

EMI Test Report

Tested in accordance with
Federal Communications Commission (FCC)
Personal Communications Services
CFR 47 Parts 2, 22 and 24
&
Industry Canada (IC) RSS- Gen, 132 and 133




A division of Research In Motion Limited

REPORT NO: RTS-2605-1105-02

| | |
|------------------------------------|------------------------|
| PRODUCT MODEL NO: | RDH71CW |
| TYPE NAME: | BlackBerry® smartphone |
| FCC ID: | L6ARDH70CW |
| IC: | 2503A-RDH70CW |
| EMISSION DESIGNATOR (GSM): | 248KGXW |
| EMISSION DESIGNATOR (EDGE): | 248KG7W |
| EMISSION DESIGNATOR (CDMA): | 1M28F9W |

DATE: May 10, 2011

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| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

Statement of Performance:

The BlackBerry® smartphone, model RDH71CW, part number CER-30956-001 Rev 3 and accessories performs within the requirements of the test standards when configured and operated per RIM's instructions.

Declaration:

We hereby certify that:

The test data reported herein is an accurate record of the performance of the sample(s) tested. The test results are valid for the tested unit (s) only. The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating parameters. The test methods were consistent with the methods described in the relevant standards.

Documented by:



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Date: May 11, 2011

Reviewed by:



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Date: June 28, 2011

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Date: June 30, 2011



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A) Scope

This report details the results of compliance tests which were performed in accordance to the requirements of:

- FCC CFR 47 Part 2, Oct, 2010
- FCC CFR 47 Part 22, Subpart H, Cellular Radiotelephone Services, Oct., 2010
- FCC CFR 47 Part 24 Subpart E, Broadband PCS, Oct., 2010
- Industry Canada, RSS-132 Issue 2, September 2005, Cellular Telephones Employing New Technologies Operating in the Bands 824-849 MHz and 869-894 MHz.
- Industry Canada, RSS-133 Issue 5, February 2009, 2 GHz Personal Communications Services.
- Industry Canada, RSS-GEN Issue 3, December 2010, General Requirements and Information for the Certification of Radiocommunication Equipment

B) Associated Documents

1. RDH71CW_HW_Declaration_CER-30956-001-Rev 2.doc
2. RDH71CW_HW_Declaration_CER-30956-001-Rev 3.doc
3. MultiSourceDeclaration_9850_b421.doc
4. MultiSourceDeclaration_9850_b984.doc

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 |
|--|--|

The testing was performed from Jan 17 to Feb 10, and April 18, 2011.

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The sample EUT included:

| Sample | Model | CER NUMBER | PIN | Software Information |
|--------|---------|---------------------|----------|--------------------------|
| 1 | RDH71CW | CER-30956-001 Rev 1 | 329CDE2A | v6.1.0.16 Bundle 157 |
| 2 | RDH71CW | CER-30956-001 Rev 1 | 329F4819 | v6.1.0.16 Bundle 157 |
| 3 | RDH71CW | CER-30956-001 Rev 1 | 329CDE71 | v6.1.0.16 Bundle 157 |
| 4 | RDH71CW | CER-30956-001 Rev 2 | 32DF5ED6 | v6.1.0.66 Bundle 421 |
| 5 | RDH71CW | CER-30956-001 Rev 3 | 27490C92 | V7.0.0.144 Bundle 984 |

RF Conducted Emissions testing was performed on sample 1 and 2.
RF Radiated Emissions testing was performed on samples 3, 4 and 5.

Only the characteristics that have been affected by the changes from Model RDH71CW Rev 1 to RDH71CW Rev 3 were retested. For more information see documents:
RDH71CW_HW_Declaration_CER-30956-001-Rev 2.doc and
RDH71CW_HW_Declaration_CER-30956-001-Rev 3.doc

To view the differences between Bundle 157 to 984, see documents:
MultiSourceDeclaration_9850_b421.doc and
MultiSourceDeclaration_9850_b984.doc

D) Support Equipment Used for the Testing of the EUT

No support equipment required; for list of equipment refer to section H, Compliance Test Equipment Used.

E) Test Voltage

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


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F) Test Results Chart

| SPECIFICATION | | TEST TYPE | RESULT | TEST DATA APPENDIX |
|--|------------------------------|---|--------|--------------------|
| FCC CFR 47 | IC | | | |
| Part 2.1051 Part 22.917 Part 22.901 | RSS-GEN, 4.9 | GSM 850 Conducted Spurious Emissions | Pass | 1A |
| Part 2.1051 Part 24.238(a) | RSS-GEN, 4.9 | PCS 1900 Conducted Spurious Emissions | Pass | 1A |
| Part 2.202 Part 22.917 | RSS-GEN, 4.6 | GSM 850 Occupied Bandwidth and Channel Mask | Pass | 1A |
| Part 2.202 Part 24.238 | RSS-GEN, 4.6 | PCS 1900 Occupied Bandwidth and Channel Mask | Pass | 1A |
| Part 2.1046(a) | RSS-133, 6.4 RSS-132, 4.4 | GSM Conducted RF Output Power | Pass | 2A |
| Part 2.1055(a)(d) Part 22.917 | RSS-132, 4.3 | GSM 850 Frequency Stability vs. Temperature and Voltage | Pass | 3A |
| Part 2.1055(a)(d) Part 24.235 | RSS-132, 4.3 | PCS 1900 Frequency Stability vs. Temperature and Voltage | Pass | 3A |
| Part 22, Subpart H, Part 24, Subpart E | RSS-GEN, 4.9 | GSM ERP, EIRP | Pass | 4A |
| Part 22, Subpart H Part 24, Subpart E | RSS-GEN, 4.9 | GSM Radiated Spurious/Harmonic Emissions | Pass | 4A |
| Part 2.1051 Part 22.917 Part 22.901(d) | RSS-GEN, 4.9 | CDMA Cell Conducted Spurious Emissions | Pass | 1B |
| Part 2.1051 Part 24.238(a) | RSS-GEN, 4.9 | CDMA PCS Conducted Spurious Emissions | Pass | 1B |
| Part 2.202 Part 22.917 | RSS-GEN, 4.6 | CDMA Cell Occupied Bandwidth and Channel Mask | Pass | 1B |
| Part 2.202 Part 24.238 | RSS-GEN, 4.6 | CDMA PCS Occupied Bandwidth and Channel Mask | Pass | 1B |
| Part 2.1046(a) | RSS-133, 6.4 RSS-132, 4.4 | CDMA Conducted RF Output Power | Pass | 2B |
| Part 2.1055(a)(d) Part 22.917 | RSS-132, 4.3 | CDMA Cell Frequency Stability vs. Temperature and Voltage | Pass | 3B |

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Test Results Chart cont'd

| | | | | |
|----------------------------------|--------------|--|------|----|
| Part 2.1055(a)(d) Part 24.235 | RSS-GEN, 4.7 | CDMA PCS Frequency Stability vs. Temperature and Voltage | Pass | 3B |
| Part 22, Subpart H | RSS-GEN, 4.9 | CDMA Cell Radiated Spurious/Harmonic Emissions, ERP | Pass | 4B |
| Part 24, Subpart E | RSS-GEN, 4.9 | CDMA PCS Radiated Spurious/Harmonic Emissions, EIRP | Pass | 4B |

G) Summary of Results

1) Conducted Emission Measurements

a) The BlackBerry® smartphone met the requirements of the Tx Conducted Spurious Emissions requirements in the GSM850 as per 47 CFR 2.1051, CFR 22.917, CFR 22.901(d) and RSS-GEN, 4.9. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 10 GHz.

See APPENDIX 1A for test data.

The BlackBerry® smartphone met the requirements of the Tx Conducted Spurious Emissions requirements in the PCS1900 as per 47 CFR 2.1051, CFR 24.238(a) and RSS-GEN, 4.9. The EUT was on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz.


See APPENDIX 1A for test data

b) The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask requirements in the GSM850 as per 47 CFR 2.202, CFR 22.917 and RSS-GEN, 4.6. The EUT was measured in GSM and EDGE mode on the low, middle and high channels. The worst case occupied bandwidth was 248.3 kHz on low channel in GSM mode, and 248.3 kHz on high channel in EDGE mode.

See APPENDIX 1A for test data.

The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask requirements in the PCS1900 as per 47 CFR 2.202, CFR 24.238 and RSS-GEN, 4.6. The EUT was measured in GSM and EDGE mode on the low, middle and high channels. The worst case occupied bandwidth was 243.3 kHz on middle channel in GSM, and 245 kHz on low and high channel in EDGE mode.

See APPENDIX 1A for test data.

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c) The BlackBerry® smartphone met the requirements of the Tx Conducted RF output Power requirements in the GSM850 as per 47 CFR 2.1046, and RSS-GEN, 4.4. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 10 GHz.
See APPENDIX 2A for test data.

The BlackBerry® smartphone met the requirements of the Tx Conducted RF output Power requirements in the PCS1900 as per 47 CFR 2.1046, and RSS-GEN, 6.4. The EUT was on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz.
See APPENDIX 2A for test data


d) The BlackBerry® smartphone met the requirements of the Frequency Satbility requirements in the GSM850 as per 47 CFR 2.1055, CFR 22.917 and RSS-GEN, 4.3. The EUT was measured in GSM850 mode on the low, middle and high channels.
See APPENDIX 3A for test data.

The BlackBerry® smartphone met the requirements of the Frequency Satbility requirements in the PCS1900 as per 47 CFR 2.1055, CFR 24.235 and RSS-GEN, 4.7. The EUT was measured in PCS1900 mode on the low, middle and high channels.
See APPENDIX 3A for test data.

e) The EUT met the requirements of the Conducted Spurious Emissions in the CDMA Cellular band as per 47 CFR 22.917, CFR 22.901(d) and RSS-132. The EUT was measured in Loopback and 1xEVDO mode on the low, middle and high channels. The frequency range investigated was from 10 MHz to 10 GHz.
See APPENDIX 1B for the test data.

The BlackBerry® smartphone met the requirements of the Conducted Spurious Emissions in the CDMA PCS band as per 47 CFR 2.1057, CFR 24.238 and RSS-133. The EUT was measured in Loopback and 1xEVDO mode on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz
See APPENDIX 1B for the test data.

f) The BlackBerry® smartphone met the requirements of the Occupied Bandwidth in the CDMA Cellular band as per 47 CFR 2.202, CFR 22.917 and RSS-132. The EUT was measured in Loopback and 1xEVDO mode on the low, middle and high channels. The worst case occupied bandwidth was 1.273 MHz on all three channels.
See APPENDIX 1B for the test data.


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The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask in the CDMA PCS band as per 47 CFR 2.202, CFR 24.238 and RSS-133. The EUT was measured in Loopback and 1xEVDO mode on the low, middle and high channels. The worst case occupied bandwidth was 1.280 MHz on the low channel and mid channels.
See APPENDIX 1B for the test data.

g) The BlackBerry® smartphone met the requirements of the Conducted RF Output Power for both the CDMA Cellular and PCS bands. The EUT was measured in Loopback and 1xEVDO mode on the low, middle and high channels
See APPENDIX 2B for test data.

h) The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage for CDMA Cellular band as per 22.917 and RSS-132. The EUT was measured in Cellular mode on the low, middle and high channels.
See APPENDIX 3B for test data.

The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage requirements for the PCS band as per 24.235 and RSS-133. The EUT was measured in CDMA PCS mode on the low, middle and high channels.
See APPENDIX 3B for test data.

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2) Radiated Emission Measurements

The radiated spurious emissions/harmonics and ERP/EIRP were measured for GSM 850, PCS 1900, CDMA Cellular and CDMA PCS. The results are within the limits. The BlackBerry® smartphone was placed on a nonconductive styrofoam table, 100 cm high that was positioned on a remotely controlled turntable. The test distance used between the BlackBerry® smartphone and the receiving antenna was three metres. Then the emissions were maximized by elevating the antenna in the range of 1 to 4 metres. The turntable was rotated to determine the azimuth of the peak emissions. Both the horizontal and vertical polarizations of the emissions were measured. The maximum emissions level was recorded. The BlackBerry® smartphone was then substituted with an antenna placed in the same location as the BlackBerry® smartphone. A Dipole antenna was used for the ERP measurements and a Horn antenna was used for EIRP measurements. The substitution antenna was connected into a signal generator that was set to the test frequency.

The emissions were maximized by elevating the antenna in the range of 1 to 4 metres. The signal generator output was then adjusted to match the BlackBerry® smartphone output reading. The signal generator output was recorded. Both the horizontal and vertical polarizations of the emissions were measured.

The following measurements were done in a semi-anechoic chamber (SAC) below 1 GHz and a Semi-anechoic Chamber ((SAC) with floor absorber) above 1 GHz. The SAC's FCC registration number is **778487** and the Industry Canada (IC) file number is **2503B-1**. The SAC with floor absorber's FCC registration number is **959115** and the IC file number is **2503C-1**. The BlackBerry® smartphone was measured on the low, middle and high channels.


The highest ERP in the 850 band call mode measured was 32.16 dBm (1.64 W) at 836.60 MHz (channel 190).

The highest ERP in the 850 band EDGE mode measured was 28.41dBm (0.69 W) at 836.60 MHz (channel 190).

The highest EIRP in the PCS band call mode measured was 32.29 dBm (1.69 W) at 1880.0 MHz (channel 661).

The highest EIRP in the PCS band EDGE mode measured was 30.2 dBm (1.05 W) at 1880.0 MHz (channel 661).

The highest ERP measured in the CDMA Cellular band, Loopback Service mode, was 25.86 dBm (0.39 W) at 836.52 MHz (channel 384).

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The highest ERP measured in the CDMA Cellular band, 1xEVDO mode, was 27.24 dBm (0.53 W) at 836.52 MHz (channel 384).

The highest EIRP measured in the CDMA PCS band, Loopback Service mode, was 27.91 dBm (0.62 W) at 1908.75 MHz (channel 1175).

The highest EIRP measured in the CDMA PCS band, 1xEVDO mode, was 29.73 dBm (0.94 W) at 1851.25 MHz (channel 25)

The radiated spurious emission and carrier harmonics were measured up to the 10th harmonic for low, middle, and high channels in the GSM850 and PCS 1900 bands. Each band was measured in GSM and EDGE mode, with both the horizontal and vertical polarizations.

The worst margins in the 850 band for GSM and EDGE modes harmonic emissions were 18.3 dB below the limit at 1673.372 MHz.

The margins in the PCS band for GSM and EDGE modes harmonic emissions were 16.2 dB below the limit at 5639.664 MHz.


The radiated carrier harmonics were measured up to the 10th harmonic for low, middle and high channels in the CDMA Cellular and PCS. Each band was measured in Call, and EVDO modes, with both the horizontal and vertical polarizations.

The margins in the CDMA Cellular Call and EVDO for harmonic emissions were greater than 25 dB below the accepted limits for all test frequencies.

The margins in the CDMA PCS Call and EVDO for harmonic emissions were greater than 25 dB below the accepted limits for all test frequencies.

b) Co-Location Measurements

The radiated emissions were measured up to 18 GHz for middle channels for simultaneous transmission in the following test configuration combinations: CDMA CELL/Bluetooth/802.11n, CDMA PCS/Bluetooth/802.11n, GSM 850/Bluetooth/802.11b and PCS 1900/Bluetooth/802.11g. Both the horizontal and vertical polarizations were measured. The emissions due to different simultaneous transmission did not increase the amplitude of any emissions nor did it produce any new inter-modulation products as a result of mixing.

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Sample Calculation:

Corrected Signal Level (CSL) is calculated as follows:

CSL (dBm) = Measured Level (dBμV) – Antenna Gain (dBi) + Free Space Loss (dB) – 107 (dB) + Cable Loss (dB) - Preamp (dB) + Filter Loss (dB) – 2.15 (dB)


To view the test data see APPENDIX 4A and 4B.

Measurement Uncertainty ±4.6 dB

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H) Compliance Test Equipment Used


| <u>UNIT</u> | <u>MANUFACTURER</u> | <u>MODEL</u> | <u>SERIAL NUMBER</u> | <u>CAL DUE DATE</u> (YY MM DD) | <u>USE</u> |
|--------------------------------------|---------------------|--------------|----------------------|-----------------------------------|------------------------|
| Preamplifier | Sonoma | 310N/11909A | 185831 | 11-11-24 | Radiated Emissions |
| Preamplifier system | TDK RF Solutions | PA-02 | 080010 | 11-11-24 | Radiated Emissions |
| Preamplifier | Rohde & Schwarz | TS-ANA4-SP | 001 | 11-12-01 | Radiated Emissions |
| Preamplifier | Rohde & Schwarz | TS-ANA-SP | 001 | 11-12-01 | Radiated Emissions |
| Hybrid Log Antenna | EMC Automation | HLP-3003C | 017401 | 12-01-04 | Radiated Emissions |
| Horn Antenna | EMC Automation | HRN-0118 | 030101 | 12-07-20 | Radiated Emissions |
| Horn Antenna | EMC Automation | HRN-0118 | 030201 | 12-09-22 | Radiated Emissions |
| Horn Antenna | Emco | 3117 | 47563 | 11-07-15 | Radiated Emissions |
| Horn Antenna | CMT | LHA 0180 | R52734-001 | 12-01-21 | Radiated Emissions |
| Dipole Antenna | Schwarzbeck | UHAP | 973 | 12-02-21 | Radiated Emissions |
| Dipole Antenna | Schwarzbeck | UHAP | 974 | 13-02-21 | Radiated Emissions |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 837493/073 | 11-10-01 | Radiated Emissions |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 112394 | 11-10-01 | Radiated Emissions |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 102204 | 11-11-30 | RF Conducted Emissions |
| EMI Receiver | Rohde & Schwarz | ESIB-40 | 100255 | 11-11-28 | Radiated Emissions |
| EMI Receiver | Rohde & Schwarz | ESU-40 | 100162 | 11-11-30 | Radiated Emissions |
| Spectrum Analyzer | HP | 8563E | 3745A08112 | 11-09-30 | RF Conducted Emissions |
| DC Power Supply | HP | 6632B | US37472178 | 11-11-19 | RF Conducted Emissions |
| Environment Monitor | Omega | iTHX-SD | 0380561 | 11-10-13 | Radiated Emissions |

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Compliance Test Equipment Used cont'd

| <u>UNIT</u> | <u>MANUFACTURER</u> | <u>MODEL</u> | <u>SERIAL NUMBER</u> | <u>CAL DUE DATE</u> (YY MM DD) | <u>USE</u> |
|---------------------|---------------------|--------------|----------------------|-----------------------------------|------------------------|
| Environment Monitor | Omega | iTHX-SD | 0340060 | 11-10-13 | RF Conducted Emissions |
| Environment Monitor | Omega | iTHX-SD | 0380567 | 11-10-13 | Radiated Emissions |
| Signal Generator | Agilent | E8257D | MY45140527 | 11-11-05 | Radiated Emissions |
| Signal Generator | Agilent | 83630B | 3844A00927 | 12-10-28 | Radiated Emissions |

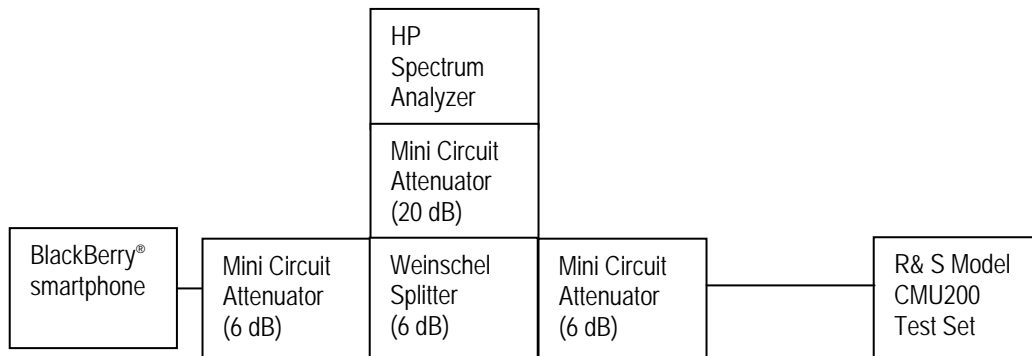
APPENDIX 1A – GSM CONDUCTED RF EMISSIONS TEST DATA/PLOTS

| | | | |
|---|---|--|--|
|  | | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1A | |
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GSM Conducted RF Emission Test Data

This appendix contains measurement data pertaining to conducted spurious emissions, -26 dBc bandwidth, 99% power bandwidth and the channel mask on BlackBerry® smartphone.

Test Setup Diagram




Date of Test: Jan 26, 2011

The environmental test conditions were:

Temperature: 24.0 °C
Relative Humidity: 32.5 %

The following measurements were performed by Maurice Battler.

| | | |
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GSM Conducted RF Emission Test Data cont'd

The conducted spurious emissions – As per 47 CFR 2.1051, CFR 24.238(a), RSS-GEN, 4.9, CFR 22 Subpart H and RSS-132 were measured from 10 MHz to 20 GHz. The EUT emissions were in the noise floor.
See figures 1-1a to 1-12a for the plots of the conducted spurious emissions.

–26 dBc Bandwidth and Occupied Bandwidth (99%)

For each carrier frequency of low, middle and high, the modulation spectrum was measured by both methods of 99% power bandwidth and –26 dBc bandwidth.

The resolution bandwidth required for out-of-band emissions in the 1 MHz bands immediately outside and adjacent to the frequency block, was determined to be at least 1% of the emission bandwidth.

The worst case –26dBc bandwidth for the GSM850 band was measured to be 275 kHz, and for the PCS1900 band was measured to be 260 kHz as shown below. This results in a 3.0 kHz resolution bandwidth.

On any frequency outside the frequency block and outside the adjacent 1 MHz bands, a resolution bandwidth of at least 1 MHz was applied.

Test Data for 850 band and 1900 band selected Frequencies in GSM mode.

| 850 band Frequency (MHz) | -26dBc Bandwidth (kHz) | 99% Occupied Bandwidth (kHz) |
|--------------------------|------------------------|------------------------------|
| 824.2 | 270 | 248.3 |
| 837.6 | 267 | 243.3 |
| 848.8 | 275 | 245.0 |


| 1900 band Frequency (MHz) | -26dBc Bandwidth (kHz) | 99% Occupied Bandwidth (kHz) |
|---------------------------|------------------------|------------------------------|
| 1850.2 | 258 | 241.7 |
| 1880.0 | 260 | 243.3 |
| 1909.8 | 258 | 240.0 |

Measurement Plots for 850 and 1900 in GSM mode

Refer to the following measurement plots for more detail.

See Figures 1-13a to 1-24a for the plots of 26dBc/99% Occupied Bandwidth.

The RF power output was at maximum for all the recorded measurements shown below.

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GSM Conducted RF Emission Test Data cont'd

Date of Test: Jan 28, 2011

Test Data for 850 and 1900 bands selected Frequencies in EDGE mode.

| 850 band Frequency (MHz) | 99% Occupied Bandwidth (kHz) |
|---|---|
| 824.2 | 245.0 |
| 837.6 | 243.3 |
| 848.8 | 248.3 |

| 1900 band Frequency (MHz) | 99% Occupied Bandwidth (kHz) |
|--|---|
| 1850.2 | 245.0 |
| 1880.0 | 243.3 |
| 1909.8 | 245.0 |

Measurement Plots for 850 and 1900 bands in EDGE mode

Refer to the following measurement plots for more detail.

See Figures 1-1a to 1-12a for the plots of the conducted spurious emissions.

See Figures 1-13a to 1-24a for the plots of 26dBc/99% Occupied Bandwidth.


See Figures 1-25a to 1-28a for the plots of the Channel mask.

See Figures 1-29a to 1-34a for the plots of the 99% Occupied Bandwidth EDGE results.

See Figures 1-35a to 1-38a for the plots of channel mask EDGE results.

See Figures 1-39a to 1-50a for the plots of the conducted spurious emissions EDGE results

The RF power output was at maximum for all the recorded measurements shown below.

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|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1A | |
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GSM Conducted RF Emission Test Data cont'd

Figure 1-1a: GSM850 band, Spurious Conducted Emissions, Low channel

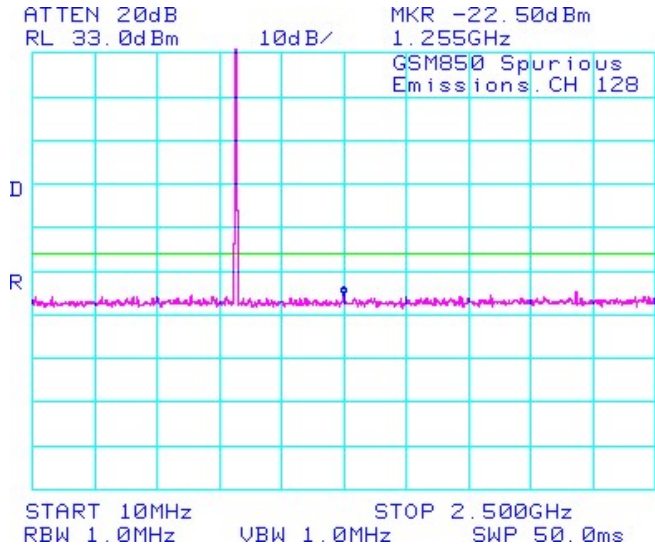


Figure 1-2a: GSM850 band, Spurious Conducted Emissions, Low channel

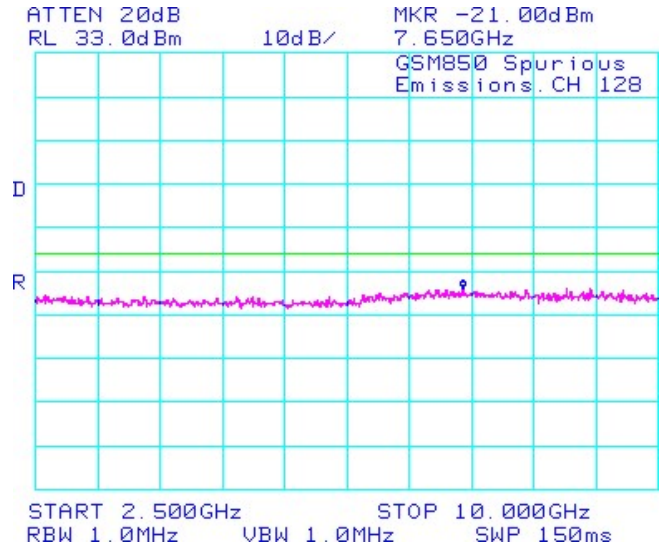


Figure 1-3a: GSM850 band, Spurious Conducted Emissions, Middle Channel

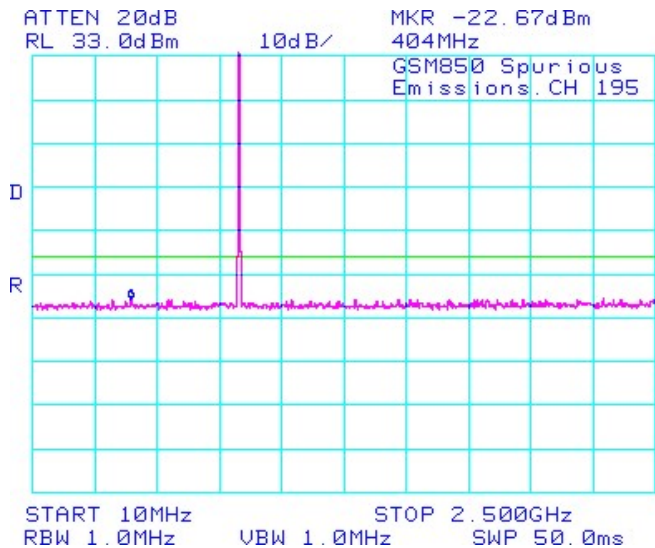
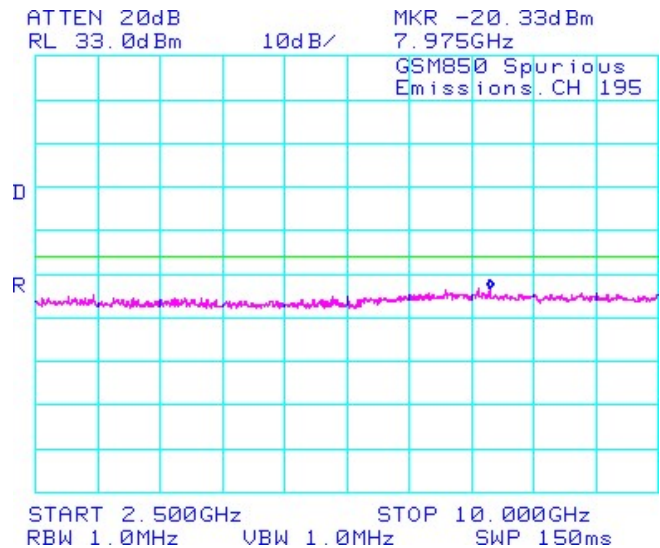



