



MOBILE DEVICES BUSINESS

**PRODUCT SAFETY AND COMPLIANCE
EMC LABORATORY**

EMC TEST REPORT

Test Report Number – 21390-1

Report Date – December 4, 2007

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: December 4, 2007

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 |
| Spurious Emissions at Antenna Terminals | 6 |
| Measurement results | 6 |
| Field Strength of Spurious Emissions | 9 |
| Measurement results | 9 |

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

FCC ID: IHDT56GR1

Serial Numbers: 010995000018753, 010995000018779

Testing Complete Date: December 3, 2007

Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

- X Part 22 Subpart H - Public Mobile Services
- X Part 24 Subpart E – Personal Communications Services

Applicable Standards: ANSI 63.4 2003, ANSI/TIA-603-C-2004

Summary of Testing

| Test # | Test Name | Pass/Fail |
|--------|--|-----------|
| 1 | Spurious Emissions at Antenna Terminal | Pass |
| 2 | Field Strength of Spurious Emissions | Pass |

| Test # | Test Name | Margin with respect to the Limit |
|--------|--|----------------------------------|
| 1 | Spurious Emissions at Antenna Terminal | See results |
| 2 | Field Strength of Spurious 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 when applicable. Where a battery could not be used due to the need for a controlled variation of input voltage, an external power supply was utilized.

All testing was done in an indoor controlled environment with an average temperature of 22° C and relative humidity of 50%.

Equipment and Cable Configurations

The EUT was tested in a stand-alone configuration that is representative of typical use.

| Manufacturer | Equipment Type | Model No. | Serial Number | Calibration Due Date |
|---------------------|-----------------------|------------------|----------------------|-----------------------------|
| Rohde Schwarz | Receiver | ESI26 | 838786/010 | 3/19/2008 |
| Rohde Schwarz | Receiver | ESI26 | 100001 | 5/02/2008 |
| Hewlett Packard | EMC Analyzer | E7405 | US39440191 | 1/24/2008 |
| Hewlett Packard | Signal Generator | 83712A | 3429A00286 | 6/19/2009 |
| ETS | Horn Antenna | 3115 | 6222 | 3/21/2008 |
| A.H. Systems | DRG Horn Antenna | SAS 200/571 | 365 | 5/24/2008 |
| ETS | Log-Periodic Antenna | 3148 | 1188 | 6/18/2008 |
| ETS | Biconical Antenna | 3110B | 3370 | 3/15/2008 |
| Attenuator | Weinschel | AS-6 | 6675 | 1/31/2008 |
| Attenuator | Weinschel | AS-6 | 6677 | 6/21/2008 |

Measurement Procedures and Data

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Measurement Procedure

The RF output port of the Equipment Under Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

The spectrum was investigated from the lowest frequency signal generated, without going below 9 kHz, up to at least the tenth harmonic of the fundamental or 40 GHz, whichever is lower.

The spectrum analyzer settings were as follows:

| | |
|-----------------------|---------------|
| Units | dBm |
| Divisions | 10 dB |
| Detector | Peak Detector |
| Resolution Bandwidth | 1 MHz |
| Video Bandwidth (AVG) | Auto |
| Sweep Time | Auto |

