cycle	1:8	1:8	1:8	1:1
Transmitting Frequency Rang(s)	880.2-914.8MHz	1710.2-1784.8MHz	1850.2-1909.8MHz	1920.3-1979.7MHz
Production Unit or Identical Prototype (47 CFR §2..908)	Identical Prototype			
Device Category	Portable			
RF Exposure Limits	General Population / Uncontrolled			

3 Test Equipment Used

3.1 Dosimetric System

The Motorola Personal Communications Sector Product Safety & Compliance Laboratory utilizes a Dosimetric Assessment System (Dasy3™ v3.1d) manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. All the SAR measurements are taken within a shielded enclosure. The overall RSS uncertainty of the measurement system is ±11.7% (K=1) with an expanded uncertainty of ±23.0% (K=2). The measurement uncertainty budget is given in Appendix 6. Per IEEE 1528, this uncertainty budget is applicable to the SAR range of 0.4 W/kg to 10 W/kg. The list of calibrated equipment used for the measurements is shown below.

Description	Serial Number	Cal Due Date
DASY3 DAE V1	SN375	17-Jun-05
E-Field Probe ET3DV6	SN1506	27-May-05
Dipole Validation Kit, D1800V2	SN519TR	2-Apr-05
S.A.M. Phantom used for 1900MHz	TP-1250	

3.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04822	6-Feb-05
Power Meter E4419B	GB39511087	5-Apr-05
Power Sensor #1 - E9301A	US39211009	5-Aug-05
Power Sensor #2 - E9301A	US39210915	5-Aug-05
Network Analyzer HP8753ES	US39171846	29-Oct-04
Dielectric Probe Kit HP85070B	US99360074	N/A

4 Electrical parameters of the tissue simulating liquid

Prior to conducting SAR measurements, the relative permittivity, ε_r, and the conductivity, σ, of the tissue simulating liquids were measured with the HP85070 Dielectric Probe Kit These values, along with the temperature of the tissue simulate are shown in the table below. The recommended limits for maximum permittivity and minimum conductivity are also shown. These come from the Federal Communication Commission, OET Bulletin 65 Supplement C 01-01. It is seen that the measured parameters are satisfactory for compliance testing.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			ε_r	σ (S/m)	Temp (°C)
1880	**Body**	**Measured,** 7-Aug-04	51.7	1.47	19.5
		Measured, 8-Aug-04	51.4	1.48	19.4
		Recommended Limits	53.3 ±5%	1.52 ±5%	18-25

The list of ingredients and the percent composition used for the tissue simulates are indicated in the table below.

Ingredient	800MHz Head	800MHz Body	1900MHz Head	1900MHz Body
Sugar	57.0	44.9	--	30.80
DGBE	--	--	47.0	--
Water	40.45	53.06	52.8	68.91
Salt	1.45	0.94	0.2	0.29
HEC	1.0	1.0	--	--
Bact.	0.1	0.1	--	--

5 System Accuracy Verification

A system accuracy verification of the DASY3 was performed using the measurement equipment listed in Section 3.1. The daily system accuracy verification occurs within center section of the SAM phantom.

A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR indicated on the dipole certification sheet. These tests were done at 900MHz and/or 1800MHz. These frequencies are within 100MHz of the mid-band frequency of the test device. This is within the allowable window given in Supplement C 01-01 *Appendix D System Verification* section item #5. The test was conducted on the same days as the measurement of the DUT. Recommended limits for maximum permittivity, minimum conductivity are shown in the table below. These come from the Federal Communication Commission, OET Bulletin 65 Supplement C 01-01. The obtained results from the system accuracy verification are displayed in the table below. The distributions of SAR compare well with those of the reference measurements (see Appendix 1). The tissue stimulant depth was verified to be 15.0cm ±0.5cm. Z-axis scans showing the SAR penetration are also included in Appendix 1. SAR values are normalized to 1W forward power delivered to the dipole.

The following probe conversion factors were used on the E-Field probe(s) used for the system accuracy verification measurements:

Description	Serial Number	f (MHz)	Conversion Factor	Cal Cert pg #
E-Field Probe ET3DV6	SN1506	1800	4.77	7 of 8

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Ambient Temp (°C)	Tissue Temp (°C)
			ε_r	σ (S/m)		
1900	**Measured,** 7-Aug-04	40.0	39.6	1.47	20	19.5
	Measured, 8-Aug-04	38.8	39.4	1.47	20	19.0
	Recommended Limits	42.0	40.0 ±5%	1.4 ±5%	18-25	18-25

6 Test Results

The test samples were configured in three different laptop PCs. In each laptop PC tests were performed with the bottom of PC parallel to, and touching the phantom (lap position). The EUT was tested in both the upper and the lower PCMCIA slots (were applicable) of the PC. The distance from the bottom of the EUT to the phantom was measured and entered into the tables below.

The test samples were operated in a test mode that allows control of the transmitter without the need to place actual phone calls. For the purposes of this test the unit is commanded to test mode and manually set to the proper channel, transmitter power level and transmit mode of operation. Motorola followed the requirements in Supplement. C / Appendix D: SAR Measurement Procedures, "When applicable, each configuration should be tested with the antenna in its fully extended and fully retracted positions. These test configurations should be tested at the high, middle and low frequency channels of each operating mode; for example, AMPS, CDMA, and TDMA. If the SAR measured at the middle channel for each test configuration (left, right, Cheek/Touch, Tile/Ear, extended and retracted) is at least 2.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s)."

The DASY v3.1d SAR measurement system specified in section 3.1 was utilized within the intended operations as set by the SPEAG™ setup. The test samples were positioned into the measurement configurations using the positioner supplied with the DASY 3.1d SAR measurement system along with the Styrofoam for additional laptop support.. The measured dielectric constant of the material used for the positioner is less than 2.9 and the loss tangent is less than 0.02 (± 30%) at 850MHz. The default settings for the "coarse" and "cube" scans were chosen and use for measurements. The grid spacing of the course scan was set to 15cm as shown in the SAR plots included in appendix 2 and 3. Please refer to the DASY manual for additional information on SAR scanning procedures and algorithms used.

The Cellular Phone (FCC ID IHDT6EG1) has no internal batteries.

6.1 Body Worn Test Results

The SAR results shown in tables 1 - 3 are the maximum SAR values averaged over 1 gram of phantom tissue. Also shown are the measured conducted output powers, the temperature of the test facility during the test, the temperature of the tissue simulate after the test, the measured drift and the extrapolated SAR. The exact method of extrapolation is New SAR = Old SAR * 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY™ measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process. This is the most conservative SAR because it corresponds to the average output power at the beginning of the SAR test. This extrapolation has been done because when the DUT is operating properly it may exhibit a slump in radiated power and SAR over time. This is verified by measuring the SAR drift after the test. The test conditions indicated as bold numbers in the following table are included in Appendix 3. All other test conditions measured lower SAR values than those included in Appendix 3.

The following probe conversion factors were used on the E-Field probe(s) used for the body worn measurements:

Description	Serial Number	f (MHz)	Conversion Factor	Cal Cert pg #
E-Field Probe ET3DV6	SN1506	1900	4.18	7 of 8

Location	Channel	Conducted Output Power (dBm)	Distance from bottom of PCMCIA card to Phantom	Computer Model Used: Dell Latitude C640							
				Antenna Horizontal				Antenna Vertical			
				Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Upper PCMCIA Slot	Channel 512	29.68	16mm								
	Channel 661	29.76	16mm	**0.198**	**-0.26**	**0.21**	**19.5**	**0.538**	**0.09**	**0.54**	**19.5**
	Channel 810	29.34	16mm								
Lower PCMCIA Slot	Channel 512	29.68	12mm					0.812	0.06	0.81	19.5
	Channel 661	29.76	12mm	**0.352**	**-0.01**	**0.35**	**19.5**	**0.864**	**0.00**	**0.86**	**19.5**
	Channel 810	29.34	12mm					0.729	0.00	0.73	19.5

Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT6EG1 at highest possible output power. Measured against the body.

Location	Channel	Conducted Output Power (dBm)	Distance from bottom of PCMCIA card to Phantom	Computer Model Used: Dell Latitude D600							
				Antenna Horizontal				Antenna Vertical			
				Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Only PCMCIA Slot	Channel 512	29.68	15mm								
	Channel 661	29.76	15mm	**0.222**	**0.03**	**0.22**	**19.5**	**0.562**	**0.08**	**0.56**	**19.6**
	Channel 810	29.34	15mm								

Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT6EG1 at highest possible output power. Measured against the body.

Location	Channel	Conducted Output Power (dBm)	Distance from bottom of PCMCIA card to Phantom	Computer Model Used: IBM ThinkPad T41							
				Antenna Horizontal				Antenna Vertical			
				Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Upper PCMCIA Slot	Channel 512	29.47	14mm								
	Channel 661	29.76	14mm	**0.312**	**-0.04**	**0.31**	**19.0**	**0.585**	**0.06**	**0.59**	**19.0**
	Channel 810	29.54	14mm								
Lower PCMCIA Slot	Channel 512	29.47	8mm					1.03	0.03	1.03	19.5
	Channel 661	29.76	8mm	**0.693**	**-0.02**	**0.70**	**19.4**	**1.24**	**0.09**	**1.24**	**19.4**
	Channel 810	29.54	8mm					1.07	0.03	1.07	19.5

Table 3: SAR measurement results for the portable cellular telephone FCC ID IHDT6EG1 at highest possible output power. Measured against the body.

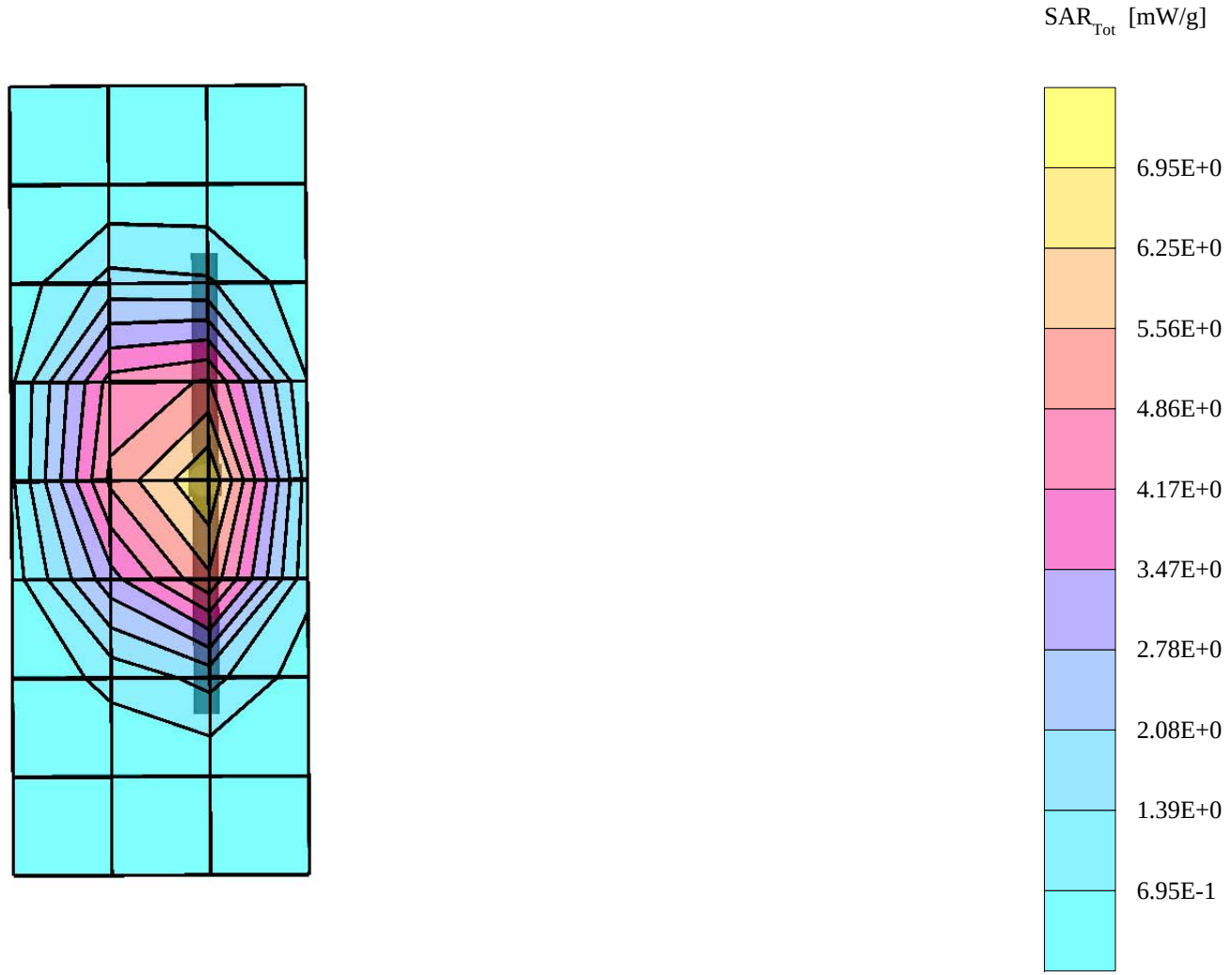
Appendix 1

SAR distribution comparison for the system accuracy verification

08/07/04

Dipole 1900 MHz

1900 MHz System Performance Check / Dipole Sn# 519TR
PM2 Power = 200mW Refl.Pwr PM3= -24.4dB
Sim.Temp@SPC = 19.5*C Room Temp @ SPC = 20*C
R4 Amy Twin Phantom Rev.4 (22Aug02); section 2
Probe: ET3DV6R - SN1506 - VALIDATION.4; ConvF(4.77,4.77,4.77); Crest factor: 1.0; 1900 MHz VALIDATION: σ = 1.47 mho/m ε_r = 39.6 ρ = 1.00 g/cm^3
Cubes (2): Peak: 15.1 mW/g ± 0.14 dB, SAR (1g): 7.99 mW/g ± 0.09 dB, SAR (10g): 4.11 mW/g ± 0.05 dB, (Worst-case extrapolation)
Penetration depth: 7.9 (7.6, 8.6) [mm]
Powerdrift: 0.02 dB



08/07/04

Dipole 1900 MHz

1900 MHz System Performance Check / Dipole Sn# 519TR
PM2 Power = 200mW Refl.Pwr PM3= -24.4dB
Sim.Temp@SPC = 19.5*C Room Temp @ SPC = 20*C
R4 Amy Twin Phantom Rev.4 (22Aug02) Phantom; Section; Position: ; Frequency: 1900 MHz
Probe: ET3DV6R - SN1506 - VALIDATION.4; ConvF(4.77,4.77,4.77); Crest factor: 1.0; 1900 MHz VALIDATION: σ = 1.47 mho/m ε_r = 39.6 ρ = 1.00 g/cm^3
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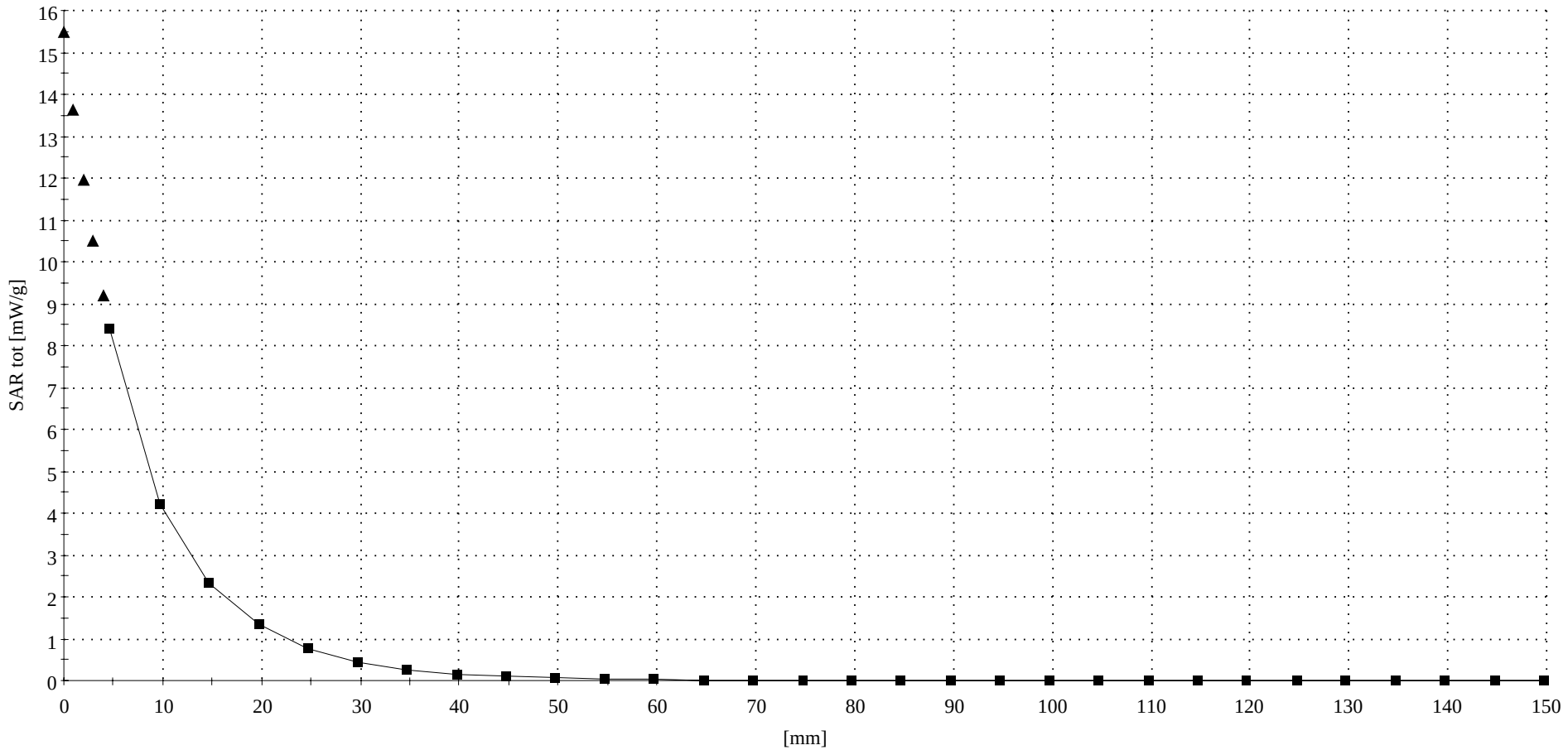
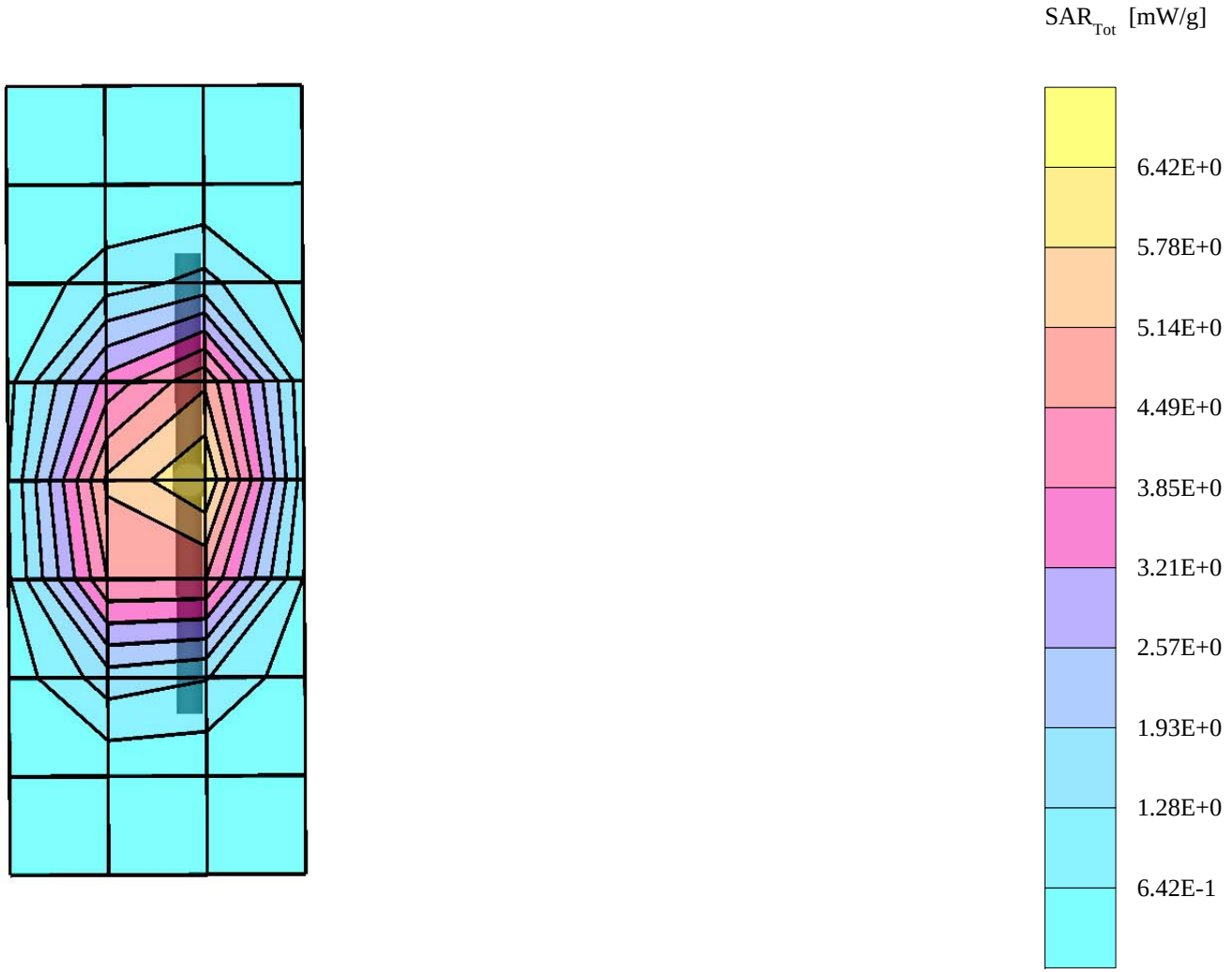
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0
Penetration depth: 7.7 (7.4, 8.4) [mm]



08/08/04

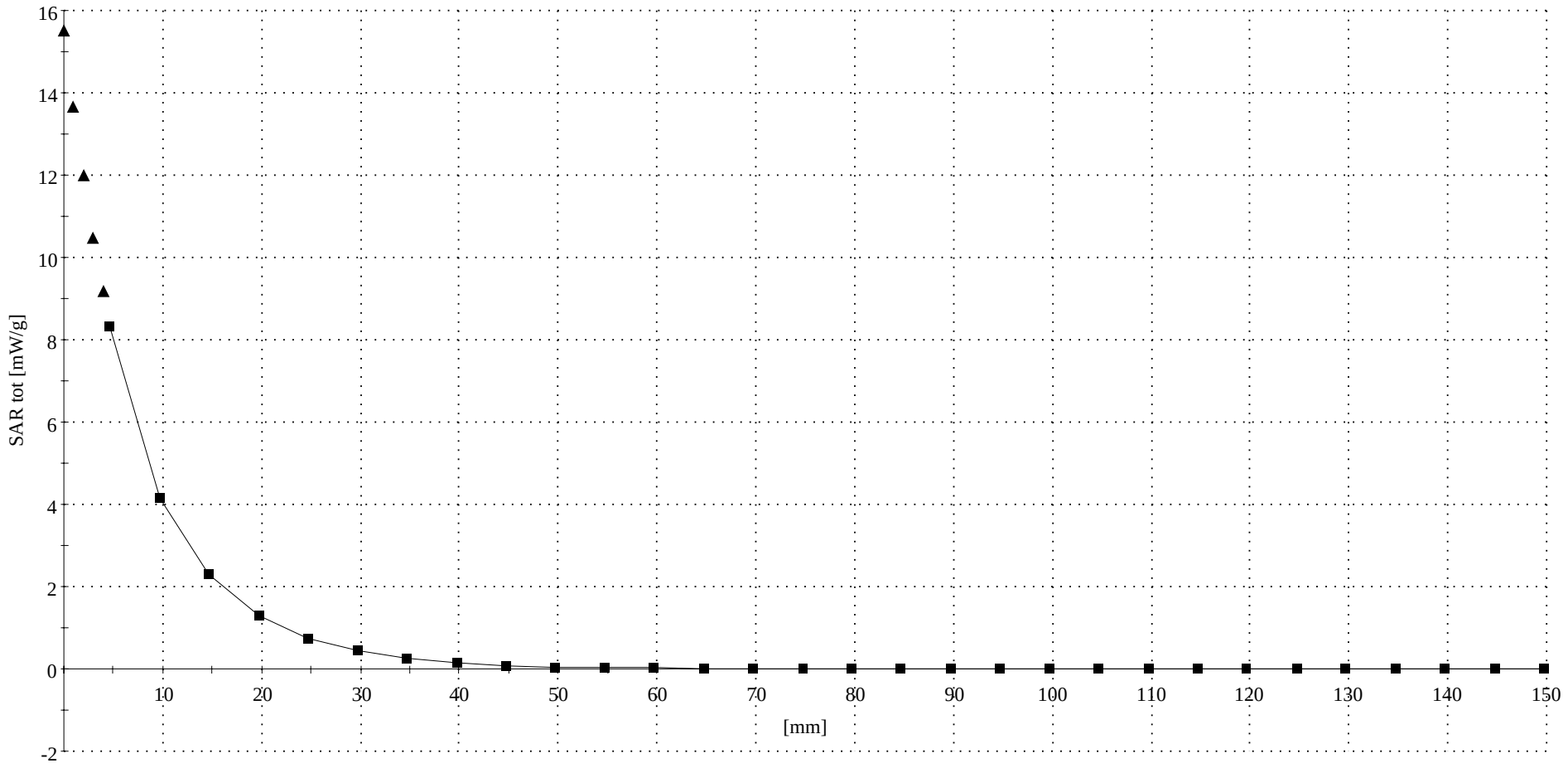
Dipole 1900 MHz

1900 MHz System Performance Check / Dipole Sn# 519TR
PM2 Power = 202mW Refl.Pwr PM3= -24.4dB
Sim.Temp@SPC = 19*C Room Temp @ SPC = 20*C
R4 Amy Twin Phantom Rev.4 (22Aug02); section 2
Probe: ET3DV6R - SN1506 - VALIDATION.4; ConvF(4.77,4.77,4.77); Crest factor: 1.0; 1900 MHz VALIDATION: σ = 1.47 mho/m ε_r = 39.4 ρ = 1.00 g/cm^3
Cubes (2): Peak: 14.9 mW/g ± 0.11 dB, SAR (1g): 7.83 mW/g ± 0.10 dB, SAR (10g): 4.00 mW/g ± 0.09 dB, (Worst-case extrapolation)
Penetration depth: 7.7 (7.4, 8.4) [mm]
Powerdrift: 0.02 dB



Dipole 1900 MHz

1900 MHz System Performance Check / Dipole Sn# 519TR
PM2 Power = 202mW Refl.Pwr PM3= -24.4dB
Sim.Temp@SPC = 19*C Room Temp @ SPC = 20*C
R4 Amy Twin Phantom Rev.4 (22Aug02) Phantom; Section; Position: ; Frequency: 1900 MHz
Probe: ET3DV6R - SN1506 - VALIDATION.4; ConvF(4.77,4.77,4.77); Crest factor: 1.0; 1900 MHz VALIDATION: σ = 1.47 mho/m ε_r = 39.4 ρ = 1.00 g/cm^3
: , , ()
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0
Penetration depth: 7.6 (7.3, 8.4) [mm]



