



## Exhibit 11: SAR Test Report: IHDT56BG1

**Date of test:** June 19, 2001

**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 IHDT56BG1 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.

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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 IHDT56BG1. 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 IHDT56BG1) 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**

<b>Type</b>	Fixed Dual Band
<b>Location</b>	Front hinge, top left side
<b>Configuration</b>	Stub

**Device description**

<b>FCC ID Number</b>	IHDT56BG1	
<b>Serial number</b>	19060101	
<b>Mode(s) of Operation</b>	CDMA800	CDMA1900
<b>Modulation Mode(s)</b>	CDMA	CDMA
<b>Maximum Output Power Setting</b>	24.90dBm	25.20dBm
<b>Duty Cycle</b>	1:1	1:1
<b>Transmitting Frequency Rang(s)</b>	824-849MHz	1851-1909MHz

**3. Test Results**

The SAR results shown in table 1 are the maximum SAR values averaged over 1 gram of phantom tissue. Also shown are the measured conducted output powers.

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. The test conditions included are indicated as bold numbers in the following table. All other test conditions measured lower SAR values than those included.

<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	SAR, 1g (W/kg)
			Plastic Holster Ant Fixed
Digital 800MHz	Channel 1013	24.85dBm	<b>0.085</b>
	Channel 384	25.16dBm	0.054
	Channel 779	25.05dBm	0.071
Digital 1900MHz	Channel 25	27.33dBm	<b>0.457</b>
	Channel 600	26.90dBm	0.448
	Channel 1175	25.14dBm	0.241

**Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT56BG1 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	SN383	3/1/02
E-Field Probe ETDV6	SN1506	10/6/01
Dipole Validation Kit, DV900V2	SN79	10/26/02
Dipole Validation Kit, DV1800V2	SN250	9/29/01

##### 4.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP 8648C	3847A04810	11/15/02
Power Meter E4419B	GB39511087	11/14/01
Power Sensor E9301A	US39211007	11/28/02

#### 5. Electrical parameters of the tissue simulating liquid

Prior to conducting SAR measurements, the relative permittivity,  $\epsilon_r$ , and the conductivity,  $\sigma$ , of the tissue simulating liquids were measured with HP85070 Dielectric Probe Kit. These values are shown in the table below. The mass density,  $\rho$ , 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.

<i>f</i> (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			$\epsilon_r$	$\sigma$ (S/m)	$\rho$ (g/cm <sup>3</sup> )
836	Body	Measured, 6/19/01	50.45	1.06	1.00
		Recommended Limits	56.11	0.94	1.04
1880	Body	Measured, 6/19/01	51.02	1.71	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).

<i>f</i> (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Temp (°C)
			$\epsilon_r$	$\sigma$ (S/m)	
800	Measured	10.0	0.88	43.03	22.7
	Recommended Limits	10.2	0.85	40.00	N/A
1800	Measured	39.32	1.75	39.82	23.0
	Recommended Limits	42.78	1.68	40.70	N/A

**Appendix 1**

**SAR distribution comparison for the system accuracy verification**

## Dipole 900 MHz

900 MHz Dipole Validation / Dipole Sn# 79 / Forward Power = 252mW / Temp at time of measurement 22.7 C.

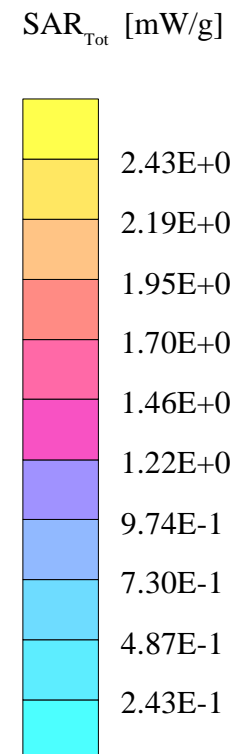
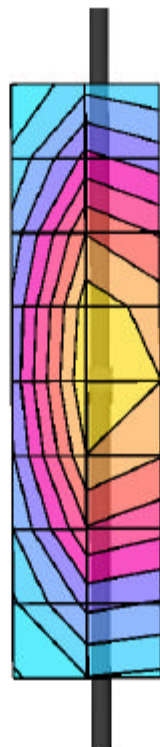
Robot 2 Amy Twin Optic OFF; Section 1