Figure 1-4a: GSM850 band, Spurious Conducted Emissions, Middle Channel



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GSM Conducted RF Emission Test Data cont'd

Figure 1-5a: GSM850 band, Spurious Conducted Emissions, High Channel

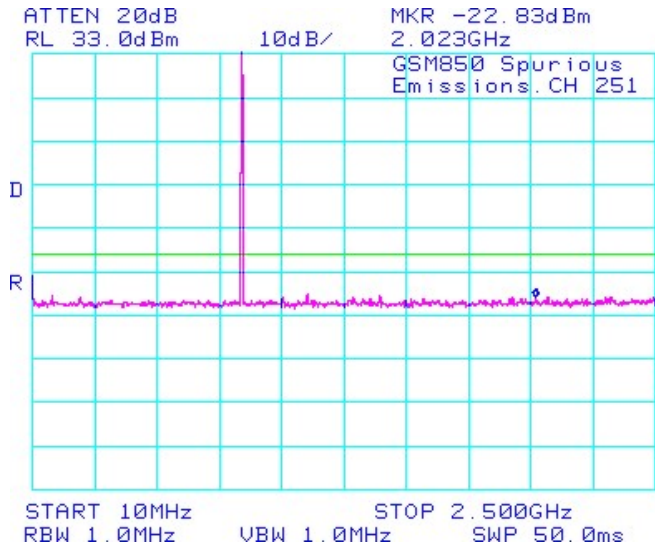


Figure 1-6a: GSM850 band, Spurious Conducted Emissions, High Channel

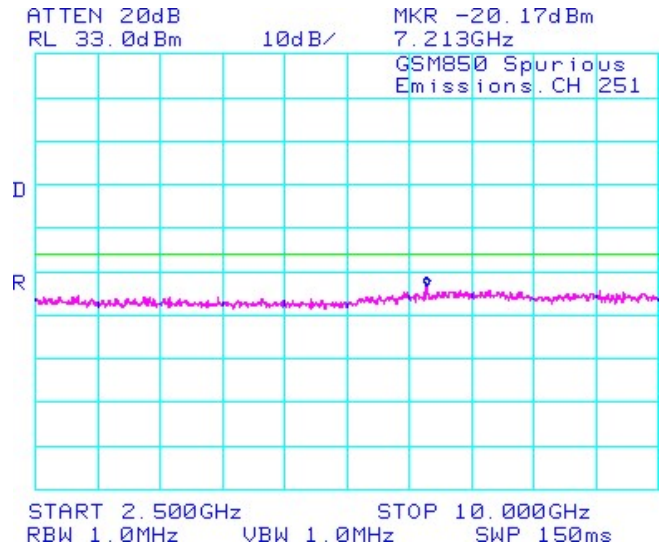


Figure 1-7a: PCS1900 band, Spurious Conducted Emissions, Low Channel

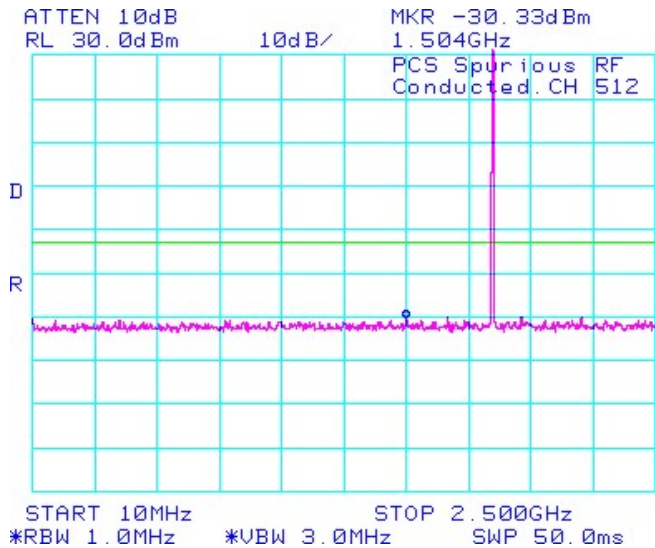
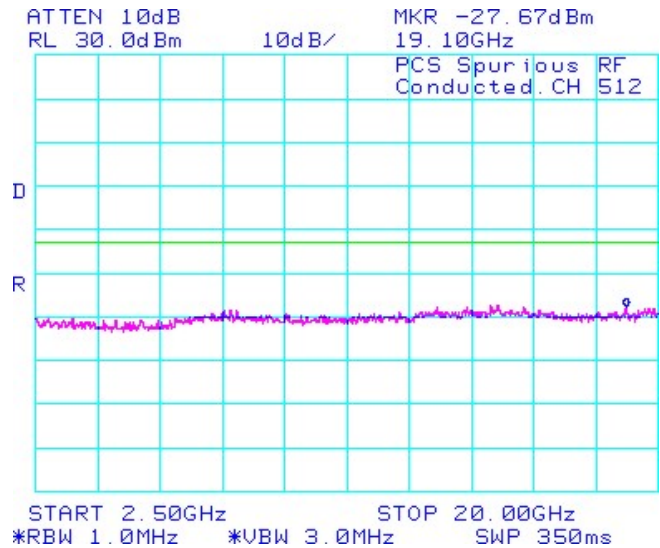



Figure 1-8a: PCS1900 band, Spurious Conducted Emissions, Low Channel



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|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1A | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

GSM Conducted RF Emission Test Data cont'd

Figure 1-9a: PCS1900 band, Spurious Conducted Emissions, Middle Channel

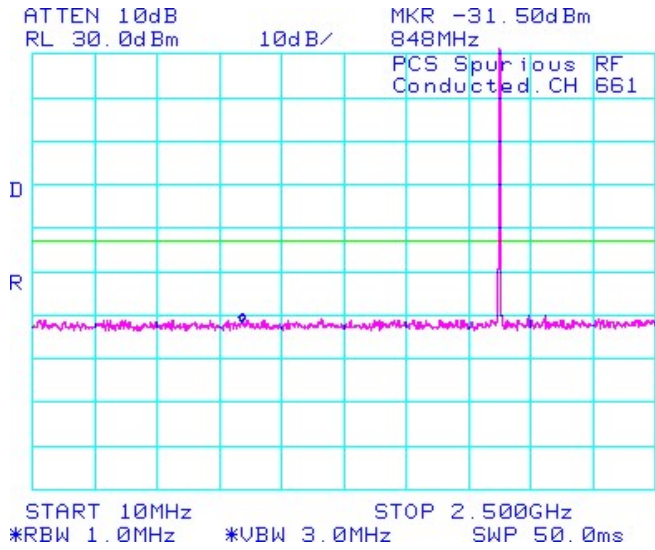


Figure 1-10a: PCS1900 band, Spurious Conducted Emissions, Middle Channel

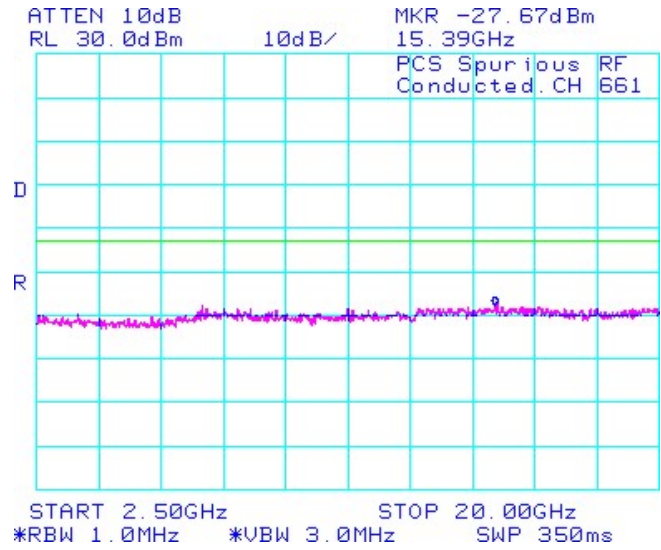


Figure 1-11a: PCS1900 band, Spurious Conducted Emissions, High Channel

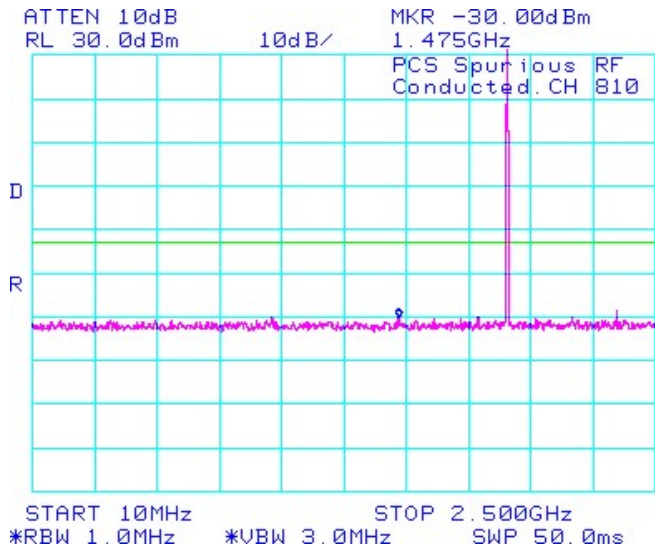
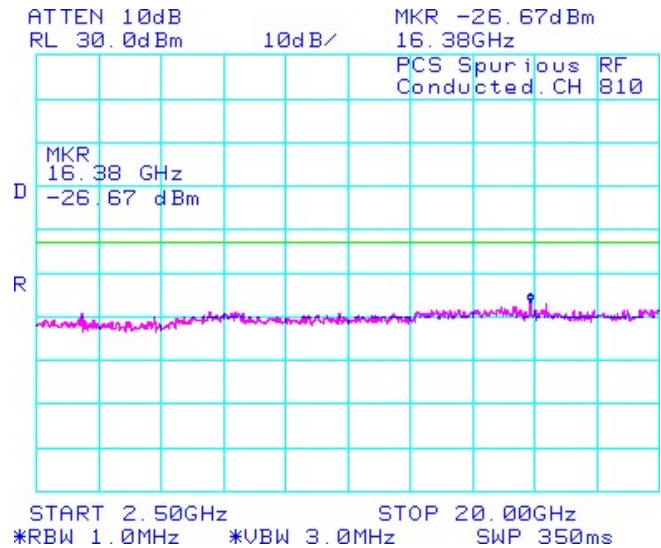



Figure 1-12a: PCS1900 band, Spurious Conducted Emissions, High Channel



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|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
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GSM Conducted RF Emission Test Data cont'd

Figure 1-13a: -26dBc bandwidth, GSM850 band Low Channel in GSM mode

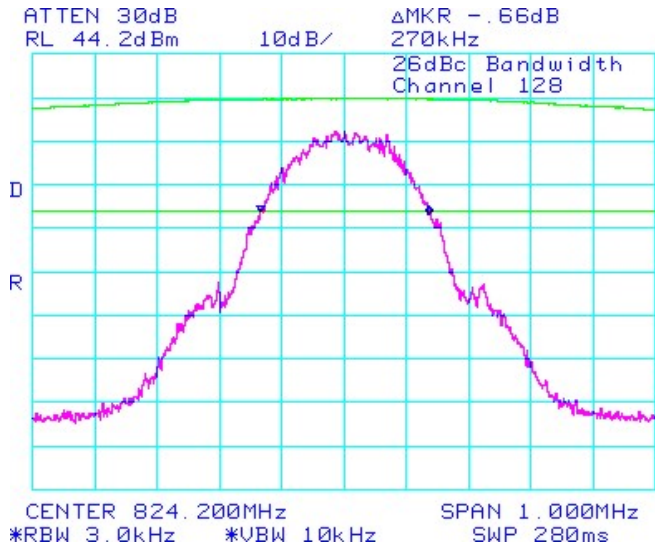


Figure 1-14a: Occupied Bandwidth, GSM850 band Low Channel in GSM mode

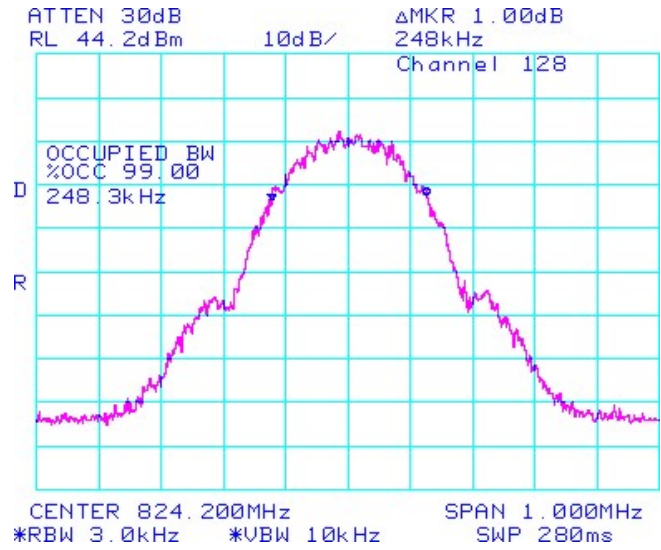


Figure 1-15a: -26dBc bandwidth, GSM850 band Middle Channel in GSM mode

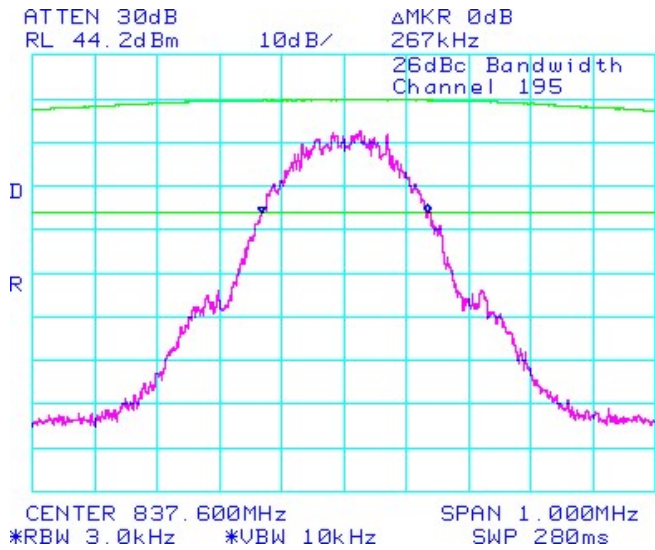
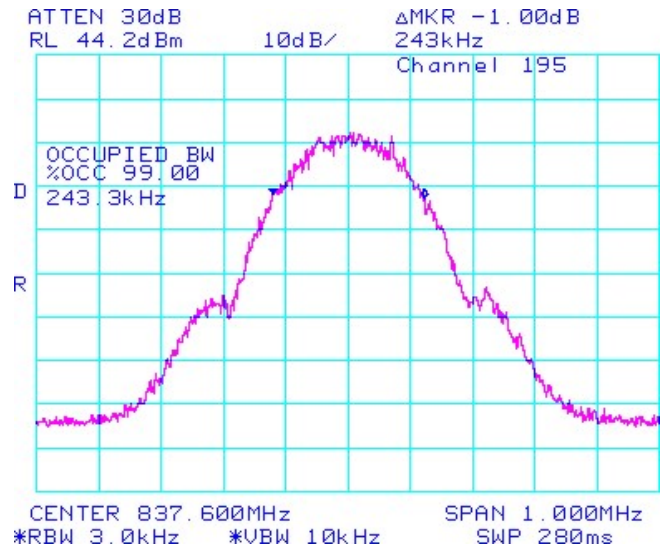



Figure 1-16a: Occupied Bandwidth, GSM850 band Middle Channel in GSM mode



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GSM Conducted RF Emission Test Data cont'd

Figure 1-17a: -26dBc bandwidth, GSM850 band High Channel in GSM mode

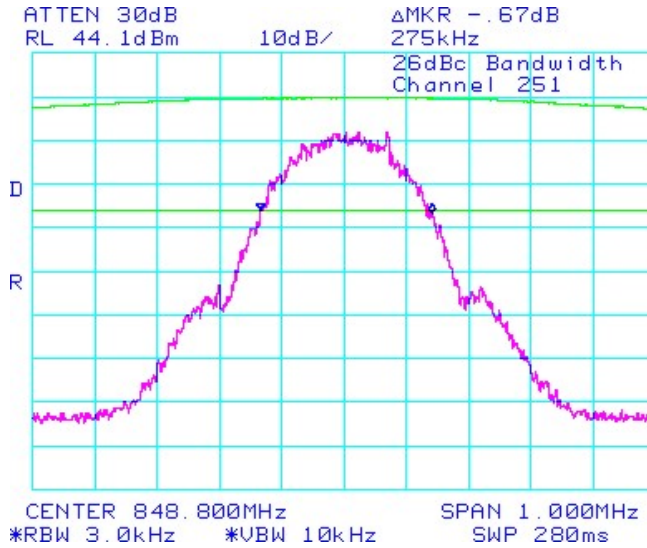


Figure 1-18a: Occupied Bandwidth, GSM850 band High Channel in GSM mode

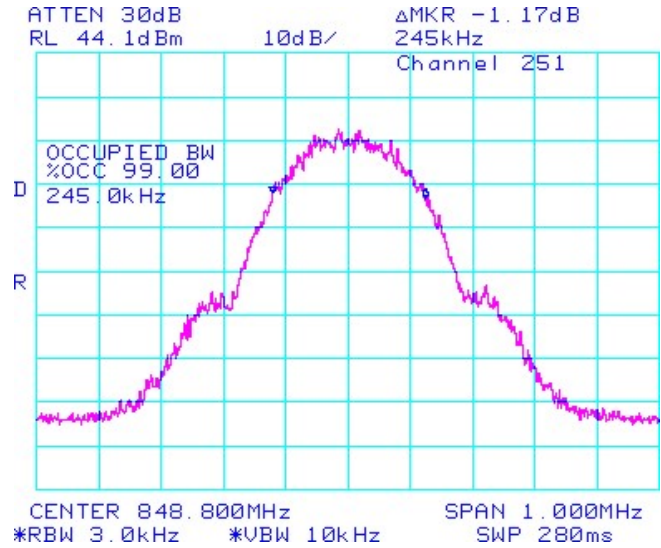


Figure 1-19a: -26dBc bandwidth, PCS1900 Low Channel in GSM mode

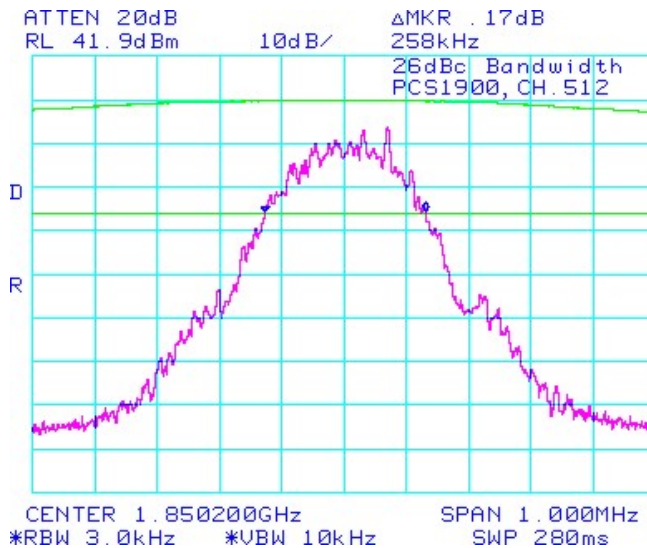
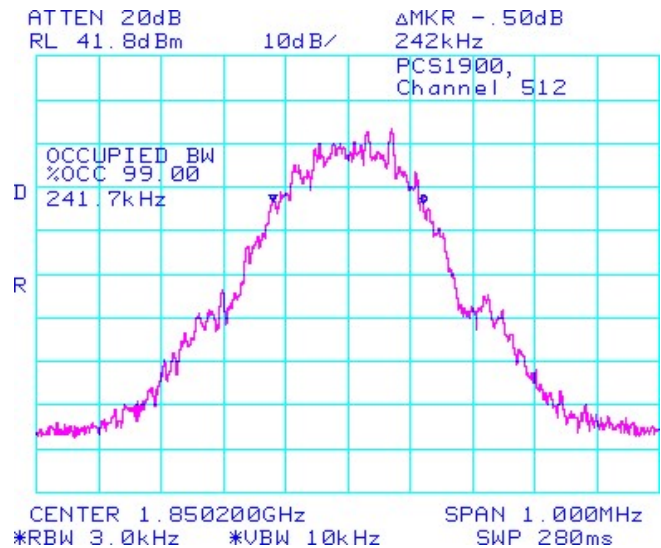



Figure 1-20a: Occupied Bandwidth, PCS1900 Low Channel in GSM mode



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GSM Conducted RF Emission Test Data cont'd

Figure 1-21a: -26dBc bandwidth, PCS1900 Middle Channel in GSM mode

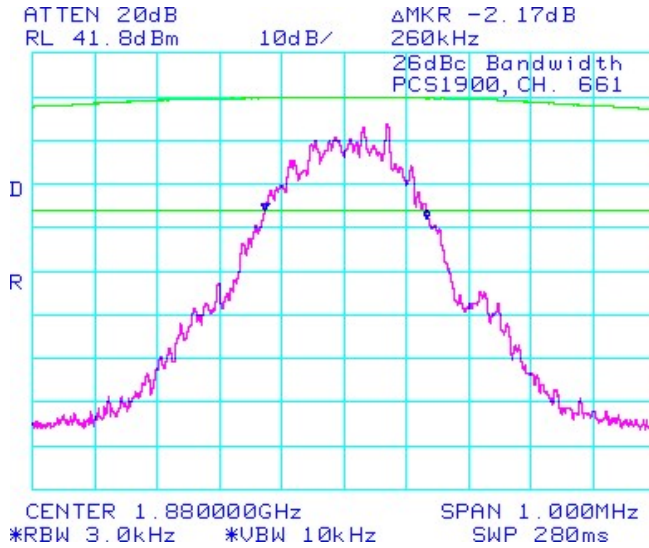


Figure 1-22a: Occupied Bandwidth, PCS1900 Middle Channel in GSM mode

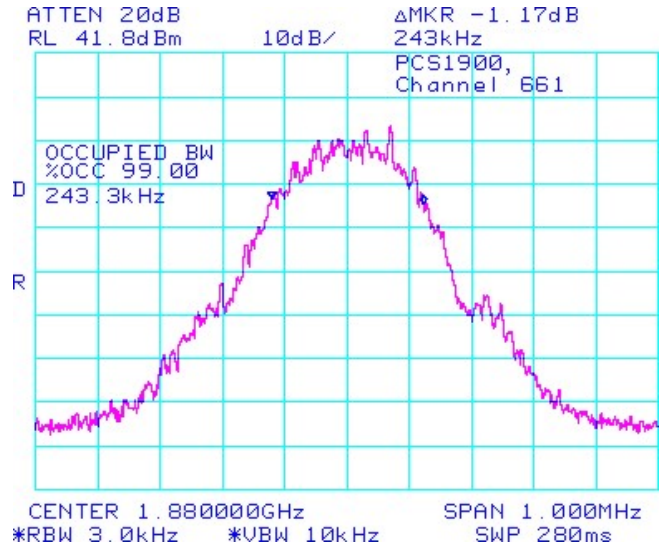


Figure 1-23a: -26dBc bandwidth, PCS1900 High Channel in GSM mode

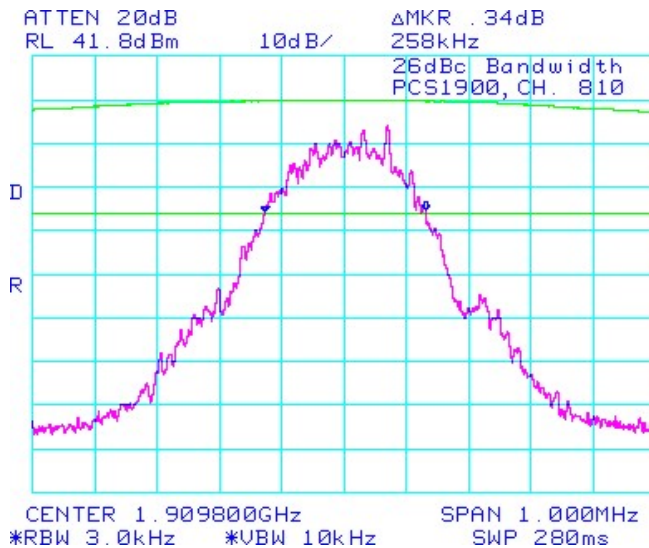
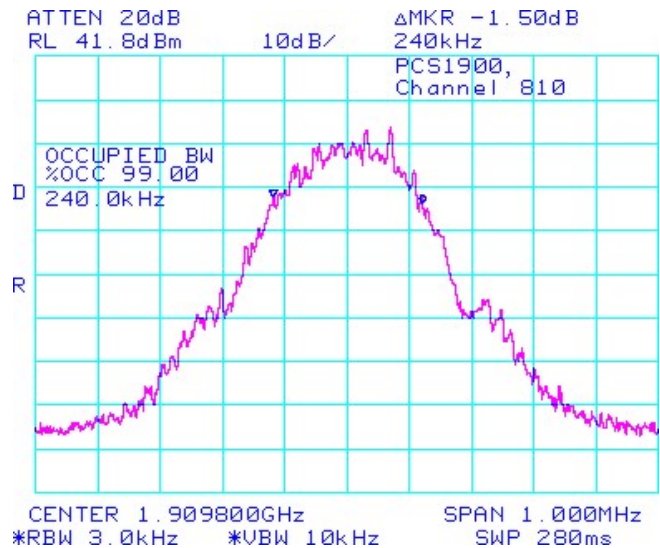



Figure 1-24a: Occupied Bandwidth, PCS1900 High Channel in GSM mode



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GSM Conducted RF Emission Test Data cont'd

Figure 1-25a: GSM850 band, Low Channel Mask in GSM mode

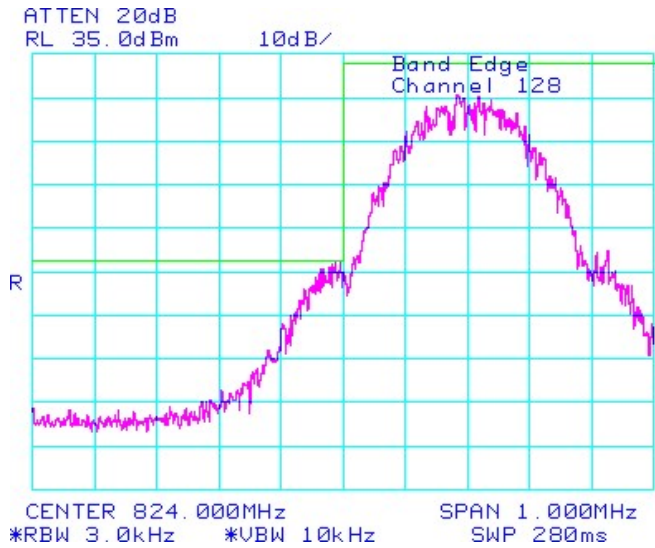


Figure 1-26a: GSM850 band High Channel Mask in GSM mode

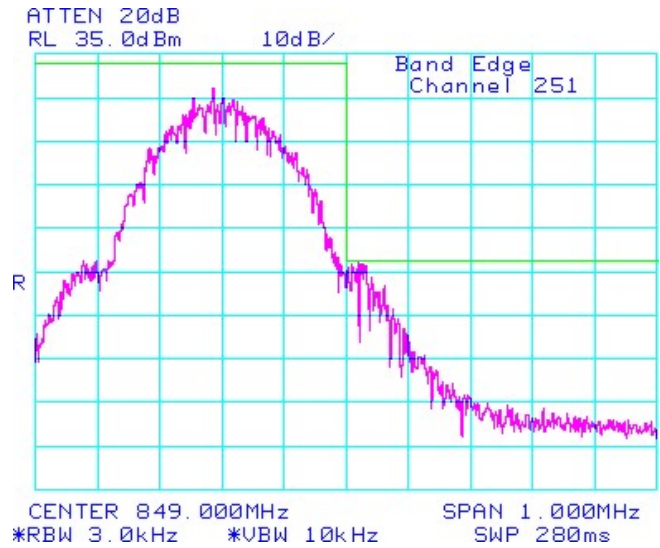


Figure 1-27a: PCS1900, Low Channel Mask in GSM mode

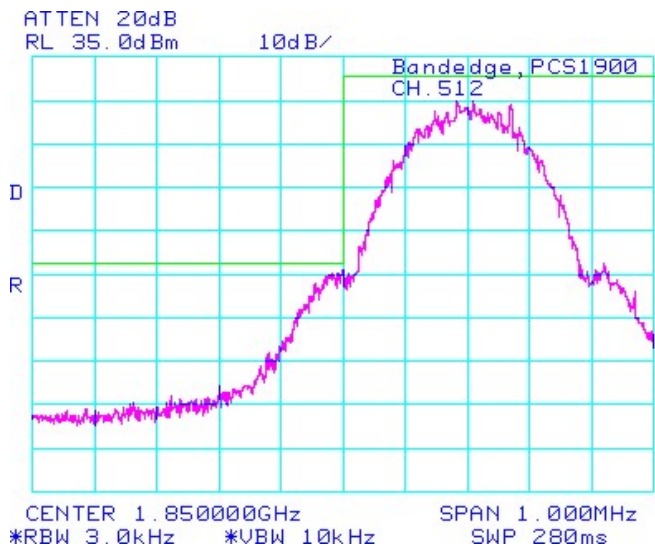
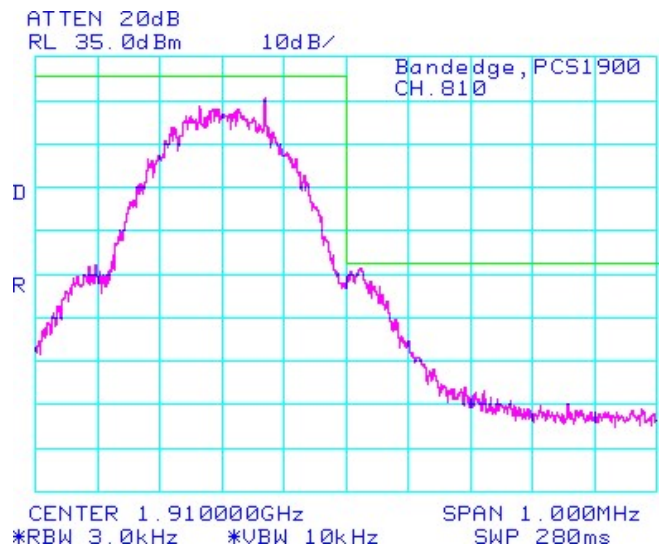



Figure 1-28a: PCS1900, High Channel Mask in GSM mode



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GSM Conducted RF Emission Test Data cont'd

Figure 1-29a: Occupied Bandwidth, GSM850 Band, Low Channel in EDGE mode

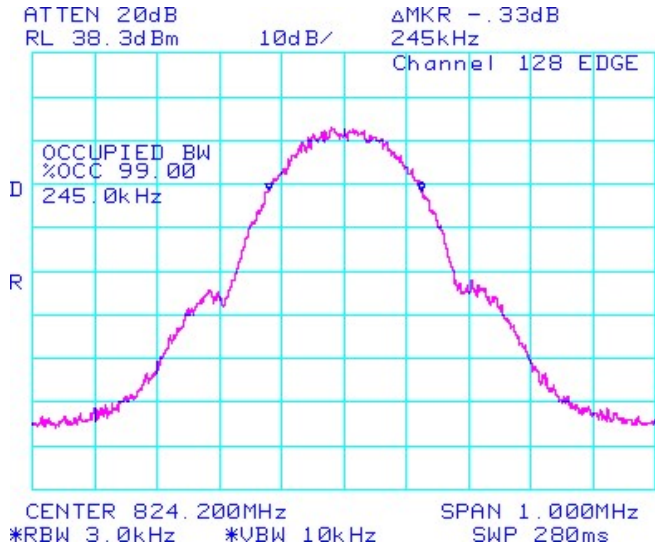


Figure 1-30a: Occupied Bandwidth, GSM850 Band, Middle Channel in EDGE mode

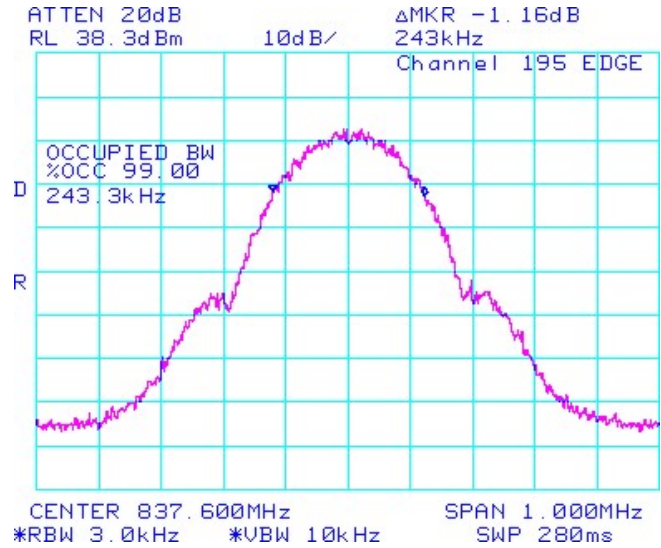


Figure 1-31a: Occupied Bandwidth, GSM850 band, High Channel in EDGE mode

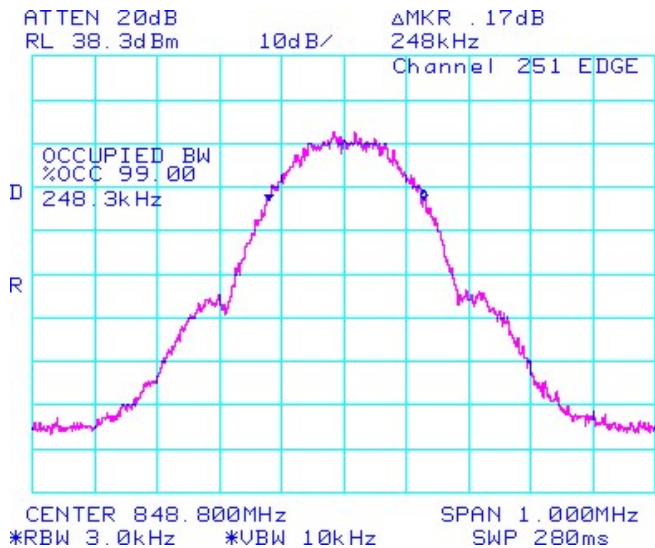
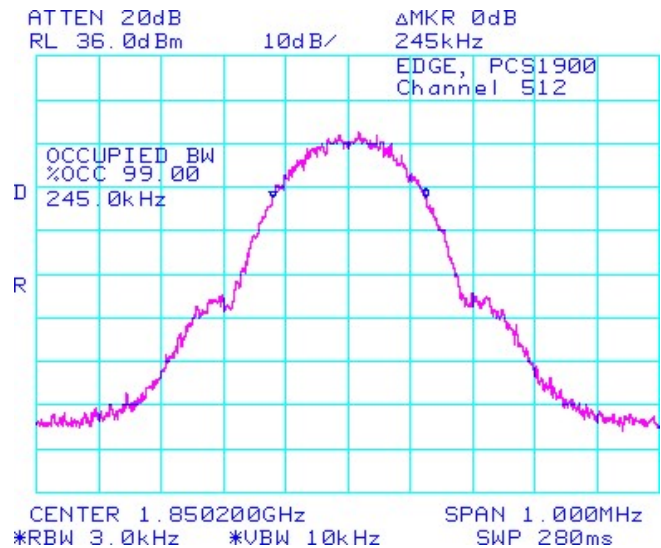



Figure 1-32a: Occupied Bandwidth, PCS1900 Band, Low Channel in EDGE mode



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GSM Conducted RF Emission Test Data cont'd

Figure 1-33a: Occupied Bandwidth, PCS1900 Band, Middle Channel in EDGE mode

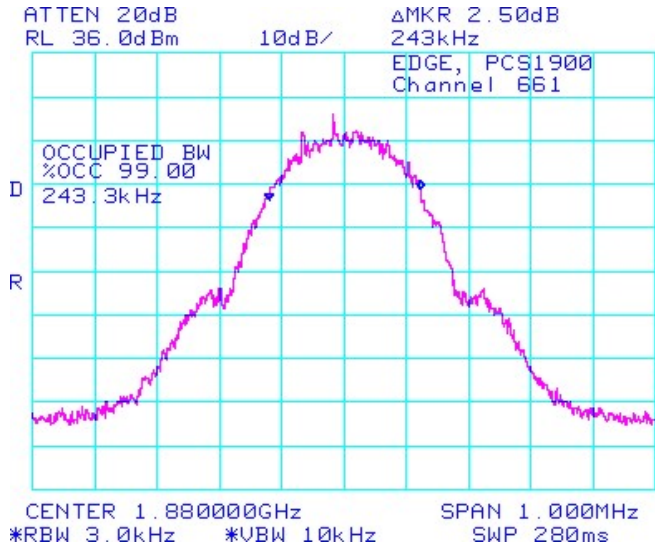


Figure 1-34a: Occupied Bandwidth, PCS1900 Band, High Channel in EDGE mode

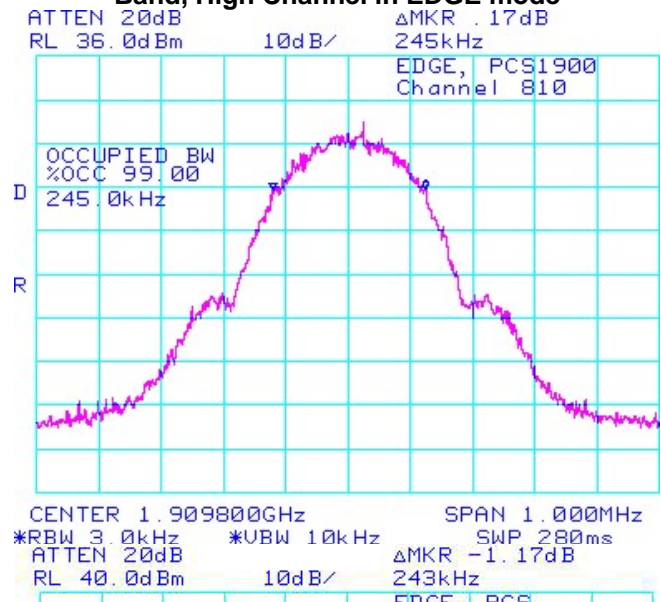


Figure 1-35a: GSM850 Band, Low Channel Mask in EDGE mode

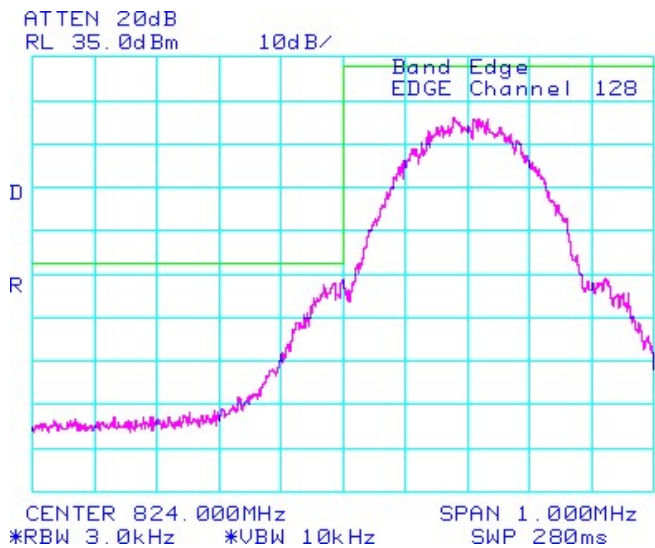
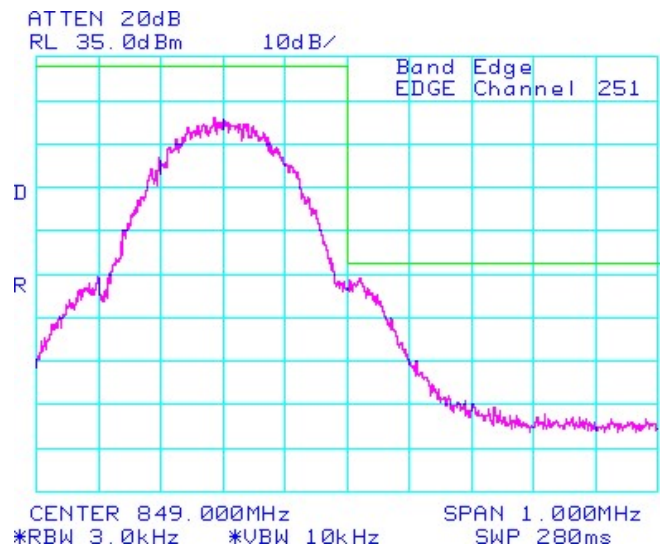



Figure 1-36a: GSM850 Band, High Channel Mask in EDGE mode



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GSM Conducted RF Emission Test Data cont'd

Figure 1-37a: PCS1900 Band, Low Channel Mask in EDGE mode

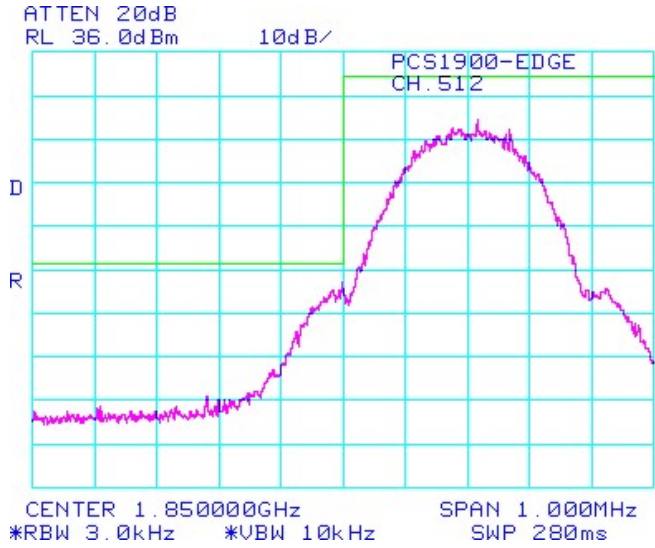
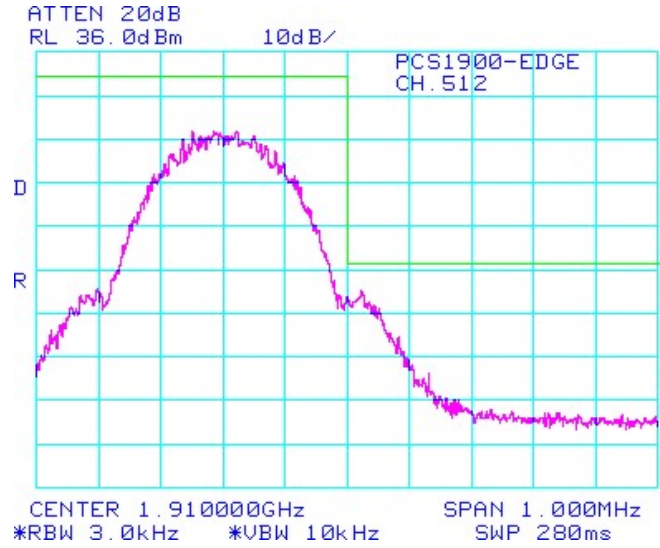



Figure 1-38a: PCS1900 Band, High Channel Mask in EDGE mode



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GSM Conducted RF Emission Test Data cont'd

Figure 1-39a: GSM850 band, Spurious Conducted Emissions, Low channel in Edge Mode

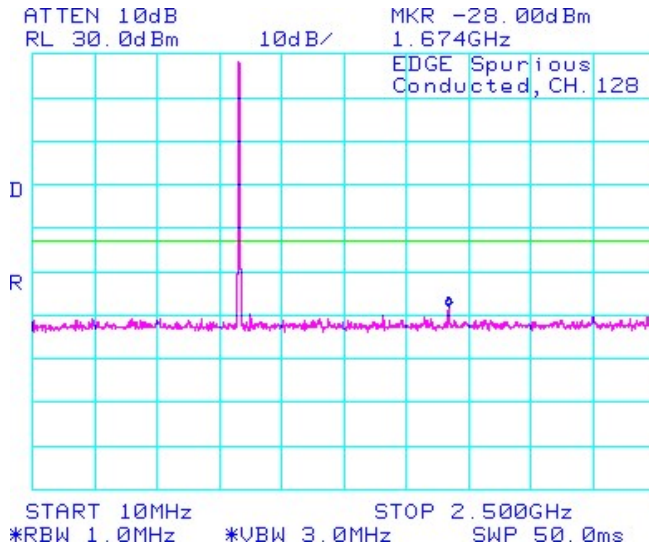


Figure 1-40a: GSM850 band, Spurious Conducted Emissions, Low channel in Edge Mode

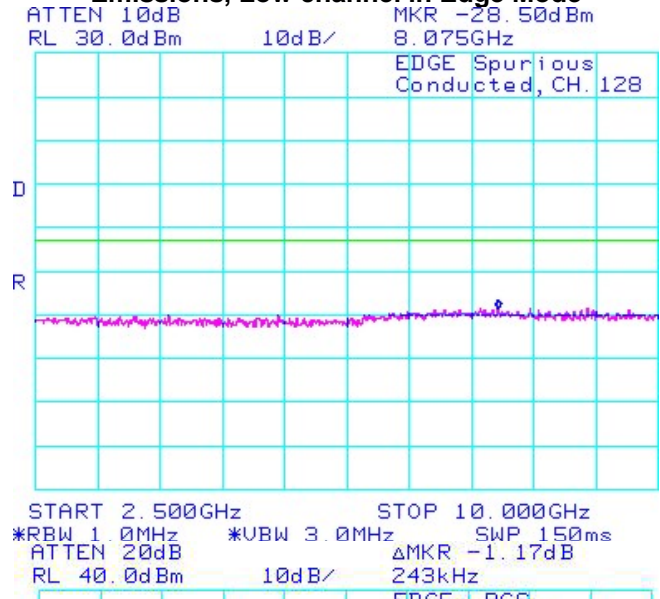


Figure 1-41a: GSM850 band, Spurious Conducted Emissions, Middle channel in Edge Mode

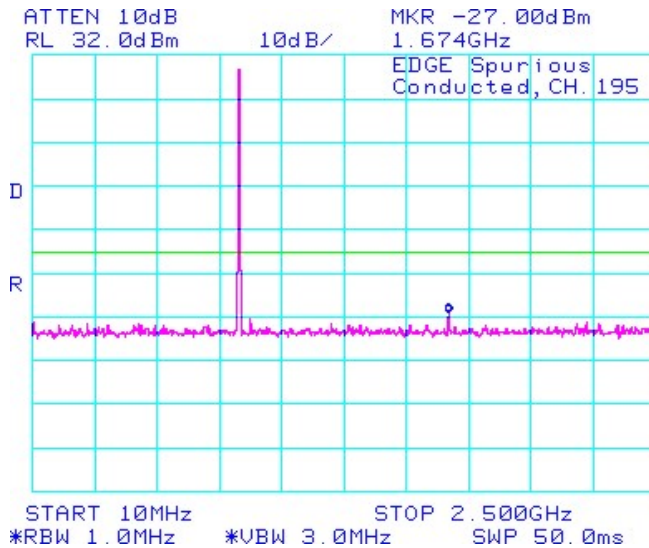
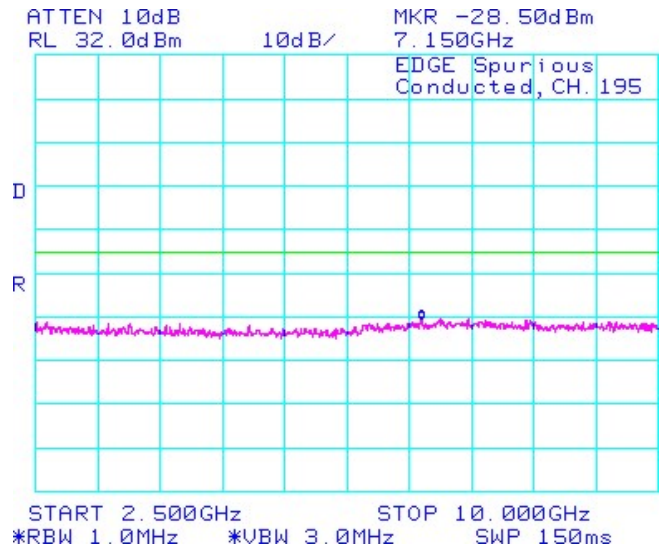



Figure 1-42a: GSM850 band, Spurious Conducted Emissions, Middle channel in Edge Mode



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|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1A | |
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GSM Conducted RF Emission Test Data cont'd

Figure 1-43a: GSM850 band, Spurious Conducted Emissions, High channel in Edge Mode

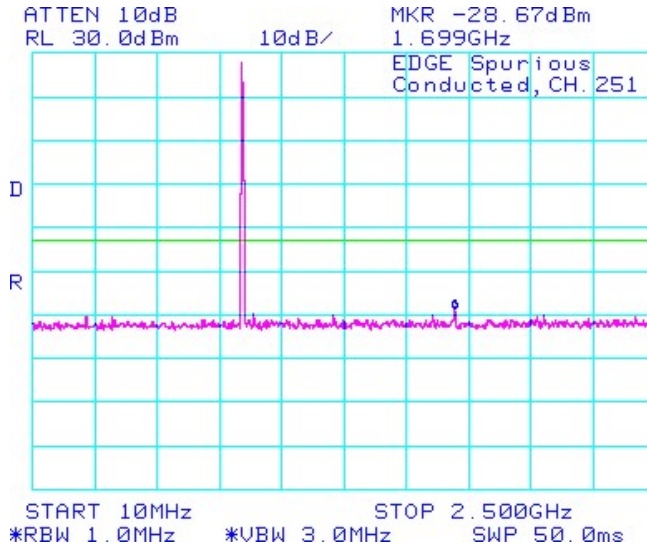


Figure 1-44a: GSM850 band, Spurious Conducted Emissions, High channel in Edge Mode

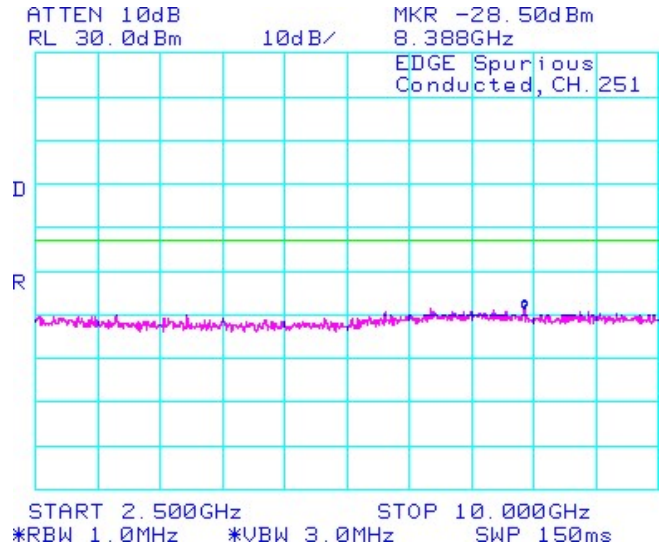


Figure 1-45a: PCS1900 band, Spurious Conducted Emissions, Low channel in Edge Mode

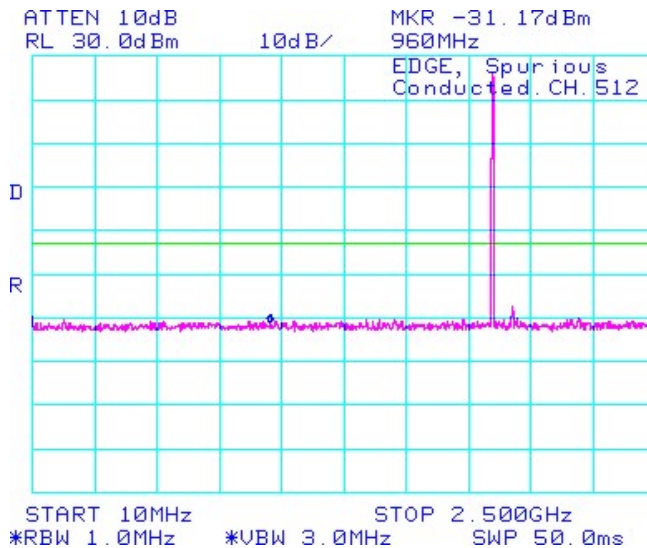
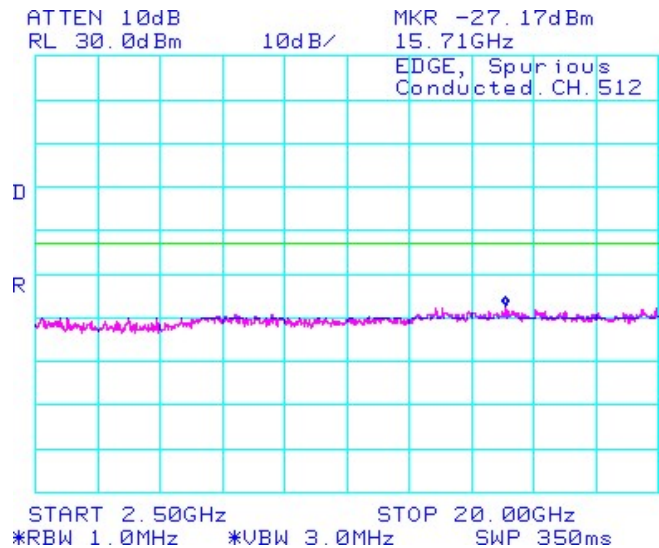



Figure 1-46a: PCS1900 band, Spurious Conducted Emissions, Low channel in Edge Mode



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GSM Conducted RF Emission Test Data cont'd

Figure 1-47a: PCS1900 band, Spurious Conducted Emissions, Low channel in Edge Mode

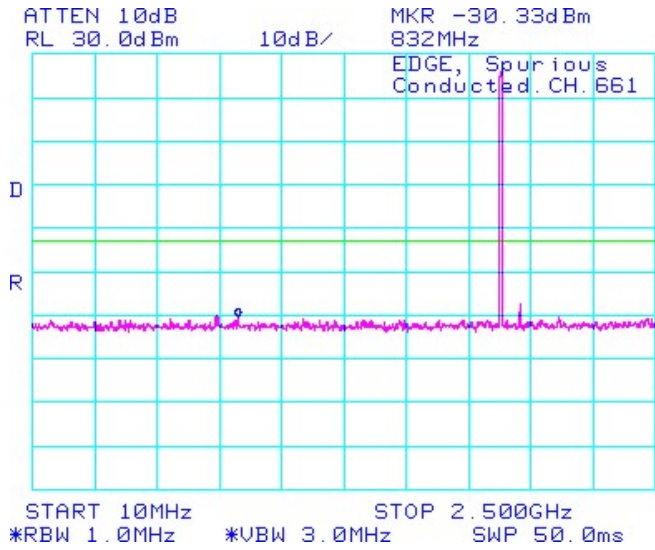


Figure 1-48a: PCS1900 band, Spurious Conducted Emissions, Low channel in Edge Mode

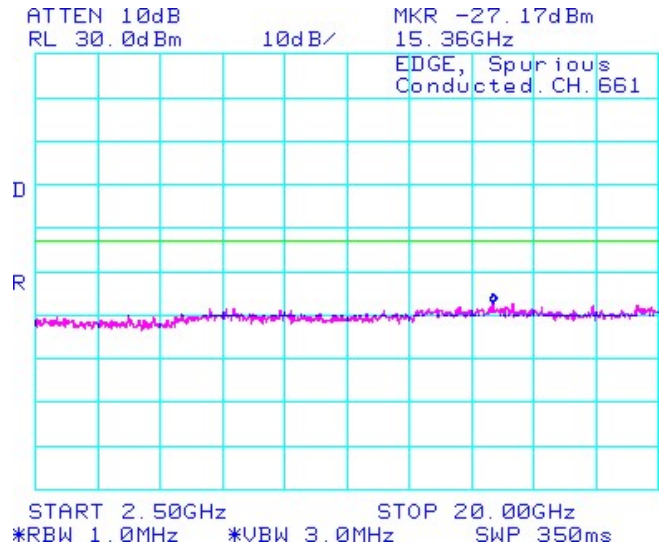


Figure 1-49a: PCS1900 band, Spurious Conducted Emissions, High channel in Edge Mode

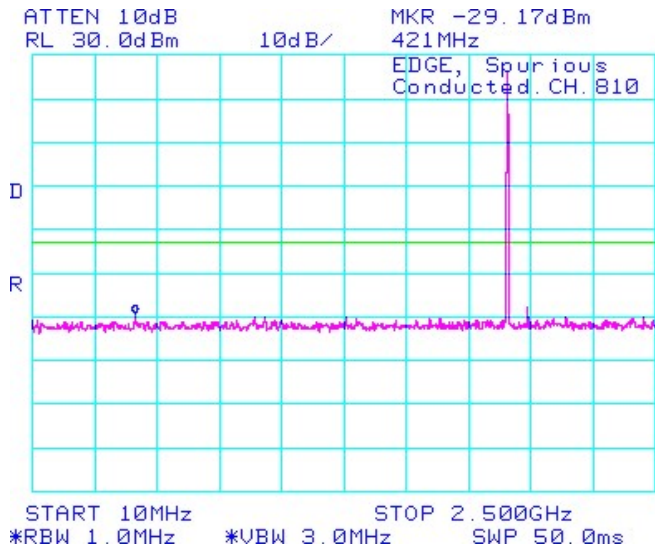
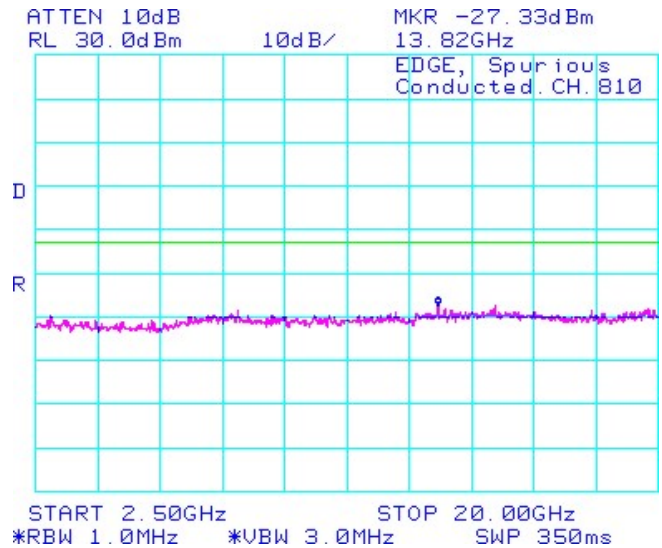



Figure 1-50a: PCS1900 band, Spurious Conducted Emissions, High channel in Edge Mode



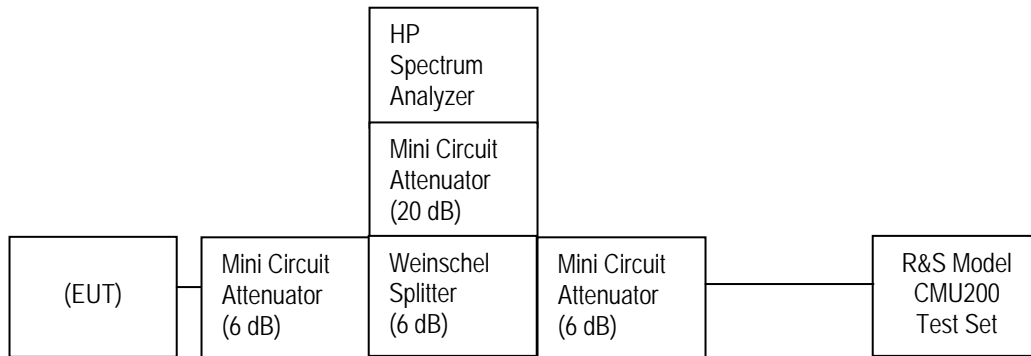
APPENDIX 1B – CDMA CONDUCTED RF EMISSIONS TEST DATA/PLOTS

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|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
| | APPENDIX 1B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |


CDMA Conducted RF Emission Test Data

This appendix contains measurement data pertaining to conducted spurious emissions, 99% power bandwidth and the channel mask.

