

EMI Test Report

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




A division of Research In Motion Limited

REPORT NO: RTS-2337-1002-51

| | |
|-------------------------------------|------------------------|
| PRODUCT MODEL NO: | RCY71UW |
| TYPE NAME: | BlackBerry® smartphone |
| FCC ID: | L6ARCY70UW |
| IC: | 2503A-RCY70UW |
| EMISSION DESIGNATOR (GSM): | 243KGXW |
| EMISSION DESIGNATOR (EDGE): | 242KG7W |
| EMISSION DESIGNATOR (WCDMA): | 4M19F9W |

DATE: May 21, 2010

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|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

Statement of Performance:

The BlackBerry® smartphone, model RCY71UW, part number CER-30957-001 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:



Fahd Faisal
Regulatory Compliance Associate
Date: May 21, 2010

Reviewed by:



Michael Cino
Regulatory Compliance Associate
Date: May 21, 2010

Reviewed and Approved by:



Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance
Date: May 21, 2010



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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, October 2009
- FCC CFR 47 Part 22, Subpart H, Cellular Radiotelephone Services, October 2009
- FCC CFR 47 Part 24 Subpart E, Broadband PCS, October 2009
- 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.

B) Associated Documents

1. HW_Declaration_CER-30957-001_Rev 2
2. HW_Declaration_CER-30957-001_Rev 3
3. MultiSourceDeclaration_9800_b33
4. MultiSourceDeclaration_9800_b45
5. MultiSourceDeclaration_9800_b60
6. MultiSourceDeclaration_9800_b83
7. MultiSourceDeclaration_9800_b91
8. MultiSourceDeclaration_9800_b100

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 February 10 to March 26 and May 17 to 19, 2010.

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The sample EUT included:

| SAMPLE | MODEL | CER NUMBER | PIN | Software |
|--------|---------|---------------------|----------|---|
| 1 | RCY71UW | CER-30957-001 Rev 1 | 21C8E19C | V5.2.0.8 (Platform 6.0.0.5) Bundle 19 |
| 2 | RCY71UW | CER-30957-001 Rev 2 | 21FDF04C | V6.0.0.6 (Platform 6.0.0.10) Bundle 17 |
| 3a | RCY71UW | CER-30957-001 Rev 2 | 21FDD041 | V6.0.0.6 (Platform 6.0.0.10) Bundle 17 |
| 3b | RCY71UW | CER-30957-001 Rev 2 | 21FDD041 | V6.0.0.14 (Platform 6.4.0.7) Bundle 33 |
| 4 | RCY71UW | CER-30957-001 Rev 3 | 222FF475 | V6.0.0.43 (Platform 6.4.0.22) Bundle 100 |

RF Conducted Emissions testing was performed on sample 1.

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

To view the differences between CER-30957-001 Rev 1 and CER-30957-001 Rev 2, see document number HW_Declaration_CER-30957-001_Rev 2. To view the differences between CER-30957-001 Rev 2 and CER-30957-001 Rev 3, see document number HW_Declaration_CER-30957-001_Rev 3.

To view the differences between bundles 17 and 19, and 19 and 33, see document number MultiSourceDeclaration_9800_b33. To see the differences between bundles 33 and 100, see document number MultiSourceDeclaration_9800_b33, MultiSourceDeclaration_9800_b45, MultiSourceDeclaration_9800_b60, MultiSourceDeclaration_9800_b83, MultiSourceDeclaration_9800_b91, and MultiSourceDeclaration_9800_b100.


Only the measurements that may have been impacted by the changes from Rev 1 to Rev 3 were re-measured.

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 | GSM PCS 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 | GSM PCS 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 | GSM PCS 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 2.1051 Part 22.917 Part 22.901 | RSS-GEN, 4.9 | WCDMA UMTS850 Conducted Spurious Emissions | Pass | 1B |
| Part 2.1051 Part 24.238(a) | RSS-GEN, 4.9 | WCDMA UMTS1900 Conducted Spurious Emissions | Pass | 1B |
| Part 2.202 Part 22.917 | RSS-GEN, 4.6 | WCDMA UMTS850 Occupied Bandwidth and Channel Mask | Pass | 1B |
| Part 2.202 Part 24.238 | RSS-GEN, 4.6 | WCDMA UMTS1900 Occupied Bandwidth and Channel Mask | Pass | 1B |
| Part 2.1046(a) | RSS-133, 6.4 RSS-132, 4.4 | WCDMA Conducted RF Output Power | Pass | 2B |
| Part 2.1055(a)(d) Part 22.917 | RSS-132, 4.3 | WCDMA UMTS850 Frequency Stability vs. Temperature and Voltage | Pass | 3B |

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Test Results Chart cont'd

| SPECIFICATION | | TEST TYPE | RESULT | TEST DATA APPENDIX |
|----------------------------------|--------------|--|--------|-----------------------|
| FCC CFR 47 | IC | | | |
| Part 2.1055(a)(d) Part 24.235 | RSS-GEN, 4.7 | WCDMA UMTS1900 Frequency Stability vs. Temperature and Voltage | Pass | 3B |
| Part 22, Subpart H | RSS-GEN, 4.9 | WCDMA UMTS850 Radiated Spurious/Harmonic Emissions, ERP | Pass | 4B |
| Part 24, Subpart E | RSS-GEN, 4.9 | WCDMA UMTS1900 Radiated Spurious/Harmonic Emissions, EIRP | Pass | 4B |

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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.
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.
See APPENDIX 1A for test data.

- c) The BlackBerry® smartphone met the requirements of the Conducted RF Output Power requirements for the GSM850 and PCS1900 as per 47 CFR 2.1046(a), RSS 133, 6.4 and RSS 132, 4.4. The EUT was measured in GSM and EDGE mode on the low, middle and high channels.
See APPENDIX 2A for the test data.

- d) The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage requirements for the PCS1900 band as per 47 CFR 2.1055(a), 2.1055(d), 24.235 and RSS-132, 4.3. The temperature range was from -30°C to +60°C in 10° temperature steps. The EUT was measured on low, middle and high channels at each temperature step. The EUT was measured at low (3.6 volts), nominal (3.7 volts) and high (4.2 volts) dc input voltage at each temperature step and channel at maximum output power.
See APPENDIX 3A for the test data.

- e) The BlackBerry® smartphone met the requirements of the Conducted Spurious Emissions in the UMTS850 band as per 47 CFR 1057, 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 1 for the test data.

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The BlackBerry® smartphone met the requirements of the Conducted Spurious Emissions in the UMTS1900 band as per 47 CFR 2.1057, CFR 24.238 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 20 GHz.

See APPENDIX 1 for the test data.

- f) The BlackBerry® smartphone met the requirements of the Occupied Bandwidth in the UMTS850 band as per 47 CFR 2.202, CFR 22.917 and RSS-GEN, 4.6. The low, middle and high channels were measured.
See APPENDIX 1 for the test data.

The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask in the UMTS1900 band as per 47 CFR 2.202, CFR 24.238 and RSS-GEN, 4.6. The low, middle and high channels were measured.


See APPENDIX 1 for the test data.

- g) The BlackBerry® smartphone met the requirements of the Conducted RF Output Power for both the UMTS850 and 1900 bands as per 47 CFR 2.1046(a), RSS-133, 6.4 and RSS-132, 4.4. The low, middle and high channels were measured.
See APPENDIX 2 for the test data.

- h) The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage for UMTS850 band as per 47 CFR 2.1055(a)(d), CFR 22.917 and RSS-132, 4.3. The maximum frequency error measured was less than 0.1 ppm. The temperature range was from -30°C to +60°C in 10° temperature steps. The BlackBerry® smartphone was measured on low, middle and high channels at each temperature step. The BlackBerry® smartphone was measured at low (3.6 volts), nominal (3.7 volts) and high (4.2 volts) dc input voltage at each temperature step and channel at maximum output power.
See APPENDIX 3 for the test data.

The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage requirements for the UMTS1900 band as per 47 CFR 2.1055(a)(d), CFR 24.235 and RSS-GEN, 4.7. The maximum frequency error measured was less than 0.1 ppm. The temperature range was from -30°C to +60°C in 10 degree temperature steps. The BlackBerry® smartphone was measured on low, middle and high channels at each temperature step. The BlackBerry® smartphone was measured at low (3.6 volts), nominal (3.7 volts) and high (4.2 volts) dc input voltage at each temperature step and channel at maximum output power.

See APPENDIX 3 for the test data.

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2) Radiated Emission Measurements

a) Radiated Spurious and Harmonic Emissions

The radiated spurious emissions/harmonics and ERP/EIRP were measured for GSM 850, PCS 1900, UMTS 850 and UMTS 1900 bands (WCDMA band 5 & 2). 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 fully-anechoic room (FAR) above 1 GHz. The SAC's FCC registration number is **778487** and the Industry Canada (IC) file number is **2503B-1**. The FAR'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 ERP in the 850 band, GSM mode was measured on BlackBerry® smartphone. The highest ERP measured was 34.15 dBm (2.60 W) at 848.80 MHz (channel 251).

The ERP in the 850 band, EDGE mode was measured on BlackBerry® smartphone. The highest ERP measured was 32.87 dBm (1.94 W) at 848.80 MHz (channel 251).

The EIRP in the PCS band, GSM mode was measured on BlackBerry® smartphone. The highest ERP measured was 32.68 dBm (1.85 W) at 1850.20 MHz (channel 512).

The EIRP in the PCS band, EDGE mode was measured on BlackBerry® smartphone. The highest ERP measured was 29.69 dBm (0.93 W) at 1909.80 MHz (channel 810).

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The ERP in the UMTS Band 2 was measured on BlackBerry® smartphone. The highest ERP measured was 26.33 dBm (0.43 W) at 1907.60 MHz (channel 9538).

The ERP in the UMTS Band 5 measured on BlackBerry® smartphone. The highest ERP measured was 23.37 dBm (0.22 W) at 846.60 MHz (channel 4233).

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 bands. Each band was measured in GSM and EDGE mode. Both the horizontal and vertical polarizations were measured.

The test margins in the GSM850 and PCS1900 bands for both GSM mode and EDGE mode band harmonic emissions were greater than 25 dB below the accepted limits for all tested frequencies.

The radiated spurious emission and carrier harmonics were measured up to the 10th harmonic for low, middle and high channels in the UMTS BAND 2 and UMTS BAND 5. Both the horizontal and vertical polarizations were measured.

The test margin in the UMTS bands harmonic emissions were greater than 25 dB below the accepted limits for all tested 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: GSM850/Bluetooth/802.11b, PCS1900/Bluetooth/802.11g, UMTS 850 /Bluetooth/802.11b and UMTS 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.


Sample Calculation:

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

FS = Measured Level (dBμV) + A.F. (dB/m) + Cable Loss (dB) - Preamp (dB) + Filter Loss (dB)


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 (YY MM DD)</u> | <u>USE</u> |
|--------------------------------------|---------------------|--------------|--------------------------|--|------------------------|
| Preamplifier | Sonoma | 310N/11909A | 185831 | 10-11-14 | Radiated Emissions |
| Preamplifier system | TDK RF Solutions | PA-02 | 080010 | 10-11-06 | Radiated Emissions |
| Preamplifier | Rohde & Schwarz | TS-ANA4-SP | 001 | 11-02-17 | Radiated Emissions |
| Preamplifier | Rohde & Schwarz | TS-ANA-SP | 001 | 11-02-19 | Radiated Emissions |
| Hybrid Log Antenna | EMC Automation | HLP-3003C | 017301 | 11-02-02 | Radiated Emissions |
| Hybrid Log Antenna | EMC Automation | HLP-3003C | 017401 | 10-09-26 | Radiated Emissions |
| Horn Antenna | EMC Automation | HRN-0118 | 030101 | 10-07-22 | Radiated Emissions |
| Horn Antenna | EMC Automation | HRN-0118 | 030201 | 11-03-12 | Radiated Emissions |
| Horn Antenna | Emco | 3117 | 47563 | 11-07-15 | Radiated Emissions |
| Horn Antenna | CMT | LHA 0180 | R52734-001 | 12-01-21 | Radiated Emissions |
| Preamplifier | TDK RF Solutions | 18-26 | 030002 | 10-11-06 | Radiated Emissions |
| Dipole Antenna | Schwarzbeck | UHAP | 1018 | 11-03-12 | Radiated Emissions |
| Dipole Antenna | Schwarzbeck | UHAP | 974 | 10-10-16 | Radiated Emissions |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 837493/073 | 10-11-30 | Radiated Emissions |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 112394 | 10-11-30 | Radiated Emissions |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 102204 | 10-11-25 | RF Conducted Emissions |
| EMI Receiver | Rohde & Schwarz | ESIB-40 | 100255 | 10-11-30 | Radiated Emissions |
| EMI Receiver | Rohde & Schwarz | ESU-40 | 100162 | 10-11-29 | Radiated Emissions |
| Spectrum Analyzer | HP | 8563E | 3745A08112 | 11-09-30 | RF Conducted Emissions |
| DC Power Supply | HP | 6632B | US37472178 | 10-06-23 | RF Conducted Emissions |
| Environment Monitor | Control Company | 1870 | 230355190 | 11-01-08 | 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 (YY MM DD)</u> | <u>USE</u> |
|-----------------------|---------------------|--------------|--------------------------|--|------------------------|
| Environment Monitor | Control Company | 1870 | 230355189 | 11-01-08 | RF Conducted Emissions |
| Environment Monitor | Control Company | 1870 | 80117164 | 11-01-08 | Radiated Emissions |
| Temperature Probe | Control Company | 15-077-21 | 51129471 | 10-05-01 | Frequency Stability |
| Environmental Chamber | ESPEC Corp. | SH-240S1 | 91007118 | N/R | Frequency Stability |
| Signal Generator | Agilent | E8257D | MY45140527 | 11-11-05 | Radiated Emissions |
| Signal Generator | Agilent | 83630B | 3844A00927 | 10-10-31 | Radiated Emissions |

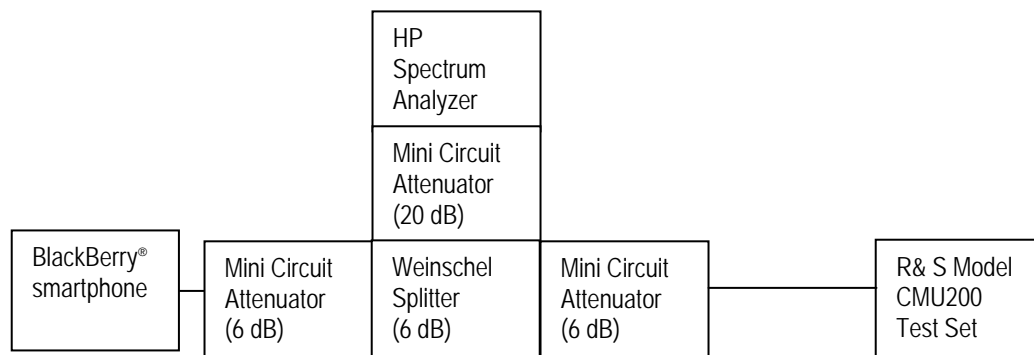
APPENDIX 1A – GSM CONDUCTED RF EMISSIONS TEST DATA/PLOTS

| | | |
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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 for the BlackBerry® smartphone.

Test Setup Diagram




Date of Test: February 10, 2010

The environmental test conditions were:

Temperature: 24 °C
Pressure: 999 mb
Relative Humidity: 21 %

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 270 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 employed.

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 | 263 | 241.7 |
| 837.6 | 275 | 241.7 |
| 848.8 | 262 | 241.7 |

| 1900 band Frequency (MHz) | -26dBc Bandwidth (kHz) | 99% Occupied Bandwidth (kHz) |
|---------------------------|------------------------|------------------------------|
| 1850.2 | 268 | 238.3 |
| 1880.0 | 268 | 241.7 |
| 1909.8 | 270 | 243.3 |


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 the –26dBc Bandwidth and 99% Occupied Bandwidth.

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

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

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

| 850 band Frequency (MHz) | 99% Occupied Bandwidth (kHz) |
|--------------------------------|---------------------------------|
| 824.2 | 238.3 |
| 837.6 | 240.0 |
| 848.8 | 238.3 |

| 1900 band Frequency (MHz) | 99% Occupied Bandwidth (kHz) |
|---------------------------------|---------------------------------|
| 1850.2 | 240.0 |
| 1880.0 | 241.7 |
| 1909.8 | 241.7 |


Measurement Plots for 850 and 1900 bands in EDGE mode

Refer to the following measurement plots for more detail.

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

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

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

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

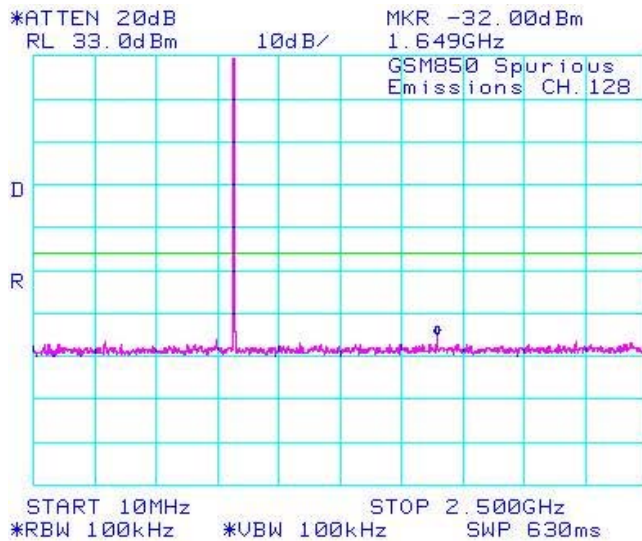


Figure 1-2a: GSM850 band, Spurious Conducted Emissions, Low channel

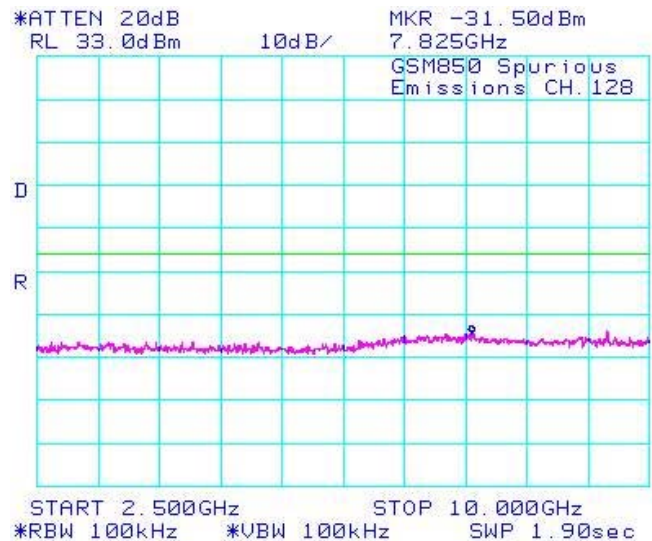


Figure 1-3a: GSM850 band, Spurious Conducted Emissions, Middle Channel

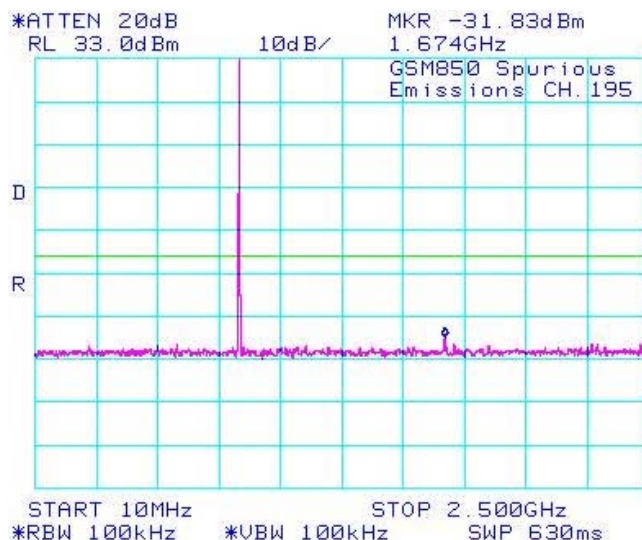
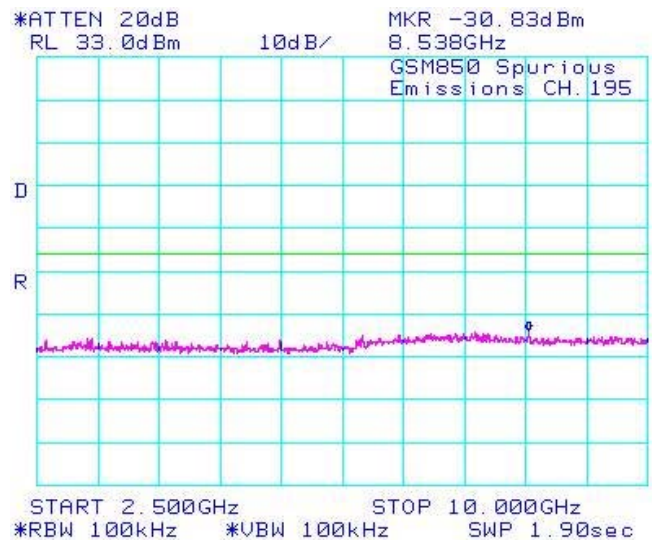



Figure 1-4a: GSM850 band, Spurious Conducted Emissions, Middle Channel



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GSM Conducted RF Emission Test Data cont'd

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

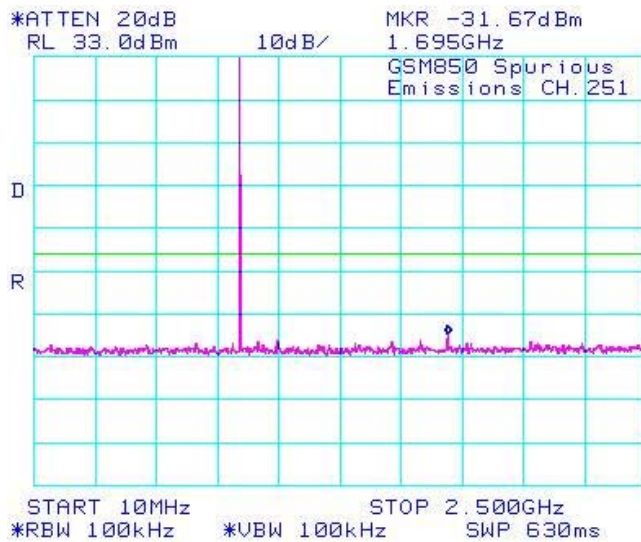


Figure 1-6a: GSM850 band, Spurious Conducted Emissions, High Channel

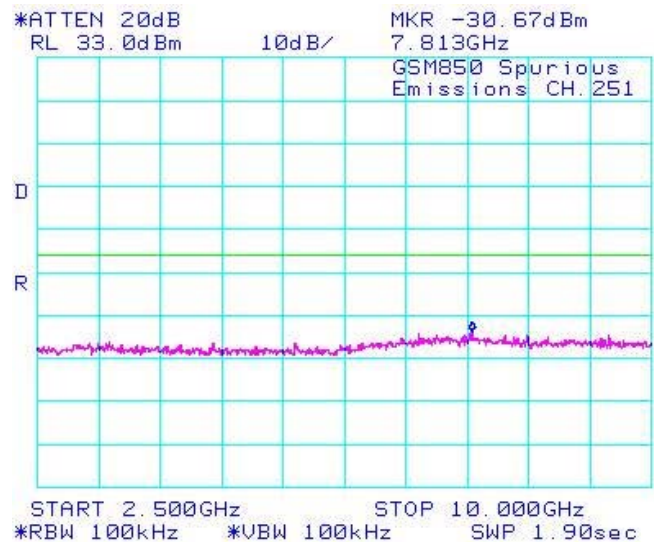


Figure 1-7a: PCS1900 band, Spurious Conducted Emissions, Low Channel

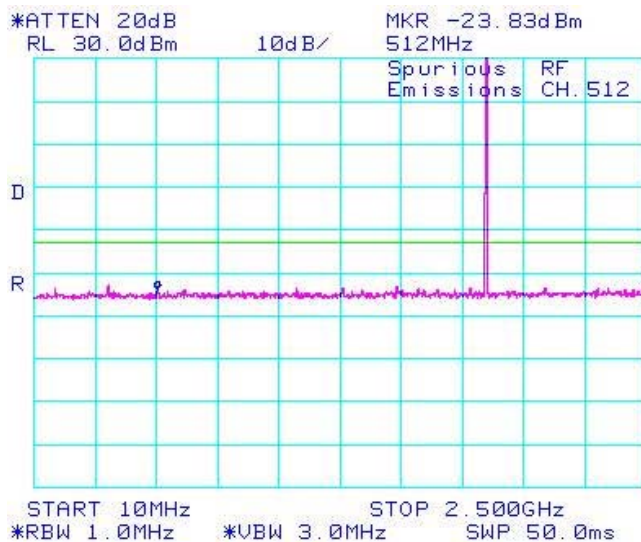
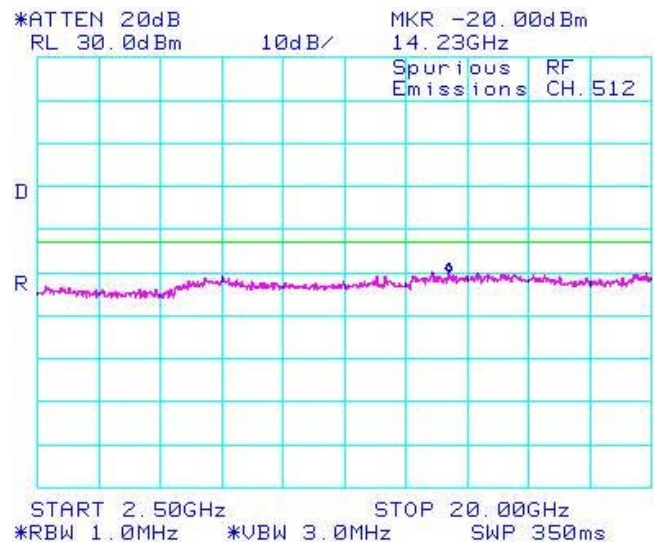



Figure 1-8a: PCS1900 band, Spurious Conducted Emissions, Low Channel



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GSM Conducted RF Emission Test Data cont'd

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

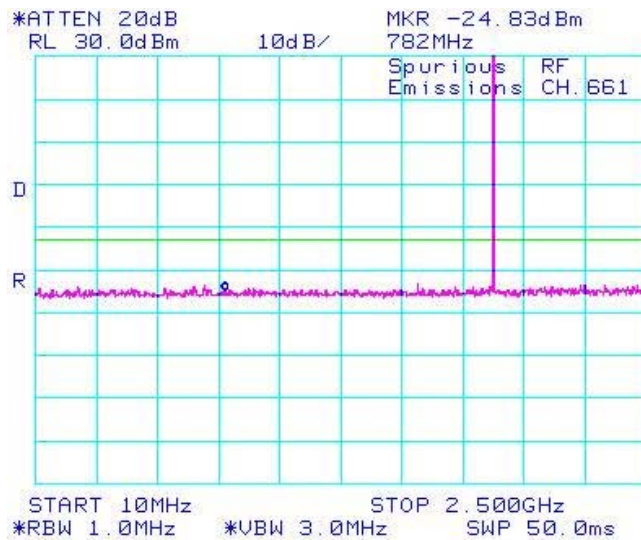


Figure 1-10a: PCS1900 band, Spurious Conducted Emissions, Middle Channel

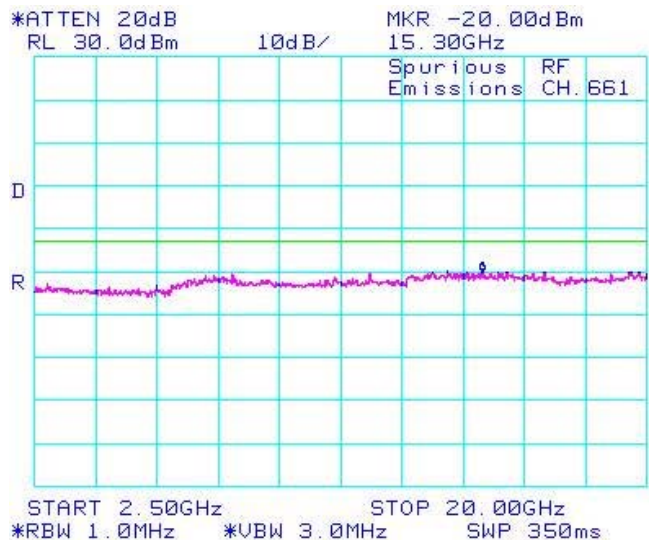


Figure 1-11a: PCS1900 band, Spurious Conducted Emissions, High Channel

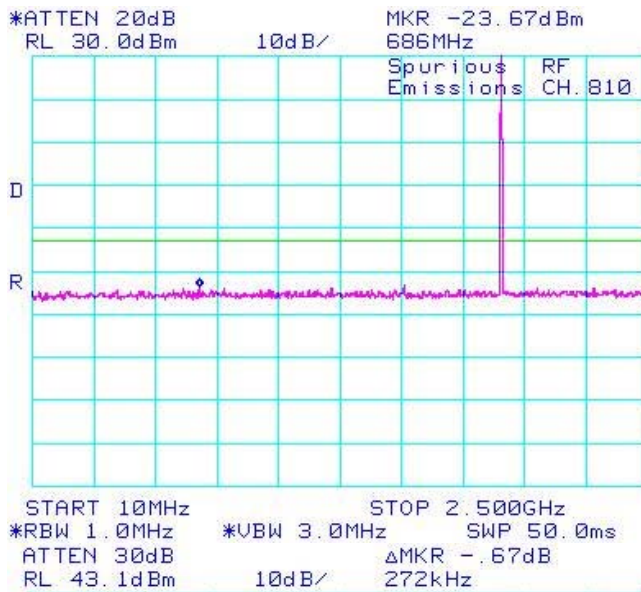
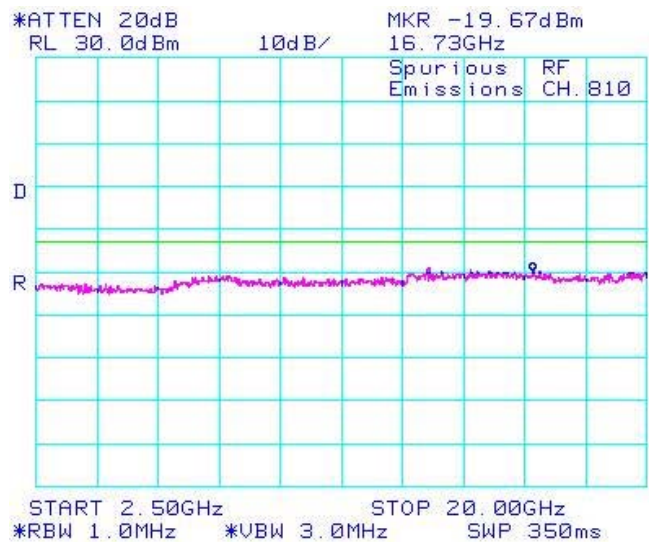



Figure 1-12a: PCS1900 band, Spurious Conducted Emissions, High Channel



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GSM Conducted RF Emission Test Data cont'd

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

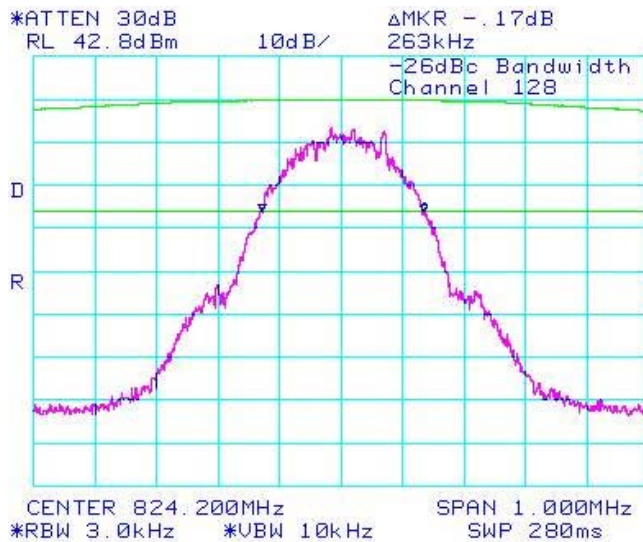


Figure 1-14a: Occupied Bandwidth, GSM850 band Low Channel in GSM mode

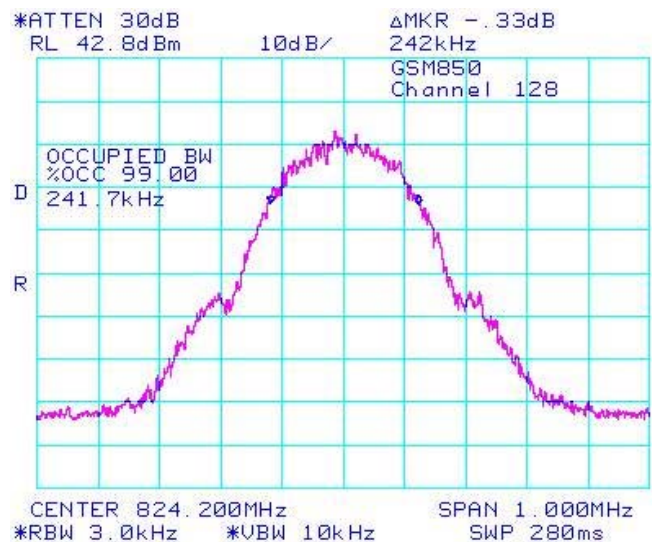


Figure 1-15a: -26dBc bandwidth, GSM850 band Middle Channel in GSM mode

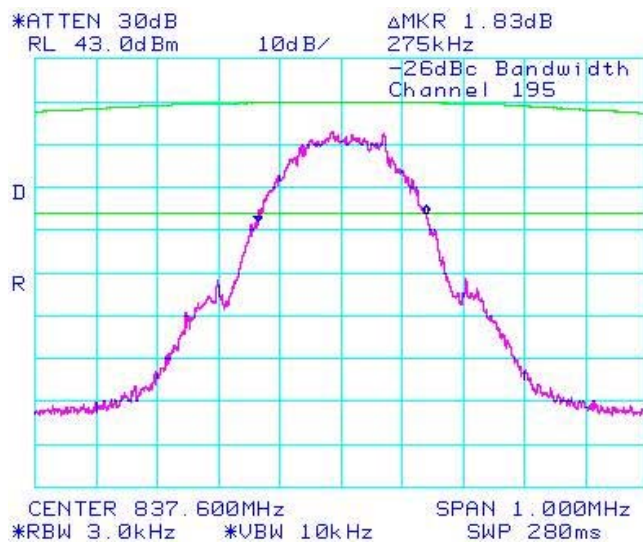
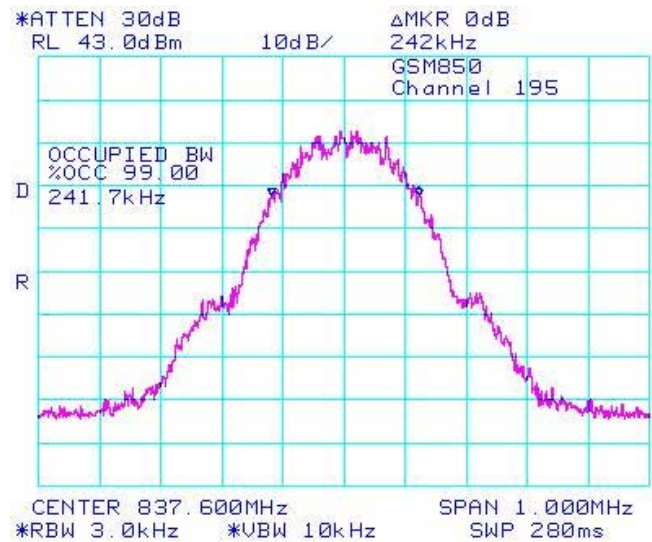



Figure 1-16a: Occupied Bandwidth, GSM850 band Middle Channel in GSM mode



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GSM Conducted RF Emission Test Data cont'd

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

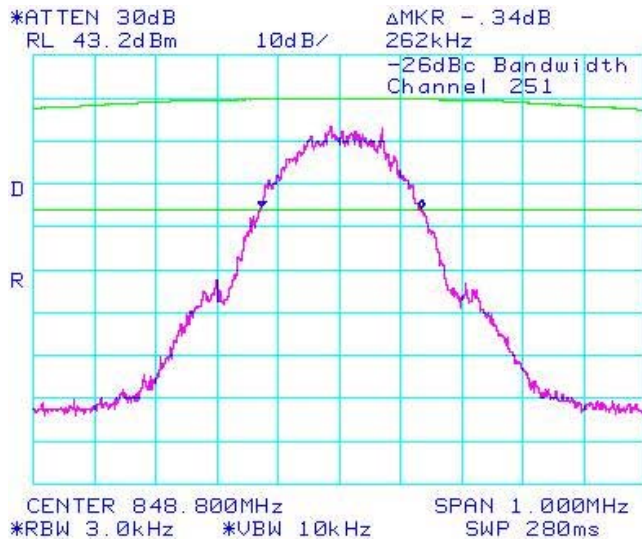


Figure 1-18a: Occupied Bandwidth, GSM850 band High Channel in GSM mode

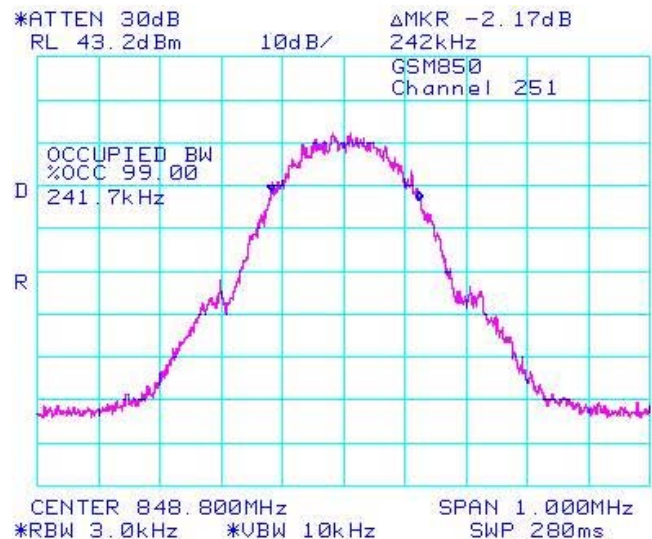


Figure 1-19a: -26dBc bandwidth, PCS1900 Low Channel in GSM mode

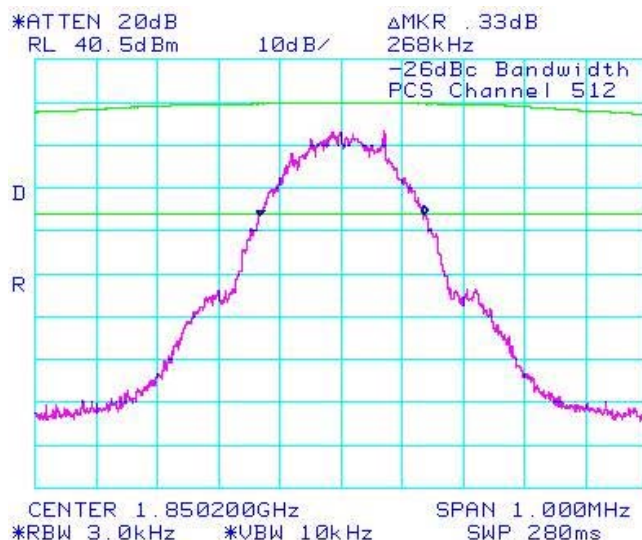
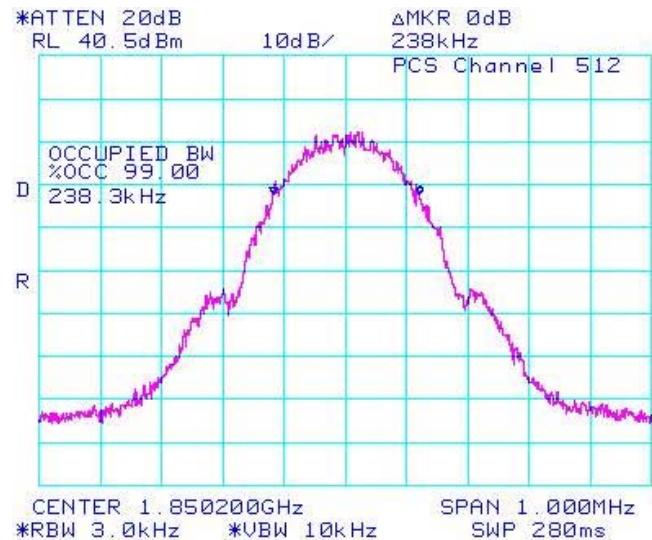



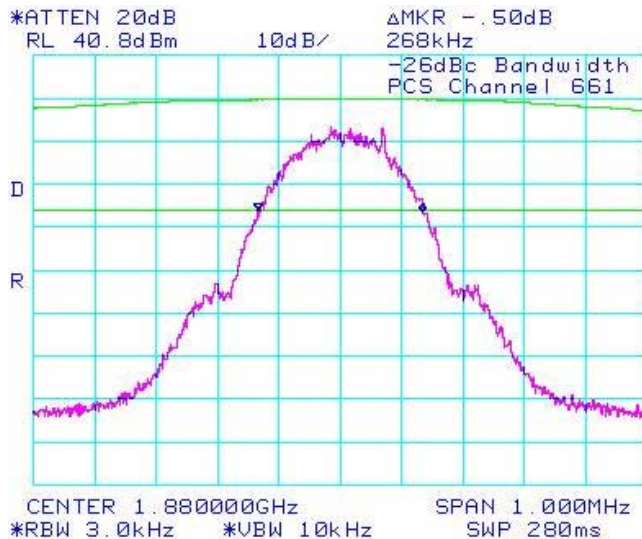
Figure 1-20a: Occupied Bandwidth, PCS1900 Low Channel in GSM mode



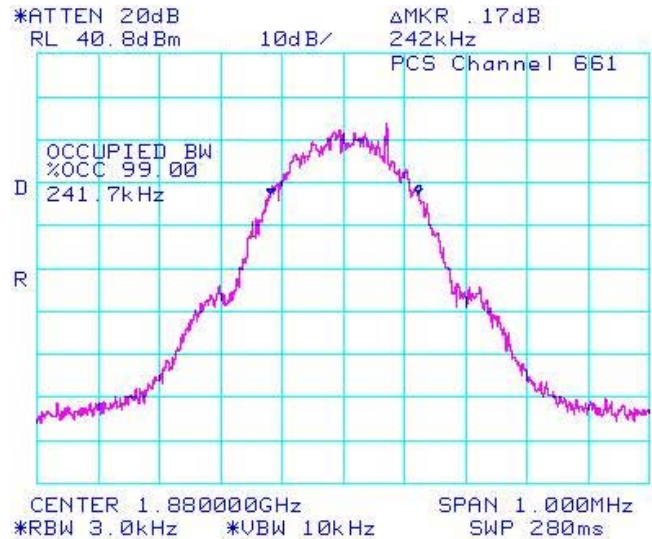
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GSM Conducted RF Emission Test Data cont'd

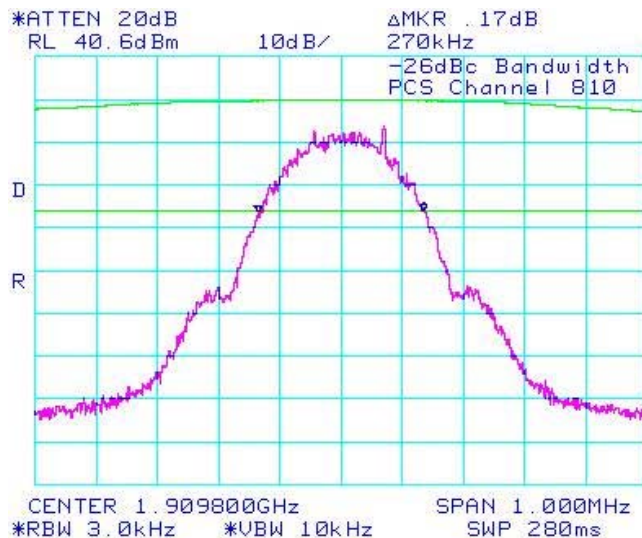
**Figure 1-21a: -26dBc bandwidth, PCS1900
Middle Channel in GSM mode**



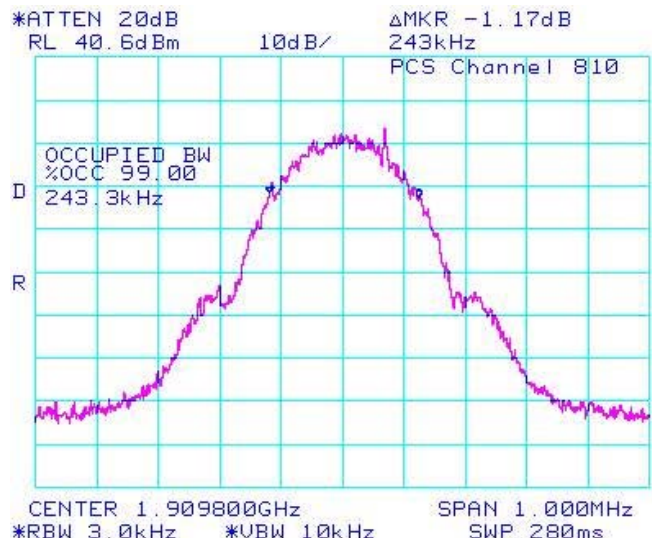
**Figure 1-22a: Occupied Bandwidth, PCS1900
Middle Channel in GSM mode**




**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

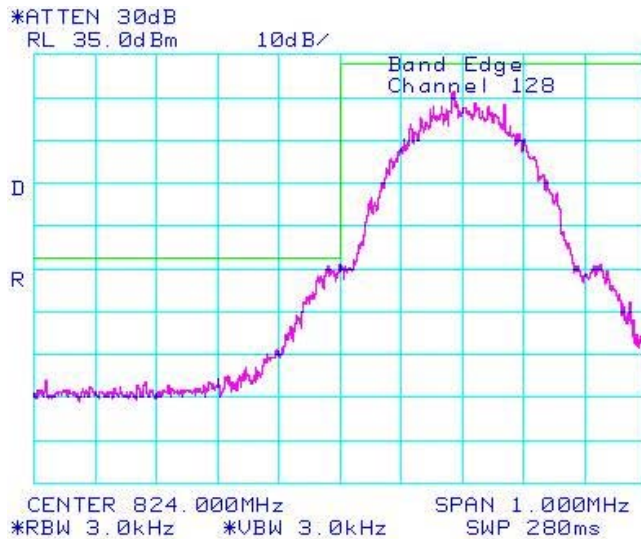


Figure 1-26a: GSM850 band High Channel Mask in GSM mode



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

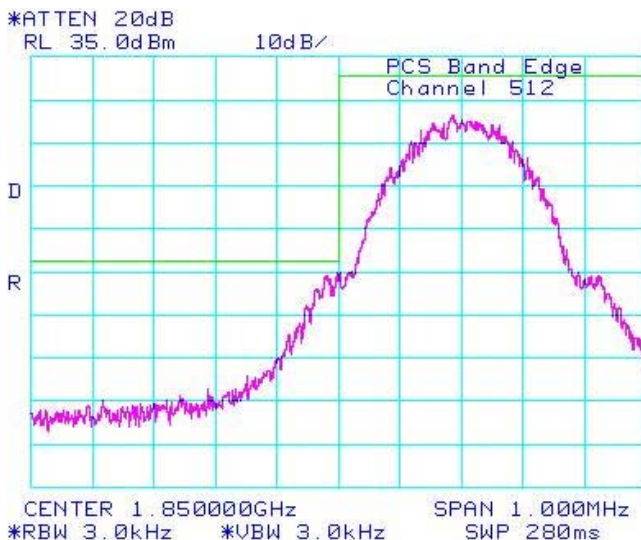
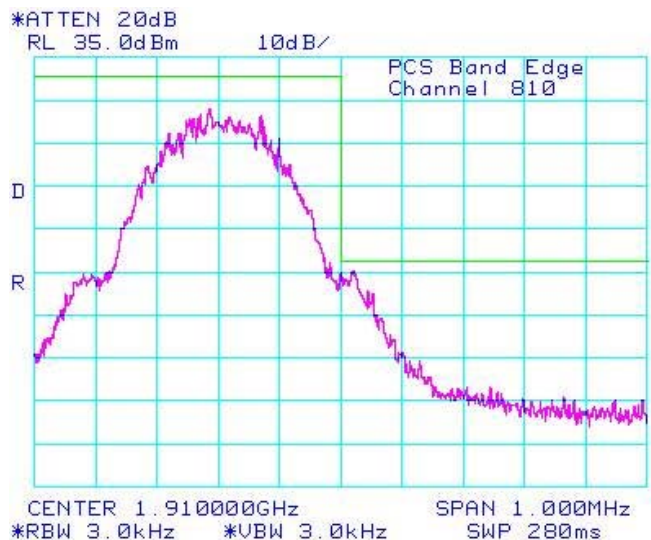



Figure 1-28a: PCS1900, High Channel Mask in GSM mode



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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

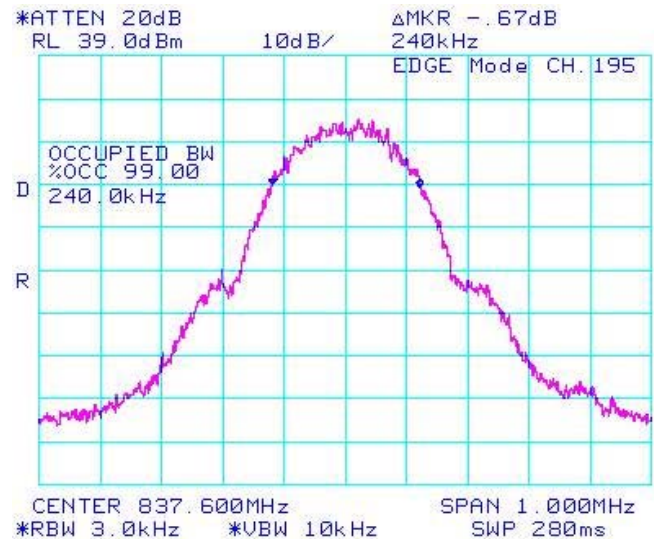


Figure 1-31a: Occupied Bandwidth, GSM850 band, High Channel in EDGE mode

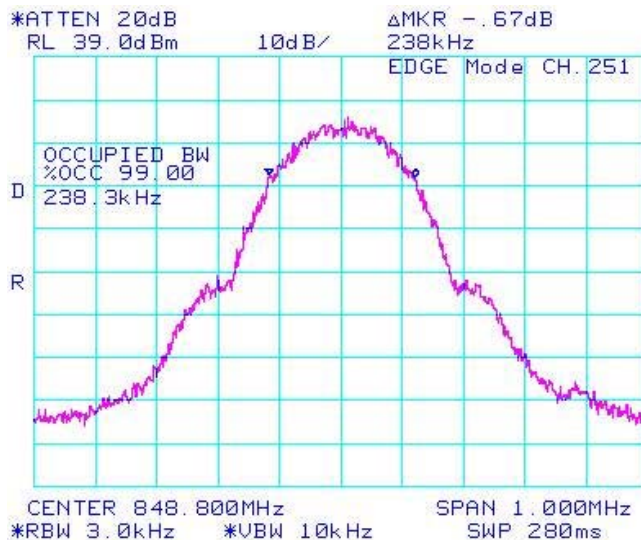
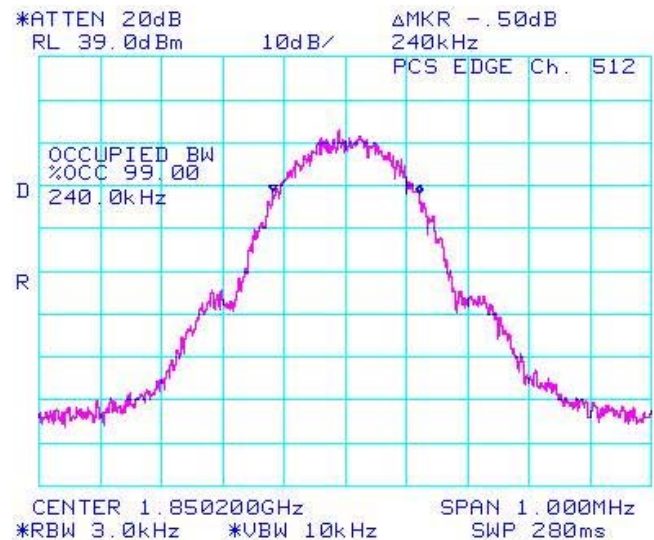



Figure 1-32a: Occupied Bandwidth, PCS1900 Band, Low Channel in EDGE mode



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GSM Conducted RF Emission Test Data cont'd

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

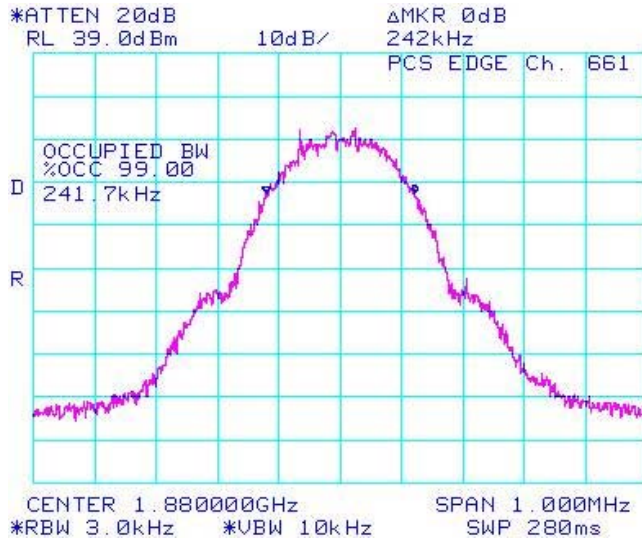


Figure 1-34a: Occupied Bandwidth, PCS1900 Band, High Channel in EDGE mode

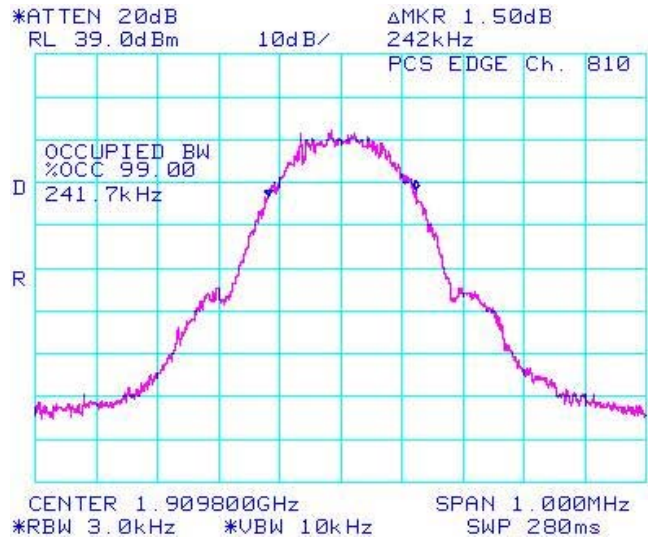


Figure 1-35a: GSM850 Band, Low Channel Mask in EDGE mode

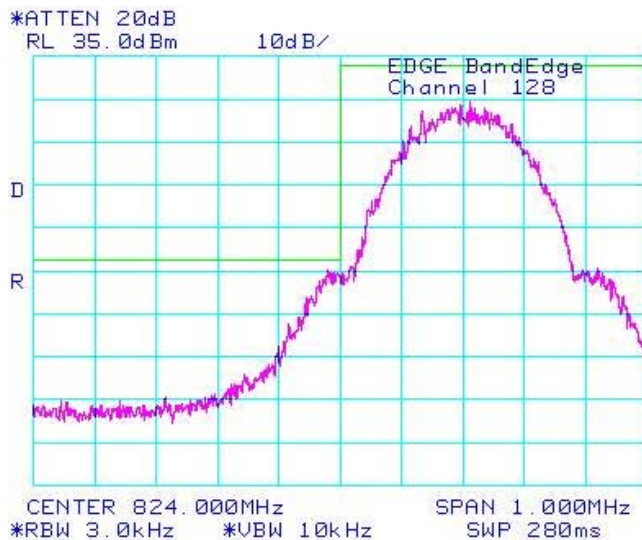
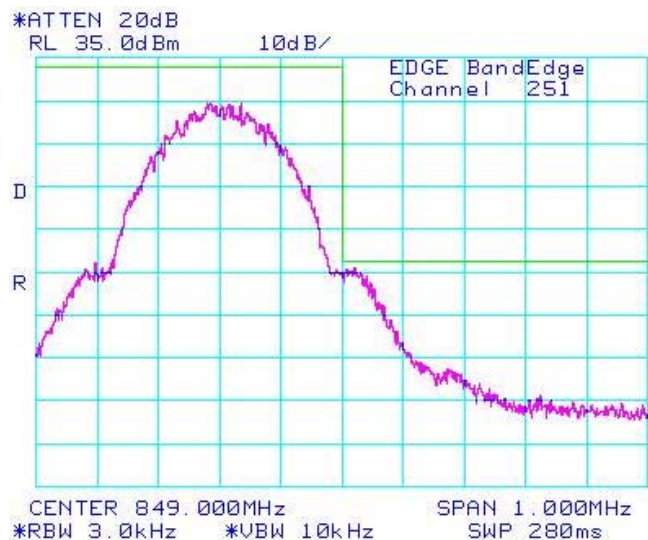



Figure 1-36a: GSM850 Band, High Channel Mask in EDGE mode



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GSM Conducted RF Emission Test Data cont'd

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

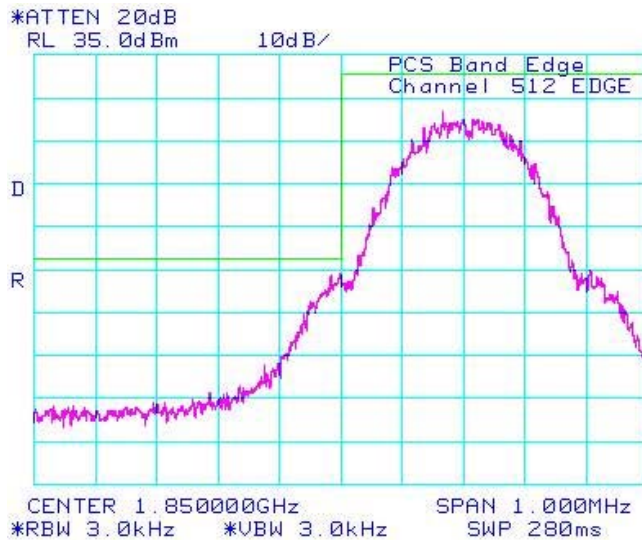
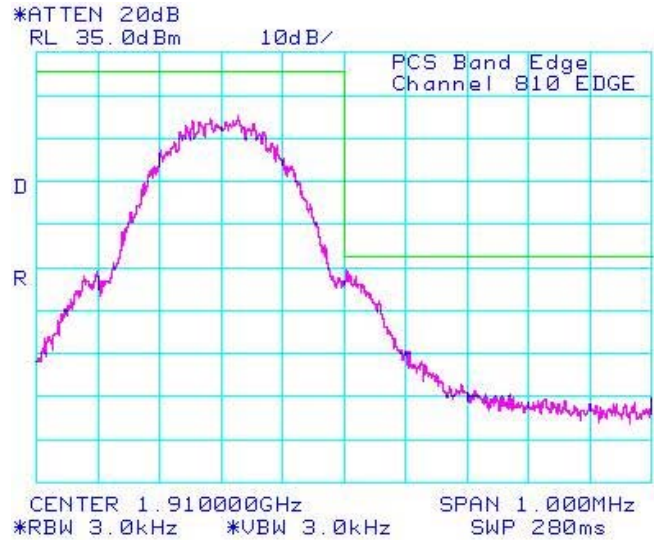



Figure 1-38a: PCS1900 Band, High Channel Mask in EDGE mode



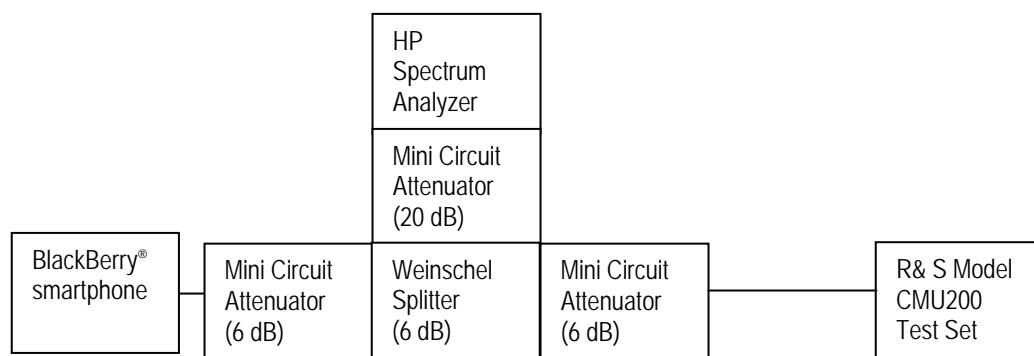
APPENDIX 1B – WCDMA CONDUCTED RF EMISSIONS TEST DATA/PLOTS

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WCDMA Conducted RF Emission Test Data

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

Test Setup Diagram




Date of Test: February 10, 2010

The environmental test conditions were:

| | |
|--------------------|--------|
| Temperature: | 24 °C |
| Pressure: | 999 mb |
| Relative Humidity: | 21 % |

The following measurements were performed by Maurice Battler.

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WCDMA 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. The EUT emissions were in the noise floor.
See figures 1-1 to 1-12 for the plots of the conducted spurious emissions on Band 5
See figures 2-1 to 2-12 for the plots of the conducted spurious emissions on Band 2

–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 UMTS850 band was measured to be 4.667 MHz, and for the UMTS1900 band was measured to be 4.667 MHz 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 2 MHz was employed.

Test Data for band 5 and 2 in UMTS mode.

| Band 5 Frequency (MHz) | -26dBc Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------------------------------------|-----------------------------------|---|
| 826.4 | 4.667 | 4.192 |
| 836.4 | 4.658 | 4.175 |
| 846.6 | 4.667 | 4.175 |

| Band 2 Frequency (MHz) | -26dBc Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---------------------------------------|-----------------------------------|---|
| 1852.4 | 4.667 | 4.183 |
| 1880.0 | 4.650 | 4.167 |
| 1907.6 | 4.667 | 4.175 |


Measurement Plots for band 5 and band 2 in UMTS mode

Refer to the following measurement plots for more detail.

See Figures 1-7 to 1-12 (Band 5) & 2-1 to 2-12 (Band 2) for the plots of the –26dBc Bandwidth and 99% Occupied Bandwidth.

See Figures 1-13 to 1-14 & 2-13 to 2-14 for plots of the channel mask results.

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

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WCDMA Conducted RF Emission Test Data cont'd

Figure 1-1: UMTS band 5, Spurious Conducted Emissions, Low channel

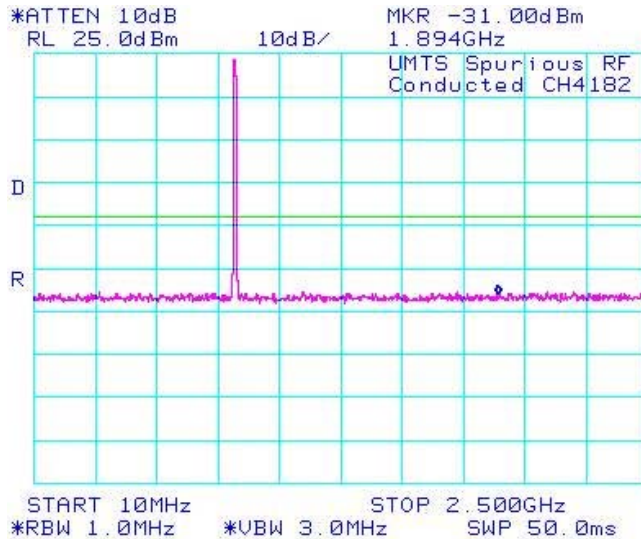


Figure 1-2: UMTS band 5, Spurious Conducted Emissions, Low channel

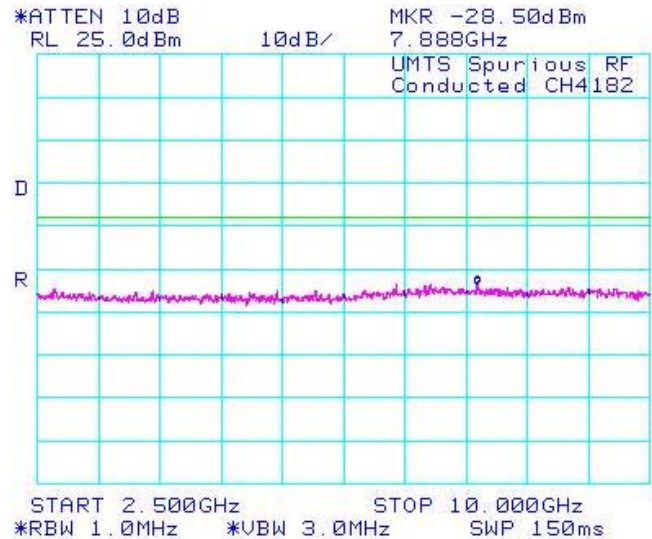


Figure 1-3: UMTS band 5, Spurious Conducted Emissions, Middle Channel

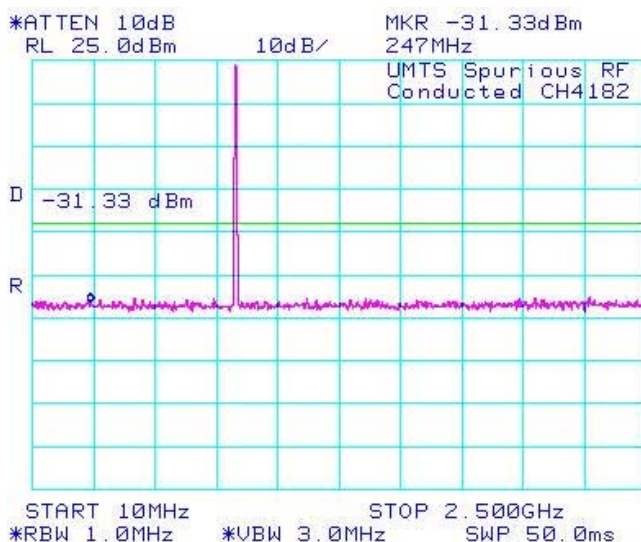
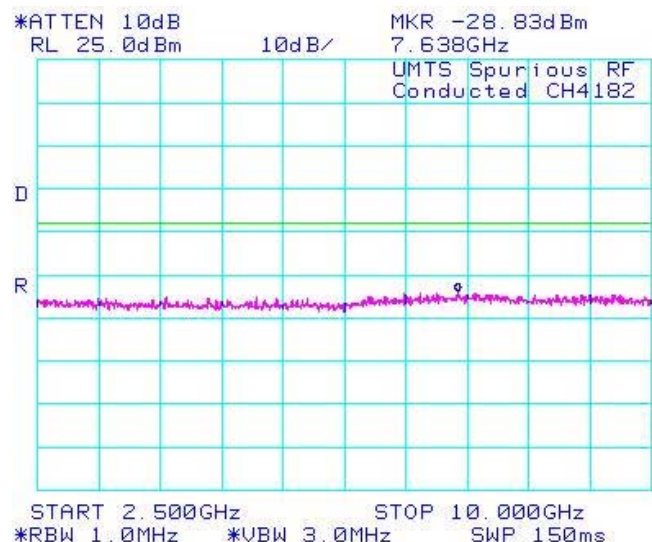



Figure 1-4: UMTS band 5, Spurious Conducted Emissions, Middle Channel



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WCDMA Conducted RF Emission Test Data cont'd

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

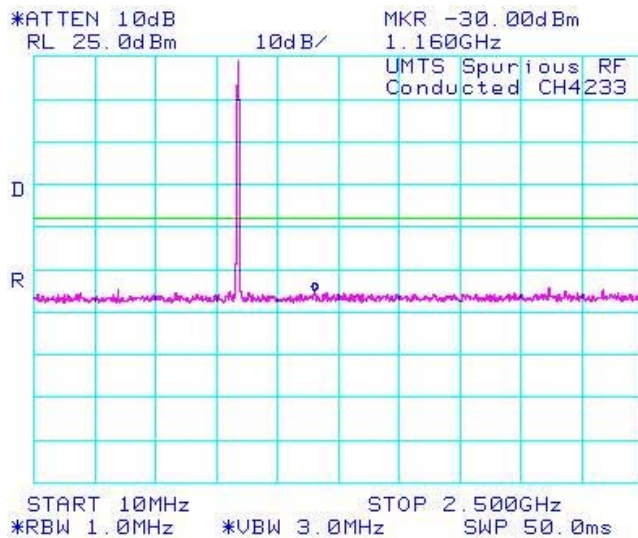


Figure 1-6: UMTS band 5, Spurious Conducted Emissions, High Channel

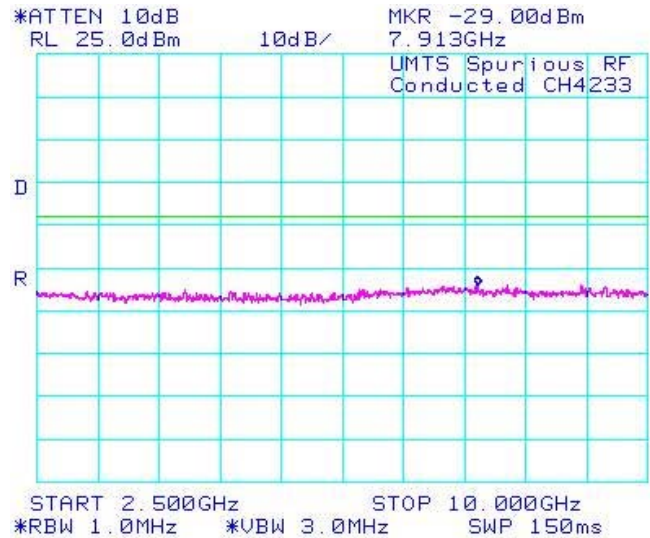


Figure 1-7: -26dBc bandwidth, UMTS band 5 Low Channel

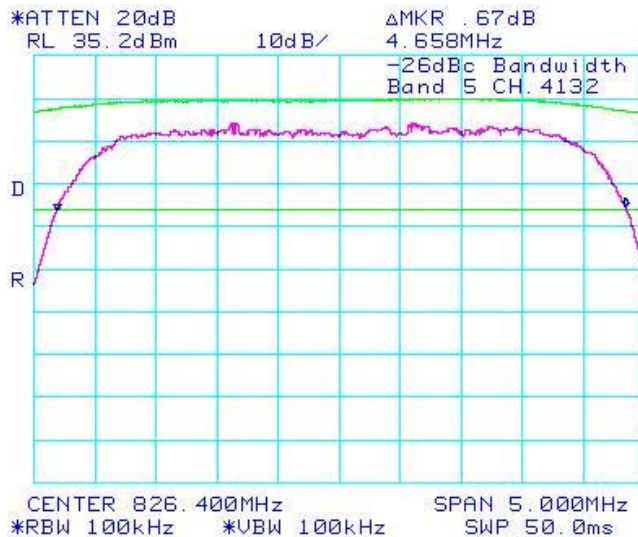
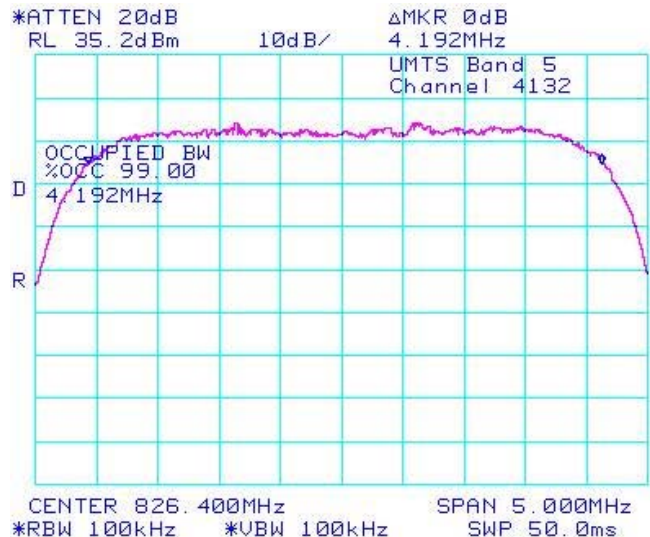



Figure 1-8: Occupied Bandwidth, UMTS band 5 Low Channel



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WCDMA Conducted RF Emission Test Data cont'd

Figure 1-9: -26dBc bandwidth, UMTS band 5 Middle Channel

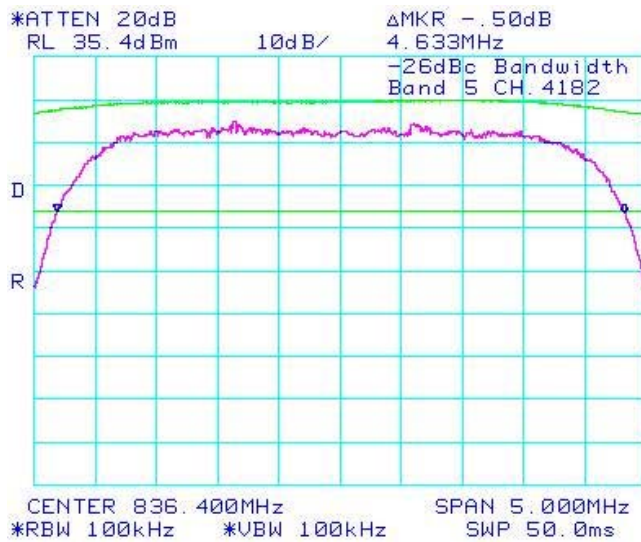


Figure 1-10: Occupied Bandwidth, UMTS band 5 Middle Channel

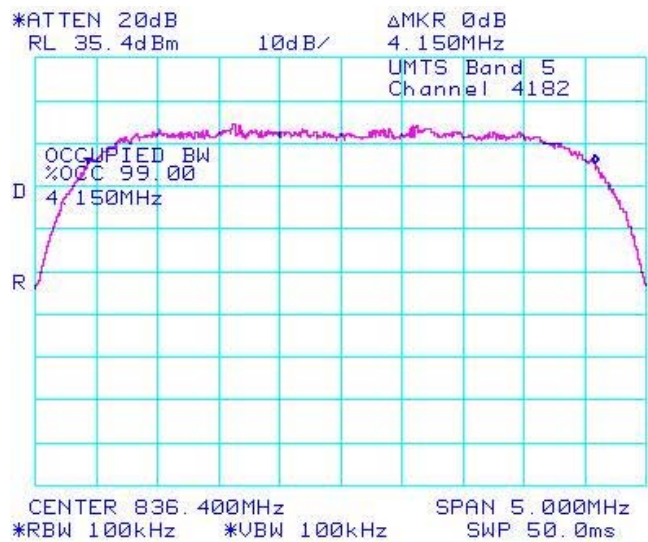


Figure 1-11: -26dBc bandwidth, UMTS band 5 High Channel

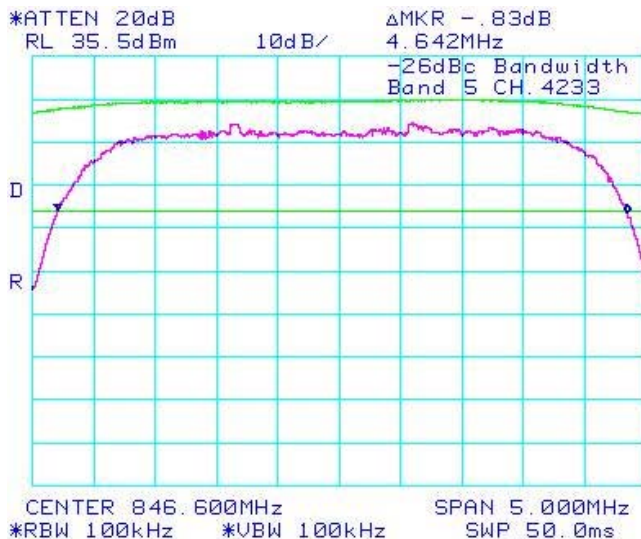
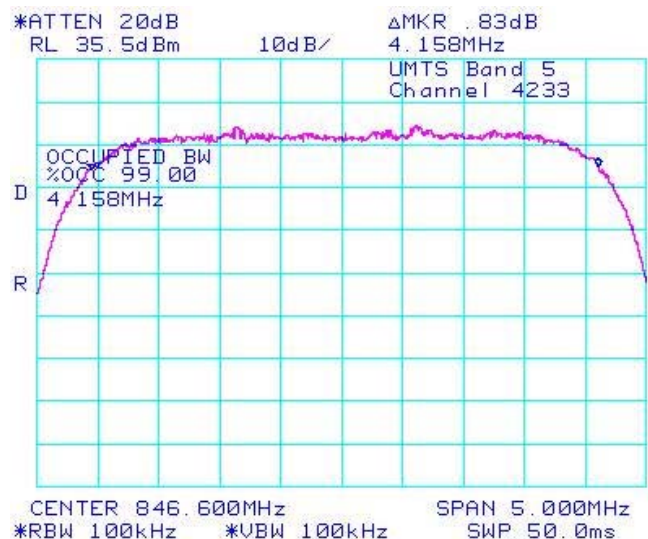



Figure 1-12: Occupied Bandwidth, UMTS band 5 High Channel



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WCDMA Conducted RF Emission Test Data cont'd

Figure 1-13: UMTS band 5, Low Channel Mask

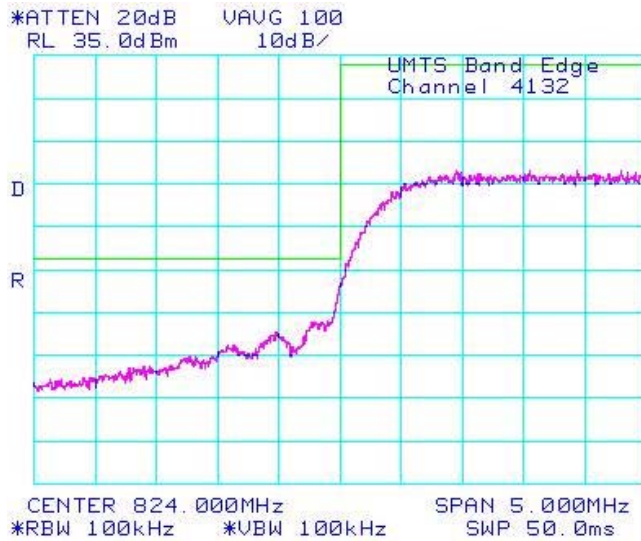
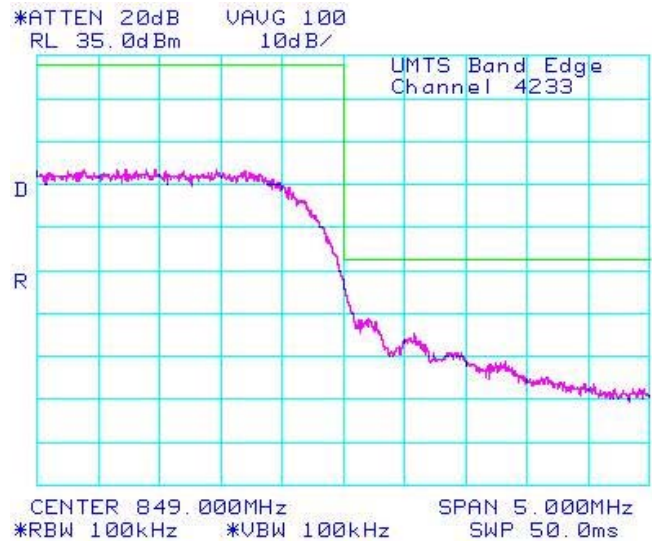



Figure 1-14: UMTS band 5, High Channel Mask



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WCDMA Conducted RF Emission Test Data cont'd

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

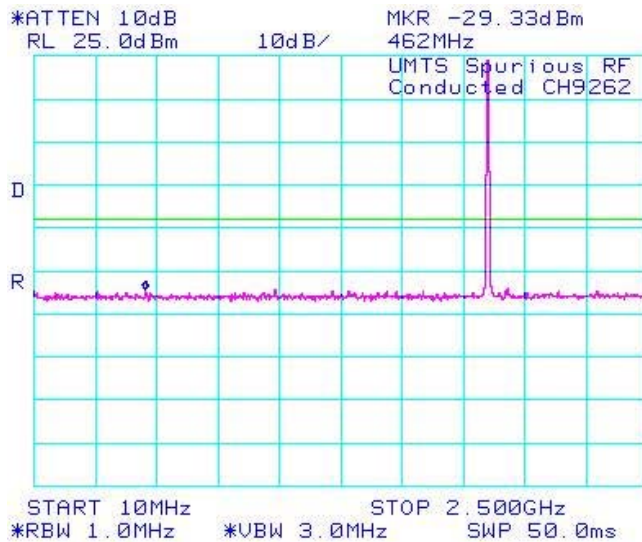


Figure 2-2: UMTS band 2, Spurious Conducted Emissions, Low channel

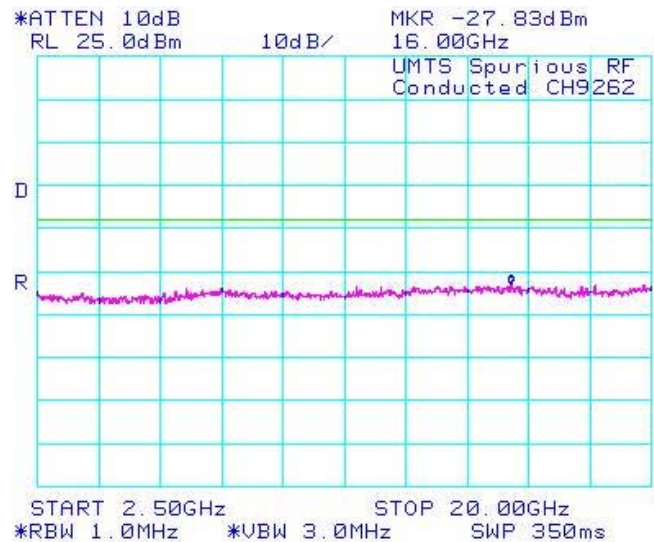


Figure 2-3: UMTS band 2, Spurious Conducted Emissions, Middle Channel

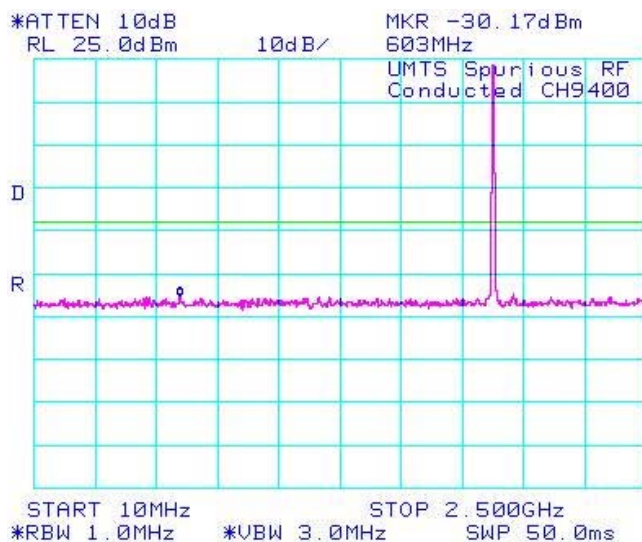
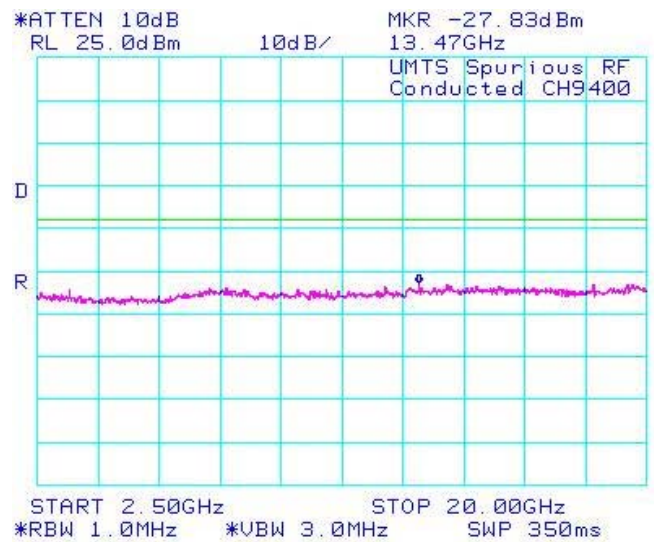



Figure 2-4: UMTS band 2, Spurious Conducted Emissions, Middle Channel



| | | |
|---|--|-----------------------------------|
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WCDMA Conducted RF Emission Test Data cont'd

Figure 2-5: UMTS band 2, Spurious Conducted Emissions, High Channel

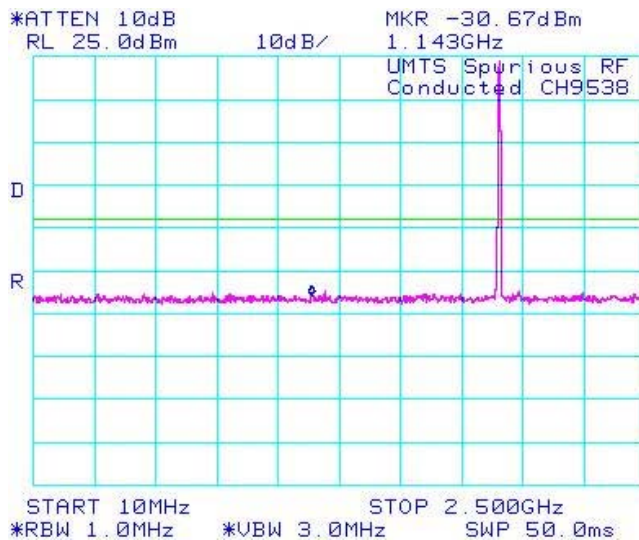


Figure 2-6: UMTS band 2, Spurious Conducted Emissions, High Channel

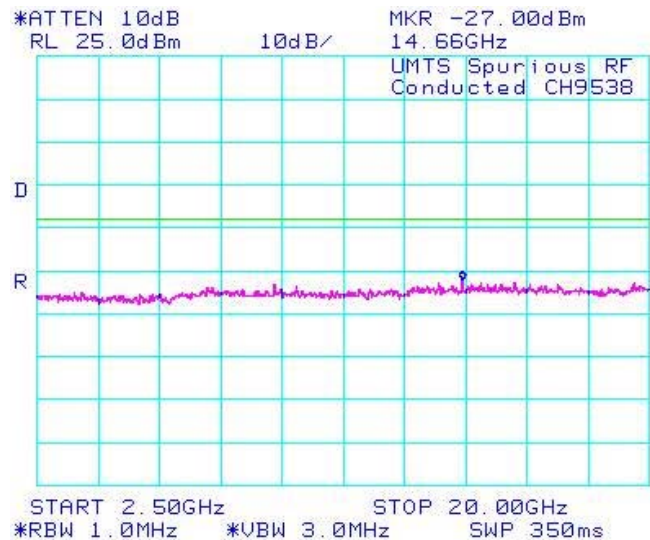


Figure 2-7: -26dBc bandwidth, UMTS band 2 Low Channel

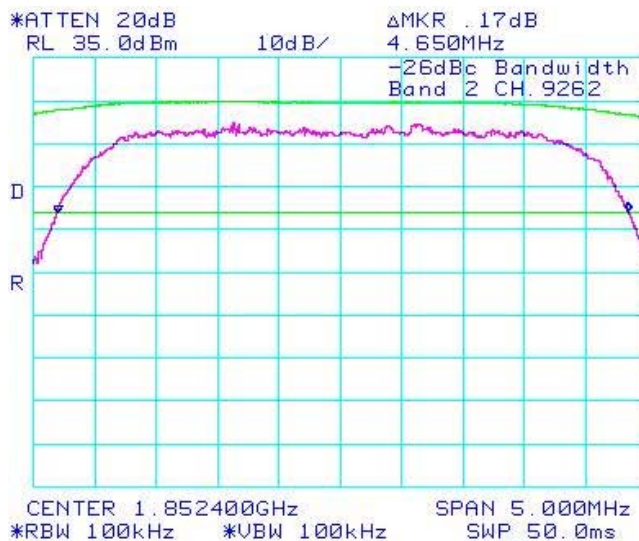
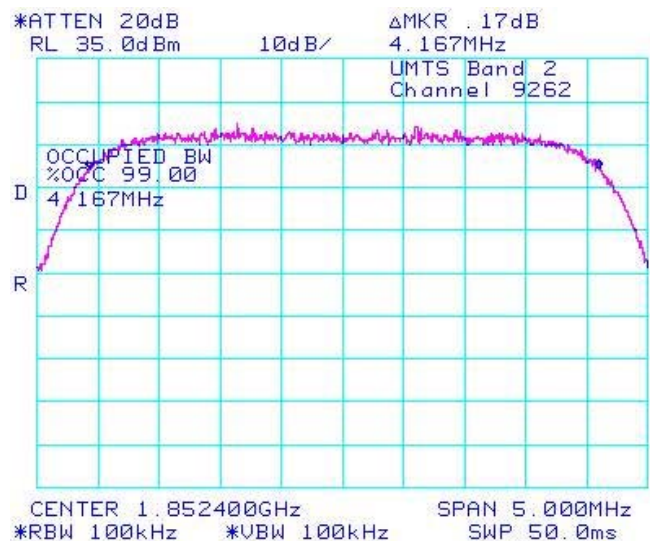



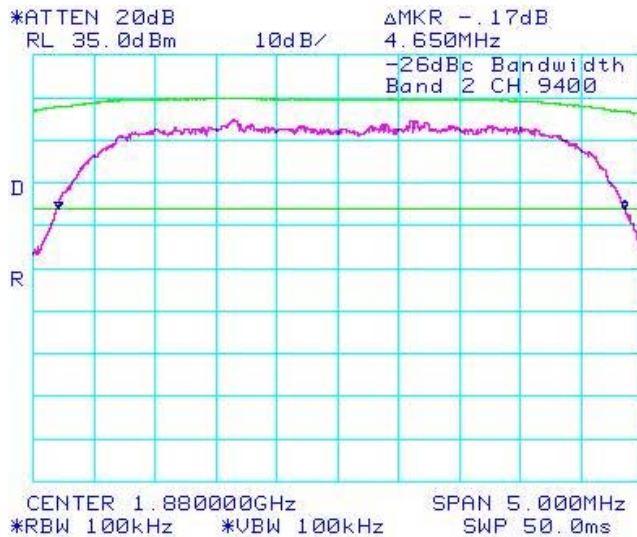
Figure 2-8: Occupied Bandwidth, UMTS band 2 Low Channel



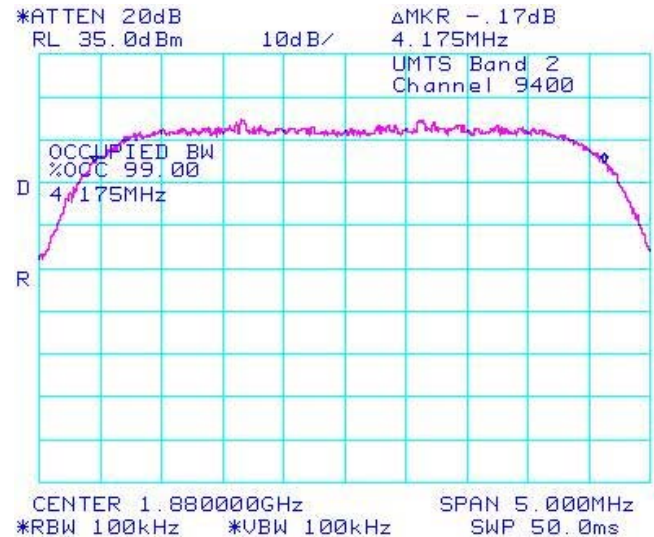
| | | |
|---|--|-----------------------------------|
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WCDMA Conducted RF Emission Test Data cont'd

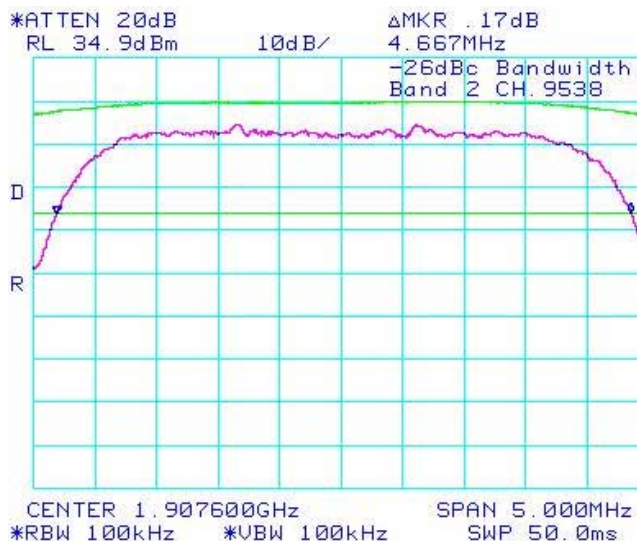
**Figure 2-9b: -26dBc bandwidth, UMTS band 2
Middle Channel**



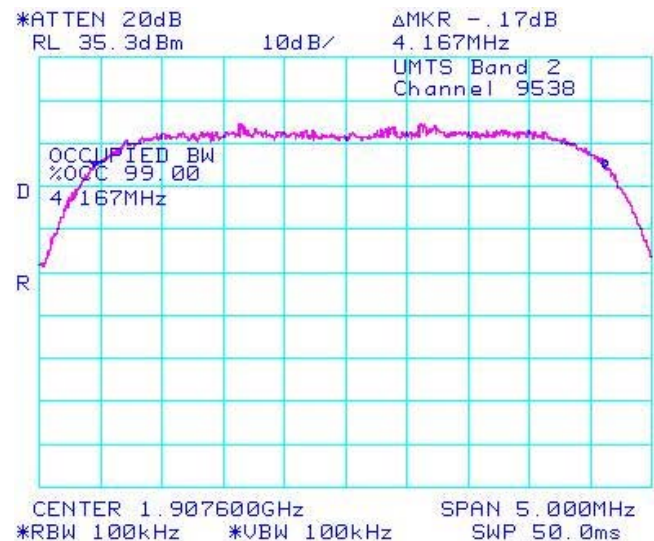
**Figure 2-10: Occupied Bandwidth, UMTS band 2
Middle Channel**




**Figure 2-11: -26dBc bandwidth, UMTS band 2 High
Channel**



**Figure 2-12: Occupied Bandwidth, UMTS band 2
High Channel**



| | | |
|---|--|-----------------------------------|
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WCDMA Conducted RF Emission Test Data cont'd

Figure 2-13: UMTS band 2, Low Channel Mask

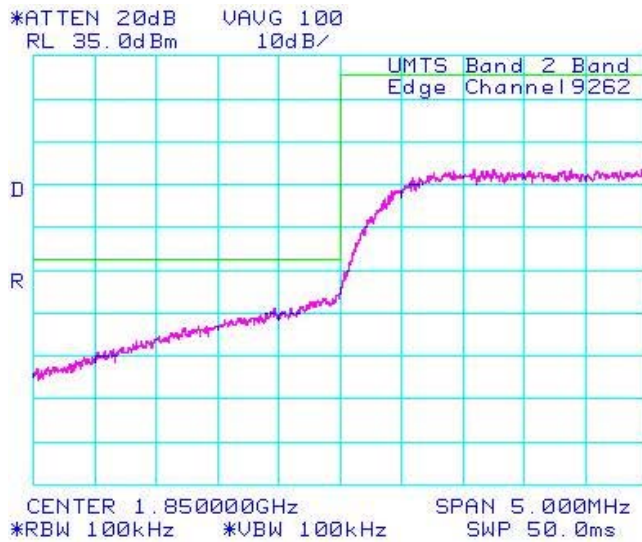
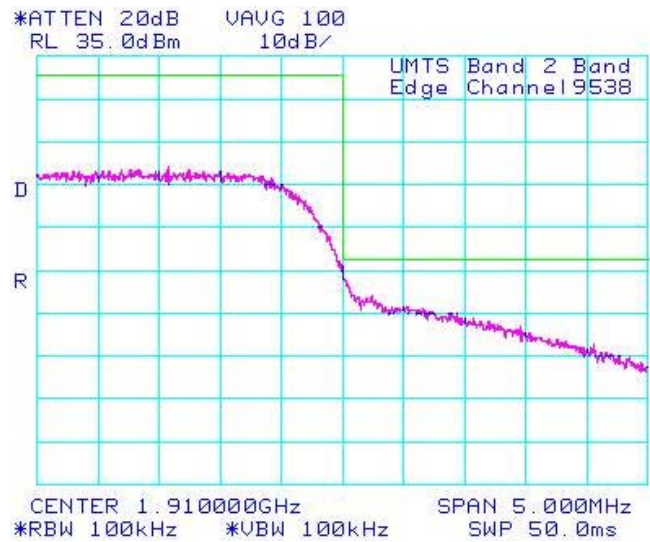




Figure 2-14: UMTS band 2, High Channel Mask



| | | |
|---|--|-----------------------------------|
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APPENDIX 2A – GSM CONDUCTED RF OUTPUT POWER TEST DATA

| | | | |
|---|---|--|----------------------------|
|  | | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 1B | |
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GSM Conducted RF Output Power Test Data

The following measurements were performed by Daoud Attayi.

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 \pm 0.5 dB for GSM850 and 29.5 dBm \pm 0.5 dB for PCS.

Peak nominal output power is 31.0 dBm \pm 0.5 dB for GSM850 EDGE Mode (2-timeslot uplink) and 28.5 dBm \pm 0.5 dB for PCS EDGE Mode (2-timeslot uplink).


Date of Test: March 18 and May 19, 2010

The environmental test conditions were:

| | |
|--------------------|----------------|
| Temperature: | 22.5 – 23.5 °C |
| Pressure: | 1002 – 1013 mb |
| Relative Humidity: | 23 – 24 % |

| 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/GPRS/GSM (2-timeslot)</u> | | | |
| 128 | 824.2 | 32.4 | 1.74 | 128 | 824.2 | 30.9 | 1.23 |
| 189 | 837.6 | 32.5 | 1.78 | 189 | 837.6 | 31.0 | 1.26 |
| 251 | 848.8 | 32.6 | 1.82 | 251 | 848.8 | 31.1 | 1.29 |
| <u>PCS</u> | | | | <u>PCS EDGE/GPRS/GSM (2-timeslot)</u> | | | |
| 512 | 1850.2 | 29.0 | 0.79 | 512 | 1850.2 | 28.2 | 0.66 |
| 661 | 1880.0 | 29.8 | 0.95 | 661 | 1880.0 | 28.3 | 0.68 |
| 810 | 1909.8 | 30.0 | 1.00 | 810 | 1909.8 | 28.3 | 0.68 |

APPENDIX 2B – WCDMA CONDUCTED RF OUTPUT POWER TEST DATA

| | | |
|---|--|-----------------------------------|
|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 2B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

WCDMA Conducted RF Output Power Test Data

The following measurements were performed by Daoud Attayi.

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 23.6 dBm \pm 0.5 dB for UMTS850 and 23.0 dBm \pm 0.5 dB for UMTS1900.

Date of Test: March 18, 2010

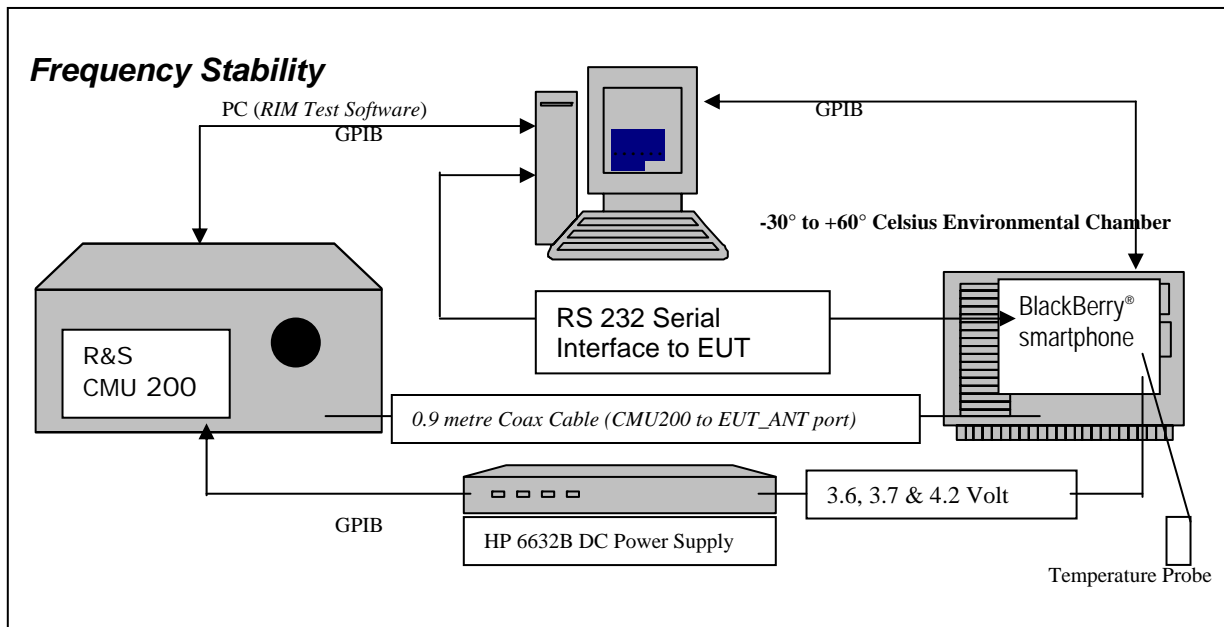
The environmental tests conditions were: Temperature: 22 °C
Pressure: 1002 mb
Relative Humidity: 23 %

| | Band | UMTS850 | | | UMTS1900 | | |
|------------|-------------------------------------|--------------------------------|-------|-------|--------------------------------|--------|--------|
| | Channel | 4132 | 4182 | 4233 | 9262 | 9400 | 9538 |
| | Freq (MHz) | 826.4 | 836.4 | 846.6 | 1852.4 | 1880.0 | 1907.6 |
| Mode | Subtest | Conducted Transmit Power (dBm) | | | Conducted Transmit Power (dBm) | | |
| Rel99 | 12.2 kbps RMC | 23.77 | 24.01 | 24.02 | 23.16 | 23.25 | 23.49 |
| Rel99 | 12.2 kbps, voice, AMR, SRB 3.4 kbps | 23.74 | 24.00 | 24.02 | 23.18 | 23.23 | 23.44 |
| Rel5 HSDPA | 1 | 23.40 | 23.70 | 23.71 | 22.73 | 23.05 | 23.10 |
| Rel5 HSDPA | 2 | 23.33 | 23.60 | 23.70 | 22.70 | 23.03 | 23.24 |
| Rel5 HSDPA | 3 | 23.31 | 23.65 | 23.66 | 22.70 | 23.05 | 22.73 |
| Rel5 HSDPA | 4 | 23.31 | 23.58 | 23.67 | 22.77 | 23.02 | 23.20 |

APPENDIX 3A – GSM FREQUENCY STABILITY TEST DATA

| | | |
|---|--|-----------------------------------|
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GSM Frequency Stability Test Data



The following measurements were performed by Maurice Battler.

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

24.235 *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 and RSS-132, 4.3 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.

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

| | | |
|---|--|-----------------------------------|
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| PCS1900 Frequency (MHz) | Cable loss (dB) |
|-------------------------------|--------------------|
| 1850.2 | 1.20 |
| 1880.0 | 1.20 |
| 1909.8 | 1.20 |

| GSM850 Frequency (MHz) | Cable loss (dB) |
|------------------------------|--------------------|
| 824.2 | 0.90 |
| 836.4 | 0.90 |
| 848.6 | 0.90 |

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 following 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 848.6 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.

| | | |
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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 **-0.0588 PPM**.

The maximum frequency error in the PCS1900 band measured was **-0.0365 PPM**.

| | | |
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GSM850 Channel results: channels 128, 189 and 250 @ 20°C maximum transmitted power

The BlackBerry® smartphone was tested on February 10, 2010.

| Traffic Channel Number | GSM850 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|------------------------|-----------------|-----------------------|----------------------|---------|
| 128 | 824.20 | 3.6 | 20 | -37.32 | -0.0453 |
| 189 | 836.40 | 3.6 | 20 | -48.11 | -0.0575 |
| 250 | 848.60 | 3.6 | 20 | 10.14 | 0.0119 |

| Traffic Channel Number | GSM850 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|------------------------|-----------------|-----------------------|----------------------|---------|
| 128 | 824.20 | 3.7 | 20 | -6.65 | -0.0081 |
| 189 | 836.40 | 3.7 | 20 | 7.94 | 0.0095 |
| 250 | 848.60 | 3.7 | 20 | 6.59 | 0.0078 |

| Traffic Channel Number | GSM850 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|------------------------|-----------------|-----------------------|----------------------|--------|
| 128 | 824.20 | 4.2 | 20 | 25.44 | 0.0309 |
| 189 | 836.40 | 4.2 | 20 | 27.57 | 0.0330 |
| 250 | 848.60 | 4.2 | 20 | 26.67 | 0.0314 |


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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 | 32.03 | 0.0389 |
| 128 | 824.20 | 3.6 | -20 | -28.09 | -0.0341 |
| 128 | 824.20 | 3.6 | -10 | 26.73 | 0.0324 |
| 128 | 824.20 | 3.6 | 0 | 30.80 | 0.0374 |
| 128 | 824.20 | 3.6 | 10 | 17.24 | 0.0209 |
| 128 | 824.20 | 3.6 | 20 | -37.32 | -0.0453 |
| 128 | 824.20 | 3.6 | 30 | -31.96 | -0.0388 |
| 128 | 824.20 | 3.6 | 40 | -39.58 | -0.0480 |
| 128 | 824.20 | 3.6 | 50 | 7.68 | 0.0093 |
| 128 | 824.20 | 3.6 | 60 | -8.20 | -0.0099 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 128 | 824.20 | 3.7 | -30 | 5.62 | 0.0068 |
| 128 | 824.20 | 3.7 | -20 | 14.59 | 0.0177 |
| 128 | 824.20 | 3.7 | -10 | 17.76 | 0.0215 |
| 128 | 824.20 | 3.7 | 0 | -10.65 | -0.0129 |
| 128 | 824.20 | 3.7 | 10 | -22.21 | -0.0269 |
| 128 | 824.20 | 3.7 | 20 | -6.65 | -0.0081 |
| 128 | 824.20 | 3.7 | 30 | -40.36 | -0.0490 |
| 128 | 824.20 | 3.7 | 40 | -6.01 | -0.0073 |
| 128 | 824.20 | 3.7 | 50 | -9.43 | -0.0114 |
| 128 | 824.20 | 3.7 | 60 | -33.45 | -0.0406 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 128 | 824.20 | 4.2 | -30 | -26.15 | -0.0317 |
| 128 | 824.20 | 4.2 | -20 | 33.32 | 0.0404 |
| 128 | 824.20 | 4.2 | -10 | -8.52 | -0.0103 |
| 128 | 824.20 | 4.2 | 0 | 37.06 | 0.0450 |
| 128 | 824.20 | 4.2 | 10 | 21.57 | 0.0262 |
| 128 | 824.20 | 4.2 | 20 | 25.44 | 0.0309 |
| 128 | 824.20 | 4.2 | 30 | -39.71 | -0.0482 |
| 128 | 824.20 | 4.2 | 40 | 13.50 | 0.0164 |
| 128 | 824.20 | 4.2 | 50 | -14.79 | -0.0179 |
| 128 | 824.20 | 4.2 | 60 | -22.79 | -0.0277 |


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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 | -11.56 | -0.0138 |
| 189 | 836.40 | 3.6 | -20 | -39.58 | -0.0473 |
| 189 | 836.40 | 3.6 | -10 | 21.89 | 0.0262 |
| 189 | 836.40 | 3.6 | 0 | 15.88 | 0.0190 |
| 189 | 836.40 | 3.6 | 10 | -11.36 | -0.0136 |
| 189 | 836.40 | 3.6 | 20 | -48.11 | -0.0575 |
| 189 | 836.40 | 3.6 | 30 | -36.87 | -0.0441 |
| 189 | 836.40 | 3.6 | 40 | -47.01 | -0.0562 |
| 189 | 836.40 | 3.6 | 50 | 10.07 | 0.0120 |
| 189 | 836.40 | 3.6 | 60 | -18.92 | -0.0226 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 189 | 836.40 | 3.7 | -30 | 15.43 | 0.0184 |
| 189 | 836.40 | 3.7 | -20 | 22.15 | 0.0265 |
| 189 | 836.40 | 3.7 | -10 | 22.92 | 0.0274 |
| 189 | 836.40 | 3.7 | 0 | 8.39 | 0.0100 |
| 189 | 836.40 | 3.7 | 10 | -18.92 | -0.0226 |
| 189 | 836.40 | 3.7 | 20 | 7.94 | 0.0095 |
| 189 | 836.40 | 3.7 | 30 | -39.32 | -0.0470 |
| 189 | 836.40 | 3.7 | 40 | 10.98 | 0.0131 |
| 189 | 836.40 | 3.7 | 50 | 9.17 | 0.0110 |
| 189 | 836.40 | 3.7 | 60 | -23.18 | -0.0277 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 189 | 836.40 | 4.2 | -30 | -22.41 | -0.0268 |
| 189 | 836.40 | 4.2 | -20 | 43.78 | 0.0523 |
| 189 | 836.40 | 4.2 | -10 | 10.07 | 0.0120 |
| 189 | 836.40 | 4.2 | 0 | 6.52 | 0.0078 |
| 189 | 836.40 | 4.2 | 10 | 24.73 | 0.0296 |
| 189 | 836.40 | 4.2 | 20 | 27.57 | 0.0330 |
| 189 | 836.40 | 4.2 | 30 | -37.19 | -0.0445 |
| 189 | 836.40 | 4.2 | 40 | 20.02 | 0.0239 |
| 189 | 836.40 | 4.2 | 50 | -10.20 | -0.0122 |
| 189 | 836.40 | 4.2 | 60 | -13.11 | -0.0157 |


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GSM850 Results: channel 250 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|----------------|
| 250 | 848.60 | 3.6 | -30 | 14.59 | 0.0172 |
| 250 | 848.60 | 3.6 | -20 | -46.23 | -0.0545 |
| 250 | 848.60 | 3.6 | -10 | 19.50 | 0.0230 |
| 250 | 848.60 | 3.6 | 0 | -7.04 | -0.0083 |
| 250 | 848.60 | 3.6 | 10 | -19.76 | -0.0233 |
| 250 | 848.60 | 3.6 | 20 | 10.14 | 0.0119 |
| 250 | 848.60 | 3.6 | 30 | -42.04 | -0.0495 |
| 250 | 848.60 | 3.6 | 40 | -49.91 | -0.0588 |
| 250 | 848.60 | 3.6 | 50 | 9.36 | 0.0110 |
| 250 | 848.60 | 3.6 | 60 | -25.57 | -0.0301 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 250 | 848.60 | 3.7 | -30 | 24.73 | 0.0291 |
| 250 | 848.60 | 3.7 | -20 | 18.02 | 0.0212 |
| 250 | 848.60 | 3.7 | -10 | 23.57 | 0.0278 |
| 250 | 848.60 | 3.7 | 0 | -8.91 | -0.0105 |
| 250 | 848.60 | 3.7 | 10 | -20.99 | -0.0247 |
| 250 | 848.60 | 3.7 | 20 | 6.59 | 0.0078 |
| 250 | 848.60 | 3.7 | 30 | -37.26 | -0.0439 |
| 250 | 848.60 | 3.7 | 40 | 11.88 | 0.0140 |
| 250 | 848.60 | 3.7 | 50 | 8.72 | 0.0103 |
| 250 | 848.60 | 3.7 | 60 | -24.60 | -0.0290 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 250 | 848.60 | 4.2 | -30 | -25.76 | -0.0304 |
| 250 | 848.60 | 4.2 | -20 | 44.94 | 0.0530 |
| 250 | 848.60 | 4.2 | -10 | 10.14 | 0.0119 |
| 250 | 848.60 | 4.2 | 0 | -7.49 | -0.0088 |
| 250 | 848.60 | 4.2 | 10 | 27.18 | 0.0320 |
| 250 | 848.60 | 4.2 | 20 | 26.67 | 0.0314 |
| 250 | 848.60 | 4.2 | 30 | -41.26 | -0.0486 |
| 250 | 848.60 | 4.2 | 40 | 20.34 | 0.0240 |
| 250 | 848.60 | 4.2 | 50 | -11.43 | -0.0135 |
| 250 | 848.60 | 4.2 | 60 | -13.56 | -0.0160 |

| | | |
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|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3A | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

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

Date of Test: February 11, 2010

| Traffic Channel Number | PCS Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|---------------------|-----------------|-----------------------|----------------------|---------|
| 512 | 1850.2 | 3.6 | 20 | 23.12 | 0.0125 |
| 661 | 1880.0 | 3.6 | 20 | -37.32 | -0.0199 |
| 810 | 1909.8 | 3.6 | 20 | -34.48 | -0.0181 |

| Traffic Channel Number | PCS Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|---------------------|-----------------|-----------------------|----------------------|---------|
| 512 | 1850.2 | 3.7 | 20 | -26.54 | -0.0143 |
| 661 | 1880.0 | 3.7 | 20 | -36.10 | -0.0192 |
| 810 | 1909.8 | 3.7 | 20 | -36.74 | -0.0192 |

| Traffic Channel Number | PCS Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|---------------------|-----------------|-----------------------|----------------------|--------|
| 512 | 1850.2 | 4.2 | 20 | 31.51 | 0.0170 |
| 661 | 1880.0 | 4.2 | 20 | 22.86 | 0.0122 |
| 810 | 1909.8 | 4.2 | 20 | 32.93 | 0.0172 |

PCS1900 Results: channel 512 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 512 | 1850.2 | 3.6 | -30 | -32.03 | -0.0173 |
| 512 | 1850.2 | 3.6 | -20 | -20.15 | -0.0109 |
| 512 | 1850.2 | 3.6 | -10 | -45.91 | -0.0248 |
| 512 | 1850.2 | 3.6 | 0 | -25.05 | -0.0135 |
| 512 | 1850.2 | 3.6 | 10 | -58.70 | -0.0317 |
| 512 | 1850.2 | 3.6 | 20 | 23.12 | 0.0125 |
| 512 | 1850.2 | 3.6 | 30 | -33.90 | -0.0183 |
| 512 | 1850.2 | 3.6 | 40 | 19.05 | 0.0103 |
| 512 | 1850.2 | 3.6 | 50 | -40.74 | -0.0220 |
| 512 | 1850.2 | 3.6 | 60 | -37.13 | -0.0201 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 512 | 1850.2 | 3.7 | -30 | 33.96 | 0.0184 |
| 512 | 1850.2 | 3.7 | -20 | 18.08 | 0.0098 |
| 512 | 1850.2 | 3.7 | -10 | -23.44 | -0.0127 |
| 512 | 1850.2 | 3.7 | 0 | -25.18 | -0.0136 |
| 512 | 1850.2 | 3.7 | 10 | -48.49 | -0.0262 |
| 512 | 1850.2 | 3.7 | 20 | -26.54 | -0.0143 |
| 512 | 1850.2 | 3.7 | 30 | -45.72 | -0.0247 |
| 512 | 1850.2 | 3.7 | 40 | -38.10 | -0.0206 |
| 512 | 1850.2 | 3.7 | 50 | -54.37 | -0.0294 |
| 512 | 1850.2 | 3.7 | 60 | -26.22 | -0.0142 |


| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 512 | 1850.2 | 4.2 | -30 | -28.67 | -0.0155 |
| 512 | 1850.2 | 4.2 | -20 | 45.52 | 0.0246 |
| 512 | 1850.2 | 4.2 | -10 | 19.63 | 0.0106 |
| 512 | 1850.2 | 4.2 | 0 | -29.38 | -0.0159 |
| 512 | 1850.2 | 4.2 | 10 | 32.03 | 0.0173 |
| 512 | 1850.2 | 4.2 | 20 | 31.51 | 0.0170 |
| 512 | 1850.2 | 4.2 | 30 | -43.20 | -0.0233 |
| 512 | 1850.2 | 4.2 | 40 | -27.70 | -0.0150 |
| 512 | 1850.2 | 4.2 | 50 | 28.73 | 0.0155 |
| 512 | 1850.2 | 4.2 | 60 | 11.82 | 0.0064 |

PCS1900 Results: channel 661 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 661 | 1880 | 3.6 | -30 | -51.14 | -0.0272 |
| 661 | 1880 | 3.6 | -20 | -33.96 | -0.0181 |
| 661 | 1880 | 3.6 | -10 | -42.49 | -0.0226 |
| 661 | 1880 | 3.6 | 0 | -27.83 | -0.0148 |
| 661 | 1880 | 3.6 | 10 | -40.16 | -0.0214 |
| 661 | 1880 | 3.6 | 20 | -37.32 | -0.0199 |
| 661 | 1880 | 3.6 | 30 | -47.52 | -0.0253 |
| 661 | 1880 | 3.6 | 40 | -42.68 | -0.0227 |
| 661 | 1880 | 3.6 | 50 | -64.38 | -0.0342 |
| 661 | 1880 | 3.6 | 60 | -27.77 | -0.0148 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 661 | 1880 | 3.7 | -30 | -24.54 | -0.0131 |
| 661 | 1880 | 3.7 | -20 | -47.33 | -0.0252 |
| 661 | 1880 | 3.7 | -10 | -56.05 | -0.0298 |
| 661 | 1880 | 3.7 | 0 | -55.47 | -0.0295 |
| 661 | 1880 | 3.7 | 10 | -65.35 | -0.0348 |
| 661 | 1880 | 3.7 | 20 | -36.10 | -0.0192 |
| 661 | 1880 | 3.7 | 30 | -49.53 | -0.0263 |
| 661 | 1880 | 3.7 | 40 | -51.79 | -0.0275 |
| 661 | 1880 | 3.7 | 50 | -64.38 | -0.0342 |
| 661 | 1880 | 3.7 | 60 | -44.17 | -0.0235 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 661 | 1880 | 4.2 | -30 | 15.69 | 0.0083 |
| 661 | 1880 | 4.2 | -20 | 16.34 | 0.0087 |
| 661 | 1880 | 4.2 | -10 | -26.15 | -0.0139 |
| 661 | 1880 | 4.2 | 0 | -51.46 | -0.0274 |
| 661 | 1880 | 4.2 | 10 | -15.63 | -0.0083 |
| 661 | 1880 | 4.2 | 20 | 22.86 | 0.0122 |
| 661 | 1880 | 4.2 | 30 | -52.17 | -0.0278 |
| 661 | 1880 | 4.2 | 40 | -41.71 | -0.0222 |
| 661 | 1880 | 4.2 | 50 | -13.30 | -0.0071 |
| 661 | 1880 | 4.2 | 60 | -27.83 | -0.0148 |

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PCS1900 Results: channel 810 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 810 | 1909.8 | 3.6 | -30 | -31.38 | -0.0164 |
| 810 | 1909.8 | 3.6 | -20 | -13.37 | -0.0070 |
| 810 | 1909.8 | 3.6 | -10 | -29.90 | -0.0157 |
| 810 | 1909.8 | 3.6 | 0 | -20.08 | -0.0105 |
| 810 | 1909.8 | 3.6 | 10 | -34.80 | -0.0182 |
| 810 | 1909.8 | 3.6 | 20 | -34.48 | -0.0181 |
| 810 | 1909.8 | 3.6 | 30 | -58.95 | -0.0309 |
| 810 | 1909.8 | 3.6 | 40 | -49.46 | -0.0259 |
| 810 | 1909.8 | 3.6 | 50 | -64.12 | -0.0336 |
| 810 | 1909.8 | 3.6 | 60 | -41.26 | -0.0216 |

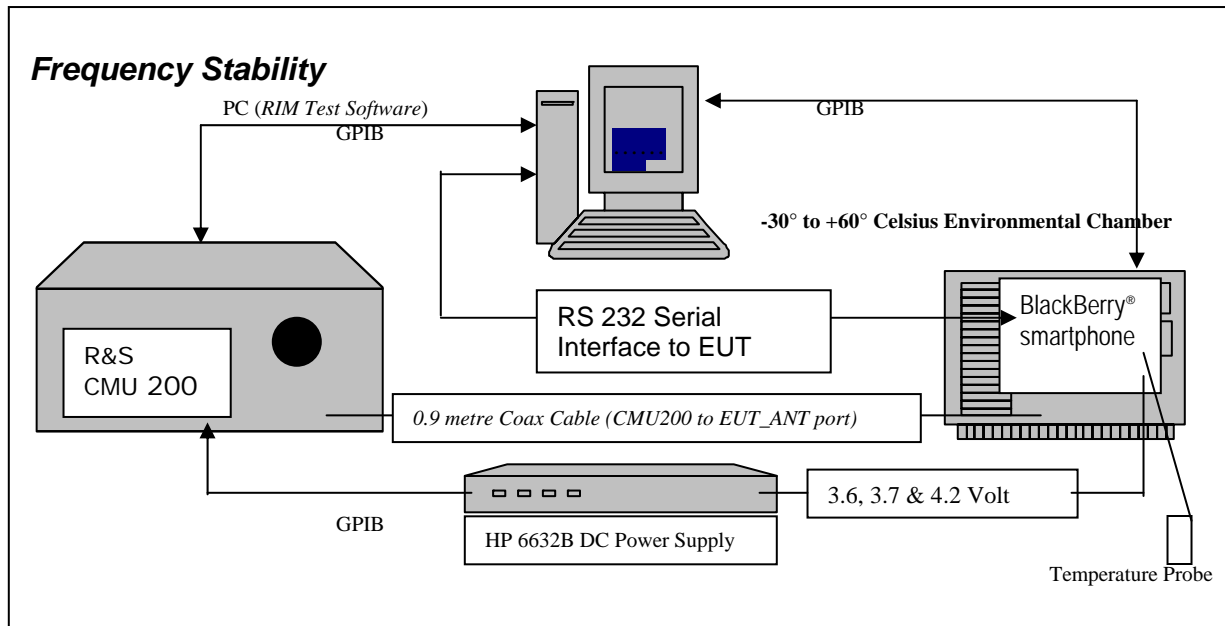
| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|----------------|
| 810 | 1909.8 | 3.7 | -30 | -14.46 | -0.0076 |
| 810 | 1909.8 | 3.7 | -20 | -19.05 | -0.0100 |
| 810 | 1909.8 | 3.7 | -10 | -32.67 | -0.0171 |
| 810 | 1909.8 | 3.7 | 0 | -24.92 | -0.0130 |
| 810 | 1909.8 | 3.7 | 10 | -40.81 | -0.0214 |
| 810 | 1909.8 | 3.7 | 20 | -36.74 | -0.0192 |
| 810 | 1909.8 | 3.7 | 30 | -50.56 | -0.0265 |
| 810 | 1909.8 | 3.7 | 40 | -56.56 | -0.0296 |
| 810 | 1909.8 | 3.7 | 50 | -69.67 | -0.0365 |
| 810 | 1909.8 | 3.7 | 60 | -45.33 | -0.0237 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 810 | 1909.8 | 4.2 | -30 | 15.37 | 0.0080 |
| 810 | 1909.8 | 4.2 | -20 | 40.29 | 0.0211 |
| 810 | 1909.8 | 4.2 | -10 | 19.57 | 0.0102 |
| 810 | 1909.8 | 4.2 | 0 | -21.63 | -0.0113 |
| 810 | 1909.8 | 4.2 | 10 | 40.16 | 0.0210 |
| 810 | 1909.8 | 4.2 | 20 | 32.93 | 0.0172 |
| 810 | 1909.8 | 4.2 | 30 | -51.66 | -0.0270 |
| 810 | 1909.8 | 4.2 | 40 | -35.77 | -0.0187 |
| 810 | 1909.8 | 4.2 | 50 | -22.02 | -0.0115 |
| 810 | 1909.8 | 4.2 | 60 | -27.89 | -0.0146 |

APPENDIX 3B – WCDMA FREQUENCY STABILITY TEST DATA

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|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

WCDMA Frequency Stability Test Data



The following measurements were performed by Maurice Battler.

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


24.235 *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 27.54, CFR 47 and RSS-139, 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.

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

| UMTS1700 Frequency (MHz) | Cable loss (dB) |
|--------------------------------|--------------------|
| 1712.4 | 0.90 |
| 1732.6 | 0.90 |
| 1752.6 | 0.90 |

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 following 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 1712.4, 1732.6 and 1752.5 MHz for the UMTS1700 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.

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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 UMTS band 5 measured was **-0.0275 PPM**.
The maximum frequency error in the UMTS band 2 measured was **-0.0235 PPM**.

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UMTS Band 5 Channel results: channels 4132, 4182 and 4233 @ 20°C maximum transmitted power

The BlackBerry® smartphone was tested on February 17, 2010.

| Traffic Channel Number | UMTS band 5 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------------------|-----------------|-----------------------|----------------------|---------|
| 4132 | 826.4 | 3.6 | 20 | -13.67 | -0.0165 |
| 4182 | 836.4 | 3.6 | 20 | -8.21 | -0.0098 |
| 4233 | 846.6 | 3.6 | 20 | -8.80 | -0.0104 |

| Traffic Channel Number | UMTS band 5 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------------------|-----------------|-----------------------|----------------------|---------|
| 4132 | 826.4 | 3.7 | 20 | -13.00 | -0.0157 |
| 4182 | 836.4 | 3.7 | 20 | 3.30 | 0.0039 |
| 4233 | 846.6 | 3.7 | 20 | -8.47 | -0.0100 |

| Traffic Channel Number | UMTS band 5 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------------------|-----------------|-----------------------|----------------------|---------|
| 4132 | 826.4 | 4.2 | 20 | -4.33 | -0.0052 |
| 4182 | 836.4 | 4.2 | 20 | -9.51 | -0.0114 |
| 4233 | 846.6 | 4.2 | 20 | -15.76 | -0.0186 |


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UMTS band 5 Results: channel 4132 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 4132 | 826.4 | 3.6 | -30 | -16.83 | -0.0204 |
| 4132 | 826.4 | 3.6 | -20 | -14.07 | -0.0170 |
| 4132 | 826.4 | 3.6 | -10 | -16.40 | -0.0198 |
| 4132 | 826.4 | 3.6 | 0 | -4.33 | -0.0052 |
| 4132 | 826.4 | 3.6 | 10 | -11.60 | -0.0140 |
| 4132 | 826.4 | 3.6 | 20 | -13.67 | -0.0165 |
| 4132 | 826.4 | 3.6 | 30 | -11.72 | -0.0142 |
| 4132 | 826.4 | 3.6 | 40 | -16.91 | -0.0205 |
| 4132 | 826.4 | 3.6 | 50 | -18.51 | -0.0224 |
| 4132 | 826.4 | 3.6 | 60 | -18.49 | -0.0224 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 4132 | 826.4 | 3.7 | -30 | -15.21 | -0.0184 |
| 4132 | 826.4 | 3.7 | -20 | -7.86 | -0.0095 |
| 4132 | 826.4 | 3.7 | -10 | -15.64 | -0.0189 |
| 4132 | 826.4 | 3.7 | 0 | 6.85 | 0.0083 |
| 4132 | 826.4 | 3.7 | 10 | 8.96 | 0.0108 |
| 4132 | 826.4 | 3.7 | 20 | -13.00 | -0.0157 |
| 4132 | 826.4 | 3.7 | 30 | 3.52 | 0.0043 |
| 4132 | 826.4 | 3.7 | 40 | -3.14 | -0.0038 |
| 4132 | 826.4 | 3.7 | 50 | -16.83 | -0.0204 |
| 4132 | 826.4 | 3.7 | 60 | -5.23 | -0.0063 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 4132 | 826.4 | 4.2 | -30 | -14.50 | -0.0175 |
| 4132 | 826.4 | 4.2 | -20 | -15.12 | -0.0183 |
| 4132 | 826.4 | 4.2 | -10 | -15.01 | -0.0182 |
| 4132 | 826.4 | 4.2 | 0 | 5.13 | 0.0062 |
| 4132 | 826.4 | 4.2 | 10 | -4.26 | -0.0052 |
| 4132 | 826.4 | 4.2 | 20 | -4.78 | -0.0058 |
| 4132 | 826.4 | 4.2 | 30 | -4.33 | -0.0052 |
| 4132 | 826.4 | 4.2 | 40 | -14.47 | -0.0175 |
| 4132 | 826.4 | 4.2 | 50 | -12.51 | -0.0151 |
| 4132 | 826.4 | 4.2 | 60 | -7.60 | -0.0092 |


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|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

UMTS band 5 Results: channel 4182 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 4182 | 836.4 | 3.6 | -30 | -15.81 | -0.0189 |
| 4182 | 836.4 | 3.6 | -20 | -3.25 | -0.0039 |
| 4182 | 836.4 | 3.6 | -10 | -8.77 | -0.0105 |
| 4182 | 836.4 | 3.6 | 0 | 6.13 | 0.0073 |
| 4182 | 836.4 | 3.6 | 10 | 7.16 | 0.0086 |
| 4182 | 836.4 | 3.6 | 20 | -8.21 | -0.0098 |
| 4182 | 836.4 | 3.6 | 30 | 5.40 | 0.0065 |
| 4182 | 836.4 | 3.6 | 40 | -21.01 | -0.0251 |
| 4182 | 836.4 | 3.6 | 50 | -34.07 | -0.0407 |
| 4182 | 836.4 | 3.6 | 60 | -5.77 | -0.0069 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 4182 | 836.4 | 3.7 | -30 | -14.82 | -0.0177 |
| 4182 | 836.4 | 3.7 | -20 | -11.89 | -0.0142 |
| 4182 | 836.4 | 3.7 | -10 | -7.64 | -0.0091 |
| 4182 | 836.4 | 3.7 | 0 | -4.61 | -0.0055 |
| 4182 | 836.4 | 3.7 | 10 | 3.97 | 0.0047 |
| 4182 | 836.4 | 3.7 | 20 | 3.30 | 0.0039 |
| 4182 | 836.4 | 3.7 | 30 | -12.63 | -0.0151 |
| 4182 | 836.4 | 3.7 | 40 | -13.47 | -0.0161 |
| 4182 | 836.4 | 3.7 | 50 | -5.42 | -0.0065 |
| 4182 | 836.4 | 3.7 | 60 | -8.85 | -0.0106 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 4182 | 836.4 | 4.2 | -30 | -7.77 | -0.0093 |
| 4182 | 836.4 | 4.2 | -20 | -15.08 | -0.0180 |
| 4182 | 836.4 | 4.2 | -10 | 6.87 | 0.0082 |
| 4182 | 836.4 | 4.2 | 0 | -4.10 | -0.0049 |
| 4182 | 836.4 | 4.2 | 10 | -6.32 | -0.0076 |
| 4182 | 836.4 | 4.2 | 20 | -9.55 | -0.0114 |
| 4182 | 836.4 | 4.2 | 30 | -9.51 | -0.0114 |
| 4182 | 836.4 | 4.2 | 40 | -15.40 | -0.0184 |
| 4182 | 836.4 | 4.2 | 50 | -16.92 | -0.0202 |
| 4182 | 836.4 | 4.2 | 60 | -16.82 | -0.0201 |


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|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

UMTS band 5 Results: channel 4233 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 4233 | 846.6 | 3.6 | -30 | -13.96 | -0.0165 |
| 4233 | 846.6 | 3.6 | -20 | -6.74 | -0.0080 |
| 4233 | 846.6 | 3.6 | -10 | -7.86 | -0.0093 |
| 4233 | 846.6 | 3.6 | 0 | -10.16 | -0.0120 |
| 4233 | 846.6 | 3.6 | 10 | -11.18 | -0.0132 |
| 4233 | 846.6 | 3.6 | 20 | -8.80 | -0.0104 |
| 4233 | 846.6 | 3.6 | 30 | -14.95 | -0.0177 |
| 4233 | 846.6 | 3.6 | 40 | -14.45 | -0.0171 |
| 4233 | 846.6 | 3.6 | 50 | -15.37 | -0.0182 |
| 4233 | 846.6 | 3.6 | 60 | -20.22 | -0.0239 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 4233 | 846.6 | 3.7 | -30 | 5.69 | 0.0067 |
| 4233 | 846.6 | 3.7 | -20 | -6.74 | -0.0080 |
| 4233 | 846.6 | 3.7 | -10 | 4.36 | 0.0052 |
| 4233 | 846.6 | 3.7 | 0 | -15.20 | -0.0180 |
| 4233 | 846.6 | 3.7 | 10 | 3.60 | 0.0043 |
| 4233 | 846.6 | 3.7 | 20 | -8.47 | -0.0100 |
| 4233 | 846.6 | 3.7 | 30 | -6.55 | -0.0077 |
| 4233 | 846.6 | 3.7 | 40 | -13.08 | -0.0154 |
| 4233 | 846.6 | 3.7 | 50 | -13.82 | -0.0163 |
| 4233 | 846.6 | 3.7 | 60 | -13.23 | -0.0156 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|----------------|
| 4233 | 846.6 | 4.2 | -30 | -5.48 | -0.0065 |
| 4233 | 846.6 | 4.2 | -20 | -16.28 | -0.0192 |
| 4233 | 846.6 | 4.2 | -10 | -11.12 | -0.0131 |
| 4233 | 846.6 | 4.2 | 0 | -3.07 | -0.0036 |
| 4233 | 846.6 | 4.2 | 10 | 4.79 | 0.0057 |
| 4233 | 846.6 | 4.2 | 20 | -15.91 | -0.0188 |
| 4233 | 846.6 | 4.2 | 30 | -15.76 | -0.0186 |
| 4233 | 846.6 | 4.2 | 40 | -23.32 | -0.0275 |
| 4233 | 846.6 | 4.2 | 50 | -5.69 | -0.0067 |
| 4233 | 846.6 | 4.2 | 60 | -13.21 | -0.0156 |

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|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |


UMTS band 2 Channel results: channels 9262, 9400, & 9538 @ 20°C maximum transmitted power

Date of Test: February 10, 2010

| