

EMI Test Report

Tested in accordance with
Federal Communications Commission (FCC)
Personal Communications Services
CFR 47, Part 15 Subpart C
&
Industry Canada (IC) RSS-210, RSS-GEN



A division of Research In Motion Limited

REPORT NO.: RTS-2474-1003-35

PRODUCT MODEL NO.: RCX72UW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARCX70UW
IC: 2503A-RCX70UW

DATE: 26 March, 2010

 RIM Testing Services	EMI Test Report for the BlackBerry® smartphone Model RCX72UW	
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Statement of Performance:

The BlackBerry® smartphone, model RCX72UW, part number CER-31369-001 Rev. 1, and its accessories perform within the requirements of the test standards when configured and operated under RIM's operation instructions.

Declaration:

We hereby certify that:

The test data reported herein is an accurate record of the performance of the sample(s) tested.

The test results are valid for the tested unit (s) only.

The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating parameters.

The test methods were consistent with the methods described in the relevant standards.

Documented by:



Michael Cino
Regulatory Compliance Associate
Date: March 26, 2010

Reviewed by:



Maurice Battler
Compliance Specialist
Date: March 26, 2010

Reviewed and Approved by:



Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance
Date: March 26, 2010

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A. Scope

This report details the results of compliance tests which were performed in accordance to the requirements of:

- o FCC CFR 47 Part 15, Subpart C, October, 2009
- o Industry Canada, RSS-210, Issue 7, June 2007, Low Power Licence-Exempt Radiocommunication Devices
- o Industry Canada, RSS-GEN, Issue 2, June 2007, General Requirements and Information for the Certification of Radiocommunication Equipment

B. Associated Documents

1. RTS-2474-1001-38
2. RCX71UW_72UW_kbd_differences_document

C. Product Identification

Manufactured by Research In Motion Limited whose headquarters is located at:

295 Phillip Street
Waterloo, Ontario
Canada, N2L 3W8
Phone: 519 888 7465
Fax: 519 888 6906

The equipment under test (EUT) was tested at the following locations:

RIM Testing Services EMI test facilities	
305 Phillip Street	440 Phillip Street
Waterloo, Ontario	Waterloo, Ontario
Canada, N2L 3W8	Canada, N2L 5R9
Phone: 519 888 7465	Phone: 519 888 7465
Fax: 519 888 6906	Fax: 519 888 6906

The testing was performed from March 11 and 23, 2010.

The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN
1	RCX72UW	CER-31369-001 Rev. 1	21F2591A
2	RCX72UW	CER-31369-001 Rev. 1	21F2589F

Samples 1 and 2 were used for Bluetooth Radiated Emissions testing.

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D. Support Equipment Used for the Testing of the EUT

No support equipment used. See section G. *Compliance Test Equipment Used*.

E. Test Results Chart

SPECIFICATION		TEST TYPE	Meets Requirements	TEST DATA
FCC CFR 47	IC			APPENDIX
Part 15.207	RSS-210 RSS-GEN	Conducted AC Line Emission	See Test Report Number RTS-2474-1001-38	1
Part 15.209 Part 15.247	RSS-210 RSS-GEN	BT Radiated Spurious Emissions and Radiated Band Edge Compliance	Pass	2
Part 15.209 Part 15.247	RSS-210 RSS-GEN	802.11 b/g/n Radiated Spurious Emissions and Radiated Band Edge Compliance	See Test Report Number RTS-2474-1001-38	2
Part 15.247(a)	RSS-210	BT, 20 dB Bandwidth	See Test Report Number RTS-2474-1001-38	3
Part 15.247(a)	RSS-210	BT, Carrier Frequency Separation	See Test Report Number RTS-2474-1001-38	3
Part 15.247(a)	RSS-210	BT, Number of Hopping Frequencies	See Test Report Number RTS-2474-1001-38	3
Part 15.247(a)	RSS-210	BT, Time of Occupancy (Dwell Time)	See Test Report Number RTS-2474-1001-38	3
Part 15.247(b)	RSS-210	BT, Maximum Peak Conducted Output Power	See Test Report Number RTS-2474-1001-38	3
Part 15.247(c)	RSS-210	BT, Band-Edge Compliance of RF Conducted Emissions	See Test Report Number RTS-2474-1001-38	3
Part 15.247(c)	RSS-210	BT, Spurious RF Conducted Emissions	See Test Report Number RTS-2474-1001-38	3
Part 15.247(b)	RSS-210	802.11b/g/n, 6 dB Bandwidth	See Test Report Number RTS-2474-1001-38	4
Part 15.247(b)	RSS-210	802.11b/g/n, Maximum Conducted Output Power	See Test Report Number RTS-2474-1001-38	4
Part 15.247(b)	RSS-210	802.11b/g/n, Band-Edge	See Test Report Number RTS-2474-1001-38	4
Part 15.247(b)	RSS-210	802.11b/g/n, Peak Power Spectral Density	See Test Report Number RTS-2474-1001-38	4
Part 15.247(b)	RSS-210	802.11b/g/n, Spurious RF Conducted Emissions	See Test Report Number RTS-2474-1001-38	4

