



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

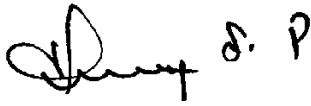
**EMC TEST REPORT**

**Test Report Number** – 20085-1 Supplement

**Report Date** – March 30, 2007

The test results contained herein relate only to the model(s) identified. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

As the responsible EMC Engineer, I hereby declare that the equipment tested as specified in this report conforms to the requirements indicated.

Signature: 

Name: Thanigaiselvan Palaniswami

Title: EMC Engineer

Date: March 30, 2007

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**THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY A2LA OR ANY AGENCY OF THE U.S. GOVERNMENT.**

A2LA Certificate Number: 2518-02

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## Test Report Details

Tests Performed By: Motorola Mobile Devices business (MDb)  
Product Safety and Compliance Group  
600 North US Hwy 45  
Libertyville, IL 60048  
PH (847) 523-6167 Fax (847) 523-4538  
Motorola MDb FRN: 0004321311  
FCC Registration Number: 316588  
Industry Canada Number: IC3908-1

Tests Requested By: Motorola Inc.  
Mobile Devices business  
600 North US Hwy 45  
Libertyville, IL 60048

Product Type: Cellular Phone

Signaling Capability: GSM 850, GSM 1900, Bluetooth

FCC ID : IHDT56HP1

Serial Numbers: 004401021695149, 004401021695222,  
004401021716168, 004401021717943

Testing Complete Date: March 30, 2007

## Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47:

  X   Part 15 Subpart B – Unintentional Radiators

Applicable Standards: ANSI 63.4 2003

**Summary of Testing**

Test #	Test Name	Pass/Fail
1	Field Strength of Spurious Emissions from Unintentional Radiators	Pass
2	AC Line Conducted Emissions	Pass

Test #	Test Name	Margin with respect to the Limit
1	Field Strength of Spurious Emissions from Unintentional Radiators	see results
2	AC Line Conducted Emissions	see results

The margin with respect to the limit is the minimum margin for all modes and bands.

**General and Special Conditions**

The EUT was tested using a fully charged battery.  
 All testing was done in an indoor controlled environment with an average temperature of 22° C and relative humidity of 50%.

**Equipment List**

Manufacturer	Equipment Type	Model No.	Serial Number	Calibration Due Date
Rohde Schwarz	Receiver	ESI26	838786/010	3/19/08
Rohde Schwarz	Receiver	ESI40	100226	6/05/07
A.H. Systems Inc.	DRG Horn Antenna	SAS 200/571	365	5/12/07
ETS	Log-Periodic Antenna	3148	1188	6/05/07
ETS	Biconical Antenna	3110B	3369	6/02/07
Attenuator	Weinschel	AS-6	7075	6/29/07
Attenuator	Weinschel	AS-6	7074	06/29/07
ETS	LISN	3810/2NM	00062907	5/10/07
ETS	LISN	3810/2NM	00062912	5/10/07
Dell	Laptop Computer	M20	NA	NA
Iomega	Zip Drive	Z250S	P9HM1992CK	NA
Olympus	Camera	D-600L	4020727	NA

All equipment is on a one-year calibration cycle.

The Dell M20 Laptop Computer, the Iomega Z250S Zip Drive and the Olympus D-600L Camera are labeled as DoC.

## **Measurement Procedures and Data**

### **FIELD STRENGTH OF EMISSIONS FROM UNINTENTIONAL RADIATORS**

#### **Measurement Procedure**

The equipment under test is placed inside the semi-anechoic chamber on a wooden table on the turntable center. For each radiated emission, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum peak reading on the spectrum analyzer. The final radiated emissions are then measured using an EMI receiver employing a CISPR quasi-peak detector function below 1000 MHz and an average detector function above 1000 MHz. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The field strength of each radiated emission is calculated by correcting the EMI receiver level for cable loss, amplifier gain, and antenna correction factors.

$$\text{Field Strength (dBuV/m)} = \text{EMI Receiver Level (dBuV)} + \text{Cable Loss (dB)} - \text{Amplifier Gain (dB)} + \text{Antenna Correction Factor (1/m)}$$

#### **Test Setup**

The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable. The USB data cable is 1 m in length. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop computer continuously.

**Measurement Results**

Operating Mode – Rx Mode, Data Transfer Mode.

