Exhibit 11: SAR Test Report IHDT56CM1

Date of test:	08/27/2002-09/06/2002
Date of Report:	09/25/2002
Laboratory:	Motorola Personal Communications Sector Product Safety & Compliance Laboratory 2001 N. Division Room: AS228 Harvard, Illinois 60033
Test Responsible:	Firass Badaruzzaman SAR 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 IHDT56CM1 to which this declaration relates, is in conformity with the appropriate General Population/Uncontrolled RF exposure standards, recommendations and guidelines (FCC 47 CFR §2.1093). It also declares that the product was tested in accordance with the appropriate measurement standards, guidelines and recommended practices. Any deviations from these standards, guidelines and recommended practices are noted below:

(none)

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1. Introduction

The Motorola Personal Communications Sector Product Safety Laboratory has performed measurements of the maximum potential exposure to the user of portable cellular phone (FCC ID IHDT56CM1). 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	Helix	
Location	Right Side	
Dimensions	Length	25 mm
	Width	6 mm
Configuration	Stubby	

Device description

FCC ID Number	IHDT56CM1		
Serial number	77046963		
Mode(s) of Operation	800 AMPS	800 CDMA	1900 PCS
Modulation Mode(s)	AMPS	CDMA	PCS
Maximum Output Power Setting	27.80 dBm	25.00 dBm	25.00 dBm
Duty Cycle	1:1	1:1	1:1
Transmitting Frequency Rang(s)	824.04 – 848.97 MHz	824.70 – 848.31 MHz	1851.25 – 1908.75 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. The list of calibrated equipment used for the measurements is shown below.

Description	Serial Number	Cal Due Date
DASY3 DAE V1	SN 385	22/05/2003
DASY3 DAE V1	SN 386	5/22/2003
E-Field Probe ETDV6	SN 1391	10/25/2002
E-Field Probe ETDV6	SN1503	11/16/2002
Dipole Validation Kit, DV900V2	SN 79	10/26/2002
S.A.M. Phantom used for 800MHz	TP-1106	
Dipole Validation Kit, DV1800V2	283 TR	1/5/2003
Dipole Validation Kit, DV1800V2	284 TR	1/5/2003
S.A.M. Phantom used for 1900MHz	TP-1133	
S.A.M. Phantom used for 1900MHz	TP-1159	

3.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04822	11/14/2002
Power Meter E4419B	GB39511088	01/18/2002
Power Sensor #1 - 8481A	US39210918	02/11/2003
Power Sensor #2 - 8481A	US39211006	05/02/2003
Network Analyzer HP8753ES	US39171846	05/01/2003
Dielectric Probe Kit HP85070B	US99360074	

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04850	12/20/2002
Power Meter E4419B	GB39510900	01/18/2003
Power Sensor #1 - 8481A	US39211009	02/14/2003
Power Sensor #2 - 8481A	US39211008	02/15/2003
Network Analyzer HP8753ES	US39171846	05/01/2003
Dielectric Probe Kit HP85070B	US99360074	

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		
			e_r	s (S/m)	Temp (°C)
835	Head	**Measured, 08/28/2002**	42.20	0.91	N/A
		Recommended Limits	41.50	0.90	20-25
		Measured, 08/29/2002	42.60	0.91	N/A
		Recommended Limits	41.50	0.90	20-25
		Measured, 08/30/2002	42.60	0.91	N/A
		Recommended Limits	41.50	0.90	20-25
	Body	**Measured, 08/28/2002**	53.20	0.97	N/A
		Recommended Limits	55.20	0.97	20-25
1880	Head	**Measured, 08/27/2002**	38.10	1.47	N/A
		Recommended Limits	40.00	1.40	20-25
		Measured, 08/30/2002	38.90	1.47	N/A
		Recommended Limits	40.00	1.40	20-25
		Measured, 09/03/2002	38.50	1.46	N/A
		Recommended Limits	40.00	1.40	20-25
		Measured, 09/05/2002	38.60	1.45	N/A
		Recommended Limits	40.00	1.40	20-25
	Body	**Measured, 08/30/2002**	52.40	1.58	N/A
		Recommended Limits	53.30	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 0.0043 W/kg, which is below the recommended limit.

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Ambient Temp (°C)	Tissue Temp (°C)
			e_r	s (S/m)		
900	**Measured, 08/28/2002**	11.40	41.50	0.97	23.00	23.20
	Recommended Limits	11.40	40.30	0.95	N/A	N/A
	Measured, 08/29/2002	11.11	41.80	0.97	23.00	23.10
	Recommended Limits	11.40	40.30	0.95	N/A	N/A
1800	**Measured, 08/27/2002**	39.20	38.10	1.47	23.00	22.80
	Recommended Limits	38.80	39.60	1.37	N/A	N/A
	Measured, 08/30/2002	39.21	38.90	1.46	23.00	23.00
	Recommended Limits	38.80	39.60	1.37	N/A	N/A
	Measured, 09/03/2002	38.50	38.50	1.46	23.00	23.40
	Recommended Limits	38.80	39.60	1.37	N/A	N/A
	Measured, 09/05/2002	38.50	38.60	1.45	24.00	21.30
	Recommended Limits	38.80	39.60	1.37	N/A	N/A

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 ETDV6	SN1503	835	6.36	2 of 7
		1900	5.24	2 of 7
E-Field Probe ETDV6	SN1391	835		
		1900	5.43	2 of 8

Test Results

The test sample was operated in a test mode that allows control of the transmitter without the need to place actual phone calls. For the purposes of this test the unit is commanded to test mode and manually set to the proper channel, transmitter power level and transmit mode of operation. The phone was tested in the configurations stipulated in OET Bulletin 65 Supplement C 01-01. Motorola also followed the requirements in Supplement. C / Appendix D: SAR Measurement Procedures, section titled *"Devices Operating Next To A Person's Ear "*. These directions state "The device should be tested on the left and right side of the head phantom in the "Cheek/Touch" and "Ear/Tilt" positions. When applicable, each configuration should be tested with the antenna in its fully extended and fully retracted positions. These test configurations should be tested at the high, middle and low frequency channels of each operating mode; for example, AMPS, CDMA, and TDMA. If the SAR measured at the middle channel for each test configuration (left, right, Cheek/Touch, Tile/Ear, extended and retracted) is at least 2.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s)."

The DASY v3.1d SAR measurement system specified in section 3.1 was utilized within the intended operations as set by the SPEAG™ setup. The phone was positioned into the measurement configurations using the positioner supplied with the DASY 3.1d SAR measurement system. The measured dielectric constant of the material used for the positioner is less than 2.9 and the loss tangent is less than 0.02 (± 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 IHDT56CM1) has the following battery options:

SNN5704A – 700 mAH

The battery with the highest capacity is the SNN5704A. 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

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. Note that 800MHz digital mode SAR measurements were performed in accordance with Supplement C.

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

Description	Serial Number	f (MHz)	Conversion Factor	Cal Cert pg #
E-Field Probe ETDV6	SN1503	835	6.50	2 of 2
		1900	5.24	2 of 7
E-Field Probe ETDV6	SN1391	835	6.50	2 of 2
		1900	5.43	2 of 8

f (MHz)	Description	Conducted Output Power (dBm)	Left Head (Cheek / Touch Position)				
			Ant Fixed				
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Amb. Temp (°C)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80	1.48	-0.01	1.48	23.20	23.00
	Channel 383	27.73	1.06	-0.05	1.07	23.20	21.40
	Channel 799	27.87	1.19	-0.10	1.22	23.20	23.00
Digital 800MHz	Channel 1013	24.94	1.42	-0.08	1.45	23.10	22.20
	Channel 383	24.92	1.16	-0.10	1.19	23.10	22.20
	Channel 777	25.03	1.10	0.15	1.10	23.10	22.30
Digital 1900MHz	Channel 25	24.99					
	Channel 600	25.07	0.414	0.03	0.414	23.20	21.50
	Channel 1175	24.93					

Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT56CM1 at highest possible output power. Measured against the left head in the Cheek/Touch Position.

f (MHz)	Description	Conducted Output Power (dBm)	Right Head (Cheek / Touch Position)				
			Ant Fixed				
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Amb. Temp (°C)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80	1.57	0.00	1.57	23.20	23.00
	Channel 383	27.73	1.34	-0.15	1.39	23.20	23.00
	Channel 799	27.87	1.27	-0.09	1.30	23.20	23.00
Digital 800MHz	Channel 1013	24.94	1.45	0.18	1.45	23.10	22.30
	Channel 383	24.92	1.41	0.20	1.41	2310	22.30
	Channel 777	25.03	1.21	0.41	1.21	23.10	22.30
Digital 1900MHz	Channel 25	24.99					
	Channel 600	25.07	0.373	-0.01	0.37	22.70	22.00
	Channel 1175	24.93					

Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT56CM1 at highest possible output power. Measured against the right head in the Cheek/Touch Position.

f (MHz)	Description	Conducted Output Power (dBm)	Left Head (15° Tilt Position)				
			Ant Fixed				
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Amb. Temp (°C)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80					
	Channel 383	27.73	0.291	-0.08	0.30	23.20	23.00
	Channel 799	27.87					
Digital 800MHz	Channel 1013	24.94					
	Channel 383	24.92	0.271	-0.06	0.27	23.10	22.20
	Channel 777	25.03					
Digital 1900MHz	Channel 25	24.99					
	Channel 600	25.07	0.13	0.08	0.13	22.70	22.00
	Channel 1175	24.93					

Table 3: SAR measurement results for the portable cellular telephone FCC ID IHDT56CM1 at highest possible output power. Measured against the left head in the 15° Tilt Position.

f (MHz)	Description	Conducted Output Power (dBm)	Right Head (15° Tilt Position)				
			Ant Fixed				
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Amb. Temp (°C)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80					
	Channel 383	27.73	0.294	0.05	0.294	23.20	22.90
	Channel 799	27.87					
Digital 800MHz	Channel 1013	24.94					
	Channel 383	24.92	0.285	-0.10	0.29	22.70	23.20
	Channel 777	25.03					
Digital 1900MHz	Channel 25	24.99					
	Channel 600	25.07	0.065	0.07	0.07	22.70	23.20
	Channel 1175	24.93					

Table 4: SAR measurement results for the portable cellular telephone FCC ID IHDT56CM1 at highest possible output power. Measured against the right head in the 15° Tilt Position.

6.2 Body-Worn Test Results

The SAR results shown in table 5 are the maximum SAR values averaged over 1 gram of phantom tissue. Also shown are the measured conducted output powers, the temperature of the test facility during the test, the temperature of the tissue simulate after the test, the measured drift and the extrapolated SAR. The exact method of extrapolation is 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. Note that 800MHz digital mode SAR measurements were performed in accordance with OET Bulletin 65 Supplement C 01-01. All other test conditions measured lower SAR values than those included in Appendix 3.

