Exhibit 11: SAR Test Report IHDT56CU1

Date of test: December 12-29, 2002

Date of Report: Jan 17, 2003

Laboratory: Motorola Personal Communications Sector Product Safety & Compliance Laboratory
2001 N. Division
Room: AS228
Harvard, Illinois 60033

Test Responsible: Steven Hauswirth
Principal Staff Engineer

Accreditation: This laboratory is accredited to ISO/IEC 17025-1999 to perform the following electromagnetic exposure tests:
System Validation & Interlaboratory Comparison
Simulated Tissue Specifications and Procedure
EME Cellular Phone Testing Procedure

On the following 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 IHDT56CU1 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)

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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References:

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 IHDT56CU1). 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

Antenna description

Type	Internal Antenna	
Location	Back of Phone	
Dimensions	Length	20mm
	Width	35mm

Device description

FCC ID Number	**IHDT56CU1**	
Serial number	J0223F & J0228C	
Mode(s) of Operation	GSM 850	GSM 1900
Modulation Mode(s)	GSM	GSM
Maximum Output Power Setting	30.00 dBm	30.00 dBm
Duty Cycle	1:8	1:8
Transmitting Frequency Rang(s)	824.20 - 848.80 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 (Dasy3™ v3.1d) manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The overall RSS uncertainty of the measurement system is ±11.7% (K=1) with an expanded uncertainty of ±23.0% (K=2). The measurement uncertainty budget is given in Appendix 6. Per IEEE 1528, this uncertainty budget is applicable to the SAR range of 0.4 W/kg to 10 W/kg. The list of calibrated equipment used for the measurements is shown below.

Description	Serial Number	Cal Due Date
DASY3 DAE3 V1	SN385	20-Mar-02
E-Field Probe ET3DV6	SN1515	25-Jul-02
Dipole Validation Kit, D900V2	SN078	23-Aug-03
S.A.M. Phantom used for 800MHz	TP-1106	
Dipole Validation Kit, D1800V2	SN273TR	17-Jul-04
S.A.M. Phantom used for 1900MHz	TP-1235	

3.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04844	19-Jan-03
Power Meter E4419B	GB39511088	18-Jan-03
Power Sensor #1 – E9301A	US39210918	11-Feb-03
Power Sensor #2 - E9301A	US39211006	14-Feb-03
Network Analyzer HP8753ES	US39171846	2-May-03
Dielectric Probe Kit HP85070C	US99360074	N/A

4. Electrical parameters of the tissue simulating liquid

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

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			ε_r	σ (S/m)	Temp (°C)
835	**Head**	**Measured,** 12-Dec-02	41.3	0.91	22.9
		Measured, 13-Dec-02	41.1	0.91	22.6
		Measured, 18-Dec-02	42.5	0.93	22.8
		Measured, 19-Dec-02	42.5	0.93	22.8
		Measured, 19-Dec-02	41.6	0.91	22.3
		Measured, 20-Dec-02	40.7	0.91	22.9
		Recommended Limits	41.5	0.90	20-25
	Body	**Measured,** 17-Dec-02	54	0.97	22.6
		Measured, 29-Dec-02	53.7	0.96	21.9
		Recommended Limits	55.2	0.97	20-25
1880	**Head**	**Measured,** 11-Dec-02	38.2	1.47	21.3
		Measured, 16-Dec-02	39.1	1.47	21.5
		Measured, 17-Dec-02	39.5	1.45	21.0
		Measured, 18-Dec-02	39.5	1.45	21.3
		Measured, 20-Dec-02	38.8	1.44	21.0
		Measured, 26-Dec-02	38.2	1.45	22.0
		Recommended Limits	40	1.4	20-25
	Body	**Measured,** 22-Dec-02	51.3	1.59	22.1
		Measured, 26-Dec-02	51.3	1.59	22.0
		Recommended Limits	53.3	1.52	20-25

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	47.0	30.80
DGBE	--	--	52.8	68.91
Water	40.45	53.06	0.2	0.29
Salt	1.45	0.94	--	--
HEC	1.0	1.0	--	--
Bact.	0.1	0.1	--	--

5. System Accuracy Verification

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

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

Daily, prior to conducting tests, measurements were made with the RF sources powered off to determine the system noise level. The highest system noise was 0.01 W/kg, which is below the recommended limit.

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Ambient Temp (°C)	Tissue Temp (°C)
			ε_r	σ (S/m)		
900	**Measured,** 12-Dec-02	11.65	40.5	0.97	22.9	23
	Measured, 13-Dec-02	12.00	40.3	0.97	22.6	23
	Measured, 17-Dec-02	11.83	41.5	0.98	22.6	23
	Measured, 18-Dec-02	12.03	41.7	0.99	22.8	23
	Measured, 19-Dec-02	11.96	40.9	0.98	22.3	23
	Measured, 20-Dec-02	11.73	39.9	0.96	22.9	23
	Measured, 29-Dec-02	11.67	39.5	0.95	21.9	23
	Recommended Limits	11.30	40.3	0.95	20-25	20-25
1800	**Measured,** 11-Dec-02	40.80	38.6	1.38	21.3	23
	Measured, 16-Dec-02	40.08	39.5	1.39	21.5	23
	Measured, 17-Dec-02	40.87	40.0	1.38	21.0	23
	Measured, 18-Dec-02	40.24	39.7	1.37	21.3	23
	Measured, 20-Dec-02	39.56	39.2	1.36	21.0	23
	Measured, 22-Dec-02	39.35	38.5	1.35	22.1	23
	Measured, 26-Dec-02	39.47	38.6	1.37	22.0	23
	Recommended Limits	38.80	39.6	1.37	20-25	20-25

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	SN1515	900	6.50	2 of 8
		1800	5.40	2 of 8

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 3.0 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 (± 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.

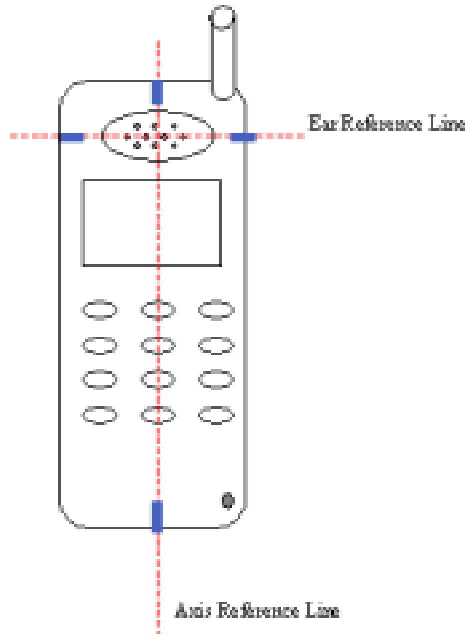
The Cellular Phone (FCC ID IHDT56CU1) has AANN4204A as the only available battery option. This battery was used to do all of the SAR testing. The phone was placed in the SAR measurement system with a fully charged battery.

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 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	SN1515	835	6.50	2 of 8
		1900	5.40	2 of 8

There are five different external housings for this phone. They are:
Premium Housing
Hour Glass Housing
Peanut Shaped Housing
Mini Housing
“Metal” Box Housing

Because each has a different form factor, they were SAR measured independently.

6.1.1 Head Adjacent Test Results with Premium Housing

			Cheek Position SAR, 1g							
f		Conducted Output Power	*Left Head*				*Right Head*			
(MHz)	Description	(dBm)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01	0.808	-0.05	0.82	21.8	0.851	-0.05	0.86	21.9
	Channel 190	30.05	0.877	-0.04	0.89	21.9	**0.916**	**-0.04**	**0.92**	**21.8**
	Channel 251	29.99	0.86	-0.02	0.86	21.8	0.862	0.00	0.86	21.6
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	**0.713**	**0.07**	**0.71**	**21.4**	0.538	0.09	0.54	21.5
	Channel 810	30.07								

Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Premium Housing.

			15° Tilt Position SAR, 1g							
f		Conducted Output Power	*Left Head*				*Right Head*			
(MHz)	Description	(dBm)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	0.515	-0.04	0.52	21.7	**0.527**	**0.00**	**0.53**	**21.6**
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	0.569	-0.01	0.57	21.7	**0.552**	**-0.19**	**0.58**	**21.5**
	Channel 810	30.07								

Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Premium Housing.

6.1.2 Head Adjacent Test Results with Hour Glass Housing

f (MHz)	Description	Conducted Output Power (dBm)	Cheek Position SAR, 1g							
			Left Head				Right Head			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01	0.76	-0.06	0.77	21.5				
	Channel 190	30.05	**0.811**	**-0.06**	**0.82**	**21.9**	0.78	-0.06	0.79	21.6
	Channel 251	29.99	0.657	-0.17	0.68	21.5				
Digital 1900MHz	Channel 512	30.10	0.777	0.25	0.78	22.1				
	Channel 661	30.07	**0.922**	**0.06**	**0.92**	**22.2**	0.736	0.12	0.74	21.9
	Channel 810	30.07	0.810	0.14	0.81	22.0				

Table 3: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Hour Glass Housing.

f (MHz)	Description	Conducted Output Power (dBm)	15° Tilt Position SAR, 1g							
			Left Head				Right Head			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	**0.474**	**-0.15**	**0.49**	**21.6**	0.456	0.02	0.46	21.5
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10	0.628	-0.15	0.65	22.0				
	Channel 661	30.07	**0.875**	**-0.27**	**0.93**	**22.2**	0.651	-0.41	0.72	21.2
	Channel 810	30.07	0.853	0.57	0.85	22.0				

Table 4: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Hour Glass Housing.

The carry case Motorola Part Number HG33101 is the only accessory available for this phone (with the Hour Glass housing) that can be used when the phone is placed in a Head Adjacent position. The following tables show the results of the SAR measurements when this accessory is utilized. Just the configuration that yielded the highest measurement was repeated with the accessory utilized.

f (MHz)	Description	Conducted Output Power (dBm)	Cheek Position SAR, 1g							
			Left Head				Right Head			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	0.575	-0.14	0.59	21.9				
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	0.646	-0.02	0.65	21.4				
	Channel 810	30.07								

Table 5: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Hour Glass Housing and accessory.

6.1.3 Head Adjacent Test Results with Peanut Shaped Housing

			Cheek Position SAR, 1g							
f (MHz)	Description	Conducted Output Power (dBm)	*Left Head*				*Right Head*			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01	0.742	0.00	0.74	21.7	0.757	-0.03	0.76	21.5
	Channel 190	30.05	0.836	0.02	0.84	21.7	0.796	-0.18	0.83	21.4
	Channel 251	29.99	**0.855**	**-0.04**	**0.86**	**21.6**	0.829	-0.06	0.84	21.5
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	**0.727**	**-0.30**	**0.78**	**22.0**	0.572	0.07	0.57	22.0
	Channel 810	30.07								

Table 6: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Peanut Shaped Housing.

			15° Tilt Position SAR, 1g							
f (MHz)	Description	Conducted Output Power (dBm)	*Left Head*				*Right Head*			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	**0.538**	**0.02**	**0.54**	**21.4**	0.516	0.01	0.52	21.4
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	**0.725**	**-0.16**	**0.75**	**22.0**	0.653	-0.10	0.67	22.0
	Channel 810	30.07								

Table 7: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Peanut Shaped Housing.

The carry case Motorola Part Number PNT33201 is the only accessory available for this phone (with the Peanut Shaped housing) that can be used when the phone is placed in a Head Adjacent position. The following tables show the results of the SAR measurements when this accessory is utilized. Just the configuration that yielded the highest measurement was repeated with the accessory utilized.

			Cheek Position SAR, 1g							
f (MHz)	Description	Conducted Output Power (dBm)	*Left Head*				*Right Head*			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01	0.798	-0.09	0.81	21.6				
	Channel 190	30.05	0.805	0.05	0.81	21.6				
	Channel 251	29.99	0.655	-0.08	0.67	21.4				
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	0.374	-0.19	0.39	22.0				
	Channel 810	30.07								

Table 8 SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Peanut Shaped Housing and accessory.

6.1.4 Head Adjacent Test Results with Mini Housing

			Cheek Position SAR, 1g							
			Left Head				*Right Head*			
f (MHz)	Description	Conducted Output Power (dBm)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01	0.867	-0.01	0.87	21.5	0.869	-0.07	0.88	21.5
	Channel 190	30.05	0.852	0.04	0.85	21.5	**0.873**	**-0.06**	**0.89**	**21.3**
	Channel 251	29.99	0.762	-0.07	0.77	21.5	0.816	-0.01	0.82	21.5
Digital 1900MHz	Channel 512	30.10	0.776	-0.16	0.81	20.7				
	Channel 661	30.07	**0.930**	**0.16**	**0.93**	**20.7**	0.536	0.01	0.54	21.4
	Channel 810	30.07	0.642	-0.01	0.64	20.6				

Table 9: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Mini Housing.

			15° Tilt Position SAR, 1g							
			Left Head				*Right Head*			
f (MHz)	Description	Conducted Output Power (dBm)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	0.547	0.01	0.55	21.3	**0.580**	**0.00**	**0.58**	**21.5**
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10	0.747	0.28	0.75	21.5				
	Channel 661	30.07	**0.903**	**0.54**	**0.90**	**20.7**	0.551	-0.16	0.57	21.5
	Channel 810	30.07	0.525	0.24	0.53	21.4				

Table 10: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head the Mini Housing.

The carry case Motorola Part Number MN33301 is the only accessory available for this phone (with the Mini housing) that can be used when the phone is placed in a Head Adjacent position. The following tables show the results of the SAR measurements when this accessory is utilized. Just the configuration that yielded the highest measurement was repeated with the accessory utilized.

			Cheek Position SAR, 1g							
			Left Head				*Right Head*			
f (MHz)	Description	Conducted Output Power (dBm)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05					0.796	0.00	0.796	21.6
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	0.577	0.17	0.58	21.5				
	Channel 810	30.07								

Table 11: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the Mini Housing and accessory.

6.1.5 Head Adjacent Test Results with ““Metal”” Box Housing

f (MHz)	Description	Conducted Output Power (dBm)	Cheek Position SAR, 1g – *Left Head* Measured (W/kg)	Left Head Drift (dB)	Left Head Extrapolated (W/kg)	Left Head Temp (°C)	*Right Head* Measured (W/kg)	Right Head Drift (dB)	Right Head Extrapolated (W/kg)	Right Head Temp (°C)
Digital 800MHz	Channel 128	30.01	0.826	0.09	0.83	22.1	0.696	-0.05	0.70	21.2
	Channel 190	30.05	**0.839**	**-0.05**	**0.85**	**21.5**	0.824	-0.04	0.83	21.6
	Channel 251	29.99	0.676	-0.05	0.68	21.5	0.793	-0.04	0.80	21.5
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	**0.775**	**-0.06**	**0.79**	**20.9**	0.514	-0.07	0.52	20.4
	Channel 810	30.07								

Table 12: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the “Metal” Box Housing.

f (MHz)	Description	Conducted Output Power (dBm)	15° Tilt Position SAR, 1g – *Left Head* Measured (W/kg)	Left Head Drift (dB)	Left Head Extrapolated (W/kg)	Left Head Temp (°C)	*Right Head* Measured (W/kg)	Right Head Drift (dB)	Right Head Extrapolated (W/kg)	Right Head Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	**0.500**	**0.08**	**0.50**	**21.6**	0.485	-0.02	0.49	21.6
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	**0.747**	**-0.23**	**0.79**	**20.6**	0.652	0.02	0.65	20.5
	Channel 810	30.07								

Table 13: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the head with the “Metal” Box Housing.

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 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. 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 the 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 are six Body-Worn Accessories available for this phone. They are unique for the different housings:
Premium Housing: No Accessories Available
Hourglass Housing: HG33101 with SYN8763A & HG33101 with SYN8631A
Peanut Shaped Housing: PNT33201 with SYN8763A & PNT33201 with SYN8631A
Mini Housing: MN33301 with SYN8763A & MN33301 with SYN8631A
“Metal” Box Housing: No Accessories Available

For the Housings that do not have any available accessories, testing was performed in accordance with the supplement C testing guidelines for devices that do not have body worn accessories. The back part of the phone was placed 1 inch away from a flat phantom per the supplement C standard guidelines to perform SAR measurement. Ten the front part of the phone was placed 1 inch away from a flat phantom per the supplement C standard guidelines to perform SAR measurement.

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	SN1515	835	6.40	2 of 2
		1900	4.70	2 of 2

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn for Premium Housing: 1" Separation from Front of Phone				1" Separation from Back of Phone			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	0.0866	-0.05	0.09	22.0	**0.124**	**0.06**	**0.12**	**21.7**
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	0.03	-0.17	0.03	22.0	**0.145**	**0.13**	**0.15**	**22.0**
	Channel 810	30.07								

Table 14: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the body with Premium Housing.

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn for HourGlass Housing: HG33101 with SYN8763A				HG33101 with SYN8631A			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	0.125	-0.01	0.13	21.9	**0.234**	**-0.11**	**0.24**	**22.0**
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	**0.395**	**-0.04**	**0.40**	**22.0**	0.269	0.00	0.27	22.0
	Channel 810	30.07								

Table 15: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the body with HourGlass Housing.

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn for Peanut Shaped Housing: PNT33201 with SYN8763A				PNT33201 with SYN8631A			
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	0.206	0.02	0.21	22.0	**0.284**	**-0.01**	**0.28**	**21.7**
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	**0.233**	**-0.05**	**0.24**	**22.0**	0.19	-0.13	0.20	22.0
	Channel 810	30.07								

Table 16: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the body with Peanut Shaped Housing.

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn for Mini Housing: MN33301 with SYN8763A Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	MN33301 with SYN8631A Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	0.202	-0.15	0.21	22.2	**0.309**	**-0.04**	**0.31**	**22.0**
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	**0.358**	**-0.32**	**0.39**	**22.0**	0.292	0.04	0.29	22.0
	Channel 810	30.07								

Table 17: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the body with Mini Housing.

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn for "Metal" Box Housing: 1" Separation from Front of Phone Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)	1" Separation from Back of Phone Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Simulate Temp (°C)
Digital 800MHz	Channel 128	30.01								
	Channel 190	30.05	0.0865	-0.02	0.09	22.3	**0.155**	**0.01**	**0.16**	**22.0**
	Channel 251	29.99								
Digital 1900MHz	Channel 512	30.10								
	Channel 661	30.07	0.0387	0.09	0.04	22.0	**0.188**	**-0.03**	**0.19**	**22.0**
	Channel 810	30.07								

Table 18: SAR measurement results for the portable cellular telephone FCC ID IHDT56CU1 at highest possible output power. Measured against the body with "Metal" Box Housing.

6.3 Summary of SAR Test Results

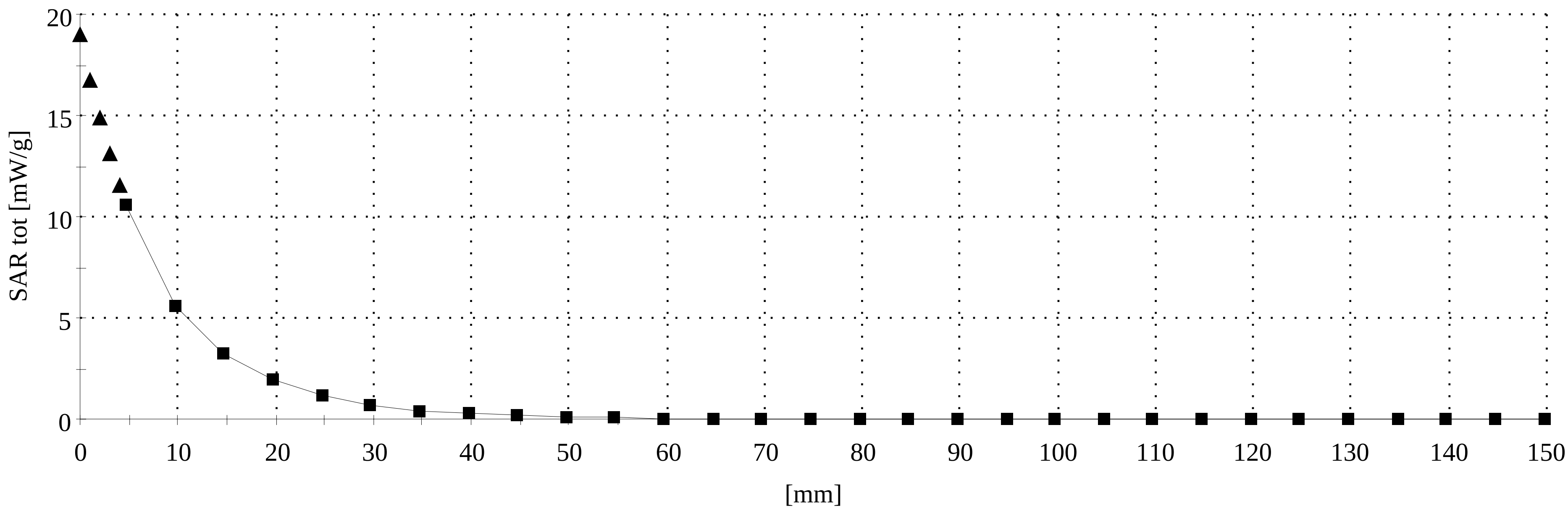
Highest Measured 1g SAR	835 MHz	1900MHz
Left Head Cheek Touch Position	0.89 W/kg	**0.93W/kg**
Right Head Cheek Touch Position	**0.92 W/kg**	0.74 W/kg
Left Head 15° Tilt Position	0.55 W/kg	0.93 W/kg
Right Head 15° Tilt Position	0.58 W/kg	0.72 W/kg
Body-Worn Position	**0.31 W/kg**	**0.39 W/kg**

Appendix 1

SAR distribution comparison for the system accuracy verification

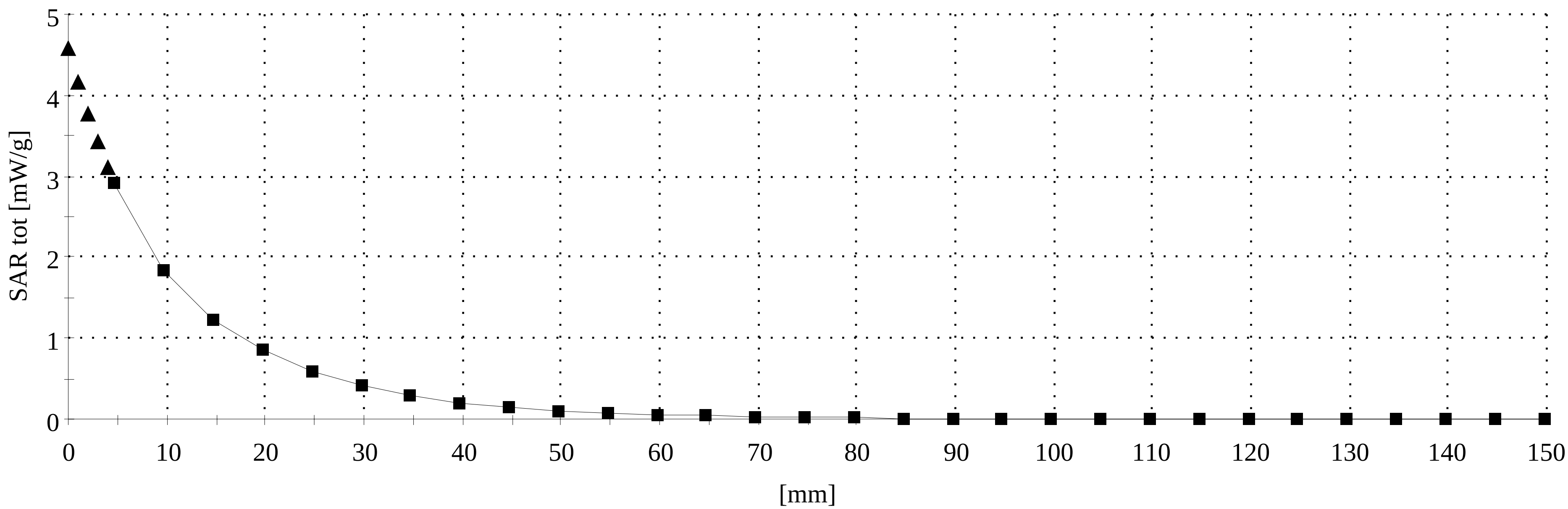
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 tr
Forward Power = 250mW Reflected Power = -22.72db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 21.3 C.
R2 Amy Twin Phantom Rev.3 ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.38 mho/m ε_r = 38.6 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 8.3 (7.9, 9.1) [mm]



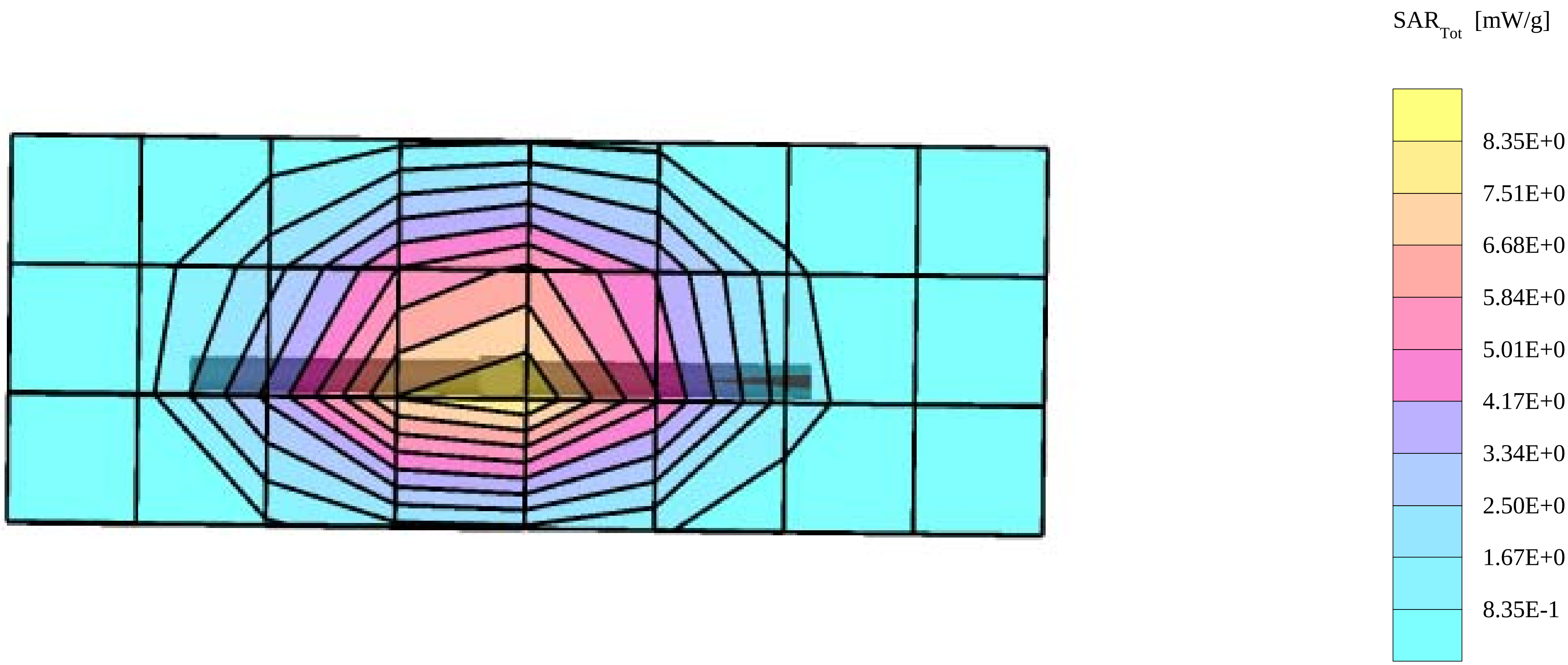
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 252mW Reflected Power = -25.55db
Room Temp at time of measurement = 23*C. Simulant Temp at time of measurement = 21.9*C.
R2 TP-1106 SUGAR SAM (rev. 4) ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.95 mho/m ε_r = 39.5 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 11.5 (10.6, 12.8) [mm]



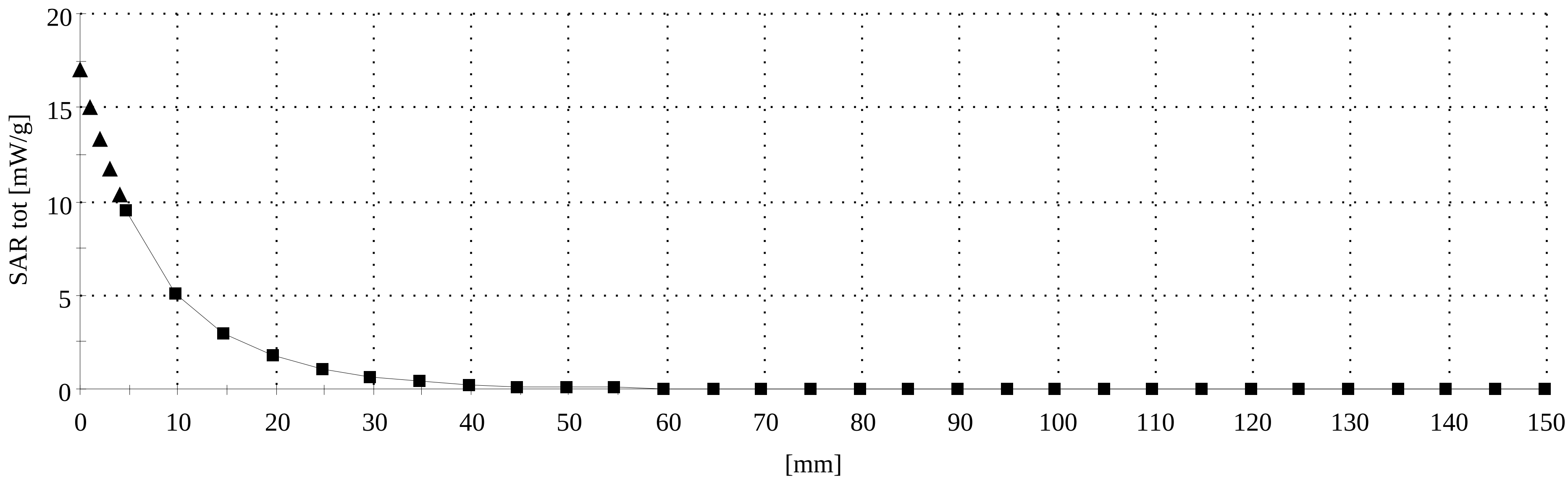
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 247mW Reflected Power = -22.42db
Room Temp at time of measurement = 23*C. Simulant Temp at time of measurement = 22.0*C.
R2: TP-1235 GLYCOL SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.37 mho/m ε_r = 38.6 ρ = 1.00 g/cm^3
Cubes (2): Peak: 17.8 mW/g ± 0.10 dB, SAR (1g): 9.75 mW/g ± 0.06 dB, SAR (10g): 5.13 mW/g ± 0.02 dB, (Worst-case extrapolation)
Penetration depth: 8.6 (8.2, 9.3) [mm]
Powerdrift: -0.00 dB



Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 247mW Reflected Power = -22.42db
Room Temp at time of measurement = 23*C. Simulant Temp at time of measurement = 22.0*C.
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; Section; Position: ; Frequency: 1800 MHz
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.37 mho/m ε_r = 38.6 ρ = 1.00 g/cm^3
: , , ()
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0
Penetration depth: 8.4 (8.0, 9.2) [mm]

