



Exhibit 11: SAR Test Report: IHDT6BA1

Date of test: 2/20/2001 – 3/01/2001

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Accreditation: ISO 17025 Accredited Lab, A2LA certificate #1651-01

Statement of Compliance: Motorola declares under its sole responsibility that portable cellular telephone FCC ID IHDT6BA1 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:

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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	8
Appendix 4: Photographs of the device under test	9

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 IHDT6BA1. 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 IHDT6BA1) 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	Fixed Tri-band	
Location	Top and Right Side	
Dimensions	Length	31mm
	Width at base	9mm
Configuration	Stub	

Device description

FCC ID Number	IHDT6BA1
Serial number	G030519
Mode(s) of Operation	GSM1900
Modulation Mode(s)	GSM
Maximum Output Power Setting	29.5dBm
Duty Cycle	1:8
Transmitting Frequency Rang(s)	1850-1910MHz

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 table. All other test conditions measured lower SAR values than those included. This portable cellular phone has optional body-worn accessories. Both body-worn accessories were evaluated for SAR. The primary difference between these body-worn accessories is the front cover or “flap”. The one depicted has a “V” shaped cutout from the front cover. The other one is not depicted but lacks this cutout.

<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	SAR, 1g (W/kg)	
			Left Head	Right Head
			Ant Fixed	Ant Fixed
Digital 1900MHz	Channel 512	29.45	0.72	0.76
	Channel 661	29.47	0.83	0.86
	Channel 810	29.46	0.75	0.88

Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT6BA1 at highest possible output power. Measured against the head.

<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	SAR, 1g (W/kg)	
			Leather Holster	Leather Carry Case
			Ant Fixed	Ant Fixed
Digital 1900MHz	Channel 512	29.45	0.89	0.64
	Channel 661	29.47	0.69	0.59
	Channel 810	29.46	0.58	0.50

Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT6BA1 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	SN316	12/14/01
E-Field Probe ETDV6	SN1523	4/7/01
Dipole Validation Kit, DV1900V2	SN250	9/29/01

Table 3. SAR measurement equipment used for Head Adjacent measurements

Description	Serial Number	Cal Due Date
DASY3 DAE V1	SN367	8/23/01
E-Field Probe ETDV6	SN1502	10/6/01
Dipole Validation Kit, DV1900V2	SN259	1/2002

Table 4. SAR measurement equipment used for Body-worn measurements

4.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04848	1/19/2003
Power Meter E4419B	GB39511082	1/18/2002
Power Sensor E9301A	US39210934	1/24/2002

Table 5. Validation equipment used for Head Adjacent measurements

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04832	1/18/2003
Power Meter E4419B	GB39511088	1/19/2002
Power Sensor E9301A	US39210917	1/24/2002

Table 6. Validation equipment used for Body-worn measurements

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)
1880	Head	Measured, 2/20/2001	39.43	1.44	1.00
		Recommended Limits	43.41	1.19	1.03
1880	Body	Measured, 3/1/2001	49.39	1.66	1.00
		Recommended Limits	54.33	1.43	1.03

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)	
1800	Measured	39.80	40.23	1.77	20.0
	Recommended Limits	39.27	41.10	1.69	N/A
1800	Measured	40.00	39.83	1.76	21.9
	Recommended Limits	38.89	41.20	1.68	N/A

