

## **EMI Test Report**

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

# **RIM Testing Services (RTS)**

**A division of Research In Motion Limited**

**REPORT NO.:** RTS-1615-0905-15

**PRODUCT MODEL NO.:** RCG41GW  
**TYPE NAME:** BlackBerry® smartphone  
**FCC ID:** L6ARCG40GW  
**IC:** 2503A-RCG40GW

**DATE:** 01 June, 2009

|  |  |                                     |
|--|--|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009           | <b>Author Data</b><br>Savtej Sandhu |

**Statement of Performance:**

The BlackBerry® smartphone, model RCG41GW, part number CER-21961-001 Rev. 1, and accessories when configured and operated per RIM's operation instructions, performs within the requirements of the test standards.

**Declaration:**

We hereby certify that:

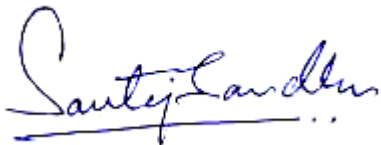
The test data reported herein is an accurate record of the performance of the sample(s) tested.

The test results are valid for the tested unit (s) only.

The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating parameters.

The test methods were consistent with the methods described in the relevant standards.

Documented by:



Savtej Sandhu  
Compliance Specialist  
Date: 01 June, 2009

Reviewed by:



Masud S. Attayi, P.Eng.  
Team Lead, Regulatory Compliance  
Date: 04 June, 2009

Approved by:



Paul G. Cardinal, Ph.D.  
Director  
Date: 05 June, 2009

|  |  |                                     |
|--|--|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009           | <b>Author Data</b><br>Savtej Sandhu |

## Table of Contents

|  |   |    |
|--|---|----|
| A.   | Scope .....   | 4  |
| B.   | Associated Document.....                                | 4  |
| C.   | Product Identification .....                            | 4  |
| D.   | Support Equipment Used for the Testing of the EUT ..... | 5  |
| E.   | Modifications to EUT .....                              | 6  |
| F.   | Summary of Results .....                                | 6  |
| G.   | Compliance Test Equipment Used .....                    | 9  |
| APPENDIX 1 - AC LINE CONDUCTED EMISSIONS TEST DATA ..... |   | 10 |
| APPENDIX 2 - RADIATED EMISSIONS TEST DATA .....          |   | 18 |

|  |  |                                     |
|--|--|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009           | <b>Author Data</b><br>Savtej Sandhu |

## 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, 2008 Class B Digital Devices, Unintentional Radiators
- IC ICES-003 Issue 4, February 2004, Class B Digital Devices, Unintentional Radiators

## B. Associated Document

None

## 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 (RTS) 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 April 08 to April 16, 2009.

|  |  |                                     |
|--|--|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009           | <b>Author Data</b><br>Savtej Sandhu |

The sample EUT included:

| SAMPLE | MODEL   | CER NUMBER           | PIN      |
|--------|---------|----------------------|----------|
| 1      | RCG41GW | CER-21961-001 Rev. 1 | 20E44F39 |
| 2      | RCG41GW | CER-21961-001 Rev. 1 | 20E44F37 |
| 3      | RCG41GW | CER-21961-001 Rev. 1 | 20E44F38 |
| 4      | RCG41GW | CER-21961-001 Rev. 1 | 20E3AC3C |

AC conducted testing was performed on sample 1.

Radiated Emissions testing was performed on samples 2, 3, and 4.

#### BlackBerry® smartphone Accessories Tested

- 1) Folding Blade Charger part number HDW-17955-001 with an output voltage of 5.0 volts, 700 mA and attached USB cable with a lead length of 1.80 metres.
- 2) Captive Cable Charger part number HDW-17957-001 with an output voltage of 5.0 volts dc, 700 mA and attached USB cable with a lead length of 1.80 metres.
- 3) 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.
- 4) Non-Folding Blade Charger, part number HDW-24480-001, Rev 1 with an output voltage of 5.0 volts dc, 550 mA.
- 5) Non-Folding Blade Charger, part number HDW-25966-001 with an output voltage of 5.0 volts dc, 550 mA.
- 6) Bluetooth Headset, part number HDW-12747-002.
- 7) External Battery Charger, (EBC), part number HDW-12738-001.
- 8) BlackBerry® Remote Stereo Gateway, part number HDW-16007-001.
- 9) USB Y-Cable, part number HDW-19137-002, lead lengths of 26 cm and 11 cm.
- 10) Stereo Headset, part number HDW-14322-003 with a lead length of 1.3 metres.
- 11) Premium Single Button Stereo Headset, part number HDW-15766-005, 1.3 meters long.
- 12) Premium Multi-Button Stereo Headset, part number HDW-15765-001, 1.3 meters long.
- 13) USB Data Cable, part number HDW-06610-013, 0.30 metres long.
- 14) USB Data Cable, part number HDW-06610-009, 1.00 metre long.
- 15) USB Data Cable, part number HDW-06610-005, 1.50 metres long.
- 16) Mini to Micro USB Adapter, part number HDW-19139-001.

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

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

|  |  |                                     |
|--|--|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009           | <b>Author Data</b><br>Savtej Sandhu |

## E. Modifications to EUT

No modifications were required on the EUT.

## F. Summary of Results

| SPECIFICATION      |          | TEST TYPE                                 | Meets Requirement | Test Data APPENDIX |
|--------------------|----------|---|-------------------|--------------------|
| FCC CFR 47         | IC       |   |                   |                    |
| Part 15, Subpart B | ICES-003 | Conducted AC Line Emission                | Yes               | 1                  |
| Part 15, Subpart B | ICES-003 | Radiated Unintentional Spurious Emissions | Yes               | 2                  |

### a) CONDUCTED AC LINE 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:

1. The BlackBerry® smartphone, PIN 20E44F39 in GSM850 idle mode with the Stereo Headset attached was connected to the Folding Blade Charger, HDW-17955-001.
2. The BlackBerry® smartphone, PIN 20E44F39 in PCS1900 idle mode with the Premium Single Button Stereo Headset attached was connected to the Captive Cable Charger, HDW-17957-001.
3. The BlackBerry® smartphone, PIN 20E44F39 in GSM850 idle mode with the Stereo Headset attached was connected to the Non-Folding Blade Charger, HDW-24480-001, via the 1.5 metre USB Data Cable.

|  |  |                                     |
|--|--|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009           | <b>Author Data</b><br>Savtej Sandhu |

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 worse case test margin of 4.40 dB below the QP limit at 0.150 MHz using the quasi-peak detector and 12.02 dB below the AV limit at 0.159 MHz using the AV detector for the Non-Folding Blade Charger, test configuration 3.

**Measurement Uncertainty ±3.0 dB**

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

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:

1. The BlackBerry® smartphone, PIN 20E44F37 in GSM850 idle mode with the Stereo Headset attached was connected to the Folding Blade Charger, HDW-17955-001. The External Battery Charger was connected to the Folding Blade Charger via the USB Y-Cable and the Mini to Micro USB Adapter.
2. The BlackBerry® smartphone, PIN 20E44F38 in 802.11bg Tx mode with the Premium Multi-Button Stereo Headset attached was connected to the Captive Cable Charger, HDW-17957-001.
3. The BlackBerry® smartphone, PIN 20E3AC3C in PCS1900 idle mode and Bluetooth Tx mode was connected to the Captive Cable Charger, HDW-17957-003. The BlackBerry® Remote Stereo Gateway was connected to the Laptop via the 0.3 metre USB Data Cable.

|  |  |                                     |
|--|--|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009           | <b>Author Data</b><br>Savtej Sandhu |

4. The BlackBerry® smartphone, PIN 20E3AC3C in Bluetooth Tx mode and communicating with the Bluetooth Headset was connected to the Non-Folding Blade Charger, HDW-24480-001, via the 1.0 metre USB Data Cable.
5. The BlackBerry® smartphone, PIN 20E3AC3C in PCS1900 idle mode was connected to the Non-Folding Blade Charger, HDW-25966-001, via the 1.5 metres USB Data Cable.
6. The BlackBerry® smartphone, PIN 20E44F37 in GSM850 idle mode with the Premium Single-Button Stereo Headset attached was connected to the Laptop in USB high speed mode via the 1.5 metre USB Cable.

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

The system met the requirements with a worse case emission test margin of 3.68 dB at 240.012 MHz using test configuration 6.

**Sample Calculation:**

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

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

**Measurement Uncertainty ±4.6 dB**

To view the test data see APPENDIX 2.



|  |  |                                     |
|--|--|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009           | <b>Author Data</b><br>Savtej Sandhu |

## G. Compliance Test Equipment Used

| <u>UNIT</u>                          | <u>MANUFACTURER</u> | <u>MODEL</u> | <u>SERIAL NUMBER</u> | <u>CAL DUE DATE</u><br>(YY MM DD) | <u>USE</u>                   |
|--------------------------------------|---------------------|--------------|----------------------|-----------------------------------|------------------------------|
| Preamplifier                         | Sonoma              | 310N/11909A  | 185831               | 09-11-07                          | Radiated Emissions           |
| Preamplifier system                  | TDK RF Solutions    | PA-02        | 080010               | 09-11-07                          | Radiated Emissions           |
| EMC Analyzer                         | Agilent             | E7405A       | US40240226           | 09-11-17                          | Radiated Emissions           |
| Digital Multimeter                   | Hewlett Packard     | 34401A       | US36042324           | 09-10-03                          | Conducted/Radiated Emissions |
| Environment Monitor                  | Control Company     | 1870         | 230355190            | 10-01-30                          | Radiated Emissions           |
| Environment Monitor                  | Control Company     | 1870         | 80117164             | 10-01-08                          | Conducted/Radiated Emissions |
| L.I.S.N.                             | Rohde & Schwarz     | ENV216       | 100060               | 10-04-21                          | Conducted Emissions          |
| Hybrid Log Antenna                   | EMC Automation      | HLP-3003C    | 017401               | 10-09-26                          | Radiated Emissions           |
| Horn Antenna                         | EMC Automation      | HRN-0118     | 030101               | 10-07-22                          | Radiated Emissions           |
| Universal Radio Communication Tester | Rohde & Schwarz     | CMU 200      | 837493/073           | 09-12-08                          | Radiated Emissions           |
| Universal Radio Communication Tester | Rohde & Schwarz     | CMU 200      | 112394               | 09-12-08                          | Radiated/Conducted Emissions |
| EMI Test Receiver                    | Rohde & Schwarz     | ESIB 40      | 100255               | 09-12-03                          | Conducted/Radiated Emissions |
| Bluetooth Tester                     | Rohde & Schwarz     | CBT          | 100370               | 09-12-09                          | Radiated Emissions           |

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 1</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

## APPENDIX 1 - AC LINE CONDUCTED EMISSIONS TEST DATA

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 1</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

### AC Conducted Emissions Test Results

The measurements were performed by Heng Lin.

#### Test Configuration 1

The BlackBerry® smartphone PIN 20E44F39 was tested on April 15, 2009.

