

EMC 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



REPORT NO.: RTS-6058-1408-09A


PRODUCT MODEL NO.: RHA111LW, RHB121LW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARHA110LW, L6ARHB120LW

DATE: August 08, 2014

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



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|  | EMC Test Report for the BlackBerry® smartphone Model RHA111LW, RHB121LW | |
| Test Report No. RTS-6058-1408-09A | Date of Test July 09 to August 05, 2014 | FCC ID: L6ARHA110LW FCC ID: L6ARHB120LW |

Statement of Performance:

The BlackBerry® smartphone, model RHA111LW, part number CER-59878-001 Rev2-001-02 and accessories when configured and operated per BlackBerry’s operation instructions, performs within the requirements of the test standards.

The BlackBerry® smartphone, model RHB121LW, part number CER-59877-001 Rev1-905-00 and accessories when configured and operated per BlackBerry’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:

Reviewed by:

Savtej S. Sandhu
Compliance Specialist I

Kevin Guo
Compliance Specialist I


Reviewed and Approved by:

Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance

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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, 2013 Class B Digital Devices, Unintentional Radiators
- IC ICES-003 Issue 5, August 2013, Information Technology Equipment (ITE) – Limits and methods of measurement

B. Associated Documents

- 1) RHA111LW-R139-HWD_CER-59878-001 – Rev2-001-01
- 2) RHA111LW-R139-HWD_CER-59878-001 – Rev2-001-02
- 3) MultiSourceDeclaration_R139-R140_10.3.0.890_Reg_only
- 4) BlackBerry_System_Similarity_Declaration_Khan-series_v3

C. Product Identification

Manufactured by BlackBerry Limited whose headquarters is located at:

2200 University Ave. East
Waterloo, Ontario
Canada, N2K 0A7
Phone: 519 888 7465
Fax: 519 888 6906


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

BlackBerry RTS EMC 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

The testing was performed from July 09 to August 05, 2014.

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The sample EUT included:

| SAMPLE | MODEL | HARDWARE | PIN | Software |
|--------|----------|------------------------------|----------|---|
| 1 | RHA111LW | CER-59878-001 Rev1-001-00 | 2FFEB281 | OS Version 10.3.0.686 Bundle: 686 |
| 2 | RHA111LW | CER-59878-001 Rev2-001-02 | 2FFEC30C | OS Version 10.3.0.890 Bundle: 890 |

AC conducted testing was performed on sample 2.

Radiated Emissions testing was performed on samples 1 and 2.

Only the characteristics that may have been affected by the changes from RHA111LW Rev1-001-00 to RHA111LW Rev2-001-02 were re-tested.

For more details, refer to RHA111LW-R139-HWD_CER-59878-001 – Rev2-001-01 and RHA111LW-R139-HWD_CER-59878-001 – Rev2-001-02.

Only the characteristics that may have been affected by the changes from RHA111LW to RHB121LW were re-tested.

For more information, see BlackBerry_System_Similarity_Declaration_Khan-series_v3.

To view the differences between software bundles 10.3.0.686 to 10.3.0.890 for RHA111LW, see document MultiSourceDeclaration_R139-R140_10.3.0.890_Reg_only.

BlackBerry® smartphone Accessories Tested

- 1) Fixed Blade Charger Rev1, part number HDW-47725-001 with an output voltage of 5.0 volts dc, 850mA
- 2) Wired Headset, part number HDW-49299-005, with a lead length of 1.1 metres
- 3) USB Data Cable, part number HDW-50071-001 Rev2, 0.9 metres long
- 4) HDMI Cable, part number HDW-29572-001, 6 feet long


D. Support Equipment Used for the Testing of the EUT

- 1) Lenovo Thinkpad laptop, type 4236-D84, S/N PB-HX502 12/02, product ID 4236D84
- 2) Phillips Monitor, Model Number MWE12244T, Product ID 2444E1SB/27

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E. Summary of Results

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

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a) AC POWERLINE CONDUCTED EMISSIONS

The AC Powerline 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 RHA111LW:

| Test Configuration | Operating Mode(s) | Charger + Accessories |
|--------------------|--|---|
| 1 | PCS 1900 Idle, Charging, and Video Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable |
| 2 | LTE FDD 2, Idle, Charging and Audio Playback | Laptop + Wired Headset + 0.9m USB Cable |
| 3 | UMTS FDD II HSDPA+, Idle, Charging and Audio Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable + HDMI Cable + Monitor |
| 4 | UMTS FDD V DC HSDPA, Idle, Charging and Video Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable |

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. The sample EUT had a worst case test margin of 9.23 dB below the QP limit at 0.416 MHz using the QP detector and 4.47 dB below the AV limit at 0.416 MHz using the AV detector in Test Configuration 3.