Appendix 1

SAR distribution comparison for the system accuracy verification

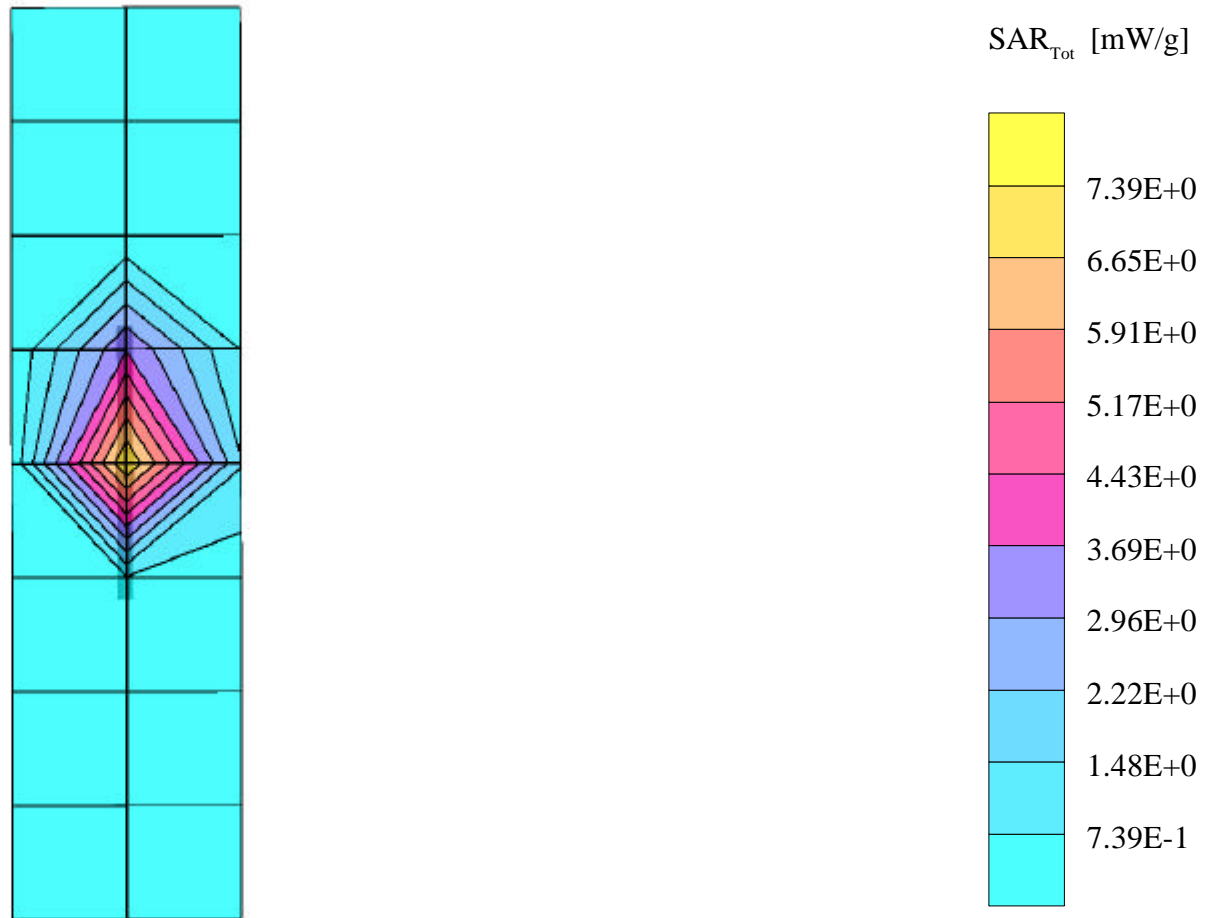
Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 250 / Forward Power = 252mW / Simulant Temp at time of measurement = 21.9°C

Amy Twin Phantom; Section 1

Probe: ET3DV6 - SN1523 - Validation; ConvF(5.52,5.52,5.52); Crest factor: 1.0; Validation 1800 MHz: $\sigma = 1.76 \text{ mho/m}$ $\epsilon_r = 39.8$ $\rho = 1.00 \text{ g/cm}^3$

Cubes (2): Peak: $19.4 \text{ mW/g} \pm 0.07 \text{ dB}$, SAR (1g): $10.0 \text{ mW/g} \pm 0.10 \text{ dB}$, SAR (10g): $5.10 \text{ mW/g} \pm 0.12 \text{ dB}$, (Worst-case extrapolation)



