

## EMI Test Report

Tested in accordance with  
Federal Communications Commission (FCC)  
Personal Communications Services  
CFR 47, Parts 15.107, 15.109  
&  
Industry Canada (IC), ICES-003



**A division of Research In Motion Limited**

**REPORT NO.:** RTS-6012-1209-04A

**PRODUCT MODEL NO.:** RFF91LW, RFK121LW

**TYPE NAME:** BlackBerry® smartphone

**FCC ID:** L6ARFF90LW, L6ARFK120LW

**IC:** 2503A-RFF90LW, 2503A-RFK120LW

**DATE:** November 12, 2012

RTS is accredited  
according to  
EN ISO/IEC 17025 by:



592

	EMI Test Report for the BlackBerry® smartphone Model RFF91LW, RFK121LW		
<b>Test Report No.</b> RTS-6012-1209-04A	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC:</b> 2503A-RFF90LW	<b>FCC ID:</b> L6ARFK120LW <b>IC:</b> 2503A-RFK120LW

### Statement of Performance:

The BlackBerry® smartphone, model RFF91LW, part number CER-48927-001 Rev 3 and accessories when configured and operated per RIM's operation instructions, and performs within the requirements of the test standards.

The BlackBerry® smartphone, model RFK121LW, part number CER-48927-001 Rev 2, 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:

---

Feras Obeid  
Regulatory Compliance Associate  
Date: November 12, 2012

Reviewed by:

---

Heng Lin  
Regulatory Compliance Specialist  
Date: November 12, 2012

Reviewed and Approved by:

---

Masud S. Attayi, P.Eng.  
Manager, Regulatory Compliance  
Date: November 13, 2012



EMI Test Report for the BlackBerry® smartphone Model RFF91LW, RFK121LW

**Test Report No.**  
RTS-6012-1209-04A

**Date of Test**

June 21-25, July 04, July 16, August 02  
October 11, October 17-18, 2012

**FCC ID:** L6ARFF90LW **IC:** 2503A-RFF90LW  
**FCC ID:** L6ARFK120LW **IC:** 2503A-RFK120LW

## Table of Contents

A. Scope .....	4
B. Associated Documents .....	4
C. Product Identification .....	4
D. Support Equipment Used for the Testing of the EUT .....	6
E. Summary of Results .....	7
F. Compliance Test Equipment Used .....	13
APPENDIX 1 - AC CONDUCTED EMISSIONS TEST DATA .....	14
APPENDIX 2 - RADIATED EMISSIONS TEST DATA.....	35

 <p>EMI Test Report for the BlackBerry® smartphone Model RFF91LW, RFK121LW</p>		
<b>Test Report No.</b> RTS-6012-1209-04A	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC:</b> 2503A-RFF90LW <b>FCC ID:</b> L6ARFK120LW <b>IC:</b> 2503A-RFK120LW

## 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, 2011 Class B Digital Devices, Unintentional Radiators
- IC ICES-003 Issue 5, August 2012 , Information Technology Equipment (ITE) – Limits and methods of measurement

## B. Associated Documents

- 1) MultiSourceDeclaration\_RFF91LW\_b1845
- 2) RFF91LW\_HW\_Declaration\_CER-48927-001\_Rev2.
- 3) RFF91LW\_HW\_Declaration\_CER-48927-001\_Rev3.
- 4) BlackBerrySystemSimilarity\_RFF91LW\_RFK121LW.

## 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 on June 21-25, July 03-04 and July 16, August 02, October 11, October 17-18, 2012.

	EMI Test Report for the BlackBerry® smartphone Model RFF91LW, RFK121LW			
<b>Test Report No.</b> RTS-6012-1209-04A	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012		<b>FCC ID:</b> L6ARFF90LW <b>IC:</b> 2503A-RFF90LW	<b>FCC ID:</b> L6ARFK120LW <b>IC:</b> 2503A-RFK120LW

The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN	Software
1	RFF91LW	CER-48927-001 Rev1	2A202A6D	OS Version 127.0.1.1267 Bundle: 1267
2a	RFF91LW	CER-48927-001 Rev1	2A211CB7	OS Version 127.0.1.871 Bundle: 871
2b	RFF91LW	CER-48927-001 Rev1	2A211CB7	OS Version 127.0.1.1267 Bundle: 1267
3	RFF91LW	CER-48927-001 Rev2	2A8C6FE2	OS Version 127.0.1.1845 Bundle: 1845
4	RFF91LW	CER-48927-001 Rev3	2A91C19D	OS Version 127.0.1.1845 Bundle: 1845
5	RFK121W	CER-48927-001 Rev2	2A8C6FE2	OS Version 127.0.1.1845 Bundle: 1845

AC conducted testing was performed on sample 1.

Radiated Emissions testing was performed on sample 2a, 2b, 3, 4, and 5

To view the differences between software bundles 871 to 1845, see document MultiSourceDeclaration\_RFF91LW\_b1845.

Only the characteristics that may have been affected by the changes from RFF91LW Rev1 to RFF91LW Rev3 were re-tested.

For more details, refer to RFF91LW\_HW\_Declaration\_CER-48927-001\_Rev2 and RFF91LW\_HW\_Declaration\_CER-48927-001\_Rev3.

Only the characteristics that may have been affected by the changes from model RFF91LW to RFK121LW were re-tested. For more information, see BlackBerrySystemSimilarity\_RFF91LW\_RFK121LW.

**Test Report No.**  
RTS-6012-1209-04A**Date of Test**June 21-25, July 04, July 16, August 02  
October 11, October 17-18, 2012**FCC ID:** L6ARFF90LW **IC:** 2503A-RFF90LW  
**FCC ID:** L6ARFK120LW **IC:** 2503A-RFK120LWBlackBerry® smartphone Accessories Tested

- 1) Fixed Blade Charger Rev2, part number HDW-24481-001 (model number RIM-C-4ADUUS-001 with an output voltage of 5.0 volts dc, 750mA.
- 2) Alt. Fixed Blade Charger Rev3, part number HDW-24481-001 (model number PSM04A-050QRIM-R), with an output voltage of 5.0 volts dc, 750mA
- 3) Alt.2 Fixed Blade Charger Rev B, part number HDW-47725-001 with an output voltage of 5.0 volts dc, 850mA
- 4) Folding Blade Charger, part number HDW-34724-001 with an output voltage of 5.0 volts dc and current of 1.8 Amps
- 5) Alt. 3 Fixed Blade Charger, part number HDW-44303-001 with an output voltage of 5.0 volts dc, 550mA
- 6) World Wide Travel Charger, part number HDW 34725-001 with an output voltage of 5.0 volts, dc, 2A
- 7) Alt. World Wide Travel Charger, part number HDW-34725-002 with an output voltage of 5.0 volts, dc, 2A
- 8) Captive Cable Charger, part number HDW-17957-003 with an output voltage of 5.0 volts dc, 750 mA.
- 9) 12 V DC Charger, part number HDW-46705-001, with an output of 5 volts, 1A
- 10) Alt. 12 V DC Charger, part number HDW-46706-001, with an output of 5 volts, 1.8A
- 11) Wired Headset, part number HDW-44306-001, with a lead length of 1.1 metres
- 12) Alt. Wired Headset, part number HDW-44306-001, with a lead length of 1.1 metres
- 13) Alt.2 Wired Headset, part number HDW-44306-003, with a lead length of 1.1 metres
- 14) USB Data Cable, part number HDW-28109-003, 1.2 metre long.
- 15) USB Data Cable, part number HDW-48415-001, 1.0 metre long.
- 16) USB Y-Cable, part number HDW-19137-002, lead lengths of 26 cm and 11 cm
- 17) HDMI Cable, part number HDW 29572-001, with a lead length of 1.83m
- 18) External Battery Charger, part number HDW-50225-001.

