



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT**

**Test Report Number** – 21675-1 Supplement

**Report Date** – April 15, 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: April 15, 2008

This report must not be reproduced, except in full, without written approval from this laboratory.

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

## Table of Contents

<u>Description</u>	<u>Page</u>
Test Report Details	3
Applicable Standards	3
Summary of Testing	4
General and Special Conditions	4
Equipment and Cable Configuration	5
Measurement Procedures and Data	6

## 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, EDGE, Bluetooth

FCC ID : IHDT56JP1

Serial Numbers: 004401026909974, 004401026909982  
004401026910014, 004401026909750

Testing Complete Date: April 15, 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	ESI40	100001	5/02/2008
Rohde Schwarz	Receiver	ESI26	100226	6/11/2008
A.H. Systems Inc.	DRG Horn Antenna	SAS 200/571	365	5/24/2008
ETS	Log-Periodic Antenna	3148	1188	6/18/2008
ETS	Biconical Antenna	3110B	3369	10/04/2008
Attenuator	Weinschel	AS-6	7074	7/23/2008
Attenuator	Weinschel	AS-6	6677	6/21/2008
ETS	LISN	3810/2NM	62907	5/02/2008
ETS	LISN	3810/2NM	62912	5/02/2008
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.
87.76	21	2.6	9.6	8.8	40	19	173	224	HORI
147.28	38.25	15.57	13.1	9.6	43.5	5.3	115	359	VERT
163.64	34.71	11.21	13.7	9.8	43.5	8.8	100	122	VERT
192.4	35.74	10.81	14.9	10.0	43.5	7.8	115	232	HORI
320.64	44.8	18.39	15.2	11.2	46	1.2	100	254	HORI
352.72	39.86	12.89	15.5	11.4	46	6.1	100	230	HORI
384.76	41.38	13.68	16	11.7	46	4.6	100	172	HORI
923.12	37.75	-1.27	24.4	14.7	46	8.3	100	198	HORI
946.6	37.64	-1.16	24	14.8	46	8.4	115	136	HORI

Above 1 GHz

Frequency MHz	Level dBμV/m	Measured dBμV	Transd dB	Gain dB	Limit dBμV/m	Margin dB	Height cm	Angle deg	Pol.
1118.9	36.98	30.32	23.9	17.3	54	17.0	226	79	VERT
1126.9	36.72	29.99	24.0	17.3	54	17.3	231	77	VERT
1130.0	38.00	31.23	24.0	17.2	54	16.0	196	329	VERT
1495.1	33.71	26.02	24.6	16.9	54	20.3	100	250	VERT
1507.3	33.78	26.05	24.6	16.9	54	20.2	145	251	VERT
1510.4	33.51	25.59	24.8	16.9	54	20.5	318	198	HORI
1905.7	35.10	24.47	26.6	16.0	54	18.9	174	165	VERT
1988.7	36.39	24.40	27.8	15.8	54	17.6	137	180	VERT
1991.6	36.39	24.34	27.9	15.8	54	17.6	132	203	VERT

Peak Radiated Data for Emissions Above 1GHz

Frequency MHz	Level dB $\mu$ V/m	Angle deg	Height cm	Pol.
1118.243	52.22	82	200	VER
1120.24	51.39	96	300	VER
1126.26	52.56	91	200	VER
1128.26	49.67	322	200	VER
1130.26	52.16	332	200	VER
1494.99	46.00	329	300	VER
1496.99	46.41	309	100	VER
1507.01	50.08	257	100	VER
1509.02	50.32	193	300	HOR
1511.02	47.69	227	300	HOR
1903.81	47.50	197	300	HOR
1905.81	48.39	187	200	VER
1987.98	47.58	360	400	VER
1989.98	49.40	171	100	VER
1991.98	49.53	181	100	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  $\Omega$ .