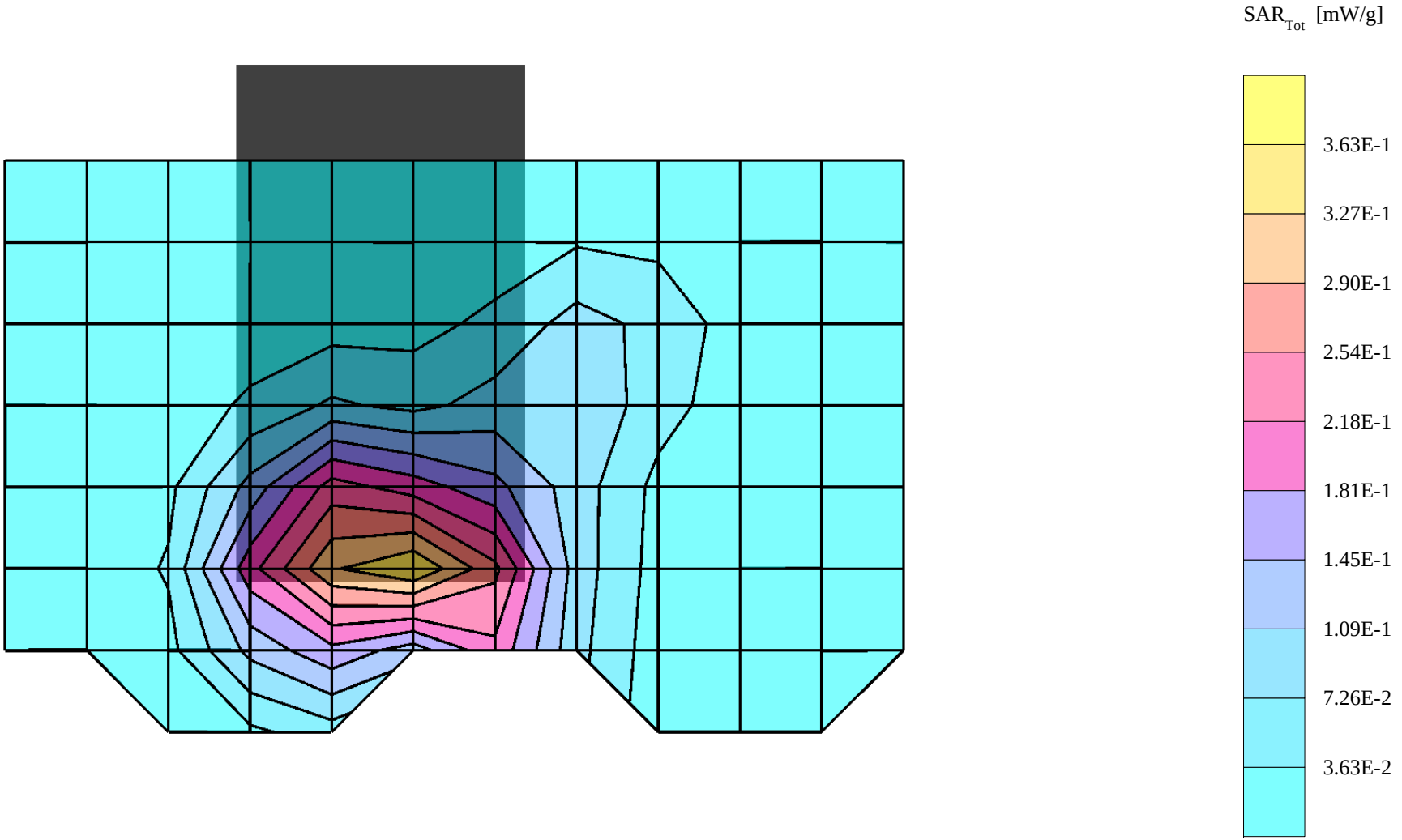
Appendix 2

SAR distribution plots for Body Worn Configuration

08/07/04

s/n: 4400005932379

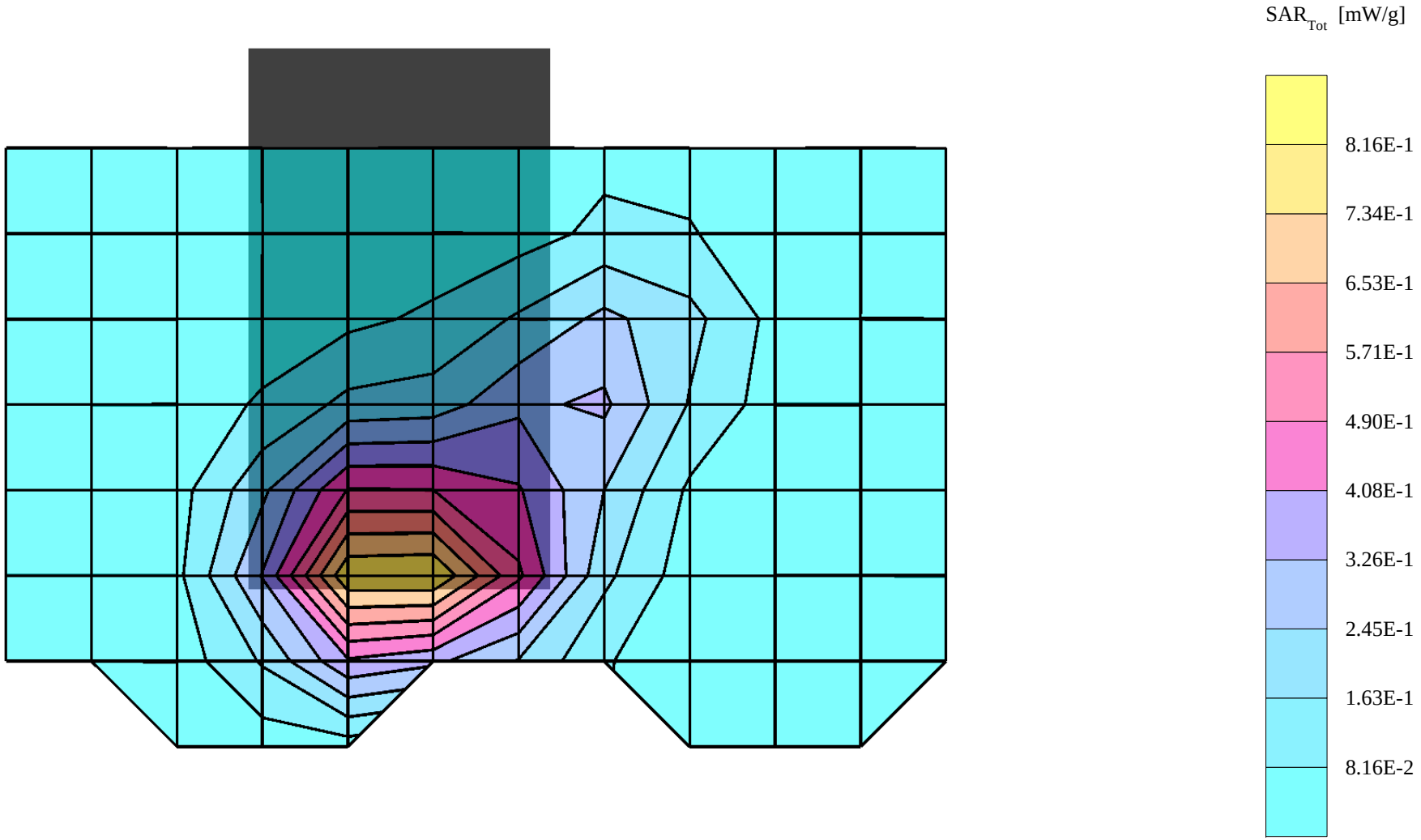
Ch# 661 Pwr Step: 0 ota Antenna Position: Horizontal
Type of Modulation: GSM 1900
Laptop Model #: Dell Latitude C640 PCMCIA Slot Used: Lower
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 51.7 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 0.583 mW/g, SAR (1g): 0.352 mW/g, SAR (10g): 0.211 mW/g, (Worst-case extrapolation)
Penetration depth: 11.6 (10.4, 13.0) [mm]
Powerdrift: -0.01 dB



08/07/04

s/n: 4400005932379

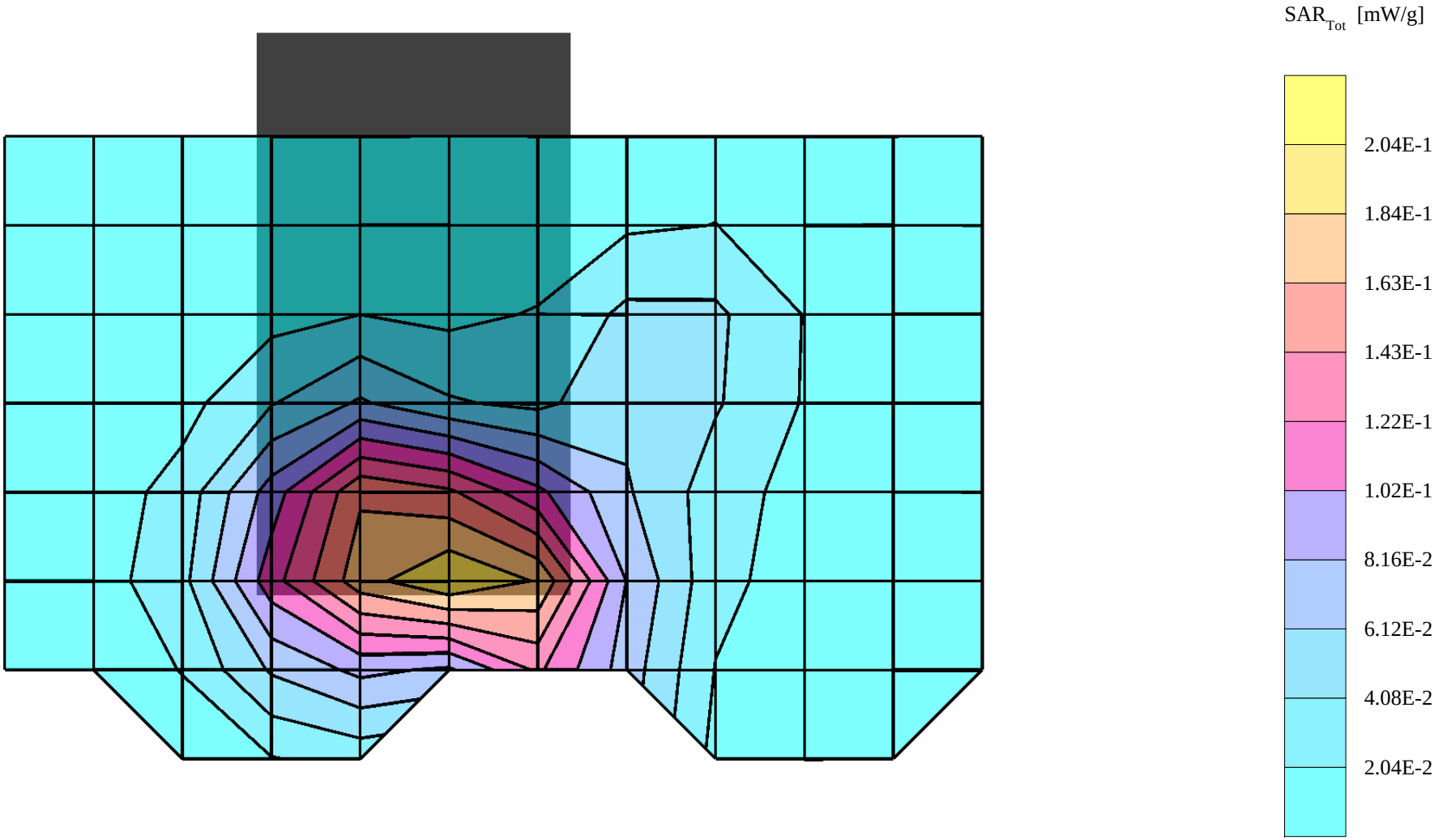
Ch# 661 Pwr Step: 0 ota Antenna Position: Vertical
Type of Modulation: GSM 1900
Laptop Model #: Dell Latitude C640 PCMCIA Slot Used: Lower
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 51.7 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 1.49 mW/g, SAR (1g): 0.864 mW/g, SAR (10g): 0.507 mW/g, (Worst-case extrapolation)
Penetration depth: 10.5 (9.1, 12.5) [mm]
Powerdrift: -0.00 dB



08/07/04

s/n: 4400005932379

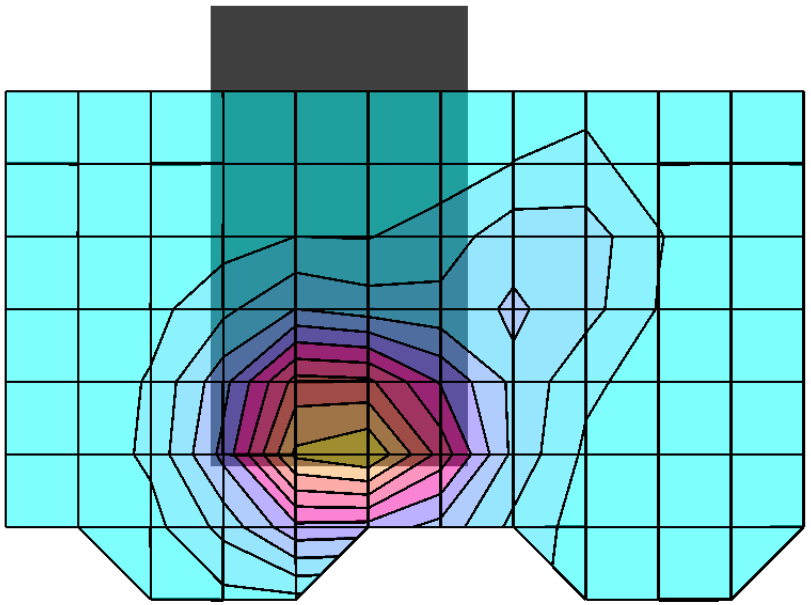
Ch# 661 Pwr Step: 0 ota Antenna Position: Horizontal
Type of Modulation: GSM 1900
Laptop Model #: Dell Latitude C640 PCMCIA Slot Used: Upper
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 51.7 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 0.331 mW/g, SAR (1g): 0.198 mW/g, SAR (10g): 0.123 mW/g, (Worst-case extrapolation)
Penetration depth: 12.2 (10.5, 14.2) [mm]
Powerdrift: -0.26 dB

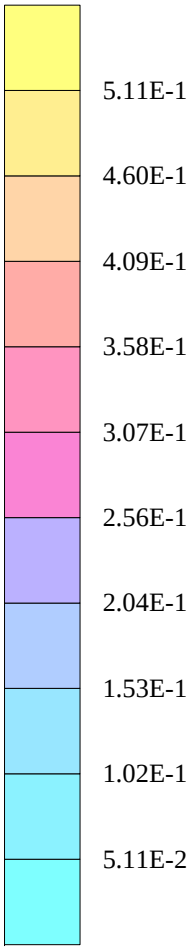


08/07/04

s/n: 4400005932379

Ch# 661 Pwr Step: 0 ota Antenna Position: Vertical
Type of Modulation: GSM 1900
Laptop Model #: Dell Latitude C640 PCMCIA Slot Used: Upper
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 51.7 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 0.914 mW/g, SAR (1g): 0.538 mW/g, SAR (10g): 0.326 mW/g, (Worst-case extrapolation)
Penetration depth: 11.1 (9.3, 13.5) [mm]
Powerdrift: 0.09 dB