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

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

There is one Body Worn Accessories available for this phone:
A Plastic Holster and Belt Clip: SYN0375A

Since it is a rotating Holster/Belt Clip, the antenna is at the closest proximity to the flat phantom when the belt clip along with the phone is rotated +90° (clockwise direction). See figure 10 reference (Appendix 6)

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 ETDV6	SN1503	835	6.20	2 of 2
		1900	4.90	2 of 2

f (MHz)	Description	Conducted Output Power (dBm)	Body Worn				
			Ant Fixed				
			Measured (W/kg)	Drift (dB)	Extrapolated (W/kg)	Amb. Temp (°C)	Simulate Temp (°C)
Analog 800MHz	Channel 991	27.80	0.619	-0.01	0.62	23.80	23.50
	Channel 383	27.73	0.541	-0.06	0.55	23.80	23.50
	Channel 799	27.87	0.498	-0.09	0.51	23.80	23.40
Digital 800MHz	Channel 1013	24.94	0.599	-0.06	0.61	23.40	22.60
	Channel 383	24.92	0.522	-0.08	0.53	23.40	22.60
	Channel 777	25.03	0.459	-0.18	0.48	23.40	22.60
Digital 1900MHz	Channel 25	24.99	0.585	0.19	0.59	21.10	21.20
	Channel 600	25.07	0.568	-0.08	0.58	21.10	21.10
	Channel 1175	24.93	0.563	-0.24	0.59	21.10	21.10

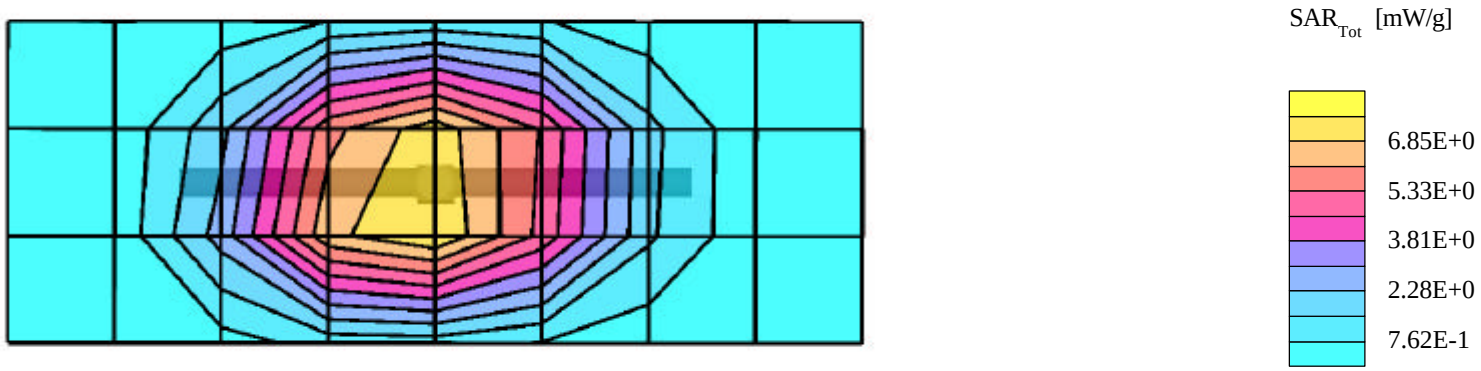
Table 5: SAR measurement results for the portable cellular telephone FCC ID IHDT56CM1 at highest possible output power. Measured against the body.

Appendix 1

SAR distribution comparison for the system accuracy verification

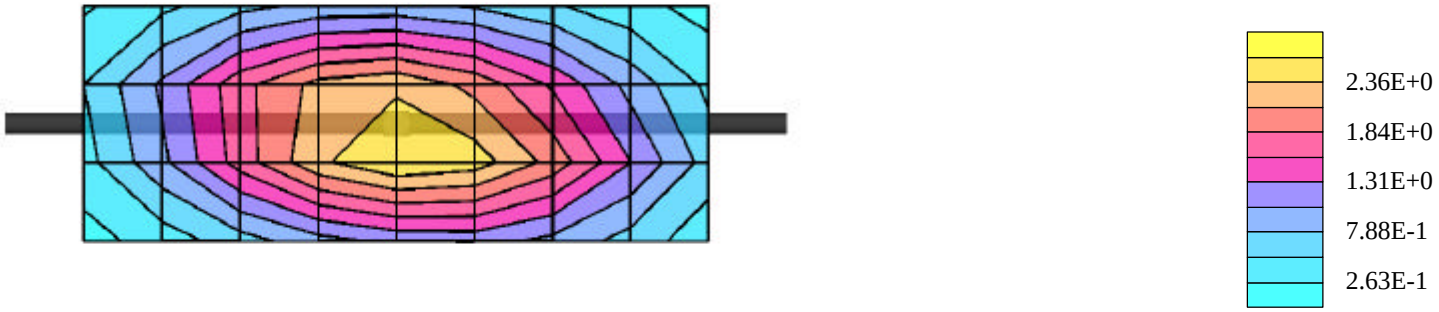
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 284 TR / Forward Power = 249mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C.
Simulant Temp at time of measurement = 22.8 C.
R2 Amy Twin Phantom Rev.3 Phantom; section 1 Section; Position: (90°,180°); Frequency: 1800 MHz
Probe: ET3DV6 - SN1503 - Validation; ConvF(5.24,5.24,5.24); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.40 mho/m ε_r = 39.1 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 9.78 mW/g ± 0.04 dB, SAR (10g): 5.15 mW/g ± 0.05 dB, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 8.3 (7.9, 9.2) [mm]
Powerdrift: 0.04 dB



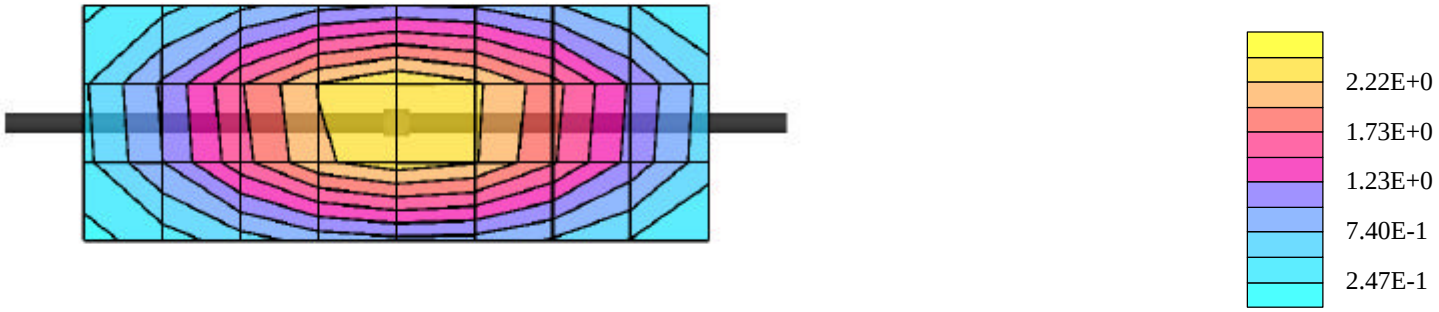
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 79 / Forward Power = 250mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C.
Simulant Temp at time of measurement = 23.2 C
R2 TP-1106 SUGAR SAM (rev. 4) 26Apr02 Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1503 - Validation; ConvF(6.36,6.36,6.36); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.97 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 2.85 mW/g ± 0.07 dB, SAR (10g): 1.80 mW/g ± 0.08 dB, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 11.6 (10.7, 12.8) [mm]
Powerdrift: -0.03 dB



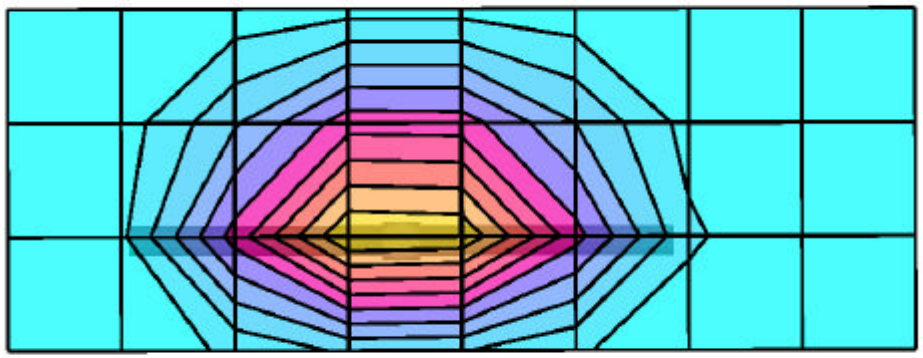
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 79 / Forward Power = 251mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C.
Simulant Temp at time of measurement = 23.1 C
R2 TP-1106 SUGAR SAM (rev. 4) 26Apr02 Phantom; Flat Section; Position: (90°,90°); Frequency: 900 MHz
Probe: ET3DV6 - SN1503 - Validation; ConvF(6.36,6.36,6.36); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.97 mho/m ε_r = 41.8 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 2.79 mW/g ± 0.07 dB, SAR (10g): 1.77 mW/g ± 0.08 dB, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 11.6 (10.7, 12.8) [mm]
Powerdrift: -0.00 dB



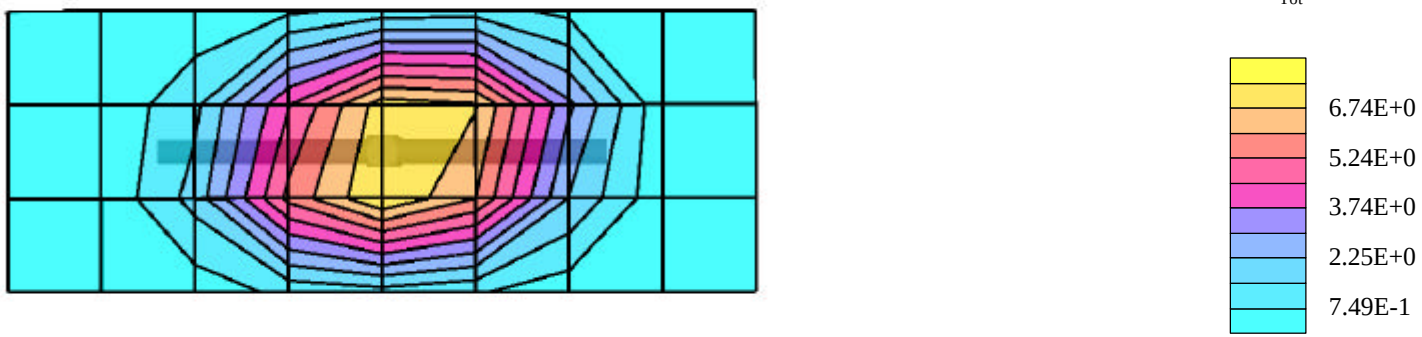
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 284TR / Forward Power = 254mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C
Simulant Temp at time of measurement = 23 C
R2 Amy Twin Phantom Rev.3 Phantom; section 1 Section; Position: (90°,180°); Frequency: 1800 MHz
Probe: ET3DV6 - SN1503 - Validation; ConvF(5.24,5.24,5.24); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.39 mho/m ε_r = 39.1 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 9.96 mW/g ± 0.05 dB, SAR (10g): 5.26 mW/g ± 0.08 dB, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 8.5 (8.2, 9.3) [mm]
Powerdrift: 0.00 dB



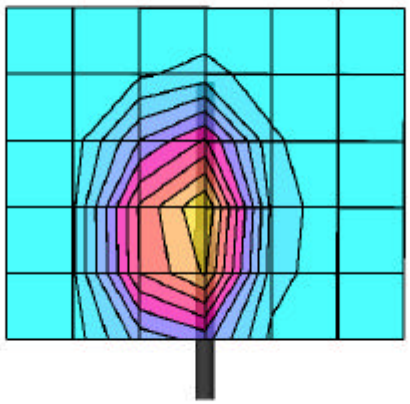
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 284 TR / Forward Power = 249mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C.
Simulant Temp at time of measurement = 23.4 C
R2 Amy Twin Phantom Rev.3 Phantom; section 1 Section; Position: (90°,180°); Frequency: 1800 MHz
Probe: ET3DV6 - SN1503 - Validation; ConvF(5.24,5.24,5.24); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.38 mho/m ε_r = 38.9 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 9.54 mW/g ± 0.04 dB, SAR (10g): 5.03 mW/g ± 0.05 dB, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 8.2 (7.8, 9.1) [mm]
Powerdrift: 0.02 dB



Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 283TR / Forward Power = 248mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 24C
Simulant Temp at time of measurement = 21.3C
R5 Amy Twin Phantom Rev.4 (22Aug02) Phantom; section 1 Section; Position: (90°,180°); Frequency: 1800 MHz
Probe: ET3DV6 - SN1391 - VALIDATION; ConvF(5.43,5.43,5.43); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.37 mho/m ε_r = 39.6 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 9.59 mW/g ± 0.13 dB, SAR (10g): 5.08 mW/g ± 0.11 dB, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 8.6 (8.1, 9.4) [mm]
Powerdrift: 0.02 dB



Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 284 TR / Forward Power = 249mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 22.8 C.

