



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT**

**Test Report Number** – 22299-1 Supplement

**Report Date** – October 13, 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: Albert J. Patapack

Title: EMC Engineer

Date: October 13, 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: 1090-1

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

Product Type: Cellular Phone

Signaling Capability: CDMA 800, CDMA 1900, Bluetooth

FCC ID : IHDP56JM1

Serial Numbers: A0000002C66050

Testing Complete Date: October 7, 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	2/28/2009
Rohde Schwarz	Receiver	ESI26	100001	6/03/2009
ETS	DRG Horn Antenna	3115	6222	5/02/2009
ETS	Log-Periodic Antenna	3148	1188	7/30/2009
ETS	Biconical Antenna	3110B	3370	7/29/2009
Attenuator	Weinschel	AS-6	6675	6/13/2009
Attenuator	Weinschel	AS-6	6677	6/17/2009
ETS	LISN	3810/2NM	2179	1/23/2009
ETS	LISN	3810/2NM	00023630	1/23/2009
Dell	Laptop Computer	M20	NA	NA
Iomega	Zip Drive	Z250S	P9HM1992CK	NA
Olympus	Camera	D-600L	4020727	NA

All testing was performed using equipment that was within calibration at the time that the test was performed. No equipment listed in the table above was used after the specified calibration due date. If, during the course of product testing, a piece of equipment went out of calibration and that piece of equipment was needed to complete product testing, a similar piece of calibrated equipment was substituted. If a substitution was made, that new piece of equipment would be listed in the above table along with the piece that was removed from service. 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.

Note: 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.
35.04	33.14	13.45	11.8	7.9	40	6.9	137	149	VERT
71.92	33.08	15.89	8.7	8.5	40	6.9	119	210	VERT
75.44	33.21	15.67	9.0	8.6	40	6.8	100	212	VERT
147.28	39.09	16.21	13.3	9.6	43.5	4.4	100	178	VERT
261.8	36.16	12.33	13.1	10.7	46	9.8	150	102	HORI
320.64	43.46	17.14	15.1	11.2	46	2.5	128	258	HORI
352.68	39.51	12.64	15.4	11.4	46	6.5	99	246	HORI
384.76	39.07	11.47	15.9	11.7	46	6.9	115	183	HORI
448.88	37.83	8.47	17.2	12.2	46	8.2	150	189	VERT
625.00	38.48	5.14	20.0	13.3	46	7.5	222	360	HORI
916.32	37.99	-1.01	24.4	14.6	46	8	129	260	HORI
929.44	37.90	-1.11	24.3	14.7	46	8.1	286	101	HORI
953.20	37.62	-1.16	24.0	14.8	46	8.4	296	167	HORI

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.
1065.7	38.15	31.73	23.6	17.2	54	15.9	236	334	VERT
1118.7	42.81	36.15	23.9	17.3	54	11.2	380	353	VERT
1122.5	37.99	31.29	24.0	17.3	54	16	265	78	VERT
1126.4	43.25	36.52	24.0	17.3	54	10.7	384	356	VERT
1130.8	40.80	34.03	24.0	17.2	54	13.2	115	176	VERT
1484.2	37.47	29.62	24.8	16.9	54	16.5	314	256	HORI
1495.6	37.98	30.29	24.6	16.9	54	16	322	315	VERT
1511.2	37.36	29.62	24.6	16.9	54	16.6	361	324	VERT
1994.9	40.05	27.77	28.1	15.8	54	13.9	226	146	HORI

Peak Radiated Data for Emissions Above 1GHz

Frequency MHz	Level dB $\mu$ V/m	Angle deg	Height cm	Pol.
1064.13	53.46	335	200	VER
1066.13	52.06	116	300	VER
1118.24	55.00	355	400	VER
1120.24	53.34	79	300	VER
1122.24	55.04	81	300	VER
1124.25	53.02	355	400	VER
1126.25	55.31	355	400	VER
1128.26	52.92	314	300	VER
1130.26	54.61	172	100	VER
1132.26	49.87	333	300	VER
1482.97	49.33	38	100	VER
1484.97	53.37	255	300	HOR
1494.99	51.09	330	400	VER
1496.99	52.93	299	300	VER
1511.02	51.62	29	400	VER
1513.03	53.10	322	400	VER
1993.99	53.10	160	200	HOR
1995.99	51.36	211	300	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  $\Omega$ .

