



Exhibit 11 Class 2 Permissive Change: SAR Test Report: IHDT56AL1

Date of test: 04/01/01-04/04/01

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

Test Responsible: Steven Hauswirth
Staff Engineer

Accreditation: ISO Guide 25 Accredited Lab, A2LA certificate #1651-01

Statement of Compliance: Motorola declares under its sole responsibility that portable cellular telephone FCC ID IHDT56AL1 to which this declaration relates, is in conformity with the appropriate RF exposure standards, recommendations and guidelines. 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:

©Motorola

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

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

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

Table of Contents

1) Introduction	3
2) Description of the Device Under Test	3
Antenna description	3
Device description	3
3) Test Results	3
4) Test Equipment	4
4.1 Dosimetric system	4
4.2 Additional equipment used	5
5) Electrical parameters of the tissue simulating liquid	5
6) System Accuracy Verification	5

Reference Notes

Appendix 1: SAR distribution comparison for the system accuracy verification	6
Appendix 2: SAR distribution plots for Phantom Head Adjacent Use	7
Appendix 3: SAR distribution plots for Body Worn Configuration	9
Appendix 4: Photographs of the device under test	11

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 IHDT56AL1. The Specific Absorption Rate (SAR) of this product was measured. The portable cellular phone was tested in accordance with the latest available test guidelines. The SAR values found for the portable cellular phone (FCC ID IHDT56AL1) are below the maximum recommended levels of 1.6 W/kg. Detailed procedures of the test are described in the *Motorola Exhibit 11 Reference SAR Test Report*.

2. Description of the Device Under Test

Antenna description

Type	Extendable whip
Location	Right Side
Configuration	Helix

Device description

FCC ID Number	IHDT56AL1		
Serial number	A8A0ED71		
Mode(s) of Operation	AMPS800	CDMA800	CDMA1900
Modulation Mode(s)	AMPS	CDMA	CDMA
Maximum Output Power Setting	26.5dBm	24.7dBm	24.8dBm
Duty Cycle	1:1	1:1	1:1
Transmitting Frequency Rang(s)	824-849MHz	824-849MHz	1851-1909MHz

3. Test Results

The SAR results shown in tables 1 and 2 are maximum SAR values averaged over 1 gram of phantom tissue. Also shown are the measured conducted output powers and the temperature of the test facility during the test.

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 then placed in the SAR measurement system with a fully charged battery.

A full data set output of two test conditions with the highest SAR values from the Dasy™ measurement system is included as appendix 2 and 3. The test conditions included are indicated as bold numbers in the following tables. All other test conditions measured lower SAR values than those included. Note that digital mode SAR data was measured only for the test conditions that resulted in the highest analog SAR values. This is because the only difference between analog and digital modes that can impact SAR is the average transmitter power.

<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	SAR, 1g (W/kg)			
			Left Head		Right Head	
			Ant Ext	Ant Ret	Ant Ext	Ant Ret
Analog 800MHz	Channel 991	26.42	0.435	0.30	0.33	0.18
	Channel 384	26.46	1.06	0.81	0.96	0.71
	Channel 799	26.41	1.37	1.0	1.22	0.92
Digital 800MHz	Channel 1013	24.75				
	Channel 384	24.70				
	Channel 777	24.71	0.21	0.092		
Digital 1900MHz	Channel 512	24.90	0.42	0.94	0.27	0.12
	Channel 661	24.80	0.56	1.55	0.35	1.2
	Channel 810	24.66	0.61	1.38	0.31	0.93

Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT56AL1 at highest possible output power. Measured against the head.

<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	SAR, 1g (W/kg)	
			Belt Clip	
			Ant Ext	Ant Ret
Analog 800MHz	Channel 991	26.42	0.98	0.52
	Channel 384	26.46	0.94	0.70
	Channel 799	26.41	0.80	0.67
Digital 1900MHz	Channel 512	24.90	0.68	0.12
	Channel 661	24.80	1.41	0.17
	Channel 810	24.66	1.15	0.23

Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT56AL1 at highest possible output power. Measured against the body.

4. Test Equipment Used

4.1 Dosimetric System

The Motorola Personal Communications Sector Product Safety Laboratory utilizes a Dosimetric Assessment System (Dasy3™) SAR measurement system manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The overall RSS uncertainty of the measurement system is ±12.0% (K=1).

Description	Serial Number	Cal Due Date
DASY3 DAE V1	SN 375	10/17/01
E-Field Probe ETDV6	SN1391	08/30/01
Dipole Validation Kit, DV900V2	SN 80	10/26/02
Dipole Validation Kit, DV1800V2	SN 259	01/06/02

4.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04843	11/15/02
Power Meter E4419B	GB39510900	01/18/02
Power Sensor E9301A	US39210918	01/24/02

5. 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 HP85070 Dielectric Probe Kit. These values are shown in the table below. The mass density, ρ , used by the dosimetric system is also given. Recommended limits for maximum permittivity, minimum conductivity and maximum mass density are also shown. These come from the Federal Communication Commission, "Tissue Dielectric Properties" web site at <http://www.fcc.gov/fcc-bin/dielec.sh>. 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)	ρ (g/cm ³)
836	Head	Measured, 04/01/01	44.0	0.89	1.00
		Recommended Limits	46.08	0.74	1.03
	Body	Measured, 04/02/01	1.12	51.3	1.00
		Recommended Limits	56.11	0.94	1.04
1880	Head	Measured, 04/01/01	39.00	1.46	1.00
		Recommended Limits	43.40	1.19	1.03
	Body	Measured, 04/03/01	47.90	1.64	1.00
		Recommended Limits	54.33	1.43	1.04

6. System Accuracy Verification

A system accuracy verification of the DASY3 was performed using the measurement equipment listed in Section 4. The test was conducted on the same day as the measurement of the DUT. The obtained results are displayed in the table below. The distributions of SAR compare well with those of the reference measurements (see Appendix 1).

