



Exhibit 11: SAR Test Report IHDT56EC1

Date of test: 01/17/2004 – 01/28/2004
Date of Report: 02/06/2004

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



Tests:
 Electromagnetic Specific Absorption Rate

Procedures:
 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)
 APP-0247
 DOI-0876, 0900, 0902, 0904, 0915

Simulated Tissue Preparation
 RF Power Measurement

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 IHDT56EC1 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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This test report shall not be reproduced except in full, without written approval of the laboratory.

The results and statements contained herein relate only to the items tested. The names of individuals involved may be mentioned only in connection with the statements or results from this report.

Motorola encourages all feedback, both positive and negative, on this test report.

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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 IHDT56CE1). 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

a. Antenna description

Type	External	
Location	Upper Right	
Dimensions	Length	114 mm
	Width	8 mm
Configuration	Extendable Whip	

b. Device description

FCC ID Number	IHDT56CE1		
Serial number	77047F51		
Mode(s) of Operation	800 AMPS	800 CDMA	1900 CDMA
Modulation Mode(s)	AMPS	CDMA	CDMA
Maximum Output Power Setting	27.80 dBm	25.00 dBm	25.00 dBm
Duty Cycle	1:1	1:1	1:1
Transmitting Frequency Rang(s)	824-849MHz	824-849MHz	1851-1909MHz
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 $\pm 11.7\%$ ($K=1$) with an expanded uncertainty of $\pm 23.0\%$ ($K=2$). 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	378	05/30/2004
	385	05/14/2004
E-Field Probe ET3DV6	1514	07/31/2004
E-Field Probe ES3DV3	3037	10/10/2004
Dipole Validation Kit, D900V2	096	06/24/2004
S.A.M. Phantom used for 800MHz	TP-1131	
Dipole Validation Kit, D1800V2	250TR	06/24/2004
S.A.M. Phantom used for 1900MHz	TP-1154	

3.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04822	2/6/2005
	3847A04633	10/11/2004
Power Meter E4419B	GB39511087	2/6/2004
	GB39511082	4/19/2004
Power Sensor #1 – E9301A	US39210929	2/6/2004
	US39210916	8/5/2004
Power Sensor #2 – E9301A	US39210933	2/6/2004
	US39211008	8/5/2004
Network Analyzer HP8753ES	US39171846	6/3/2004
Dielectric Probe Kit HP85070B	US99360070	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)
835	Head	Measured, 01/17/2004	42.0	0.92	19.6
		Measured, 01/18/2004	42.1	0.92	20.0
		Measured, 01/19/2004	40.9	0.90	19.2
		Recommended Limits	41.5 $\pm$ 5%	0.90 $\pm$ 5%	18-25
	Body	Measured, 01/19/2004	53.5	0.98	19.0
		Measured, 01/20/2004	52.6	0.98	19.3
		Recommended Limits	55.2 $\pm$ 5%	0.97 $\pm$ 5%	18-25
1880	Head	Measured, 01/24/2004	39.1	1.47	19.5
		Measured, 01/27/2004	38.6	1.44	18.1
		Recommended Limits	40.0 $\pm$ 5%	1.40 $\pm$ 5%	18-25
	Body	Measured, 01/25/2004	52.1	1.58	18.5
		Measured, 01/28/2004	52.4	1.59	19.1
		Recommended Limits	53.3 $\pm$ 5%	1.52 $\pm$ 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 $\pm$ 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.

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Ambient Temp (°C)	Tissue Temp (°C)
			ϵ_r	σ (S/m)		
900	Measured, 01/17/2004	11.16	41.4	0.98	20.0	20.0
	Measured, 01/18/2004	11.13	41.5	0.98	19.0	19.8
	Measured, 01/19/2004	11.26	40.2	0.96	20.0	19.2
	Measured, 01/20/2004	11.17	40.7	0.97	20.0	19.3
	Recommended Limits	11.6	41.5 $\pm$ 5%	0.97 $\pm$ 5%	18-25	18-25
1800	Measured, 01/24/2004	39.92	38.8	1.37	20.0	19.5
	Measured, 01/25/2004	41.29	39.3	1.37	19.0	19.5
	Measured, 01/27/2004	41.04	39.2	1.36	20.0	19.4
	Measured, 01/28/2004	43.49	39.1	1.46	20.0	18.8
	Recommended Limits	39.7	40.0 $\pm$ 5%	1.4 $\pm$ 5%	18-25	18-25

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	SN1514	900	6.3	7 of 11
		1800	5.1	7 of 11
E-Field Probe ES3DV3	SN3037	900	6.1	7 of 10
		1800	4.9	7 of 10

6. Test Results

The test sample was 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. The phone was tested in the configurations stipulated in OET Bulletin 65 Supplement C 01-01. Motorola also followed the requirements in Supplement. C / Appendix D: SAR Measurement Procedures, section titled "*Devices Operating Next To A Person's Ear*". These directions state "The device should be tested on the left and right side of the head phantom in the "Cheek/Touch" and "Ear/Tilt" positions. 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 phone was positioned into the measurement configurations using the positioner supplied with the DASY 3.1d SAR measurement system. 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 ($\pm 30\%$) 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 IHDT56CE1) has the following battery option:

SNN5695A - 835mAH Battery

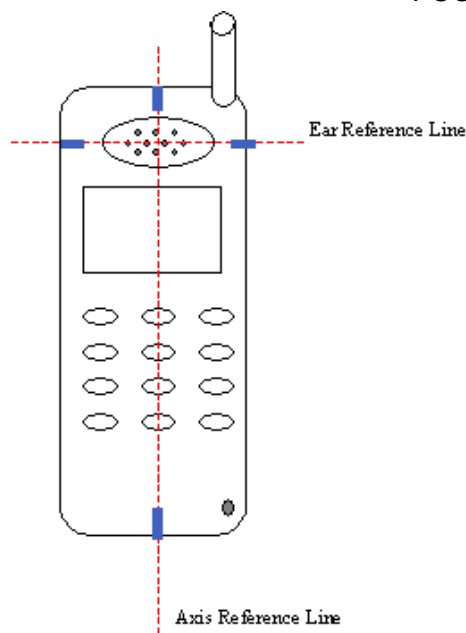
This battery was used to do all of the SAR testing. The phone was placed in the SAR measurement system with battery fully charged.

6.1 Head Adjacent Test Results

To aid in positioning repeatability, the ear reference line of the device and the axis reference line of the device have been physically added using a non-metallic marker.

- Per Figure 1, the "Ear Reference Line" is centered vertically through the center of the listening area (as defined by the speaker holes in the housing).
- The "Axis Reference Line" bisects the front surface of the device at its top and bottom edges.
- The intersection of these two lines defines the location of the "Ear Reference Point".

The lines drawn on the device extended to the outside edges, as shown in blue in the figure below, & wrap around the sides of the device.



The SAR results shown in tables 1 through 4 are 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 $\text{New SAR} = \text{Old SAR} * 10^{(-\text{drift}/10)}$. 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 2

The SAR measurements were performed using the SAM phantoms listed in section 3.1. Since same phantoms and tissue simulate are used for the system accuracy verification as the device SAR measurements, the Z-axis scans included in within Appendix 1 are applicable for verification of tissue simulate depth to be 15.0cm $\pm$ 0.5cm. All other test conditions measured lower SAR values than those included in Appendix 2. Note that 800MHz digital mode SAR measurements were performed in accordance with Supplement C.

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

Description	Serial Number	f (MHz)	Conversion Factor	Cal Cert pg #
E-Field Probe ET3DV6	SN1514	900	6.3	7 of 11
		1800	5.1	7 of 11
E-Field Probe ES3DV3	SN3037	900	6.1	7 of 10
		1800	4.9	7 of 10

f (MHz)	Description	Conducted Output Power (dBm)	Left Head (Cheek / Touch Position)							
			Ant Extended				Ant Retracted			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80	1.07	0.01	1.07	20	1.04	0.09	1.04	20
	Channel 384	27.80	0.987	0.05	0.99	20	1.19	-0.05	1.20	20
	Channel 799	27.80	1.09	-0.12	1.12	20	1.12	0.01	1.12	20
Digital 800MHz	Channel 1013	25.00	1.07	-0.03	1.08	20	1.02	-0.02	1.03	20
	Channel 384	25.00	0.94	-0.07	0.96	20	1.10	-0.16	1.14	20
	Channel 779	25.00	1.07	-0.12	1.10	20	1.06	-0.06	1.07	20
Digital 1900MHz	Channel 25	25.00					1.34	0.05	1.34	19.5
	Channel 600	25.00	0.474	0.27	0.242	18.1	1.15	0.15	1.15	18.7
	Channel 1175	25.00					0.985	0.04	0.99	18.4

Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT56EC1 at highest possible output power. Measured against the left head in the Cheek/Touch Position.

f (MHz)	Description	Conducted Output Power (dBm)	Right Head (Cheek / Touch Position)							
			Ant Extended				Ant Retracted			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80	1.29	-0.08	1.31	19.6	1.20	-0.16	1.25	19.5
	Channel 384	27.80	1.16	-0.14	1.20	19.6	1.28	-0.29	1.37	20
	Channel 799	27.80	1.28	-0.11	1.31	19.9	1.32	-0.16	1.37	19.5
Digital 800MHz	Channel 1013	25.00	1.33	-0.03	1.34	20	1.33	-0.11	1.36	20
	Channel 384	25.00	1.20	-0.19	1.25	19.9	1.25	-0.22	1.31	20
	Channel 779	25.00	1.34	-0.19	1.40	20	1.24	-0.28	1.32	19.2
Digital 1900MHz	Channel 25	25.00					1.14	0.05	1.14	18.3
	Channel 600	25.00	0.592	-0.14	0.61	18.5	1.10	-0.11	1.13	18.7
	Channel 1175	25.00					0.983	-0.22	1.03	18.4

Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT56EC1 at highest possible output power. Measured against the right head in the Cheek/Touch Position.

f (MHz)	Description	Conducted Output Power (dBm)	Left Head (15° Tilt Position)							
			Ant Extended				Ant Retracted			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80								
	Channel 384	27.80	0.262	0.1	0.26	20	0.357	-0.08	0.36	20
	Channel 799	27.80								
Digital 800MHz	Channel 1013	25.00								
	Channel 384	25.00	0.222	-0.04	0.22	20	0.352	0	0.35	20
	Channel 779	25.00								
Digital 1900MHz	Channel 25	25.00								
	Channel 600	25.00	0.211	-0.11	0.22	18.1	0.3	-0.24	0.32	18.1
	Channel 1175	25.00								

Table 3: SAR measurement results for the portable cellular telephone FCC ID IHDT56EC1 at highest possible output power. Measured against the left head in the 15° Tilt Position.

f (MHz)	Description	Conducted Output Power (dBm)	Right Head (15° Tilt Position)							
			Ant Extended				Ant Retracted			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80								
	Channel 384	27.80	0.247	0.22	0.25	19.2	0.335	0.11	0.34	19.2
	Channel 799	27.80								
Digital 800MHz	Channel 1013	25.00								
	Channel 384	25.00	0.218	-0.01	0.22	19.2	0.309	0.08	0.31	19.2
	Channel 779	25.00								
Digital 1900MHz	Channel 25	25.00								
	Channel 600	25.00	0.196	-0.02	0.20	18.3	0.228	0.02	0.23	18.5
	Channel 1175	25.00								

Table 4: SAR measurement results for the portable cellular telephone FCC ID IHDT56EC1 at highest possible output power. Measured against the right head in the 15° Tilt Position.

6.2 Body Worn Test Results

The SAR results shown in table 5 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 $\text{New SAR} = \text{Old SAR} * 10^{(-\text{drift}/10)}$. 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. Note that 800MHz digital mode SAR measurements were performed in accordance with OET Bulletin 65 Supplement C 01-01. All other test conditions measured lower SAR values than those included in Appendix 3.

A “flat” phantom was for the body-worn tests. This “flat” phantom is made out of 1” thick natural High Density Polyethylene with a thickness at the bottom equal to 2.0mm. It measures 52.7cm(long) x 26.7cm(wide) x 21.2cm(tall). The measured dielectric constant of the material used is less than 2.3 and the loss tangent is less than 0.0046 all the way up to 2.184GHz.

The tissue stimulant depth was verified to be 15.0cm ±0.5cm. The same device holder described in section 6 was used for positioning the phone. The functional accessories were divided into two categories, the ones with metal components and the ones with non-metal components. For non-metallic component accessories, testing was performed on the accessory that displayed the closest proximity to the flat phantom. Each metallic component accessory, if any, was checked for uniqueness of metal component so that each is tested with the device. If multiple accessories shared an identical metal component, only the accessory that dictates the closest spacing to the body was tested. The cellular phone was tested with a headset connected to the device for all body-worn SAR measurements.

There is only one body-worn accessory, a plastic holster and belt clip model #SYN0912A, available for this phone. This accessory was used for all body-worn SAR measurements.

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	SN1514	900	6.1	8 of 11
		1800	4.7	8 of 11
E-Field Probe ES3DV3	SN3037	900	5.9	8 of 10
		1800	4.7	8 of 10

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn							
			Ant Extended				Ant Retracted			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80								
	Channel 384	27.80	0.618	-0.13	0.64	19	0.731	-0.17	0.76	19
	Channel 799	27.80								
Digital 800MHz	Channel 1013	25.00								
	Channel 384	25.00	0.569	-0.12	0.58	19	0.646	-0.18	0.67	19
	Channel 779	25.00								
Digital 1900MHz	Channel 25	25.00	0.896	-0.14	0.93	18.8	0.973	-0.2	1.02	18.5
	Channel 600	25.00	0.969	-0.23	1.02	19.1	0.835	-0.16	0.87	18.8
	Channel 1175	25.00	0.962	-0.46	1.07	19.1	0.653	-0.52	0.74	19

Table 5: SAR measurement results for the portable cellular telephone FCC ID IHDT56EC1 at highest possible output power. Measured against the body.

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn with Bluetooth enabled							
			Ant Extended				Ant Retracted			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80					0.656	-0.06	0.67	19
	Channel 384	27.80	0.705	-0.07	0.72	19.3	0.792	-0.19	0.83	19
	Channel 799	27.80					0.744	-0.2	0.78	19.3
Digital 800MHz	Channel 1013	25.00								
	Channel 384	25.00	0.65	-0.09	0.66	19.3	0.734	-0.18	0.77	19
	Channel 779	25.00								
Digital 1900MHz	Channel 25	25.00	0.875	-0.17	0.91	18.5	0.997	-0.21	1.05	19.2
	Channel 600	25.00	0.874	-0.29	0.93	19.2	0.867	-0.27	0.92	19.4
	Channel 1175	25.00	0.973	-0.4	1.07	18.7	0.677	-0.47	0.75	18.5

Table 6: SAR measurement results for the portable cellular telephone FCC ID IHDT56EC1 at highest possible output power. Measured against the body with Bluetooth enabled.

Appendix 1

SAR distribution comparison for the system accuracy verification

Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 096

Forward Power = 249mw Reflected Power = -29.50db

Room Temp at time of measurement = 20.0*C. Simulant Temp at time of measurement = 20*C

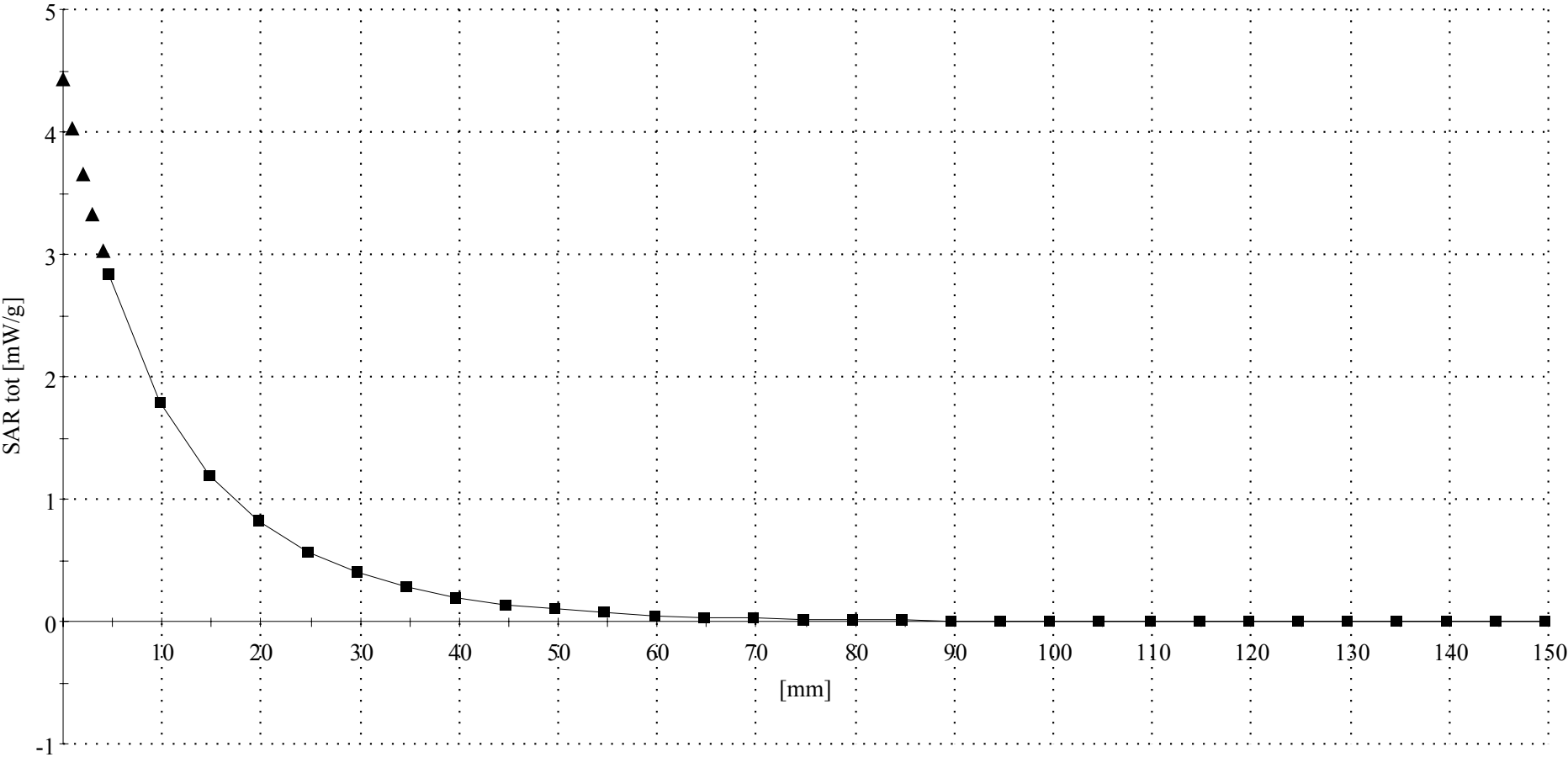
R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Section; Position: ; Frequency: 900 MHz

Probe: ET3DV6 - SN1514 - Validation.3; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 900 MHz VALIDATION: $\sigma = 0.98$ mho/m $\epsilon_r = 41.4$ $\rho = 1.00$ g/cm³

: , ()

Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 11.5 (10.6, 12.6) [mm]



Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 096

Forward Power = 249mw Reflected Power = -29.50db

Room Temp at time of measurement = 20.0*C. Simulant Temp at time of measurement = 20*C

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz

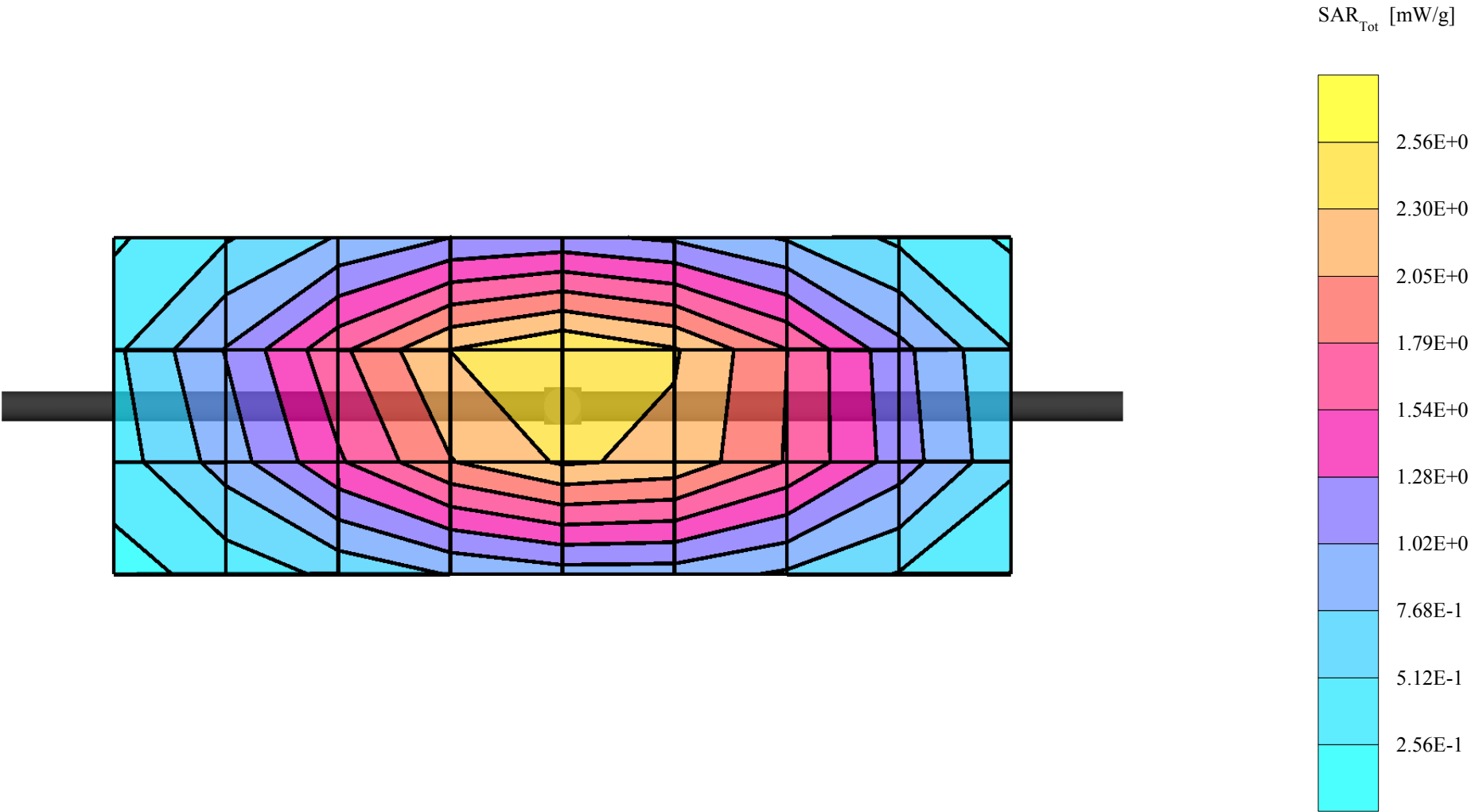
Probe: ET3DV6 - SN1514 - Validation.3; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 900 MHz VALIDATION: $\sigma = 0.98$ mho/m $\epsilon_r = 41.4$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 2.78 mW/g $\pm$ 0.02 dB, SAR (10g): 1.76 mW/g $\pm$ 0.02 dB, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 11.5 (10.6, 12.6) [mm]

Powerdrift: 0.02 dB



Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 096

Forward Power = 248mw Reflected Power = -22.20db

Room Temp at time of measurement = 19.0*C. Simulant Temp at time of measurement = 19.8*C

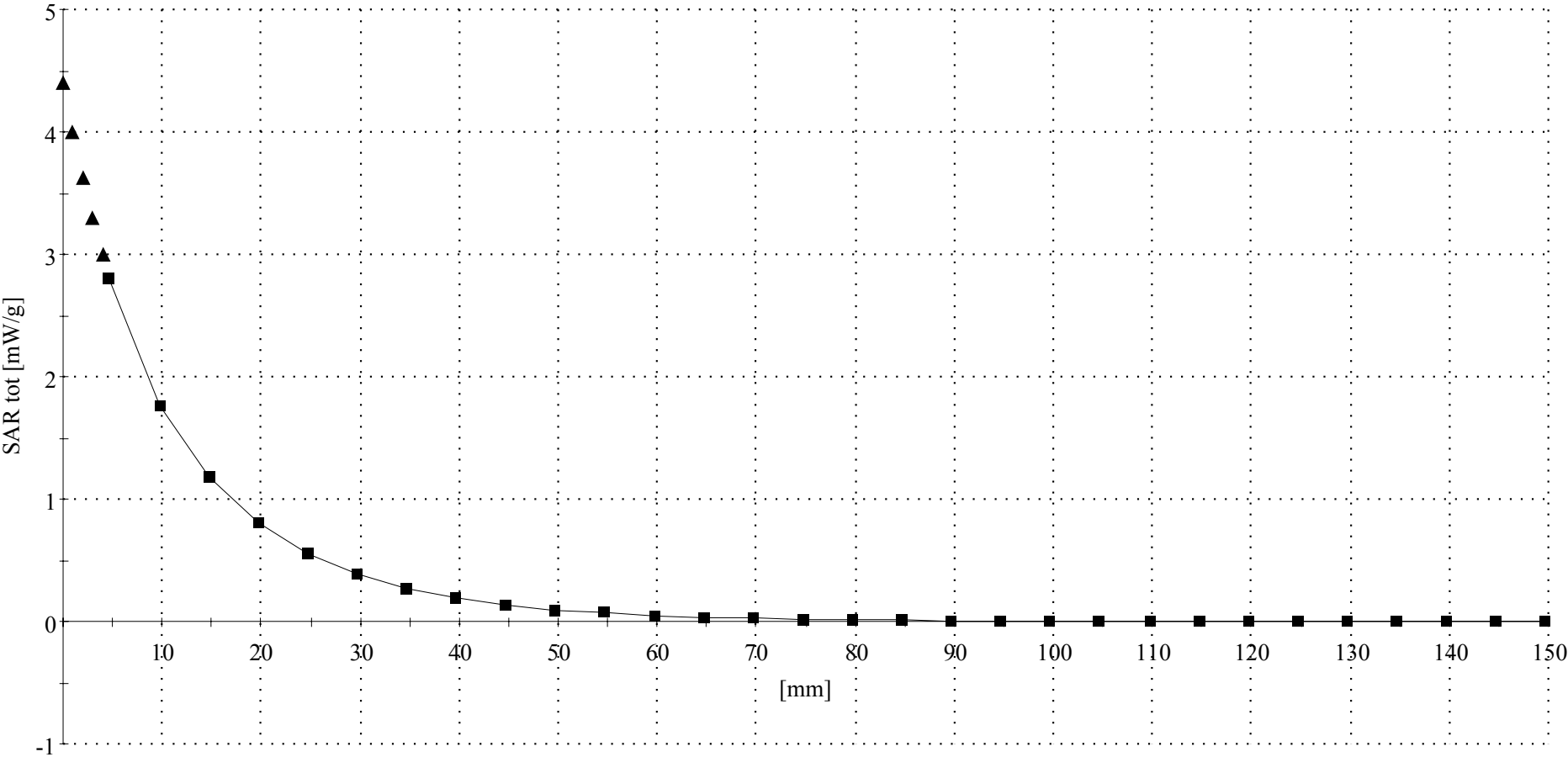
R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Section; Position: ; Frequency: 900 MHz

Probe: ET3DV6 - SN1514 - Validation.3; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 900 MHz VALIDATION: $\sigma = 0.98$ mho/m $\epsilon_r = 41.5$ $\rho = 1.00$ g/cm³

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Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 11.4 (10.6, 12.6) [mm]



Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 096

Forward Power = 248mw Reflected Power = -22.20db

Room Temp at time of measurement = 19.0*C. Simulant Temp at time of measurement = 19.8*C

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz

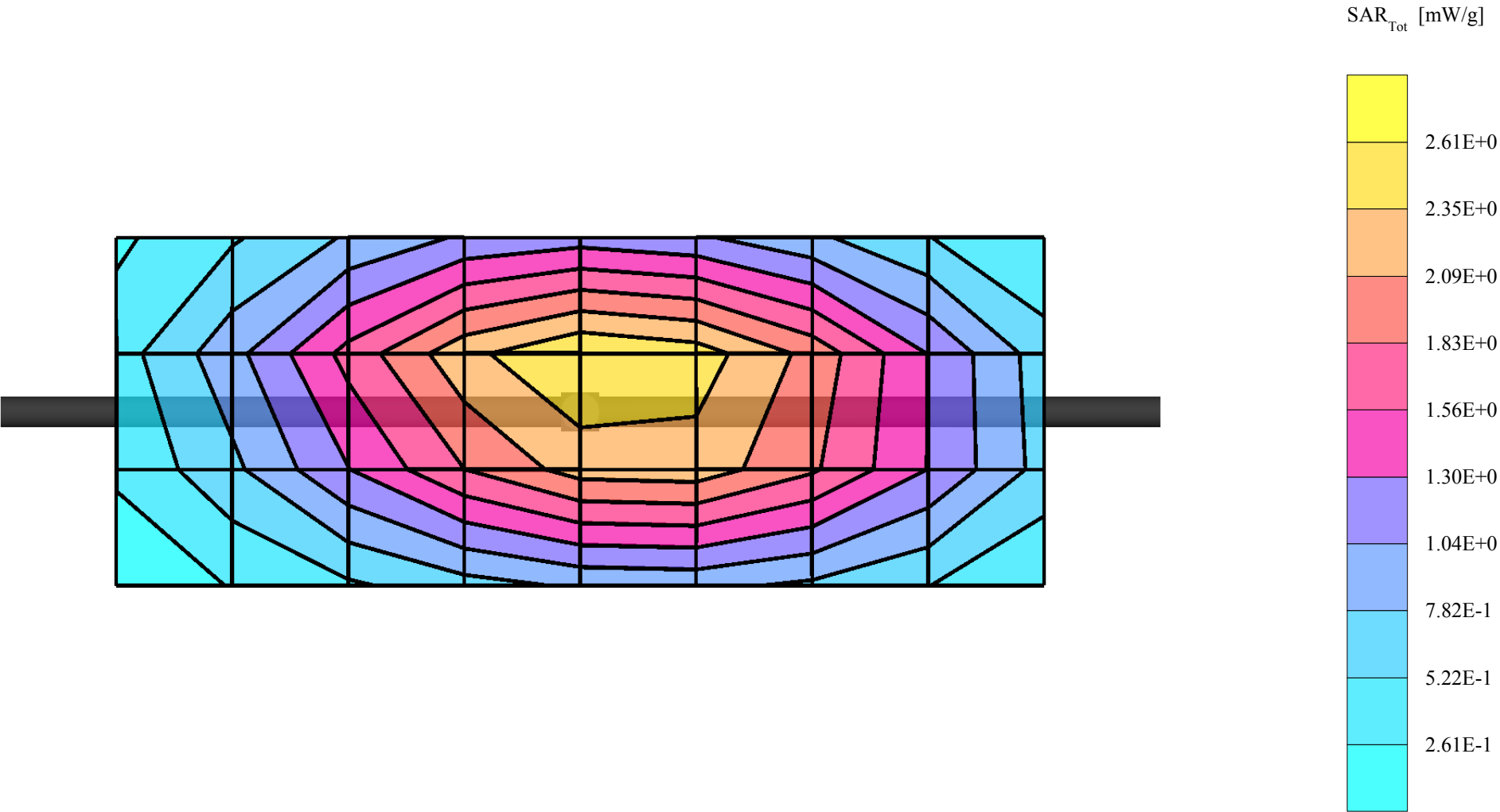
Probe: ET3DV6 - SN1514 - Validation.3; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 900 MHz VALIDATION: $\sigma = 0.98$ mho/m $\epsilon_r = 41.5$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 2.76 mW/g $\pm$ 0.01 dB, SAR (10g): 1.75 mW/g $\pm$ 0.00 dB, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 11.5 (10.7, 12.6) [mm]

Powerdrift: -0.04 dB



Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 096

Forward Power = 248mw Reflected Power = -23.10db

Room Temp at time of measurement = 20.0*C. Simulant Temp at time of measurement = 19.3*C

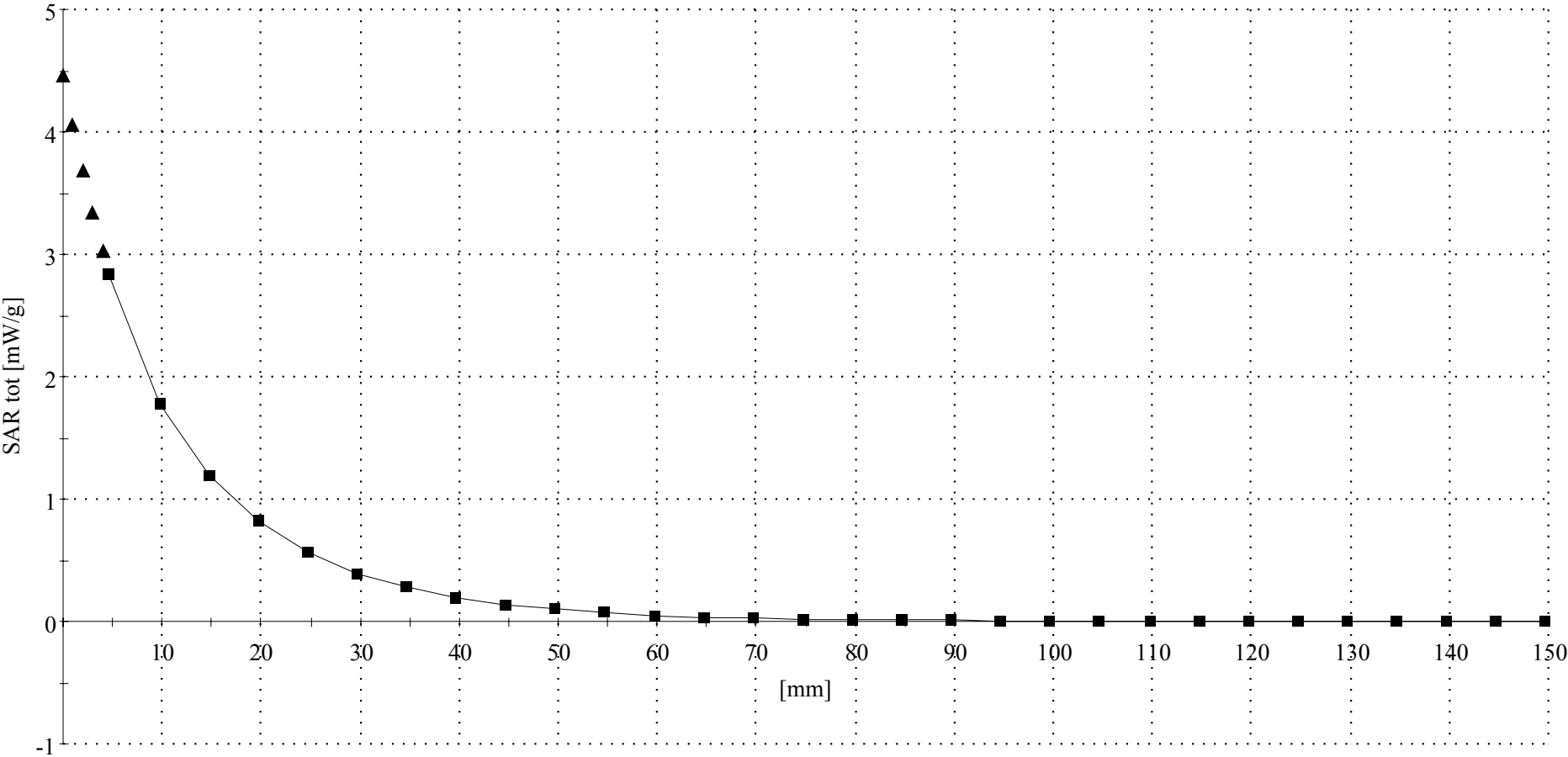
R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Section; Position: ; Frequency: 900 MHz

Probe: ET3DV6 - SN1514 - Validation.3; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 900 MHz VALIDATION: $\sigma = 0.97$ mho/m $\epsilon_r = 40.7$ $\rho = 1.00$ g/cm³

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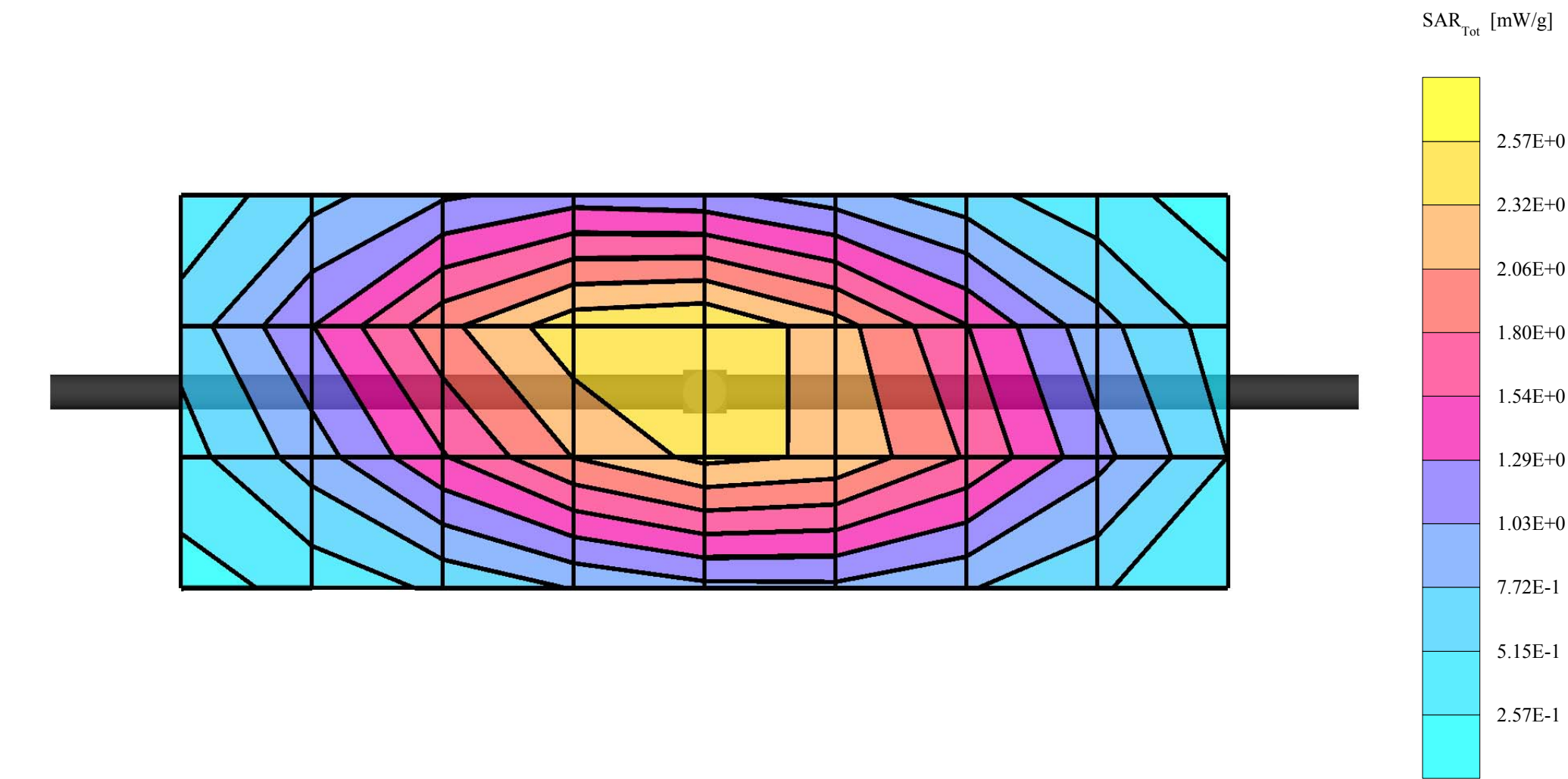
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 11.4 (10.5, 12.6) [mm]



Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 096
Forward Power = 246mw Reflected Power = -22.70db
Room Temp at time of measurement = 20.0*C. Simulant Temp at time of measurement = 19.2*C
R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1514 - Validation.3; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 900 MHz VALIDATION: $\sigma = 0.96$ mho/m $\epsilon_r = 40.2$ $\rho = 1.00$ g/cm³
Cubes (2): SAR (1g): 2.77 mW/g $\pm$ 0.02 dB, SAR (10g): 1.75 mW/g $\pm$ 0.01 dB, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 11.5 (10.7, 12.6) [mm]
Powerdrift: -0.11 dB



Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 096

Forward Power = 248mw Reflected Power = -23.10db

Room Temp at time of measurement = 20.0*C. Simulant Temp at time of measurement = 19.3*C

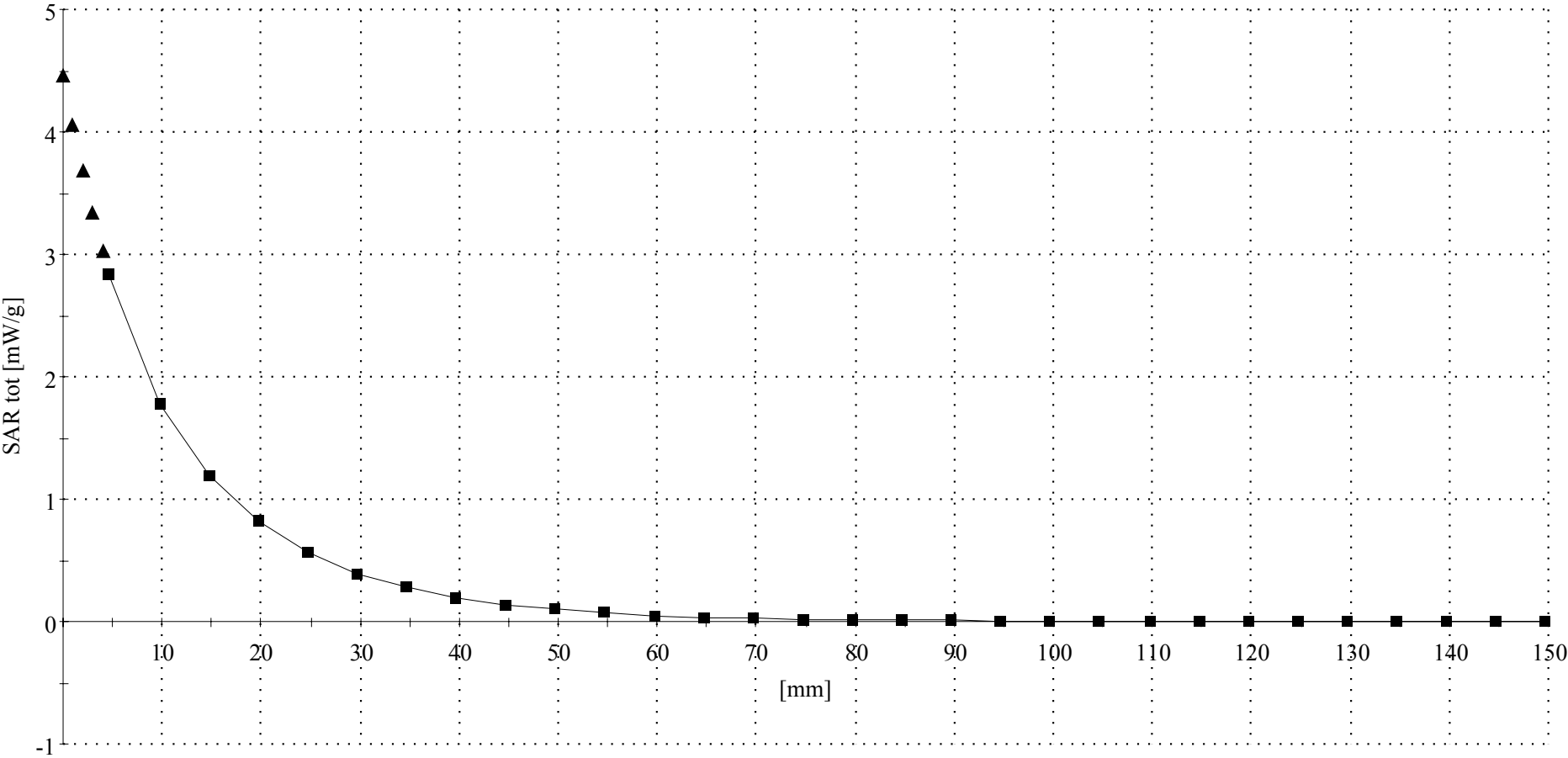
R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Section; Position: ; Frequency: 900 MHz