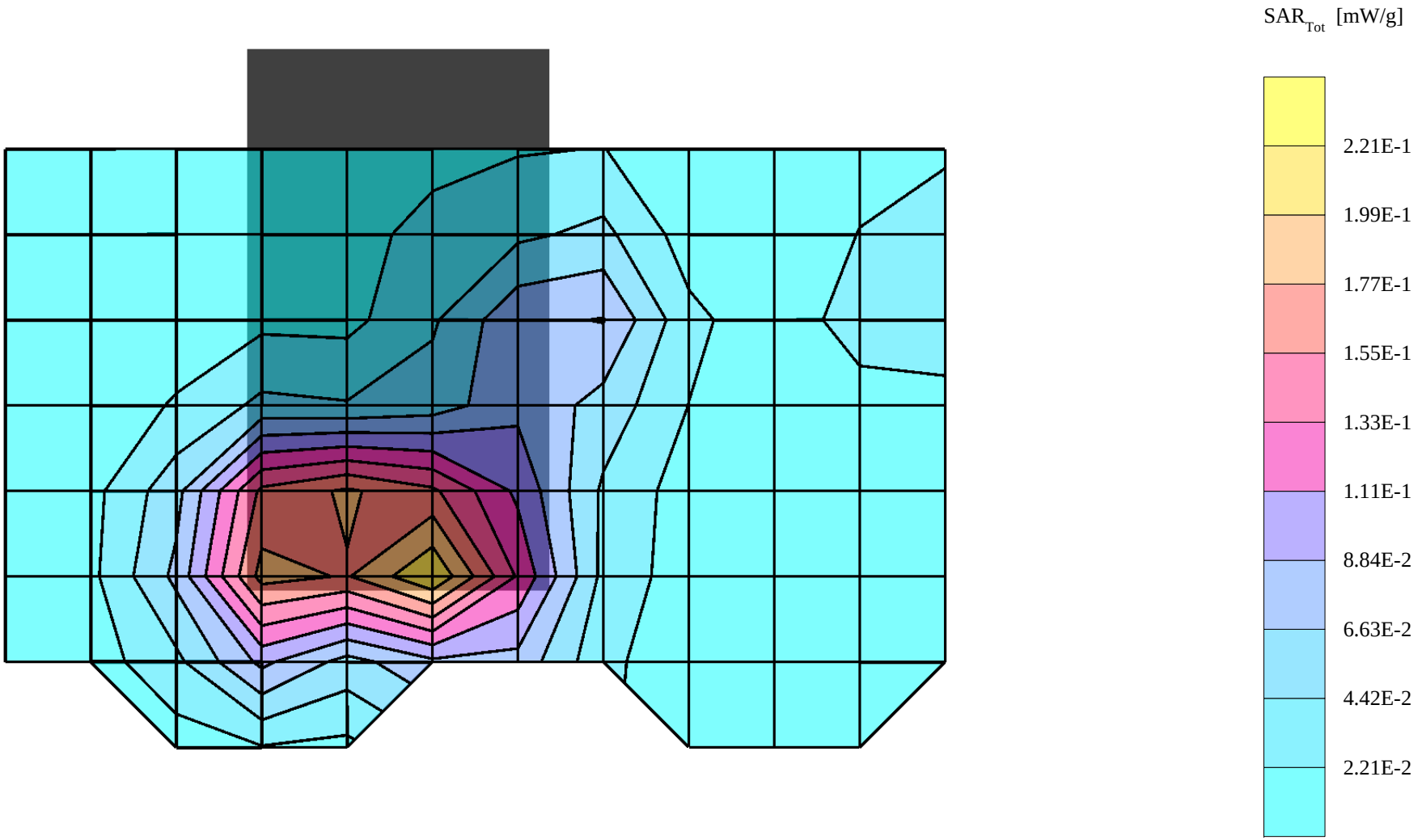




08/07/04

s/n: 4400005932379

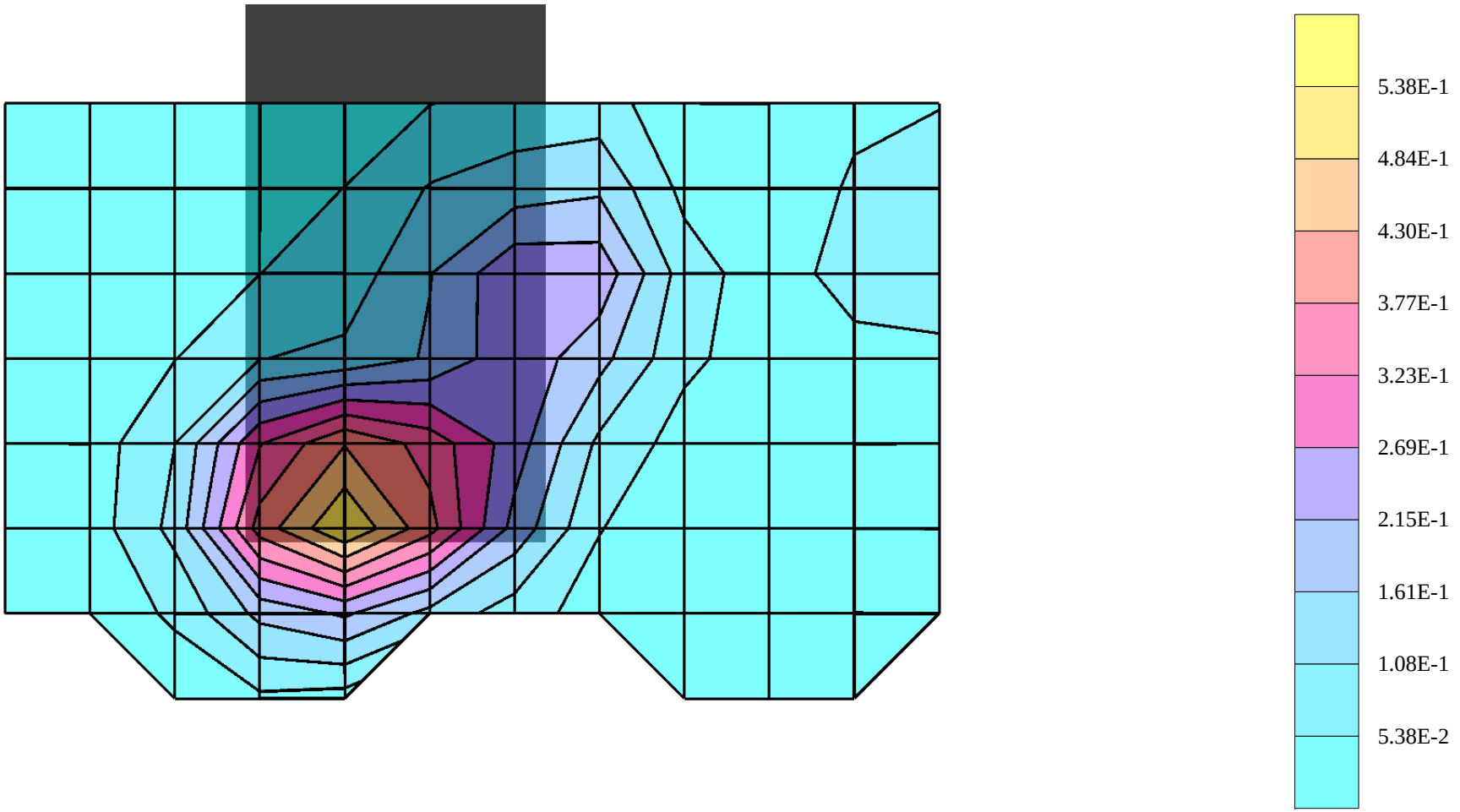
Ch# 661 Pwr Step: 0 ota Antenna Position: Horizontal
Type of Modulation: GSM 1900
Laptop Model #: Dell Latitude D600 PCMCIA Slot Used: Only One Available
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 51.7 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 0.371 mW/g, SAR (1g): 0.222 mW/g, SAR (10g): 0.135 mW/g, (Worst-case extrapolation)
Penetration depth: 11.7 (10.4, 13.4) [mm]
Powerdrift: 0.03 dB



08/07/04

s/n: 4400005932379

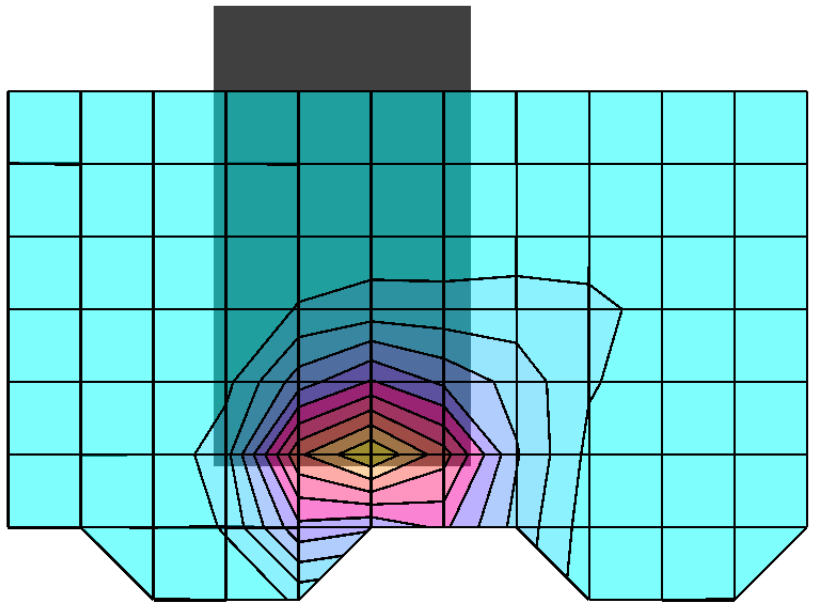
Ch# 661 Pwr Step: 0 ota Antenna Position: Vertical
Type of Modulation: GSM 1900
Laptop Model #: Dell Latitude D600 PCMCIA Slot Used: Only One Available
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 51.7 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 0.975 mW/g, SAR (1g): 0.562 mW/g, SAR (10g): 0.330 mW/g, (Worst-case extrapolation)
Penetration depth: 10.0 (8.8, 12.0) [mm]
Powerdrift: 0.08 dB

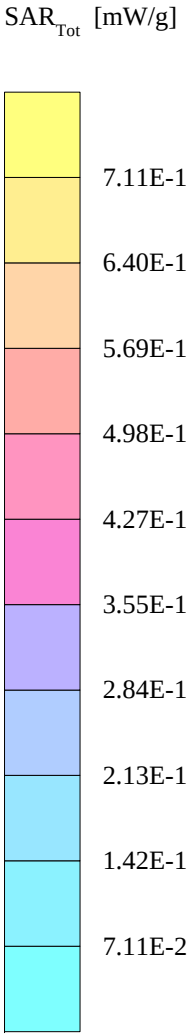


08/07/04

s/n: 4400005932072

Ch# 661 Pwr Step: 0 ota Antenna Position: Horizontal
Type of Modulation: GSM 1900
Laptop Model #: IBM ThinkPad T41 PCMCIA Slot Used: Lower
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 51.7 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 1.21 mW/g, SAR (1g): 0.693 mW/g, SAR (10g): 0.408 mW/g, (Worst-case extrapolation)
Penetration depth: 10.1 (9.2, 11.4) [mm]
Powerdrift: -0.02 dB

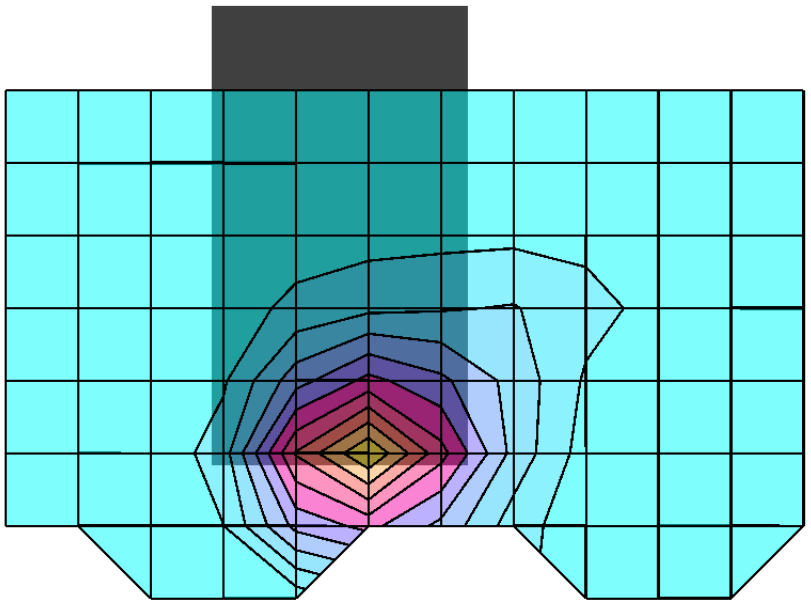


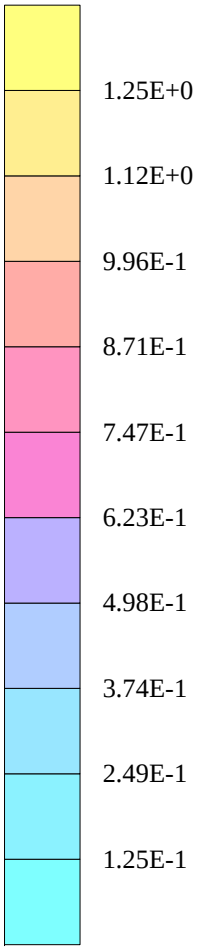


08/07/04

s/n: 4400005932072

Ch# 661 Pwr Step: 0 ota Antenna Position: Vertical
Type of Modulation: GSM 1900
Laptop Model #: IBM ThinkPad T41 PCMCIA Slot Used: Lower
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 51.7 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 2.13 mW/g, SAR (1g): 1.24 mW/g, SAR (10g): 0.717 mW/g, (Worst-case extrapolation)
Penetration depth: 10.5 (9.5, 11.9) [mm]
Powerdrift: 0.09 dB

