



## Exhibit 11: SAR Test Report: IHDT6AF2

**Date of test:** February 28/2001

**Laboratory:** Motorola Personal Communications Sector Product Safety Laboratory  
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**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 IHDT6AF2 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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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.

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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 IHDT6AF2. 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 IHDT6AF2) 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 Tri-band	
<b>Location</b>	Front hinge, top left side	
<b>Dimensions</b>	Length	
	Width at Base	
<b>Configuration</b>	Stub	

**Device description**

<b>FCC ID Number</b>	IHDT6AF2
<b>Serial number</b>	222222KY33
<b>Mode(s) of Operation</b>	GSM1900
<b>Modulation Mode(s)</b>	GSM
<b>Maximum Output Power Setting</b>	30.0dBm
<b>Duty Cycle</b>	1:8
<b>Transmitting Frequency Rang(s)</b>	1850.2-1909.8MHz

**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. 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.

F (MHz)	Description	Conducted Output Power (dBm)	SAR, 1g (W/kg)
			Body Worn Ant Fixed
GSM 1900MHz	Channel 512	30.45	0.245
	Channel 661	30.59	<b>0.256</b>
	Channel 810	30.17	0.220

**Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT6AF2 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	SN375	10/17/01
E-Field Probe ETDV6	SN1515	2/4/02
Dipole Validation Kit, DV900V2	SN259	1/2002

##### 4.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04848	12/29/01
Power Meter E4419B	US39250622	11/28/01
Power Sensor E9301A	US39210934	1/24/02

**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> )
1800	Body	Measured, 2/28/2001	49.53	1.68	1.0
		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).

<i>f</i> (MHz)	Description	SAR (W/kg), 1gram	Dielectric Parameters		Temp (°C)
			$\epsilon_r$	$\sigma$ (S/m)	
1800	Measured	42.40	40.23	1.77	22
	Recommended Limits	39.27	41.10	1.69	N/A

**Appendix 1**

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

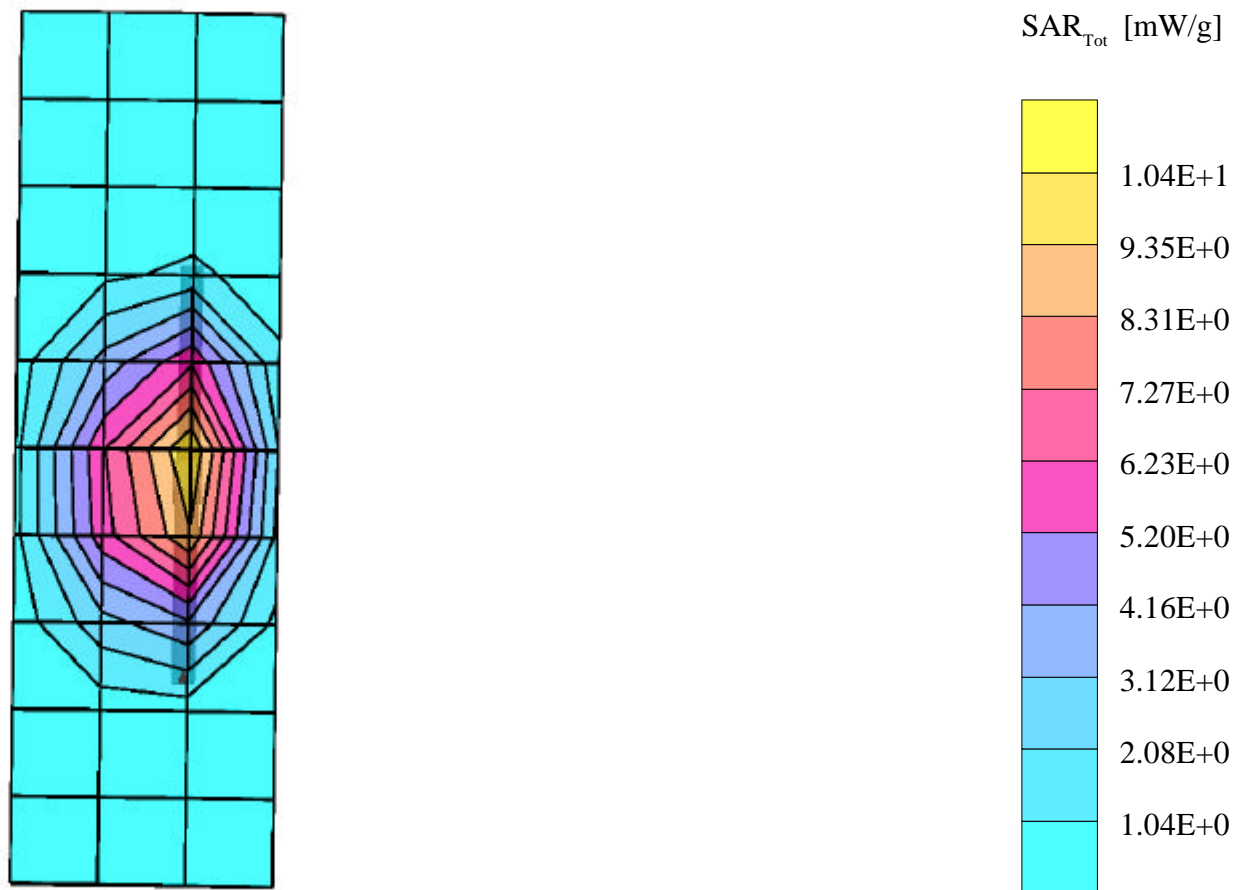
## Dipole 1800

1800MHz Dipole Validation / Dipole Sn#259 / Forward Power =250mW / Temp at time of measurement 22c