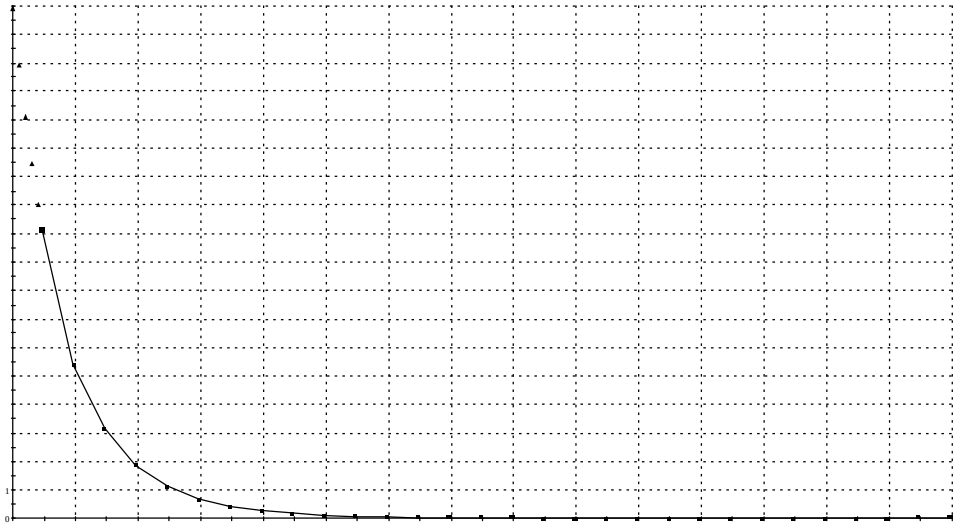
R2 Amy Twin Phantom Rev.3 Phantom; Section; Position: ; Frequency: 1800 MHz

Probe: ET3DV6 - SN1503 - Validation; ConvF(5.24,5.24,5.24); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.40 mho/m ε_r = 39.1 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# 79 / Forward Power = 250mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C.
Simulant Temp at time of measurement = 23.2 C
R2 TP-1106 SUGAR SAM (rev. 4) 26Apr02 Phantom; Section; Position: ; Frequency: 900 MHz
Probe: ET3DV6 - SN1503 - Validation; ConvF(6.36,6.36,6.36); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.97 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
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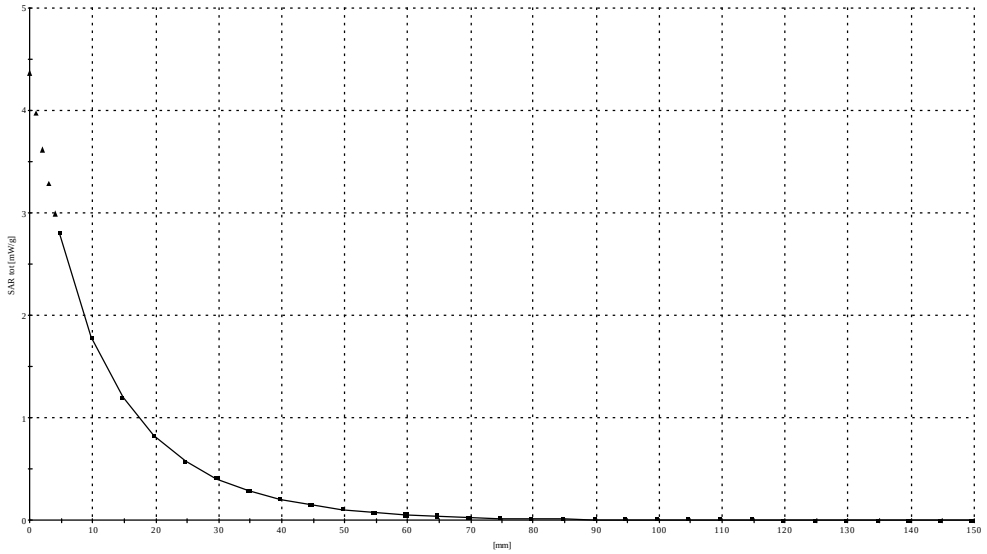
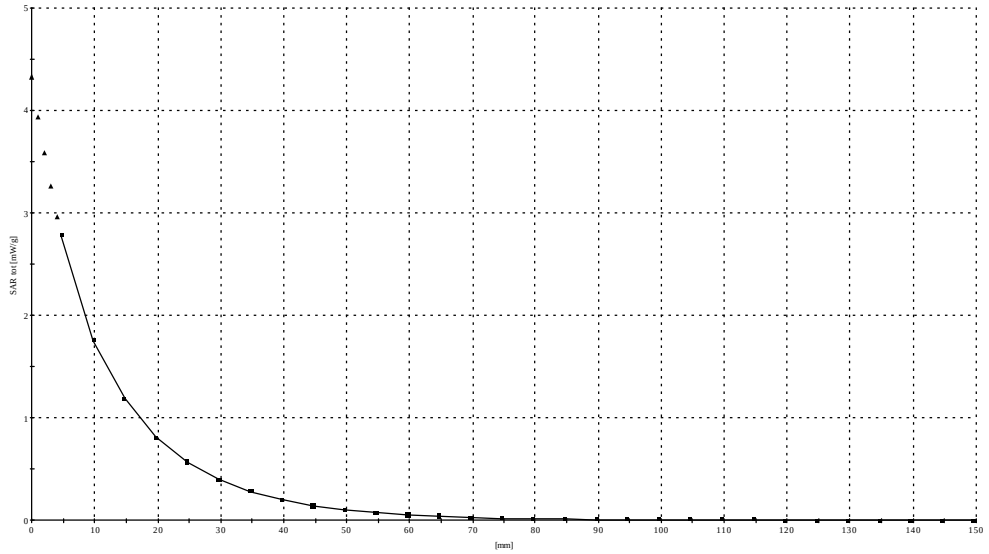
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0
Penetration depth: 11.7 (10.8, 12.9) [mm]



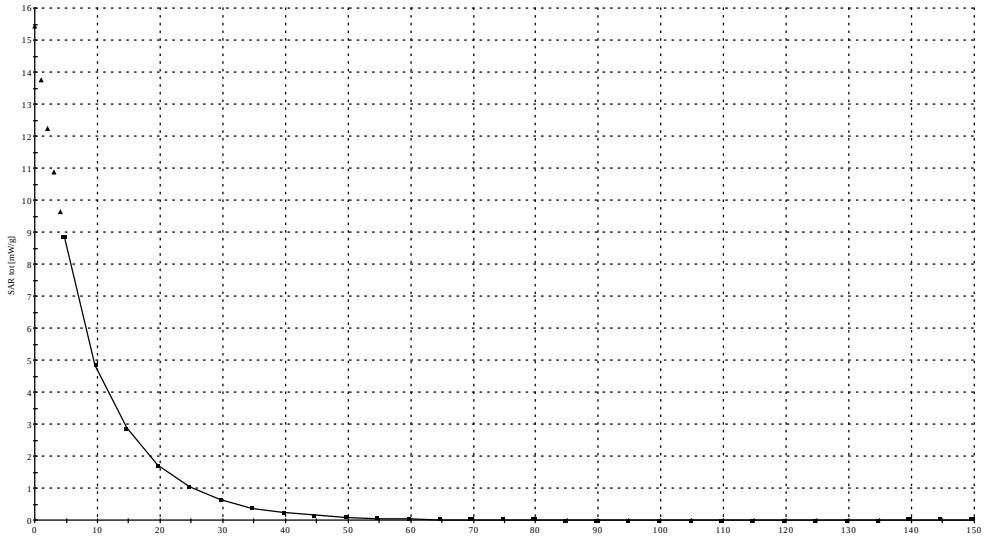
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 79 / Forward Power = 251mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C.
Simulant Temp at time of measurement = 23.1 C
R2 TP-1106 SUGAR SAM (rev. 4) 26Apr02 Phantom; Section; Position: ; Frequency: 900 MHz
Probe: ET3DV6 - SN1503 - Validation; ConvF(6.36,6.36,6.36); Crest factor: 1.0; 900 MHz VALIDATION: σ = 0.97 mho/m ε_r = 41.8 ρ = 1.00 g/cm^3
: , ()
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0
Penetration depth: 11.6 (10.7, 12.8) [mm]



Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 284TR / Forward Power = 254mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C
Simulant Temp at time of measurement = 23 C
R2 Amy Twin Phantom Rev.3 Phantom; Section; Position: ; Frequency: 1800 MHz
Probe: ET3DV6 - SN1503 - Validation; ConvF(5.24,5.24,5.24); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.39 mho/m ε_r = 39.1 ρ = 1.00 g/cm^3
: , ()
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0
Penetration depth: 8.7 (8.3, 9.5) [mm]



Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 284 TR / Forward Power = 249mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 23 C. Simulant Temp at time of measurement = 23.4 C

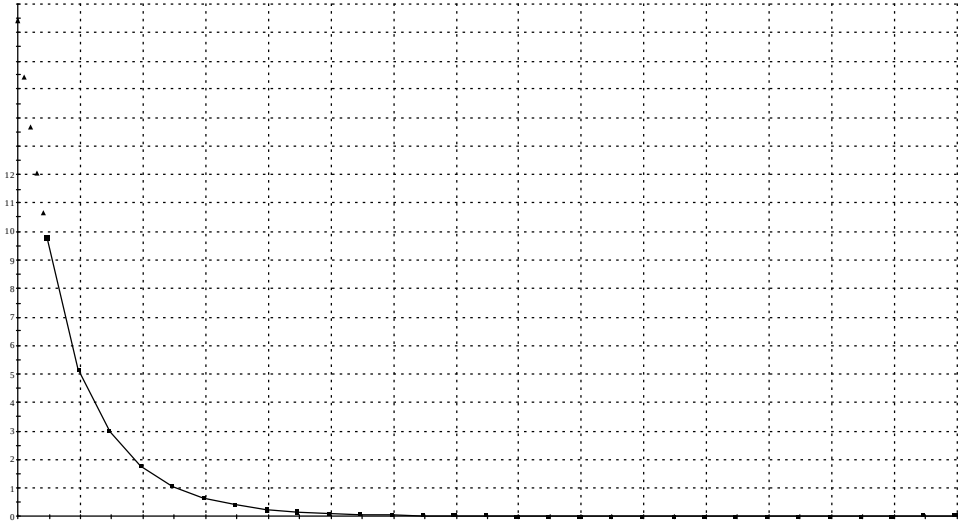
R2 Amy Twin Phantom Rev.3 Phantom; Section; Position: ; Frequency: 1800 MHz

Probe: ET3DV6 - SN1503 - Validation; ConvF(5.24,5.24,5.24); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.38 mho/m ε_r = 38.9 ρ = 1.00 g/cm^3

: , ()

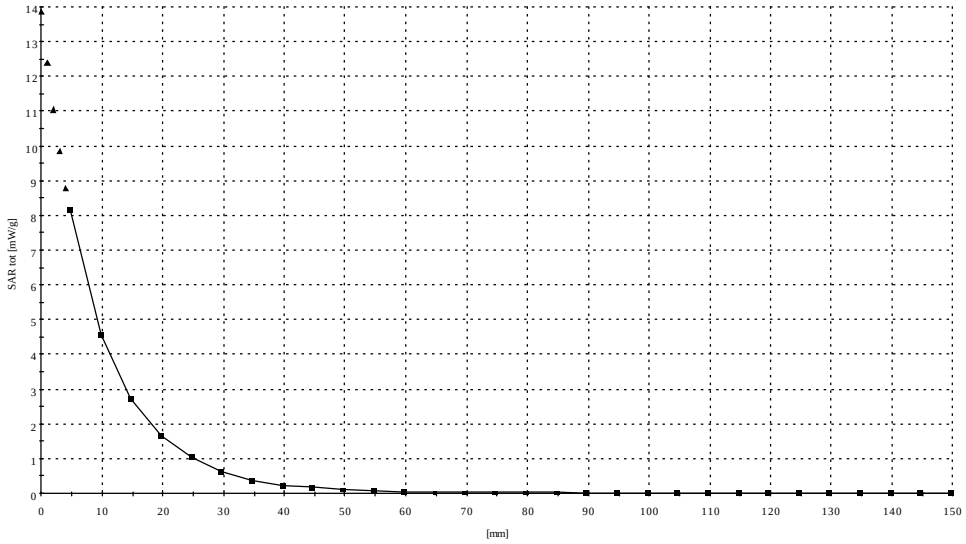
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

Penetration depth: 8.3 (7.9, 9.1) [mm]



Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 283TR / Forward Power = 248mW / Acceptable Temp Range is 15-25°C Room Temp at time of measurement = 24C
Simulant Temp at time of measurement = 21.3C
R5 Amy Twin Phantom Rev.4 (22Aug02) Phantom; Section; Position: ; Frequency: 1800 MHz
Probe: ET3DV6 - SN1391 - VALIDATION; ConvF(5.43,5.43,5.43); Crest factor: 1.0; 1800 MHz VALIDATION: σ = 1.37 mho/m ε_r = 39.6 ρ = 1.00 g/cm^3
: , ()
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0
Penetration depth: 9.1 (8.7, 9.9) [mm]

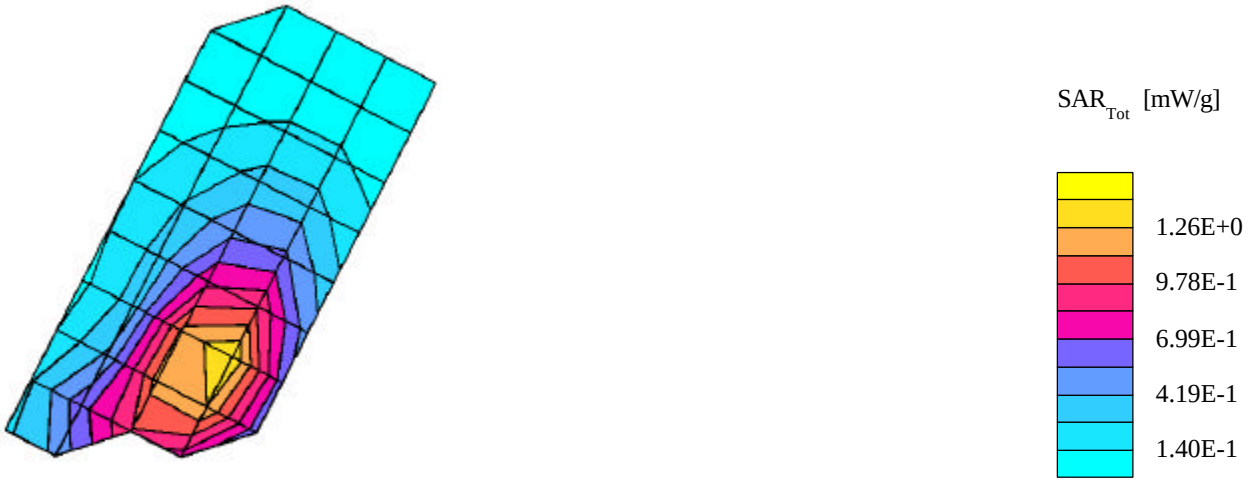


Appendix 2

SAR distribution plots for Phantom Head Adjacent Use

serial #77046963

Ch# 991/ Pwr Step: 02 / Antenna Position: FIXED / Battery Model #: SNN5704A / DEVICE POSITION : CHEEK
R2 TP-1106 SUGAR SAM (rev. 4) 26Apr02 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 824 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 42.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 1.48 mW/g, SAR (10g): 0.966 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 13.8 (11.9, 16.3) [mm]
Powerdrift: -0.01 dB



serial #77046963

Ch# 383 / Pwr Step: 02 / Antenna Position: FIXED / Battery Model #: SNN5704A / DEVICE POSITION : TILTED
R2 TP-1106 SUGAR SAM (rev. 4) 26Apr02 Phantom; Left Hand Section; Position: (90°,180°); Frequency: 848 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 42.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.291 mW/g, SAR (10g): 0.213 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 17.6 (16.2, 19.3) [mm]
Powerdrift: -0.08 dB

serial #77046963

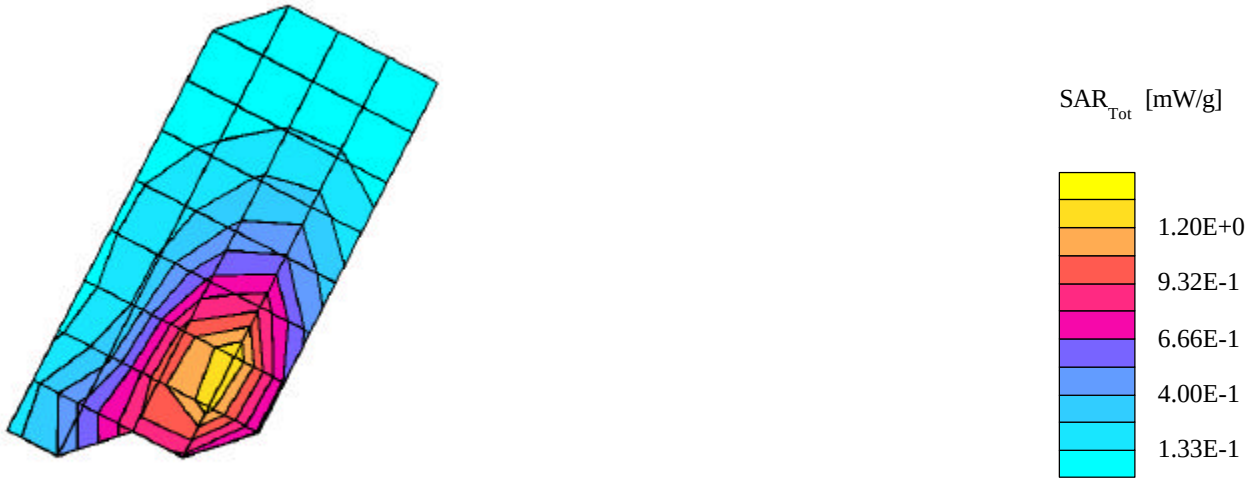
Ch# 991/ Pwr Step: 02 / Antenna Position: FIXED / Battery Model #: SNN5704A / DEVICE POSITION : CHEEK TOUCH
R2 TP-1106 SUGAR SAM (rev. 4) 26Apr02 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 824 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 42.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 1.57 mW/g, SAR (10g): 0.989 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 12.9 (10.8, 15.7) [mm]
Powerdrift: -0.00 dB

serial #77046963

Ch# 383 / Pwr Step: 02 / Antenna Position: FIXED / Battery Model #: SNN5704A / DEVICE POSITION : TILTED
R2 TP-1106 SUGAR SAM (rev. 4) 26Apr02 Phantom; Right Hand Section; Position: (90°,180°); Frequency: 836 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 42.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.294 mW/g, SAR (10g): 0.215 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 18.3 (16.1, 20.6) [mm]
Powerdrift: 0.05 dB

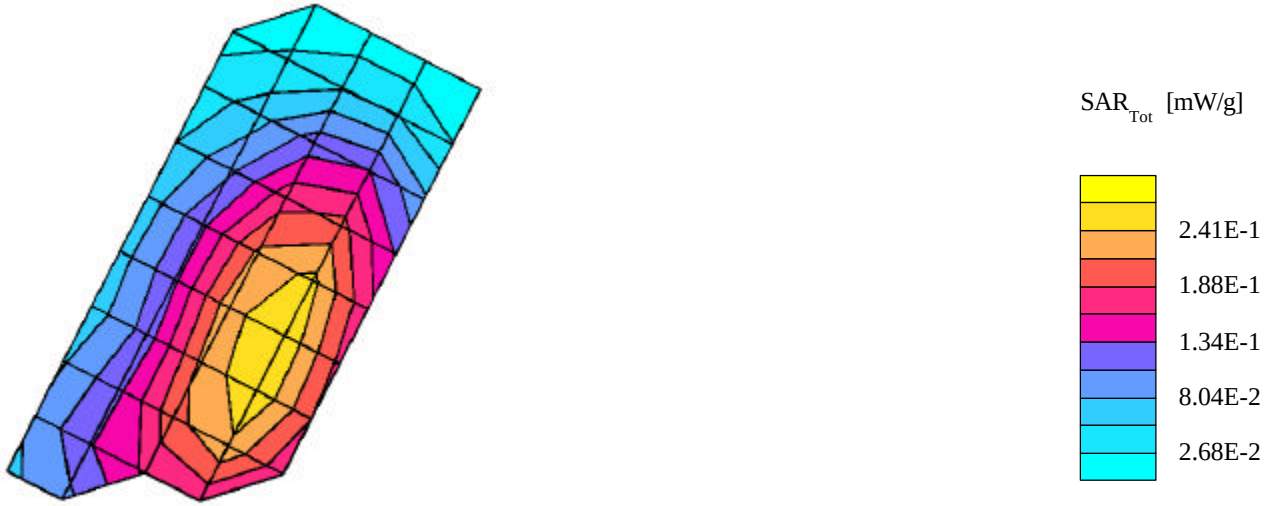
serial #77046963

Ch# 1013/ Pwr Step: OTA / Antenna Position: FIXED / Battery Model #: SNN5704A / DEVICE POSITION : CHEEK
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; Left Hand Section; Position: (90°,180°); Frequency: 824 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 42.6 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 1.42 mW/g, SAR (10g): 0.921 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 13.6 (11.6, 16.1) [mm]
Powerdrift: -0.08 dB