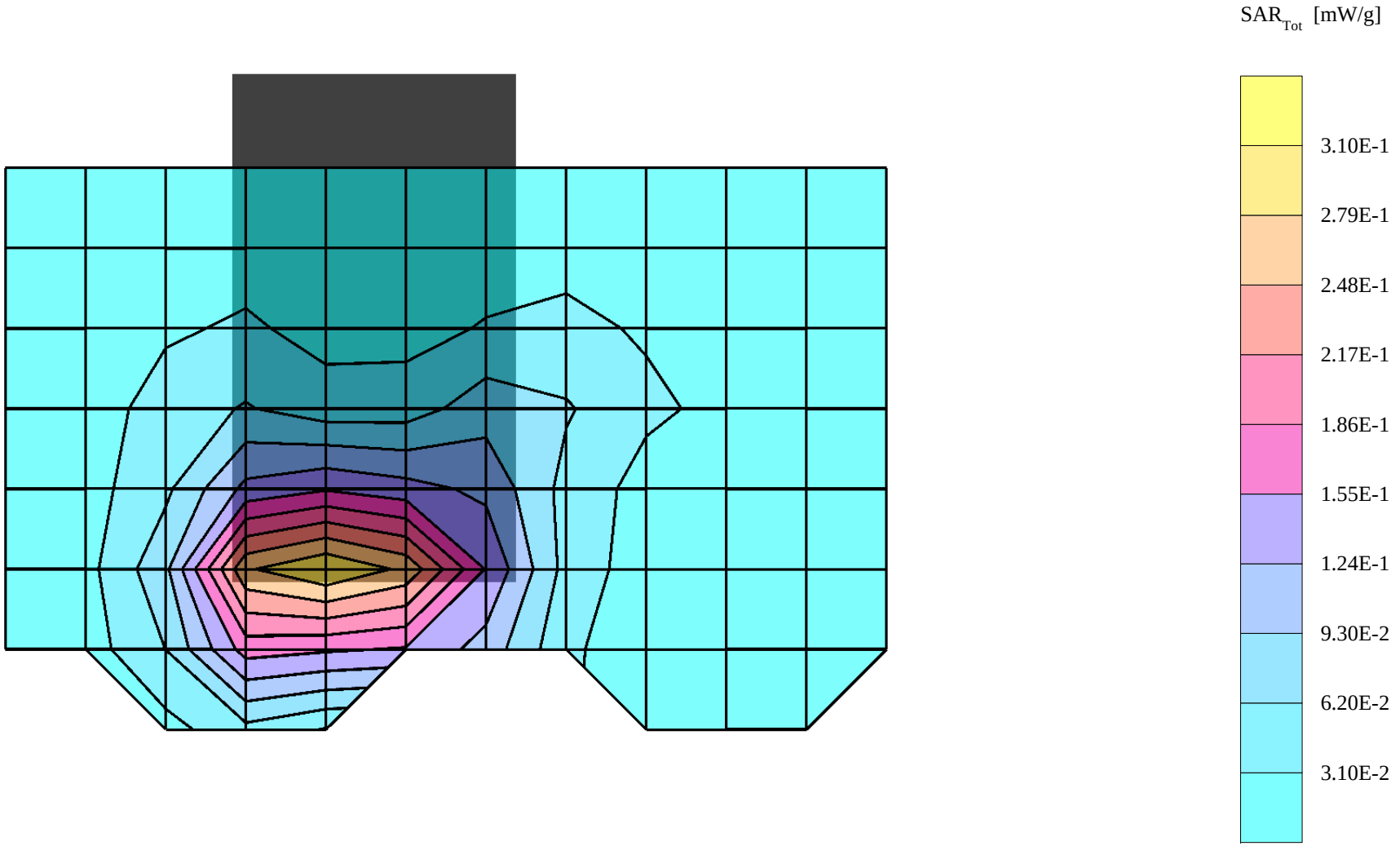




08/08/04

s/n: 4400005932072

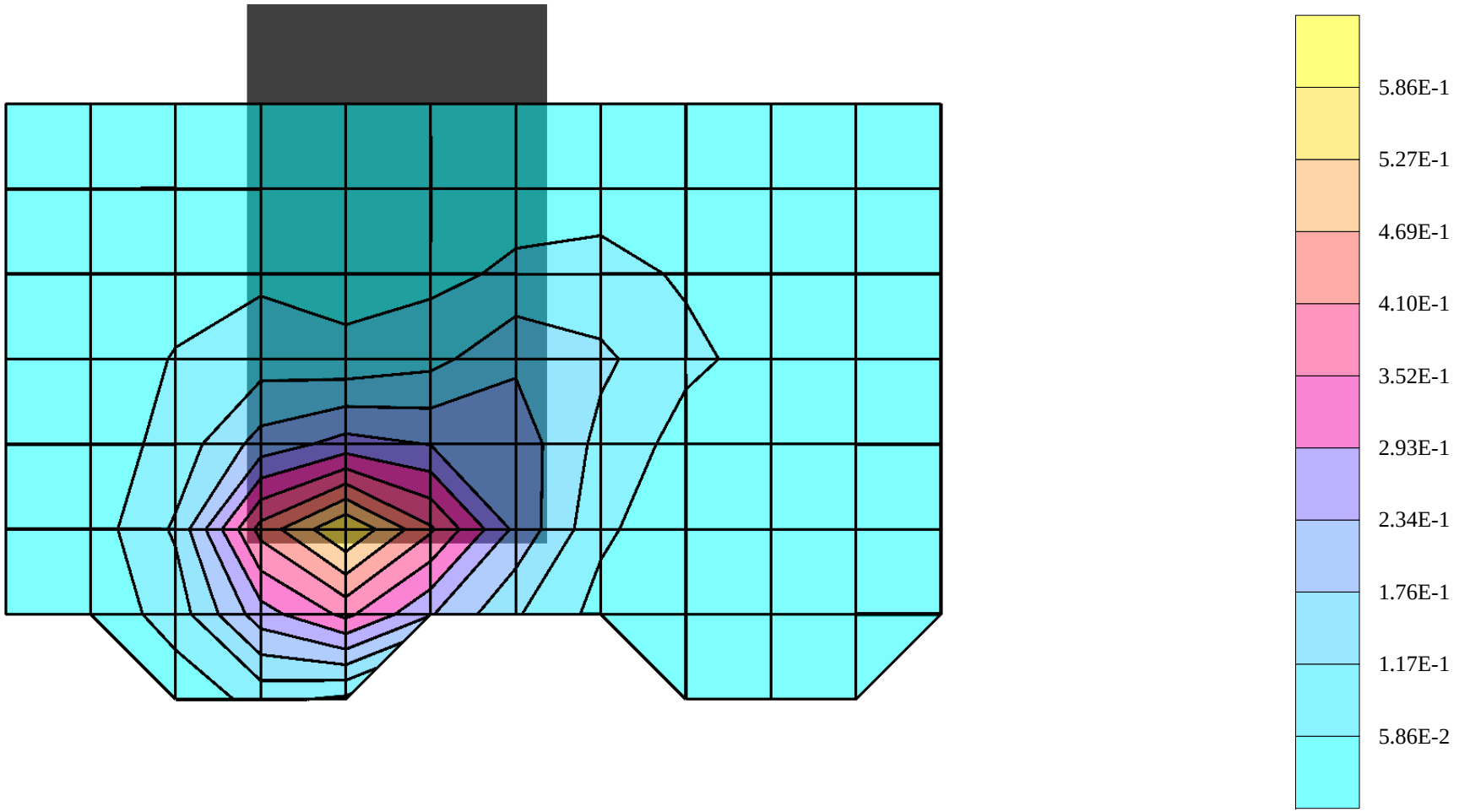
Ch# 661 Pwr Step: 0 ota Antenna Position: Horizontal
Type of Modulation: GSM 1900
Laptop Model #: IBM ThinkPad T41 PCMCIA Slot Used: Upper
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.48 mho/m ε_r = 51.4 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 0.559 mW/g, SAR (1g): 0.312 mW/g, SAR (10g): 0.183 mW/g, (Worst-case extrapolation)
Penetration depth: 9.4 (8.3, 11.1) [mm]
Powerdrift: -0.04 dB



08/08/04

s/n: 4400005932072

Ch# 661 Pwr Step: 0 ota Antenna Position: Vertical
Type of Modulation: GSM 1900
Laptop Model #: IBM ThinkPad T41 PCMCIA Slot Used: Upper
R4 TP-1250 GLYCOL SAM Expanded (Rev. 2)-9Jan03; Flat
Probe: ET3DV6R - SN1506 FCC Body.2; ConvF(4.18,4.18,4.18); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.48 mho/m ε_r = 51.4 ρ = 1.00 g/cm^3
Cube 7x7x7: Peak: 1.02 mW/g, SAR (1g): 0.585 mW/g, SAR (10g): 0.340 mW/g, (Worst-case extrapolation)
Penetration depth: 10.3 (8.9, 12.6) [mm]
Powerdrift: 0.06 dB



Appendix 3

Probe Calibration Certificate

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

Client Motorola PCS

CALIBRATION CERTIFICATE

Object(s)	ET3DV6R - SN:1506
Calibration procedure(s)	QA CAL-01.v2 Calibration procedure for dosimetric E-field probes
Calibration date:	May 27, 2004
Condition of the calibrated item	In Tolerance (according to the specific calibration document)

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environ ment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E4419B	GB41293874	5-May-04 (METAS, No 251-00388)	May-05
Power sensor E4412A	MY41495277	5-May-04 (METAS, No 251-00388)	May-05
Reference 20 dB Attenuator	SN: 5086 (20b)	3-May-04 (METAS, No 251-00389)	May-05
Fluke Process Calibrator Type 702	SN: 6295803	8-Sep-03 (Sintrel SCS No. E-030020)	Sep-04
Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct-03)	In house check: Oct 05
RF generator HP 8684C	US3642U01700	4-Aug-99 (SPEAG, in house check Aug-02)	In house check: Aug-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-03)	In house check: Oct 05

	Name	Function	Signature
Calibrated by:	Nico Vetterli	Technician	
Approved by:	Katja Pokovic	Laboratory Director	

Date issued: May 27, 2004

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

Probe ET3DV6R

SN:1506

Manufactured:	October 24, 1999
Last calibrated:	May 14, 2003
Recalibrated:	May 27, 2004

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ET3DV6R SN:1506

Sensitivity in Free Space

Diode Compression[A]

NormX	**2.30** $\mu V/(V/m)^2$	DCP X	**96**	mV
NormY	**2.12** $\mu V/(V/m)^2$	DCP Y	**96**	mV
NormZ	**1.25** $\mu V/(V/m)^2$	DCP Z	**96**	mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Plese see Page 7.

Boundary Effect

Head **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	10.5	5.6
SAR_{be} [%]	With Correction Algorithm	0.1	0.2

Head **1800 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	14.3	9.2
SAR_{be} [%]	With Correction Algorithm	0.1	0.1

Sensor Offset

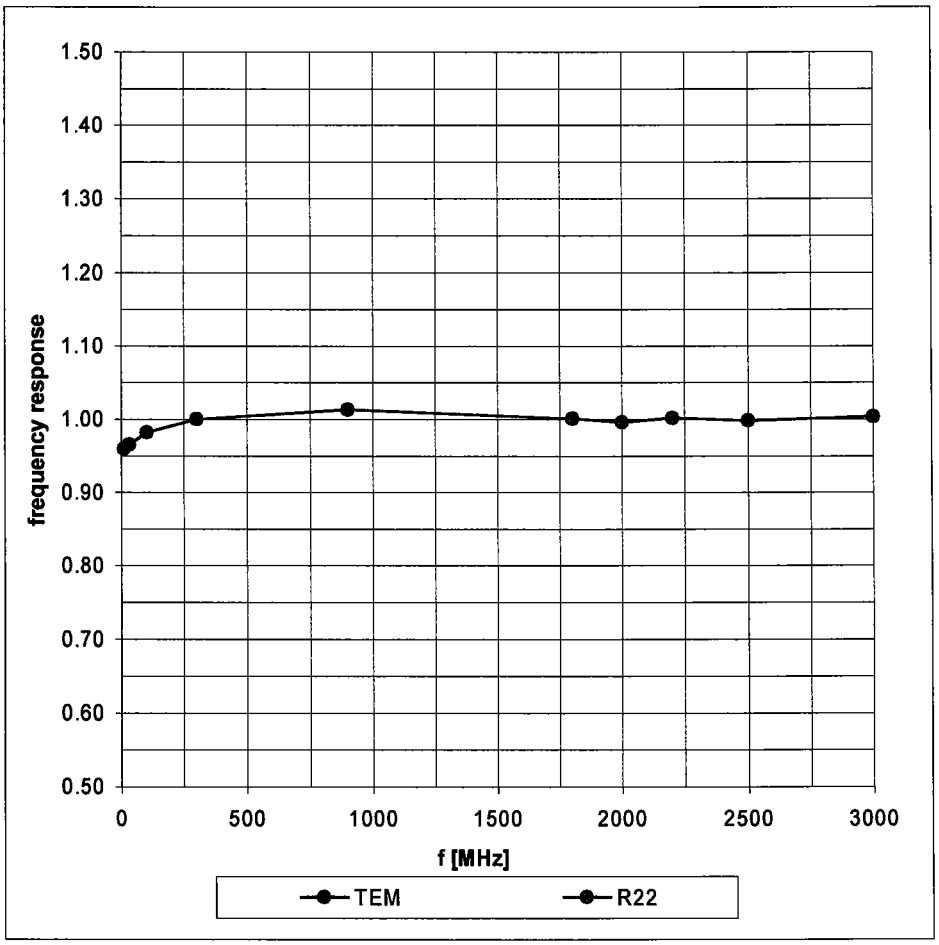
Probe Tip to Sensor Center	**2.7**	mm

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

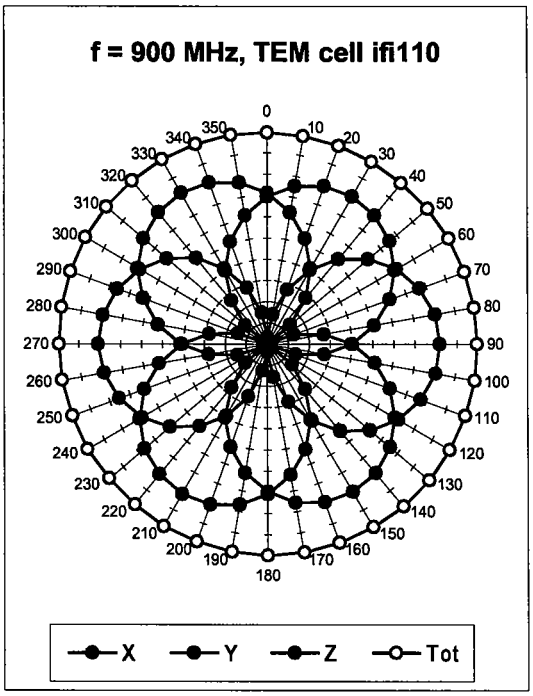
[A] numerical linearization parameter: uncertainty not required

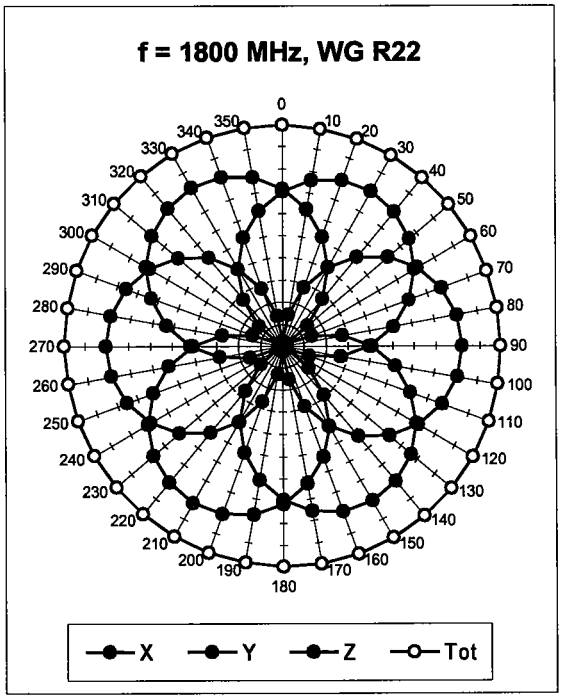
Frequency Response of E-Field

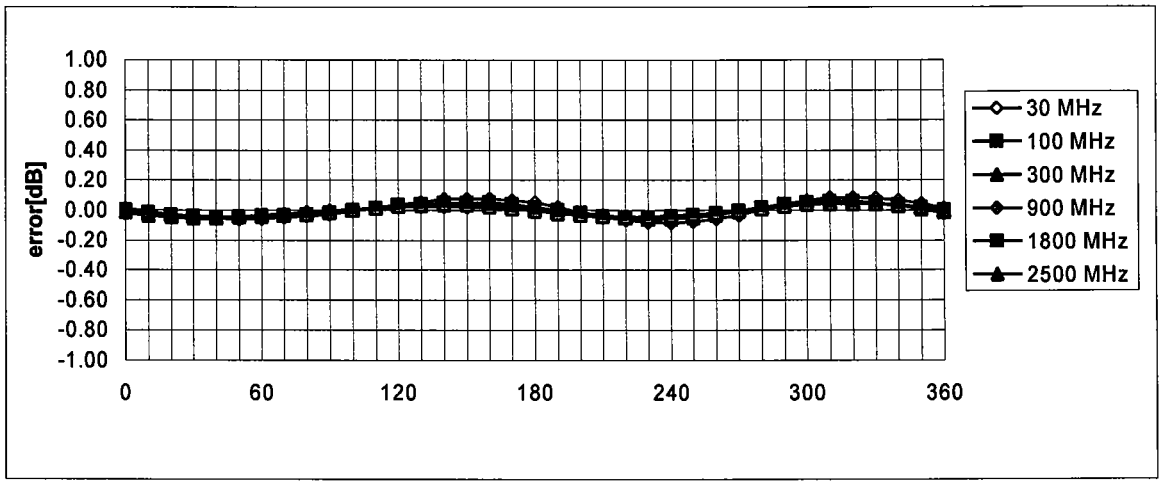
(TEM-Cell:ifi110, Waveguide R22)



