



**MOBILE DEVICES BUSINESS**

**PRODUCT SAFETY AND COMPLIANCE  
EMC LABORATORY**

**EMC TEST REPORT**

**Test Report Number** – 23101-1 Supplement

**Report Date** – June 24, 2009

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 24, 2009

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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: GSM 850/900/1800/1900, EDGE Class 10, GPRS  
 Class 10, Bluetooth Class 1 Version 2.0

FCC ID : IHDP56KH1

Serial Numbers: 354647030000087

Testing Complete Date: June 12, 2009

**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 Cellular Phone hereinafter referred to as the Equipment under Test or EUT was tested using a fully charged battery.

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	1/30/2010
Rohde Schwarz	Receiver	ESI26	838786/010	5/01/2010
ETS	DRG Horn Antenna	SAS 200/571	265	4/29/2010
ETS	Log-Periodic Antenna	3148	1188	7/30/2009
ETS	Biconical Antenna	3110B	3370	7/29/2009
Attenuator	Weinschel	AS-6	6675	NCR
Attenuator	Weinschel	AS-6	6677	NCR
ETS	LISN	3810/2NM	00062907	12/10/2009
ETS	LISN	3810/2NM	00062912	12/10/2009
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.
39.24	30.71	12.85	10.9	6.9	40	9.3	114	145	VERT
71.12	31.47	15.52	8.6	7.3	40	8.5	100	178	VERT
75.28	32.97	16.65	8.9	7.4	40	7	129	254	VERT
229.08	38.84	18.42	11.9	8.6	46	7.2	150	231	HORI
320.64	44.72	20.55	15.1	9.0	46	1.3	100	261	HORI
352.68	38.44	13.80	15.4	9.2	46	7.6	100	257	HORI
366.44	40.80	15.95	15.6	9.3	46	5.2	187	183	VERT
932.52	35.03	-0.51	24.2	11.3	46	11	191	58	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.
1126.3	31.52	34.96	23.8	27.2	54	22.5	146	107	VERT
1130.2	36.35	39.76	23.8	27.2	54	17.7	208	332	VERT
1329.3	29.79	32.02	24.5	26.7	54	24.2	191	267	VERT
1860.0	33.89	31.37	27.7	25.2	54	20.1	100	136	HORI

Peak Radiated Data for Emissions Above 1GHz

Frequency MHz	Level dBµV/m	Angle deg	Height cm	Pol.
1124.29	47.05	105	100	VER
1126.25	49.22	107	100	VER
1128.26	46.67	107	100	VER
1130.26	49.32	336	200	VER
1132.26	43.39	122	100	VER
1328.66	41.60	59	200	VER
1330.66	45.31	267	200	VER
1859.72	47.19	114	100	HOR
1861.72	45.53	83	200	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  $\Omega$ .

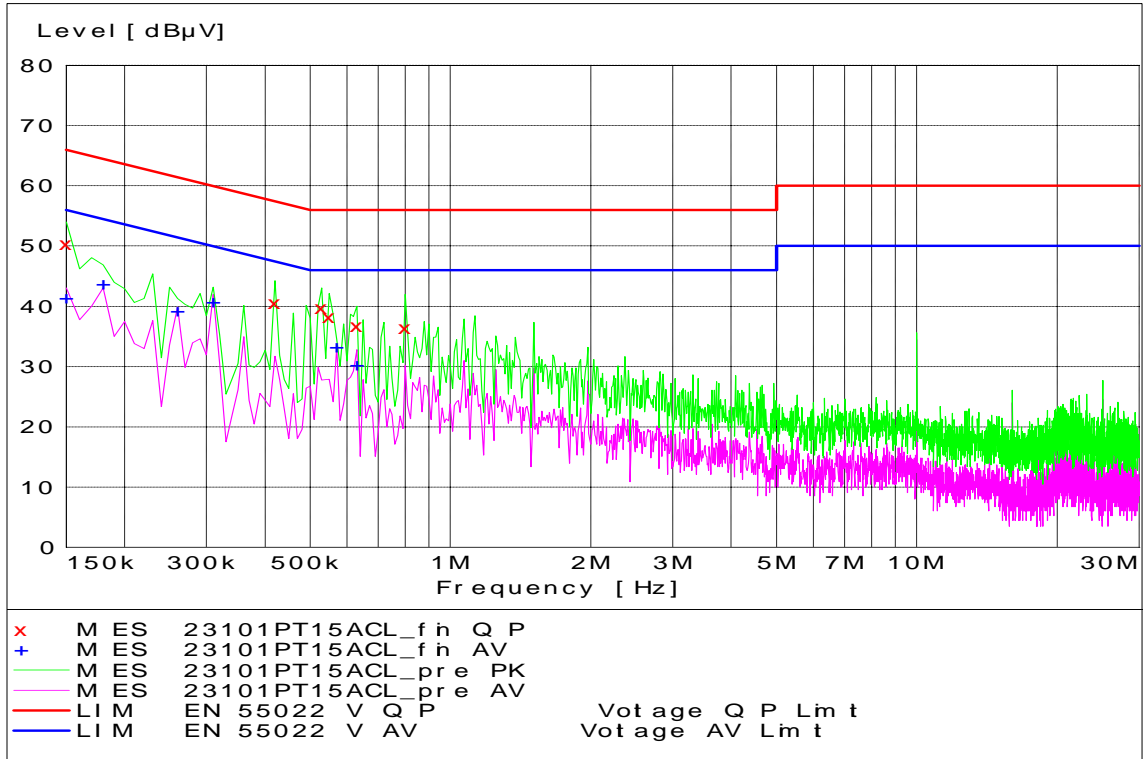
Detectors - Quasi Peak and Average Detector