Test Setup Diagram



The environmental test conditions were: Temperature: 22.8 °C
Relative Humidity: 34 %

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|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
| | APPENDIX 1B | |
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CDMA Conducted RF Emission Test Data cont'd

The conducted spurious emissions – As per 47 CFR 2.1051, CFR 24.238(a), CFR 4.202, CFR 22 Subpart H, RSS-132 and RSS - 133 were measured from 10 MHz to 20 GHz. See figures 1-1b to 1-12b for the plots of the conducted spurious emissions.

Date of Test: Jan 28, 2011

Test Data for Cellular and PCS selected Frequencies in Loopback mode

| Cellular Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
|-----------------------------|---------------------------------|
| 824.700 | 1.273 |
| 836.520 | 1.273 |
| 848.310 | 1.273 |

| PCS Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
|------------------------|---------------------------------|
| 1851.200 | 1.280 |
| 1880.000 | 1.267 |
| 1908.750 | 1.280 |

Test Data for Cellular and PCS selected Frequencies in Loopback mode

Refer to the following measurement plots for more detail.

See Figures 1-1b to 1-12b for the plots of the conducted spurious emissions.

See Figures 1-13b to 1-18b for the plots of 99% Occupied Bandwidth.

See Figures 1-19b to 1-22b for the plots of the Channel mask.

The RF power output was at maximum for all the recorded measurements shown below.

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

CDMA Conducted RF Emission Test Data cont'd

Figure 1-1b: Cellular, Spurious Conducted Emissions, Low channel

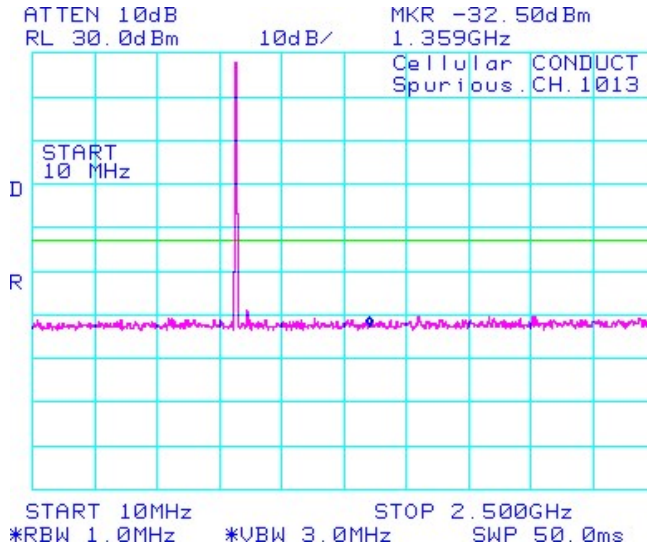


Figure 1-2b: Cellular, Spurious Conducted Emissions, Low channel

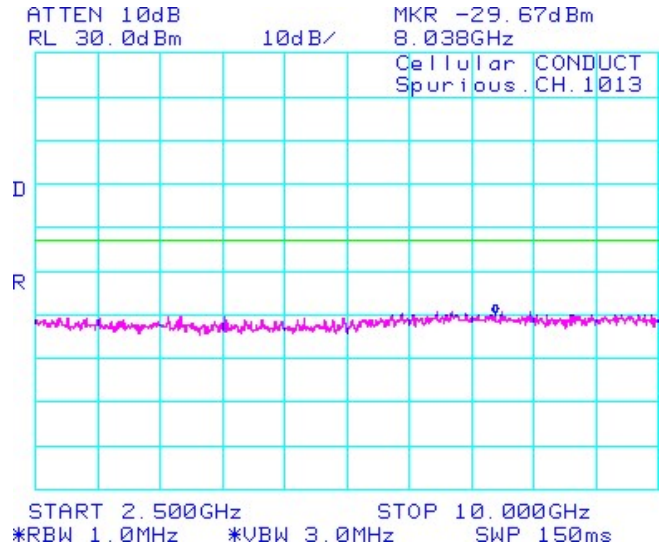


Figure 1-3b: Cellular, Spurious Conducted Emissions, Middle channel

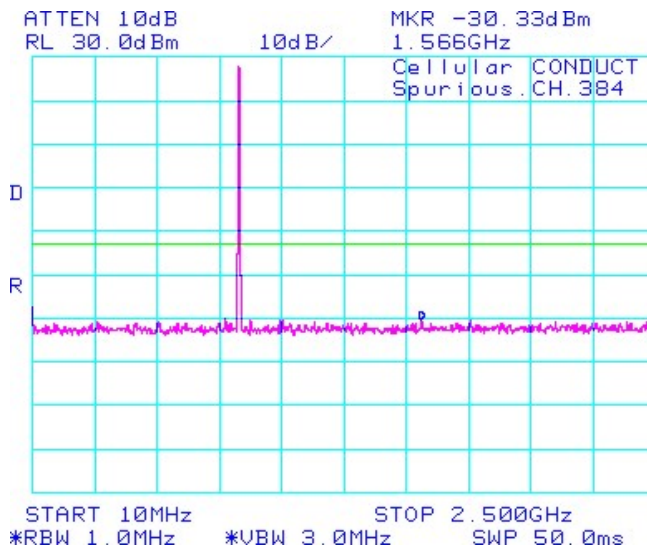
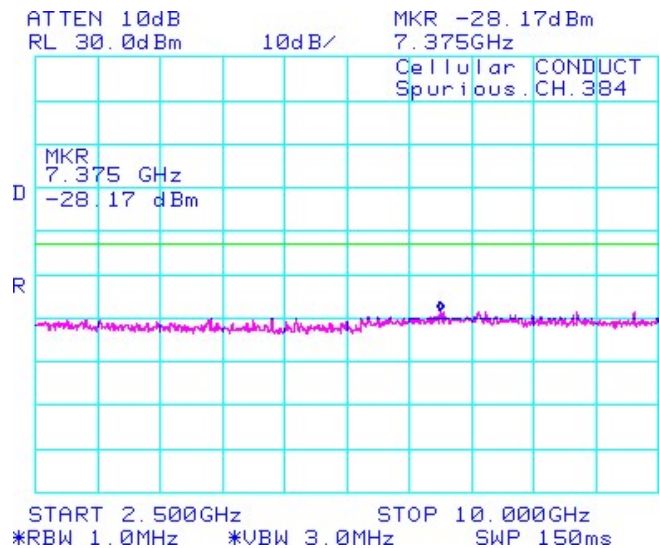



Figure 1-4b: Cellular, Spurious Conducted Emissions, Middle channel



| | | |
|---|--|--|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1B | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

UMTS Conducted RF Emission Test Data cont'd

Figure 7-5b: Cellular, Spurious Conducted Emissions, High Channel

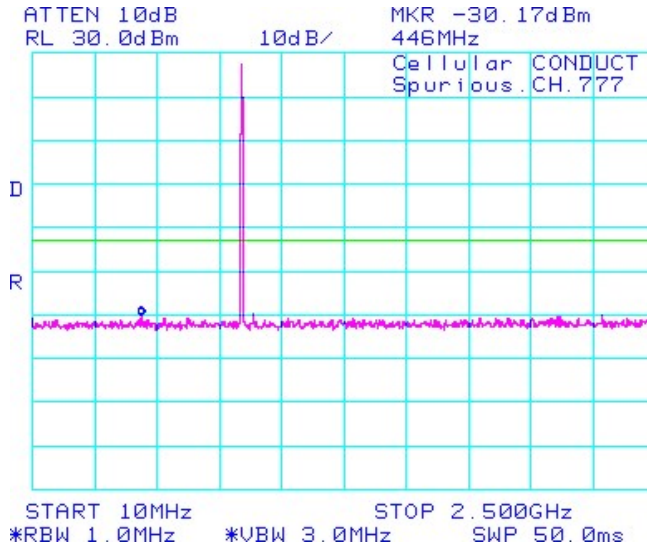


Figure 1-6b: Cellular, Spurious Conducted Emissions, High Channel

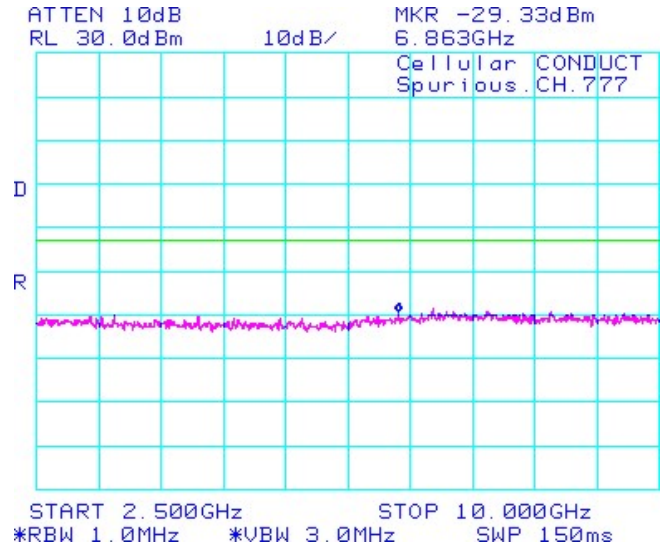


Figure 1-7b: PCS, Spurious Conducted Emissions, Low Channel

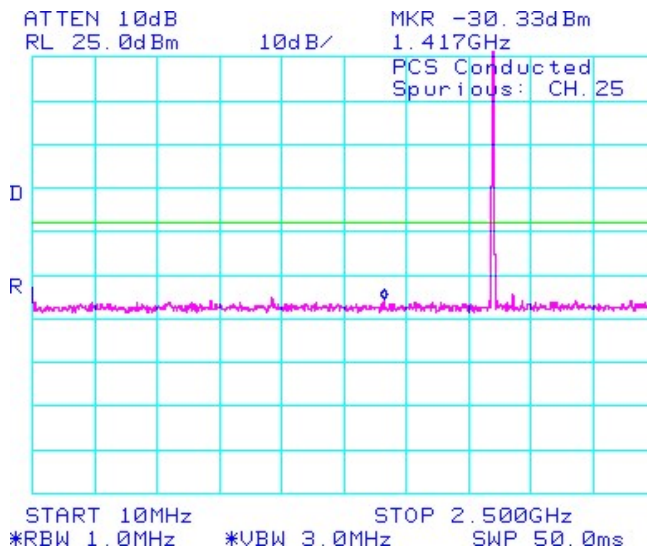
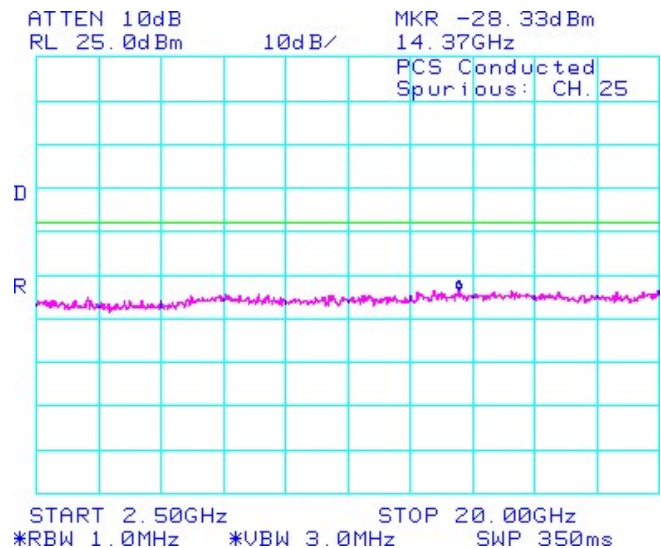



Figure 1-8b: PCS, Spurious Conducted Emissions, Low Channel



| | | |
|---|--|--|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1B | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

CDMA Conducted RF Emission Test Data cont'd

Figure 1-9b: PCS, Spurious Conducted Emissions, Middle Channel

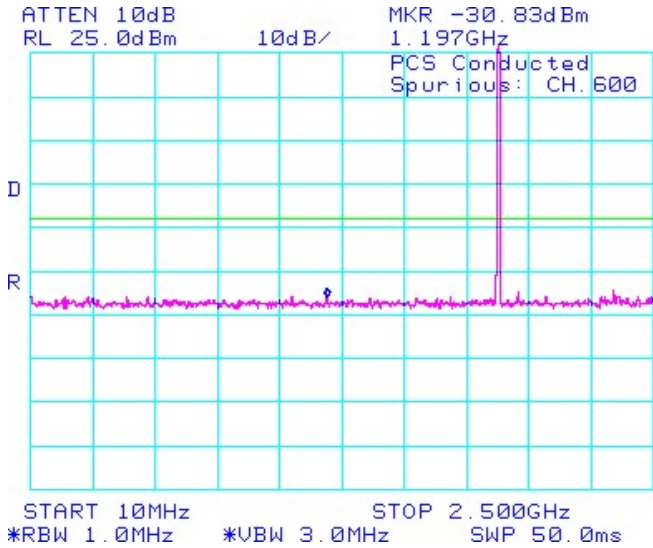


Figure 1-10b: PCS, Spurious Conducted Emissions, Middle Channel

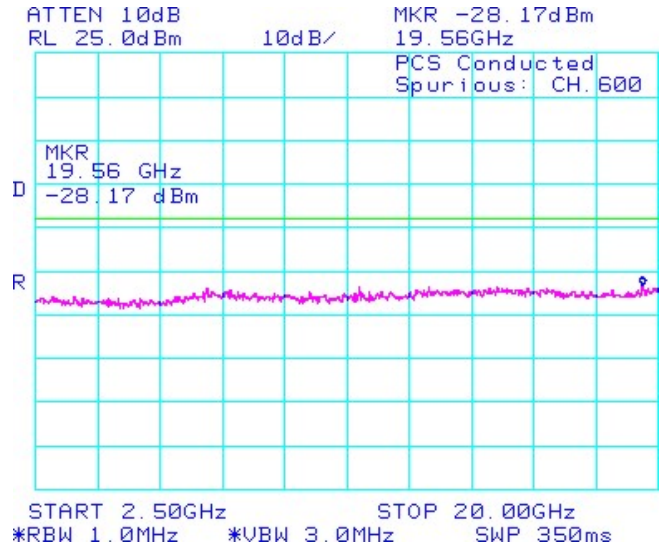


Figure 1-11b: PCS, Spurious Conducted Emissions, High Channel

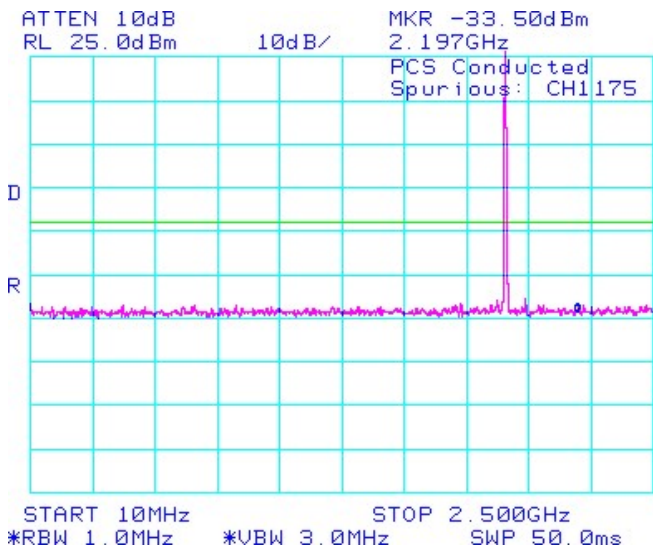
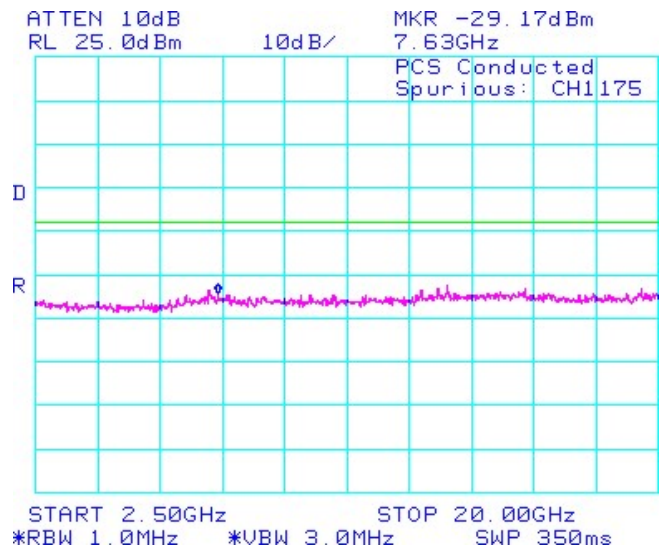



Figure 1-12b: PCS, Spurious Conducted Emissions, High Channel



| | | |
|---|--|--|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1B | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

CDMA Conducted RF Emission Test Data cont'd

Figure 1-13b: Occupied Bandwidth, Cellular Low Channel

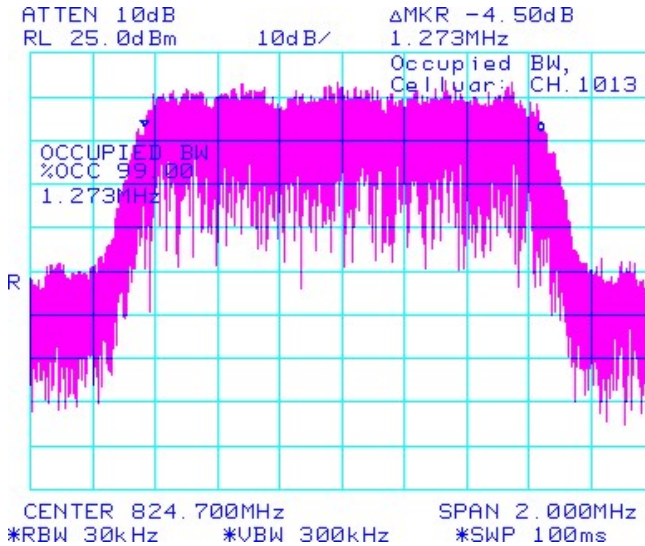


Figure 1-14b: Occupied Bandwidth, Cellular Middle Channel

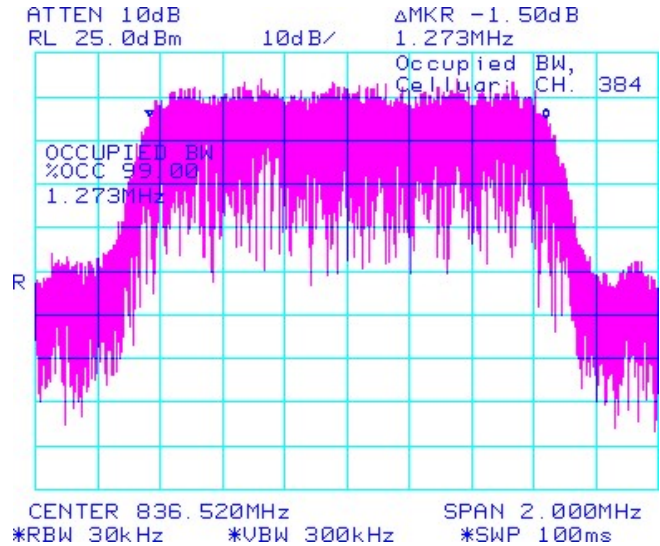


Figure 1-15b: Occupied Bandwidth, Cellular High Channel

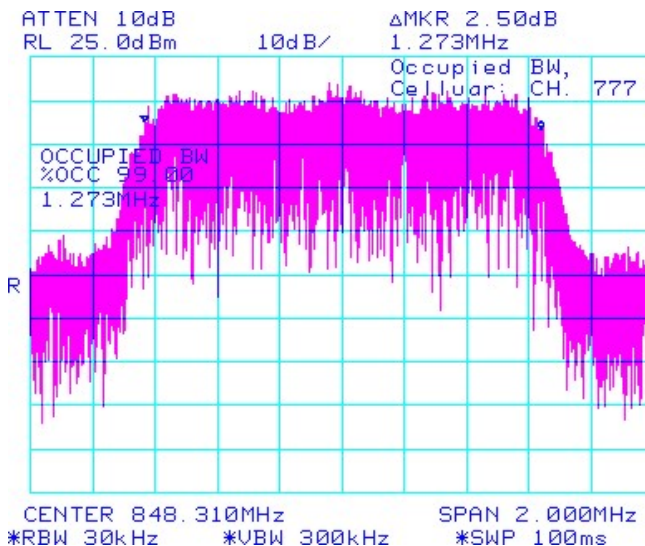
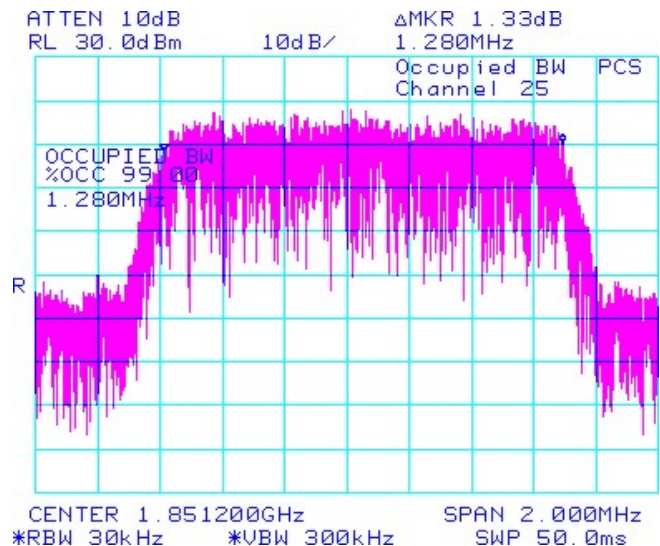



Figure 1-16b: Occupied Bandwidth, PCS Low Channel



| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

CDMA Conducted RF Emission Test Data cont'd

Figure 1-17b: Occupied Bandwidth, PCS Middle Channel

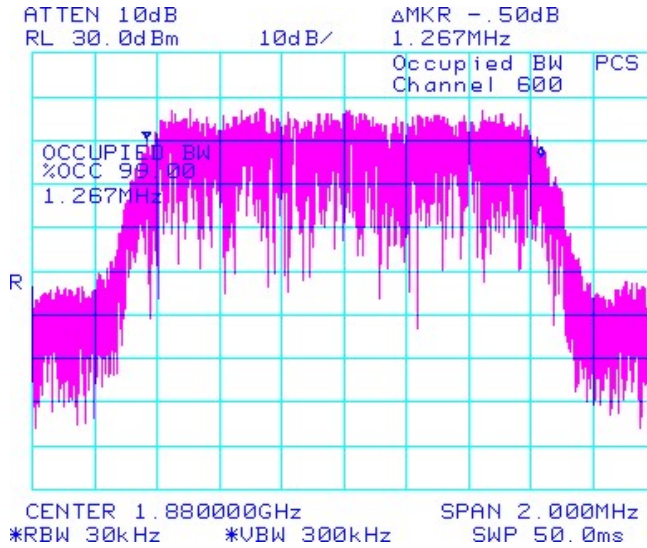


Figure 1-18b: Occupied Bandwidth, PCS High Channel

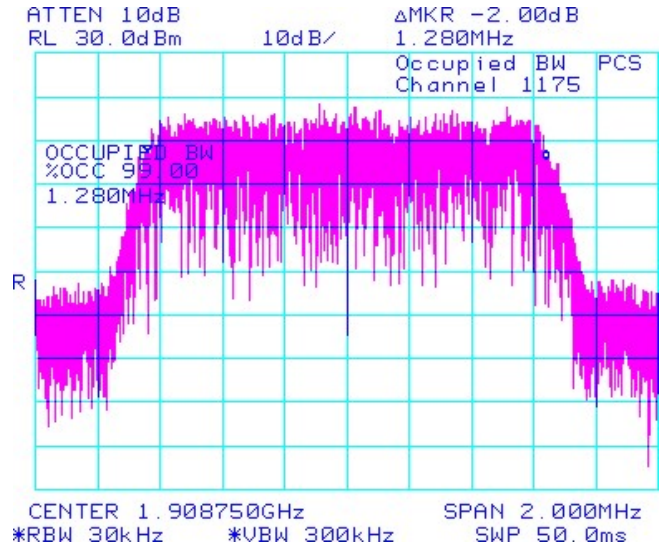


Figure 1-19b: Cellular Low Channel Mask

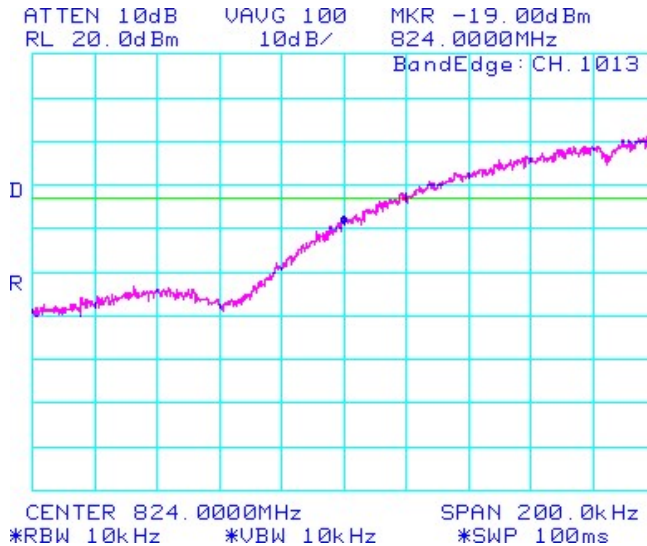
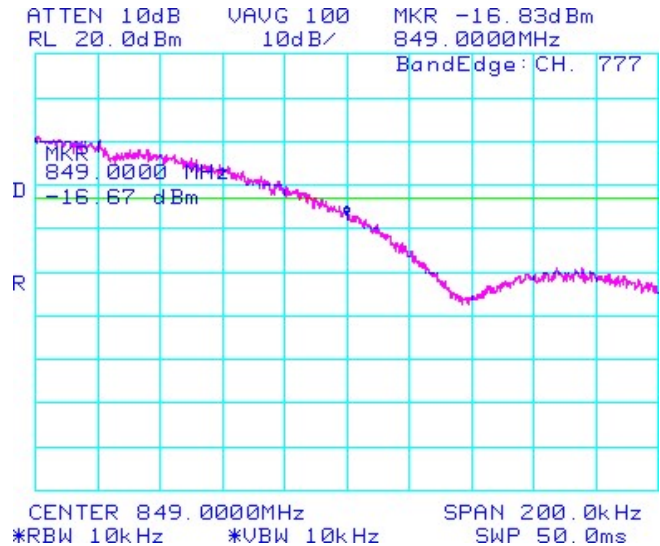