Receiving Pattern (ϕ), θ = 0°



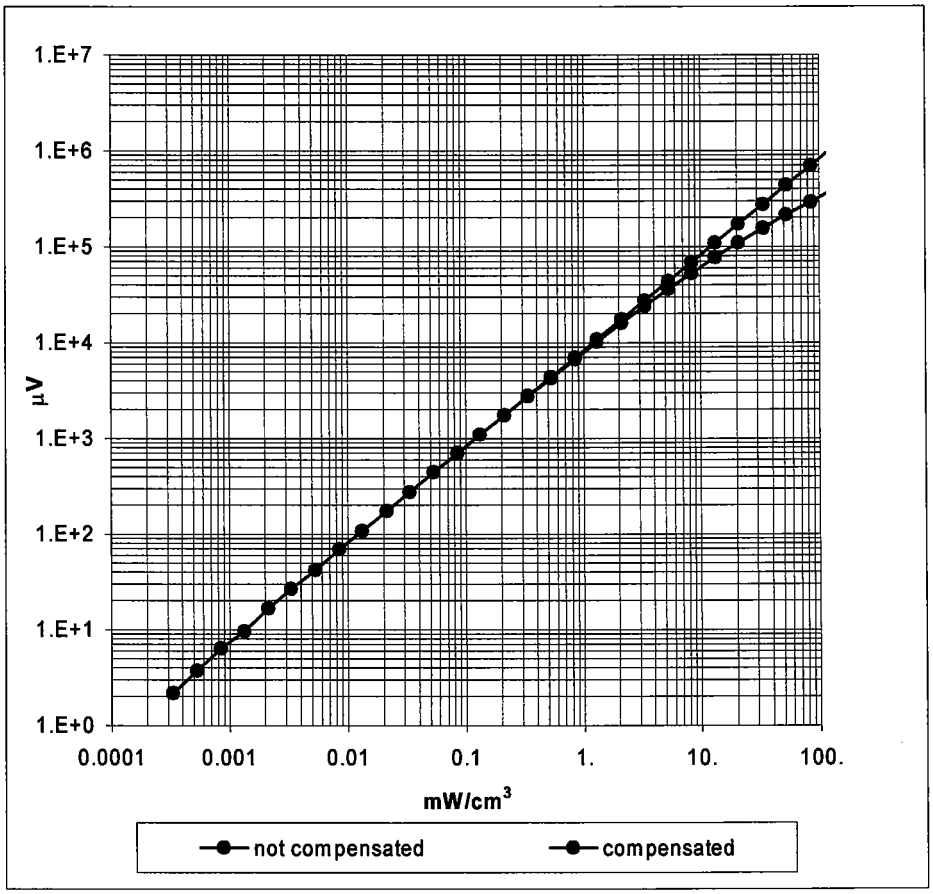


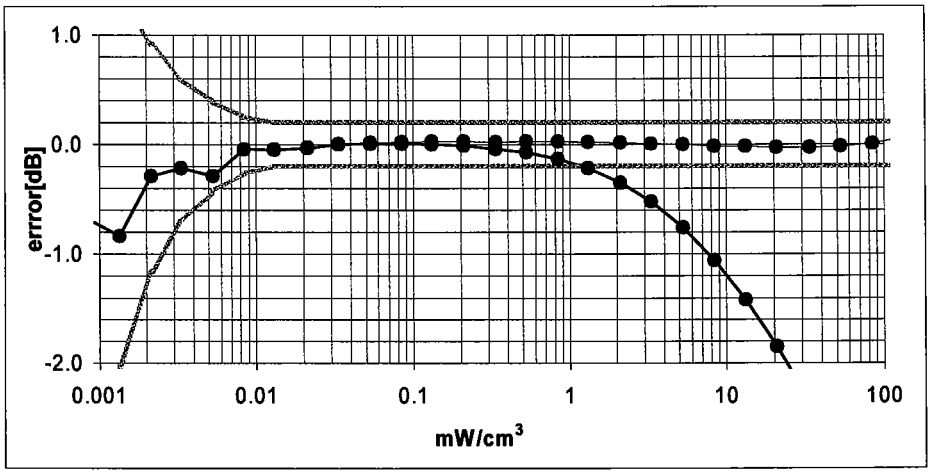


Axial Isotropy Error < ± 0.2 dB

Dynamic Range f(SAR_{head})

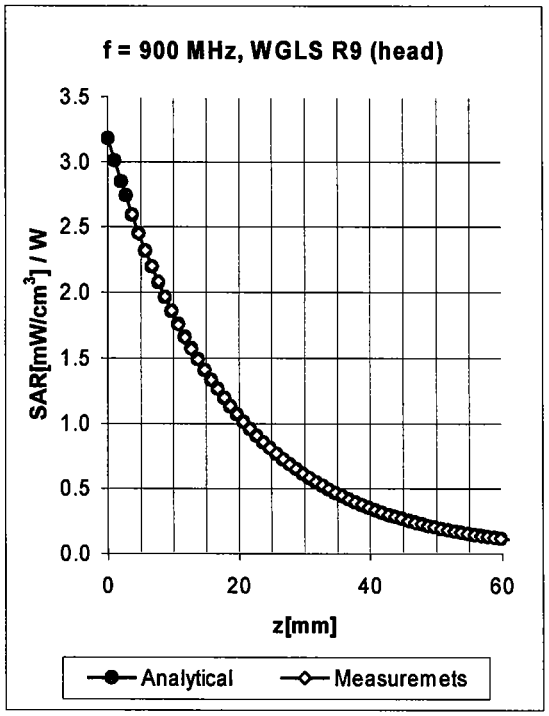
(Waveguide R22)

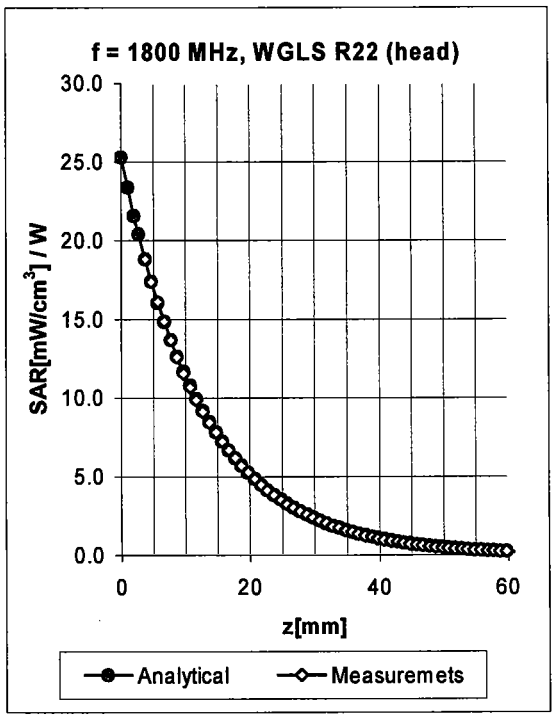




Probe Linearity Error < ± 0.2 dB

Conversion Factor Assessment



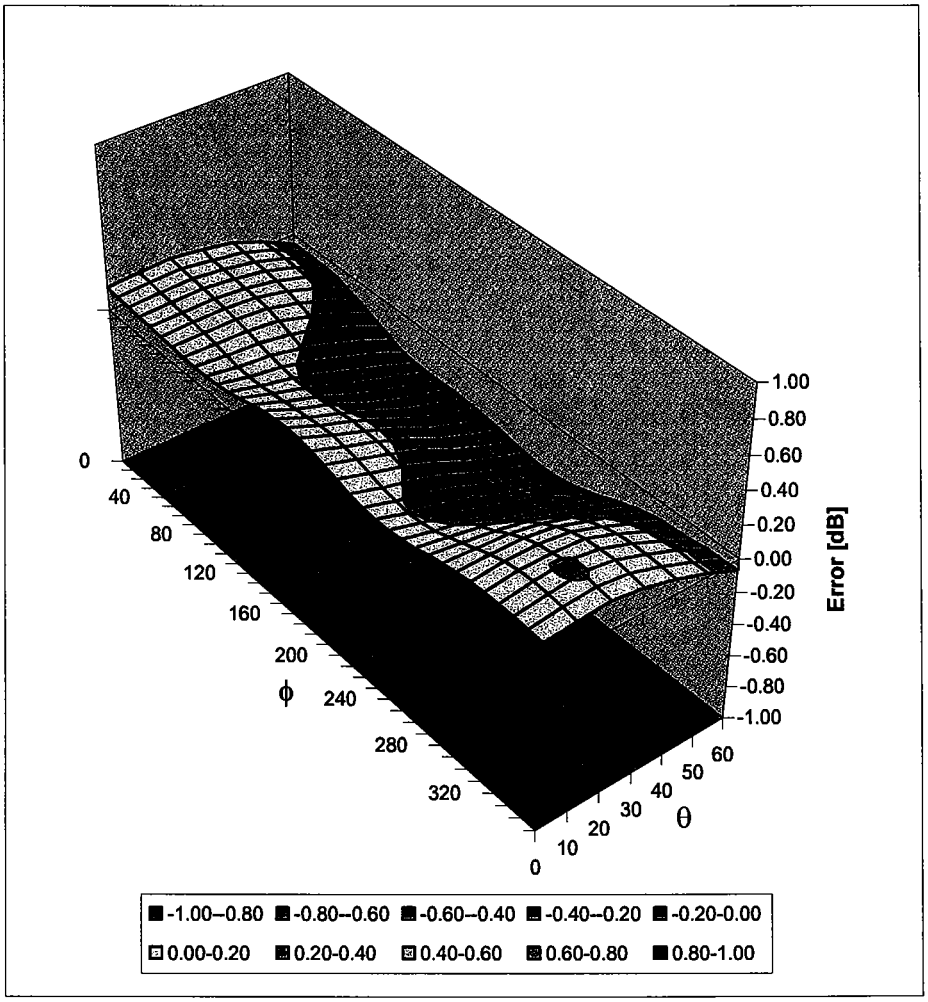


f [MHz]	Validity [MHz][B]	Tissue	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	800-1000	Head	41.5 ± 5%	0.97 ± 5%	0.70	1.84	5.72 ± 9.5% (k=2)
1800	1710-1910	Head	40.0 ± 5%	1.40 ± 5%	0.54	2.54	4.77 ± 9.5% (k=2)
1950	1900-2000	Head	40.0 ± 5%	1.40 ± 5%	0.62	2.48	4.49 ± 9.5% (k=2)
900	800-1000	Body	55.0 ± 5%	1.05 ± 5%	0.65	1.93	5.53 ± 9.5% (k=2)
1800	1710-1910	Body	53.3 ± 5%	1.52 ± 5%	0.63	2.72	4.18 ± 9.5% (k=2)
1950	1900-2000	Body	53.3 ± 5%	1.52 ± 5%	0.77	2.35	4.15 ± 9.5% (k=2)

[B] The stated uncertainty of calibration in according to P1528.

Deviation from Isotropy in HSL

Error (θ, ϕ), f = 900 MHz



Spherical Isotropy Error < ± 0.4 dB

Appendix 4

Dipole Characterization Certificate

Certification of System Performance Check Targets

Based on APP-0396

-Historical Data-

	835MHz	900MHz	1800MHz	1900MHz	
IEEE1528 Target: Advanced Extrapolation	9.5	10.8	38.1	39.7	**(W/kg)**
Measurement Uncertainty (k=1):	9.0%	9.0%	9.0%	9.0%	
Measurement Period:	*1-July-03 to 1-Apr-04*	*1-July-03 to 1-Apr-04*	*1-July-03 to 1-Apr-04*	*1-July-03 to 1-Apr-04*	
# of tests performed:	214	1148	1135	62	
Grand Average: Worst Case Extrapolation	10.0	11.4	40.7	42.0	**(W/kg)**
% Delta (Average - IEEE1528 Target)	5.3%	5.6%	6.8%	5.8%	
Is % Delta <= Measurement Uncertainty?	**Yes**	**Yes**	**Yes**	**Yes**	
Accept/Reject Average as new system performance check target?	**ACCEPT**	**ACCEPT**	**ACCEPT**	**ACCEPT**	
	Applicable 835MHz Dipole Serial Numbers:	**Applicable 900MHz Dipole Serial Numbers:**	**Applicable 1800MHz Dipole Serial Numbers:**	**Applicable 1900Mhz Dipole Serial Numbers:**	
	420(TR), 421(TR)	77, 78	246(TR), 250(TR)	514(TR), 518(TR)	
	422(TR), 423(TR)	79, 80	251(TR), 258(TR)	519(TR), 520(TR)	
	424(TR), 425(TR)	91, 92	259(TR), 262(TR)	523(TR), 524(TR)	
	431(TR), 432(TR)	93, 94	263(TR), 271(TR)	526(TR), 527(TR)	
	433(TR), 434(TR)	95, 96	272(TR), 273(TR)	528(TR), 529(TR)	
	436(TR)	97, 55	276(TR), 277(TR)	530(TR), 533(TR)	
			279(TR), 280(TR)		
			281(TR), 282(TR)		
			283(TR), 284(TR)		

-New System Performance Check Targets- per APP-0396

(based on analysis of historical data)

Frequency	SAR Target (W/kg)	Permittivity	Conductivity (S/m)
835MHz	**10.0**	41.5 ± 5%	0.90 ± 5%
900MHz	**11.4**	41.5 ± 5%	0.97 ± 5%
1800MHz	**40.7**	40.0 ± 5%	1.40 ± 5%
1900MHz	**42.0**	40.0 ± 5%	1.40 ± 5%

-Approvals-

Submitted by: Marge Kaunas Date: 2-Apr-04

Signed: Marge Kaunas

Comments: Spreadsheet detailing all historical measurements available upon request.

Approved by: Mark Douglas **Date:** 2-Apr-04

Signed: Mark Douglas

Comments: Targets and associated simulant properties are derived from the IEEE 1528 standard.