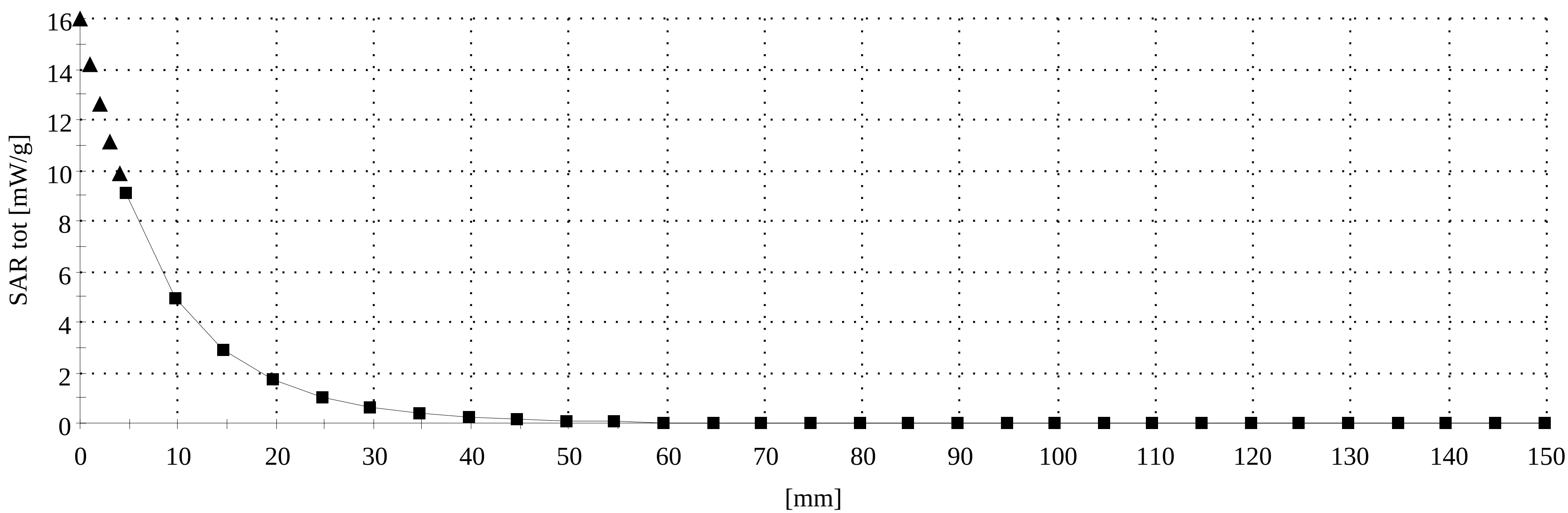


Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 246mW Reflected Power = -21.44db
Room Temp at time of measurement = 23*C. Simulant Temp at time of measurement = 22.1*C.
R2 Amy Twin Phantom Rev.3 ; section 1
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.35 mho/m ε_r = 38.5 ρ = 1.00 g/cm^3
Cubes (2): Peak: 17.8 mW/g ± 0.00 dB, SAR (1g): 9.68 mW/g ± 0.03 dB, SAR (10g): 5.13 mW/g ± 0.04 dB, (Worst-case extrapolation)
Penetration depth: 8.4 (8.0, 9.3) [mm]
Powerdrift: -0.00 dB

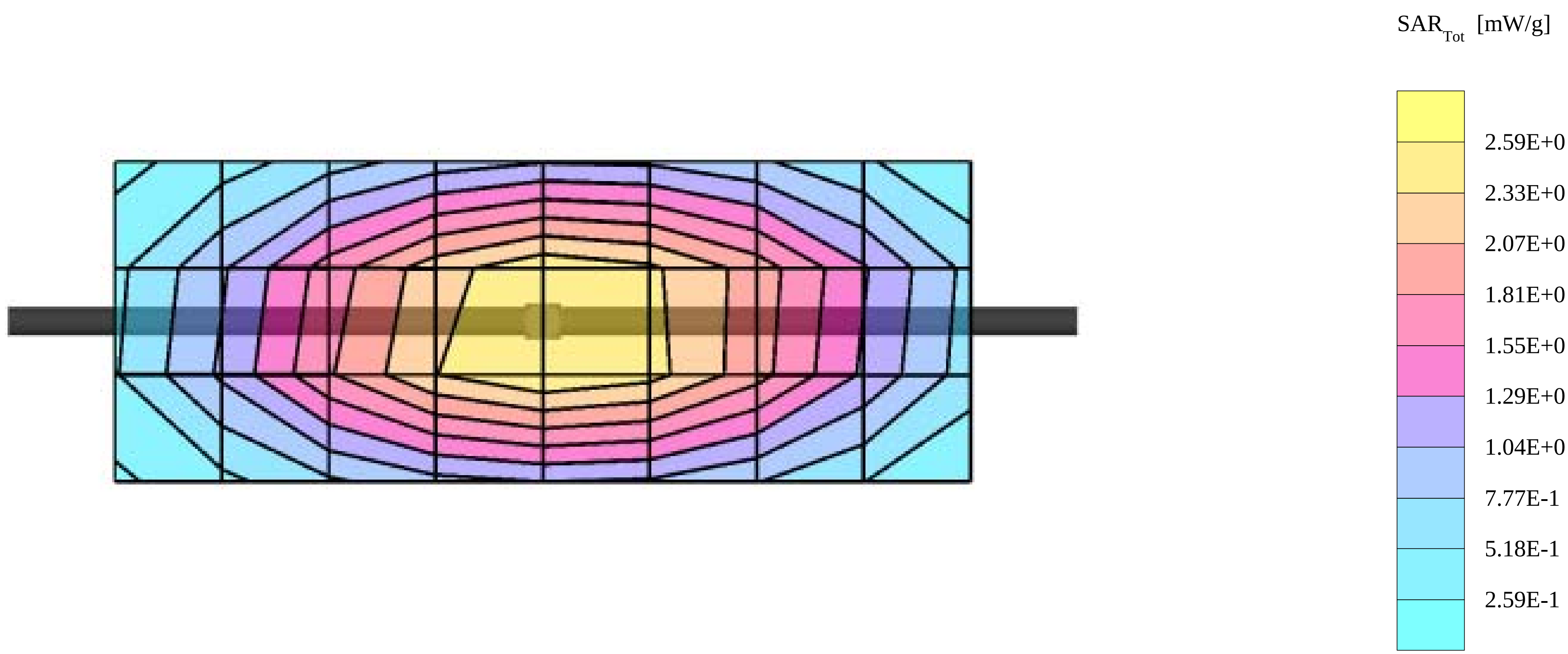
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 246mW   Reflected Power = -21.44db
Room Temp at time of measurement = 23*C.   Simulant Temp at time of measurement = 22.1*C.
R2 Amy Twin Phantom Rev.3 ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.35 mho/m ε_r = 38.5 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 8.6 (8.2, 9.4) [mm]



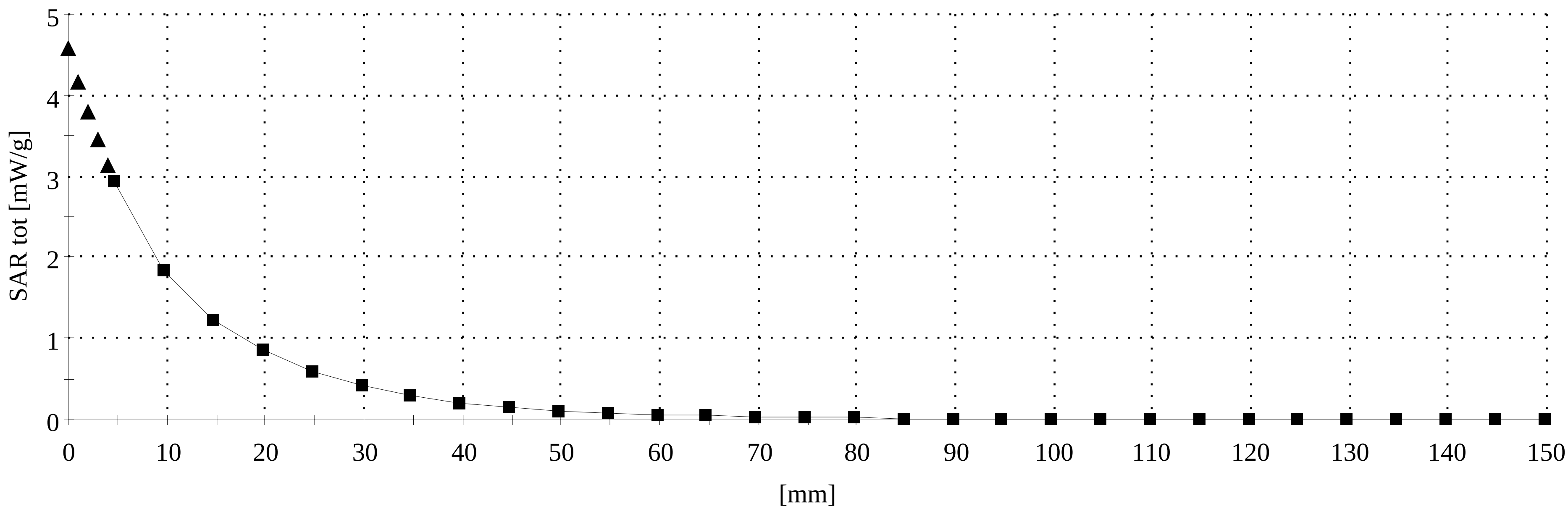
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 249mW   Reflected Power = -24.98db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.9 C
R2 TP-1106 SUGAR SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.96 mho/m ε_r = 39.9 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.64   mW/g ± 0.04 dB, SAR (1g): 2.92   mW/g ± 0.04 dB, SAR (10g): 1.84   mW/g ± 0.04 dB, (Worst-case extrapolation)
Penetration depth: 11.5 (10.6, 12.6) [mm]
Powerdrift: 0.01 dB



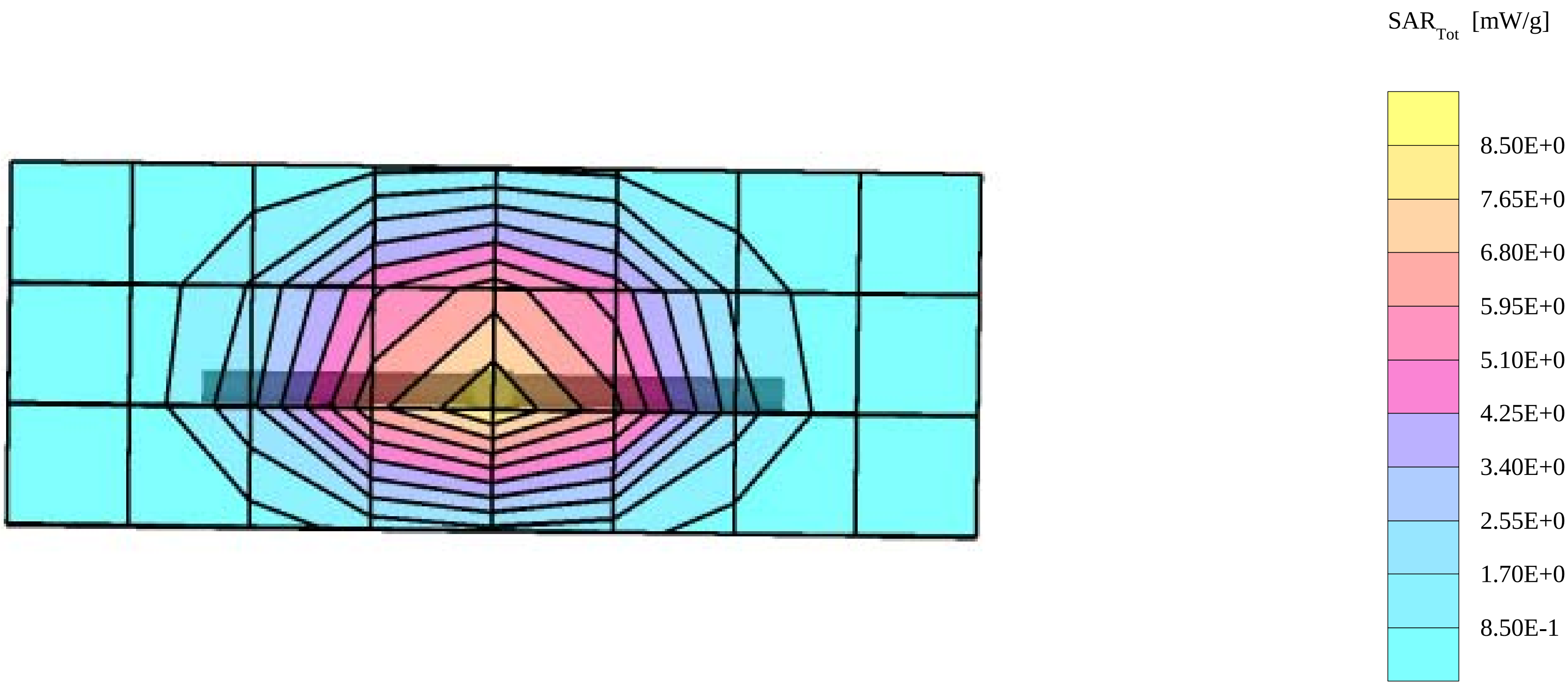
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 249mW   Reflected Power = -24.98db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.9 C
R2 TP-1106 SUGAR SAM (rev. 4) ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.96 mho/m ε_r = 39.9 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 11.5 (10.6, 12.7) [mm]



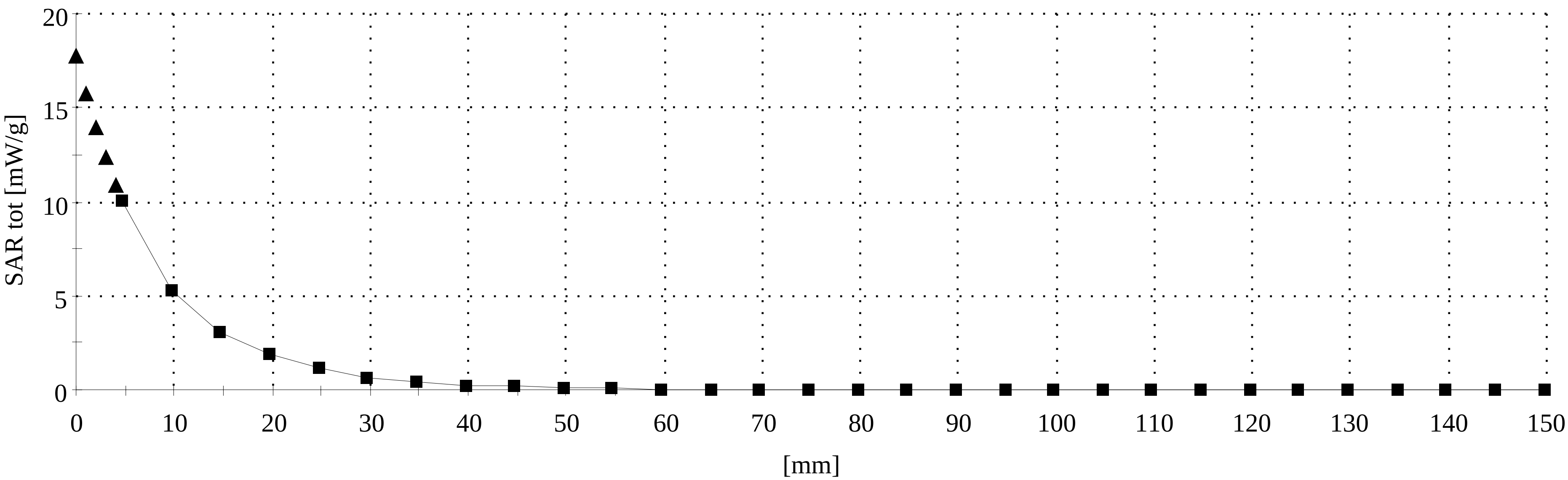
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 250mW Reflected Power = -23.61db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 21.0 C.
R2: TP-1235 GLYCOL SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.36 mho/m ε_r = 39.2 ρ = 1.00 g/cm³
Cubes (2): Peak: 18.2 mW/g ± 0.09 dB, SAR (1g): 9.89 mW/g ± 0.06 dB, SAR (10g): 5.21 mW/g ± 0.02 dB, (Worst-case extrapolation)
Penetration depth: 8.5 (8.1, 9.3) [mm]
Powerdrift: -0.00 dB



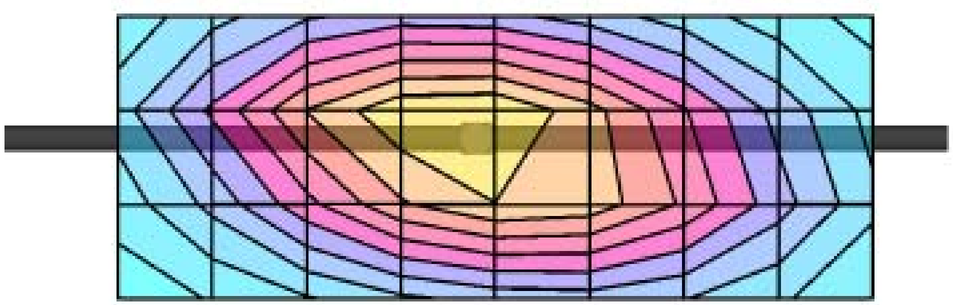
Dipole 1800 MHz

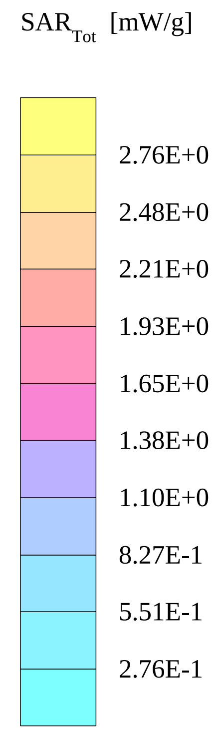
1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 250mW   Reflected Power = -23.61db
Room Temp at time of measurement = 23 C.   Simulant Temp at time of measurement = 21.0 C.
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; Section; Position: ; Frequency: 1800 MHz
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.36 mho/m ε_r = 39.2 ρ = 1.00 g/cm^3
: , , ()
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0
Penetration depth: 8.4 (8.0, 9.2) [mm]



Dipole 900 MHz

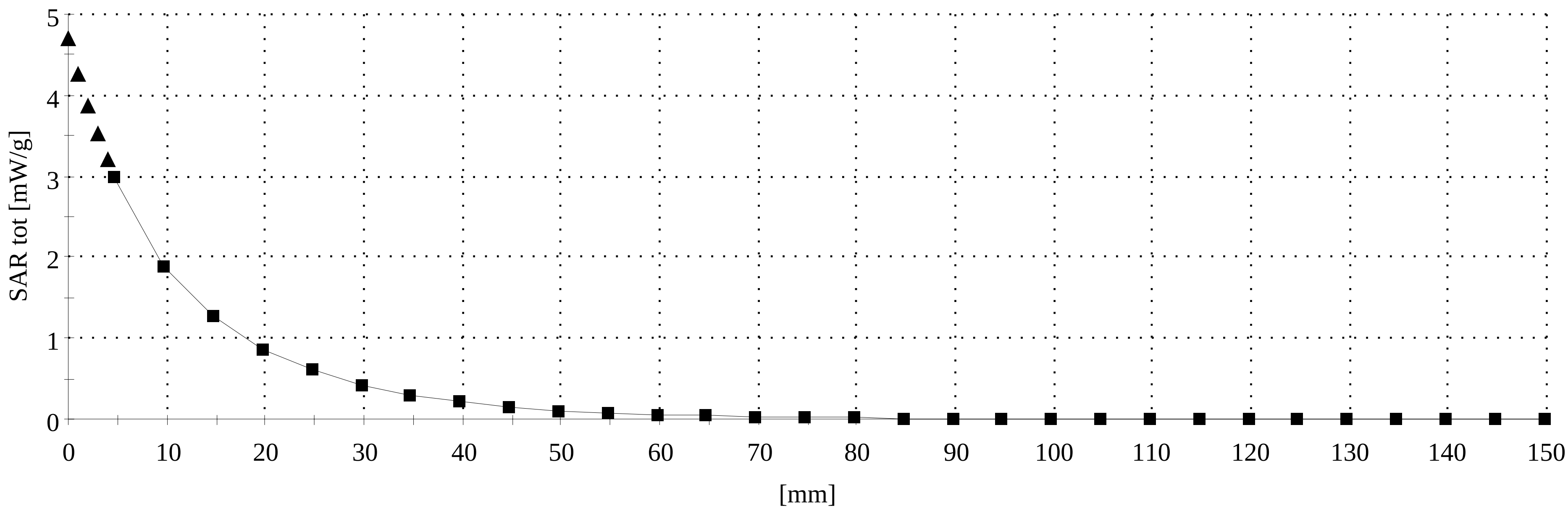
900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 250mW   Reflected Power = -24.19db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.3 C
R2 TP-1106 SUGAR SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.98 mho/m ε_r = 40.9 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.76 mW/g ± 0.03 dB, SAR (1g): 2.99 mW/g ± 0.03 dB, SAR (10g): 1.89 mW/g ± 0.03 dB, (Worst-case extrapolation)
Penetration depth: 11.5 (10.6, 12.7) [mm]
Powerdrift: 0.02 dB





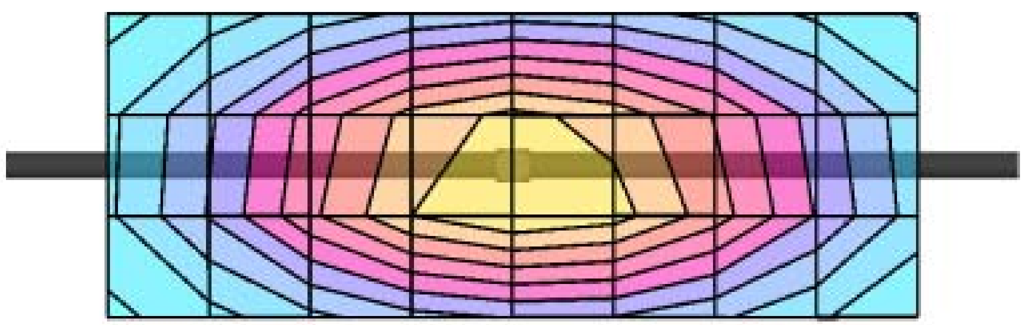
Dipole 900 MHz

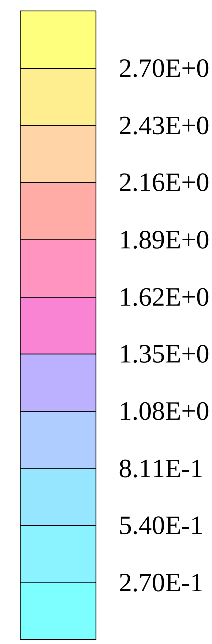
900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 250mW Reflected Power = -24.19db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.3 C
R2 TP-1106 SUGAR SAM (rev. 4) ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.98 mho/m ε_r = 40.9 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 11.5 (10.6, 12.7) [mm]



Dipole 900 MHz

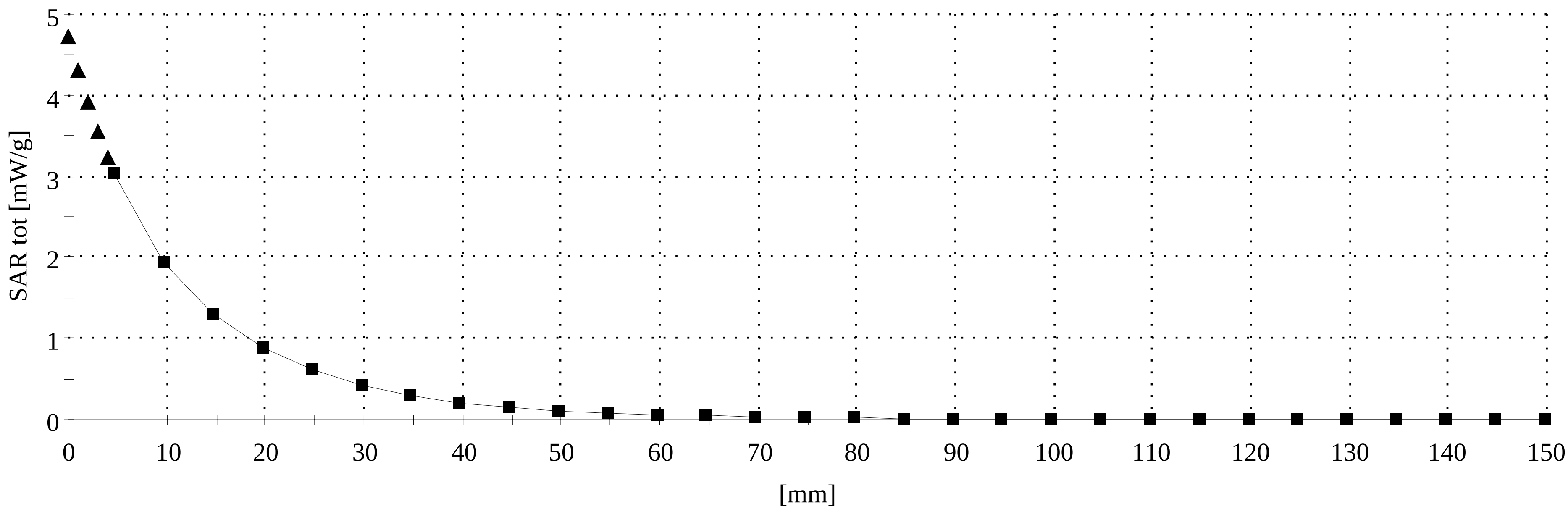
900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 251mW   Reflected Power = -24.32db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.8 C
R2 TP-1106 SUGAR SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.99 mho/m ε_r = 41.7 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.82   mW/g ± 0.08 dB, SAR (1g): 3.02   mW/g ± 0.09 dB, SAR (10g): 1.90   mW/g ± 0.08 dB, (Worst-case extrapolation)
Penetration depth: 11.4 (10.5, 12.6) [mm]
Powerdrift: 0.04 dB





Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 251mW   Reflected Power = -24.32db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.8 C
R2 TP-1106 SUGAR SAM (rev. 4) ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.99 mho/m ε_r = 41.7 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 11.6 (10.8, 12.8) [mm]

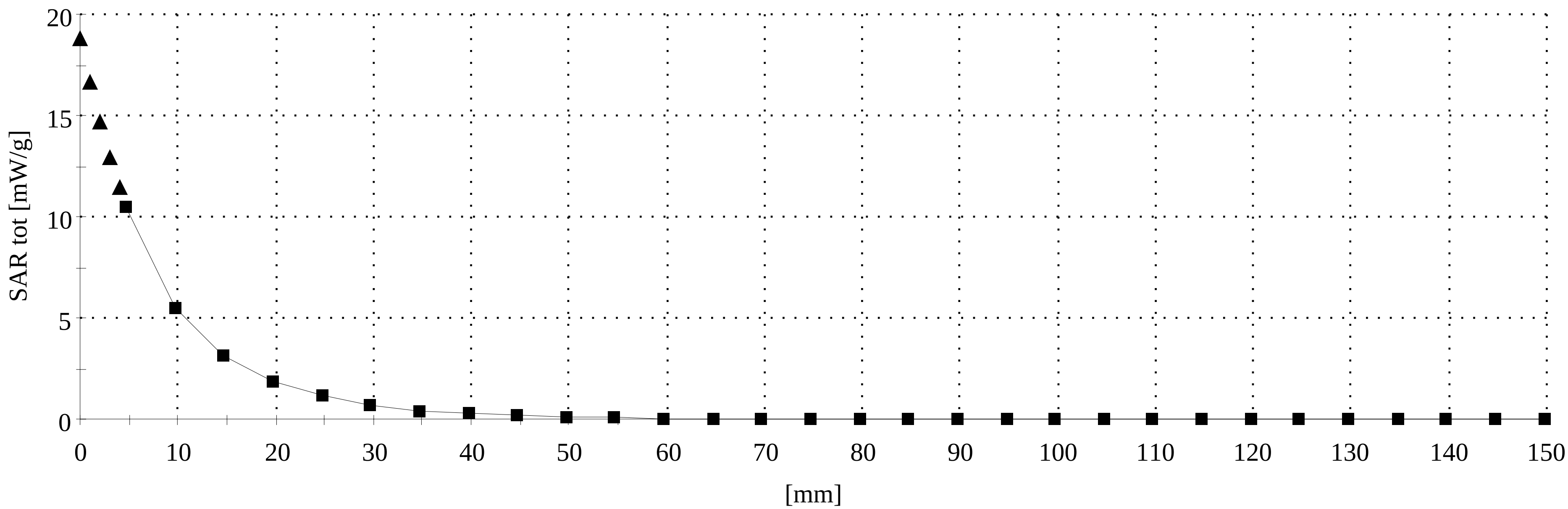


Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 251mW   Reflected Power = -22.13db
Room Temp at time of measurement = 23 C.   Simulant Temp at time of measurement = 21.3 C
R2 Amy Twin Phantom Rev.3 ; section 1
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.37 mho/m ε_r = 39.7 ρ = 1.00 g/cm^3
Cubes (2): Peak: 18.5   mW/g ± 0.10 dB, SAR (1g): 10.1   mW/g ± 0.05 dB, SAR (10g): 5.33   mW/g ± 0.01 dB, (Worst-case extrapolation)
Penetration depth: 8.2 (7.8, 9.2) [mm]
Powerdrift: 0.01 dB

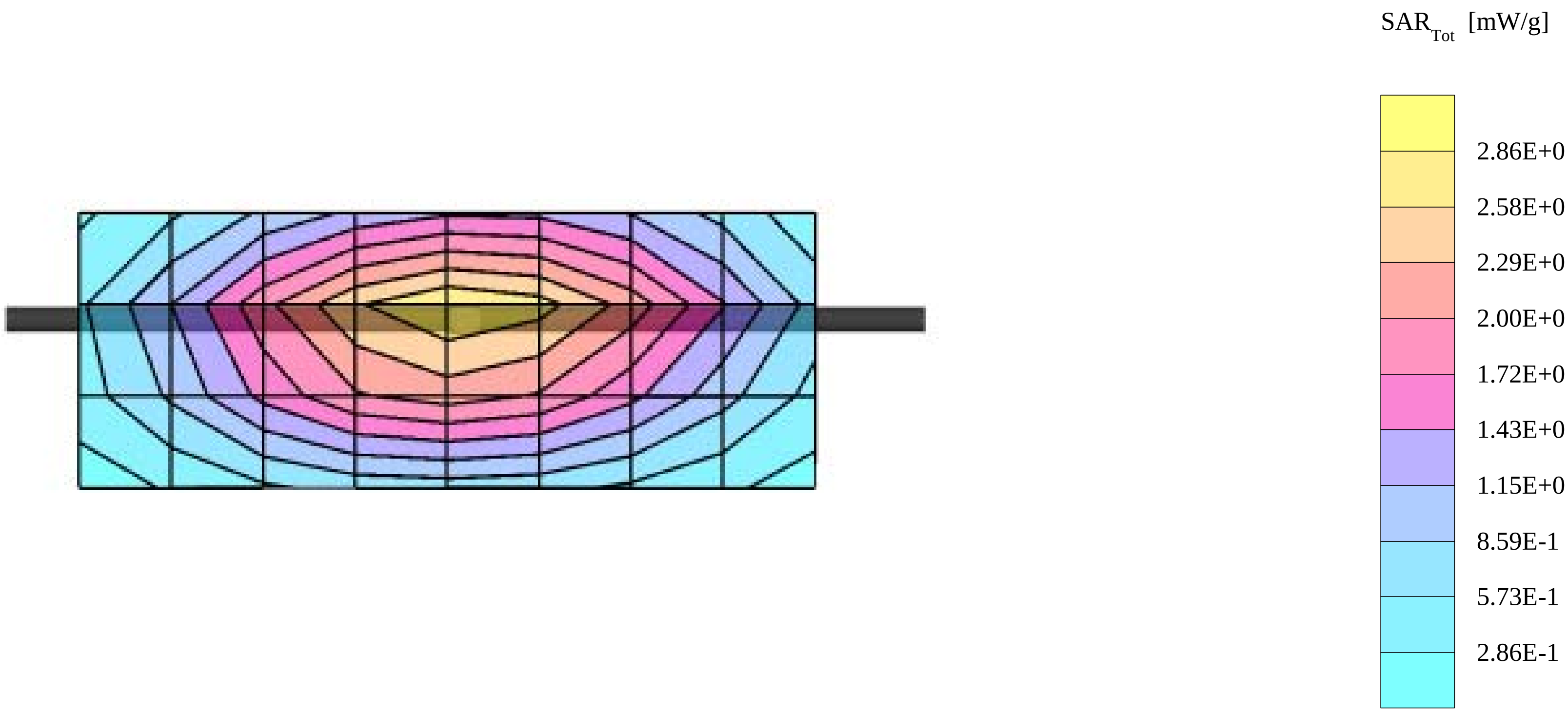
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 251mW Reflected Power = -22.13db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 21.3 C
R2 Amy Twin Phantom Rev.3 ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.37 mho/m ε_r = 39.7 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 8.2 (7.9, 9.1) [mm]