The environmental test conditions were: Temperature: 25°C  
Pressure: 1011 mb  
Relative Humidity: 26%

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

| Frequency<br>(MHz) | Line | Reading<br>(QP)<br>(dBµV) | Correction<br>Factor<br>(dB) | Corrected<br>Reading<br>(QP)<br>(dB) | Limit<br>(QP)<br>(dBµV) | Limit<br>(AV)<br>(dBµV) | Margin<br>(QP)<br>Limits<br>(dB) |
|--------------------|------|---------------------------|------------------------------|--------------------------------------|-------------------------|-------------------------|----------------------------------|
| 0.164              | L1   | 35.61                     | 9.99                         | 45.60                                | 65.28                   | 55.28                   | -19.68                           |
| 0.173              | L1   | 36.12                     | 9.88                         | 46.00                                | 64.84                   | 54.84                   | -18.84                           |
| 0.411              | N    | 25.93                     | 9.87                         | 35.80                                | 57.63                   | 47.63                   | -21.83                           |
| 0.416              | L1   | 27.26                     | 9.74                         | 37.00                                | 57.54                   | 47.54                   | -20.54                           |
| 0.452              | L1   | 26.59                     | 9.71                         | 36.30                                | 56.85                   | 46.85                   | -20.55                           |
| 0.546              | N    | 25.62                     | 9.88                         | 35.50                                | 56.00                   | 46.00                   | -20.50                           |
| 3.345              | L1   | 22.50                     | 9.60                         | 32.10                                | 56.00                   | 46.00                   | -23.90                           |
| 4.974              | N    | 21.70                     | 9.60                         | 31.30                                | 56.00                   | 46.00                   | -24.70                           |
| 5.555              | L1   | 25.94                     | 9.66                         | 35.60                                | 60.00                   | 50.00                   | -24.40                           |
| 6.153              | L1   | 26.92                     | 9.68                         | 36.60                                | 60.00                   | 50.00                   | -23.40                           |
| 7.341              | L1   | 28.56                     | 9.74                         | 38.30                                | 60.00                   | 50.00                   | -21.70                           |
| 7.940              | N    | 26.77                     | 9.63                         | 36.40                                | 60.00                   | 50.00                   | -23.60                           |
| 9.434              | N    | 27.95                     | 9.65                         | 37.60                                | 60.00                   | 50.00                   | -22.40                           |
| 10.514             | L1   | 29.16                     | 9.84                         | 39.00                                | 60.00                   | 50.00                   | -21.00                           |
| 12.156             | L1   | 25.32                     | 9.88                         | 35.20                                | 60.00                   | 50.00                   | -24.80                           |

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

Measurements were done with the quasi-peak detector.

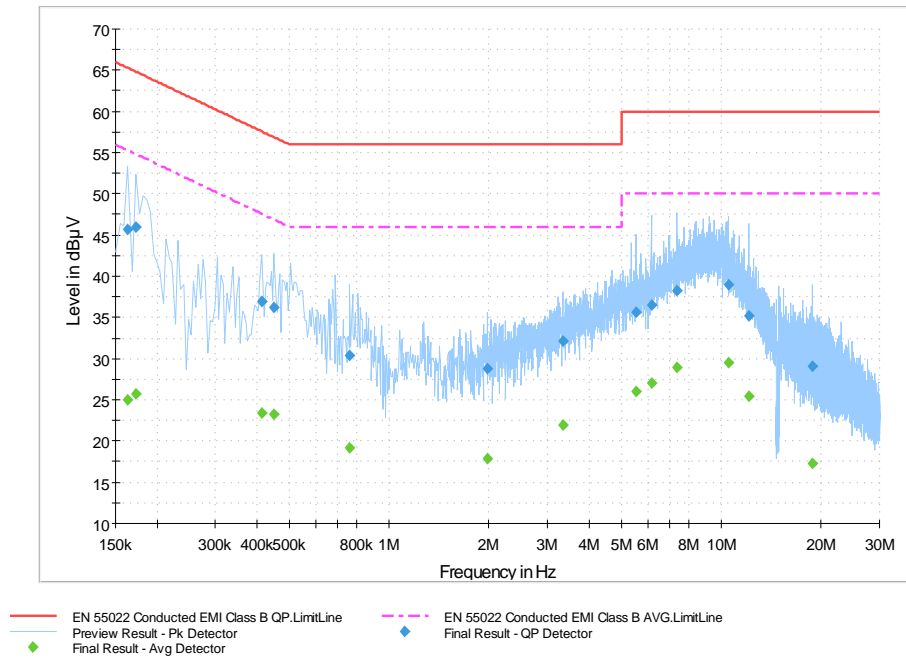
See figure 1-1 and figure 1-2 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

|                                    |   |  |
|------------------------------------|---|--|
| <b>RTS</b><br>RIM Testing Services | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 1</b> |  |
|                                    | <b>Test Report No.</b><br>RTS-1615-0905-15  | <b>Dates of Test</b><br>April 08 to April 16, 2009 |

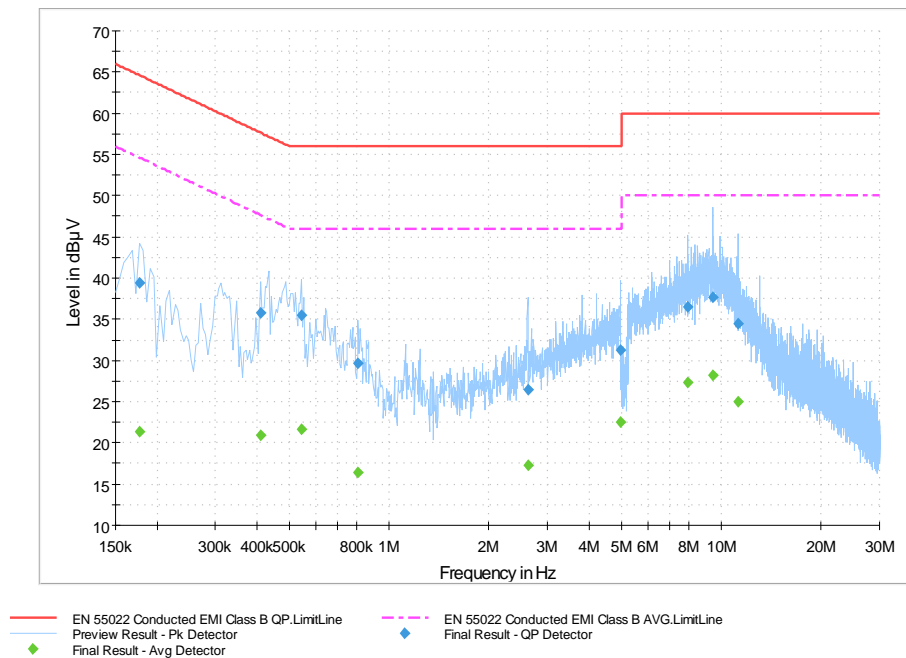
## AC Conducted Emissions Test Graphs

### Test Configuration 1

**Figure 1-1: L1 lines**



**Figure 1-2: N Lines**



|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 1</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

AC Conducted Emissions Test Results cont'd

Test Configuration 2

The BlackBerry® smartphone PIN 20E44F39 was tested on April 15, 2009.