f (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Temp (°C)
			ϵ_r	σ (S/m)	
900	Measured (04/01/01)	10.2	43.0	0.90	22.2
	Recommended Limits	10.2	40.0	0.85	NA
900	Measured (04/02/01)	9.96	42.6	0.86	20
	Recommended Limits	10.2	40.0	0.85	NA
1800	Measured (04/01/01)	40.94	39.6	1.73	22.4
	Recommended Limits	39.27	41.10	1.69	NA
1800	Measured (04/03/01)	40.73	39.6	1.73	21
	Recommended Limits	39.27	41.10	1.69	NA

Appendix 1

SAR distribution comparison for the system accuracy verification

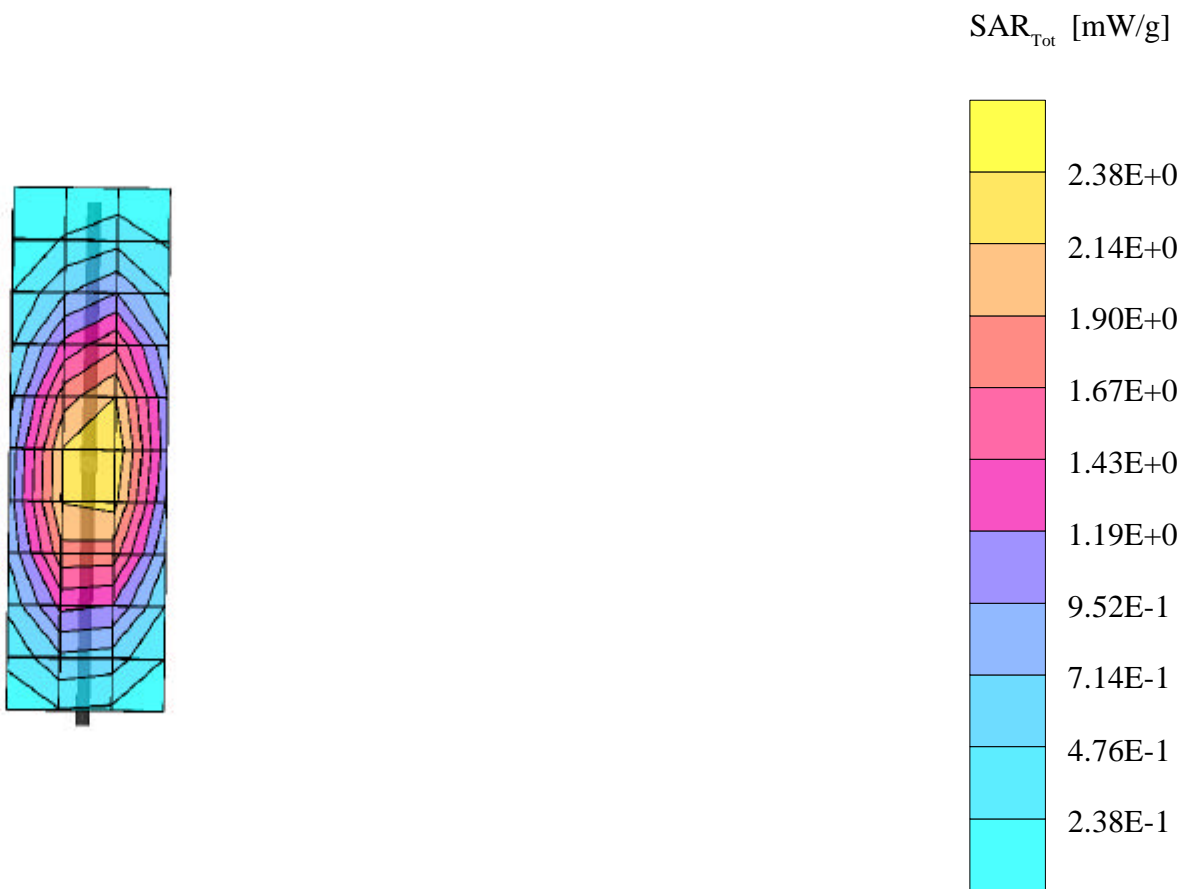
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 080 / Forward Power = 256mw / Temp at time of measurement: 22.2

Amy Twin Phantom ; Section2

Probe: ET3DV6 - SN1391- Validation; ConvF(6.33,6.33,6.33); Crest factor: 1.0; Validation 900 MHz: $\sigma = 0.90$ mho/m $\epsilon_r = 43.0$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 4.10 mW/g ± 0.20 dB, SAR (1g): 2.61 mW/g ± 0.18 dB, SAR (10g): 1.68 mW/g ± 0.18 dB, (Worst-case extrapolation)