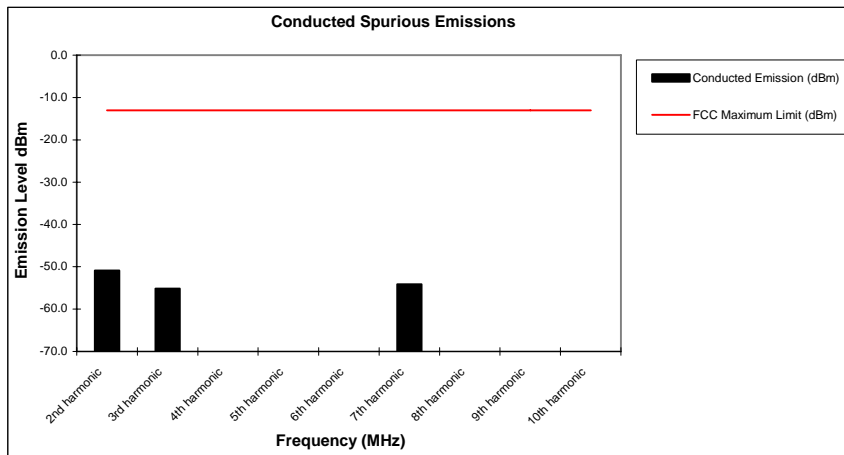
Measurement Results

Attached

Measurement Results
Modulation: GSM 850

Conducted Spurious and Harmonic Emissions

| Harmonic of Fundamental | FCC Maximum Limit (dBm) | Conducted Emission (dBm) |
|-------------------------|-------------------------|--------------------------|
| 2nd harmonic | -13 | -50.9 |
| 3rd harmonic | -13 | -55.2 |
| 4th harmonic | -13 | * |
| 5th harmonic | -13 | * |
| 6th harmonic | -13 | * |
| 7th harmonic | -13 | -54.1 |
| 8th harmonic | -13 | * |
| 9th harmonic | -13 | * |
| 10th harmonic | -13 | * |



Notes:

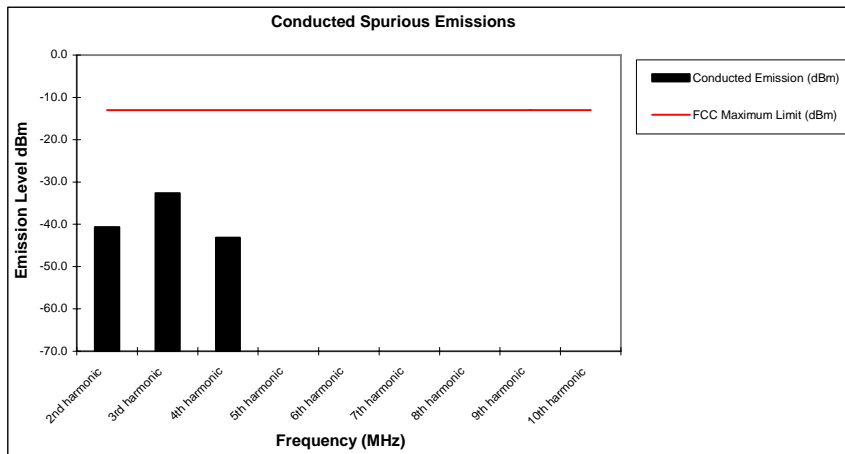
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 9 kHz to the tenth harmonic of the fundamental.

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results
Modulation: GSM 1900

Conducted Spurious and Harmonic Emissions

| Harmonic of Fundamental | FCC Maximum Limit (dBm) | Conducted Emission (dBm) |
|-------------------------|-------------------------|--------------------------|
| 2nd harmonic | -13 | -40.7 |
| 3rd harmonic | -13 | -32.7 |
| 4th harmonic | -13 | -43.1 |
| 5th harmonic | -13 | * |
| 6th harmonic | -13 | * |
| 7th harmonic | -13 | * |
| 8th harmonic | -13 | * |
| 9th harmonic | -13 | * |
| 10th harmonic | -13 | * |



Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 9 kHz to the tenth harmonic of the fundamental.

The margin with respect to the limit is the minimum margin for all modes and bands.

FIELD STRENGTH OF SPURIOUS EMISSIONS

Measurement Procedure

The equipment under test is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The equipment under test is then replaced with a substitution antenna fed by a signal generator. With the signal generator tuned to a particular spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters to obtain a maximum reading at the spectrum analyzer. The output of the signal generator is then adjusted until a reading identical to that obtained with the actual transmitter is achieved.

The power in dBm of each spurious emission is calculated by correcting the signal generator level for cable loss and gain of the substitution antenna referenced to a dipole. A fully charged battery was used for the supply voltage.