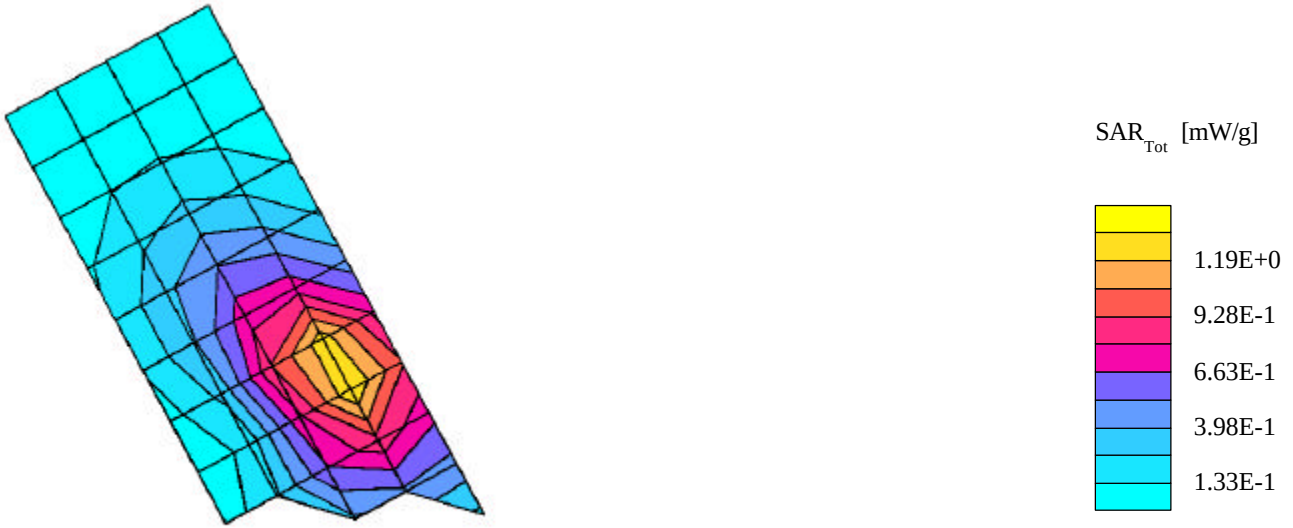
serial #77046963

Ch# 383 / Pwr Step: OTA / Antenna Position: FIXED / Battery Model #: SNN5704A / DEVICE POSITION : TILTED
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; Left Hand Section; Position: (90°,180°); Frequency: 836 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 42.6 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.271 mW/g, SAR (10g): 0.197 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 18.0 (16.0, 20.1) [mm]
Powerdrift: -0.06 dB



serial #77046963

Ch# 1013/ Pwr Step: 02 / Antenna Position: FIXED / Battery Model #: SNN5704A / DEVICE POSITION : CHEEK
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; Right Hand Section; Position: (90°,180°); Frequency: 824 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 42.6 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 1.45 mW/g, SAR (10g): 0.917 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 13.0 (11.2, 15.3) [mm]
Powerdrift: 0.18 dB

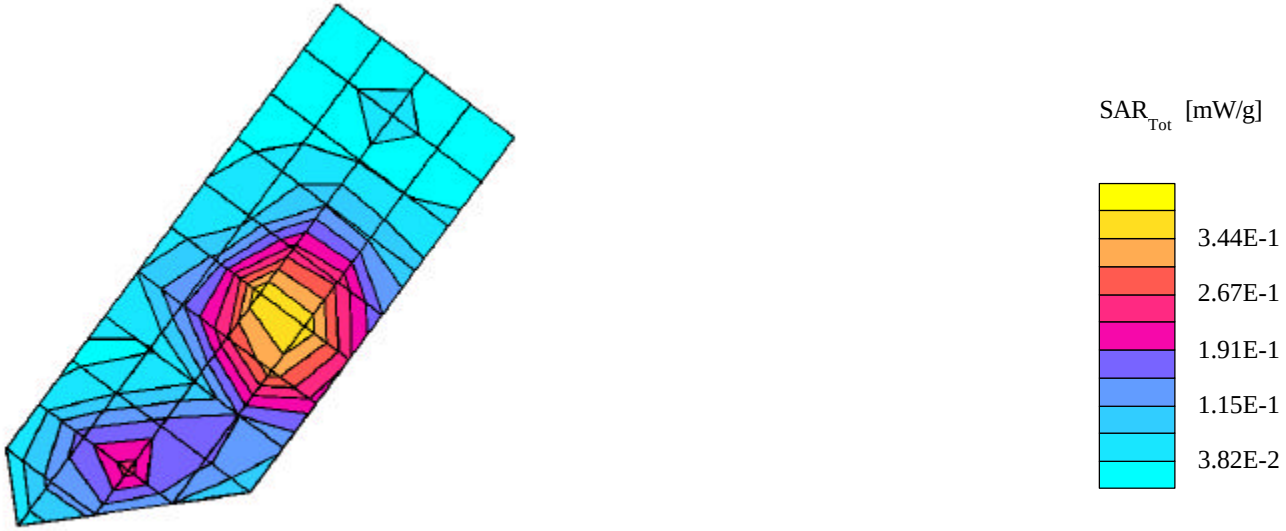


serial #77046963

Ch# 383 / Pwr Step: Always Up / Antenna Position: Fixed / Battery Model #: SNN5704A / DEVICE POSITION TILT
R2 TP-1106 SUGAR SAM (rev. 4) Phantom; Right Hand Section; Position: (90°,180°); Frequency: 836 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(6.50,6.50,6.50); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.91 mho/m ε_r = 42.6 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.285 mW/g, SAR (10g): 0.207 mW/g, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 18.6 (17.4, 19.9) [mm]
Powerdrift: -0.10 dB

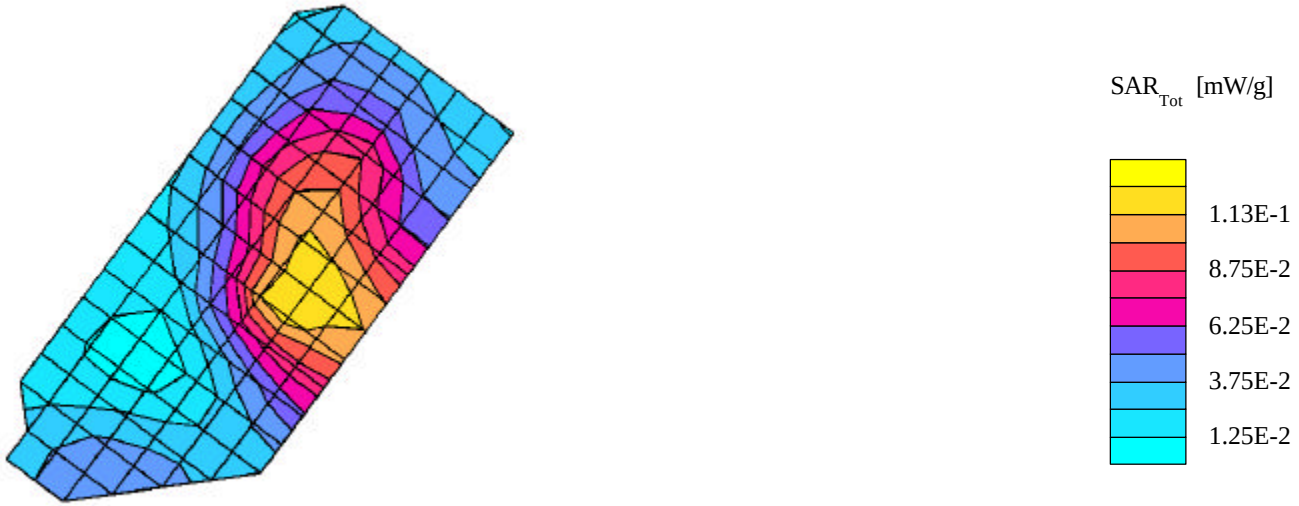
serial #77046963

Ch# 600 / Pwr Step: Always Up / Antenna Position: Fixed / Battery Model #: SNN5704A / DEVICE POSITION (cheek or rotated): Cheek
R2: TP-1103 GLYCOL (rev. 3) Phantom; R7 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(5.24,5.24,5.24); Crest factor: 1.0; 1880 MHz Head & Body: σ = 1.47 mho/m ε_r = 38.1 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.414 mW/g, SAR (10g): 0.244 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 14.9 (12.8, 17.6) [mm]
Powerdrift: 0.03 dB



serial #77046963

Ch# 600 / Pwr Step: Always Up / Antenna Position: Fixed / Battery Model #: SNN5704A / DEVICE POSITION (cheek or rotated):TILT
R2: TP-1159 GLYCOL SAM (rev. 4) Phantom; R7 George Left Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(5.24,5.24,5.24); Crest factor: 1.0; 1880 MHz Head & Body: σ = 1.46 mho/m ε_r = 38.5 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.130 mW/g, SAR (10g): 0.0835 mW/g * Max outside, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 11.5 (10.1, 13.2) [mm]
Powerdrift: 0.08 dB