Figure 1-20b: Cellular High Channel Mask



Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

CDMA Conducted RF Emission Test Data cont'd

Figure 1-21b: PCS Low Channel Mask

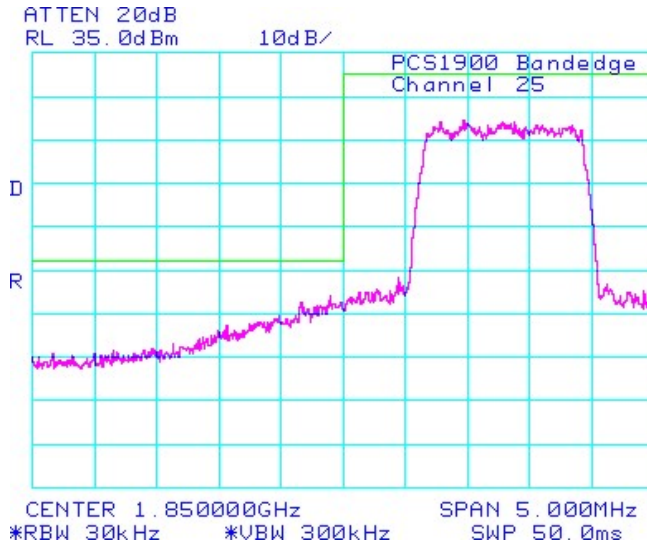
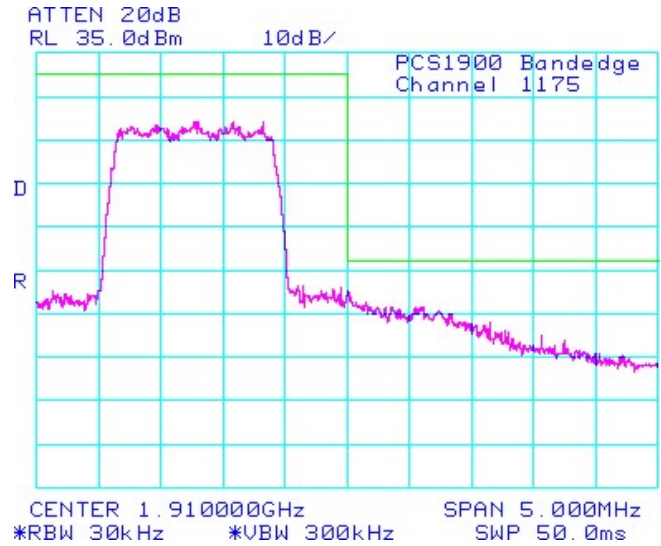



Figure 1-22b: PCS High Channel Mask



| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1B | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

CDMA Conducted RF Emission Test Data cont'd

The conducted spurious emissions – As per 47 CFR 2.1051, CFR 24.238(a), CFR 22 Subpart H, RSS-132 and RSS - 133 were measured from 10 MHz to 20 GHz. See figures 1-29b to 1-40b for the plots of the conducted spurious emissions. Date of Test: Jan 31, 2011

The environmental test conditions were: Temperature: 23.8 °C
 Relative Humidity: 33.1 %

Test Data for Cellular and PCS selected Frequencies in 1xEVDO mode

| Cellular Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
|---------------------------------|-------------------------------------|
| 824.700 | 1.273 |
| 836.520 | 1.273 |
| 848.310 | 1.273 |

| PCS Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
|----------------------------|-------------------------------------|
| 1851.200 | 1.280 |
| 1880.000 | 1.273 |
| 1908.750 | 1.273 |

Measurement Plots for Cellular and PCS in 1xEVDO mode

Refer to the following measurement plots for more detail.

See Figures 1-23b to 1-34b for the plots of the conducted spurious emissions.

See Figures 1-35b to 1-39b for the plots of 99% Occupied Bandwidth.

See Figures 1-40b to 1-43b for the plots of the Channel mask.

The RF power output was at maximum for all the recorded measurements shown below.

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

CDMA EVDO Conducted RF Emission Test Data cont'd

Figure 1-23b: Cellular , Spurious Conducted Emissions, Low channel

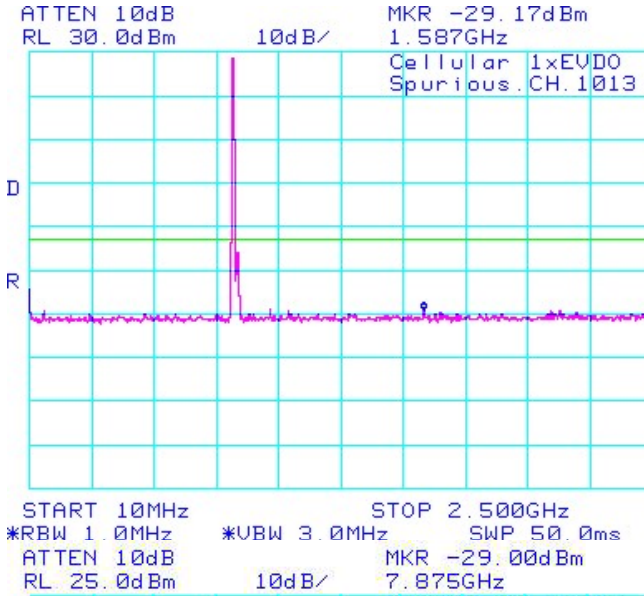


Figure 1-24b: Cellular , Spurious Conducted Emissions, Low channel

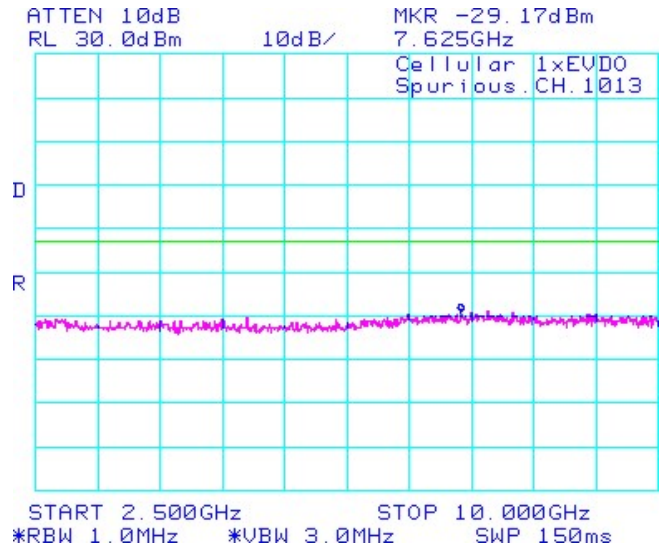


Figure 1-25b: Cellular , Spurious Conducted Emissions, Middle channel

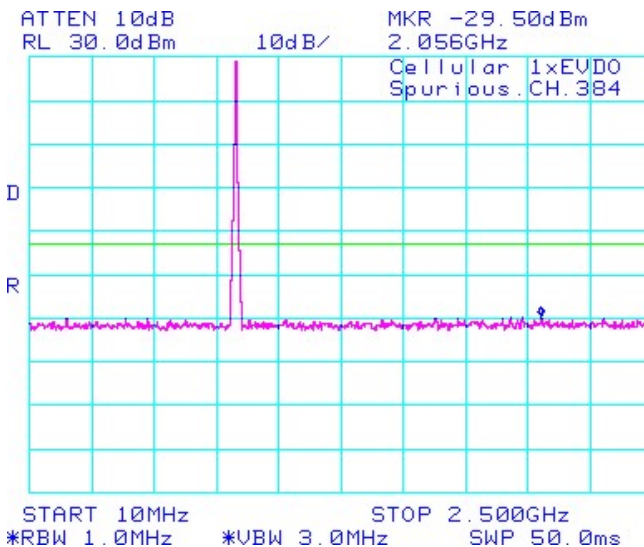
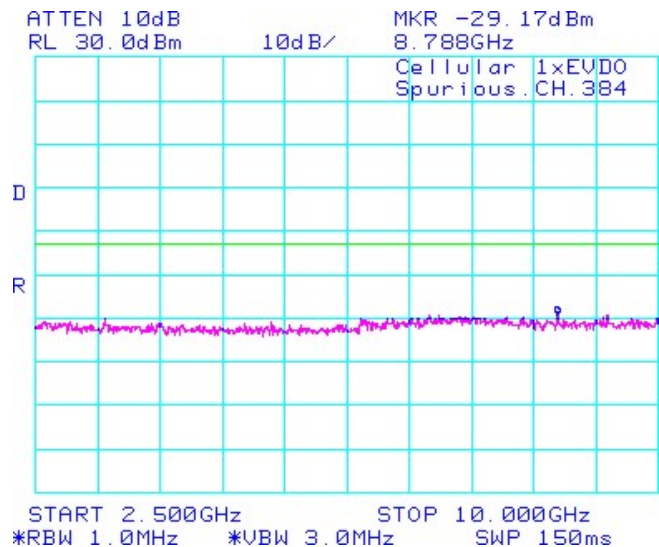



Figure 1-26b: Cellular , Spurious Conducted Emissions, Middle channel



| | | |
|---|--|--|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1B | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

CDMA Conducted RF Emission Test Data cont'd

Figure 8-27b: Cellular , Spurious Conducted Emissions, High Channel

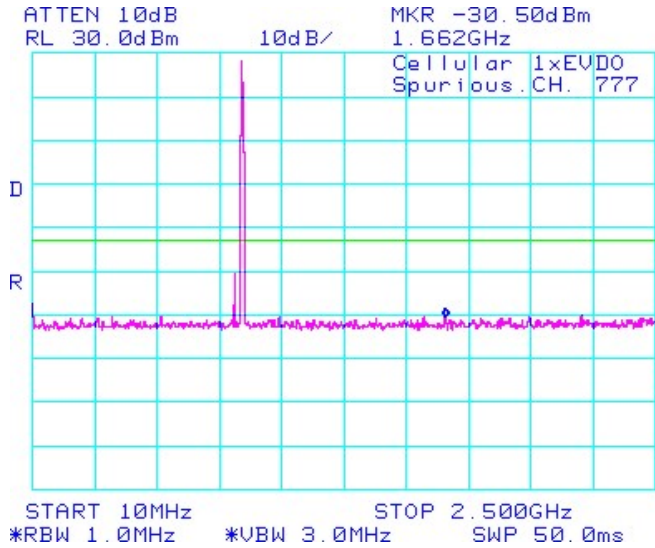


Figure 1-28b: Cellular , Spurious Conducted Emissions, High Channel

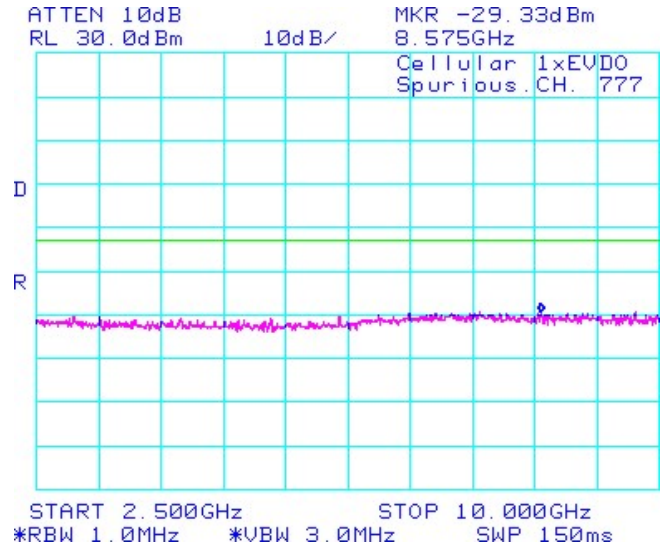


Figure 1-29b: CDMA PCS, Spurious Conducted Emissions, Low Channel

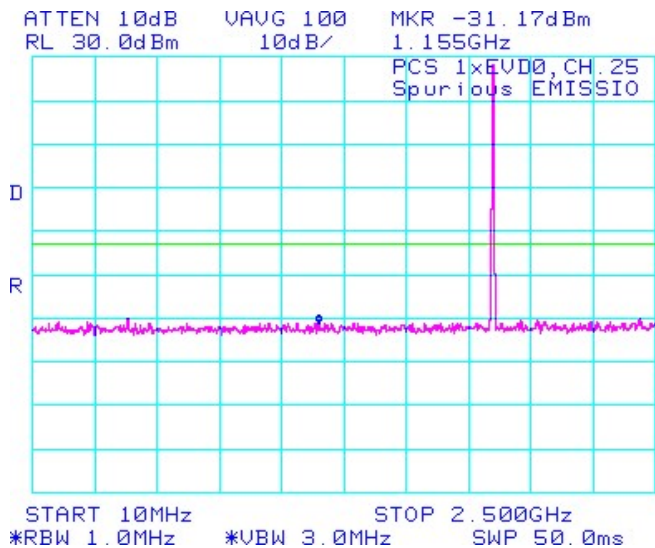
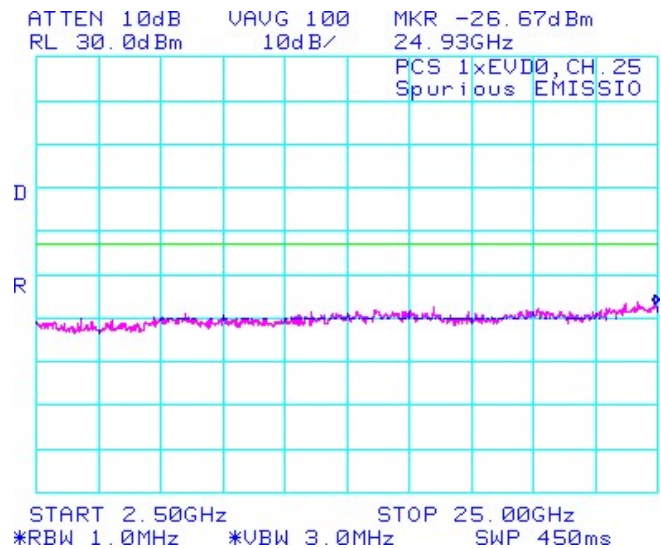


Figure 1-30b: CDMA PCS, Spurious Conducted Emissions, Low Channel



Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

CDMA Conducted RF Emission Test Data cont'd

Figure 1-31b: CDMA PCS, Spurious Conducted Emissions, Middle Channel

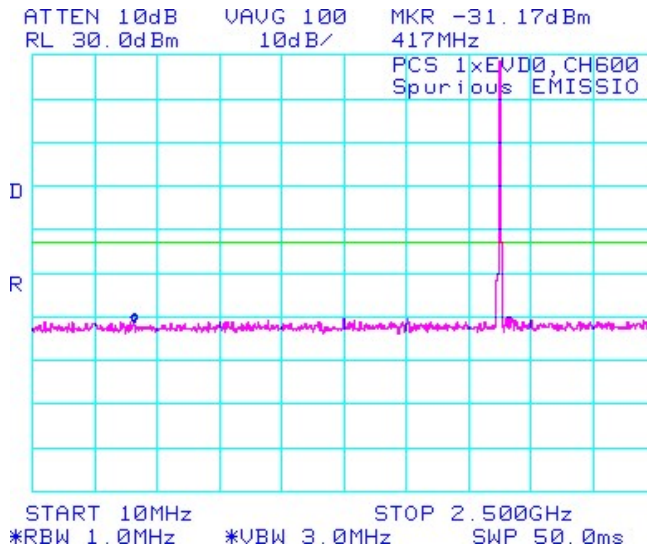


Figure 1-32b: CDMA PCS, Spurious Conducted Emissions, Middle Channel

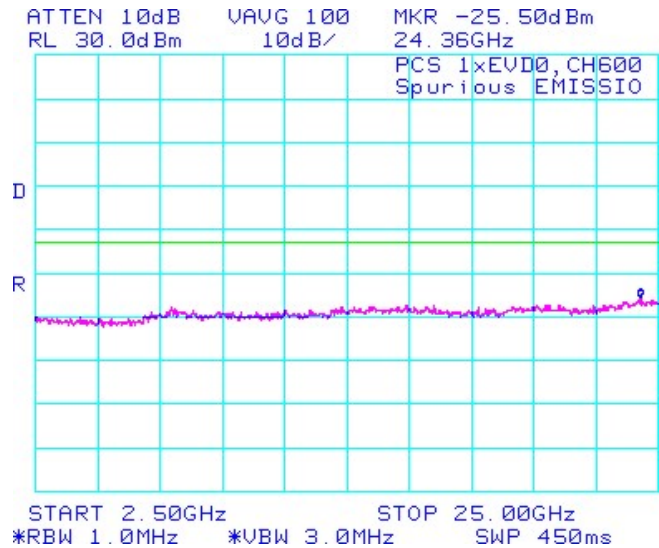


Figure 1-33b: CDMA PCS, Spurious Conducted Emissions, High Channel

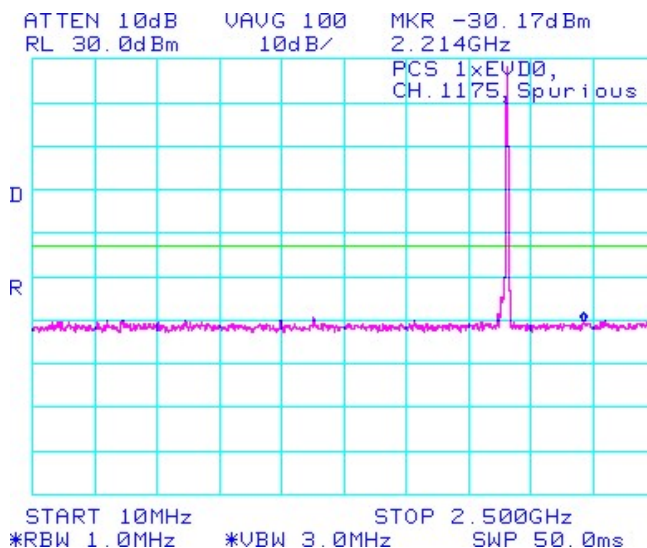
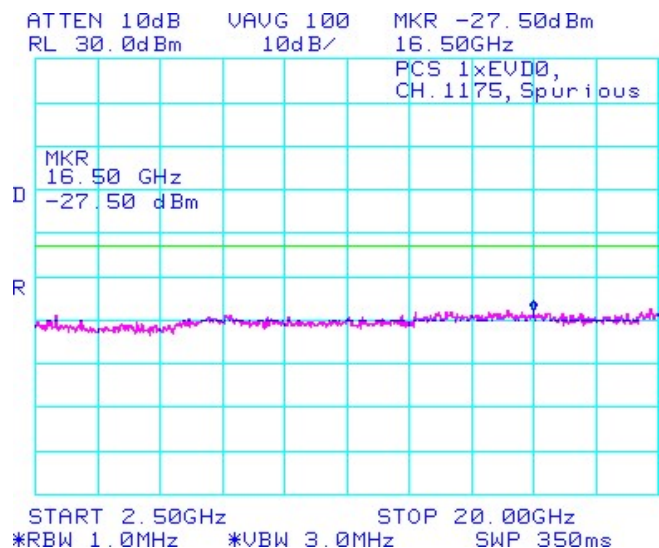



Figure 1-34b: CDMA PCS, Spurious Conducted Emissions, High Channel



| | | |
|---|--|--|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1B | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

CDMA Conducted RF Emission Test Data cont'd

Figure 1-35b: Occupied Bandwidth, Cellular Low Channel

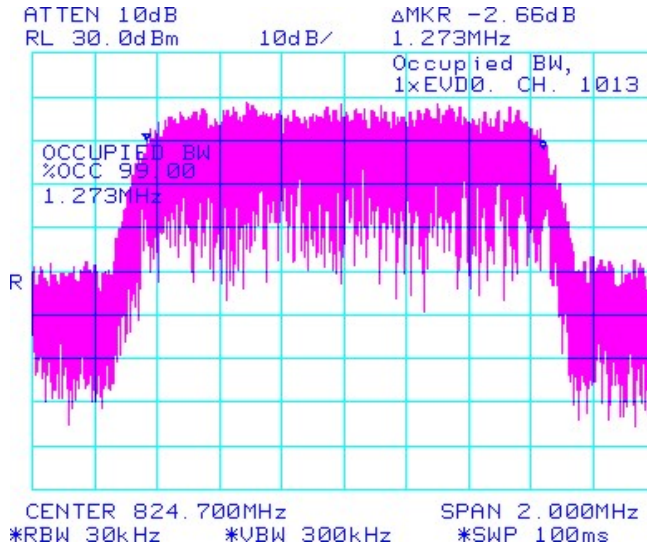


Figure 1-36b: Occupied Bandwidth, Cellular Middle Channel

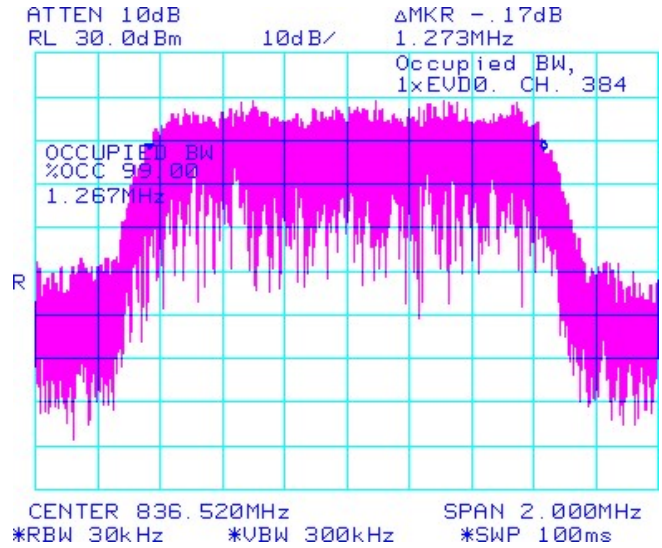


Figure 1-37b: Occupied Bandwidth, Cellular High Channel

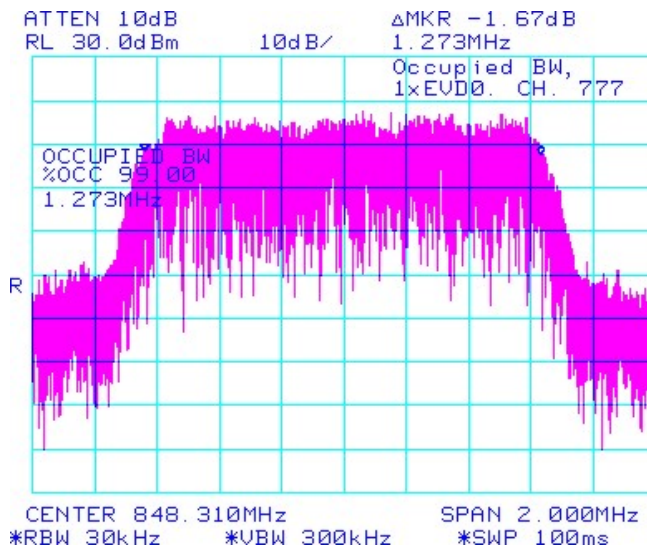
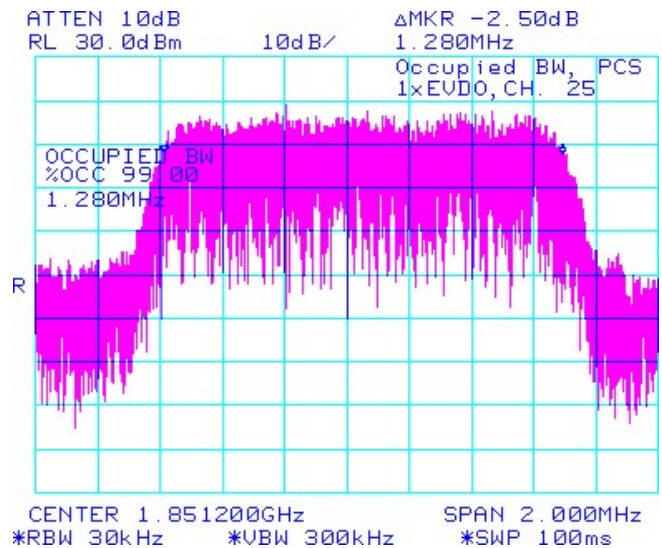



Figure 1-38b: Occupied Bandwidth, PCS Low Channel



| | | |
|---|--|--|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1B | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

CDMA Conducted RF Emission Test Data cont'd

Figure 1-38b: Occupied Bandwidth, PCS Middle Channel

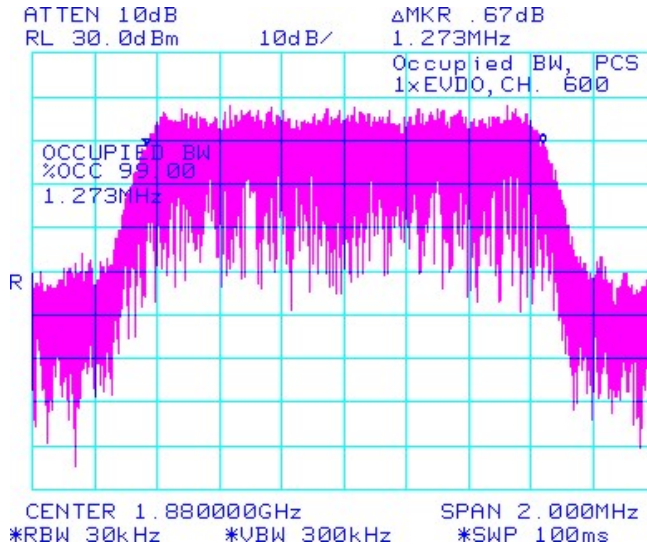


Figure 1-39b: Occupied Bandwidth, PCS High Channel

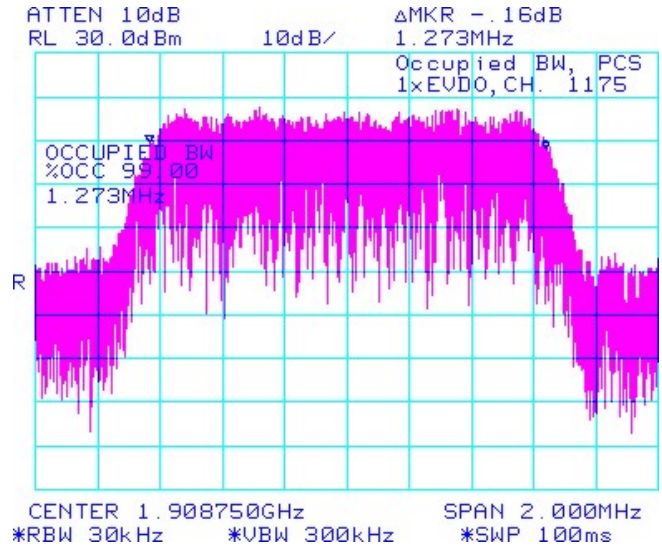


Figure 1-40b: Cellular , Low Channel Mask

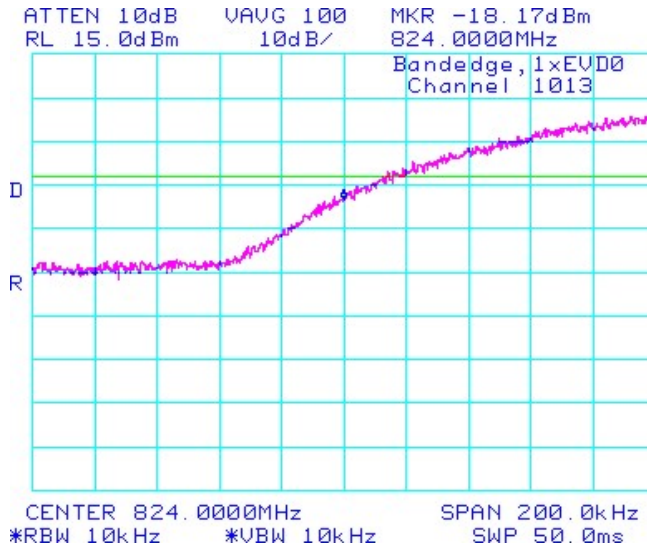
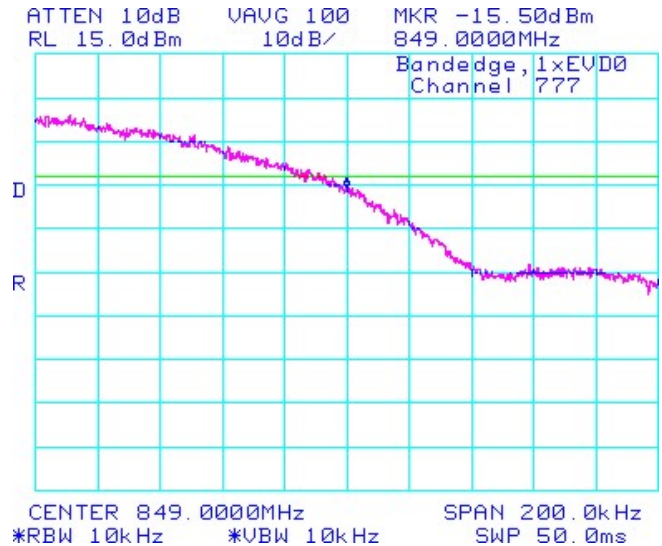