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

- 1) IBM Thinkpad Lenovo T60p laptop, type 8742-C2U, product ID 8742C2U
- 2) Philips Monitor, type MWE12244T, product ID 2444E1SB/27

 <p>EMI Test Report for the BlackBerry® smartphone Model RFF91LW, RFK121LW</p>	
<b>Test Report No.</b> RTS-6012-1209-04A	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## E. Summary of Results

SPECIFICATION		TEST TYPE	Meets Requirement	Test Data APPENDIX
FCC CFR 47	IC			
Part 15.107	ICES-003, 6.1	Conducted AC Line Emission	Yes	1
Part 15.109	ICES-003, 6.2	Radiated Unintentional Spurious Emissions	Yes	2

	EMI Test Report for the BlackBerry® smartphone Model RFF91LW, RFK121LW	
<b>Test Report No.</b> RTS-6012-1209-04A	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC:</b> 2503A-RFF90LW <b>FCC ID:</b> L6ARFK120LW <b>IC:</b> 2503A-RFK120LW

### a) AC CONDUCTED EMISSIONS

The conducted emissions were measured using the test procedure outlined in CISPR Recommendation 22 through a 50 Ohm Line Impedance Stabilization Network (LISN), which was inserted in the power line to the equipment to provide the specified impedance for measurements. The EUT was placed on a nonconductive wooden table, 80 cm high that was positioned 40 cm from a vertical ground plane. The RF output of the network was connected to an EMI receiver system with characteristics that duplicate those of the receiver specified in CISPR Publication 16. BlackBerry® smartphone was in battery charging mode. The input voltage was 120 V, 60 Hz.

The following test configurations were measured for model RFF91LW:



<b>Test Report No.</b> RTS-6012-1209-04A	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC:</b> 2503A-RFF90LW <b>FCC ID:</b> L6ARFK120LW <b>IC:</b> 2503A-RFK120LW
---	---	--

Test Configuration	Operating Mode(s)	Charger + Accessories
1	GSM 850 Idle, Charging and Audio Playback	Fixed Blade Charger + Wired Headset + 1.2m USB Cable
2	GSM1900 Idle Charging and Video Playback	Alt. Fixed Blade Charger + Alt. Wired Headset + 1.0m USB Cable
3	UMTS Band 2 Idle, Charging with Audio Playback	Alt.3 Fixed Blade Charger + Wired Headset + 1.0m USB cable
4	UMTS Band 5 idle, Charging	World Wide Travel Charger + Alt. Wired Headset + USB Y Cable + External Battery Charger
5	UMTS Band 2 HDSPA+ Idle, Charging	Alt. World Wide Travel Charger+ Wired Headset
6	UMTS Band 5 HDSPA+ idle, Charging with Video Playback	Captive Cable Charger + Alt. Wired Headset
7	LTE Band 5 Idle, Charging with Video Playback	Wired Headset + 1.0m USB Cable + Laptop
8	LTE Band 17 Idle, Charging	Alt. Fixed Blade Charger + Alt. Wired Headset + 1.2m USB Cable
9	UMTS 5 Idle, Charging	World Wide Travel Charger + Wired Headset + HDMI Cable+ Monitor

The sample EUT's conducted emissions were compared with respect to the FCC CFR 47 Part 15.107, Class B limit and IC ICES-003, 6.1 Table 2. The sample EUT had a worst case test margin of 7.90 dB below the QP limit at 1.050 MHz using the quasi-peak detector in Test Configuration 3 and a test margin of 4.91 dB below the AV limit at 0.713 MHz using the average detector in Test Configuration 9.

#### Measurement Uncertainty $\pm 3.2$ dB

To view the test data/plots, see APPENDIX 1.



<b>Test Report No.</b> RTS-6012-1209-04A	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC:</b> 2503A-RFF90LW <b>FCC ID:</b> L6ARFK120LW <b>IC:</b> 2503A-RFK120LW
---	---	--

## 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 radiated emissions were measured up to the fifth harmonic of the highest frequency of the band tested. 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.

Test Configuration	Operating Mode(s)	Charger + Accessories
1	GSM 850 Idle, Charging and Audio Playback	Fixed Blade Charger + Wired Headset + 1.2m USB Cable
2	GSM1900 Idle Charging and Video Playback	Alt. Fixed Blade Charger + Alt. Wired Headset + 1.0m USB Cable
3	Bluetooth Tx, Charging and Audio Playback	Alt.2 Fixed Blade Charger + Wired Headset + 1.2m USB Cable
4	802.11b Tx, Charging and Video Playback	Folding Blade Charger + Alt. Wired Headset
5	UMTS Band 2 Idle, Charging and Audio Playback	Alt.3 Fixed Blade Charger + Wired Headset + 1.0m USB Cable
6	UMTS Band 5 idle, Charging	World Wide Travel Charger + Alt. Wired Headset + Y-Cable + External Battery Charger
7	UMTS Band 2	Alt. World Wide Travel



<b>Test Report No.</b> RTS-6012-1209-04A	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC:</b> 2503A-RFF90LW <b>FCC ID:</b> L6ARFK120LW <b>IC:</b> 2503A-RFK120LW
---	---	--

	HSPDA+ Idle, Charging	Charger+ Wired Headset
8	UMTS Band 5 HSDPA+ Idle, Charging and Video Playback	Captive Cable Charger + Alt. Wired Headset + HDMI Cable + Monitor
9	LTE Band 5 Idle, Charging and Video Playback	Wired Headset + 1.0m USB Cable + Laptop
10	LTE Band 17 Idle, Charging	Alt. Fixed Blade Charger + Alt. Wired Headset + 1.2m USB Cable
11	UMTS Band 2 HSPDA+ Idle, Charging and Audio Playback	Folding blade Charger + Wired Headset
12	UMTS Band 5 HSDPA+ Idle, Charging and Video Playback	Captive Cable Charger + Alt.2 Wired Headset
13	LTE Band 2 Idle, Charging	12 V DC Charger +Wired Headset+ 1.2m USB Cable+ DC Battery
14	LTE Band 4 idle, Charging with Audio Playback	Alt. 12 V DC Charger + Alt. Wired Headset +DC Battery
15	UMTS 4 HSDPA+ Idle, Charging with Audio Playback	Folding Blade Charger + Wired Headset

The system's radiated emission levels were compared with respect to the FCC CFR 47 Part 15.109, Class B limit and IC ICES-003 6.2 Table 5 and Table 7.

The system met the requirements with a worst case emission test margin of 4.45 dB below the QP limit at 31.533 MHz using quasi-peak detector in Test Configuration 14.

To view the test data see APPENDIX 2.

### **Sample Calculation:**

Field Strength (dB $\mu$ V/m) is calculated as follows:

FS = Measured Level (dB $\mu$ V) + A.F. (dB/m) + Cable Loss (dB) - Preamp (dB) + Filter Loss (dB)



EMI Test Report for the BlackBerry® smartphone Model RFF91LW, RFK121LW

**Test Report No.**  
RTS-6012-1209-04A

**Date of Test**

June 21-25, July 04, July 16, August 02  
October 11, October 17-18, 2012

**FCC ID:** L6ARFF90LW **IC:** 2503A-RFF90LW  
**FCC ID:** L6ARFK120LW **IC:** 2503A-RFK120LW

**Measurement Uncertainty  $\pm 4.5$  dB**



EMI Test Report for the BlackBerry® smartphone Model RFF91LW, RFK121LW

<b>Test Report No.</b> RTS-6012-1209-04A	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC:</b> 2503A-RFF90LW <b>FCC ID:</b> L6ARFK120LW <b>IC:</b> 2503A-RFK120LW
---	---	--

## F. Compliance Test Equipment Used

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Preamplifier	Sonoma	310N/11909A	185831	13-10-10	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	13-10-10	Radiated Emissions
EMC Analyzer	Rohde & Schwarz	ESIB 40	100255	12-12-08	Radiated Emissions
Digital Multimeter	Hewlett Packard	34401A	US36042324	12-11-16	Conducted/Radiated Emissions
Environment Monitor	OMEGA	iTHX-SD	0380561	13-10-30	Radiated Emission
Environment Monitor	OMEGA	iTHX-SD	0380567	13-10-30	Radiated Emission
L.I.S.N.	Rohde & Schwarz	ENV216	100060	13-10-25	Conducted Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017401	13-08-23	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030101	14-07-08	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	12-11-30	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	112394	12-11-30	Radiated/Conducted Emissions
EMI Test Receiver	Rohde & Schwarz	ESU 40	100162	12-12-07	Radiated/Conducted Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100368	12-11-30	Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100370	12-11-30	Radiated/Conducted Emissions

This report shall NOT be reproduced except in full without the written consent of RIM Testing Services  
- A division of Research in Motion Limited.

