



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT**

**Test Report Number** – 20391-2 Supplement

**Report Date** – June 20, 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: Albert J. Patapack

Title: EMC Engineer

Date: June 20, 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.

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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 : IHDT56HR1

Serial Numbers: 004401022802645, 004401022802652  
004401022802637, 355063010000221,  
E73LFT0816

Testing Complete Date: June 15, 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	3/19/2008
ETS	Horn Antenna	3115	6222	3/21/2008
ETS	Log-Periodic Antenna	3148	1189	9/12/2007
ETS	Biconical Antenna	3110B	3369	9/12/2007
Attenuator	Weinschel	AS-6	7075	6/29/2007
Attenuator	Weinschel	AS-6	7074	6/29/2007
ETS	LISN	3810/2NM	23630	6/26/2007
ETS	LISN	3810/2NM	2179	6/26/2007
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.

Notes: Worst Case emissions reported.

30 MHz – 1000 MHz

Frequency MHz	Level dBµV/m	Measured dBµV	Transd dB	Cables dB	Limit dBµV/m	Margin dB	Height cm	Angle deg	Pol.
30.52	29.21	8.52	12.9	7.8	40	10.8	100	199	VERT
30.80	28.26	7.69	12.8	7.8	40	11.7	150	262	VERT
32.72	32.56	12.49	12.3	7.8	40	7.4	100	120	VERT
34.44	31.75	12.25	11.7	7.8	40	8.3	100	247	VERT
34.56	31.39	11.92	11.6	7.8	40	8.6	124	253	VERT
75.56	30.38	12.81	8.8	8.7	40	9.6	100	240	VERT
80.32	30.56	12.15	9.6	8.8	40	9.4	121	210	VERT
83.80	31.84	12.72	10.2	8.9	40	8.2	117	229	VERT
130.92	36.24	14.18	12.2	9.8	43.5	7.3	271	78	HORI
142.00	26.82	3.92	12.9	10.0	43.5	16.7	124	208	VERT
147.28	38.38	15.28	13.0	10.1	43.5	5.1	100	356	VERT
163.64	35.80	11.71	13.9	10.2	43.5	7.7	118	177	VERT
236.40	27.60	4.62	12.0	11.0	46	18.4	117	109	VERT
907.72	39.19	-0.61	23.9	15.9	46	6.8	323	347	HORI
912.08	39.20	-0.56	23.8	15.9	46	6.8	118	0	HORI
914.72	38.99	-0.66	23.7	15.9	46	7.0	246	188	HORI
916.40	39.05	-0.56	23.7	15.9	46	6.9	250	215	HORI
919.96	38.99	-0.56	23.6	15.9	46	7.0	100	86	HORI
924.16	39.08	-0.61	23.7	16.0	46	6.9	150	191	HORI
924.56	39.09	-0.61	23.7	16.0	46	6.9	345	246	HORI
927.24	38.00	-0.66	22.7	16.0	46	8.0	271	26	VERT
928.92	39.03	-0.66	23.7	16.0	46	7.0	217	210	HORI
933.12	39.12	-0.56	23.7	16.0	46	6.9	117	0	HORI
935.88	39.21	-0.46	23.7	16.0	46	6.8	364	352	HORI
938.28	39.28	-0.36	23.6	16.0	46	6.7	210	225	HORI
940.28	39.26	-0.36	23.6	16.0	46	6.7	385	158	HORI
946.40	39.10	-0.41	23.5	16.0	46	6.9	150	94	HORI
953.56	37.87	-0.51	22.3	16.1	46	8.1	298	35	VERT