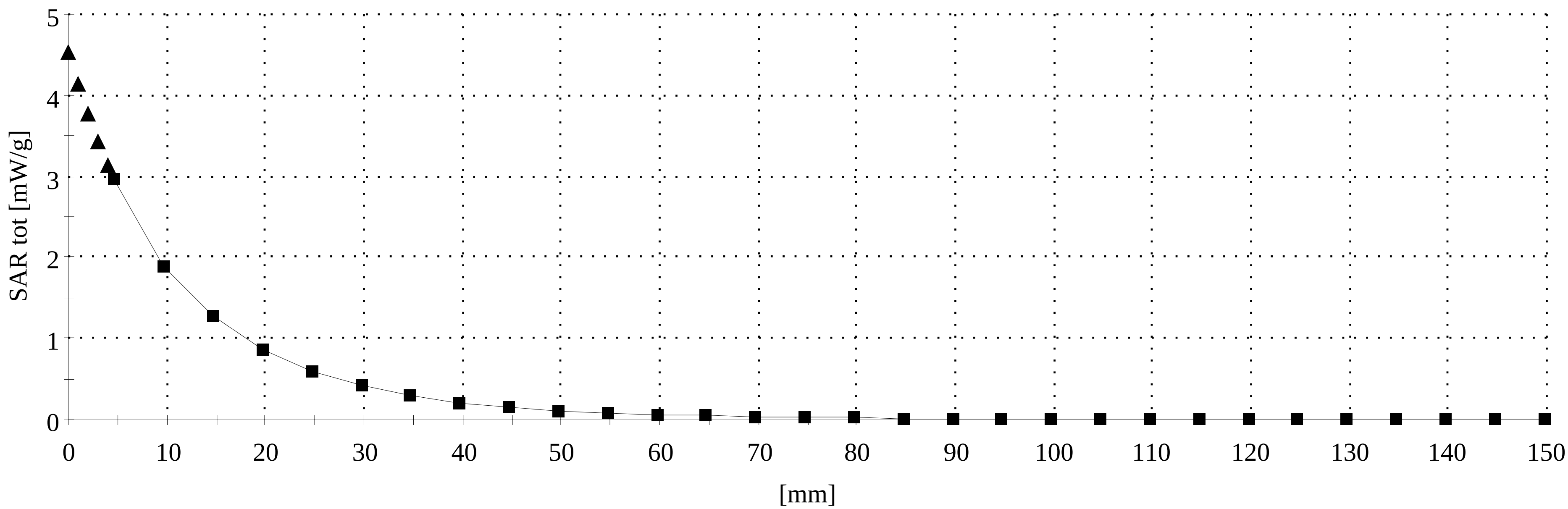
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 252mW   Reflected Power = -24.55db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.6 C
R2 TP-1106 SUGAR SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.98 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.73 mW/g ± 0.11 dB, SAR (1g): 2.98 mW/g ± 0.09 dB, SAR (10g): 1.87 mW/g ± 0.08 dB, (Worst-case extrapolation)
Penetration depth: 11.6 (10.8, 12.7) [mm]
Powerdrift: 0.05 dB



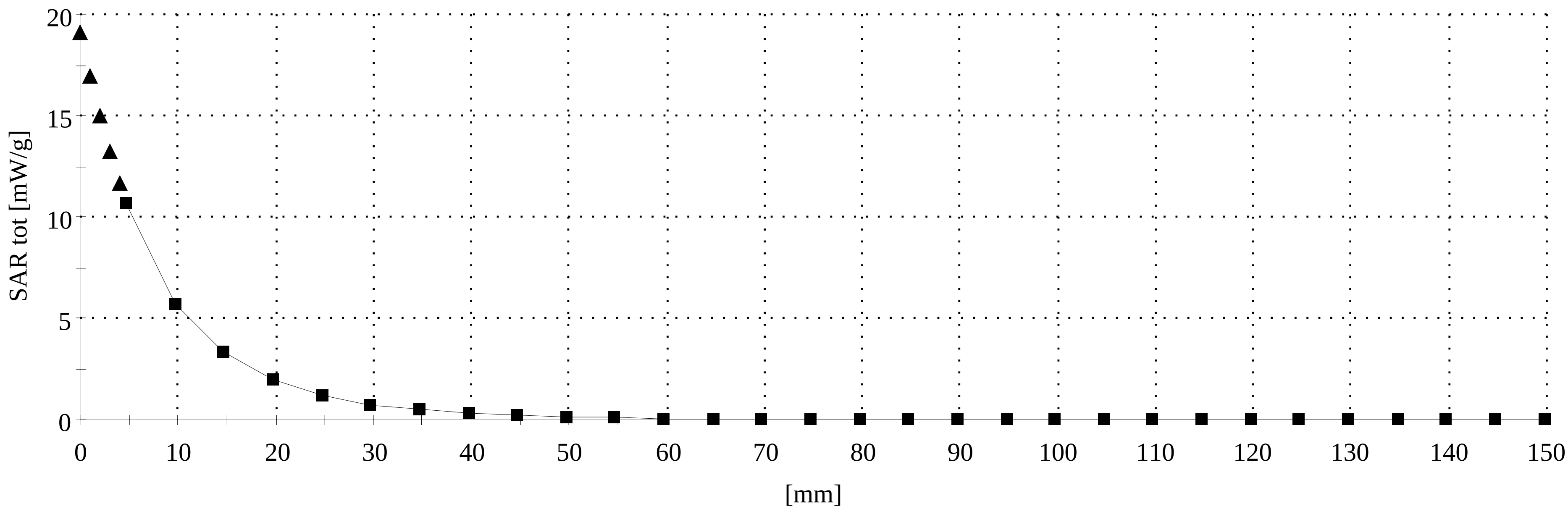
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 252mW   Reflected Power = -24.55db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.6 C
R2 TP-1106 SUGAR SAM (rev. 4) ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.98 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 11.7 (11.1, 12.5) [mm]



Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 252mW Reflected Power = -22.37db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 21.0 C
R2 Amy Twin Phantom Rev.3 ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.38 mho/m ε_r = 40.0 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 8.3 (7.9, 9.3) [mm]

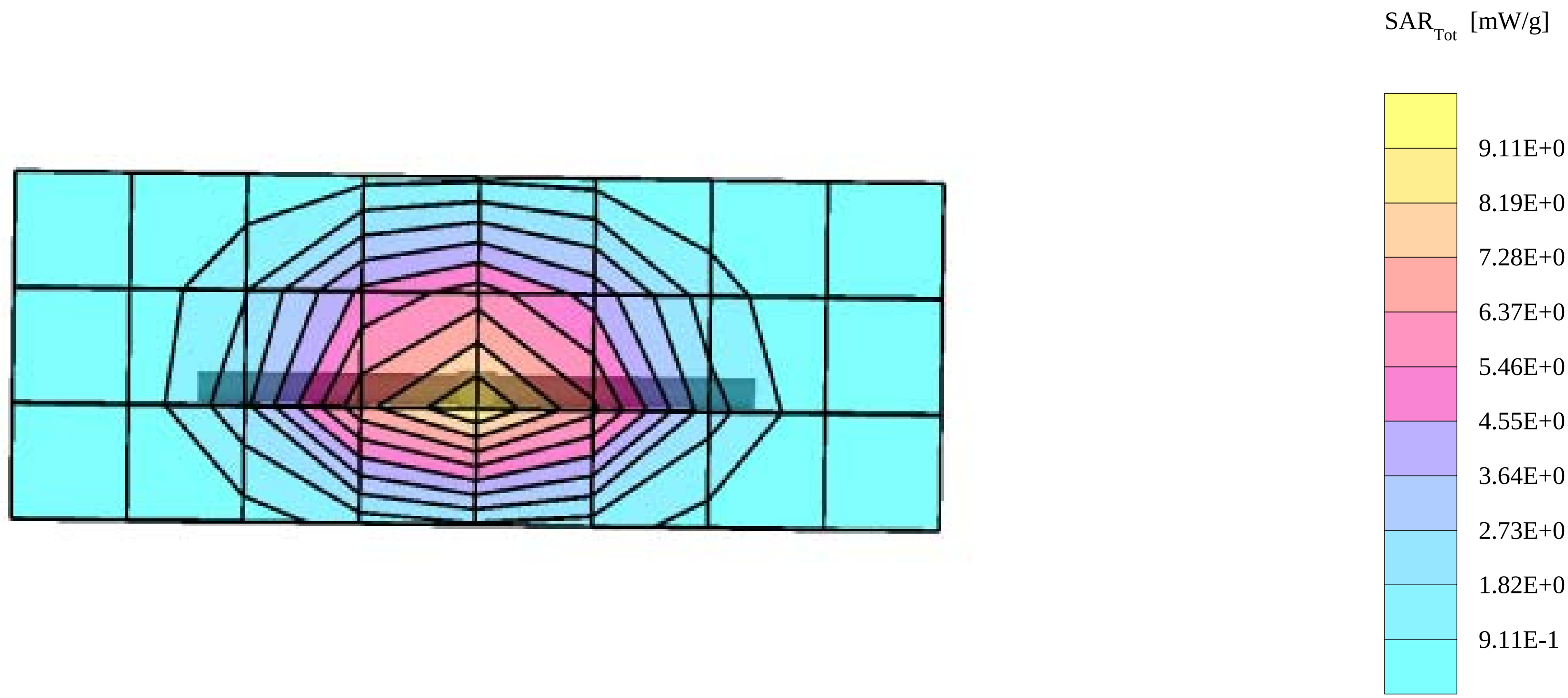


Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 252mW   Reflected Power = -22.37db
Room Temp at time of measurement = 23 C.   Simulant Temp at time of measurement = 21.0 C
R2 Amy Twin Phantom Rev.3 ; section 1
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.38 mho/m ε_r = 40.0 ρ = 1.00 g/cm^3
Cubes (2): Peak: 18.9 mW/g ± 0.05 dB, SAR (1g): 10.3 mW/g ± 0.03 dB, SAR (10g): 5.44 mW/g ± 0.02 dB, (Worst-case extrapolation)
Penetration depth: 8.4 (7.9, 9.3) [mm]
Powerdrift: 0.01 dB

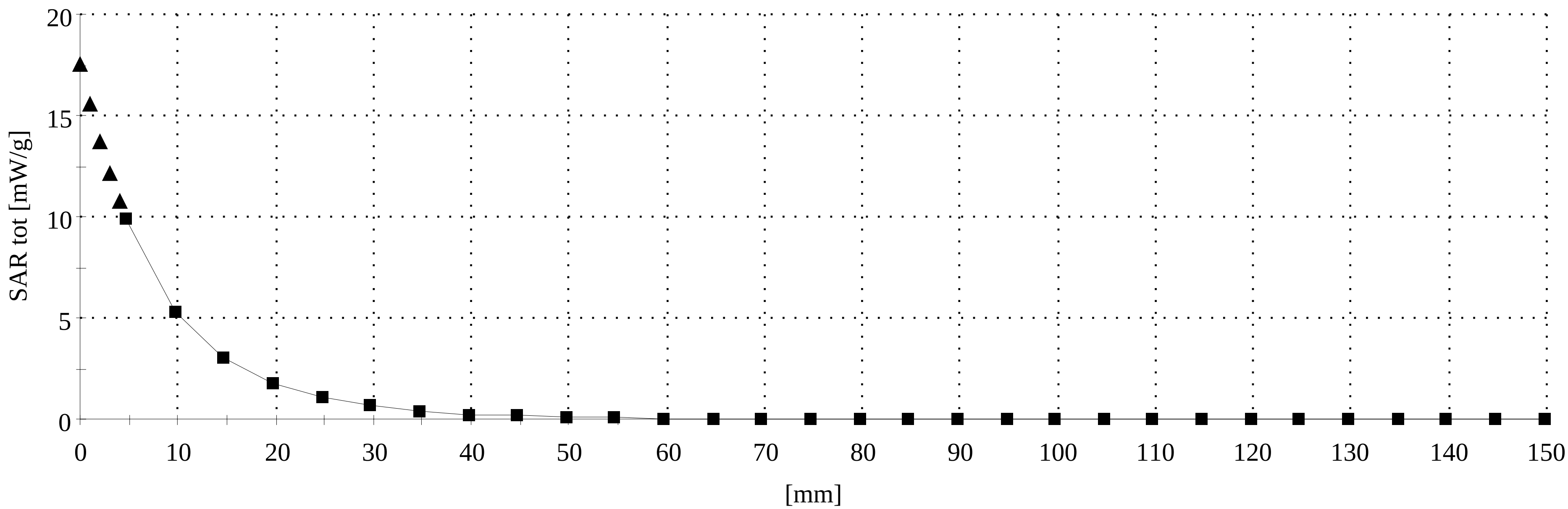
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 249mW   Reflected Power = -22.80db
Room Temp at time of measurement = 23 C.   Simulant Temp at time of measurement = 21.5 C
R2: TP-1235 GLYCOL SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.39 mho/m ε_r = 39.5 ρ = 1.00 g/cm^3
Cubes (2): Peak: 18.3 mW/g ± 0.08 dB, SAR (1g): 9.98 mW/g ± 0.05 dB, SAR (10g): 5.25 mW/g ± 0.01 dB, (Worst-case extrapolation)
Penetration depth: 8.5 (8.1, 9.2) [mm]
Powerdrift: -0.01 dB



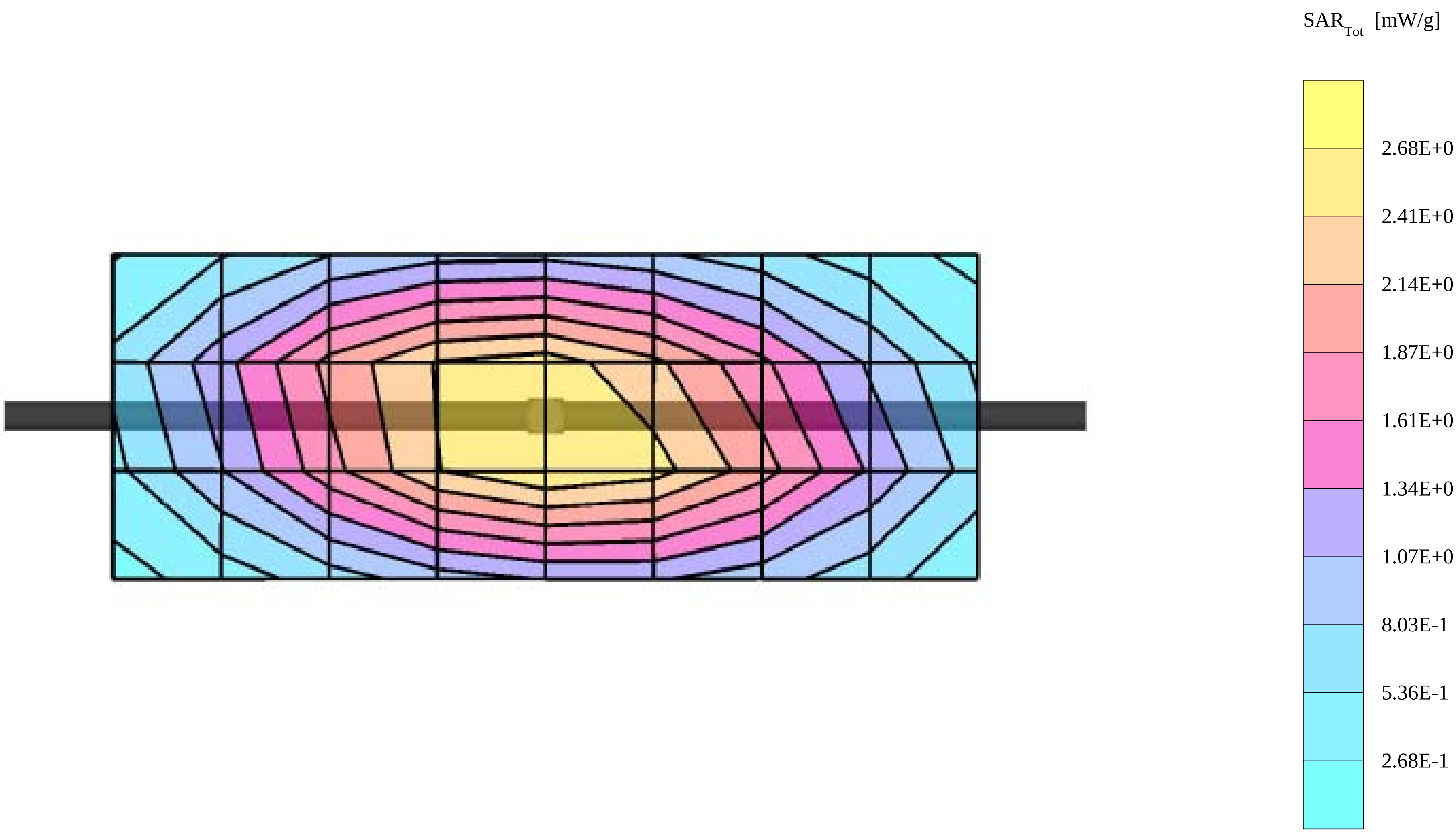
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 TR
Forward Power = 249mW   Reflected Power = -22.80db
Room Temp at time of measurement = 23 C.   Simulant Temp at time of measurement = 21.5 C
R2: TP-1235 GLYCOL SAM (rev. 4) ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.39 mho/m ε_r = 39.5 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 8.4 (8.0, 9.2) [mm]



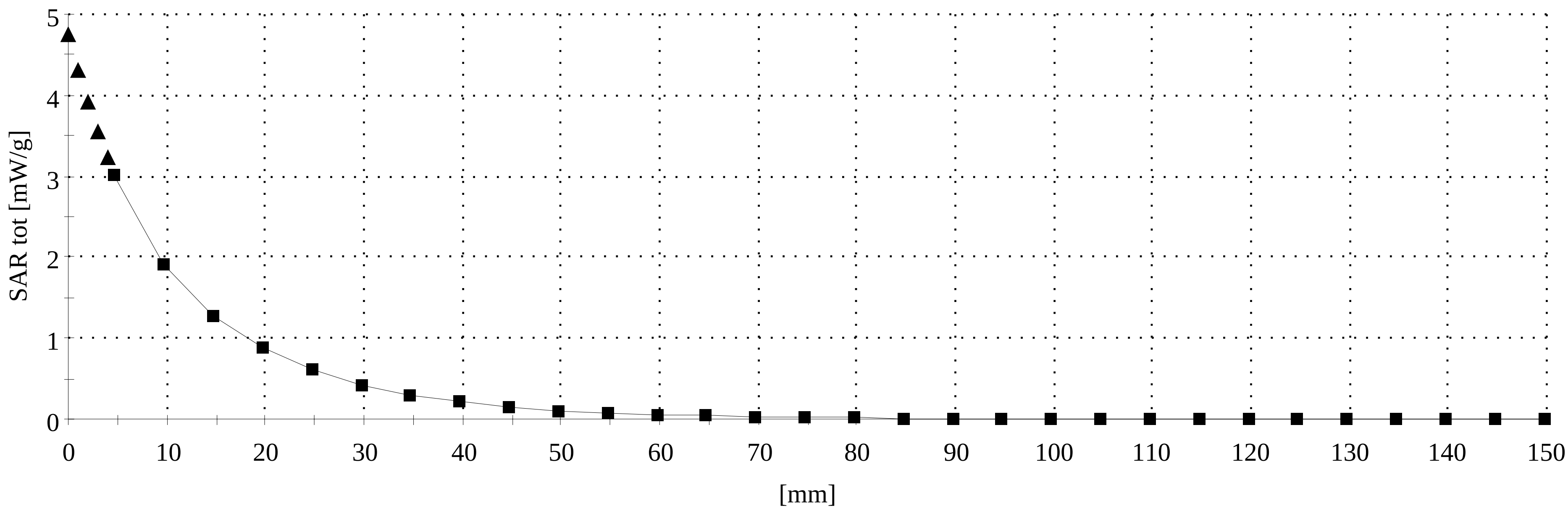
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 249mW   Reflected Power = -24.60db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.6 C
R2 TP-1106 SUGAR SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.97 mho/m ε_r = 40.3 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.76   mW/g ± 0.03 dB, SAR (1g): 2.99   mW/g ± 0.04 dB, SAR (10g): 1.88   mW/g ± 0.04 dB, (Worst-case extrapolation)
Penetration depth: 11.5 (10.6, 12.7) [mm]
Powerdrift: 0.02 dB



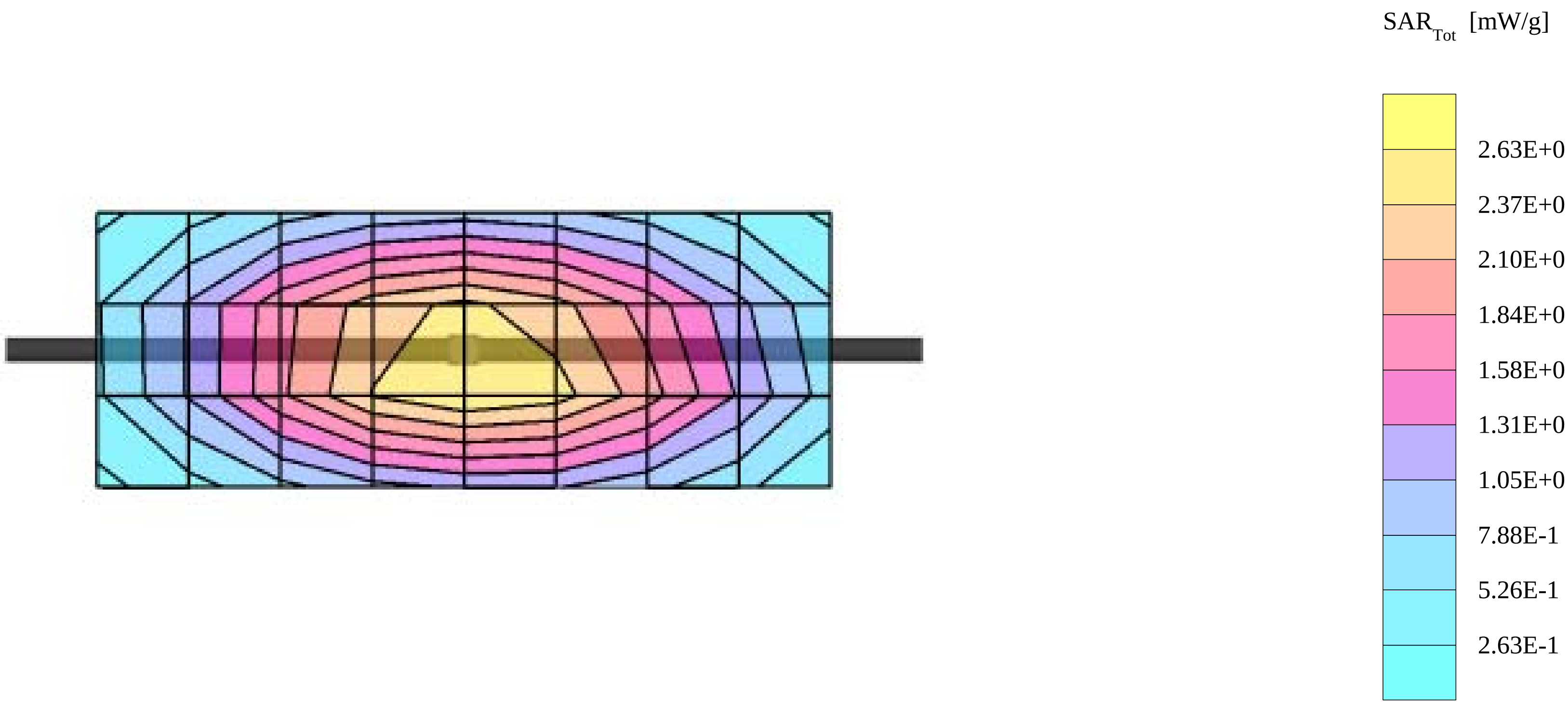
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 249mW   Reflected Power = -24.60db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.6 C
R2 TP-1106 SUGAR SAM (rev. 4) ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.97 mho/m ε_r = 40.3 ρ = 1.00 g/cm³
: , , ()
Penetration depth: 11.5 (10.6, 12.7) [mm]



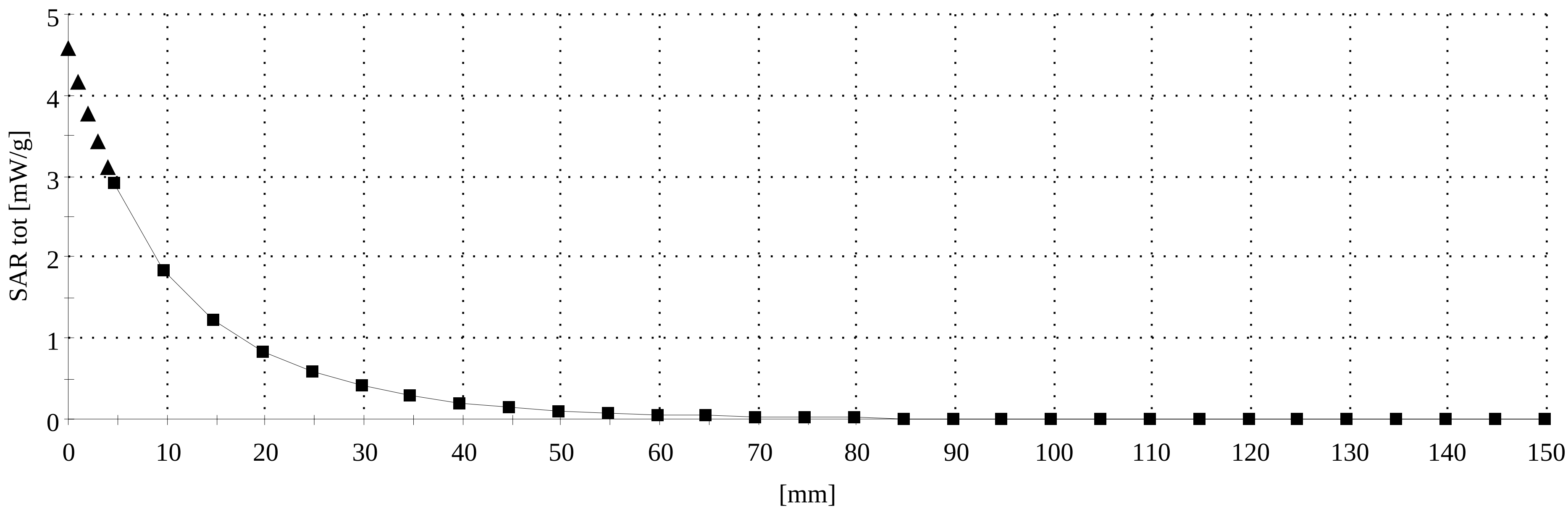
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 249mW   Reflected Power = -24.75db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.9 C
R2 TP-1106 SUGAR SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.97 mho/m ε_r = 40.5 ρ = 1.00 g/cm^3
Cubes (2): Peak: 4.64   mW/g ± 0.04 dB, SAR (1g): 2.90   mW/g ± 0.04 dB, SAR (10g): 1.83   mW/g ± 0.04 dB, (Worst-case extrapolation)
Penetration depth: 11.4 (10.5, 12.6) [mm]
Powerdrift: 0.02 dB



Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 249mW   Reflected Power = -24.75db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.9 C
R2 TP-1106 SUGAR SAM (rev. 4) ;
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.97 mho/m ε_r = 40.5 ρ = 1.00 g/cm^3
: , , ()
Penetration depth: 11.4 (10.6, 12.7) [mm]

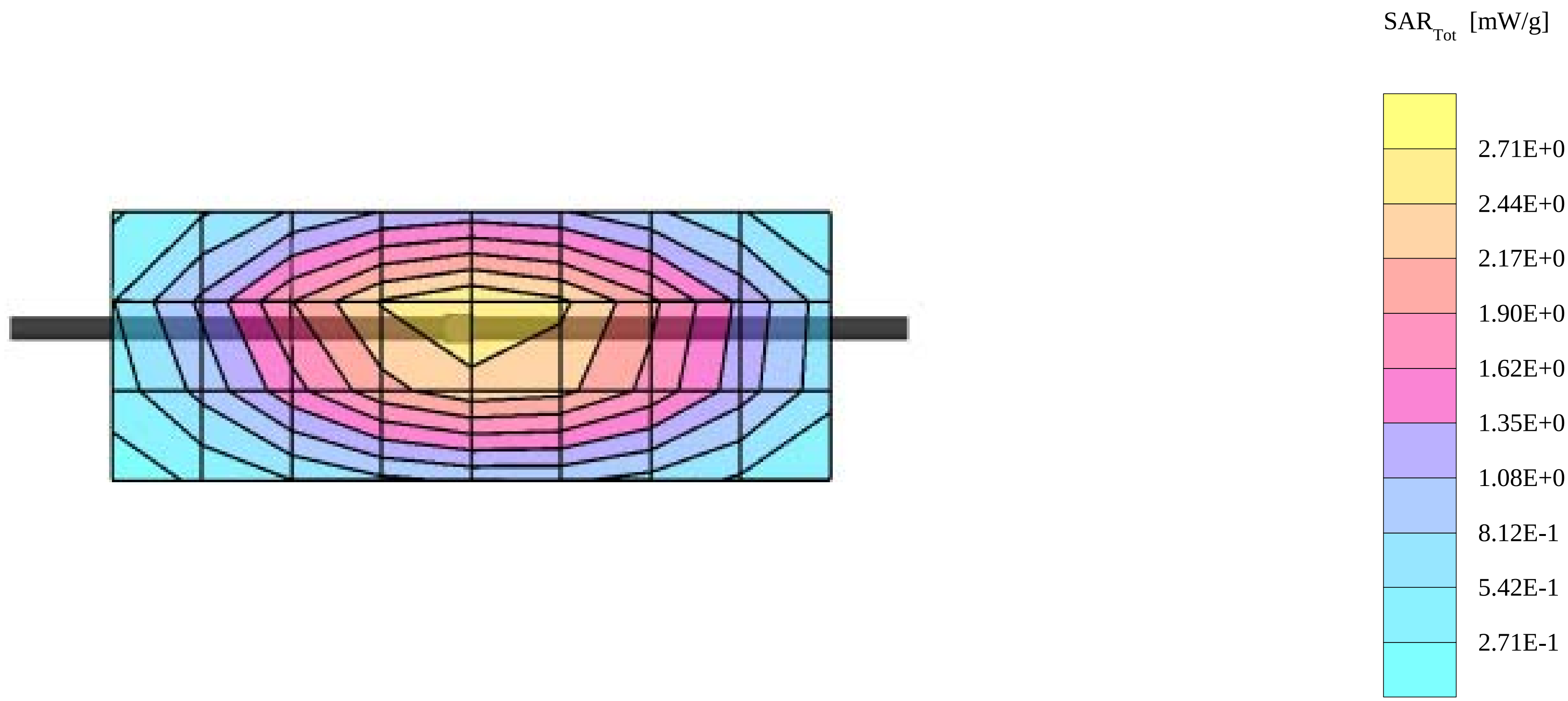


Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 273 tr
Forward Power = 250mW Reflected Power = -22.72db
Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 21.3 C.
R2 Amy Twin Phantom Rev.3 ; section 1
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(5.40,5.40,5.40); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.38 mho/m ε_r = 38.6 ρ = 1.00 g/cm³
Cubes (2): Peak: 18.9 mW/g ± 0.05 dB, SAR (1g): 10.2 mW/g ± 0.04 dB, SAR (10g): 5.40 mW/g ± 0.04 dB, (Worst-case extrapolation)
Penetration depth: 8.3 (7.9, 9.2) [mm]
Powerdrift: -0.01 dB

Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 78
Forward Power = 252mW Reflected Power = -25.55db
Room Temp at time of measurement = 23*C. Simulant Temp at time of measurement = 21.9*C.
R2 TP-1106 SUGAR SAM (rev. 4) ; Flat
Probe: ET3DV6 - SN1515 - Validation(2); ConvF(6.50,6.50,6.50); Crest factor: 1.0; 900 MHz VALIDATION: $\sigma = 0.95$ mho/m $\varepsilon_r = 39.5$ $\rho = 1.00$ g/cm^3
Cubes (2): Peak: 4.69 mW/g ± 0.06 dB, SAR (1g): 2.94 mW/g ± 0.05 dB, SAR (10g): 1.85 mW/g ± 0.04 dB, (Worst-case extrapolation)
Penetration depth: 11.4 (10.6, 12.6) [mm]
Powerdrift: 0.01 dB