	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 1</b>	
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC :</b> 2503A-RFF90LW

## APPENDIX 1 - AC CONDUCTED EMISSIONS TEST DATA

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 1</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11; October 17-18, 2012

## AC Conducted Emissions Test Results

The following tests were performed by Shuo Wang.

## Test Configuration 1

Date of the test: July 03, 2012

The environmental conditions were: Temperature: 26.0 °C  
Humidity: 23.9 %

Frequency (MHz)	Line	Reading (QP) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (QP) (dB $\mu$ V)	Limit (QP) (dB $\mu$ V)	Limit (AV) (dB $\mu$ V)	Margin (QP) Limits (dB)
0.150	N	33.06	11.23	44.30	66.00	56.00	-21.70
0.411	L1	23.61	9.99	33.61	57.60	47.60	-23.99
0.668	L1	24.48	9.84	34.32	56.00	46.00	-21.68
0.974	L1	23.17	9.80	32.97	56.00	46.00	-23.03
1.950	L1	24.31	9.82	34.13	56.00	46.00	-21.87
2.355	L1	22.91	9.84	32.75	56.00	46.00	-23.25
4.106	L1	25.04	9.90	34.94	56.00	46.00	-21.06

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

Measurements were done with the quasi-peak detectors

See figure 1-1 and figure 1-2 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

**Test Report No.**  
 RTS-6012-1209-04

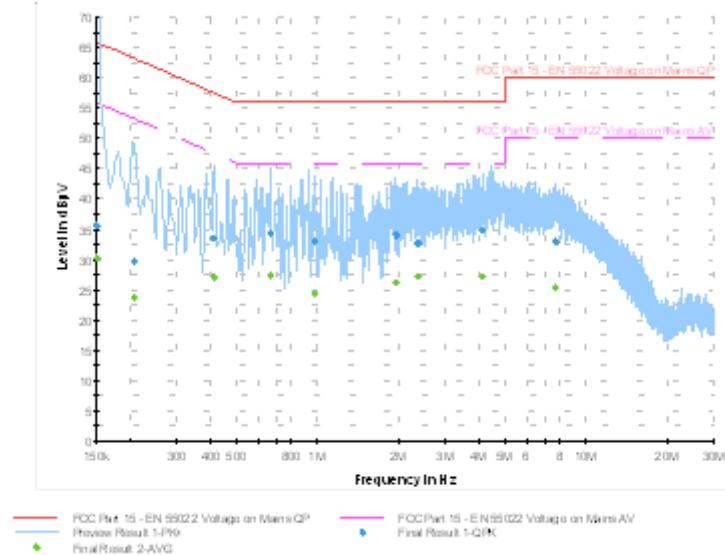
**Date of Test**  
 June 21-25, July 04, July 16, August 02,  
 October 11, October 17-18, 2012

**FCC ID:** L6ARFF90LW    **IC :** 2503A-RFF90LW

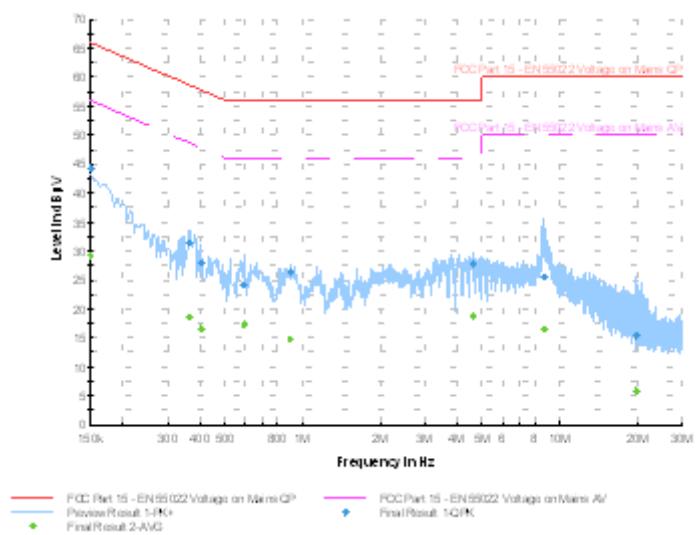
## AC Conducted Emissions Test Graphs

### Test Configuration 1

**Figure 1-1: L1 lines**



**Figure 1-2: N Lines**



 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 1</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11; October 17-18, 2012

## AC Conducted Emissions Test Results cont'd

## Test Configuration 2

Date of the test: July 03, 2012

The environmental conditions were: Temperature: 26.0 °C  
Humidity: 37.1 %

Frequency (MHz)	Line	Reading (QP) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (QP) (dB $\mu$ V)	Limit (QP) (dB $\mu$ V)	Limit (AV) (dB $\mu$ V)	Margin (QP) Limits (dB)
0.150	L1	31.41	11.20	42.61	66.00	56.00	-23.39
0.150	N	30.99	11.23	42.22	66.00	56.00	-23.78

All other emission levels had test margins of greater than 25 dB. Measurements were done with the quasi-peak detector.

See figure 1-3 and figure 1-4 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

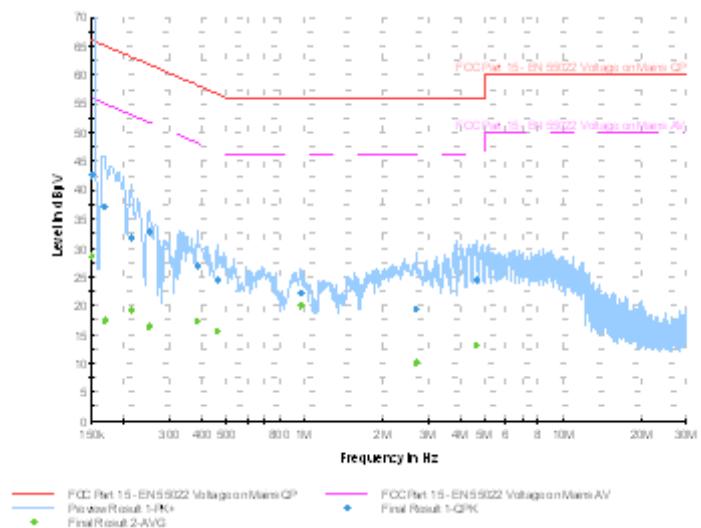
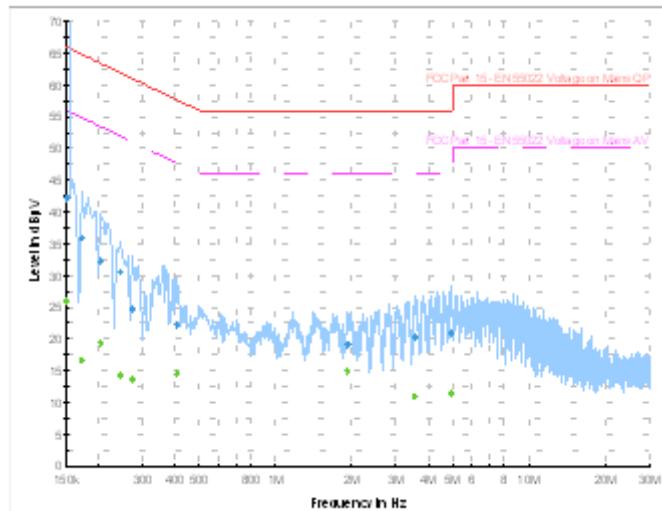
**Test Report No.**  
 RTS-6012-1209-04

**Date of Test**  
 June 21-25, July 04, July 16, August 02,  
 October 11, October 17-18, 2012

**FCC ID:** L6ARFF90LW    **IC :** 2503A-RFF90LW

## AC Conducted Emissions Test Graphs

### Test Configuration 2

**Figure 1-3: L1 lines**

**Figure 1-4: N Lines**


 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 1</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11; October 17-18, 2012