Figure 1-41b: Cellular , High Channel Mask

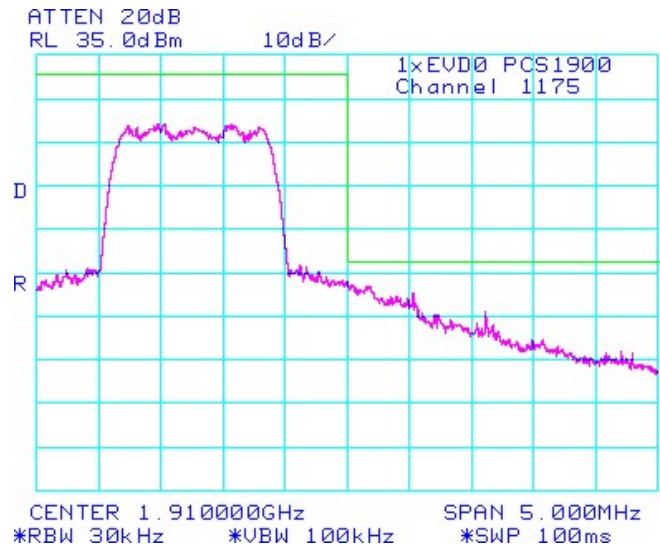
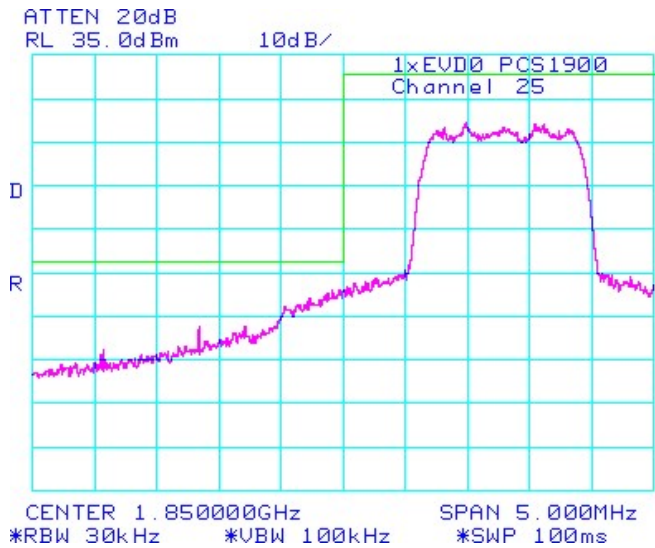


| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 1B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |


CDMA Conducted RF Emission Test Data cont'd

Figure 1-42b: CDMA PCS, Low Channel Mask

Figure 1-43b: CDMA PCS, High Channel Mask



APPENDIX 2A – GSM CONDUCTED RF OUTPUT POWER TEST DATA

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 2A | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

GSM Conducted RF Output Power Test Data

The conducted RF output power was measured on the BlackBerry® smartphone using the Communication Tester, Rohde & Schwarz, model CMU 200. The low, middle and high channels were measured at maximum output power. The insertion loss of the coaxial cable from the CMU 200 to the BlackBerry® smartphone was compensated for in the measurements.

Peak nominal output power is 32.5 dBm ±0.5 dB for GSM850 and 30.5 dBm ±0.5 dB for PCS.

Peak nominal output power is 29.5 dBm ±0.5 dB for GSM850 EDGE Mode (2-timeslot uplink) and 28.0 dBm ±0.5 dB for PCS EDGE Mode (2-timeslot uplink).


Date of Test: Jan 17, 2011

The environmental conditions were: Temperature: 23 °C
 Humidity: 30 %

The measurements were performed by Daoud Attayi

| Channel | Frequency (MHz) | Maximum Output Power (dBm) | Maximum Output Power (Watts) | Channel | Frequency (MHz) | Maximum Output Power (dBm) | Maximum Output Power (Watts) |
|----------------------|-----------------|----------------------------|------------------------------|---------------------------|-----------------|----------------------------|------------------------------|
| <u>GSM850</u> | | | | <u>GSM850 Edge</u> | | | |
| 128 | 824.20 | 32.7 | 1.86 | 128 | 824.20 | 30.0 | 1.00 |
| 189 | 837.60 | 32.7 | 1.86 | 189 | 837.60 | 30.0 | 1.00 |
| 251 | 848.80 | 32.6 | 1.82 | 251 | 848.80 | 29.8 | 0.95 |
| <u>PCS</u> | | | | <u>PCS Edge</u> | | | |
| 512 | 1850.2 | 30.7 | 1.17 | 512 | 1850.2 | 28.2 | 0.66 |
| 661 | 1880.0 | 30.6 | 1.15 | 661 | 1880.0 | 28.1 | 0.65 |
| 810 | 1909.8 | 30.6 | 1.15 | 810 | 1909.8 | 28.1 | 0.65 |

APPENDIX 2B – CDMA CONDUCTED RF OUTPUT POWER TEST DATA

| | | | |
|---|--|--|--|
|  | | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 2B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW | |

Conducted RF Output Power Test Data

The measurements were performed by Daoud Attayi.

The conducted RF output power was measured using the CDMA base station simulator. Low, middle and high channels were measured at maximum radio output power at different service options and modes.

Peak nominal output power is 24.0 dBm \pm 0.5 dB for Cellular and 23.50 dBm \pm 0.5 dB for PCS.


Date of Test: Jan 17, 2011

The environmental test conditions were: Temperature 23 °C
 Relative Humidity 30 %

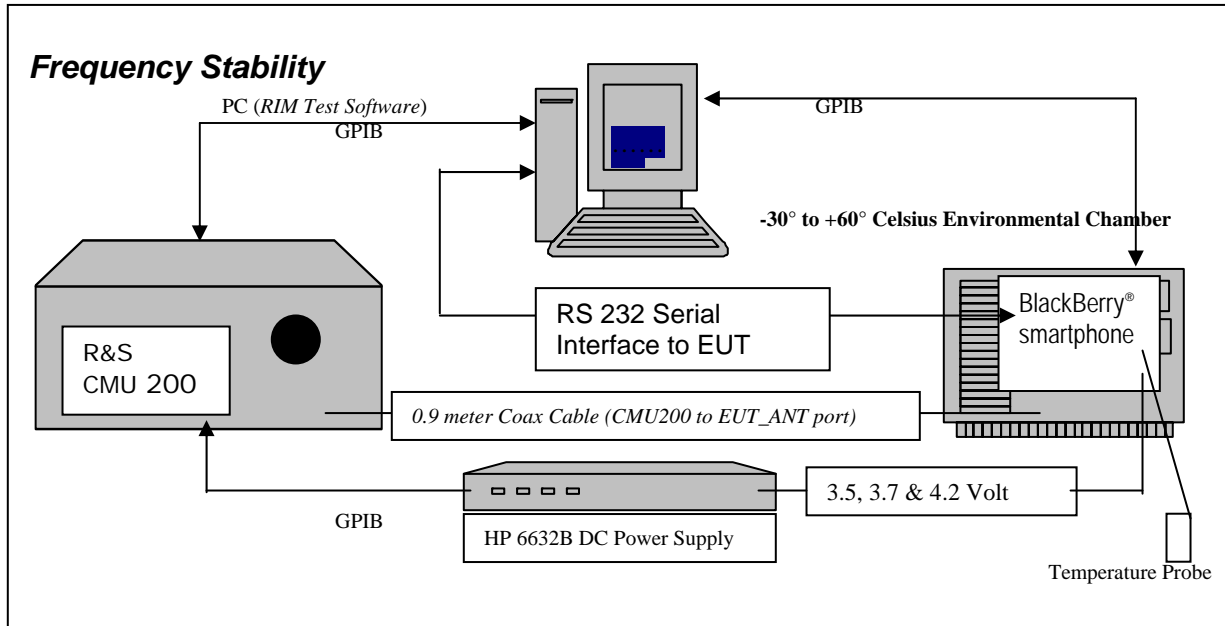
Test Results

| Band | Channel | 1x EvDO (153.6kbps) | | CDMA2000 RC | SO2 Loopback | | SO55 Loopback | | TDSO SO32 | |
|-----------|---------|---------------------|---------|-------------|--------------|---------|---------------|---------|-----------|---------|
| | | (dBm) | (Watts) | | (dBm) | (Watts) | (dBm) | (Watts) | (dBm) | (Watts) |
| CDMA 800 | 1013 | 24.2 | 0.26 | RC1 | 24.3 | 0.27 | 24.4 | 0.28 | - | - |
| | | | | RC3 | 24.2 | 0.26 | 24.2 | 0.26 | 24.2 | 0.26 |
| | 384 | 24.1 | 0.26 | RC1 | 24.2 | 0.26 | 24.3 | 0.27 | - | - |
| | | | | RC3 | 24.1 | 0.26 | 24.1 | 0.26 | 24.1 | 0.26 |
| | 777 | 23.5 | 0.22 | RC1 | 24.2 | 0.26 | 24.1 | 0.26 | - | - |
| | | | | RC3 | 24.0 | 0.25 | 24.0 | 0.25 | 24.2 | 0.26 |
| | | | | | | | | | | |
| Band | Channel | 1x EvDO (153.6kbps) | | CDMA2000 RC | SO2 Loopback | | SO55 Loopback | | TDSO SO32 | |
| | | (dBm) | (Watts) | | (dBm) | (Watts) | (dBm) | (Watts) | (dBm) | (Watts) |
| CDMA 1900 | 25 | 23.8 | 0.24 | RC1 | 23.7 | 0.23 | 23.5 | 0.25 | - | - |
| | | | | RC3 | 23.6 | 0.23 | 23.6 | 0.25 | 23.5 | 0.22 |
| | 600 | 23.8 | 0.24 | RC1 | 23.9 | 0.25 | 23.8 | 0.25 | - | - |
| | | | | RC3 | 23.7 | 0.23 | 23.7 | 0.23 | 23.7 | 0.23 |
| | 1175 | 23.8 | 0.24 | RC1 | 23.7 | 0.23 | 23.6 | 0.23 | - | - |
| | | | | RC3 | 23.5 | 0.22 | 23.6 | 0.23 | 23.6 | 0.23 |

APPENDIX 3A – GSM FREQUENCY STABILITY TEST DATA

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 3A | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

GSM Frequency Stability Test Data



The measurements were performed by Maurice Battler.

CFR 47 Chapter 1 - Federal Communications Commission Rules

Part 2 Required Measurements

- 2.995 Frequency Stability - Procedures
- (a,b) Frequency Stability - Temperature Variation
- (d) Frequency Stability - Voltage Variation


24.235/22.917 Frequency Stability.

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

The EUT meets the requirements as stated in CFR 47 chapter 1, Section 24.235, CFR 47 chapter 1, Section 22.917 RSS-132, 4.3 Frequency Stability, and RSS-133, 6.3 Frequency Stability.

Frequency Stability measurement devices were configured as presented in the block diagram recording frequency, power, data, temperatures, and stepped voltages controlled via a GPIB interface linked to the Environmental chamber, a DC power supply, and the Communications Test Set. A 0.9-metre coax cable was calibrated to characterize the insertion loss for the transmitted frequencies between the RF input/output of the CMU 200 and the EUT antenna port.

Calibration for the Cable Loss was performed in the RF Laboratory using the Agilent power meter and Agilent Signal Generator.

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 3A | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

Procedure:


The EUT was placed in the Temperature chamber and connected to CMU 200 outside as shown in the figure above. Dry air was pumped inside the temperature chamber to maintain a backpressure during the test. The EUT was kept in the off condition at all times except when the measurements were to be made.

The chamber was switched on and the temperature was set to -30°C. After the chamber stabilized at -30 °C there was a soak period of one hour to alleviate moisture in the chamber, the EUT voltage was enabled. The system software recorded the frequency, power, and associated measurements.

A Computer system controlled the automated software. This application was given the command of activating all machines intrinsic to the temperature and voltage tests controlling the CMU 200 via the GPIB Bus. The Environmental Chamber was instructed through an RS-232 serial line. The EUT dialogue was passed through a serial connection.

The EUT repetitively transmitted 100 bursts for each set of programmed parameters recording temperature, voltage settings, and systematically selected frequencies. The power supply was cycled from minimum voltage 3.6 volts, to 3.7 volts to 4.2 volts maximum voltage. The frequency error was measured at a maximum output power and recorded by the automated system test software.

The EUT output power and frequency was measured at 3.6 volts, 3.7 volts and 4.2 volts. The transmit frequency was varied in 3 steps consisting of 824.2, 836.4, and 848.8 MHz for the GSM850 band, 1850.2, 1880.0 and 1909.8 MHz for the PCS1900 band. This frequency was recorded in MHz and deviation from nominal, in Parts Per Million. After the initial one-hour soak at the beginning of the tests, a period of thirty minutes soak was initialized between each ascending temperature step, before proceeding to the next measurement test cycle.

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
| | APPENDIX 3A | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

PROCEDURE:

The test system software for commencing the Frequency Stability Tests carried through the following cycle.

1. Switch on the HP 6632B power supply; CMU 200 Communications test Set, and Environmental Chamber.
2. Start test program
3. Set the Temperature to –30°C and maintain a period of one- hour soak time, with the EUT supply voltage disabled.
4. Set power supply voltage to 3.6 volts.
5. Set up CMU 200 Radio Communication Tester.
6. Command the CMU 200 to switch to the low channel.
7. Enable the voltage to the EUT, and connect a link to the CMU 200 test set.
8. EUT is commanded to Transmit 100 Bursts.
9. Software logs the following data from the CMU 200, power supply and temperature chamber: Traffic Channel Number, Traffic Channel Frequency, Power Level, Chamber Temperature, Supply Voltage, Power and Frequency Error.
10. The CMU 200 commands the EUT to change frequency to the middle channel and high channel and repeats steps 7 to 9.
11. Repeat steps 5 to 10 changing the supply voltage to 3.7 Volts
12. Increase temperature by 10°C and soak for 1/2 hour.
13. Repeat steps 4 - 12 for temperatures –30°C to 60°C.
14. Repeat steps 5 to 10 changing the supply voltage to 4.2 volts

Procedure 5 to 10 was repeated at room temperature (20°C) with the power supply voltage set to 3.6, 3.7 and 4.2 volts.

The maximum frequency error in the GSM850 band measured was **0.0367 PPM**.
The maximum frequency error in the PCS1900 band measured was **0.0548 PPM**.

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

GSM850 Channel results: channels 128, 189 and 251 @ 20°C maximum transmitted power

| Traffic Channel Number | GSM850 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|------------------------|-----------------|-----------------------|----------------------|---------|
| 128 | 824.20 | 3.6 | 20 | 11.11 | 0.0135 |
| 189 | 836.40 | 3.6 | 20 | 11.49 | 0.0137 |
| 251 | 848.60 | 3.6 | 20 | -4.71 | -0.0055 |

| Traffic Channel Number | GSM850 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|------------------------|-----------------|-----------------------|----------------------|--------|
| 128 | 824.20 | 3.7 | 20 | 4.26 | 0.0052 |
| 189 | 836.40 | 3.7 | 20 | 11.82 | 0.0141 |
| 251 | 848.60 | 3.7 | 20 | 9.04 | 0.0107 |

| Traffic Channel Number | GSM850 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|------------------------|-----------------|-----------------------|----------------------|---------|
| 128 | 824.20 | 4.2 | 20 | -5.36 | -0.0065 |
| 189 | 836.40 | 4.2 | 20 | -5.36 | -0.0064 |
| 251 | 848.60 | 4.2 | 20 | 3.81 | 0.0045 |

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 ic: 2503A-RDH70CW

GSM850 Results: channel 128 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 128 | 824.20 | 3.6 | -30 | -12.91 | -0.0157 |
| 128 | 824.20 | 3.6 | -20 | -7.62 | -0.0092 |
| 128 | 824.20 | 3.6 | -10 | 10.91 | 0.0132 |
| 128 | 824.20 | 3.6 | 0 | 28.35 | 0.0344 |
| 128 | 824.20 | 3.6 | 10 | 24.09 | 0.0292 |
| 128 | 824.20 | 3.6 | 20 | 11.11 | 0.0135 |
| 128 | 824.20 | 3.6 | 30 | -15.30 | -0.0186 |
| 128 | 824.20 | 3.6 | 40 | 5.42 | 0.0066 |
| 128 | 824.20 | 3.6 | 50 | -4.78 | -0.0058 |
| 128 | 824.20 | 3.6 | 60 | -13.30 | -0.0161 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------------|
| 128 | 824.20 | 3.7 | -30 | -4.00 | -0.0049 |
| 128 | 824.20 | 3.7 | -20 | -8.46 | -0.0103 |
| 128 | 824.20 | 3.7 | -10 | 10.27 | 0.0125 |
| 128 | 824.20 | 3.7 | 0 | 30.28 | 0.0367 |
| 128 | 824.20 | 3.7 | 10 | 25.57 | 0.0310 |
| 128 | 824.20 | 3.7 | 20 | 4.26 | 0.0052 |
| 128 | 824.20 | 3.7 | 30 | -10.85 | -0.0132 |
| 128 | 824.20 | 3.7 | 40 | -8.20 | -0.0099 |
| 128 | 824.20 | 3.7 | 50 | -8.65 | -0.0105 |
| 128 | 824.20 | 3.7 | 60 | -10.65 | -0.0129 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 128 | 824.20 | 4.2 | -30 | 12.79 | 0.0155 |
| 128 | 824.20 | 4.2 | -20 | 7.04 | 0.0085 |
| 128 | 824.20 | 4.2 | -10 | 7.17 | 0.0087 |
| 128 | 824.20 | 4.2 | 0 | 26.60 | 0.0323 |
| 128 | 824.20 | 4.2 | 10 | 20.53 | 0.0249 |
| 128 | 824.20 | 4.2 | 20 | -5.36 | -0.0065 |
| 128 | 824.20 | 4.2 | 30 | -12.46 | -0.0151 |
| 128 | 824.20 | 4.2 | 40 | -14.98 | -0.0182 |
| 128 | 824.20 | 4.2 | 50 | -12.07 | -0.0146 |
| 128 | 824.20 | 4.2 | 60 | -4.20 | -0.0051 |

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

GSM850 Results: channel 189 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 189 | 836.40 | 3.6 | -30 | -6.91 | -0.0083 |
| 189 | 836.40 | 3.6 | -20 | -12.20 | -0.0146 |
| 189 | 836.40 | 3.6 | -10 | 8.98 | 0.0107 |
| 189 | 836.40 | 3.6 | 0 | 27.31 | 0.0327 |
| 189 | 836.40 | 3.6 | 10 | 26.35 | 0.0315 |
| 189 | 836.40 | 3.6 | 20 | 11.49 | 0.0137 |
| 189 | 836.40 | 3.6 | 30 | -12.85 | -0.0154 |
| 189 | 836.40 | 3.6 | 40 | -13.17 | -0.0157 |
| 189 | 836.40 | 3.6 | 50 | -10.53 | -0.0126 |
| 189 | 836.40 | 3.6 | 60 | -15.24 | -0.0182 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 189 | 836.40 | 3.7 | -30 | -10.01 | -0.0120 |
| 189 | 836.40 | 3.7 | -20 | -8.27 | -0.0099 |
| 189 | 836.40 | 3.7 | -10 | 11.69 | 0.0140 |
| 189 | 836.40 | 3.7 | 0 | 27.57 | 0.0330 |
| 189 | 836.40 | 3.7 | 10 | 23.96 | 0.0286 |
| 189 | 836.40 | 3.7 | 20 | 11.82 | 0.0141 |
| 189 | 836.40 | 3.7 | 30 | -4.20 | -0.0050 |
| 189 | 836.40 | 3.7 | 40 | -19.63 | -0.0235 |
| 189 | 836.40 | 3.7 | 50 | -13.30 | -0.0159 |
| 189 | 836.40 | 3.7 | 60 | -13.95 | -0.0167 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 189 | 836.40 | 4.2 | -30 | -5.29 | -0.0063 |
| 189 | 836.40 | 4.2 | -20 | 10.59 | 0.0127 |
| 189 | 836.40 | 4.2 | -10 | 8.98 | 0.0107 |
| 189 | 836.40 | 4.2 | 0 | 27.31 | 0.0327 |
| 189 | 836.40 | 4.2 | 10 | 23.83 | 0.0285 |
| 189 | 836.40 | 4.2 | 20 | -5.36 | -0.0064 |
| 189 | 836.40 | 4.2 | 30 | -13.30 | -0.0159 |
| 189 | 836.40 | 4.2 | 40 | -14.27 | -0.0171 |
| 189 | 836.40 | 4.2 | 50 | -10.78 | -0.0129 |
| 189 | 836.40 | 4.2 | 60 | -12.33 | -0.0147 |

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

GSM850 Results: channel 251 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 251 | 848.8 | 3.6 | -30 | -11.82 | -0.0139 |
| 251 | 848.8 | 3.6 | -20 | -9.56 | -0.0113 |
| 251 | 848.8 | 3.6 | -10 | 6.46 | 0.0076 |
| 251 | 848.8 | 3.6 | 0 | 25.51 | 0.0301 |
| 251 | 848.8 | 3.6 | 10 | 27.31 | 0.0322 |
| 251 | 848.8 | 3.6 | 20 | -4.71 | -0.0055 |
| 251 | 848.8 | 3.6 | 30 | -7.23 | -0.0085 |
| 251 | 848.8 | 3.6 | 40 | -9.10 | -0.0107 |
| 251 | 848.8 | 3.6 | 50 | -14.79 | -0.0174 |
| 251 | 848.8 | 3.6 | 60 | -15.88 | -0.0187 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 251 | 848.8 | 3.7 | -30 | -8.85 | -0.0104 |
| 251 | 848.8 | 3.7 | -20 | 6.01 | 0.0071 |
| 251 | 848.8 | 3.7 | -10 | 7.04 | 0.0083 |
| 251 | 848.8 | 3.7 | 0 | 28.86 | 0.0340 |
| 251 | 848.8 | 3.7 | 10 | 28.93 | 0.0341 |
| 251 | 848.8 | 3.7 | 20 | 9.04 | 0.0107 |
| 251 | 848.8 | 3.7 | 30 | -11.88 | -0.0140 |
| 251 | 848.8 | 3.7 | 40 | -11.04 | -0.0130 |
| 251 | 848.8 | 3.7 | 50 | -6.20 | -0.0073 |
| 251 | 848.8 | 3.7 | 60 | -16.53 | -0.0195 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 251 | 848.8 | 4.2 | -30 | 5.68 | 0.0067 |
| 251 | 848.8 | 4.2 | -20 | 6.01 | 0.0071 |
| 251 | 848.8 | 4.2 | -10 | 9.56 | 0.0113 |
| 251 | 848.8 | 4.2 | 0 | 28.67 | 0.0338 |
| 251 | 848.8 | 4.2 | 10 | 22.79 | 0.0268 |
| 251 | 848.8 | 4.2 | 20 | 3.81 | 0.0045 |
| 251 | 848.8 | 4.2 | 30 | -12.33 | -0.0145 |
| 251 | 848.8 | 4.2 | 40 | -7.17 | -0.0084 |
| 251 | 848.8 | 4.2 | 50 | -5.94 | -0.0070 |
| 251 | 848.8 | 4.2 | 60 | -9.36 | -0.0110 |

Test Report No.
RTS-2605-1105-02Dates of Test
Jan 17 to Feb 10 and April 18, 2011FCC ID: L6ARDH70CW
IC: 2503A-RDH70CW

PCS Channel results: channels 512, 661, & 810 @ 20°C maximum transmitted power

| Traffic Channel Number | PCS Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|---------------------|-----------------|-----------------------|----------------------|--------|
| 512 | 1850.20 | 3.6 | 20 | 58.57 | 0.0317 |
| 661 | 1880.00 | 3.6 | 20 | 60.18 | 0.0320 |
| 810 | 1909.80 | 3.6 | 20 | 46.10 | 0.0241 |

| Traffic Channel Number | PCS Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|---------------------|-----------------|-----------------------|----------------------|--------|
| 512 | 1850.20 | 3.7 | 20 | 49.40 | 0.0267 |
| 661 | 1880.00 | 3.7 | 20 | 52.04 | 0.0277 |
| 810 | 1909.80 | 3.7 | 20 | 58.05 | 0.0304 |

| Traffic Channel Number | PCS Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|---------------------|-----------------|-----------------------|----------------------|--------|
| 512 | 1850.20 | 4.2 | 20 | 30.93 | 0.0167 |
| 661 | 1880.00 | 4.2 | 20 | 40.62 | 0.0216 |
| 810 | 1909.80 | 4.2 | 20 | 37.90 | 0.0198 |

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

PCS1900 Results: channel 512 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------------|
| 512 | 1850.20 | 3.6 | -30 | 12.46 | 0.0067 |
| 512 | 1850.20 | 3.6 | -20 | 25.57 | 0.0138 |
| 512 | 1850.20 | 3.6 | -10 | 50.75 | 0.0274 |
| 512 | 1850.20 | 3.6 | 0 | 101.44 | 0.0548 |
| 512 | 1850.20 | 3.6 | 10 | 100.86 | 0.0545 |
| 512 | 1850.20 | 3.6 | 20 | 58.57 | 0.0317 |
| 512 | 1850.20 | 3.6 | 30 | 46.69 | 0.0252 |
| 512 | 1850.20 | 3.6 | 40 | 40.81 | 0.0221 |
| 512 | 1850.20 | 3.6 | 50 | 28.15 | 0.0152 |
| 512 | 1850.20 | 3.6 | 60 | 24.47 | 0.0132 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|--------|
| 512 | 1850.20 | 3.7 | -30 | 28.02 | 0.0151 |
| 512 | 1850.20 | 3.7 | -20 | 32.80 | 0.0177 |
| 512 | 1850.20 | 3.7 | -10 | 42.04 | 0.0227 |
| 512 | 1850.20 | 3.7 | 0 | 81.75 | 0.0442 |
| 512 | 1850.20 | 3.7 | 10 | 84.07 | 0.0454 |
| 512 | 1850.20 | 3.7 | 20 | 49.40 | 0.0267 |
| 512 | 1850.20 | 3.7 | 30 | 36.42 | 0.0197 |
| 512 | 1850.20 | 3.7 | 40 | 25.25 | 0.0136 |
| 512 | 1850.20 | 3.7 | 50 | 26.15 | 0.0141 |
| 512 | 1850.20 | 3.7 | 60 | 24.54 | 0.0133 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|--------|
| 512 | 1850.20 | 4.2 | -30 | 43.13 | 0.0233 |
| 512 | 1850.20 | 4.2 | -20 | 38.48 | 0.0208 |
| 512 | 1850.20 | 4.2 | -10 | 39.07 | 0.0211 |
| 512 | 1850.20 | 4.2 | 0 | 74.97 | 0.0405 |
| 512 | 1850.20 | 4.2 | 10 | 67.99 | 0.0367 |
| 512 | 1850.20 | 4.2 | 20 | 30.93 | 0.0167 |
| 512 | 1850.20 | 4.2 | 30 | 20.79 | 0.0112 |
| 512 | 1850.20 | 4.2 | 40 | 15.95 | 0.0086 |
| 512 | 1850.20 | 4.2 | 50 | 21.89 | 0.0118 |
| 512 | 1850.20 | 4.2 | 60 | 27.44 | 0.0148 |