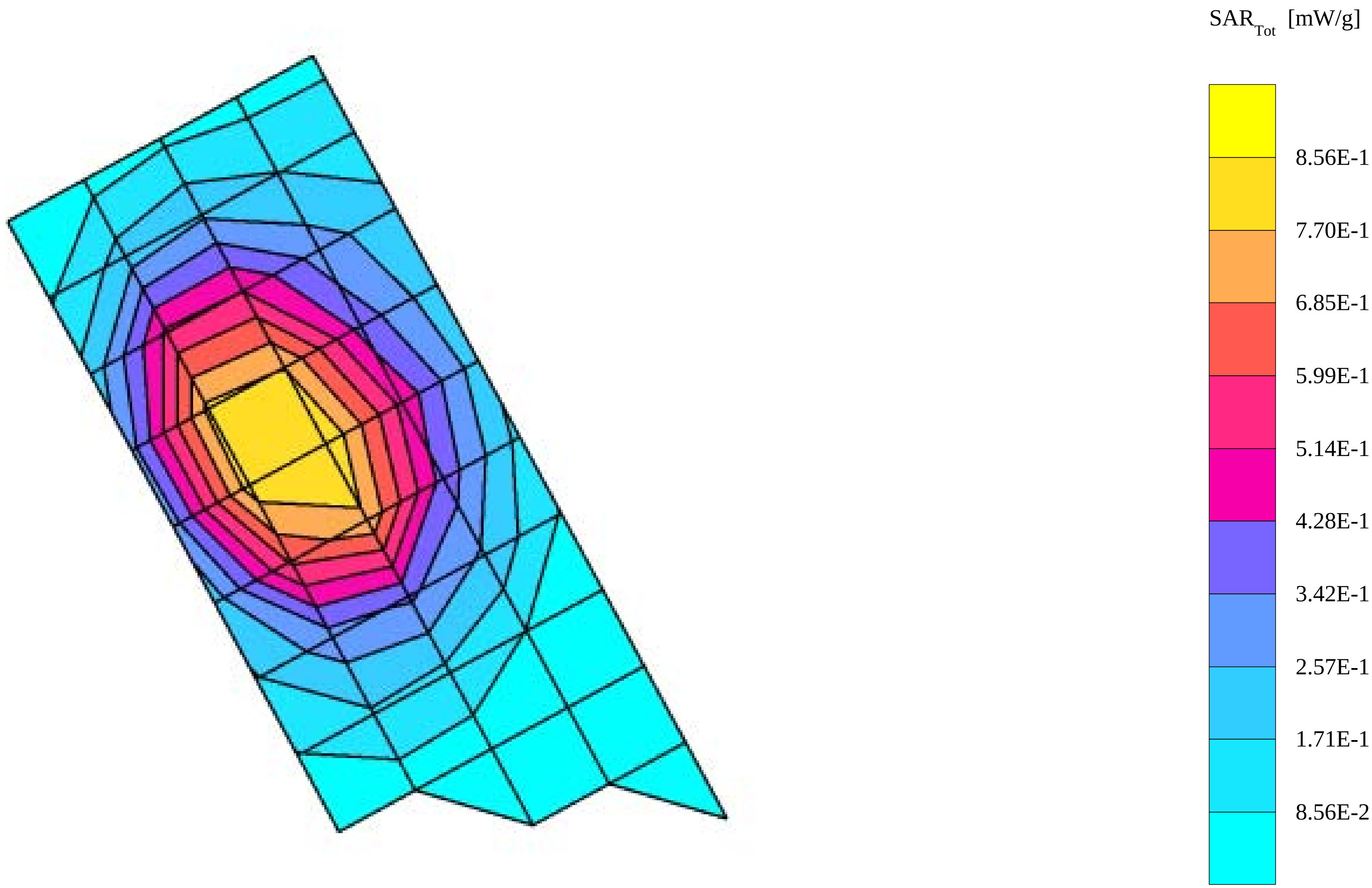
Appendix 2

SAR distribution plots for Phantom Head Adjacent Use

12/19/02

s/n: J0223F

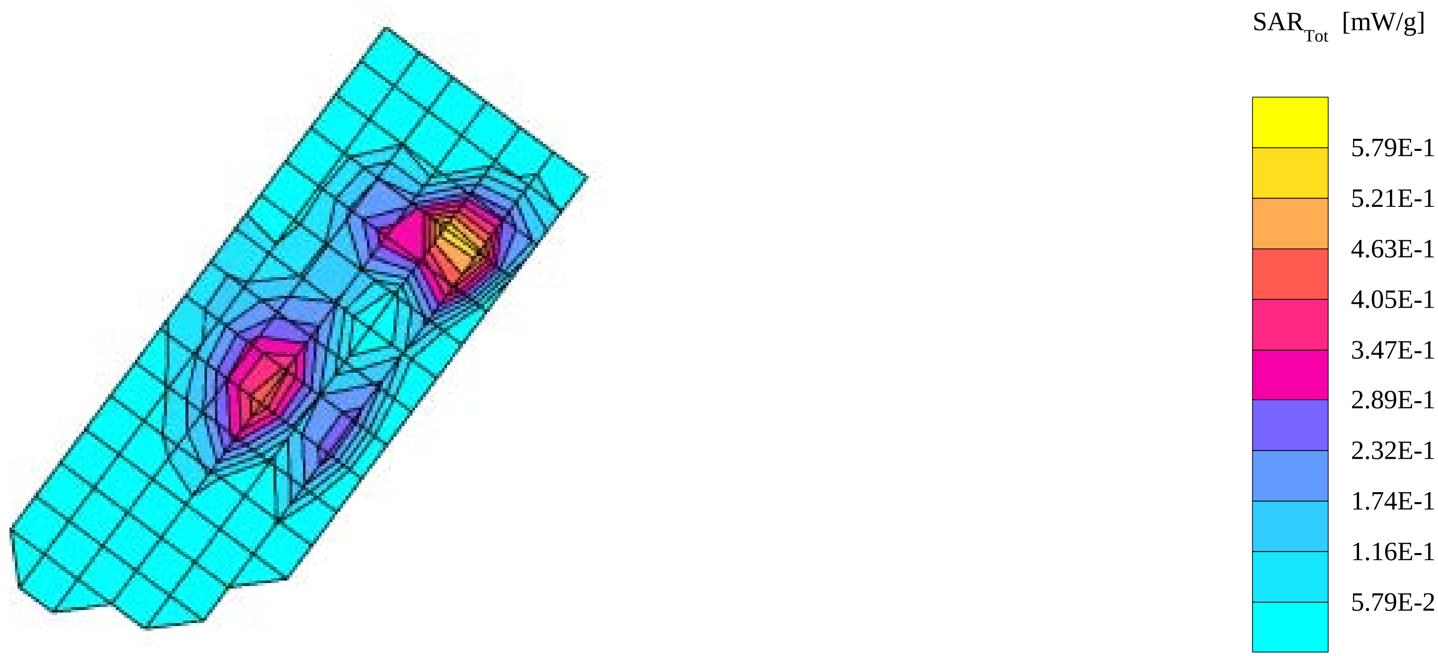
Ch# 190 / Pwr Step: 07 / Type of Modulation: 850 GSM / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): CHEEK
Accessory Model #: PREMIUM HOUSING
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Right Hand Section; Position: (90°,180°); Frequency: 836 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 41.6 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.916 mW/g, SAR (10g): 0.629 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 14.7 (13.8, 15.7) [mm]
Powerdrift: -0.04 dB



12/20/02

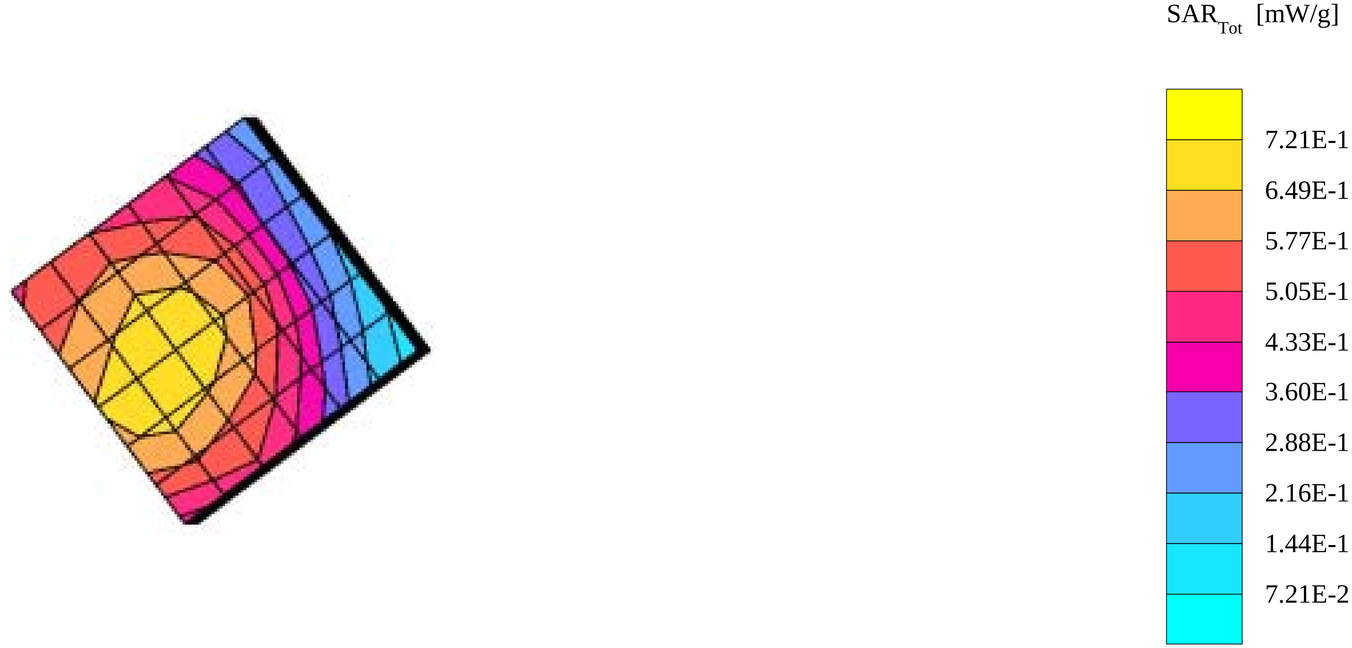
s/n: J0228C

Ch# 661 / Pwr Step: 0 / Type of Modulation: GSM1900 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Cheek
Accessory Model #: Premium Housing
1st Hot Spot
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.44 mho/m ε_r = 38.8 ρ = 1.00 g/cm³
Cube 7x7x7: SAR (1g): 0.713 mW/g, SAR (10g): 0.355 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 8.4 (8.2, 8.8) [mm]
Powerdrift: 0.07 dB



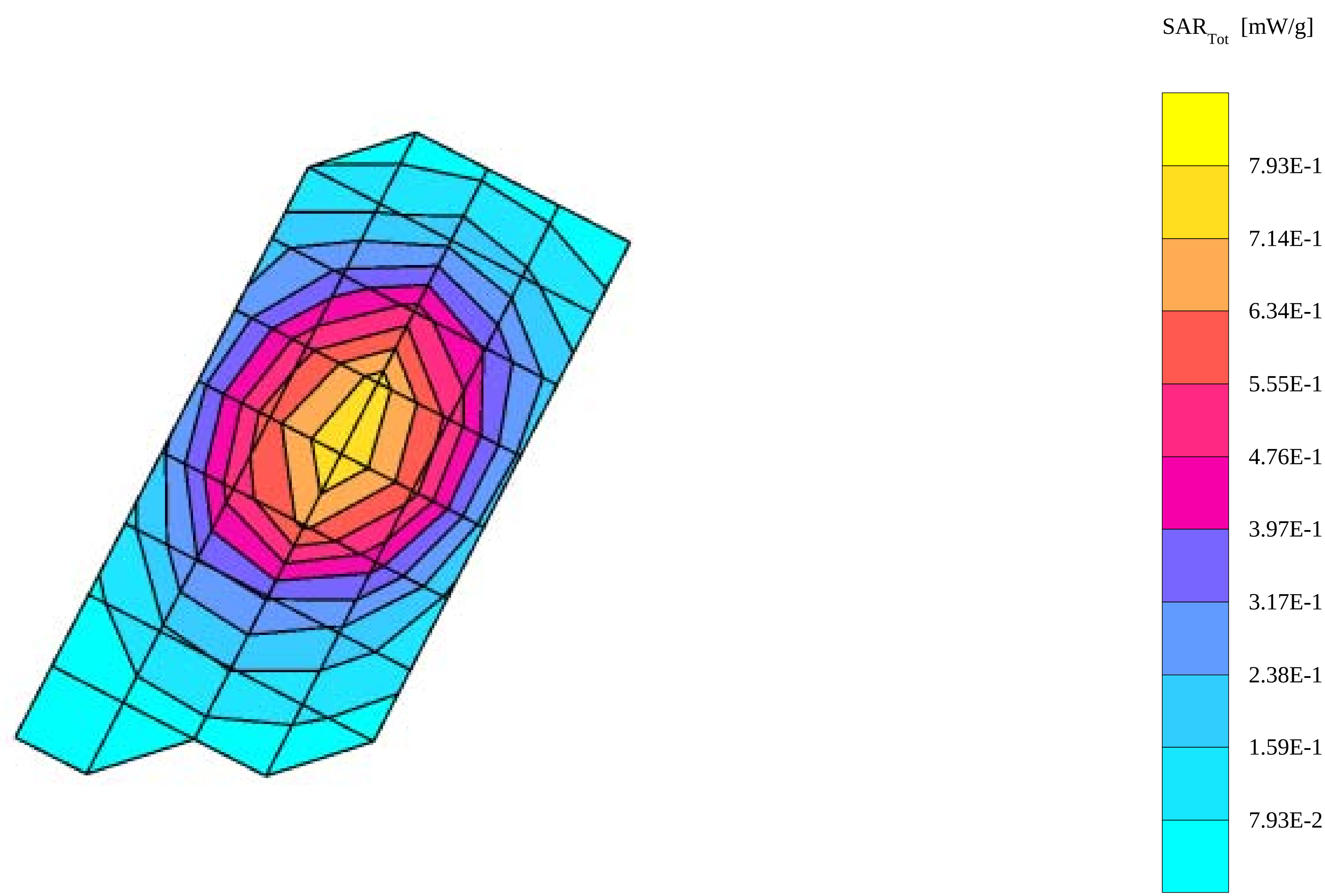
s/n: J0228C

Ch# 661 / Pwr Step: 0 / Type of Modulation: GSM1900 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Cheek
Accessory Model #: Premium Housing
2nd Hot Spot
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (80°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.44 mho/m ε_r = 38.8 ρ = 1.00 g/cm³
Cube 7x7x7: SAR (1g): 0.466 mW/g, SAR (10g): 0.274 mW/g, (Worst-case extrapolation)
Cube 7x7x7: Dx = 5.0, Dy = 5.0, Dz = 5.0
Penetration depth: 11.7 (11.1, 12.3) [mm]
Powerdrift: 0.03 dB



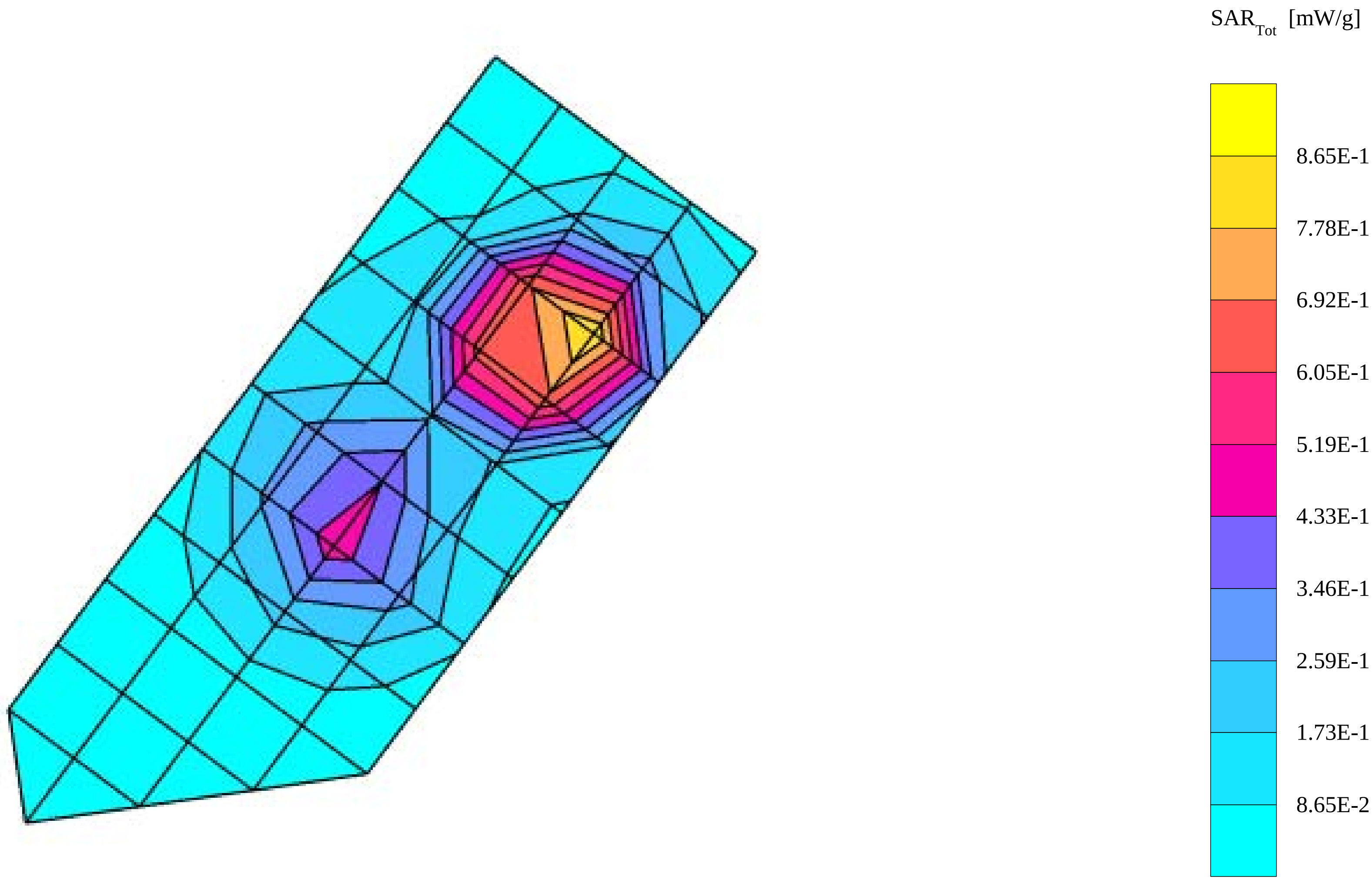
s/n: J0228C

Ch# 190 / Pwr Step: 7 / Type of Modulation: GSM850 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Cheek
Accessory Model #: Hourglass Housing
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Left Hand Section; Position: (90°,180°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: $\sigma = 0.91$ mho/m $\varepsilon_r = 41.3$ $\rho = 1.00$ g/cm^3
Cube 7x7x7: SAR (1g): 0.811 mW/g, SAR (10g): 0.550 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 14.3 (13.1, 15.6) [mm]
Powerdrift: -0.06 dB



s/n: J0228C

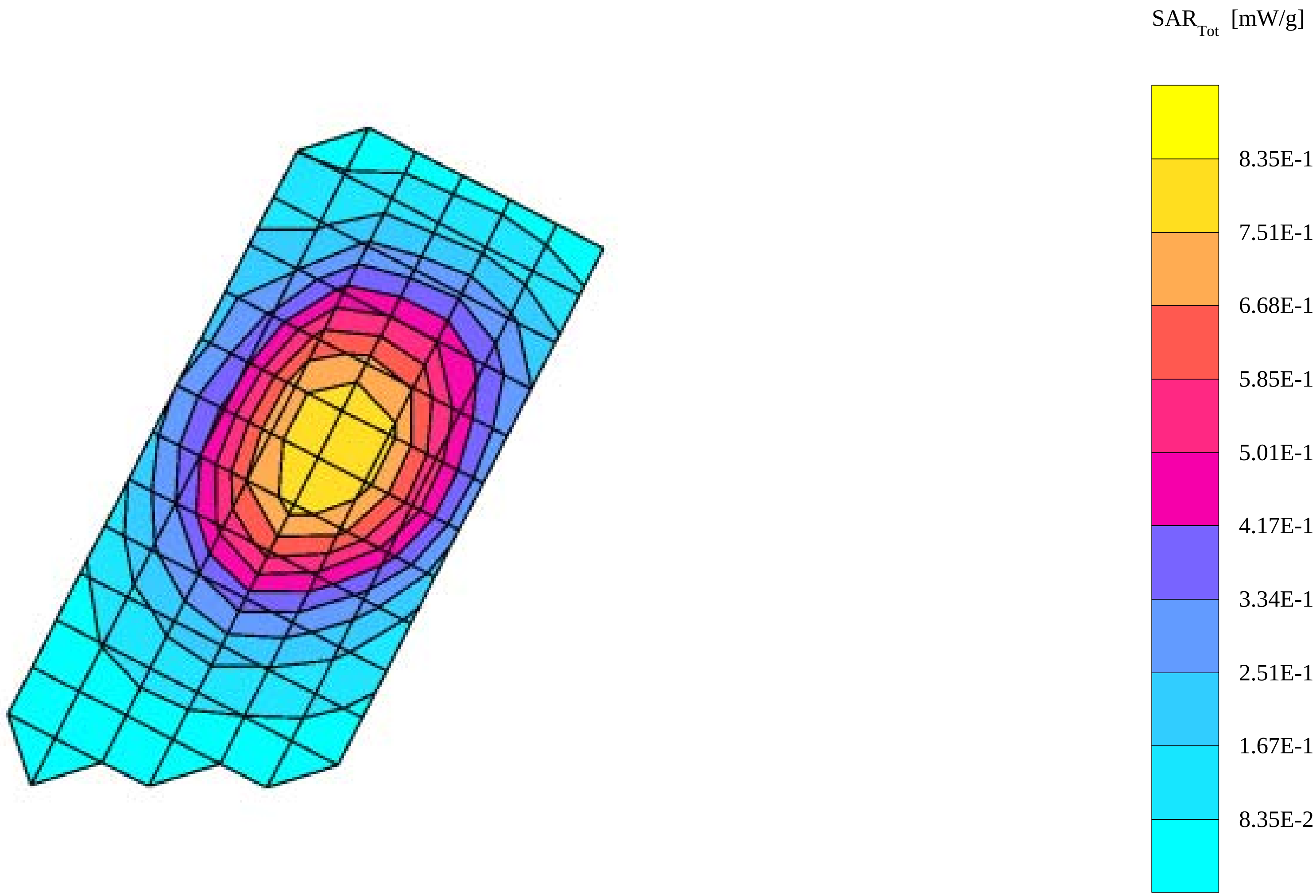
Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): CHEEK
Accessory Model #: HOURGLASS HOUSING
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 38.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.922 mW/g, SAR (10g): 0.488 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 8.7 (8.6, 9.2) [mm]
Powerdrift: 0.06 dB



12/19/02

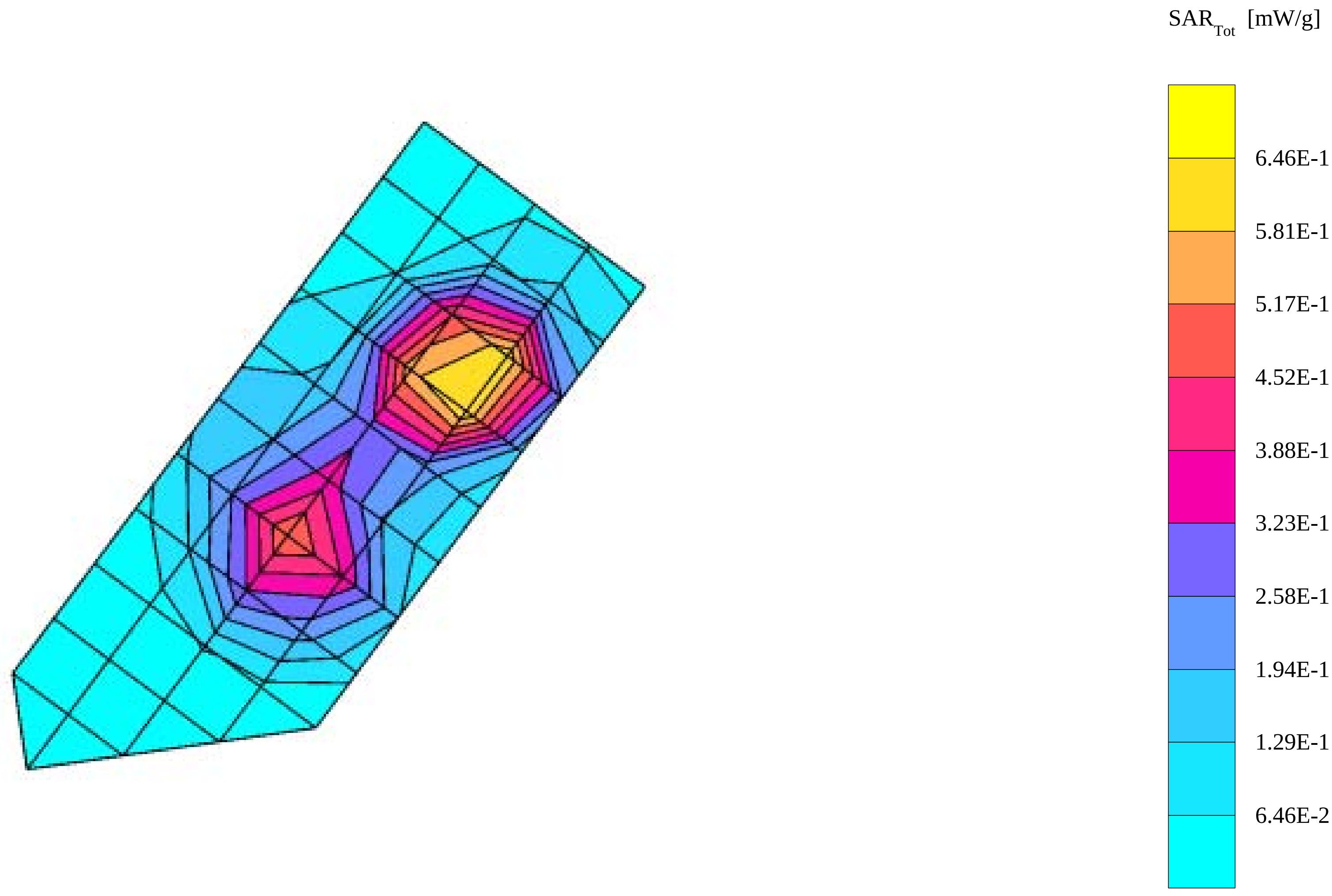
s/n: J0223F

Ch# 251/ Pwr Step: 07 / Type of Modulation: 850 GSM / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): CHEEK
Accessory Model #: PEANUT HOUSING
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Left Hand Section; Position: (90°,180°); Frequency: 848 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.93 mho/m ε_r = 42.5 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.855 mW/g, SAR (10g): 0.581 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 14.3 (13.2, 15.5) [mm]
Powerdrift: -0.04 dB



s/n: J0223F

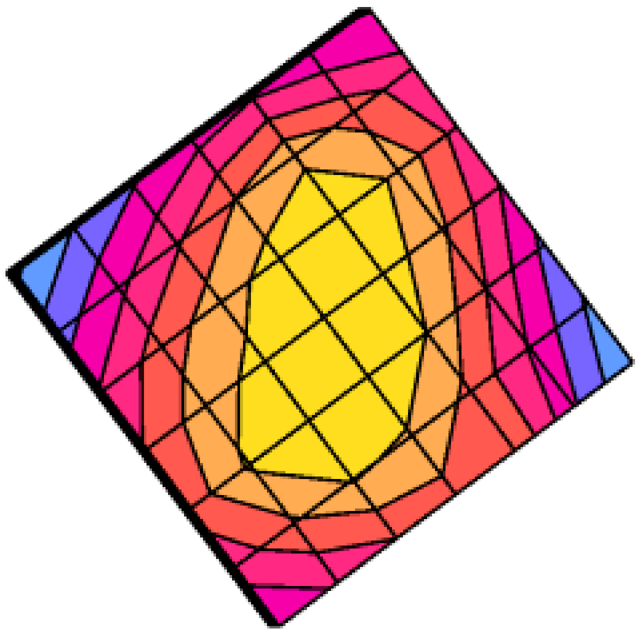
Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204A
DEVICE POSITION: CHEEK
Accessory Model #: Peanut Housing / 1st Hot spot
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.45 mho/m ε_r = 38.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.727 mW/g, SAR (10g): 0.385 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 9.1 (8.9, 9.6) [mm]
Powerdrift: -0.30 dB

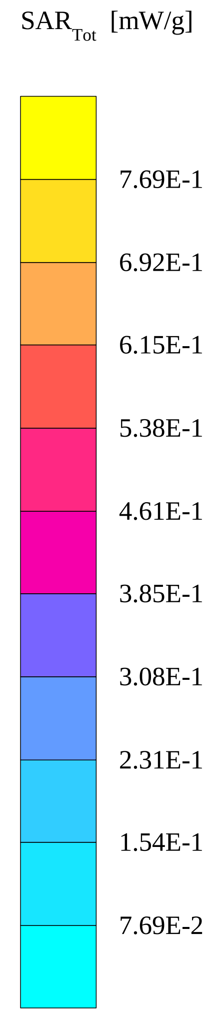


12/26/02

s/n: J0223F

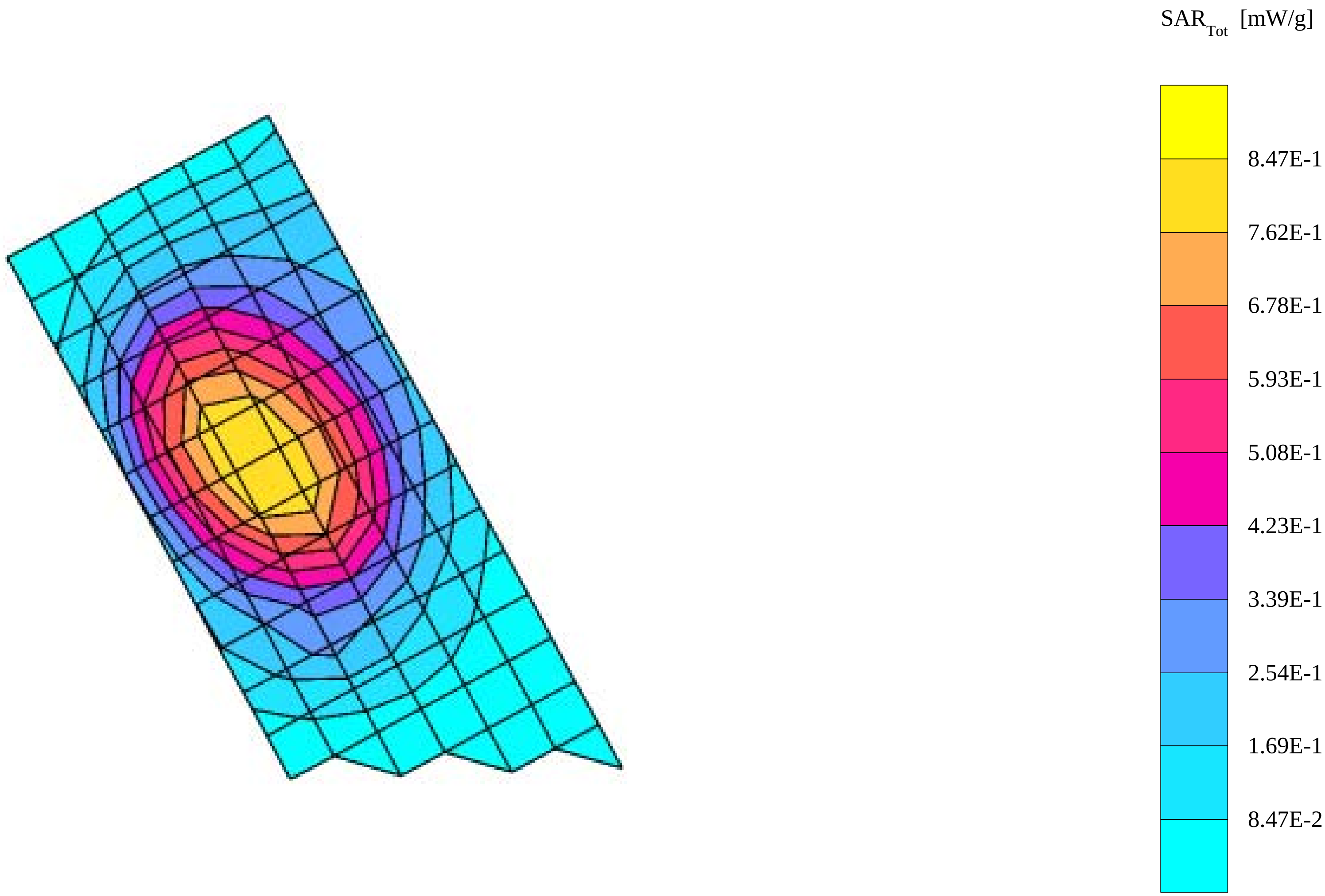
Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204A
DEVICE POSITION: CHEEK
Accessory Model #: Peanut Housing / 2nd Hot Spot
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (80°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.45 mho/m ε_r = 38.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.492 mW/g, SAR (10g): 0.293 mW/g, (Worst-case extrapolation)
Cube 7x7x7: Dx = 5.0, Dy = 5.0, Dz = 5.0
Penetration depth: 11.9 (11.4, 12.5) [mm]
Powerdrift: -0.20 dB