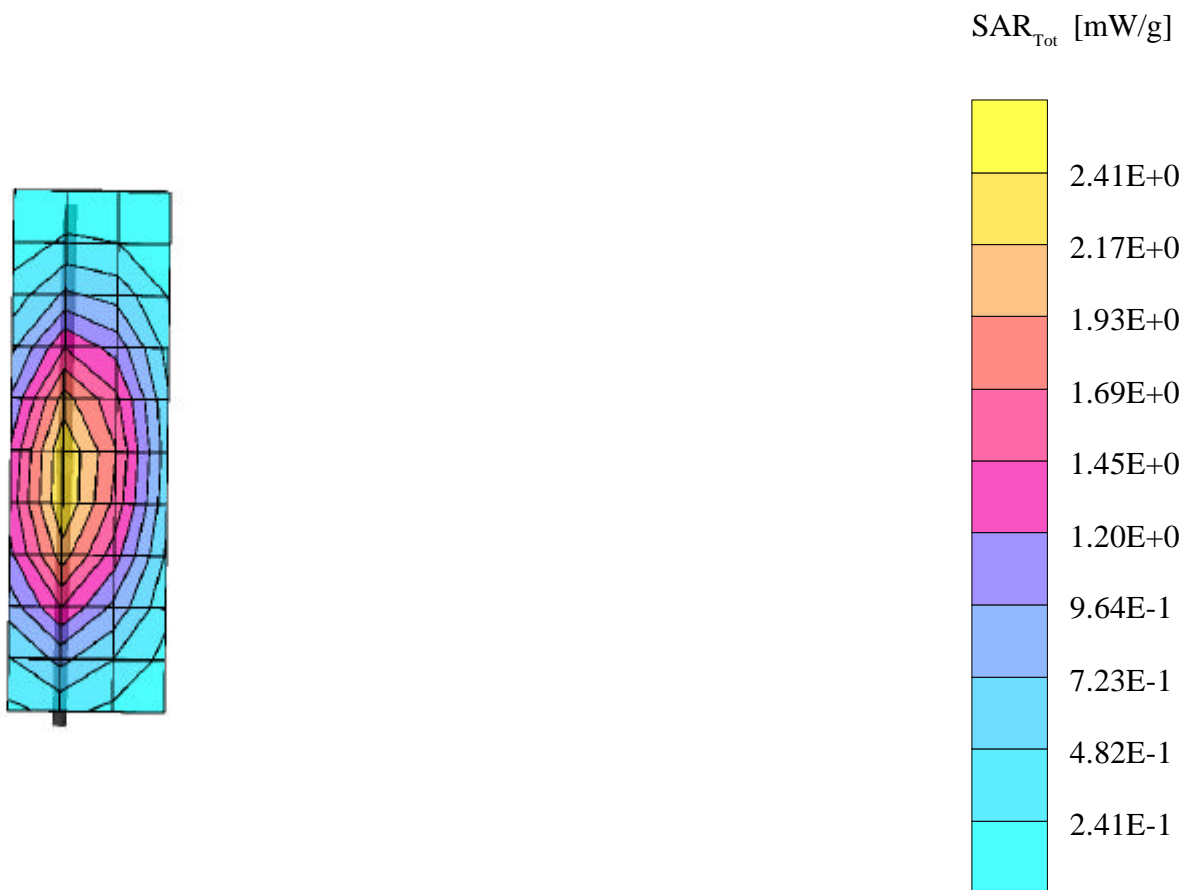
Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 80 / Forward Power =250 / Temp at time of measurement: 20

Amy Twin Phantom ; Section2

Probe: ET3DV6 - SN1391- Validation; ConvF(6.33,6.33,6.33); Crest factor: 1.0; Validation 900 MHz: $\sigma = 0.86$ mho/m $\epsilon_r = 42.6$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 3.86 mW/g ± 0.21 dB, SAR (1g): 2.49 mW/g ± 0.22 dB, SAR (10g): 1.62 mW/g ± 0.23 dB, (Worst-case extrapolation)



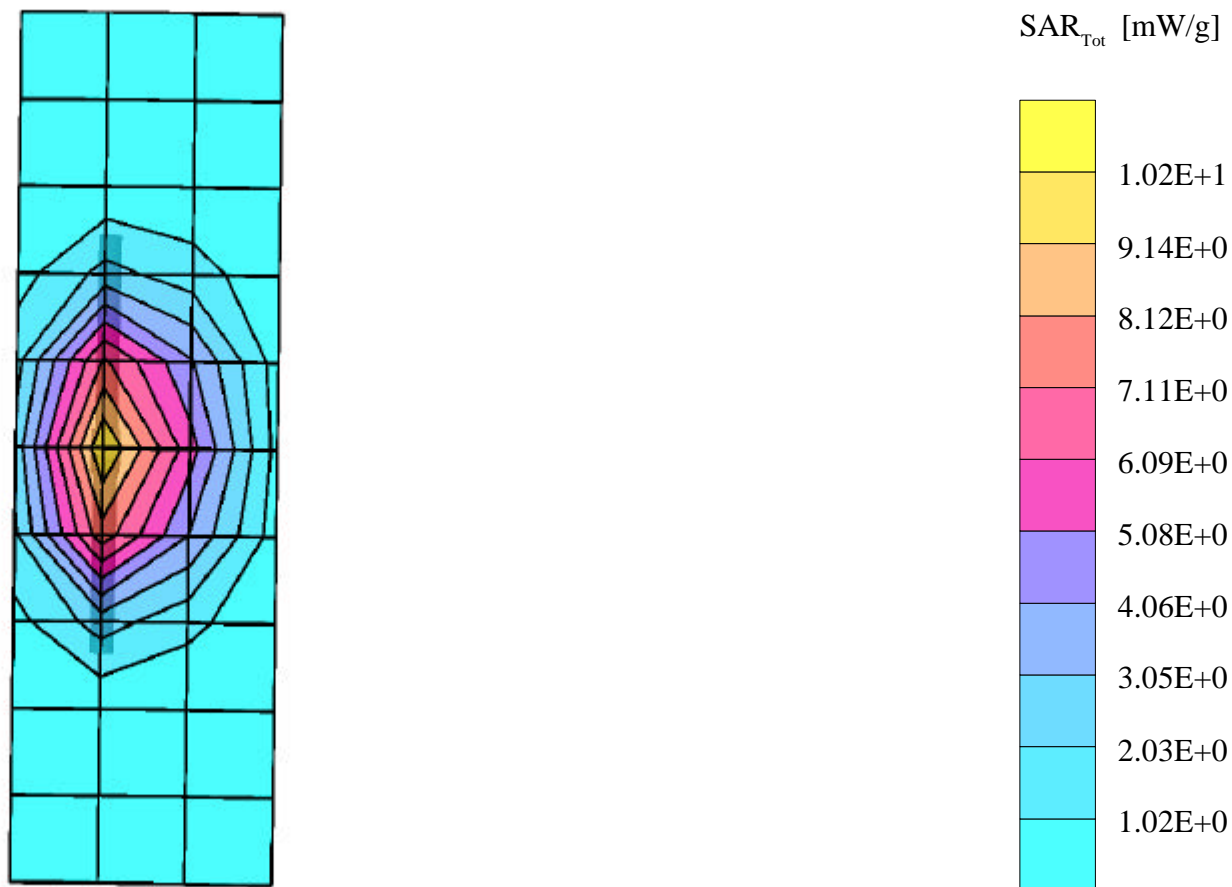
Dipole 1800

1800 MHz Dipole Validation / Dipole Sn# 259 / Forward Power = 254mw / Temp at time of measurement: 22.4

Amy Twin Phantom ; Section2

Probe: ET3DV6 - SN1391- Validation; ConvF(5.67,5.67,5.67); Crest factor: 1.0; Validation 1800 MHz: $\sigma = 1.73$ mho/m $\epsilon_r = 39.6$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 20.2 mW/g ± 0.26 dB, SAR (1g): 10.4 mW/g ± 0.25 dB, SAR (10g): 5.31 mW/g ± 0.25 dB, (Worst-case extrapolation)