## AC Conducted Emissions Test Results cont'd

### Test Configuration 3

Date of the test: July 03, 2012

The environmental conditions were: Temperature: 25.0 °C  
Humidity: 31.8 %

Frequency (MHz)	Line	Reading (QP) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (QP) (dB $\mu$ V)	Limit (QP) (dB $\mu$ V)	Margin (QP) Limits (dB)
0.150	L1	41.13	11.20	52.33	66.00	-13.67
0.182	L1	44.89	10.99	55.88	64.40	-8.52
0.182	N	40.97	11.01	51.98	64.40	-12.42
0.218	N	32.57	10.76	43.33	62.90	-19.58
0.222	L1	40.88	10.70	51.58	62.70	-11.12
0.263	L1	39.95	10.42	50.37	61.40	-11.03
0.267	N	36.47	10.41	46.88	61.20	-14.32
0.461	N	30.98	9.94	40.92	56.70	-15.78
0.569	L1	36.80	9.87	46.67	56.00	-9.33
0.704	N	31.26	9.84	41.10	56.00	-14.90
1.014	N	34.08	9.81	43.89	56.00	-12.12
1.050	L1	38.30	9.80	48.10	56.00	<b>-7.90</b>
1.743	N	33.04	9.82	42.86	56.00	-13.14
2.252	N	34.75	9.84	44.59	56.00	-11.41
2.616	L1	37.35	9.86	47.21	56.00	-8.80
11.814	L1	26.10	10.01	36.11	60.00	-23.89



<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC :</b> 2503A-RFF90LW
--	--	---

Frequency (MHz)	Line	Reading (AV) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (AV) (dB $\mu$ V)	Limit (AV) (dB $\mu$ V)	Margin (AV) Limits (dB)
0.150	L1	26.55	11.20	37.75	46.00	-18.25
0.182	L1	25.91	10.99	36.90	44.40	-17.51
0.182	N	23.84	11.01	34.86	44.40	-19.54
0.218	N	22.86	10.76	33.62	42.90	-19.28
0.222	L1	30.60	10.70	41.30	42.70	-11.40
0.263	L1	26.19	10.42	36.61	41.40	-14.79
0.267	N	24.72	10.41	35.13	41.20	-16.07
0.461	N	19.82	9.94	29.76	36.70	-16.94
0.569	L1	24.41	9.87	34.28	36.00	-11.72
0.704	N	21.18	9.84	31.02	36.00	-14.98
1.014	N	23.53	9.81	33.34	36.00	-12.66
1.050	L1	24.89	9.80	34.69	36.00	-11.31
1.743	N	21.75	9.82	31.57	36.00	-14.43
2.252	N	23.17	9.84	33.01	36.00	-12.99
2.616	L1	25.29	9.86	35.15	36.00	-10.85

All other emission levels had test margins greater than 25 dB.  
Measurements were done with the quasi-peak and the average detector.

See figure 1-5 and figure 1-6 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

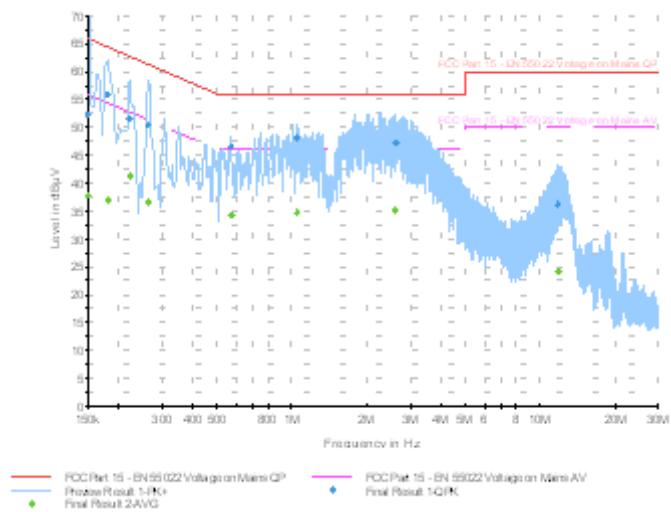
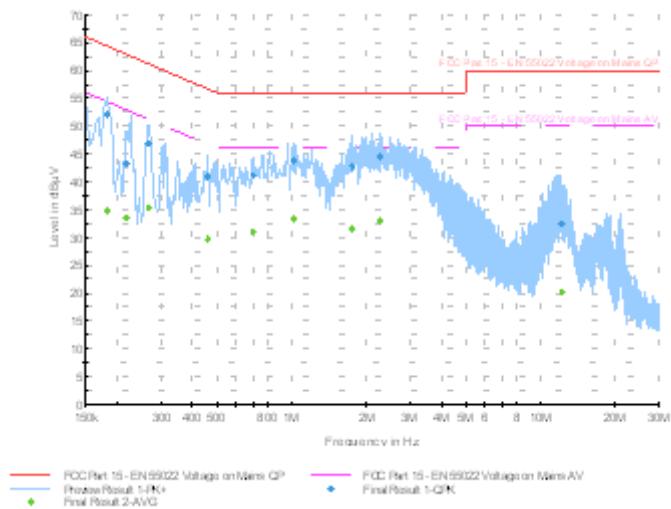
**Test Report No.**  
 RTS-6012-1209-04

**Date of Test**  
 June 21-25, July 04, July 16, August 02,  
 October 11, October 17-18, 2012

**FCC ID: L6ARFF90LW**
**IC : 2503A-RFF90LW**

## AC Conducted Emissions Test Graphs

### Test Configuration 3

**Figure 1-5: L1 lines**

**Figure 1-6: N Lines**


**Test Report No.**  
RTS-6012-1209-04**Date of Test**June 21-25, July 04, July 16, August 02,  
October 11, October 17-18, 2012**FCC ID:** L6ARFF90LW**IC :** 2503A-RFF90LWAC Conducted Emissions Test Results cont'dTest Configuration 4

Date of the test: July 03, 2012

The environmental conditions were: Temperature: 26.0 °C  
Humidity: 28.9 %

Frequency (MHz)	Line	Reading (QP) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (QP) (dB $\mu$ V)	Limit (QP) (dB $\mu$ V)	Limit (AV) (dB $\mu$ V)	Margin (QP) Limits (dB)
0.150	L1	41.50	11.20	52.70	66.00	56.00	-13.30
0.150	N	35.30	11.23	46.53	66.00	56.00	-19.47
0.398	N	26.70	10.03	36.73	57.90	47.90	-21.17
0.537	L1	22.60	9.89	32.49	56.00	46.00	-23.51
1.464	N	22.13	9.81	31.94	56.00	46.00	-24.06

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

Measurements were done with the quasi-peak detector.

See figure 1-7 and figure 1-8 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

**Test Report No.**  
 RTS-6012-1209-04

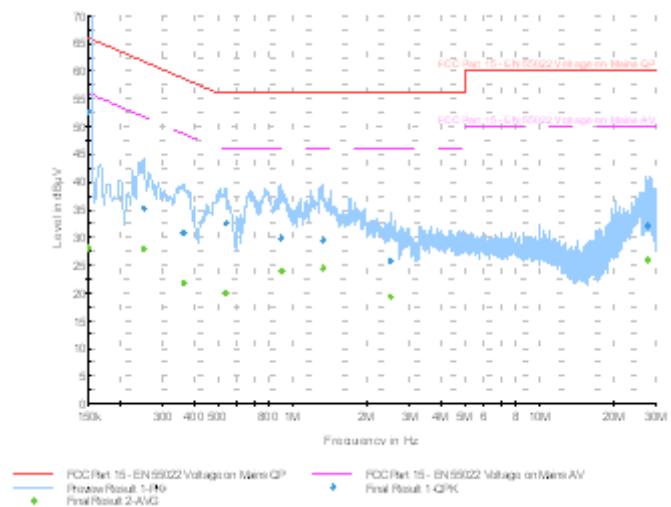
**Date of Test**  
 June 21-25, July 04, July 16, August 02,  
 October 11, October 17-18, 2012