Probe: ET3DV6 - SN1506 - Validation; ConvF(6.44,6.44,6.44); Crest factor: 1.0; Validation 900 MHz:  $\sigma = 0.88$  mho/m  $\epsilon_r = 43.0$   $\rho = 1.00$  g/cm<sup>3</sup>

Cubes (2): Peak: 3.97 mW/g  $\pm 0.02$  dB, SAR (1g): 2.52 mW/g  $\pm 0.02$  dB, SAR (10g): 1.62 mW/g  $\pm 0.02$  dB, (Worst-case extrapolation)

Penetration depth: 12.3 (10.9, 14.1) [mm]

Powerdrift: 0.00 dB



## Dipole 1800 MHz

1800 MHz Dipole Validation / Dipole Sn# 250 / Forward Power = 249mW / Temp at time of measurement 23.0 C.

Robot 2 Amy Twin Optic OFF; Section 1

Probe: ET3DV6 - SN1506 - Validation; ConvF(5.87,5.87,5.87); Crest factor: 1.0; Validation 1800 MHz:  $\sigma = 1.75$  mho/m  $\epsilon_r = 39.8$   $\rho = 1.00$  g/cm<sup>3</sup>

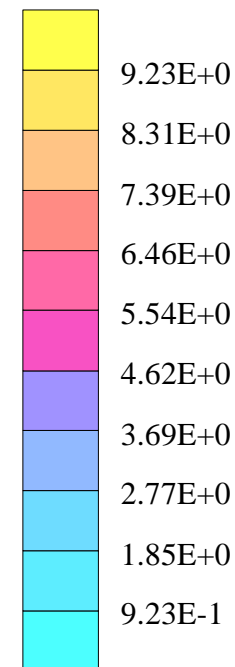
Cubes (2): Peak: 19.1 mW/g  $\pm 0.02$  dB, SAR (1g): 9.79 mW/g  $\pm 0.00$  dB, SAR (10g): 4.91 mW/g  $\pm 0.02$  dB, (Worst-case extrapolation)

Penetration depth: 7.2 (6.8, 8.0) [mm]

Powerdrift: -0.05 dB



SAR<sub>Tot</sub> [mW/g]



**Appendix 2**

**SAR distribution plots for Body Worn Configuration**

### s/n 19060101

Ch# 1013 / Pwr Step: Always Up / Antenna Position: Fixed / Type of Modulation:800 CDMA

Robot 2 Amy Twin Optic OFF Phantom; Section2 Section; Position: (0°,0°); Frequency: 824 MHz