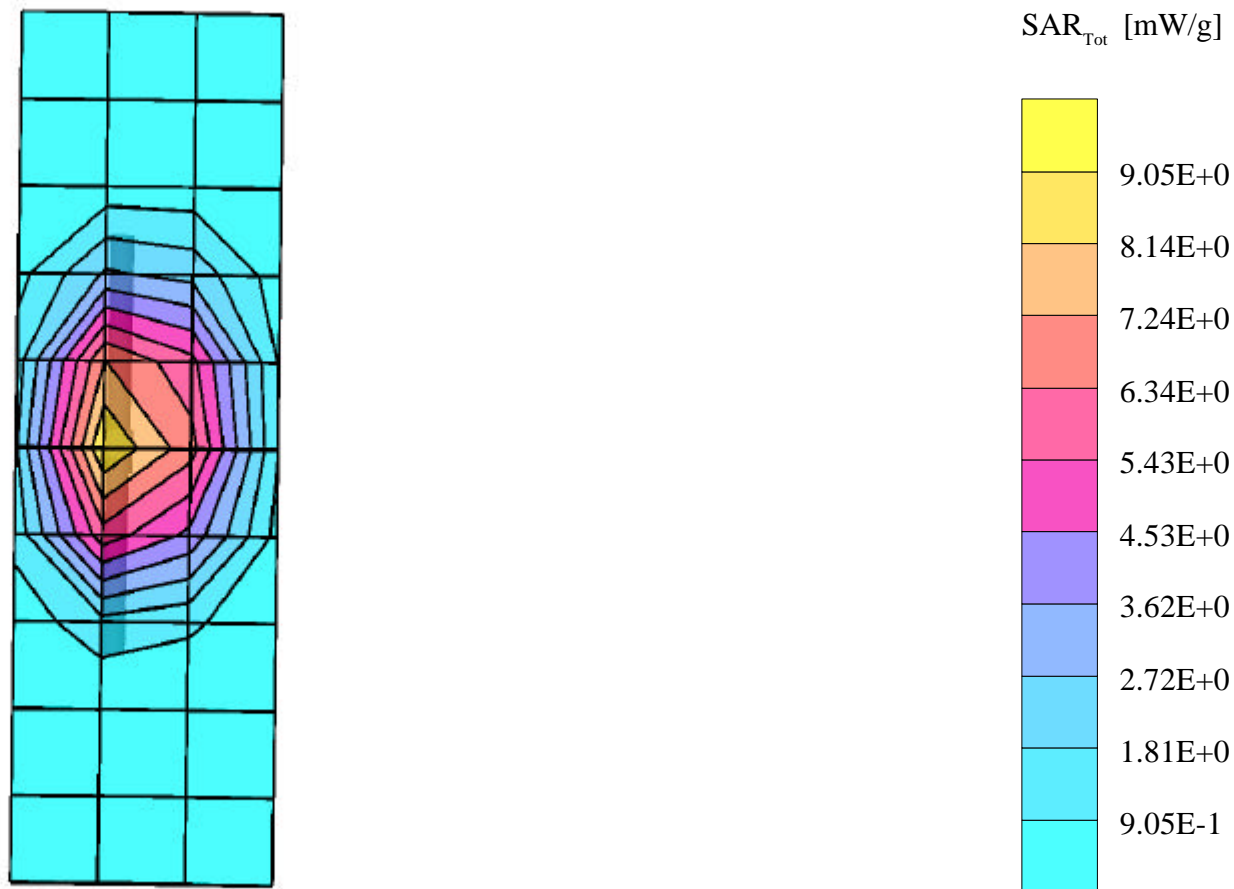
Dipole 1800

1800 MHz Dipole Validation / Dipole Sn# 259 / Forward Power = 248 / Temp at time of measurement: 21

Amy Twin Phantom ; Section2

Probe: ET3DV6 - SN1391- Validation; ConvF(5.67,5.67,5.67); Crest factor: 1.0; Validation 1800 MHz: $\sigma = 1.73$ mho/m $\epsilon_r = 39.6$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 19.4 mW/g ± 0.12 dB, SAR (1g): 10.1 mW/g ± 0.14 dB, SAR (10g): 5.16 mW/g ± 0.17 dB, (Worst-case extrapolation)



Appendix 2

SAR distribution plots for Phantom Head Adjacent Use

S/N A8A0ED71

Ch#: 799 / Pwr Step: 2 / Antenna Position: EXTENDED / Type of Modulation: 800 ANALOG

Left Head (Luke) Phantom; Left Head Section; Position: (80°,180°); Frequency: 849 MHz