Measurement Uncertainty ± 3.2 dB

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

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b) RADIATED UNINTENTIONAL SPURIOUS EMISSIONS

The radiated unintentional spurious 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 (SAC) below 1 GHz and a modified semi-anechoic chamber (modified SAC) with floor absorbers above 1 GHz. The SAC's FCC registration number is **778487** and the Industry Canada (IC) file number is **2503B-1**. The modified SAC's FCC registration number is **959115** and the IC file number is **2503C-1**.

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

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

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The following test configurations were measured for model RHA111LW:

| Test Configuration | Operating Mode(s) | Charger + Accessories |
|--------------------|--|---|
| 1 | PCS 1900, Idle, Charging and Video Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable |
| 2 | LTE FDD 2, Idle, Charging and Audio Playback | Laptop + Wired Headset + 0.9m USB Cable |
| 3 | NFC, Tx, Charging and Video Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable |
| 4 | UMTS FDD II HSDPA+, Idle, Charging and Audio Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable + HDMI Cable + Monitor |
| 5 | UMTS FDD V DC HSDPA, Idle, Charging and Video Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable |
| 6 | Bluetooth, Tx, Charging and Video Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable |
| 7 | 802.11b, Tx, Charging and Audio Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable |
| 8 | 802.11a, Tx, Charging and Video Playback | Fixed Blade Charger + Wired Headset + 0.9m USB Cable |

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.

The system met the requirements with a worst case emission test margin of 4.07 dB below the QP limit at 742.55 MHz using QP detector in Test Configuration 4.


To view the test data see APPENDIX 2.

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 ±4.3 dB

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F. 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 | 14-10-16 | Radiated Emissions |
| Preamplifier system | TDK RF Solutions | PA-02 | 080010 | 14-10-16 | Radiated Emissions |
| EMI Receiver | Rohde & Schwarz | ESIB 40 | 100255 | 14-12-11 | Radiated Emissions |
| Environment Monitor | OMEGA | iTHX-SD | 0380561 | 16-11-15 | Radiated Emission |
| Environment Monitor | OMEGA | iTHX-SD | 0380567 | 16-11-15 | Radiated Emission |
| L.I.S.N. | Rohde & Schwarz | ENV216 | 100060 | 15-10-08 | AC Powerline Conducted Emissions |
| Hybrid Log Antenna | EMC Automation | HLP-3003C | 081701 | 14-08-13 | Radiated Emissions |
| Horn Antenna | EMC Automation | HRN-0118 | 030101 | 14-08-07 | Radiated Emissions |
| Preamplifier | Rohde & Schwarz | TS-ANA-SP | 001 | 14-10-13 | Radiated Emissions |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 837493/073 | 14-11-24 | Radiated Emissions |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 112394 | 14-11-25 | Radiated/AC Powerline Conducted Emission |
| Universal Radio Communication Tester | Rohde & Schwarz | CMW500 | 101469 | 14-12-09 | Radiated Emissions |
| Universal Radio Communication Tester | Rohde & Schwarz | CMW500 | 109949 | 14-12-07 | Radiated /RF Conducted Emission |
| EMI Test Receiver | Rohde & Schwarz | ESU 40 | 100162 | 14-12-08 | Radiated/AC Powerline Conducted Emission |
| Bluetooth Tester | Rohde & Schwarz | CBT | 100368 | 14-12-04 | Radiated Emissions |
| Bluetooth Tester | Rohde & Schwarz | CBT | 100737 | 14-12-05 | Radiated/AC Powerline Conducted Emission |

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G. Test Software Used

| <u>SOFTWARE</u> | <u>COMPANY</u> | <u>VERSION</u> | <u>USE</u> |
|----------------------------|------------------|----------------|--------------------|
| EMC32 | Rohde & Schwarz | 8.52.0 | Radiated Emissions |
| TDK Standard Emission Test | TDK RF Solutions | 8.53.1.62 | Radiated Emissions |

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APPENDIX 1 - AC POWERLINE CONDUCTED EMISSIONS TEST DATA

| | | |
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AC Powerline Conducted Emissions Test Results

The following test configurations were measured for model RHA111LW:

The following tests were performed by Kevin Guo.