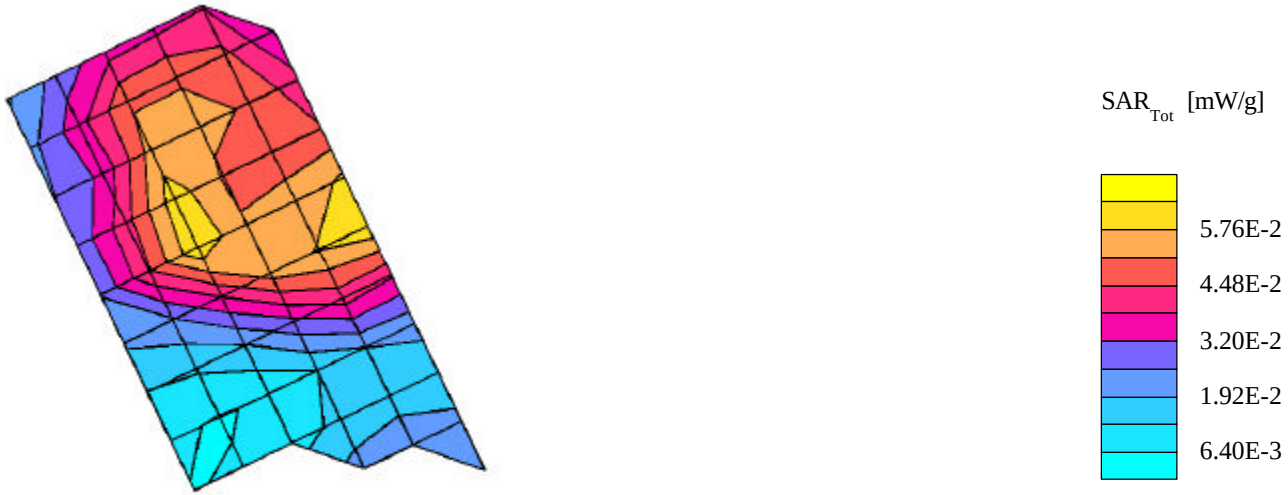


serial #77046963

Ch# 700 / Pwr Step: 02 OTA / Antenna Position: FIXED / Battery Model #: SNN5704A / DEVICE POSITION (cheek or rotated): CHEEK
R2: TP-1159 GLYCOL SAM (rev. 4) Phantom; R7 Weezie Right Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1503 - IEEE Head; ConvF(5.24,5.24,5.24); Crest factor: 1.0; 1880 MHz Head & Body: σ = 1.46 mho/m ε_r = 38.9 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.373 mW/g, SAR (10g): 0.166 mW/g * Max outside, (Worst-case extrapolation)
Coarse: Dx = 10.0, Dy = 10.0, Dz = 10.0
Penetration depth: 10.3 (10.1, 10.5) [mm]
Powerdrift: -0.01 dB

serial # 77046963

Ch# 600 / Pwr Step: 02 OTA / Antenna Position: Fixed / Battery Model #: SNN5704A / DEVICE POSITION:TILT
R5: TP-1133 GLYCOL (rev. 3) Phantom; R5 Ginger Right Hand Section; Position: (90°,180°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1391 - IEEE Head; ConvF(5.43,5.43,5.43); Crest factor: 1.0; 1880 MHz Head & Body: σ = 1.45 mho/m ε_r = 38.6 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.0654 mW/g, SAR (10g): 0.0404 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 15.0
Penetration depth: 10.8 (8.5, 14.5) [mm]
Powerdrift: -0.06 dB



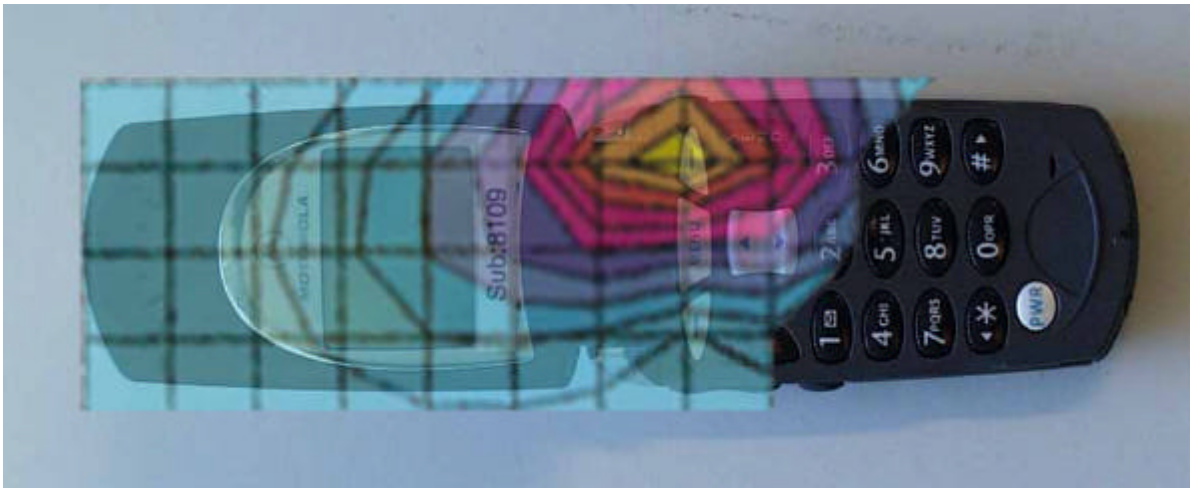


Figure 1.Typical 800 MHz Right Head Adjacent Contour Overlaid on Phone with Antenna Fixed (Cheek Touch)

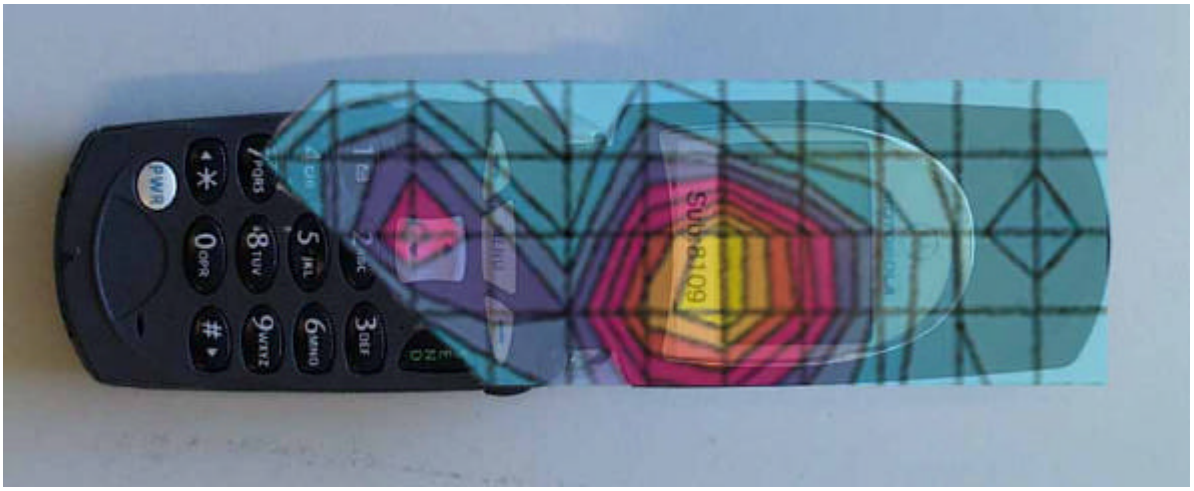


Figure 2.Typical 1900MHz Left Head Adjacent Contour Overlaid on Phone with Antenna Fixed (Cheek Touch)

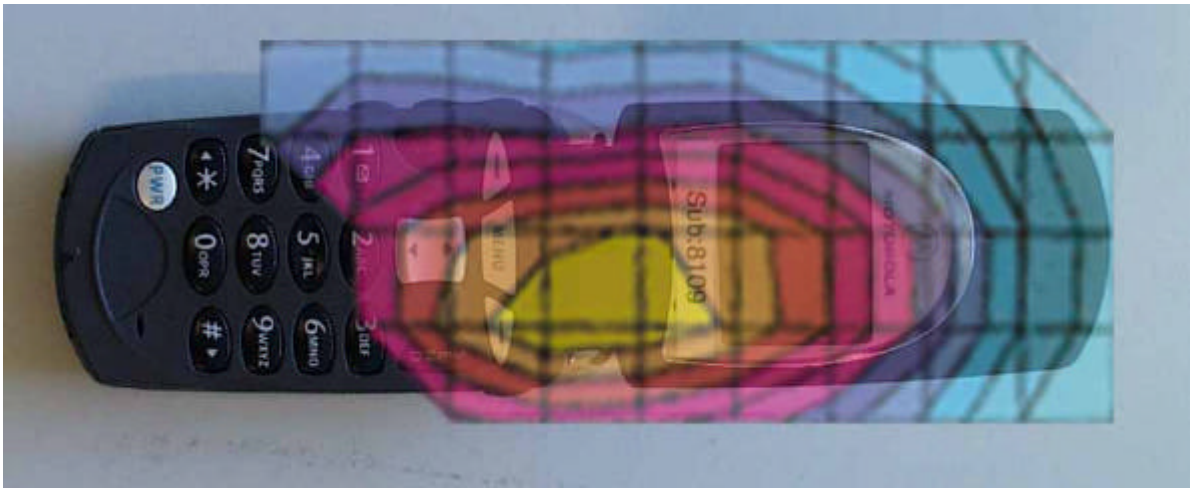


Figure 3.Typical 800MHz Left Head Adjacent Contour Overlaid on Phone with Antenna Fixed (15 ° Tilt)

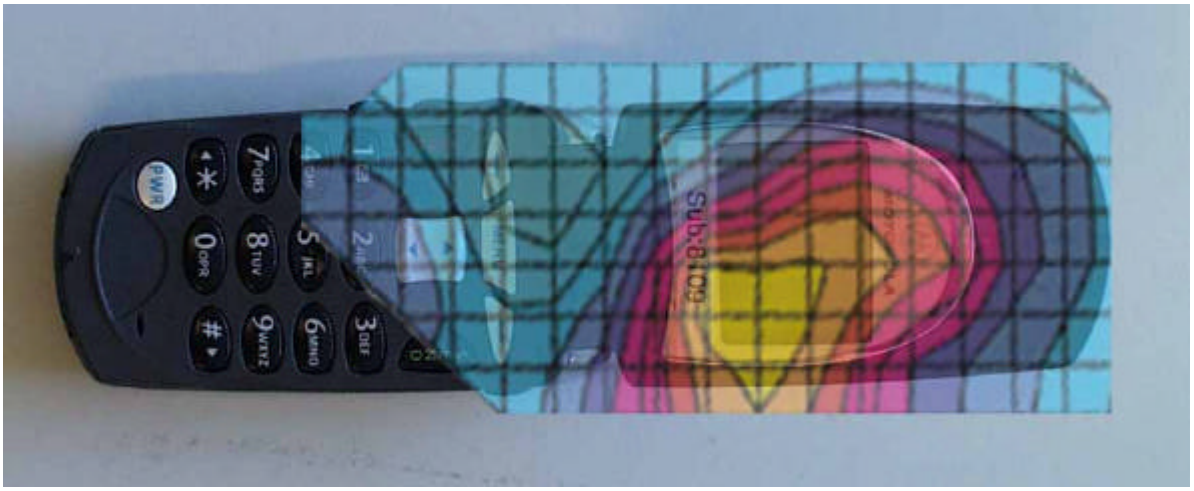


Figure 4.Typical 1900MHz Right Head Adjacent Contour Overlaid on Phone with Antenna Fixed (15 ° Tilt)

Appendix 3

SAR distribution plots for Body Worn Configuration

serial #77046963

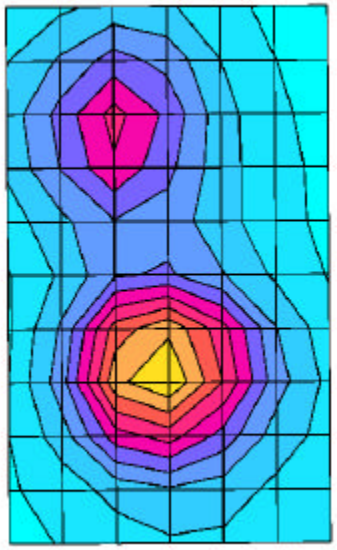
Ch# 991/ Pwr Step: 02 / Antenna Position: Fixed / Battery Model #: SNN5704A / Accessory Model # = ROTATING HOLSTER SYN0375A
R2 Amy Twin Phantom Rev.3 Phantom; section 1 Section; Position: (0°,0°); Frequency: 824 MHz
Probe: ET3DV6 - SN1503 - FCC Body; ConvF(6.20,6.20,6.20); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.97 mho/m ε_r = 53.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.619 mW/g, SAR (10g): 0.441 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 16.2 (15.0, 17.5) [mm]
Powerdrift: -0.01 dB