30 MHz – 1000 MHz

Frequency	Level	Measured	Transd	Cables	Limit	Margin	Height	Angle	Pol.
MHz	dBuV/m	dBuV	dB	dB	dBuV/m	dB	cm	deg	
30.04	37.21	15.92	13.5	-7.8	40	2.8	100	51	VERT
30.08	37.73	16.44	13.5	-7.8	40	2.3	114	223	VERT
30.32	37.39	16.1	13.5	-7.8	40	2.6	100	211	VERT
31.12	35.3	14.2	13.3	-7.8	40	4.7	100	188	VERT
33.08	36.67	16.05	12.8	-7.8	40	3.3	100	124	VERT
897.68	39.21	-0.36	23.7	-15.9	46	6.8	181	164	HORI
912.16	39.8	-0.36	24.2	-15.9	46	6.2	223	97	HORI
926.16	39.79	-0.36	24.2	-16	46	6.2	353	22	HORI

Above 1 GHz

Frequency	Level	Measured	Transd	Cables	Limit	Margin	Height	Angle	Pol.
MHz	dBuV/m	dBuV	dB	dB	dBuV/m	dB	cm	deg	
1976.9	42	19.42	28.6	6	53.9	11.9	188	148	HORI
1980.7	41.64	19.36	28.2	6	53.9	12.3	354	108	VERT
1984	42.07	19.37	28.7	6	53.9	11.8	118	180	HORI
1989.1	42.06	19.27	28.7	5.9	53.9	11.8	100	128	HORI
1993.9	42.36	19.54	28.8	6	53.9	11.5	100	199	HORI
1994.1	42.13	19.32	28.8	6	53.9	11.8	193	65	HORI
1999.3	42.34	19.51	28.9	6.1	53.9	11.6	363	68	HORI

Notes: Worst Case emissions reported.

Peak Radiated Data for Emissions Above 1GHz

Frequency	Level	Angle	Height	Pol.
MHz	dBuV/m	deg	cm	
1977.9559	53.53	170	200	HOR
1979.9599	53.82	87	400	VER
1985.9719	54.84	202	100	HOR
1989.98	52.4	160	400	VER
1993.988	53.6	73	200	HOR
1995.992	52.73	120	300	HOR
1997.996	53.42	90	400	HOR

## **AC LINE CONDUCTED EMISSIONS**

### **Measurement Procedure**

Measured levels of ac power line conducted emission shall be the radio-noise voltage from the line probe or across the 50  $\Omega$  LISN port, where permitted, terminated into a 50  $\Omega$  noise meter, or where permitted or required, the radio-noise current on the power line sensed by a current probe.

All radio-noise voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord or calibrated extension cord by the use of mating plugs and receptacles on the EUT and LISN. Equipment shall be tested with power cords that are normally supplied using an LISN, the 50  $\Omega$  measuring port is terminated by a 50  $\Omega$  radio-noise meter or a 50  $\Omega$  resistive load. All other ports are terminated in 50  $\Omega$ .

Detectors - Quasi Peak and Average Detector

### **Test Setup**

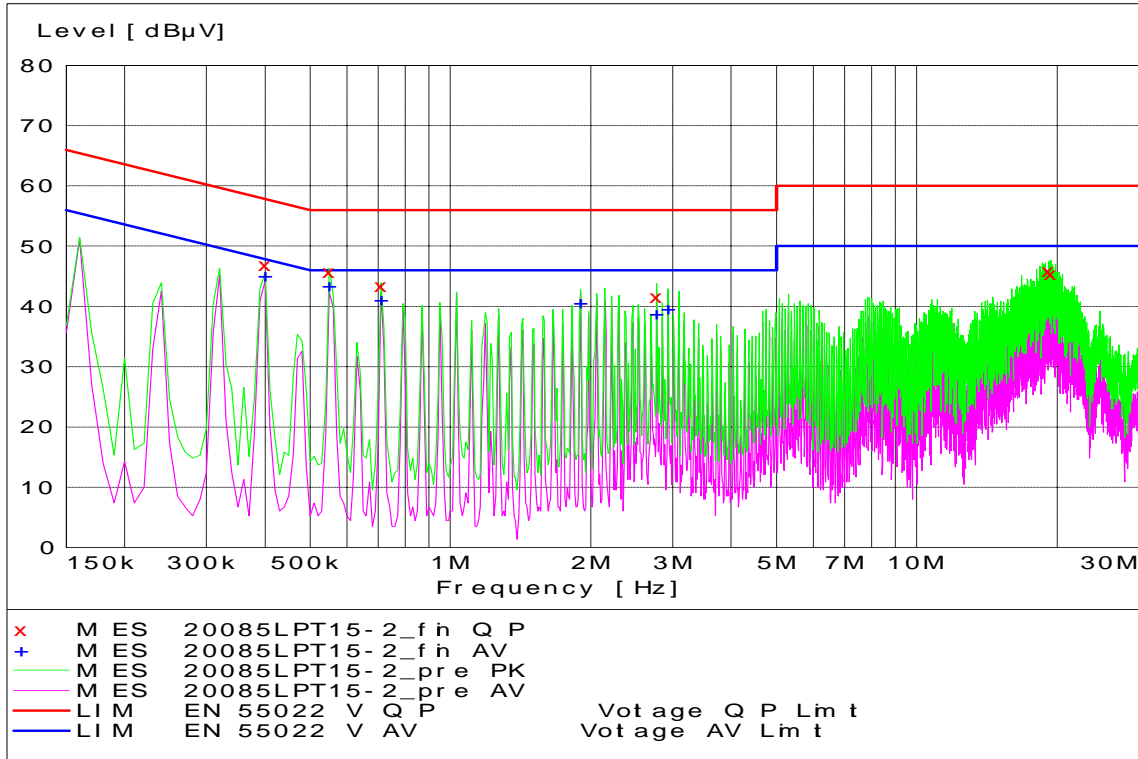
The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable. The USB data cable is 1 m in length. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop computer continuously.

