



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT**

**Test Report Number** – 23902-2 Supplement

**Report Date** – August 27, 2010

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: August 27, 2010

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 Mobility 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  
FCC Registration Number: 316588  
Industry Canada Number: IC1090-1

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

Product Type: Cellular Phone

Signaling Capability: GSM 850/1900, WCDMA 850/1700  
HSDPA, HSUPA, EDGE, GPRS, Bluetooth,  
802.11b/802.11g/802.11n

FCC ID: IHDP56LC3

Serial Numbers: LJDA250058, LJDA250069

Testing Complete Date: July 20, 2010

**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, RSS-210 Issue 7

**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**

All testing for this report was performed with a fully charged Model SNN5877A 1540mAH Battery.

All testing was done in an indoor controlled environment. The temperature and the relative humidity were maintained within the ANSI C63.4 2003 Standard requirements during the entire duration of testing.

**Equipment List**

Manufacturer	Equipment Type	Model No.	Serial Number	Calibration Due Date
Rohde & Schwarz	Receiver	ESIB40	100226	04/08/11
ETS	DRG Horn Antenna	3115	6222	10/02/10
ETS	Log-Periodic Antenna	3148	1188	2/02/2011
ETS	Biconical Antenna	3110B	3370	10/02/10
Agilent	Microwave Preamplifier	8449B	3008A00535	10/05/11
Attenuator	Weinschel	AS-6	6675	NCR
Attenuator	Weinschel	AS-6	6677	NCR
ETS	LISN	3810/2NM	0023630	10/5/10
ETS	LISN	3810/2NM	2179	10/6/10
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 dBµV/m	Measured dBµV	Transd dB	Cables dB	Limit dBµV/m	Margin dB	Height cm	Angle deg	Pol.
38.88	31.28	13.27	10.9	7.1	40	8.7	100	91	VERT
66.60	34.46	18.48	8.5	7.4	40	5.5	100	246	VERT
71.64	32.21	16.22	8.5	7.5	40	7.8	150	154	VERT
147.28	41.54	20.53	12.9	8.1	43.5	2.0	100	173	VERT
150.96	31.37	10.14	13.1	8.1	43.5	12.1	100	184	VERT
320.64	42.78	18.73	14.9	9.1	46	3.2	100	265	HORI
331.32	36.96	12.45	15.3	9.2	46	9	100	255	HORI
352.68	38.93	14.28	15.3	9.3	46	7.1	100	257	HORI
365.04	36.91	11.83	15.7	9.4	46	9.1	174	172	VERT
384.76	39.02	13.64	15.9	9.5	46	7.0	100	179	HORI
431.40	35.25	9.24	16.2	9.8	46	10.7	150	192	VERT
869.08	33.61	-0.8	23.1	11.3	46	12.4	250	226	HORI
908.88	34.85	-0.56	24.0	11.4	46	11.2	236	173	HORI
914.44	34.89	-0.75	24.2	11.5	46	11.1	100	337	HORI
948.44	35.02	-0.51	24.0	11.6	46	11	100	110	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.
1065.3	27.65	30.59	24.0	27.0	54	26.3	243	106	VERT
1125.2	29.30	31.30	24.5	26.5	54	24.7	190	329	VERT
1492.9	30.60	28.94	25.3	23.6	54	23.4	100	267	VERT
1931.8	34.78	27.53	27.5	20.2	54	19.2	124	116	VERT
1965.5	34.96	27.44	27.5	19.9	54	19.0	209	277	VERT

Peak Radiated Data for Emissions Above 1GHz

Frequency MHz	Level dB $\mu$ V/m	Angle deg	Height cm	Pol.
1064.13	44.44	111	200	VER
1066.13	41.07	36	200	VER
1124.25	43.99	341	200	VER
1126.25	46.02	329	200	VER
1490.98	45.84	280	100	VER
1492.99	44.59	242	200	VER
1494.99	46.85	265	100	VER
1929.86	47.31	128	100	VER
1931.86	46.21	112	200	HOR
1933.87	45.75	114	100	HOR
1963.93	46.40	271	200	HOR
1965.93	47.36	299	200	VER
1967.94	46.60	83	200	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  $\Omega$ .