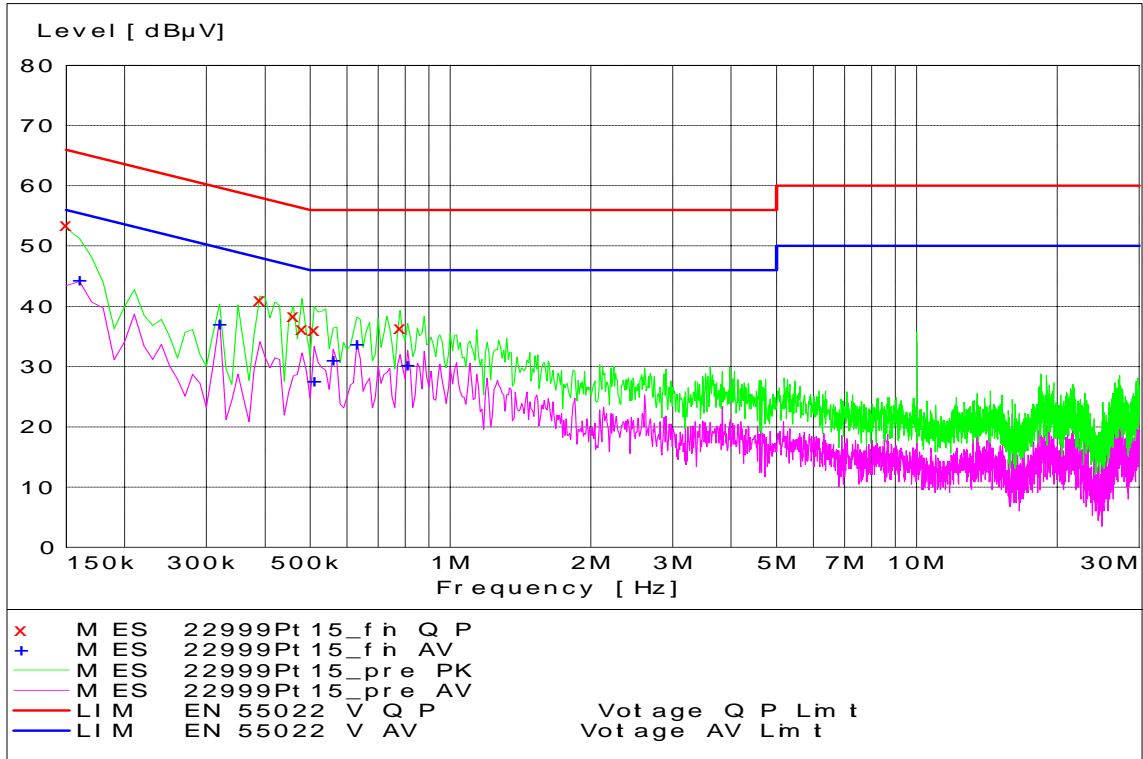
Detectors - Quasi Peak and Average Detector

### **Test Setup**

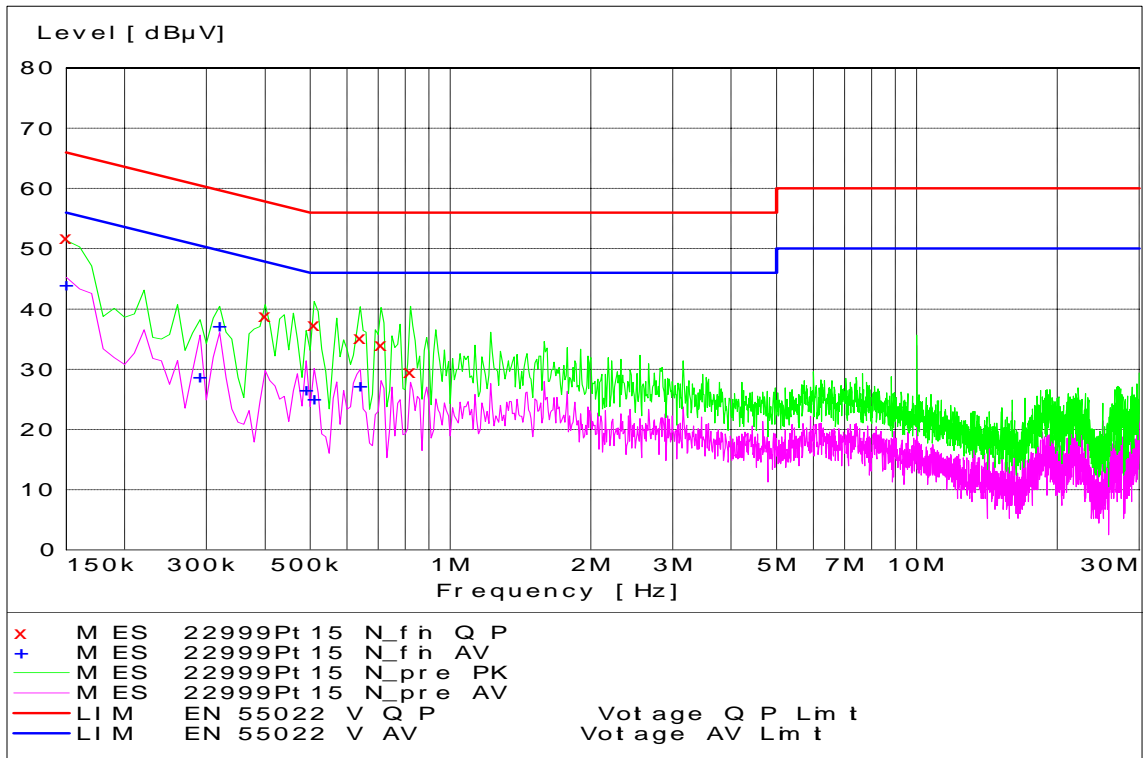
The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable. The USB data cable is 1 m in length. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop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

### **Measurement Results**

See attached:



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



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

**End of Test Report**