Appendix 5

Measurement Uncertainty Budget

Uncertainty Budget for Device Under Test

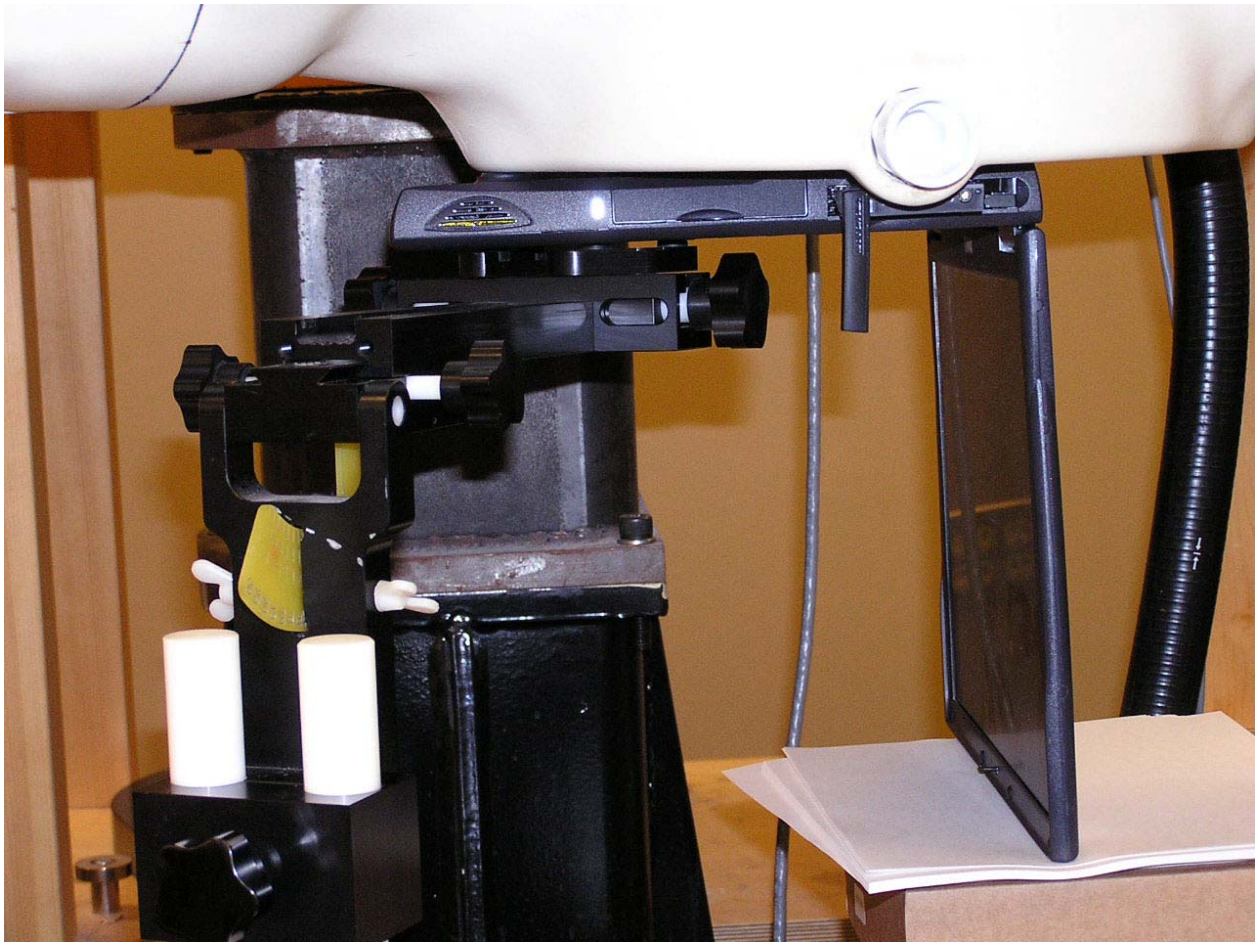
a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	**Sec.**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	9.5	N	2.00	1	1	4.8	4.8	∞
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Spherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3	5.8	R	1.73	1	1	3.3	3.3	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	1.0	N	1.00	1	1	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E.2.8	1.3	R	1.73	1	1	0.8	0.8	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.3	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	1.1	R	1.73	1	1	0.6	0.6	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	3.9	R	1.73	1	1	2.3	2.3	∞
Test sample Related									
Test Sample Positioning	E.4.2	3.6	N	1.00	1	1	3.6	3.6	29
Device Holder Uncertainty	E.4.1	2.8	N	1.00	1	1	2.8	2.8	8
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4.0	R	1.73	1	1	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	10.0	R	1.73	0.64	0.43	3.7	2.5	∞
Liquid Permittivity - deviation from target values	E.3.2	10.0	R	1.73	0.6	0.49	3.5	2.8	∞
Liquid Permittivity - measurement uncertainty	E.3.3	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Combined Standard Uncertainty			RSS				11.72	11.09	1363
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k* =2				22.98	21.75	

Uncertainty Budget for System Performance Check (dipole & flat phantom)

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	**Sec.**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	9.5	N	2.00	1	1	4.8	4.8	∞
Axial Isotropy	E.2.2	4.7	R	1.73	1	1	2.7	2.7	∞
Spherical Isotropy	E.2.2	9.6	R	1.73	0	0	0.0	0.0	∞
Boundary Effect	E.2.3	5.8	R	1.73	1	1	3.3	3.3	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	1.0	N	1.00	1	1	1.0	1.0	∞
Response Time	E.2.7	0.0	R	1.73	1	1	0.0	0.0	∞
Integration Time	E.2.8	0.0	R	1.73	1	1	0.0	0.0	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.3	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	1.1	R	1.73	1	1	0.6	0.6	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	3.9	R	1.73	1	1	2.3	2.3	∞
Dipole									
Dipole Axis to Liquid Distance	8, E.4.2	1.0	R	1.73	1	1	0.6	0.6	∞
Input Power and SAR Drift Measurement	8, 6.6.2	4.7	R	1.73	1	1	2.7	2.7	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4.0	R	1.73	1	1	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	10.0	R	1.73	0.64	0.43	3.7	2.5	∞
Liquid Permittivity - deviation from target values	E.3.2	10.0	R	1.73	0.6	0.49	3.5	2.8	∞
Liquid Permittivity - measurement uncertainty	E.3.3	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Combined Standard Uncertainty			RSS				10.16	9.43	99999
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				19.92	18.48	

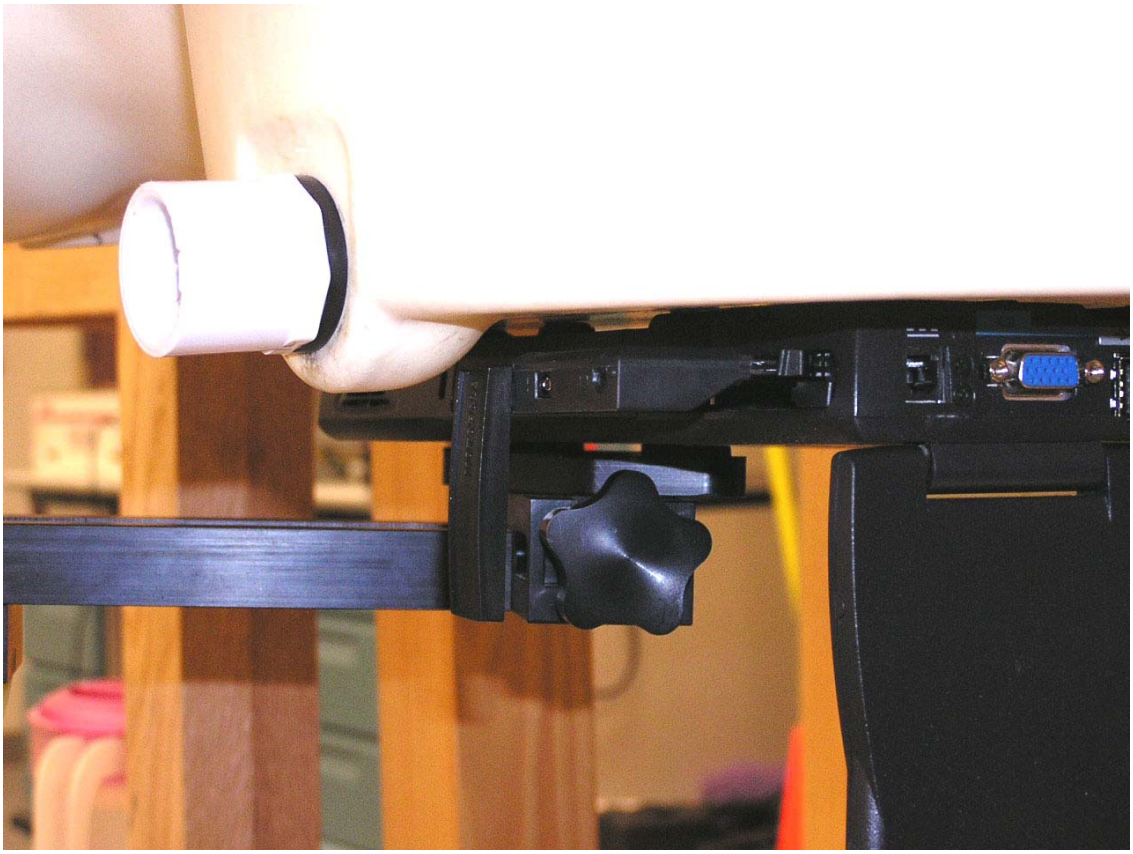
Appendix 6

Photographs of the device under test



Overall Test Setup for Dell Latitude C640

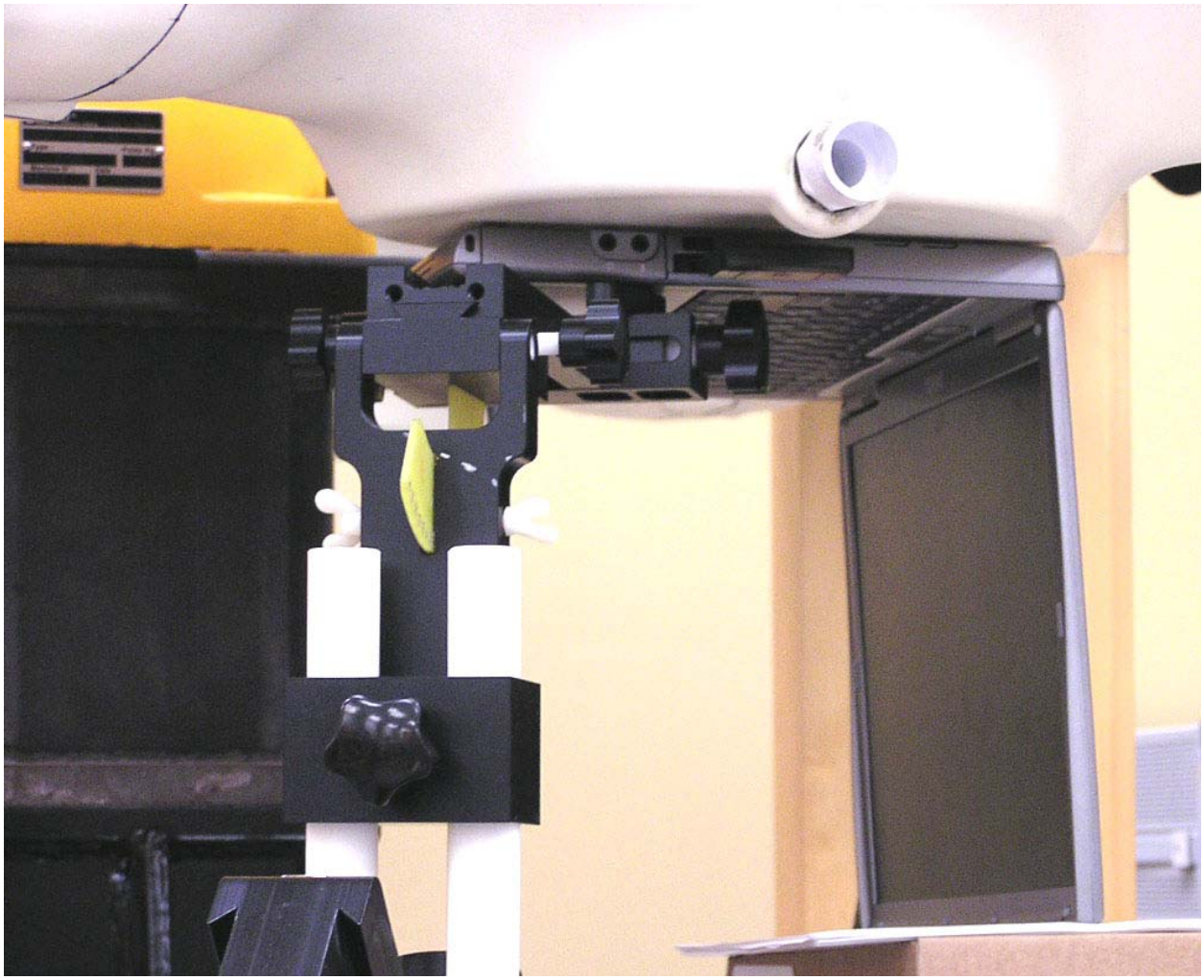
DUT with Antenna Vertical in Dell Latitude C640



DUT with Antenna Vertical in Dell Latitude C640

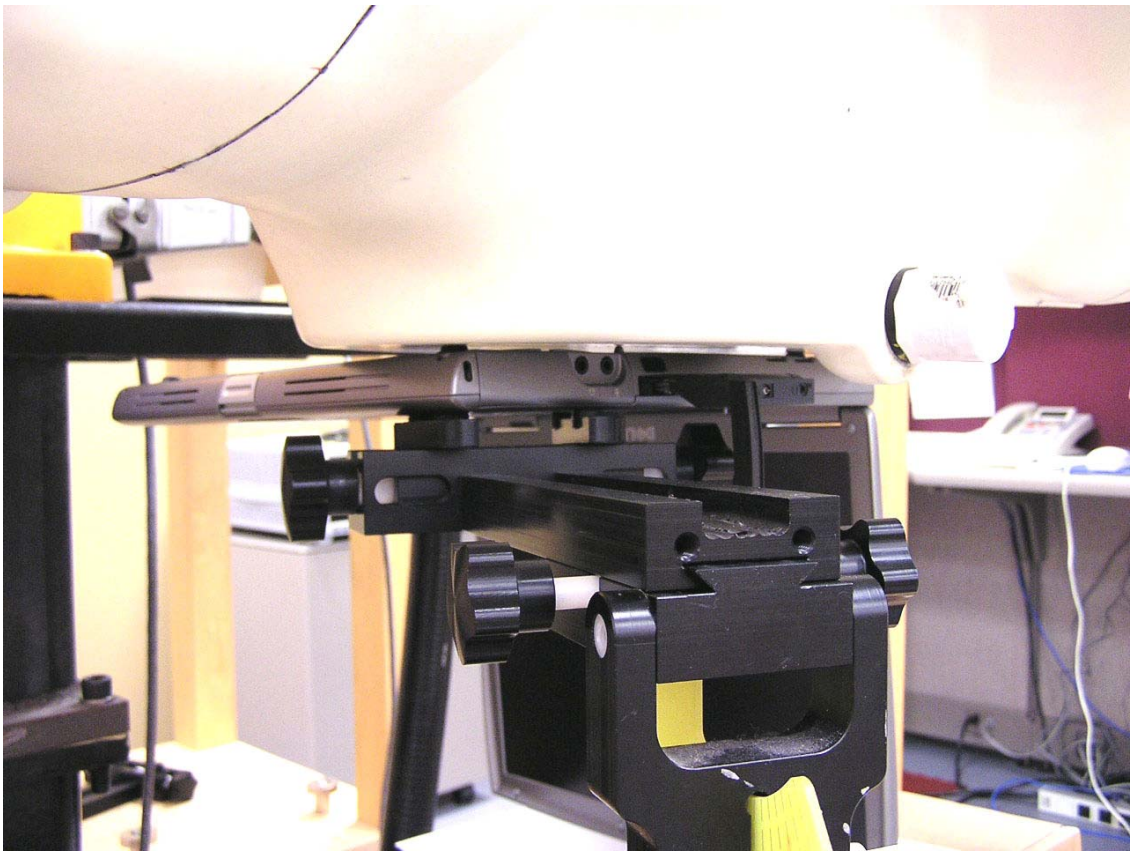
DUT with Antenna Horizontal in Dell Latitude C640