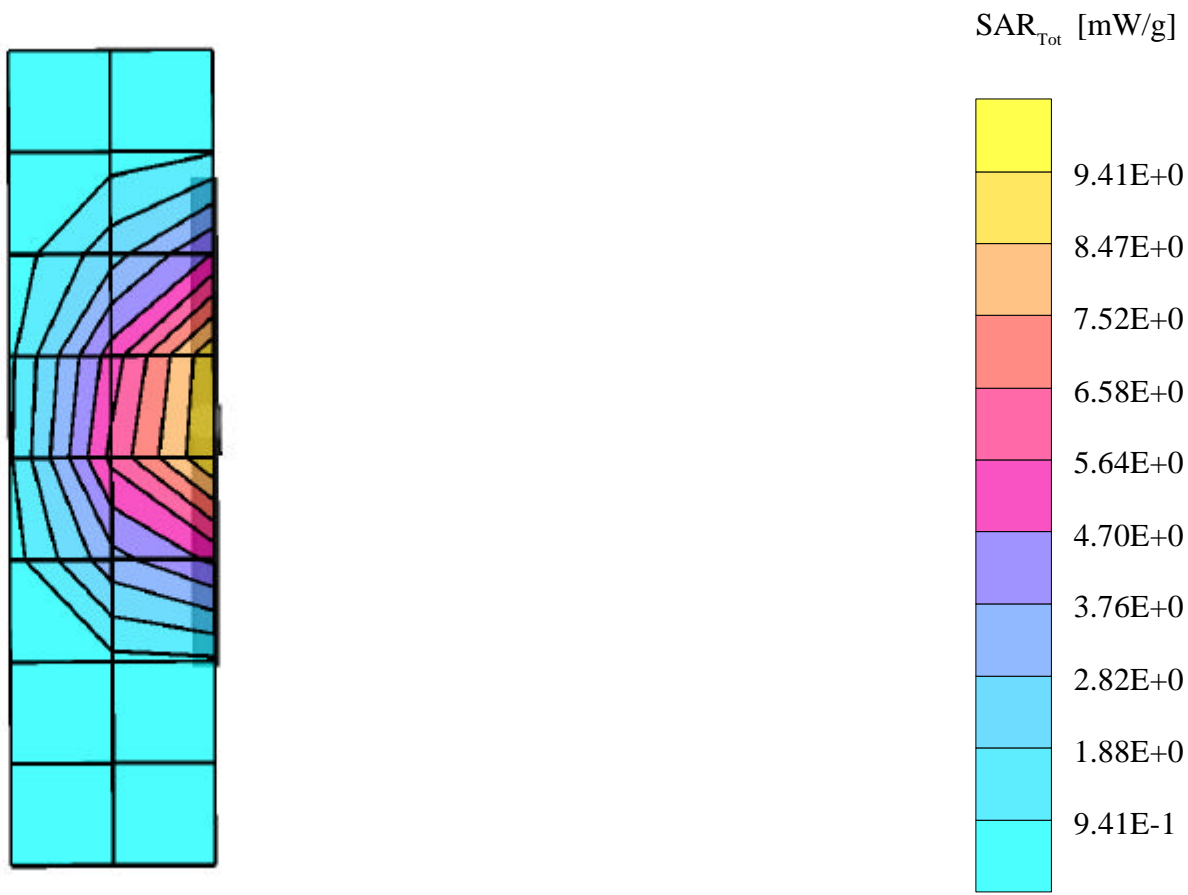
Dipole 1800 MHz

1800MHz Dipole Validation / Dipole Sn# 259 / Forward Power = 249mW/ Temp at time of measurement = 20C

Amy Twin Phantom ; Section 1

Probe: ET3DV6 - SN1502 Validation; ConvF(5.79,5.79,5.79); Crest factor: 1.0; Validation 1800 MHz: $\sigma = 1.77$ mho/m $\epsilon_r = 40.2$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 19.0 mW/g ± 0.06 dB, SAR (1g): 9.95 mW/g ± 0.07 dB, SAR (10g): 5.06 mW/g ± 0.09 dB, (Worst-case extrapolation)



Appendix 2

SAR distribution plots for Phantom Head Adjacent Use

s/n G030519

Ch# 661/ Pwr Step:0 / Antenna Position: Fixed

Left Head (Tim) Phantom; Left Head Section; Position: (80°,180°); Frequency: 1880 MHz