### **Test Setup**

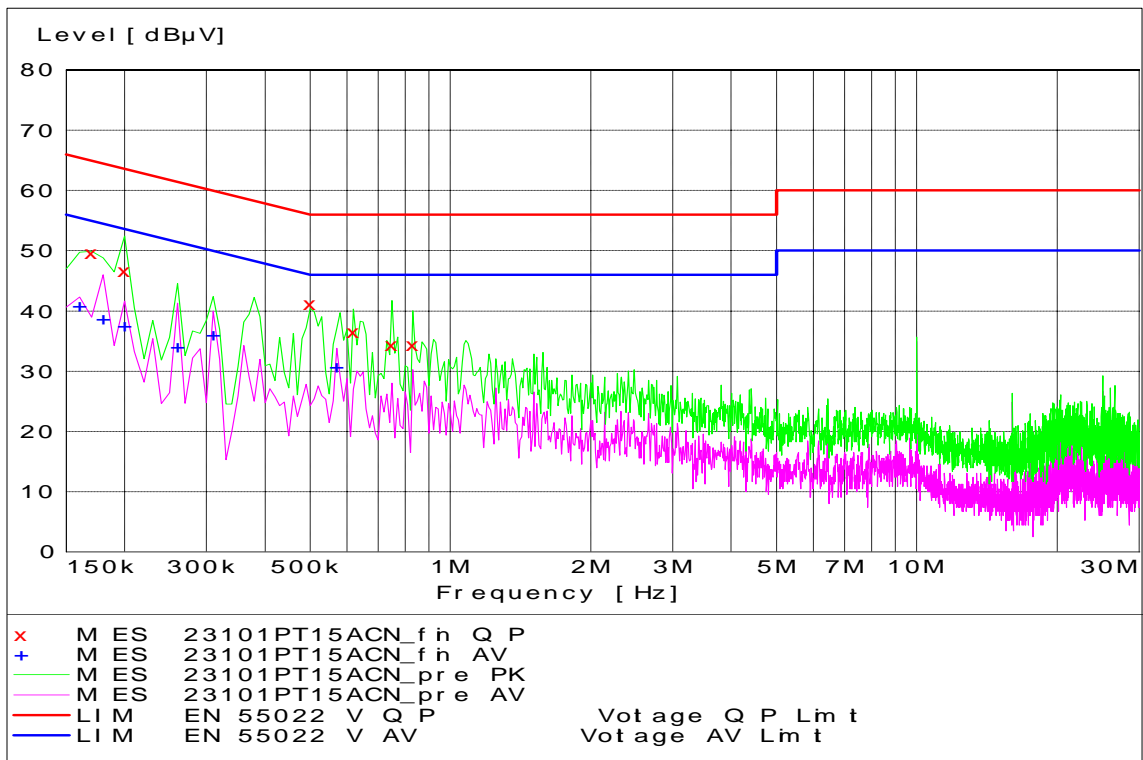
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### **Measurement Results**

See attached:



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



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

**End of Test Report**