

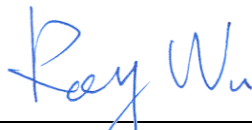
Variant FCC RF Test Report

APPLICANT : Motorola Mobility, Inc.
EQUIPMENT : GSM / EGPRS Mobile Phone
BRAND NAME : Motorola
MODEL NAME : EX223
GPPD NUMBER : 3034
FCC ID : IHDT56MK1
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Spread Spectrum (DSS)

This is a variant report which is only valid together with the original test report. The product was received on Mar. 29, 2011 and completely tested on Apr. 07, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Roy Wu / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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APPENDIX A. PRODUCT EQUALITY DECLARATION

APPENDIX B. ORIGINAL REPORT



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 16.3 dB at 0.15 MHz



1 General Description

1.1 Applicant

Motorola Mobility, Inc.

No. 1, Wang Jing East Road, Chao Yang District Beijing, China 100102

1.2 Manufacturer

Arima Communications Corp.

6F., No. 866, Jhongjheng Rd., Jhonghe Dist., New Taipei City 23586, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	GSM / EGPRS Mobile Phone
Brand Name	Motorola
Model Name	EX223
FCC ID	IHDT56MK1
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Channel Spacing	1 MHz
Antenna Type	PIFA Antenna with gain 0.93 dBi
HW Version	P2
SW Version	BREA_G_02.0B.00R_D
Type of Modulation	Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π /4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK
EUT Stage	Production Unit

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Spread Spectrum (DSS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978
Test Site No.	Sporton Site No. CO05-HY

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC Public Notice DA 00-705
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issue 8

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A

2 Test Configuration of Equipment Under Test

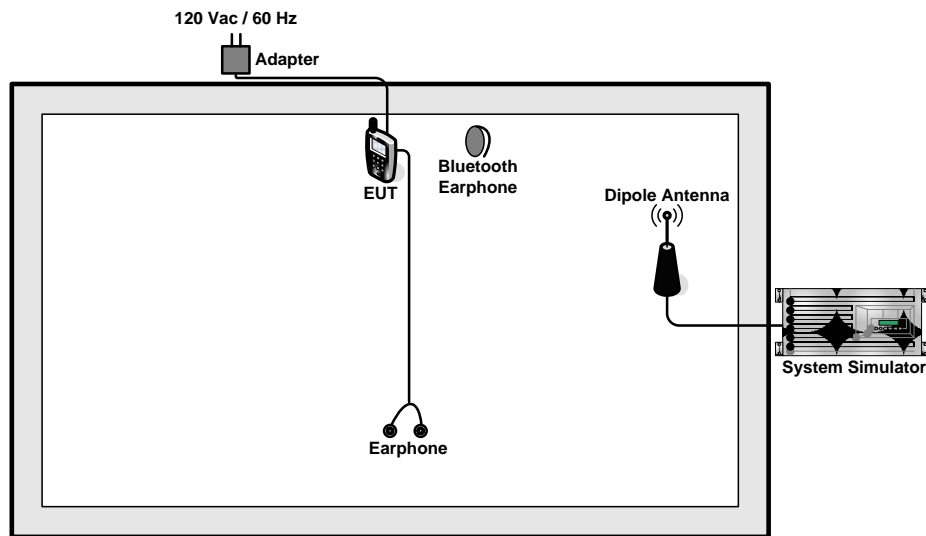
2.1 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz).

The following tables are showing the test modes as the worst cases and recorded in this report.

Test Item	Test Cases
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + Earphone + Camera + Adapter