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

PCS1900 Results: channel 661 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|--------|
| 661 | 1880.00 | 3.6 | -30 | 24.99 | 0.0133 |
| 661 | 1880.00 | 3.6 | -20 | 37.45 | 0.0199 |
| 661 | 1880.00 | 3.6 | -10 | 47.72 | 0.0254 |
| 661 | 1880.00 | 3.6 | 0 | 89.75 | 0.0477 |
| 661 | 1880.00 | 3.6 | 10 | 77.16 | 0.0410 |
| 661 | 1880.00 | 3.6 | 20 | 60.18 | 0.0320 |
| 661 | 1880.00 | 3.6 | 30 | 35.84 | 0.0191 |
| 661 | 1880.00 | 3.6 | 40 | 30.09 | 0.0160 |
| 661 | 1880.00 | 3.6 | 50 | 28.93 | 0.0154 |
| 661 | 1880.00 | 3.6 | 60 | 30.35 | 0.0161 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|--------|
| 661 | 1880.00 | 3.7 | -30 | 32.87 | 0.0175 |
| 661 | 1880.00 | 3.7 | -20 | 32.16 | 0.0171 |
| 661 | 1880.00 | 3.7 | -10 | 46.23 | 0.0246 |
| 661 | 1880.00 | 3.7 | 0 | 86.91 | 0.0462 |
| 661 | 1880.00 | 3.7 | 10 | 84.33 | 0.0449 |
| 661 | 1880.00 | 3.7 | 20 | 52.04 | 0.0277 |
| 661 | 1880.00 | 3.7 | 30 | 27.06 | 0.0144 |
| 661 | 1880.00 | 3.7 | 40 | 32.03 | 0.0170 |
| 661 | 1880.00 | 3.7 | 50 | 28.22 | 0.0150 |
| 661 | 1880.00 | 3.7 | 60 | 26.99 | 0.0144 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|--------|
| 661 | 1880.00 | 4.2 | -30 | 40.23 | 0.0214 |
| 661 | 1880.00 | 4.2 | -20 | 40.87 | 0.0217 |
| 661 | 1880.00 | 4.2 | -10 | 47.72 | 0.0254 |
| 661 | 1880.00 | 4.2 | 0 | 84.72 | 0.0451 |
| 661 | 1880.00 | 4.2 | 10 | 76.71 | 0.0408 |
| 661 | 1880.00 | 4.2 | 20 | 40.62 | 0.0216 |
| 661 | 1880.00 | 4.2 | 30 | 23.18 | 0.0123 |
| 661 | 1880.00 | 4.2 | 40 | 19.31 | 0.0103 |
| 661 | 1880.00 | 4.2 | 50 | 27.25 | 0.0145 |
| 661 | 1880.00 | 4.2 | 60 | 32.61 | 0.0173 |

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 Ic: 2503A-RDH70CW


PCS1900 Results: channel 810 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | 20BPPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|--------|
| 810 | 1909.80 | 3.6 | -30 | 24.99 | 0.0131 |
| 810 | 1909.80 | 3.6 | -20 | 31.64 | 0.0166 |
| 810 | 1909.80 | 3.6 | -10 | 45.46 | 0.0238 |
| 810 | 1909.80 | 3.6 | 0 | 89.30 | 0.0468 |
| 810 | 1909.80 | 3.6 | 10 | 85.23 | 0.0446 |
| 810 | 1909.80 | 3.6 | 20 | 46.10 | 0.0241 |
| 810 | 1909.80 | 3.6 | 30 | 36.48 | 0.0191 |
| 810 | 1909.80 | 3.6 | 40 | 33.38 | 0.0175 |
| 810 | 1909.80 | 3.6 | 50 | 28.15 | 0.0147 |
| 810 | 1909.80 | 3.6 | 60 | 24.73 | 0.0129 |

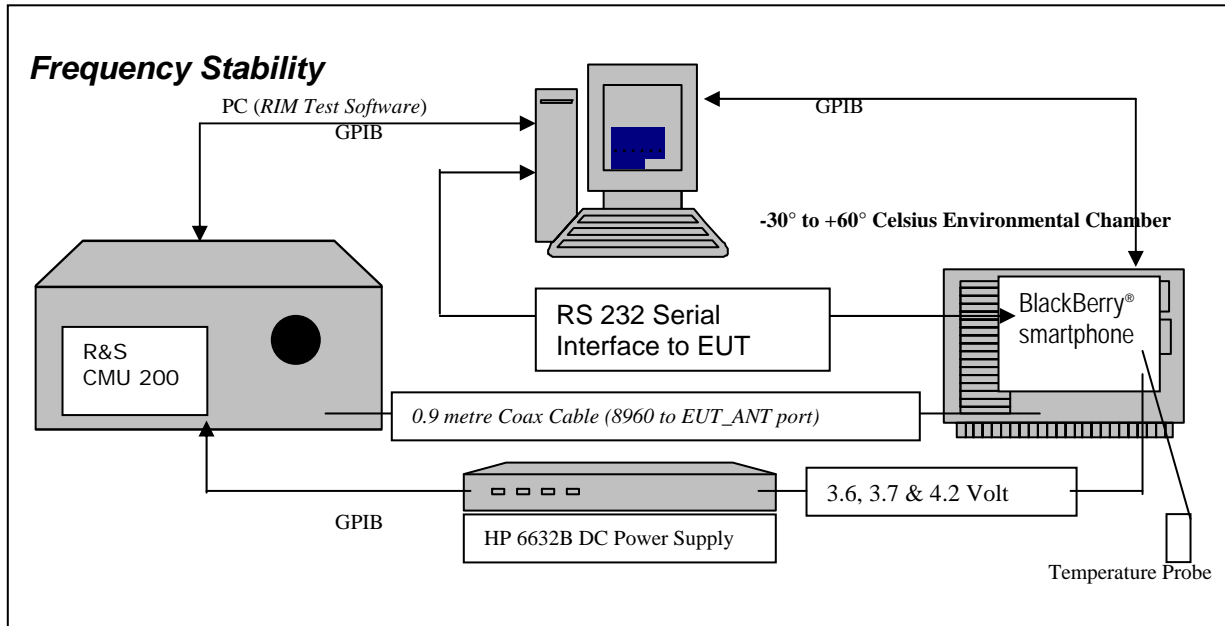
| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|--------|
| 810 | 1909.80 | 3.7 | -30 | 18.40 | 0.0096 |
| 810 | 1909.80 | 3.7 | -20 | 31.12 | 0.0163 |
| 810 | 1909.80 | 3.7 | -10 | 45.98 | 0.0241 |
| 810 | 1909.80 | 3.7 | 0 | 82.46 | 0.0432 |
| 810 | 1909.80 | 3.7 | 10 | 82.52 | 0.0432 |
| 810 | 1909.80 | 3.7 | 20 | 58.05 | 0.0304 |
| 810 | 1909.80 | 3.7 | 30 | 26.60 | 0.0139 |
| 810 | 1909.80 | 3.7 | 40 | 28.09 | 0.0147 |
| 810 | 1909.80 | 3.7 | 50 | 31.38 | 0.0164 |
| 810 | 1909.80 | 3.7 | 60 | 27.38 | 0.0143 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|--------|
| 810 | 1909.80 | 4.2 | -30 | 31.25 | 0.0164 |
| 810 | 1909.80 | 4.2 | -20 | 36.42 | 0.0191 |
| 810 | 1909.80 | 4.2 | -10 | 43.07 | 0.0226 |
| 810 | 1909.80 | 4.2 | 0 | 74.39 | 0.0390 |
| 810 | 1909.80 | 4.2 | 10 | 74.84 | 0.0392 |
| 810 | 1909.80 | 4.2 | 20 | 37.90 | 0.0198 |
| 810 | 1909.80 | 4.2 | 30 | 22.34 | 0.0117 |
| 810 | 1909.80 | 4.2 | 40 | 24.02 | 0.0126 |
| 810 | 1909.80 | 4.2 | 50 | 26.86 | 0.0141 |
| 810 | 1909.80 | 4.2 | 60 | 32.67 | 0.0171 |

APPENDIX 3B – CDMA FREQUENCY STABILITY TEST DATA

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 3B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

CDMA Frequency Stability Test Data



CFR 47 Chapter 1 - Federal Communications Commission Rules

Part 2 Required Measurements

2.1055 Frequency Stability - Procedures

(a,b) Frequency Stability - Temperature Variation

(d) Frequency Stability - Voltage Variation

22.917/24.235 Frequency Stability.


The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

The RCU21CW BlackBerry® smartphone, (referred as EUT herein and after) transmitted frequencies are less than 0.1 ppm of the received frequency from the Agilent 8960 CDMA Base Station Simulator

The EUT meets the requirements as stated in CFR 47 chapter 1, Section 24.235, RSS-133, CFR 47 chapter 1, Section 22.917 and RSS-132 Frequency Stability.

Frequency Stability measurement devices were configured as presented in the block diagram recording frequency, power, data, temperatures, and stepped voltages controlled via a GPIB interface linked to the Environmental chamber, a DC power supply, and the Communications Test Set. A 0.9-metre coax cable was calibrated to characterize the insertion loss for the transmitted frequencies between the RF input/output of the base station simulator and the EUT antenna port; located inside the environmental chamber.

Calibration for the Cable Loss was performed in the RF Laboratory using the Giga-tronics power metre and Agilent Signal Generator.

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
| | APPENDIX 3B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

The cable assembly from the RF input to the RF output was measured at the following Frequencies:

| PCS Frequency (MHz) | Cable loss (dB) | Cellular Frequency (MHz) | Cable loss (dB) |
|---------------------|-----------------|--------------------------|-----------------|
| 1851.20 | 1.10 | 824.70 | 0.50 |
| 1880.00 | 1.10 | 836.52 | 0.50 |
| 1908.75 | 1.10 | 848.31 | 0.50 |

Procedure:


The EUT was placed in the Temperature chamber and connected to the Agilent 8960 outside as shown in the figure above. Dry air was pumped inside the temperature chamber to maintain a backpressure during the test. The EUT was kept in the off condition at all times except when the measurements were to be made.

The chamber was switched on and the temperature was set to -30°C. After the chamber stabilized at -30 °C there was a soak period of one hour to alleviate moisture in the chamber, the EUT voltage was enabled. The system software recorded the frequency, power, and associated measurements.

A Computer system controlled the automated software. This application was given the command of activating all machines intrinsic to the temperature and voltage tests controlling the base station simulator via the GPIB Bus. The Environmental Chamber was instructed through an RS-232 serial line. The EUT dialogue was passed through a serial connection.

The EUT repetitively transmitted 100 bursts for each set of programmed parameters recording temperature, voltage settings, and systematically selected frequencies. The power supply was cycled from minimum voltage 3.6 volts, to 3.7 volts nominal voltage to 4.2 volts maximum voltage. The frequency error was measured at a maximum output power and recorded by the automated system test software.

The EUT output power and frequency was measured at 3.6 volts, 3.7 volts and 4.2 volts. The transmit frequency was varied in 3 steps consisting of 824.70, 836.52, and 848.31 MHz for the cellular band and 1851.20, 1880.00 and 1908.75 MHz for the PCS band. This frequency was recorded in MHz and deviation from nominal, in Parts per Million. After the initial one-hour soak at the beginning of the tests, a period of thirty minutes soak was initialized between each ascending temperature step, before proceeding to the next measurement test cycle.

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
| | APPENDIX 3B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

PROCEDURE:

The test system software for commencing the Frequency Stability Tests carried through the following cycle.

1. Switch on the HP 6632B power supply; CMU 200 Communications test Set, and Environmental Chamber.
2. Start test program
3. Set the Temperature to -30°C and maintain a period of one- hour soak time, with the EUT supply voltage disabled.
4. Set power supply voltage to 3.6 volts.
5. Set up CMU 200 Radio Communication Tester.
6. Command the CMU 200 to switch to the low channel.
7. Enable the voltage to the EUT, and connect a link to the CMU 200 test set.
8. EUT is commanded to Transmit 100 Bursts.
9. Software logs the following data from the CMU 200, power supply and temperature chamber: Traffic Channel Number, Traffic Channel Frequency, Power Level, Chamber Temperature, Supply Voltage, Power and Frequency Error.
10. The CMU 200 commands the EUT to change frequency to the middle channel and high channel and repeats steps 7 to 9.
11. Repeat steps 5 to 10 changing the supply voltage to 3.7 Volts
12. Increase temperature by 10°C and soak for 1/2 hour.
13. Repeat steps 4 - 12 for temperatures -30°C to 60°C .
14. Repeat steps 5 to 10 changing the supply voltage to 4.2 volts

Procedure 5 to 10 was repeated at room temperature (20°C) with the power supply voltage set to 3.6, 3.7 and 4.2 volts

The maximum frequency error in the CDMA Cellular band measured was **-0.0546 PPM**.
The maximum frequency error in the CDMA PCS band measured was **-0.0320 PPM**.

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 ic: 2503A-RDH70CW

Cellular Channel results: channels 1013, 384 and 777 @ 20°C maximum transmitted power

| Traffic Channel Number | Cellular Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|--------------------------|-----------------|-----------------------|----------------------|--------|
| 1013 | 824.700 | 3.6 | 20 | 35 | 0.0424 |
| 384 | 836.520 | 3.6 | 20 | 30 | 0.0359 |
| 777 | 848.310 | 3.6 | 20 | 11 | 0.0130 |

| Traffic Channel Number | Cellular Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|--------------------------|-----------------|-----------------------|----------------------|---------|
| 1013 | 824.700 | 3.7 | 20 | 30 | 0.0364 |
| 384 | 836.520 | 3.7 | 20 | -29 | -0.0347 |
| 777 | 848.310 | 3.7 | 20 | -13 | -0.0153 |

| Traffic Channel Number | Cellular Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|--------------------------|-----------------|-----------------------|----------------------|---------|
| 1013 | 824.700 | 4.2 | 20 | 35 | 0.0424 |
| 384 | 836.520 | 4.2 | 20 | -33 | -0.0394 |
| 777 | 848.310 | 4.2 | 20 | 16 | 0.0189 |

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 IC: 2503A-RDH70CW

Cellular Results: channel 1013 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 1013 | 824.700 | 3.6 | -30 | 19 | 0.0230 |
| 1013 | 824.700 | 3.6 | -20 | 30 | 0.0364 |
| 1013 | 824.700 | 3.6 | -10 | 31 | 0.0376 |
| 1013 | 824.700 | 3.6 | 0 | -33 | 0.0121 |
| 1013 | 824.700 | 3.6 | 10 | 33 | 0.0400 |
| 1013 | 824.700 | 3.6 | 20 | 35 | 0.0424 |
| 1013 | 824.700 | 3.6 | 30 | -32 | -0.0388 |
| 1013 | 824.700 | 3.6 | 40 | 29 | 0.0352 |
| 1013 | 824.700 | 3.6 | 50 | 8 | 0.0097 |
| 1013 | 824.700 | 3.6 | 60 | 10 | 0.0121 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 1013 | 824.700 | 3.7 | -30 | 30 | 0.0364 |
| 1013 | 824.700 | 3.7 | -20 | 19 | 0.0230 |
| 1013 | 824.700 | 3.7 | -10 | -26 | -0.0315 |
| 1013 | 824.700 | 3.7 | 0 | -42 | -0.0509 |
| 1013 | 824.700 | 3.7 | 10 | 33 | 0.0400 |
| 1013 | 824.700 | 3.7 | 20 | 30 | 0.0364 |
| 1013 | 824.700 | 3.7 | 30 | -33 | -0.0400 |
| 1013 | 824.700 | 3.7 | 40 | 22 | 0.0267 |
| 1013 | 824.700 | 3.7 | 50 | 10 | 0.0121 |
| 1013 | 824.700 | 3.7 | 60 | 12 | 0.0146 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|----------------|
| 1013 | 824.700 | 4.2 | -30 | 16 | 0.0194 |
| 1013 | 824.700 | 4.2 | -20 | 19 | 0.0230 |
| 1013 | 824.700 | 4.2 | -10 | 19 | 0.0230 |
| 1013 | 824.700 | 4.2 | 0 | -45 | -0.0546 |
| 1013 | 824.700 | 4.2 | 10 | 36 | 0.0437 |
| 1013 | 824.700 | 4.2 | 20 | 35 | 0.0424 |
| 1013 | 824.700 | 4.2 | 30 | 31 | 0.0376 |
| 1013 | 824.700 | 4.2 | 40 | 31 | 0.0376 |
| 1013 | 824.700 | 4.2 | 50 | -7 | -0.0085 |
| 1013 | 824.700 | 4.2 | 60 | -11 | -0.0133 |

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 ic: 2503A-RDH70CW

Cellular Results: channel 384 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 384 | 836.520 | 3.6 | -30 | 22 | 0.0263 |
| 384 | 836.520 | 3.6 | -20 | -32 | -0.0383 |
| 384 | 836.520 | 3.6 | -10 | -21 | -0.0251 |
| 384 | 836.520 | 3.6 | 0 | -22 | -0.0263 |
| 384 | 836.520 | 3.6 | 10 | 22 | 0.0263 |
| 384 | 836.520 | 3.6 | 20 | 30 | 0.0359 |
| 384 | 836.520 | 3.6 | 30 | 13 | 0.0155 |
| 384 | 836.520 | 3.6 | 40 | -31 | -0.0371 |
| 384 | 836.520 | 3.6 | 50 | 14 | 0.0167 |
| 384 | 836.520 | 3.6 | 60 | -22 | -0.0263 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 384 | 836.520 | 3.7 | -30 | 20 | 0.0239 |
| 384 | 836.520 | 3.7 | -20 | 32 | 0.0383 |
| 384 | 836.520 | 3.7 | -10 | -20 | -0.0239 |
| 384 | 836.520 | 3.7 | 0 | -37 | -0.0442 |
| 384 | 836.520 | 3.7 | 10 | -31 | -0.0371 |
| 384 | 836.520 | 3.7 | 20 | -29 | -0.0347 |
| 384 | 836.520 | 3.7 | 30 | 13 | 0.0155 |
| 384 | 836.520 | 3.7 | 40 | 12 | 0.0143 |
| 384 | 836.520 | 3.7 | 50 | -18 | -0.0215 |
| 384 | 836.520 | 3.7 | 60 | -24 | -0.0287 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 384 | 836.520 | 4.2 | -30 | -31 | -0.0371 |
| 384 | 836.520 | 4.2 | -20 | 33 | 0.0394 |
| 384 | 836.520 | 4.2 | -10 | -18 | -0.0215 |
| 384 | 836.520 | 4.2 | 0 | 34 | 0.0406 |
| 384 | 836.520 | 4.2 | 10 | -34 | -0.0406 |
| 384 | 836.520 | 4.2 | 20 | -33 | -0.0394 |
| 384 | 836.520 | 4.2 | 30 | 11 | 0.0131 |
| 384 | 836.520 | 4.2 | 40 | -12 | -0.0143 |
| 384 | 836.520 | 4.2 | 50 | 9 | 0.0108 |
| 384 | 836.520 | 4.2 | 60 | 11 | 0.0131 |

Test Report No.
 RTS-2605-1105-02

Dates of Test
 Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
 ic: 2503A-RDH70CW

Cellular Results: channel 777 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 777 | 848.310 | 3.6 | -30 | -29 | -0.0342 |
| 777 | 848.310 | 3.6 | -20 | 24 | 0.0283 |
| 777 | 848.310 | 3.6 | -10 | 27 | 0.0318 |
| 777 | 848.310 | 3.6 | 0 | 31 | -0.0153 |
| 777 | 848.310 | 3.6 | 10 | 14 | 0.0165 |
| 777 | 848.310 | 3.6 | 20 | 11 | 0.0130 |
| 777 | 848.310 | 3.6 | 30 | 7 | 0.0083 |
| 777 | 848.310 | 3.6 | 40 | -11 | -0.0130 |
| 777 | 848.310 | 3.6 | 50 | -18 | -0.0212 |
| 777 | 848.310 | 3.6 | 60 | -13 | -0.0153 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 777 | 848.310 | 3.7 | -30 | 15 | 0.0177 |
| 777 | 848.310 | 3.7 | -20 | 14 | 0.0165 |
| 777 | 848.310 | 3.7 | -10 | 14 | 0.0165 |
| 777 | 848.310 | 3.7 | 0 | 23 | 0.0271 |
| 777 | 848.310 | 3.7 | 10 | 13 | 0.0153 |
| 777 | 848.310 | 3.7 | 20 | -13 | -0.0153 |
| 777 | 848.310 | 3.7 | 30 | 8 | 0.0094 |
| 777 | 848.310 | 3.7 | 40 | 16 | 0.0189 |
| 777 | 848.310 | 3.7 | 50 | -28 | -0.0330 |
| 777 | 848.310 | 3.7 | 60 | -13 | -0.0153 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 777 | 848.310 | 4.2 | -30 | -32 | -0.0377 |
| 777 | 848.310 | 4.2 | -20 | 10 | 0.0118 |
| 777 | 848.310 | 4.2 | -10 | 31 | 0.0365 |
| 777 | 848.310 | 4.2 | 0 | 22 | 0.0259 |
| 777 | 848.310 | 4.2 | 10 | 13 | 0.0153 |
| 777 | 848.310 | 4.2 | 20 | 16 | 0.0189 |
| 777 | 848.310 | 4.2 | 30 | 10 | 0.0118 |
| 777 | 848.310 | 4.2 | 40 | -27 | -0.0318 |
| 777 | 848.310 | 4.2 | 50 | -18 | -0.0212 |
| 777 | 848.310 | 4.2 | 60 | -12 | -0.0141 |

| | | |
|-------------------------------------|--|---|
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |
|-------------------------------------|--|---|

PCS Channel results: channels 25, 600, & 1175 @ 20°C maximum transmitted power

| Traffic Channel Number | PCS Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|---------------------|-----------------|-----------------------|----------------------|---------|
| 25 | 1851.20 | 3.6 | 20 | -18 | -0.0097 |
| 600 | 1880.00 | 3.6 | 20 | 9 | 0.0048 |
| 1175 | 1908.75 | 3.6 | 20 | 18 | 0.0094 |

| Traffic Channel Number | PCS Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|---------------------|-----------------|-----------------------|----------------------|---------|
| 25 | 1851.20 | 3.7 | 20 | -15 | -0.0081 |
| 600 | 1880.00 | 3.7 | 20 | 9 | 0.0048 |
| 1175 | 1908.75 | 3.7 | 20 | 15 | 0.0079 |

| Traffic Channel Number | PCS Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|---------------------|-----------------|-----------------------|----------------------|---------|
| 25 | 1851.20 | 4.2 | 20 | -17 | -0.0092 |
| 600 | 1880.00 | 4.2 | 20 | 36 | 0.0191 |
| 1175 | 1908.75 | 4.2 | 20 | 9 | 0.0047 |

Test Report No.
RTS-2605-1105-02

Dates of Test
Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
IC: 2503A-RDH70CW

PCS Results: channel 9262 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 25 | 1851.20 | 3.6 | -30 | 29 | 0.0157 |
| 25 | 1851.20 | 3.6 | -20 | 14 | 0.0076 |
| 25 | 1851.20 | 3.6 | -10 | -17 | -0.0092 |
| 25 | 1851.20 | 3.6 | 0 | -13 | 0.0059 |
| 25 | 1851.20 | 3.6 | 10 | -11 | -0.0059 |
| 25 | 1851.20 | 3.6 | 20 | -18 | -0.0097 |
| 25 | 1851.20 | 3.6 | 30 | -49 | -0.0265 |
| 25 | 1851.20 | 3.6 | 40 | 9 | 0.0049 |
| 25 | 1851.20 | 3.6 | 50 | 9 | 0.0049 |
| 25 | 1851.20 | 3.6 | 60 | 11 | 0.0059 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 25 | 1851.20 | 3.7 | -30 | 19 | 0.0103 |
| 25 | 1851.20 | 3.7 | -20 | -15 | -0.0081 |
| 25 | 1851.20 | 3.7 | -10 | -15 | -0.0081 |
| 25 | 1851.20 | 3.7 | 0 | -17 | -0.0092 |
| 25 | 1851.20 | 3.7 | 10 | 20 | 0.0108 |
| 25 | 1851.20 | 3.7 | 20 | -15 | -0.0081 |
| 25 | 1851.20 | 3.7 | 30 | 8 | 0.0043 |
| 25 | 1851.20 | 3.7 | 40 | 18 | 0.0097 |
| 25 | 1851.20 | 3.7 | 50 | 35 | 0.0189 |
| 25 | 1851.20 | 3.7 | 60 | 16 | 0.0086 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 25 | 1851.20 | 4.2 | -30 | -23 | -0.0124 |
| 25 | 1851.20 | 4.2 | -20 | -45 | -0.0243 |
| 25 | 1851.20 | 4.2 | -10 | -15 | -0.0081 |
| 25 | 1851.20 | 4.2 | 0 | -19 | -0.0103 |
| 25 | 1851.20 | 4.2 | 10 | -12 | -0.0065 |
| 25 | 1851.20 | 4.2 | 20 | -17 | -0.0092 |
| 25 | 1851.20 | 4.2 | 30 | 17 | 0.0092 |
| 25 | 1851.20 | 4.2 | 40 | 25 | 0.0135 |
| 25 | 1851.20 | 4.2 | 50 | 12 | 0.0065 |
| 25 | 1851.20 | 4.2 | 60 | 12 | 0.0065 |

Test Report No.
RTS-2605-1105-02

Dates of Test
Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
ic: 2503A-RDH70CW

PCS Results: channel 9400 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 600 | 1880.00 | 3.6 | -30 | 43 | 0.0229 |
| 600 | 1880.00 | 3.6 | -20 | 40 | 0.0213 |
| 600 | 1880.00 | 3.6 | -10 | 45 | 0.0239 |
| 600 | 1880.00 | 3.6 | 0 | 10 | -0.0293 |
| 600 | 1880.00 | 3.6 | 10 | 46 | 0.0245 |
| 600 | 1880.00 | 3.6 | 20 | 9 | 0.0048 |
| 600 | 1880.00 | 3.6 | 30 | 9 | 0.0048 |
| 600 | 1880.00 | 3.6 | 40 | -6 | -0.0032 |
| 600 | 1880.00 | 3.6 | 50 | 16 | 0.0085 |
| 600 | 1880.00 | 3.6 | 60 | -55 | -0.0293 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 600 | 1880.00 | 3.7 | -30 | 18 | 0.0096 |
| 600 | 1880.00 | 3.7 | -20 | -41 | -0.0218 |
| 600 | 1880.00 | 3.7 | -10 | 14 | 0.0074 |
| 600 | 1880.00 | 3.7 | 0 | 41 | 0.0218 |
| 600 | 1880.00 | 3.7 | 10 | 19 | 0.0101 |
| 600 | 1880.00 | 3.7 | 20 | 9 | 0.0048 |
| 600 | 1880.00 | 3.7 | 30 | 20 | 0.0106 |
| 600 | 1880.00 | 3.7 | 40 | 33 | 0.0176 |
| 600 | 1880.00 | 3.7 | 50 | 14 | 0.0074 |
| 600 | 1880.00 | 3.7 | 60 | -20 | -0.0106 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 600 | 1880.00 | 4.2 | -30 | 12 | 0.0064 |
| 600 | 1880.00 | 4.2 | -20 | -26 | -0.0138 |
| 600 | 1880.00 | 4.2 | -10 | 12 | 0.0064 |
| 600 | 1880.00 | 4.2 | 0 | -49 | -0.0261 |
| 600 | 1880.00 | 4.2 | 10 | 12 | 0.0064 |
| 600 | 1880.00 | 4.2 | 20 | 36 | 0.0191 |
| 600 | 1880.00 | 4.2 | 30 | 9 | 0.0048 |
| 600 | 1880.00 | 4.2 | 40 | -10 | -0.0053 |
| 600 | 1880.00 | 4.2 | 50 | -8 | -0.0043 |
| 600 | 1880.00 | 4.2 | 60 | 20 | 0.0106 |

Test Report No.
RTS-2605-1105-02

Dates of Test
Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
ic: 2503A-RDH70CW

PCS Results: channel 9538 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 1175 | 1908.75 | 3.6 | -30 | -61 | -0.0320 |
| 1175 | 1908.75 | 3.6 | -20 | 17 | 0.0089 |
| 1175 | 1908.75 | 3.6 | -10 | -61 | -0.0320 |
| 1175 | 1908.75 | 3.6 | 0 | 20 | -0.0105 |
| 1175 | 1908.75 | 3.6 | 10 | 11 | 0.0058 |
| 1175 | 1908.75 | 3.6 | 20 | 18 | 0.0094 |
| 1175 | 1908.75 | 3.6 | 30 | -33 | -0.0173 |
| 1175 | 1908.75 | 3.6 | 40 | -15 | -0.0079 |
| 1175 | 1908.75 | 3.6 | 50 | -21 | -0.0110 |
| 1175 | 1908.75 | 3.6 | 60 | -20 | -0.0105 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 1175 | 1908.75 | 3.7 | -30 | 43 | 0.0225 |
| 1175 | 1908.75 | 3.7 | -20 | 18 | 0.0094 |
| 1175 | 1908.75 | 3.7 | -10 | 36 | 0.0189 |
| 1175 | 1908.75 | 3.7 | 0 | 34 | 0.0178 |
| 1175 | 1908.75 | 3.7 | 10 | 13 | 0.0068 |
| 1175 | 1908.75 | 3.7 | 20 | 15 | 0.0079 |
| 1175 | 1908.75 | 3.7 | 30 | -14 | -0.0073 |
| 1175 | 1908.75 | 3.7 | 40 | -17 | -0.0089 |
| 1175 | 1908.75 | 3.7 | 50 | -18 | -0.0094 |
| 1175 | 1908.75 | 3.7 | 60 | 27 | 0.0141 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 1175 | 1908.75 | 4.2 | -30 | 16 | 0.0084 |
| 1175 | 1908.75 | 4.2 | -20 | 19 | 0.0100 |
| 1175 | 1908.75 | 4.2 | -10 | -50 | -0.0262 |
| 1175 | 1908.75 | 4.2 | 0 | 43 | 0.0225 |
| 1175 | 1908.75 | 4.2 | 10 | 13 | 0.0068 |
| 1175 | 1908.75 | 4.2 | 20 | 9 | 0.0047 |
| 1175 | 1908.75 | 4.2 | 30 | -18 | -0.0094 |
| 1175 | 1908.75 | 4.2 | 40 | 30 | 0.0157 |
| 1175 | 1908.75 | 4.2 | 50 | -18 | -0.0094 |
| 1175 | 1908.75 | 4.2 | 60 | -22 | -0.0115 |

APPENDIX 4A – GSM RADIATED EMISSIONS TEST DATA

Test Report No.
RTS-2605-1105-02

Dates of Test
Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
IC: 2503A-RDH70CW

Radiated Power Test Data Results

Date of test: April 18, 2011

The following measurements were performed by Kevin Rose.