Above 1 GHz

Frequency MHz	Level dB $\mu$ V/m	Measured dB $\mu$ V	Transd dB	Gain dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle deg	Pol.
1130.7	38.30	21.58	24.9	8.1	53.9	15.6	114	328	VERT
1507.0	36.64	18.50	25.1	6.9	53.9	17.3	114	83	VERT
1512.4	36.82	18.63	25.1	6.9	53.9	17.1	117	92	VERT
1512.8	37.00	18.81	25.1	6.9	53.9	16.9	121	39	VERT
1867.4	39.56	18.53	26.8	5.7	53.9	14.3	203	188	HORI
1952.1	40.33	18.38	27.4	5.5	53.9	13.6	146	123	HORI
1960.1	40.43	18.40	27.5	5.5	53.9	13.5	114	103	HORI
1964.7	40.17	18.41	27.2	5.4	53.9	13.7	100	200	VERT
1974.0	40.67	18.50	27.6	5.4	53.9	13.2	117	206	HORI
1976.5	40.78	18.59	27.6	5.4	53.9	13.1	144	61	HORI
1977.8	40.85	18.65	27.6	5.4	53.9	13.1	307	115	HORI
1987.2	41.05	18.75	27.7	5.4	53.9	12.9	364	140	HORI
1990.3	41.07	18.75	27.7	5.4	53.9	12.8	316	291	HORI
1991.6	41.11	18.77	27.7	5.4	53.9	12.8	203	343	HORI
1996.3	41.29	18.91	27.8	5.4	53.9	12.6	121	245	HORI

Peak Radiated Data for Emissions Above 1GHz

Frequency MHz	Level dB $\mu$ V/m	Angle deg	Height cm	Pol.
1130.26	50.95	85	300	VER
1132.26	47.17	62	400	HOR
1507.01	48.20	110	100	HOR
1509.09	47.65	205	300	HOR
1511.02	49.14	249	400	VER
1513.03	48.54	261	400	VER
1865.73	50.72	338	100	VER
1867.74	50.07	43	300	VER
1951.90	50.39	360	200	HOR
1953.91	50.81	82	200	VER
1959.92	51.79	166	300	VER
1961.92	51.42	347	400	VER
1963.93	50.89	294	100	HOR
1965.93	50.73	280	400	VER
1975.95	50.96	77	400	HOR
1977.96	51.42	152	300	HOR
1985.97	51.14	82	100	HOR
1987.98	52.36	348	200	HOR
1989.98	51.76	191	400	HOR
1991.98	52.16	353	100	HOR
1995.99	51.71	271	400	HOR
1997.99	52.46	46	100	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