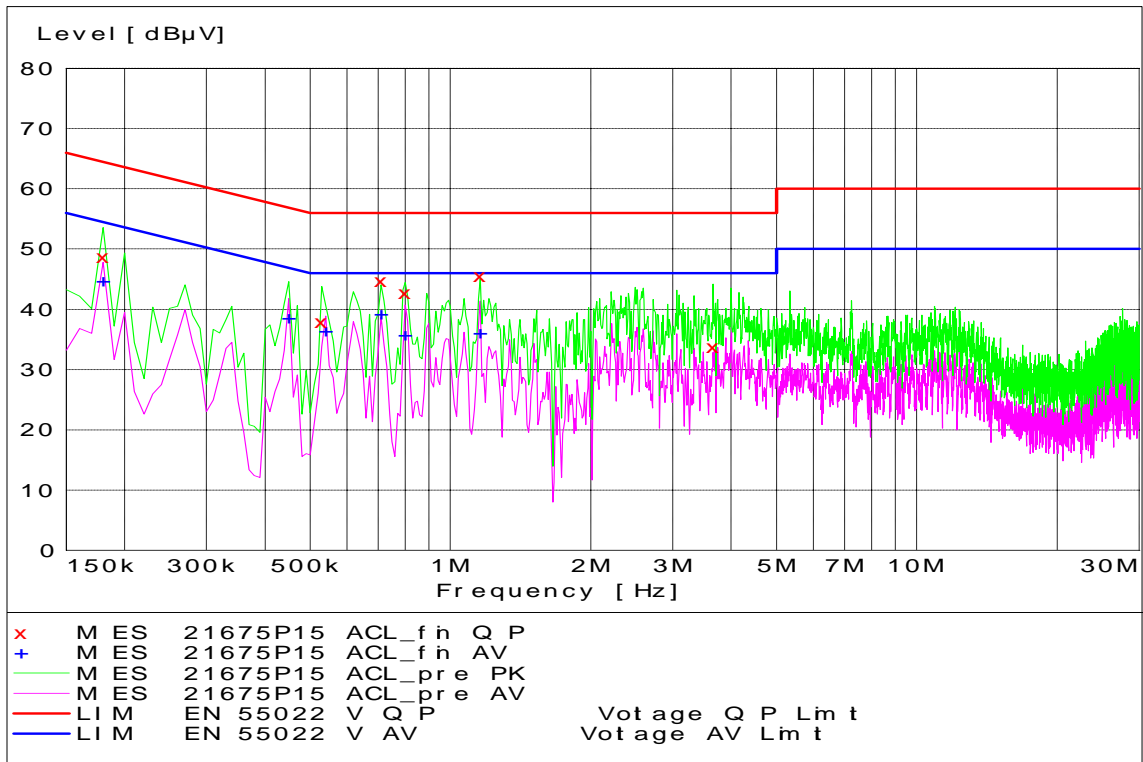
Detectors - Quasi Peak and Average Detector

### **Test Setup**

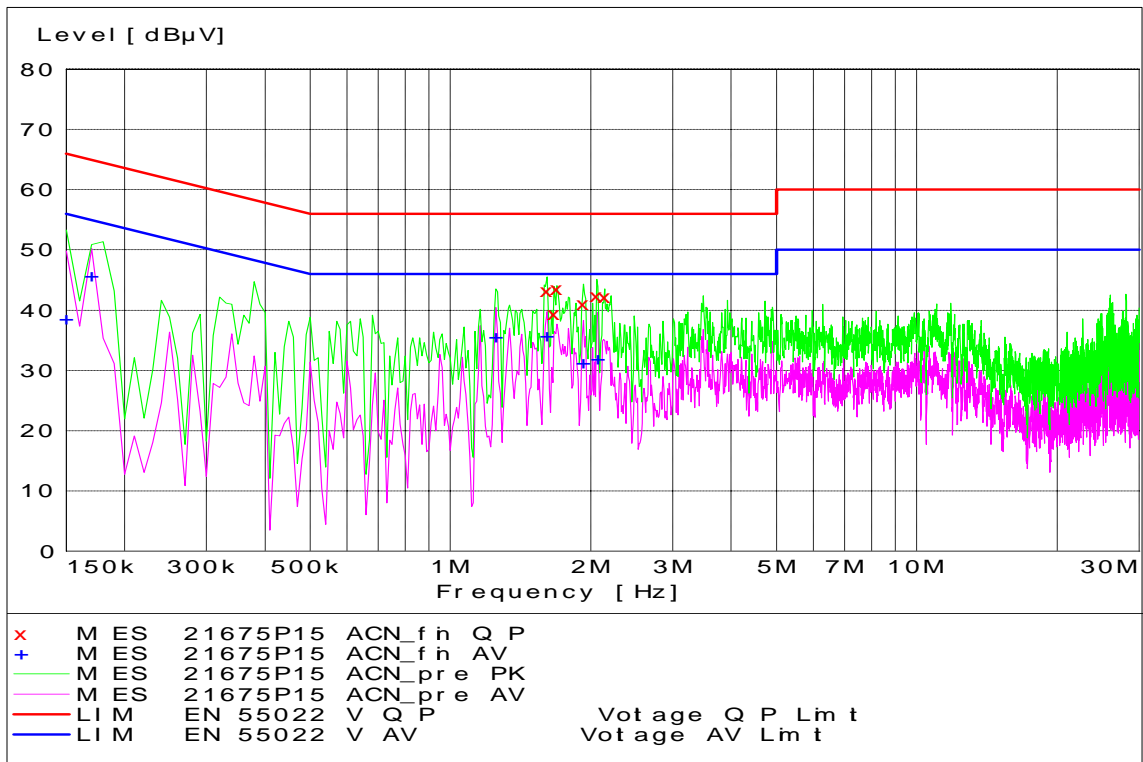
The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable. The USB data cable is 1 m in length. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop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

### **Measurement Results**

See attached:



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



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

**End of Test Report**