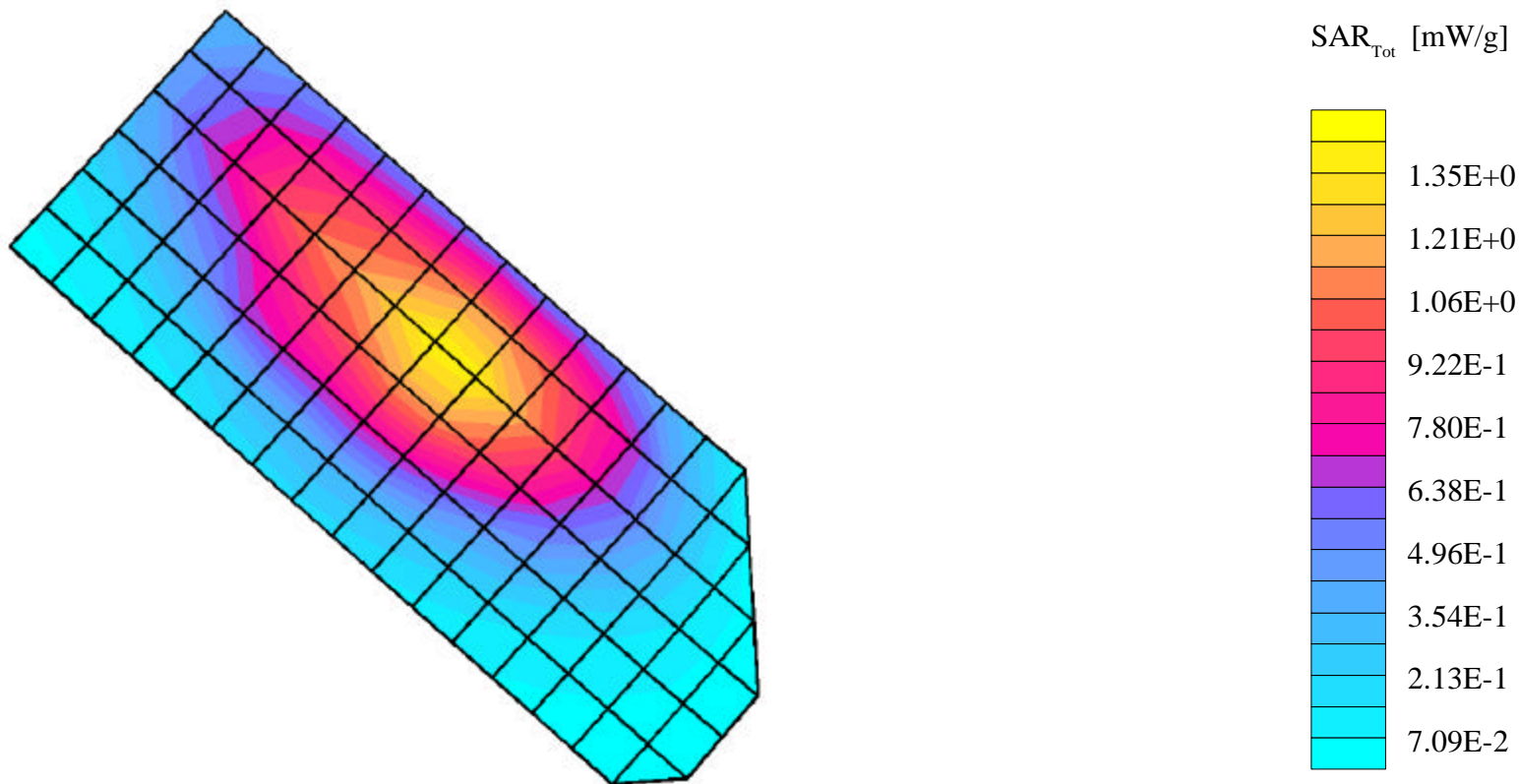
Probe: ET3DV6 - SN1391 - Head (Sugar Water); ConvF(6.46,6.46,6.46); Crest factor: 1.0; Head 835 MHz: $\sigma = 0.88$ mho/m $\epsilon_r = 43.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 1.37 mW/g, SAR (10g): 0.920 mW/g, (Worst-case extrapolation)

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

Penetration depth: 14.8 (13.2, 16.8) [mm]