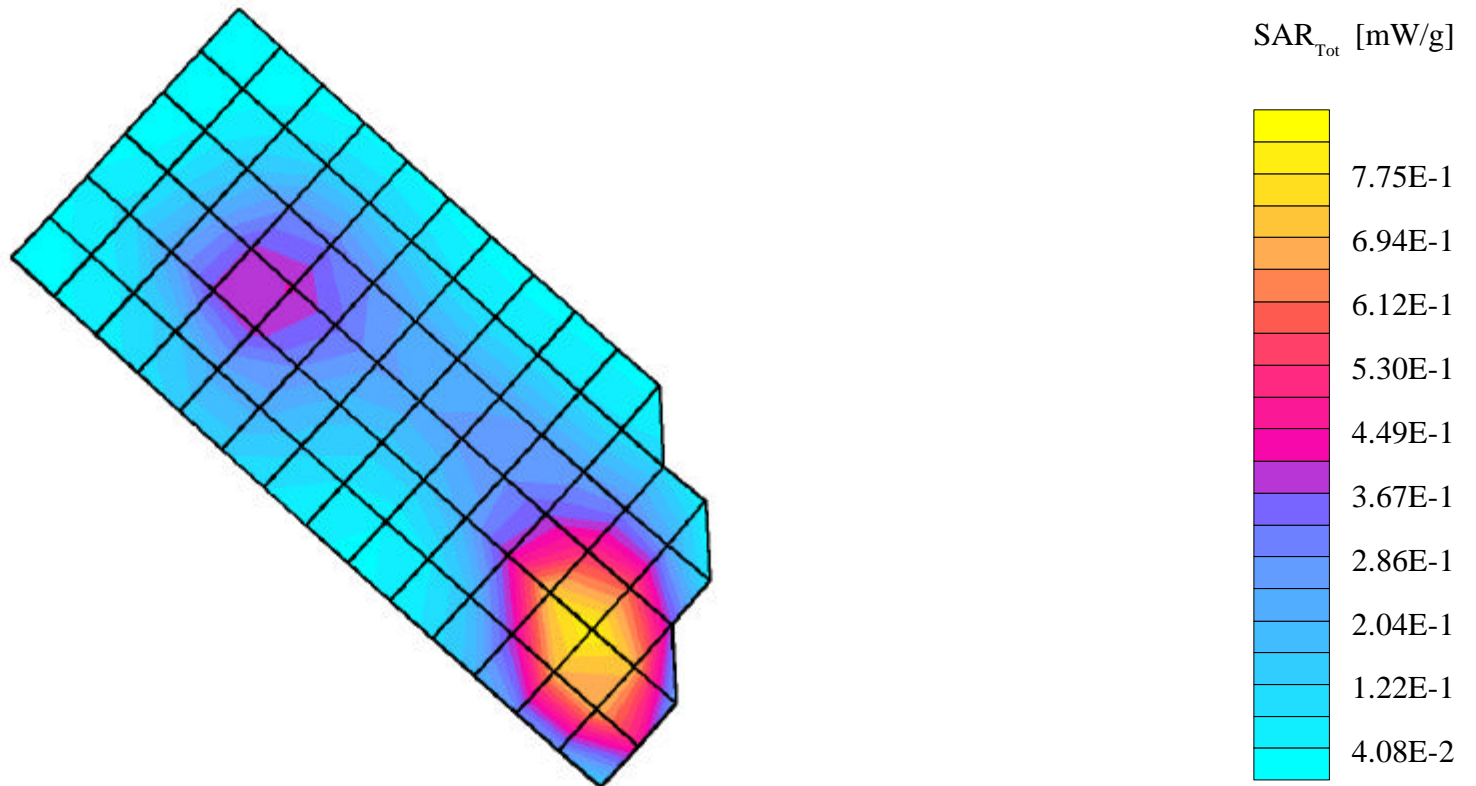
Probe: ET3DV6 - SN1523 - Glycol (Head); ConvF(5.26,5.26,5.26); Crest factor: 8.0; Head Glycol 1900 MHz: $\sigma = 1.44$ mho/m $\epsilon_r = 39.4$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.826 mW/g, SAR (10g): 0.460 mW/g, (Worst-case extrapolation)

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

Penetration depth: 13.5 (13.1, 13.7) [mm]

Powerdrift: -0.73 dB



s/n G030519

Ch# 810 / Pwr Step:0 / Antenna Position: Fixed

Right Head (Jill) Phantom; Right Head Section; Position: (80°,180°); Frequency: 1910 MHz