Probe: ET3DV6 - SN1514 - Validation.3; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 900 MHz VALIDATION: $\sigma = 0.97$ mho/m $\epsilon_r = 40.7$ $\rho = 1.00$ g/cm³

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Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 11.4 (10.5, 12.6) [mm]



Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 096

Forward Power = 248mw Reflected Power = -23.10db

Room Temp at time of measurement = 20.0*C. Simulant Temp at time of measurement = 19.3*C

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz

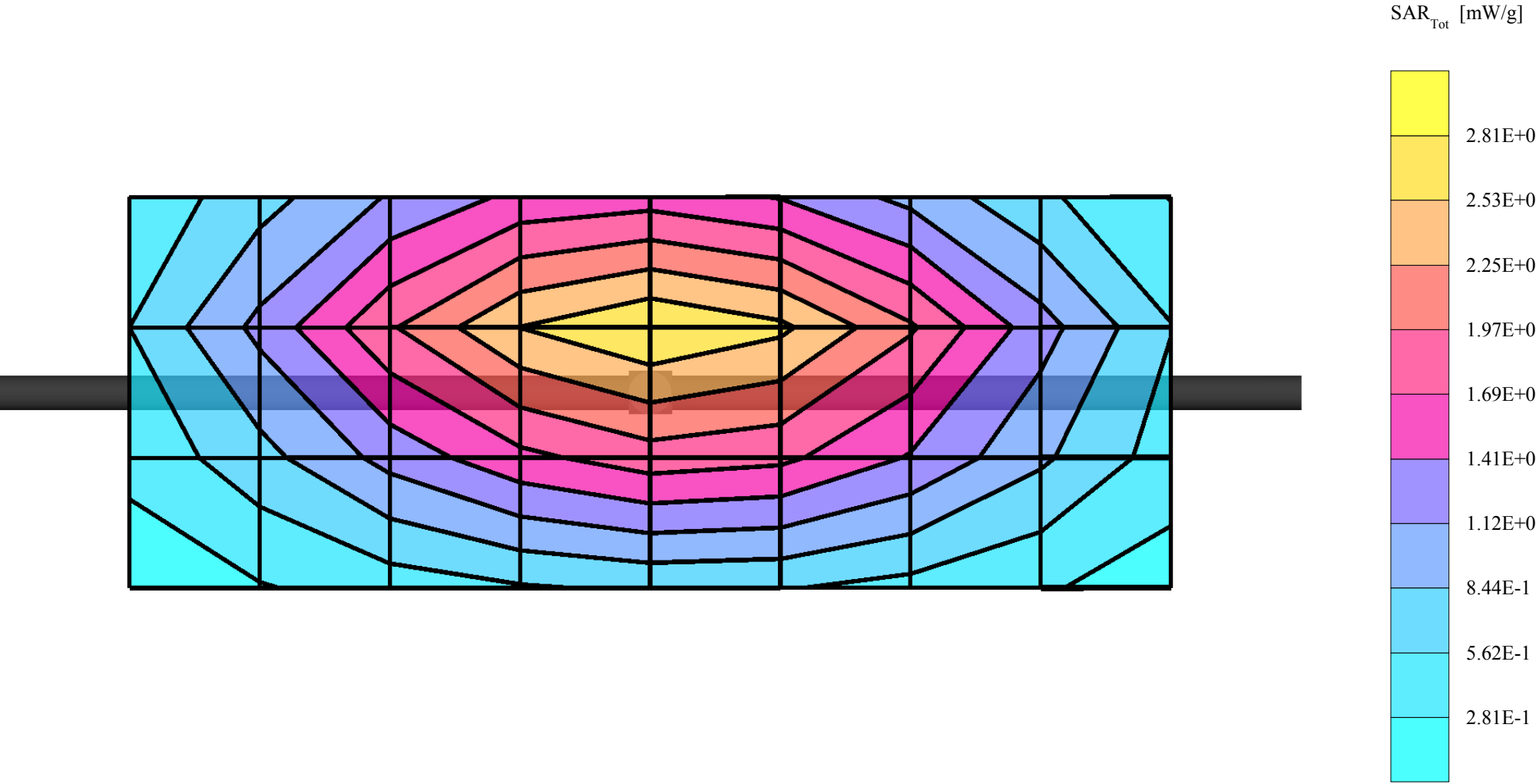
Probe: ET3DV6 - SN1514 - Validation.3; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 900 MHz VALIDATION: $\sigma = 0.97$ mho/m $\epsilon_r = 40.7$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 2.77 mW/g $\pm$ 0.01 dB, SAR (10g): 1.75 mW/g $\pm$ 0.00 dB, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 11.6 (10.8, 12.7) [mm]

Powerdrift: -0.12 dB



Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 250TR

Forward Power = 249 Reflected Power = -23.04

Room Temp at time of measurement = 20C Simulant Temp at time of measurement = 19.5C

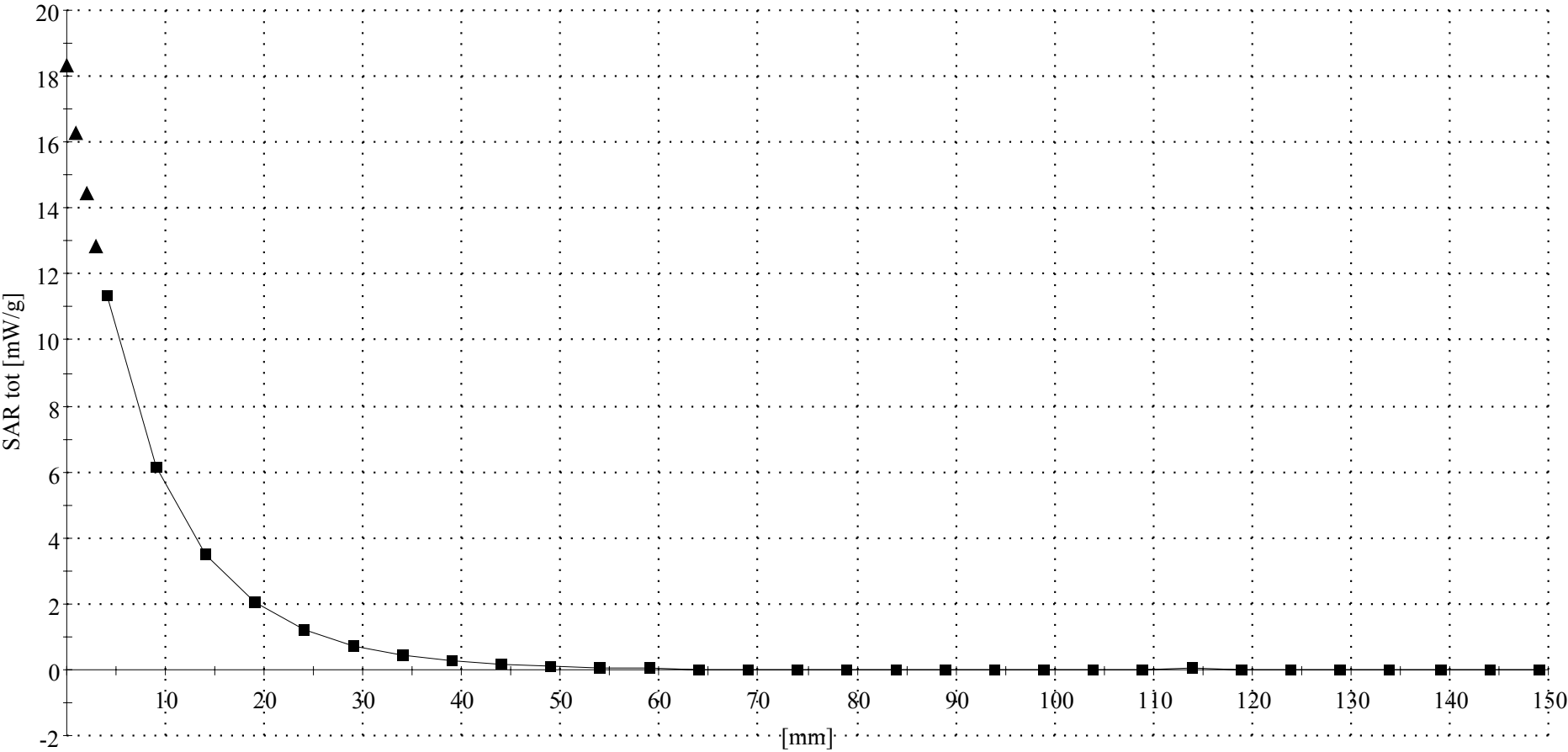
R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Section; Position: ; Frequency: 1800 MHz

Probe: ES3DV3 - SN3037 - Validation.2; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.37 \text{ mho/m}$ $\epsilon_r = 38.8$ $\rho = 1.00 \text{ g/cm}^3$

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Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 8.5 (8.2, 9.2) [mm]



Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 250TR

Forward Power = 249 Reflected Power = -23.04

Room Temp at time of measurement = 20C Simulant Temp at time of measurement = 19.5C

R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Flat Section; Position: (90°,90°); Frequency: 1800 MHz

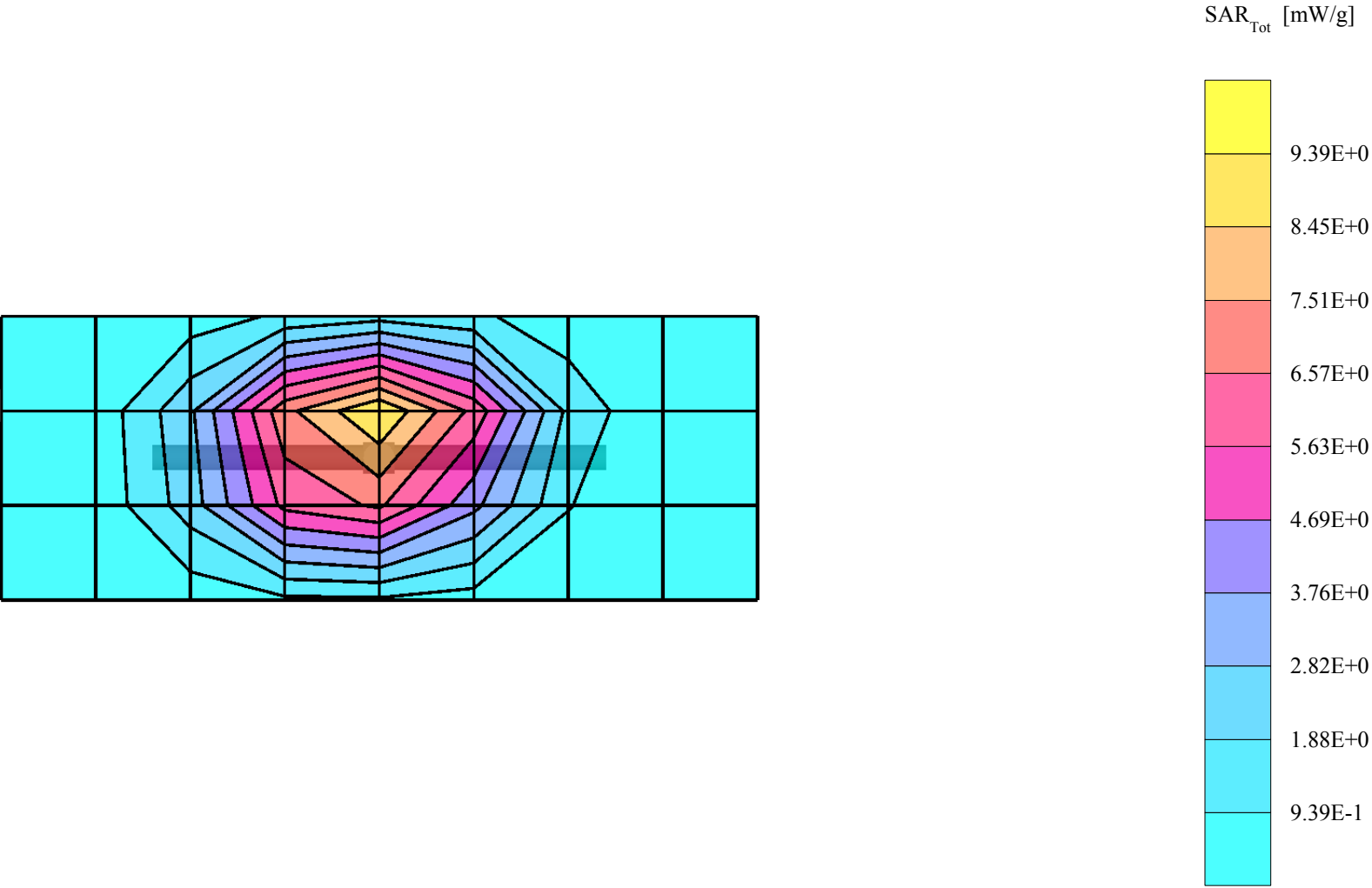
Probe: ES3DV3 - SN3037 - Validation.2; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.37 \text{ mho/m}$ $\epsilon_r = 38.8$ $\rho = 1.00 \text{ g/cm}^3$

Cubes (2): SAR (1g): 9.94 mW/g $\pm 0.00 \text{ dB}$, SAR (10g): 5.27 mW/g $\pm 0.02 \text{ dB}$, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 8.9 (8.7, 9.5) [mm]

Powerdrift: -0.04 dB



Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 250TR

Forward Power = 247 Reflected Power = -22.19

Room Temp at time of measurement = 19C Simulant Temp at time of measurement = 19.5C

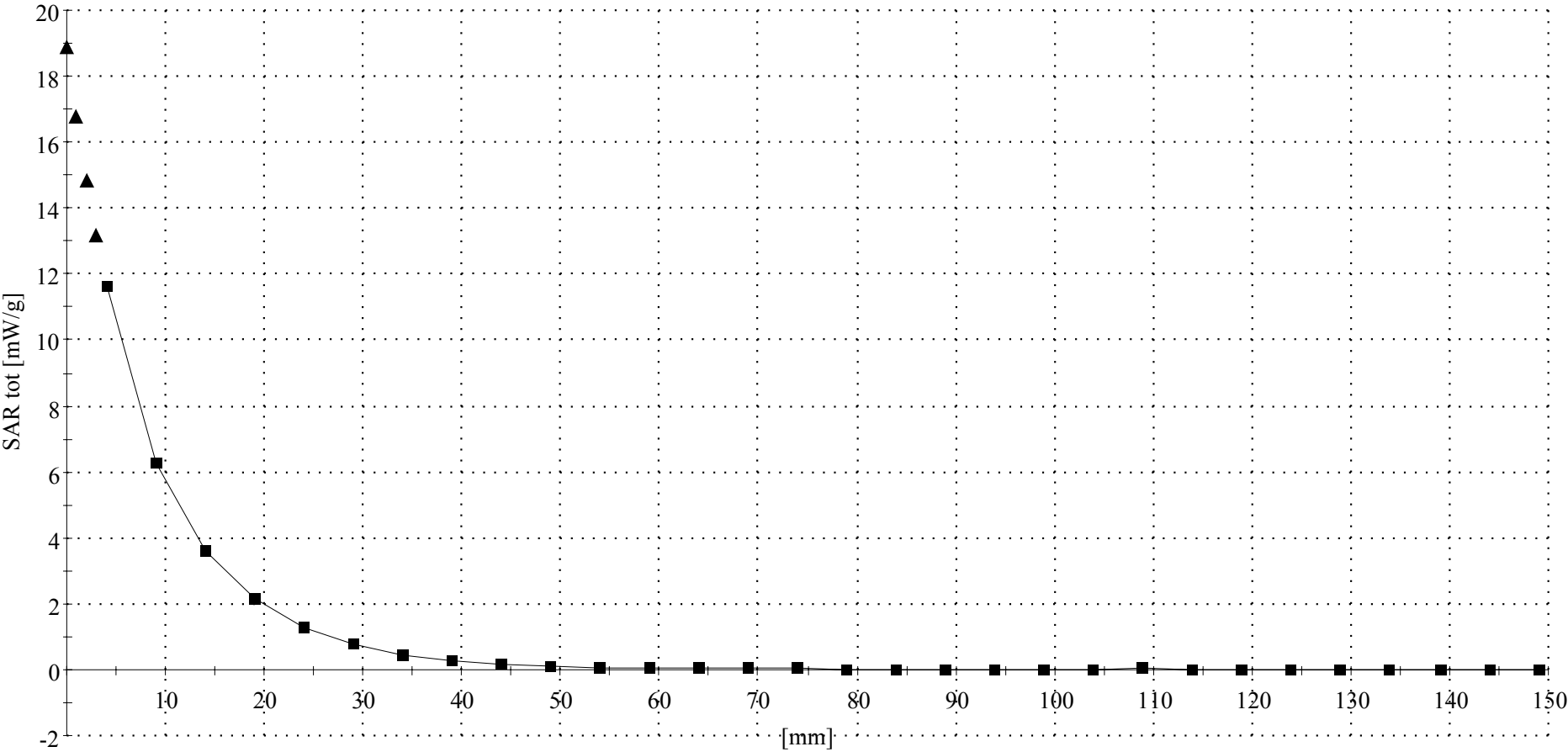
R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; Section; Position: ; Frequency: 1800 MHz

Probe: ES3DV3 - SN3037 - Validation.2; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.37$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³

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Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 8.5 (8.1, 9.3) [mm]



Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 250TR

Forward Power = 247 Reflected Power = -22.19

Room Temp at time of measurement = 19C Simulant Temp at time of measurement = 19.5C

R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 2 Section; Position: (90°,90°); Frequency: 1800 MHz

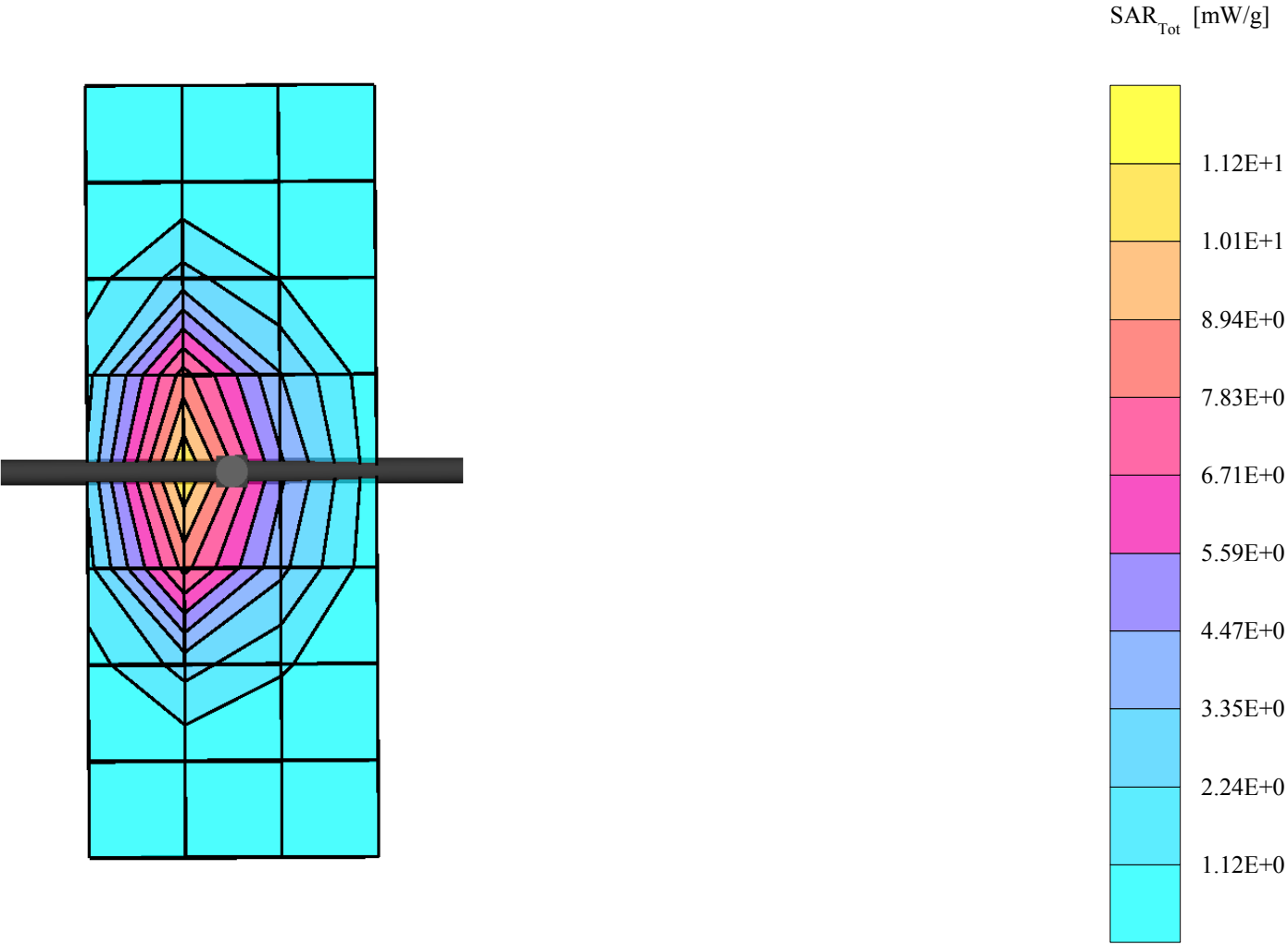
Probe: ES3DV3 - SN3037 - Validation.2; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.37 \text{ mho/m}$ $\epsilon_r = 39.3$ $\rho = 1.00 \text{ g/cm}^3$

Cubes (2): SAR (1g): 10.2 mW/g $\pm 0.02 \text{ dB}$, SAR (10g): 5.39 mW/g $\pm 0.01 \text{ dB}$, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 8.8 (8.5, 9.6) [mm]

Powerdrift: -0.05 dB



Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 250tr

Forward Power =251mw Reflected Power = -21.7db

Room Temp at time of measurement = 20c Simulant Temp at time of measurement = 19.4c

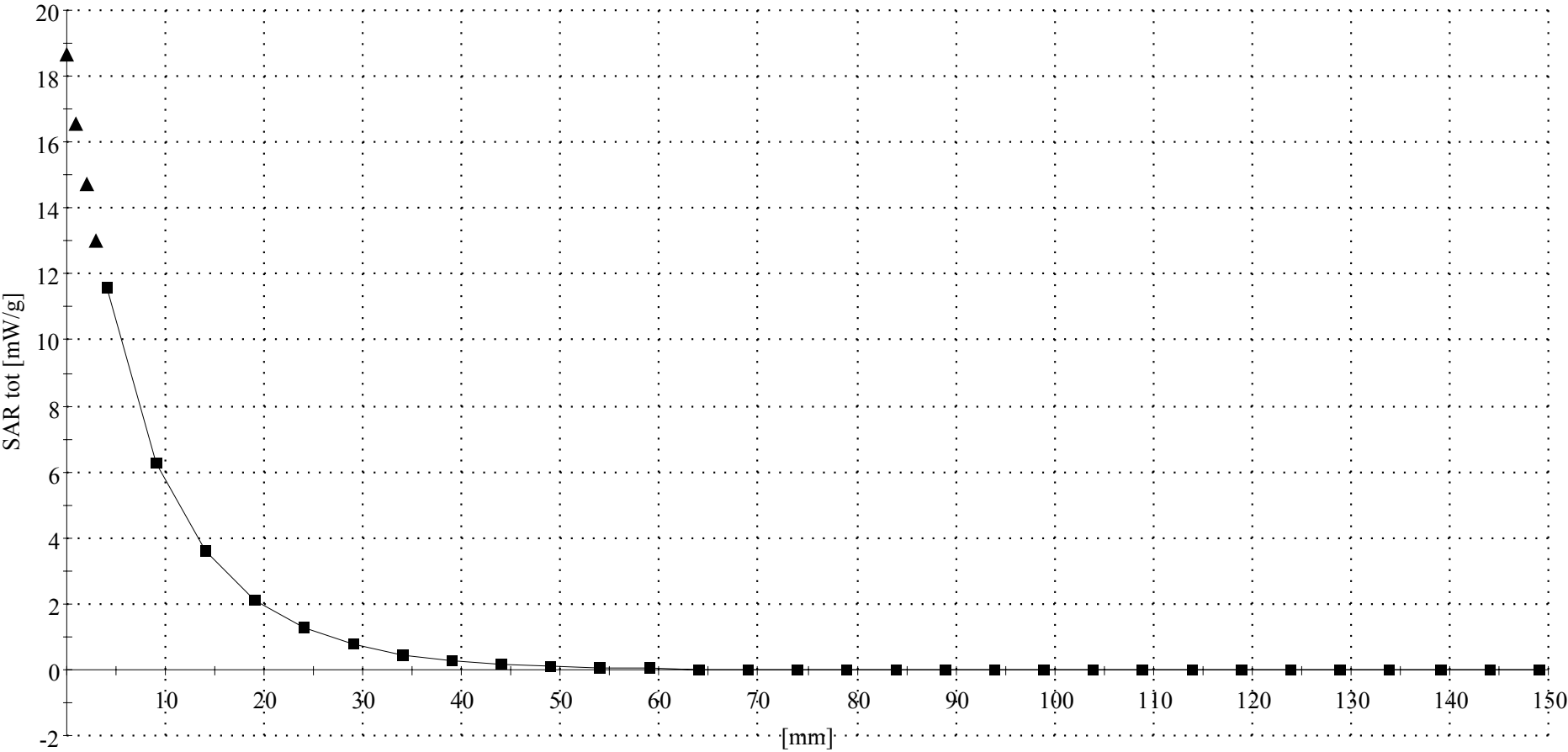
R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; Section; Position; ; Frequency: 1800 MHz

Probe: ES3DV3 - SN3037 - Validation.2; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.36 \text{ mho/m}$ $\epsilon_r = 39.2$ $\rho = 1.00 \text{ g/cm}^3$

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Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 8.5 (8.2, 9.2) [mm]



Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 250tr

Forward Power =251mw Reflected Power = -21.7db

Room Temp at time of measurement = 20c Simulant Temp at time of measurement = 19.4c

R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 2 Section; Position: (90°,90°); Frequency: 1800 MHz

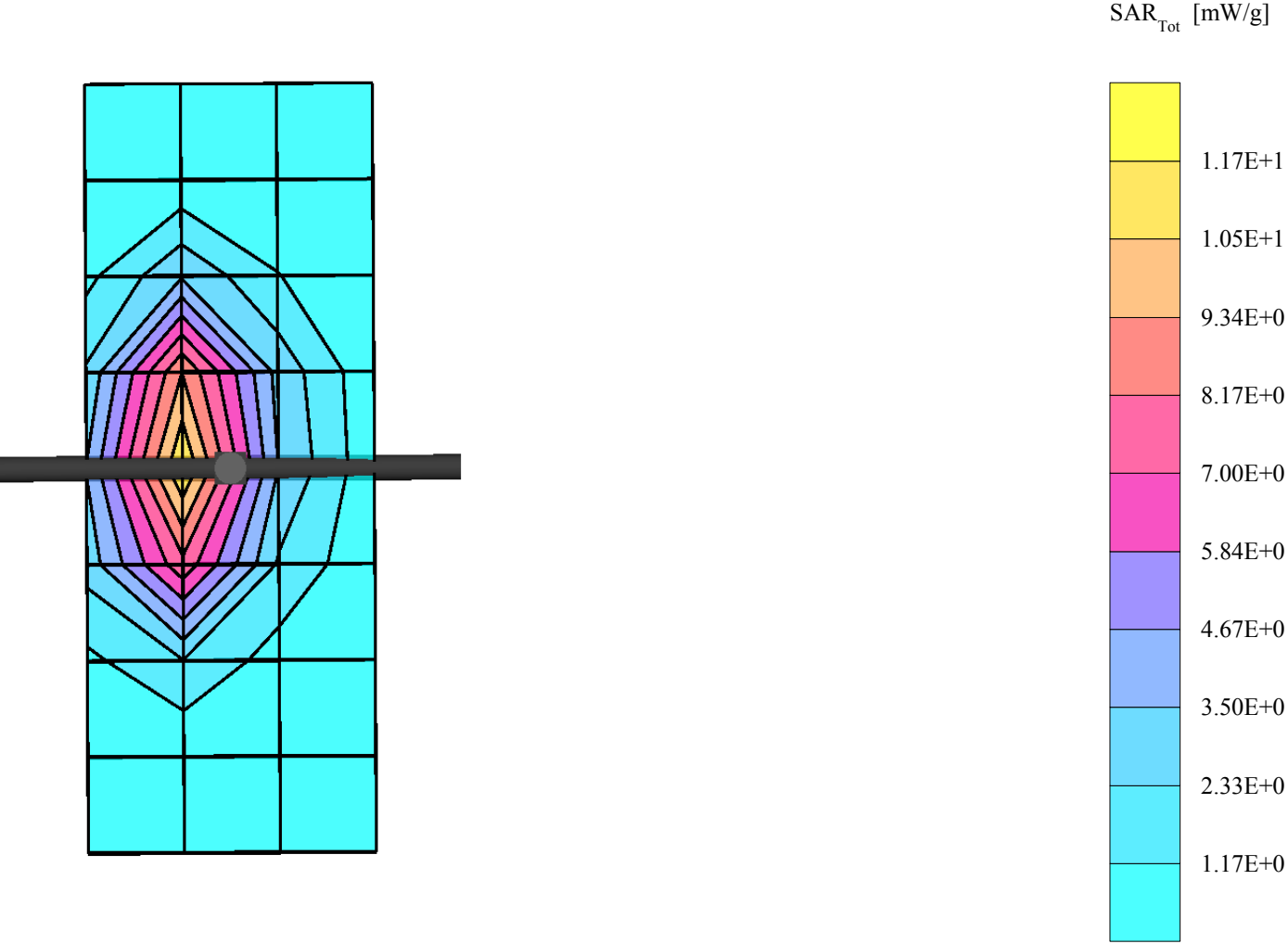
Probe: ES3DV3 - SN3037 - Validation.2; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.36 \text{ mho/m}$ $\epsilon_r = 39.2$ $\rho = 1.00 \text{ g/cm}^3$

Cubes (2): SAR (1g): 10.3 mW/g $\pm 0.01 \text{ dB}$, SAR (10g): 5.44 mW/g $\pm 0.02 \text{ dB}$, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 8.7 (8.5, 9.3) [mm]

Powerdrift: -0.06 dB



Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 250tr

Forward Power = 246mw Reflected Power = -22.6db

Room Temp at time of measurement = 20c Simulant Temp at time of measurement = 18.8c

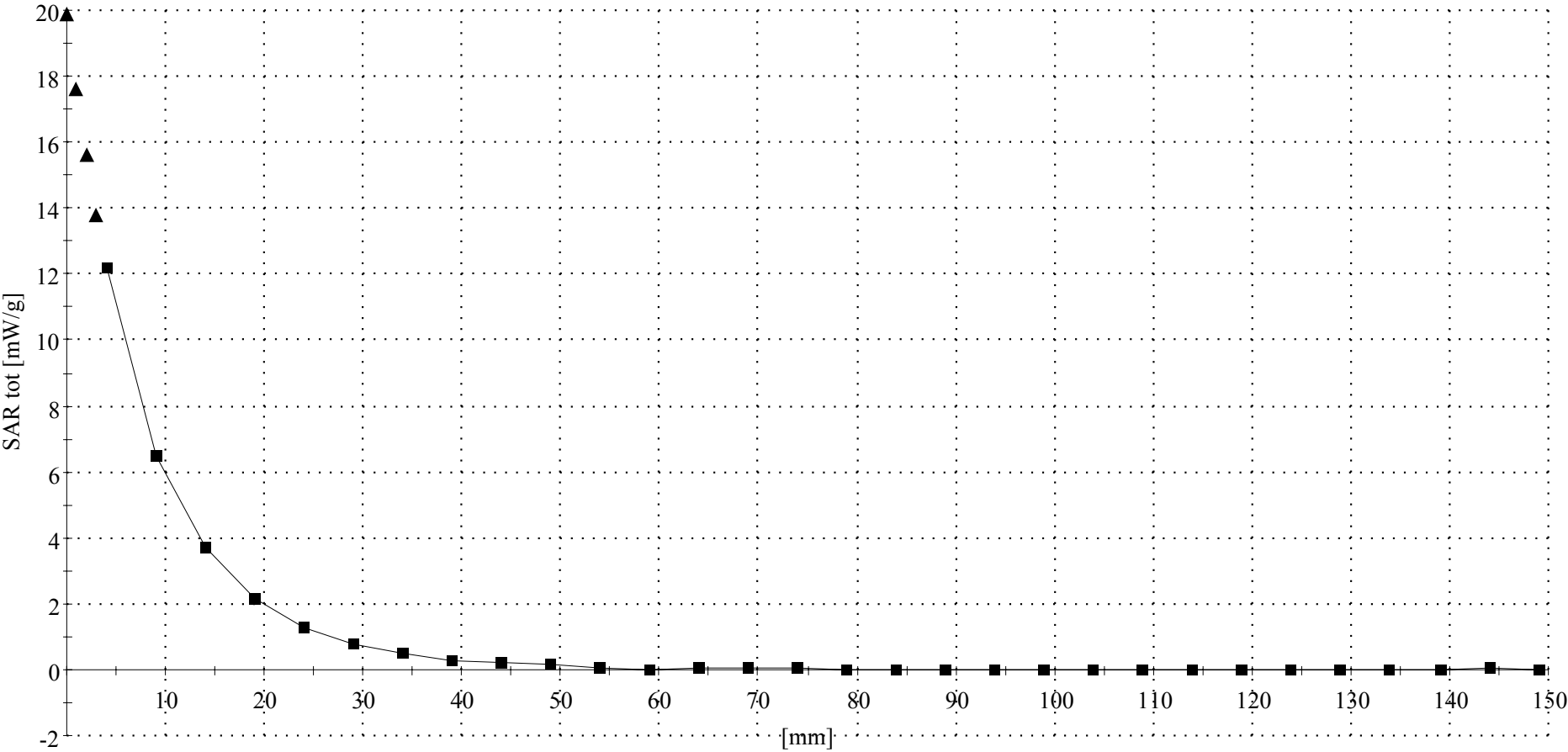
R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; Section; Position; ; Frequency: 1800 MHz

Probe: ES3DV3 - SN3037 - Validation.2; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.46$ mho/m $\epsilon_r = 39.1$ $\rho = 1.00$ g/cm³

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Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 8.4 (8.0, 9.1) [mm]



Dipole 1800 MHz

1800 MHz System Performance Check / Dipole Sn# 250tr

Forward Power = 246mw Reflected Power = -22.6db

Room Temp at time of measurement = 20c Simulant Temp at time of measurement = 18.8c

R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 2 Section; Position: (90°,90°); Frequency: 1800 MHz

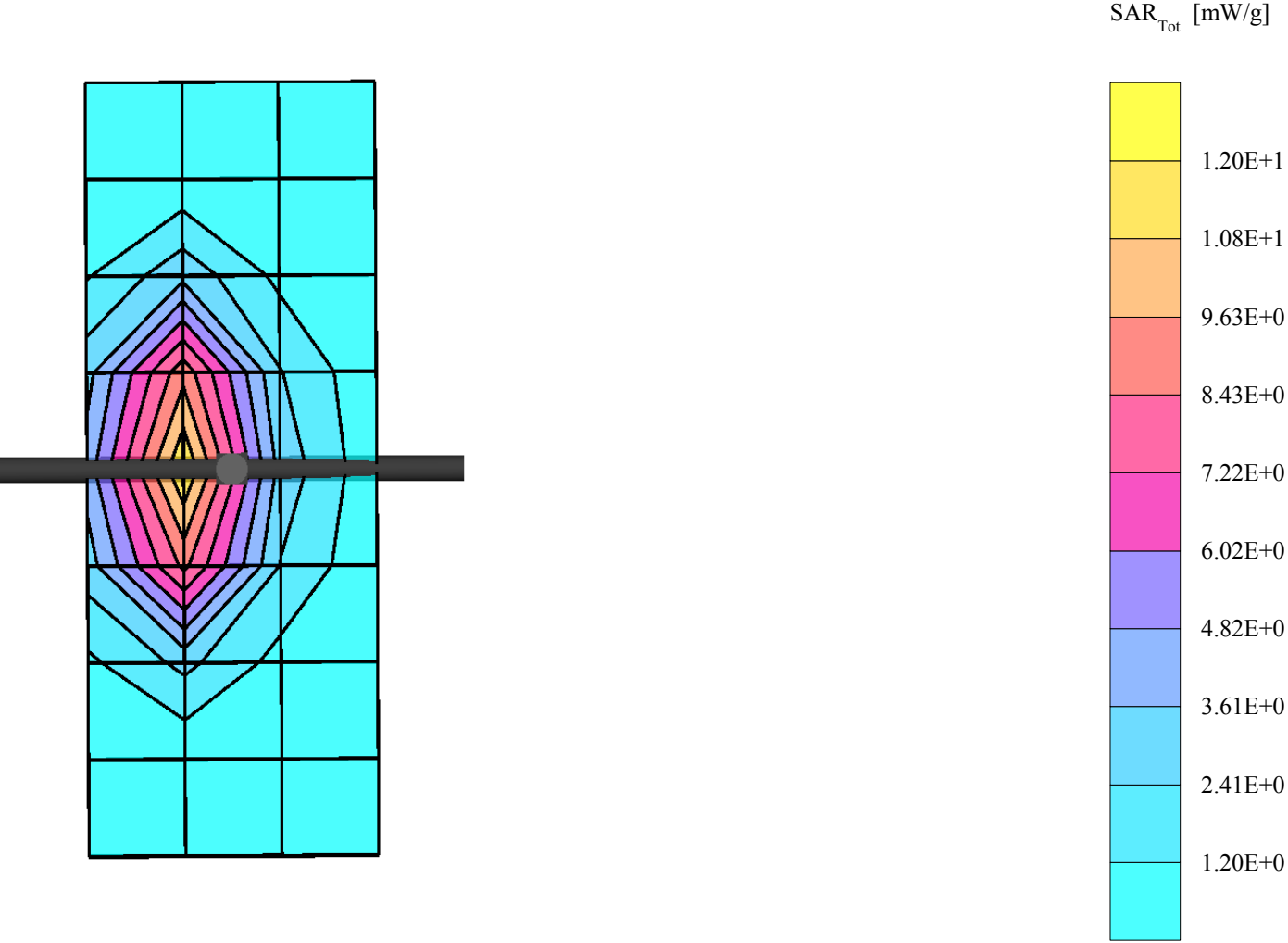
Probe: ES3DV3 - SN3037 - Validation.2; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1800 MHz VALIDATION: $\sigma = 1.46 \text{ mho/m}$ $\epsilon_r = 39.1$ $\rho = 1.00 \text{ g/cm}^3$

Cubes (2): SAR (1g): 10.7 mW/g $\pm 0.02 \text{ dB}$, SAR (10g): 5.63 mW/g $\pm 0.02 \text{ dB}$, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 8.5 (8.2, 9.3) [mm]

Powerdrift: -0.07 dB



Appendix 2

SAR distribution plots for Phantom Head Adjacent Use

s/n: 77047F51

Ch# 384 Pwr Step: 2 (OTA)

Type of Modulation: 800 AMPS

Antenna Position: EXT

Battery Model #: SNN5695A

DEVICE POSITION : TILT

Accessory Model # = none

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 837 MHz

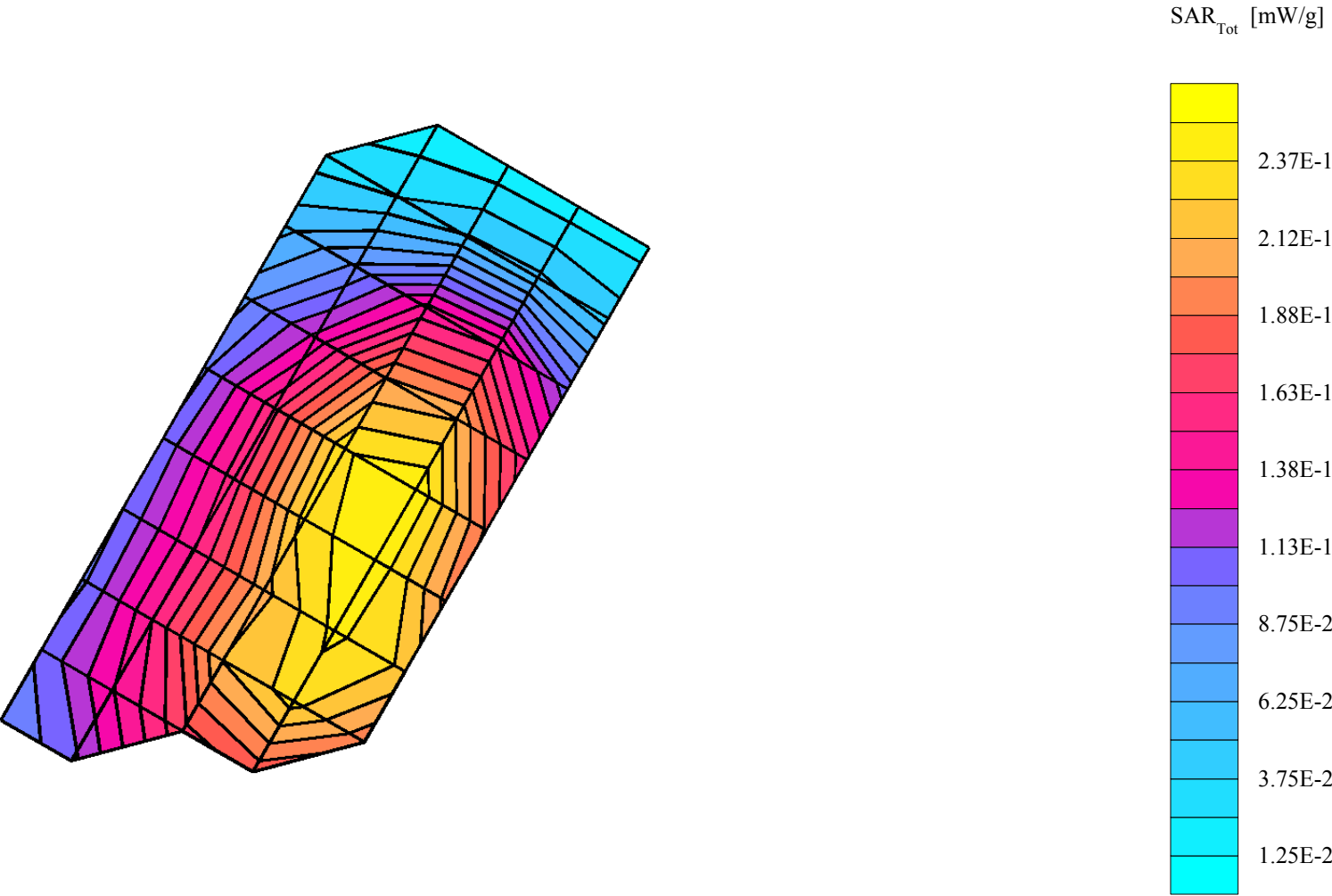
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.262 mW/g, SAR (10g): 0.195 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 19.8 (17.9, 21.6) [mm]