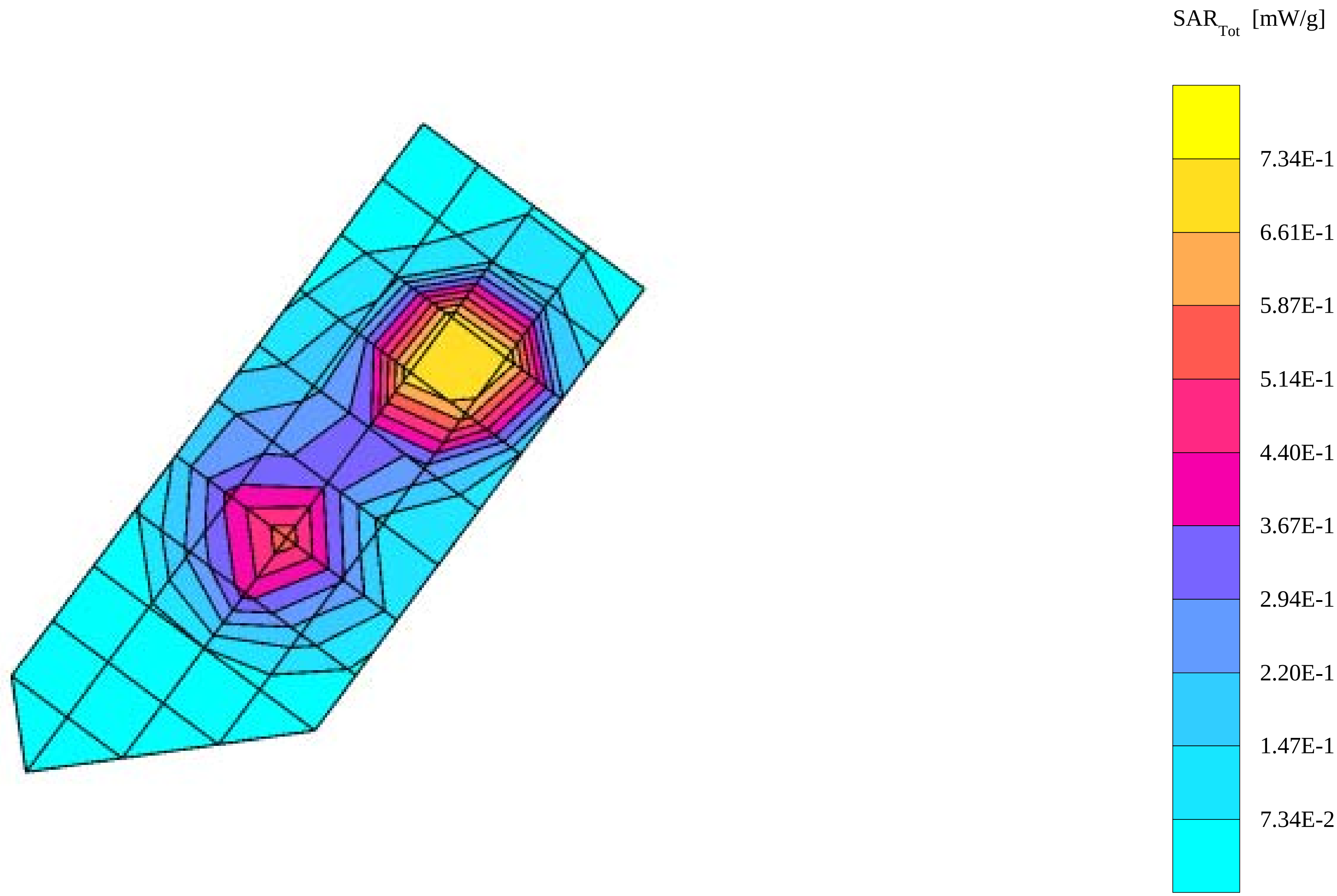
s/n: J0223F

Ch# 190/ Pwr Step: 7 / Type of Modulation: GSM850 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Cheek
Accessory Model #: Mini Housing
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Right Hand Section; Position: (90°,180°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.93 mho/m ε_r = 42.5 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.873 mW/g, SAR (10g): 0.596 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 14.7 (13.9, 15.7) [mm]
Powerdrift: -0.06 dB



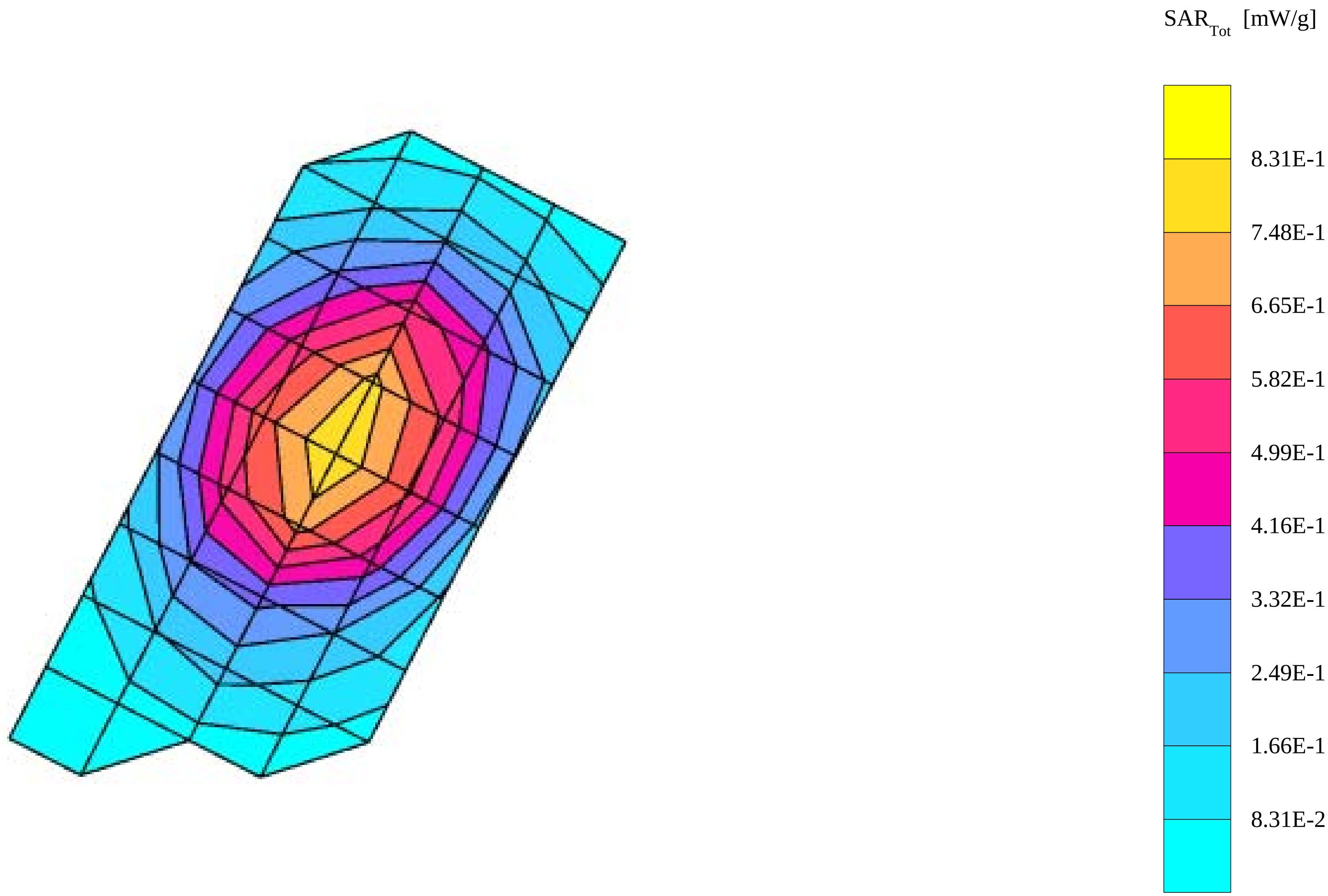
s/n: J0223F

Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): CHEEK
Accessory Model #: MINI HOUSING
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.45 mho/m ε_r = 39.5 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.930 mW/g, SAR (10g): 0.479 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 8.5 (8.4, 8.9) [mm]
Powerdrift: 0.16 dB



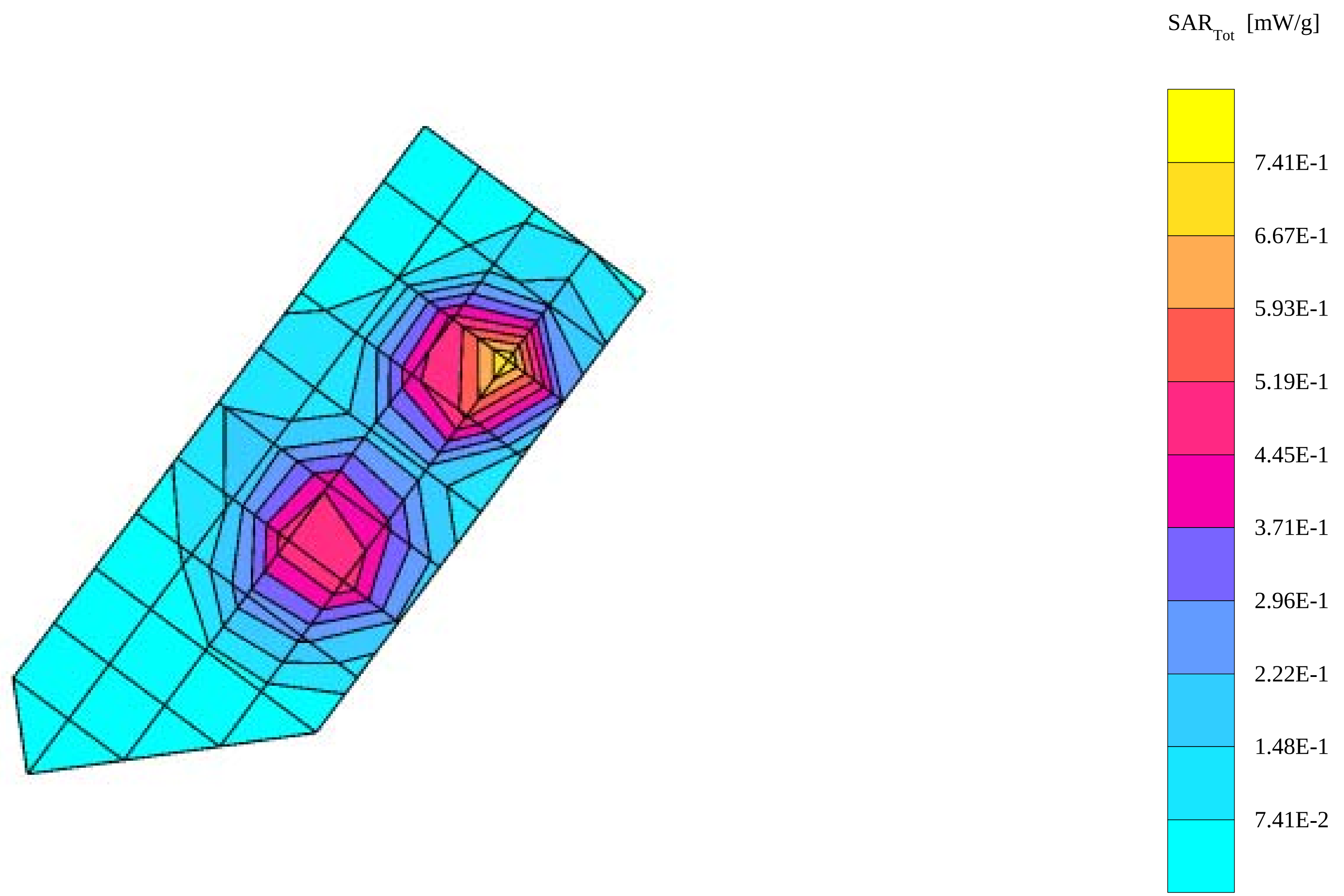
s/n: J0228C

Ch# 190 / Pwr Step: 07 / Type of Modulation: 850 GSM / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): CHEEK
Accessory Model #: METAL BOX HOUSING
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Left Hand Section; Position: (90°,180°); Frequency: 836 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 41.3 ρ = 1.00 g/cm³
Cube 7x7x7: SAR (1g): 0.839 mW/g, SAR (10g): 0.566 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 14.3 (13.0, 15.6) [mm]
Powerdrift: -0.05 dB



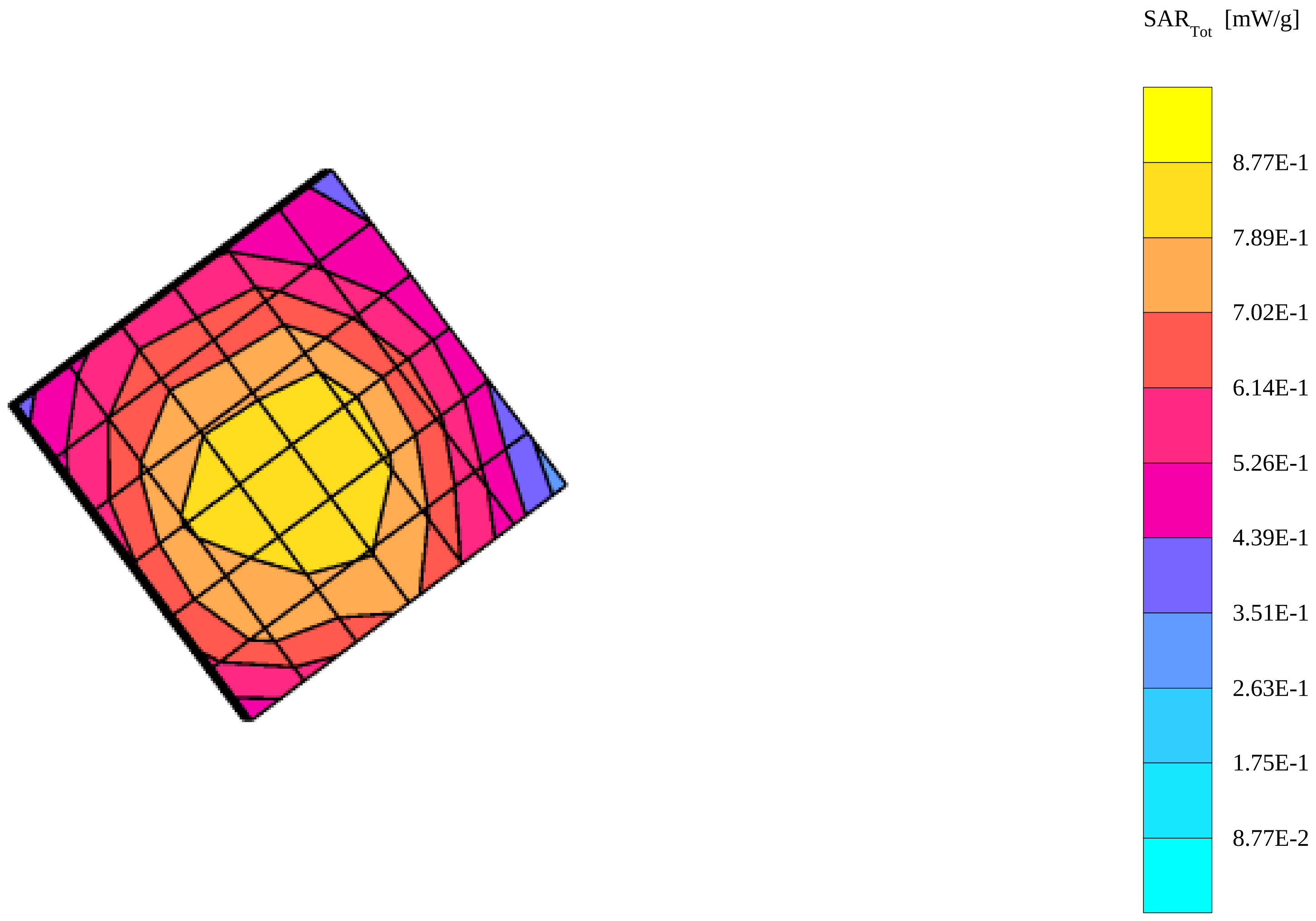
s/n: J0228C

Ch# 661 / Pwr Step: 0 / Type of Modulation: GSM1900 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Cheek
Accessory Model #: Metal Box Housing / 1st Hot Spot
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 39.1 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.775 mW/g, SAR (10g): 0.384 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 8.4 (8.2, 8.8) [mm]
Powerdrift: -0.06 dB



s/n: J0228C

Ch# 661 / Pwr Step: 0 / Type of Modulation: GSM1900 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Cheek
Accessory Model #: Metal Box Housing / 2nd Hot Spot
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (80°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 39.1 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.562 mW/g, SAR (10g): 0.337 mW/g, (Worst-case extrapolation)
Cube 7x7x7: Dx = 5.0, Dy = 5.0, Dz = 5.0
Penetration depth: 12.2 (11.6, 12.8) [mm]
Powerdrift: -0.00 dB



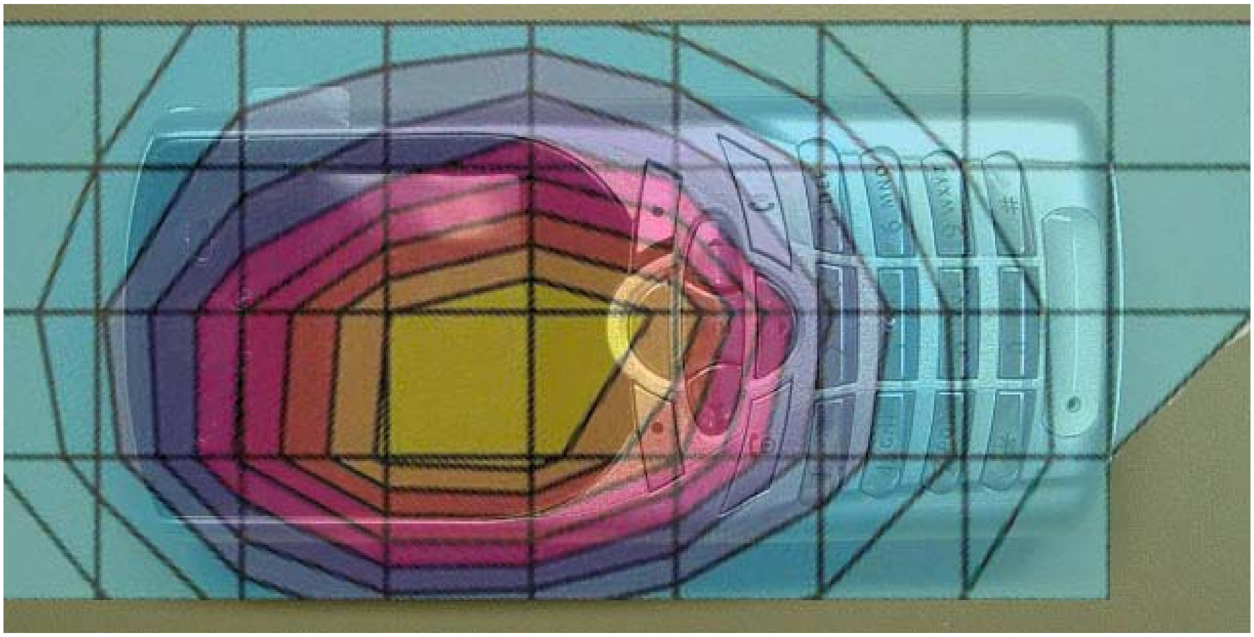


Figure 1.Typical 800MHz Head Adjacent Contour Overlaid on Phone (Cheek Touch)

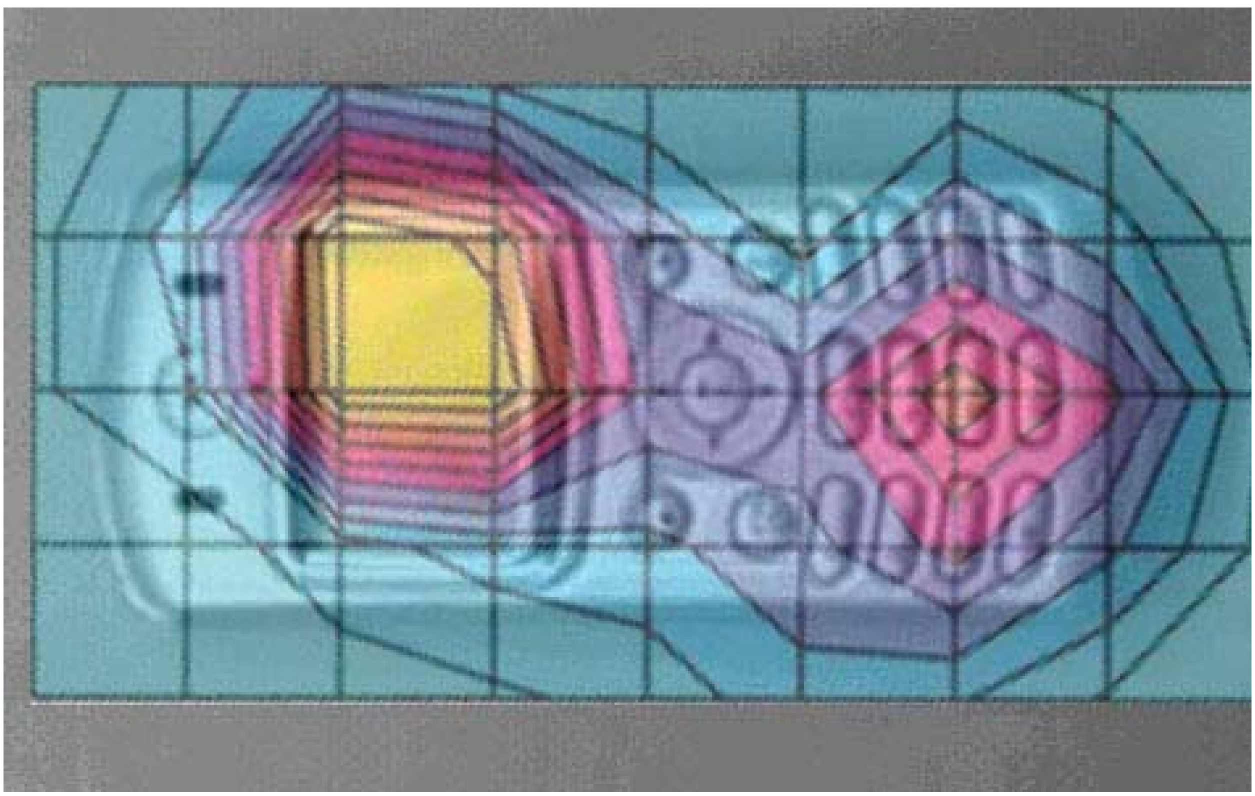
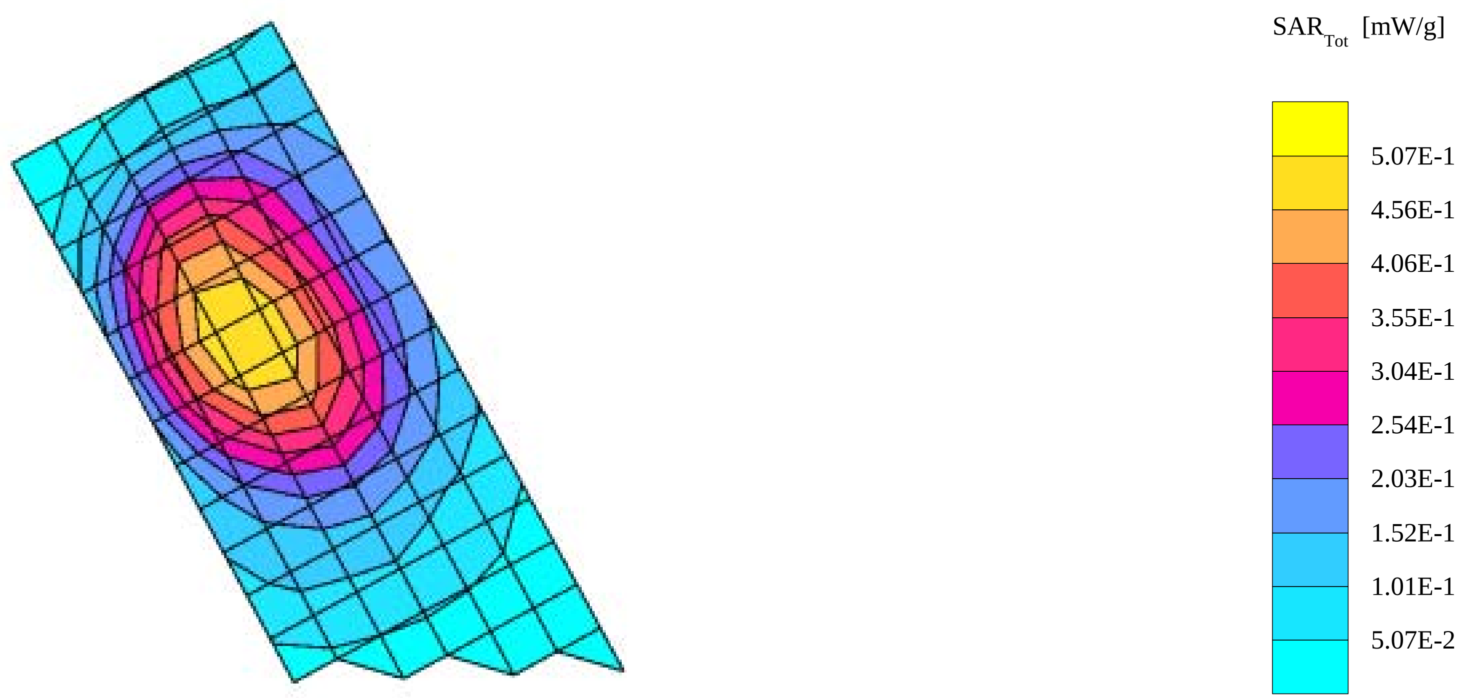


Figure 2.Typical 1900MHz Head Adjacent Contour Overlaid on Phone (Cheek Touch)

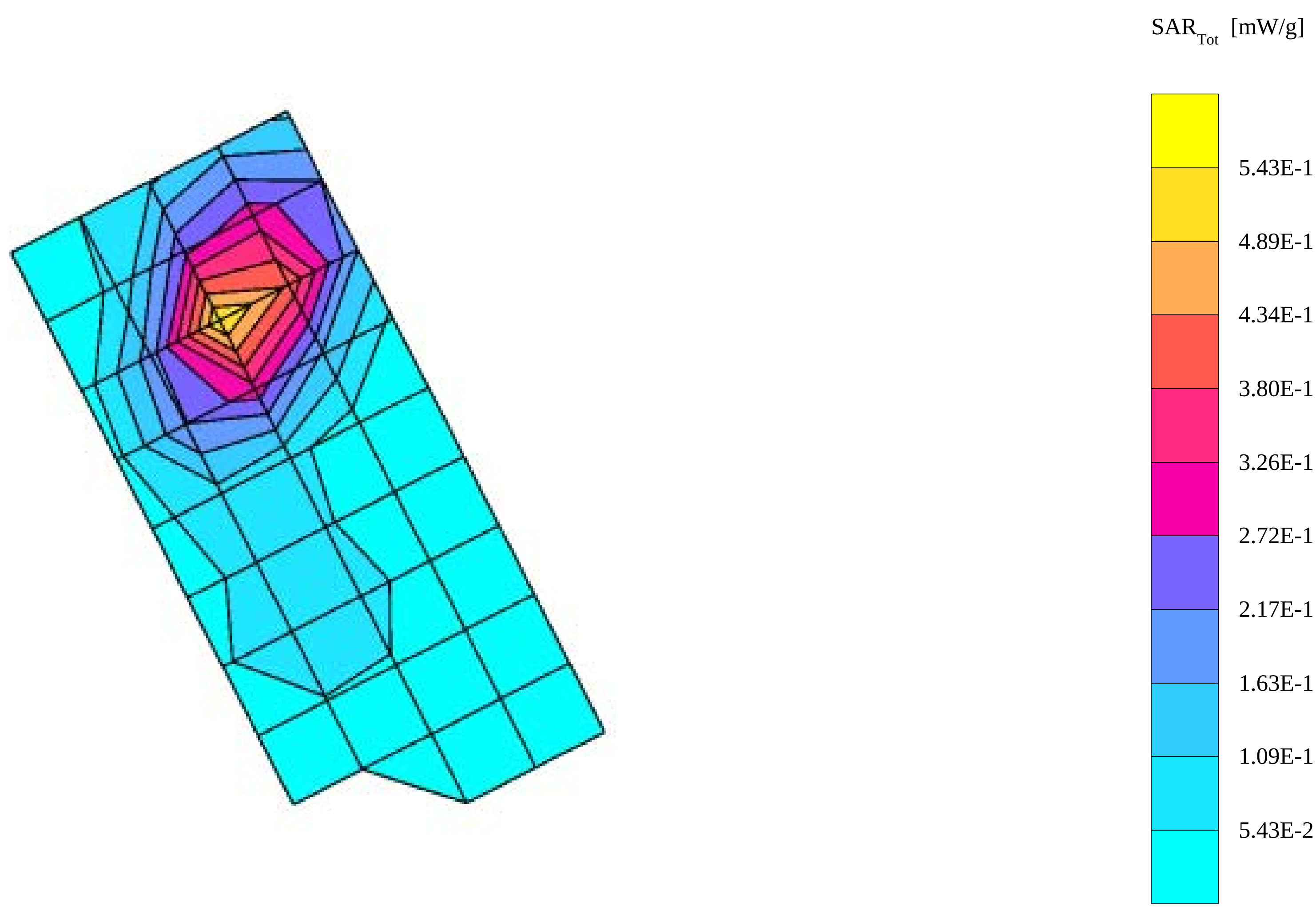
s/n: J0223F

Ch# 190 / Pwr Step: 7 / Type of Modulation: GSM850 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Rotated
Accessory Model #: Premium Housing
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Right Hand Section; Position: (90°,180°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 40.7 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.527 mW/g, SAR (10g): 0.358 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 14.5 (13.3, 15.8) [mm]
Powerdrift: -0.00 dB



s/n: J0223F

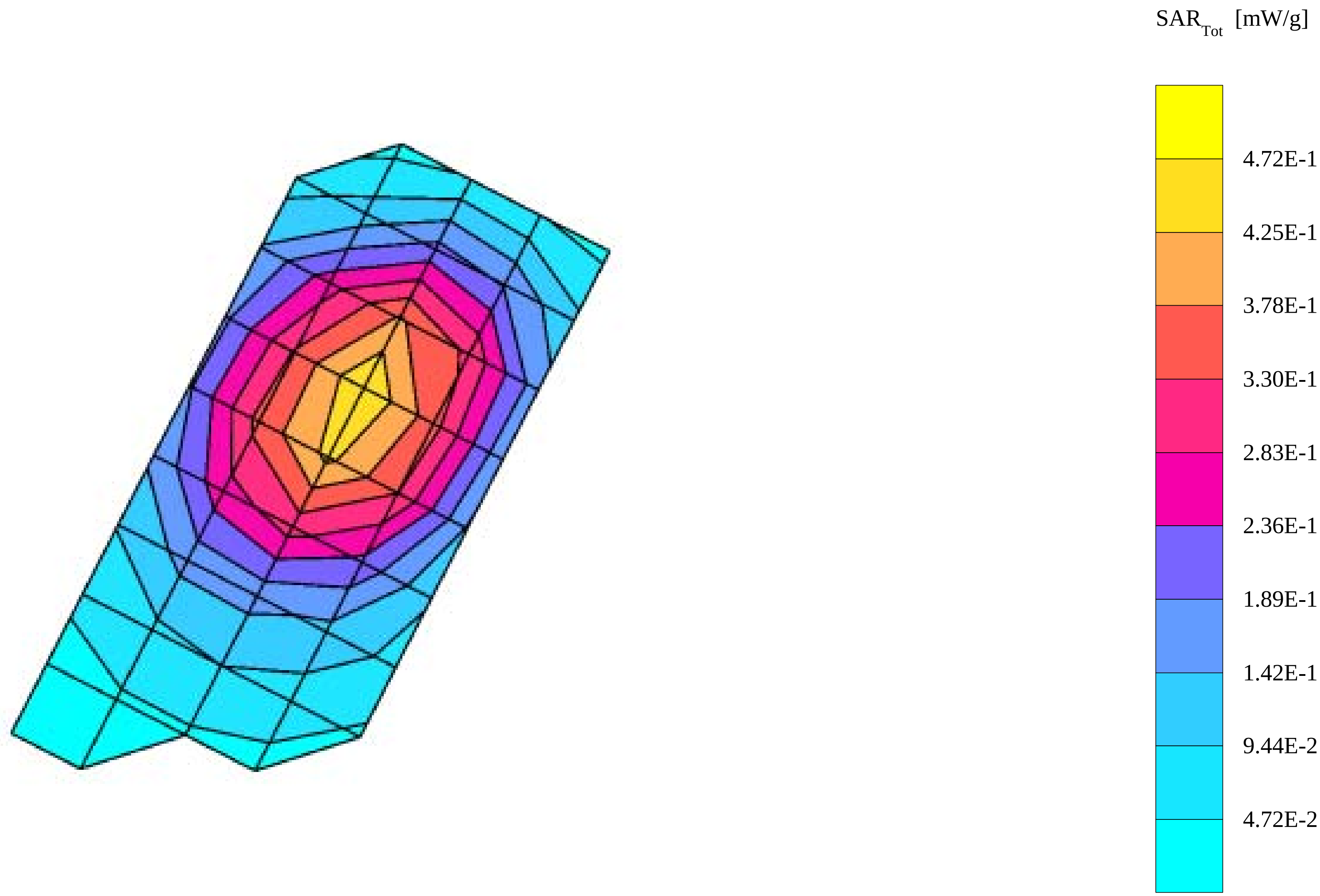
Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): TILTED
Accessory Model #: PREMIUM HOUSING
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 Weezie Right Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.44 mho/m ε_r = 38.8 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.552 mW/g, SAR (10g): 0.291 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 8.8 (8.5, 9.5) [mm]
Powerdrift: -0.19 dB