**FCC ID: L6ARFF90LW**
**IC : 2503A-RFF90LW**

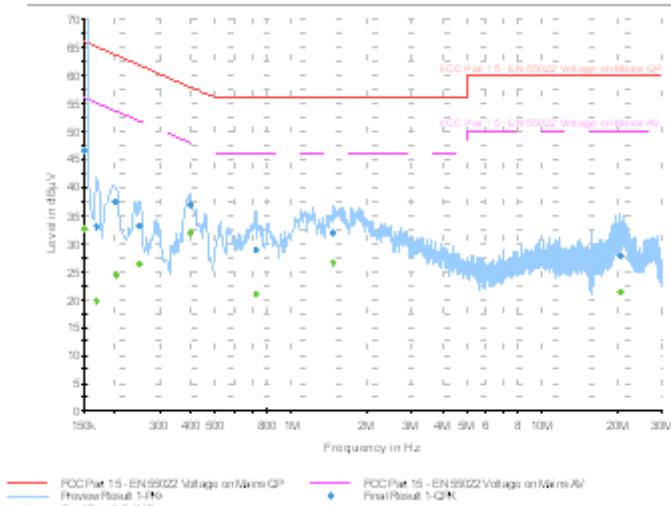
## AC Conducted Emissions Test Graphs

### Test Configuration 4

**Figure 1-7: L1 lines**



**Figure 1-8: N Lines**



 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 1</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11; October 17-18, 2012

## AC Conducted Emissions Test Results cont'd

## Test Configuration 5

Date of the test: July 03, 2012

The environmental conditions were: Temperature: 25.7 °C  
Humidity: 36.6 %

Frequency (MHz)	Line	Reading (QP) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (QP) (dB $\mu$ V)	Limit (QP) (dB $\mu$ V)	Limit (AV) (dB $\mu$ V)	Margin (QP) Limits (dB)
0.150	N	32.10	11.23	43.33	66.00	56.00	-22.67
0.150	L1	38.23	11.20	49.43	66.00	56.00	-16.57
0.200	L1	30.97	10.86	41.83	63.60	53.60	-21.77
0.348	N	25.12	10.10	35.22	59.00	49.00	-23.78
0.353	L1	27.20	10.08	37.28	58.90	48.90	-21.62
0.447	N	29.43	9.95	39.38	56.90	46.90	-17.52
0.452	L1	29.97	9.94	39.91	56.80	46.80	-16.90
0.807	L1	23.05	9.82	32.87	56.00	46.00	-23.14
1.298	L1	23.95	9.80	33.75	56.00	46.00	-22.25

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

Measurements were done with the quasi-peak detector.

See figure 1-9 and figure 1-10 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

**Test Report No.**  
 RTS-6012-1209-04

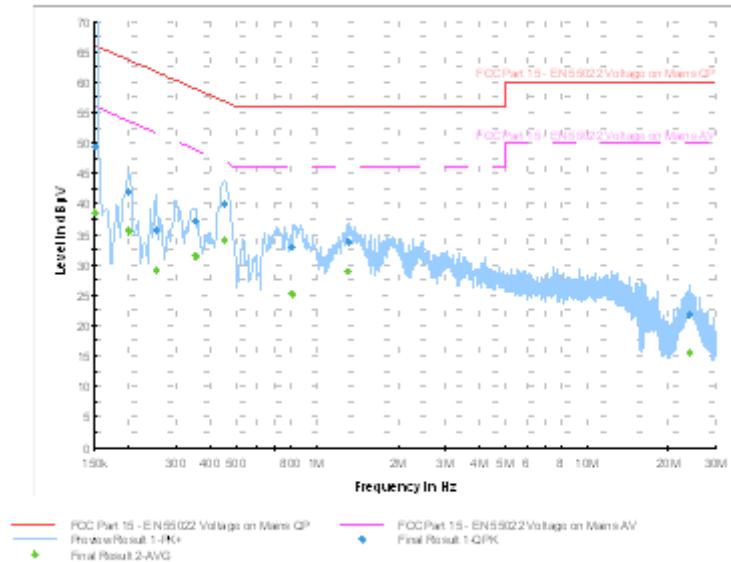
**Date of Test**  
 June 21-25, July 04, July 16, August 02,  
 October 11, October 17-18, 2012

**FCC ID:** L6ARFF90LW    **IC :** 2503A-RFF90LW

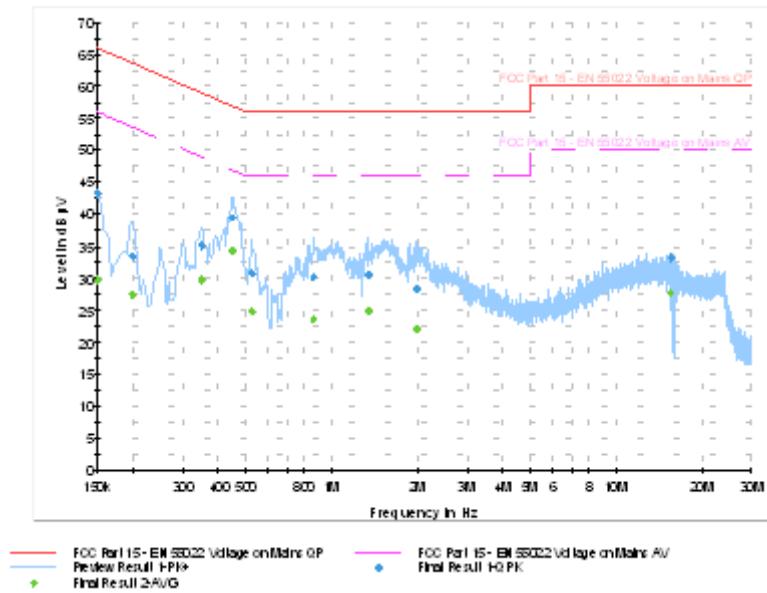
## AC Conducted Emissions Test Graphs

### Test Configuration 5

**Figure 1-9: L1 lines**



**Figure 1-10: N Lines**



 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 1</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11; October 17-18, 2012

## AC Conducted Emissions Test Results cont'd

## Test Configuration 6

Date of the test: July 03, 2012

The environmental conditions were: Temperature: 25.1 °C  
Humidity: 29.9 %

Frequency (MHz)	Line	Reading (QP) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (QP) (dB $\mu$ V)	Limit (QP) (dB $\mu$ V)	Limit (AV) (dB $\mu$ V)	Margin (QP) Limits (dB)
0.150	L1	38.48	11.20	49.68	66.00	56.00	-16.32
0.506	L1	31.15	9.91	41.06	56.00	46.00	-14.94
0.506	N	21.48	9.91	31.40	56.00	46.00	-24.61
0.722	L1	23.50	9.83	33.33	56.00	46.00	-22.67
11.243	L1	29.53	9.99	39.51	60.00	50.00	-20.49

All other emission levels had test margins greater than 25 dB. Measurements were done with the quasi-peak detector.

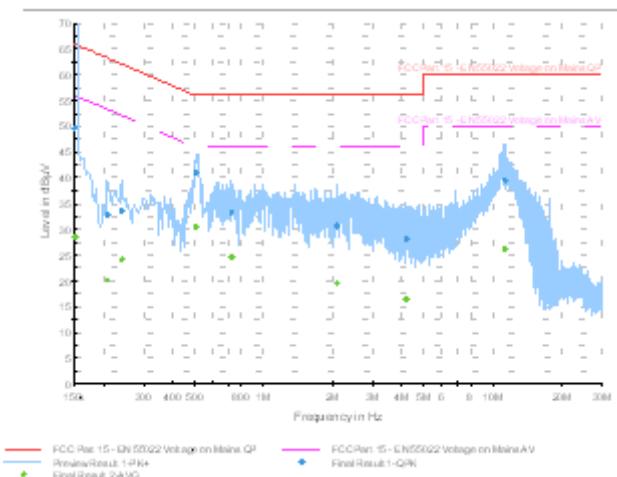
See figure 1-11 and figure 1-12 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC :</b> 2503A-RFF90LW
--	---	---