Powerdrift: 0.10 dB

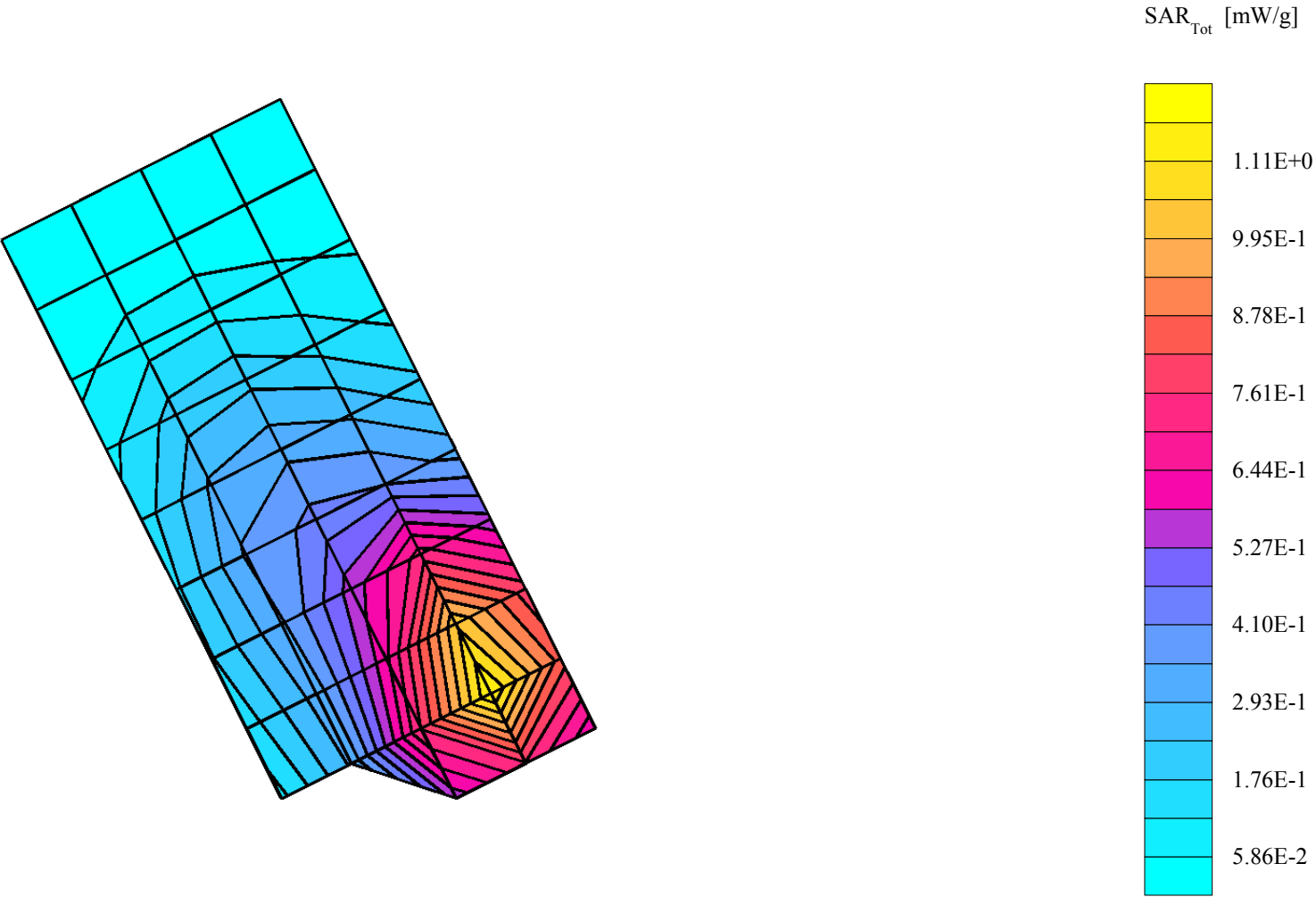


s/n: 77047F51

Ch# 1013 Pwr Step: Always Up
Type of Modulation: 800 CDMA
DEVICE POSITION : CHEEK
Accessory Model # = none

Antenna Position: RET
Battery Model #: SNN5695A

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 825 MHz
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 1.33 mW/g, SAR (10g): 0.812 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 13.5 (11.2, 16.5) [mm]
Powerdrift: -0.11 dB



s/n: 77047F51

Ch# 799 Pwr Step: 02 (OTA)

Type of Modulation: 800 AMPS

DEVICE POSITION : CHEEK

Accessory Model # = none

Antenna Position: RET

Battery Model #: SNN5695A

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 849 MHz

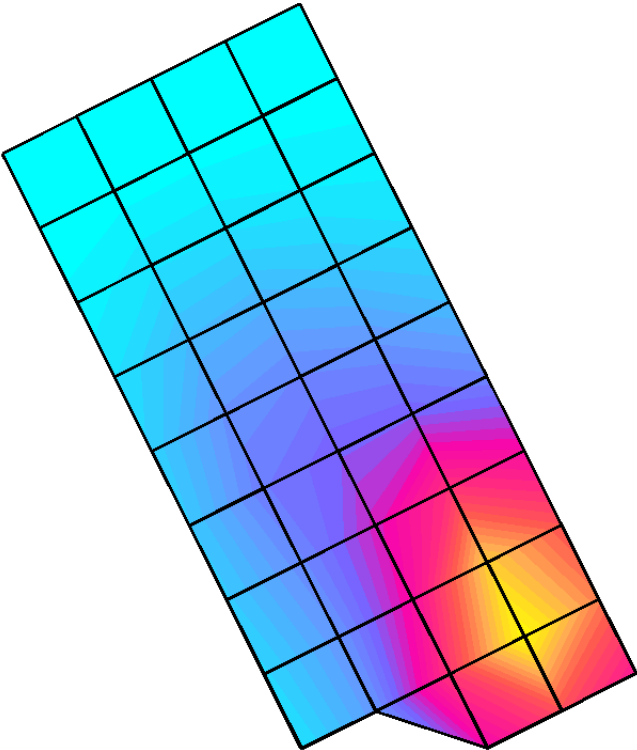
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.0$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 1.32 mW/g, SAR (10g): 0.834 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 13.2 (10.6, 16.8) [mm]

Powerdrift: -0.16 dB

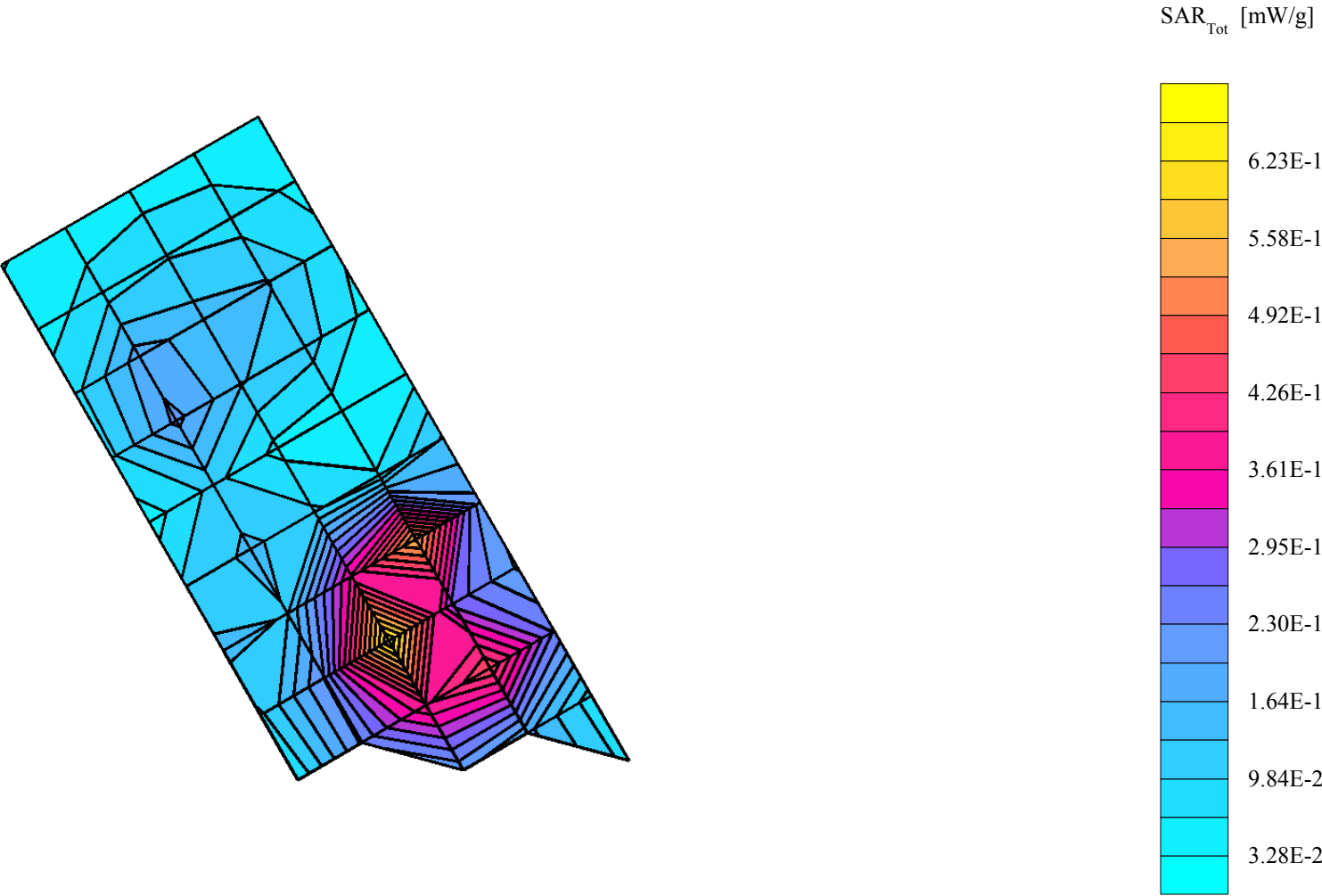


s/n: 77047f51

Ch# 600 / Pwr Step: Always Up (OTA)
Type of Modulation: PCS 1900 CDMA
DEVICE POSITION (cheek or rotated): Cheek
Accessory Model #: None

Antenna Position:Extended
Battery Model #: SNN5695A

R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ES3DV3 - SN3037 - IEEE Head; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.46$ mho/m $\epsilon_r = 38.5$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.592 mW/g, SAR (10g): 0.337 mW/g * Max outside, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 9.8 (9.7, 10.0) [mm]
Powerdrift: -0.14 dB

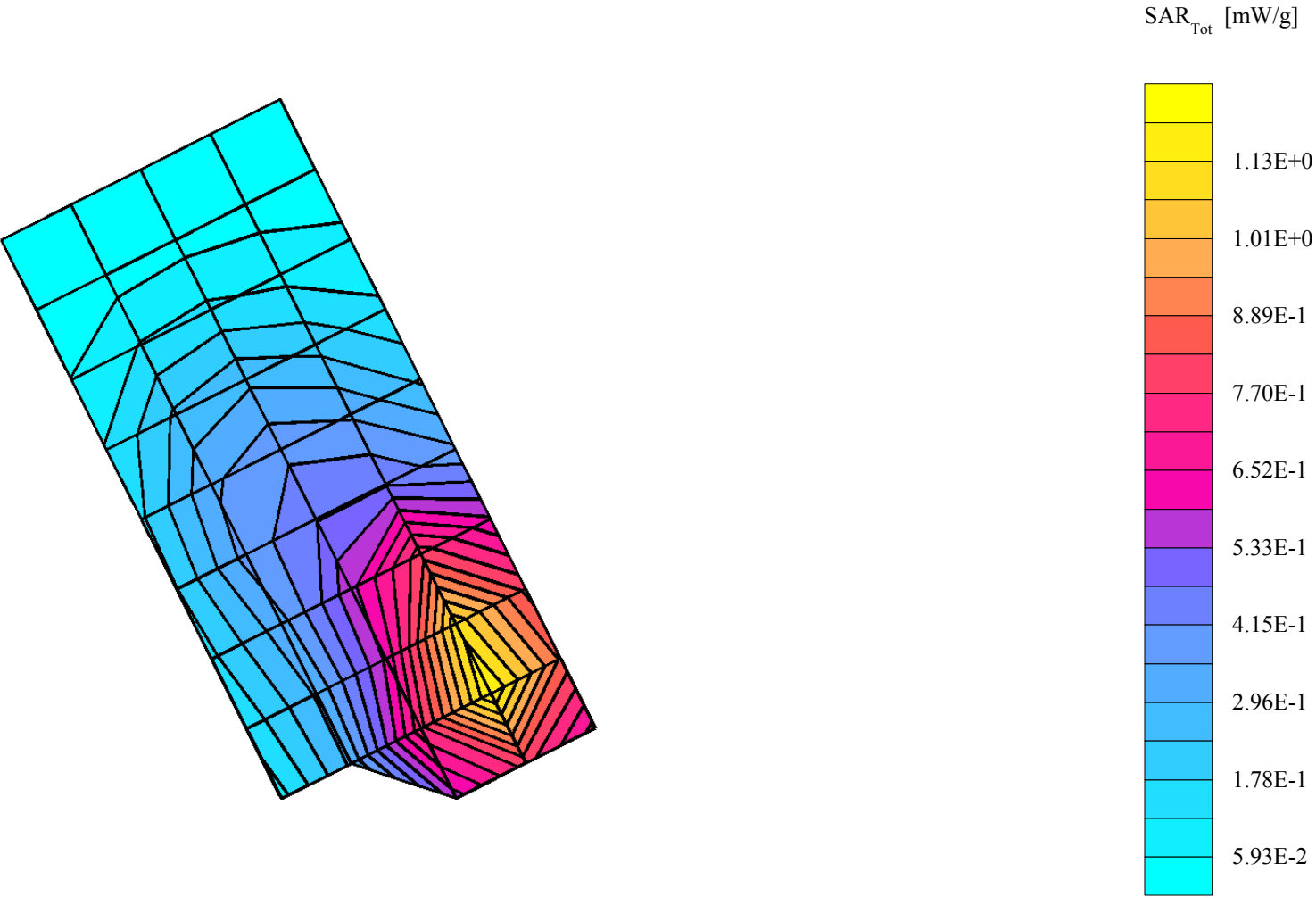


s/n: 77047F51

Ch# 779 Pwr Step: Always Up
Type of Modulation: 800 CDMA
DEVICE POSITION : CHEEK
Accessory Model # = none

Antenna Position: EXT
Battery Model #: SNN5695A

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 848 MHz
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 1.34 mW/g, SAR (10g): 0.837 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 12.4 (9.6, 16.5) [mm]
Powerdrift: -0.19 dB

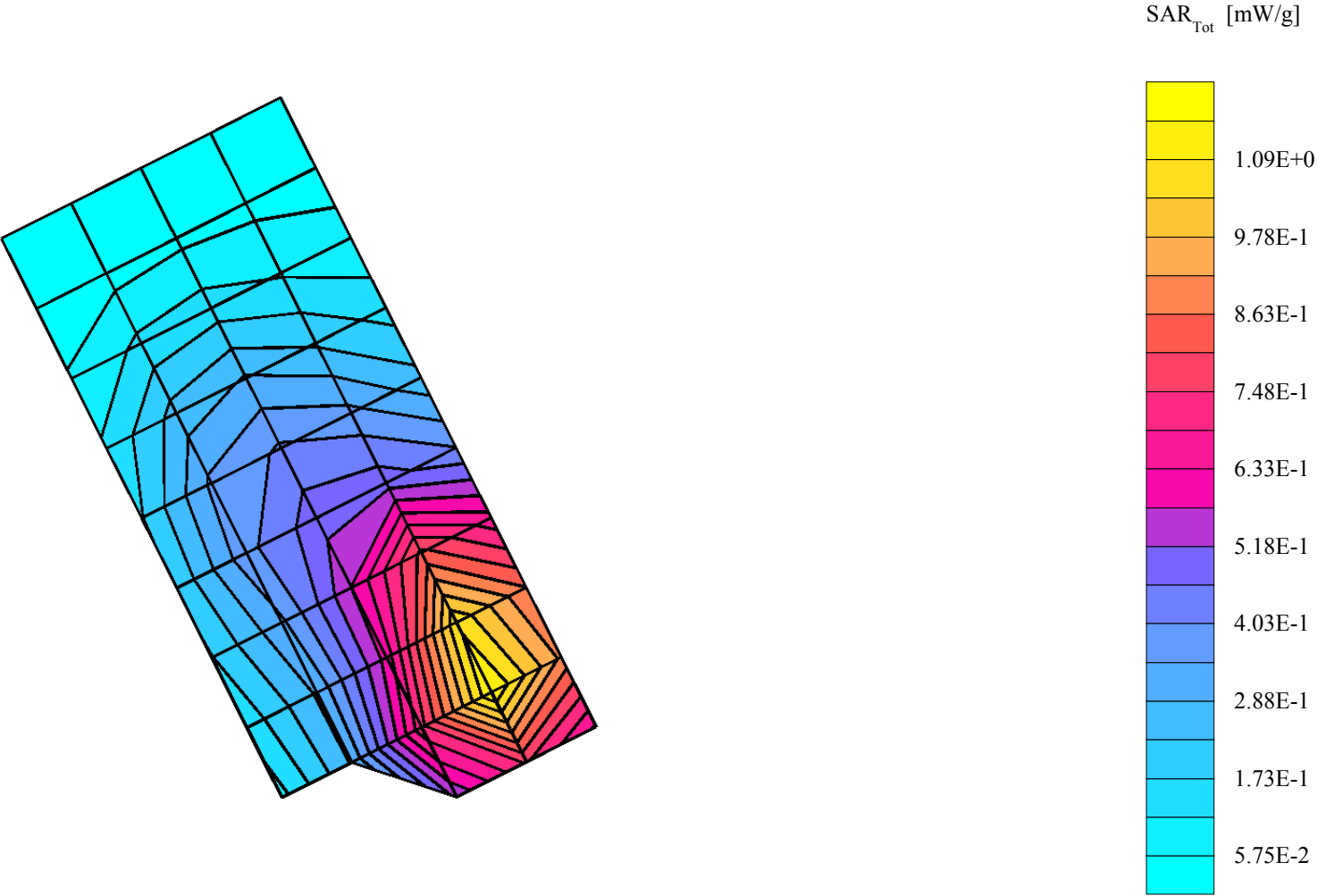


s/n: 77047F51

Ch# 991 Pwr Step: 02 (OTA)
Type of Modulation: 800 AMPS
DEVICE POSITION : CHEEK
Accessory Model # = none

Antenna Position: EXT
Battery Model #: SNN5695A

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 824 MHz
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.0$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 1.29 mW/g, SAR (10g): 0.814 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 13.1 (11.0, 16.1) [mm]
Powerdrift: -0.08 dB

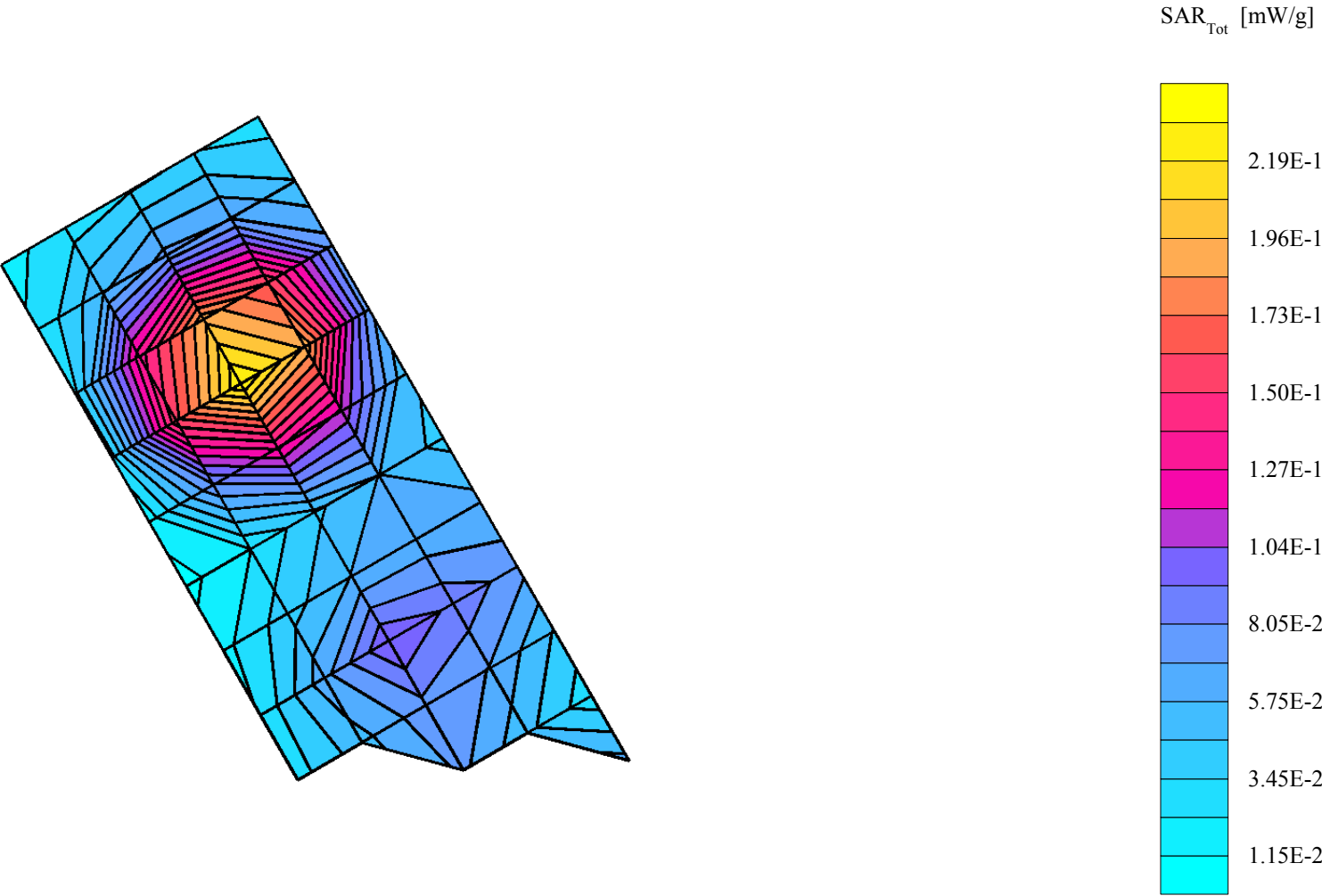


s/n: 77047f51

Ch# 600 / Pwr Step: Always Up (OTA)
Type of Modulation: PCS 1900 CDMA
DEVICE POSITION (cheek or rotated): Tilted
Accessory Model #: None

Antenna Position: Retracted
Battery Model #: SNN5695A

R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ES3DV3 - SN3037 - IEEE Head; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.46$ mho/m $\epsilon_r = 38.5$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.228 mW/g, SAR (10g): 0.141 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 13.2 (12.1, 14.5) [mm]
Powerdrift: 0.02 dB



s/n: 77047F51

Ch# 384 Pwr Step: ALL UP

Type of Modulation: 800 CDMA

DEVICE POSITION : TILT

Accessory Model # = none

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 837 MHz

Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.90$ mho/m $\epsilon_r = 40.9$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.309 mW/g, SAR (10g): 0.229 mW/g, (Worst-case extrapolation)

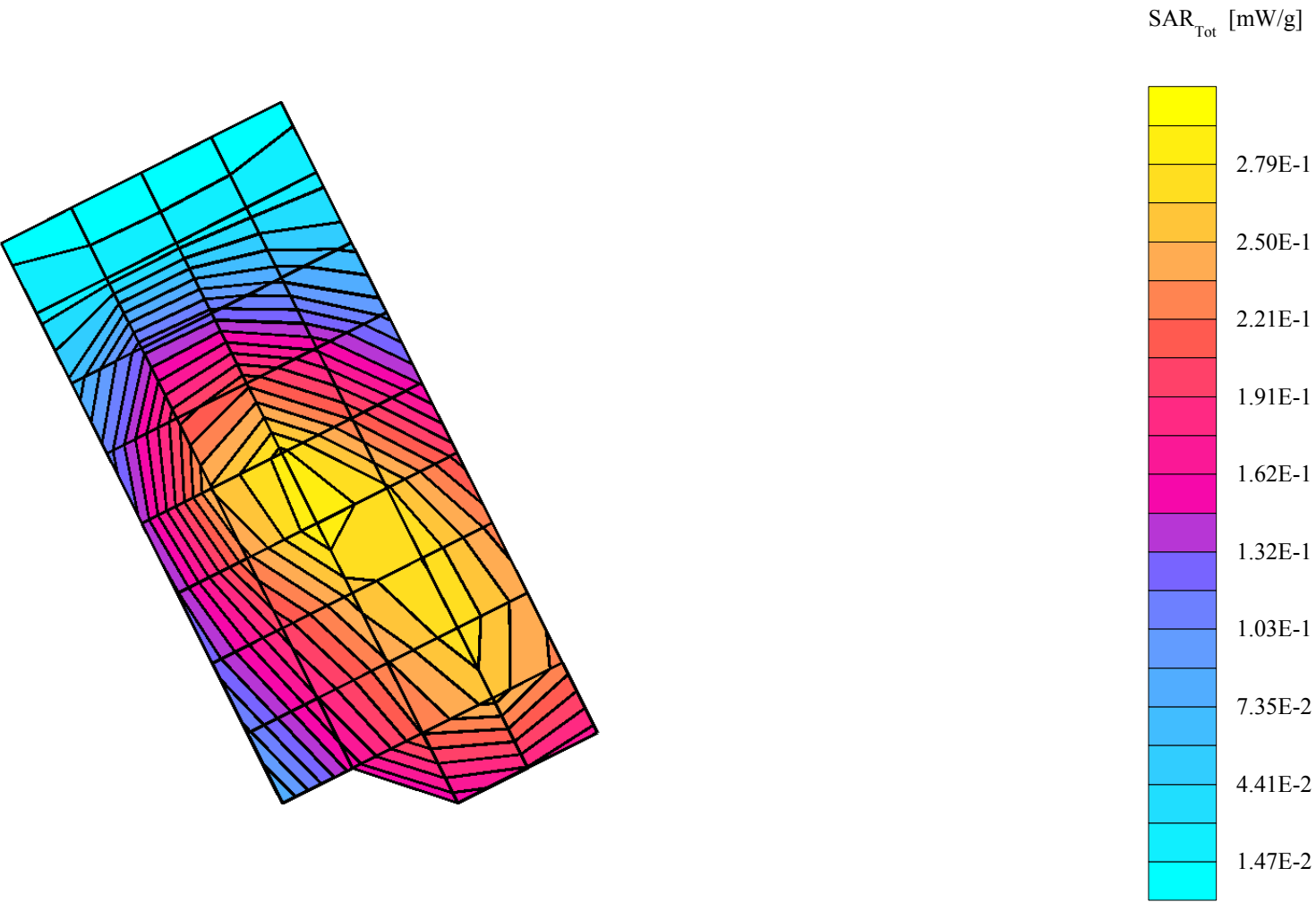
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 18.3 (15.9, 20.5) [mm]

Powerdrift: 0.08 dB

Antenna Position: RET

Battery Model #: SNN5695A



s/n: 77047F51

Ch# 384 Pwr Step: 2 (OTA)

Type of Modulation: 800 AMPS

DEVICE POSITION : TILT

Accessory Model # = none

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 837 MHz

Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.90$ mho/m $\epsilon_r = 40.9$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.335 mW/g, SAR (10g): 0.248 mW/g, (Worst-case extrapolation)

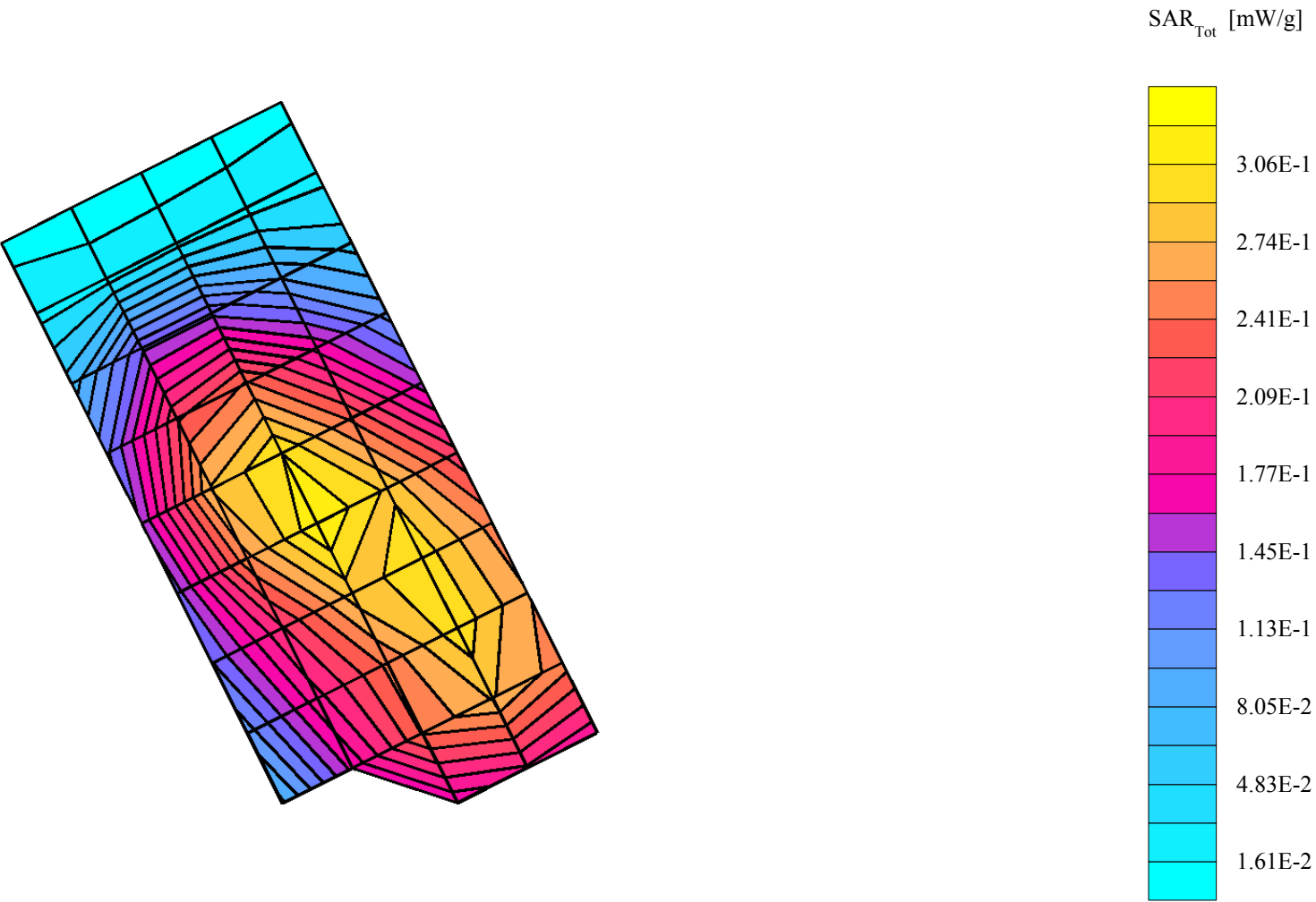
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 19.2 (17.8, 20.5) [mm]

Powerdrift: 0.11 dB

Antenna Position: RET

Battery Model #: SNN5695A

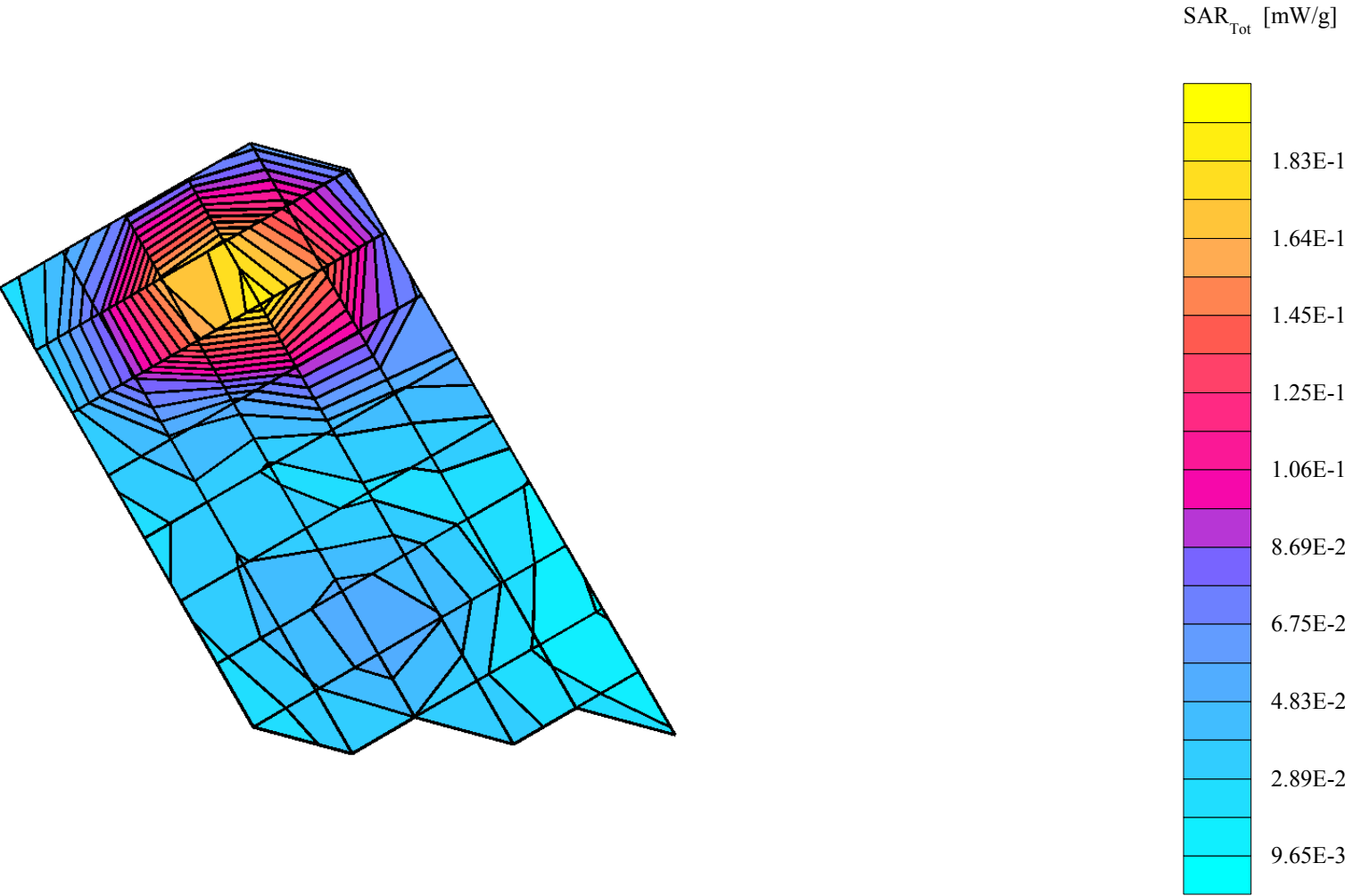


s/n: 77047f51

Ch# 600 / Pwr Step: ALWAYS UP
Type of Modulation: CDMA 1900
DEVICE POSITION: TILTED
Accessory Model #: NONE

Antenna Position: EXT
Battery Model #: SNN5695A

R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ES3DV3 - SN3037 - IEEE Head; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.44$ mho/m $\epsilon_r = 38.6$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.196 mW/g, SAR (10g): 0.119 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 11.9 (11.8, 12.1) [mm]
Powerdrift: -0.02 dB

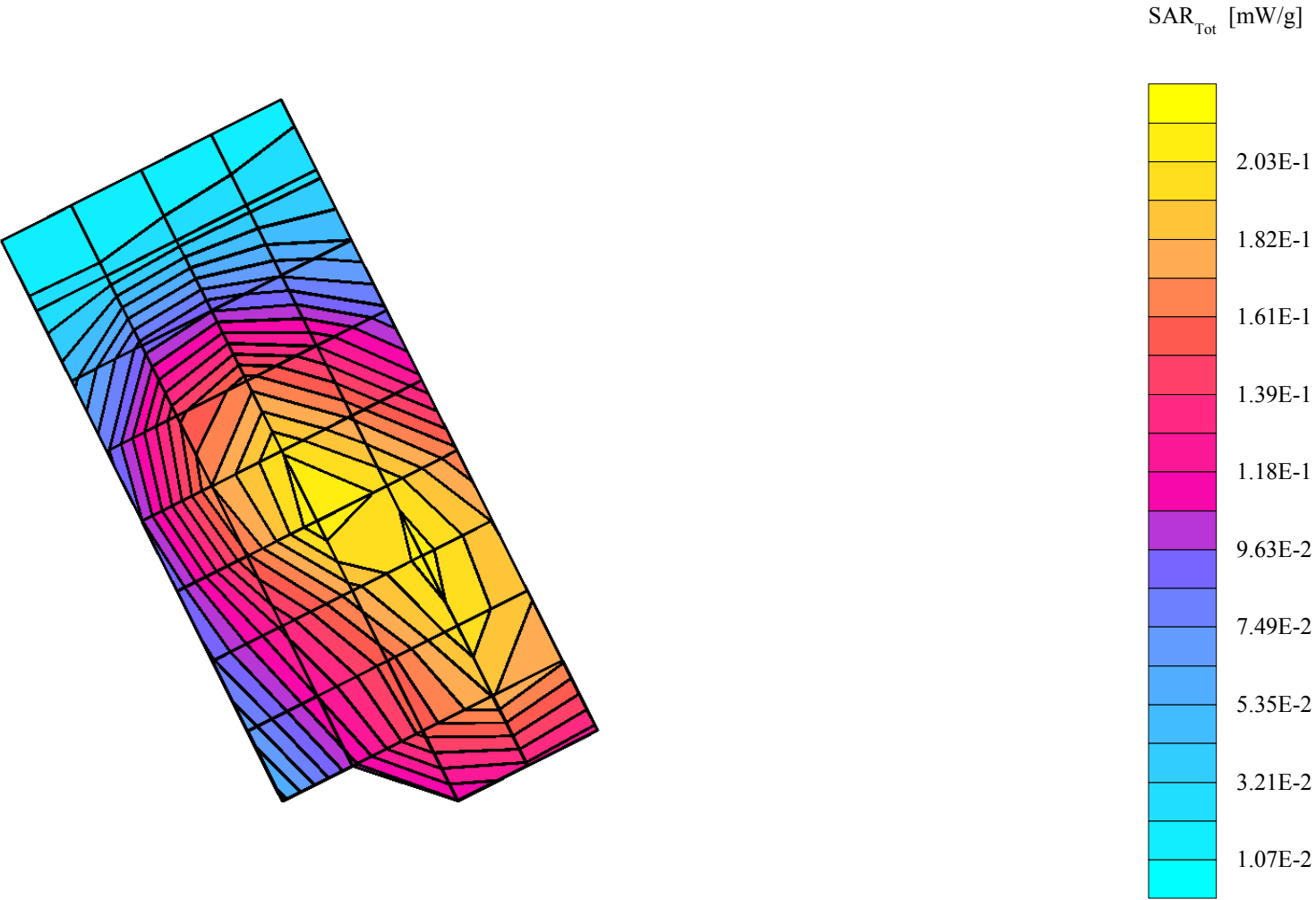


s/n: 77047F51

Ch# 384 Pwr Step: ALL UP
Type of Modulation: 800 CDMA
DEVICE POSITION : TILT
Accessory Model # = none

Antenna Position: EXT
Battery Model #: SNN5695A

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 837 MHz
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.90$ mho/m $\epsilon_r = 40.9$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.218 mW/g, SAR (10g): 0.163 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 18.5 (16.8, 20.3) [mm]
Powerdrift: -0.01 dB



s/n: 77047F51

Ch# 384 Pwr Step: 2 (OTA)

Type of Modulation: 800 AMPS

DEVICE POSITION : TILT

Accessory Model # = none

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 837 MHz

Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.90$ mho/m $\epsilon_r = 40.9$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.247 mW/g, SAR (10g): 0.183 mW/g * Max outside, (Worst-case extrapolation)