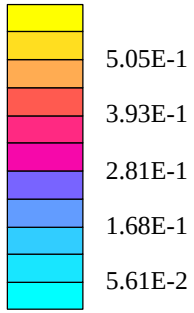
serial #77046963

Ch# 1013/ Pwr Step: OTA / Antenna Position: Fixed / Battery Model #: SNN5704A / Accessory Model #: ROTATING HOLSTER SYN0375A
R2 Amy Twin Phantom Rev.3 Phantom; section 2 Section; Position: (0°,0°); Frequency: 824 MHz
Probe: ET3DV6 - SN1503 - FCC Body; ConvF(6.20,6.20,6.20); Crest factor: 1.0; 835 MHz Head & Body: σ = 0.96 mho/m ε_r = 53.3 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.599 mW/g, SAR (10g): 0.422 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 16.2 (15.0, 17.5) [mm]
Powerdrift: -0.06 dB

serial #77046963

Ch# 25 / Pwr Step: OTA / Antenna Position: FIXED / Battery Model #: SNN5704A / Accessory Model # = ROTATING HOLSTER SYN0375A
R2 Amy Twin Phantom Rev.3 Phantom; section 1 Section; Position: (0°,0°); Frequency: 1851 MHz
Probe: ET3DV6 - SN1503 - FCC Body; ConvF(4.90,4.90,4.90); Crest factor: 1.0; 1880 MHz Head & Body: σ = 1.58 mho/m ε_r = 52.4 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.585 mW/g, SAR (10g): 0.365 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Penetration depth: 11.4 (10.0, 13.2) [mm]
Powerdrift: 0.19 dB





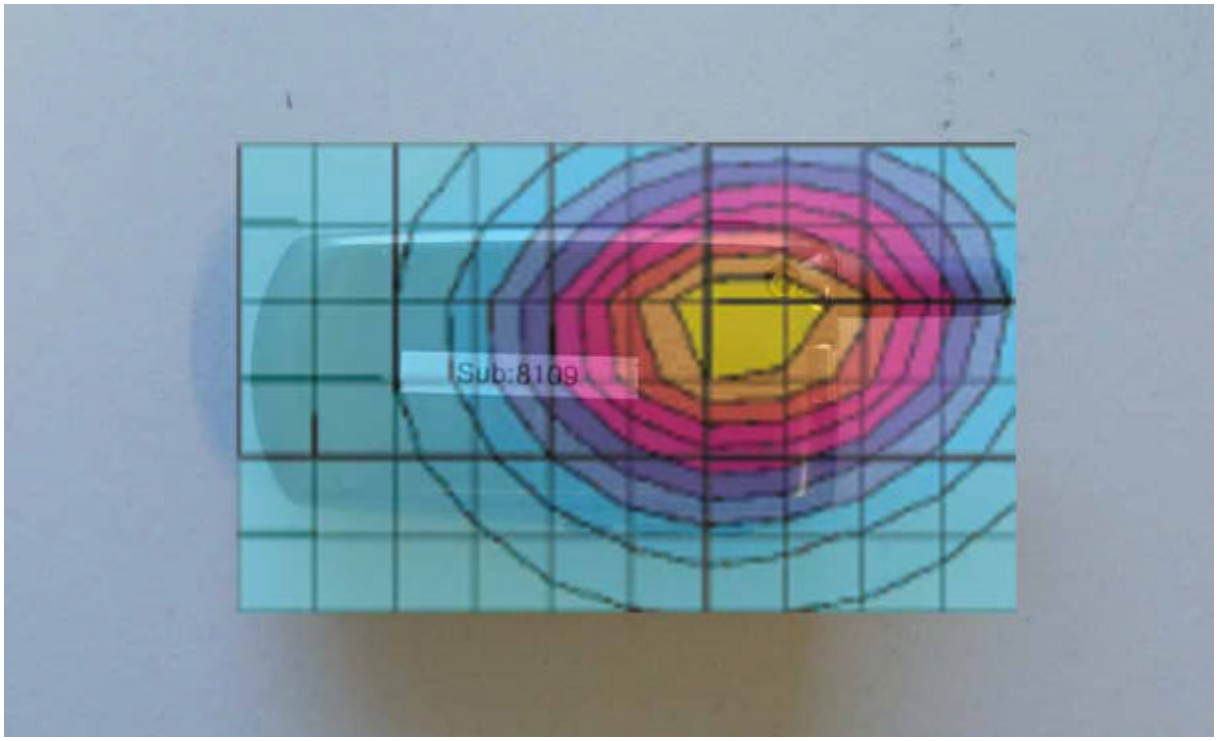


Figure 5.Typical 800 MHz Body-Worn Contour Overlaid on Phone with Antenna Extended

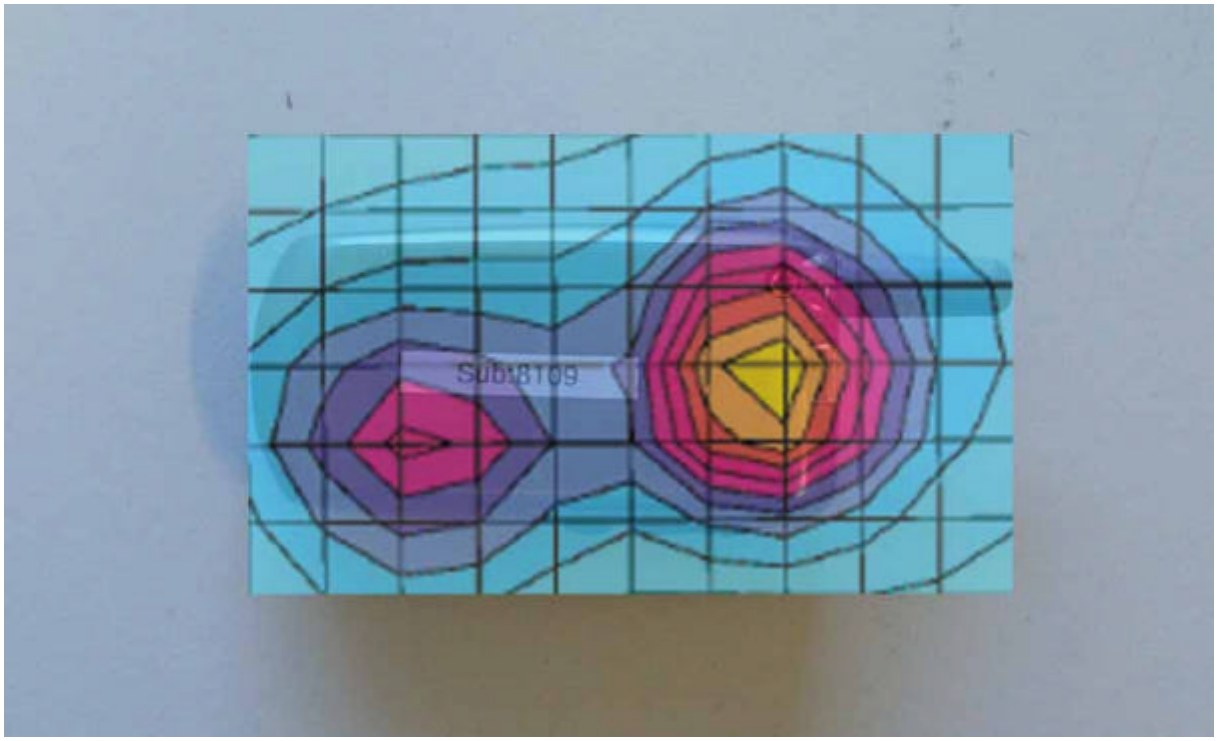


Figure 6. Typical 1900 MHz Body-Worn Contour Overlaid on Phone with Antenna Retracted

Appendix 4

Probe Calibration Certificate (Please See Attachement)

Appendix 5

Dipole Characterization Certificate

Interim Dipole Correlation Certificate

FCD-0359, Rev.001

Dipole Serial Number:	# 079	Last Calibration Date:	26-Oct-00
Dipole Type (MHz):	900 MHz	Calibration Due:	26-Oct-02
		Manufacturer:	SPEAG

-Manufacturer's Original Calibration Information-

Dipole to be correlated: **[Serial Number: 079]**

1g SAR normalized to 1W forward power (mW/g):	10.2 mW/g
Relative Dielectric:	40.0
Conductivity:	0.85
Probe Serial Number:	SN 1507
Forward Power:	250mW +/-3%

Primary Dipole Referenced: **[Serial Number: 077]**

1g SAR normalized to 1W forward power (mW/g):	11.4 mW/g
Relative Dielectric:	40.3
Conductivity:	0.95
Probe Serial Number:	SN 1507
Forward Power:	250mW +/-3%

-Correlation Method Utilized- per DOI-1265

(select one)

By Similarity: X By Transfer Calibration:

-Measured Data-

Probe S/N:	SN 1515	Conductivity (meas.):	0.97
Robot Cell #:	HVD #8	Permittivity (meas.):	42.5

Primary Standard (average of 0-degree & 90-degree 1g cubes):

2.875 mW/g	N/R (if required)	N/R (if required)

Secondary Standard (average of 0-degree & 90-degree 1g cubes):

2.82 mW/g	N/R (if required)	N/R (if required)

-NEW Correlated Target-

1g SAR normalized to 1W forward power (mW/g):	11.4 mW/g
Relative Dielectric:	40.3
Conductivity:	0.95

Approved by: Antonio Fernandez **Date:** 11/13/2001

Comments: Secondary dipole measured –1.9% from primary dipole.

Interim Dipole Correlation Certificate

FCD-0359, Rev.001

Dipole Serial Number:	283(TR)	Last Calibration Date:	5-Jan-01
Dipole Type (MHz):	D1800V2 w/ Teflon Rings	Calibration Due:	5-Jan-03
		Manufacturer:	SPEAG

-Manufacturer's Original Calibration Information-

Dipole to be correlated: **[Serial Number: 283(TR)]**

1g SAR normalized to 1W forward power (mW/g):	44.0mW/g
Relative Dielectric:	40.0
Conductivity:	1.71
Probe Serial Number:	1507
Forward Power:	250mW

Primary Dipole Referenced: **[Serial Number: 246(TR)]**

1g SAR normalized to 1W forward power (mW/g):	38.8 mW/g
Relative Dielectric:	39.6
Conductivity:	1.37
Probe Serial Number:	1507
Forward Power:	250 mW

-Correlation Method Utilized- per DOI-1265

(select one)

By Similarity: X By Transfer Calibration:

-Measured Data-

Probe S/N:	1375	Conductivity (meas.):	1.38
Robot Cell #:	HVD-4	Permittivity (meas.):	38.4

Primary Standard (average of 0-degree & 90-degree 1g cubes):

9.515 mW/g		
	(if required)	(if required)

Secondary Standard (average of 0-degree & 90-degree 1g cubes):

9.595 mW/g		
	(if required)	(if required)

-NEW Correlated Target-

1g SAR normalized to 1W forward power (mW/g):	38.8 mW/g
Relative Dielectric:	39.6
Conductivity:	1.37

Approved by: Antonio Fiesoli **Date:** 3/8/02

Comments: Secondary dipole measured +0.8 % from primary dipole.