12/12/02

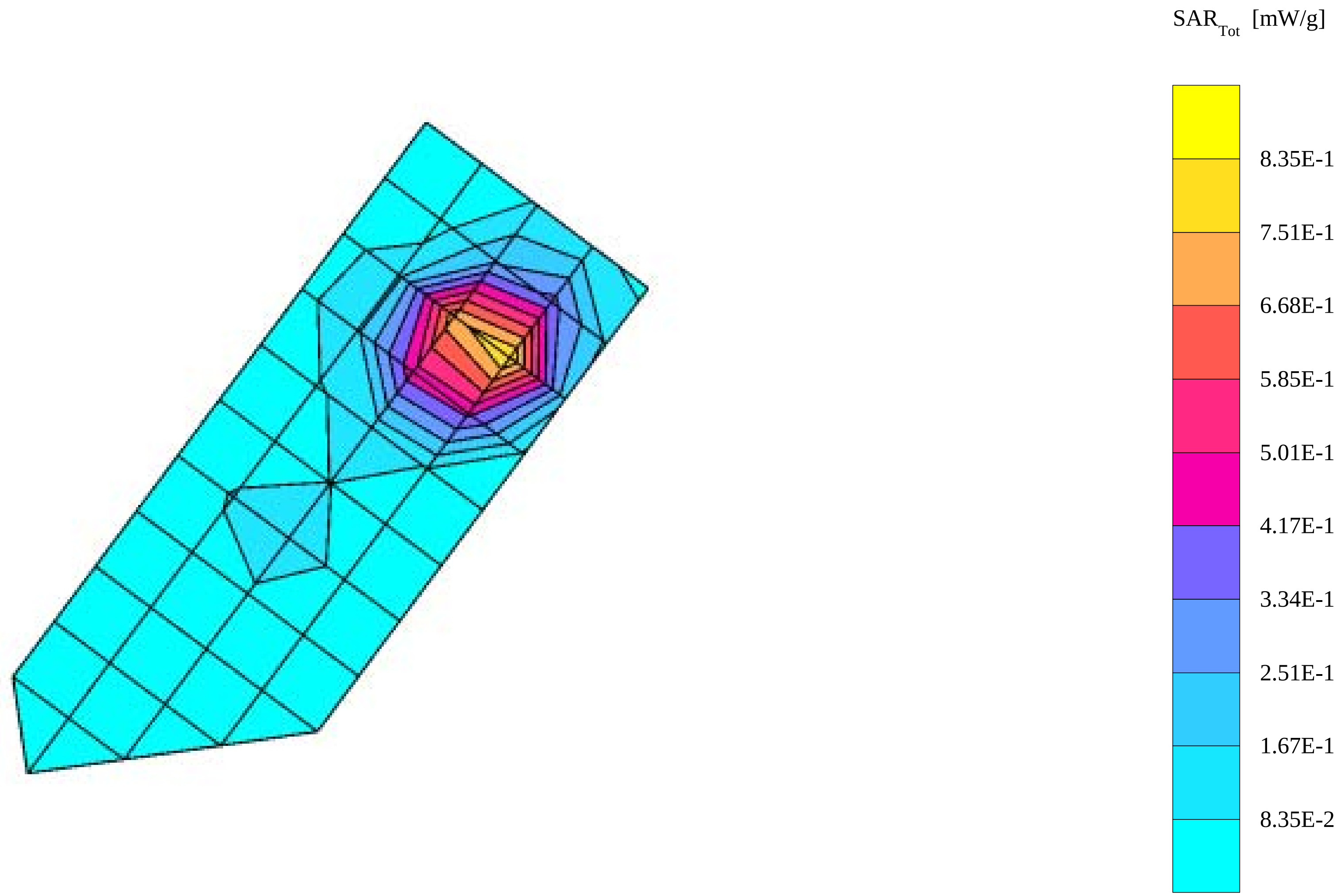
s/n: J0228C

Ch# 190 / Pwr Step: 07 / Type of Modulation: 850 GSM / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): TILTED
Accessory Model #: HOURGLASS HOUSING
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Left Hand Section; Position: (90°,180°); Frequency: 836 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 41.3 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.474 mW/g, SAR (10g): 0.320 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 14.1 (12.8, 15.4) [mm]
Powerdrift: -0.15 dB



s/n: J0228C

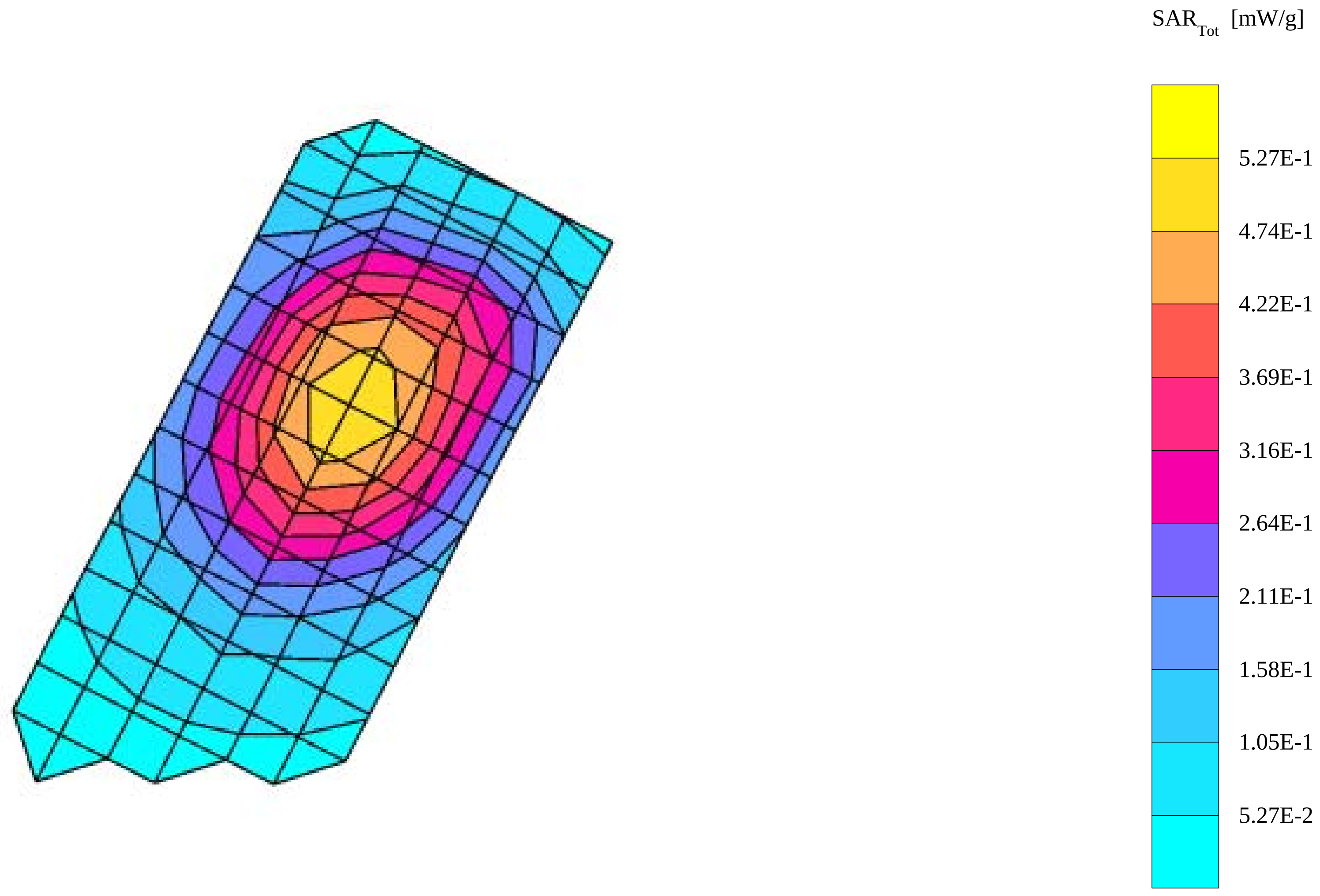
Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): TILTED
Accessory Model #: HOURGLASS HOUSING
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 38.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.875 mW/g, SAR (10g): 0.450 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 8.6 (8.5, 9.0) [mm]
Powerdrift: -0.27 dB



12/19/02

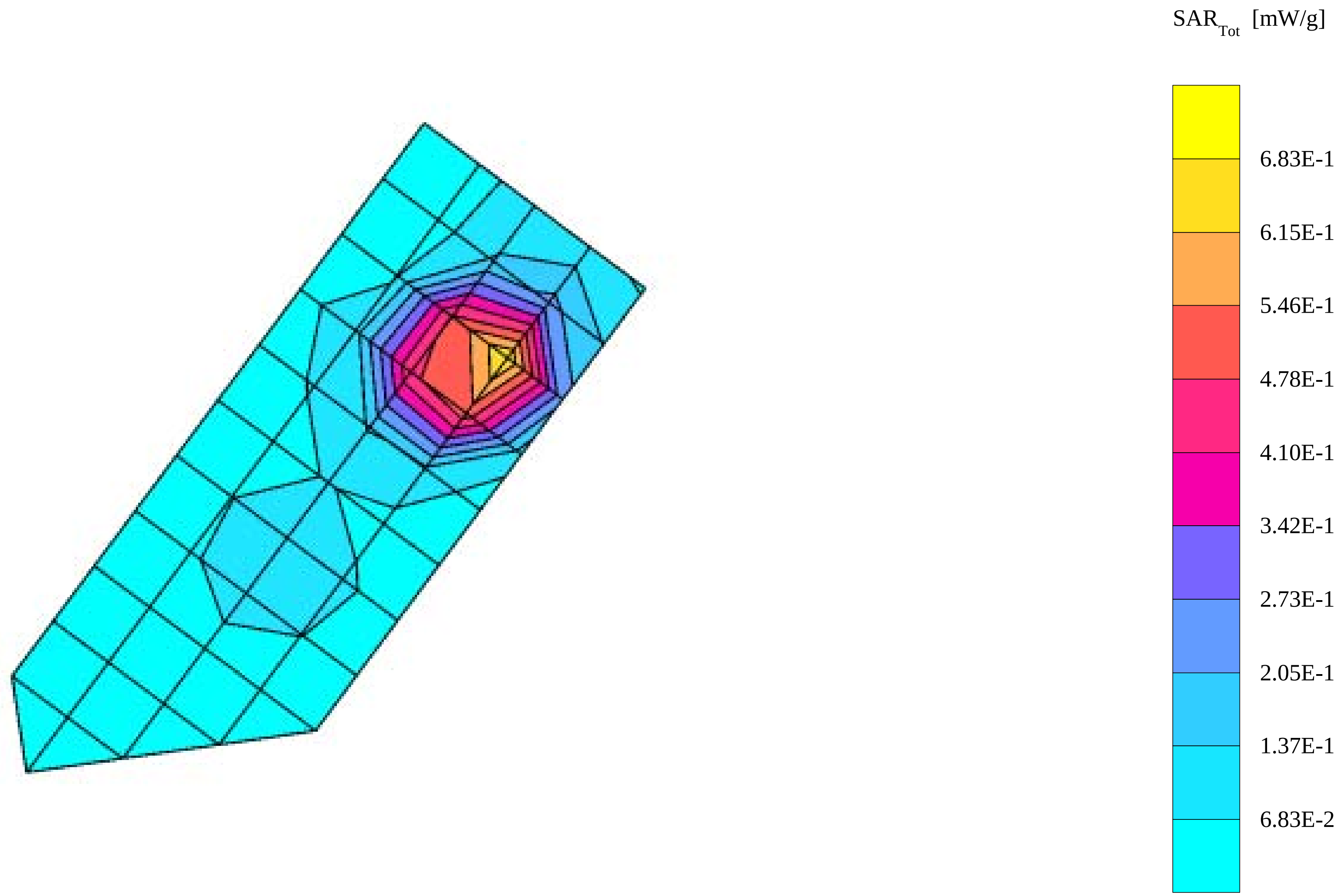
s/n: J0223F

Ch# 190 / Pwr Step: 7 / Type of Modulation: GSM850 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Rotated
Accessory Model #: Peanut Housing
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Left Hand Section; Position: (90°,180°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 41.6 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.538 mW/g, SAR (10g): 0.362 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 14.3 (13.3, 15.4) [mm]
Powerdrift: 0.02 dB



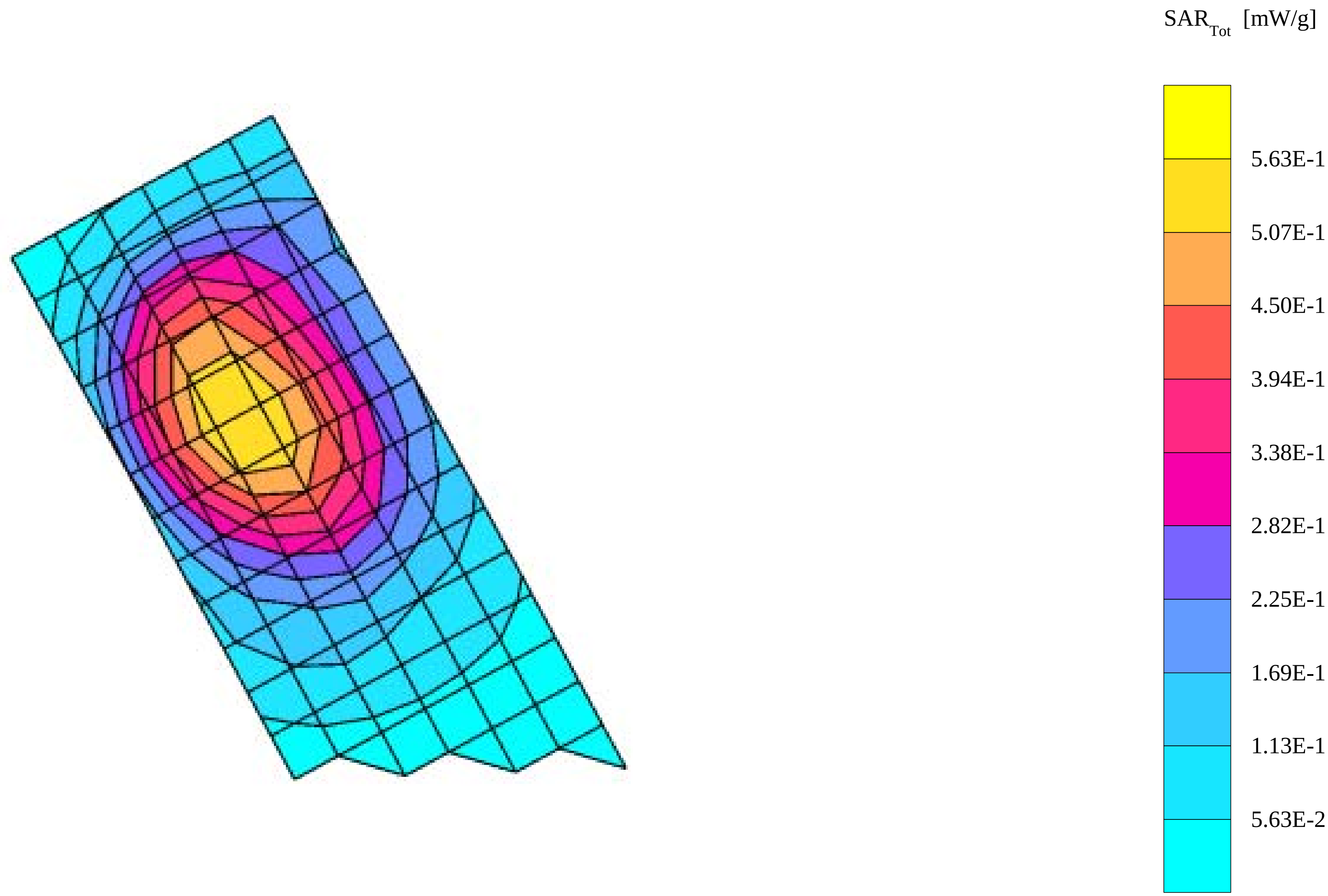
s/n: J0223F

Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204A
DEVICE POSITION: TILT
Accessory Model #: Peanut Housing
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.45 mho/m ε_r = 38.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.725 mW/g, SAR (10g): 0.372 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 8.7 (8.6, 9.1) [mm]
Powerdrift: -0.16 dB



s/n: J0223F

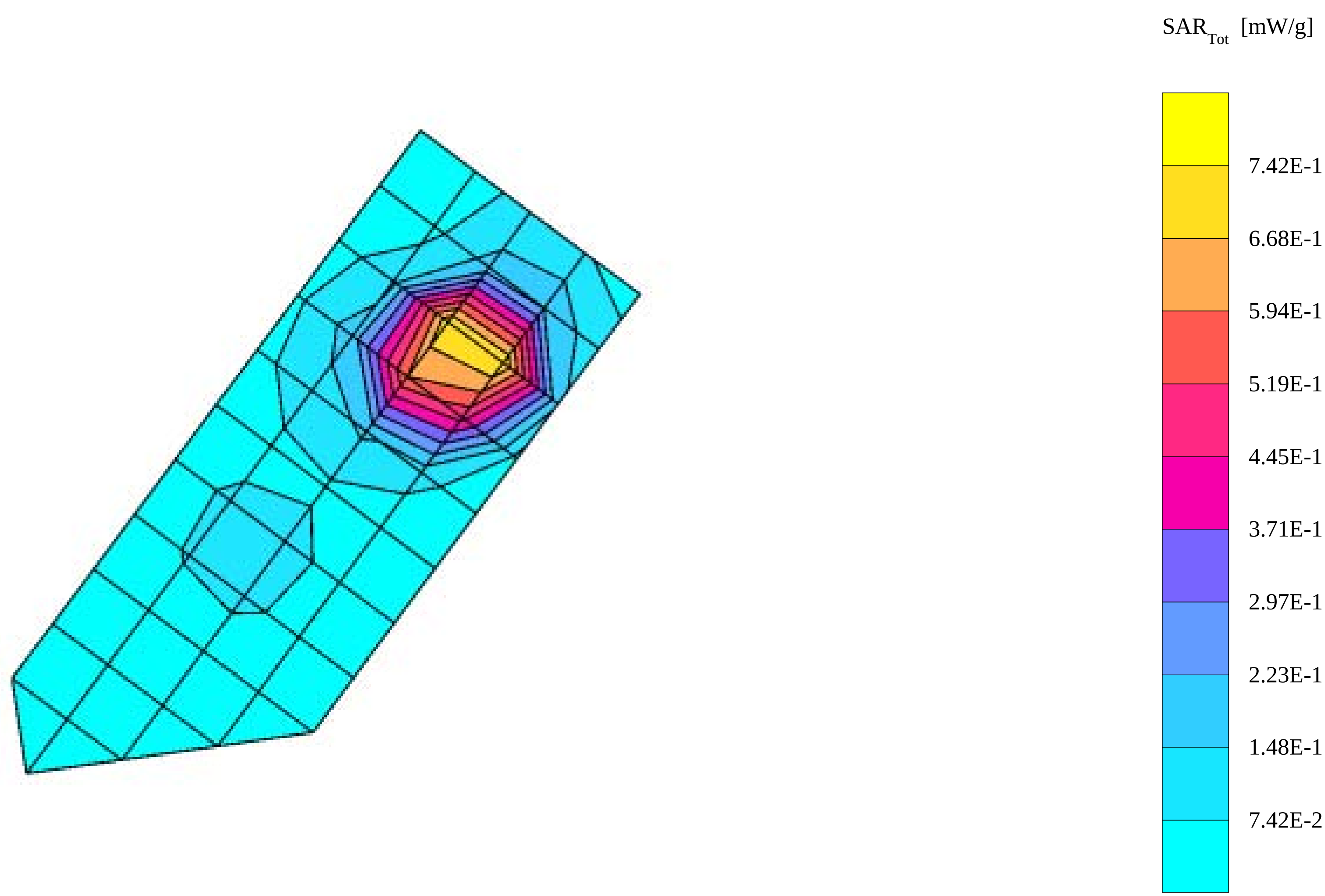
Ch# 190/ Pwr Step: 7 / Type of Modulation: GSM850 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Rotated
Accessory Model #: Mini Housing
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Right Hand Section; Position: (90°,180°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.93 mho/m ε_r = 42.5 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.580 mW/g, SAR (10g): 0.393 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 14.6 (13.7, 15.6) [mm]
Powerdrift: -0.00 dB



12/18/02

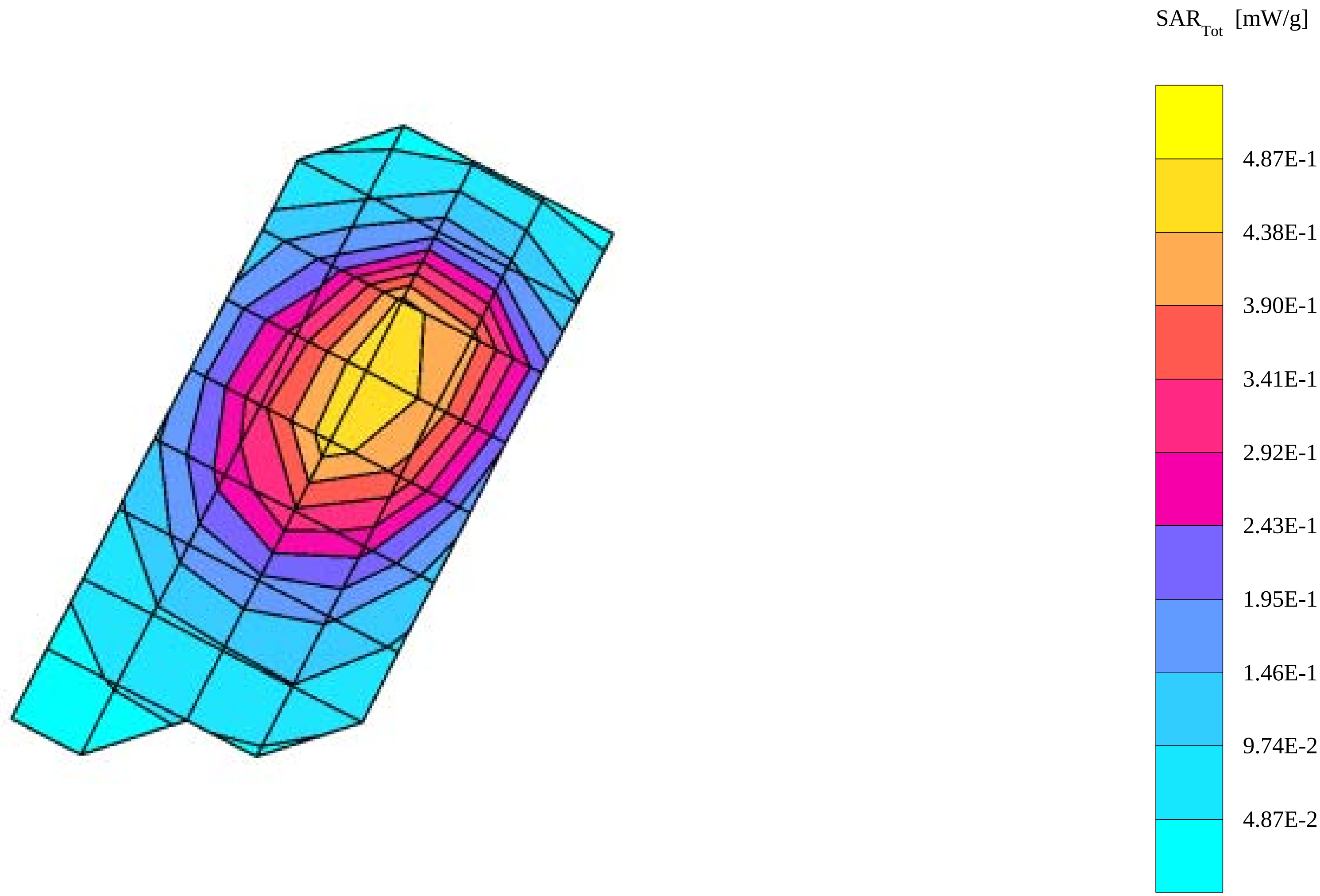
s/n: J0223F

Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): TILTED
Accessory Model #: MINI HOUSING
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.45 mho/m ε_r = 39.5 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.903 mW/g, SAR (10g): 0.446 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 8.1 (7.9, 8.8) [mm]
Powerdrift: 0.54 dB



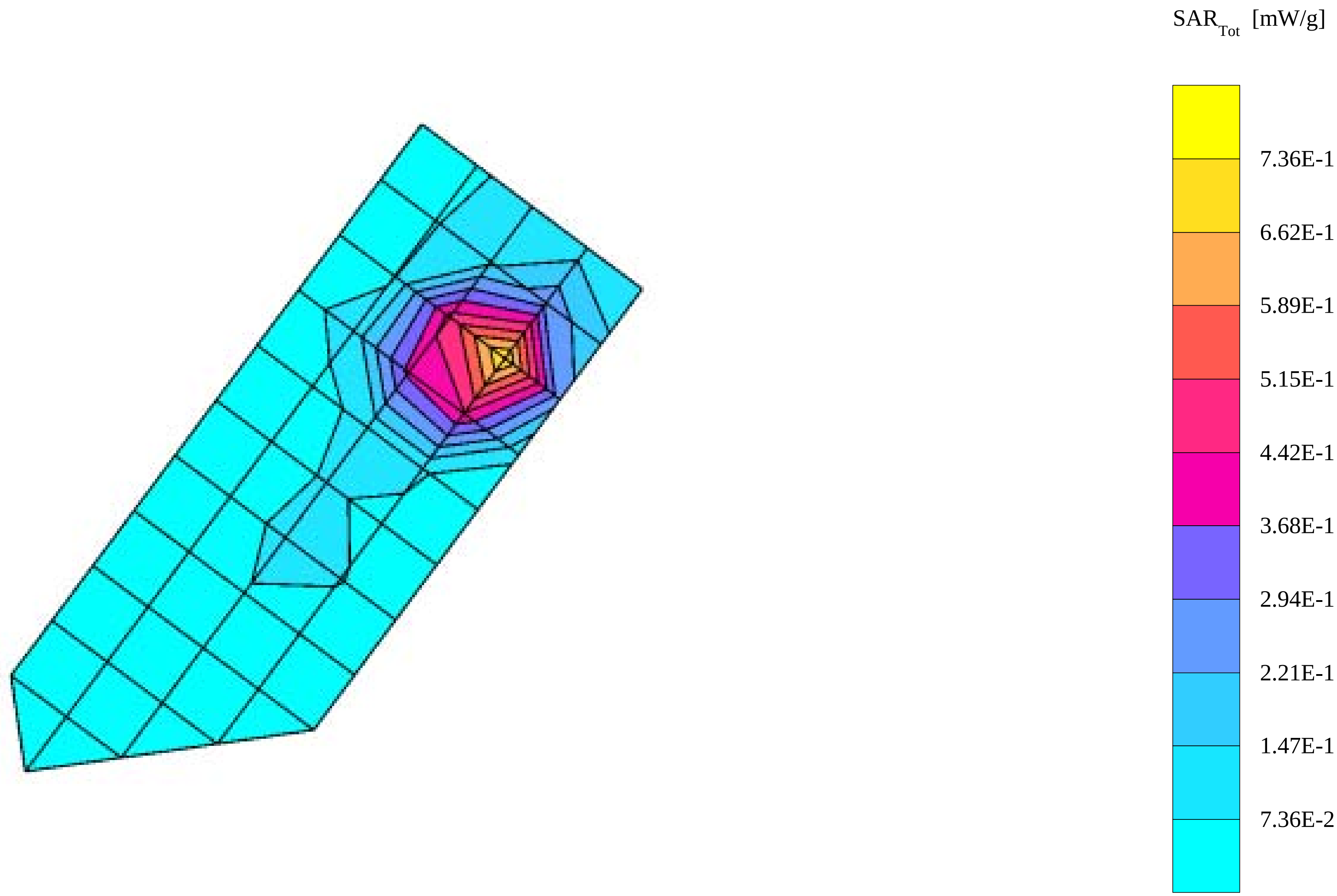
s/n: J0228C

Ch# 190 / Pwr Step: 7 / Type of Modulation: GSM850 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Rotated
Accessory Model #: Metal Box Housing
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; R2 Left Hand Section; Position: (90°,180°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 41.1 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.500 mW/g, SAR (10g): 0.336 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 12.8 (12.5, 13.3) [mm]
Powerdrift: 0.08 dB



s/n: J0228C

Ch# 661 / Pwr Step: 0 / Type of Modulation: GSM1900 / Battery Model #: AANN4204A
DEVICE POSITION (cheek or rotated): Rotated
Accessory Model #: Metal Box Housing
R2: TP-1235 GLYCOL SAM (rev. 4) Phantom; R2 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - IEEE Head; ConvF(5.40,5.40,5.40); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 39.1 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.747 mW/g, SAR (10g): 0.365 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 8.2 (7.9, 8.8) [mm]
Powerdrift: -0.23 dB