DUT with Antenna Horizontal in Dell Latitude C640

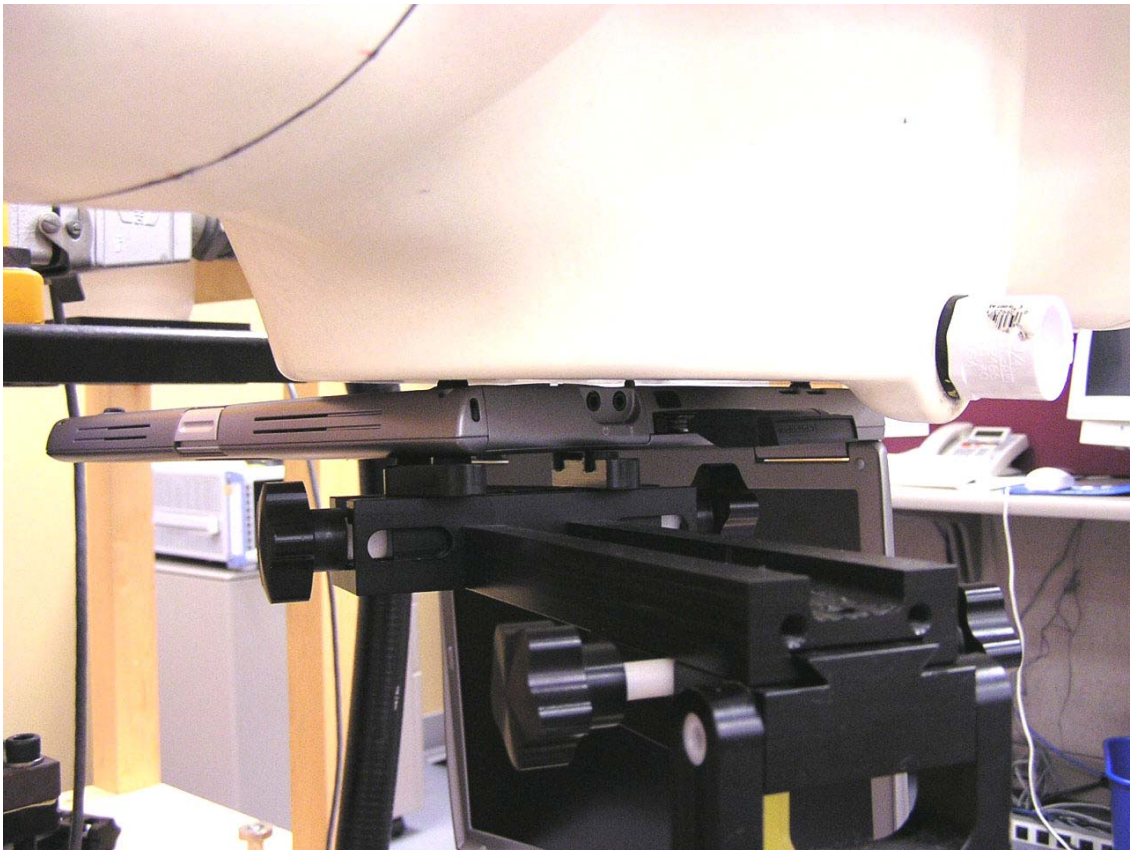


Overall Test Setup for Dell Latitude D600

DUT with Antenna Vertical in Dell Latitude D600



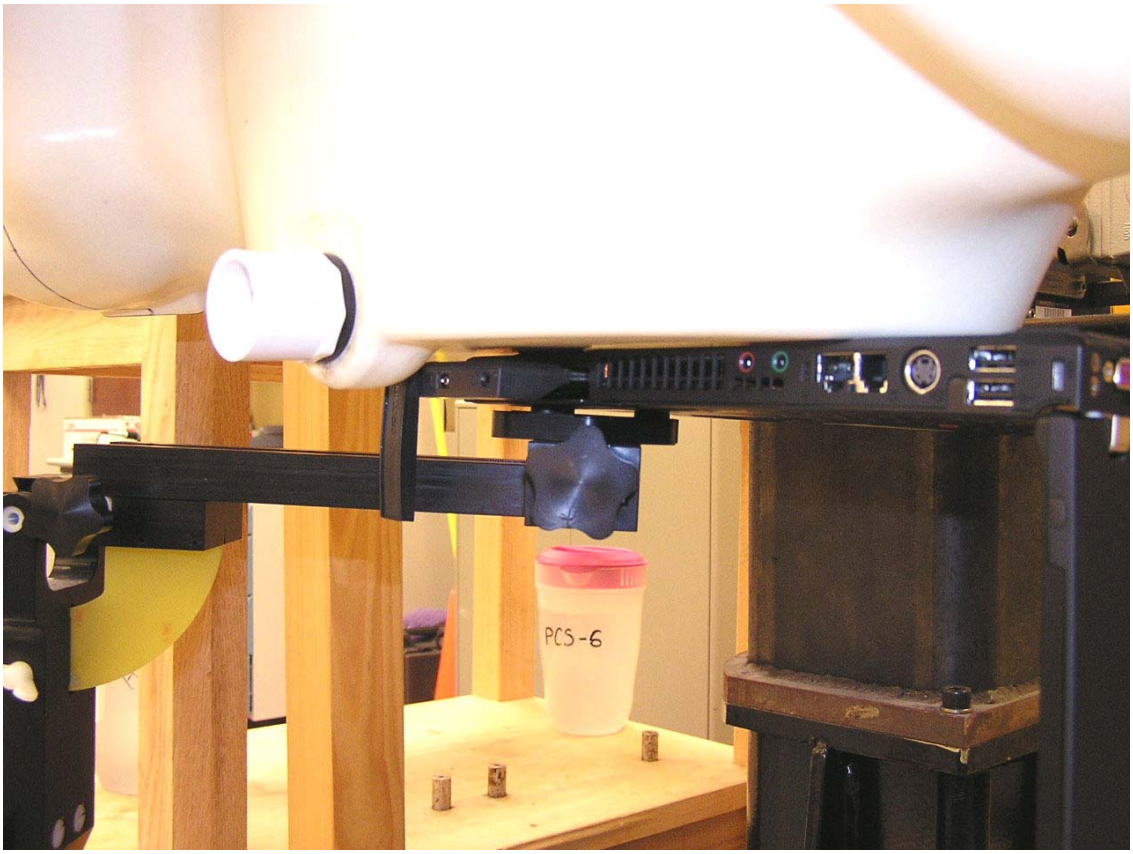
DUT with Antenna Vertical in Dell Latitude D600



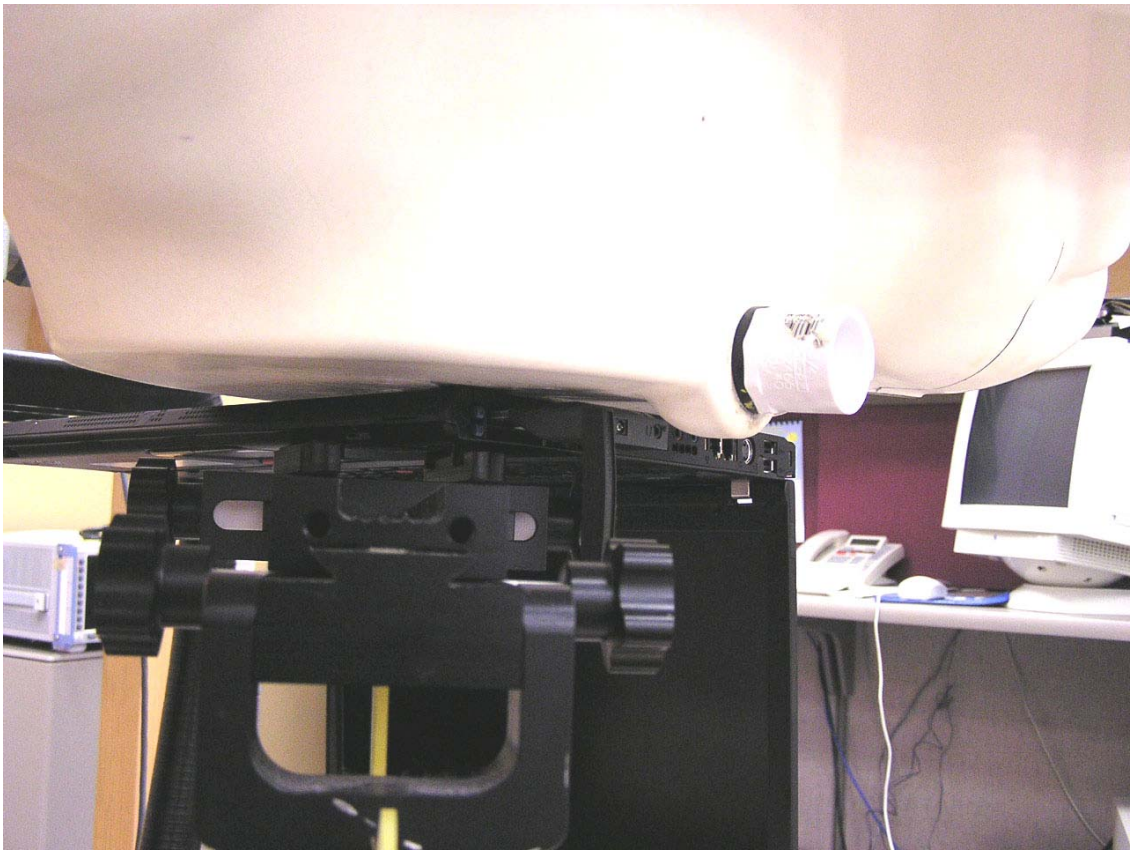
DUT with Antenna Horizontal in Dell Latitude D600

DUT with Antenna Horizontal in Dell Latitude D600

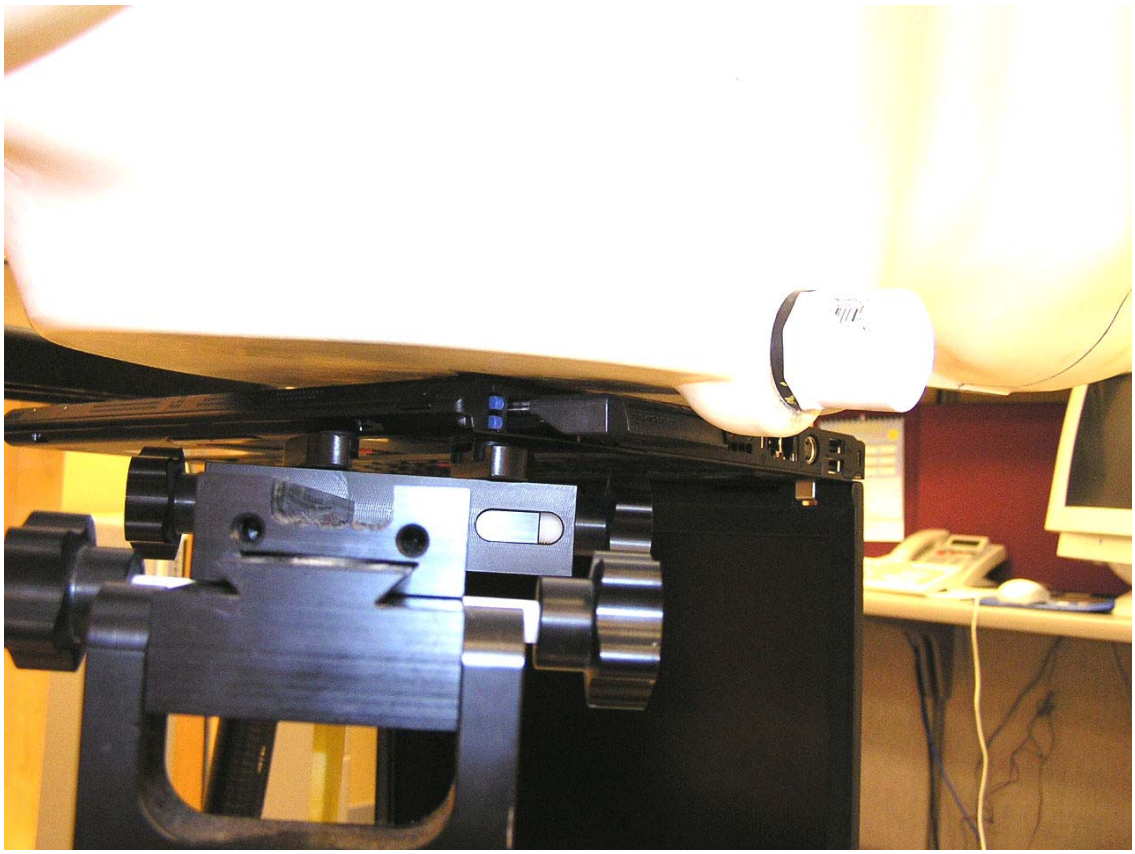
Overall Test Setup for IBM ThinkPad T41



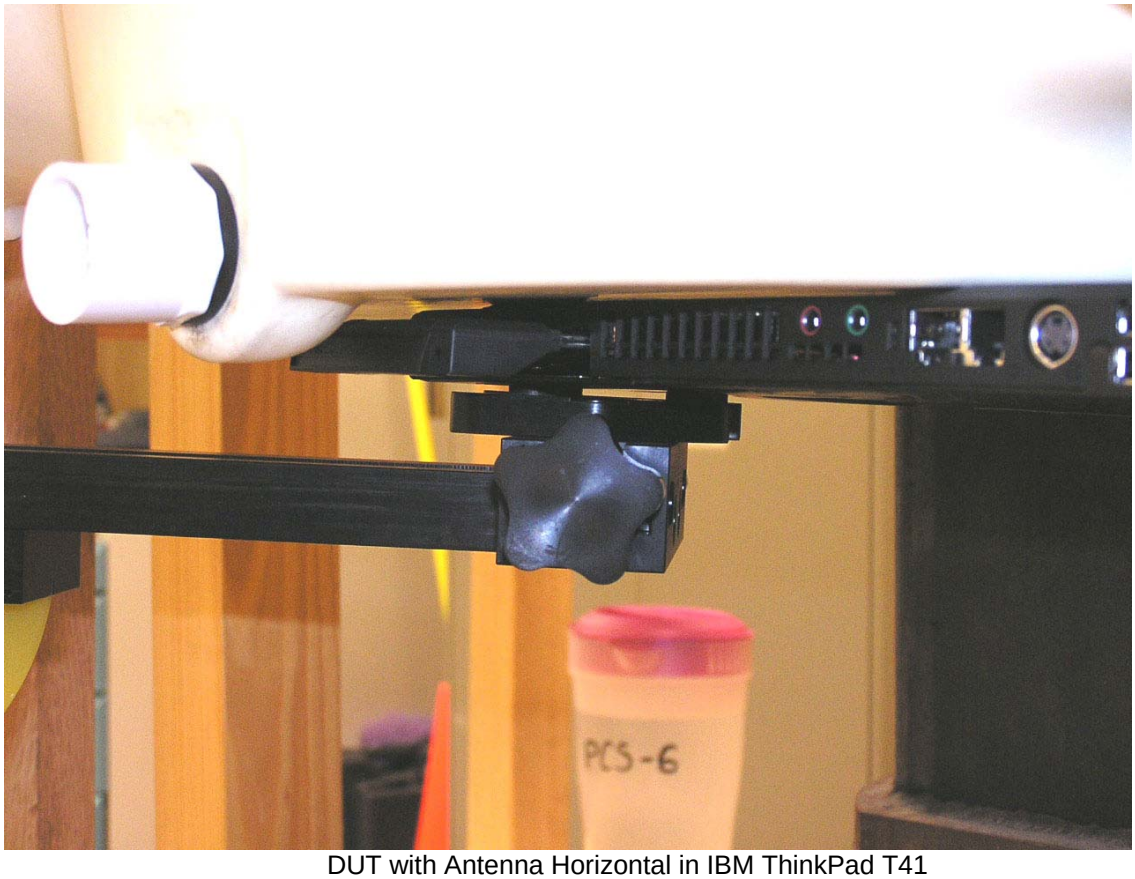
DUT with Antenna Vertical in IBM ThinkPad T41



DUT with Antenna Vertical in IBM ThinkPad T41



DUT with Antenna Horizontal in IBM ThinkPad T41



DUT with Antenna Horizontal in IBM ThinkPad T41