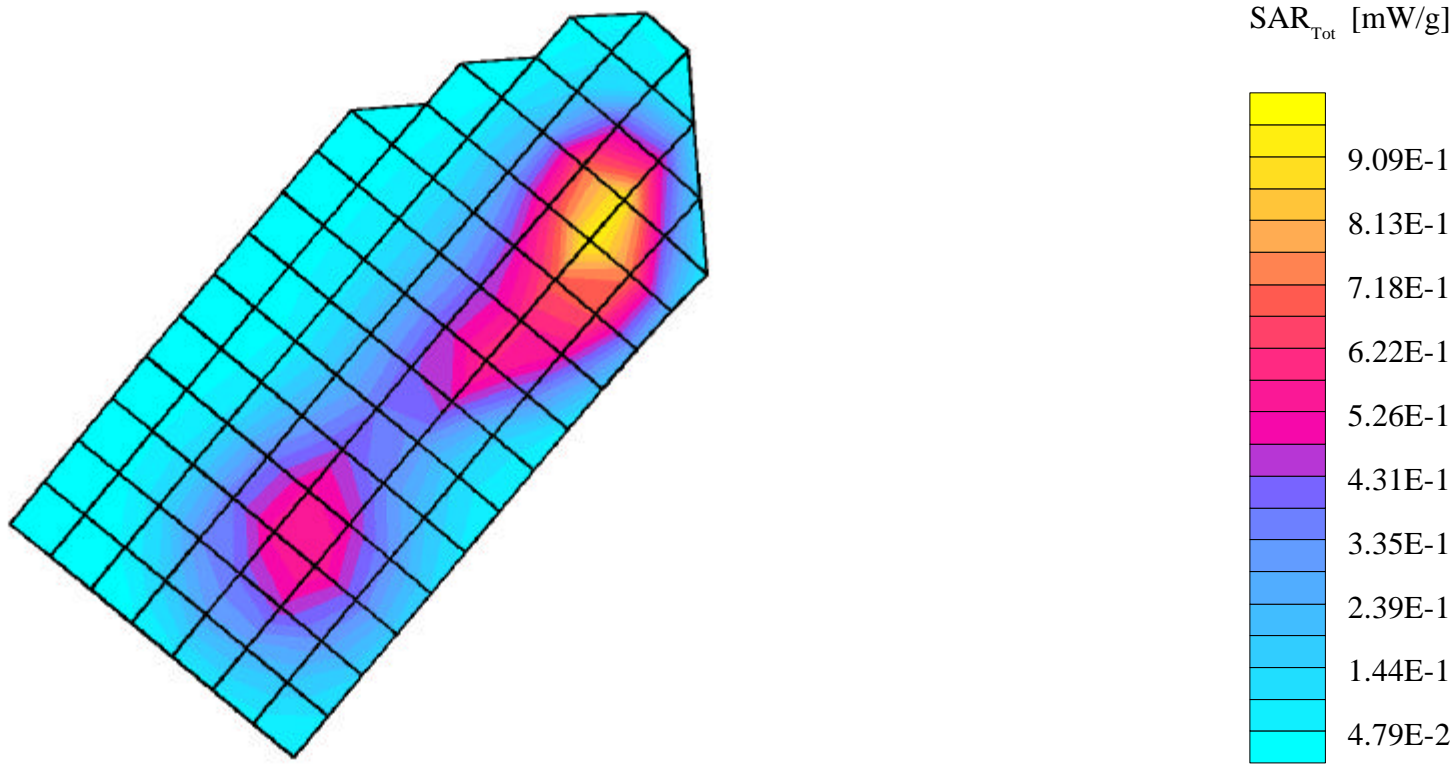
Probe: ET3DV6 - SN1523 - Glycol (Head); ConvF(5.26,5.26,5.26); Crest factor: 8.0; Head Glycol 1900 MHz: $\sigma = 1.44$ mho/m $\epsilon_r = 39.4$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.880 mW/g, SAR (10g): 0.519 mW/g, (Worst-case extrapolation)

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

Penetration depth: 14.4 (13.9, 14.6) [mm]

Powerdrift: 0.65 dB



Appendix 3

SAR distribution plots for Body Worn Configuration

s/n G030519

Ch# 512 / Pwr Step:00 / Antenna Position: FIXED

Amy Twin Phantom Phantom; Section2 Section; Position: (0°,0°); Frequency: 1850 MHz

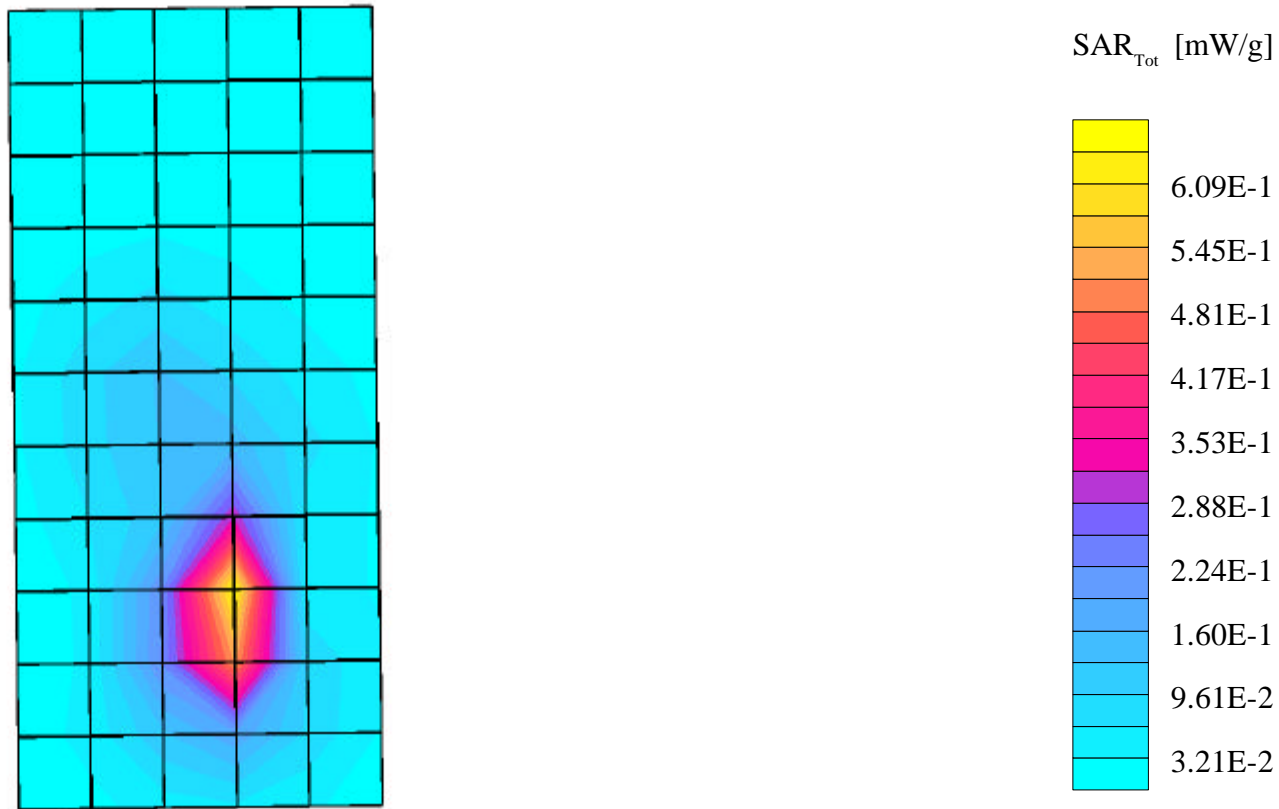
Probe: ET3DV6 - SN1502 - Muscle (Glycol); ConvF(5.23,5.23,5.23); Crest factor: 8.0; Muscle Glycol 1900 MHz: $\sigma = 1.66$ mho/m $\epsilon_r = 49.4$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.642 mW/g, SAR (10g): 0.327 mW/g, (Worst-case extrapolation)

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

Penetration depth: 9.8 (9.5, 10.3) [mm]

Powerdrift: -0.03 dB



s/n G030519

Ch# 512 / Pwr Step:00 / Antenna Position: FIXED

Amy Twin Phantom Phantom; Section2 Section; Position: (0°,0°); Frequency: 1850 MHz