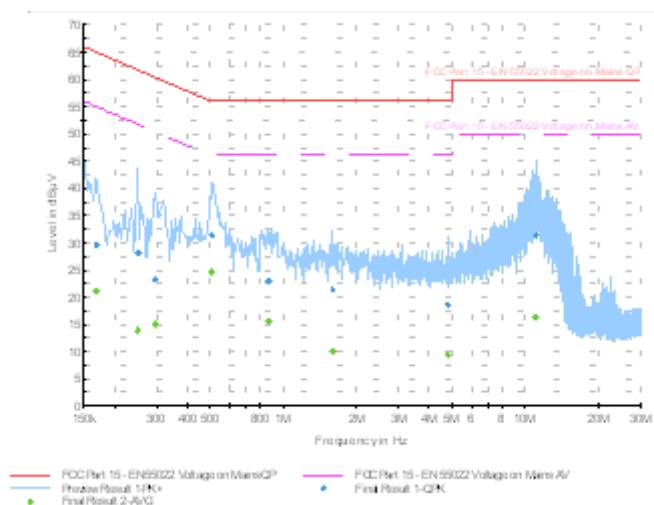
## AC Conducted Emissions Test Graphs

### Test Configuration 6

**Figure 1-11: L1 lines**



**Figure 1-12: N Lines**



 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 1</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11; October 17-18, 2012

## AC Conducted Emissions Test Results cont'd

## Test Configuration 7

Date of the test: July 03, 2012

The environmental conditions were: Temperature: 25.1 °C  
Humidity: 29.9 %

Frequency (MHz)	Line	Reading (QP) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (QP) (dB $\mu$ V)	Limit (QP) (dB $\mu$ V)	Limit (AV) (dB $\mu$ V)	Margin (QP) Limits (dB)
0.501	L1	23.51	9.91	33.42	56.00	46.00	-22.58
1.388	L1	22.74	9.80	32.55	56.00	46.00	-23.45
11.310	L1	25.62	9.99	35.61	60.00	50.00	-24.39

All other emission levels had test margins greater than 25 dB. Measurements were done with the quasi-peak detector.

See figure 1-13 and figure 1-14 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

**Test Report No.**  
 RTS-6012-1209-04

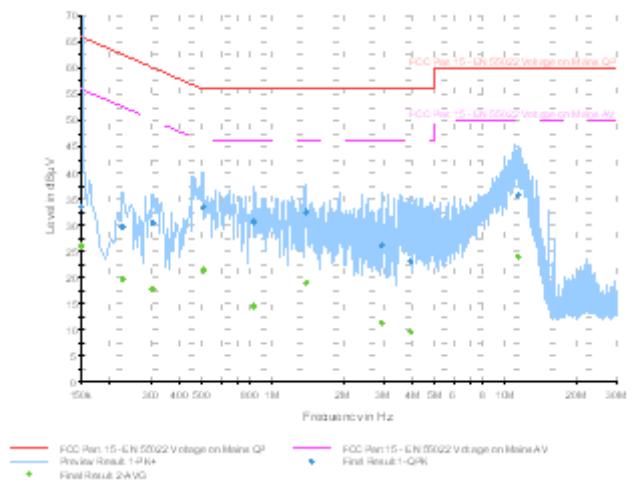
**Date of Test**  
 June 21-25, July 04, July 16, August 02,  
 October 11, October 17-18, 2012

**FCC ID:** L6ARFF90LW    **IC :** 2503A-RFF90LW

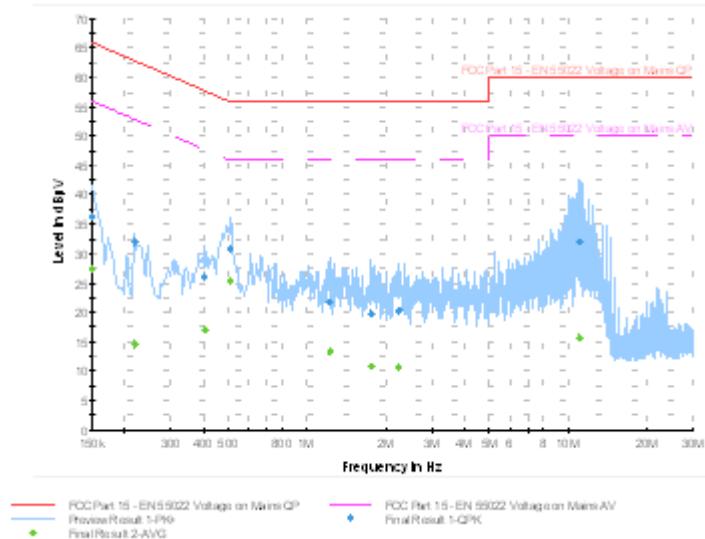
## AC Conducted Emissions Test Graphs

### Test Configuration 7

**Figure 1-13: L1 lines**



**Figure 1-14: N Lines**



 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 1</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11; October 17-18, 2012

## AC Conducted Emissions Test Results cont'd

## Test Configuration 8

Date of the test: July 03, 2012

The environmental conditions were: Temperature: 25.5 °C  
Humidity: 38.4 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.150	L1	36.99	11.20	48.19	66.00	56.00	-17.81
0.150	N	32.72	11.23	43.95	66.00	56.00	-22.05
0.182	L1	31.28	10.99	42.27	64.40	54.40	-22.14
0.227	L1	27.02	10.67	37.69	62.60	52.60	-24.91
0.389	L1	23.58	10.03	33.61	58.10	48.10	-24.49
4.412	L1	22.42	9.91	32.33	56.00	46.00	-23.67

All other emission levels had test margins greater than 25 dB. Measurements were done with the quasi-peak detector.

See figure 1-15 and figure 1-16 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

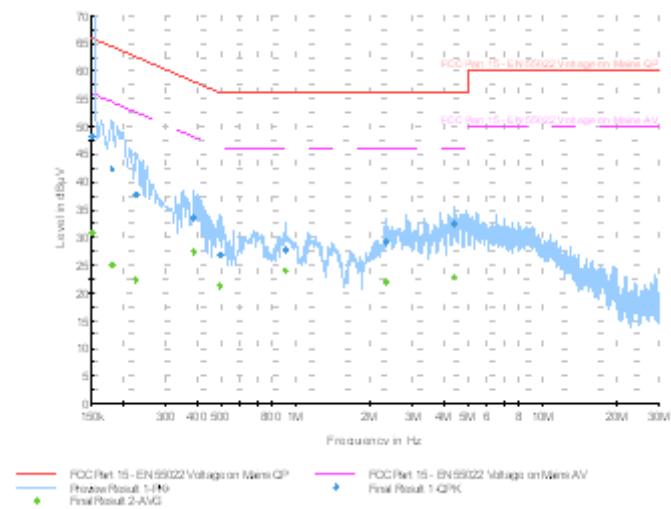
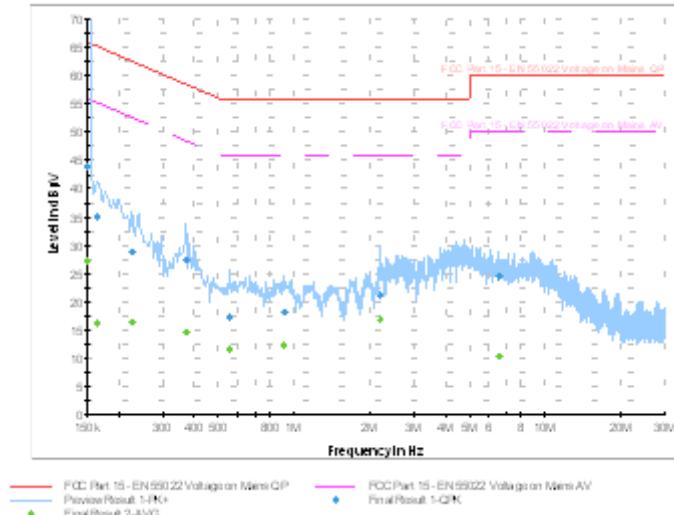
**Test Report No.**  
 RTS-6012-1209-04

**Date of Test**  
 June 21-25, July 04, July 16, August 02,  
 October 11, October 17-18, 2012

**FCC ID:** L6ARFF90LW    **IC :** 2503A-RFF90LW

## AC Conducted Emissions Test Graphs

### Test Configuration 8

**Figure 1-15: L1 lines**

**Figure 1-16 N Lines**


**Test Report No.**  
RTS-6012-1209-04**Date of Test**June 21-25, July 04, July 16, August 02,  
October 11, October 17-18, 2012**FCC ID:** L6ARFF90LW**IC :** 2503A-RFF90LWAC Conducted Emissions Test Results cont'dTest Configuration 9