Interim Dipole Correlation Certificate

FCD-0359, Rev.001

Dipole Serial Number:	284(TR)	Last Calibration Date:	5-Jan-01
Dipole Type (MHz):	D1800V2 w/ Teflon Rings	Calibration Due:	5-Jan-03
		Manufacturer:	SPEAG

-Manufacturer's Original Calibration Information-

Dipole to be correlated: [Serial Number: 284(TR)]

1g SAR normalized to 1W forward power (mW/g):	44.4mW/g
Relative Dielectric:	40.0
Conductivity:	1.71
Probe Serial Number:	1307
Forward Power:	250mW

Primary Dipole Referenced: [Serial Number: 246(TR)]

1g SAR normalized to 1W forward power (mW/g):	38.5 mW/g
Relative Dielectric:	39.6
Conductivity:	1.37
Probe Serial Number:	1307
Forward Power:	250 mW

-Correlation Method Utilized- per DOI-1265

(select one)

By Similarity: X By Transfer Calibration:

-Measured Data-

Probe S/N:	1307	Conductivity (meas.):	1.38
Robot Cell #:	HWD4	Permittivity (meas.):	38.4

Primary Standard (average of 0-degree & 90-degree 1g cubes):

2.915 mW/g		
	(if required)	(if required)

Secondary Standard (average of 0-degree & 90-degree 1g cubes):

2.960 mW/g		
	(if required)	(if required)

-NEW Correlated Target-

1g SAR normalized to 1W forward power (mW/g):	38.8 mW/g
Relative Dielectric:	39.6
Conductivity:	1.37

Approved by: Asha . Fenech **Date:** 3/8/02

Comments: Secondary dipole measured +1.6 % from primary dipole.

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 6. Front of Phone

Figure 7. Front of Phone (Flip Open)

Figure 8. Back of Phone

Figure 9. Side of Phone (Flip Open)

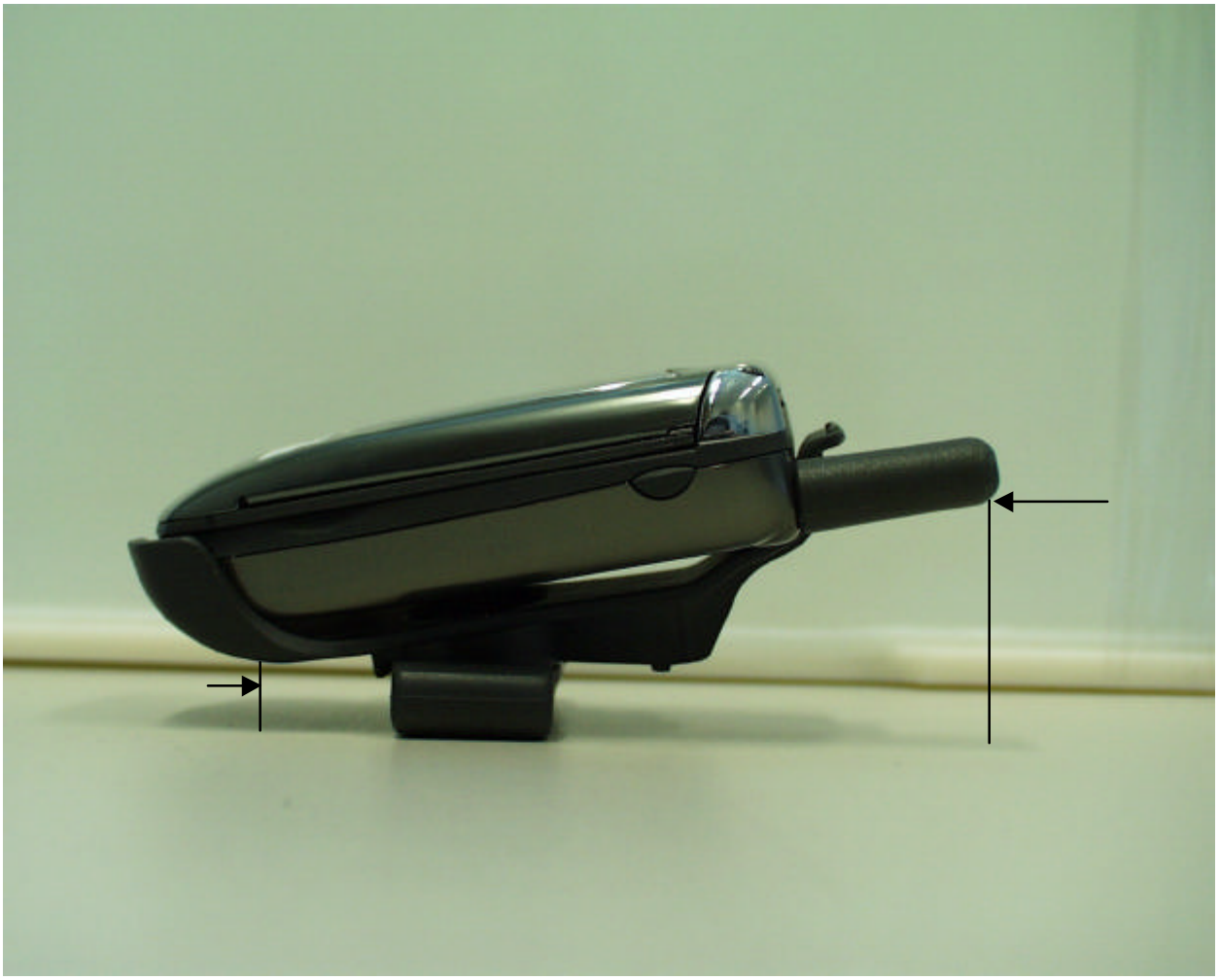


Figure 10. Separation Distance of 25 mm from Tip of Antenna to Flat Phantom and 8 mm from the bottom of the clip when rotated +90° (Clockwise Direction)

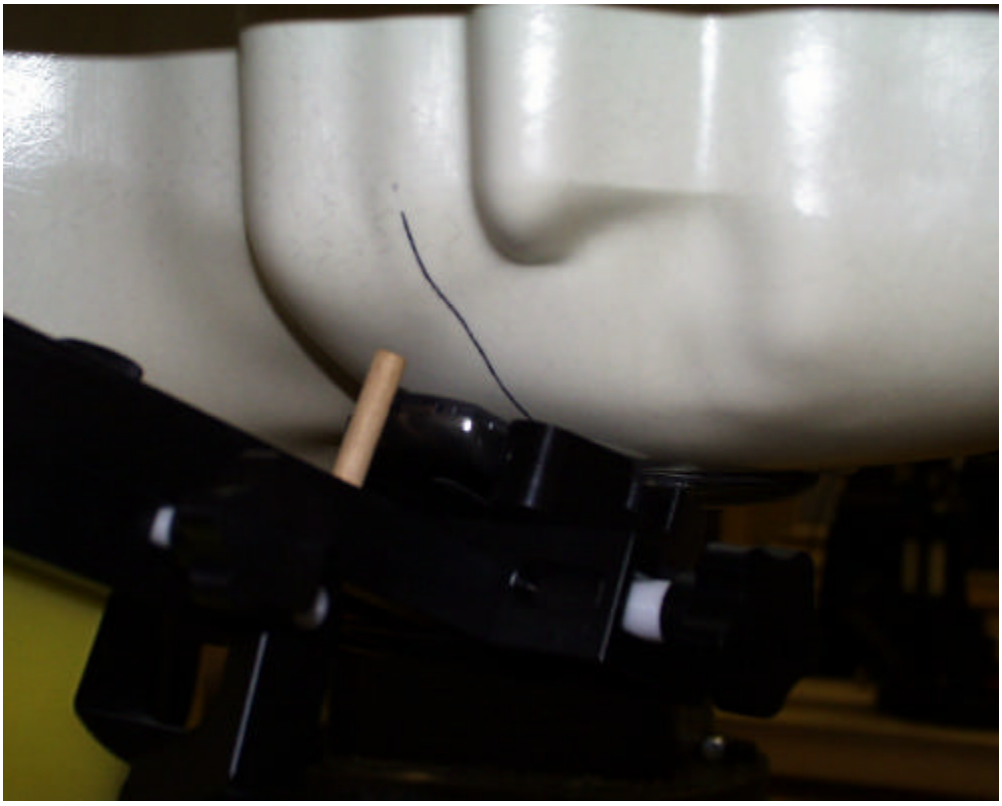


Figure 11. Phone Against the Head (Front View)

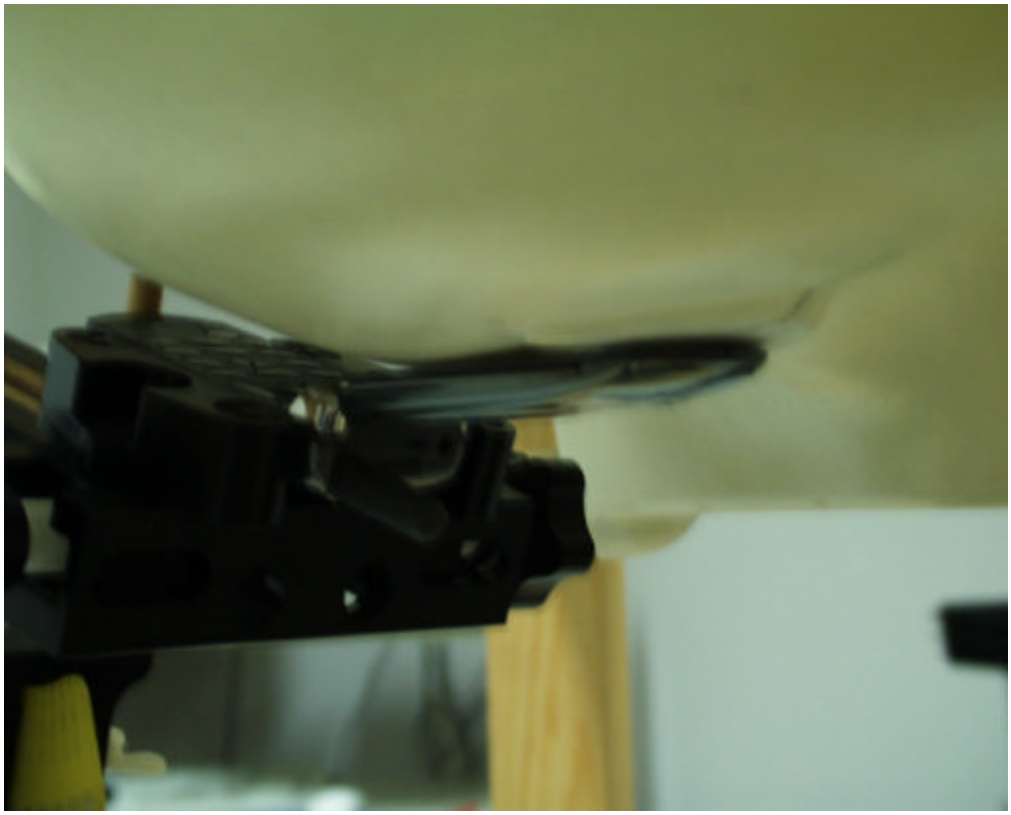


Figure 12. Phone Against the Head (Back View)

Figure 13. Phone Against the Head (15° Tilt) Front View

Figure 14. Phone Against the Head (15° Tilt) Back View