

Partial 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



A division of Research In Motion Limited

REPORT NO.: RTS-2068-1009-20

PRODUCT MODEL NO.: RCL22CW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARCL20CW
IC: 2503A-RCL20CW

DATE: September 10, 2010

RIM Testing Services	EMI Test Report for the BlackBerry® smartphone Model RCL22CW	
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Statement of Performance:

The BlackBerry® smartphone, model RCL22CW, part number CER-32267-001 Rev 3 and accessories when configured and operated per RIM's operation instructions, and performs within the requirements of the test standards.

Declaration:

We hereby certify that:

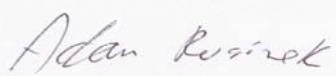
The test data reported herein is an accurate record of the performance of the sample(s) tested.

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:



Adam Rusinek
Regulatory Compliance Associate
Date: September 10, 2010

Reviewed by:



Heng Lin
Regulatory Compliance Associate
Date: September 10, 2010

Reviewed and Approved by:



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Manager, Regulatory Compliance
Date: September 10, 2010

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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, October 01, 2009 Class B Digital Devices, Unintentional Radiators
- IC ICES-003 Issue 4, February 2004, Class B Digital Devices, Unintentional Radiators

B. Associated Documents

1. 9330_RCL22CW_HW_Declaration_CER-32267_Rev3-new PA
2. RTS-2068-1007-74

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 August 10 to August 11, 2010.

The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN	Software
1	RCL22CW	CER-32267-001 Rev 3	324AD110	V. 5.0.0.782 (Platform 4.2.0.352) Bundle 1320

Radiated Emissions Testing was performed on sample 1.

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Only the characteristics that may have been impacted by the changes from Rev 2 to Rev 3 were retested. To view the differences between CER-32267-001 Rev 2 and CER-32267-001 Rev 3 see document 9330_RCL22CW_HW_Declaration_CER-32267_Rev3-new PA.

BlackBerry® smartphone Accessories Tested

- 1) Folding Blade Charger, part number HDW-17955-001 with an output voltage of 5.0 volts dc, 700 mA and attached USB cable with a lead length of 1.80 metres.
- 2) Fixed Blade Charger, part number HDW-24481-001 (Model Number: RIM-C-0004ADUUS-001), with an output voltage of 5.0 volts dc.
- 3) Alternate Fixed Blade Charger, part number HDW-24481-001 (Model Number: PSM04A-050QRIM), with an output voltage of 5.0 volts dc.
- 4) 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.
- 5) Bluetooth Headset, part number HDW-23439-001.
- 6) Premium Stereo Headset, part number HDW-15766-005, 1.3 metres long
- 7) Stereo Headset, part number HDW-14322-003 with a lead length of 1.3 metres.
- 8) Alternate Stereo Headset, part number HDW-24529-001, with a lead length of 1.1m.
- 9) USB Data Cable, part number HDW-06610-005, 1.50 metres long.
- 10) USB Data Cable, part number HDW-06610-003, 1.20 metres long.

D. Support Equipment Used for the Testing of the EUT

None support equipment required. For list of equipment refer to section H, Compliance Test Equipment Used

E. Test voltage

The ac input voltage was 120 volts, 60 Hz where applicable. This configuration was per RIM's specifications.

F. Test Result Chart

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-2068-1007-74	-

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Part 15, Subpart B	ICES-003	Radiated Unintentional Spurious Emissions	Yes	1
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G. Summary of Results

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. The FCC registration number is **778487** and the Industry Canada(IC) file number is **2503B-1**. The EUT was configured and operated to produce the maximum radiated emissions while still keeping within RIM's specifications.

The BlackBerry® smartphone was in battery charging mode for all configurations. The ac input voltage was 120V, 60Hz.

The following test configurations were measured:

Test Configuration	Operating Mode(s)	Charger + Accessories
1	CDMA CELL Idle, Audio Playback	Folding Blade Charger + Bluetooth Headset
2	CDMA PCS Idle, Video Playback	Fixed Blade Charger + 1.5m USB Cable + Premium Stereo Headset
3	CDMA CELL Idle, Audio Playback	Alternate Fixed Blade Charger + 1.2m USB Cable + Stereo Headset
4	CDMA PCS Idle	Captive Cable Charger + Alternate Stereo Headset

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 level of 28.55 dB μ V/m, or 14.95 dB margin below the limit, at 215.450 MHz in Test Configuration 4.