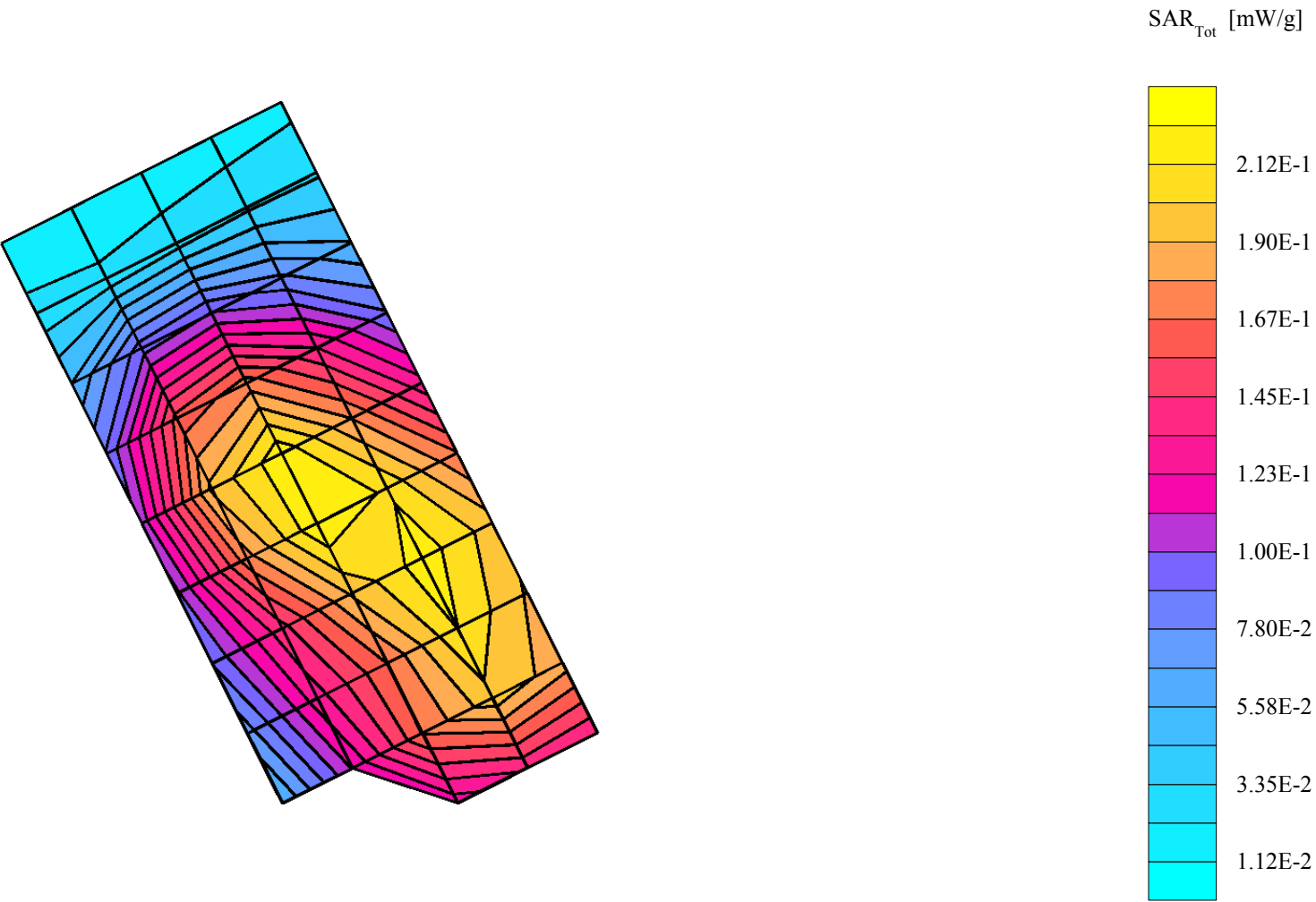
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 20.7 (18.5, 22.7) [mm]

Powerdrift: 0.22 dB

Antenna Position: EXT

Battery Model #: SNN5695A



s/n: 77047f51

Ch# 25 / Pwr Step: ALWAYS UP

Type of Modulation: 1900 CDMA

DEVICE POSITION (cheek or rotated): CHEEK

Accessory Model #: NONE

R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 1851 MHz

Probe: ES3DV3 - SN3037 - IEEE Head; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.47$ mho/m $\epsilon_r = 39.1$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 1.34 mW/g, SAR (10g): 0.696 mW/g, (Worst-case extrapolation)

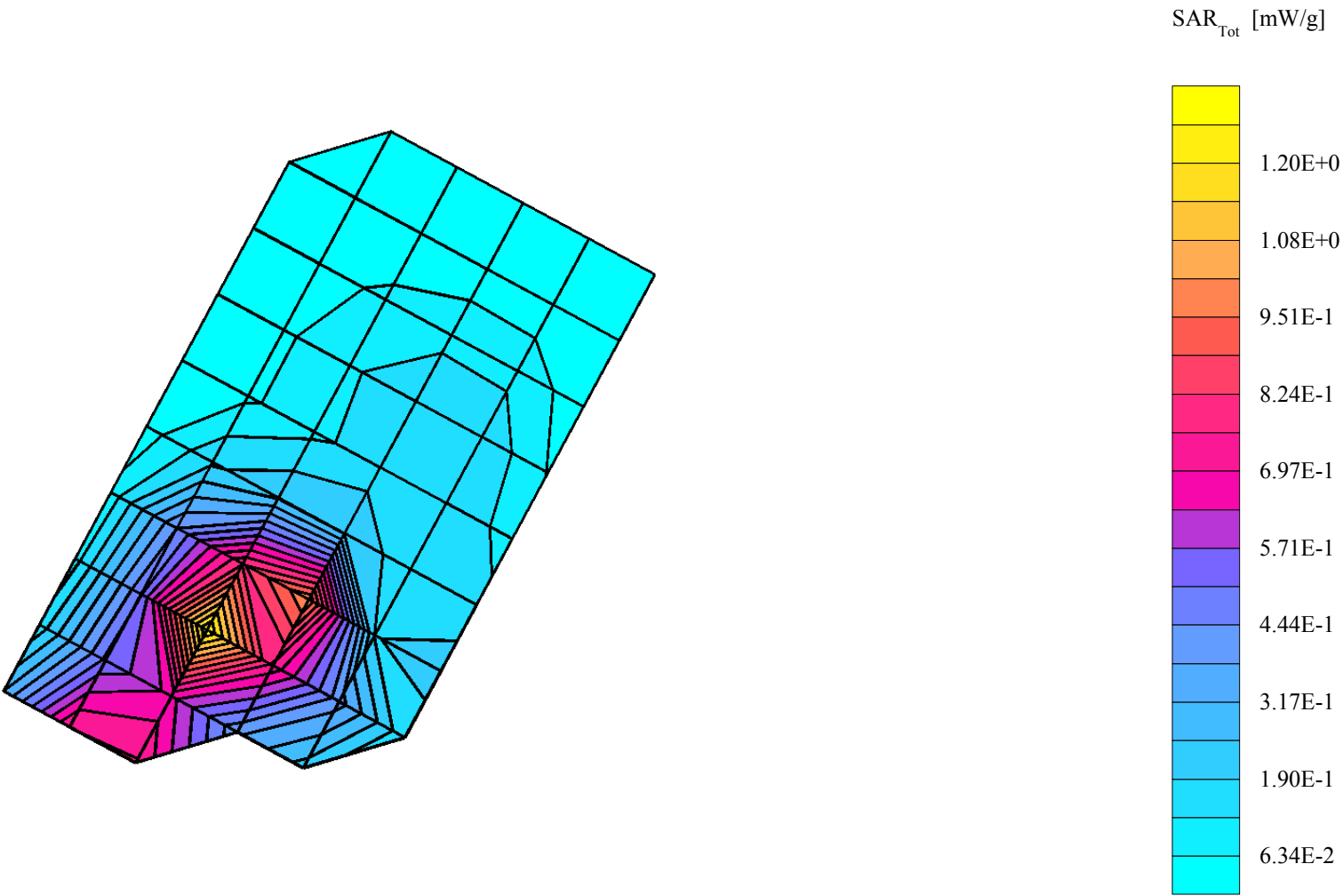
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 10.1 (9.7, 10.7) [mm]

Powerdrift: 0.05 dB

Antenna Position: RET

Battery Model #: SNN5695A



s/n: 77047F51

Ch# 384 Pwr Step: 2 (OTA)

Type of Modulation: 800 AMPS

DEVICE POSITION : CHEEK

Accessory Model # = none

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 837 MHz

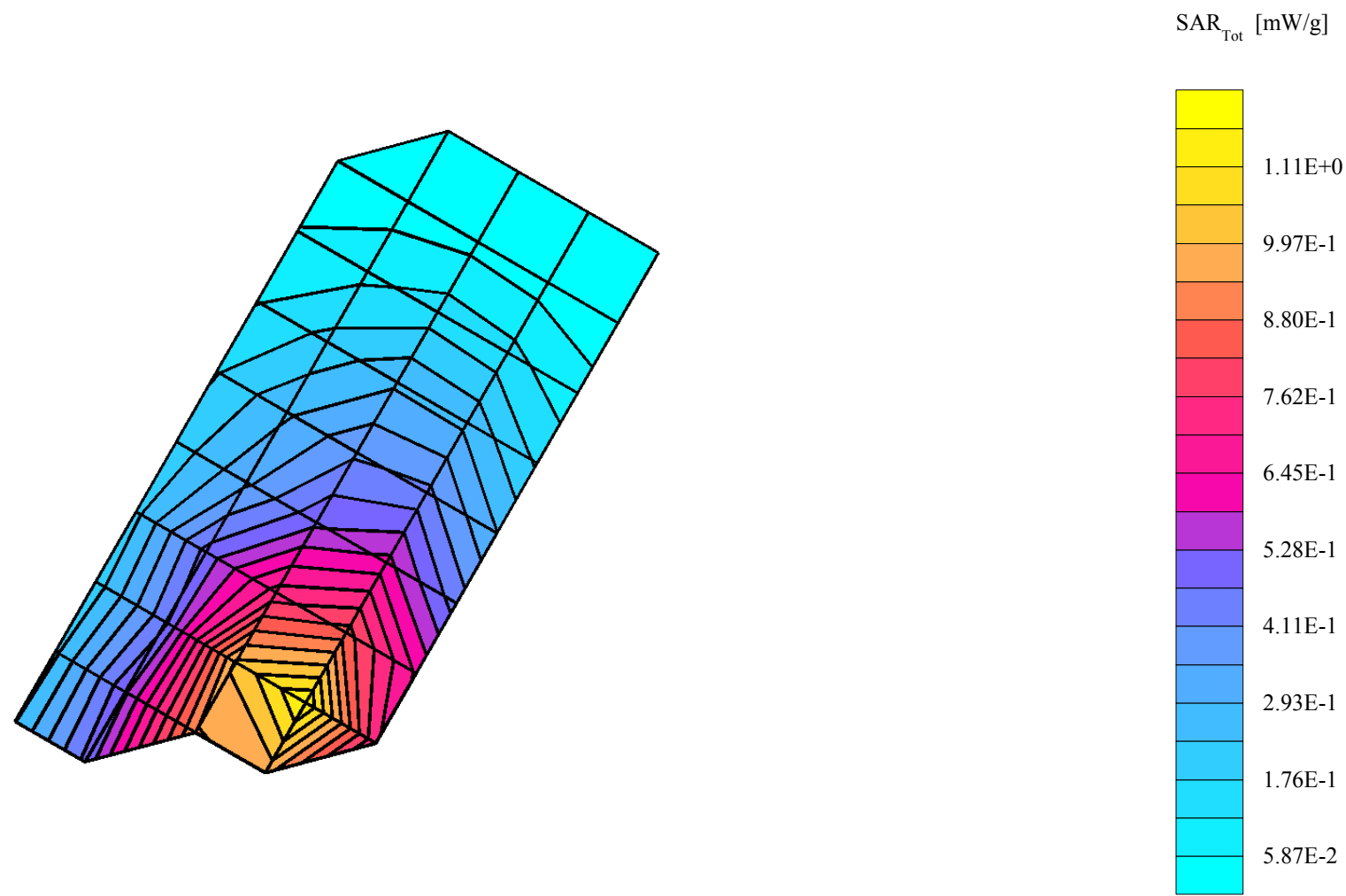
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 1.19 mW/g, SAR (10g): 0.799 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 15.4 (13.4, 17.8) [mm]

Powerdrift: -0.05 dB

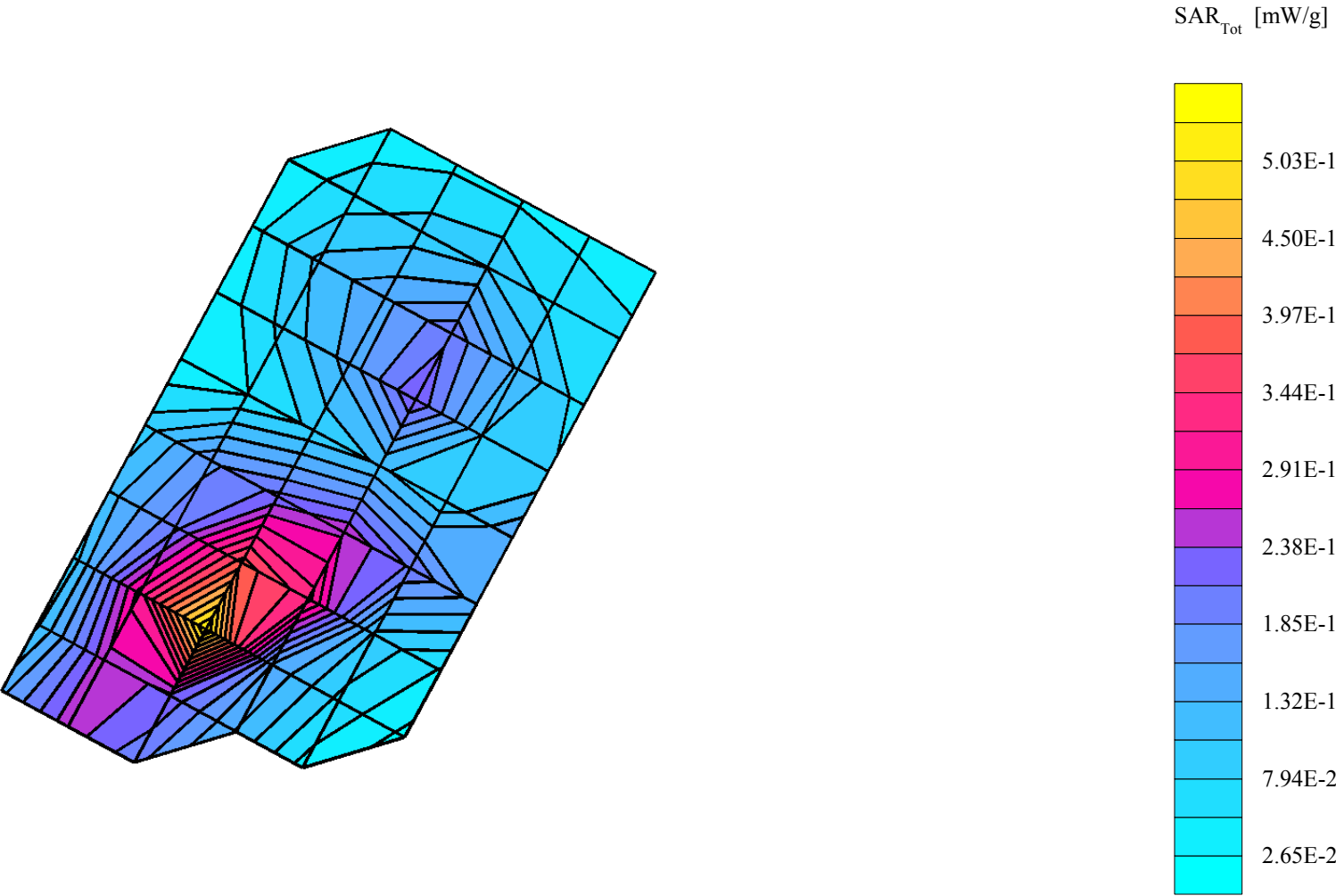


s/n: 77047f51

Ch# 600 / Pwr Step: ALWAYS UP
Type of Modulation: CDMA 1900
DEVICE POSITION: CHEEK
Accessory Model #: NONE

Antenna Position: EXT
Battery Model #: SNN5695A

R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ES3DV3 - SN3037 - IEEE Head; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.44$ mho/m $\epsilon_r = 38.6$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.474 mW/g, SAR (10g): 0.242 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 9.0 (8.4, 10.0) [mm]
Powerdrift: 0.27 dB



s/n: 77047F51

Ch# 779 Pwr Step: ALL UP

Type of Modulation: 800 CDMA

DEVICE POSITION : CHEEK

Accessory Model # = none

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 848 MHz

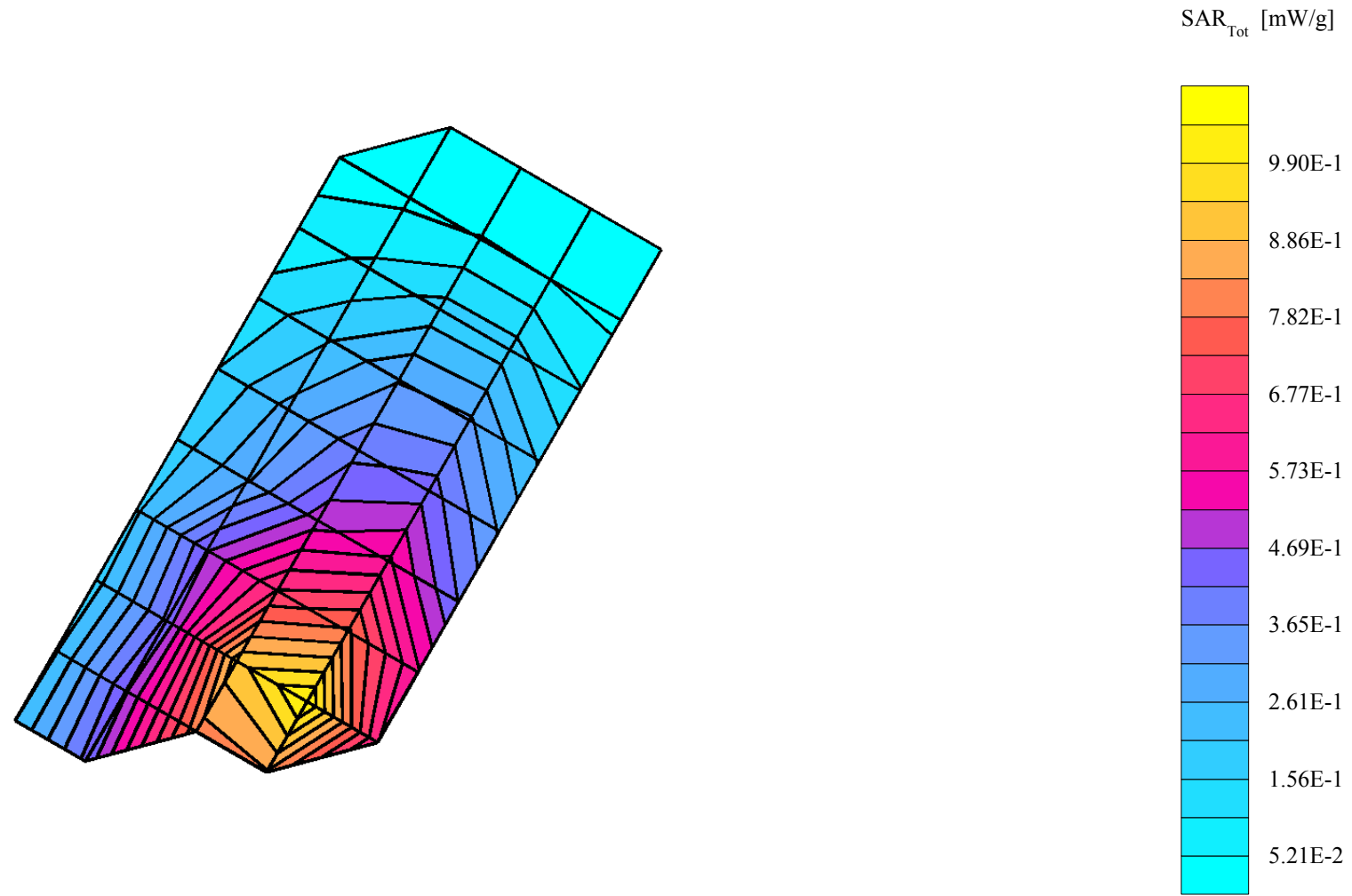
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 1.07 mW/g, SAR (10g): 0.712 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 15.1 (13.5, 17.1) [mm]

Powerdrift: -0.12 dB



s/n: 77047F51

Ch# 384 Pwr Step: ALL UP

Type of Modulation: 800 CDMA

DEVICE POSITION : CHEEK

Accessory Model # = none

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 837 MHz

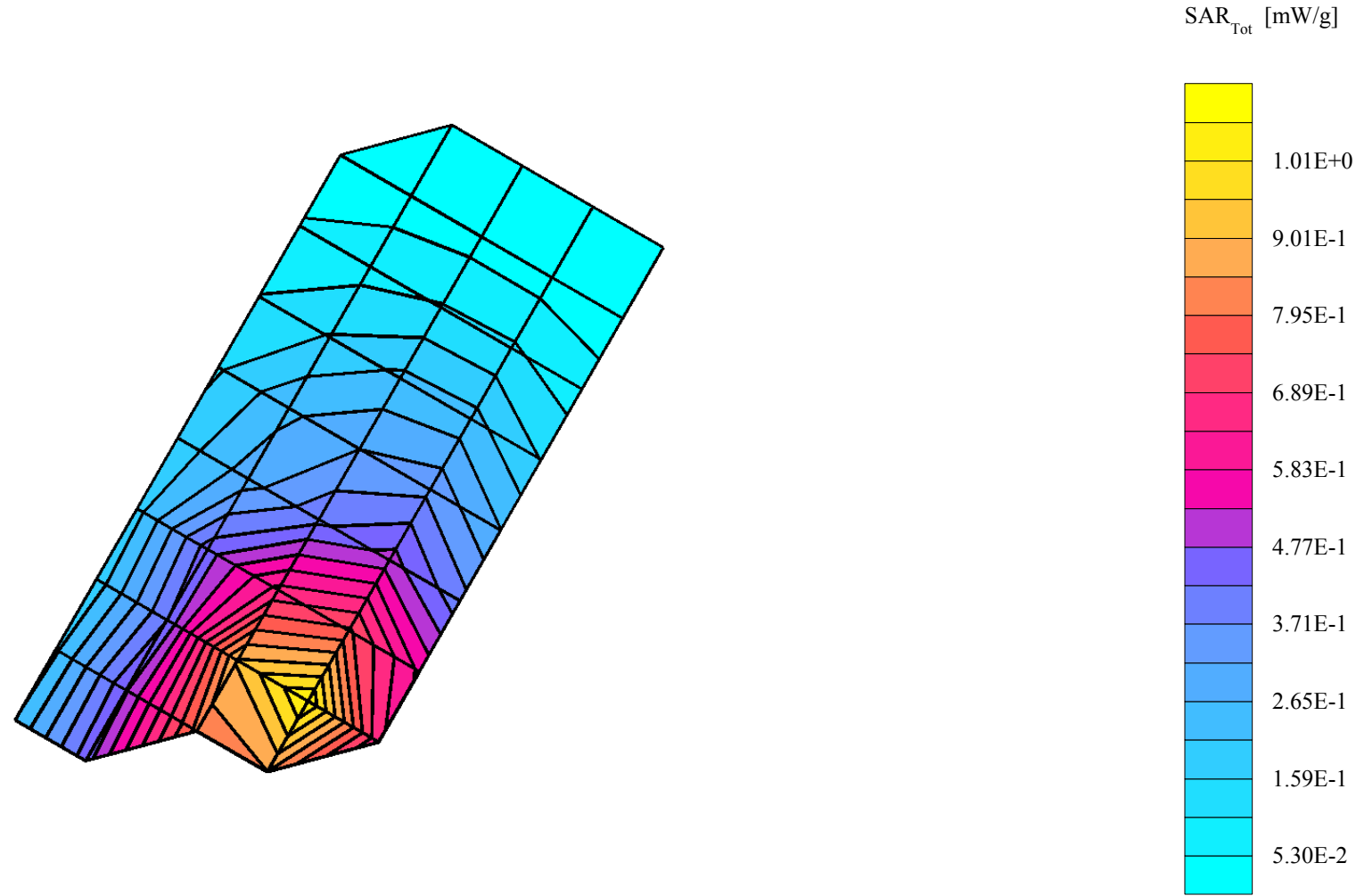
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 1.10 mW/g, SAR (10g): 0.739 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 15.2 (12.8, 18.2) [mm]

Powerdrift: -0.16 dB



s/n: 77047F51

Ch# 799 Pwr Step: 2 (OTA)

Type of Modulation: 800 AMPS

DEVICE POSITION : CHEEK

Accessory Model # = none

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 849 MHz

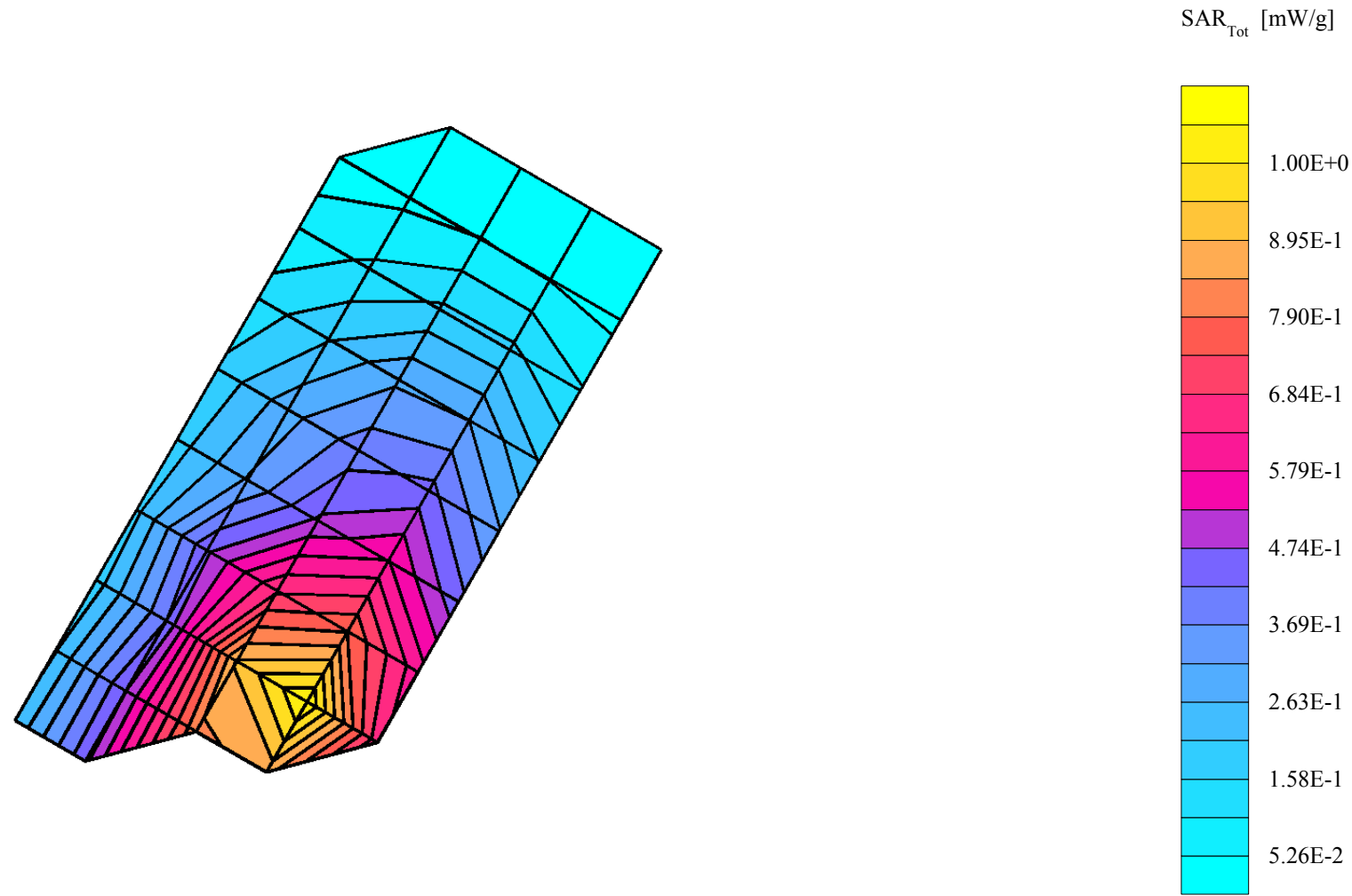
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 1.09 mW/g, SAR (10g): 0.738 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 15.4 (12.8, 18.6) [mm]

Powerdrift: -0.12 dB

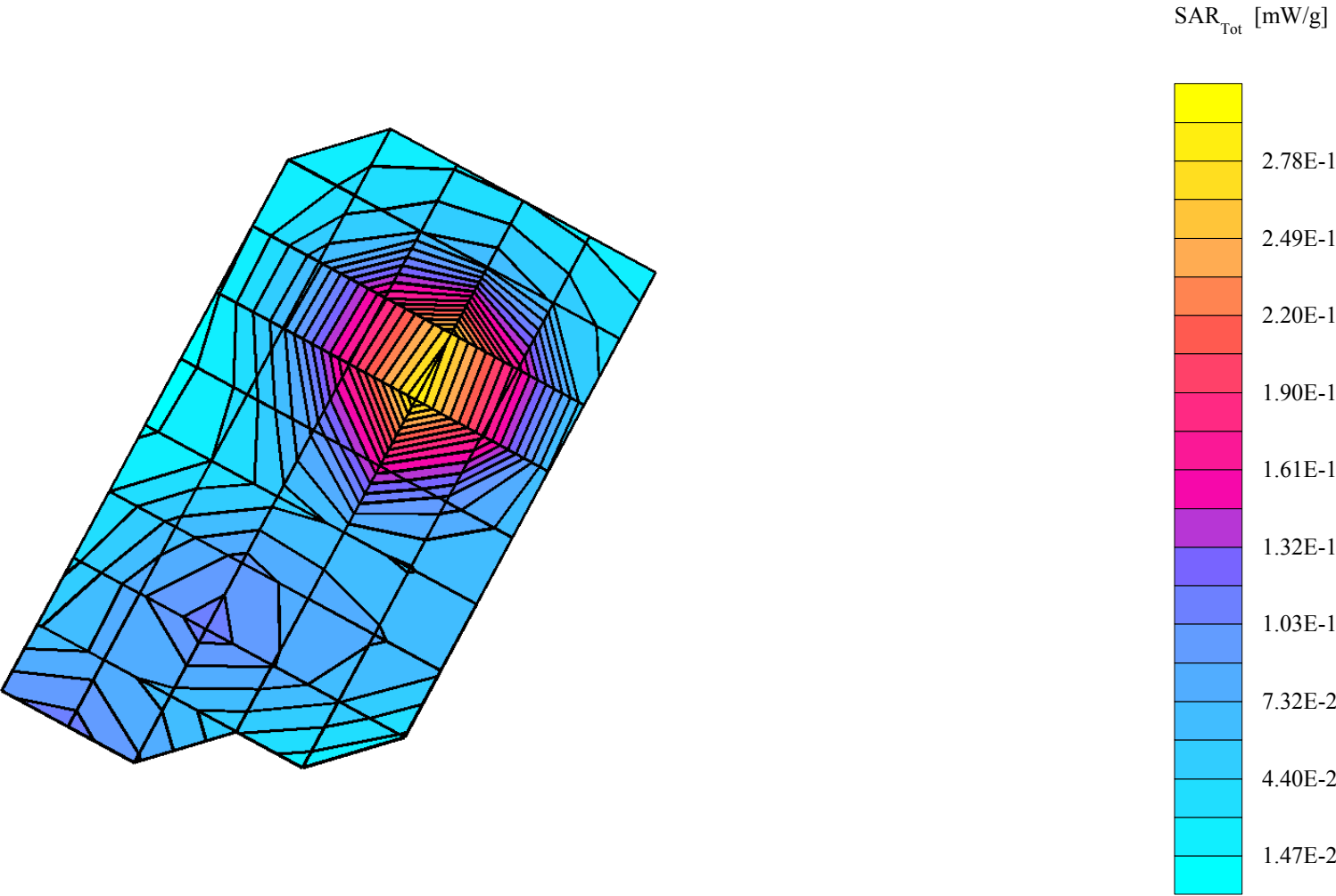


s/n: 77047f51

Ch# 600 / Pwr Step: ALWAYS UP
Type of Modulation: CDMA 1900
DEVICE POSITION: TILTED
Accessory Model #: NONE

Antenna Position: RET
Battery Model #: SNN5695A

R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ES3DV3 - SN3037 - IEEE Head; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.44$ mho/m $\epsilon_r = 38.6$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.300 mW/g, SAR (10g): 0.174 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 12.3 (11.7, 13.1) [mm]
Powerdrift: -0.24 dB

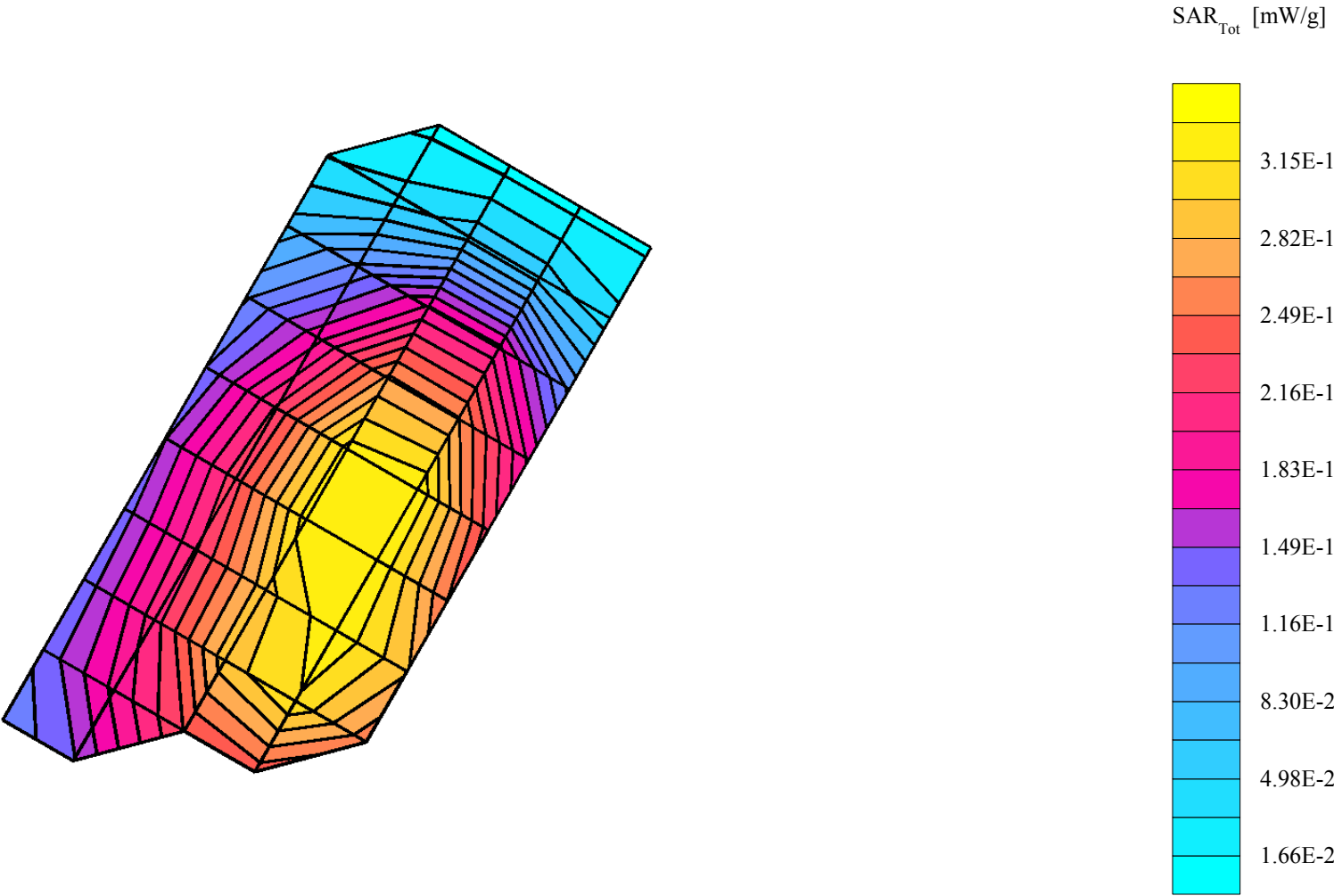


s/n: 77047F51

Ch# 384 Pwr Step: Always Up
Type of Modulation: 800 CDMA
DEVICE POSITION : TILT
Accessory Model # = none

Antenna Position: RET
Battery Model #: SNN5695A

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 837 MHz
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.352 mW/g, SAR (10g): 0.263 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 20.1 (20.0, 20.5) [mm]
Powerdrift: -0.00 dB



s/n: 77047F51

Ch# 384 Pwr Step: 2 (OTA)

Type of Modulation: 800 AMPS

DEVICE POSITION : TILT

Accessory Model # = none

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 837 MHz

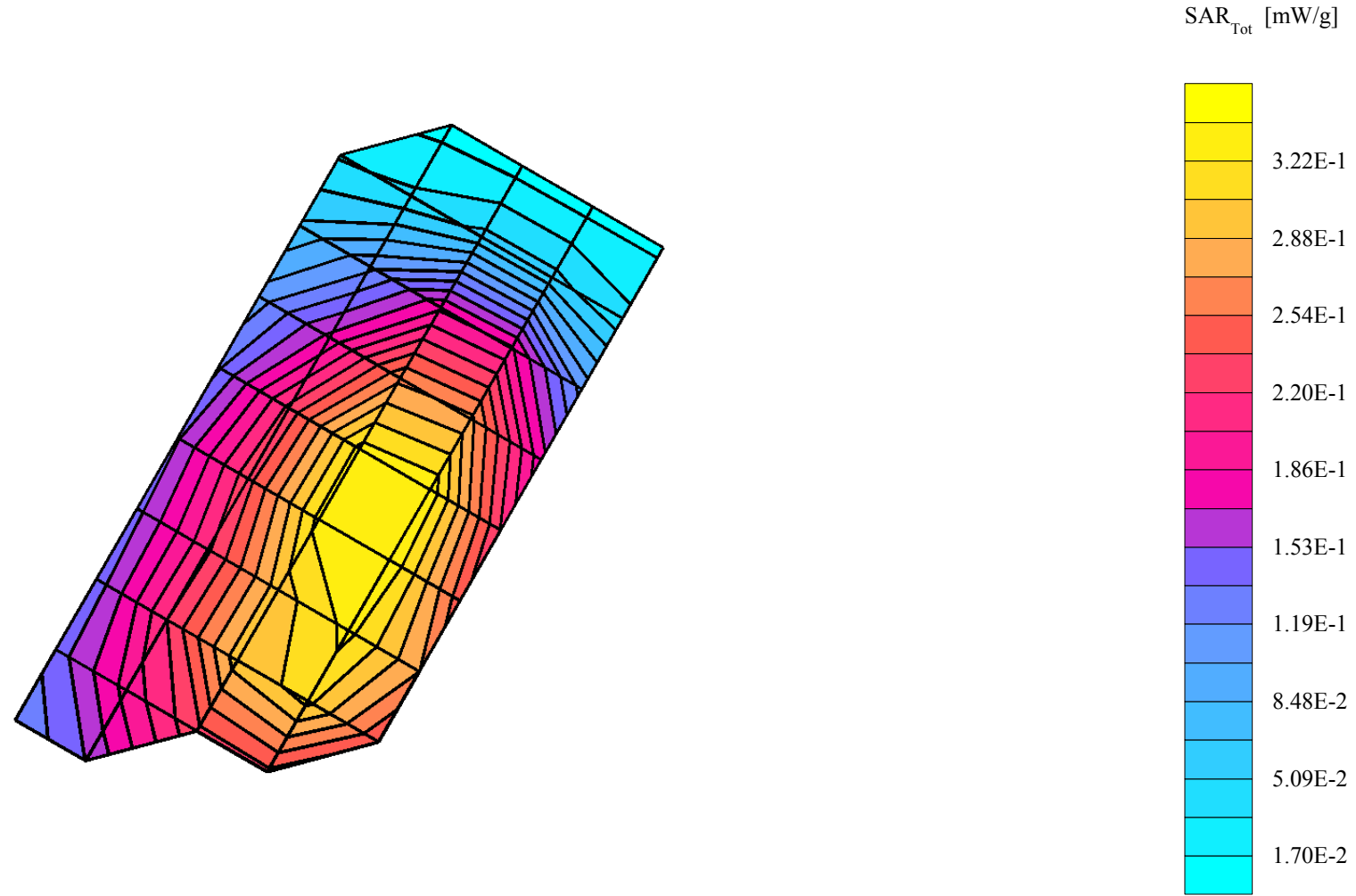
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.357 mW/g, SAR (10g): 0.266 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 19.1 (17.5, 20.8) [mm]

Powerdrift: -0.08 dB



s/n: 77047f51

Ch# 600 / Pwr Step: ALWAYS UP

Type of Modulation: CDMA 1900

DEVICE POSITION: TILTED

R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz

Probe: ES3DV3 - SN3037 - IEEE Head; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.44$ mho/m $\epsilon_r = 38.6$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.211 mW/g, SAR (10g): 0.127 mW/g, (Worst-case extrapolation)

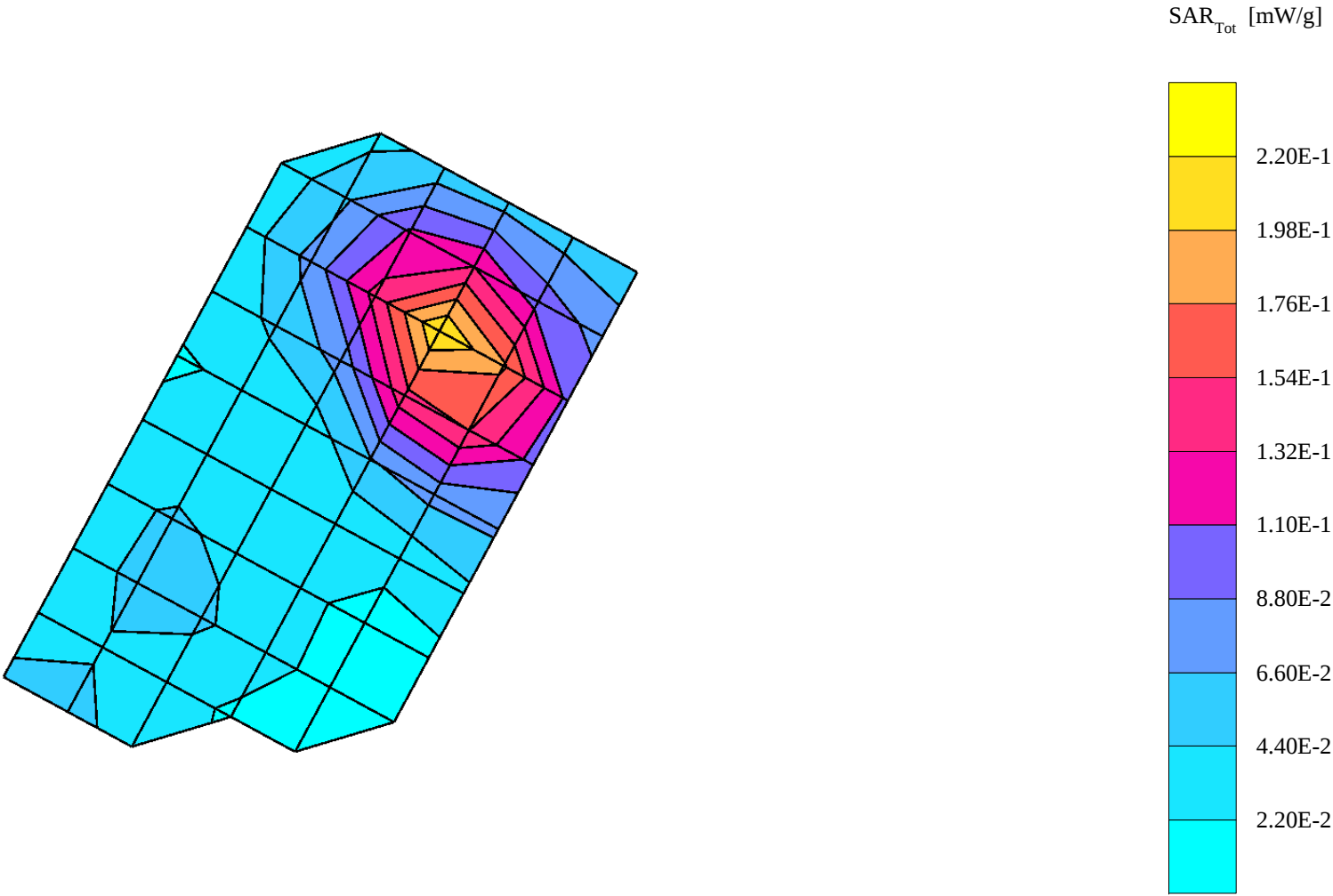
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 11.3 (11.3, 11.5) [mm]

Powerdrift: -0.11 dB

Antenna Position: EXT

Battery Model #: SNN5695A



V710 SUG3171AA Lotus Id# 13194-3 Phone 1 (77047F51)

Ch# 384 Pwr Step: Always Up

Type of Modulation: 800 CDMA

DEVICE POSITION : TILT

Accessory Model # = none

Antenna Position: EXT

Battery Model #: SNN5695A

TESTER INITIALS: DLJ

R4 TP-1131 SUGAR sam expanded (Rev. 2)-9Jan03 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 837 MHz

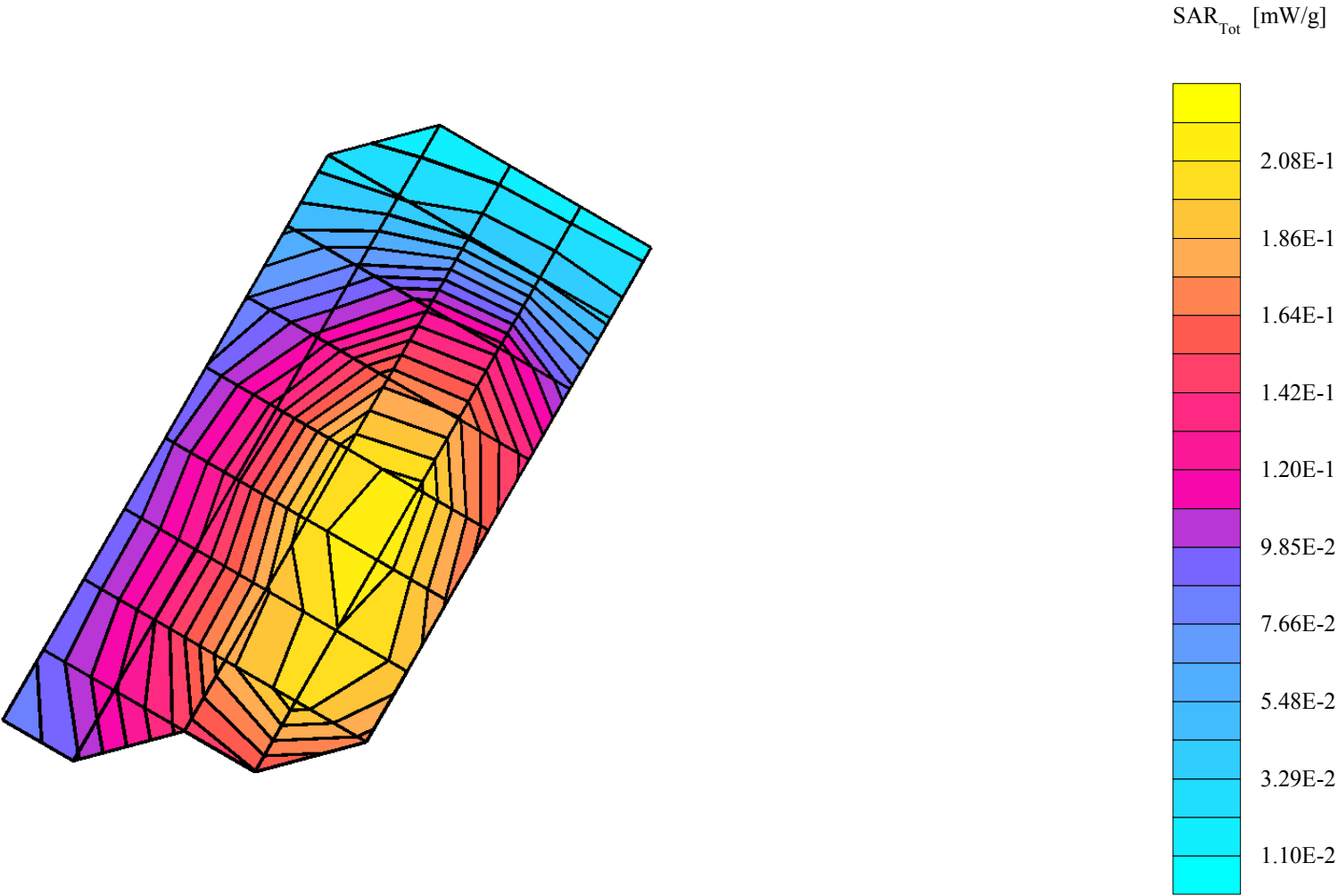
Probe: ET3DV6 - SN1514 - IEEE Head.2; ConvF(6.30,6.30,6.30); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.92$ mho/m $\epsilon_r = 42.1$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.222 mW/g, SAR (10g): 0.167 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 20.1 (20.0, 20.2) [mm]

Powerdrift: -0.04 dB



s/n: 77047f51

Ch# 25 / Pwr Step: Allways Up (OTA)

Type of Modulation: PCS 1900 CDMA

DEVICE POSITION (cheek or rotated): Cheek

Accessory Model #: None

R1 TP-1154 GLYCOL SAM Expanded (Rev. 2)-9Jan03 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 1851 MHz

Probe: ES3DV3 - SN3037 - IEEE Head; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.46$ mho/m $\epsilon_r = 38.5$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 1.14 mW/g, SAR (10g): 0.638 mW/g, (Worst-case extrapolation)

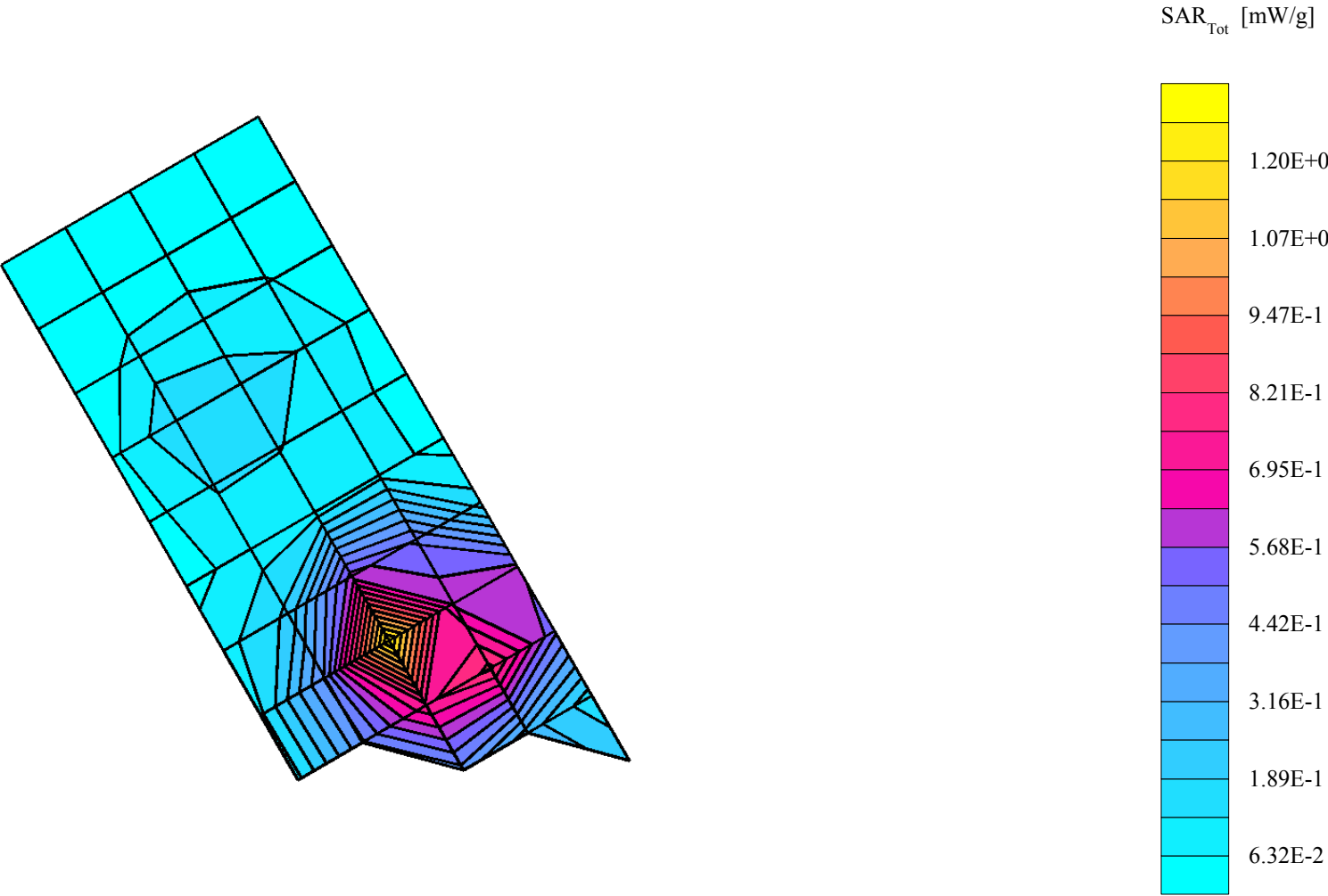
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0

Penetration depth: 10.7 (10.6, 10.9) [mm]

Powerdrift: 0.05 dB

Antenna Position:Retracted

Battery Model #: SNN5695A



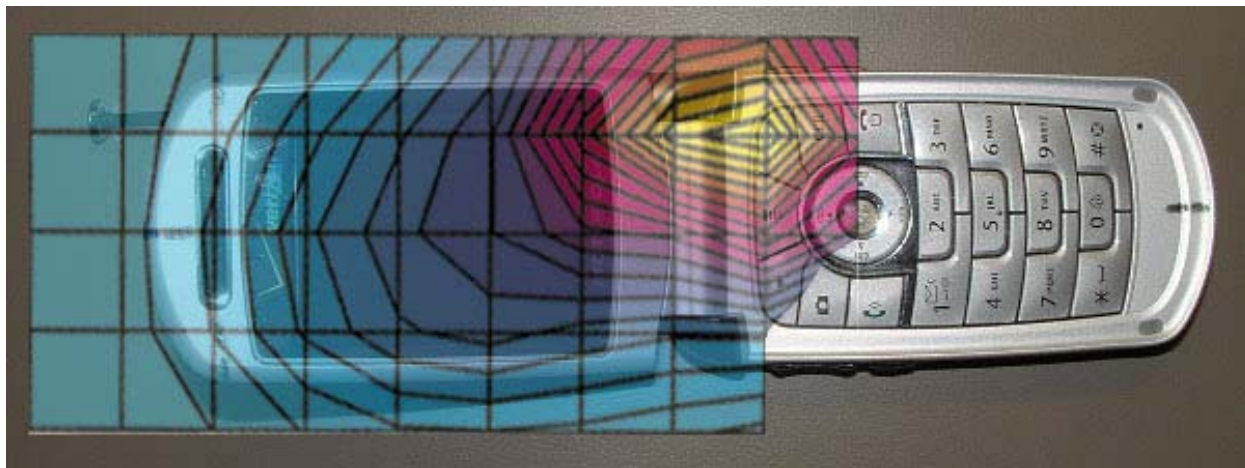


Figure 1. Typical 800MHz Head Adjacent Contour Overlaid on Phone with Antenna Extended (Cheek Touch)



Figure 2. Typical 1900MHz Head Adjacent Contour Overlaid on Phone with Antenna Extended (Cheek Touch)

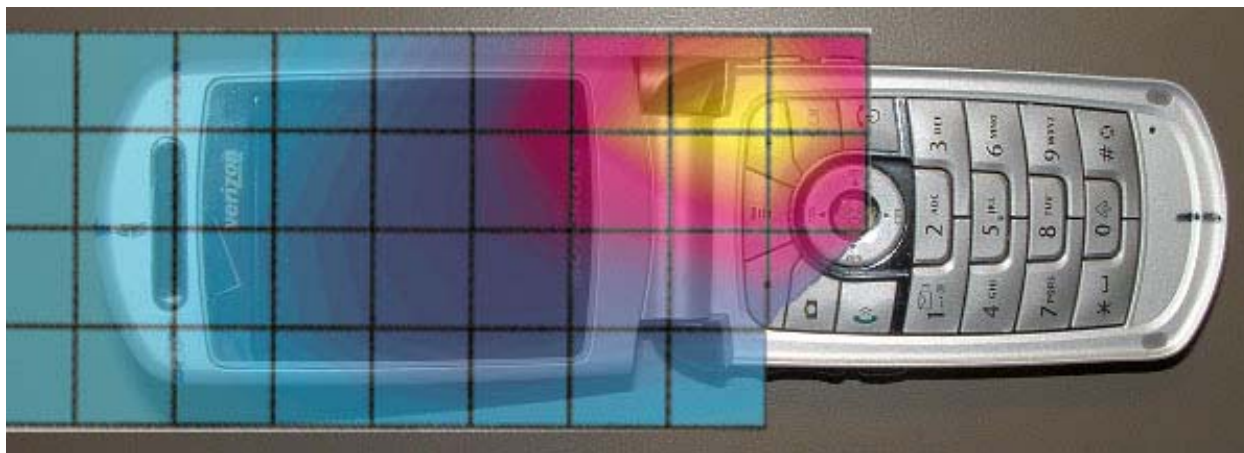


Figure 3. Typical 800MHz Head Adjacent Contour Overlaid on Phone with Antenna Retracted (Cheek Touch)

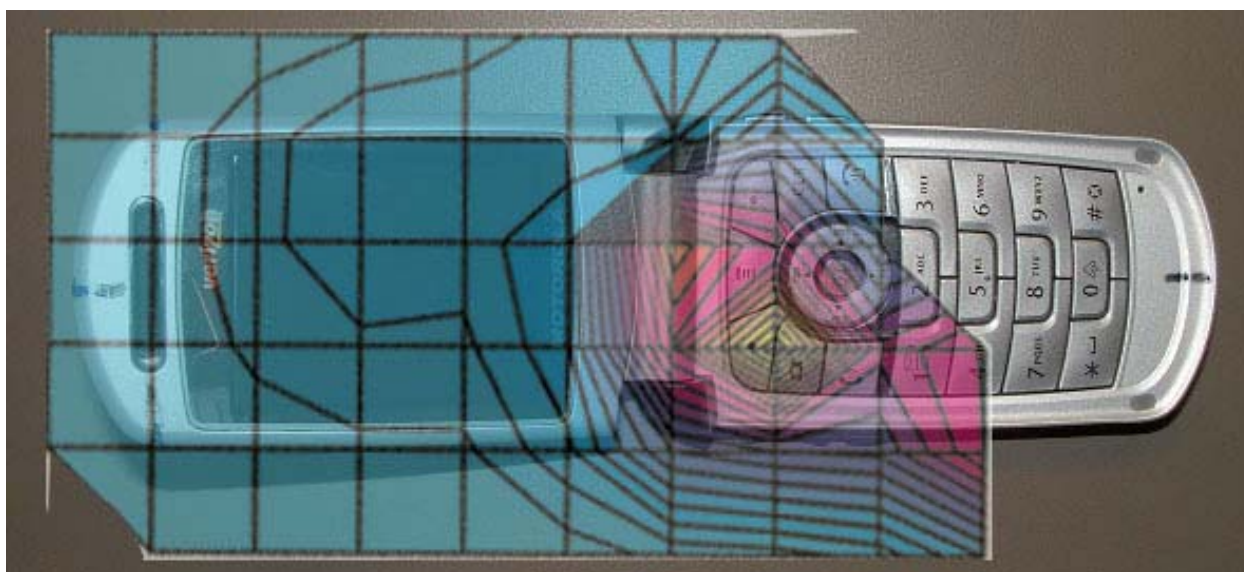


Figure 4. Typical 1900MHz Head Adjacent Contour Overlaid on Phone with Antenna Retracted (Cheek Touch)

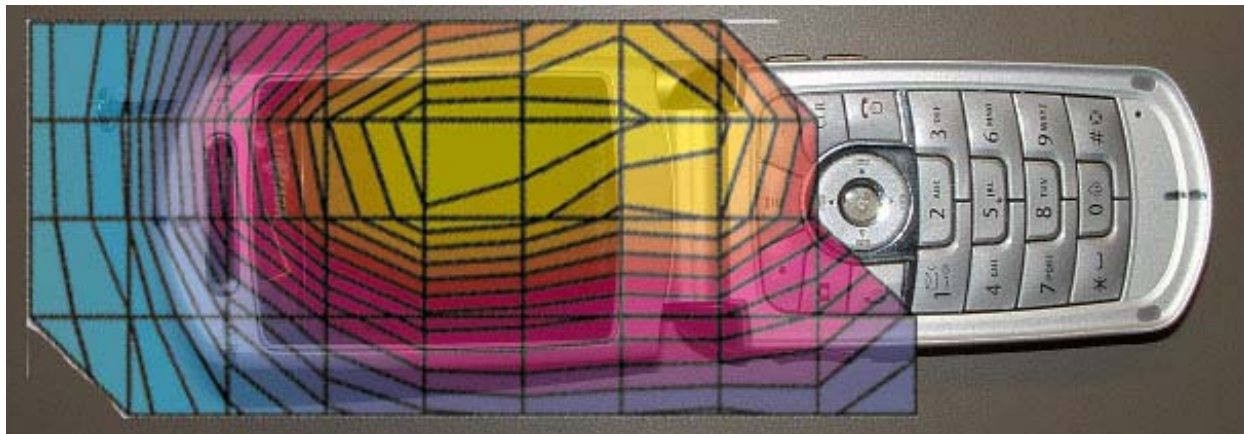


Figure 5. Typical 800MHz Head Adjacent Contour Overlaid on Phone with Antenna Extended (15 ° Tilt)

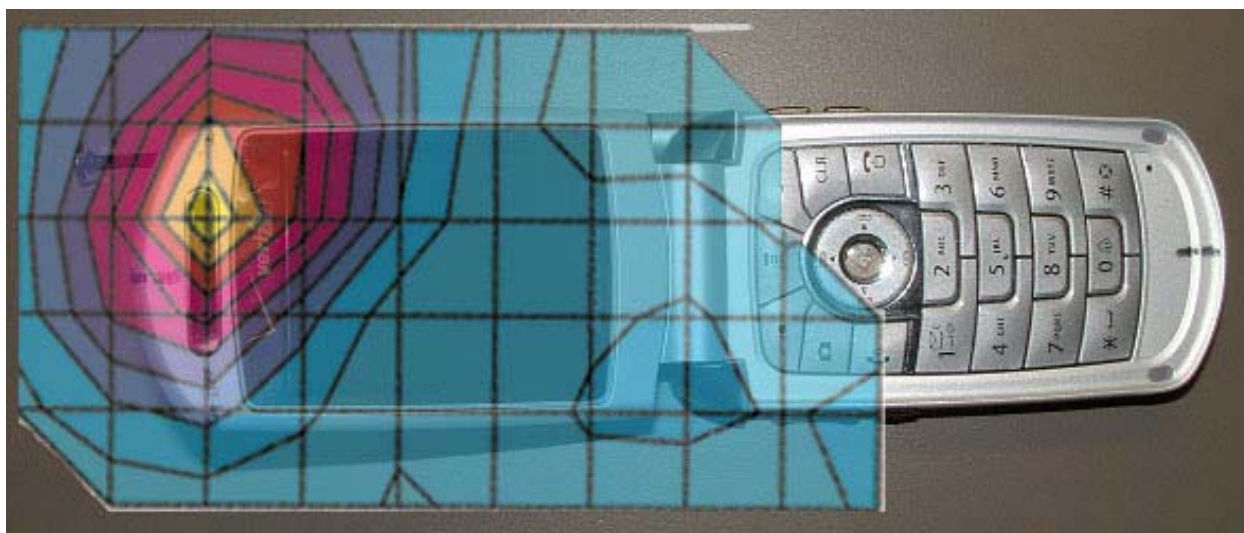


Figure 6. Typical 1900MHz Head Adjacent Contour Overlaid on Phone with Antenna Extended (15 ° Tilt)

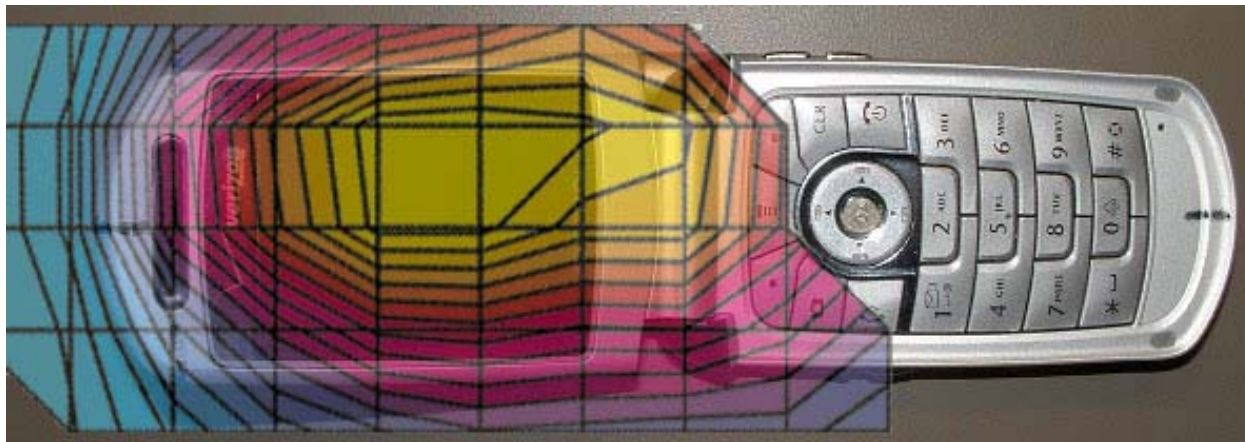


Figure 7. Typical 800MHz Head Adjacent Contour Overlaid on Phone with Antenna Retracted (15 ° Tilt)

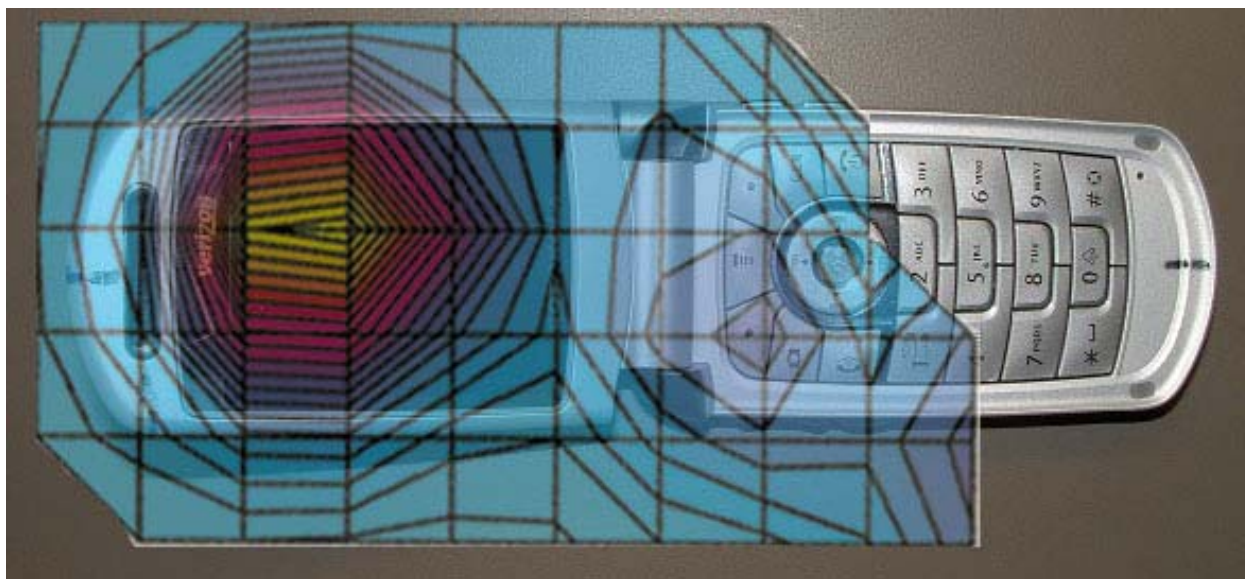


Figure 8. Typical 1900MHz Head Adjacent Contour Overlaid on Phone with Antenna Retracted (15 ° Tilt)

Appendix 3

SAR distribution plots for Body Worn Configuration

s/n: 77047F51)

Ch# 384 Pwr Step: 2 (OTA)

Type of Modulation: 800 AMPS

Accessory Model #: clip (SYN0912A)

R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (0°,0°); Frequency: 837 MHz

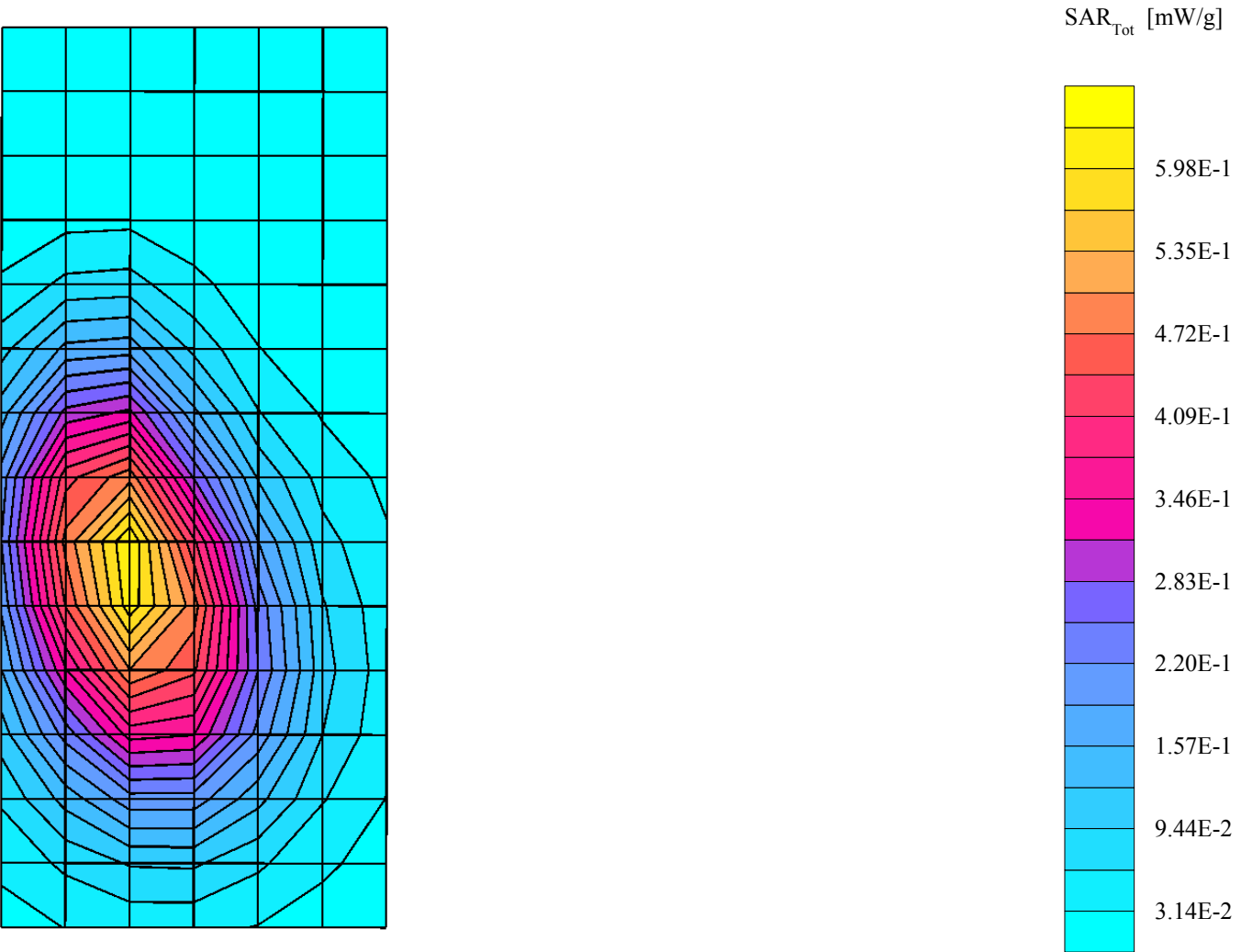
Probe: ET3DV6 - SN1514 - FCC Body.2; ConvF(6.10,6.10,6.10); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.98$ mho/m $\epsilon_r = 53.5$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.618 mW/g, SAR (10g): 0.426 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 14.5 (13.0, 16.1) [mm]

Powerdrift: -0.13 dB



s/n: 77047f51

Ch# 25 / Pwr Step:Allways Up (OTA)

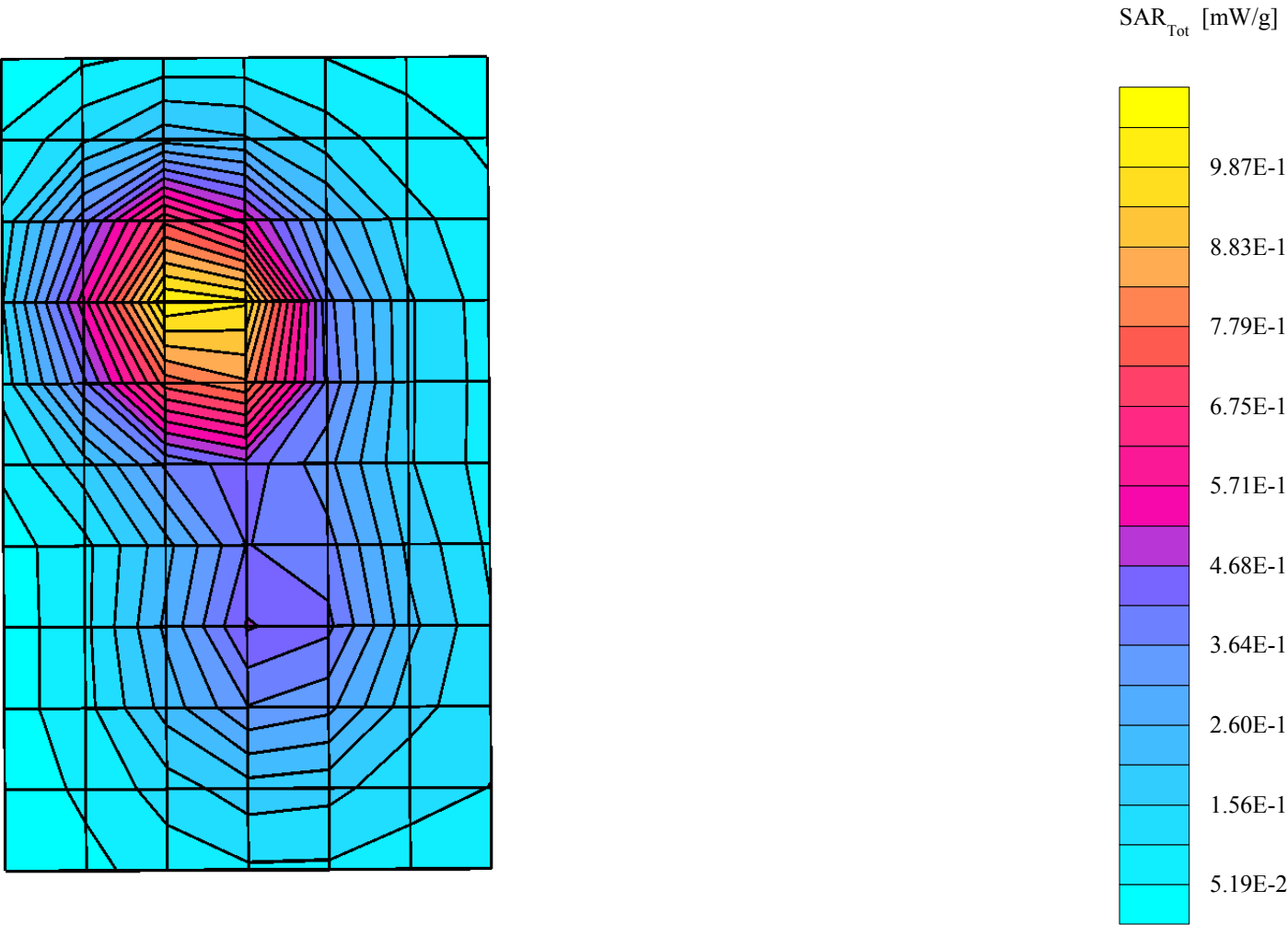
Antenna Position:Retracted

Type of Modulation:PCS 1900 CDMA

Battery Model #: SNN5695A

Accessory Model # = SYN0912A Belt Clip with Bluetooth

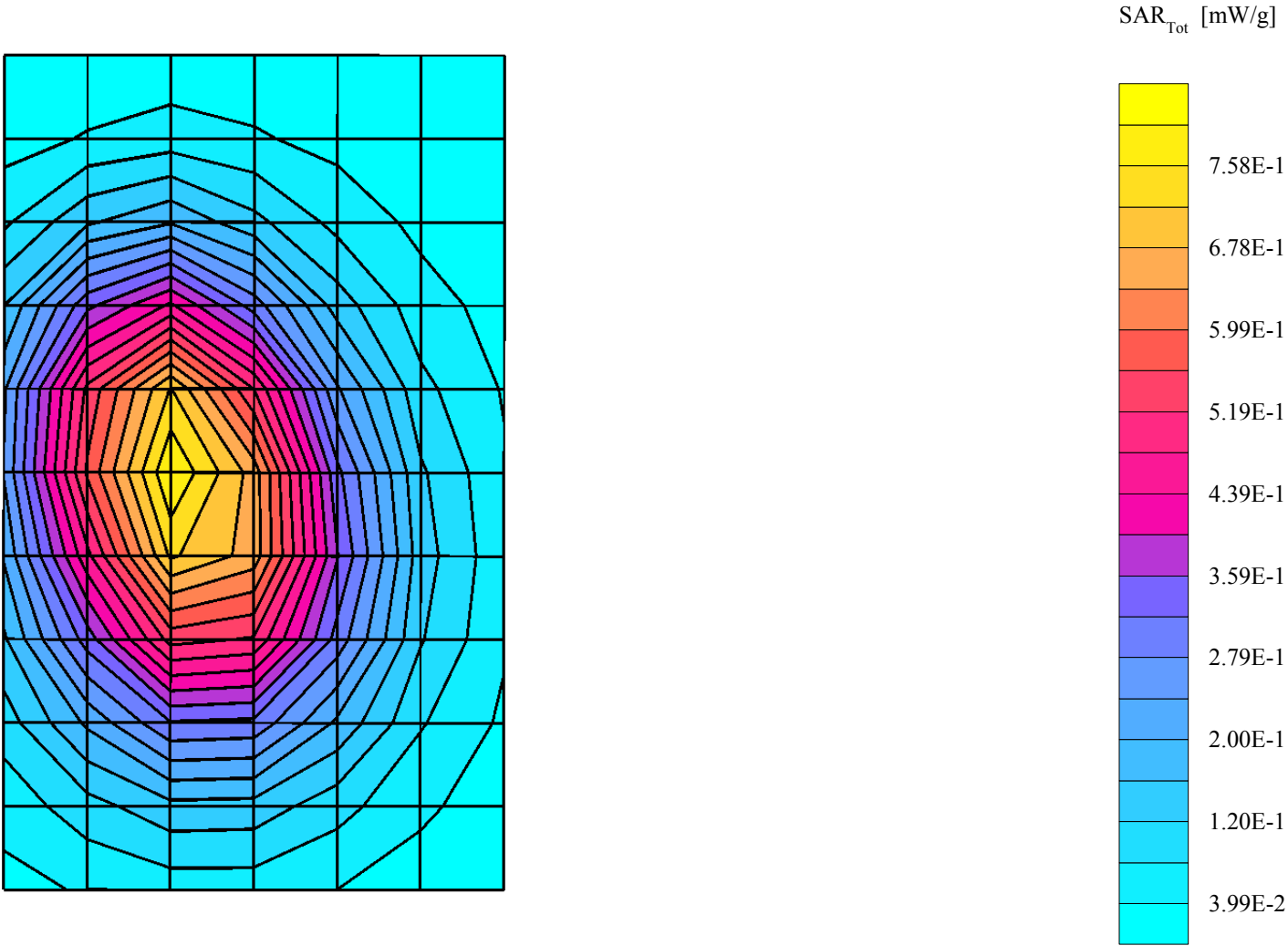
R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 2 Section; Position: (0°,0°); Frequency: 1851 MHz
Probe: ES3DV3 - SN3037 - FCC Body; ConvF(4.70,4.70,4.70); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.58$ mho/m $\epsilon_r = 52.1$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.997 mW/g, SAR (10g): 0.604 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 10.6 (10.3, 11.1) [mm]
Powerdrift: -0.21 dB



s/n: 77047F51

Ch# 384 Pwr Step: 2 (OTA) Antenna Position: RET
Type of Modulation: 800 AMPS bluetooth Battery Model #: SNN5695A
Accessory Model #: clip (SYN0912A)

R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (0°,0°); Frequency: 837 MHz
Probe: ET3DV6 - SN1514 - FCC Body.2; ConvF(6.10,6.10,6.10); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.98$ mho/m $\epsilon_r = 53.5$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.792 mW/g, SAR (10g): 0.553 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 15.6 (14.8, 16.6) [mm]
Powerdrift: -0.19 dB



s/n: 77047f51

Ch# 1175 / Pwr Step:Allways Up (OTA)

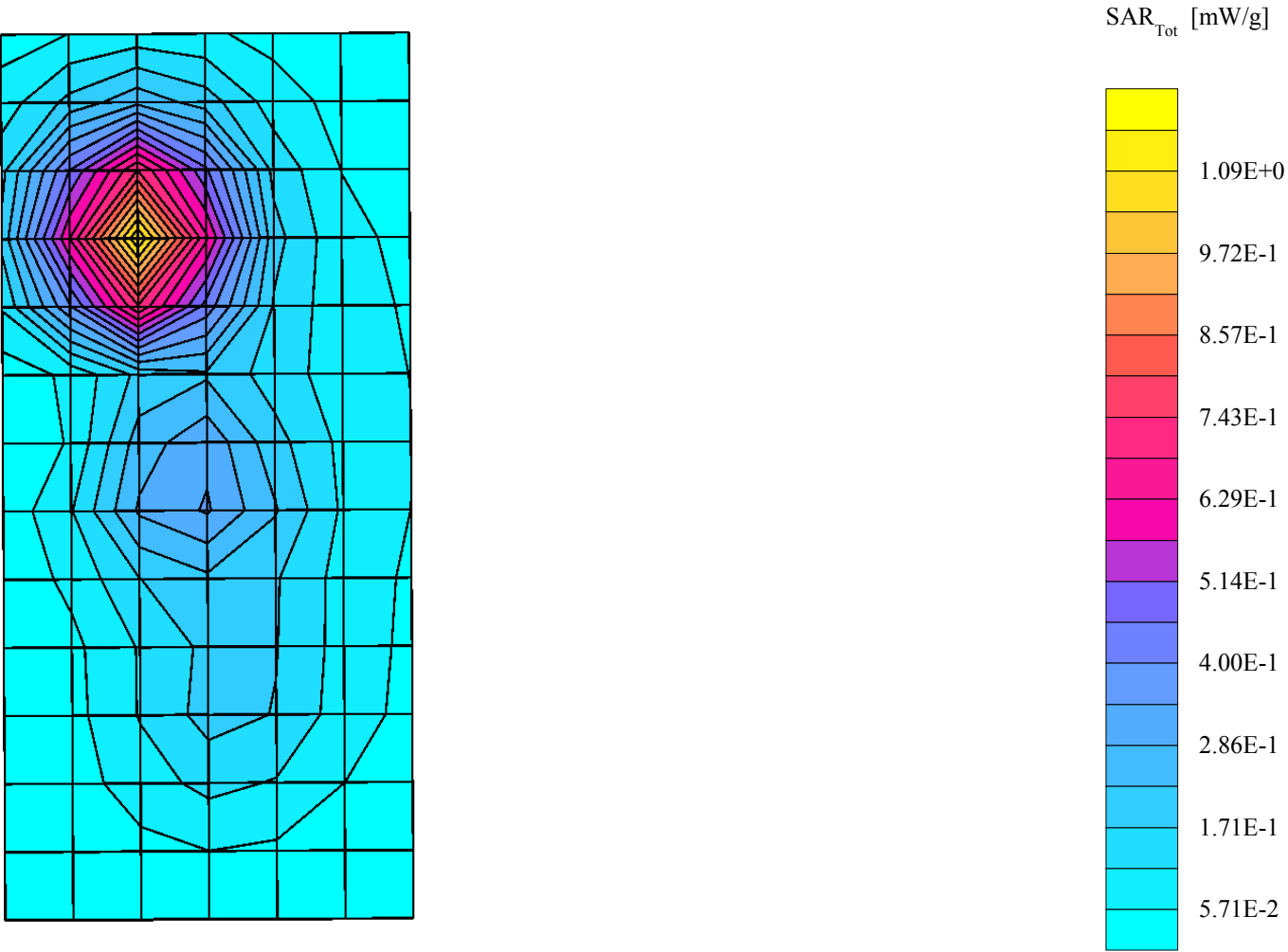
Antenna Position:Extended

Type of Modulation:PCS 1900 CDMA

Battery Model #: SNN5695A

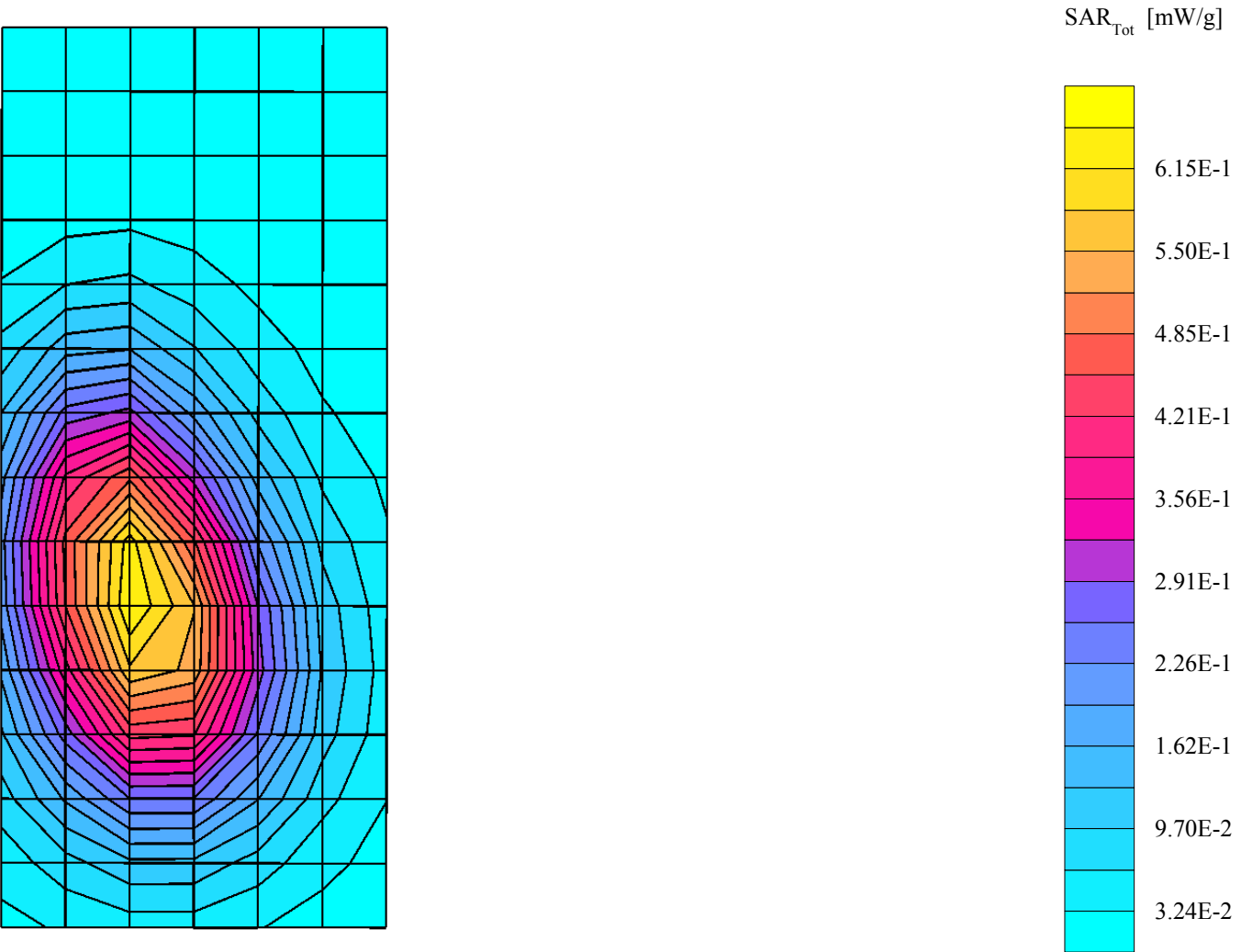
Accessory Model # = SYN0912A Belt Clip with Bluetooth

R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 2 Section; Position: (0°,0°); Frequency: 1909 MHz
Probe: ES3DV3 - SN3037 - FCC Body; ConvF(4.70,4.70,4.70); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.58 \text{ mho/m}$ $\epsilon_r = 52.1$ $\rho = 1.00 \text{ g/cm}^3$
Cube 7x7x7: SAR (1g): 0.973 mW/g, SAR (10g): 0.566 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 10.3 (9.8, 11.1) [mm]
Powerdrift: -0.40 dB



s/n: 77047F51

Ch# 384 Pwr Step: ALL UP Antenna Position: EXT
Type of Modulation: 800 CDMA bluetooth Battery Model #: SNN5695A
Accessory Model #: clip (SYN0912A)
R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (0°,0°); Frequency: 837 MHz
Probe: ET3DV6 - SN1514 - FCC Body.2; ConvF(6.10,6.10,6.10); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.98$ mho/m $\epsilon_r = 52.6$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.650 mW/g, SAR (10g): 0.454 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 15.3 (14.6, 16.2) [mm]
Powerdrift: -0.09 dB



s/n: 77047F51

Ch# 384 Pwr Step: 2 (OTA) Antenna Position: EXT
Type of Modulation: 800 AMPS bluetooth Battery Model #: SNN5695A
Accessory Model #: clip (SYN0912A)

R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (0°,0°); Frequency: 837 MHz

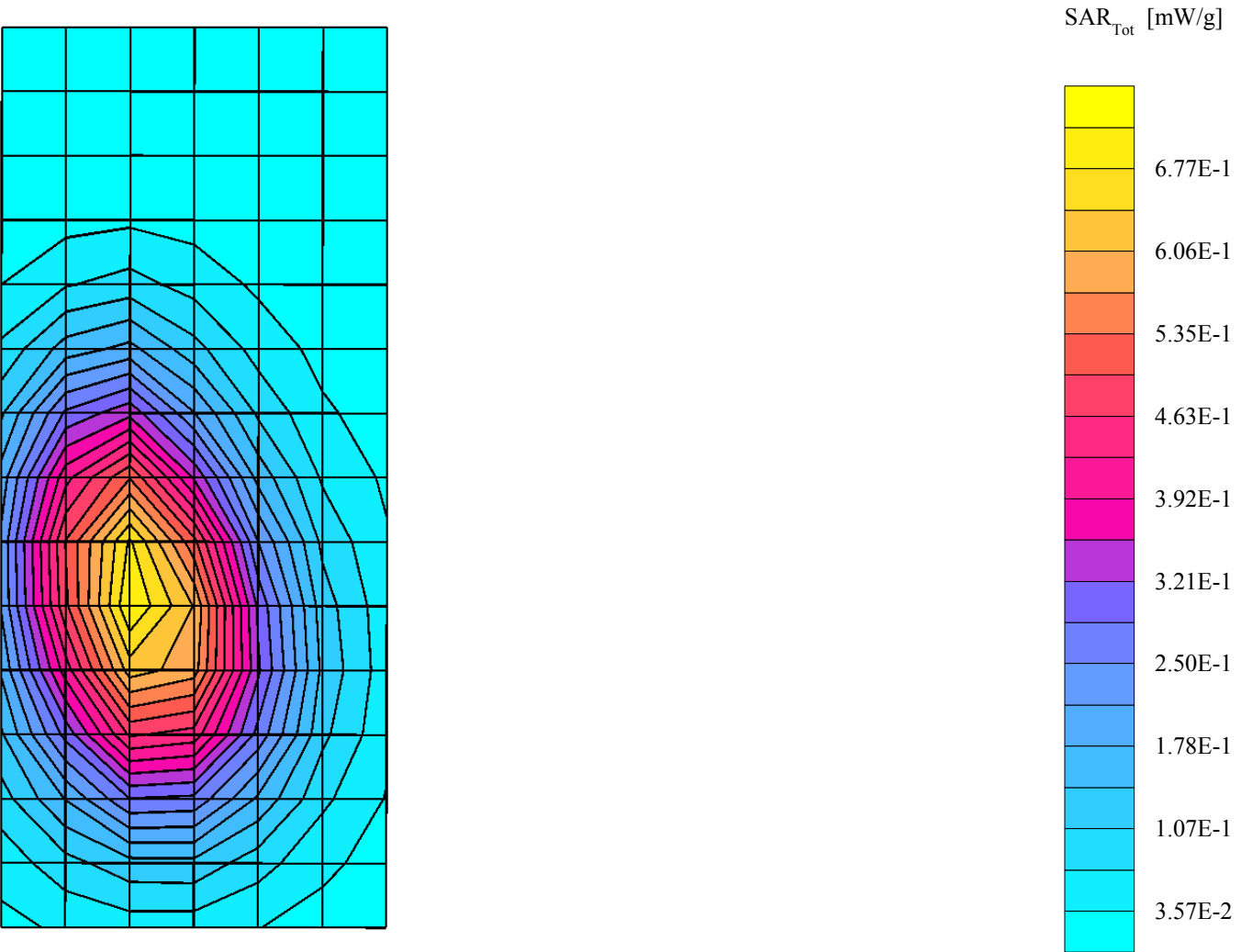
Probe: ET3DV6 - SN1514 - FCC Body.2; ConvF(6.10,6.10,6.10); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.98$ mho/m $\epsilon_r = 52.6$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.705 mW/g, SAR (10g): 0.495 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 15.3 (14.5, 16.2) [mm]

Powerdrift: -0.07 dB



s/n 77047f51

Ch# 25 / Pwr Step:Allways Up (OTA)

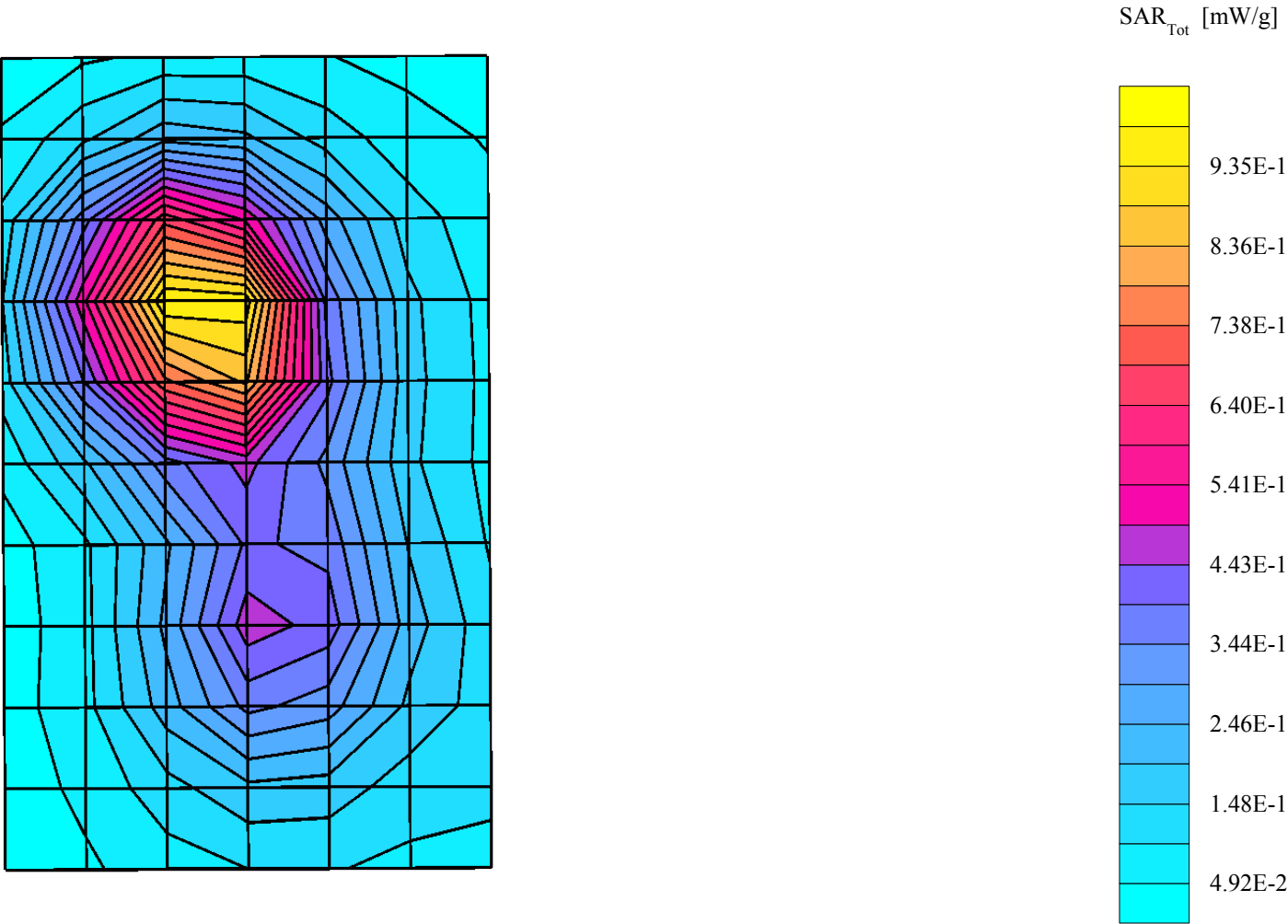
Type of Modulation:PCS 1900 CDMA

Accessory Model # = SYN0912A Belt Clip (NO BLUETOOTH)

Antenna Position:Retracted

Battery Model #: SNN5695A

R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 2 Section; Position: (0°,0°); Frequency: 1851 MHz
Probe: ES3DV3 - SN3037 - FCC Body; ConvF(4.70,4.70,4.70); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.58$ mho/m $\epsilon_r = 52.1$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.973 mW/g, SAR (10g): 0.586 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 10.3 (9.8, 11.0) [mm]
Powerdrift: -0.20 dB



s/n: 77047F51

Ch# 384 Pwr Step: ALL UP

Type of Modulation: 800 CDMA

Accessory Model #: clip (SYN0912A)

R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (0°,0°); Frequency: 837 MHz

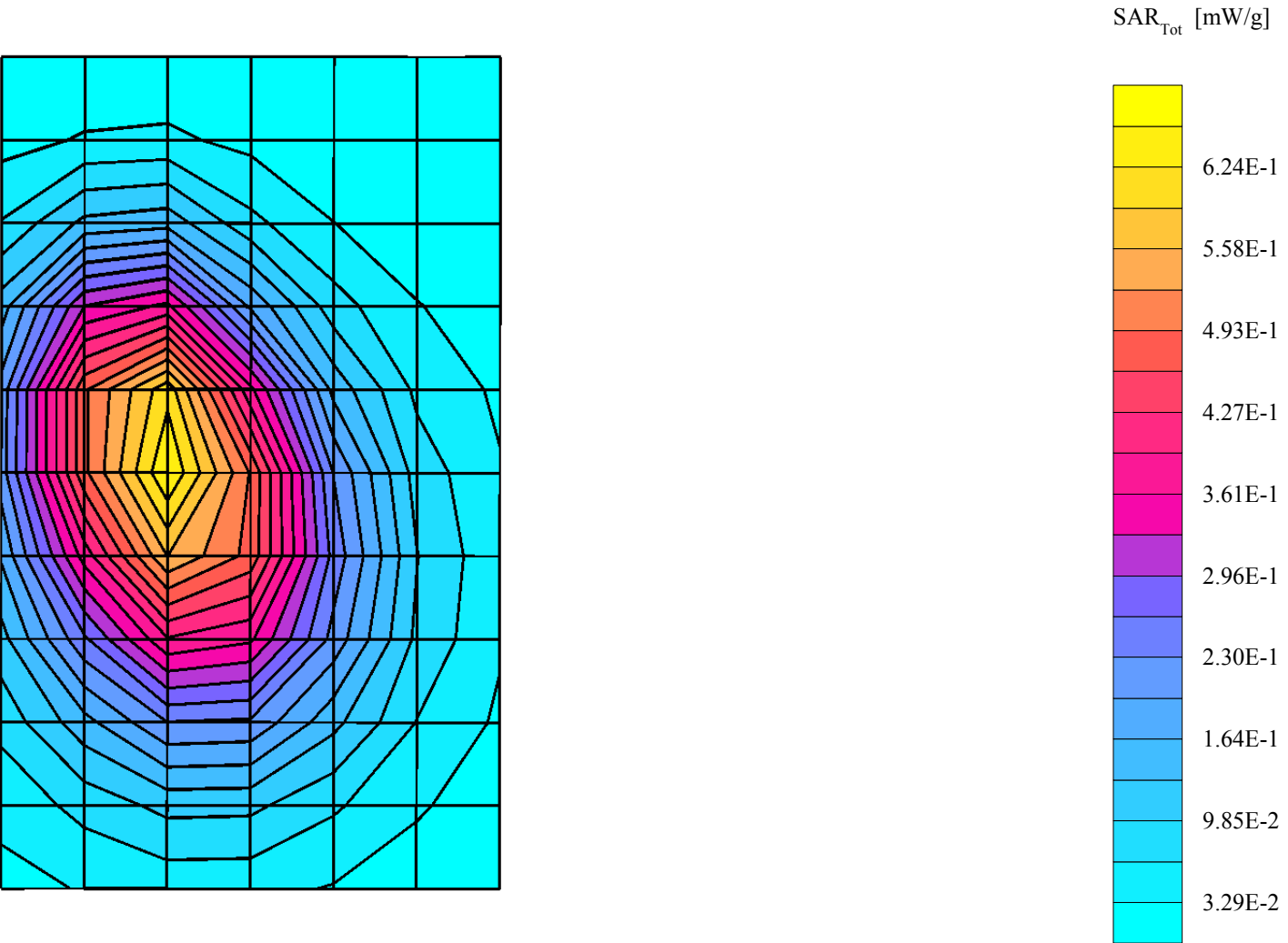
Probe: ET3DV6 - SN1514 - FCC Body.2; ConvF(6.10,6.10,6.10); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.98$ mho/m $\epsilon_r = 53.5$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.646 mW/g, SAR (10g): 0.443 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 14.7 (13.7, 15.9) [mm]

Powerdrift: -0.18 dB



s/n: 77047F51

Ch# 384 Pwr Step: 2 (OTA)

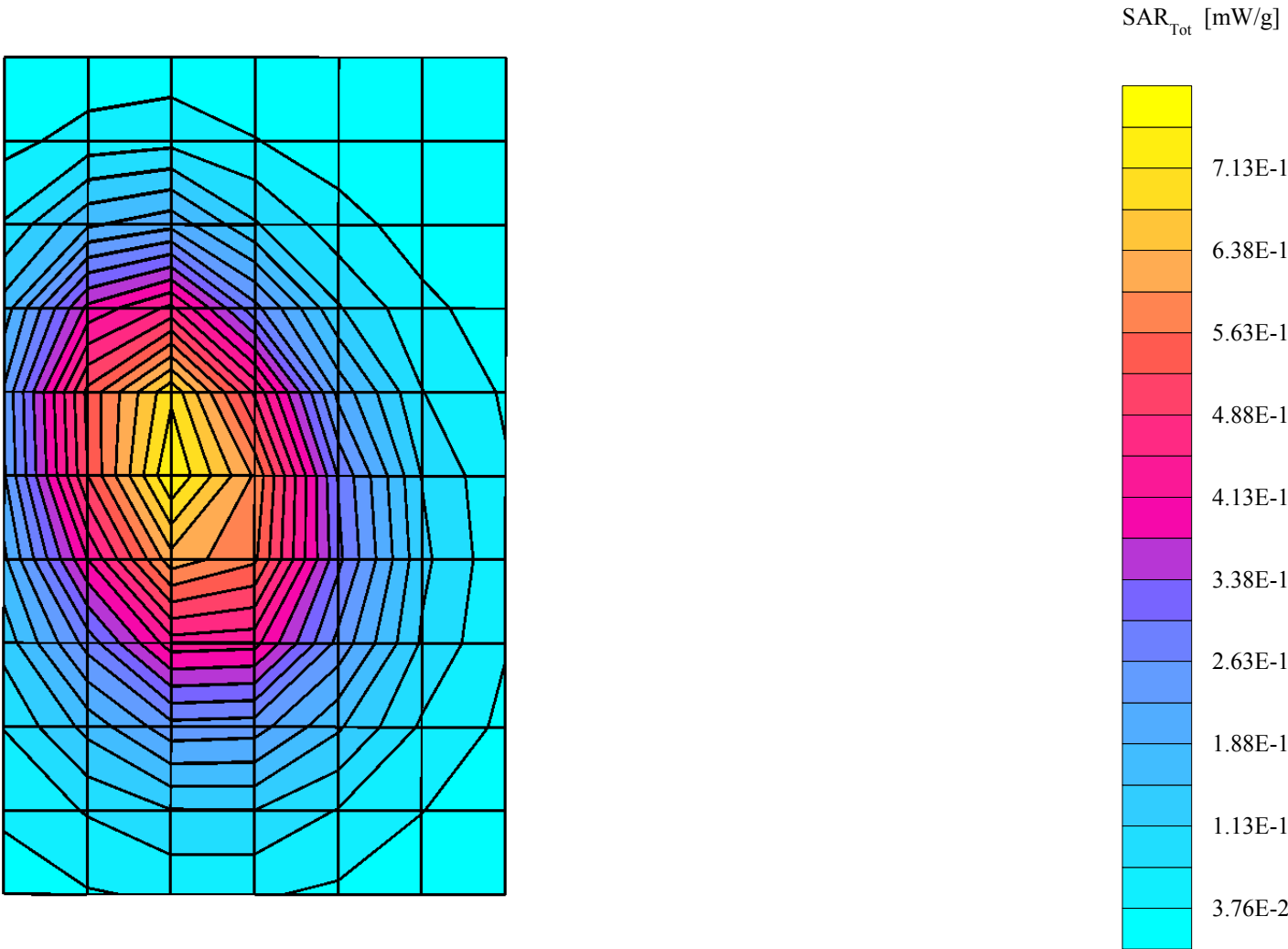
Type of Modulation: 800 AMPS

Accessory Model #: clip (SYN0912A)

Antenna Position: RET

Battery Model #: SNN5695A

R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (0°,0°); Frequency: 837 MHz
Probe: ET3DV6 - SN1514 - FCC Body.2; ConvF(6.10,6.10,6.10); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.98$ mho/m $\epsilon_r = 53.5$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.731 mW/g, SAR (10g): 0.506 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 15.0 (13.5, 16.7) [mm]
Powerdrift: -0.17 dB



s/n: 77047f51

Ch# 1175 / Pwr Step: ALWAYS UP

Type of Modulation: 1900 CDMA

Accessory Model #: SYN0912A BELT-CLIP

Antenna Position: EXT

Battery Model #: SNN5695A

R1 Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 2 Section; Position: (0°,0°); Frequency: 1910 MHz

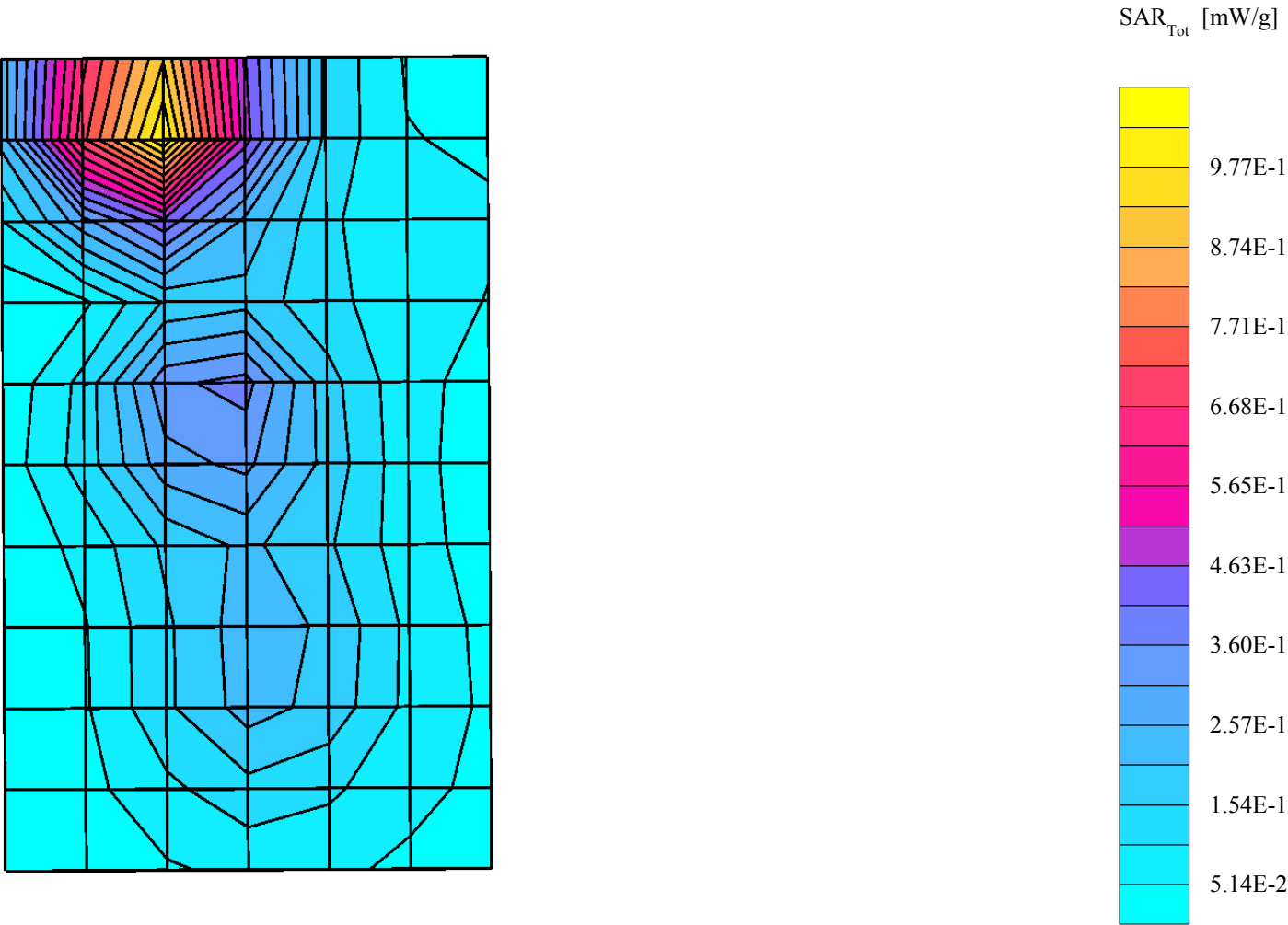
Probe: ES3DV3 - SN3037 - FCC Body; ConvF(4.70,4.70,4.70); Crest factor: 1.0; 1880 MHz Head & Body: $\sigma = 1.59$ mho/m $\epsilon_r = 52.4$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.962 mW/g, SAR (10g): 0.560 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 10.4 (10.0, 10.9) [mm]

Powerdrift: -0.46 dB



s/n: 77047F51

Ch# 384 Pwr Step: ALL UP

Type of Modulation: 800 CDMA

Accessory Model #: clip (SYN0912A)

R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (0°,0°); Frequency: 837 MHz

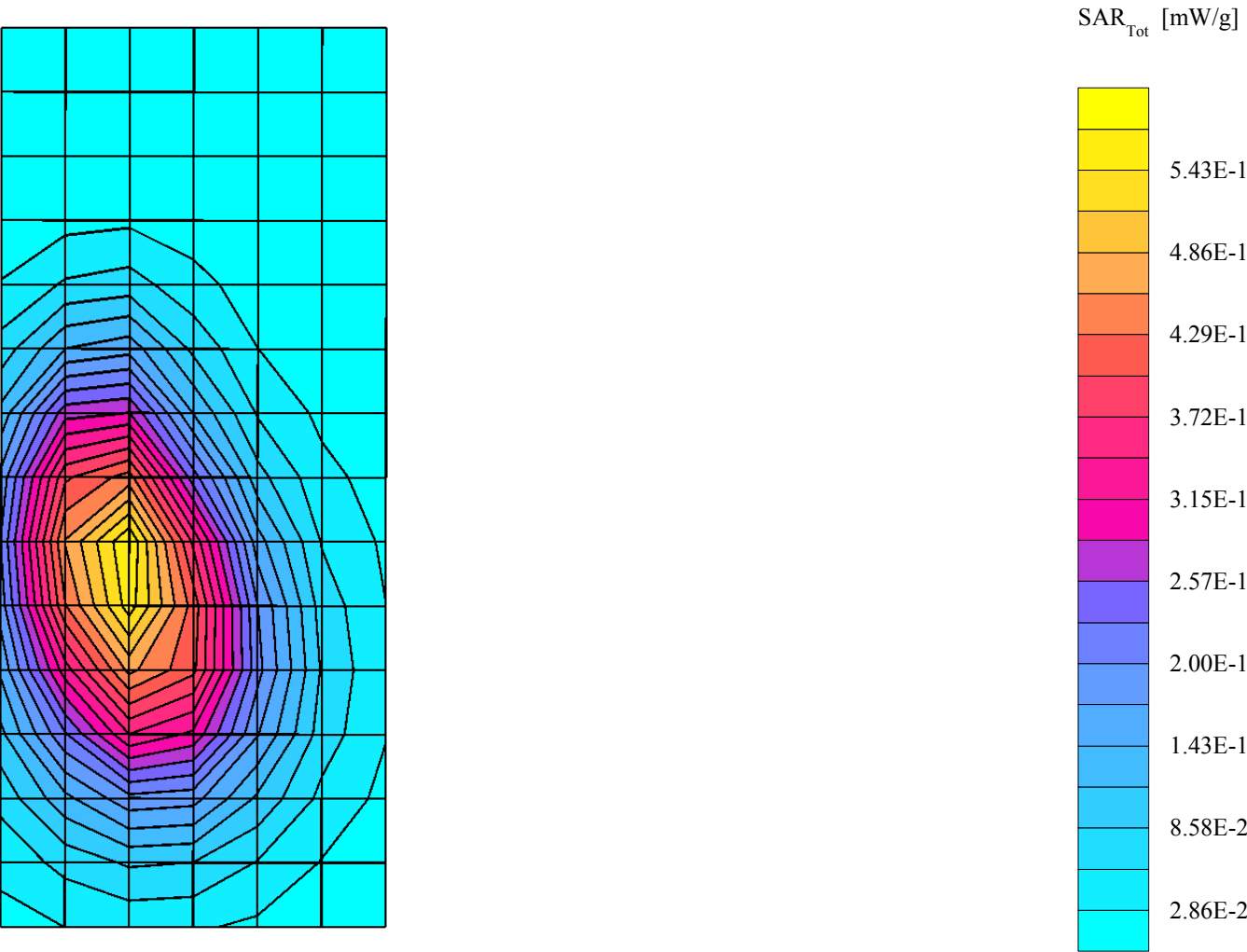
Probe: ET3DV6 - SN1514 - FCC Body.2; ConvF(6.10,6.10,6.10); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.98$ mho/m $\epsilon_r = 53.5$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.569 mW/g, SAR (10g): 0.389 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 13.8 (13.0, 15.0) [mm]

Powerdrift: -0.12 dB



s/n: 77047F51

Ch# 384 Pwr Step: ALL UP)

Type of Modulation: 800 CDMA bluetooth

Accessory Model #: clip (SYN0912A)

Antenna Position: RET

Battery Model #: SNN5695A

R4 - Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (0°,0°); Frequency: 837 MHz

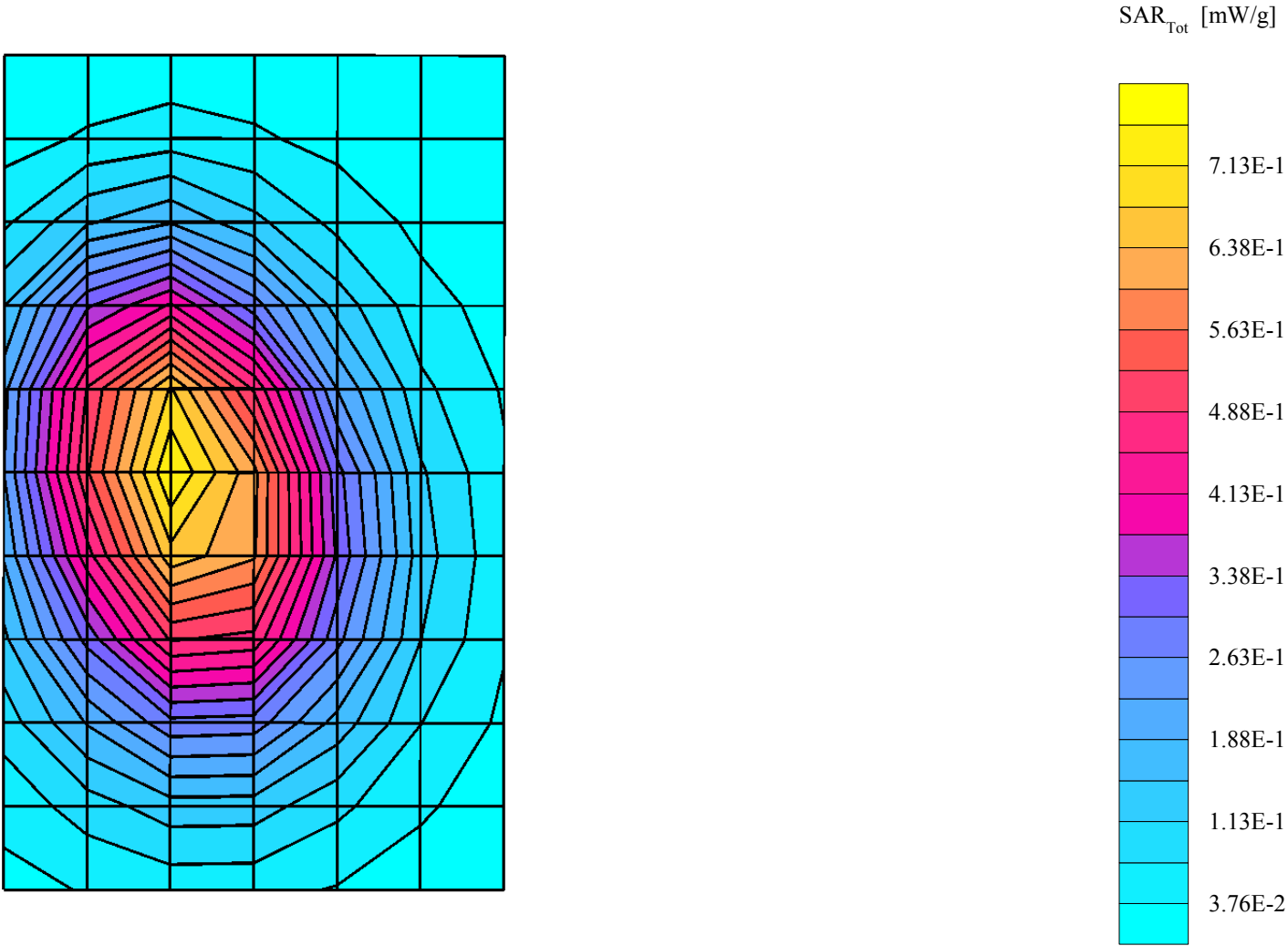
Probe: ET3DV6 - SN1514 - FCC Body.2; ConvF(6.10,6.10,6.10); Crest factor: 1.0; 835 MHz Head & Body: $\sigma = 0.98$ mho/m $\epsilon_r = 53.5$ $\rho = 1.00$ g/cm³

Cube 7x7x7: SAR (1g): 0.734 mW/g, SAR (10g): 0.509 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0

Penetration depth: 14.9 (13.7, 16.2) [mm]

Powerdrift: -0.18 dB



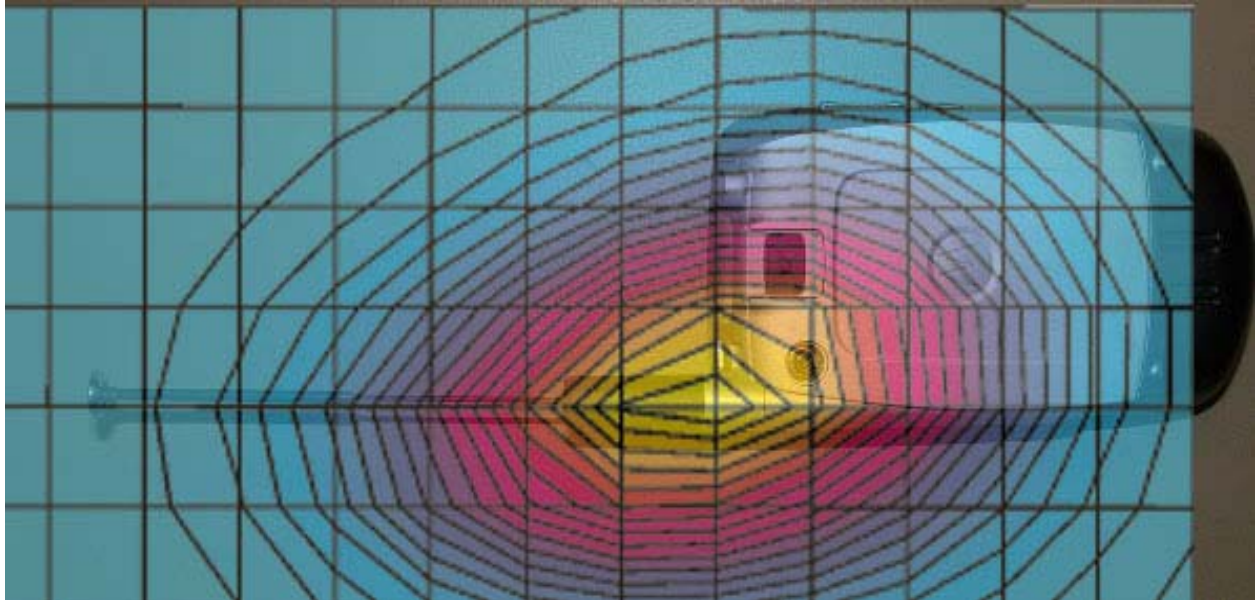


Figure 9. Typical 800 MHz Body-Worn Contour Overlaid on Phone with Antenna Extended

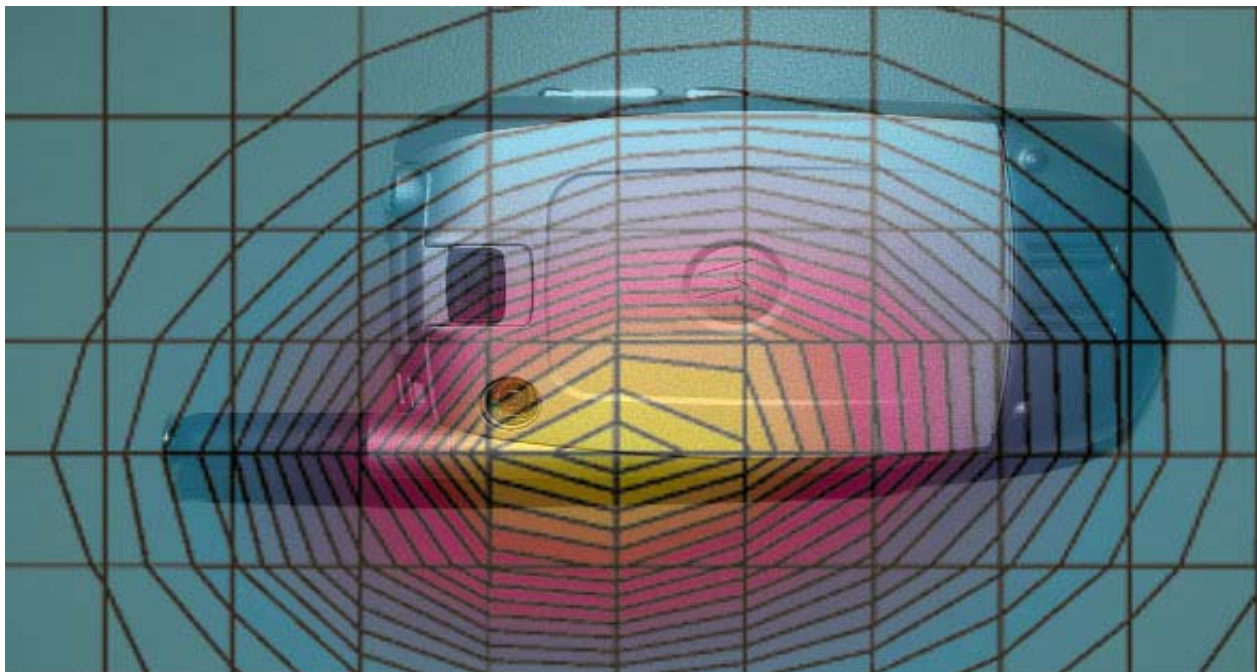


Figure 10. Typical 800 MHz Body-Worn Contour Overlaid on Phone with Antenna Retracted

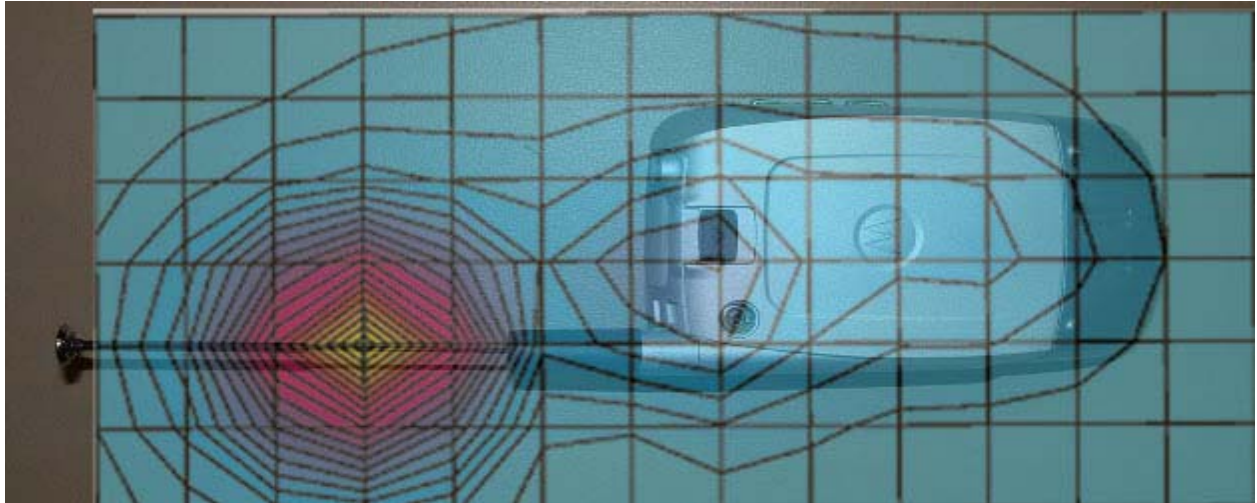


Figure 11. Typical 1900 MHz Body-Worn Contour Overlaid on Phone with Antenna Extended

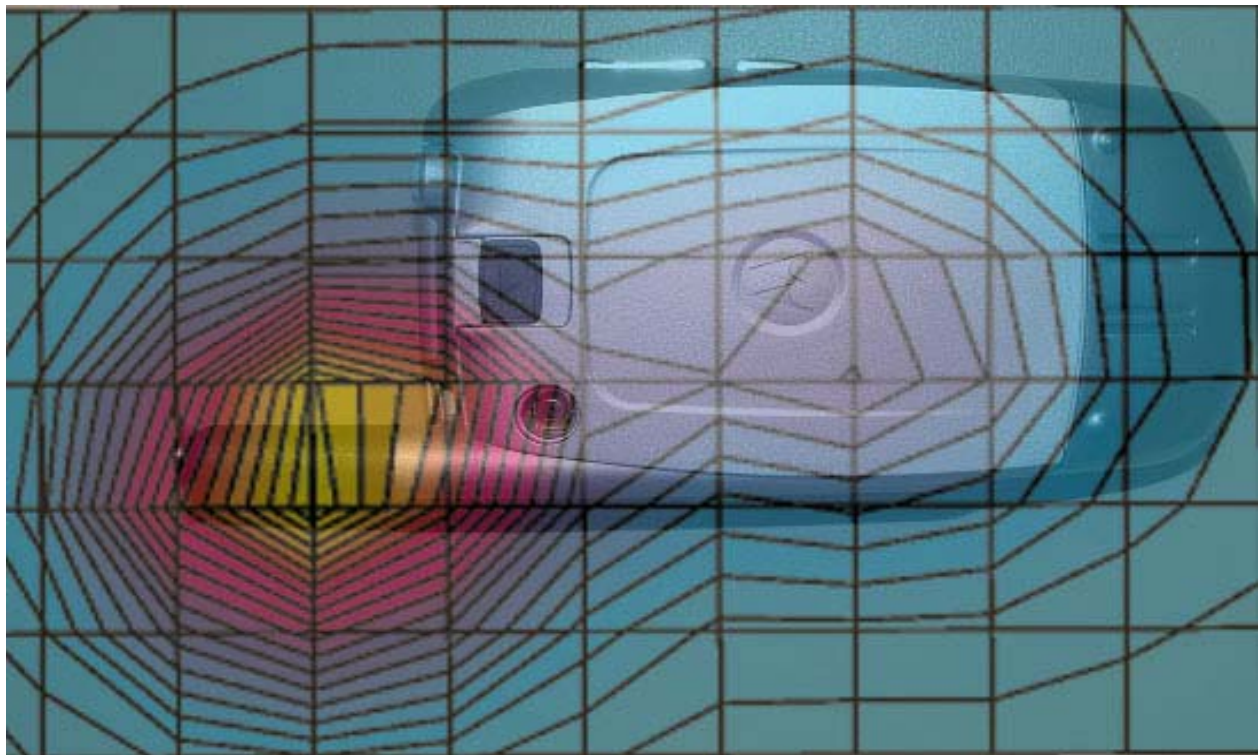


Figure 12. Typical 1900 MHz Body-Worn Contour Overlaid on Phone with Antenna Retracted

Appendix 4
Probe Calibration Certificate

Client

Motorola MRO

CALIBRATION CERTIFICATE

Object(s)

ES3DV3 - SN 3037

Calibration procedure(s)

QA CAL-01 v2
Calibration procedure for dosimetric E-field probes

Calibration date:

October 10, 2003

Condition of the calibrated item

In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment 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	2-Apr-03 (METAS, No 252-0250)	Apr-04
Power sensor E4412A	MY41495277	2-Apr-03 (METAS, No 252-0250)	Apr-04
Reference 20 dB Attenuator	SN: 5086 (20b)	3-Apr-03 (METAS No. 251-0340)	Apr-04
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 (Agilent, No. 20020918)	In house check: Oct 03
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 (Agilent, No. 24BR1033101)	In house check: Oct 03

Calibrated by:

Name

Katja Pokovic

Function

Laboratory Director

Signature



Approved by:

Fin Bornholt

R&D Director



Date issued: October 10, 2003

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 ES3DV3

SN:3037

Manufactured: August 21, 2003
Last calibration: October 10, 2003

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ES3DV3 SN:3037

Sensitivity in Free Space

Diode Compression

NormX	1.13 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	100 mV
NormY	0.85 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	100 mV
NormZ	0.95 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	100 mV

Sensitivity in Tissue Simulating Liquid

Head **900 MHz** $\epsilon_r = 41.5 \pm 5\%$ $\sigma = 0.97 \pm 5\%$ mho/m
Valid for f=800-1000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	6.1 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	6.1 $\pm 9.5\%$ (k=2)	Alpha	0.31
ConvF Z	6.1 $\pm 9.5\%$ (k=2)	Depth	1.75

Head **1800 MHz** $\epsilon_r = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\%$ mho/m
Valid for f=1710-1910 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	4.9 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	4.9 $\pm 9.5\%$ (k=2)	Alpha	0.24
ConvF Z	4.9 $\pm 9.5\%$ (k=2)	Depth	2.68

Boundary Effect

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

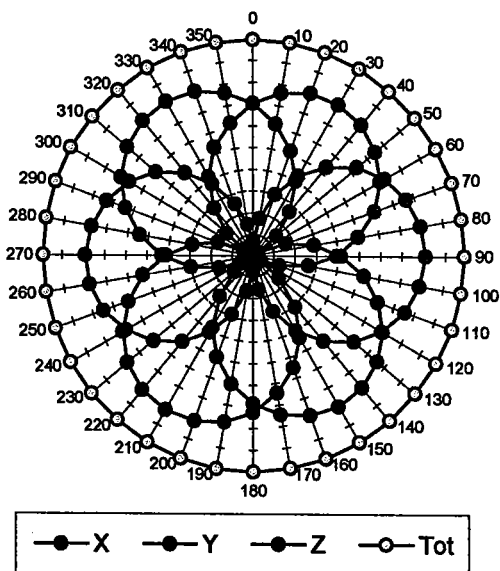
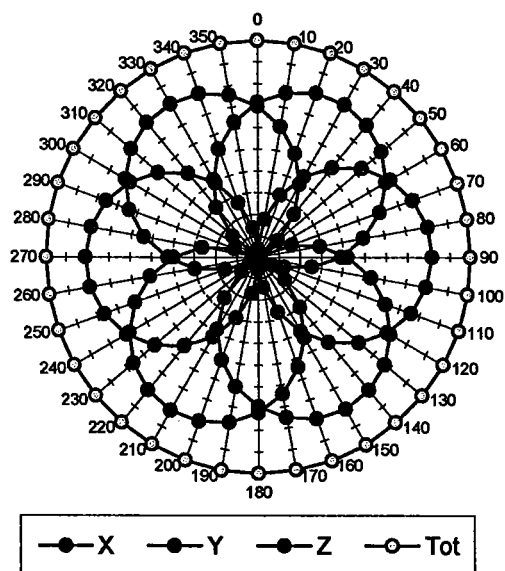
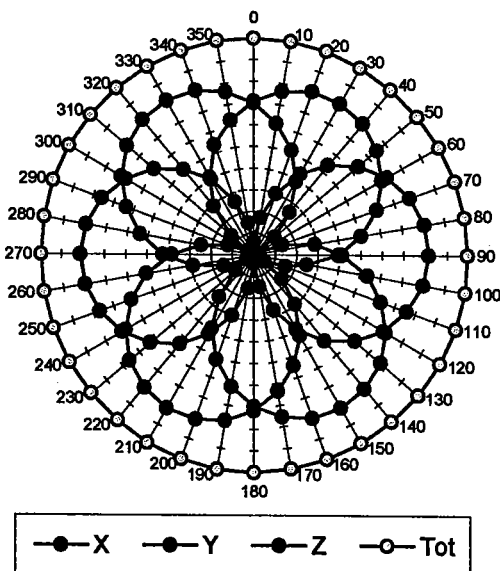
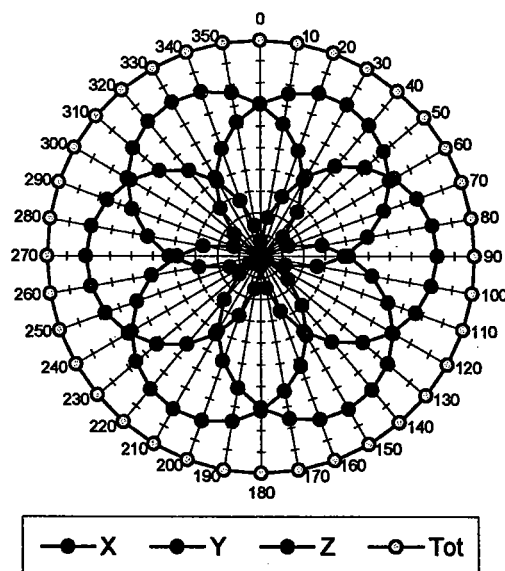
Probe Tip to Boundary		1 mm	2 mm
SAR _{be} [%] Without Correction Algorithm		6.0	3.0
SAR _{be} [%] With Correction Algorithm		0.1	0.3

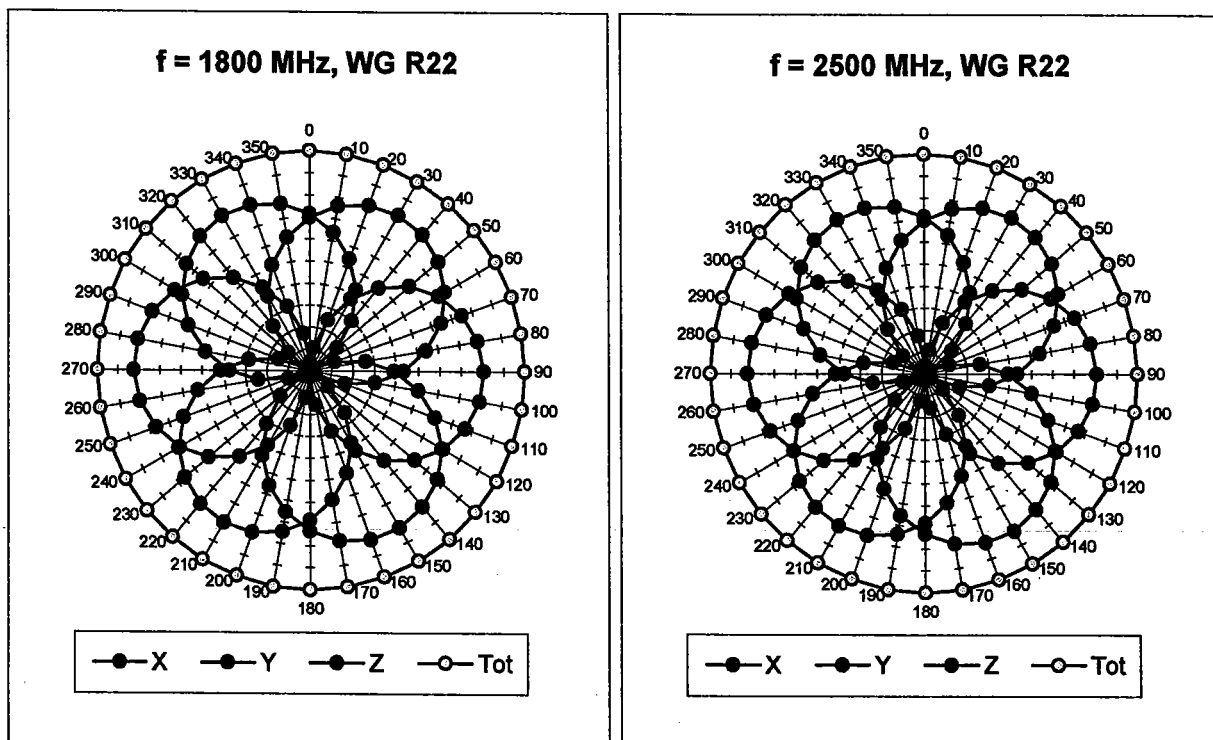
Head **1800 MHz** Typical SAR gradient: 10 % per mm

Probe Tip to Boundary		1 mm	2 mm
SAR _{be} [%] Without Correction Algorithm		8.5	5.5
SAR _{be} [%] With Correction Algorithm		0.1	0.2

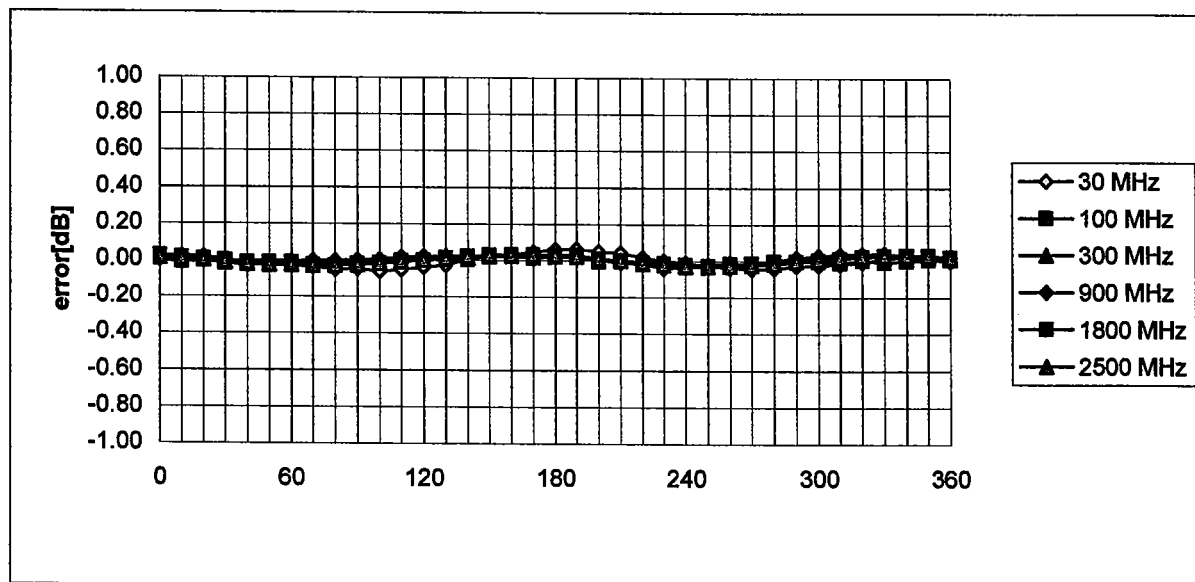
Sensor Offset

Probe Tip to Sensor Center **2.0** mm

Receiving Pattern (ϕ , $\theta = 0^\circ$)**f = 30 MHz, TEM cell ifi110****f = 100 MHz, TEM cell ifi110****f = 300 MHz, TEM cell ifi110****f = 900 MHz, TEM cell ifi110**

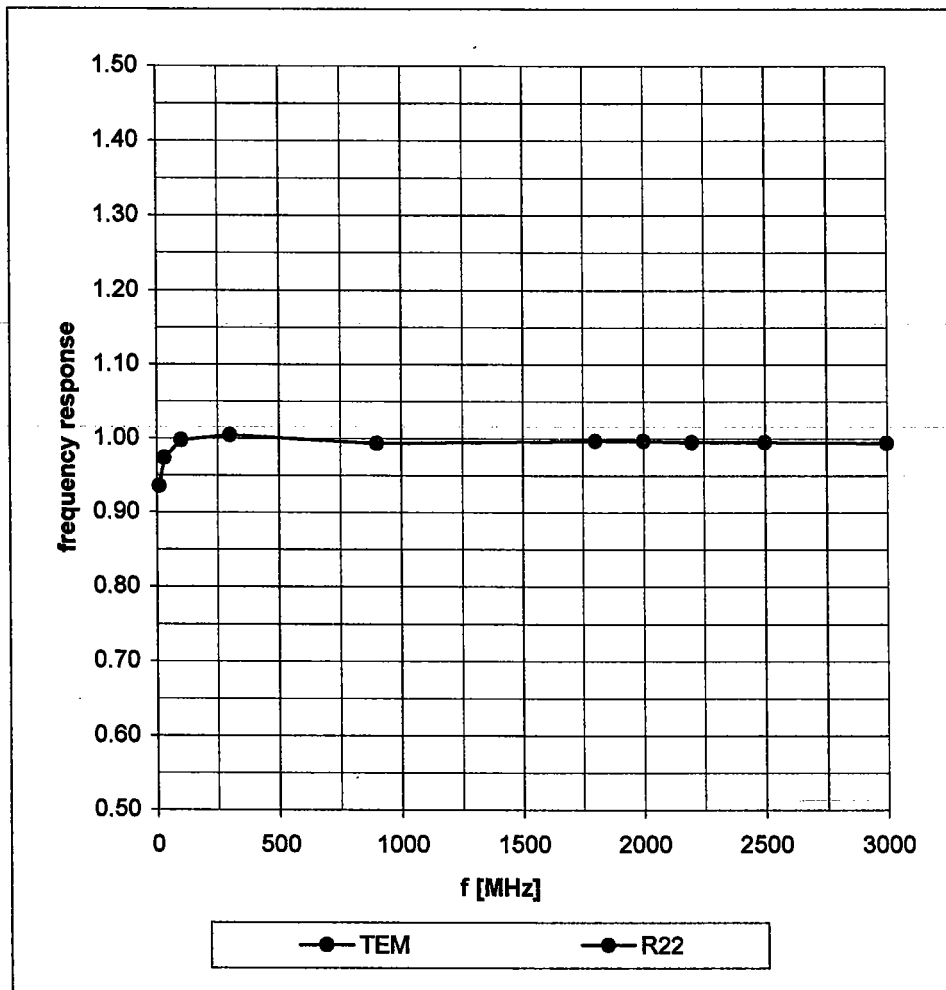


Isotropy Error (ϕ), $\theta = 0^\circ$

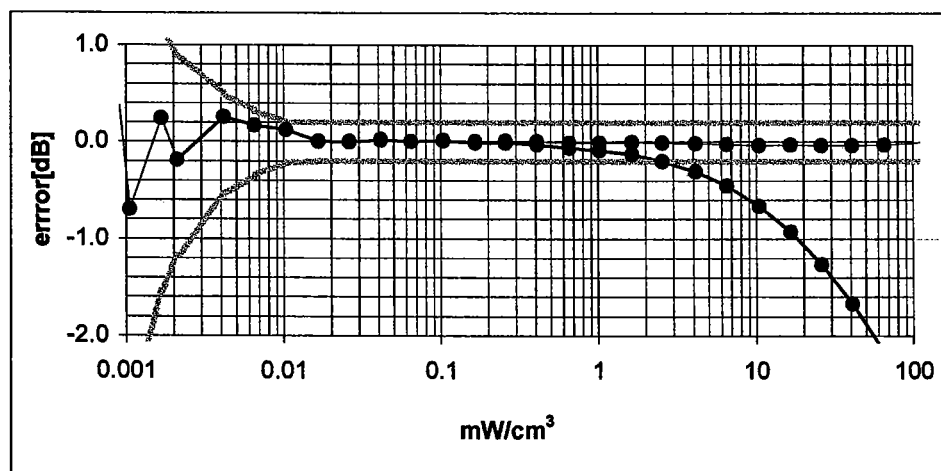
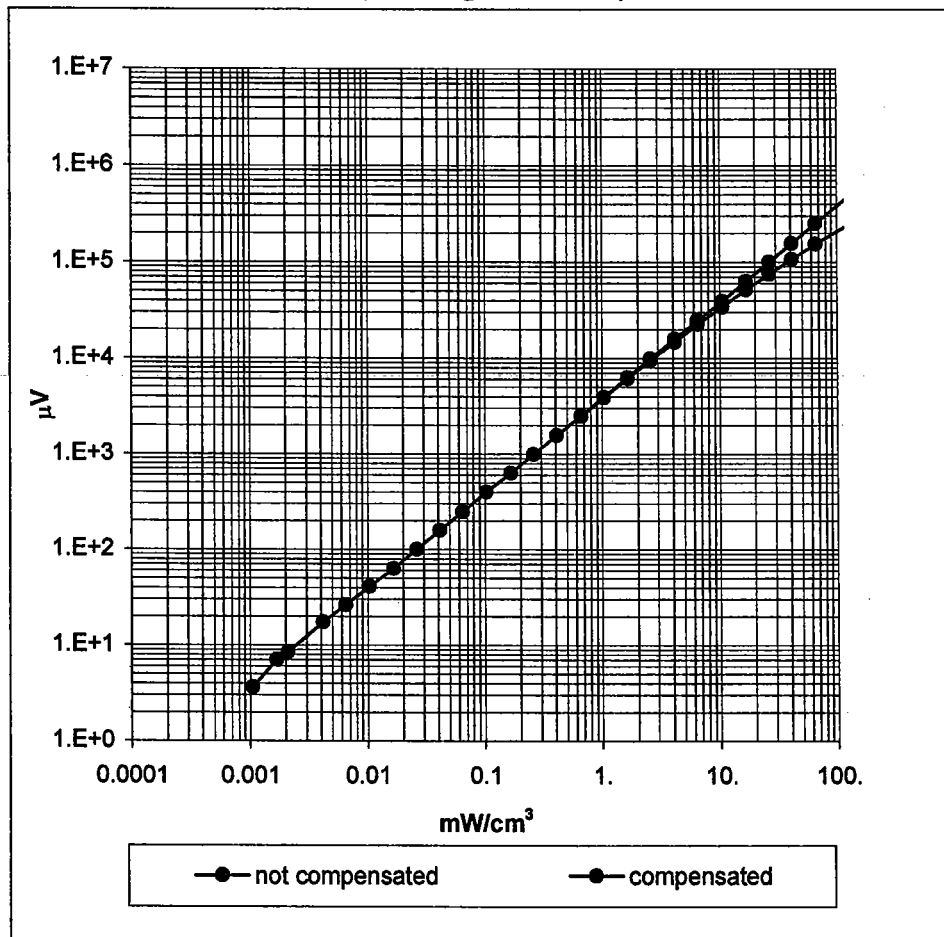


Frequency Response of E-Field

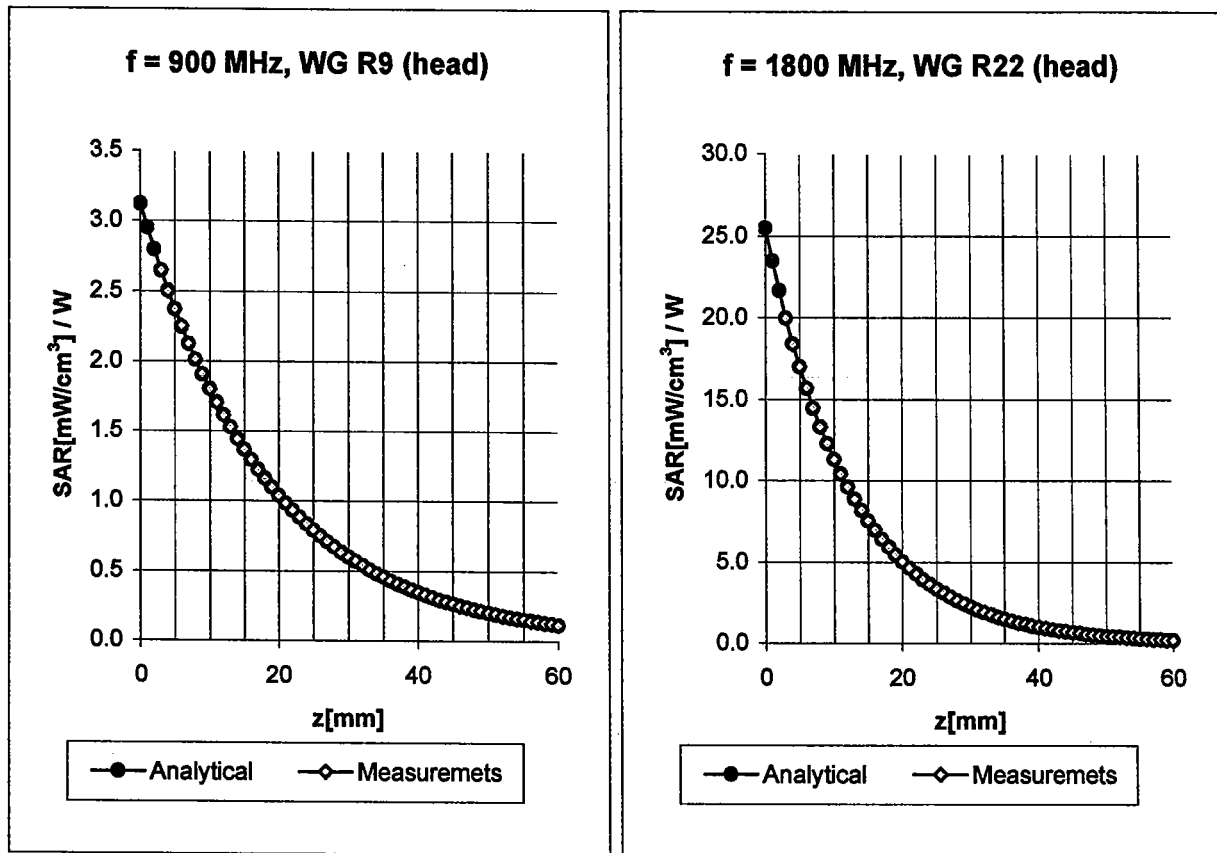
(TEM-Cell:ifi110, Waveguide R22)



Dynamic Range $f(\text{SAR}_{\text{brain}})$ (Waveguide R22)



Conversion Factor Assessment



Head **900 MHz** $\epsilon_r = 41.5 \pm 5\%$ $\sigma = 0.97 \pm 5\% \text{ mho/m}$

Valid for f=800-1000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

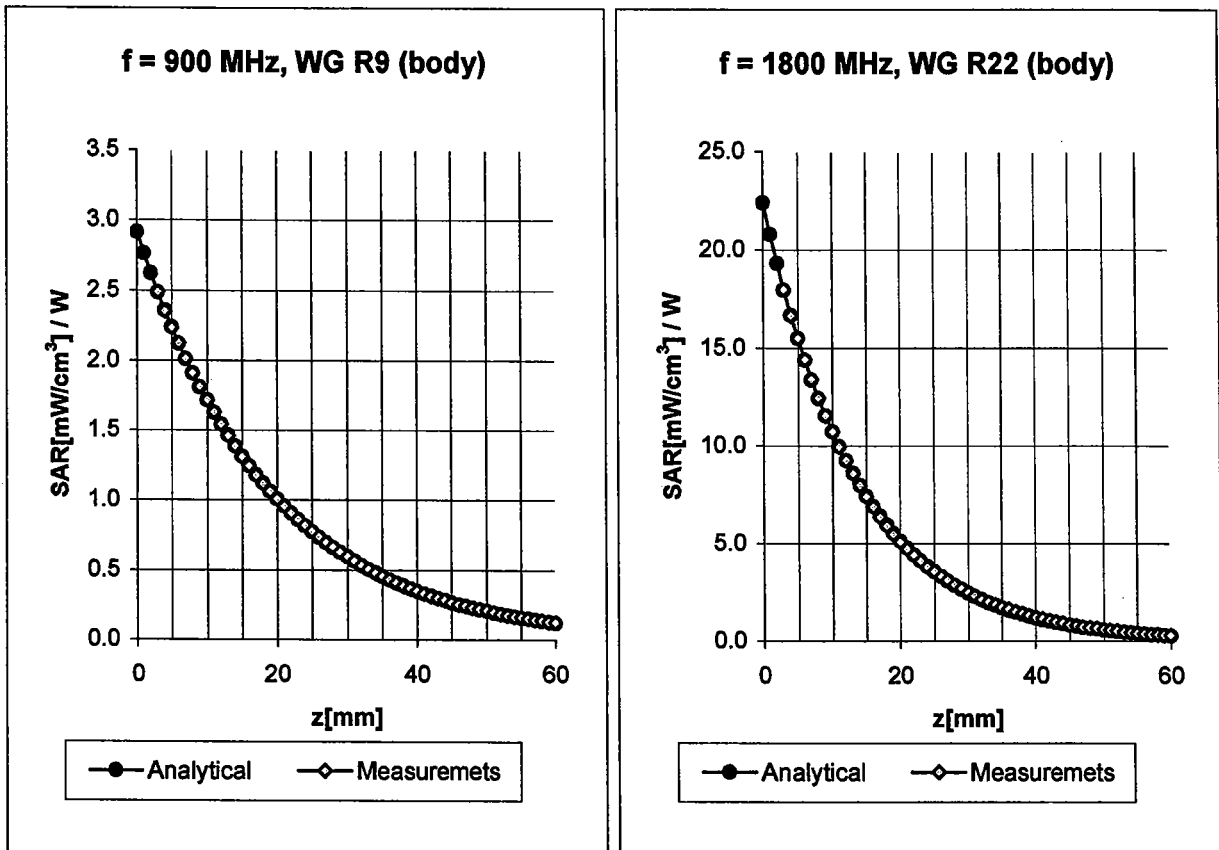
ConvF X	6.1 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	6.1 $\pm 9.5\%$ (k=2)	Alpha 0.31
ConvF Z	6.1 $\pm 9.5\%$ (k=2)	Depth 1.75

Head **1800 MHz** $\epsilon_r = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\% \text{ mho/m}$

Valid for f=1710-1910 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	4.9 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	4.9 $\pm 9.5\%$ (k=2)	Alpha 0.24
ConvF Z	4.9 $\pm 9.5\%$ (k=2)	Depth 2.68

Conversion Factor Assessment



Body 900 MHz $\epsilon_r = 55.0 \pm 5\%$ $\sigma = 1.05 \pm 5\% \text{ mho/m}$

Valid for f=800-1000 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C

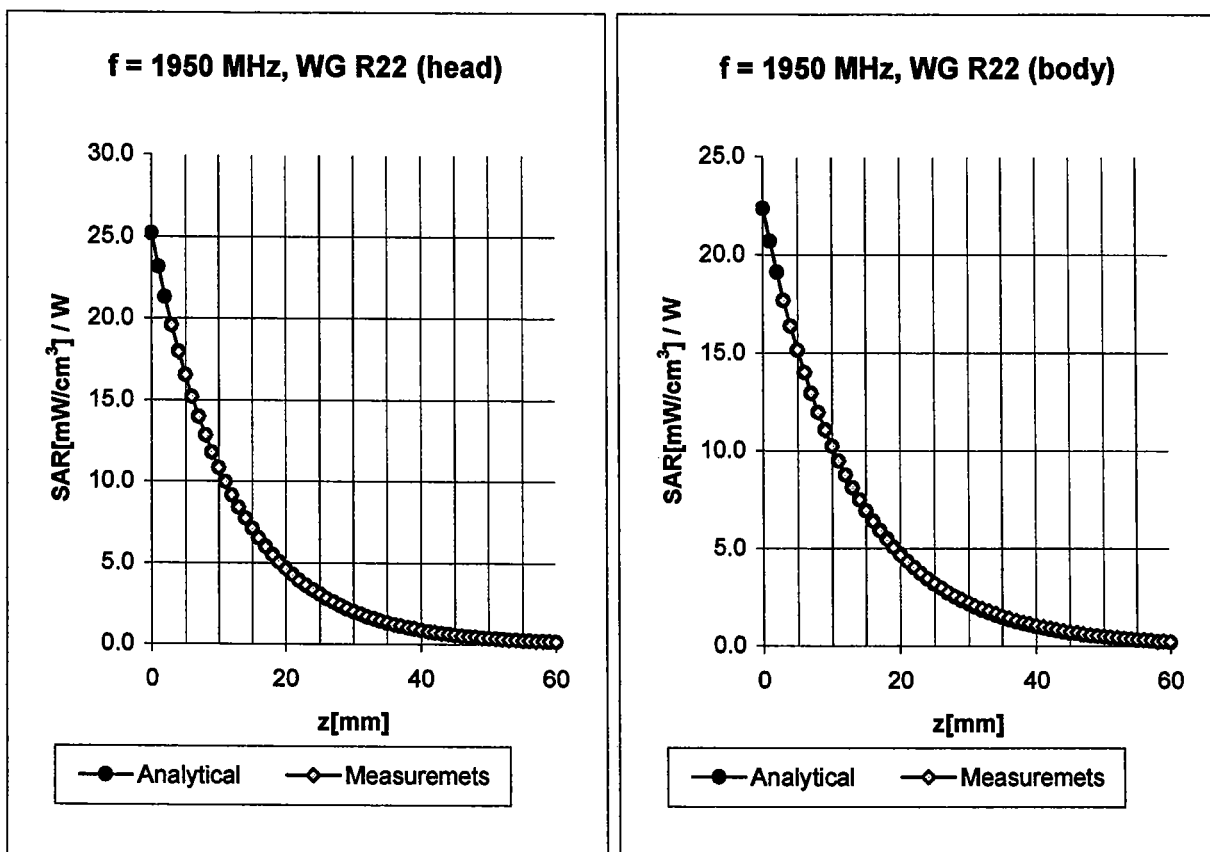
ConvF X	5.9 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	5.9 $\pm 9.5\%$ (k=2)	Alpha 0.29
ConvF Z	5.9 $\pm 9.5\%$ (k=2)	Depth 1.91

Body 1800 MHz $\epsilon_r = 53.3 \pm 5\%$ $\sigma = 1.52 \pm 5\% \text{ mho/m}$

Valid for f=1710-1910 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C

ConvF X	4.7 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	4.7 $\pm 9.5\%$ (k=2)	Alpha 0.25
ConvF Z	4.7 $\pm 9.5\%$ (k=2)	Depth 2.80

Conversion Factor Assessment



Head **1950 MHz** $\epsilon_r = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\% \text{ mho/m}$

Valid for f=1900-2000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	4.7 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	4.7 $\pm 9.5\%$ (k=2)	Alpha 0.28
ConvF Z	4.7 $\pm 9.5\%$ (k=2)	Depth 2.26

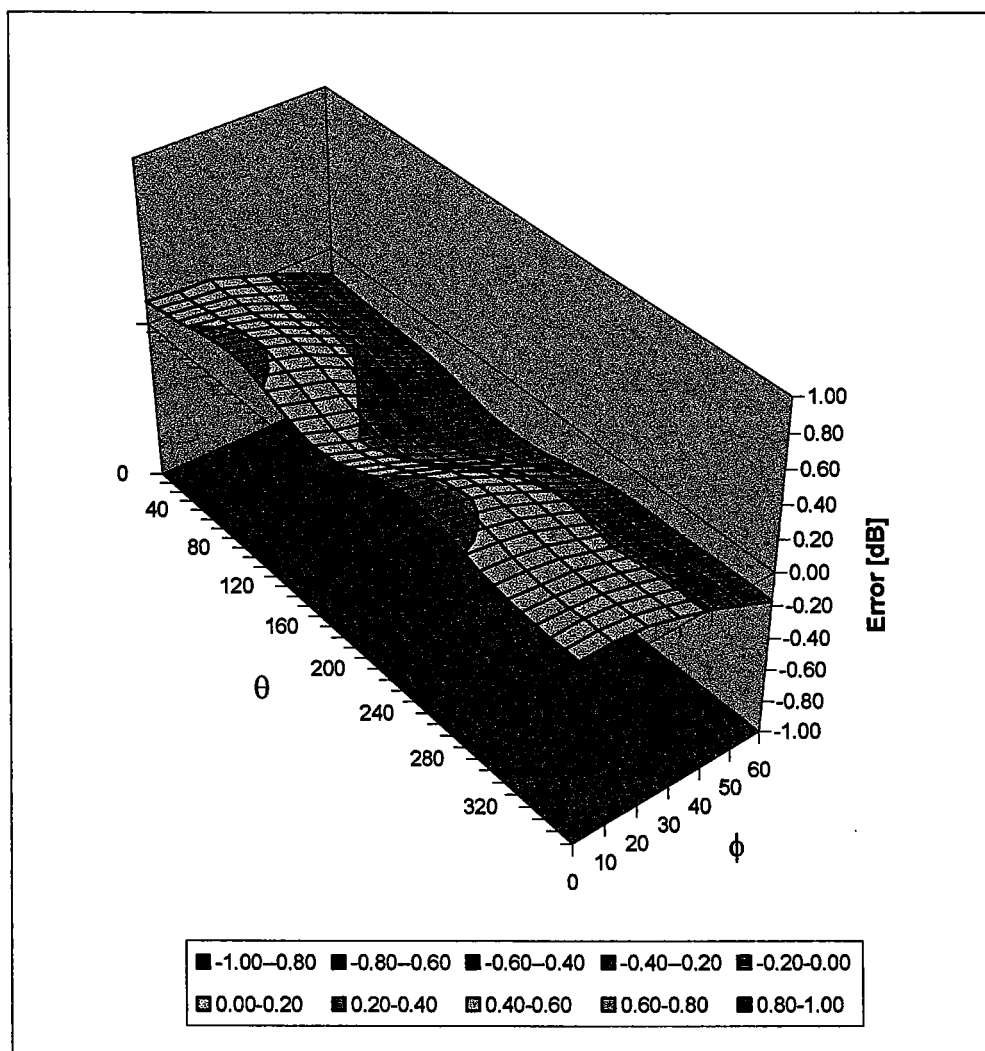
Body **1950 MHz** $\epsilon_r = 53.3 \pm 5\%$ $\sigma = 1.52 \pm 5\% \text{ mho/m}$

Valid for f=1900-2000 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C

ConvF X	4.5 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	4.5 $\pm 9.5\%$ (k=2)	Alpha 0.31
ConvF Z	4.5 $\pm 9.5\%$ (k=2)	Depth 2.24

Deviation from Isotropy in HSL

Error ($\theta\phi$), $f = 900$ MHz



Client

Motorola MRO

CALIBRATION CERTIFICATE

Object(s)

ET3DV6 - SN: 1514

Calibration procedure(s)

QA CAL-01 v2
Calibration procedure for dosimetric E-field probes

Calibration date:

July 31, 2003

Condition of the calibrated item

In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment 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
RF generator HP 8684C	US3642U01700	4-Aug-99 (SPEAG, in house check Aug-02)	In house check: Aug-05
Power sensor E4412A	MY41495277	2-Apr-03 (METAS, No 252-0250)	Apr-04
Power sensor HP 8481A	MY41092180	18-Sep-02 (Agilent, No. 20020918)	Sep-03
Power meter EPM E4419B	GB41293874	2-Apr-03 (METAS, No 252-0250)	Apr-04
Network Analyzer HP 8753E	US37390585	18-Oct-01 (Agilent, No. 24BR1033101)	In house check: Oct 03
Fluke Process Calibrator Type 702	SN: 6295803	3-Sep-01 (ELCAL, No.2360)	Sep-03

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

Date issued: July 31, 2003

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 ET3DV6

SN:1514

Manufactured:	November 24, 1999
Last calibration:	July 25, 2002
Recalibrated:	July 31, 2003

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ET3DV6 SN:1514

Sensitivity in Free Space

Diode Compression

NormX	1.70 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	93	mV
NormY	1.86 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	93	mV
NormZ	1.79 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	93	mV

Sensitivity in Tissue Simulating Liquid

Head **900 MHz** $\epsilon_r = 41.5 \pm 5\%$ $\sigma = 0.97 \pm 5\% \text{ mho/m}$
 Valid for f=800-1000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	6.3 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	6.3 $\pm 9.5\%$ (k=2)	Alpha	0.58
ConvF Z	6.3 $\pm 9.5\%$ (k=2)	Depth	1.95

Head **1800 MHz** $\epsilon_r = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\% \text{ mho/m}$
 Valid for f=1710-1910 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	5.1 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	5.1 $\pm 9.5\%$ (k=2)	Alpha	0.55
ConvF Z	5.1 $\pm 9.5\%$ (k=2)	Depth	2.48

Boundary Effect

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

Probe Tip to Boundary		1 mm	2 mm
SAR _{be} [%] Without Correction Algorithm		9.7	5.1
SAR _{be} [%] With Correction Algorithm		0.2	0.4

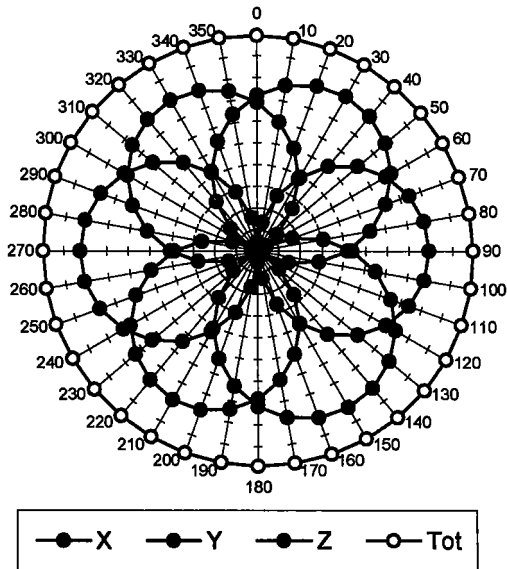
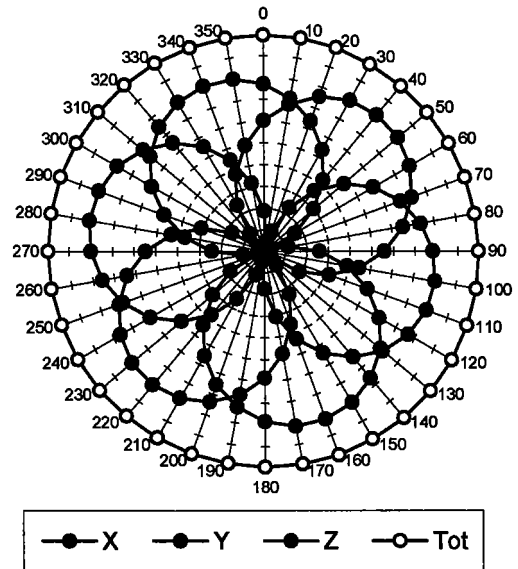
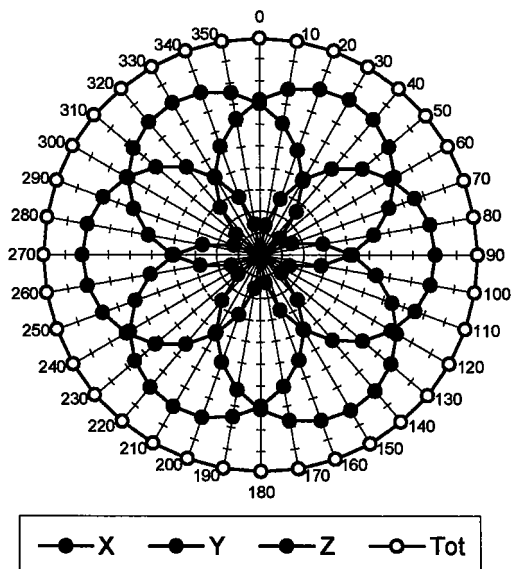
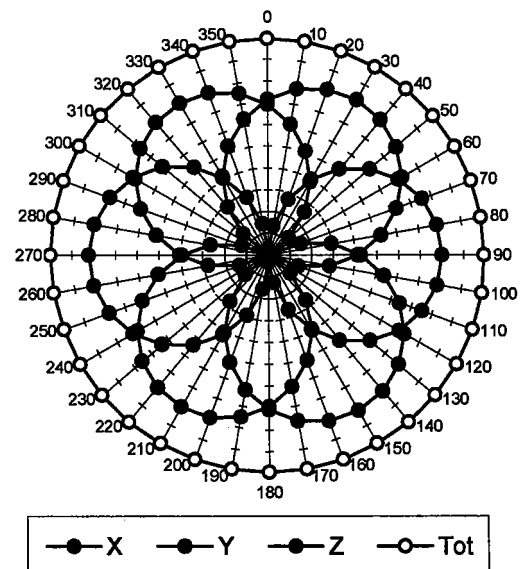
Head **1800 MHz** Typical SAR gradient: 10 % per mm