2.2 Connection Diagram of Test System



3 Test Result

3.1 AC Conducted Emission Measurement

3.1.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

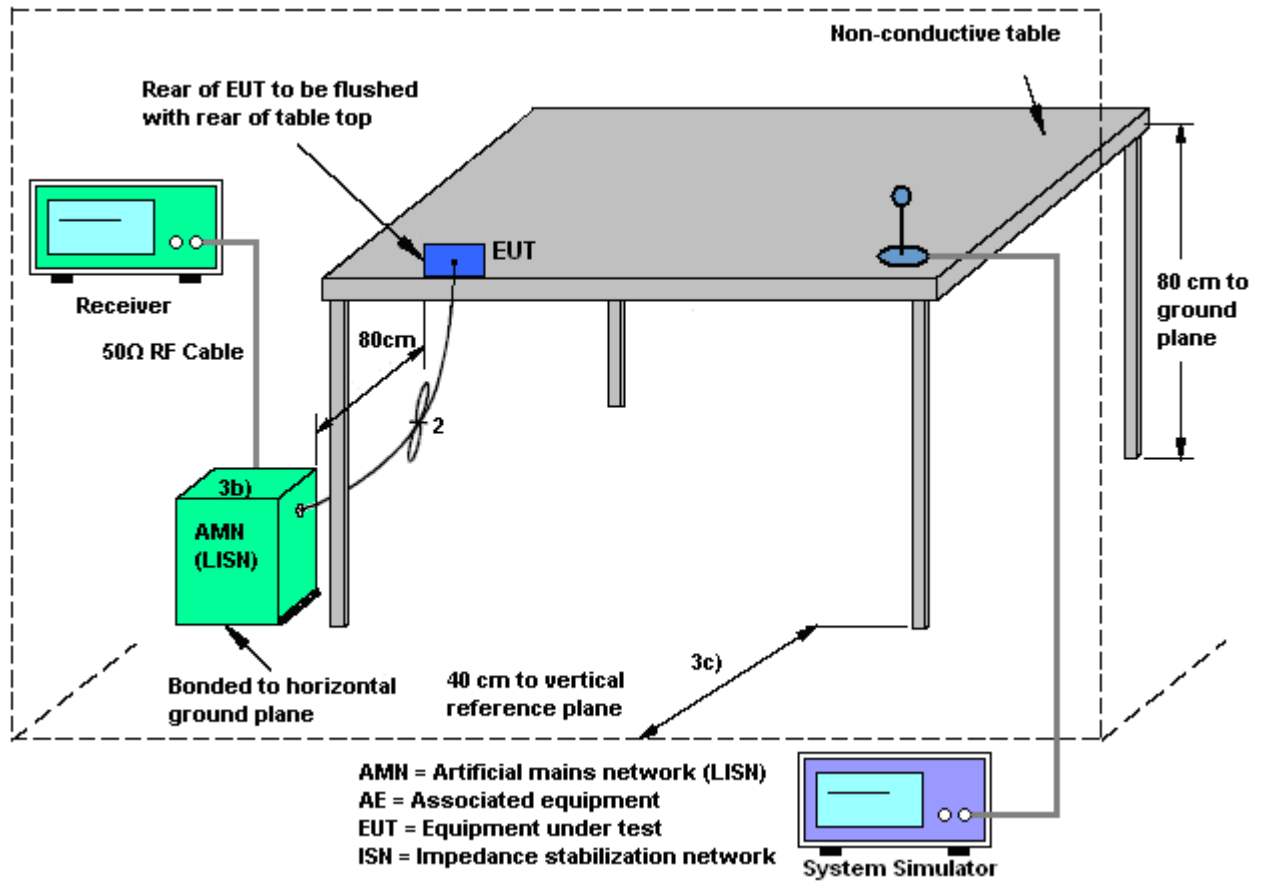
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

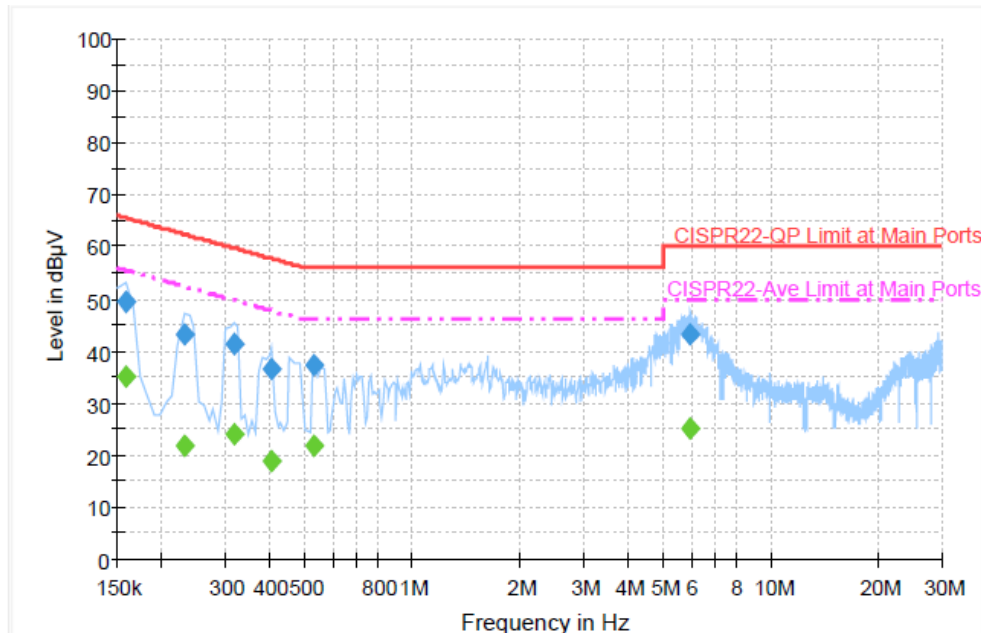
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
1. Connect EUT to the power mains through a line impedance stabilization network (LISN).
2. All the support units are connecting to the other LISN.
3. The LISN provides 50 ohm coupling impedance for the measuring instrument.
4. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
5. Both sides of AC line were checked for maximum conducted interference.
6. The frequency range from 150 kHz to 30 MHz was searched.
7. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.1.4 Test Setup