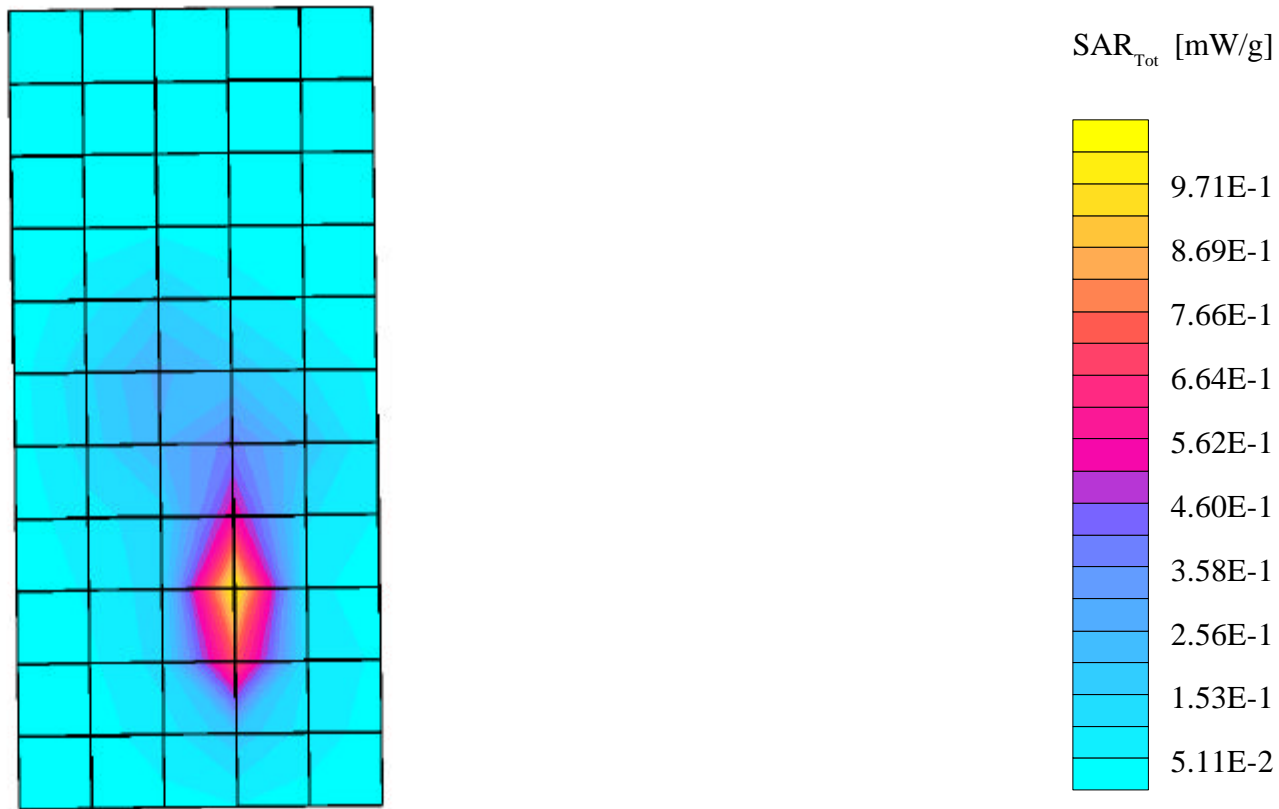
Probe: ET3DV6 - SN1502 - Muscle (Glycol); ConvF(5.23,5.23,5.23); Crest factor: 8.0; Muscle Glycol 1900 MHz: $\sigma = 1.66$ mho/m $\epsilon_r = 49.4$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.894 mW/g, SAR (10g): 0.424 mW/g, (Worst-case extrapolation)

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

Penetration depth: 9.5 (9.2, 10.1) [mm]