The environmental test conditions were: Temperature: 25°C  
Pressure: 1011 mb  
Relative Humidity: 26%

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

| Frequency<br>(MHz) | Line | Reading<br>(QP)<br>(dBμV) | Correction<br>Factor<br>(dB) | Corrected<br>Reading<br>(QP)<br>(dB) | Limit<br>(QP)<br>(dBμV) | Limit<br>(AV)<br>(dBμV) | Margin<br>(QP)<br>Limits<br>(dB) |
|--------------------|------|---------------------------|------------------------------|--------------------------------------|-------------------------|-------------------------|----------------------------------|
| 0.173              | N    | 40.16                     | 10.04                        | 50.20                                | 64.84                   | 54.84                   | -14.64                           |
| 0.182              | L1   | 42.42                     | 9.78                         | 52.20                                | 64.42                   | 54.42                   | -12.22                           |
| 0.276              | N    | 36.09                     | 9.81                         | 45.90                                | 60.94                   | 50.94                   | -15.04                           |
| 0.425              | L1   | 33.07                     | 9.73                         | 42.80                                | 57.36                   | 47.36                   | -14.56                           |
| 0.447              | L1   | 33.78                     | 9.72                         | 43.50                                | 56.93                   | 46.93                   | -13.43                           |
| 0.614              | N    | 24.47                     | 9.83                         | 34.30                                | 56.00                   | 46.00                   | -21.70                           |
| 0.830              | N    | 26.48                     | 9.72                         | 36.20                                | 56.00                   | 46.00                   | -19.80                           |
| 0.947              | N    | 28.33                     | 9.67                         | 38.00                                | 56.00                   | 46.00                   | -18.00                           |
| 1.041              | L1   | 25.69                     | 9.51                         | 35.20                                | 56.00                   | 46.00                   | -20.80                           |
| 1.887              | L1   | 26.67                     | 9.53                         | 36.20                                | 56.00                   | 46.00                   | -19.80                           |
| 1.914              | N    | 25.98                     | 9.62                         | 35.60                                | 56.00                   | 46.00                   | -20.40                           |
| 2.207              | L1   | 27.24                     | 9.55                         | 36.80                                | 56.00                   | 46.00                   | -19.20                           |
| 2.382              | N    | 23.90                     | 9.60                         | 33.50                                | 56.00                   | 46.00                   | -22.50                           |
| 2.738              | L1   | 26.53                     | 9.57                         | 36.10                                | 56.00                   | 46.00                   | -19.90                           |
| 3.071              | N    | 24.99                     | 9.61                         | 34.60                                | 56.00                   | 46.00                   | -21.40                           |
| 3.332              | L1   | 25.20                     | 9.60                         | 34.80                                | 56.00                   | 46.00                   | -21.20                           |
| 3.660              | N    | 28.49                     | 9.61                         | 38.10                                | 56.00                   | 46.00                   | -17.90                           |
| 3.921              | L1   | 26.26                     | 9.64                         | 35.90                                | 56.00                   | 46.00                   | -20.10                           |
| 8.957              | L1   | 28.61                     | 9.79                         | 38.40                                | 60.00                   | 50.00                   | -21.60                           |
| 10.775             | L1   | 26.46                     | 9.84                         | 36.30                                | 60.00                   | 50.00                   | -23.70                           |

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

Measurements were done with the quasi-peak detector.

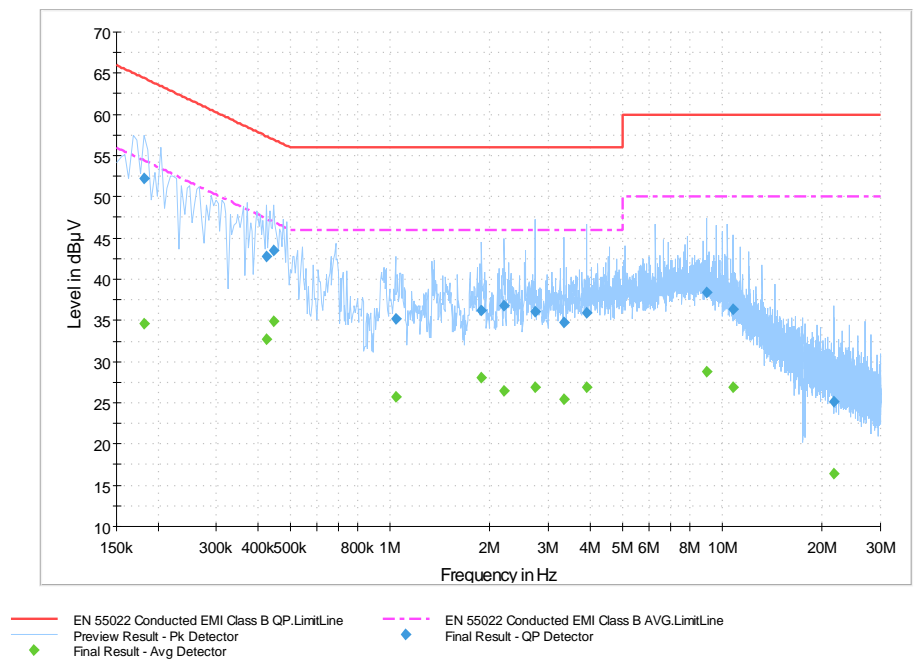
See figure 1-3 and figure 1-4 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

|                                    |   |  |
|------------------------------------|---|--|
| <b>RTS</b><br>RIM Testing Services | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 1</b> |  |
|                                    | <b>Test Report No.</b><br>RTS-1615-0905-15  | <b>Dates of Test</b><br>April 08 to April 16, 2009 |

