



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT**

**Test Report Number** – 22301-1 Supplement

**Report Date** – September 9, 2008

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: September 9, 2008

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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: IC1090-1

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

Product Type: Cellular Phone

Signaling Capability: GSM 850 & 1900, EDGE 850 & 1900, Bluetooth

FCC ID: IHDP56JK2

Serial Numbers: 355908020000613, 355908020000639,  
355908020000662

Testing Complete Date: September 9, 2008

## 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	2/28/09
Rohde Schwarz	Receiver	ESI26	100001	6/03/09
A.H. Systems	DRG Horn Antenna	SAS 200/571	265	1/18/09
ETS	Log-Periodic Antenna	3148	1189	10/10/08
ETS	Biconical Antenna	3110B	3369	10/04/08
Attenuator	Weinschel	AS-6	6675	6/13/09
Attenuator	Weinschel	AS-6	6677	6/17/09
Agilent	Microwave Preamplifier	8449B	3008A01442	2/25/2009
ETS	LISN	3810/2NM	2179	1/23/09
ETS	LISN	3810/2NM	00023630	1/23/09
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.

All test equipment was within their calibration date during the time of testing. When equipment went out of calibration during testing it was replaced using a similar piece of calibrated equipment. All these equipments are listed in the equipment list.

The Dell M20 Laptop Computer, 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 dBuV/m	Measured dBuV	Transd dB	Cables dB	Limit dBuV/m	Margin dB	Height cm	Angle deg	Pol.
38.88	32.79	13.92	10.9	8	40	7.2	100	168	VERT
84.04	33.56	14.88	9.9	8.7	40	6.4	100	235	VERT
86.72	29.91	11.17	9.9	8.8	40	10.1	231	227	VERT
194.96	24.57	-0.51	15	10.1	43.5	18.9	250	50	HORI
229.08	40.37	17.99	12	10.4	46	5.6	150	212	HORI
320.64	45.14	18.84	15.1	11.2	46	0.9	100	267	HORI
926.68	37.47	-1.11	23.9	14.7	46	8.5	400	272	HORI

Above 1 GHz

Frequency MHz	Level dBuV/m	Measured dBuV	Transd dB	Gain dB	Limit dBuV/m	Margin dB	Height cm	Angle deg	Pol.
1062.1	37.6	31.09	23.7	17.2	54	16.4	182	179	HORI
1075.2	38.04	31.6	23.7	17.2	54	16	379	64	VERT
1098.9	37.55	31.06	23.8	17.3	54	16.4	383	286	VERT
1118.5	42.15	35.49	23.9	17.3	54	11.8	384	341	VERT
1122.2	42.08	35.39	24	17.3	54	11.9	400	21	VERT
1126.5	41.86	35.13	24	17.3	54	12.1	384	353	VERT
1130.5	41.95	35.18	24	17.2	54	12	376	344	VERT
1292.2	38.01	30.69	24.4	17.1	54	16	115	100	VERT
1347.3	37.38	29.9	24.5	17.1	54	16.6	118	146	VERT
1501.8	37.22	29.52	24.6	16.9	54	16.8	118	263	VERT
1512.6	37.32	29.56	24.6	16.9	54	16.7	384	326	VERT

Peak Radiated Data for Emissions above 1GHz

Frequency MHz	Level dBuV/m	Angle deg	Height cm	Pol.
1062.12	53.4	181	200	HOR
1076.15	53.48	65	400	VER
1098.19	53.01	294	400	VER
1118.23	55.43	346	400	VER
1122.24	55.07	86	200	VER
1126.25	55.46	358	400	VER
1130.26	55.17	356	400	VER
1292.58	51.39	298	100	VER
1348.69	52.89	137	100	VER
1501.00	58.88	266	100	VER
1511.02	53.77	337	400	VER

## **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

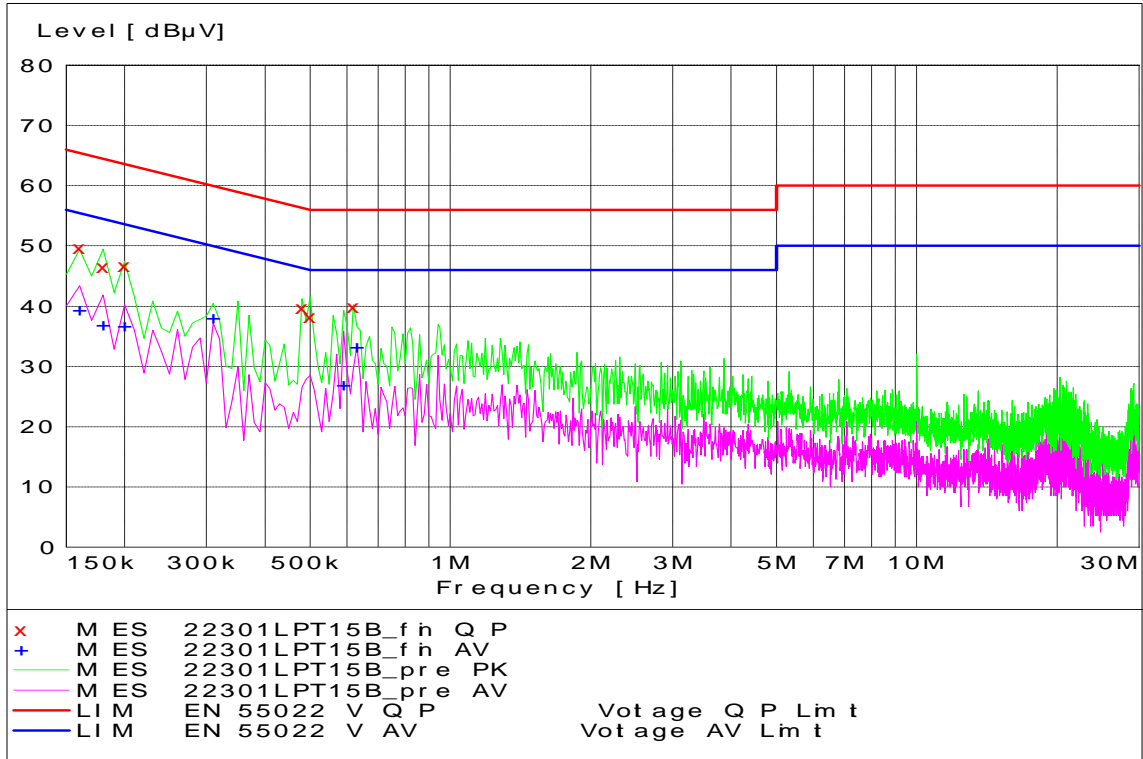
### **Test Setup**

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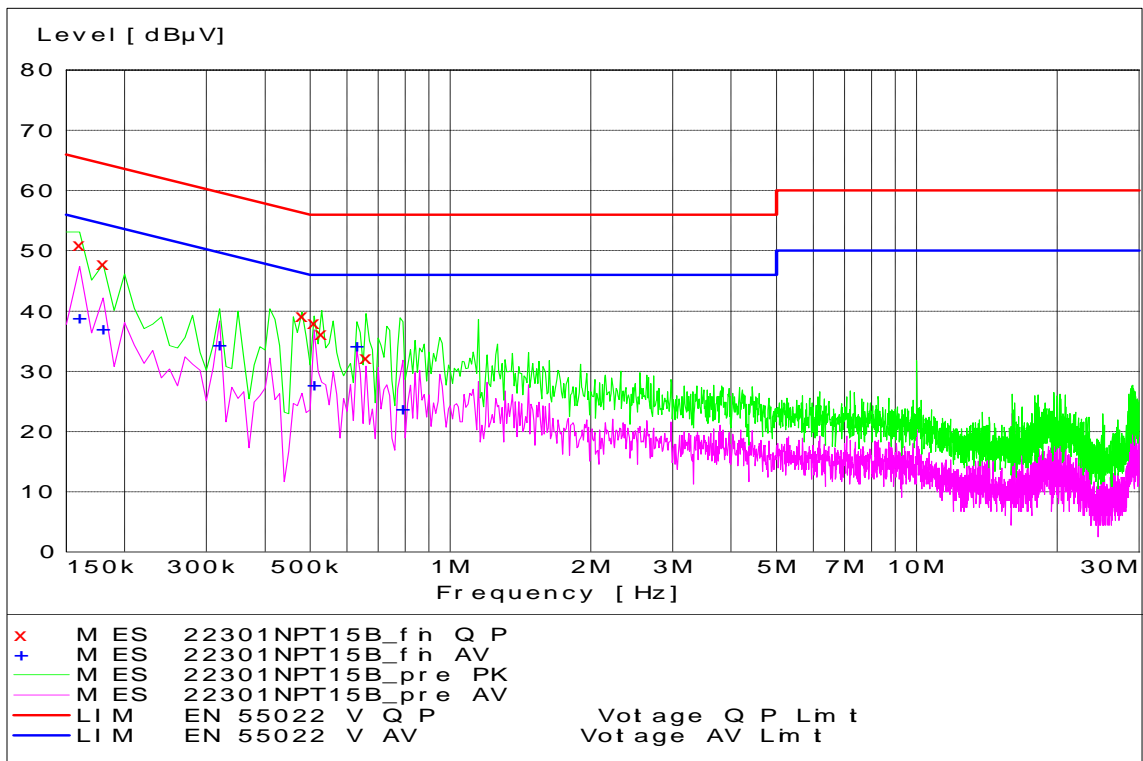
### **Measurement Results**

See attached:

**AC LINE COMPUTER PERIPHERAL - Tx Mode - Line Coupling**



**AC LINE COMPUTER PERIPHERAL - Tx Mode - Neutral Coupling**



**End of Test Report**