The environmental tests conditions were: Temperature: 23.8 °C
 Relative Humidity: 15.9 %

The BlackBerry® smartphone was in standalone, USB Up position.
 Test distance was 3.0 metres.

GSM850 Band Call Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method | | | | Limit (dBm) | Diff. To Limit (dB) |
|------|-----|-----------------|------|------------|------|-------------------|------------------|---------------------|---------------|--|-------------|-------------|---------------------|
| Type | Ch | Frequency (MHz) | Band | Type | Pol. | Reading (dBuV) | Max (V,H) (dBuV) | Tracking Generator | | Corrected Reading (relative to Dipole) | | | |
| | | | | | | | | Pol. Tx-Rx | Reading (dBm) | (dBm) | (W) | | |
| F0 | 128 | 824.20 | 850 | Dipole | V | 75.89 | 88.28 | V-V | 15.66 | 31.49 | 1.41 | 38.50 | -7.01 |
| F0 | 128 | 824.20 | 850 | Dipole | H | 88.28 | | H-H | 13.84 | | | | |
| F0 | 190 | 836.60 | 850 | Dipole | V | 75.79 | 88.01 | V-V | 16.18 | 32.16 | 1.64 | 38.50 | -6.34 |
| F0 | 190 | 836.60 | 850 | Dipole | H | 88.01 | | H-H | 13.75 | | | | |
| F0 | 251 | 848.80 | 850 | Dipole | V | 75.26 | 88.41 | V-V | 16.29 | 32.1 | 1.62 | 38.50 | -6.40 |
| F0 | 251 | 848.80 | 850 | Dipole | H | 88.41 | | H-H | 14.46 | | | | |

GSM850 Band EDGE Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method | | | | Limit (dBm) | Diff. To Limit (dB) |
|------|-----|-----------------|------|------------|------|-------------------|------------------|---------------------|---------------|--|-------------|-------------|---------------------|
| Type | Ch | Frequency (MHz) | Band | Type | Pol. | Reading (dBuV) | Max (V,H) (dBuV) | Tracking Generator | | Corrected Reading (relative to Dipole) | | | |
| | | | | | | | | Pol. Tx-Rx | Reading (dBm) | (dBm) | (W) | | |
| F0 | 128 | 824.20 | 850 | Dipole | V | 72.97 | 84.51 | V-V | 11.87 | 27.70 | 0.59 | 38.50 | -10.80 |
| F0 | 128 | 824.20 | 850 | Dipole | H | 84.51 | | H-H | 9.96 | | | | |
| F0 | 190 | 836.60 | 850 | Dipole | V | 71.62 | 84.30 | V-V | 12.43 | 28.41 | 0.69 | 38.50 | -10.09 |
| F0 | 190 | 836.60 | 850 | Dipole | H | 84.3 | | H-H | 9.96 | | | | |
| F0 | 251 | 848.80 | 850 | Dipole | V | 72.15 | 84.42 | V-V | 12.24 | 28.05 | 0.64 | 38.50 | -10.45 |
| F0 | 251 | 848.80 | 850 | Dipole | H | 84.42 | | H-H | 10.41 | | | | |

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|--|---|---|
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |
|--|---|---|

Radiated Power Test Data Results cont'd

Date of test: June 09, 2011

The following measurements were performed by Shuo Wang.

The environmental tests conditions were: Temperature: 23.9

Relative Humidity: 43.3

The BlackBerry® smartphone was in standalone, Horizontal Face down position.


Test distance is 3.0 metres.

PCS1900 Band Call Mode

| EUT | | | | | | | | Receive Antenna | | Spectrum Analyzer | | Substitution Method | | | |
|------|-----|-----------------|------|------|------|----------------|----------------|-----------------|---------------|--|-------------|---------------------|--------------------|--|--|
| EUT | | | | | | | | Receive Antenna | | Spectrum Analyzer | | Tracking Generator | | | |
| Type | Ch | Frequency (MHz) | Band | Type | Pol. | Reading (dBuV) | Max (V,H) dBuV | Pol. Tx-Rx | Reading (dBm) | Corrected Reading (relative to Isotropic Radiator) | | Limit (dBm) | Diff to Limit (dB) | | |
| | | | | | | | | | | (dBm) | (W) | | | | |
| F0 | 512 | 1850.20 | 1900 | Horn | V | 85.63 | 90.81 | V-V | -3.06 | 31.75 | 1.50 | 33.00 | -1.25 | | |
| F0 | 512 | 1850.20 | 1900 | Horn | H | 90.81 | | H-H | -3.14 | | | | | | |
| F0 | 661 | 1880.00 | 1900 | Horn | V | 84.72 | 90.78 | V-V | -2.96 | 32.29 | 1.69 | 33.00 | -0.71 | | |
| F0 | 661 | 1880.00 | 1900 | Horn | H | 90.78 | | H-H | -2.61 | | | | | | |
| F0 | 810 | 1909.80 | 1900 | Horn | V | 85.36 | 90.14 | V-V | -2.80 | 31.25 | 1.33 | 33.00 | -1.75 | | |
| F0 | 810 | 1909.80 | 1900 | Horn | H | 90.14 | | H-H | -2.70 | | | | | | |

PCS1900 Band EDGE Mode

| EUT | | | | | | | | Receive Antenna | | Spectrum Analyzer | | Substitution Method | | | |
|------|-----|-----------------|------|------|------|----------------|----------------|-----------------|---------------|--|-------------|---------------------|--------------------|--|--|
| EUT | | | | | | | | Receive Antenna | | Spectrum Analyzer | | Tracking Generator | | | |
| Type | Ch | Frequency (MHz) | Band | Type | Pol. | Reading (dBuV) | Max (V,H) dBuV | Pol. Tx-Rx | Reading (dBm) | Corrected Reading (relative to Isotropic Radiator) | | Limit (dBm) | Diff to Limit (dB) | | |
| | | | | | | | | | | (dBm) | (W) | | | | |
| F0 | 512 | 1850.20 | 1900 | Horn | V | 80.47 | 80.47 | V-V | -5.13 | 29.68 | 0.93 | 33.00 | -3.32 | | |
| F0 | 512 | 1850.20 | 1900 | Horn | H | 88.74 | | H-H | -5.21 | | | | | | |
| F0 | 661 | 1880.00 | 1900 | Horn | V | 80.32 | 88.74 | V-V | -5.05 | 30.20 | 1.05 | 33.00 | -2.80 | | |
| F0 | 661 | 1880.00 | 1900 | Horn | H | 88.69 | | H-H | -4.70 | | | | | | |
| F0 | 810 | 1909.80 | 1900 | Horn | V | 80.76 | 88.69 | V-V | -4.36 | 29.69 | 0.93 | 33.00 | -3.31 | | |
| F0 | 810 | 1909.80 | 1900 | Horn | H | 88.58 | | H-H | -4.26 | | | | | | |

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|  | | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 4A | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW | |

Radiated Emissions Test Data Results cont'd

GSM850 Call Mode

Date of Test: Jan 20, 2011

The following measurements were performed by Quan (Jerry) Ma.

The environmental test conditions were: Temperature: 24.3 °C
Relative Humidity: 11 %

Test Distance was 3.0 metres with a height of 1.0 metres, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was in standalone, USB Up position.

The measurements were performed in GSM850 Call Tx mode, channels 128, 190, 251.

All emissions had a test margin greater than 25.0 dB.

Date of Test: Jan 20, 2011

The following measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24.1 °C
Relative Humidity: 40.6 %


Test Distance was 3.0 metres with a height of 1metre, and a frequency range of 1 GHz to 9 GHz.

The BlackBerry® smartphone was in standalone, USB Up position.

The measurements were performed in GSM850 Call Tx mode, channels 128, 190, 251.

| Frequency (MHz) | Channel Of Occurrence | Antenna | | Test Angle (Deg.) | Detector (PK or QP) | Measured Level (dBm) | Correction Factor for preamp/antenna/ cables/ filter (dB) | Field Strength Level (reading+corr) (dBm) | Limit @ 3.0 m (dBm) | Test Margin (dB) |
|--------------------|-----------------------------|---------------|--------------------|-------------------------|------------------------|----------------------------|---|--|---------------------------|------------------------|
| | | Pol. (V/H) | Height (metres) | | | | | | | |
| 1648.568 | 128 | V | 2.00 | 231 | PK | -31.81 | -90.30 | -31.81 | -13 | -18.8 |
| 1673.372 | 190 | V | 1.00 | 254 | PK | -31.30 | -90.73 | -31.30 | -13 | -18.3 |
| 1697.992 | 251 | V | 1.35 | 60 | PK | -37.45 | -91.18 | -37.45 | -13 | -24.5 |

All other emissions had a test margin greater than 25.0 dB

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 4A | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

Radiated Emissions Test Data Results cont'd

GSM850 EDGE Mode

Date of Test: Jan 20, 2011

The following measurements were performed by Quan (Jerry) Ma.

The environmental test conditions were: Temperature: 24.3 °C
Relative Humidity: 14.3 %

Test Distance was 3.0 metres with a height of 1.0 metres, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was in standalone, USB Up position.

The measurements were performed in GSM850 EDGE Tx mode, channels 128, 190, 251.

All emissions had a test margin greater than 25.0 dB.

Date of Test: Jan 28, 2011

The following measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24.0 °C
Relative Humidity: 37.1 %


Test Distance was 3.0 metres with a height of 1-4 metres, and a frequency range of 1 GHz to 9 GHz.

The BlackBerry® smartphone was in standalone, horizontal position.

The measurements were performed in GSM850 EDGE Tx mode, channels 128, 190, 251.

| Frequency (MHz) | Channel Of Occurrence | Antenna | | Test Angle (Deg.) | Detector (PK or QP) | Measured Level (dBm) | Correction Factor for preamp/antenna/ cables/ filter (dB) | Field Strength Level (reading+corr) (dBm) | Limit @ 3.0 m (dBm) | Test Margin (dB) |
|--------------------|-----------------------------|---------------|--------------------|-------------------------|------------------------|----------------------------|---|--|---------------------------|------------------------|
| | | Pol. (V/H) | Height (metres) | | | | | | | |
| 1673.290 | 251 | V | 2.50 | 262 | PK | -32.90 | -90.73 | -32.90 | -13.00 | -19.9 |
| 1648.276 | 190 | V | 1.42 | 206 | PK | -34.05 | -90.30 | -34.05 | -13.00 | -21.1 |

All other emissions had a test margin greater than 25.0 dB

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|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 4A | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

Radiated Emissions Test Data Results cont'd

PCS1900 GSM Mode

Date of Test: Jan 20, 2011

The following measurements were performed by Quan (Jerry) Ma.

The environmental test conditions were: Temperature: 23.9 °C
Relative Humidity: 12.2 %

Test Distance was 3.0 metres with a height of 1-4 meters, and a frequency range of 30 - 1000 MHz.

The BlackBerry® smartphone was in standalone, USB down position.
The measurements were performed in PCS1900 Call Tx mode, channels 512, 661, 810.
All emissions had a test margin greater than 25.0 dB.

Date of Test: Jan 20, 2011

The following measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24.5 °C
Relative Humidity: 37.6 %


The measurements were performed in PCS1900, channels 512, 661, 810.

| Frequency (MHz) | Channel Of Occurrence | Antenna | | Test Angle (Deg.) | Detector (PK or QP) | Measured Level (dBm) | Correction Factor for preamp/antenna/ cables/ filter (dB) | Field Strength Level (reading+corr) (dBm) | Limit @ 3.0 m (dBm) | Test Margin (dB) |
|--------------------|-----------------------------|---------------|--------------------|-------------------------|------------------------|----------------------------|---|--|---------------------------|------------------------|
| | | Pol. (V/H) | Height (metres) | | | | | | | |
| 1677.440 | 512 | H | 1.77 | 99 | PK | -41.82 | -92.85 | -41.82 | -13 | -28.8 |
| 3700.568 | 512 | H | 3.00 | 91 | PK | -34.15 | -81.13 | -34.15 | -13 | -21.2 |
| 1707.208 | 661 | H | 1.65 | 209 | PK | -36.33 | -92.11 | -36.33 | -13 | -23.3 |
| 1995.257 | 661 | H | 1.67 | 199 | PK | -35.83 | -89.27 | -35.83 | -13 | -22.8 |
| 3760.448 | 661 | H | 2.95 | 89 | PK | -33.01 | -81.57 | -33.01 | -13 | -20.0 |
| 1737.236 | 810 | H | 2.21 | 188 | PK | -36.26 | -92.27 | -36.26 | -13 | -23.3 |
| 3819.388 | 810 | H | 4.00 | 140 | PK | -30.81 | -81.67 | -30.81 | -13 | -17.8 |

Test Distance was 3.0 metres with a height of 1.0 metres, and a frequency range of 1 GHz to 20 GHz.

The BlackBerry® smartphone was in standalone, Horizontal position.

All emissions had a test margin greater than 25.0 dB.

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW APPENDIX 4A | |
| | Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 |

Radiated Emissions Test Data Results cont'd

PCS1900 EDGE Mode

Date of Test: Jan 20, 2011

The following measurements were performed by Quan (Jerry) Ma.

The environmental test conditions were: Temperature: 24.3 °C
Relative Humidity: 13.2 %

Test Distance was 3.0 metres with a height of 1 metre, and a frequency range of 30 - 1000 MHz.

The BlackBerry® smartphone was in standalone, USB down position.

The measurements were performed in PCS1900 Edge Tx mode, channels 512, 661, 810.

All emissions had a test margin greater than 25.0 dB.

Date of Test: February 10, 2011

The following measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24.5 °C
Relative Humidity: 38.0 %

The measurements were performed in PCS1900 Edge Tx mode, channels 512, 661, 810.

| Frequency (MHz) | Channel Of Occurrence | Antenna | | Test Angle (Deg.) | Detector (PK or QP) | Measured Level (dBm) | Correction Factor for preamp/antenna/ cables/ filter (dB) | Field Strength Level (reading+corr) (dBm) | Limit @ 3.0 m (dBm) | Test Margin (dB) |
|--------------------|-----------------------------|---------------|--------------------|-------------------------|------------------------|----------------------------|---|--|---------------------------|------------------------|
| | | Pol. (V/H) | Height (metres) | | | | | | | |
| 5550.148 | 512 | H | 4.00 | 308 | PK | -35.84 | -73.91 | -35.84 | -13 | -22.8 |
| 3759.932 | 661 | H | 2.95 | 87 | PK | -35.57 | -81.56 | -35.57 | -13 | -22.6 |
| 5639.664 | 661 | V | 3.08 | 70 | PK | -29.22 | -73.59 | -29.21 | -13 | -16.2 |
| 3819.564 | 810 | H | 2.81 | 136 | PK | -32.77 | -81.68 | -32.77 | -12 | -19.8 |

Test Distance was 3.0 metres with a height of 1.0 metres, and a frequency range of 1 GHz to 20 GHz.

The BlackBerry® smartphone was in standalone, Horizontal position.

All emissions had a test margin greater than 25.0 dB.

APPENDIX 4B – CDMA RADIATED EMISSIONS TEST DATA

Test Report No.
RTS-2605-1105-02

Dates of Test
Jan 17 to Feb 10 and April 18, 2011

FCC ID: L6ARDH70CW
IC: 2503A-RDH70CW

Radiated Power Test Data Results

Date of Test: April 18, 2011

The following measurements were performed by Quan (Jerry) Ma.

The environmental tests conditions were: Temperature: 23.2 °C
 Relative Humidity: 18.2%

The BlackBerry® smartphone - was in standalone, USB up position.
 Test distance is 3.0 metres

Cellular Loopback Service Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method Tracking Generator | | | | Limit (dBm) | Diff. To Limit (dB) |
|------|------|--------------------|------|------------|------|-------------------|------------------------|---|------------------|---|-------------|----------------|---------------------------|
| Type | Ch | Frequency (MHz) | Band | Type | Pol. | Reading (dBuV) | Max (V,H) (dBuV) | Pol. Tx-Rx | Reading (dBm) | Corrected Reading (relative to Dipole) | | | |
| | | | | | | | | | | (dBm) | (W) | | |
| F0 | 1013 | 824.70 | Cell | Dipole | V | 71.87 | 82.15 | V-V | 9.46 | 25.29 | 0.34 | 38.50 | -13.21 |
| F0 | 1013 | 824.70 | Cell | Dipole | H | 82.15 | | H-H | 7.81 | | | | |
| F0 | 384 | 836.52 | Cell | Dipole | V | 71.75 | 81.81 | V-V | 9.88 | 25.86 | 0.39 | 38.50 | -12.64 |
| F0 | 384 | 836.52 | Cell | Dipole | H | 81.81 | | H-H | 7.44 | | | | |
| F0 | 777 | 848.32 | Cell | Dipole | V | 71.67 | 81.92 | V-V | 9.67 | 25.48 | 0.35 | 38.50 | -13.02 |
| F0 | 777 | 848.32 | Cell | Dipole | H | 81.92 | | H-H | 7.88 | | | | |

Cellular EVDO Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method Tracking Generator | | | | Limit (dBm) | Diff. To Limit (dB) |
|------|------|--------------------|------|------------|------|-------------------|------------------------|---|------------------|---|-------------|----------------|---------------------------|
| Type | Ch | Frequency (MHz) | Band | Type | Pol. | Reading (dBuV) | Max (V,H) (dBuV) | Pol. Tx-Rx | Reading (dBm) | Corrected Reading (relative to Dipole) | | | |
| | | | | | | | | | | (dBm) | (W) | | |
| F0 | 1013 | 824.70 | Cell | Dipole | V | 71.37 | 83.01 | V-V | 10.36 | 26.19 | 0.42 | 38.50 | -12.31 |
| F0 | 1013 | 824.70 | Cell | Dipole | H | 83.01 | | H-H | 8.68 | | | | |
| F0 | 384 | 836.52 | Cell | Dipole | V | 72.61 | 83.16 | V-V | 11.26 | 27.24 | 0.53 | 38.50 | -11.26 |
| F0 | 384 | 836.52 | Cell | Dipole | H | 83.16 | | H-H | 8.75 | | | | |
| F0 | 777 | 848.32 | Cell | Dipole | V | 71.62 | 82.04 | V-V | 9.81 | 25.62 | 0.36 | 38.50 | -12.88 |
| F0 | 777 | 848.32 | Cell | Dipole | H | 82.04 | | H-H | 7.96 | | | | |

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| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |
|--|---|---|

Radiated Power Test Data Results cont'd

Date of Test: April 18, 2011

The following measurements were performed by Quan (Jerry) Ma.

The environmental tests conditions were: Temperature: 23.2 °C
 Relative Humidity: 18.2%


The BlackBerry® smartphone was in standalone, USB down position.
 Test Distance was 3.0 metres.

PCS Loopback Service Mode

| | | | | | | | | | | Substitution Method | | | |
|------|------|-----------------|------|-----------------|------|-------------------|------------------|--------------------|---------------|---------------------|-------------|-------------|--------------------|
| EUT | | | | Receive Antenna | | Spectrum Analyzer | | Tracking Generator | | | | | |
| Type | Ch | Frequency (MHz) | Band | Type | Pol. | Reading (dBuV) | Max (V,H) (dBuV) | Pol. Tx-Rx | Reading (dBm) | (dBm) | (W) | Limit (dBm) | Diff to Limit (dB) |
| F0 | 25 | 1851.25 | PCS | Horn | V | 86.11 | 86.11 | VV | -12.86 | 27.56 | 0.57 | 33.00 | -5.44 |
| F0 | 25 | 1851.25 | PCS | Horn | H | 77.66 | | HH | -11.62 | | | | |
| F0 | 600 | 1880.00 | PCS | Horn | V | 85.77 | 85.77 | VV | -12.56 | 27.16 | 0.52 | 33.00 | -5.84 |
| F0 | 600 | 1880.00 | PCS | Horn | H | 77.9 | | HH | -11.77 | | | | |
| F0 | 1175 | 1908.75 | PCS | Horn | V | 86.21 | 86.21 | VV | -11.61 | 27.91 | 0.62 | 33.00 | -5.09 |
| F0 | 1175 | 1908.75 | PCS | Horn | H | 79.73 | | HH | -11.07 | | | | |

PCS EVDO Mode

| | | | | | | | | | | Substitution Method | | | |
|------|------|-----------------|------|-----------------|------|-------------------|------------------|--------------------|---------------|---------------------|-------------|-------------|--------------------|
| EUT | | | | Receive Antenna | | Spectrum Analyzer | | Tracking Generator | | | | | |
| Type | Ch | Frequency (MHz) | Band | Type | Pol. | Reading (dBuV) | Max (V,H) (dBuV) | Pol. Tx-Rx | Reading (dBm) | (dBm) | (W) | Limit (dBm) | Diff to Limit (dB) |
| F0 | 25 | 1851.25 | PCS | Horn | V | 88.28 | 88.28 | VV | -10.69 | 29.73 | 0.94 | 33.00 | -3.27 |
| F0 | 25 | 1851.25 | PCS | Horn | H | 80.32 | | HH | -9.45 | | | | |
| F0 | 600 | 1880.00 | PCS | Horn | V | 87.76 | 87.76 | VV | -10.57 | 29.15 | 0.82 | 33.00 | -3.85 |
| F0 | 600 | 1880.00 | PCS | Horn | H | 81.44 | | HH | -9.78 | | | | |
| F0 | 1175 | 1908.75 | PCS | Horn | V | 87.65 | 87.65 | VV | -10.17 | 29.35 | 0.86 | 33.00 | -3.65 |
| F0 | 1175 | 1908.75 | PCS | Horn | H | 79.09 | | HH | -9.63 | | | | |

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|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
| | APPENDIX 4B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

Radiated Emissions Test Data Results cont'd

Cellular Loopback Service

Date of Test: January 25, 2011

The following measurements were performed by Quan (Jerry) Ma

The environmental test conditions were: Temperature: 24.1 °C
Relative Humidity: 9.6 %

Test Distance was 3.0 metres with a height of 1-4 metres, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was in standalone, Vertical position.

The following measurements were performed in CDMA Cellular Loopback Tx mode on channels 1013, 384 and 777.

All emissions had a test margin greater than 25.0 dB.

Date of Test: January 25, 2011

The following measurements were performed by Adam Rusinek


The environmental test conditions were: Temperature: 24.2°C
Relative Humidity: 41.2 %

Test Distance was 3.0 metres with a height of 1-4 metres, and a frequency range of 1-20GHz.

The BlackBerry® smartphone was in standalone, USB Down position.

The following measurements were performed in CDMA Cellular Loopback Tx mode on channels 1013, 384 and 777.

All emissions had a test margin greater than 25.0 dB.

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
| | APPENDIX 4B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

Radiated Emissions Test Data Results cont'd

Cellular 1xEVDO Mode

Date of Test: January 25, 2011

The following measurements were performed by Kevin Rose

The environmental test conditions were: Temperature: 25.2 °C
Relative Humidity: 9.6 %

Test Distance was 3.0 metres with a height of 1-4 metres, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was in standalone, Vertical position.

The following measurements were performed in CDMA Cellular EVDO Tx mode on channels 1013, 384 and 777.

All emissions had a test margin greater than 25.0 dB.

Date of Test: January 25, 2011

The following measurements were performed by Adam Rusinek


The environmental test conditions were: Temperature: 24.1°C
Relative Humidity: 40.1 %

Test Distance was 3.0 metres with a height of 1-4 metres, and a frequency range of 1-20GHz.

The BlackBerry® smartphone was in standalone, Horizontal Down position.

The following measurements were performed in CDMA Cellular EVDO Tx mode on channels 1013, 384 and 777.

All emissions had a test margin greater than 25.0 dB.

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
| | APPENDIX 4B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

Radiated Emissions Test Data Results cont'd

PCS Loopback Service mode

Date of Test: January 20, 2011

The following measurements were performed by Quan (Jerry) Ma

The environmental test conditions were: Temperature: 25.2 °C
Relative Humidity: 9.6 %

Test Distance was 3.0 metres with a height of 1-4 metres, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was in standalone, Vertical position.

The following measurements were performed in PCS Tx mode on channels 25, 600 and 1175.

All emissions had a test margin greater than 25.0 dB.

Date of Test: January 25, 2011

The following measurements were performed by Adam Rusinek


The environmental test conditions were: Temperature: 24.2°C
Relative Humidity: 41.2 %

Test Distance was 3.0 metres with a height of 1-4 metres, and a frequency range of 1-20GHz.

The BlackBerry® smartphone was in standalone, Horizontal Down position.

The following measurements were performed in PCS Tx mode on channels 25, 600 and 1175.

All emissions had a test margin greater than 25.0 dB.

| | | |
|---|--|---|
|  | EMI Test Report for the BlackBerry® smartphone Model RDH71CW | |
| | APPENDIX 4B | |
| Test Report No. RTS-2605-1105-02 | Dates of Test Jan 17 to Feb 10 and April 18, 2011 | FCC ID: L6ARDH70CW IC: 2503A-RDH70CW |

Radiated Emissions Test Data Results cont'd

PCS 1xEVDO Mode

Date of Test: January 25, 2011

The following measurements were performed by Kevin Rose

The environmental test conditions were: Temperature: 25.1 °C
Relative Humidity: 9.6 %

Test Distance was 3.0 metres with a height of 1-4 metres, a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was in standalone, Vertical position.

The following measurements were performed in PCS Tx mode on channels 25, 600 and 1175.

All emissions had a test margin greater than 25.0 dB.

Date of Test: January 26, 2011

The following measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24.1°C
Relative Humidity: 40.1 %

Test Distance was 3.0 metres with a height of 1-4 metres, a frequency range of 1-20GHz.

The BlackBerry® smartphone was in standalone, Horizontal Down position.

The following measurements were performed in PCS Tx mode on channels 25, 600 and 1175.

All emissions had a test margin greater than 25.0 dB.