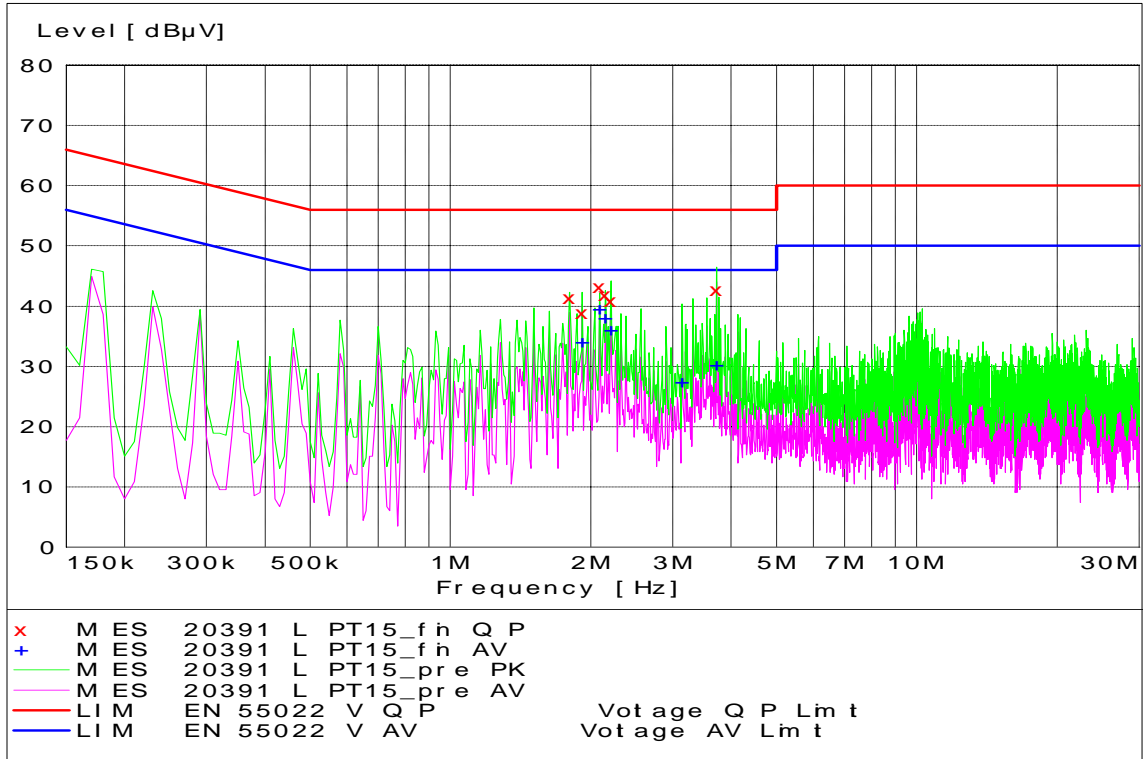
### **Test Setup**

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.

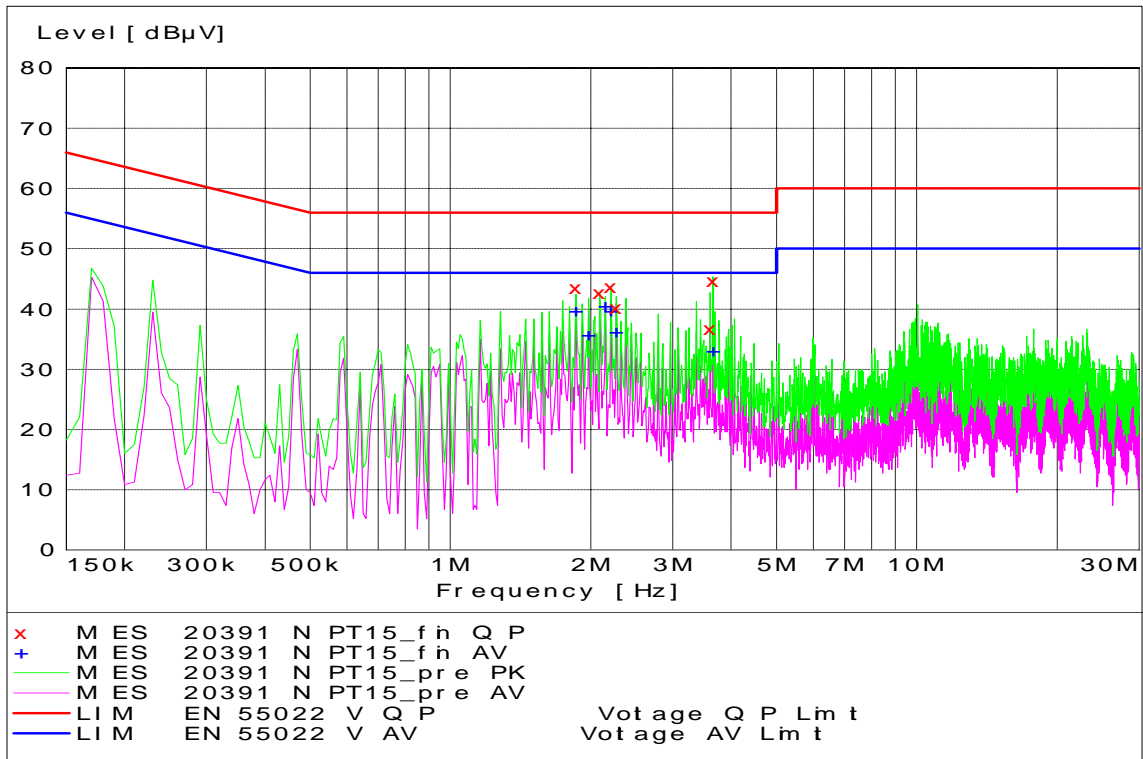
### **Measurement Results**

See attached:

**Pt 15 - Tx Mode - Line Coupling**



**Pt 15 - Tx Mode - Neutral Coupling**



**End of Test Report**