Amy Twin Phantom ; Section2

Probe: ET3DV6 - SN1515 Validation 11-4-00; ConvF(5.51,5.51,5.51); Crest factor: 1.0; Validation 1800 MHz:  $\sigma = 1.77$  mho/m  $\epsilon_r = 40.2$   $\rho = 1.00$  g/cm<sup>3</sup>

Cubes (2): Peak: 20.5 mW/g  $\pm 0.03$  dB, SAR (1g): 10.6 mW/g  $\pm 0.06$  dB, SAR (10g): 5.37 mW/g  $\pm 0.08$  dB, (Worst-case extrapolation)



**Appendix 2**

**SAR distribution plots for Body Worn Configuration**

s/n 222222KY33

Ch#661 / Pwr Step:0 / Antenna Position: Fixed / Type of Modulation:1900 GSM

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

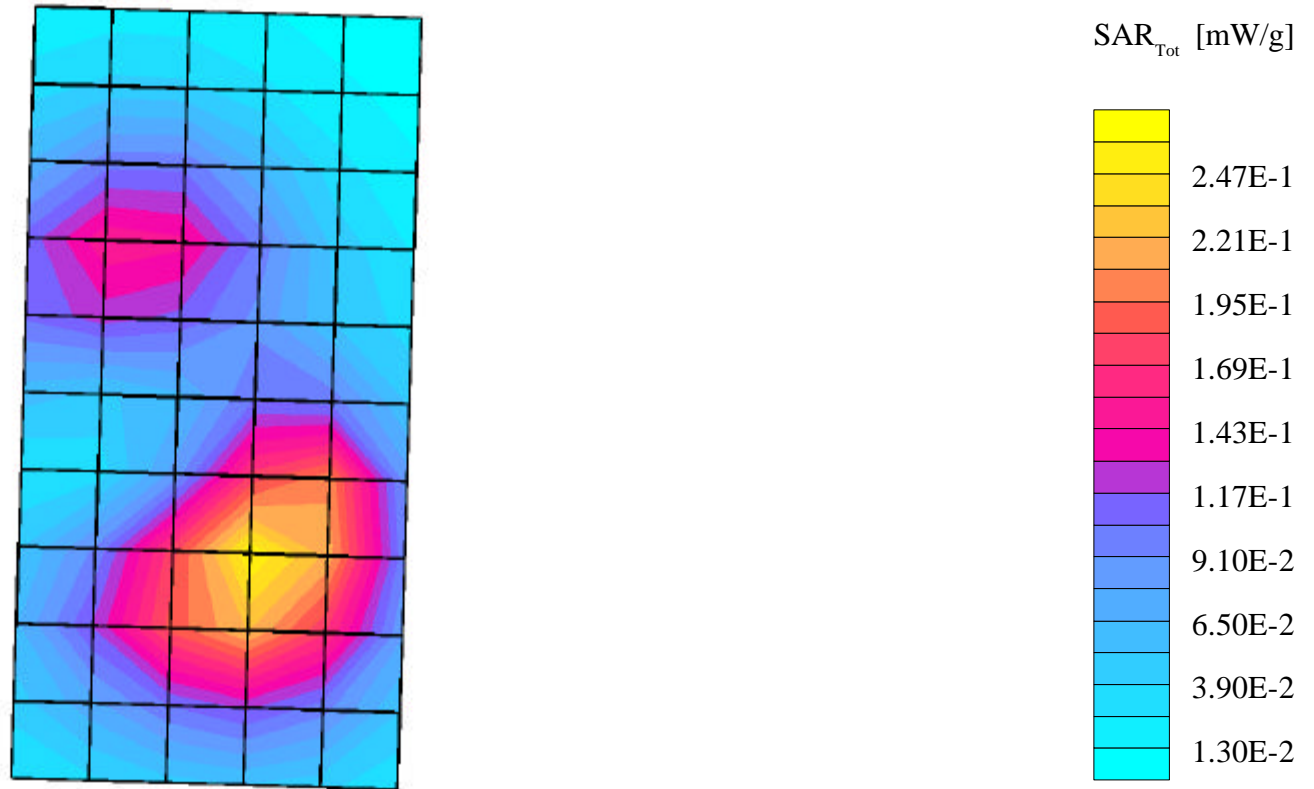
Probe: ET3DV6 - SN1515 - Muscle ( Glycol ) 11-4-00; ConvF(4.98,4.98,4.98); Crest factor: 8.0; Muscle Glycol 1900 MHz:  $\sigma = 1.68$  mho/m  $\epsilon_r = 49.5$   $\rho = 1.00$  g/cm<sup>3</sup>

Cube 5x5x7: SAR (1g): 0.256 mW/g, SAR (10g): 0.152 mW/g, (Worst-case extrapolation)

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

Penetration depth: 9.6 (8.7, 11.0) [mm]

Powerdrift: -0.06 dB



**Appendix 3**

**Photographs of the device under test**



Figure 1. Face of Motorola portable cellular phone FCC ID IHDT6AF2



Figure 2. Motorola portable cellular phone FCC ID IHDT6AF2 in Belt-clip



Figure 5. Picture of Phone showing Distance Provided by Belt-clip



Figure 4. Picture of Phone in Body Worn configuration