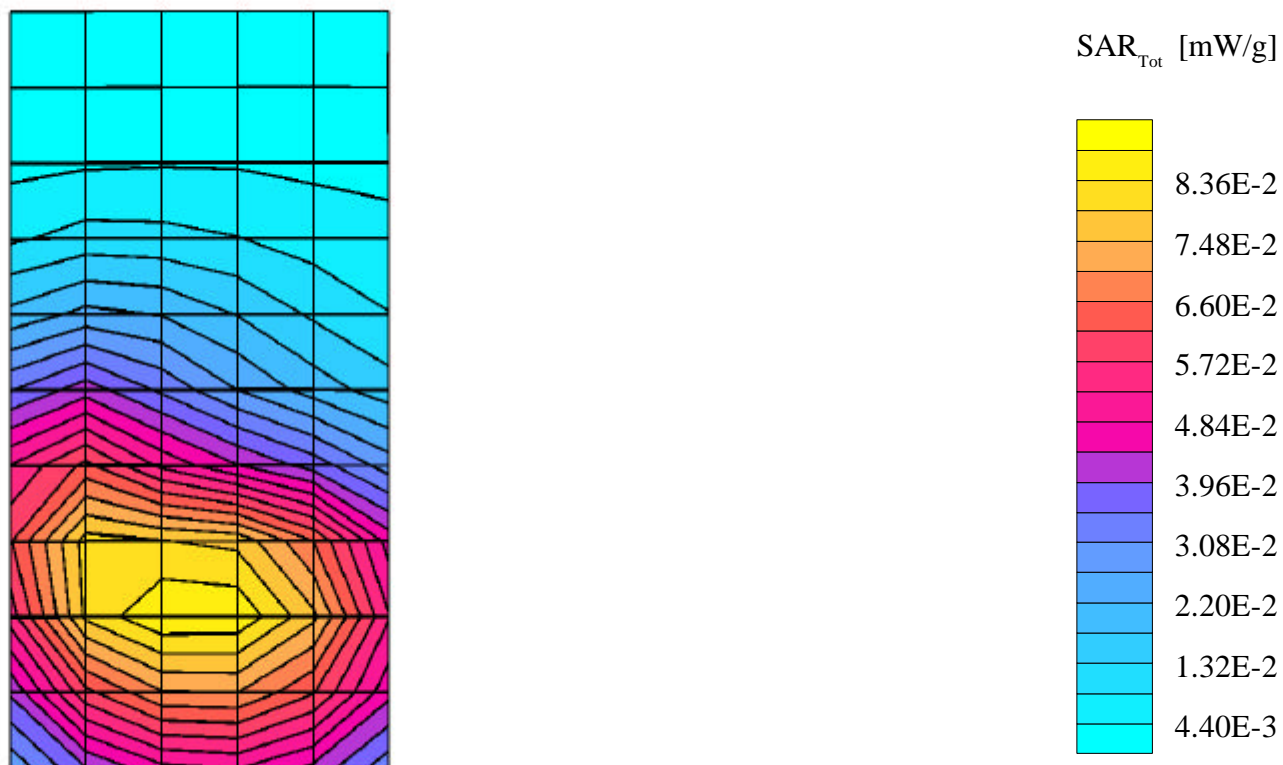
Probe: ET3DV6 - SN1506 - Muscle ( Sugar Water ); ConvF(6.53,6.53,6.53); Crest factor: 1.0; Muscle 835 MHz:  $\sigma = 1.06$  mho/m  $\epsilon_r = 50.5$   $\rho = 1.00$  g/cm<sup>3</sup>

Cube 5x5x7: SAR (1g): 0.0847 mW/g, SAR (10g): 0.0607 mW/g, (Worst-case extrapolation)

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

Penetration depth: 16.2 (14.3, 18.3) [mm]

Powerdrift: 0.12 dB