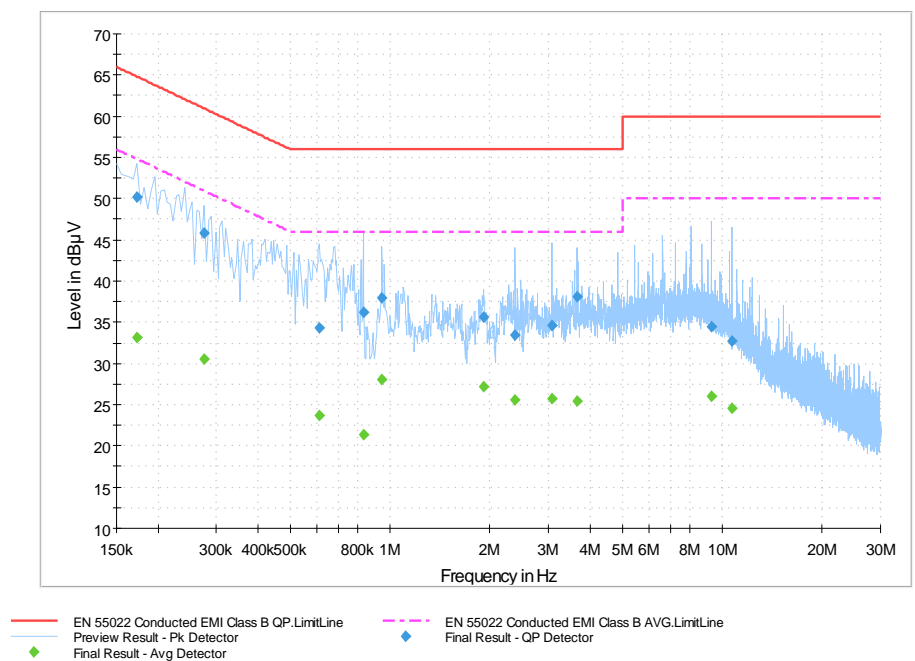
## AC Conducted Emissions Test Graphs

### Test Configuration 2

**Figure 1-3: L1 lines**



**Figure 1-4: N Lines**



|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 1</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

AC Conducted Emissions Test Results cont'd

Test Configuration 3

The BlackBerry® smartphone PIN 20E44F39 was tested on April 16, 2009.

The environmental test conditions were: Temperature: 24°C  
Pressure: 1026 mb  
Relative Humidity: 30%

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

| Frequency<br>(MHz) | Line | Reading<br>(QP)<br>(dBµV) | Correction<br>Factors for<br>Impulse Limiter,<br>LISN, Cable<br>(dB) | Level (QP)<br>(reading +<br>Corr.Factor)<br>(dB) | Limit<br>(QP)<br>(dBµV) | Margin<br>(QP) Limits<br>(dB) |
|--------------------|------|---------------------------|--|--|-------------------------|-------------------------------|
| 0.150              | L1   | 51.65                     | 9.95   | 61.60  | 66.00                   | <b>-4.40</b>                  |
| 0.159              | N    | 50.04                     | 9.96   | 60.00  | 65.52                   | -5.52                         |
| 0.290              | L1   | 34.27                     | 9.83   | 44.10  | 60.54                   | -16.44                        |
| 0.317              | N    | 42.68                     | 9.82   | 52.50  | 59.80                   | -7.30                         |
| 0.335              | L1   | 42.69                     | 9.81   | 52.50  | 59.34                   | -6.84                         |
| 0.465              | L1   | 37.49                     | 9.71   | 47.20  | 56.60                   | -9.40                         |
| 0.474              | L1   | 37.71                     | 9.69   | 47.40  | 56.44                   | -9.04                         |
| 0.492              | N    | 37.71                     | 9.89   | 47.60  | 56.13                   | -8.53                         |
| 0.627              | L1   | 34.88                     | 9.62   | 44.50  | 56.00                   | -11.50                        |
| 0.659              | N    | 29.60                     | 9.80   | 39.40  | 56.00                   | -16.60                        |
| 0.776              | N    | 26.55                     | 9.75   | 36.30  | 56.00                   | -19.70                        |
| 0.929              | L1   | 29.67                     | 9.53   | 39.20  | 56.00                   | -16.80                        |
| 0.987              | N    | 28.05                     | 9.65   | 37.70  | 56.00                   | -18.30                        |
| 1.397              | N    | 23.20                     | 9.60   | 32.80  | 56.00                   | -23.20                        |
| 2.126              | N    | 23.07                     | 9.63   | 32.70  | 56.00                   | -23.30                        |

All other emission levels had a test margin of 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.

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 1</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

AC Conducted Emissions Test Results cont'd

Test Configuration 3

The BlackBerry® smartphone PIN 20E44F39 was tested on April 16, 2009.

