Exhibit 11: SAR Test Report IHDT56EH2

Date of test: 01/06/2005 to 01/12/2005
Date of Report: 01/25/2005

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

Test Responsible:
Albert Patapack
Senior 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 IHDT56EH2 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 IHDT56EH2). 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	
Location	Upper Right Corner	
Dimensions	Length	20mm
	Width	10mm
Configuration	Helix	

2.2 Device description

FCC ID Number	**IHDT56EH2**											
Serial number	G00E0300X4											
Mode(s) of Operation	GSM 850	GSM 900	GSM 1800	GSM 1900	GPRS 850	GPRS 900	GPRS 1800	GPRS 1900	EDGE 850	EDGE 900	EDGE 1800	EDGE 1900
Modulation Mode(s)	GSM	GSM	GSM	GSM	GSM	GSM	GSM	GSM	EDGE	EDGE	EDGE	EDGE
Maximum Output Power Setting	32.50 dBm	32.50 dBm	30.00 dBm	30.00 dBm	32.50 dBm	32.50 dBm	30.00 dBm	30.00 dBm	29.00 dBm	29.00 dBm	28.00 dBm	28.00 dBm
Duty Cycle	1:8	1:8	1:8	1:8	2:8	2:8	2:8	2:8	2:8	2:8	2:8	2:8
Transmitting Frequency Rang(s)	824.2-848.8 MHz	880.2-914.8 MHz	1710.2-1784.8 MHz	1850.20 – 1909.80 MHz	824.2-848.8 MHz	880.2-914.8 MHz	1710.2-1784.8 MHz	1850.20 – 1909.80 MHz	824.2-848.8 MHz	880.2-914.8 MHz	1710.2-1784.8 MHz	1850.20 – 1909.80 MHz
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 (Dasy4™ v4.4 Build 3) 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
DASY4 DAE V1	378	10/08/2005
E-Field Probe ET3DV6	1513	09/24/2005
Dipole Validation Kit, D900V2	079	04/02/2005
S.A.M. Phantom used for 800MHz	TP-1132	
Dipole Validation Kit, D1800V2	246TR	04/02/2005
S.A.M. Phantom used for 1900MHz	TP-1160	

3.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04632	10/25/2005
	3847A04844	10/25/2005
Power Meter E4419B	GB39511084	4/5/2005
	GB39510900	12/16/2005
Power Sensor #1 – E9301A	US39210931	9/16/2005
	US39211006	7/21/2005
Power Sensor #2 - E9301A	US39210932	9/16/2005
	US39211007	7/21/2005
Network Analyzer HP8753ES	US39171846	9/3/2005
Dielectric Probe Kit HP85070C	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,** 01/07/2005	42.8	0.93	20.0
		Measured, 01/12/2005	42.5	0.92	19.8
		Recommended Limits	41.5 ±5%	0.90 ±5%	18-25
	Body	**Measured,** 01/10/2005	55.0	0.98	19.9
		Measured, 01/11/2005	55.0	0.99	20.2
		Recommended Limits	55.2 ±5%	0.97 ±5%	18-25
1880	**Head**	**Measured,** 01/06/2005	38.6	1.45	19.1
		Measured, 01/12/2005	38.1	1.45	19.5
		Recommended Limits	40.0 ±5%	1.40 ±5%	18-25
	Body	**Measured,** 01/10/2005	52.3	1.59	19.7
		Measured, 01/11/2005	52.3	1.59	20.1
		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 DASY4 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.

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Ambient Temp (°C)	Tissue Temp (°C)
			ε_r	σ (S/m)		
900	**Measured,** 01/07/2005	11.5	42.0	0.99	21.0	20.0
	Measured, 01/10/2005	11.5	41.9	0.99	21.0	20.2
	Measured, 01/11/2005	11.3	41.8	0.98	21.0	20.2
	Measured, 01/12/2005	11.4	41.7	0.98	21.0	20.6
	Recommended Limits	10.8	41.5 ±5%	0.97 ±5%	18-25	18-25
1800	**Measured,** 01/06/2005	38.6	38.8	1.37	21.0	18.9
	Measured, 01/10/2005	39.1	38.7	1.38	21.0	19.2
	Measured, 01/11/2005	39.1	38.5	1.37	21.0	19.3
	Measured, 01/12/2005	37.7	38.6	1.36	21.0	19.1
	Recommended Limits	38.1	40.0 ±5%	1.4 ±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	SN1513	900	5.99	8 of 9
		1800	4.95	8 of 9

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 v4.4 Build 3 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 4.4 Build 3 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 (± 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 IHDT56EH2) has the following battery options:

AANN4258B - 750 mAH Battery
AANN4285B - 860 mAH Battery

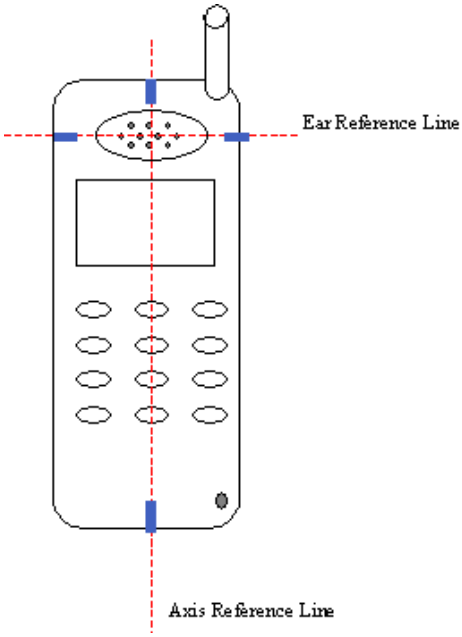
The battery with the lowest capacity is the AANN4258B. This battery was used to do most of the SAR testing. The phone was placed in the SAR measurement system with a fully charged battery. The configuration that resulted in the highest head and body SAR values were tested using the other batteries listed above.

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 3 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 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 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 ±0.5cm. All other test conditions measured lower SAR values than those included in Appendix 2.

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	SN1513	900	5.99	8 of 9
		1800	4.95	8 of 9

f (MHz)	Description	Conducted Output Power (dBm)	Cheek / Touch Position							
			Left Head				Right Head			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 850MHz	Channel 128	32.51	0.898	-0.06	0.91	20.0	0.889	-0.06	0.90	20.0
	Channel 190	32.50	1.16	-0.14	1.20	20.0	1.10	-0.04	1.11	20.0
	Channel 251	32.49	**1.34**	**-0.1**	**1.37**	**20.0**	**1.27**	**-0.1**	**1.30**	**20.0**
Digital 1900MHz	Channel 512	30.01	**1.17**	**-0.1**	**1.20**	**19.1**	**1.14**	**-0.1**	**1.17**	**19.0**
	Channel 661	30.01	1.03	-0.05	1.04	18.9	0.983	-0.21	1.03	19.0
	Channel 810	30.00	0.765	-0.06	0.78	19.1	0.783	-0.14	0.81	18.9

Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT56EH2 at highest possible output power. Measured against the left head in the Cheek/Touch Position.

f (MHz)	Description	Conducted Output Power (dBm)	15° Tilt Position							
			Left Head				Right Head			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 850MHz	Channel 128	32.51								
	Channel 190	32.50	**0.316**	**-0.1**	**0.32**	**20.0**	**0.315**	**-0.1**	**0.32**	**20.0**
	Channel 251	32.49								
Digital 1900MHz	Channel 512	30.01								
	Channel 661	30.01	**0.28**	**-0.0**	**0.28**	**19.0**	**0.304**	**-0.1**	**0.31**	**18.9**
	Channel 810	30.00								

Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT56EH2 at highest possible output power. Measured against the right head in the Cheek/Touch Position.

f (MHz)	Description	Conducted Output Power (dBm)	Cheek / Touch Position			
			Left Head with AANN4285B			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 850MHz	Channel 128	32.51	0.964	-0.05	0.98	20.4
	Channel 190	32.50	1.12	-0.06	1.15	20
	Channel 251	32.49	**1.40**	**0.00**	**1.40**	**20.4**
Digital 1900MHz	Channel 512	30.01	**1.12**	**-0.10**	**1.13**	**19.1**
	Channel 661	30.01	1.08	-0.02	1.08	19.1
	Channel 810	30.00	0.74	0.00	0.74	19.1

Table 3: SAR measurement results for the portable cellular telephone FCC ID IHDT56EH2 at highest possible output power. Measured against the right head in the Cheek/Touch Position.

6.2 Body Worn Test Results

The SAR results shown in tables 4 through 7 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.

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. There are no Body-Worn Accessories available for this phone at the time of testing hence the device was tested per the supplement C testing guidelines for devices that do not have body worn accessories. The phone was placed a maximum of 1 inch away from a flat phantom per the supplement C standard guidelines to perform SAR measurement. The cellular phone was tested with a headset connected to the device 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	SN1513	900	5.85	8 of 9
		1800	4.41	8 of 9

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn							
			Front of phone 15 mm away from phantom				Back of phone 15 mm away from phantom			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 850MHz	Channel 128	32.51								
	Channel 190	32.50	**0.149**	**0.00**	**0.15**	**20.5**	**0.278**	**-0.00**	**0.28**	**20.5**
	Channel 251	32.49								
Digital 1900MHz	Channel 512	30.01								
	Channel 661	30.01	**0.174**	**0.00**	**0.17**	**18.9**	**0.213**	**-0.00**	**0.22**	**19.0**
	Channel 810	30.00								

Table 4: SAR measurement results for the portable cellular telephone FCC ID IHDT56EH2 at highest possible output power. Measured against the body.

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn with AANN4285B			
			Front of phone 1in away from phantom			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 850MHz	Channel 128	32.51				
	Channel 190	32.50	**0.22**	**-0.1**	**0.23**	**19.5**
	Channel 251	32.49				
Digital 1900MHz	Channel 512	30.01				
	Channel 661	30.01	**0.124**	**-0.00**	**0.13**	**19.1**
	Channel 810	30.00				

Table 5: SAR measurement results for the portable cellular telephone FCC ID IHDT56EH2 at highest possible output power. Measured against the body.

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn with GPRS Class 10			
			Back of phone 1in away from phantom			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 850MHz	Channel 128	32.51				
	Channel 190	32.50	**0.245**	**-0.1**	**0.25**	**20.5**
	Channel 251	32.49				
Digital 1900MHz	Channel 512	30.01				
	Channel 661	30.01	**0.151**	**-0.1**	**0.15**	**19**
	Channel 810	30.00				

Table 6: SAR measurement results for the portable cellular telephone FCC ID IHDT56EH2 at highest possible output power. Measured against the body.

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn with EDGE Class 6			
			Back of phone 1in away from phantom			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 850MHz	Channel 128	29.00				
	Channel 190	29.00	**0.099**	**-0.0**	**0.10**	**20.5**
	Channel 251	29.01				
Digital 1900MHz	Channel 512	28.01				
	Channel 661	28.00	**0.093**	**-0.2**	**0.10**	**18.9**
	Channel 810	28.00				

Table 7: SAR measurement results for the portable cellular telephone FCC ID IHDT56EH2 at highest possible output power. Measured against the body.

Appendix 1

SAR distribution comparison for the system accuracy verification

Test Laboratory: Motorola

010605 1800 MHz GOOD +1.2%

DUT: Dipole 1800 MHz; Type: D1800V2; Procedure Notes: 1800 MHz System Performance Check / Dipole Sn# 246TR

PM1 Power = 200mW Sim.Temp@meas = 19.2C Sim.Temp@SPC = 18.9C Room Temp @ SPC = 21C

Communication System: CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: VALIDATION Only; Medium parameters used: σ = 1.37mho/m, ε_r = 38.8; ρ = 1000 kg/m^3

DASY4 Configuration:

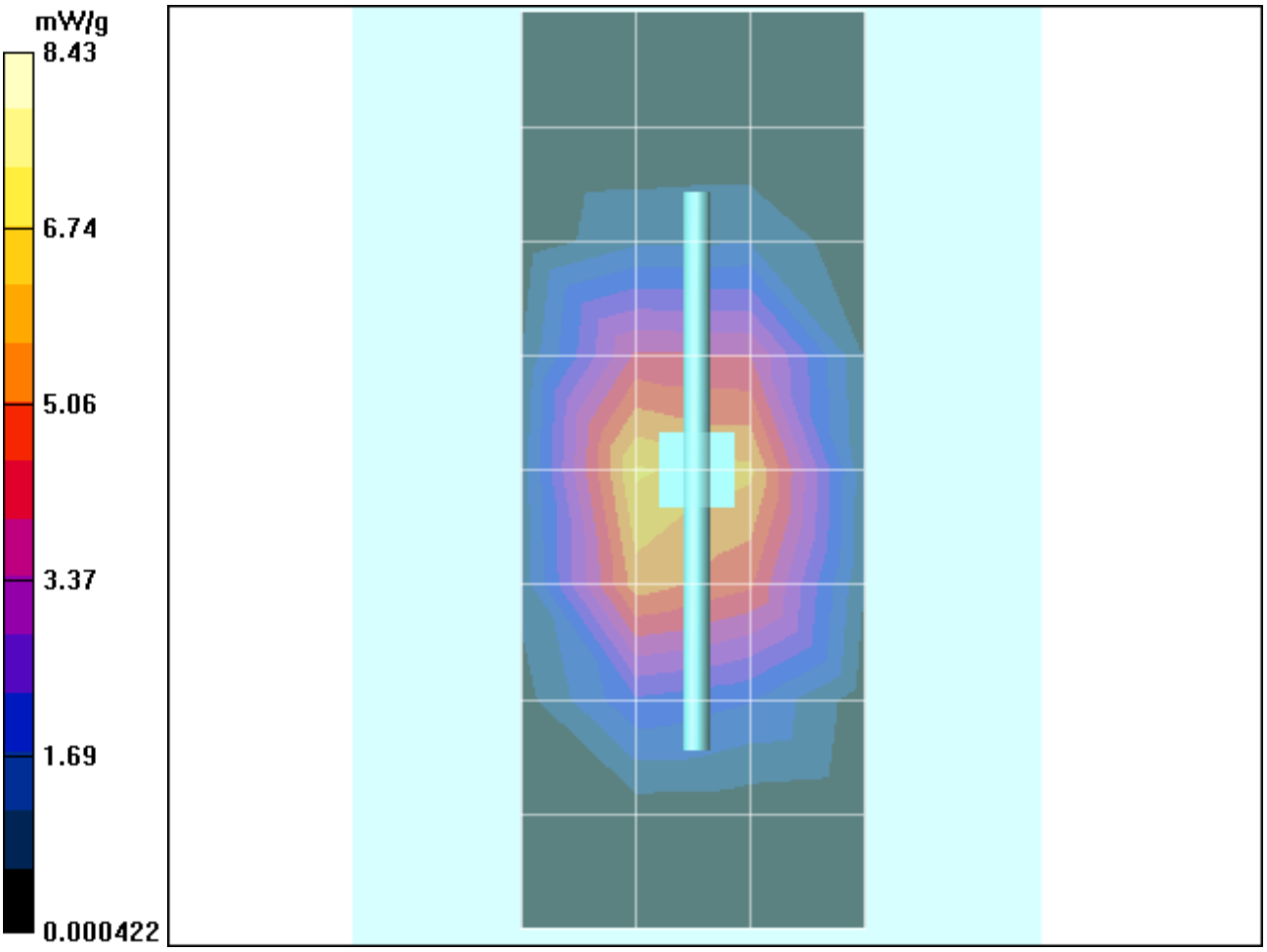
- Probe: ET3DV6R - SN1513; ConvF(4.95, 4.95, 4.95); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.2, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

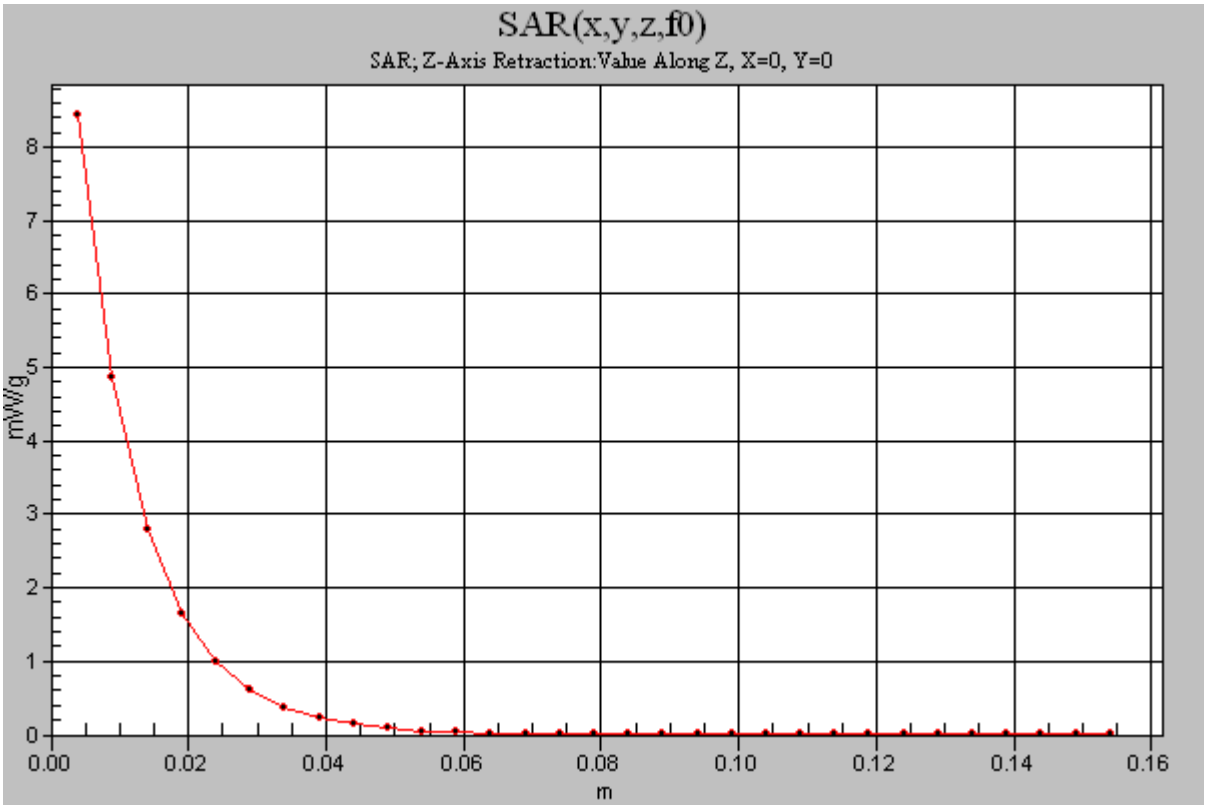
Daily SPC Check/Dipole Area Scan (9x4x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 6.29 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 82.7 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 12.6 W/kg
SAR(1 g) = 7.43 mW/g; SAR(10 g) = 3.99 mW/g
Maximum value of SAR (measured) = 8.34 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 82.7 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 13.7 W/kg
SAR(1 g) = 8 mW/g; SAR(10 g) = 4.28 mW/g
Maximum value of SAR (measured) = 8.82 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 8.43 mW/g


mW/g
8.43
6.74
5.06
3.37
1.69
0.000422


SAR(x,y,z,f0)
SAR; Z-Axis Retraction:Value Along Z, X=0, Y=0
mW/g
0
1
2
3
4
5
6
7
8
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Test Laboratory: Motorola

010705 900 MHz GOOD +6.5%

DUT: Dipole 900 MHz; Type: D900V2

Procedure Notes: 900 MHz System Performance Check / Dipole Sn# 079 PM1 Power = 200mW

Sim.Temp@meas=20*C Sim.Temp@SPC = 20*C Room Temp @ SPC = 21*C

Communication System: CW - Dipole; Frequency: 900 MHz; Duty Cycle: 1:1
Medium: VALIDATION Only; Medium parameters used: σ = 0.99mho/m, ε_r = 42; ρ = 1000 kg/m^3

DASY4 Configuration:

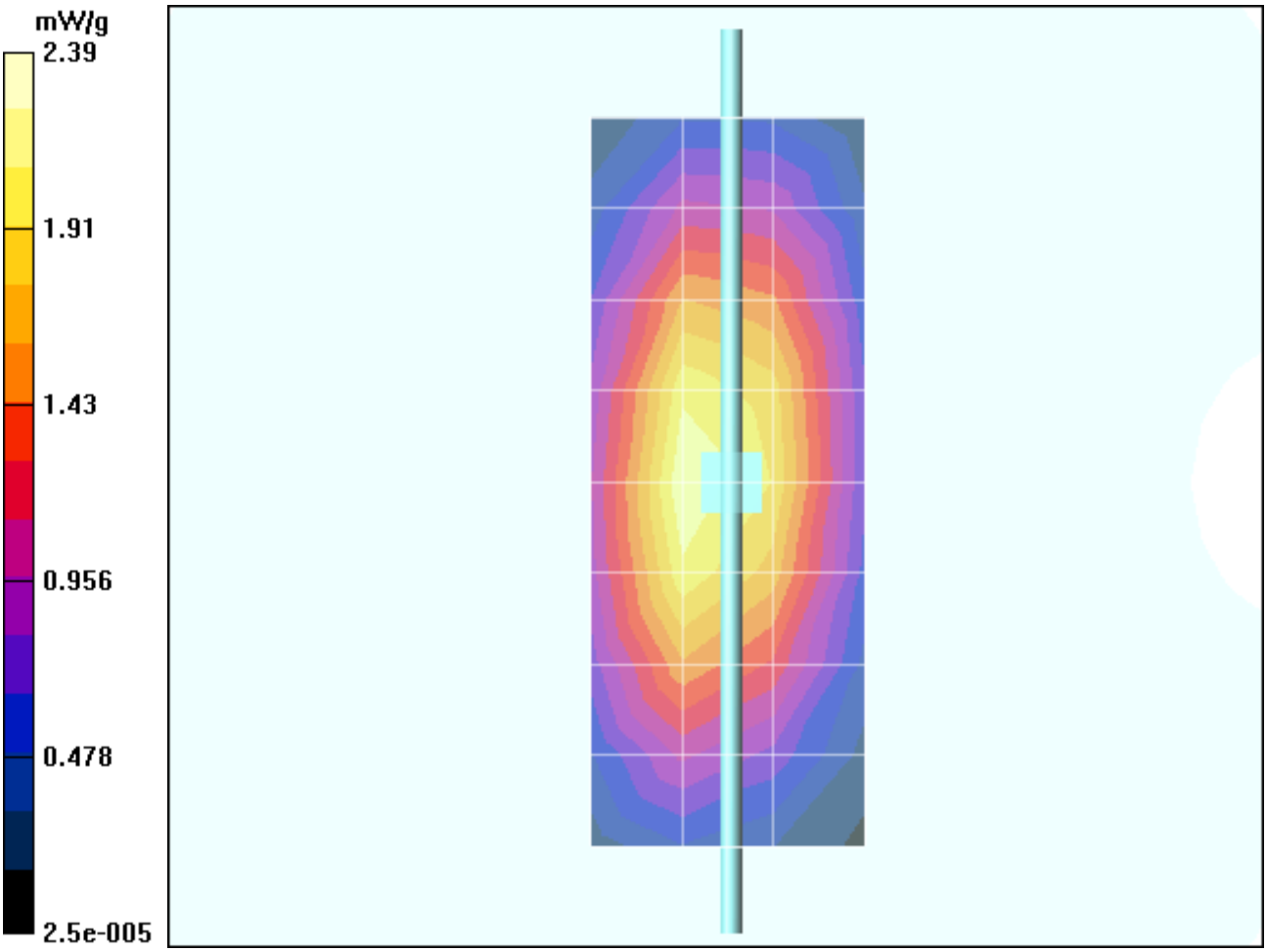
- Probe: ET3DV6R - SN1513; ConvF(5.99, 5.99, 5.99); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sugar Water SAM; Type: SAM; Serial: TP-1132;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

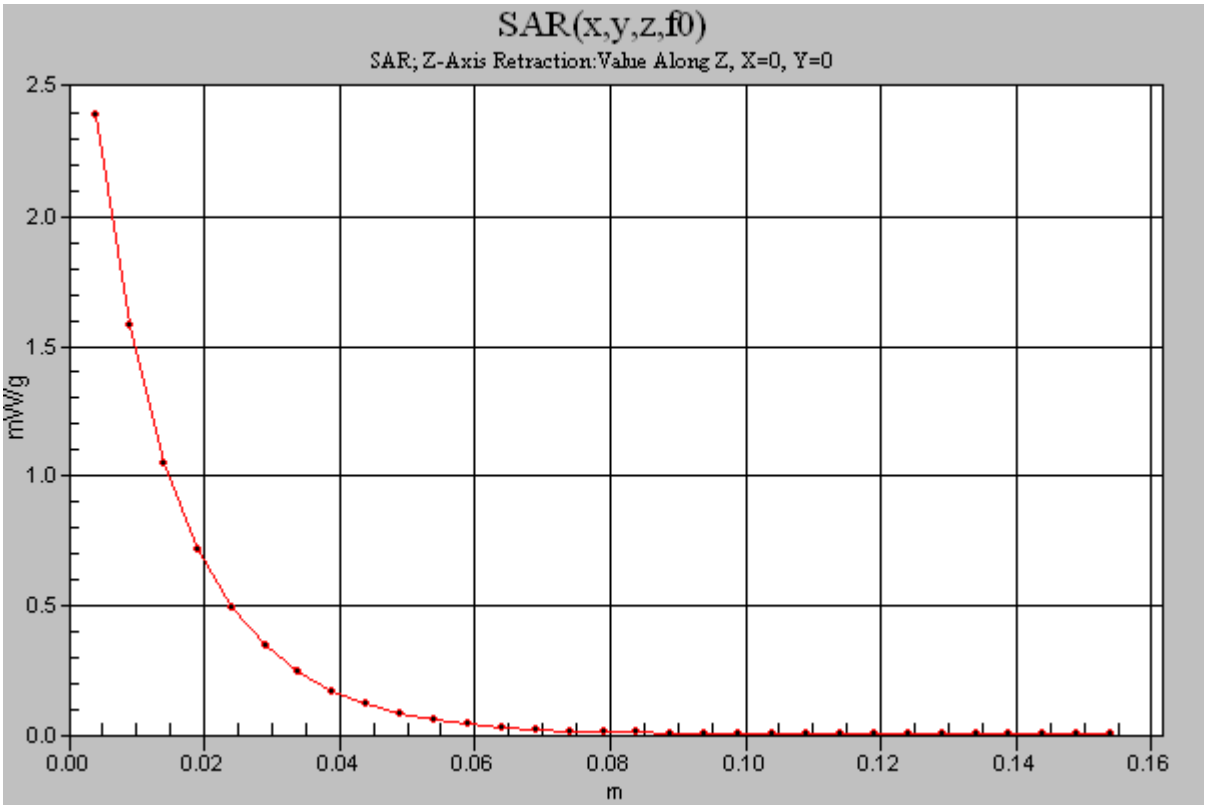
Daily SPC Check/Dipole Area Scan (4x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.22 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.8 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 3.29 W/kg
SAR(1 g) = 2.2 mW/g; SAR(10 g) = 1.41 mW/g
Maximum value of SAR (measured) = 2.38 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.8 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 3.62 W/kg
SAR(1 g) = 2.4 mW/g; SAR(10 g) = 1.53 mW/g
Maximum value of SAR (measured) = 2.62 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 2.39 mW/g


mW/g
2.39
1.91
1.43
0.956
0.478
2.5e-005


SAR(x,y,z,f0)
SAR; Z-Axis Retraction:Value Along Z, X=0, Y=0
mW/g
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Test Laboratory: Motorola

011005 900 MHz GOOD +6.1%

DUT: Dipole 900 MHz; Type: D900V2

Procedure Notes: 900 MHz System Performance Check / Dipole Sn# 079 PM1 Power = 199mW

Sim.Temp@meas=20.2 Sim.Temp@SPC = 20.2 Room Temp @ SPC = 21C

Communication System: CW - Dipole; Frequency: 900 MHz; Duty Cycle: 1:1
Medium: VALIDATION Only; Medium parameters used: σ = 0.99mho/m, ε_r = 41.9; ρ = 1000 kg/m^3

DASY4 Configuration:

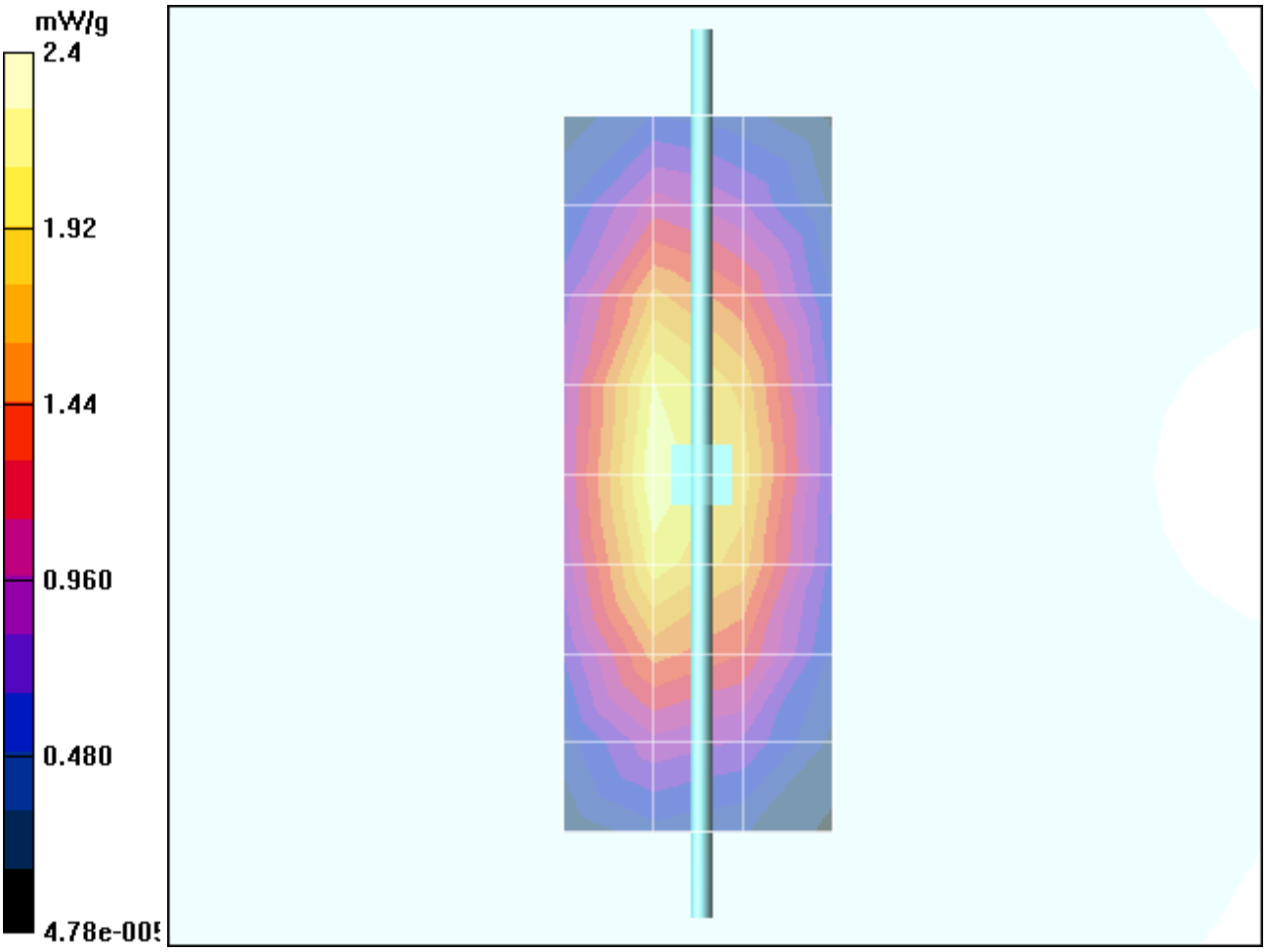
- Probe: ET3DV6R - SN1513; ConvF(5.99, 5.99, 5.99); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sugar Water SAM; Type: SAM; Serial: TP-1132;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

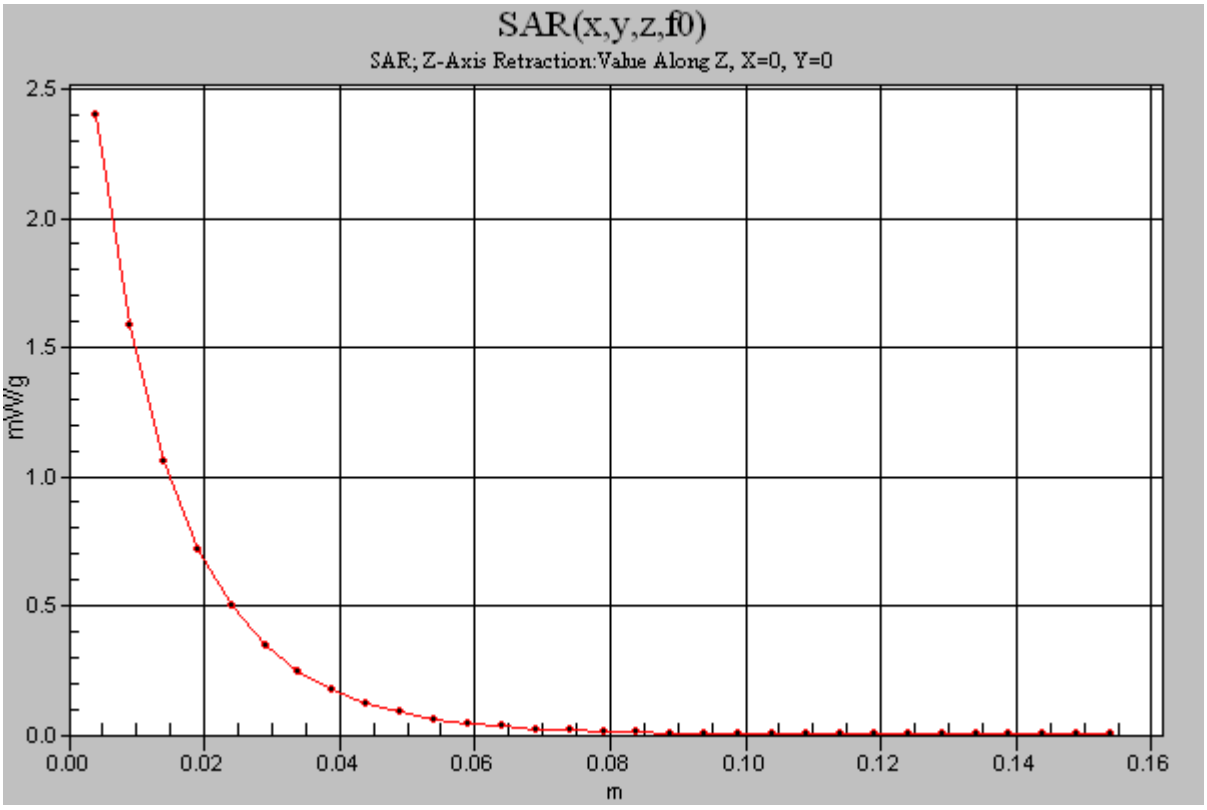
Daily SPC Check/Dipole Area Scan (4x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.22 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.8 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 3.28 W/kg
SAR(1 g) = 2.2 mW/g; SAR(10 g) = 1.41 mW/g
Maximum value of SAR (measured) = 2.39 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.8 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 3.54 W/kg
SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.51 mW/g
Maximum value of SAR (measured) = 2.51 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 2.4 mW/g


mW/g
2.4
1.92
1.44
0.960
0.480
4.78e-005


SAR(x,y,z,f0)
SAR; Z-Axis Retraction:Value Along Z, X=0, Y=0
mW/g
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Test Laboratory: Motorola

011005 1800 MHz GOOD +2.7%

DUT: Dipole 1800 MHz; Type: D1800V2

Procedure Notes: 1800 MHz System Performance Check / Dipole Sn# 246TR PM1 Power = 200mW

Sim.Temp@meas= 18.8C Sim.Temp@SPC = 19.2C Room Temp @ SPC = 21C

Communication System: CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: VALIDATION Only; Medium parameters used: σ = 1.38mho/m, ε_r = 38.7; ρ = 1000 kg/m^3

DASY4 Configuration:

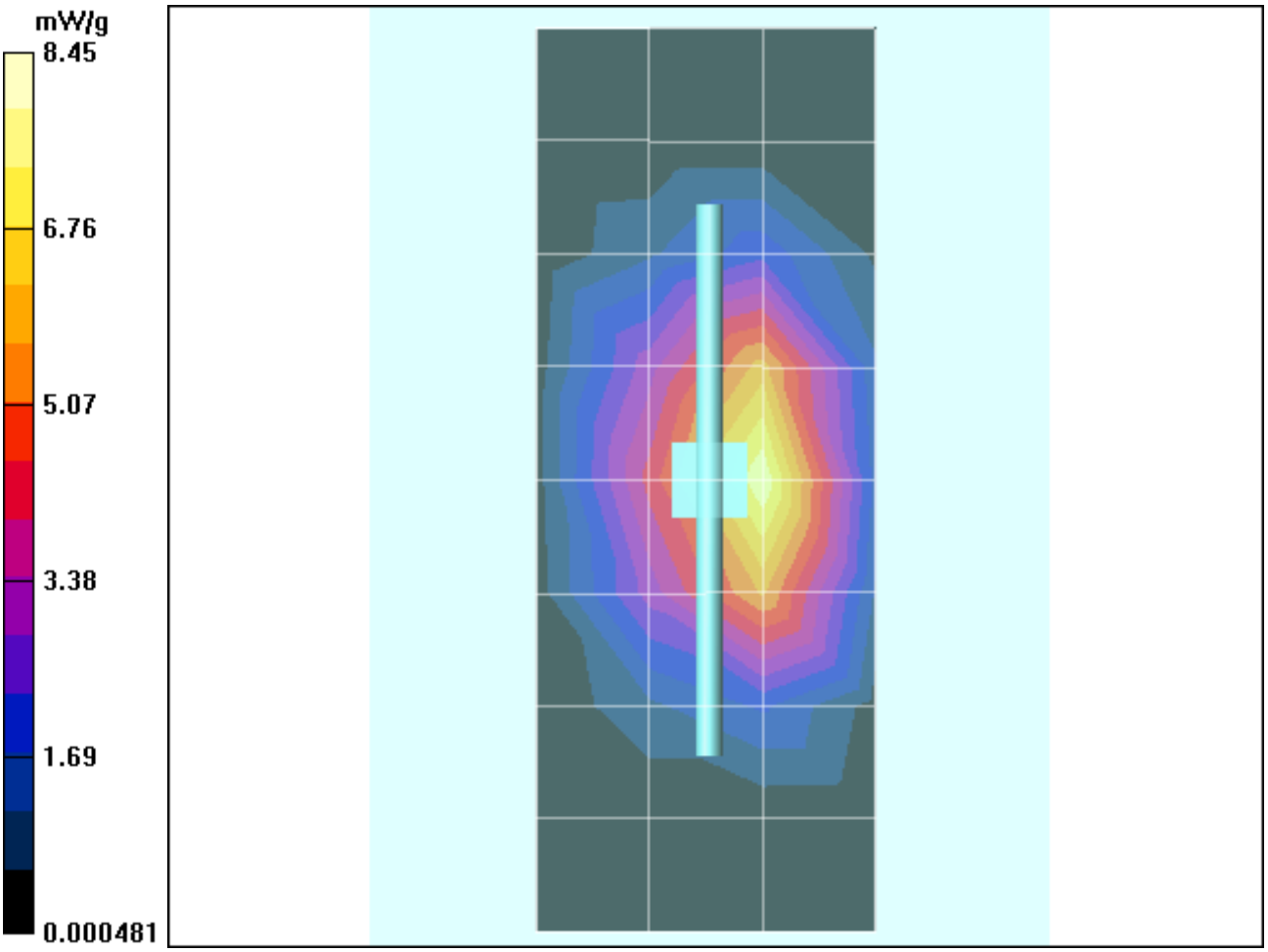
- Probe: ET3DV6R - SN1513; ConvF(4.95, 4.95, 4.95); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.2, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

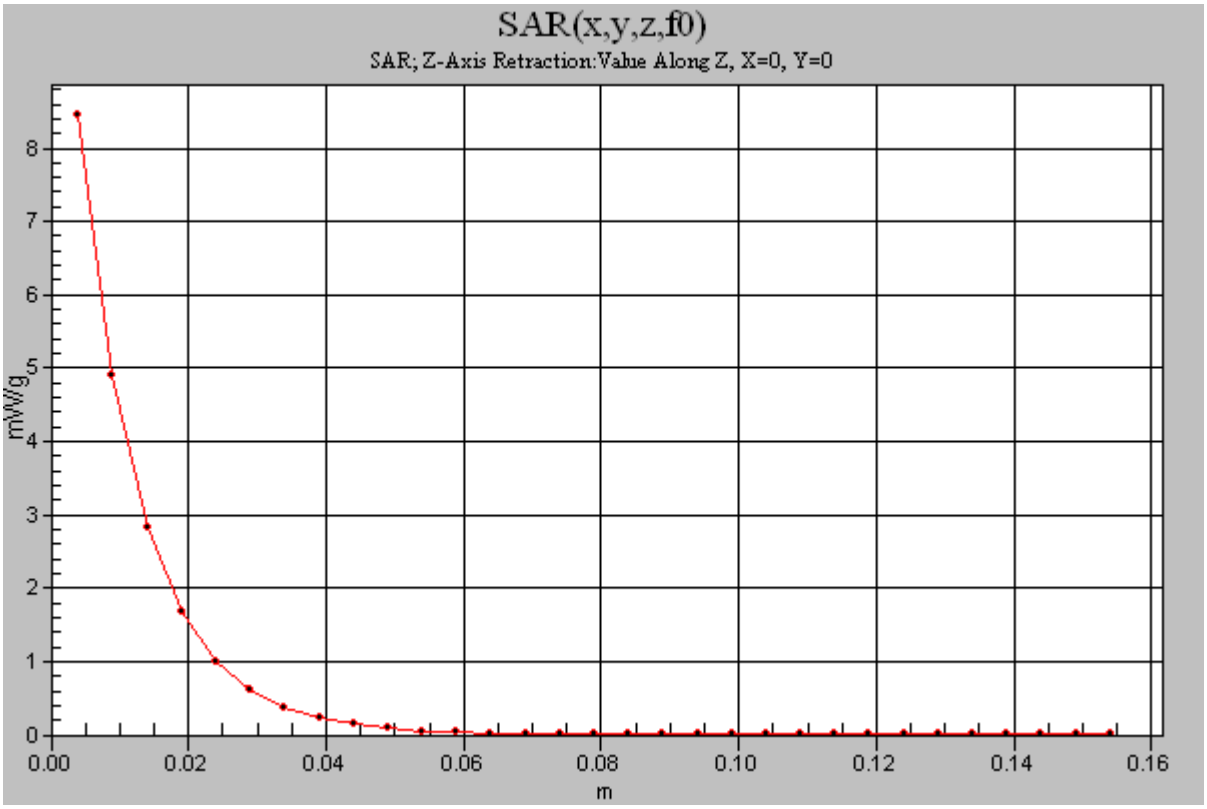
Daily SPC Check/Dipole Area Scan (9x4x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 7.87 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 80.9 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 12.7 W/kg
SAR(1 g) = 7.52 mW/g; SAR(10 g) = 4.04 mW/g
Maximum value of SAR (measured) = 8.45 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 80.9 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 14 W/kg
SAR(1 g) = 8.13 mW/g; SAR(10 g) = 4.34 mW/g
Maximum value of SAR (measured) = 9.13 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm


mW/g
8.45
6.76
5.07
3.38
1.69
0.000481


SAR(x,y,z,f0)
SAR; Z-Axis Retraction:Value Along Z, X=0, Y=0
mW/g
0
1
2
3
4
5
6
7
8
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Test Laboratory: Motorola

011105 900 MHz GOOD +4.6%

DUT: Dipole 900 MHz; Type: D900V2

Procedure Notes: 900 MHz System Performance Check / Dipole Sn# 079 PM1 Power = 200mW

Sim.Temp@meas= 20.6C Sim.Temp@SPC = 20.2C Room Temp @ SPC = 21C

Communication System: CW - Dipole; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: VALIDATION Only; Medium parameters used: $\sigma = 0.98$; mho/m, $\varepsilon_r = 41.8$; $\rho = 1000$ kg/m^3

DASY4 Configuration:

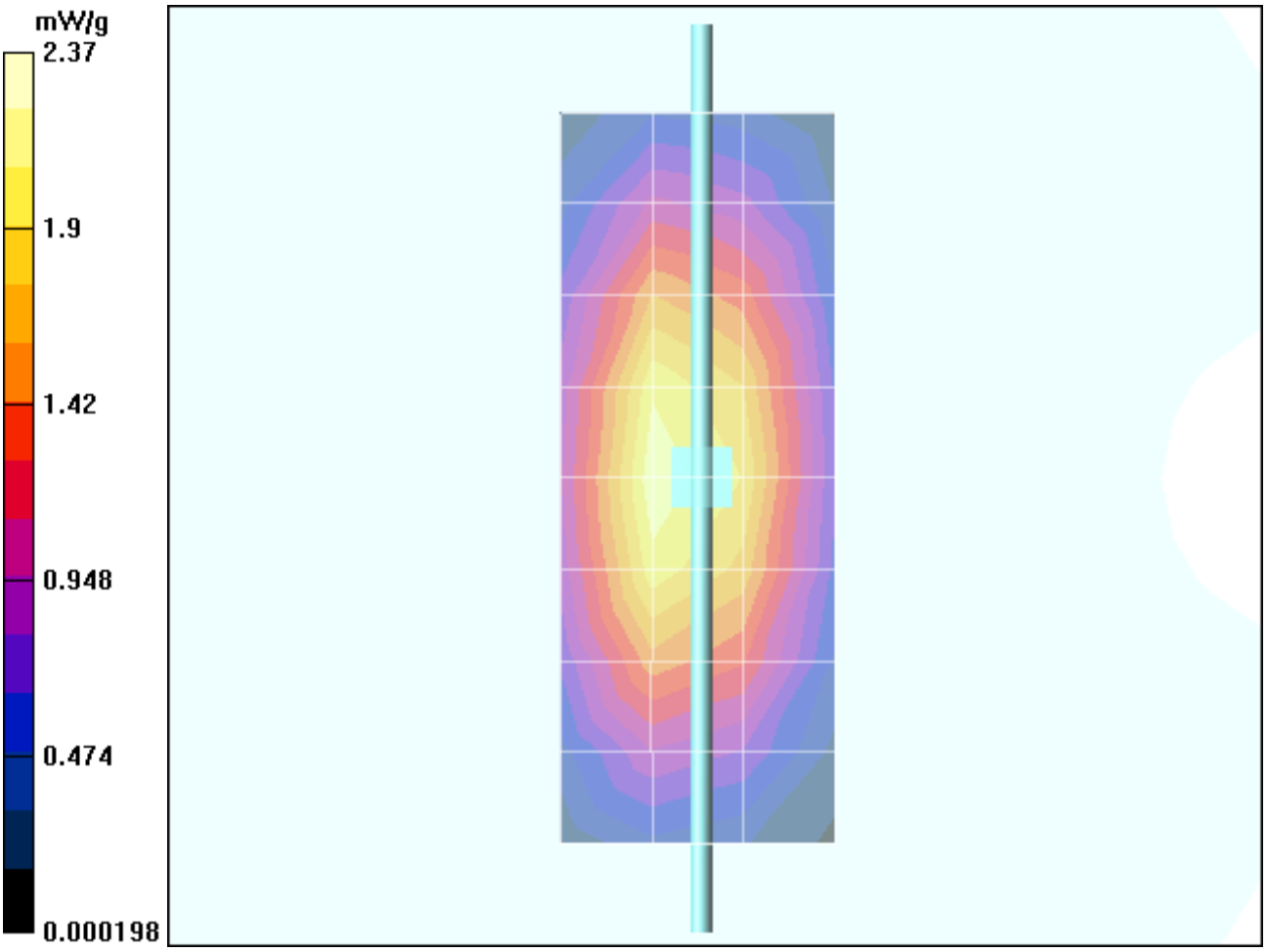
- Probe: ET3DV6R - SN1513; ConvF(5.99, 5.99, 5.99); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sugar Water SAM; Type: SAM; Serial: TP-1132;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

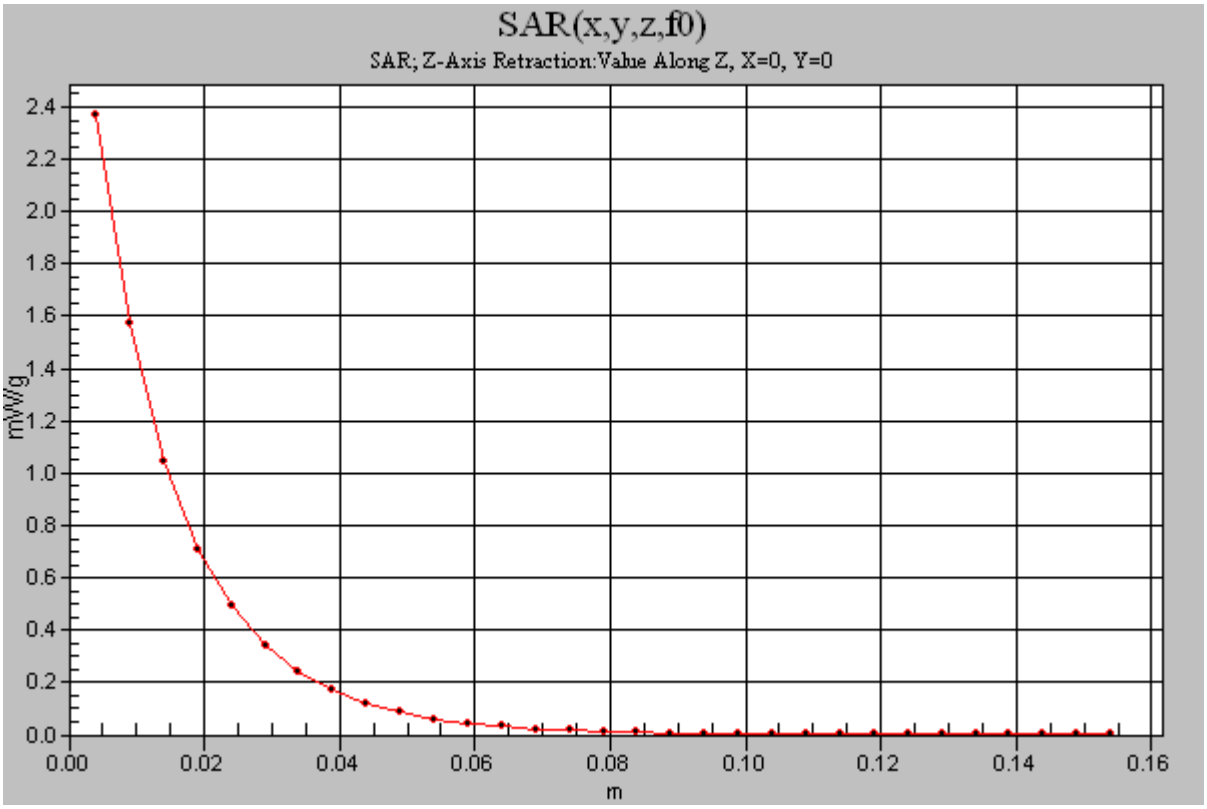
Daily SPC Check/Dipole Area Scan (4x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.18 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.8 V/m; Power Drift = 0.0008 dB
Peak SAR (extrapolated) = 3.23 W/kg
SAR(1 g) = 2.18 mW/g; SAR(10 g) = 1.4 mW/g
Maximum value of SAR (measured) = 2.36 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.8 V/m; Power Drift = 0.0008 dB
Peak SAR (extrapolated) = 3.51 W/kg
SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.5 mW/g
Maximum value of SAR (measured) = 2.49 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 2.37 mW/g


mW/g
2.37
1.9
1.42
0.948
0.474
0.000198


SAR(x,y,z,f0)
SAR; Z-Axis Retraction:Value Along Z, X=0, Y=0
mW/g
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Test Laboratory: Motorola

011105 1800 MHz GOOD +2.7%

DUT: Dipole 1800 MHz; Type: D1800V2

Procedure Notes: 1800 MHz System Performance Check / Dipole Sn# 246TR PM1 Power = 200mW

Sim.Temp@meas= 19.3C Sim.Temp@SPC = 19.3C Room Temp @ SPC = 21C

Communication System: CW - Dipole; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium: VALIDATION Only; Medium parameters used: σ = 1.37; mho/m, ε_r = 38.5; ρ = 1000 kg/m^3

DASY4 Configuration:

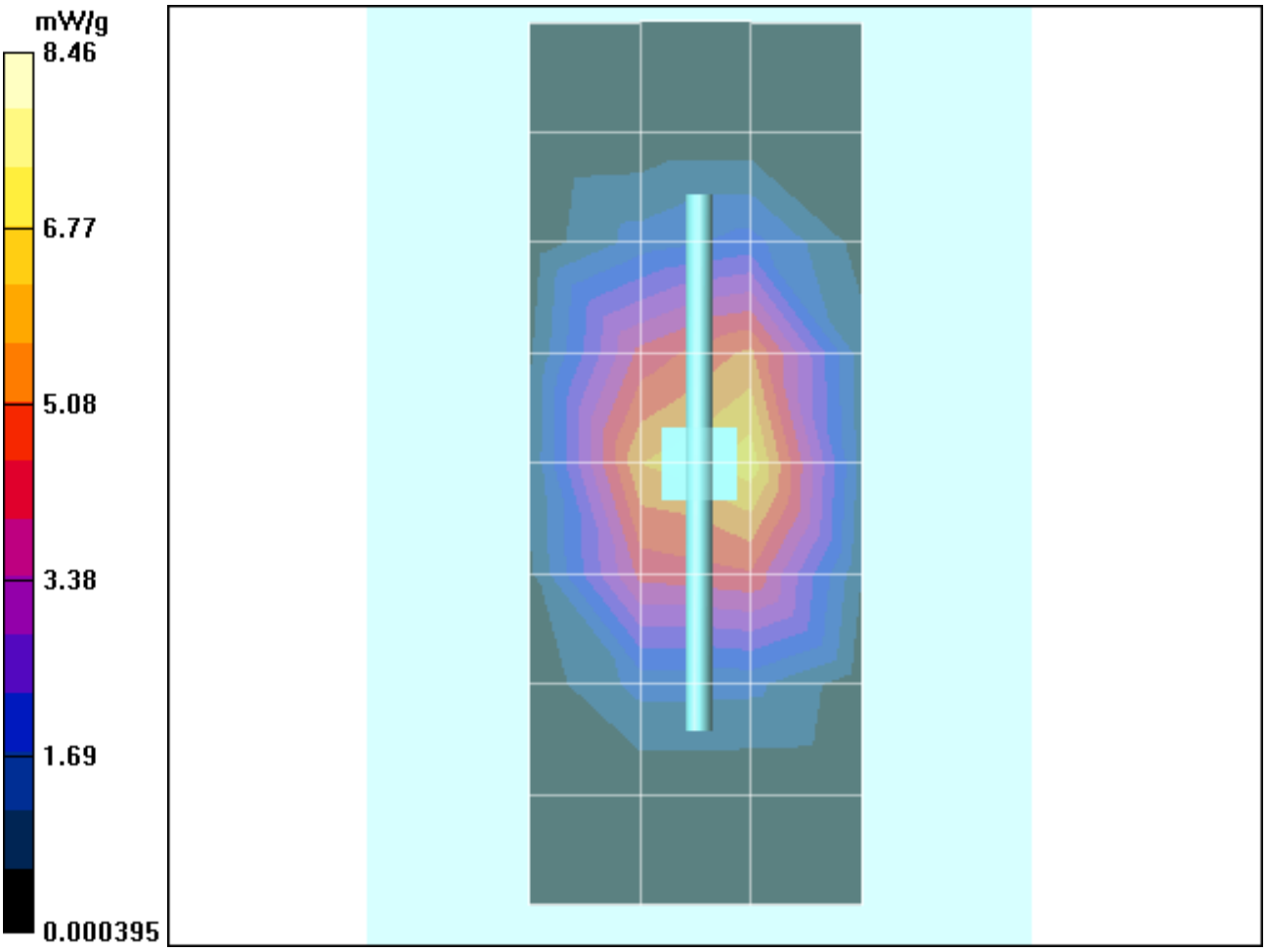
- Probe: ET3DV6R - SN1513; ConvF(4.95, 4.95, 4.95); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.2, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

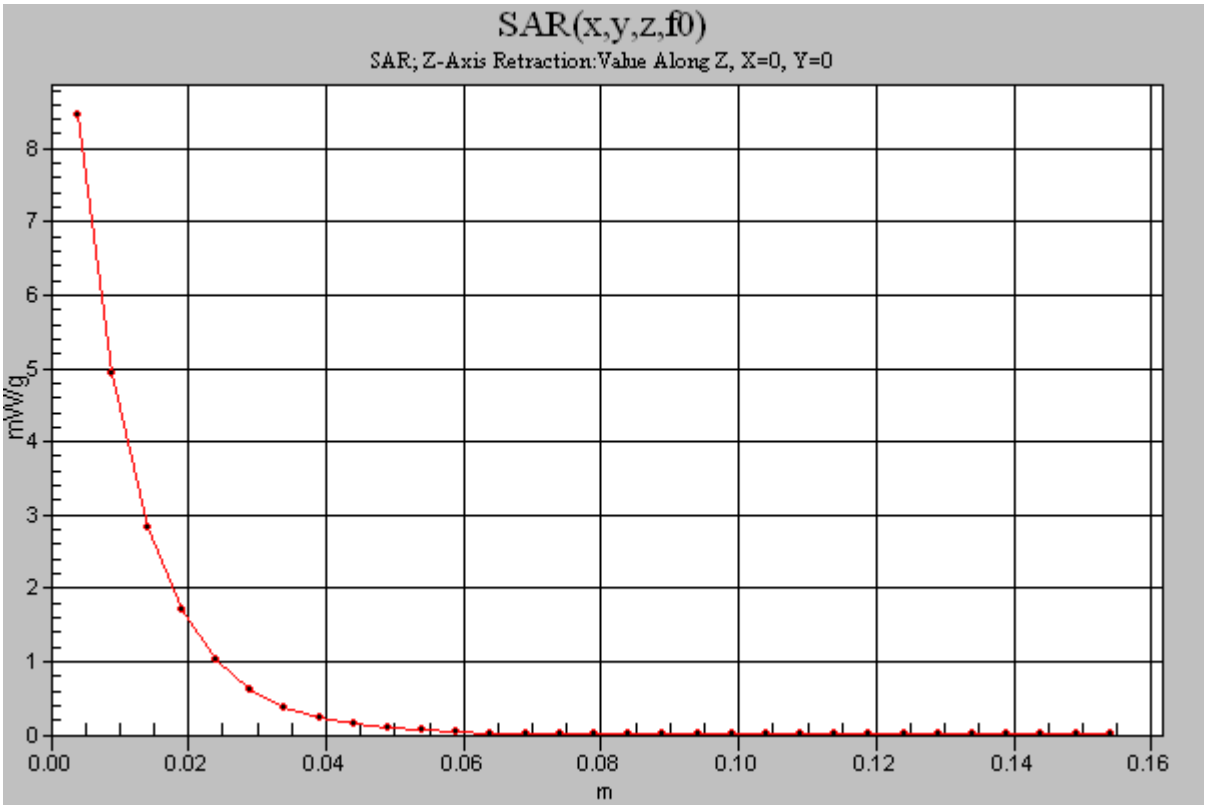
Daily SPC Check/Dipole Area Scan (9x4x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 6.58 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 83.4 V/m; Power Drift = 0.0008 dB
Peak SAR (extrapolated) = 12.7 W/kg
SAR(1 g) = 7.51 mW/g; SAR(10 g) = 4.03 mW/g
Maximum value of SAR (measured) = 8.43 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 83.4 V/m; Power Drift = 0.0008 dB
Peak SAR (extrapolated) = 13.9 W/kg
SAR(1 g) = 8.14 mW/g; SAR(10 g) = 4.34 mW/g
Maximum value of SAR (measured) = 9.19 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 8.46 mW/g


mW/g
8.46
6.77
5.08
3.38
1.69
0.000395


SAR(x,y,z,f0)
SAR; Z-Axis Retraction:Value Along Z, X=0, Y=0
mW/g
0
1
2
3
4
5
6
7
8
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Test Laboratory: Motorola

011205 900 MHz GOOD +5.1%

DUT: Dipole 900 MHz; Type: D900V2

Procedure Notes: 900 MHz System Performance Check / Dipole Sn# 079 PM1 Power = 200mW

Sim.Temp@meas= 20.6C Sim.Temp@SPC = 20.6C Room Temp @ SPC = 21C

Communication System: CW - Dipole; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: VALIDATION Only; Medium parameters used: σ = 0.98; mho/m, ε_r = 41.7; ρ = 1000 kg/m^3

DASY4 Configuration:

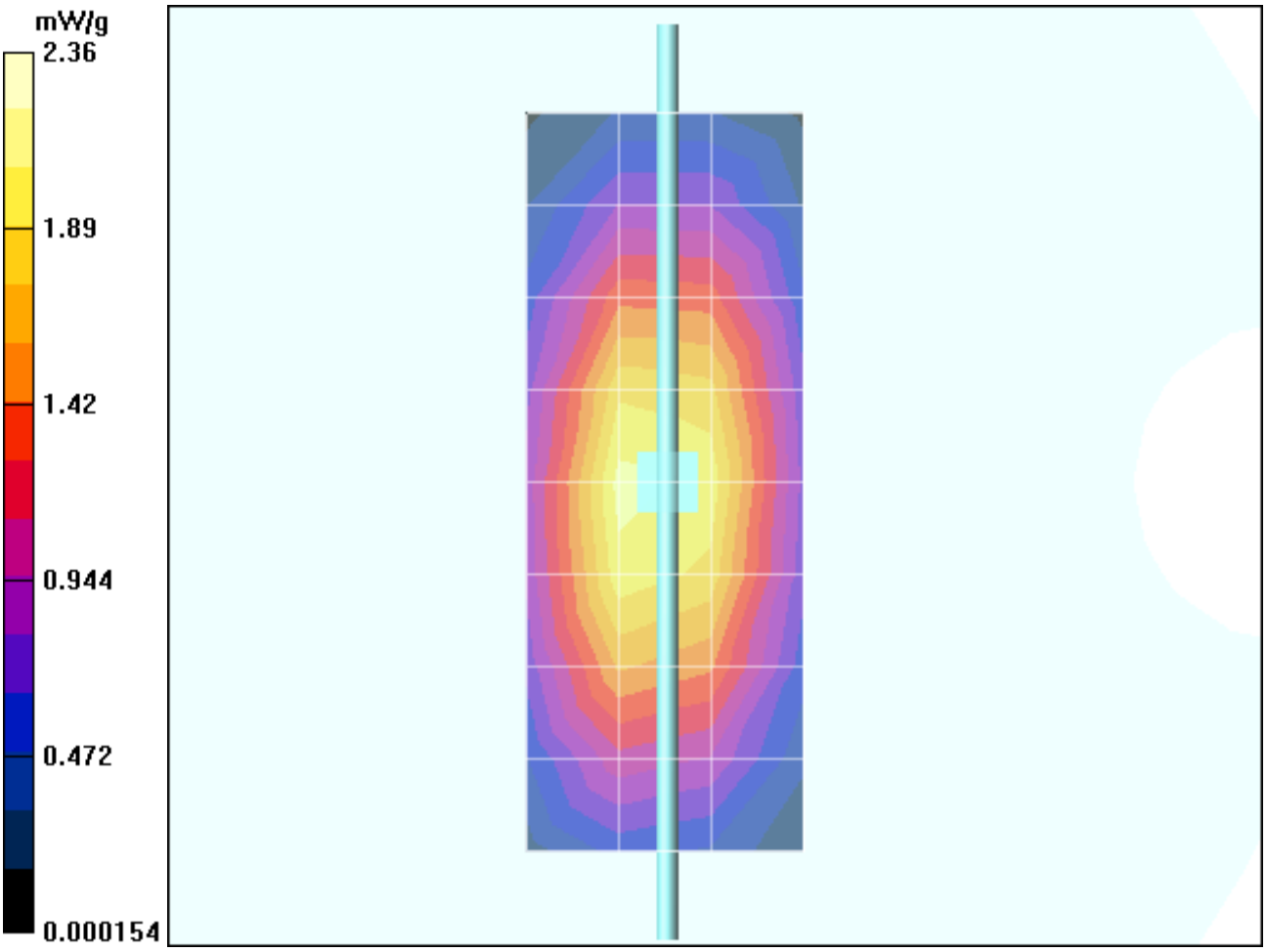
- Probe: ET3DV6R - SN1513; ConvF(5.99, 5.99, 5.99); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sugar Water SAM; Type: SAM; Serial: TP-1132;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

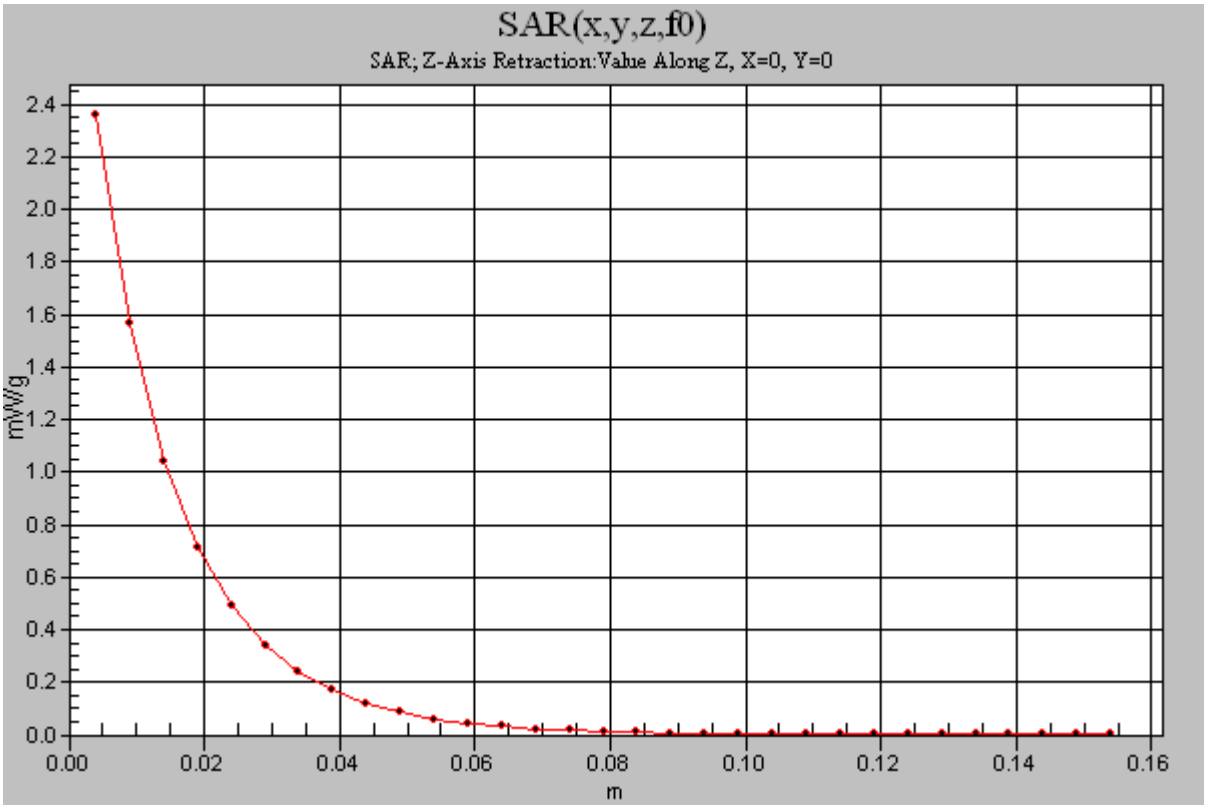
Daily SPC Check/Dipole Area Scan (4x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.11 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.2 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 3.24 W/kg
SAR(1 g) = 2.19 mW/g; SAR(10 g) = 1.4 mW/g
Maximum value of SAR (measured) = 2.37 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.2 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 3.52 W/kg
SAR(1 g) = 2.35 mW/g; SAR(10 g) = 1.51 mW/g
Maximum value of SAR (measured) = 2.54 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 2.36 mW/g


mW/g
2.36
1.89
1.42
0.944
0.472
0.000154


SAR(x,y,z,f0)
SAR; Z-Axis Retraction:Value Along Z, X=0, Y=0
mW/g
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Test Laboratory: Motorola

011205 1800 MHz GOOD -1.0%

DUT: Dipole 1800 MHz; Type: D1800V2

Procedure Notes: 1800 MHz System Performance Check / Dipole Sn# 246TR PM1 Power = 200mW

Sim.Temp@meas=19.3C Sim.Temp@SPC = 19.1C Room Temp @ SPC = 21C

Communication System: CW - Dipole; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium: VALIDATION Only; Medium parameters used: σ = 1.36; mho/m, ε_r = 38.6; ρ = 1000 kg/m^3

DASY4 Configuration:

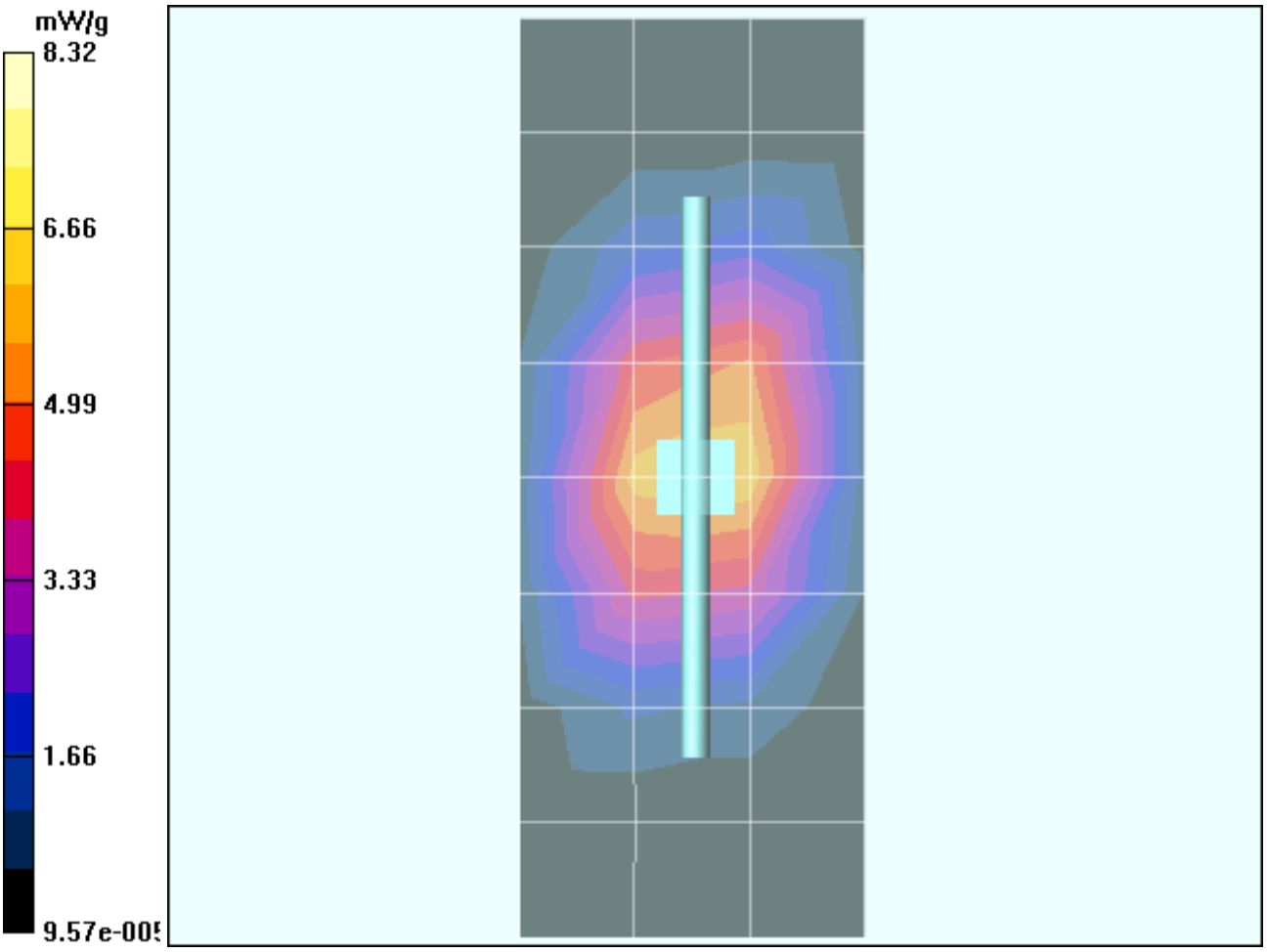
- Probe: ET3DV6R - SN1513; ConvF(4.95, 4.95, 4.95); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Glycol SAM; Type: SAM; Serial: TP-1160;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

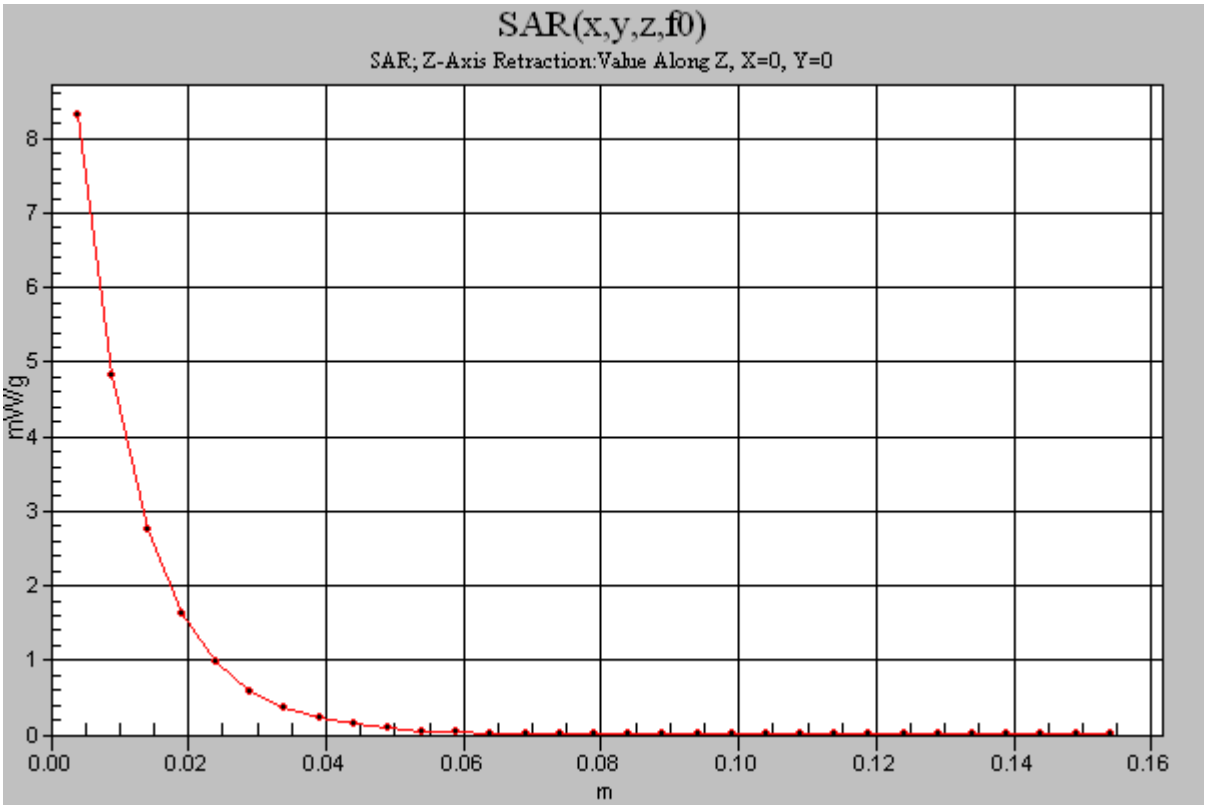
Daily SPC Check/Dipole Area Scan (4x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 6.01 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 82.2 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 12.3 W/kg
SAR(1 g) = 7.27 mW/g; SAR(10 g) = 3.91 mW/g
Maximum value of SAR (measured) = 8.1 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 82.2 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 13.3 W/kg
SAR(1 g) = 7.81 mW/g; SAR(10 g) = 4.18 mW/g
Maximum value of SAR (measured) = 8.68 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 8.32 mW/g


mW/g
8.32
6.66
4.99
3.33
1.66
9.57e-005


SAR(x,y,z,f0)
SAR; Z-Axis Retraction:Value Along Z, X=0, Y=0
mW/g
0
1
2
3
4
5
6
7
8
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Appendix 2

