

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-2581-1006-48

PRODUCT MODEL NO.: RCU21CW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARCU20CW
IC: 2503A-RCU20CW

DATE: August 10, 2010

	EMI Test Report for the BlackBerry® smartphone Model RCU21CW	
Test Report No. RTS-2581-1006-48	Dates of Test May 21 to June 09, July 09 and August 11, 2010	FCC ID: L6ARCU20CW IC: 2503A-RCU20CW

Statement of Performance:

The BlackBerry® smartphone, model RCU21CW, part number CER-30951-001 Rev. 4 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:

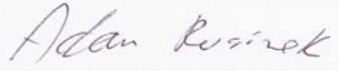
The test data reported herein is an accurate record of the performance of the sample(s) tested.

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: August 11, 2010

Reviewed by:



Michael Cino
Regulatory Compliance Associate
Date: August 11, 2010

Reviewed and Approved by:



Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance
Date: August 13, 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) 9670_RCU21CW_HW_Declaration_CER-30951-001_Rev 2
- 2) 9670_RCU21CW_HW_Declaration_CER-30951-001_Rev 3
- 3) 9670_RCU21CW_HW_Declaration_CER-30951-001_Rev 4
- 4) 9670_RCU21CW_SW_Declaration_b103
- 5) 9670_RCU21CW_SW_Declaration_b118

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

440 Phillip Street
Waterloo, Ontario
Canada, N2L 5R9
Phone: 519 888 7465
Fax: 519 888 6906

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The testing was performed from May 21 to June 09, July 09 and August 11 2010.
The sample EUT included:


SAMPLE	MODEL	CER NUMBER	PIN	Software
1	RCU21CW	CER-30951-001 Rev 1	3170EE31	V6.0.0.43 (Platform 4.4.0.42) Bundle 92
2	RCU21CW	CER-30951-001 Rev 2	321D43E6	V6.0.0.50 (Platform 4.4.0.46) Bundle 118
3	RCU21CW	CER-30951-001 Rev 4	3232C075	(Platform 4.4.0.83) MFI Bundle 230
4	RCU21CW	CER-30951-001 Rev 4	3232C064	(Platform 4.4.0.83) MFI Bundle 230

AC conducted testing was performed on sample 2 and 4.
Radiated Emissions testing was performed on sample 1 and 3.

To view the differences between CER-30951-001 Rev. 1 and CER-30951-001 Rev. 2, see document 9670_RCU21CW_HW_Declaration_CER-30951-001_Rev 2.
To view the differences between CER-30951-001 Rev. 2 and CER-30951-001 Rev. 3, see document 9670_RCU21CW_HW_Declaration_CER-30951-001_Rev 3.
To view the differences between CER-30951-001 Rev. 3 and CER-30951-001 Rev. 4, see document 9670_RCU21CW_HW_Declaration_CER-30951-001_Rev 4.

To view the differences between software bundle 92 to 103 see document 9670_RCU21CW_SW_Declaration_b103.
To view the differences between software bundle 103 to 118 see document 9670_RCU21CW_SW_Declaration_b118.

Only the characteristics that may have been impacted by the changes from Rev 1 to Rev 4 were retested.

	EMI Test Report for the BlackBerry® smartphone Model RCU21CW		
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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) 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) Fixed Blade Charger, part number HDW-24481-001 (Model Number: RIM-C-0004ADUUS-001), with an output voltage of 5.0 volts dc.
- 4) Alternate Fixed Blade Charger, part number HDW-24481-001 (Model Number: PSM04A-050QRIM), with an output voltage of 5.0 volts dc.
- 5) Charging Pod HDW-14396-014 (Model Number: FPS-303-D0000055).
- 6) BlackBerry® Visor Mount, part number HDW-23438-001.
- 7) BlackBerry® Remote Stereo Gateway, part number HDW-16007-001.
- 8) Stereo Headset, part number HDW-14322-003 with a lead length of 1.3 metres.
- 9) Alternate Stereo Headset, part number HDW-24529-001, with a lead length of 1.1 metres.
- 10) Premium Stereo Headset, part number HDW-15766-005, 1.3 metres long.
- 11) USB Data Cable, part number HDW-06610-013, 0.30 metres long.
- 12) USB Data Cable, part number HDW-06610-009, 1.00 metre long.
- 13) USB Data Cable, part number HDW-06610-005, 1.50 metres long.
- 14) Bluetooth Headset, part number HDW-23439-001.
- 15) Charging POD, part number HDW-14396-014.

D. Support Equipment Used for the Testing of the EUT

- 1) IBM Thinkpad Lenovo T60p laptop, type 8742-C2U, product ID 8742C2U

E. 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	Yes	1
Part 15, Subpart B	ICES-003	Radiated Unintentional Spurious Emissions	Yes	2

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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:

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 + Premium Stereo Headset + 1.5m USB Cable
3	CDMA PCS Idle	Captive Cable Charger + Charging Pod + Stereo Headset
4	Bluetooth Tx, Video Playback	Folding Blade Charger + Stereo Headset
5	802.11b Tx	Alternate Fixed Blade Charger + 1.0m USB Cable + Alternate Stereo Headset
6	802.11b Tx	Fixed Blade Charger + 1.5m USB Cable + Charging POD + Stereo Headset

The sample EUT's conducted emissions were compared with respect to the FCC CFR 47 Part 15, Subpart B, and IC ICES-003, Class B limit. The sample EUT had a worst case emission level of 50.91dBµV/m, margin of 5.09 dB below the QP limit at 2.337 MHz using the quasi-peak detector, in test configuration 4.

Measurement Uncertainty ±3.0 dB

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

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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. 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	Captive Cable Charger + Bluetooth Headset
2	CDMA PCS Idle	Laptop + 1.0m USB Cable
3	CDMA Cell Idle	Folding Blade Charger + Alternate Stereo Headset
4	CDMA PCS Audio playback mode	Laptop + 1.5m USB Cable + Stereo Gateway
5	CDMA Cell Idle	Laptop + 0.3m USB Cable + Premium Stereo Headset
6	CDMA Cell Idle, Audio playback	Folding Blade Charger + Visor Mount
7	Bluetooth Tx	Stereo Headset + Fixed Blade Charger
8	802.11b Tx	Alternate Fixed Blade Charger + Premium 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 32.03 dBµV/m, or 7.97 dB margin below the limit, at 39.050 MHz in Test Configuration 4.

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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 2.

F. Compliance Test Equipment Used

<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>SERIAL NUMBER</u>	<u>CAL DUE DATE (YY MM DD)</u>	<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	030201	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 - AC CONDUCTED EMISSIONS TEST DATA

	EMI Test Report for the BlackBerry® smartphone Model RCU21CW	
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AC Conducted Emissions Test Results

The following tests were performed by Heng Lin

Test Configuration: 1

Date of the test: June 09, 2010


The environmental conditions were: Temperature: 23 °C
 Pressure: 1013 mb
 Humidity: 31 %

Frequency (MHz)	Line	Reading (QP) (dBμV)	Correction Factor (dB)	Corrected Reading (QP) (dBμV)	Limit (QP) (dBμV)	Limit (AV) (dBμV)	Margin (QP) Limits (dB)
0.186	L1	34.99	10.95	45.95	64.21	54.21	-18.27
0.186	N	31.68	10.98	42.66	64.21	54.21	-21.56
0.272	L1	30.68	10.36	41.04	61.07	51.07	-20.03
0.276	N	28.24	10.34	38.59	60.94	50.94	-22.35
0.326	L1	30.66	10.12	40.79	59.57	49.57	-18.78
0.456	L1	33.63	9.93	43.57	56.77	46.77	-13.20
0.978	N	30.10	9.81	39.91	56.00	46.00	-16.09
1.235	L1	34.62	9.80	44.42	56.00	46.00	-11.58
1.316	N	33.74	9.80	43.54	56.00	46.00	-12.46
1.631	L1	33.41	9.81	43.22	56.00	46.00	-12.78
2.328	L1	40.07	9.84	49.91	56.00	46.00	-6.09
2.351	N	38.32	9.84	48.16	56.00	46.00	-7.84
3.768	L1	29.36	9.90	39.26	56.00	46.00	-16.74
3.872	L1	30.14	9.90	40.04	56.00	46.00	-15.96
4.781	N	22.44	9.91	32.35	56.00	46.00	-23.65

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

Measurements were done with the quasi-peak detector.

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

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AC Conducted Emissions Test Graphs

Test Configuration: 1

Figure 1-1: L1 lines

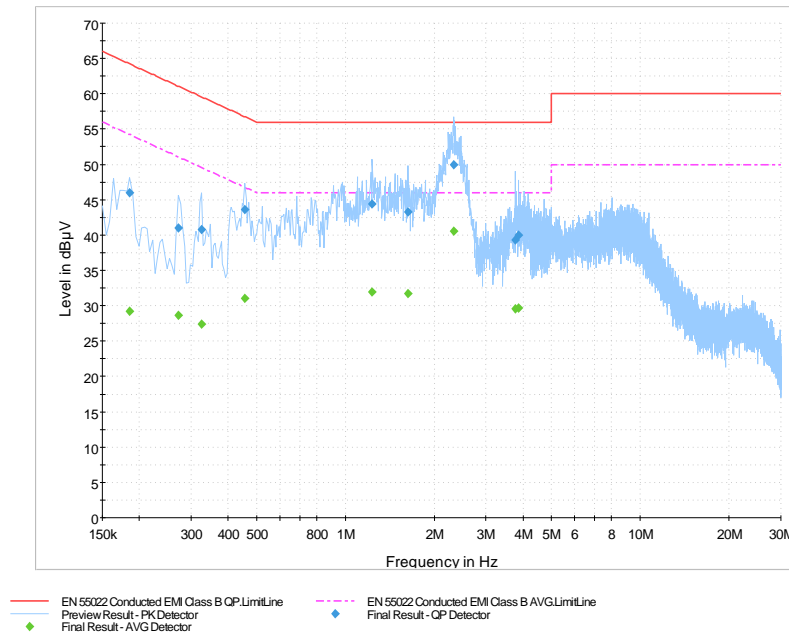
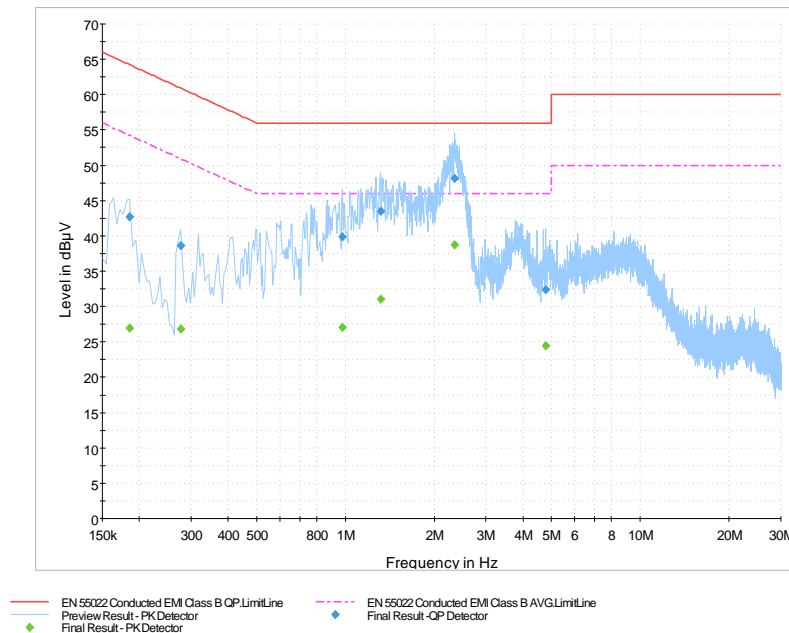



Figure 1-2: N Lines



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AC Conducted Emissions Test Results cont'd

Test Configuration: 2

Date of the test: June 09, 2010


The environmental conditions were: Temperature: 23 °C
 Pressure: 1013 mb
 Humidity: 31 %

Frequency (MHz)	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP) Limits (dB)
		(dBµV)			(dBµV)	(dBµV)	
0.168	L1	33.24	11.08	44.32	65.06	55.06	-20.74
0.173	N	29.09	11.08	40.17	64.84	54.84	-24.67
0.339	L1	29.02	10.10	39.13	59.23	49.23	-20.10
0.357	N	26.92	10.09	37.01	58.80	48.80	-21.79
0.641	N	22.36	9.85	32.22	56.00	46.00	-23.78
0.731	L1	28.38	9.83	38.21	56.00	46.00	-17.79
1.896	N	25.38	9.83	35.20	56.00	46.00	-20.80
2.940	N	25.39	9.88	35.27	56.00	46.00	-20.73
3.867	L1	31.29	9.90	41.19	56.00	46.00	-14.81
3.989	N	27.08	9.90	36.99	56.00	46.00	-19.01
4.115	L1	32.25	9.90	42.15	56.00	46.00	-13.85
4.299	L1	31.45	9.90	41.35	56.00	46.00	-14.65

All other emission levels had test margins 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.

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AC Conducted Emissions Test Graphs

Test Configuration: 2

Figure 1-3: L1 lines

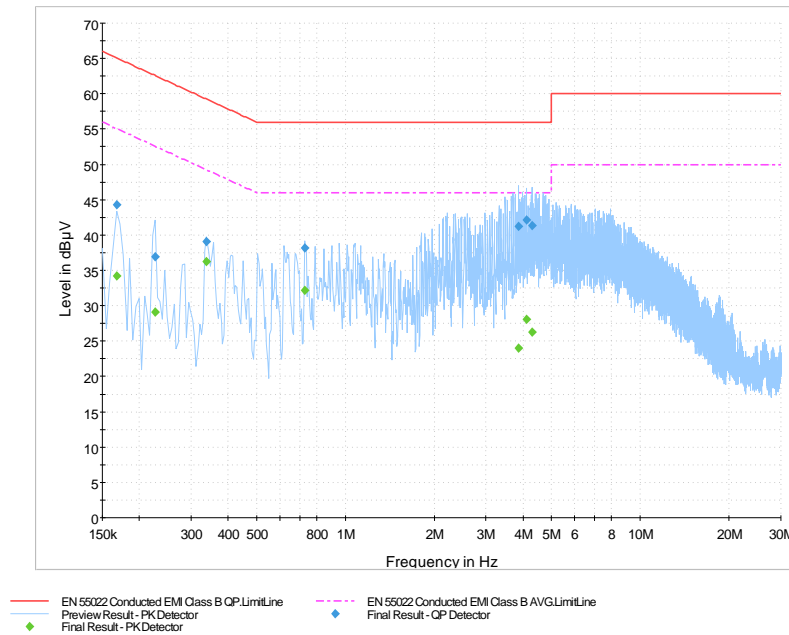
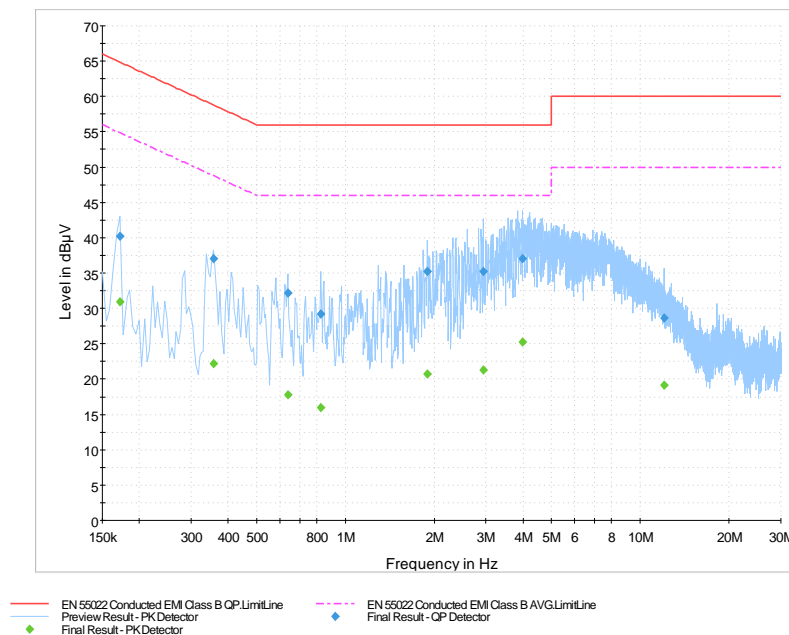



Figure 1-4: N Lines



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AC Conducted Emissions Test Results cont'd

Test Configuration: 3

Date of the test: June 09, 2010

The environmental conditions were: Temperature: 23 °C
 Pressure: 1013 mb
 Humidity: 31 %

Frequency	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP) Limits
(MHz)		(dBµV)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)
0.182	L1	29.61	10.99	40.59	64.42	54.42	-23.82
0.366	L1	28.06	10.06	38.12	58.59	48.59	-20.47
0.447	N	25.26	9.95	35.21	56.93	46.93	-21.72
0.456	L1	31.83	9.93	41.77	56.77	46.77	-15.00
0.537	L1	28.79	9.89	38.68	56.00	46.00	-17.32
0.812	L1	30.13	9.82	39.94	56.00	46.00	-16.06
0.956	L1	29.31	9.81	39.12	56.00	46.00	-16.88
1.190	N	26.57	9.80	36.37	56.00	46.00	-19.63
1.194	L1	30.49	9.80	40.29	56.00	46.00	-15.71
1.275	L1	29.64	9.80	39.44	56.00	46.00	-16.56
1.590	L1	30.96	9.81	40.77	56.00	46.00	-15.23
1.640	N	25.88	9.82	35.70	56.00	46.00	-20.30
2.117	L1	33.60	9.83	43.43	56.00	46.00	-12.57
2.531	N	28.88	9.86	38.74	56.00	46.00	-17.26
2.648	L1	33.54	9.86	43.40	56.00	46.00	-12.60
2.963	N	29.70	9.88	39.58	56.00	46.00	-16.42
3.435	L1	31.41	9.89	41.30	56.00	46.00	-14.71
4.088	L1	32.19	9.90	42.09	56.00	46.00	-13.91
4.209	N	25.92	9.91	35.83	56.00	46.00	-20.17
5.892	N	26.79	9.92	36.71	60.00	50.00	-23.29
7.359	N	28.12	9.97	38.09	60.00	50.00	-21.91
11.684	N	25.41	10.02	35.43	60.00	50.00	-24.57
12.597	L1	28.17	10.05	38.22	60.00	50.00	-21.78

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


Measurements were done with the quasi-peak 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.

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AC Conducted Emissions Test Graphs

Test Configuration: 3

Figure 1-5: L1 lines

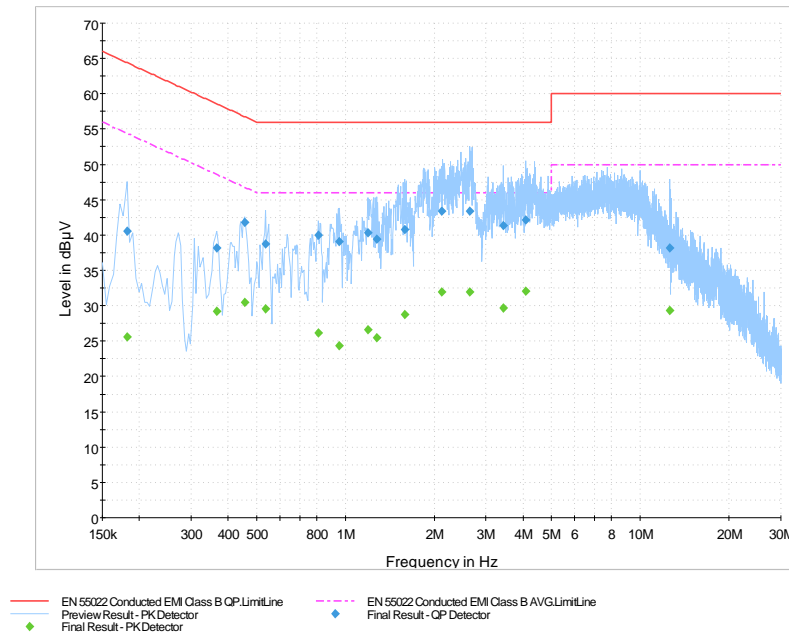
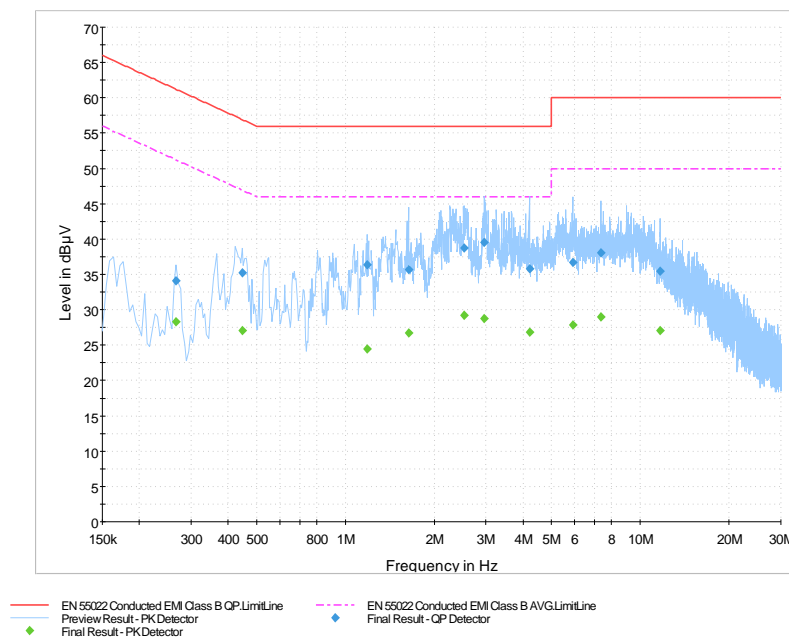



Figure 1-6: N Lines



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AC Conducted Emissions Test Results cont'd

Test Configuration: 4

Date of the test: June 09, 2010


The environmental conditions were: Temperature: 24 °C
 Pressure: 1013 mb
 Humidity: 31 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.182	L1	38.40	10.99	49.38	64.42	54.42	-15.03
0.182	N	32.09	11.01	43.11	64.42	54.42	-21.31
0.272	L1	32.86	10.36	43.21	61.07	51.07	-17.86
0.281	N	29.17	10.31	39.48	60.80	50.80	-21.32
0.416	N	29.04	10.00	39.04	57.54	47.54	-18.50
0.461	L1	34.39	9.93	44.32	56.68	46.68	-12.37
0.735	N	29.71	9.83	39.54	56.00	46.00	-16.46
1.235	L1	34.86	9.80	44.66	56.00	46.00	-11.34
1.248	N	32.86	9.80	42.66	56.00	46.00	-13.34
2.328	N	37.94	9.84	47.79	56.00	46.00	-8.22
2.337	L1	41.07	9.84	50.91	56.00	46.00	-5.09
3.845	N	25.69	9.90	35.59	56.00	46.00	-20.41
4.002	L1	29.87	9.90	39.77	56.00	46.00	-16.23
4.331	L1	29.01	9.90	38.91	56.00	46.00	-17.09
8.619	L1	28.43	9.98	38.41	60.00	50.00	-21.59

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.

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AC Conducted Emissions Test Graphs

Test Configuration: 4

Figure 1-7: L1 lines

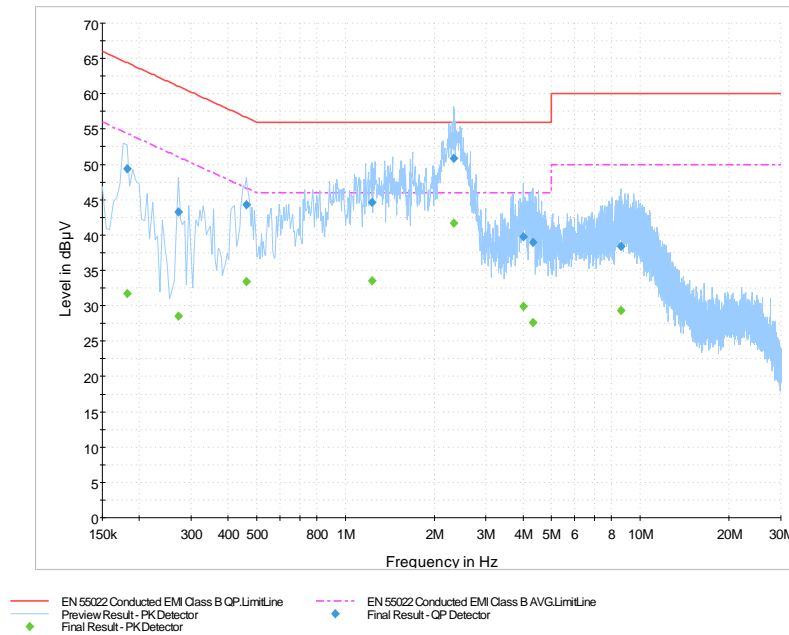
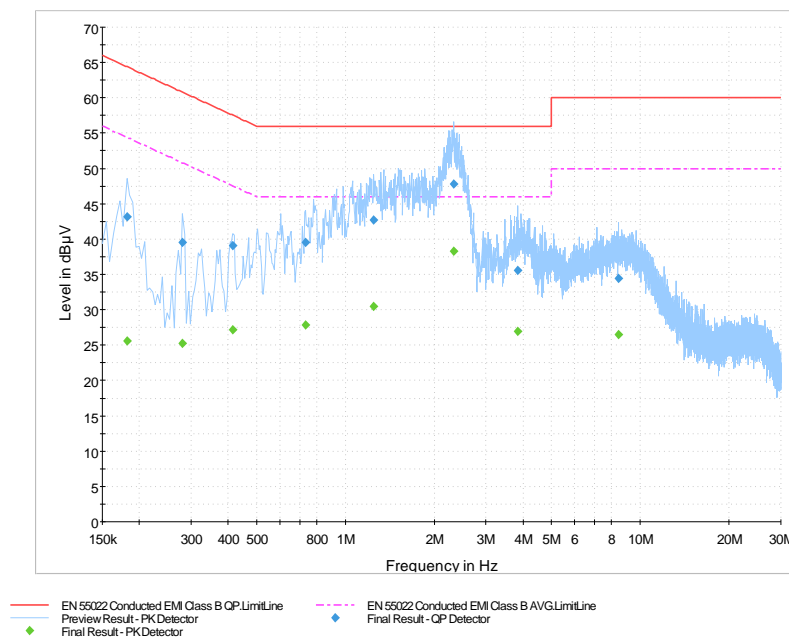



Figure 1-8: N Lines



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AC Conducted Emissions Test Results cont'd

Test configuration: 5

Date of the test: June 09, 2010


The environmental conditions were: Temperature: 23 °C
 Pressure: 1013 mb
 Humidity: 31 %

Frequency	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP)
(MHz)		(dBµV)	(dB)	(dBµV)	(dBµV)	(dBµV)	Limits (dB)
0.150	N	46.67	11.23	57.90	66.00	56.00	-8.10
0.159	L1	44.39	11.14	55.54	65.52	55.52	-9.98
0.164	N	43.71	11.14	54.85	65.28	55.28	-10.44
0.213	L1	41.16	10.77	51.93	63.09	53.09	-11.16
0.218	N	43.43	10.76	54.19	62.91	52.91	-8.72
0.245	L1	35.23	10.55	45.77	61.94	51.94	-16.17
0.290	N	37.51	10.25	47.76	60.54	50.54	-12.78
0.317	L1	30.54	10.14	40.68	59.80	49.80	-19.12
0.330	N	26.48	10.13	36.61	59.45	49.45	-22.84
0.362	L1	30.92	10.07	40.99	58.69	48.69	-17.70
0.366	N	31.57	10.08	41.65	58.59	48.59	-16.94
0.578	L1	35.05	9.87	44.91	56.00	46.00	-11.09
0.587	N	35.75	9.87	45.62	56.00	46.00	-10.38
0.713	L1	33.48	9.83	43.31	56.00	46.00	-12.69
0.956	L1	31.84	9.81	41.64	56.00	46.00	-14.36
1.280	L1	28.69	9.80	38.49	56.00	46.00	-17.51
1.757	L1	29.36	9.82	39.17	56.00	46.00	-16.83
10.928	N	26.07	9.99	36.06	60.00	50.00	-23.94

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.

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AC Conducted Emissions Test Graphs

Test Configuration: 5

Figure 1-9: L1 lines

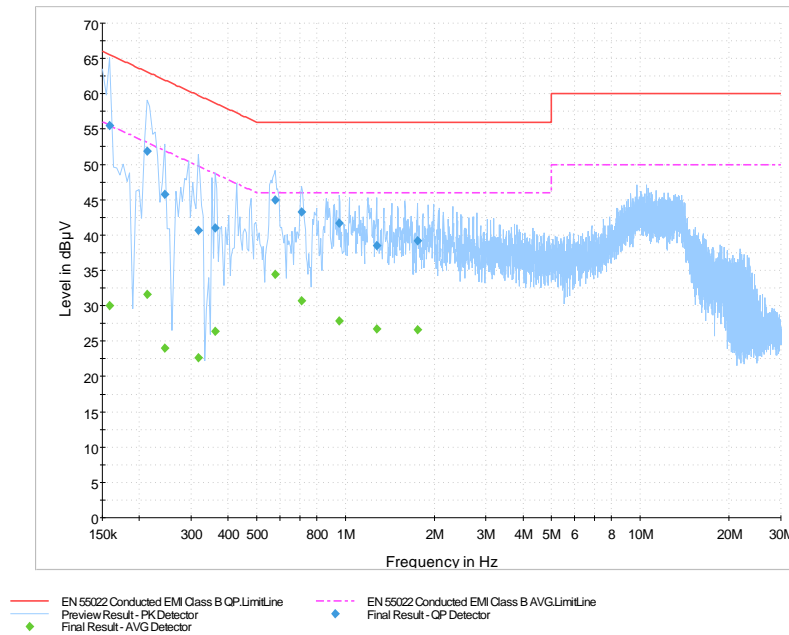
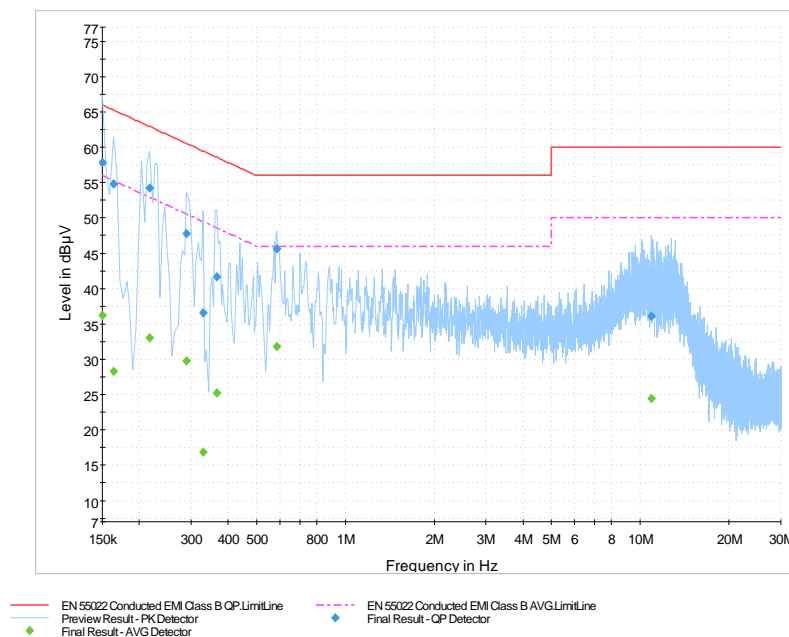



Figure 1-10: N Lines



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AC Conducted Emissions Test Results cont'd

Test configuration: 6

Date of the test: July 09, 2010


The environmental conditions were: Temperature: 23 °C
 Pressure: 1021 mb
 Humidity: 32 %

Frequency	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP)
(MHz)		(dBµV)	(dB)	(dBµV)	(dBµV)	(dBµV)	Limits (dB)
0.173	L1	43.14	11.05	54.19	64.84	54.84	-10.65
0.173	N	31.39	11.08	42.47	64.84	54.84	-22.37
0.231	L1	35.03	10.64	45.67	62.41	52.41	-16.75
0.290	L1	29.79	10.23	40.02	60.54	50.54	-20.52
0.344	L1	31.40	10.10	41.50	59.12	49.12	-17.62
0.348	N	25.38	10.10	35.48	59.01	49.01	-23.53
0.519	N	21.80	9.91	31.71	56.00	46.00	-24.30
0.749	L1	27.02	9.83	36.85	56.00	46.00	-19.15
1.955	L1	27.40	9.82	37.22	56.00	46.00	-18.78
3.404	N	23.56	9.89	33.45	56.00	46.00	-22.55
3.966	L1	29.79	9.90	39.69	56.00	46.00	-16.31
4.155	N	25.43	9.91	35.33	56.00	46.00	-20.67

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.

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AC Conducted Emissions Test Graphs

Test Configuration: 6

Figure 1-11: L1 lines

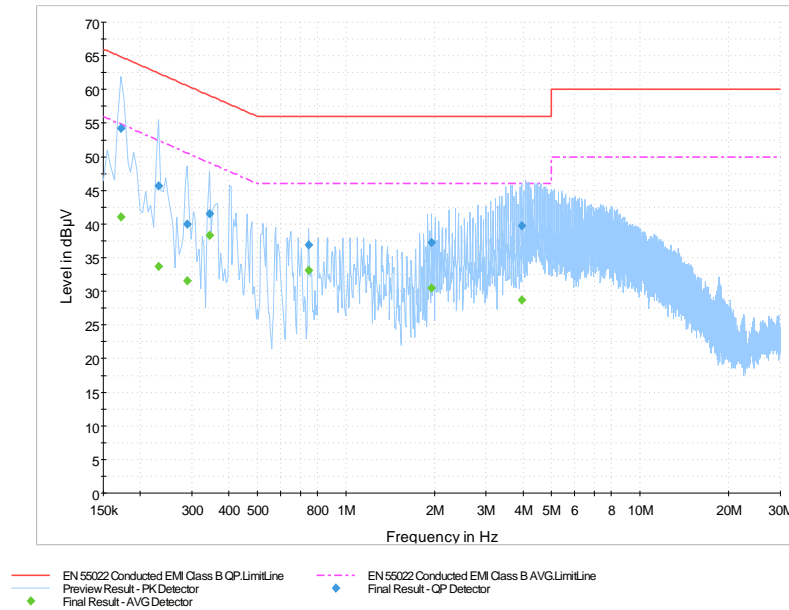
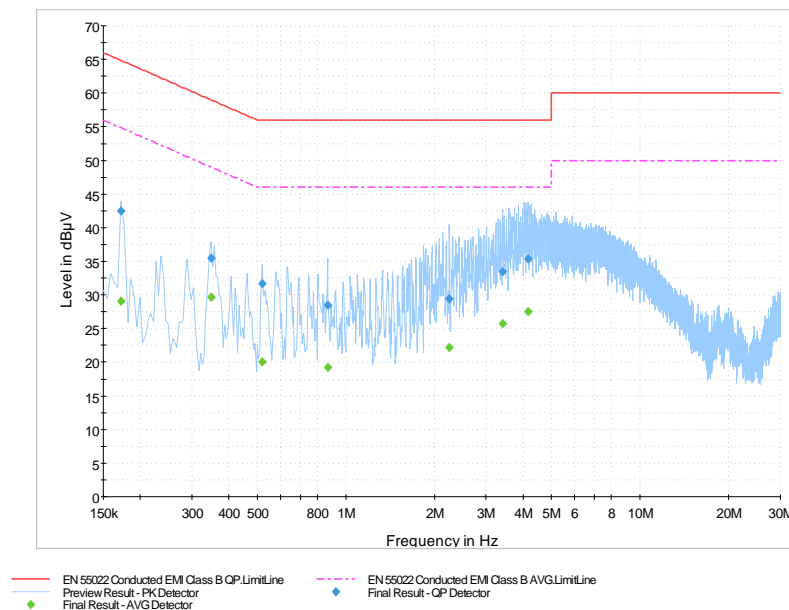



Figure 1-12: N Lines



APPENDIX 2 - RADIATED EMISSIONS TEST DATA

		EMI Test Report for the BlackBerry® smartphone Model RCU21CW	
Test Report No. RTS-2581-1006-48	Dates of Test May 21 to June 09, July 09 and August 11, 2010		FCC ID: L6ARCU20CW IC: 2503A-RCU20CW


Radiated Emissions Test Results cont'd

Test Configuration: 2

Date of the test: May 21, 2010

The environmental conditions were: Temperature: 21 °C
 Pressure: 1015 mb
 Humidity: 30 %

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)							
67.750	V	1.52	29.00	Q.P.	45.09	-22.40	22.69	40.00	-17.31
69.200	V	1.40	354.00	Q.P.	46.86	-22.28	24.58	40.00	-15.42
184.250	H	1.74	281.00	Q.P.	45.31	-18.67	26.64	43.50	-16.86
244.500	H	1.00	105.00	Q.P.	45.88	-17.03	28.85	46.00	-17.15
868.600	V	2.10	321.00	Q.P.	23.80	-1.33	22.47	46.00	-23.53
All other emission levels had test margins greater than 25 dB.									

			EMI Test Report for the BlackBerry® smartphone Model RCU21CW		
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Radiated Emissions Test Results cont'd

Test Configuration: 4

Date of the test: May 25, 2010

The environmental conditions were: Temperature: 21 °C
 Pressure: 1015 mb
 Humidity: 30 %

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+c orr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
39.050	V	1.40	313.00	Q.P.	53.05	-21.02	32.03	40.00	-7.97
56.950	V	1.40	354.00	Q.P.	50.18	-22.91	27.27	40.00	-12.73
168.000	H	1.21	118.00	Q.P.	54.01	-18.86	35.15	43.50	-8.35
184.400	H	2.51	354.00	Q.P.	39.94	-18.66	21.28	43.50	-22.22
216.100	H	0.97	354.00	Q.P.	40.49	-16.18	24.31	46.00	-21.69
245.950	H	1.00	277.00	Q.P.	45.65	-16.95	28.70	46.00	-17.30
All other emission levels had test margins greater than 25 dB.									

Test Configuration: 8

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

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