### s/n 19060101

Ch# 25 / Pwr Step: Always Up / Antenna Position: Fixed / Type of Modulation:1900 CDMA

Robot 2 Amy Twin Optic OFF Phantom; Section2 Section; Position: (0°,0°); Frequency: 1851 MHz

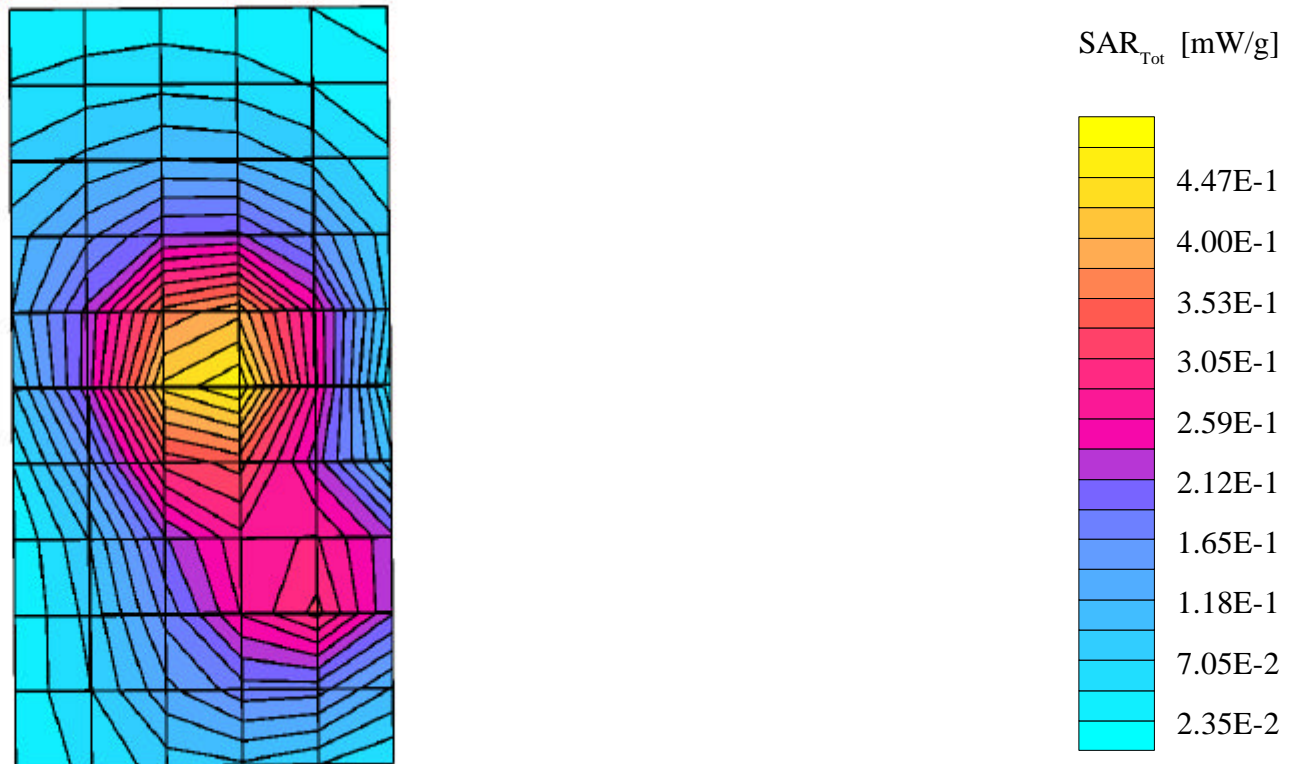
Probe: ET3DV6 - SN1506 - Muscle ( Glycol ); ConvF(5.30,5.30,5.30); Crest factor: 1.0; Muscle Glycol 1900 MHz:  $\sigma = 1.71$  mho/m  $\epsilon_r = 51.0$   $\rho = 1.00$  g/cm<sup>3</sup>

Cube 5x5x7: SAR (1g): 0.457 mW/g, SAR (10g): 0.273 mW/g, (Worst-case extrapolation)

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

Penetration depth: 10.0 (8.8, 11.8) [mm]

Powerdrift: -0.20 dB



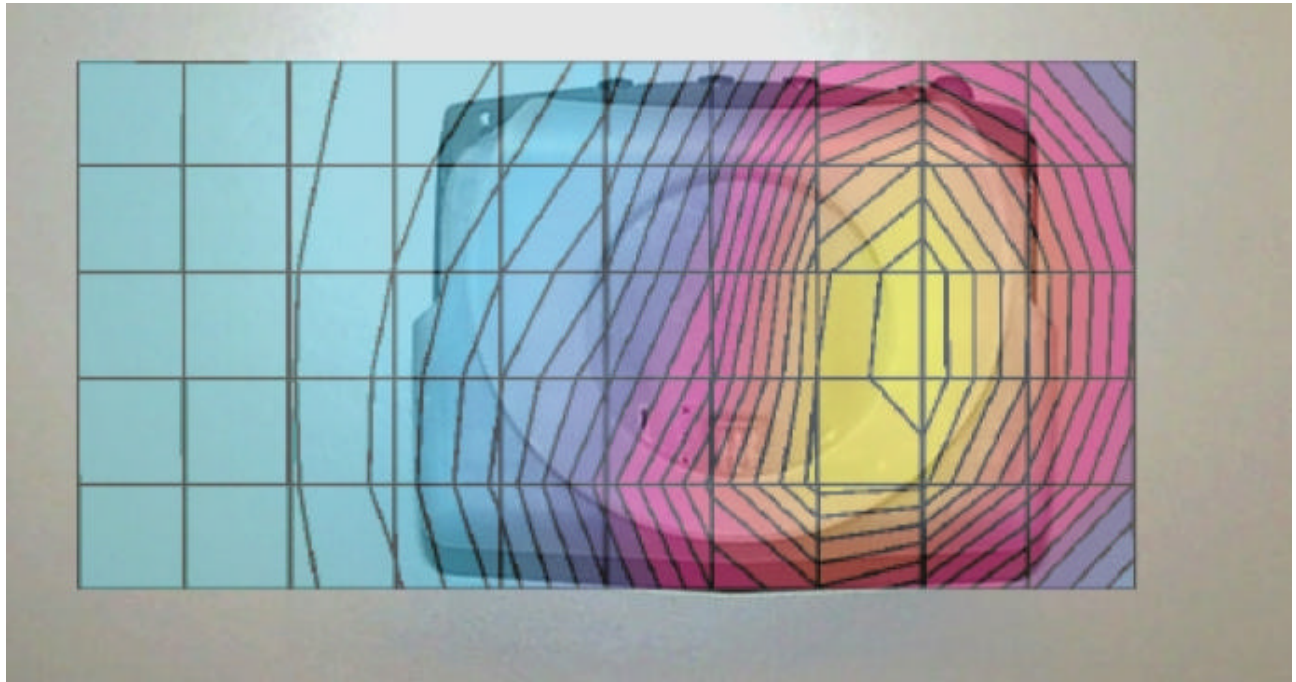


Figure 1. Typical 800MHz Contour Plot Overlaid on Body Worn Accessory

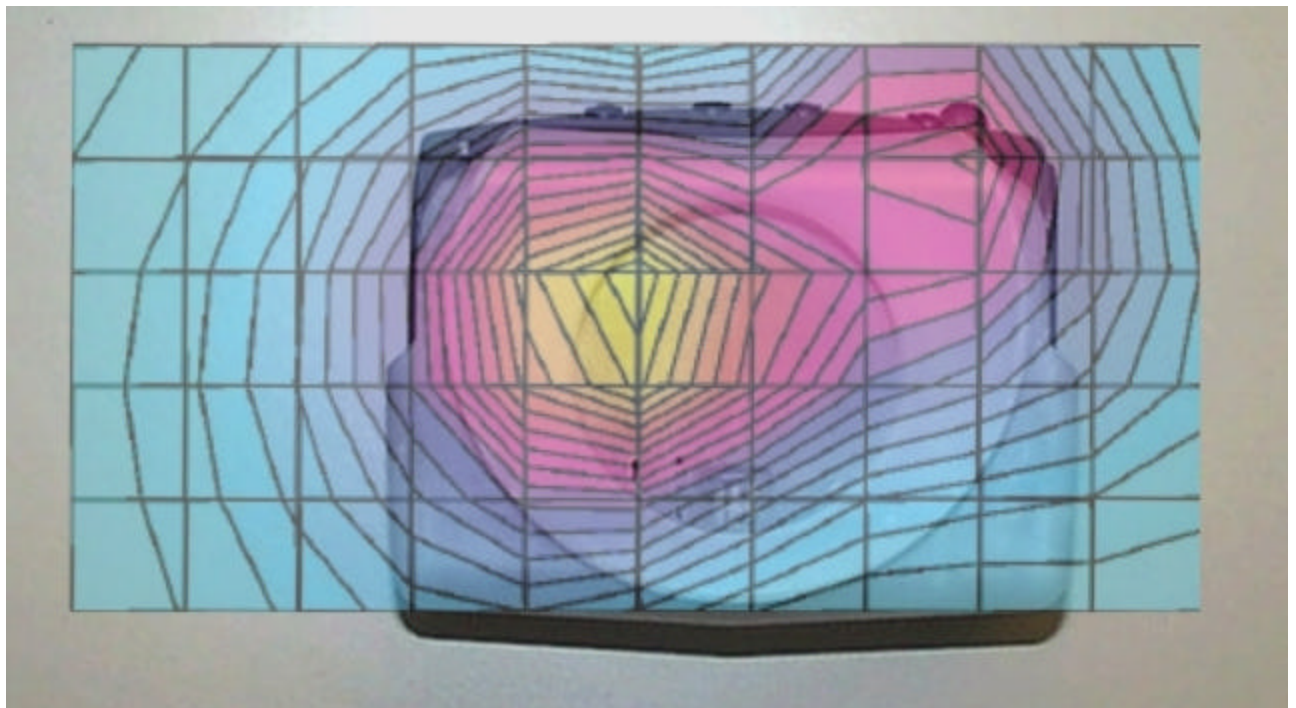


Figure 2. Typical 1900MHz Contour Plot Overlaid on Body Worn Accessory

**Appendix 3**

**Photographs of the device under test**



Figure 3. Front of Device with Flip Closed



Figure 4. Front of Device with Flip Open



Figure 5. Separation Distance Provided by Belt Clip