### **Measurement Results**

See attached:



### Part15 AC Line -Line



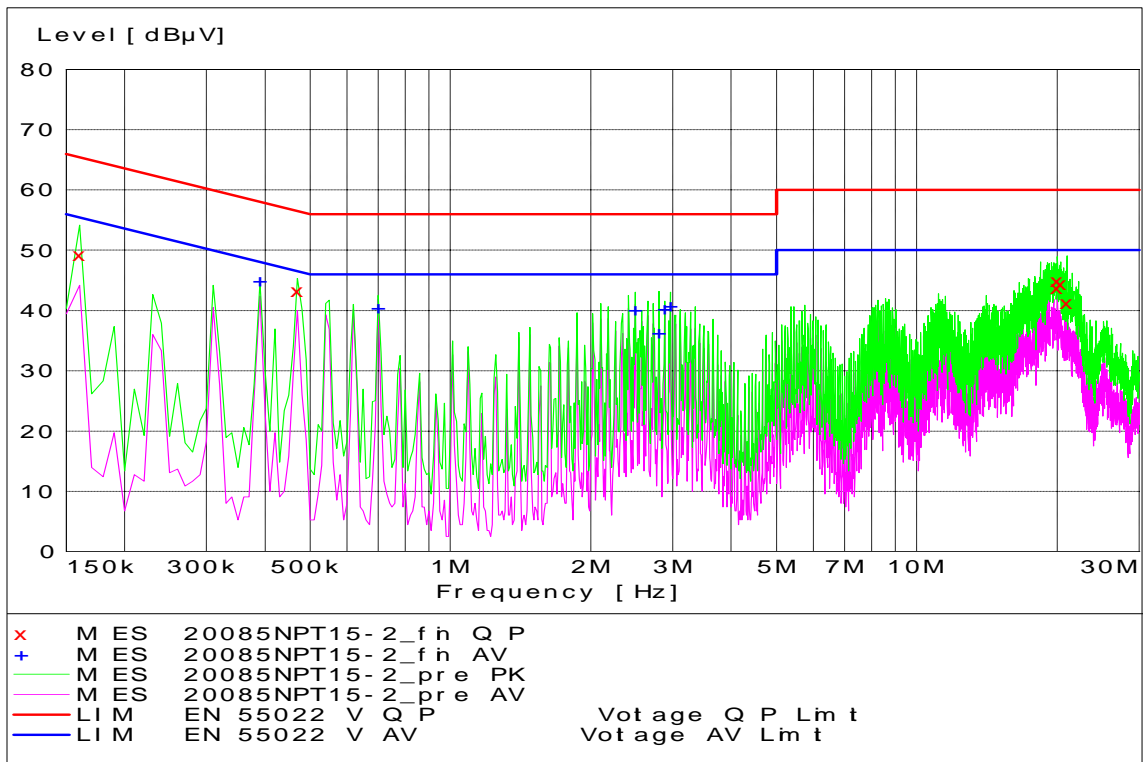
#### Final Average Data

Frequency	Level	Transd	Limit	Margin
MHz	dBµV	dB	dBµV	dB
0.56	41.5	10	46	4.5
1.37	45	10	46	1
1.45	44.6	10	46	1.4
2.98	44.6	10	46	1.4
3.14	44.2	10	46	1.8

#### Final Quasi Peak Data

Frequency	Level	Transd	Limit	Margin
MHz	dBµV	dB	dBµV	dB
19.88	52.7	10	60	7.3
19.97	50.2	10	60	9.8
20.04	52.2	10	60	7.8
20.11	49.5	10	60	10.5
20.4	49.1	10	60	10.9
20.69	51.7	10	60	8.3

### Part15 AC Line - Neutral



#### Final Average Data

Frequency	Level	Transd	Limit	Margin
MHz	dBµV	dB	dBµV	dB
0.32	46.6	10	49.7	3.1
0.4	45.4	10	47.9	2.5
0.56	38.6	10	46	7.4
2.25	41.3	10	46	4.7
2.81	41.5	10	46	4.5
20.81	41.9	10	50	8.1

#### Final Quasi Peak Data

Frequency	Level	Transd	Limit	Margin
MHz	dBµV	dB	dBµV	dB
19.77	49.9	10	60	10.1
20.18	52.2	10	60	7.8
20.5	51.9	10	60	8.1
20.63	50	10	60	10
20.66	51.5	10	60	8.5
20.98	50.6	10	60	9.4

**End of Test Report**