

# EMI Test Report

Tested in accordance with  
Federal Communications Commission (FCC)  
Personal Communications Services  
CFR 47, Parts 15, Subpart B  
&  
Industry Canada (IC), ICES-003

## RIM Testing Services (RTS)

A division of Research In Motion Limited

**REPORT NO.:** RTS-1723-0902-12\_Rev1

**PRODUCT MODEL NO.:** RBX11BW  
**TYPE NAME:** BlackBerry® Smart Card Reader  
**FCC ID:** L6ARBX10BW  
**IC:** 2503A-RBX10BW

This Rev1 test report supersedes the previous version RTS-1723-0902-12 dated 25<sup>th</sup> February 2009.

**DATE:** 07 August, 2009

<b>RTS</b> RIM Testing Services	EMI Test Report for the BlackBerry® Smart Card Reader Model RBX11BW	
<b>Test Report No.</b> RTS-1723-0902-12_Rev1	<b>Dates of Test</b> July 03 to 06, 2009	<b>Author Data</b> Michael Cino

**Statement of Performance:**

The BlackBerry® Smart Card Reader, model RBX11BW, part number CER-24238-001 Rev. 2 and accessories when configured and operated per RIM's operation instructions, performs within the requirements of the test standards.

**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  
Compliance Specialist  
Date: 07 August, 2009

Reviewed by:



Masud S. Attayi, P.Eng.  
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Date: 07 August, 2009

Approved by:



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Director  
Date: 07 August, 2009

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## A. Scope

This report details the results of compliance tests that were performed in accordance with the requirements of:

- FCC CFR 47 Part 15, Subpart B, July 10, 2008, Class B Digital Devices, Unintentional Radiators
- IC ICES-003 Issue 4, February, 2004, Class B Digital Devices, Unintentional Radiators

## B. Associated Documents

- 1) Test Report number RTS-1723-0902-07\_Rev2.

## 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 location:

RIM Testing Services (RTS) EMI test facilities  
305 Phillip Street  
Waterloo, Ontario,  
Canada , N2L 3W8  
Phone: 519 888 7465  
Fax: 519 888 6906

The testing was performed on July 03 to 06, 2009.

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The sample EUT included:

SAMPLE	MODEL	CER NUMBER	MAC Address
1	RBX11BW	CER-24238-001 Rev 2	00255700002C

### BlackBerry® Smart Card Reader Accessories Tested

- 1) Folding Blade Charger, part number HDW-17955-001 with an output voltage of 5.0 volts dc, 700 mA with an attached USB cable with a length of 1.80 metres.
- 2) Captive Cable Charger part number HDW-17957-003 with an output voltage of 5.0 volts dc, 700 mA and attached USB cable with a lead length of 1.80 metres.
- 3) USB Data Cable, part number HDW-06610-009, 1.00 metre long.

#### **D. Support Equipment Used for the Testing of the EUT**

- 1) IBM laptop, model Thinkpad T60p, serial number 8742C2U.

#### **E. Modifications to EUT**

No modifications were required on the EUT.

#### **F. Summary of Results**

SPECIFICATION		TEST TYPE	Meets Requirement	TEST DATA APPENDIX
FCC CFR 47	IC			
Part 15, Subpart B	ICES-003	Conducted AC Line Emission	See test report RTS-1723-0902-07	-
Part 15, Subpart B	ICES-003	Radiated Unintentional Spurious Emissions	Yes	1

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a) CONDUCTED AC LINE EMISSIONS

See test report RTS-1723-0902-07\_Rev2.

b) RADIATED EMISSIONS

The radiated emissions from the EUT were measured using the methods outlined in CISPR Recommendation 22. The EUT was placed on a nonconductive styrofoam table, 80 cm high that was positioned on a remote 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 5.0 GHz. Both the horizontal and vertical polarizations of the emissions were measured.

The measurements were done in a semi-anechoic chamber (SAC). The FCC registration number is **959115** and the IC file number is **2503C-1**. The EUT was measured on the middle channel.

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

The BlackBerry® Smart Card Reader MAC Address 00255700002C was in battery charging mode for all configurations. The ac input voltage was 120V, 60Hz.

The following test configurations were measured:

- 1) The BlackBerry® smartphone in Bluetooth Tx mode was connected to the Folding Blade Charger.
- 2) The BlackBerry® smartphone in Bluetooth Tx mode was connected to the Captive Cable Charger.
- 3) The BlackBerry® smartphone in Bluetooth Tx mode was connected to the Laptop via the 1m USB cable.

The system's radiated emission levels were compared with respect to the FCC CFR 47 Part 15, Subpart B, and IC ICES-003, Class B limit.

The system met the requirements with a worst case emission test margin of 7.77 dB at 426.100 MHz using Test Configuration 3.

**Sample Calculation:**

Field Strength (dBµV/m) is calculated as follows:

FS = Measured Level (dBµV) + A.F. (dB/m) + Cable Loss (dB) - Preamp (dB) + Filter Loss (dB)

**Measurement Uncertainty ±4.6 dB**

To view the test data see APPENDIX 1.

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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>
Bluetooth Tester	Rohde & Schwarz	CBT	100370	09-12-08	Radiated Emissions
Digital Multimeter	Hewlett Packard	34401A	US36042324	09-10-01	Conducted/Radiated Emissions
EMC Analyzer	Aglient	E7405A	US40240226	09-11-17	Radiated Emissions
EMI Test Receiver	Rohde & Schwarz	ESIB 40	100255	09-12-02	Radiated Emissions
Environment Monitor	Control Company	1870	80117164	10-01-08	Radiated Emissions
Horn Antenna	Emco	3116	2538	10-09-15	Radiated Emissions
Hybrid Log Antenna	TDK	HLP-3003C	017201	09-10-24	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA4-SP	001	10-05-08	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	10-03-31	Radiated Emissions

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## APPENDIX 1 - RADIATED EMISSIONS TEST DATA



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### Radiated Emissions Test Results

The measurements were performed by: Fahd Faisal

#### Test Configuration 1

Date of test: July 06, 2009

The environmental test conditions were:

Temperature	24 °C
Pressure	1006 mb
Relative Humidity	32%

FCC CFR 47 Part 15, Subpart B and IC ICES-003, Class B

Test Distance was 3.0 metres.

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
189.700	H	1.00	353.00	Q.P.	35.08	-15.37	19.71	43.50	-23.79
202.900	V	2.02	122.00	Q.P.	32.62	-13.04	19.58	43.50	-23.92
3767.000	H	2.08	353.00	Peak	41.45	14.24	55.69	74.00	-18.31
4626.500	H	2.13	348.00	Peak	41.04	16.05	57.09	74.00	-16.91

All other emission levels had a test margin greater than 25 dB.