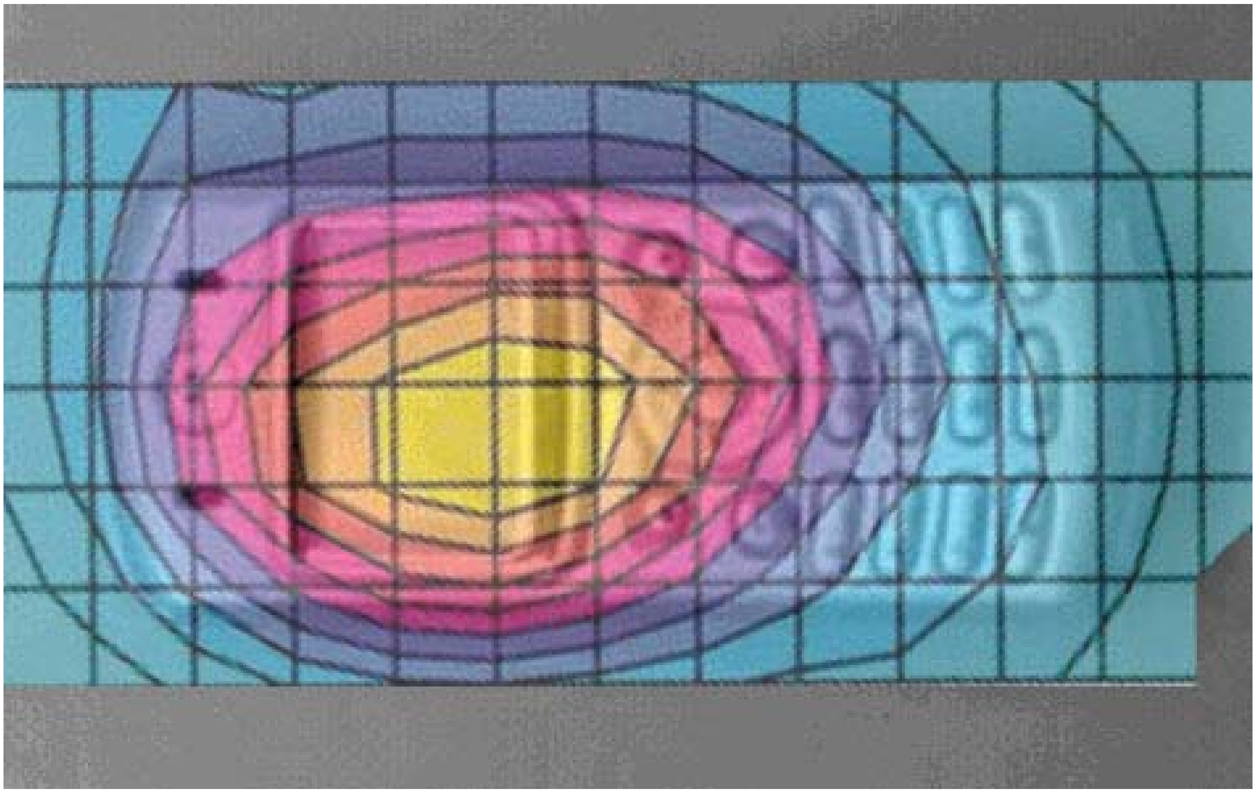


Figure 3.Typical 800MHz Adjacent Contour Overlaid on Phone (15 ˚ Tilt)

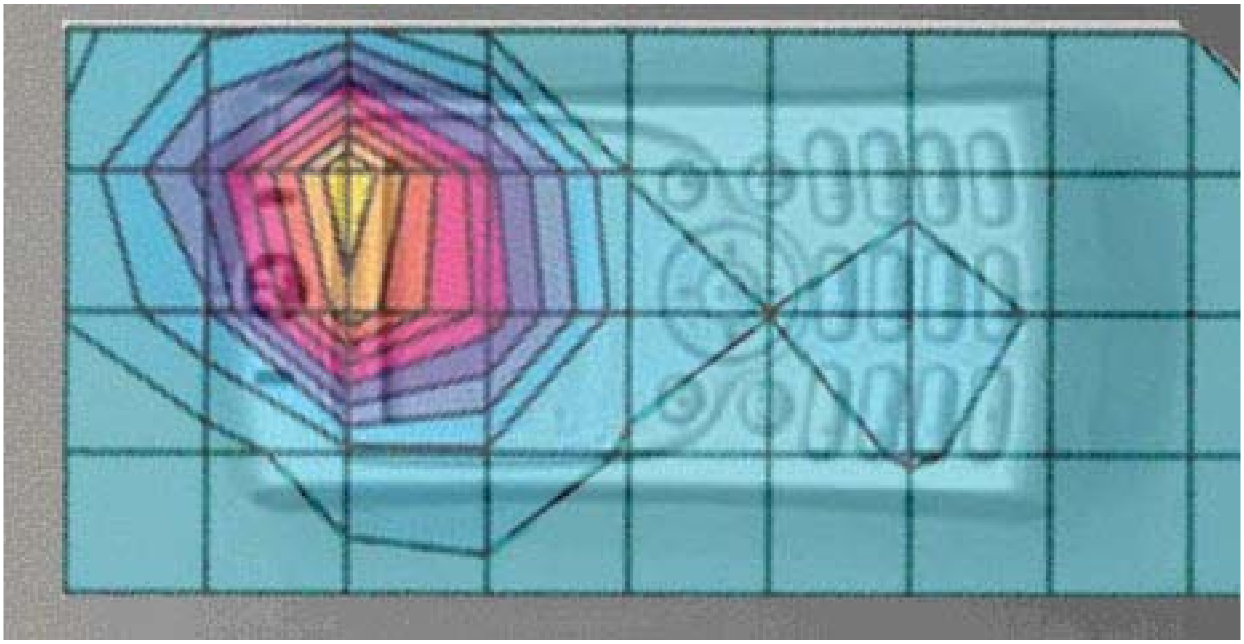


Figure 4.Typical 1900MHz Head Adjacent Contour Overlaid on Phone (15 ˚ Tilt)

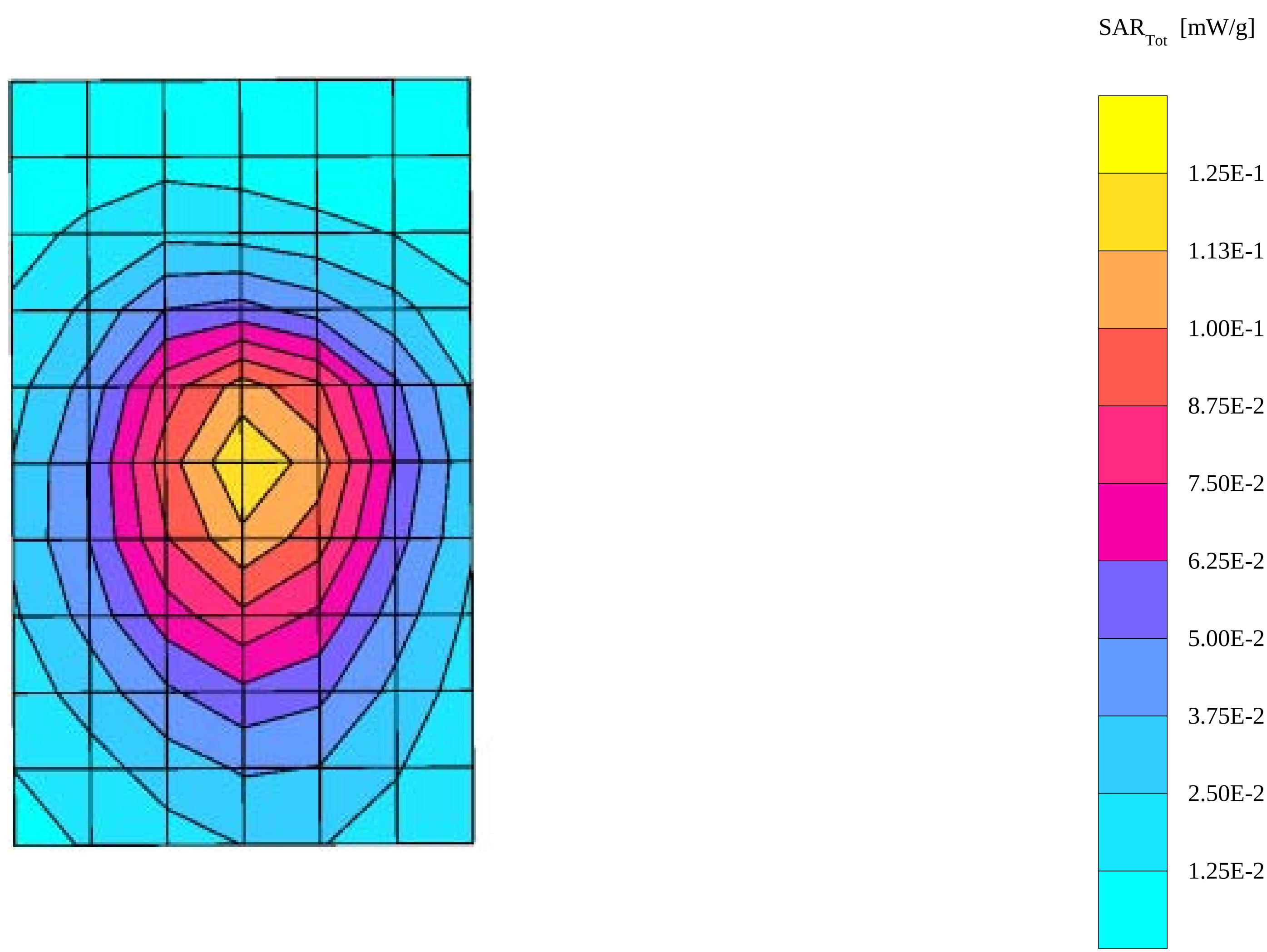
Appendix 3

SAR distribution plots for Body Worn Configuration

12/29/02

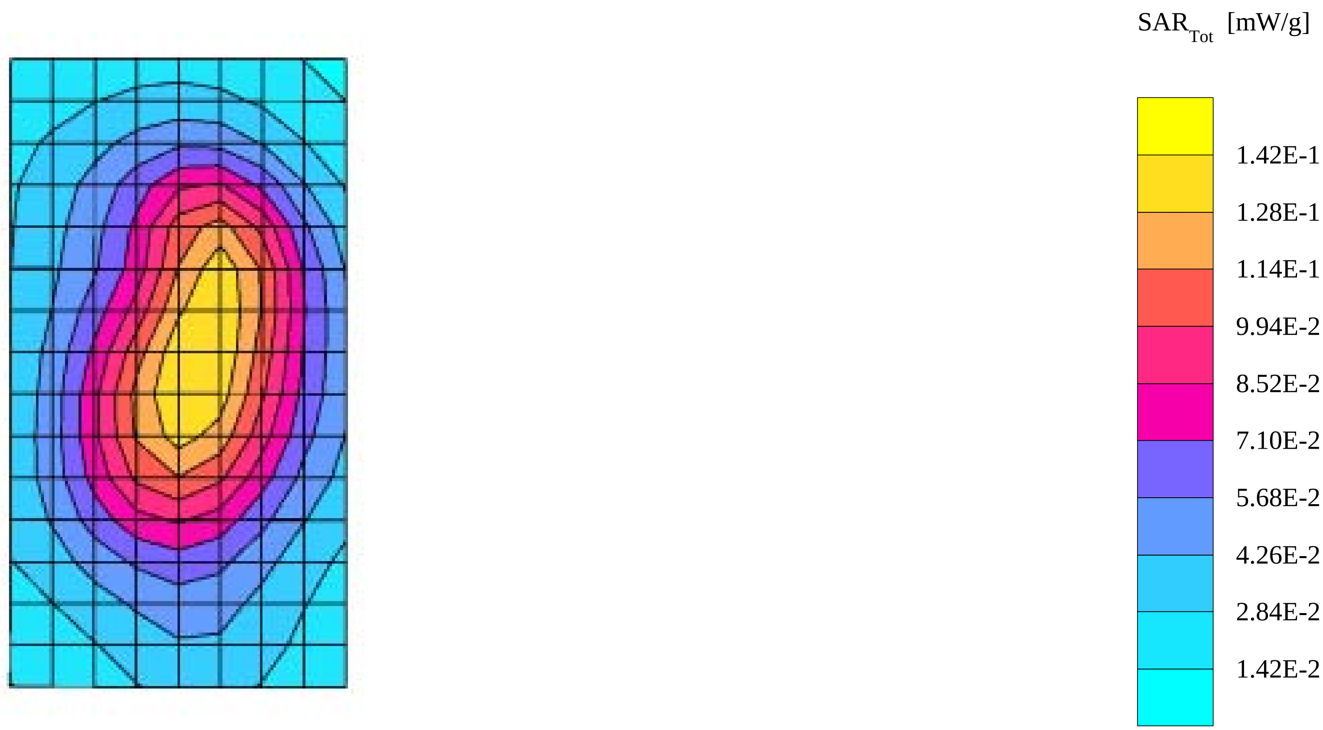
s/n: J0223F

Ch# 190 / Pwr Step: 7 / Type of Modulation: 850 GSM / Battery Model #: AANN4204A
Accessory Model #: Premium Housing / BACK of Phone towards Phantom with 1in Seperation
R2 Amy Twin Phantom Rev.3 Phantom; section 2 Section; Position: (0°,0°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(6.40,6.40,6.40); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.96 mho/m ε_r = 53.7 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.124 mW/g, SAR (10g): 0.0874 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 16.0 (14.5, 17.6) [mm]
Powerdrift: 0.06 dB



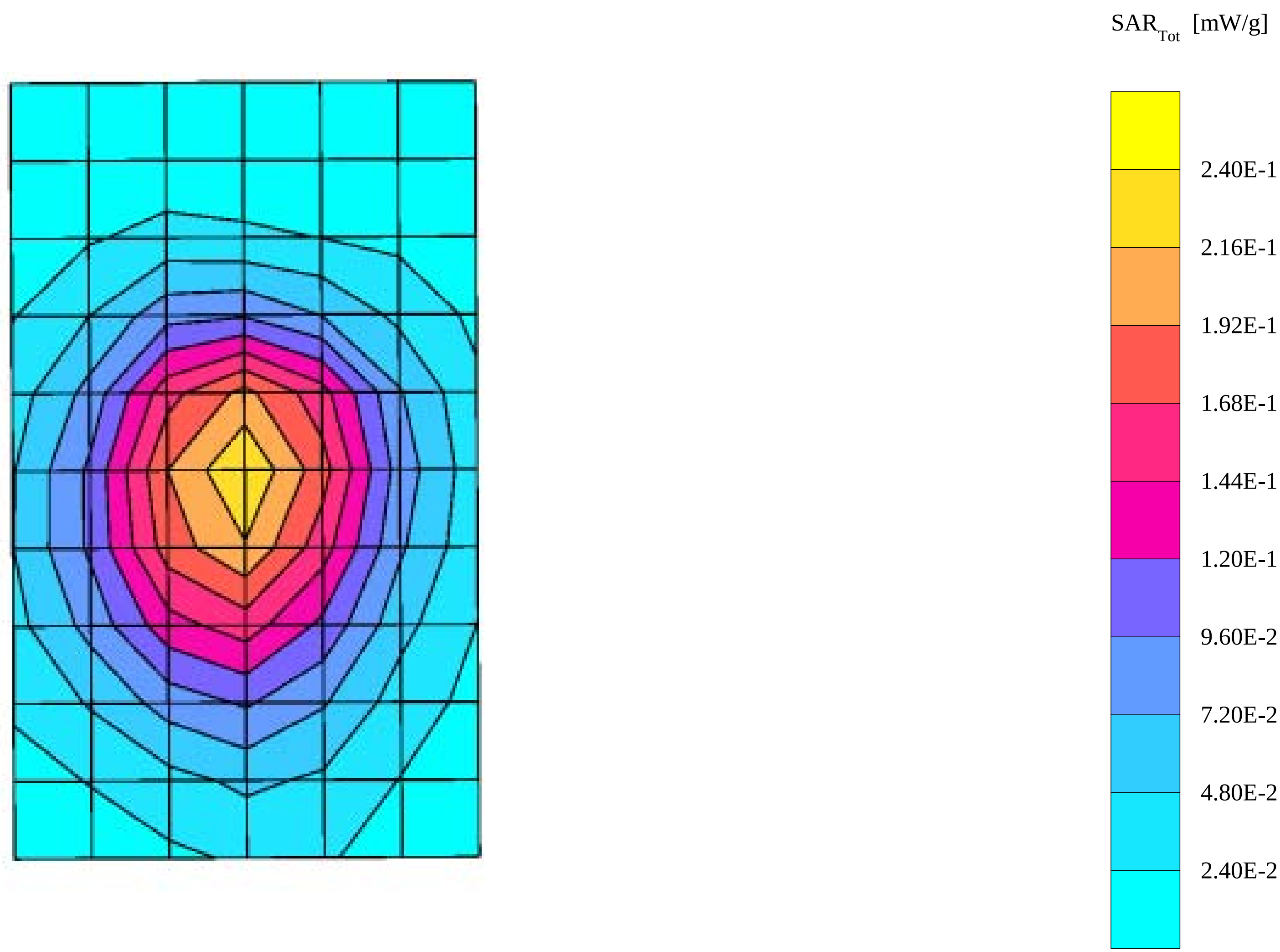
s/n: J0228C

Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204AA
Accessory Model # premium housing / BACK of Phone towards Phantom with 1in Seperation
R2 Amy Twin Phantom Rev.3 Phantom; section 1 Section; Position: (0°,0°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(4.70,4.70,4.70); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.59 mho/m ε_r = 51.3 ρ = 1.00 g/cm³
Cube 7x7x7: SAR (1g): 0.145 mW/g, SAR (10g): 0.0898 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 10.0 (8.9, 11.7) [mm]
Powerdrift: 0.13 dB



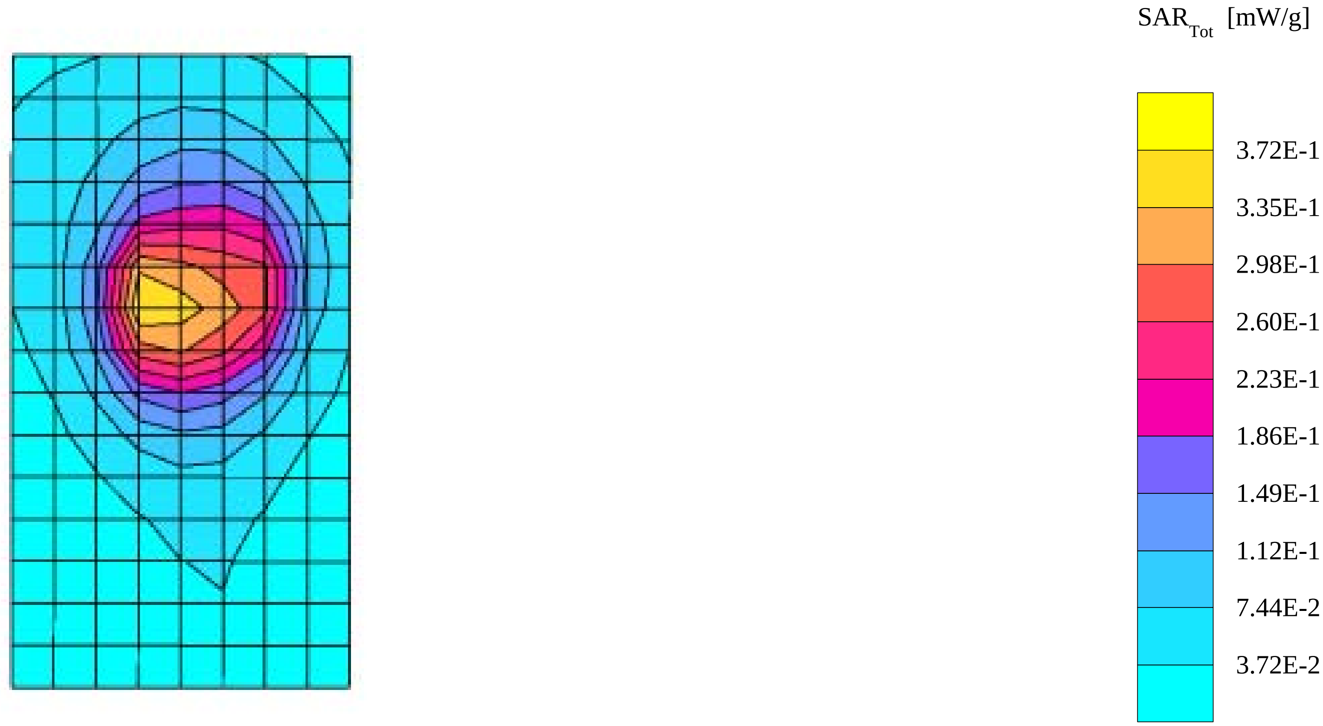
s/n: J0228C

Ch# 190 / Pwr Step: 7 / Type of Modulation: GSM850 / Battery Model #: AANN4204A
Accessory Model #: HG33101 with SYN8631A
R2 Amy Twin Phantom Rev.3 Phantom; section 2 Section; Position: (0°,0°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(6.40,6.40,6.40); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.97 mho/m ε_r = 54.0 ρ = 1.00 g/cm³
Cube 7x7x7: SAR (1g): 0.234 mW/g, SAR (10g): 0.164 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 15.7 (14.5, 17.0) [mm]
Powerdrift: -0.11 dB



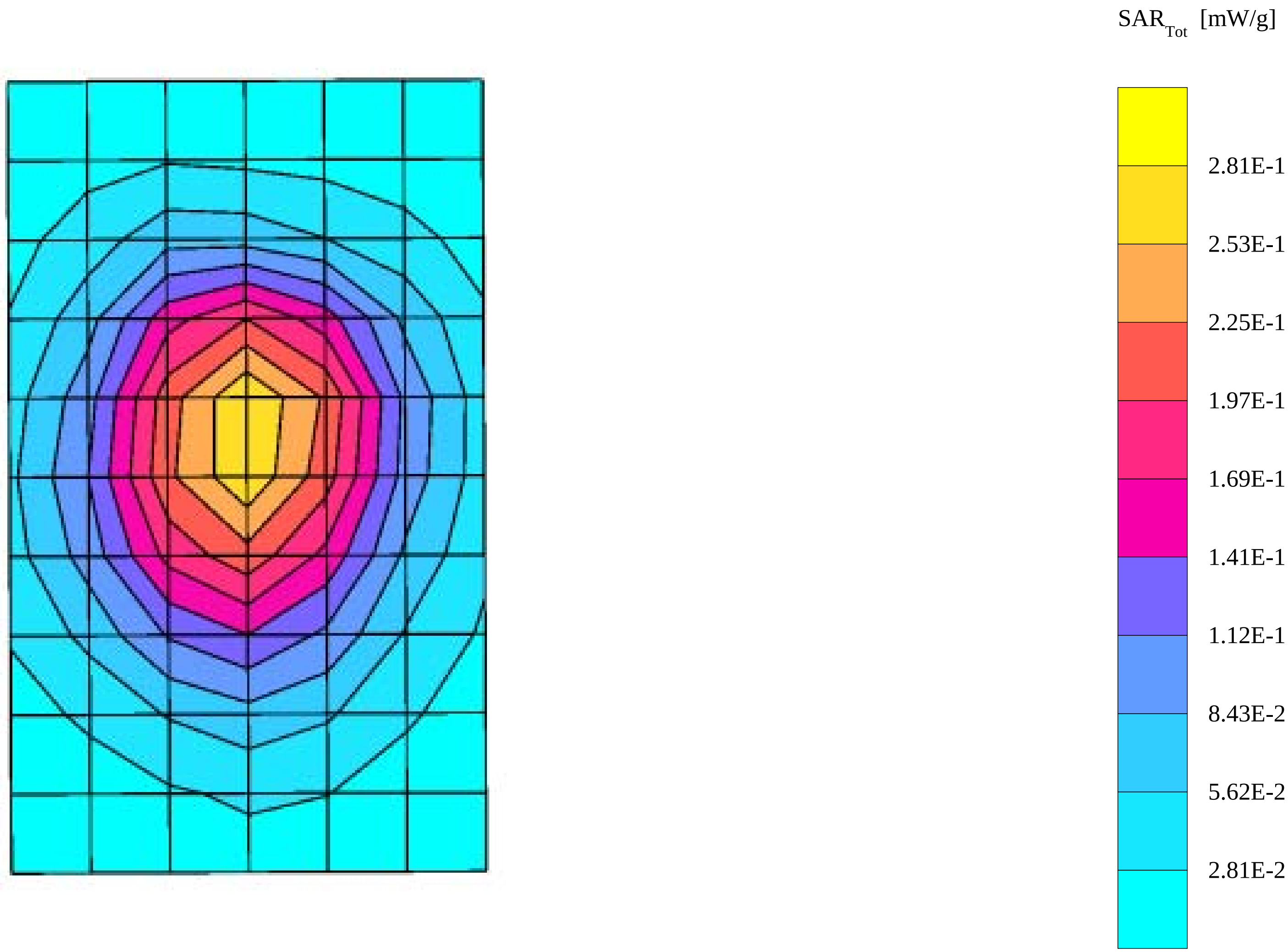
s/n: J0228C

Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204AA
Accessory Model # HG33101 with SYN8763A
R2 Amy Twin Phantom Rev.3 Phantom; section 1 Section; Position: (0°,0°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(4.70,4.70,4.70); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.59 mho/m ε_r = 51.3 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.395 mW/g, SAR (10g): 0.215 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 8.6 (8.2, 9.4) [mm]
Powerdrift: -0.04 dB



s/n: J0223F

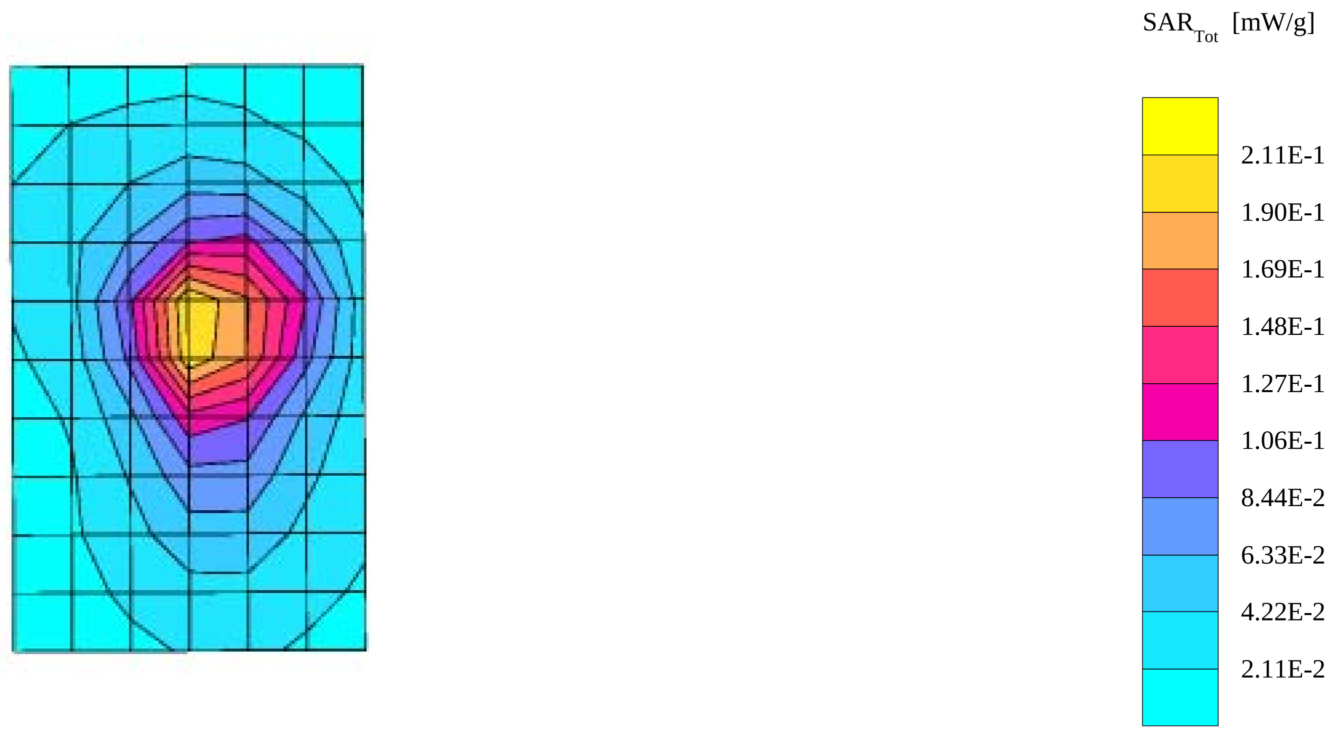
Ch# 190 / Pwr Step: 7 / Type of Modulation: 850 GSM / Battery Model #: AANN4204A
Accessory Model #: PNT33201 with SYN8631A
R2 Amy Twin Phantom Rev.3 Phantom; section 2 Section; Position: (0°,0°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(6.40,6.40,6.40); Crest factor: 8.0; 835 MHz Head & Body: $\sigma = 0.96$ mho/m $\varepsilon_r = 53.7$ $\rho = 1.00$ g/cm³
Cube 7x7x7: SAR (1g): 0.284 mW/g, SAR (10g): 0.199 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 15.5 (14.4, 16.7) [mm]
Powerdrift: -0.01 dB