Date of the test: August 02, 2012

The environmental conditions were: Temperature: 25.5 °C  
Humidity: 38.4 %

Frequency (MHz)	Line	Reading (QP) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (QP) (dB $\mu$ V)	Limit (QP) (dB $\mu$ V)	Margin (QP) Limits (dB)
0.195	L1	35.14	10.89	46.03	63.80	-17.77
0.353	L1	35.30	10.08	45.38	58.90	-13.52
0.384	N	38.89	10.05	48.94	58.20	-9.26
0.411	L1	38.23	9.99	48.23	57.60	-9.37
0.443	N	37.34	9.96	47.30	57.00	-9.70
0.492	N	32.77	9.92	42.69	56.10	-13.41
0.560	N	31.32	9.89	41.20	56.00	-14.80
0.713	L1	37.27	9.83	47.10	56.00	-8.90
0.762	N	36.62	9.83	46.45	56.00	-9.55
0.830	L1	32.23	9.82	42.04	56.00	-13.96
1.181	N	37.28	9.80	47.09	56.00	-8.91
1.280	L1	35.07	9.80	44.88	56.00	-11.12
1.383	N	34.09	9.81	43.90	56.00	-12.10
3.827	L1	34.33	9.90	44.23	56.00	-11.77
4.025	N	30.99	9.90	40.90	56.00	-15.11
4.947	L1	32.49	9.91	42.39	56.00	-13.61
18.402	L1	26.94	10.22	37.15	60.00	-22.85



<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02, October 11, October 17-18, 2012	<b>FCC ID:</b> L6ARFF90LW <b>IC :</b> 2503A-RFF90LW
--	--	---

Frequency (MHz)	Line	Reading (QP) (dB $\mu$ V)	Correction Factor (dB)	Corrected Reading (QP) (dB $\mu$ V)	Limit (AV) (dB $\mu$ V)	Margin (AV) Limits (dB)
0.195	L1	30.62	10.89	41.51	43.80	-12.29
0.353	L1	30.34	10.08	40.42	38.90	-8.48
0.384	N	38.89	10.05	48.94	48.20	-9.26
0.411	L1	32.10	9.99	42.09	37.60	-5.51
0.443	N	37.34	9.96	47.30	47.00	-9.70
0.492	N	32.77	9.92	42.69	46.10	-13.41
0.560	N	31.32	9.89	41.20	46.00	-14.80
0.713	L1	31.26	9.83	41.09	36.00	<b>-4.91</b>
0.762	N	36.62	9.83	46.45	46.00	-9.55
0.830	L1	27.96	9.82	37.77	36.00	-8.23
1.181	N	37.28	9.80	47.09	46.00	-8.91
1.280	L1	28.67	9.80	38.48	36.00	-7.52
1.383	N	34.09	9.81	43.90	46.00	-12.10
3.827	L1	27.82	9.90	37.72	36.00	-8.28
4.025	N	30.99	9.90	40.90	46.00	-15.11
4.947	L1	26.77	9.91	36.67	36.00	-9.33
18.402	L1	20.96	10.22	31.17	40.00	-18.83

All other emission levels had test margins greater than 25 dB.  
Measurements were done with the quasi-peak detector.

See figure 1-17 and figure 1-18 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

**Test Report No.**  
 RTS-6012-1209-04

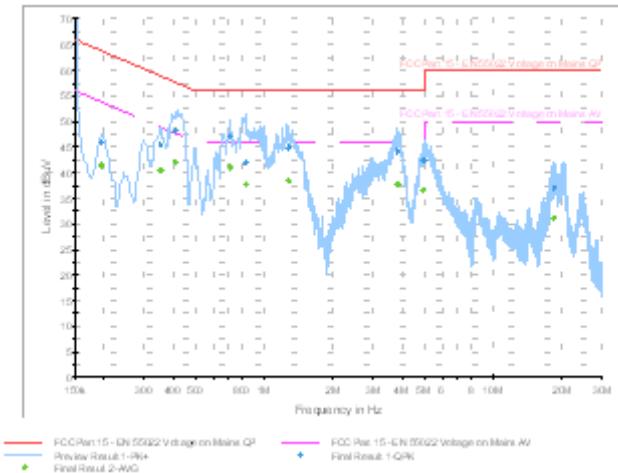
**Date of Test**  
 June 21-25, July 04, July 16, August 02,  
 October 11, October 17-18, 2012

**FCC ID: L6ARFF90LW**
**IC : 2503A-RFF90LW**

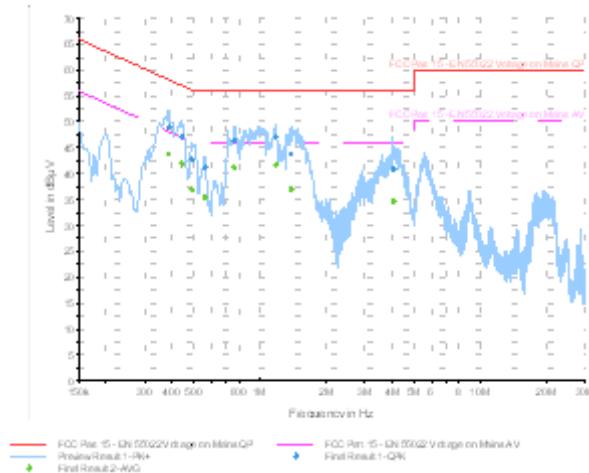
## AC Conducted Emissions Test Graphs

### Test Configuration 9

**Figure 1-17: L1 lines**



**Figure 1-18: N Lines**





EMI Test Report for the BlackBerry® smartphone Model RFF91LW

**APPENDIX 2**

**Test Report No.**  
RTS-6012-1209-04

**Date of Test**

June 21-25, July 04, July 16, August 02  
October 11, October 17-18, 2012

**FCC ID:** L6ARFF90LW    **IC :** 2503A-RFF90LW

**APPENDIX 2 - RADIATED EMISSIONS TEST DATA**

**Test Report No.**  
RTS-6012-1209-04**Date of Test**June 21-25, July 04, July 16, August 02  
October 11, October 17-18, 2012**FCC ID:** L6ARFF90LW**IC :** 2503A-RFF90LWRadiated Emissions Test Results

The following tests were performed by Savtej Sandhu.

Test Configuration 1

Date of the test: June 21, 2012

The environmental conditions were: Temperature: 26.0 °C  
Humidity: 23.9 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading +corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol.	Height (metres)							
43.067	V	1.42	167.00	Q.P.	31.78	-14.88	16.90	40.00	-23.10
43.902	V	1.41	134.00	Q.P.	31.25	-15.06	16.19	40.00	-23.81
54.232	V	2.70	307.00	Q.P.	34.20	-16.49	17.71	40.00	-22.29
84.562	V	2.61	275.00	Q.P.	31.00	-12.90	18.10	40.00	-21.90

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 2

Date of the test: June 21, 2012

The environmental conditions were: Temperature: 25.6 °C  
Humidity: 37.6 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading +corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
57.115	V	2.23	86.00	Q.P.	34.32	-16.38	17.94	40.00	-22.06
69.69	V	2.24	90.00	Q.P.	32.87	-15.03	17.84	40.00	-22.16
343.044	V	3.70	169.00	Q.P.	22.93	-0.13	22.80	46.00	-23.20

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

### Test Configuration 3

Date of the test: July 16, 2012

The environmental conditions were: Temperature: 24.6 °C  
Humidity: 35.5 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detect or (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
44.089	V	2.54	187.00	Q.P.	33.89	-15.06	18.83	40.00	-21.17
58.061	V	2.54	50.00	Q.P.	35.59	-16.43	19.16	40.00	-20.84
82.109	V	1.54	268.00	Q.P.	36.13	-13.28	22.85	40.00	-17.15
199.282	H	1.83	181.00	Q.P.	26.01	-6.40	19.61	43.50	-23.89
345.796	V	3.22	61.00	Q.P.	23.03	-0.04	22.99	46.00	-23.01

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 4

Date of the test: July 16, 2012

The environmental conditions were: Temperature: 24.8 °C  
Humidity: 35.7 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detect or (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
34.168	V	1.42	344.00	Q.P.	34.92	-12.99	21.93	40.00	-18.07
58.192	V	1.55	140.00	Q.P.	32.36	-17.07	15.29	40.00	-24.71

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 5

Date of the test: June 22, 2012

The environmental conditions were: Temperature: 24.8 °C  
Humidity: 32.4 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
41.249	V	1.50	311.00	Q.P.	34.26	-15.22	19.04	40.00	-20.96
55.876	V	1.96	344.00	Q.P.	35.78	-17.27	18.51	40.00	-21.49

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 6

Date of the test: June 25, 2012

The environmental conditions were: Temperature: 26.0 °C  
Humidity: 28.9%

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+c orr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
33.147	V	2.39	226.00	Q.P.	34.31	-12.24	22.07	40.00	-17.93
47.585	V	1.44	192.00	Q.P.	31.44	-15.68	15.76	40.00	-24.24
134.401	V	1.53	268.00	Q.P.	29.69	-10.98	18.71	43.50	-24.79
344.125	V	3.73	93.00	Q.P.	23.12	0.04	23.16	46.00	-22.84

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 7

Date of the test: June 25, 2012

The environmental conditions were: Temperature: 25.5 °C  
Humidity: 28.8 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
193.601	V	1.49	81.00	Q.P.	31.28	-9.16	22.12	43.50	-21.38

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 8

Date of the test: June 21, 2012

The environmental conditions were: Temperature: 25.1 °C  
Humidity: 29.9 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
31.683	V	3.80	207.00	Q.P.	31.82	-11.71	20.11	40.00	-19.89
60.834	V	1.88	135.00	Q.P.	31.13	-16.12	15.01	40.00	-24.99
64.167	V	1.46	73.00	Q.P.	42.70	-15.80	26.90	40.00	-13.10
110.278	V	1.43	53.00	Q.P.	38.90	-10.48	28.42	43.50	-15.08
127.358	V	1.41	349.00	Q.P.	39.25	-10.82	28.43	43.50	-15.07
148.494	H	2.24	45.00	Q.P.	48.33	-10.56	37.77	43.50	-5.73
261.798	H	1.23	116.00	Q.P.	41.83	-6.44	35.39	46.00	-10.61
384.436	H	1.03	314.00	Q.P.	32.83	-1.80	31.03	46.00	-14.97
445.484	H	2.02	226.00	Q.P.	35.43	0.05	35.48	46.00	-10.52
1014.763	H	1.19	216.00	Q.P.	52.17	1.51	53.68	74.00	-20.32

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

**Test Report No.**  
RTS-6012-1209-04**Date of Test**June 21-25, July 04, July 16, August 02  
October 11, October 17-18, 2012**FCC ID:** L6ARFF90LW**IC :** 2503A-RFF90LWRadiated Emissions Test Results cont'dTest Configuration 9

Date of the test: July 04, 2012

The environmental conditions were: Temperature: 25.6 °C  
Humidity: 29.4 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
43.144	V	1.51	125.00	Q.P.	34.25	-14.92	19.33	40.00	-20.67
54.567	H	2.28	177.00	Q.P.	34.15	-16.42	17.73	40.00	-22.27
109.421	H	2.18	46.00	Q.P.	33.20	-10.48	22.72	43.50	-20.78
135.449	H	1.77	239.00	Q.P.	30.46	-10.88	19.58	43.50	-23.92
143.92	H	2.08	346.00	Q.P.	33.98	-10.86	23.12	43.50	-20.38
148.569	H	2.29	35.00	Q.P.	37.26	-10.56	26.70	43.50	-16.80
153.982	H	2.37	45.00	Q.P.	38.64	-10.76	27.88	43.50	-15.62
157.06	H	3.02	86.00	Q.P.	35.84	-10.55	25.29	43.50	-18.21
157.064	H	2.30	220.00	Q.P.	38.39	-10.54	27.85	43.50	-15.65
160.12	H	1.11	230.00	Q.P.	38.18	-10.61	27.57	43.50	-15.93
183.988	H	1.46	248.00	Q.P.	36.15	-9.09	27.06	43.50	-16.44
187.173	H	1.32	202.00	Q.P.	32.63	-9.01	23.62	43.50	-19.88
190.275	H	1.03	192.00	Q.P.	34.60	-8.49	26.11	43.50	-17.39
199.829	H	2.12	267.00	Q.P.	30.05	-6.23	23.82	43.50	-19.68
240.006	H	1.29	338.00	Q.P.	45.05	-8.46	36.59	46.00	-9.41
272.048	H	1.24	263.00	Q.P.	41.14	-6.80	34.34	46.00	-11.66
299.886	H	1.12	97.00	Q.P.	32.82	-5.05	27.77	46.00	-18.23
366.297	H	1.15	64.00	Q.P.	24.17	-2.87	21.30	46.00	-24.70
432.012	V	3.90	26.00	Q.P.	29.63	-0.41	29.22	46.00	-16.78

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 10

Date of the test: July 04, 2012

The environmental conditions were: Temperature: 25.4 °C  
Humidity: 32.6 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
41.69	V	2.45	87.00	Q.P.	31.68	-14.74	16.94	40.00	-23.06
57.307	V	3.29	40.00	Q.P.	34.21	-16.39	17.82	40.00	-22.18
58.776	V	3.35	349.00	Q.P.	34.97	-16.27	18.70	40.00	-21.30
340.305	V	2.43	234.00	Q.P.	23.02	-0.50	22.52	46.00	-23.48

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 11

Date of the test: October 11, 2012

The environmental conditions were: Temperature: 27.8 °C  
Humidity: 24.0 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
61.010	V	1.71	202.00	Q.P.	48.68	-16.82	31.86	40.00	-8.14
83.215	V	1.57	50.00	Q.P.	34.64	-13.97	20.67	40.00	-19.33

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 12

Date of the test: October 11, 2012

The environmental conditions were: Temperature: 27.8 °C  
Humidity: 24.0 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
42.938	V	1.45	319.00	Q.P.	39.15	-15.48	23.67	40.00	-16.33
49.207	V	1.55	107.00	Q.P.	42.81	-16.46	26.35	40.00	-13.65
86.485	V	1.54	239.00	Q.P.	31.09	-13.58	17.51	40.00	-22.49

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 13

Date of the test: October 16, 2012

The environmental conditions were: Temperature: 27.8 °C  
Humidity: 24.0 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
37.608	V	1.49	207.00	Q.P.	45.99	-14.05	31.94	40.00	-8.06
138.474	V	1.40	315.00	Q.P.	41.10	-11.97	29.13	43.50	-14.37

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 14

Date of the test: October 18, 2012

The environmental conditions were: Temperature: 27.8 °C  
Humidity: 24.0 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
31.553	V	1.62	174.00	Q.P.	47.76	-12.21	35.55	40.00	<b>-4.45</b>
84.447	V	1.72	7.00	Q.P.	30.42	-13.78	16.64	40.00	-23.36
152.849	H	2.66	289.00	Q.P.	44.04	-11.77	32.27	43.50	-11.23
345.702	H	1.39	168.00	Q.P.	25.73	-2.06	23.67	46.00	-22.33

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

 <b>RIM</b> Testing Services	EMI Test Report for the BlackBerry® smartphone Model RFF91LW <b>APPENDIX 2</b>
<b>Test Report No.</b> RTS-6012-1209-04	<b>Date of Test</b> June 21-25, July 04, July 16, August 02 October 11, October 17-18, 2012

## Radiated Emissions Test Results cont'd

## Test Configuration 15

Date of the test: October 17, 2012

The environmental conditions were: Temperature: 27.8 °C  
Humidity: 24.0 %

Frequency (MHz)	Antenna		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB $\mu$ V)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dB $\mu$ V/m)	Limit @ 3.0 m (dB $\mu$ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
35.213	V	1.48	283.00	Q.P.	35.28	-13.46	21.82	40.00	-18.18
64.314	V	1.68	141.00	Q.P.	44.66	-16.52	28.14	40.00	-11.86

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