Powerdrift: -0.17 dB



Appendix 4

Photographs of the device under test



Figure 1. Front of Phone



Figure 2. Side of Phone



Figure 3. Phone against Phantom Head

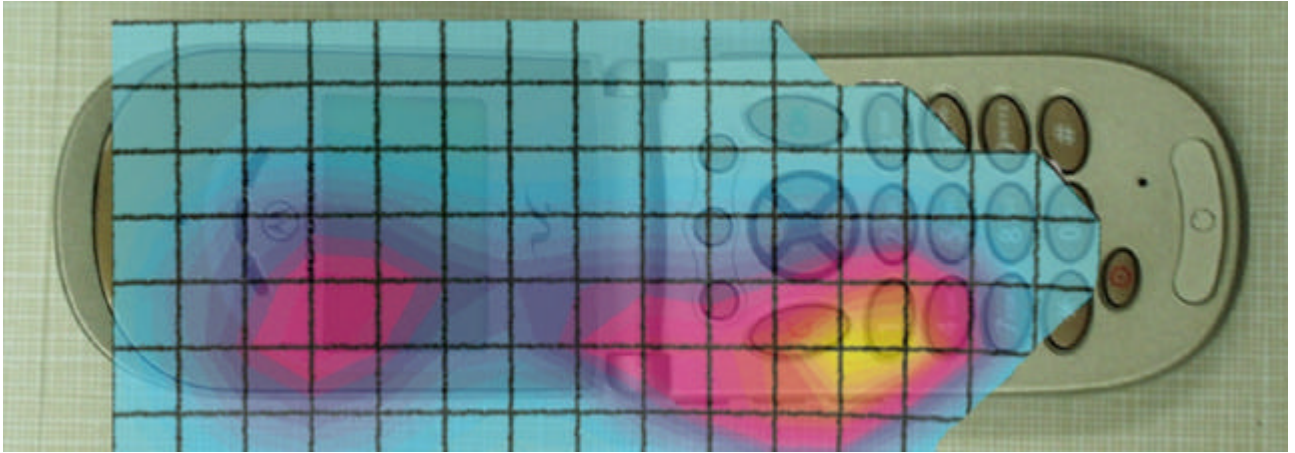


Figure 4. Typical 1900MHz Contour Overlaid on Face of Phone



Figure 5. Distance Provided by Body-worn Accessories

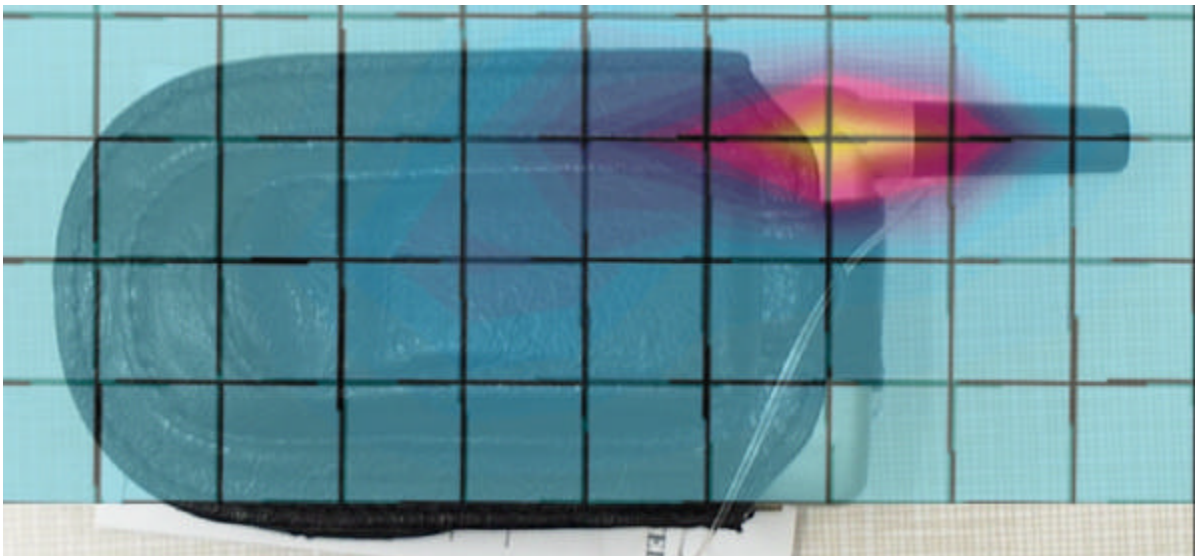


Figure 6. Typical 1900MHz Body-worn Contour Overlaid on Accessory and Phone