12/26/02

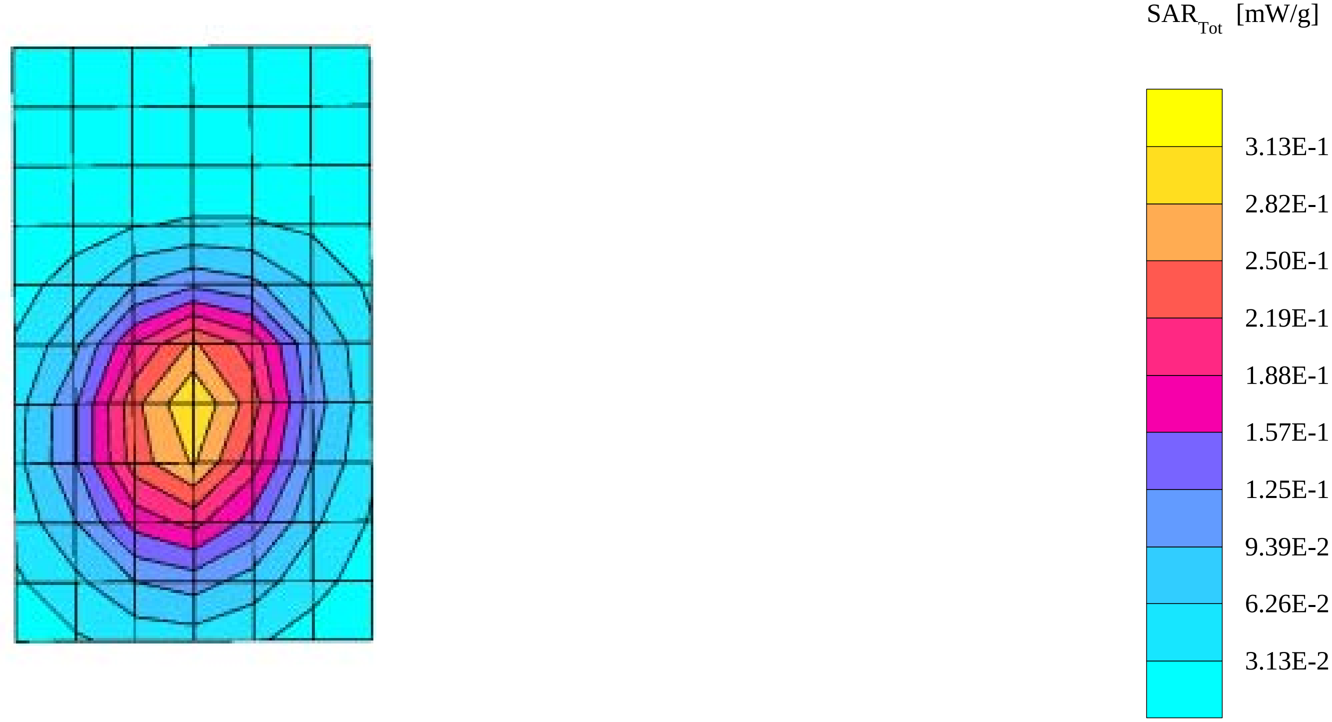
s/n: J0223F

Ch# 661 / Pwr Step: 0 / Type of Modulation:1900 GSM / Battery Model #: AANN4204A
Accessory Model #: PNT33201 with SYN8763A
R2 Amy Twin Phantom Rev.3 Phantom; section 2 Section; Position: (0°,0°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(4.70,4.70,4.70); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.59 mho/m ε_r = 51.3 ρ = 1.00 g/cm³
Cube 7x7x7: SAR (1g): 0.233 mW/g, SAR (10g): 0.122 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 8.0 (7.5, 9.3) [mm]
Powerdrift: -0.05 dB



s/n: J0223F

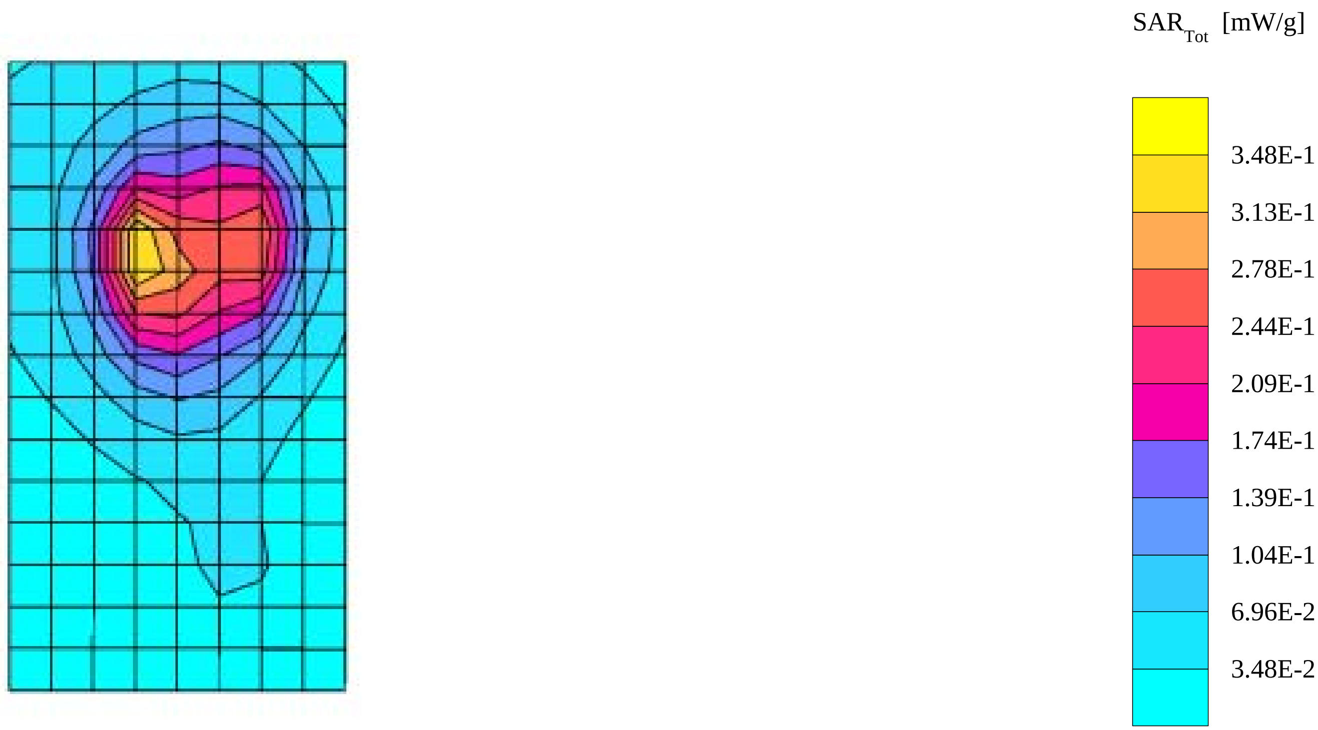
Ch# 190 / Pwr Step: 07 / Type of Modulation: 850 GSM / Battery Model #: AANN4204A
Accessory Model #: MN33301 with SYN8631A
R2 Amy Twin Phantom Rev.3 Phantom; section 2 Section; Position: (0°,0°); Frequency: 836 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(6.40,6.40,6.40); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.97 mho/m ε_r = 54.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.309 mW/g, SAR (10g): 0.217 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 16.2 (15.1, 17.3) [mm]
Powerdrift: -0.04 dB



12/22/02

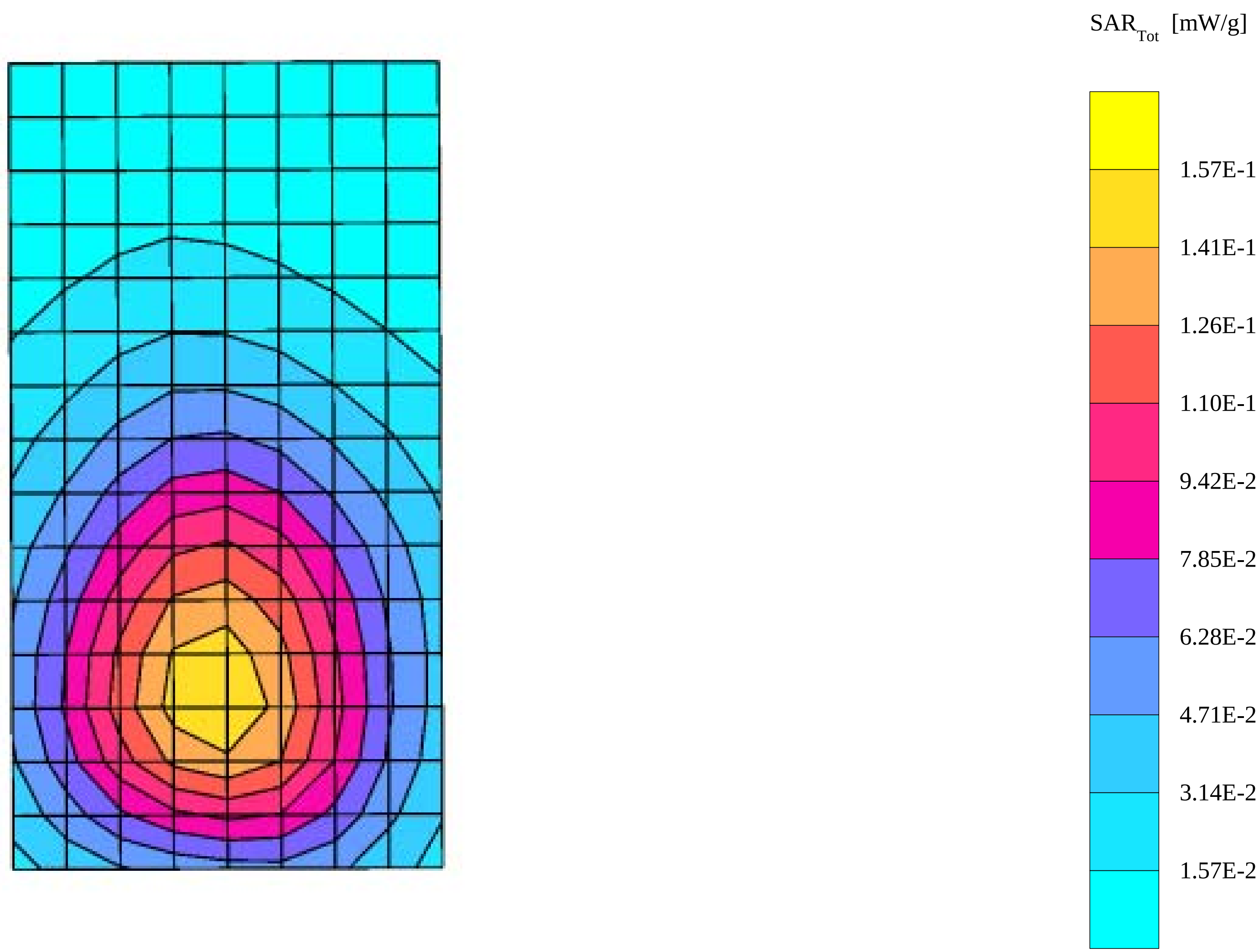
s/n: J0223F

Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #: AANN4204AA
Accessory Model # MN33301 with SYN8763A
R2 Amy Twin Phantom Rev.3 Phantom; section 1 Section; Position: (0°,0°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(4.70,4.70,4.70); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.59 mho/m ε_r = 51.3 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.358 mW/g, SAR (10g): 0.189 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 8.2 (8.1, 8.6) [mm]
Powerdrift: -0.32 dB



s/n: J0228C

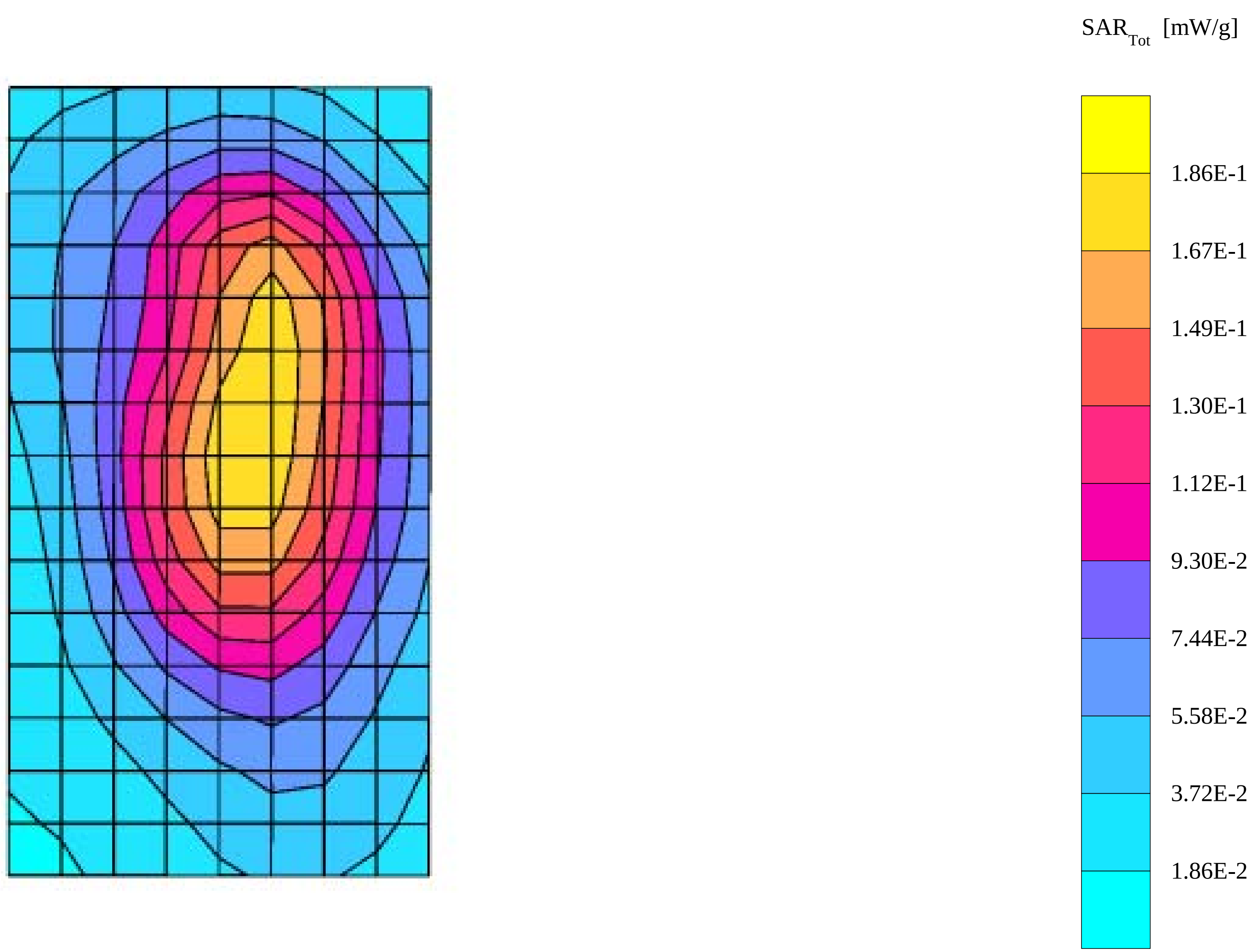
Ch# 190 / Pwr Step: 7 / Type of Modulation: GSM850 / Battery Model #: AANN4204A
Accessory Model #: Metal Box Housing / BACK of Phone towards Phantom with 1in Seperation
R2 Amy Twin Phantom Rev.3 Phantom; section 2 Section; Position: (0°,0°); Frequency: 837 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(6.40,6.40,6.40); Crest factor: 8.0; 835 MHz Head & Body: σ = 0.97 mho/m ε_r = 54.0 ρ = 1.00 g/cm³
Cube 7x7x7: SAR (1g): 0.155 mW/g, SAR (10g): 0.110 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 16.1 (14.7, 17.5) [mm]
Powerdrift: 0.01 dB



12/22/02

s/n: J0228C

Ch# 661 / Pwr Step: 0 / Type of Modulation: 1900 GSM / Battery Model #:   AANN4204AA
Accessory Model # metal box housing / BACK of Phone towards Phantom with 1in Seperation
R2 Amy Twin Phantom Rev.3 Phantom; section 1 Section; Position: (0°,0°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1515 - FCC Body; ConvF(4.70,4.70,4.70); Crest factor: 8.0; 1880 MHz Head & Body: σ = 1.59 mho/m ε_r = 51.3 ρ = 1.00 g/cm³
Cube 7x7x7: SAR (1g): 0.188 mW/g, SAR (10g): 0.117 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 10.2 (9.1, 11.8) [mm]
Powerdrift: -0.03 dB



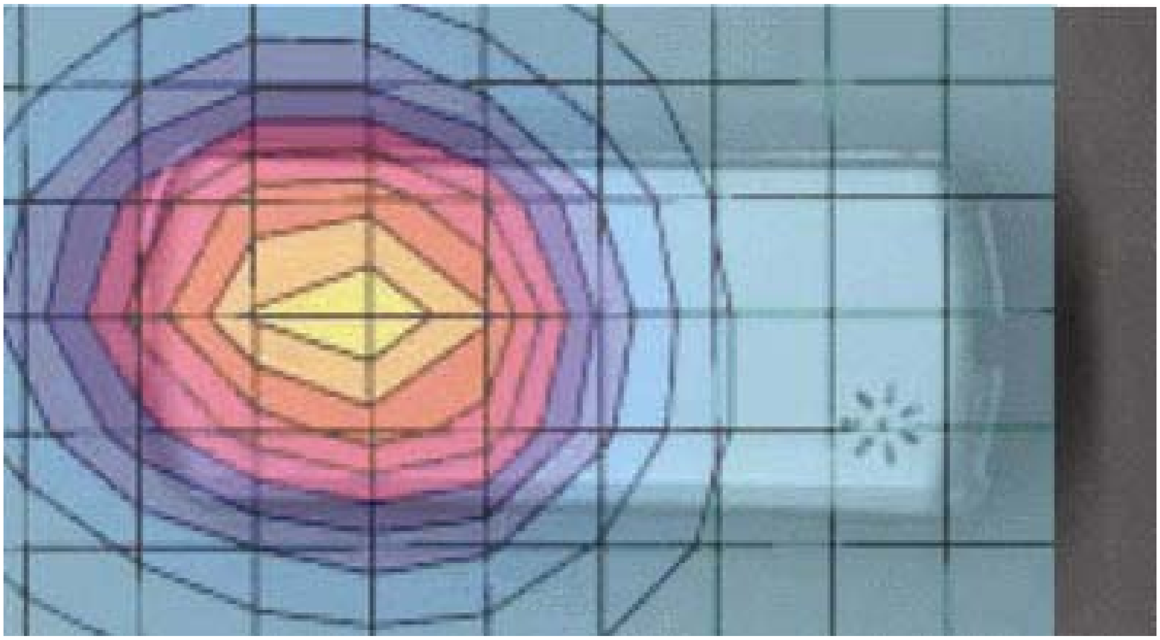


Figure 5.Typical 800 MHz Body-Worn Contour Overlaid on Phone

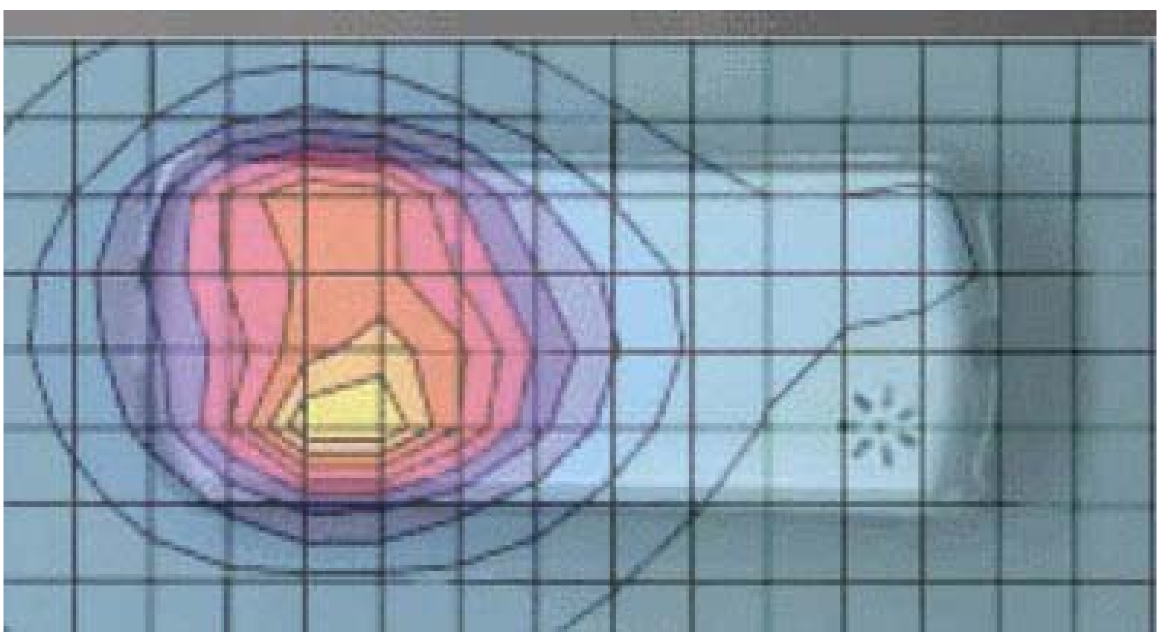


Figure 6. Typical 1900 MHz Body-Worn Contour Overlaid on Phone

Appendix 4

Probe Calibration Certificate

Appendix 5

Dipole Characterization Certificate

Motorola, PCS EME Laboratories

Dipole Certificate

Dipole Serial Number:	**280(TR)**
Dipole Type (MHz):	D1800V2 w/ Teflon Rings
Original Manufacturer:	SPEAG

-IEEE Standards Coordinating Committee 34, P1528 Standard Information-

Reference Values:

Per Tables 5-1 & 8-1 of IEEE P1528 Draft Standard

1g SAR normalized to 1W forward power (mW/g):	38.1 mW/g
Relative Dielectric Constant:	40.0
Conductivity:	1.40

-Measured Data-

Probe S/N:	**1375**	Conductivity (meas.):	**1.38**
Robot Cell #:	**HVD-4**	Permittivity (meas.):	**38.4**
Date Measured:	**22-Feb-02**	0-Degree Cube:	**9.97 mW/g**
Power	**250 mW**	90-Degree Cube:	**9.23 mW/g**

Averaged 0- & 90-Degree cubes (normalized to 1W):	**38.4 mW/g**

-Correlated Target-

1g SAR normalized to 1W forward power (mW/g):	**38.1 mW/g**
Relative Dielectric:	**40.0**
Conductivity:	**1.40**

The dipole listed above has been shown to meet the requirements of the IEEE P1528 Standard, tables 5-1 & 8-1.

Approved by: [signature] **Date:** 10/23/2002

Comments:	Dipole 280(TR) measured within 1% of the targets provided in the P1528 reference table.

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Calibration Certificate

900 MHz System Validation Dipole

Type:	**D900V2**
Serial Number:	**078**
Place of Calibration:	**Zurich**
Date of Calibration:	**August 23, 2001**
Calibration Interval:	**24 months**

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:

Approved by:

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

DASY

Dipole Validation Kit

Type: D900V2

Serial: 078

Manufactured: August 21, 2000
Calibrated: August 23, 2001

1. Measurement Conditions

The measurements were performed in the flat section of the new generic twin phantom filled with head simulating solution of the following electrical parameters at 900 MHz:

Relative Dielectricity	**40.3**	± 5%
Conductivity	**0.95 mho/m**	± 5%

The DASY3 System (Software version 3.1c) with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 6.27 at 900 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15mm from dipole center to the solution surface. The included distance holder was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 15mm was aligned with the dipole. The 5x5x7 fine cube was chosen for cube integration. Probe isotropy errors were cancelled by measuring the SAR with normal and 90° turned probe orientations and averaging.
The dipole input power (forward power) was 250mW ± 3 %. The results are normalized to 1W input power.

2. SAR Measurement

Standard SAR-measurements were performed with the phantom according to the measurement conditions described in section 1. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values are:

averaged over 1 cm^3 (1 g) of tissue:	**11.3 mW/g**
averaged over 10 cm^3 (10 g) of tissue:	**7.12 mW/g**

Note: If the liquid parameters for validation are slightly different from the ones used for initial calibration, the SAR-values will be different as well.

1. Measurement Conditions

The measurements were performed in the flat section of the new generic twin phantom filled with head simulating solution of the following electrical parameters at 900 MHz:

Relative Dielectricity	**40.3**	± 5%
Conductivity	**0.95 mho/m**	± 5%

The DASY3 System (Software version 3.1c) with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 6.27 at 900 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15mm from dipole center to the solution surface. The included distance holder was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 15mm was aligned with the dipole. The 5x5x7 fine cube was chosen for cube integration. Probe isotropy errors were cancelled by measuring the SAR with normal and 90° turned probe orientations and averaging.
The dipole input power (forward power) was 250mW ± 3 %. The results are normalized to 1W input power.

2. SAR Measurement

Standard SAR-measurements were performed with the phantom according to the measurement conditions described in section 1. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values are:

averaged over 1 cm^3 (1 g) of tissue:	**11.3 mW/g**
averaged over 10 cm^3 (10 g) of tissue:	**7.12 mW/g**

Note: If the liquid parameters for validation are slightly different from the ones used for initial calibration, the SAR-values will be different as well.

3. Dipole Impedance and Return Loss

The impedance was measured at the SMA-connector with a network analyzer and numerically transformed to the dipole feedpoint. The transformation parameters from the SMA-connector to the dipole feedpoint are:

Electrical delay:	**1.410 ns**	(one direction)
Transmission factor:	**0.988**	(voltage transmission, one direction)

The dipole was positioned at the flat phantom sections according to section 1 and the distance holder was in place during impedance measurements.

Feedpoint impedance at 900 MHz:	Re{Z} = **50.5 Ω**
	Im {Z} = **-4.6 Ω**
Return Loss at 900 MHz	**-26.7 dB**

4. Handling

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

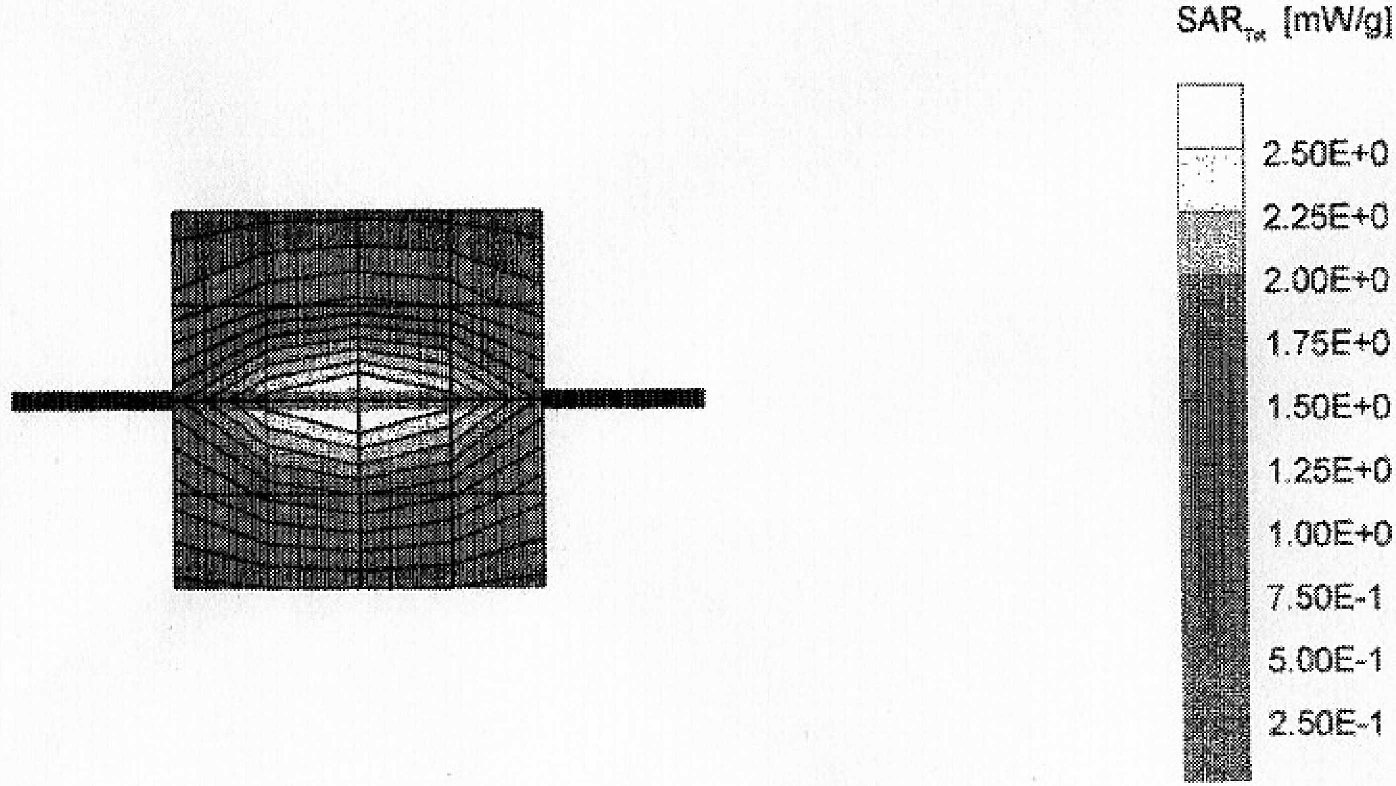
Do not apply excessive force to the dipole arms, because they might bend. If the dipole arms have to be bent back, take care to release stress to the soldered connections near the feedpoint; they might come off.

After prolonged use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

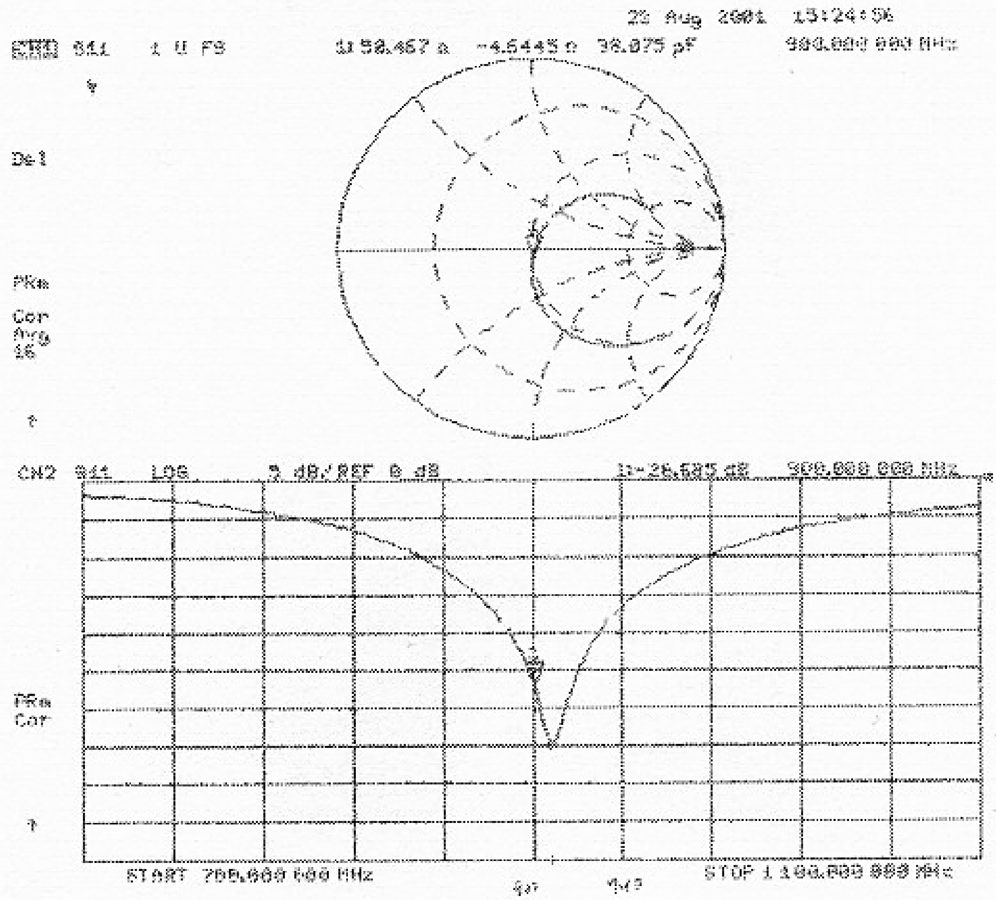
08/23/01

Validation Dipole D900V2 SN:078, d = 15 mm

Frequency: 900 MHz; Antenna Input Power: 250 [mW]
SAM Phantom; Flat Section; Grid Spacing: Dx = 20.0, Dy = 20.0, Dz = 10.0
Probe: ET3DV6 - SN1507; ConvF(6.27,6.27,6.27) at 900 MHz; IEEE1528 900 MHz; σ = 0.95 mho/m ε_r = 40.3 ρ = 1.00 g/cm³
Cubes (2): Peak: 4.57 mW/g ± 0.02 dB, SAR (1g): 2.82 mW/g ± 0.02 dB, SAR (10g): 1.78 mW/g ± 0.02 dB, (Worst-case extrapolation)
Penetration depth: 11.5 (10.2, 13.1) [mm]
Powerdrift: -0.01 dB



Schmid & Partner Engineering AG, Zurich, Switzerland


21 Aug 2001 15:24:56
CH1 S11 1 U FS
1: 50.467 Ω -4.6445 Ω 38.075 pF 900.000 000 MHz
Del
PRm
Cor
Avg
16
CH2 S11 LOG 5 dB/ REF 0 dB 1:-26.585 dB 900.000 000 MHz
PRm
Cor
START 700.000 000 MHz
STOP 1 100.000 000 MHz

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

Front of Phone with Premium Housing

Back of Phone with Premium Housing

Front of Phone “Hour Glass Housing”

Back of Phone “Hour Glass Housing”

Front of Phone "Peanut Shaped Housing"

Back of Phone "Peanut Shaped Housing"

Front of Phone “Mini Housing”

Back of Phone “Mini Housing”

Front of Phone with "Metal" Box Housing

Back of Phone with "Metal" Box Housing

Phone Placed Against Phantom Head in Check Touch Position

Phone Placed Against Phantom Head in Check Touch Position

Phone Placed Against Phantom Head in 15 Degree Tilt Position

Phone Placed Against Phantom Head in 15 Degree Tilt Position

Phone Housings with No Available Body-worn Cases Positioned Below Phantom