The environmental test conditions were: Temperature: 24°C  
Pressure: 1026 mb  
Relative Humidity: 30%

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

| Frequency<br>(MHz) | Line | Reading<br>(AVE.)<br>(dBµV) | Correction<br>Factors for<br>Impulse Limiter,<br>LISN, Cable<br>(dB) | Level (AVE.)<br>(reading +<br>Corr.Factor)<br>(dB) | Limit<br>(AVE.)<br>(dBµV) | Margin<br>(AVE.) Limits<br>(dB) |
|--------------------|------|-----------------------------|--|--|---------------------------|---------------------------------|
| 0.150              | L1   | 23.15                       | 9.95   | 33.10  | 56.00                     | -22.90                          |
| 0.159              | N    | 33.54                       | 9.96   | 43.50  | 55.52                     | <b>-12.02</b>                   |
| 0.317              | N    | 21.78                       | 9.82   | 31.60  | 49.80                     | -18.20                          |
| 0.335              | L1   | 21.59                       | 9.81   | 31.40  | 49.34                     | -17.94                          |
| 0.465              | L1   | 18.59                       | 9.71   | 28.30  | 46.60                     | -18.30                          |
| 0.474              | L1   | 22.11                       | 9.69   | 31.80  | 46.44                     | -14.64                          |
| 0.492              | N    | 17.81                       | 9.89   | 27.70  | 46.13                     | -18.43                          |
| 0.627              | L1   | 12.68                       | 9.62   | 22.30  | 46.00                     | -23.70                          |

Measurements were done with the average detector.

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

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

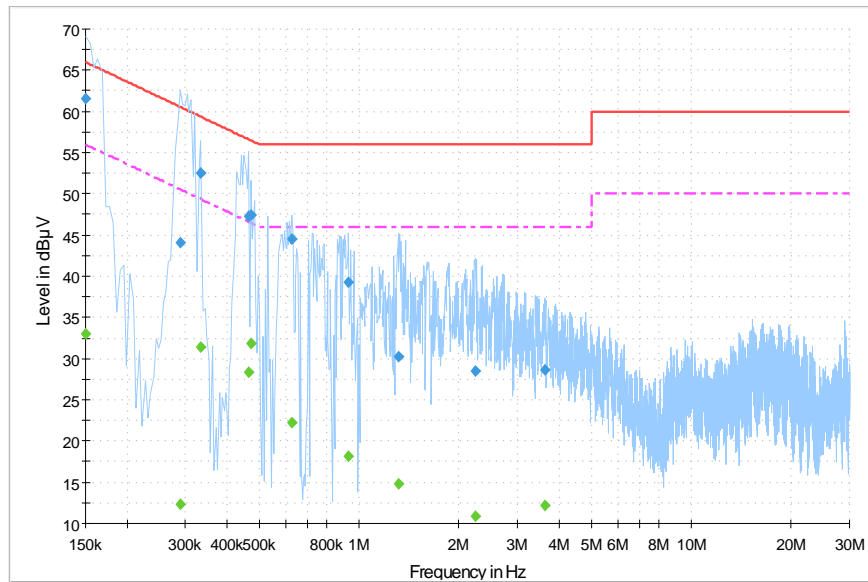


|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 1</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

## AC Conducted Emissions Test Graphs

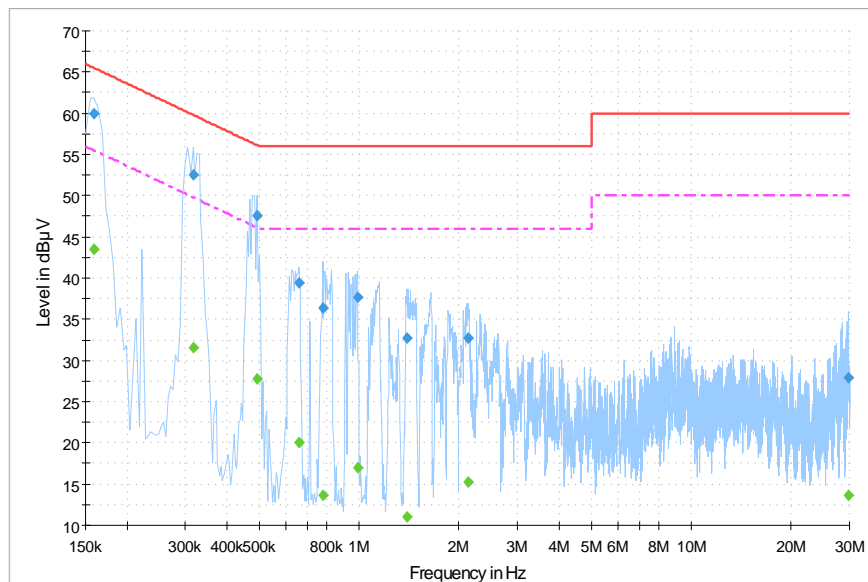
### Test Configuration 3

**Figure 1-5: L1 lines**



— EN 55022 Conducted EMI Class B QP.LimitLine      - - - EN 55022 Conducted EMI Class B AVG.LimitLine  
— Preview Result-Peak Detector                      ◆ Final Result-QP Detector  
◆ Final Result-Avg Detector

**Figure 1-6: N Lines**



— EN 55022 Conducted EMI Class B QP.LimitLine      - - - EN 55022 Conducted EMI Class B AVG.LimitLine  
— Preview Result-Peak Detector                      ◆ Final Result-QP Detector  
◆ Final Result-Avg Detector

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 2</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

## APPENDIX 2 - RADIATED EMISSIONS TEST DATA

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 2</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

### Radiated Emissions Test Results

The measurements were performed by Andrew Fleming.

#### Test Configuration 1

The environmental test conditions were: Temperature: 25°C  
Pressure: 995 mb  
Relative Humidity: 22%

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

The BlackBerry® smartphone, PIN 20E44F37 was tested on April 08, 2009.