SAR distribution plots for Phantom Head Adjacent Use

Test Laboratory: Motorola LH Cheek 1900 ch512 with AANN4285B

Serial: G00E0300X4
Procedure Notes: Ch# 512 / Pwr Step: 00 (OTA) Antenna Position: FIXED Accessory Model #: N/A
Battery Model #: AANN4285B DEVICE POSITION: CHEEK
Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8
Medium: Regular Glycol Head; Medium parameters used: σ = 1.45mho/m, ε_r = 38.1; ρ = 1000 kg/m^3

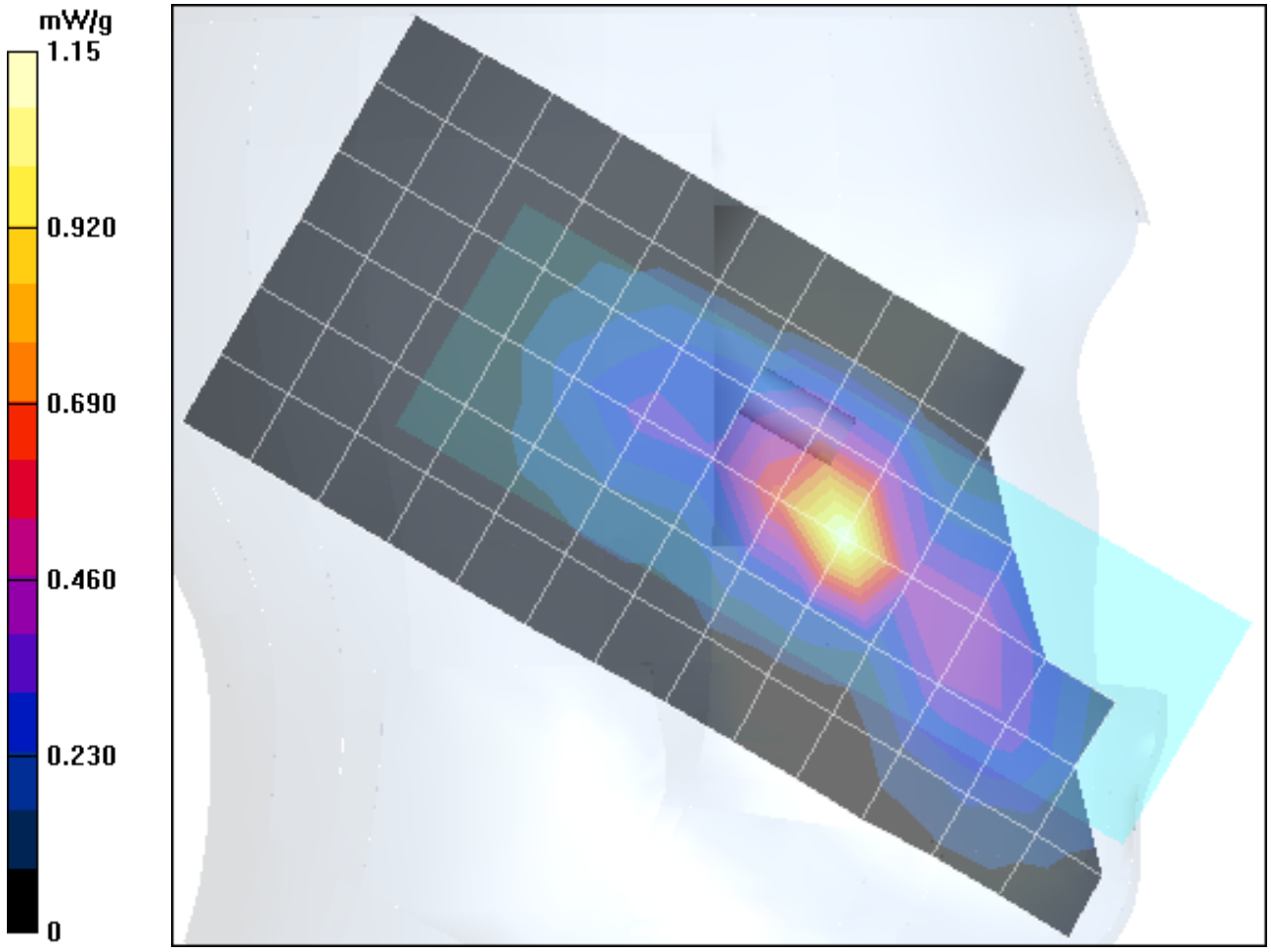
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(4.95, 4.95, 4.95); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Glycol SAM; Type: SAM; Serial: TP-1160;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Left Head Template/Area Scan - Normal (15mm) (7x14x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 1.15 mW/g

Left Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.8 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 2.14 W/kg
SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.515 mW/g Maximum value of SAR (measured) = 1.27 mW/g



Test Laboratory: Motorola RH Tilt 1900 ch661

Serial: G00E0300X4
Procedure Notes: Ch# 661 / Pwr Step: 0 Antenna Position: Fixed Accessory Model #: N/A
Battery Model #: AANN4258B DEVICE POSITION (cheek or rotated): Rotated
Simulate Temp when Measured: 19.2C Simulate Temp after Test: 18.9C
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8
Medium: Back-Up Glycol Head; Medium parameters used: σ = 1.45mho/m, ε_r = 38.6; ρ = 1000 kg/m^3

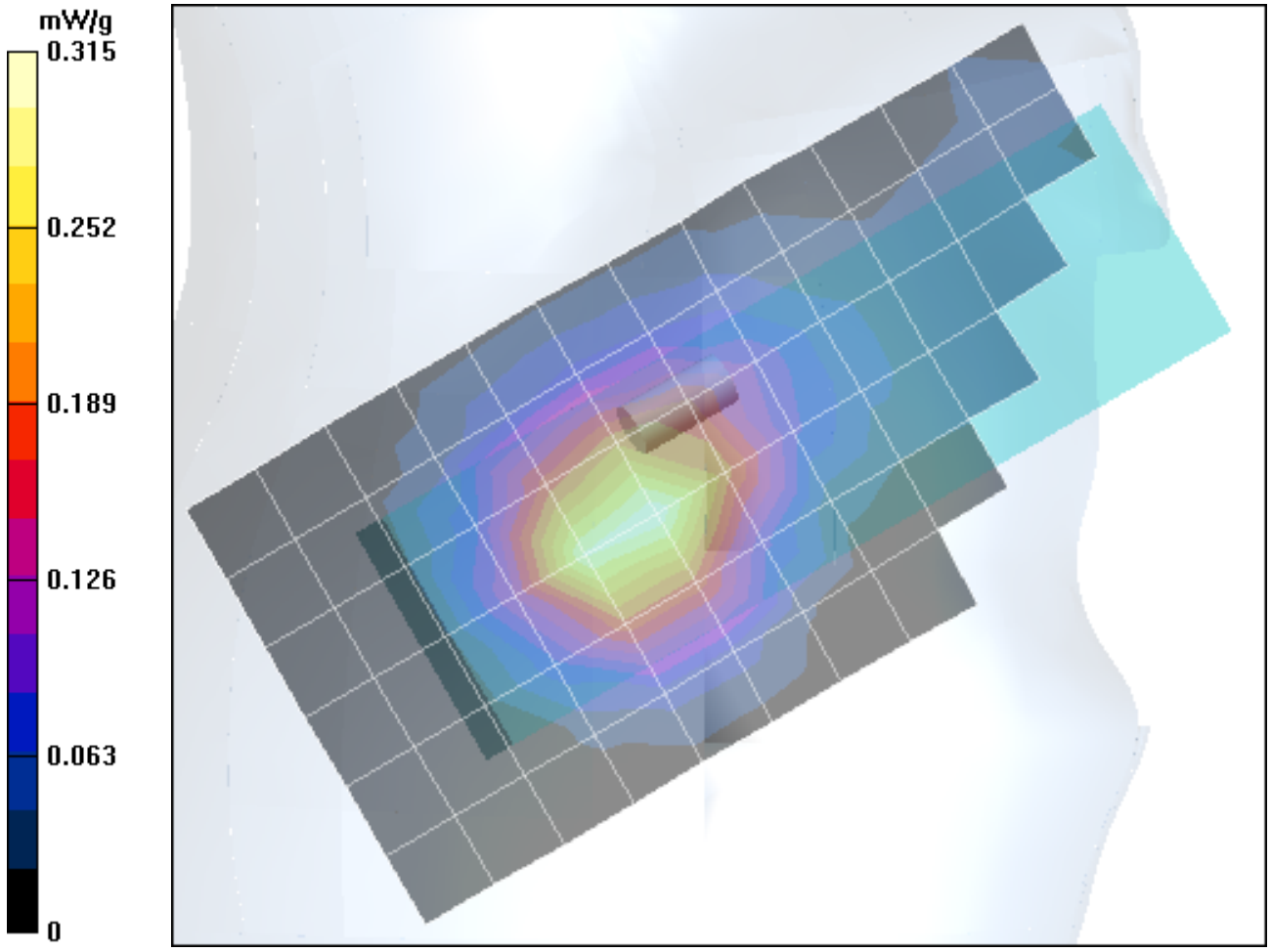
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(4.95, 4.95, 4.95); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Glycol SAM; Type: SAM; Serial: TP-1160;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Right Head Template/Area Scan - Normal (15mm) (7x14x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.315 mW/g

Right Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.4 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 0.443 W/kg
SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.187 mW/g Maximum value of SAR (measured) = 0.334 mW/g



Test Laboratory: Motorola RH Cheek 850 ch251

Serial: G00E0300X4
Procedure Notes: Ch# 251 Pwr Step: 5 ota Antenna Position: FIXED Accessory Model #: none
Battery Model #: AANN4258B DEVICE POSITION: CHEEK
Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8
Medium: Low Freq Head; Medium parameters used: σ = 0.93mho/m, ε_r = 42.8; ρ = 1000 kg/m^3

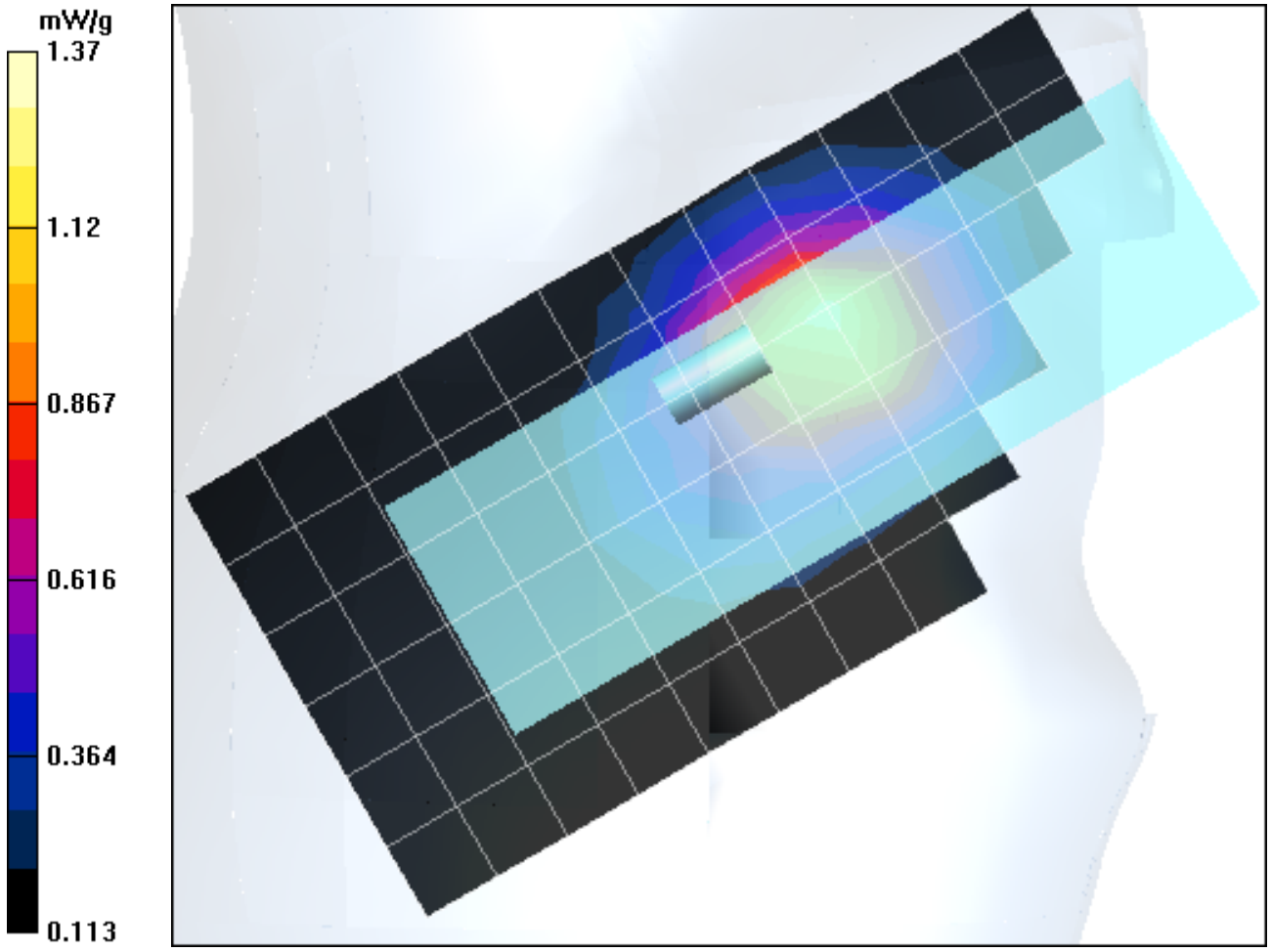
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(5.99, 5.99, 5.99); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sugar Water SAM; Type: SAM; Serial: TP-1132;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Right Head Template/Area Scan - Normal (15mm) (7x14x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 1.27 mW/g

Right Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 40.4 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 1.86 W/kg
SAR(1 g) = 1.27 mW/g; SAR(10 g) = 0.823 mW/g Maximum value of SAR (measured) = 1.37 mW/g



Test Laboratory: Motorola RH Cheek 1900 ch512

Serial: G00E0300X4
Procedure Notes: Ch# 512 / Pwr Step: 0 Antenna Position: Fixed Accessory Model #: N/A
Battery Model #: AANN4258B DEVICE POSITION (cheek or rotated): Cheek
Simulate Temp when Measured: 19.2C Simulate Temp after Test: 19.0C
Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8
Medium: Back-Up Glycol Head; Medium parameters used: σ = 1.45mho/m, ε_r = 38.6; ρ = 1000 kg/m^3

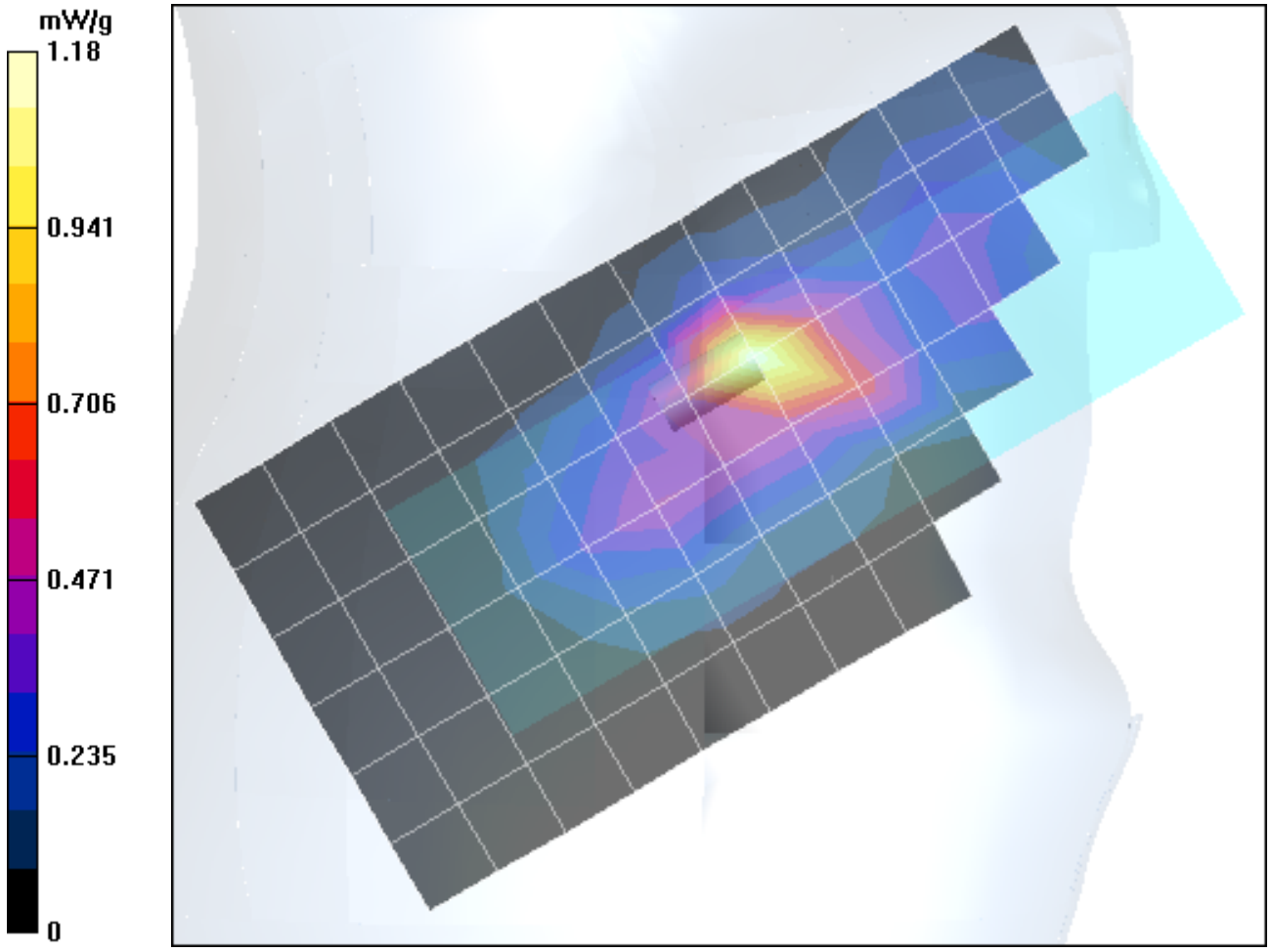
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(4.95, 4.95, 4.95); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Glycol SAM; Type: SAM; Serial: TP-1160;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Right Head Template/Area Scan - Normal (15mm) (7x14x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 1.18 mW/g

Right Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.1 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 2.15 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.543 mW/g Maximum value of SAR (measured) = 1.27 mW/g



Date/Time: 01/07/05 12:36:19

Test Laboratory: Motorola LH Tilt 850 ch190

Serial: G00E0300X4
Procedure Notes: Ch# 190 Pwr Step: 5 ota Antenna Position: FIXED Accessory Model #: none
Battery Model #: AANN4258B DEVICE POSITION: ROTATED
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8
Medium: Low Freq Head; Medium parameters used: σ = 0.93mho/m, ε_r = 42.8; ρ = 1000 kg/m^3

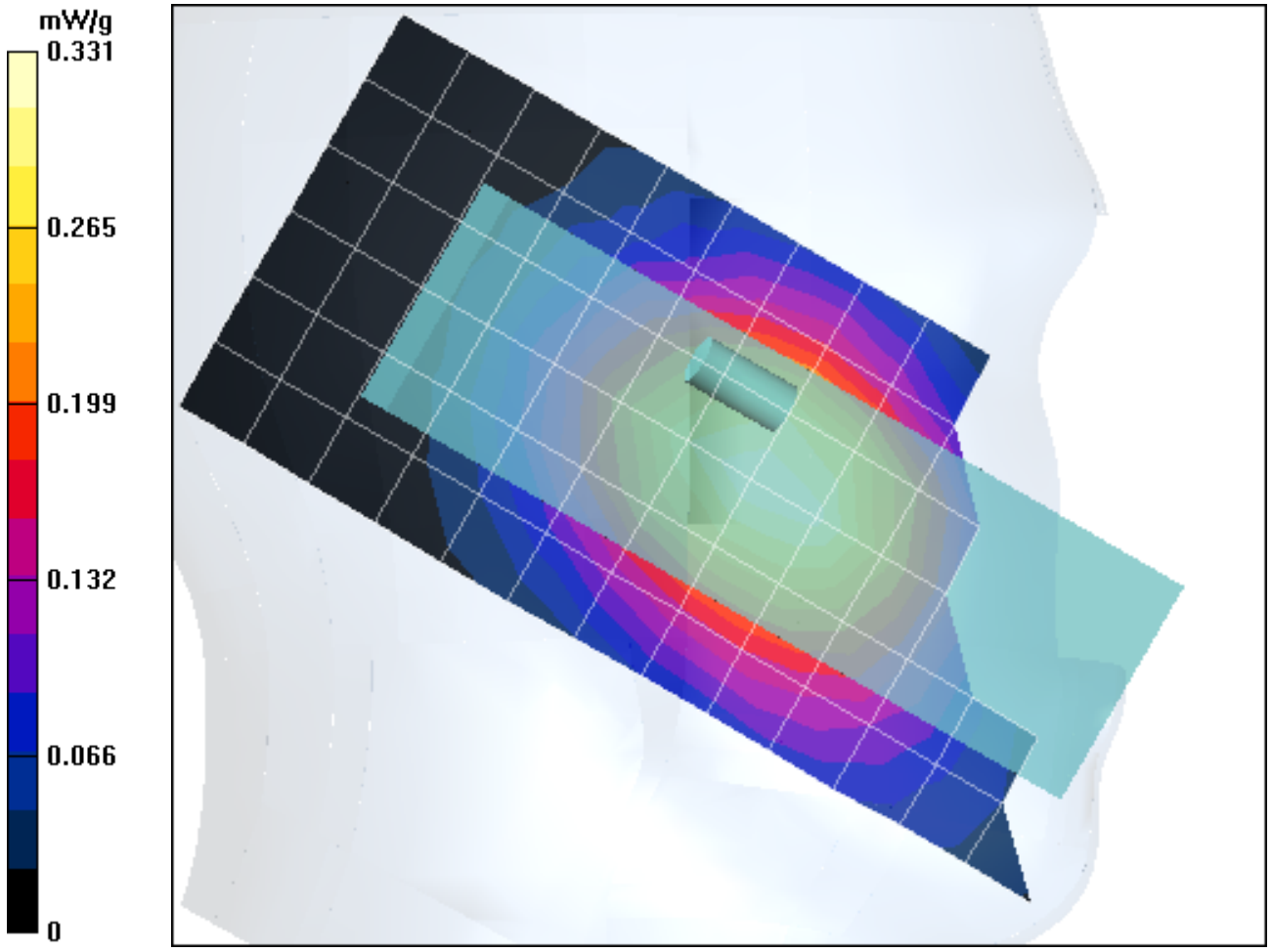
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(5.99, 5.99, 5.99); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sugar Water SAM; Type: SAM; Serial: TP-1132;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Left Head Template/Area Scan - Normal (15mm) (7x14x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.331 mW/g

Left Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.3 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 0.395 W/kg
SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.236 mW/g Maximum value of SAR (measured) = 0.333 mW/g



Test Laboratory: Motorola LH Tilt 1900 ch661

Serial: G00E0300X4
Procedure Notes: Ch# 661 / Pwr Step: 0 Antenna Position: Fixed Accessory Model #: N/A
Battery Model #: AANN4258B DEVICE POSITION (cheek or rotated): Rotated
Simulate Temp when Measured: 19.2C Simulate Temp after Test: 19.0C
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8
Medium: Back-Up Glycol Head; Medium parameters used: σ = 1.45mho/m, ε_r = 38.6; ρ = 1000 kg/m^3

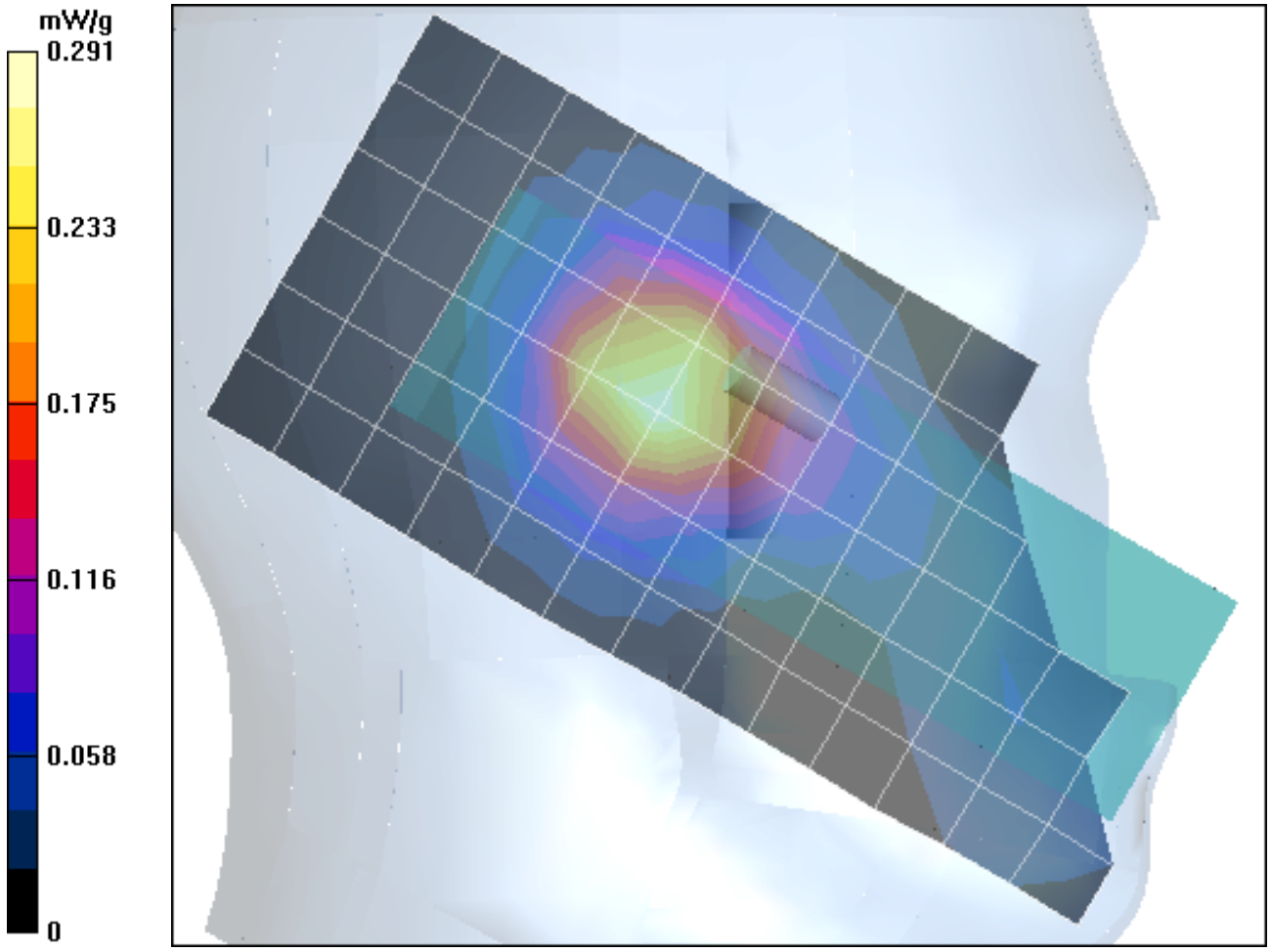
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(4.95, 4.95, 4.95); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Glycol SAM; Type: SAM; Serial: TP-1160;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 13

Left Head Template/Area Scan - Normal (15mm)

(7x14x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.291 mW/g

Left Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.7 V/m; **Power Drift = -0.0 dB** Peak SAR (extrapolated) = 0.406 W/kg
SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.172 mW/g Maximum value of SAR (measured) = 0.300 mW/g



Test Laboratory: Motorola LH Cheek 850 ch251

Serial: G00E0300X4
Procedure Notes: Ch# 251 Pwr Step: 5 ota Antenna Position: FIXED Accessory Model #: none
Battery Model #: aann4258b (engineering) DEVICE POSITION: CHEEK
Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8
Medium: Low Freq Head; Medium parameters used: σ = 0.93mho/m, ε_r = 42.8; ρ = 1000 kg/m^3

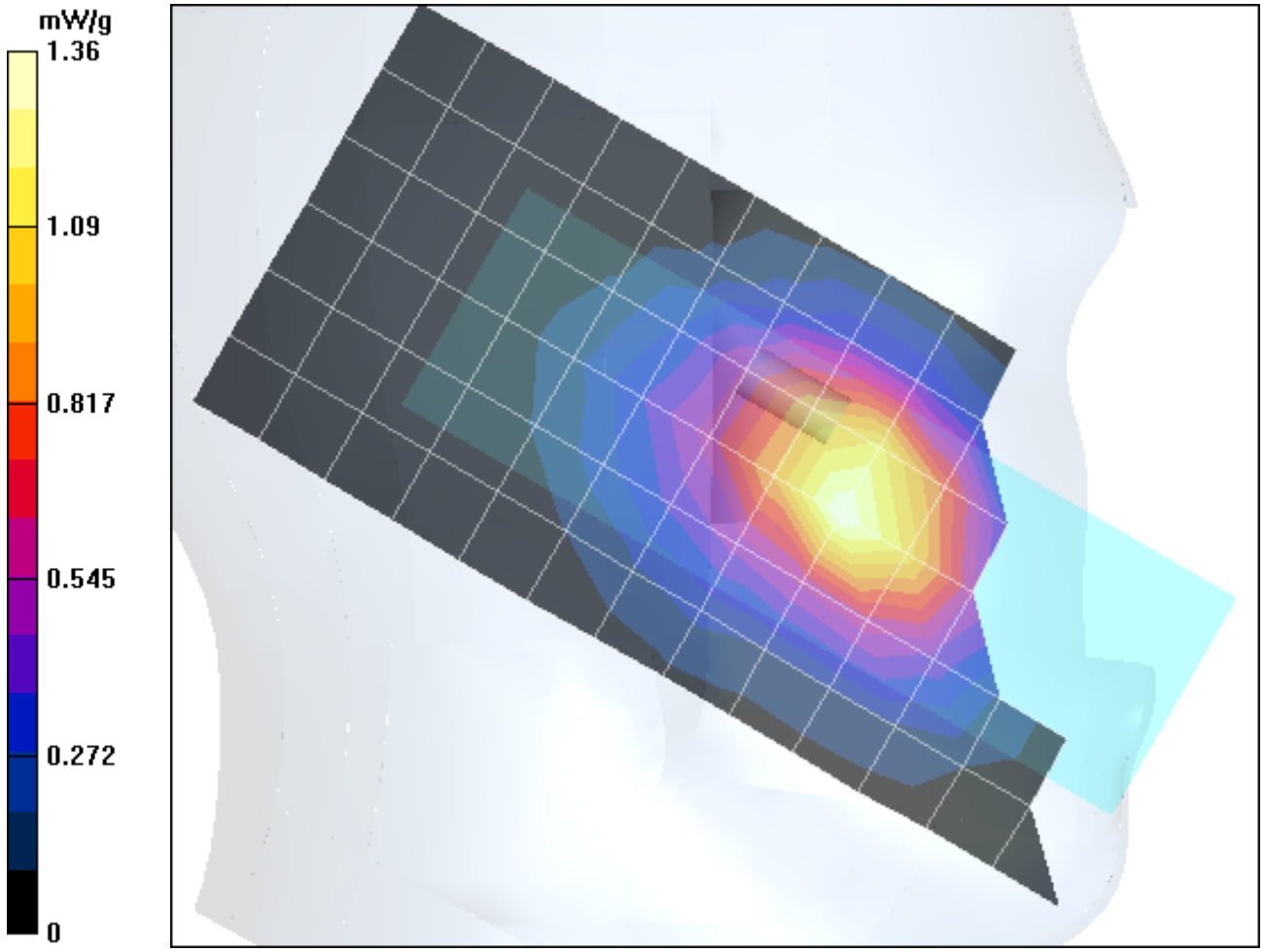
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(5.99, 5.99, 5.99); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sugar Water SAM; Type: SAM; Serial: TP-1132;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Left Head Template/Area Scan - Normal (15mm) (7x14x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 1.36 mW/g

Left Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 37 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 1.97 W/kg
SAR(1 g) = 1.34 mW/g; SAR(10 g) = 0.861 mW/g Maximum value of SAR (measured) = 1.46 mW/g



Test Laboratory: Motorola LH Cheek 850 ch251 with AANN4285B

Serial: G00E0300X4
Procedure Notes: Ch# 251 / Pwr Step: 5 Antenna Position: Fixed Accessory Model #: ???
Battery Model #: AANN4285B DEVICE POSITION (cheek or rotated): Cheek
Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8
Medium: Low Freq Head; Medium parameters used: $\sigma = 0.92$mho/m, $\varepsilon_r = 42.5$; $\rho = 1000$ kg/m^3

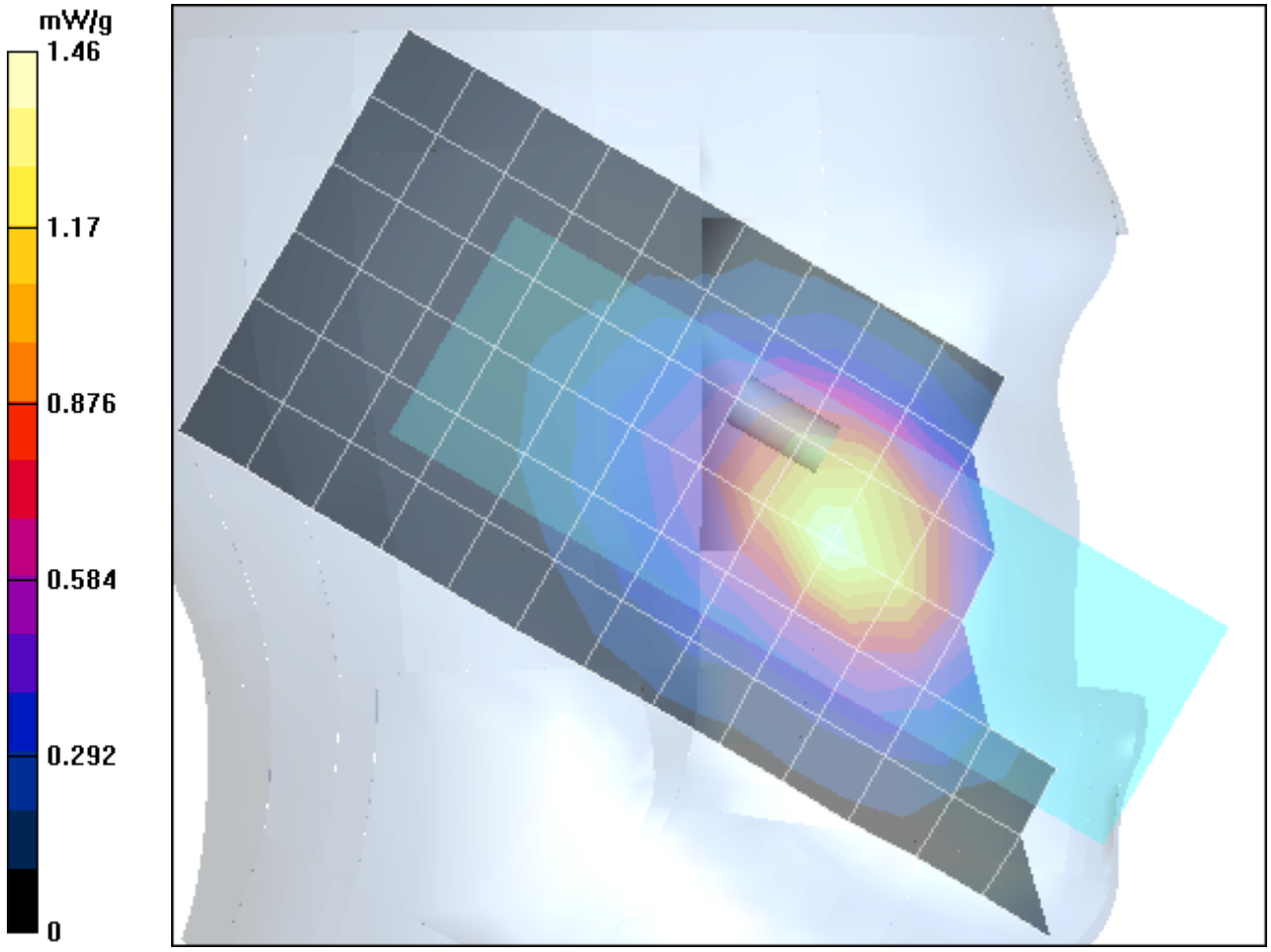
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(5.99, 5.99, 5.99); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sugar Water SAM; Type: SAM; Serial: TP-1132;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Left Head Template/Area Scan - Normal (15mm) (7x14x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 1.46 mW/g

Left Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 37.5 V/m; **Power Drift = -0.005 dB** Peak SAR (extrapolated) = 2.08 W/kg
SAR(1 g) = 1.4 mW/g; SAR(10 g) = 0.898 mW/g Maximum value of SAR (measured) = 1.51 mW/g



Test Laboratory: Motorola LH Cheek 1900 ch512

Serial: G00E0300X4

Procedure Notes: Ch# 512 / Pwr Step: 0 Antenna Position: Fixed Accessory Model #: N/A
Battery Model #: AANN4258B DEVICE POSITION (cheek or rotated): Cheek
Simulate Temp when Measured: 19.2C Simulate Temp after Test: 19.1C
Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8
Medium: Back-Up Glycol Head; Medium parameters used: σ = 1.45mho/m, ε_r = 38.6; ρ = 1000 kg/m^3

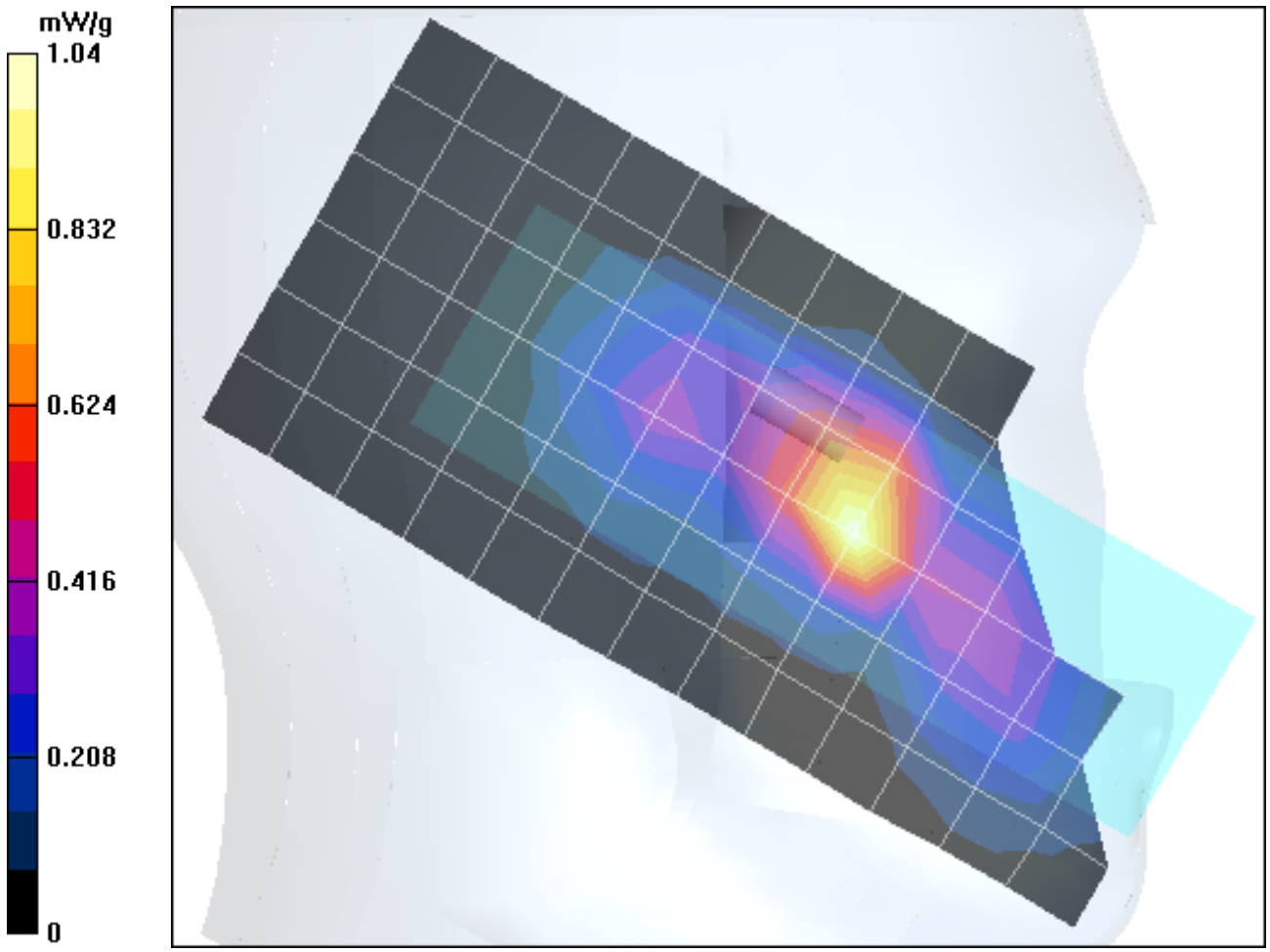
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(4.95, 4.95, 4.95); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Glycol SAM; Type: SAM; Serial: TP-1160;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Left Head Template/Area Scan - Normal (15mm) (7x14x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 1.04 mW/g

Left Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.5 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 2.32 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.529 mW/g Maximum value of SAR (measured) = 1.37 mW/g



Test Laboratory: Motorola RH Tilt 850 ch190

Serial: G00E0300X4
Procedure Notes: Ch# 190 Pwr Step: 5 ota Antenna Position: FIXED Accessory Model #: none
Battery Model #: aann4258b (engineering) DEVICE POSITION: ROTATED
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8
Medium: Low Freq Head; Medium parameters used: $\sigma = 0.93$mho/m, $\varepsilon_r = 42.8$; $\rho = 1000$ kg/m^3

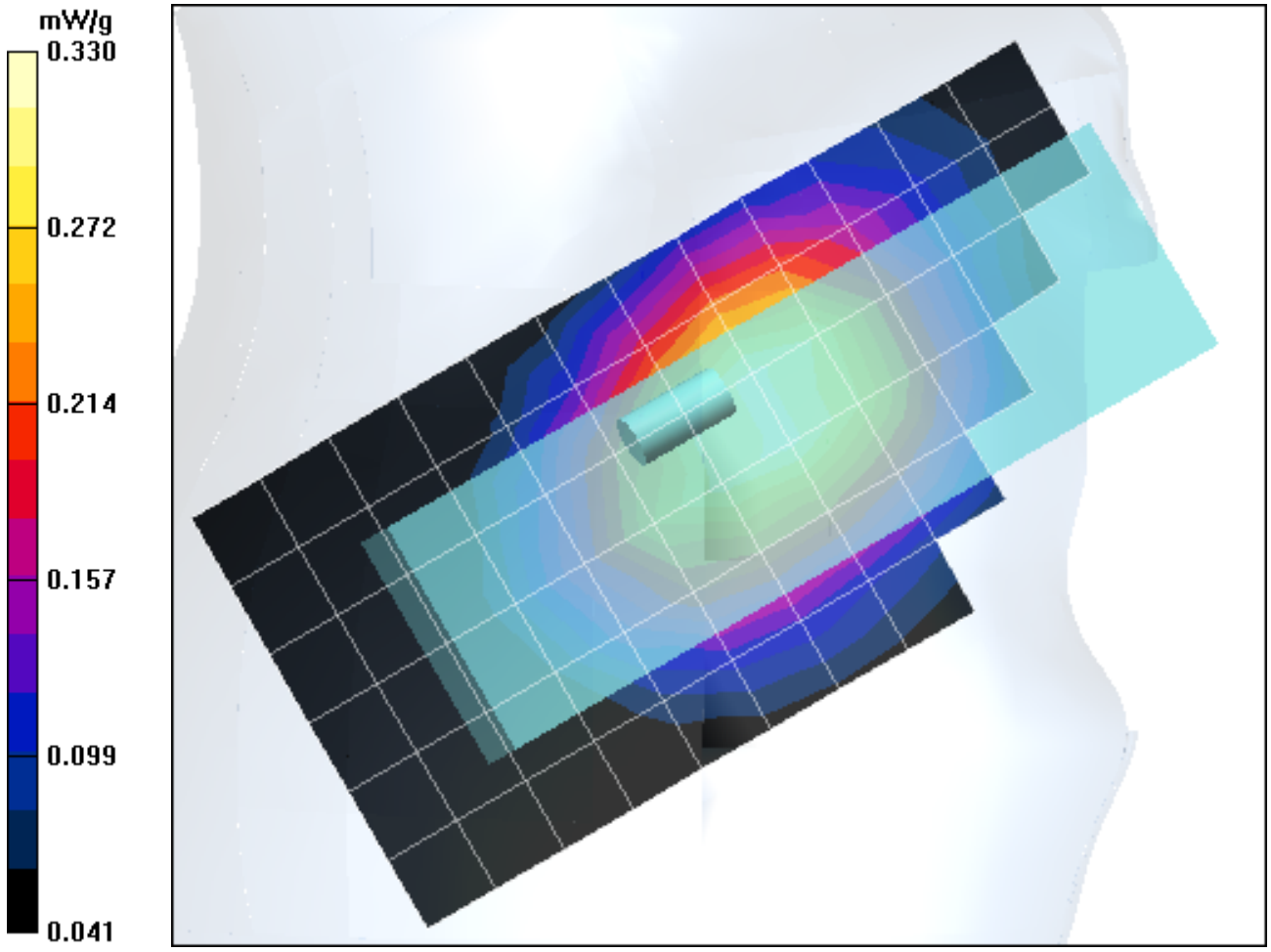
DASY4 Configuration:

- Probe: ET3DV6R - SN1513; ConvF(5.99, 5.99, 5.99); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sugar Water SAM; Type: SAM; Serial: TP-1132;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Right Head Template/Area Scan - Normal (15mm) (7x14x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.317 mW/g

Right Head Template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.4 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 0.394 W/kg
SAR(1 g) = 0.315 mW/g; SAR(10 g) = 0.236 mW/g Maximum value of SAR (measured) = 0.330 mW/g



Appendix 3

SAR distribution plots for Body Worn Configuration

Test Laboratory: Motorola BW 1900 back ch190

Serial: G00E0300X4
Procedure Notes: Pwr Step: 0 Battery Model #: AANN4258B 15mm from back
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8
Medium: Regular Glycol Body; Medium parameters used: σ = 1.59mho/m, ε_r = 52.3; ρ = 1000 kg/m^3

DASY4 Configuration:

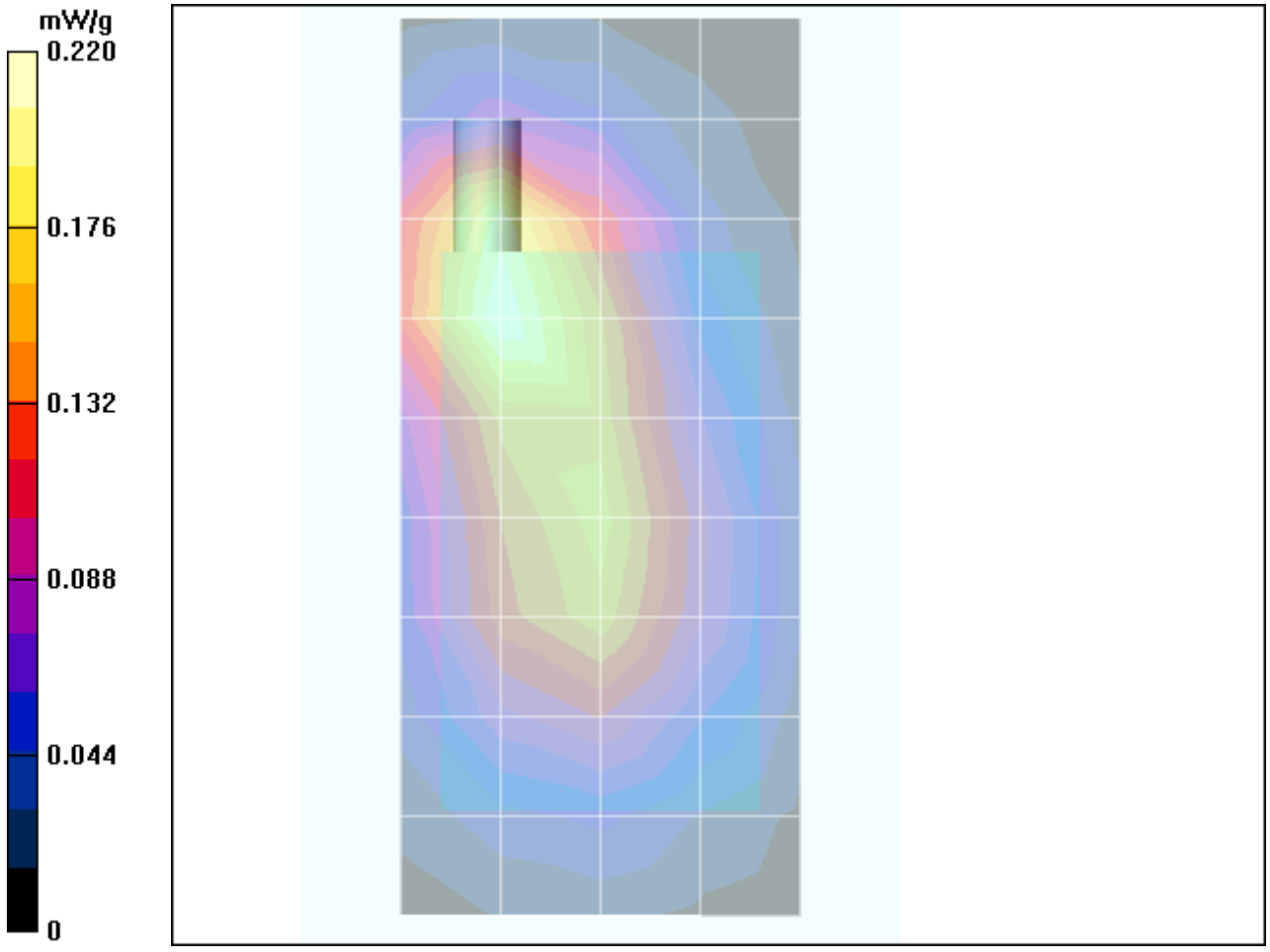
- Probe: ET3DV6R - SN1513; ConvF(4.41, 4.41, 4.41); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.2, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (12x7x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.220 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.1 V/m; **Power Drift = -0.0 dB**
Peak SAR (extrapolated) = 0.339 W/kg **SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.127 mW/g**
Maximum value of SAR (measured) = 0.233 mW/g



Test Laboratory: Motorola BW EDGE 1900 back ch190

Serial: G00E0300X4
Procedure Notes: Ch# 661 / Pwr Step: 2 (OTA) Antenna Position: FIXED Battery Model #: AANN4258B
Accessory Model # = N/A Flat Phantom #: 39 BACK of Phone 25mm from Flat Phantom EDGE Class 6
Communication System: EDGE 1900 - Class 6; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: Regular Glycol Body; Medium parameters used: σ = 1.59mho/m, ε_r = 52.3; ρ = 1000 kg/m^3

DASY4 Configuration:

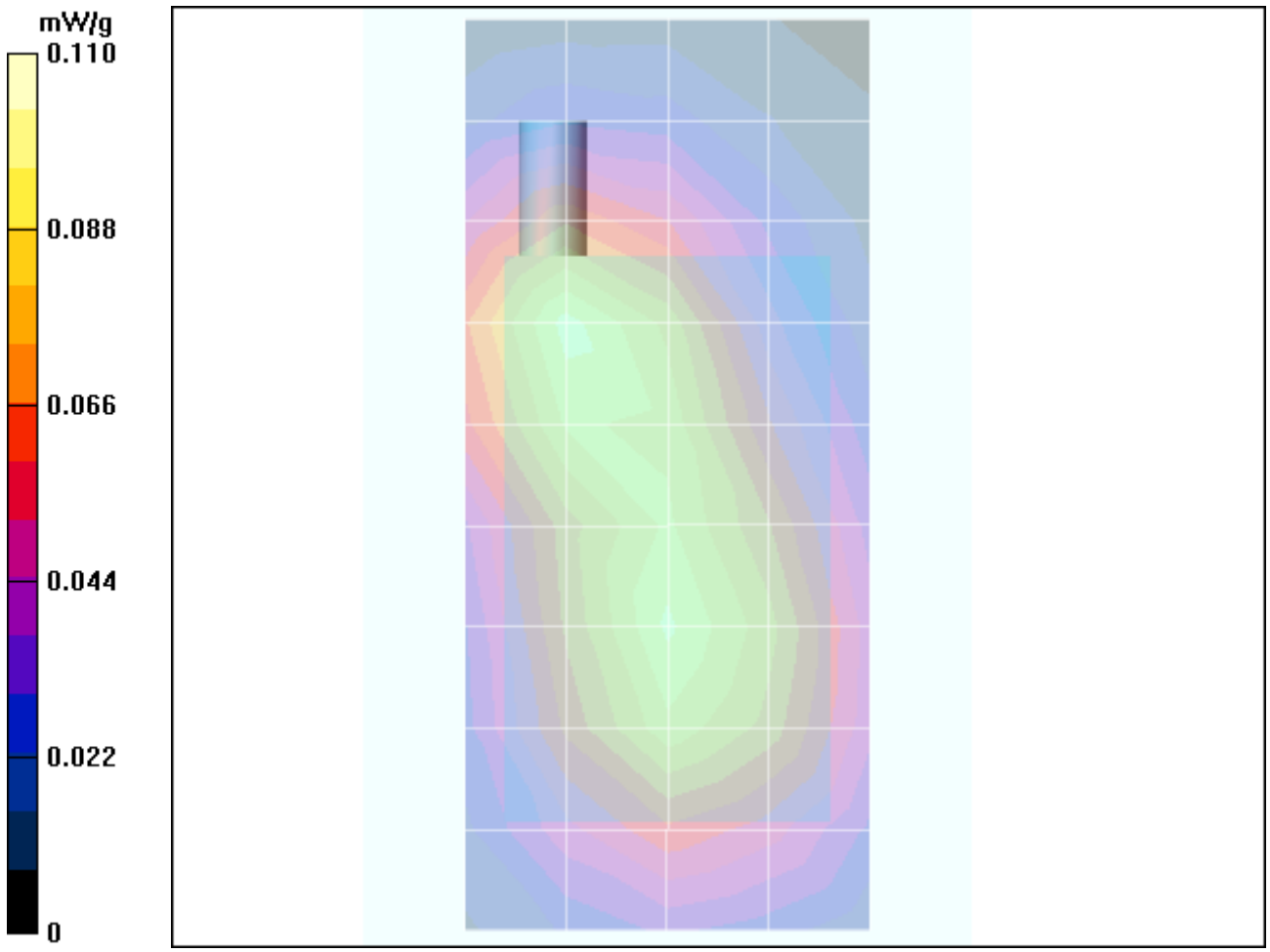
- Probe: ET3DV6R - SN1513; ConvF(4.41, 4.41, 4.41); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.2, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (12x7x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.099 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.34 V/m; **Power Drift = -0.2 dB** Peak SAR (extrapolated) = 0.145 W/kg
SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.059 mW/g Maximum value of SAR (measured) = 0.101 mW/g



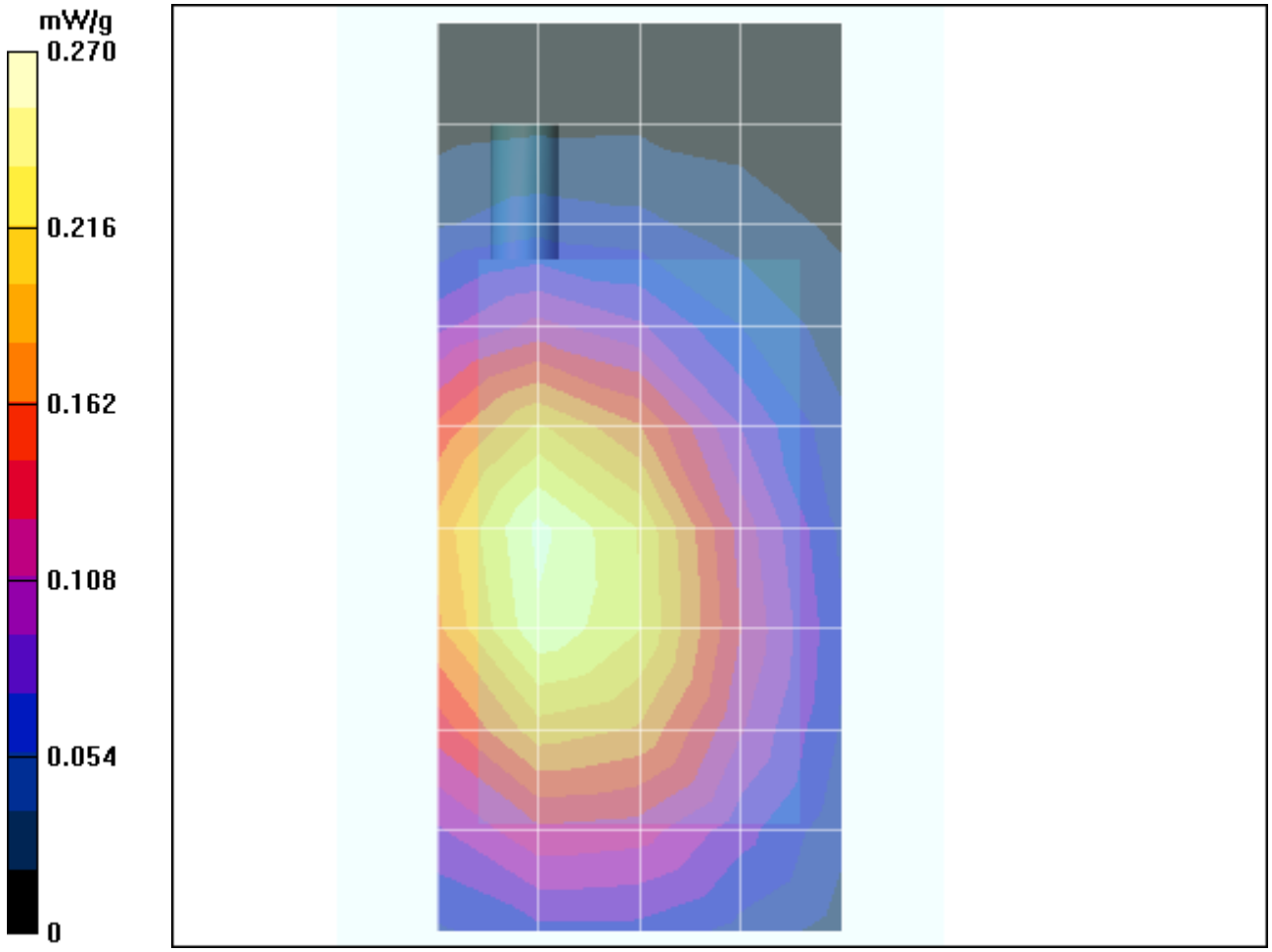
Test Laboratory: Motorola BW GPRS 850 back ch190

Serial: G00E0300X4
Procedure Notes: Pwr Step:5/5 Battery Model #: AANN4258B 25mm from back gprs
Communication System: GPRS 850 - Class 10; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: Low Freq Body; Medium parameters used: σ = 0.98mho/m, ε_r = 55; ρ = 1000 kg/m^3

DASY4 Configuration:
- Probe: ET3DV6R - SN1513; ConvF(5.85, 5.85, 5.85); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.1, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (12x7x1):
Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.257 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.7 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.176 mW/g Maximum value of SAR (measured) = 0.258 mW/g



Date/Time: 01/10/05 23:51:29

Test Laboratory: Motorola **BW 850 front ch190**

Serial: G00E0300X4
Procedure Notes: Pwr Step:5 Battery Model #: AANN4258B 15mm from front
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8
Medium: Low Freq Body; Medium parameters used: σ = 0.98mho/m, ε_r = 55; ρ = 1000 kg/m^3

DASY4 Configuration:

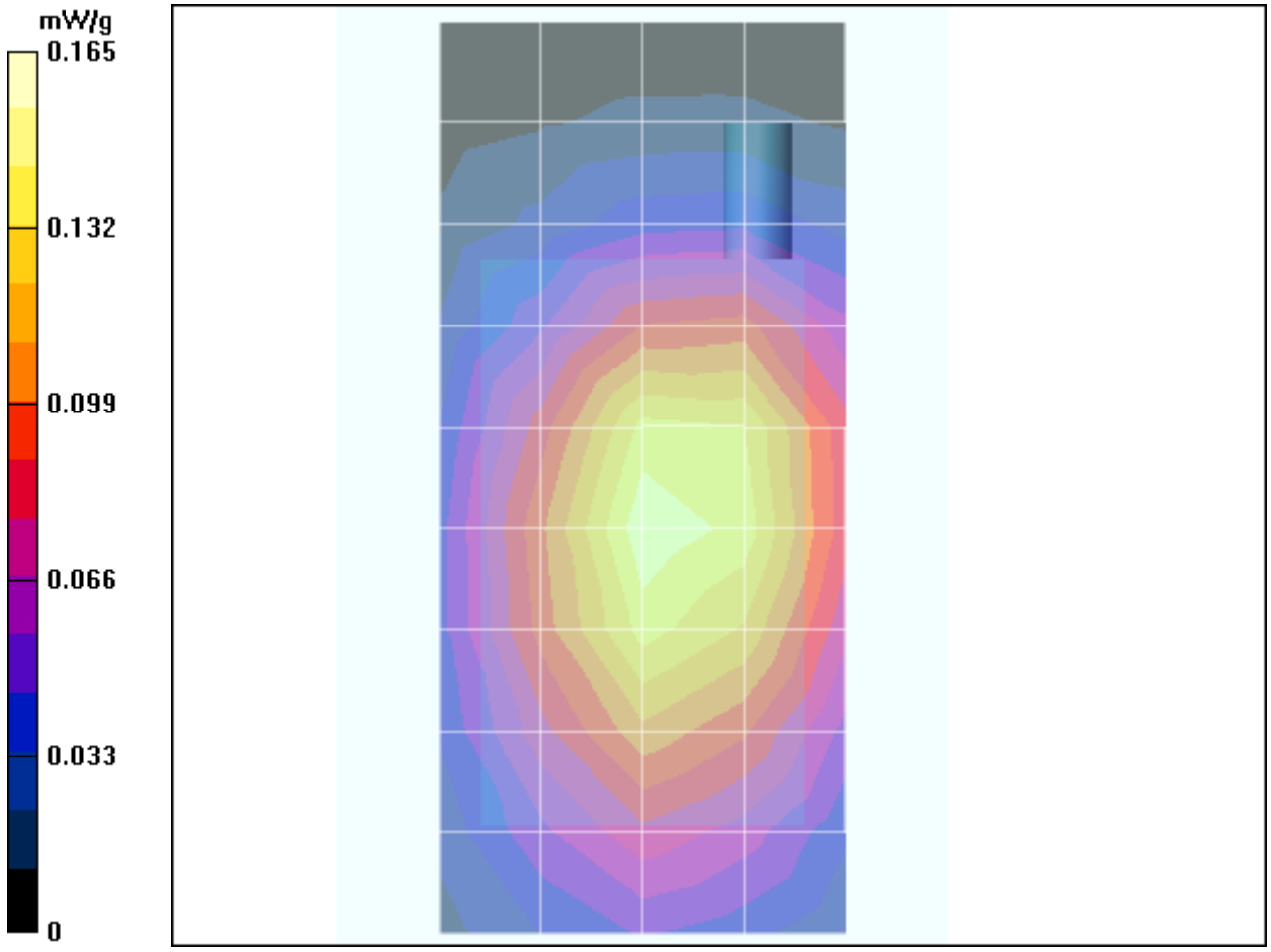
- Probe: ET3DV6R - SN1513; ConvF(5.85, 5.85, 5.85); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.1, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (12x7x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.152 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.6 V/m; **Power Drift = 0.0007 dB** Peak SAR (extrapolated) = 0.196 W/kg
SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.107 mW/g Maximum value of SAR (measured) = 0.158 mW/g



Date/Time: 01/11/05 09:55:29

Test Laboratory: Motorola BW EDGE 850 back ch190

Serial: G00E0300X4
Procedure Notes: Ch# 190 / Pwr Step: 8 (OTA) Antenna Position: FIXED Battery Model #: AANN4258B
Accessory Model # = N/A Flat Phantom #: 26 BACK of Phone 25mm from Flat Phantom EDGE Class 6
Communication System: EDGE 850 - Class 6; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: Low Freq Body; Medium parameters used: $\sigma = 0.99$mho/m, $\varepsilon_r = 55$; $\rho = 1000$ kg/m^3

DASY4 Configuration:

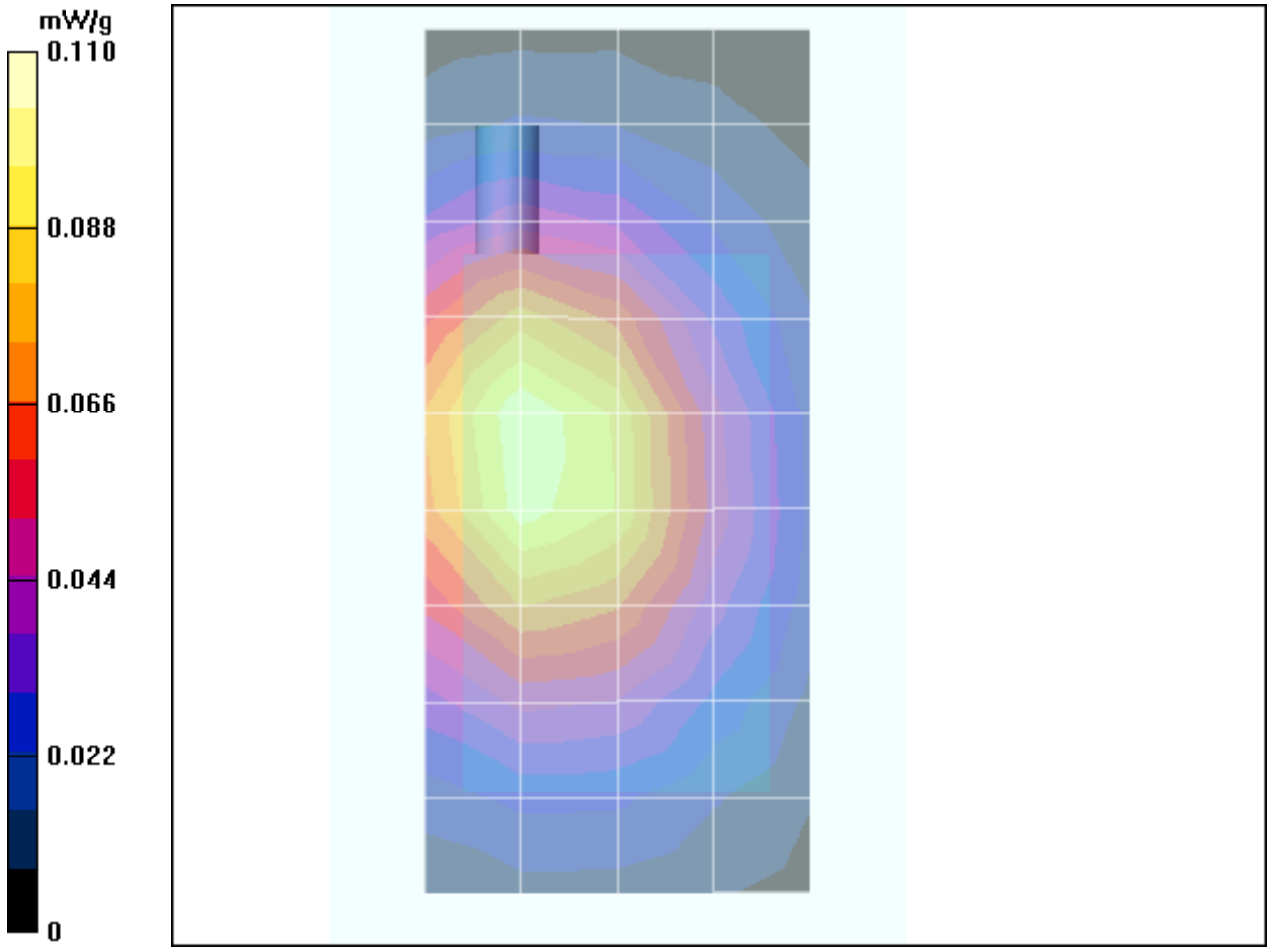
- Probe: ET3DV6R - SN1513; ConvF(5.85, 5.85, 5.85); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.1, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (12x7x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.102 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.4 V/m; **Power Drift = -0.0 dB** Peak SAR (extrapolated) = 0.132 W/kg
SAR(1 g) = 0.099 mW/g; SAR(10 g) = 0.071 mW/g Maximum value of SAR (measured) = 0.105 mW/g



Test Laboratory: Motorola **BW 850 back ch190**

Serial: G00E0300X4
Procedure Notes: Pwr Step:5 Battery Model #: AANN4258B 15mm from back
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8
Medium: Low Freq Body; Medium parameters used: σ = 0.98mho/m, ε_r = 55; ρ = 1000 kg/m^3

DASY4 Configuration:

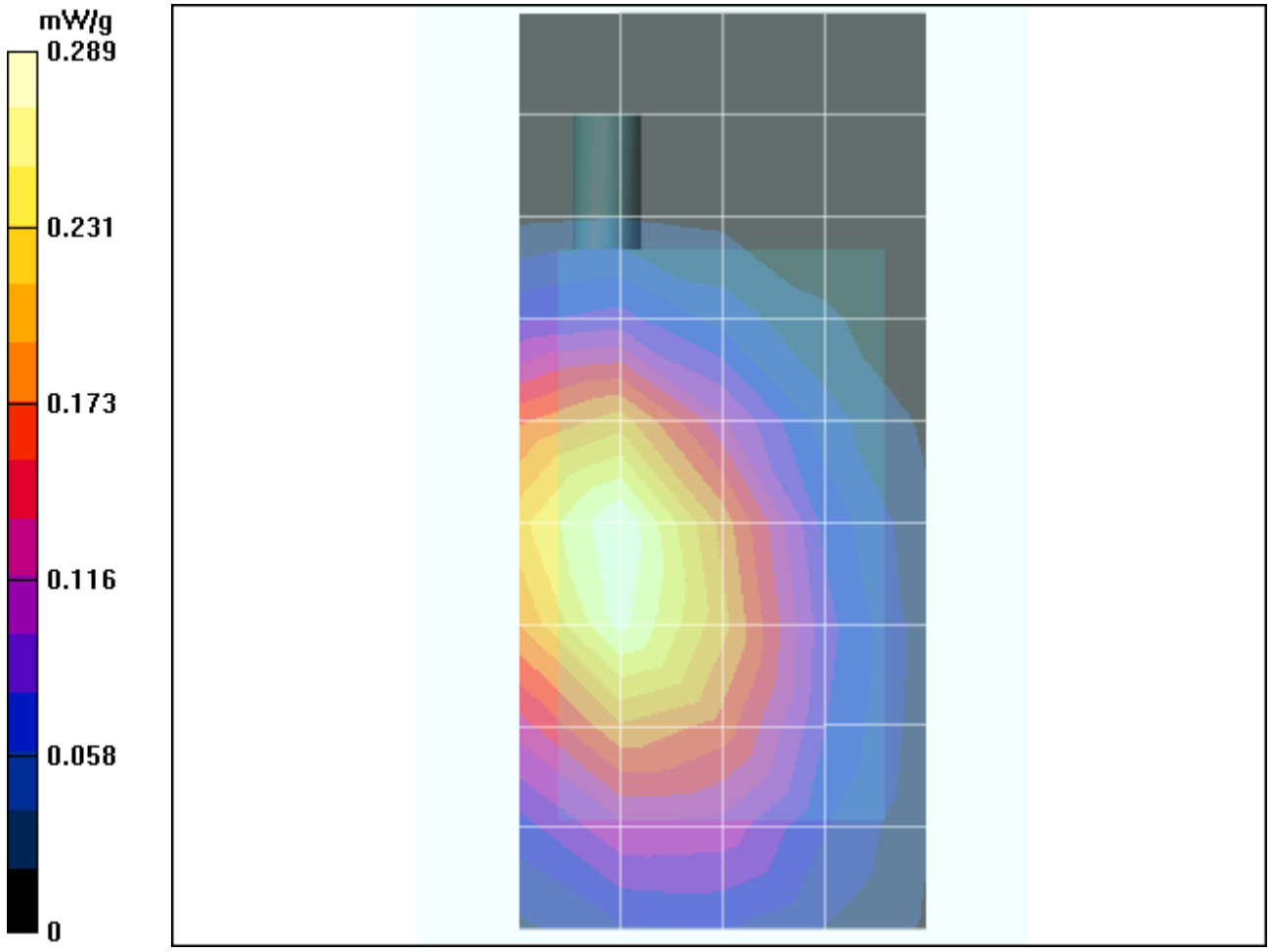
- Probe: ET3DV6R - SN1513; ConvF(5.85, 5.85, 5.85); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.1, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (12x7x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.289 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.3 V/m; **Power Drift = -0.0 dB** Peak SAR (extrapolated) = 0.387 W/kg
SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.190 mW/g Maximum value of SAR (measured) = 0.297 mW/g



Test Laboratory: Motorola BW 850 back ch190 with AANN4285B

Serial: G00E0300X4
Procedure Notes: Ch# 190 / Pwr Step: 5 Antenna Position: FIXED Battery Model #: AANN4285B
Accessory Model # = N/A Flat Phantom #: 26 Back of Phone 15mm From Flat Phantom
Simulate Temp when Measured: 20.6C Simulate Temp after Test: 19.5C
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8
Medium: Low Freq Body; Medium parameters used: $\sigma = 0.99$mho/m, $\varepsilon_r = 55$; $\rho = 1000$ kg/m^3

DASY4 Configuration:

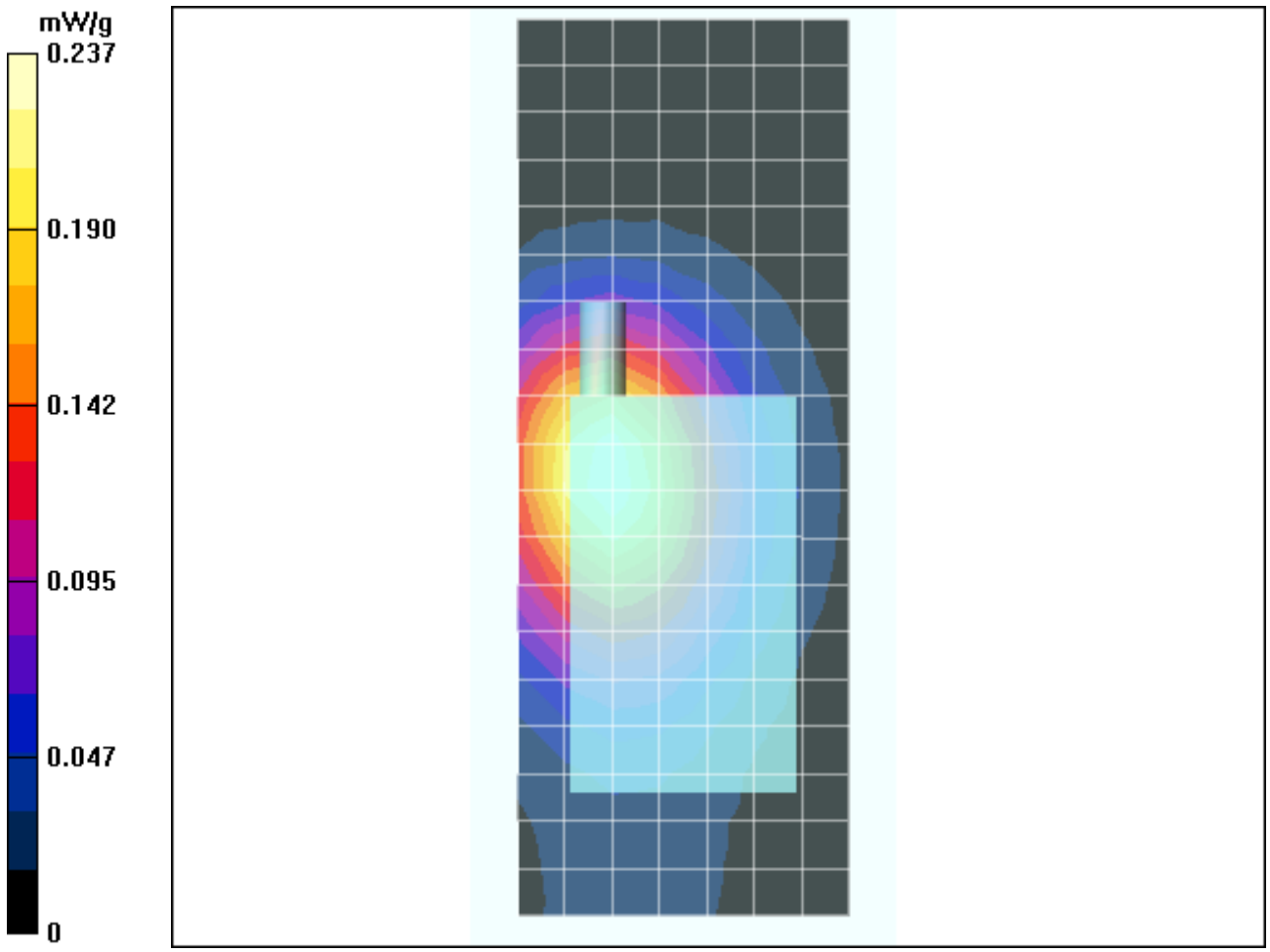
- Probe: ET3DV6R - SN1513; ConvF(5.85, 5.85, 5.85); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.1, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Extended Body (10mm) (22x10x1):

Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.237 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.8 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 0.299 W/kg
SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.152 mW/g Maximum value of SAR (measured) = 0.235 mW/g



Test Laboratory: Motorola BW 1900 front ch190

Serial: G00E0300X4
Procedure Notes: Pwr Step: 0 Battery Model #: AANN4258B 15mm from front
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8
Medium: Regular Glycol Body; Medium parameters used: σ = 1.59mho/m, ε_r = 52.3; ρ = 1000 kg/m^3

DASY4 Configuration:

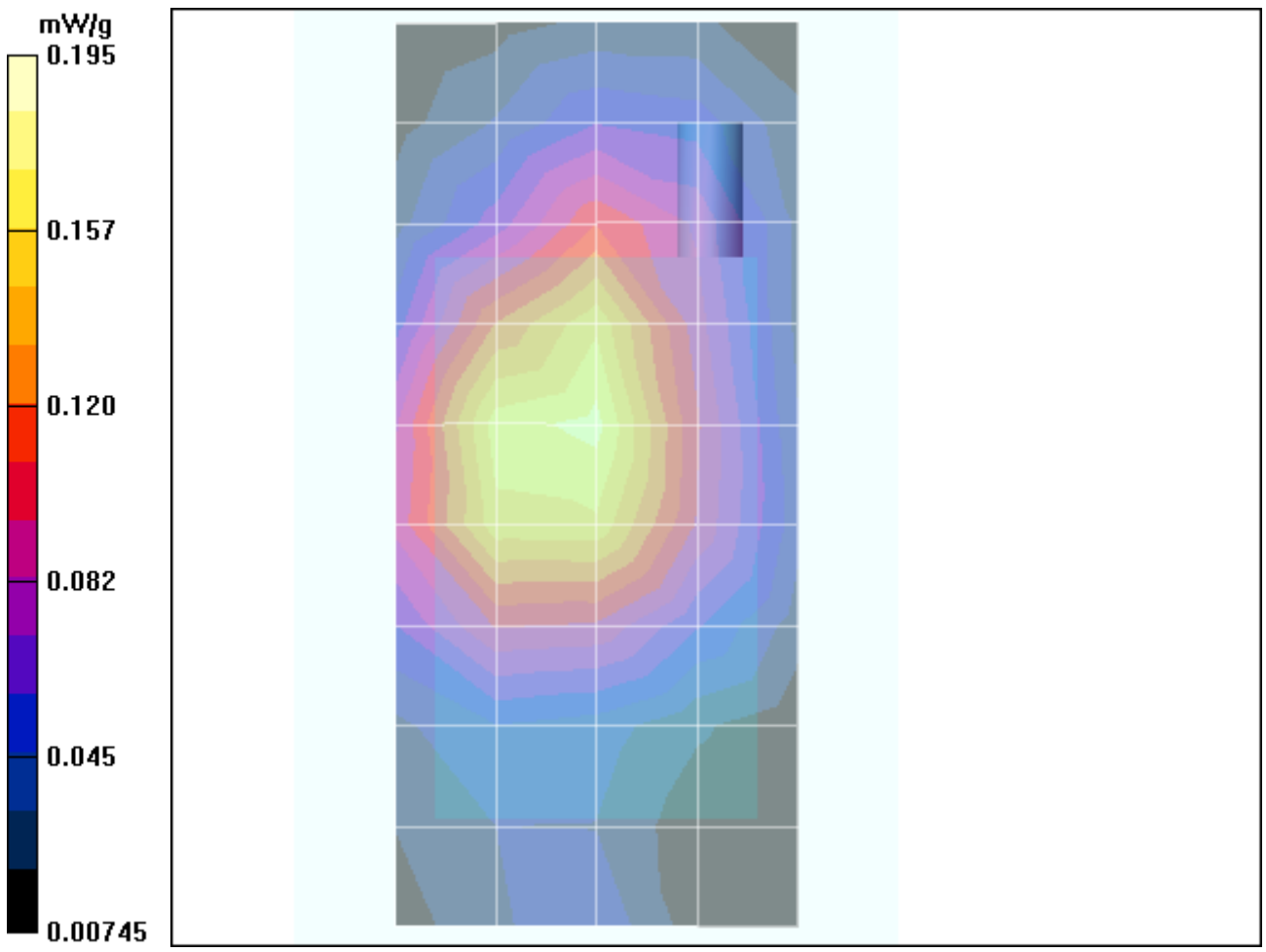
- Probe: ET3DV6R - SN1513; ConvF(4.41, 4.41, 4.41); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.2, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (12x7x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.175 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.1 V/m; **Power Drift = 0.0 dB** Peak SAR (extrapolated) = 0.243 W/kg
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.115 mW/g Maximum value of SAR (measured) = 0.186 mW/g



Test Laboratory: Motorola BW 1900 front ch190 with AANN4285B

Serial: G00E0300X4
Procedure Notes: Ch# 661 / Pwr Step: 0 Antenna Position: FIXED Battery Model #: AANN4285B
Accessory Model # = N/A Flat Phantom #: 39 Front of Phone 15mm From Flat Phantom
Simulate Temp when Measured: 18.8C Simulate Temp after Test: 19.1C
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8
Medium: Regular Glycol Body; Medium parameters used: σ = 1.59mho/m, ε_r = 52.3; ρ = 1000 kg/m^3

DASY4 Configuration:

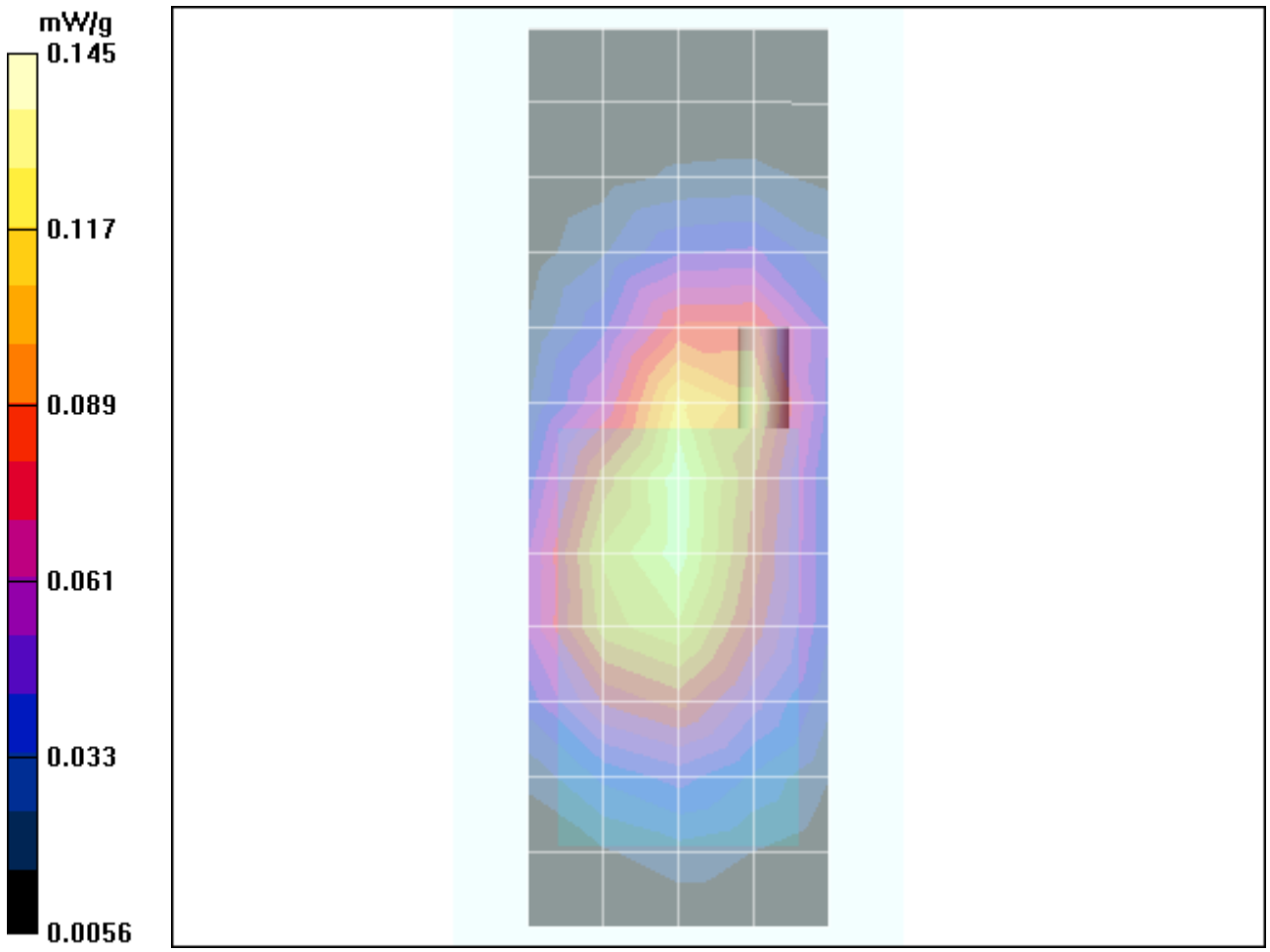
- Probe: ET3DV6R - SN1513; ConvF(4.41, 4.41, 4.41); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.2, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Extended Body (15mm) (15x7x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.133 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 9.85 V/m;
Power Drift = -0.0 dB Peak SAR (extrapolated) = 0.178 W/kg
SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.083 mW/g



Test Laboratory: Motorola BW GPRS 1900 back ch190

DSerial: G00E0300X4
Procedure Notes: Pwr Step: 0 0 Battery Model #: AANN4258B 25MM FROM BACK GPRS
Communication System: GPRS 1900 - Class 10; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: Regular Glycol Body; Medium parameters used: σ = 1.59mho/m, ε_r = 52.3; ρ = 1000 kg/m^3

DASY4 Configuration:

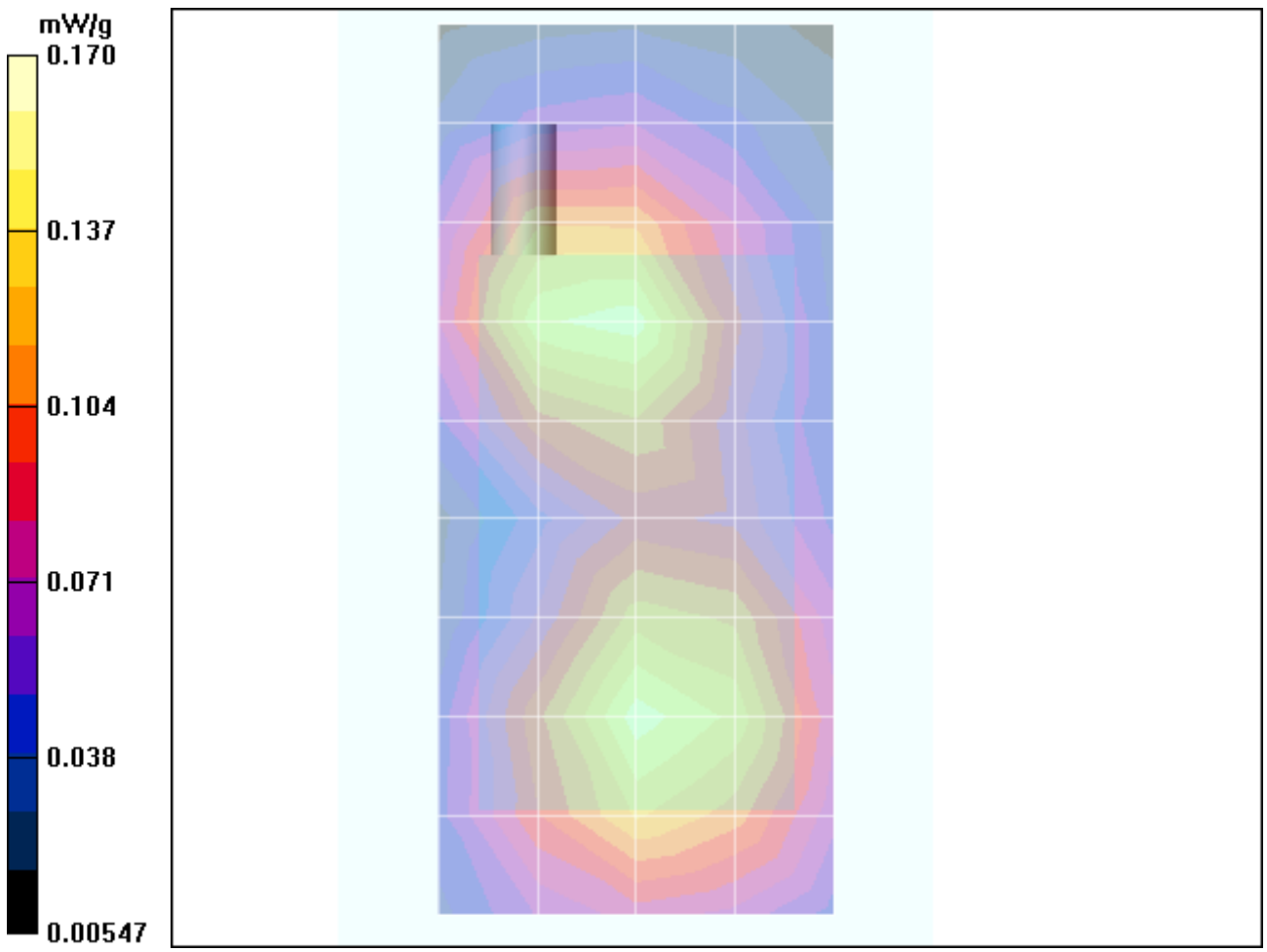
- Probe: ET3DV6R - SN1513; ConvF(4.41, 4.41, 4.41); Calibrated: 9/24/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn378; Calibrated: 10/8/2004
- Phantom: R5: Sect.2, Amy Twin; Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (12x7x1):

Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.155 mW/g

Amy Twin Phone Template/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.2 V/m; **Power Drift = -0.1 dB** Peak SAR (extrapolated) = 0.229 W/kg
SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.094 mW/g Maximum value of SAR (measured) = 0.162 mW/g



Appendix 4

Probe Calibration Certificate

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client Motorola PCS

Certificate No: ET3-1513_Sep04

CALIBRATION CERTIFICATE

Object	ET3DV6R - SN:1513
Calibration procedure(s)	QA CAL-01.v5 Calibration procedure for dosimetric E-field probes
Calibration date:	September 24, 2004
Condition of the calibrated item	In Tolerance

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: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter 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 3 dB Attenuator	SN: S5054 (3c)	3-Apr-03 (METAS, No. 251-00403)	Aug-05
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-04 (METAS, No. 251-00389)	May-05
Reference 30 dB Attenuator	SN: S5129 (30b)	3-Apr-03 (METAS, No. 251-00404)	Aug-05
Reference Probe ES3DV2	SN:3013	8-Jan-04 (SPEAG, No. ES3-3013_Jan04)	Jan-05
DAE4	SN: 617	26-May-04 (SPEAG, No. DAE4-617_May04)	May-05

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct-03)	In house check: Oct 05
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-03)	In house check: Nov 04

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

Issued: September 24, 2004

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY 4.3 B17 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe ET3DV6R

SN:1513

Manufactured:	May 3, 2002
Last calibrated:	October 9, 2003
Recalibrated:	September 24, 2004

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ET3DV6R SN:1513

Sensitivity in Free Space[A]

NormX	**2.28** ± 9.9%	$\mu V/(V/m)^2$	DCP X	**94** mV
NormY	**1.79** ± 9.9%	$\mu V/(V/m)^2$	DCP Y	**94** mV
NormZ	**2.06** ± 9.9%	$\mu V/(V/m)^2$	DCP Z	**94** mV

Diode Compression[B]

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **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	10.3	5.3
SAR_{be} [%]	With Correction Algorithm	0.1	0.2

TSL **1810 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	14.0	9.2
SAR_{be} [%]	With Correction Algorithm	1.1	0.0

Sensor Offset

Probe Tip to Sensor Center **2.7** mm

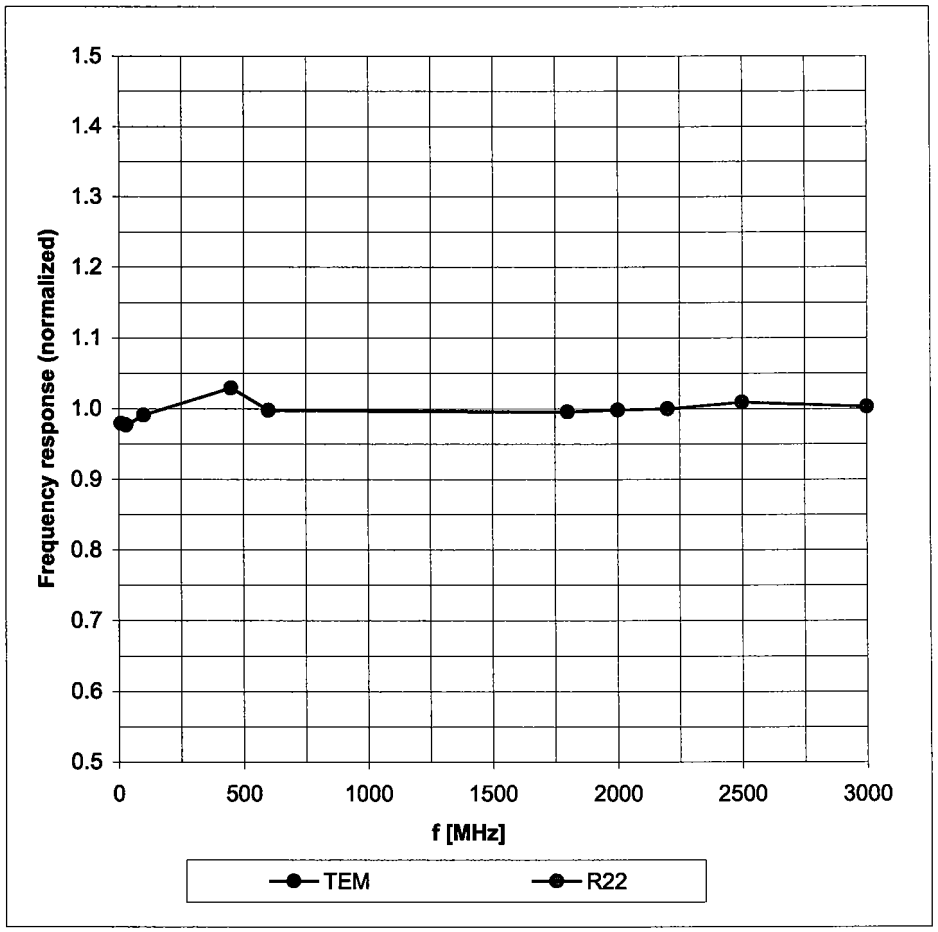
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

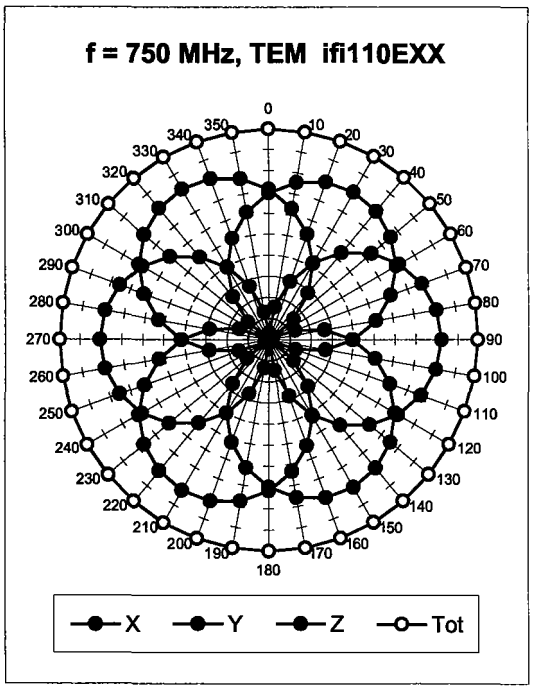
Frequency Response of E-Field

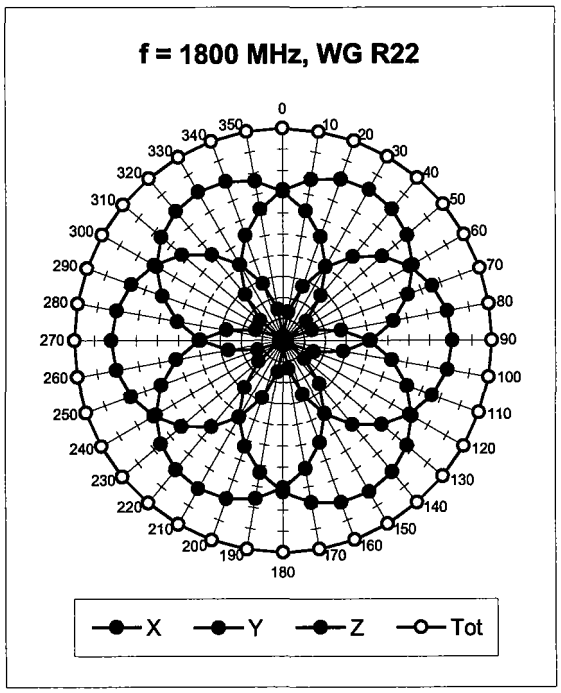
(TEM-Cell:ifi110 EXX, Waveguide: R22)

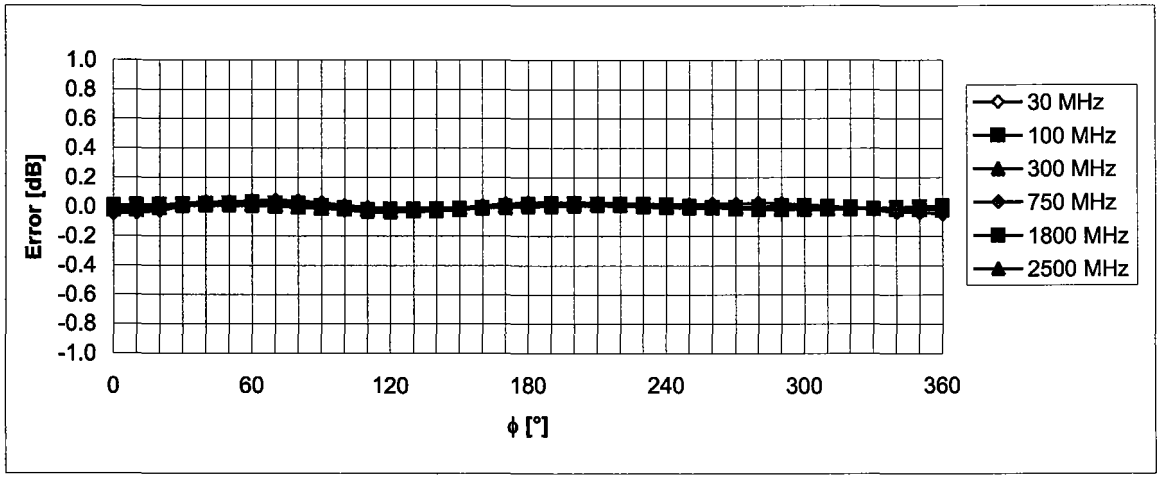


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



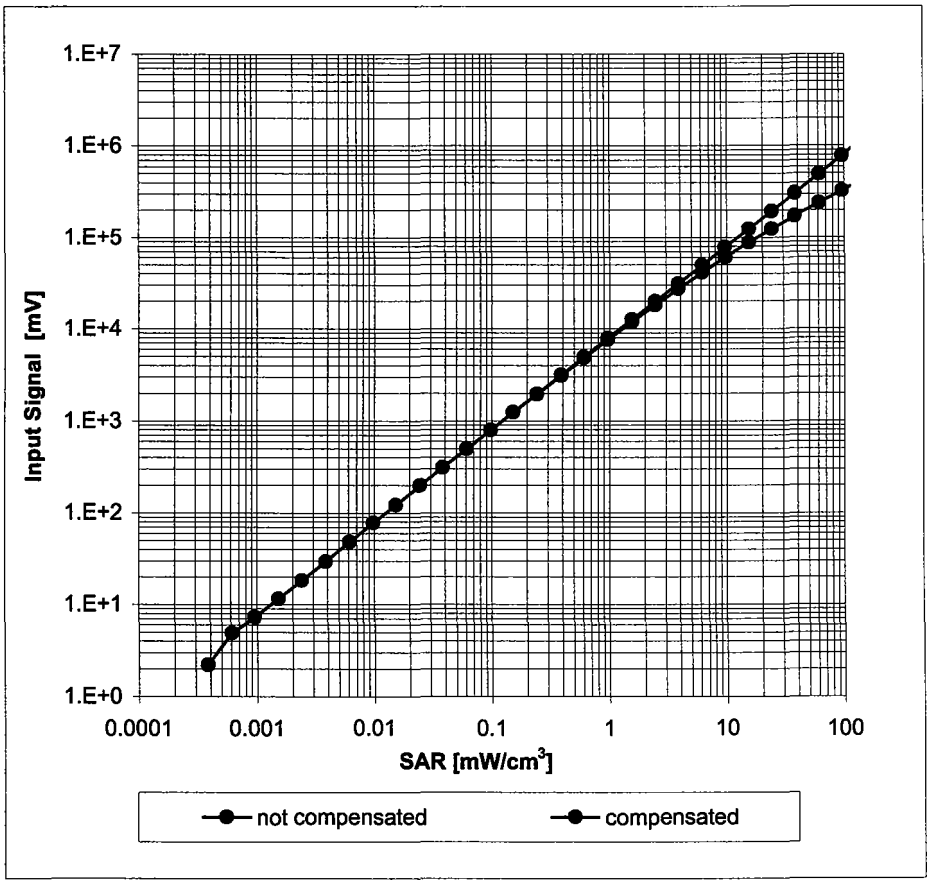


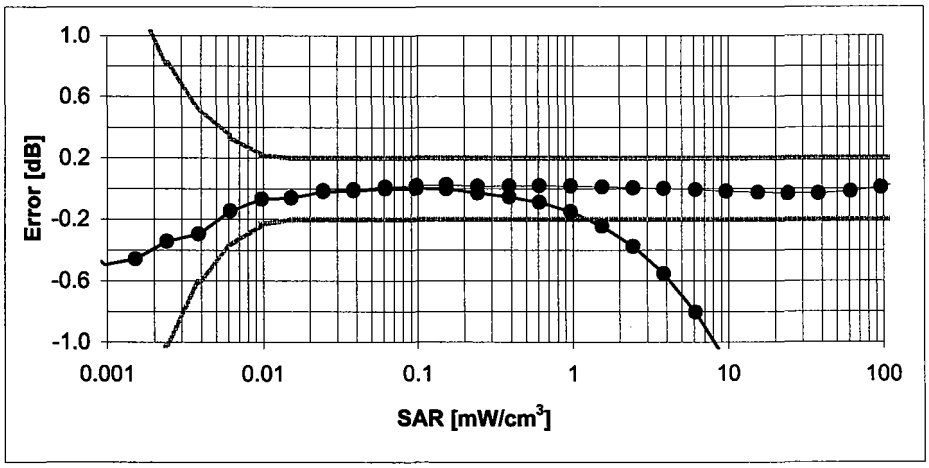


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

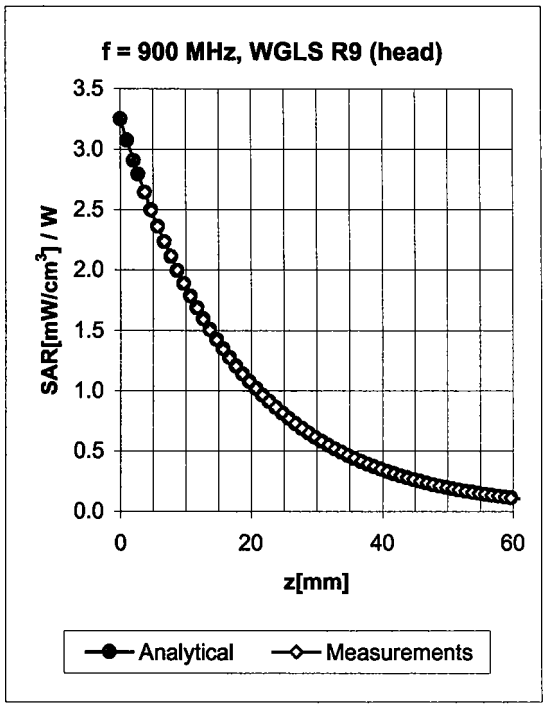
(Waveguide R22, f = 1800 MHz)

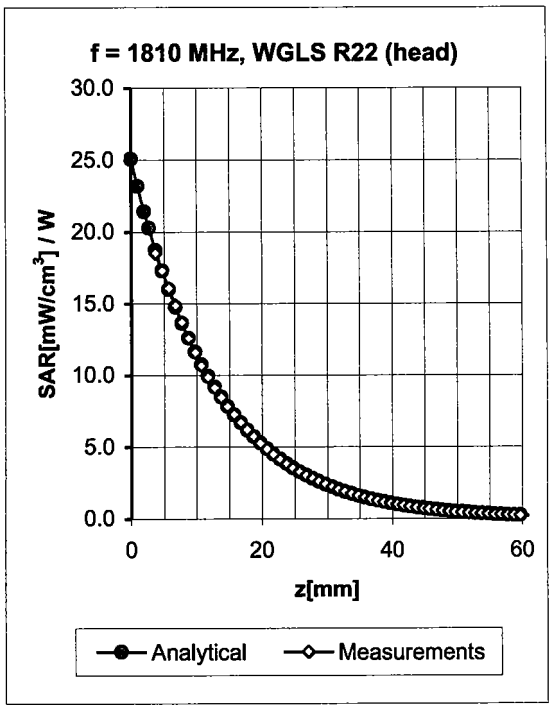




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



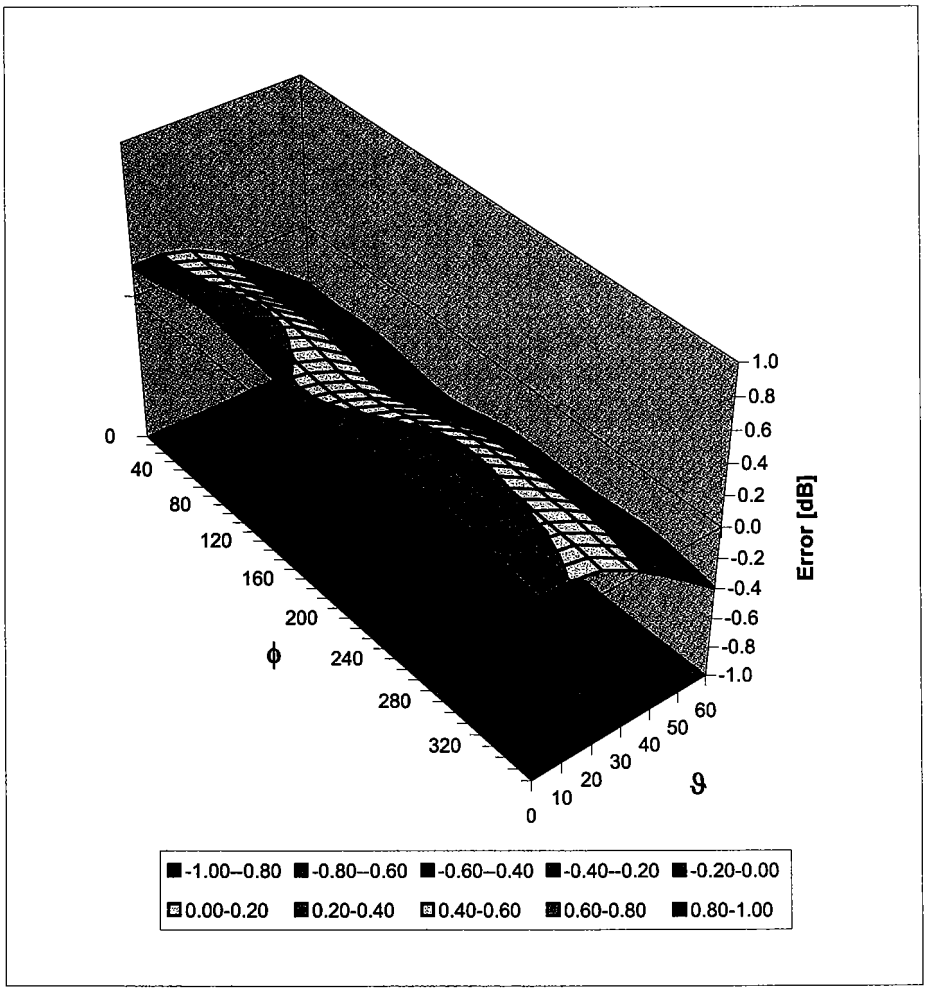


f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.75	1.76	5.99 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.71	2.20	4.95 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.68	2.35	4.62 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.80	2.08	4.26 ± 11.8% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.51	2.01	5.85 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.67	2.56	4.41 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.73	2.24	4.29 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.93	1.78	4.14 ± 11.8% (k=2)

[C] The validity of ± 100 MHz only applies for DASY 4.3 B17 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Appendix 5

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 6

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 7

Photographs of the device under test

Figure 1. Front of Phone

Figure 2. Back of Phone

Figure 3. Phone Open

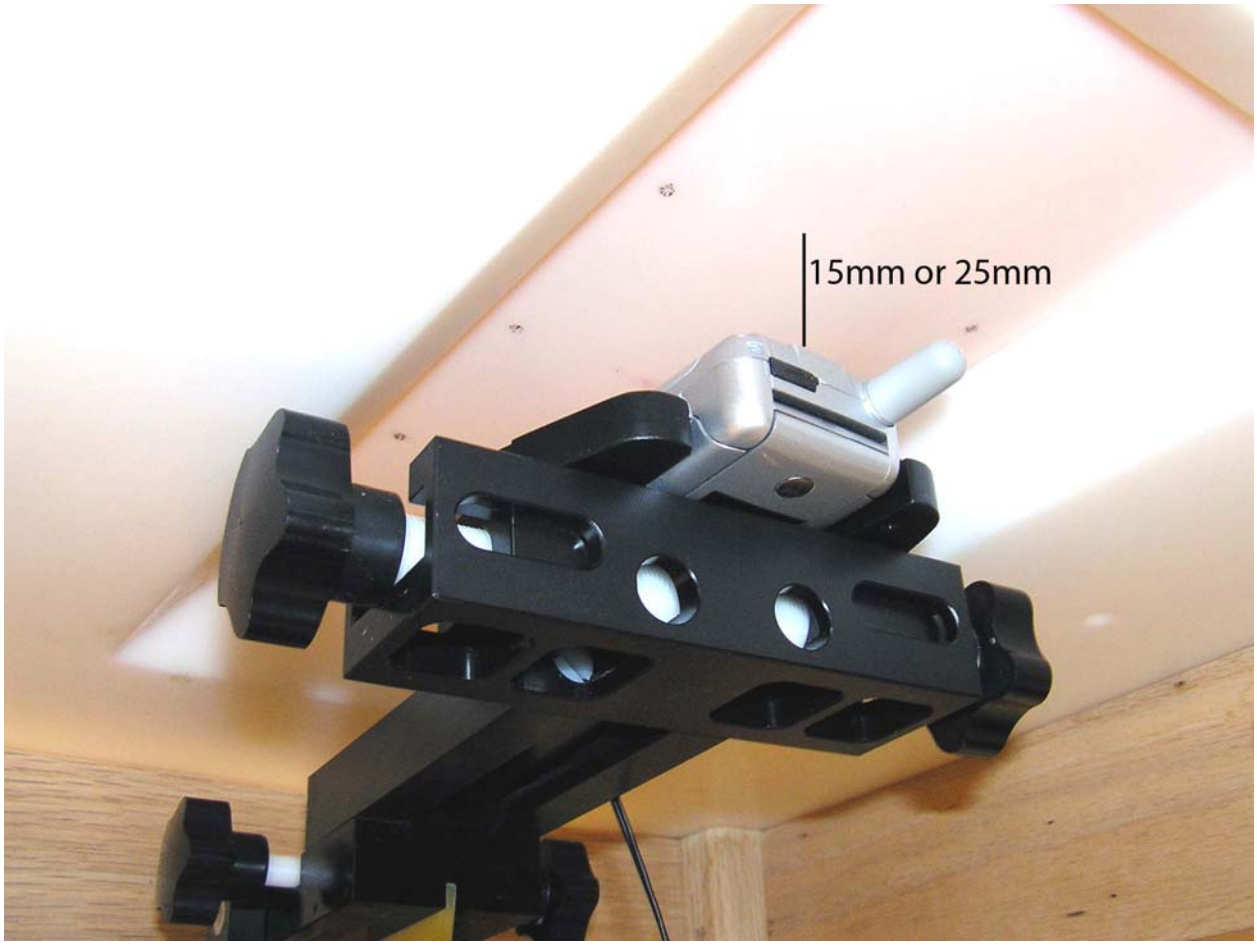


Figure 4. Phone Against the Flat Phantom

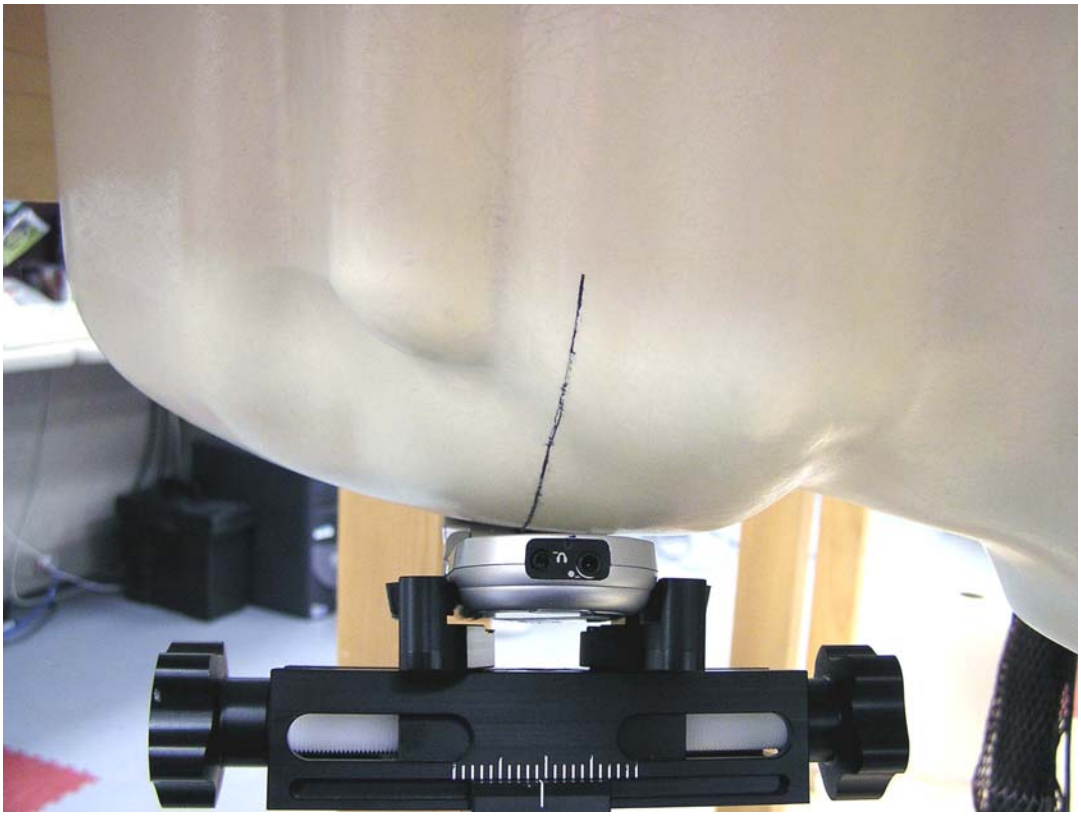


Figure 5. Phone Against the Head Phantom (Front View - Cheek Touch)

Figure 6. Phone Against the Head Phantom (Back View – Cheek Touch)

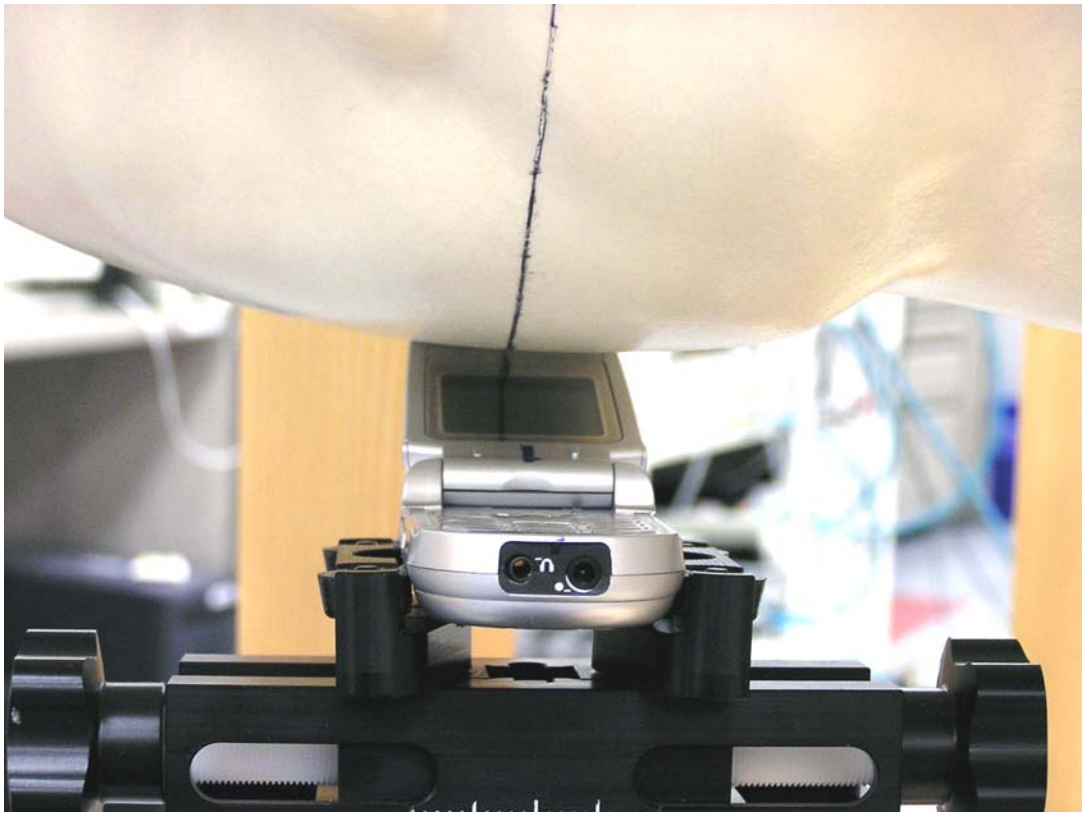


Figure 7. Phone Against the Head Phantom (Front View – 15°Tilt)

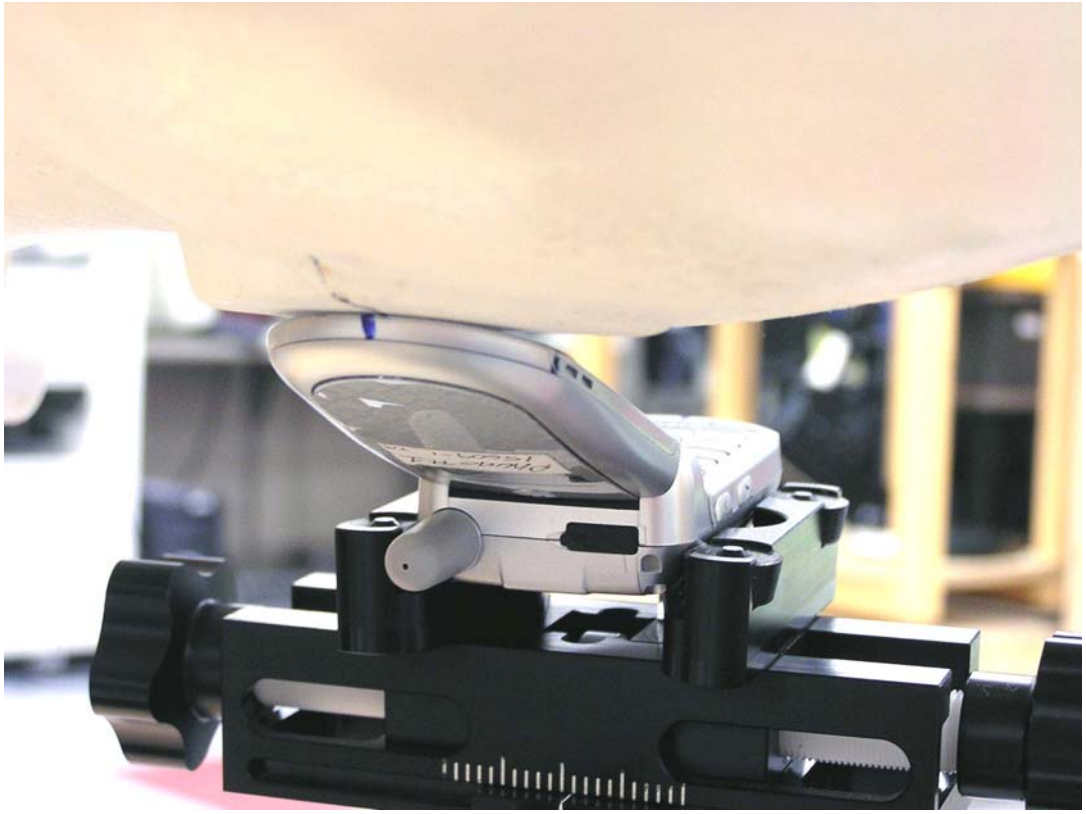


Figure 8. Phone Against the Head Phantom (Back View – 15°Tilt)