Powerdrift: 0.09 dB



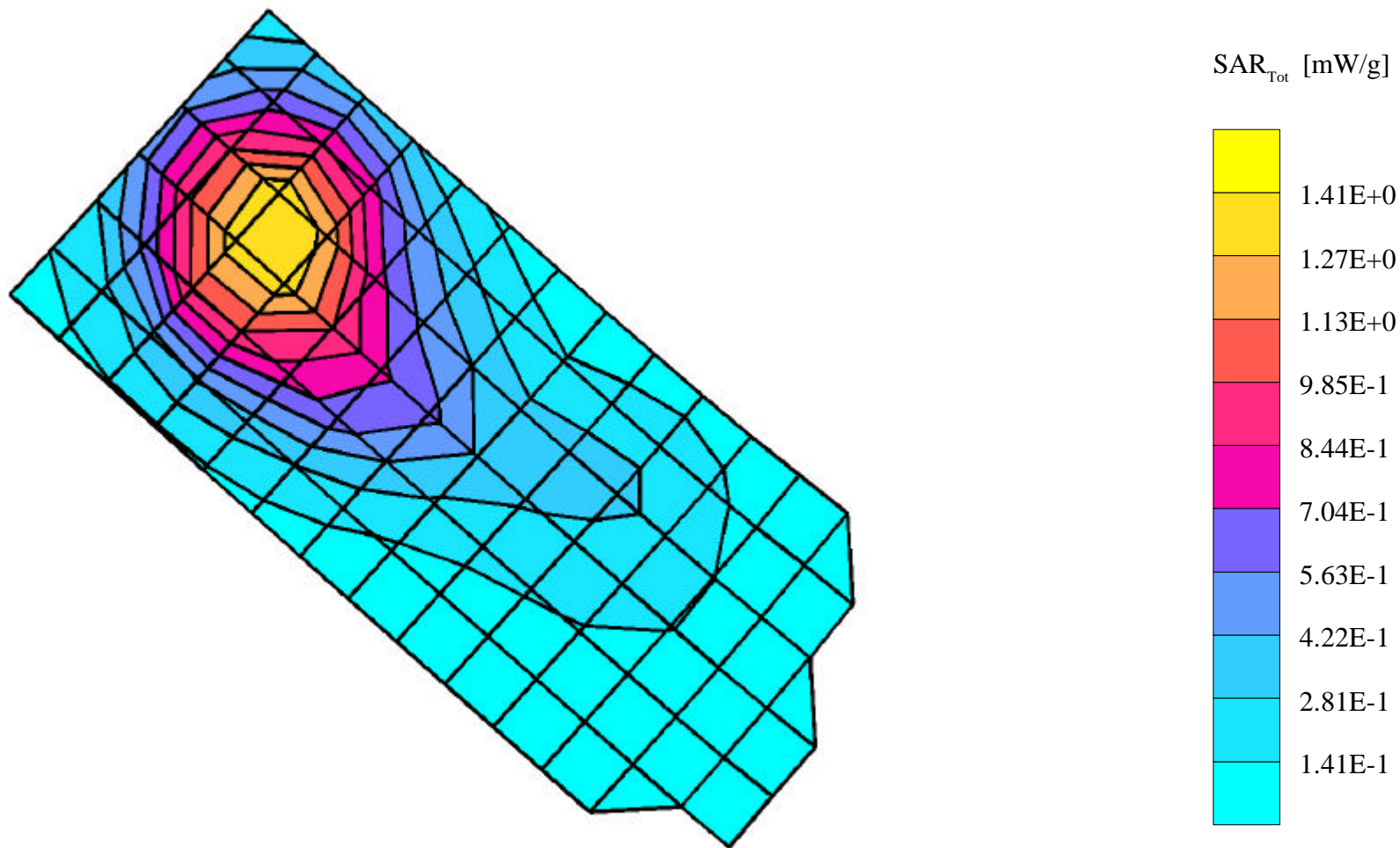
S/N A8A0ED71

Ch#: 600 / Pwr Step: ALWAYS UP / Antenna Position: RETRACTED / Type of Modulation: 1900 CDMA

Left Head (Anakin) Glycol; Left Head

Probe: ET3DV6 - SN1391- Head (Glycol); ConvF(5.40,5.40,5.40); Crest factor: 1.0; Head Glycol 1900 MHz: $\sigma = 1.46$ mho/m $\epsilon_r = 39.0$ $\rho = 1.00$ g/cm³

Cube 5x5x7: Peak: 2.62 mW/g, SAR (1g): 1.55 mW/g, SAR (10g): 0.870 mW/g, (Worst-case extrapolation)



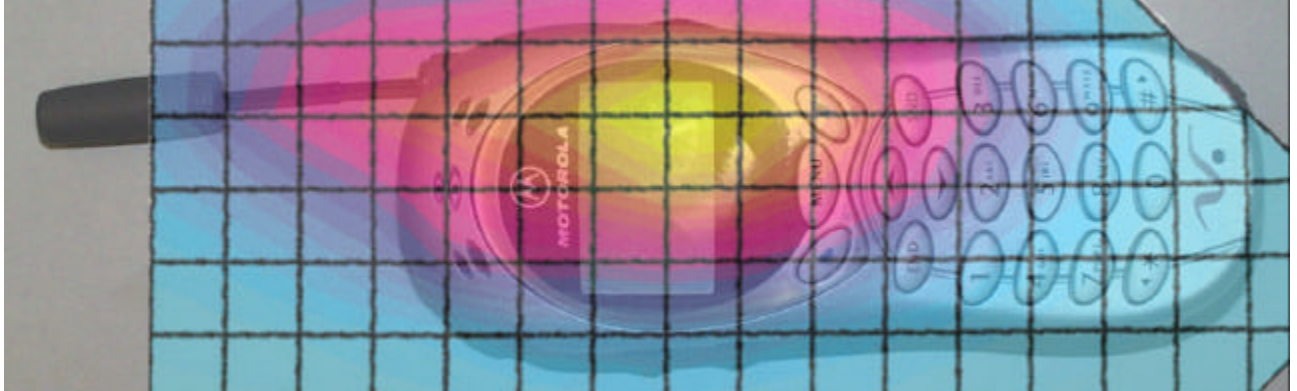


Figure 1. Typical 800 Analog Contour Plot Overlaid on Face of Phone.

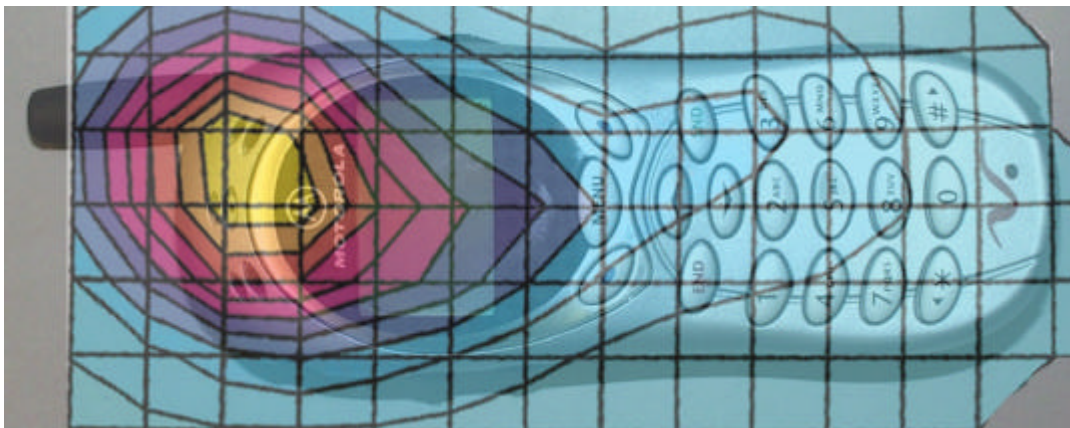


Figure 1. Typical 1900 CDMA Contour Plot Overlaid on Face of Phone.

Appendix 3

SAR distribution plots for Body Worn Configuration

s/n A8A0ED71

Ch#991 / Pwr Step:02 / Antenna Position: Extended / Type of Modulation: 800 Analog

Amy Twin Phantom Phantom; Section 1 Section; Position: (0°,0°); Frequency: 824 MHz

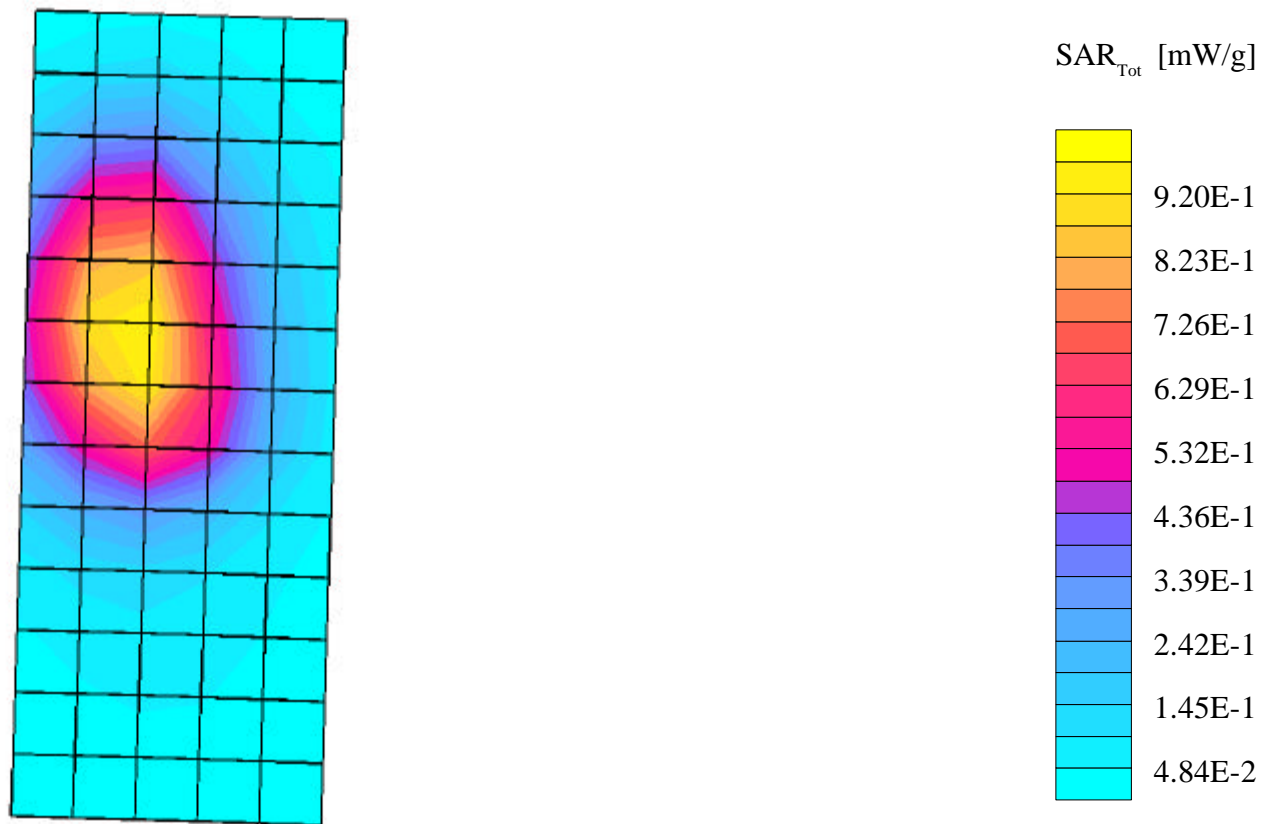
Probe: ET3DV6 - SN1391 - Muscle (Sugar Water); ConvF(6.41,6.41,6.41); Crest factor: 1.0; Muscle 835 MHz: $\sigma = 1.12$ mho/m $\epsilon_r = 51.3$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.978 mW/g, SAR (10g): 0.652 mW/g, (Worst-case extrapolation)

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

Penetration depth: 13.0 (11.9, 14.4) [mm]

Powerdrift: 0.09 dB



s/n A8A0ED71

Ch#600 / Pwr Step:Always up / Antenna Position: Extended / Type of Modulation:1900 CDMA

Amy Twin Phantom Phantom; Section 1 Section; Position: (0°,0°); Frequency: 1880 MHz

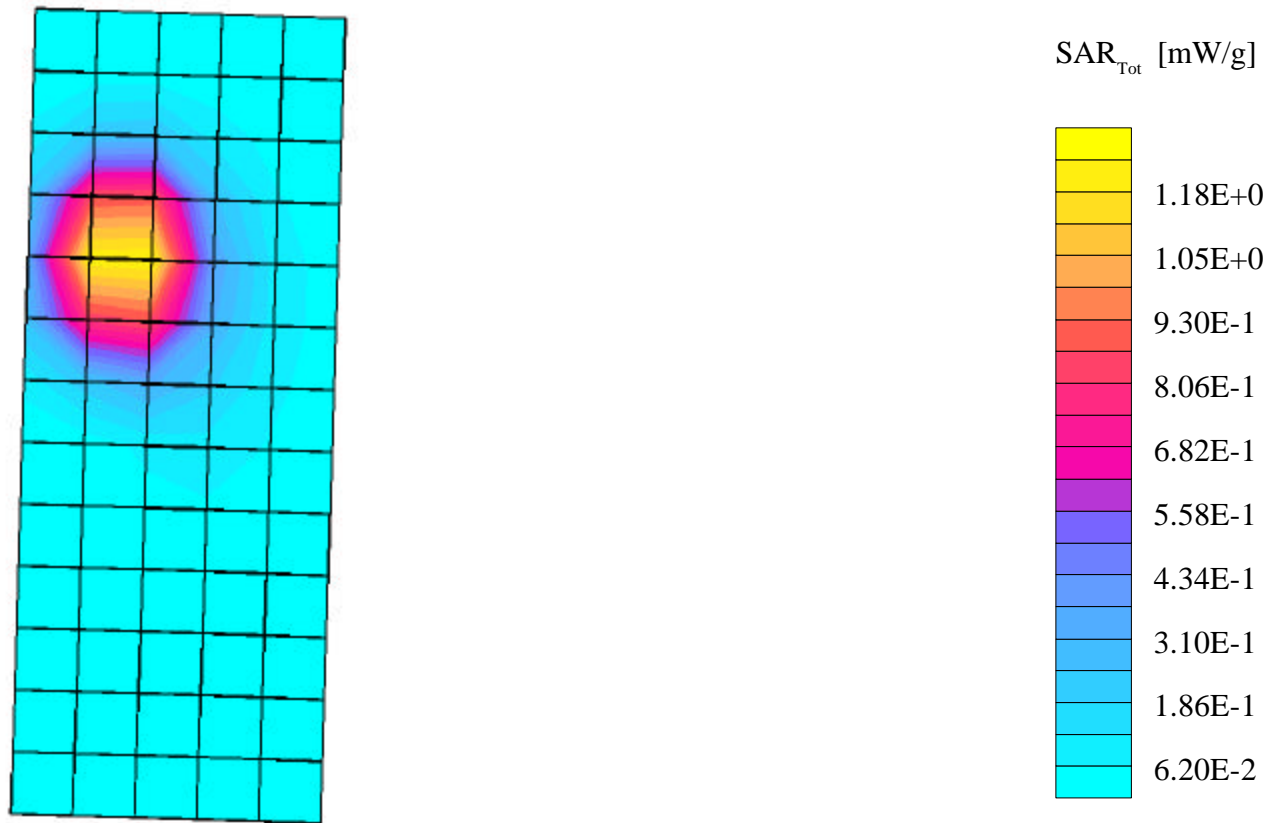
Probe: ET3DV6 - SN1391 - Muscle (Glycol); ConvF(5.12,5.12,5.12); Crest factor: 1.0; Muscle Glycol 1900 MHz: $\sigma = 1.64$ mho/m $\epsilon_r = 47.9$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 1.41 mW/g, SAR (10g): 0.774 mW/g, (Worst-case extrapolation)