3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + Earphone + Camera + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



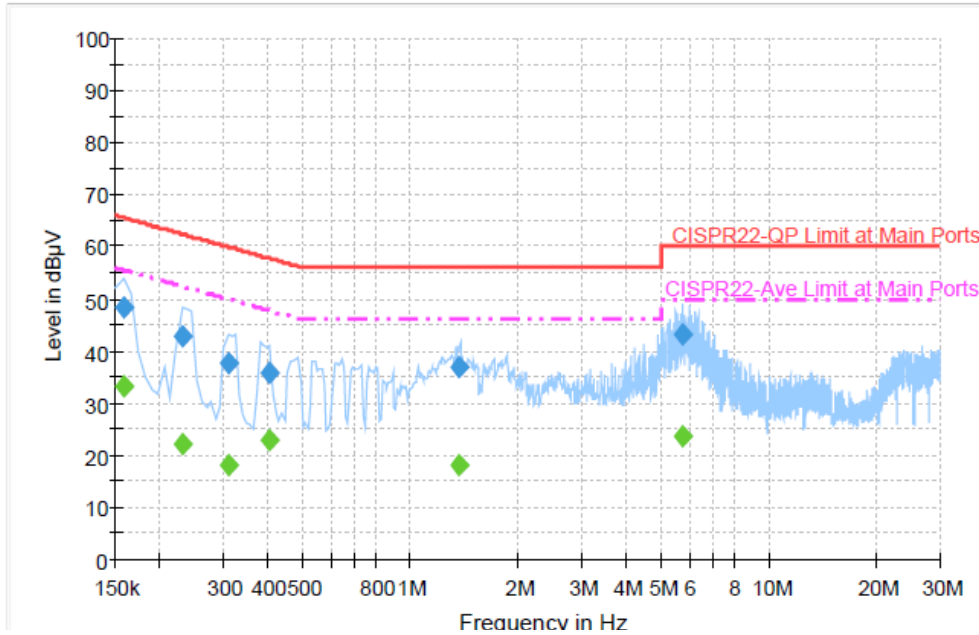
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	49.3	Off	L1	19.4	16.3	65.6
0.230000	43.2	Off	L1	19.4	19.2	62.4
0.318000	41.2	Off	L1	19.4	18.6	59.8
0.406000	36.6	Off	L1	19.5	21.1	57.7
0.534000	37.3	Off	L1	19.4	18.7	56.0
5.966000	43.1	Off	L1	19.5	16.9	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	34.9	Off	L1	19.4	20.7	55.6
0.230000	21.7	Off	L1	19.4	30.7	52.4
0.318000	24.1	Off	L1	19.4	25.7	49.8
0.406000	19.0	Off	L1	19.5	28.7	47.7
0.534000	21.6	Off	L1	19.4	24.4	46.0
5.966000	25.2	Off	L1	19.5	24.8	50.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + Earphone + Camera + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	48.5	Off	N	19.4	17.1	65.6
0.230000	43.0	Off	N	19.5	19.4	62.4
0.310000	37.6	Off	N	19.4	22.4	60.0
0.406000	35.8	Off	N	19.5	21.9	57.7
1.366000	36.9	Off	N	19.5	19.1	56.0
5.758000	43.3	Off	N	19.5	16.7	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	33.2	Off	N	19.4	22.4	55.6
0.230000	22.1	Off	N	19.5	30.3	52.4
0.310000	18.3	Off	N	19.4	31.7	50.0
0.406000	22.9	Off	N	19.5	24.8	47.7
1.366000	18.2	Off	N	19.5	27.8	46.0
5.758000	23.6	Off	N	19.5	26.4	50.0



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	116457	N/A	Jun. 08, 2009	Jun. 07, 2011	Conduction (CO05-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

Appendix A. Product Equality Declaration



Arima Communications Corp.
6F., No.866, Jhongheng Rd.,
Jhonghe Dist., New Taipei
City 23586, Taiwan.
<http://www.arimacomm.com.tw>

Date: 2011/4/11

GSM/GPRS Mobile phone

Subject: Product Equality Declaration

(Declaration of equality of a product variant with a previously assessed original product. To be signed in the name of the company that is responsible for the product variant.)

We, **Arima Communications Corp.** declare on our sole responsibility for the product of EX223(model name) as below:

The difference between EX223 and EX118 is:

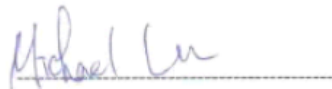
- EX118:single sim wifi
- EX223:dual sim without Wifi

Except Listings above, the others are the same as previous version.

Should you have any questions or comments regarding this matter, please have my best attention.

Sincerely yours,

Signature



Michael Lu / Manager (Date: Apr 11, 2011)

Company: Arima Communications Corp.

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Appendix B. Original Report

Please refer to Sporton report number FR132917A as below.