The settings of the receiver were as follows:

| | |
|-----------------------|---------------|
| Units | dBm |
| Divisions | 5 dB |
| Detector | Peak Detector |
| Resolution Bandwidth | 1 MHz |
| Video Bandwidth (AVG) | Auto |
| Sweep Time | Auto |

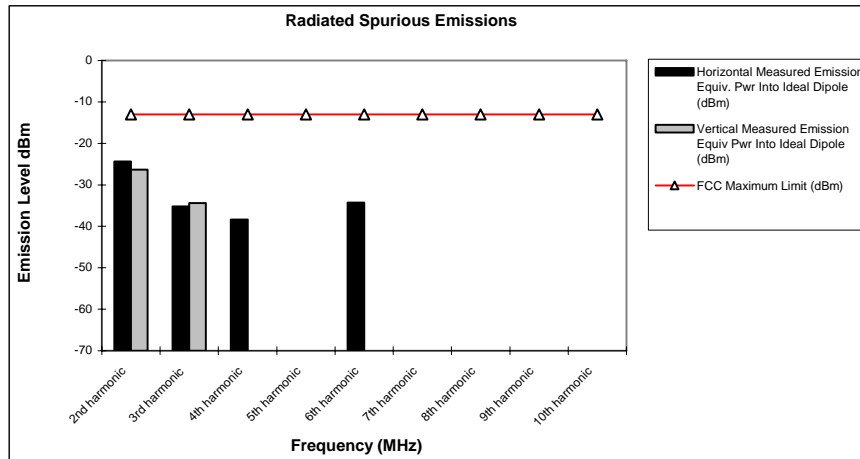
Measurement Results

Attached

Measurement Results
Modulation: GSM 850

Radiated Spurious and Harmonic Emissions

| Frequency (MHz) | FCC Maximum Limit (dBm) | Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm) | Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm) |
|-----------------|-------------------------|---|--|
| 2nd harmonic | -13 | -24.4 | -26.3 |
| 3rd harmonic | -13 | -35.2 | -34.4 |
| 4th harmonic | -13 | -38.4 | * |
| 5th harmonic | -13 | * | * |
| 6th harmonic | -13 | -34.3 | * |
| 7th harmonic | -13 | * | * |
| 8th harmonic | -13 | * | * |
| 9th harmonic | -13 | * | * |
| 10th harmonic | -13 | * | * |



Notes:

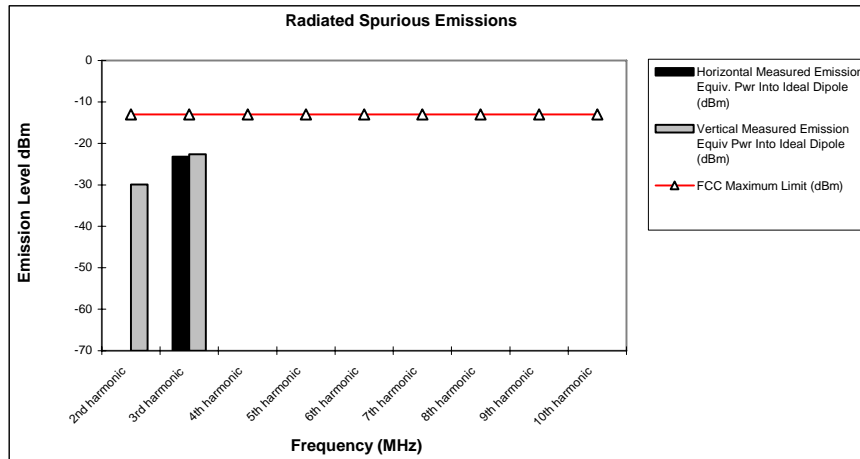
- * Indicates the spurious emission could not be detected due to noise limitations or ambients.
- Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
- The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results
Modulation: GSM 1900

Radiated Spurious and Harmonic Emissions

| Frequency (MHz) | FCC Maximum Limit (dBm) | Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm) | Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm) |
|-----------------|-------------------------|---|--|
| 2nd harmonic | -13 | * | -29.9 |
| 3rd harmonic | -13 | -23.2 | -22.6 |
| 4th harmonic | -13 | * | * |
| 5th harmonic | -13 | * | * |
| 6th harmonic | -13 | * | * |
| 7th harmonic | -13 | * | * |
| 8th harmonic | -13 | * | * |
| 9th harmonic | -13 | * | * |
| 10th harmonic | -13 | * | * |



Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

The margin with respect to the limit is the minimum margin for all modes and bands.

End of Test Report