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

Penetration depth: 8.9 (8.1, 10.4) [mm]

Powerdrift: 0.01 dB



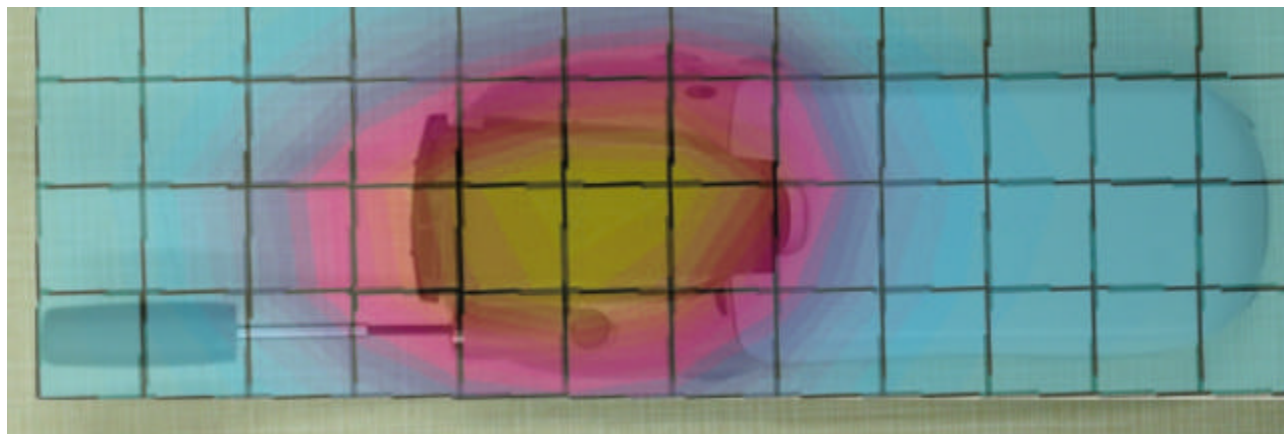


Figure 4. Typical 800 Analog Body Worn Contour Plot Overlaid on Back of Phone.

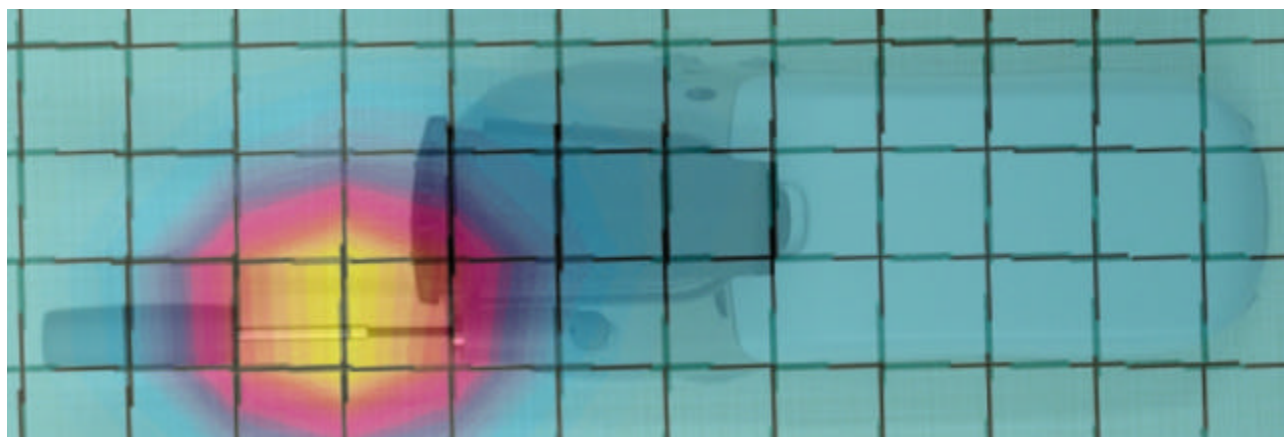


Figure 5. Typical 1900 CDMA Body Worn Contour Plot Overlaid on Back of Phone.

Appendix 4

Photographs of the device under test



Figure 5. Front of Phone with Antenna Retracted



Figure 6. Front of Phone with Antenna Extended



Figure 7. Phone with Antenna Retracted against Phantom Head



Figure 8. Phone with Antenna Extended against Phantom Head



Figure 9. Phone with Plastic Belt Clip Attached.



Figure 10. Distance Provided from Belt Clip with Antenna Retracted



Figure 11. Distance Provided from Belt Clip with Antenna Extended.