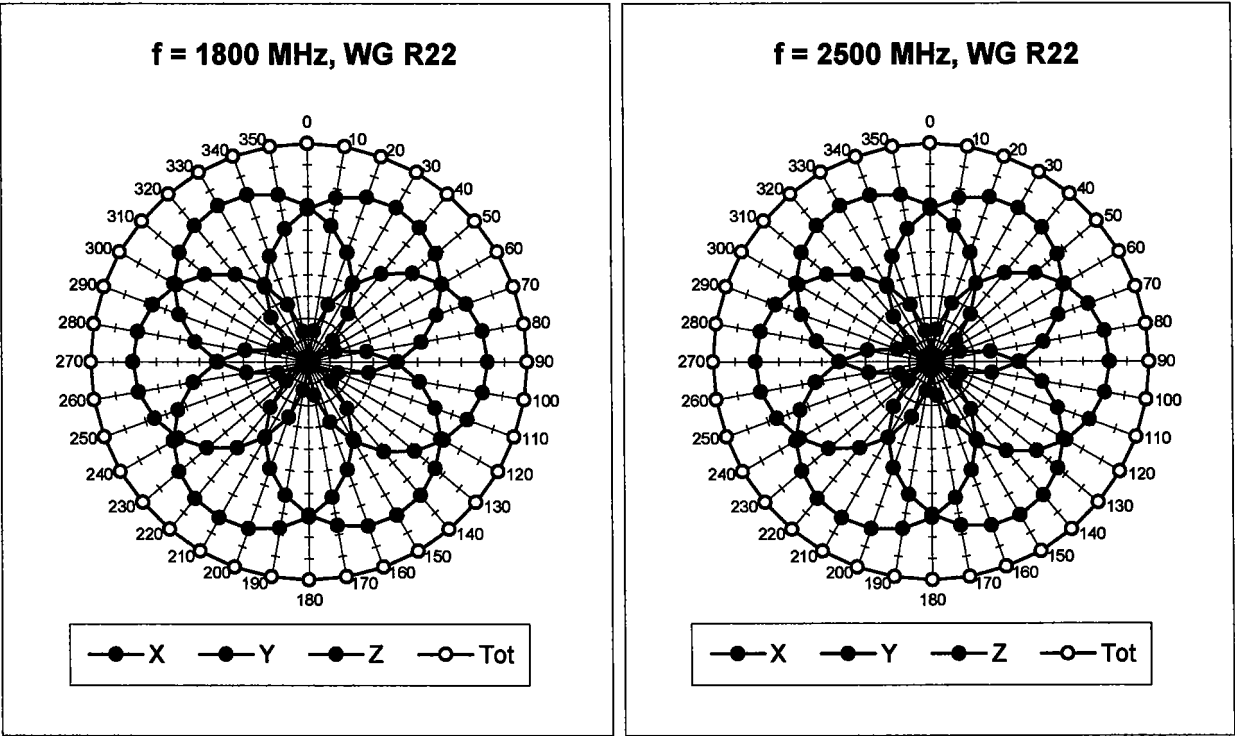
Probe Tip to Boundary		1 mm	2 mm
SAR _{be} [%] Without Correction Algorithm		13.9	9.0
SAR _{be} [%] With Correction Algorithm		0.1	0.0

Sensor Offset

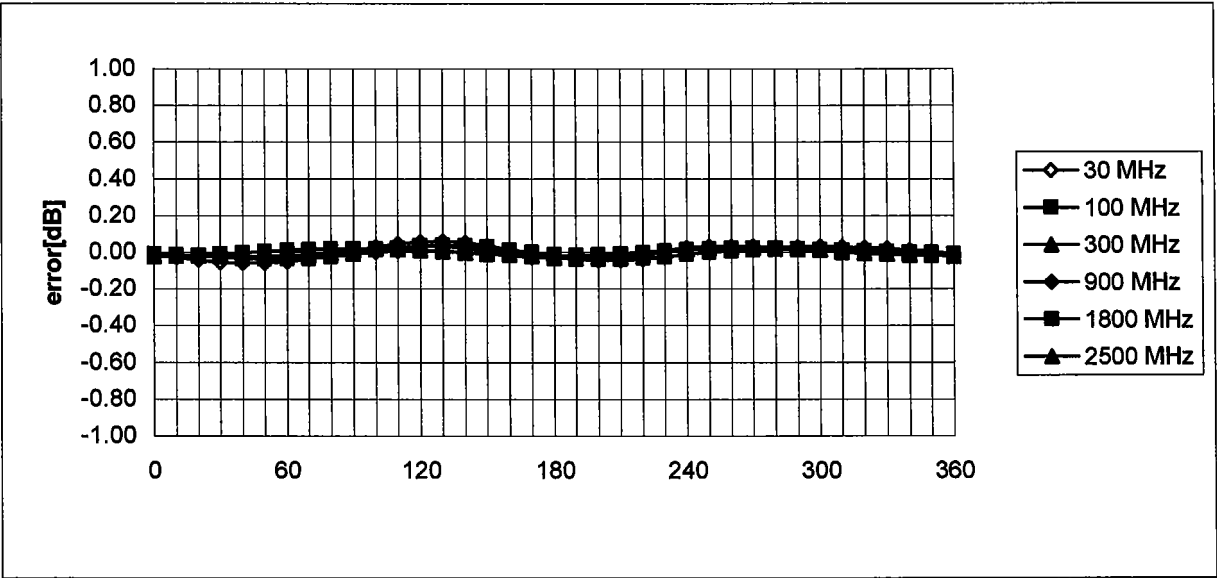
Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	0.8 $\pm$ 0.2	mm

Receiving Pattern (ϕ , $\theta = 0^\circ$)

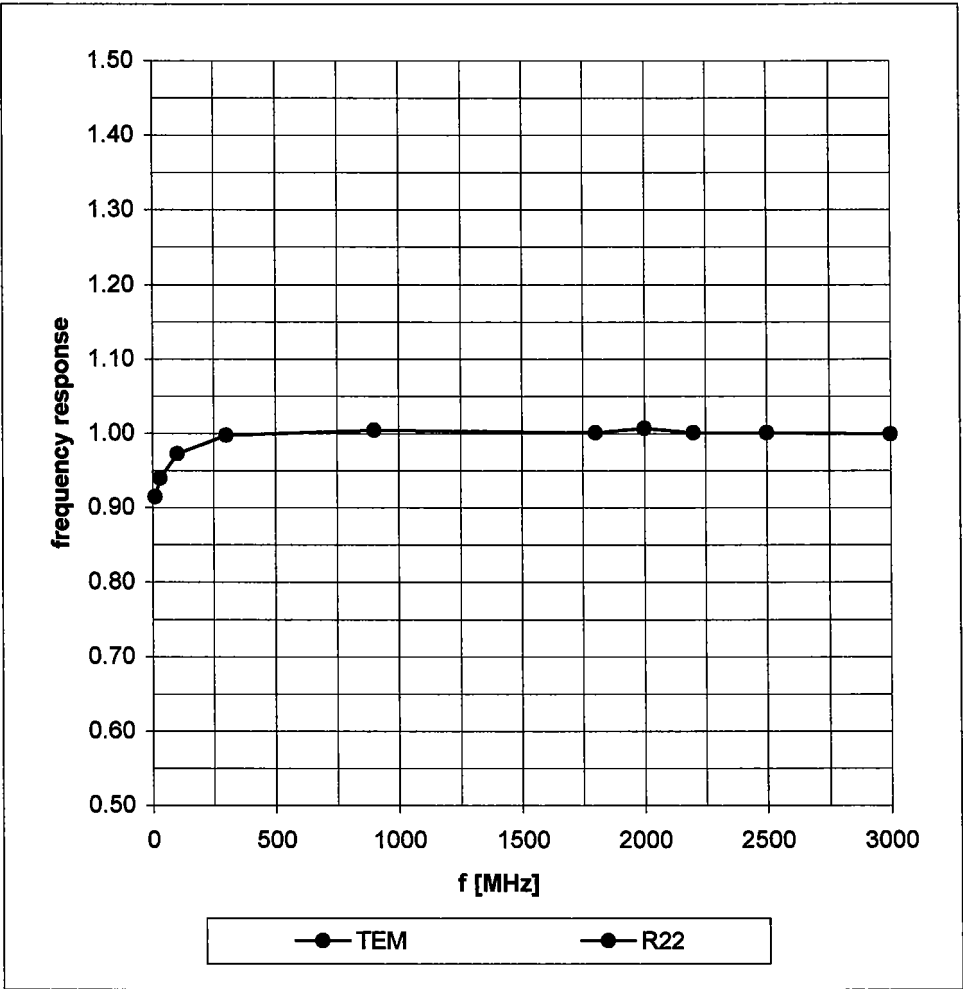
f = 30 MHz, TEM cell ifi110**f = 100 MHz, TEM cell ifi110****f = 300 MHz, TEM cell ifi110****f = 900 MHz, TEM cell ifi110**



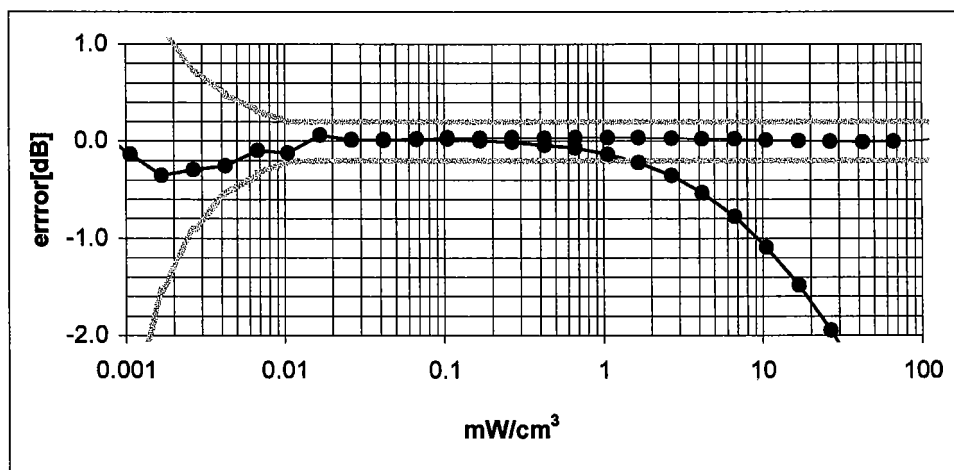
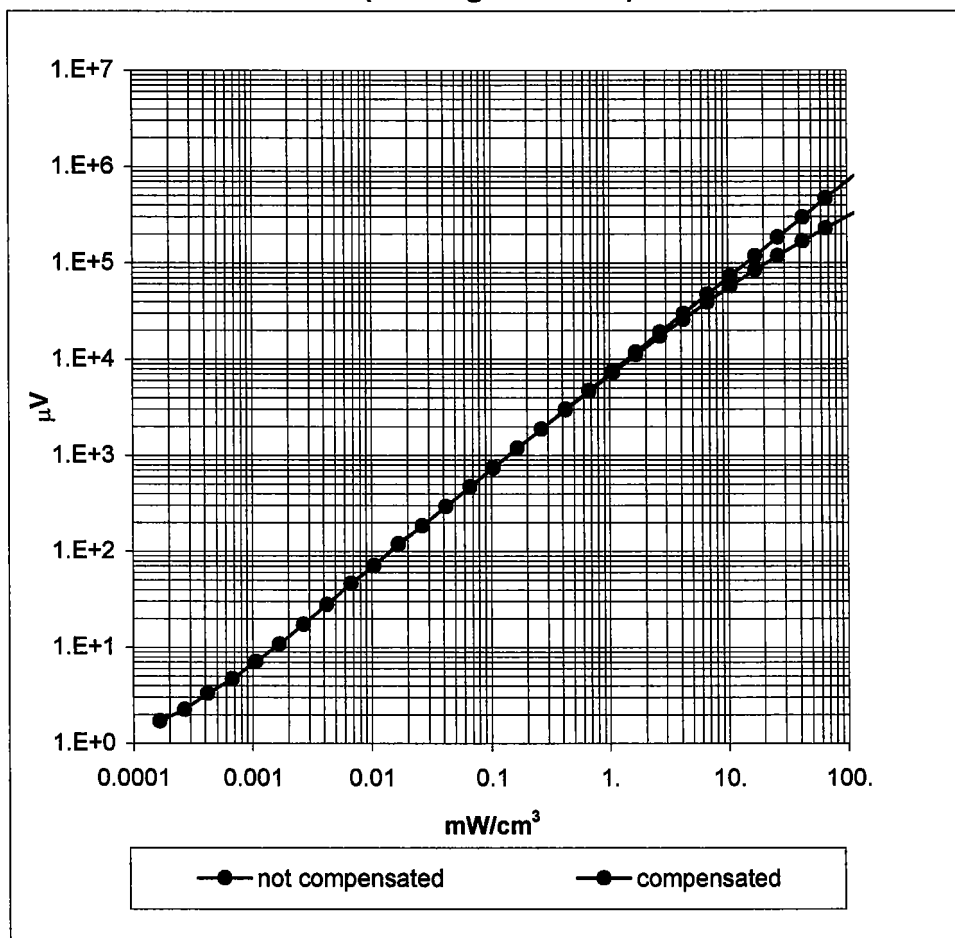
Isotropy Error (ϕ), $\theta = 0^\circ$



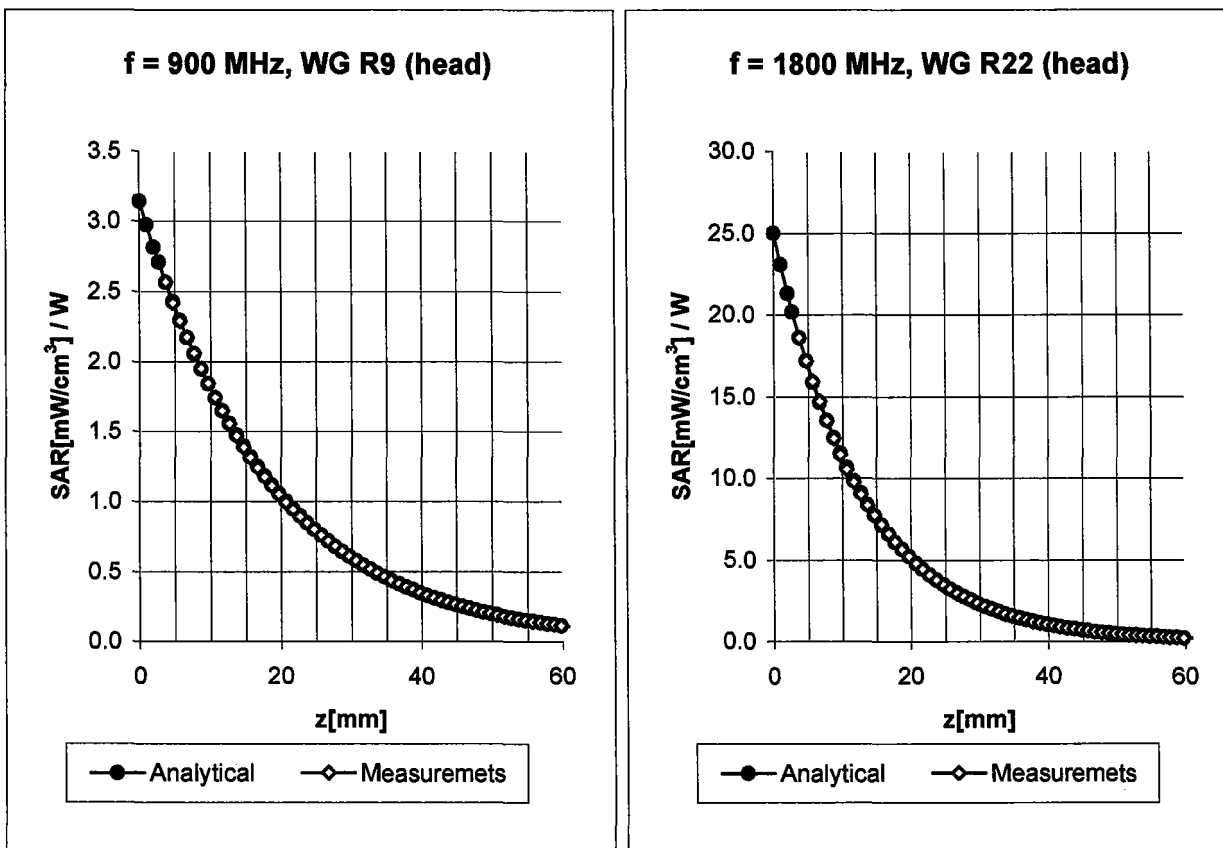
Frequency Response of E-Field
(TEM-Cell:ifi110, Waveguide R22)



Dynamic Range f(SAR_{brain}) (Waveguide R22)



Conversion Factor Assessment



Head 900 MHz $\epsilon_r = 41.5 \pm 5\%$ $\sigma = 0.97 \pm 5\%$ mho/m

Valid for f=800-1000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

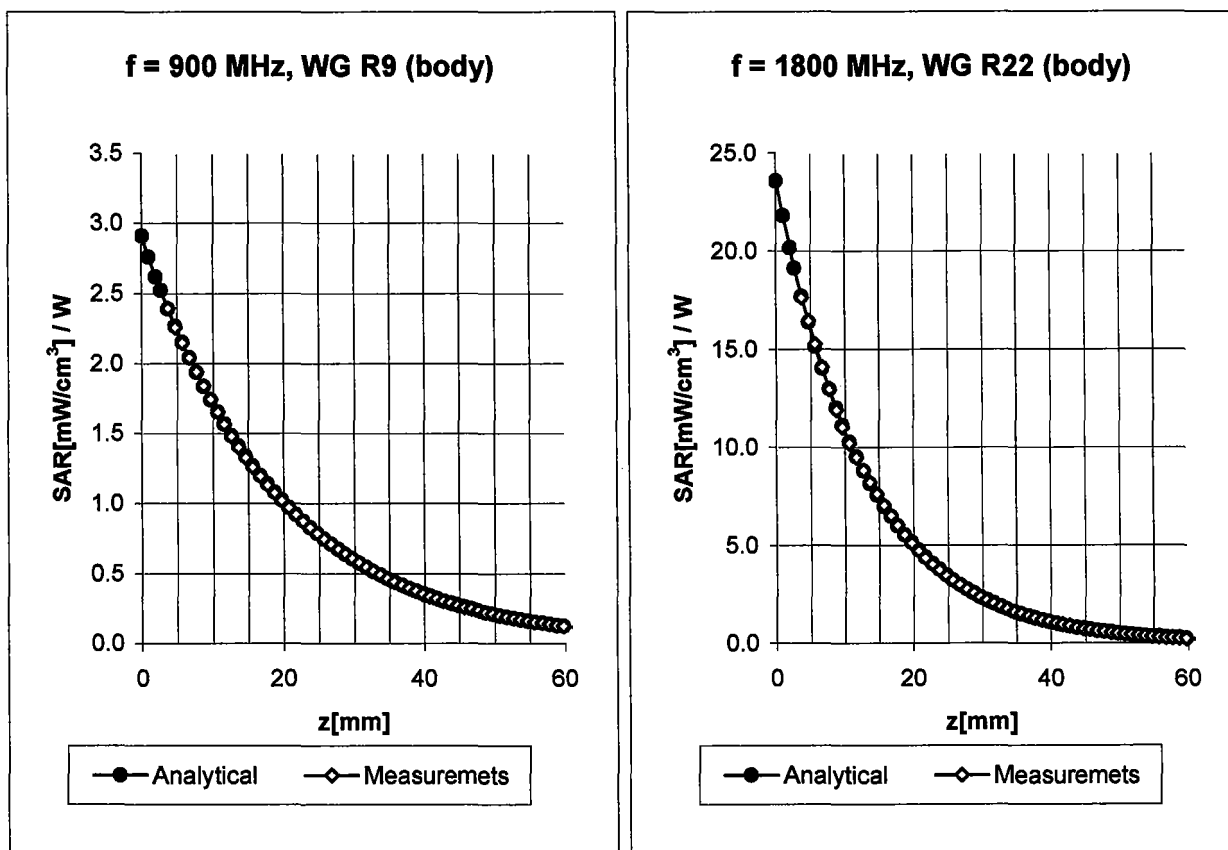
ConvF X	6.3 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	6.3 $\pm 9.5\%$ (k=2)	Alpha 0.58
ConvF Z	6.3 $\pm 9.5\%$ (k=2)	Depth 1.95

Head 1800 MHz $\epsilon_r = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\%$ mho/m

Valid for f=1710-1910 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	5.1 $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	5.1 $\pm 9.5\%$ (k=2)	Alpha 0.55
ConvF Z	5.1 $\pm 9.5\%$ (k=2)	Depth 2.48

Conversion Factor Assessment



Body **900 MHz** $\epsilon_r = 55.0 \pm 5\%$ $\sigma = 1.05 \pm 5\% \text{ mho/m}$

Valid for f=800-1000 MHz with Head Tissue Simulating Liquid according to OET 65 Suppl. C

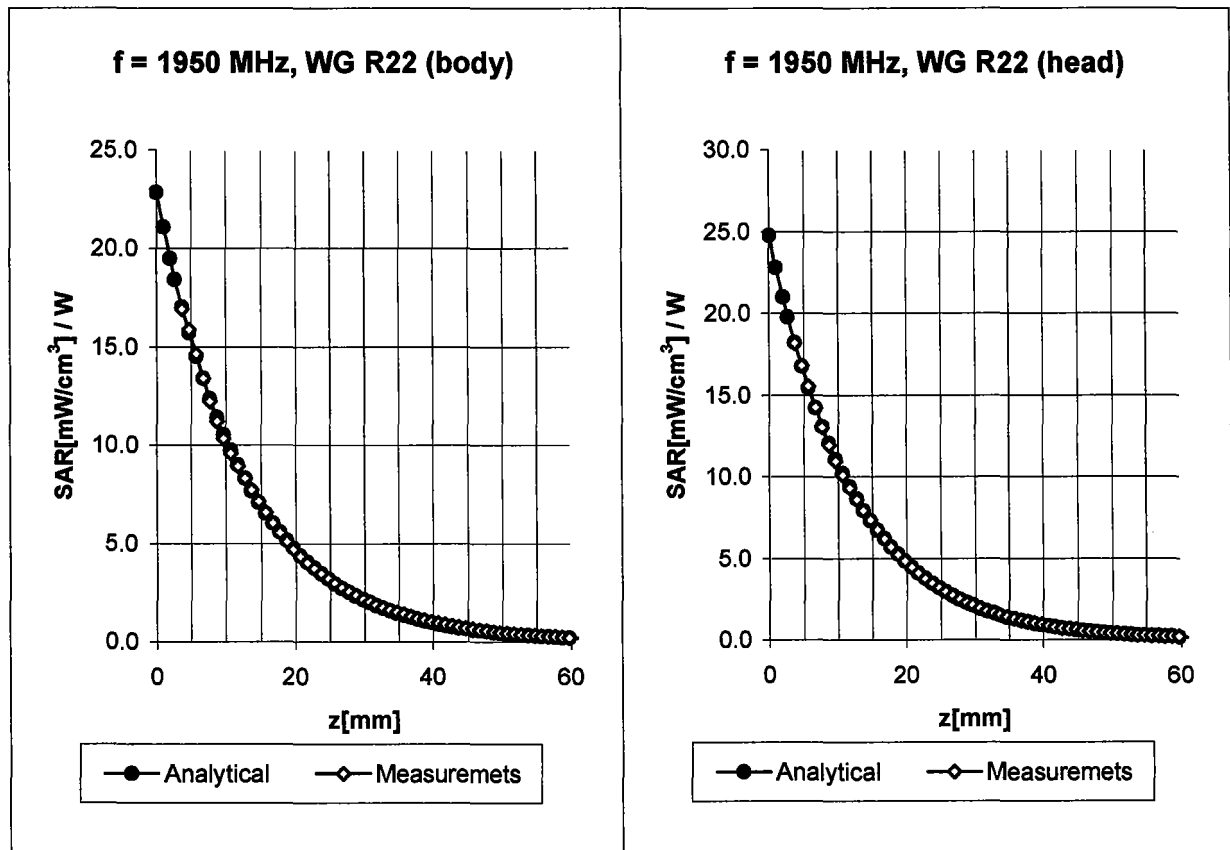
ConvF X	6.1 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	6.1 $\pm 9.5\%$ (k=2)	Alpha	0.51
ConvF Z	6.1 $\pm 9.5\%$ (k=2)	Depth	2.18

Body **1800 MHz** $\epsilon_r = 53.3 \pm 5\%$ $\sigma = 1.52 \pm 5\% \text{ mho/m}$

Valid for f=1710-1910 MHz with Head Tissue Simulating Liquid according to OET 65 Suppl. C

ConvF X	4.7 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	4.7 $\pm 9.5\%$ (k=2)	Alpha	0.57
ConvF Z	4.7 $\pm 9.5\%$ (k=2)	Depth	2.85

Conversion Factor Assessment



Body 1950 MHz $\epsilon_r = 53.3 \pm 5\%$ $\sigma = 1.52 \pm 5\%$ mho/m

ConvF X **4.5** $\pm 9.5\%$ (k=2)

Boundary effect:

ConvF Y **4.5** $\pm 9.5\%$ (k=2)

Alpha **0.80**

ConvF Z **4.5** $\pm 9.5\%$ (k=2)

Depth **2.23**

Head 1950 MHz $\epsilon_r = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\%$ mho/m

ConvF X **5.0** $\pm 8.9\%$ (k=2)

Boundary effect:

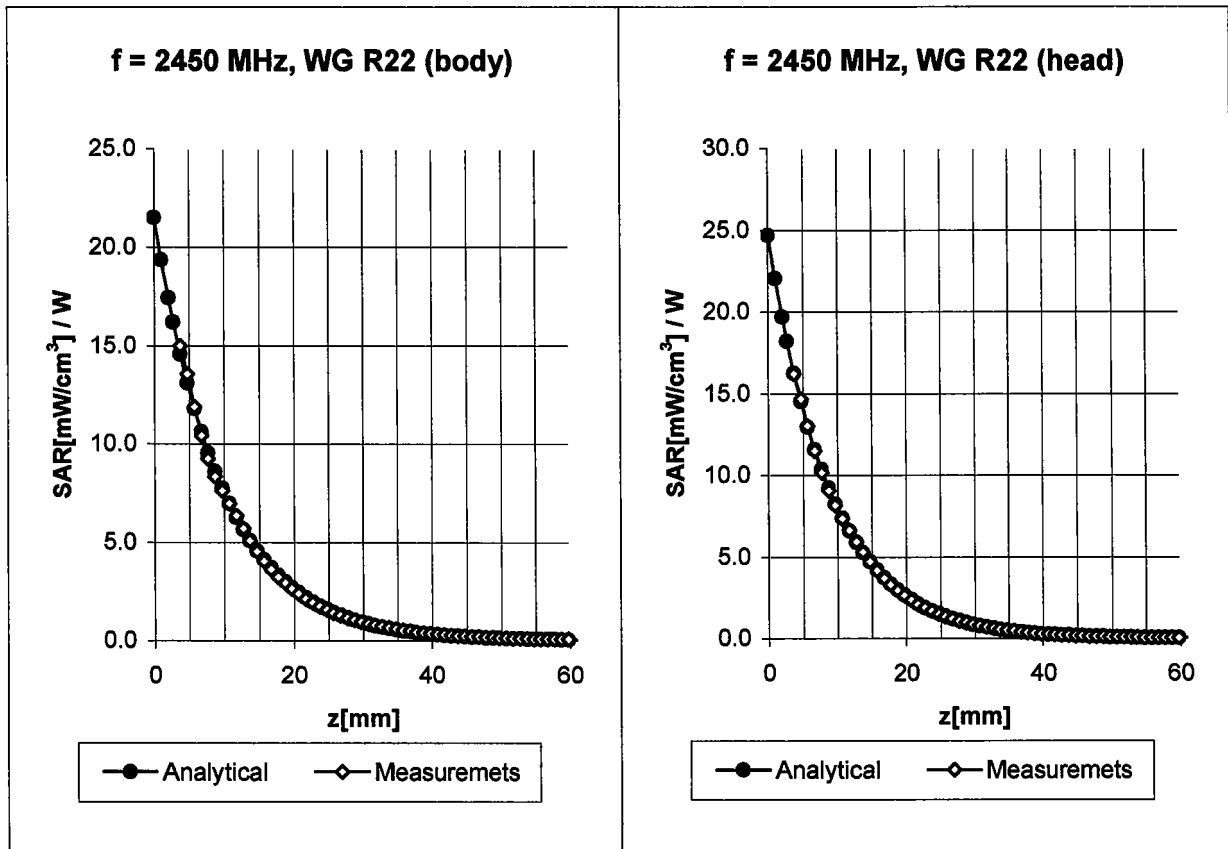
ConvF Y **5.0** $\pm 8.9\%$ (k=2)

Alpha **0.60**

ConvF Z **5.0** $\pm 8.9\%$ (k=2)

Depth **2.44**

Conversion Factor Assessment



Body **2450 MHz** $\epsilon_r = 52.7 \pm 5\%$ $\sigma = 1.95 \pm 5\% \text{ mho/m}$

Valid for f=2400-2500 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C

ConvF X	4.4 $\pm 8.9\%$ (k=2)	Boundary effect:
ConvF Y	4.4 $\pm 8.9\%$ (k=2)	Alpha 1.55
ConvF Z	4.4 $\pm 8.9\%$ (k=2)	Depth 1.45

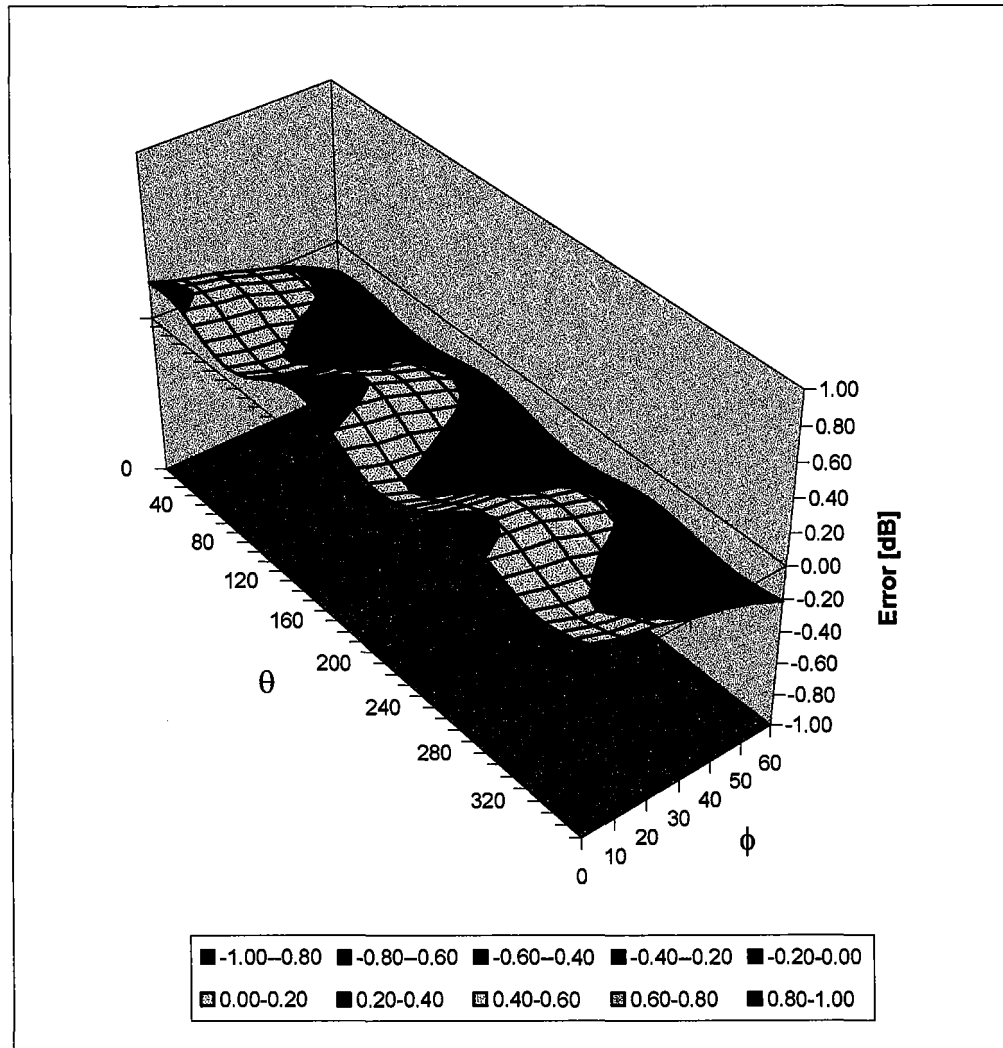
Head **2450 MHz** $\epsilon_r = 39.2 \pm 5\%$ $\sigma = 1.80 \pm 5\% \text{ mho/m}$

Valid for f=2400-2500 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	4.7 $\pm 8.9\%$ (k=2)	Boundary effect:
ConvF Y	4.7 $\pm 8.9\%$ (k=2)	Alpha 1.24
ConvF Z	4.7 $\pm 8.9\%$ (k=2)	Depth 1.67

Deviation from Isotropy in HSL

Error ($\theta\phi$), $f = 900$ MHz



Appendix 5

Dipole Characterization Certificate

Certification of System Performance Check Targets

Based on APP-0396

-Historical Data-

	835MHz	900MHz	1800MHz	1900MHz	
P1528 Target:	9.5	10.8	38.1	39.7	(W/kg)
Advanced Extrapolation					
Measurement Uncertainty (k=1):	10.2%	10.2%	10.2%	10.2%	
Measurement Period:	November '02 - June '03	November '02 - June '03	November '02 - June '03	November '02 - June '03	
# of tests performed:	169	728	868	26	
Grand Average:	10.1	11.6	39.7	42.0	(W/kg)
Worst Case Extrapolation					
% Delta (Average - P1528 Target)	6.5%	7.7%	4.2%	5.9%	
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	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	10.1	41.5 ± 5%	0.90 ± 5%
900MHz	11.6	41.5 ± 5%	0.97 ± 5%
1800MHz	39.7	40.0 ± 5%	1.40 ± 5%
1900MHz	42.0	40.0 ± 5%	1.40 ± 5%

=====

-Approvals-

Submitted by:

Marge Kaunas

Date:

24-Jun-03

Signed:

Marge Kaunas

Comments:

spreadsheet detailing all measurements available upon request

Approved by:

Antonio Faraone

Date:

24-Jun-03

Signed:

Antonio Faraone

Comments:

Targets and associated simulant properties are derived from the IEEE P1528 draft standard

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Appendix 6
Measurement Uncertainty Budget

Uncertainty Budget for Device Under Test									
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e = f(d,k)</i>	<i>f</i>	<i>g</i>	<i>h = c x f / e</i>	<i>i = c x g / e</i>	<i>k</i>
Uncertainty Component	Sec.	Tol. (± %)	Prob. Dist.	Div.	<i>c_i</i> (1 g)	<i>c_i</i> (10 g)	1 g <i>u_i</i> (±%)	10 g <i>u_i</i> (±%)	<i>v_i</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)			<i>k</i> = 2				22.98	21.75	

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

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	$e = f(d, k)$	<i>f</i>	<i>g</i>	$h = c \times f / e$	$i = c \times g / e$	<i>k</i>
Uncertainty Component	Sec.	Tol. (± %)	Prob. Dist.	Div.	<i>c_i</i> (1 g)	<i>c_i</i> (10 g)	1 g <i>u_i</i> (±%)	10 g <i>u_i</i> (±%)	<i>v_i</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)			<i>k</i> =2				19.92	18.48	

Appendix 7

Photographs of the device under test



Figure 13.Front of Phone with Antenna Retracted



Figure 14.Front of Phone with Antenna Extended



Figure 15.Back of Phone with Antenna Retracted



Figure 16.Back of Phone with Antenna Extended



Figure 17.Open Phone with Antenna Retracted



Figure 18.Open Phone with Antenna Extended



Figure 19.Side of Phone in Holster with Antenna Retracted



Figure 20.Side of Phone in Holster with Antenna Extended



Figure 21. Phone Against the Head with Antenna Retracted (Front View – Cheek Touch)



Figure 22. Phone Against the Head with Antenna Retracted (Back View – Cheek Touch)

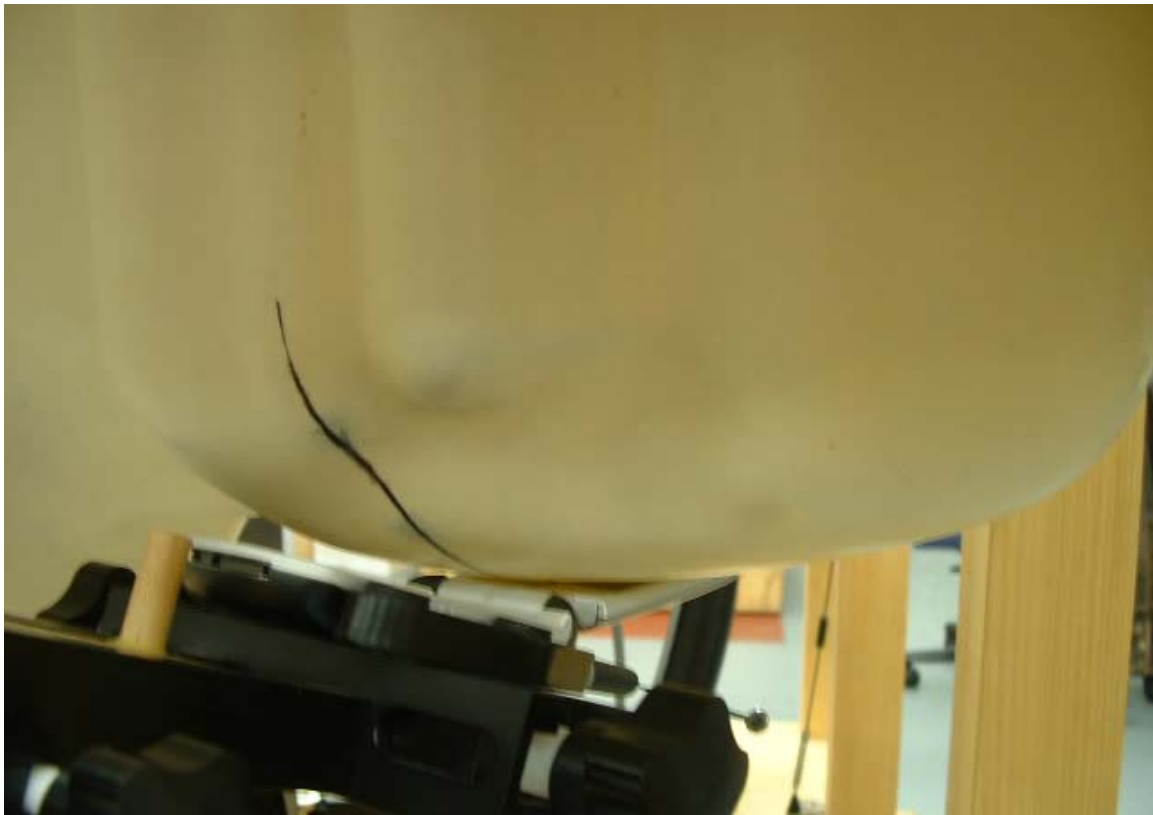


Figure 23. Phone Against the Head with Antenna Extended (Front View – Cheek Touch)



Figure 24. Phone Against the Head with Antenna Extended (Back View – Cheek Touch)



Figure 25. Phone Against the Head with Antenna Retracted (Front View – 15°Tilt)



Figure 26. Phone Against the Head with Antenna Retracted (Back View – 15°Tilt)



Figure 27. Phone Against the Head with Antenna Extended (Front View – 15°Tilt)



Figure 28. Phone Against the Head with Antenna Extended (Back View – 15°Tilt)

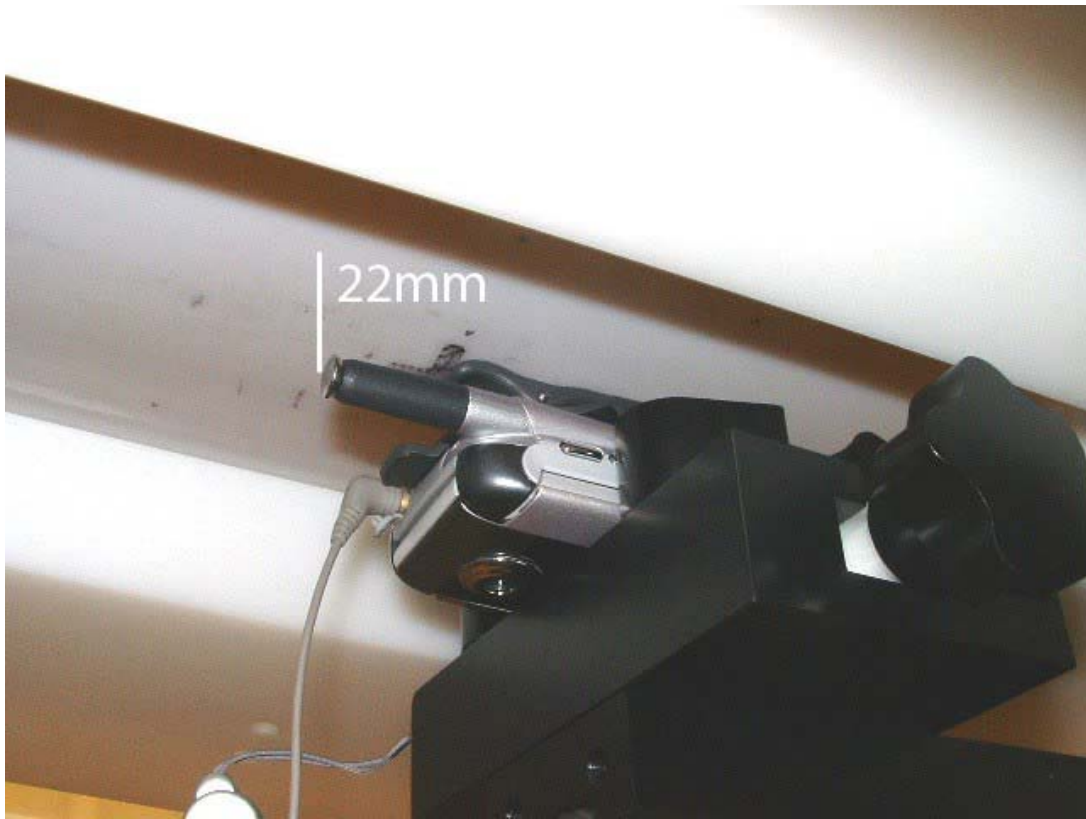


Figure 29. Phone in Holster Against the Flat Phantom with Antenna Retracted



Figure 30. Phone in Holster Against the Flat Phantom with Antenna Extended