Test Distance was 3.0 metres.

| Frequency<br>(MHz) | Antenna       |                    | Test<br>Angle<br>(Deg.) | Detector<br>(Q.P. or<br>Peak) | Measured<br>Level<br>(dBµV) | Correction Factor<br>for preamp/antenna<br>/ cables/ filter<br>(dB/m) | Field<br>Strength<br>Level<br>(reading<br>+corr)<br>(dBµV/m) | Limit @<br>3.0 m<br>(dBµV/m) | Test<br>Margin<br>(dB) |
|--------------------|---------------|--------------------|-------------------------|-------------------------------|-----------------------------|---|--|------------------------------|------------------------|
|                    | Pol.<br>(V/H) | Height<br>(metres) |                         |                               |                             |   |  |                              |                        |
| 33.567             | V             | 1.47               | 354                     | Q.P.                          | 39.86                       | -17.99  | 21.87  | 40.00                        | -18.13                 |
| 34.171             | V             | 1.40               | 354                     | Q.P.                          | 40.49                       | -18.24  | 22.25  | 40.00                        | -17.75                 |
| 117.461            | V             | 1.40               | 301                     | Q.P.                          | 45.58                       | -16.94  | 28.64  | 43.50                        | -14.86                 |
| 117.496            | H             | 1.00               | 162                     | Q.P.                          | 39.50                       | -16.94  | 22.56  | 43.50                        | -20.94                 |
| 140.551            | V             | 1.81               | 321                     | Q.P.                          | 40.81                       | -17.47  | 23.34  | 43.50                        | -20.16                 |
| 161.357            | H             | 1.19               | 132                     | Q.P.                          | 47.37                       | -17.31  | 30.06  | 43.50                        | -13.44                 |
| 163.465            | H             | 1.35               | 106                     | Q.P.                          | 45.23                       | -17.20  | 28.03  | 43.50                        | -15.47                 |

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

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 2</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

Radiated Emissions Test Results cont'd

Test Configuration 2

The environmental test conditions were: Temperature: 25°C  
Pressure: 1012 mb  
Relative Humidity: 21%

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

The BlackBerry® smartphone, PIN 20E44F38 was tested on April 13, 2009.

Test Distance was 3.0 metres.

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

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 2</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

Radiated Emissions Test Results cont'd

Test Configuration 3

The environmental test conditions were: Temperature: 24°C  
Pressure: 1005 mb  
Relative Humidity: 22%

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

The BlackBerry® smartphone, PIN 20E3AC3C was tested on April 09, 2009.

Test Distance was 3.0 metres.

| Frequency<br>(MHz) | Antenna       |                    | Test<br>Angle<br>(Deg.) | Detector<br>(Q.P. or<br>Peak) | Measured<br>Level<br>(dBµV) | Correction Factor<br>for preamp/antenna<br>/ cables/ filter<br>(dB/m) | Field<br>Strength<br>Level<br>(reading+<br>corr)<br>(dBµV/m) | Limit @<br>3.0 m<br>(dBµV/m) | Test<br>Margin<br>(dB) |
|--------------------|---------------|--------------------|-------------------------|-------------------------------|-----------------------------|---|--|------------------------------|------------------------|
|                    | Pol.<br>(V/H) | Height<br>(metres) |                         |                               |                             |   |  |                              |                        |
| 48.057             | V             | 2.02               | 146                     | Q.P.                          | 54.16                       | -21.14  | 33.02  | 40.00                        | -6.98                  |
| 55.752             | V             | 3.31               | 8                       | Q.P.                          | 41.22                       | -21.49  | 19.73  | 40.00                        | -20.27                 |
| 96.106             | H             | 2.32               | 176                     | Q.P.                          | 57.79                       | -18.39  | 39.40  | 43.50                        | -4.10                  |
| 122.149            | H             | 1.65               | 217                     | Q.P.                          | 52.91                       | -17.08  | 35.83  | 43.50                        | -7.67                  |
| 192.008            | H             | 1.85               | 87                      | Q.P.                          | 50.85                       | -15.47  | 35.38  | 43.50                        | -8.12                  |
| 240.033            | H             | 1.30               | 333                     | Q.P.                          | 54.59                       | -15.41  | 39.18  | 46.00                        | -6.82                  |
| 251.887            | H             | 1.22               | 12                      | Q.P.                          | 47.49                       | -14.91  | 32.58  | 46.00                        | -13.42                 |
| 320.090            | H             | 1.29               | 185                     | Q.P.                          | 36.28                       | -11.03  | 25.25  | 46.00                        | -20.75                 |
| 427.407            | H             | 2.22               | 107                     | Q.P.                          | 43.96                       | -8.87   | 35.09  | 46.00                        | -10.91                 |
| 427.379            | V             | 2.46               | 48                      | Q.P.                          | 43.68                       | -8.87   | 34.81  | 46.00                        | -11.19                 |
| 430.225            | H             | 2.41               | 111                     | Q.P.                          | 44.69                       | -8.85   | 35.84  | 46.00                        | -10.16                 |
| 433.028            | V             | 2.04               | 286                     | Q.P.                          | 36.85                       | -8.85   | 28.00  | 46.00                        | -18.00                 |

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

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 2</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

Radiated Emissions Test Results cont'd

Test Configuration 4

The environmental test conditions were: Temperature: 25°C  
Pressure: 1012 mb  
Relative Humidity: 21%

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

The BlackBerry® smartphone, PIN 20E3AC3C was tested on April 13, 2009.

Test Distance was 3.0 metres.

| Frequency<br>(MHz) | Antenna       |                    | Test<br>Angle<br>(Deg.) | Detector<br>(Q.P. or<br>Peak) | Measured<br>Level<br>(dBµV) | Correction<br>Factor for<br>preamp/antenna<br>/ cables/ filter<br>(dB/m) | Field<br>Strength<br>Level<br>(reading+<br>corr)<br>(dBµV/m) | Limit @<br>3.0 m<br>(dBµV/m) | Test<br>Margin<br>(dB) |
|--------------------|---------------|--------------------|-------------------------|-------------------------------|-----------------------------|--|--|------------------------------|------------------------|
|                    | Pol.<br>(V/H) | Height<br>(metres) |                         |                               |                             |  |  |                              |                        |
| 55.775             | V             | 3.30               | 210                     | Q.P.                          | 44.88                       | -21.49   | 23.39  | 40.00                        | -16.61                 |
| 101.607            | H             | 2.80               | 354                     | Q.P.                          | 38.74                       | -17.92   | 20.82  | 43.50                        | -22.68                 |
| 171.274            | V             | 1.47               | 306                     | Q.P.                          | 40.41                       | -16.89   | 23.52  | 43.50                        | -19.98                 |
| 215.010            | V             | 1.43               | 266                     | Q.P.                          | 37.26                       | -14.50   | 22.76  | 43.50                        | -20.74                 |
| 218.844            | V             | 1.40               | 286                     | Q.P.                          | 38.21                       | -14.72   | 23.49  | 46.00                        | -22.51                 |

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

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 2</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

Radiated Emissions Test Results cont'd

Test Configuration 5

The environmental test conditions were: Temperature: 24°C  
Pressure: 1015 mb  
Relative Humidity: 22%

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

The BlackBerry® smartphone, PIN 20E3AC3C was tested on April 15, 2009.

