MOTOROLA

Exhibit 11: SAR Test Report: IHDT5BB1

Date of test:	03/21/2001-03/26/2001
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 IHDT5BB1 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 IHDT5BB1. 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 IHDT5BB1) 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 Stub
Location	Top Right Side
Configuration	Helix

Device description

FCC ID Number	IHDT5BB1	
Serial number	249	
Mode(s) of Operation	AMPS800	CDMA800
Modulation Mode(s)	AMPS	CDMA
Maximum Production Unit Power	27.0 dBm	24.50 dBm
Duty Cycle	1:1	1:1
Transmitting Frequency Rang(s)	824-849MHz	824-849MHz

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.

Since there is no body worn accessory available for this product, SAR body worn compliance is demonstrated keeping the front and back of the phone separated from the flat phantom by one (1) inch as stated in the user manual.

f (MHz)	Description	Conducted Output Power (dBm)	SAR, 1g (W/kg) Left Head Ant Fixed	SAR, 1g (W/kg) Right Head Ant Fixed
Analog 800MHz	Channel 991	26.83	1.01	0.835
	Channel 384	27.14	**1.47**	1.09
	Channel 799	26.84	1.41	1.11
Digital 800MHz	Channel 991	24.62		
	Channel 398	24.97	**0.87**	
	Channel 779	24.94		

Table 1: SAR measurement results for the portable cellular telephone FCC ID IHDT5BB1 at highest possible output power. Measured against the head.

f (MHz)	Description	Conducted Output Power (dBm)	SAR, 1g (W/kg) Back of the Phone 1" away from the Phantom Ant Fixed	SAR, 1g (W/kg) Front of the Phone 1" away from the Phantom Ant Fixed
Analog 800MHz	Channel 991	26.83	0.272	0.28
	Channel 384	27.14	**0.31**	**0.35**
	Channel 799	26.84	0.28	0.34
Digital 800MHz	Channel 991	24.62		
	Channel 398	24.97	**0.22**	**0.22**
	Channel 779	24.94		

Table 2: SAR measurement results for the portable cellular telephone FCC ID IHDT5BB1 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).

Dosimetric System used for Head Adjacent Tests

Description	Serial Number	Cal Due Date
DASY3 DAE V1	SN398	08/28/01
E-Field Probe ETDV6	SN1514	11/25/01
Dipole Validation Kit, DV900V2	SN80	10/26/02

Dosimetric System used for Body Worn Tests

Description	Serial Number	Cal Due Date
DASY3 DAE V1	SN376	02/20/02
E-Field Probe ETDV6	SN1503	10/06/01
Dipole Validation Kit, DV900V2	SN79	10/26/02

4.2 Additional Equipment

Additional Equipment used for Head Adjacent Tests

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04982	01/18/2003
Power Meter E4419B	GB39510961	01/19/2002
Power Sensor 8481A	US39210915	10/09/2001

Additional Equipment used for Body Worn Tests

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04832	11/15/2001
Power Meter E4419B	GB39511088	06/11/2001
Power Sensor 8481A	US37296471	10/09/2001

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		
			e_r	s (S/m)	r (g/cm^3)
836	**Head**	**Measured,** 03/21/01	44.06	0.89	1.00
		Recommended Limits	46.08	0.74	1.03
	Body	**Measured,** 03/30/01	50.74	1.11	1.00
		Recommended Limits	56.11	0.94	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)
			e_r	s (S/m)	
900	**Measured,** 03/21/01	10.0	41.55	0.85	21.0
	Recommended Limits	10.2	40.00	0.85	NA
900	**Measured,** 03/30/01	9.98	41.63	0.87	22.4
	Recommended Limits	10.2	40.00	0.85	NA

Appendix 1

SAR distribution comparison for the system accuracy verification

Appendix 2

SAR distribution plots for Phantom Head Adjacent Use

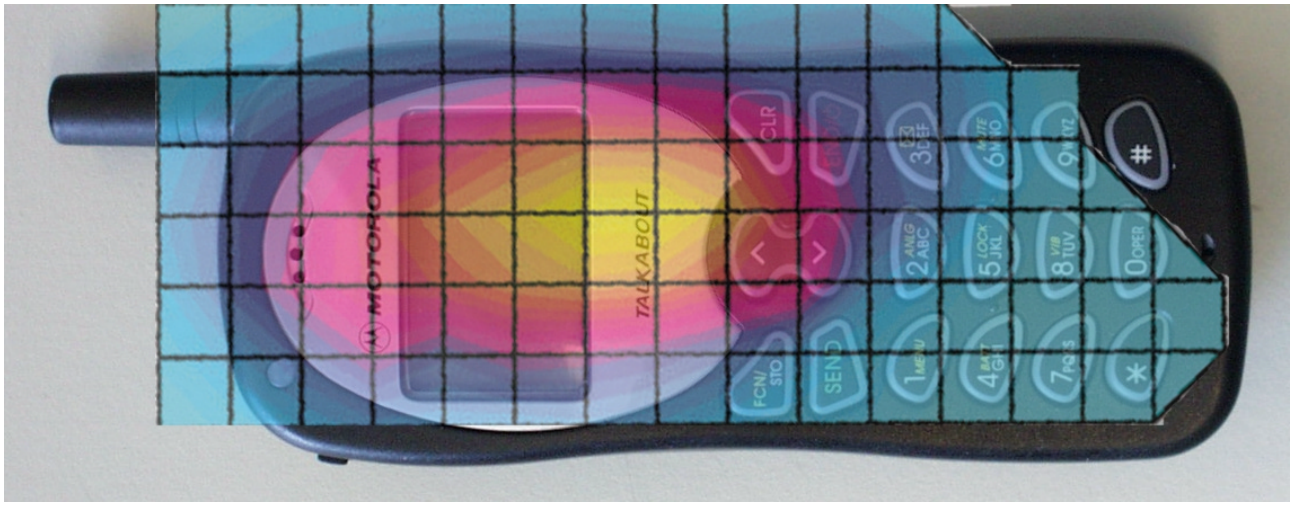

Figure 1. Front of Phone with Typical 800MHz Contour Overlaid.

Appendix 3

SAR distribution plots for Body Worn Configuration

Appendix 4

Photographs of the device under test

Figure 2. Front of Phone

Figure 3. Side of Phone

Figure 4. Back of Phone