Test Configuration 1

Date of the test: August 05, 2014


The environmental conditions were: Temperature: 23.9 °C
Humidity: 38.2 %

| 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 | 33.75 | 10.99 | 44.74 | 64.40 | 54.40 | -19.66 |
| 0.186 | N | 34.90 | 10.98 | 45.88 | 64.20 | 54.20 | -18.32 |
| 0.371 | L1 | 35.67 | 10.06 | 45.73 | 58.50 | 48.50 | -12.77 |
| 0.375 | N | 37.24 | 10.06 | 47.30 | 58.40 | 48.40 | -11.10 |
| 0.398 | N | 34.80 | 10.03 | 44.82 | 57.90 | 47.90 | -13.08 |
| 0.749 | N | 28.83 | 9.83 | 38.65 | 56.00 | 46.00 | -17.35 |
| 0.848 | L1 | 30.49 | 9.81 | 40.30 | 56.00 | 46.00 | -15.70 |
| 1.473 | L1 | 32.70 | 9.80 | 42.50 | 56.00 | 46.00 | -13.50 |
| 2.436 | L1 | 28.56 | 9.85 | 38.41 | 56.00 | 46.00 | -17.59 |
| 2.643 | N | 24.82 | 9.86 | 34.68 | 56.00 | 46.00 | -21.32 |

All other emissions are at least 25 dB below the limit.

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 Powerline Conducted Emissions Test Graphs

Test Configuration 1

Figure 1-1: L1 lines

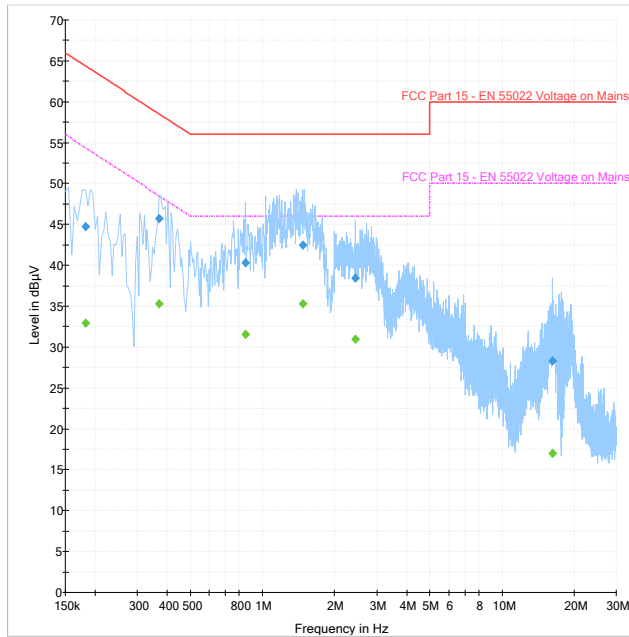
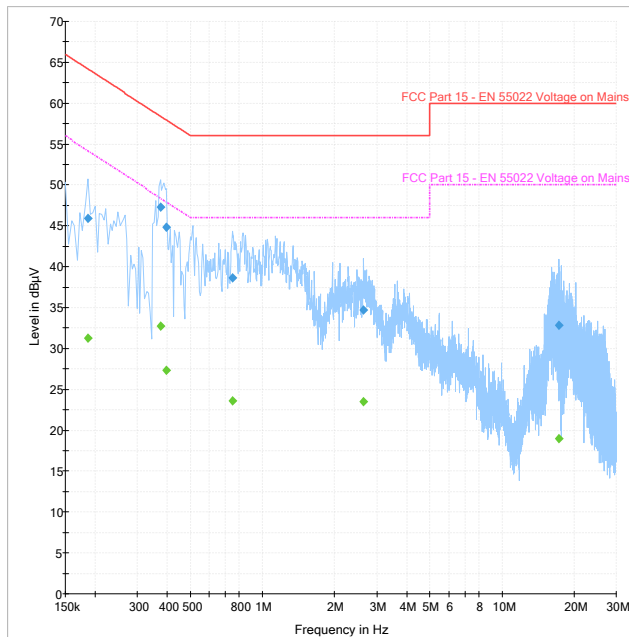



Figure 1-2: N Lines



| | | |
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AC Powerline Conducted Emissions Test Results cont'd

Test Configuration 2

Date of the test: August 05, 2014


The environmental conditions were: Temperature: 24.6 °C
Humidity: 40.6 %

| Frequency (MHz) | Line | Reading (QP) (dBµV) | Correction Factor (dB) | Corrected Reading (QP) (dBµV) | Limit (QP) (dBµV) | Limit (AV) (dBµV) | Margin (QP) Limits (dB) |
|-----------------|------|---------------------|------------------------|-------------------------------|-------------------|-------------------|-------------------------|
| 0.200 | L1 | 30.46 | 10.86 | 41.32 | 63.60 | 53.60 | -22.28 |
| 0.200 | N | 31.86 | 10.89 | 42.74 | 63.60 | 53.60 | -20.86 |
| 0.402 | N | 36.55 | 10.02 | 46.57 | 57.80 | 47.80 | -11.23 |
| 0.411 | L1 | 25.13 | 9.99 | 35.12 | 57.60 | 47.60 | -22.48 |
| 0.848 | N | 22.48 | 9.82 | 32.30 | 56.00 | 46.00 | -23.70 |
| 1.388 | L1 | 32.66 | 9.80 | 42.46 | 56.00 | 46.00 | -13.54 |
| 1.428 | N | 26.75 | 9.81 | 36.55 | 56.00 | 46.00 | -19.45 |
| 1.527 | L1 | 32.06 | 9.80 | 41.86 | 56.00 | 46.00 | -14.14 |
| 2.076 | N | 21.54 | 9.83 | 31.37 | 56.00 | 46.00 | -24.63 |
| 2.580 | L1 | 28.81 | 9.85 | 38.66 | 56.00 | 46.00 | -17.34 |

All other emissions are at least 25 dB below the limit.

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 Powerline Conducted Emissions Test Graphs

Test Configuration 2

Figure 1-3: L1 lines

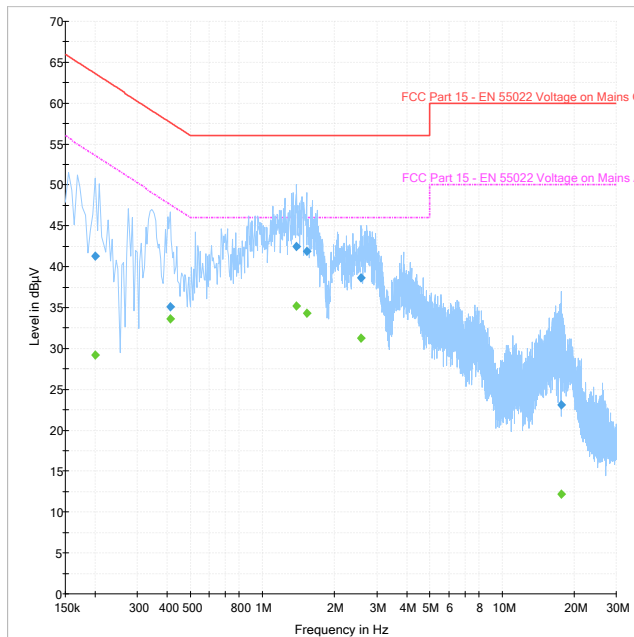
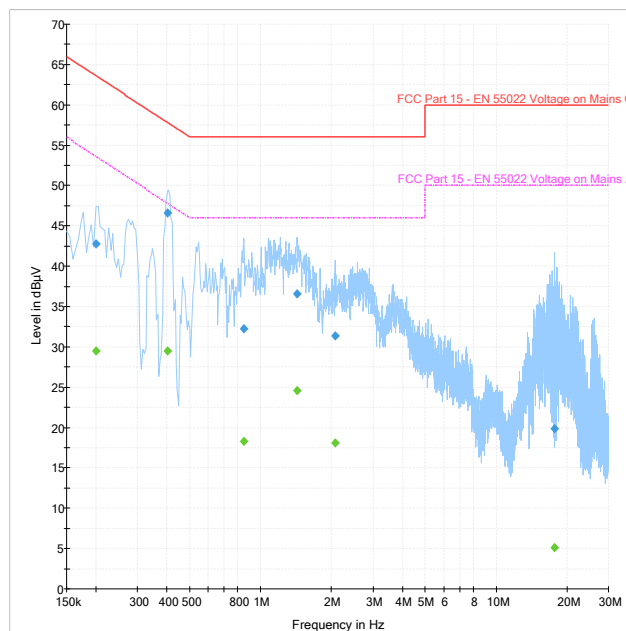



Figure 1-4: N Lines



| | | |
|---|--|--|
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AC Powerline Conducted Emissions Test Results cont'd

Test Configuration 3

Date of the test: August 05, 2014

The environmental conditions were: Temperature: 23.9 °C
Humidity: 38.2 %


| Frequency (MHz) | Line | Reading (QP) (dBµV) | Correction Factor (dB) | Corrected Reading (QP) (dBµV) | Limit (QP) (dBµV) | Margin (QP) Limits (dB) |
|-----------------|------|---------------------|------------------------|-------------------------------|-------------------|-------------------------|
| 0.173 | N | 30.37 | 11.08 | 41.45 | 64.80 | -23.35 |
| 0.371 | L1 | 35.11 | 10.06 | 45.17 | 58.50 | -13.33 |
| 0.380 | N | 33.84 | 10.05 | 43.89 | 58.30 | -14.41 |
| 0.416 | L1 | 38.28 | 9.99 | 48.27 | 57.50 | -9.23 |
| 0.416 | N | 36.86 | 10.00 | 46.86 | 57.50 | -10.64 |
| 0.564 | N | 25.23 | 9.88 | 35.11 | 56.00 | -20.89 |
| 1.064 | L1 | 32.25 | 9.80 | 42.06 | 56.00 | -13.94 |
| 1.383 | L1 | 32.08 | 9.80 | 41.88 | 56.00 | -14.12 |
| 3.818 | L1 | 26.67 | 9.90 | 36.57 | 56.00 | -19.44 |

| Frequency (MHz) | Line | Reading (AV) (dBµV) | Correction Factor (dB) | Corrected Reading (AV) (dBµV) | Limit (AV) (dBµV) | Margin (AV) Limits (dB) |
|-----------------|------|---------------------|------------------------|-------------------------------|-------------------|-------------------------|
| 0.371 | L1 | 29.28 | 10.06 | 39.34 | 48.50 | -9.17 |
| 0.380 | N | 22.89 | 10.05 | 32.94 | 48.30 | -15.36 |
| 0.416 | L1 | 33.04 | 9.99 | 43.03 | 47.50 | -4.47 |
| 0.416 | N | 21.33 | 10.00 | 31.33 | 47.50 | -16.17 |
| 1.064 | L1 | 13.34 | 9.80 | 23.15 | 46.00 | -22.85 |
| 1.383 | L1 | 21.80 | 9.80 | 31.60 | 46.00 | -14.40 |
| 3.818 | L1 | 11.48 | 9.90 | 21.37 | 46.00 | -24.63 |

All other emissions are at least 25 dB below the limit.

Measurements were done with the quasi-peak and average detectors.

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 Powerline Conducted Emissions Test Graphs

Test Configuration 3

Figure 1-5: L1 lines

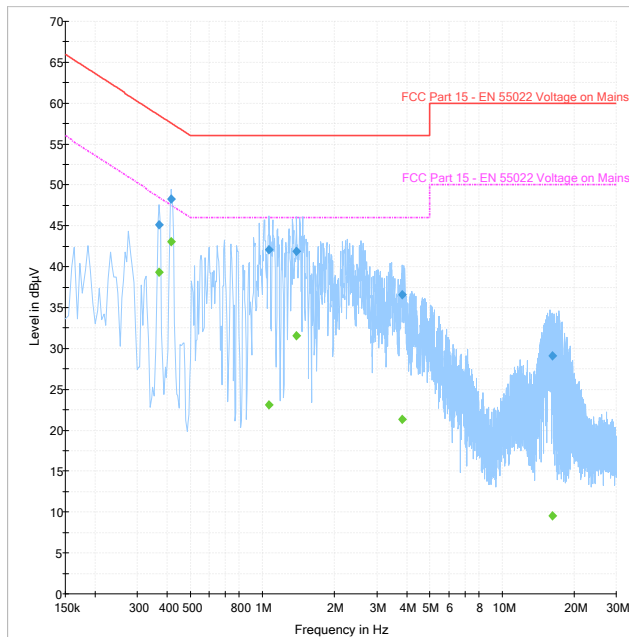
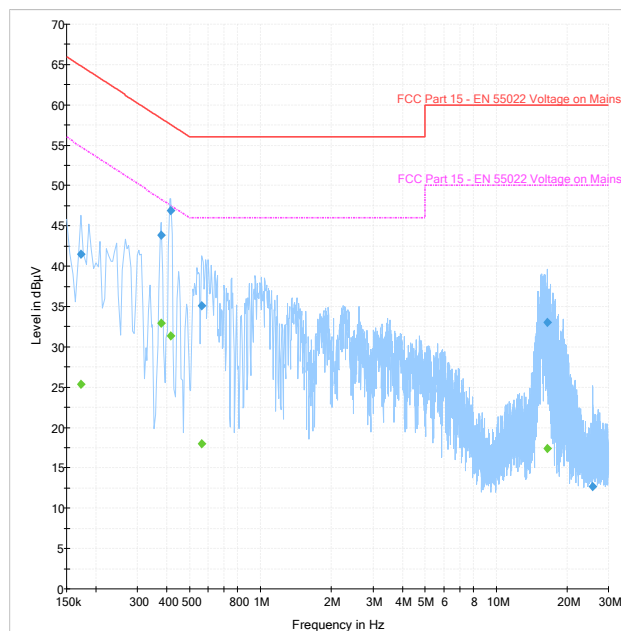



Figure 1-6: N Lines



| | | |
|---|--|--|
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AC Powerline Conducted Emissions Test Results cont'd

Test Configuration 4

Date of the test: August 05, 2014


The environmental conditions were: Temperature: 23.9 °C
Humidity: 38.2 %

| Frequency (MHz) | Line | Reading (QP) (dBµV) | Correction Factor (dB) | Corrected Reading (QP) (dBµV) | Limit (QP) (dBµV) | Limit (AV) (dBµV) | Margin (QP) Limits (dB) |
|-----------------|------|---------------------|------------------------|-------------------------------|-------------------|-------------------|-------------------------|
| 0.393 | N | 30.50 | 10.03 | 40.53 | 58.00 | 48.00 | -17.47 |
| 0.402 | L1 | 33.91 | 10.01 | 43.92 | 57.80 | 47.80 | -13.88 |
| 0.411 | N | 27.85 | 10.01 | 37.86 | 57.60 | 47.60 | -19.74 |
| 0.609 | N | 24.37 | 9.86 | 34.23 | 56.00 | 46.00 | -21.77 |
| 1.446 | L1 | 25.61 | 9.80 | 35.42 | 56.00 | 46.00 | -20.58 |

All other emissions are at least 25 dB below the limit.

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.

| | | |
|---|--|--|
|  | EMC Test Report for the BlackBerry® smartphone Model RHA111LW, RHB121LW Appendix 1 | |
| Test Report No. RTS-6058-1408-09A | Date of Test July 09 to August 05, 2014 | FCC ID: L6ARHA110LW FCC ID: L6ARHB120LW |

AC Powerline Conducted Emissions Test Graphs

Test Configuration 4

Figure 1-7: L1 lines

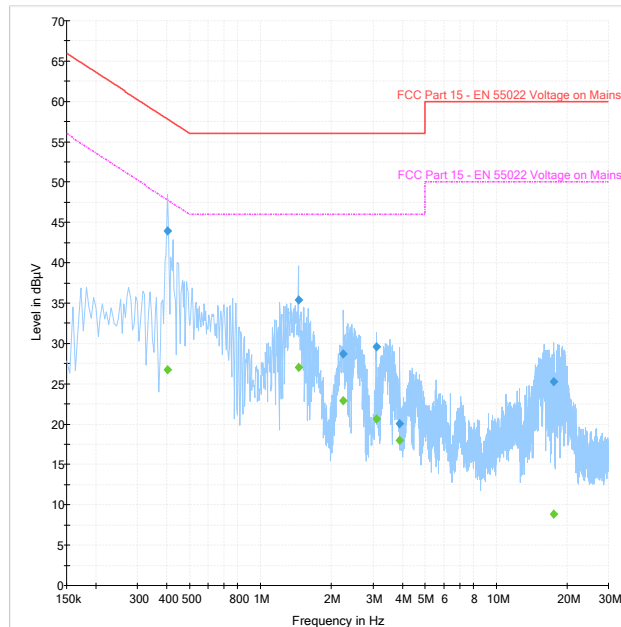
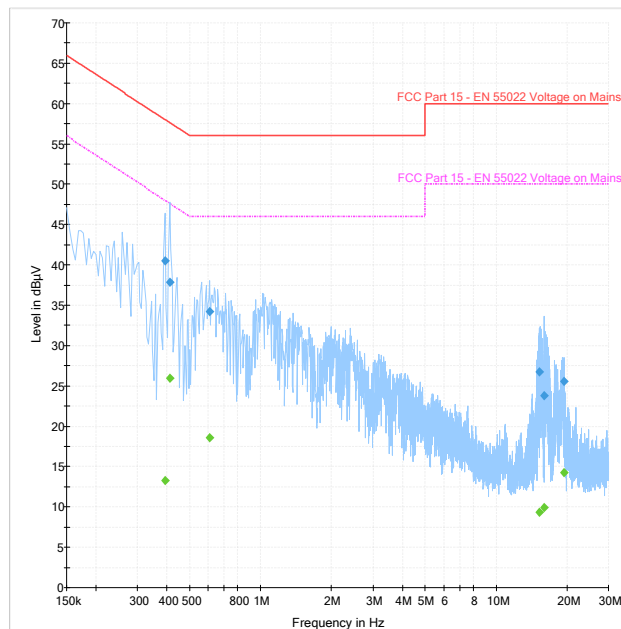




Figure 1-8: N Lines



| | | |
|---|--|--|
|  | EMC Test Report for the BlackBerry® smartphone Model RHA111LW, RHB121LW Appendix 2 | |
| Test Report No. RTS-6058-1408-09A | Date of Test July 09 to August 05, 2014 | FCC ID: L6ARHA110LW FCC ID: L6ARHB120LW |

APPENDIX 2 - RADIATED UNINTENTIONAL SPURIOUS EMISSIONS TEST DATA

| | | |
|---|--|--|
|  | EMC Test Report for the BlackBerry® smartphone Model RHA111LW, RHB121LW Appendix 2 | |
| Test Report No. RTS-6058-1408-09A | Date of Test July 09 to August 05, 2014 | FCC ID: L6ARHA110LW FCC ID: L6ARHB120LW |

Radiated Unintentional Spurious Emissions Test Results

The following test configurations were measured for model RHA111LW:

The following tests were performed by Savtej Sandhu and Kevin Guo.

Test Configuration 1

Date of the test: July 09 and 29, 2014

The environmental conditions were: Temperature: 23.9 – 24.2 °C

Humidity: 38.2 – 44.5 %

| 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) | | | | | | | |
| 41.350 | V | 1.44 | 149.00 | Q.P. | 45.79 | -14.29 | 31.50 | 40.00 | -8.50 |
| 55.900 | V | 1.47 | 17.00 | Q.P. | 40.59 | -16.48 | 24.11 | 40.00 | -15.89 |
| 76.850 | V | 1.56 | 181.00 | Q.P. | 32.14 | -14.05 | 18.09 | 40.00 | -21.91 |
| 85.250 | V | 1.51 | 79.00 | Q.P. | 33.37 | -13.25 | 20.12 | 40.00 | -19.88 |

All other emissions are at least 25 dB below the limit.

| | | |
|---|--|--|
| BlackBerry. | EMC Test Report for the BlackBerry® smartphone Model RHA111LW, RHB121LW Appendix 2 | |
| Test Report No. RTS-6058-1408-09A | Date of Test July 09 to August 05, 2014 | FCC ID: L6ARHA110LW FCC ID: L6ARHB120LW |

Radiated Unintentional Spurious Emissions Test Results cont'd


Test Configuration 2

Date of the test: July 11 and 29, 2014

The environmental conditions were: Temperature: 23.9 – 24.2 °C
Humidity: 38.2 – 44.5 %

| 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) | | | | | | | |
| 33.750 | V | 1.44 | 283.00 | Q.P. | 41.66 | -12.29 | 29.37 | 40.00 | -10.63 |
| 39.950 | V | 1.49 | 78.00 | Q.P. | 42.33 | -13.80 | 28.53 | 40.00 | -11.47 |
| 52.250 | V | 1.42 | 101.00 | Q.P. | 39.11 | -16.19 | 22.92 | 40.00 | -17.08 |
| 70.650 | H | 3.68 | 25.00 | Q.P. | 35.96 | -14.96 | 21.00 | 40.00 | -19.00 |
| 119.800 | V | 1.41 | 346.00 | Q.P. | 31.67 | -10.86 | 20.81 | 43.50 | -22.69 |

All other emissions are at least 25 dB below the limit.

| | | |
|--|--|--|
|  BlackBerry | EMC Test Report for the BlackBerry® smartphone Model RHA111LW, RHB121LW Appendix 2 | |
| Test Report No. RTS-6058-1408-09A | Date of Test July 09 to August 05, 2014 | FCC ID: L6ARHA110LW FCC ID: L6ARHB120LW |

Radiated Unintentional Spurious Emissions Test Results cont'd


Test Configuration 4

Date of the test: July 15 and 29, 2014

The environmental conditions were: Temperature: 23.9 – 24.2 °C
Humidity: 38.2 – 44.5 %

| Frequency (MHz) | Antenna | | Test Angle (Deg.) | Detect or (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) | | | | | | | |
| 34.150 | V | 1.41 | 188.00 | Q.P. | 41.38 | -12.39 | 28.99 | 40.00 | -11.01 |
| 73.950 | V | 1.59 | 126.00 | Q.P. | 41.32 | -14.41 | 26.91 | 40.00 | -13.09 |
| 142.150 | V | 1.41 | 354.00 | Q.P. | 41.01 | -11.50 | 29.51 | 43.50 | -13.99 |
| 251.450 | H | 1.23 | 160.00 | Q.P. | 50.00 | -8.41 | 41.59 | 46.00 | -4.41 |
| 375.500 | H | 1.71 | 335.00 | Q.P. | 43.76 | -3.74 | 40.02 | 46.00 | -5.98 |
| 742.550 | H | 1.07 | 143.00 | Q.P. | 36.44 | 5.49 | 41.93 | 46.00 | -4.07 |

All other emissions are at least 25 dB below the limit.

| | | |
|---|--|--|
|  | EMC Test Report for the BlackBerry® smartphone Model RHA111LW, RHB121LW Appendix 2 | |
| Test Report No. RTS-6058-1408-09A | Date of Test July 09 to August 05, 2014 | FCC ID: L6ARHA110LW FCC ID: L6ARHB120LW |

Radiated Unintentional Spurious Emissions Test Results cont'd


Test Configuration 5

Date of the test: July 15 and 29, 2014

The environmental conditions were: Temperature: 23.9 – 24.2 °C
Humidity: 38.2 – 44.5 %

| 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) | | | | | | | |
| 41.650 | V | 1.50 | 327.00 | Q.P. | 36.23 | -14.35 | 21.88 | 40.00 | -18.12 |
| 57.600 | V | 1.66 | 211.00 | Q.P. | 37.21 | -16.32 | 20.89 | 40.00 | -19.11 |
| 72.750 | V | 1.47 | 87.00 | Q.P. | 35.17 | -14.65 | 20.52 | 40.00 | -19.48 |

All other emissions are at least 25 dB below the limit.

| | | |
|---|--|--|
|  | EMC Test Report for the BlackBerry® smartphone Model RHA111LW, RHB121LW Appendix 2 | |
| Test Report No. RTS-6058-1408-09A | Date of Test July 09 to August 05, 2014 | FCC ID: L6ARHA110LW FCC ID: L6ARHB120LW |

Radiated Unintentional Spurious Emissions Test Results cont'd


Test Configuration 7

Date of the test: July 09 and 29, 2014

The environmental conditions were: Temperature: 23.9 – 24.2 °C
Humidity: 38.2 – 44.5 %

| 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) | | | | | | | |
| 40.550 | V | 1.42 | 314.00 | Q.P. | 46.55 | -14.04 | 32.51 | 40.00 | -7.49 |
| 56.300 | V | 1.47 | 12.00 | Q.P. | 39.53 | -16.44 | 23.09 | 40.00 | -16.91 |
| 76.200 | V | 1.52 | 67.00 | Q.P. | 36.68 | -14.14 | 22.54 | 40.00 | -17.46 |

All other emissions are at least 25 dB below the limit.

| | | |
|--|--|--|
|  BlackBerry. | EMC Test Report for the BlackBerry® smartphone Model RHA111LW, RHB121LW Appendix 2 | |
| Test Report No. RTS-6058-1408-09A | Date of Test July 09 to August 05, 2014 | FCC ID: L6ARHA110LW FCC ID: L6ARHB120LW |

Radiated Unintentional Spurious Emissions Test Results cont'd

Test Configuration 8

Date of the test: July 09 and 29, 2014

The environmental conditions were: Temperature: 23.9 – 24.2 °C
Humidity: 38.2 – 44.5 %

| 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) | | | | | | | |
| 41.350 | V | 2.13 | 154.00 | Q.P. | 41.87 | -14.29 | 27.58 | 40.00 | -12.42 |
| 55.950 | V | 1.64 | 40.00 | Q.P. | 38.90 | -16.50 | 22.40 | 40.00 | -17.60 |
| 76.100 | V | 1.44 | 40.00 | Q.P. | 34.78 | -14.15 | 20.63 | 40.00 | -19.37 |

All other emissions are at least 25 dB below the limit.