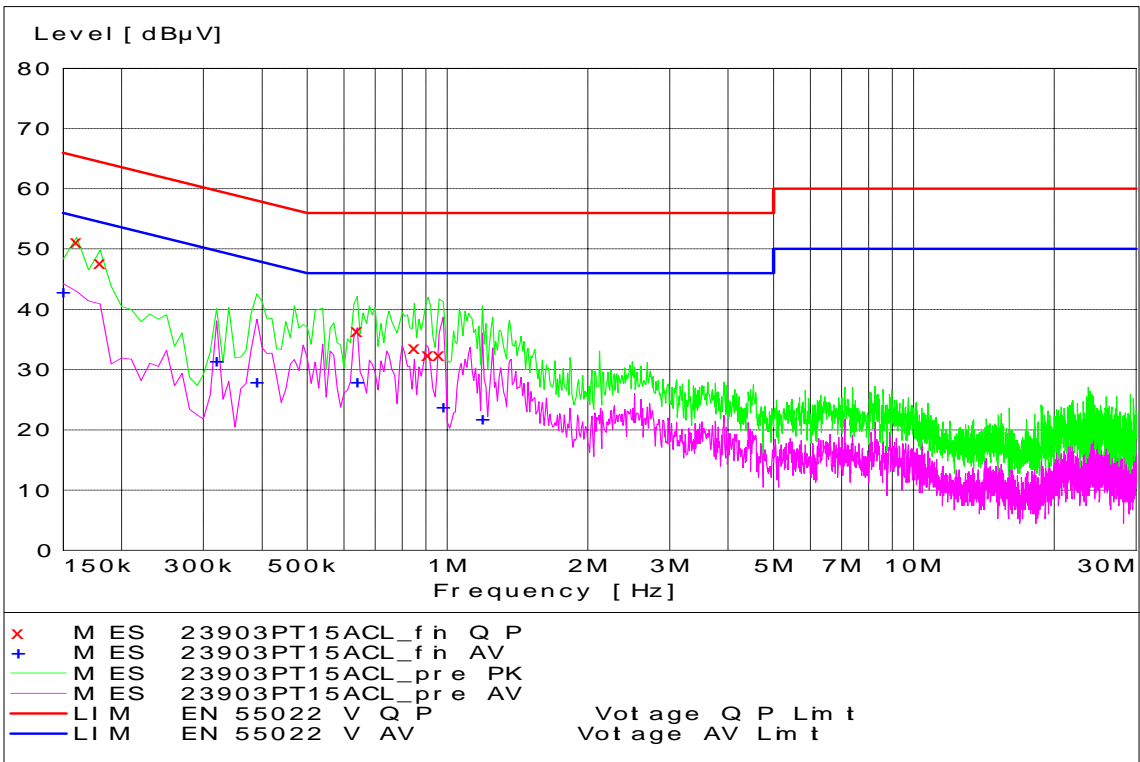
Detectors - Quasi Peak and Average Detector

### **Test Setup**

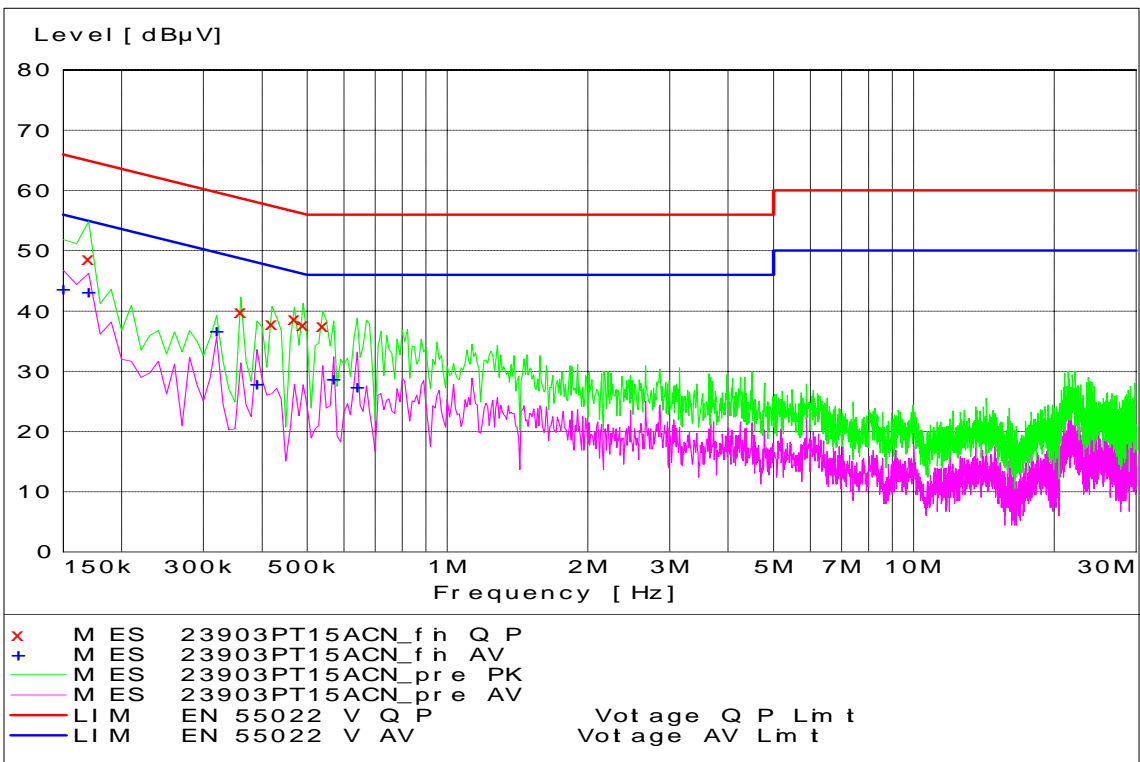
The EUT and the host equipment were setup according to the procedures in ANSI C63.4-2003. The EUT was connected to a laptop computer using a USB data cable. The USB data cable is 1 m in length. The parallel and the serial ports of the computer were populated. The EUT was communicating with the laptop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

### **Measurement Results**

See attached:



**Tx Mode - Line Coupling**



**Tx Mode - Neutral Coupling**

**End of Test Report**