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F. Summary of Results

1) RADIATED EMISSIONS

a) Radiated Spurious and Harmonic Emissions

The EUT was placed on a nonconductive styrofoam table, 80 cm high that was positioned on a remotely controlled turntable. The test distance used between the EUT and the receiving antenna was three metres. The turntable was rotated to determine the azimuth of the peak emissions. Then the emissions were maximized by elevating the antenna in the range of 1 to 4 metres. The maximum emission level was recorded. The frequency range measured was from 30 MHz to 25.0 GHz. Both the horizontal and vertical polarizations of the emissions were measured.

The measurements were done in a semi-anechoic chamber (SAC) below 1 GHz and a fully-anechoic room (FAR) above 1 GHz. The SAC's FCC registration number is **778487** and the Industry Canada (IC) file number is **2503B-1**. The FAR's FCC registration number is **959115** and the IC file number is **2503C-1**.

The EUT was configured and operated to produce the maximum radiated emissions while still keeping within RIM's specifications.

The BlackBerry® smartphone was measured in standalone configuration with Bluetooth transmitting in single frequency mode at low channel (0), middle channel (39) and high channel (78) for packet type "DH5", "2-DH5" and "3-DH5". The system's radiated emission levels were compared with respect to the FCC CFR 47 Part 15, Subpart C, 15.247 and RSS-210.

The Bluetooth harmonics were investigated up to the 10th harmonic. All harmonic and spurious emissions were observed to be in the noise floor.

Measurement Uncertainty ± 4.6 dB

See APPENDIX 2 for the test data

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G. Compliance Test Equipment Used

<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>SERIAL NUMBER</u>	<u>CAL DUE DATE</u> (YY MM DD)	<u>USE</u>
Hybrid Log Antenna	EMC Automation	HLP-3003C	017401	10-09-26	Radiated Emissions
Horn Antenna	CMT	LHA 0180	R52734-001	12-01-21	Radiated Emissions
Horn Antenna	ETS-Lindgren	3117	47563	11-07-15	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA4-SP	001	10-05-08	Radiated Emissions
Preamplifier	Sonoma	310N/11909A	185831	10-11-14	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	10-03-31	Radiated Emissions
Environment Monitor	Control Company	1870	230355190	11-01-08	Radiated Emissions
EMC Analyzer	Agilent	E7405A	US40240226	10-12-10	Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT35	100368	10-11-25	Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT35	100370	10-11-26	Radiated Emissions
Digital Multimeter	Hewlett Packard	34401A	US36042324	10-10-08	Conducted/Radiated Emissions
Environment Monitor	Control Company	1870	230355159	11-01-08	Radiated Emissions

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APPENDIX 1 – BLUETOOTH AND 802.11b/g/n RADIATED EMISSIONS TEST DATA

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Radiated Emissions Test Results
Bluetooth Band

Date of Test: March 11, 2010

Measurements were performed by Fahd Faisal.

The environmental test conditions were: Temperature: 23 °C
Pressure: 1007 mb
Relative Humidity: 23 %

The test distance was 3.0 metres with a EUT height of 0.8 metres, sweep frequency of 30 MHz to 1 GHz.

The BlackBerry® smartphone in Bluetooth Tx mode was in vertical, upside down position.

The frequency sweep measurements were performed in single frequency mode on channels 0, 39 and 78 using packet types “DH5”, “2-DH5” and “3-DH5”.

All emissions had a test margin of greater than 25.0 dB.

Date of Test: March 11 and 25, 2010

Measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24 – 25 °C
Pressure: 1012 – 1013 mb
Relative Humidity: 29 – 32 %

The measurements were performed in single frequency Tx mode using packet types “DH5”, “2-DH5” and “3-DH5” on channels 0, 39 and 78. The BlackBerry® smartphone was in standalone, USB down position.

The test distance was 3.0 metres with a height of 0.8 metres, 1GHz to 25GHz.

All emissions had a test margin of greater than 25.0 dB.