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Sample Calculation:

Field Strength (dB μ V/m) is calculated as follows:

FS = Measured Level (dB μ V) + 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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H. 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>
Preamplifier	Sonoma	310N/11909A	185831	10-11-14	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	10-11-06	Radiated Emissions
EMC Analyzer	Rohde & Schwarz	ESIB 40	3942A00517	10-11-30	Radiated Emissions
Digital Multimeter	Hewlett Packard	34401A	US36042324	10-10-08	Conducted/Radiated Emissions
Environment Monitor	Control Company	1870	230355190	11-01-08	Radiated Emissions
Environment Monitor	Control Company	1870	80117164	11-01-08	Conducted/Radiated Emissions
L.I.S.N.	Rohde & Schwarz	ENV216	100060	10-12-11	Conducted Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017401	10-09-11	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030101	11-03-12	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	10-11-30	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	112394	10-11-30	Radiated/Conducted Emissions
EMI Test Receiver	Rohde & Schwarz	ESU 40	100162	10-11-29	Radiated/Conducted Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100368	10-11-26	Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100370	10-11-30	Radiated/Conducted Emissions

APPENDIX 1 - RADIATED EMISSIONS TEST DATA

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Radiated Emissions Test Results

The following test were performed by Quan (Jerry) Ma

Test Configuration: 1

Date of the test: August 11, 2010

The environmental conditions were: Temperature: 24 °C
Pressure: 1008 mb
Humidity: 39 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB μ V)	Correction Factor for preamp/ antenna / cables/ filter (dB/m)	Field Strength Level (reading +corr) (dB μ V/m)	Limit @ 3.0 m (dB μ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
39.650	V	2.61	130.00	Q.P.	36.88	-21.13	15.75	40.00	-24.25
59.950	V	2.38	121.00	Q.P.	40.60	-23.00	17.60	40.00	-22.40
911.600	V	3.26	190.00	Q.P.	23.52	-1.82	21.70	46.00	-24.30

All other emission levels had test margins greater than 25 dB.

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Radiated Emissions Test Results cont'd

Test Configuration: 2

Date of the test: August 10, 2010

The environmental conditions were: Temperature: 25 °C
Pressure: 1008 mb
Humidity: 37 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB μ V)	Correction Factor for preamp/ antenna/ cables/ filter (dB/m)	Field Strength Level (reading +corr) (dB μ V/m)	Limit @ 3.0 m (dB μ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
37.650	V	1.67	308.00	Q.P.	41.18	-20.67	20.51	40.00	-19.49
79.800	V	1.51	45.00	Q.P.	45.06	-21.19	23.87	40.00	-16.13
82.200	V	1.79	43.00	Q.P.	44.50	-20.97	23.53	40.00	-16.47
83.750	V	1.43	222.00	Q.P.	40.79	-20.87	19.92	40.00	-20.08
124.150	V	1.67	69.00	Q.P.	37.75	-18.69	19.06	43.50	-24.44

All other emission levels had test margins greater than 25 dB.

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Radiated Emissions Test Results cont'd

Test Configuration: 3

Date of the test: August 11, 2010

The environmental conditions were: Temperature: 24 °C
Pressure: 1008 mb
Humidity: 39 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB μ V)	Correction Factor for preamp/ antenna/ cables/ filter (dB/m)	Field Strength Level (reading +corr) (dB μ V/m)	Limit @ 3.0 m (dB μ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
40.150	V	1.52	245.00	Q.P.	43.21	-21.22	21.99	40.00	-18.01
56.200	V	2.79	311.00	Q.P.	41.46	-23.15	18.31	40.00	-21.69
950.850	V	3.13	173.00	Q.P.	23.52	-1.23	22.29	46.00	-23.71

All other emission levels had test margins greater than 25 dB.

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Radiated Emissions Test Results cont'd

Test Configuration: 4

Date of the test: August 11, 2010

The environmental conditions were: Temperature: 25 °C
Pressure: 1008 mb
Humidity: 37 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB μ V)	Correction Factor for preamp/ antenna/ cables/ filter (dB/m)	Field Strength Level (reading +corr) (dB μ V/m)	Limit @ 3.0 m (dB μ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
65.300	V	2.14	65.00	Q.P.	43.30	-22.61	20.69	40.00	-19.31
122.600	V	1.61	27.00	Q.P.	39.76	-18.59	21.17	43.50	-22.33
206.450	H	1.62	165.00	Q.P.	41.37	-15.43	25.94	43.50	-17.56
215.450	H	1.89	185.00	Q.P.	44.67	-16.12	28.55	43.50	-14.95
224.600	H	1.12	200.00	Q.P.	44.40	-17.86	26.54	46.00	-19.46
358.700	V	1.73	67.00	Q.P.	38.71	-12.58	26.13	46.00	-19.87
1960.500	H	1.04	260.00	Q.P.	46.93	3.77	50.70	74.00	-23.30
1960.500	V	1.58	84.00	Q.P.	47.72	3.77	51.49	74.00	-22.51
3759.000	V	2.51	85.00	Q.P.	37.86	14.85	52.71	74.00	-21.29
3760.500	V	1.53	242.00	Q.P.	38.82	14.88	53.70	74.00	-20.30

All other emission levels had test margins greater than 25 dB.