Test Distance was 3.0 metres.

| Frequency<br>(MHz) | Antenna       |                    | Test<br>Angle<br>(Deg.) | Detector<br>(Q.P. or<br>Peak) | Measured<br>Level<br>(dBµV) | Correction<br>Factor for<br>preamp/antenna<br>/ cables/ filter<br>(dB/m) | Field<br>Strength<br>Level<br>(reading+<br>corr)<br>(dBµV/m) | Limit @<br>3.0 m<br>(dBµV/m) | Test<br>Margin<br>(dB) |
|--------------------|---------------|--------------------|-------------------------|-------------------------------|-----------------------------|--|--|------------------------------|------------------------|
|                    | Pol.<br>(V/H) | Height<br>(metres) |                         |                               |                             |  |  |                              |                        |
| 37.486             | V             | 2.60               | 41                      | Q.P.                          | 43.41                       | -19.10   | 24.31  | 40.00                        | -15.69                 |
| 52.597             | V             | 1.44               | 126                     | Q.P.                          | 47.91                       | -21.47   | 26.44  | 40.00                        | -13.56                 |
| 69.724             | V             | 1.54               | 224                     | Q.P.                          | 43.60                       | -20.84   | 22.76  | 40.00                        | -17.24                 |
| 211.020            | H             | 1.84               | 354                     | Q.P.                          | 33.62                       | -14.22   | 19.40  | 43.50                        | -24.10                 |

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

|  |   |                                     |
|--|---|-------------------------------------|
| <b>RTS</b><br>RIM Testing Services         | EMI Test Report for the BlackBerry® smartphone Model RCG41GW<br><b>APPENDIX 2</b> |                                     |
| <b>Test Report No.</b><br>RTS-1615-0905-15 | <b>Dates of Test</b><br>April 08 to April 16, 2009                                | <b>Author Data</b><br>Savtej Sandhu |

Radiated Emissions Test Results cont'd

Test Configuration 6

The environmental test conditions were: Temperature: 25°C  
Pressure: 955 mb  
Relative Humidity: 22%

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

The BlackBerry® smartphone, PIN 20E44F37 was tested on April 08, 2009.

Test Distance was 3.0 metres.

| Frequency<br>(MHz) | Antenna       |                    | Test<br>Angle<br>(Deg.) | Detector<br>(Q.P. or<br>Peak) | Measured<br>Level<br>(dBµV) | Correction<br>Factor for<br>preamp/antenna<br>/ cables/ filter<br>(dB/m) | Field<br>Strength<br>Level<br>(reading+<br>corr)<br>(dBµV/m) | Limit @<br>3.0 m<br>(dBµV/m) | Test<br>Margin<br>(dB) |
|--------------------|---------------|--------------------|-------------------------|-------------------------------|-----------------------------|--|--|------------------------------|------------------------|
|                    | Pol.<br>(V/H) | Height<br>(metres) |                         |                               |                             |  |  |                              |                        |
| 36.667             | V             | 1.40               | 195                     | Q.P.                          | 39.22                       | -18.86   | 20.36  | 40.00                        | -19.64                 |
| 48.025             | V             | 1.44               | 154                     | Q.P.                          | 56.93                       | -21.14   | 35.79  | 40.00                        | - 4.21                 |
| 51.646             | V             | 2.10               | 99                      | Q.P.                          | 49.06                       | -21.46   | 27.60  | 40.00                        | -12.40                 |
| 96.039             | H             | 3.49               | 57                      | Q.P.                          | 54.76                       | -18.39   | 36.37  | 43.50                        | -7.13                  |
| 112.156            | H             | 3.12               | 269                     | Q.P.                          | 46.70                       | -17.04   | 29.66  | 43.50                        | -13.84                 |
| 122.803            | H             | 2.84               | 97                      | Q.P.                          | 43.28                       | -17.13   | 26.15  | 43.50                        | -17.35                 |
| 240.012            | H             | 1.11               | 291                     | Q.P.                          | 57.73                       | -15.41   | 42.32  | 46.00                        | <b>- 3.68</b>          |
| 288.128            | H             | 1.10               | 231                     | Q.P.                          | 48.59                       | -14.11   | 34.48  | 46.00                        | -11.52                 |
| 336.023            | H             | 1.05               | 220                     | Q.P.                          | 40.64                       | -9.61  | 31.03  | 46.00                        | -14.97                 |
| 366.476            | H             | 2.18               | 191                     | Q.P.                          | 38.79                       | -11.05   | 27.74  | 46.00                        | -18.26                 |
| 366.391            | V             | 2.96               | 354                     | Q.P.                          | 35.01                       | -11.05   | 23.96  | 46.00                        | -22.04                 |
| 427.409            | V             | 2.57               | 57                      | Q.P.                          | 42.36                       | -8.87  | 33.49  | 46.00                        | -12.51                 |
| 430.264            | H             | 2.46               | 122                     | Q.P.                          | 41.01                       | -8.85  | 32.16  | 46.00                        | -13.84                 |
| 480.042            | H             | 1.86               | 37                      | Q.P.                          | 43.81                       | -8.00  | 35.81  | 46.00                        | -10.19                 |
| 720.031            | V             | 2.22               | 13                      | Q.P.                          | 35.96                       | -2.31  | 33.65  | 46.00                        | -12.35                 |

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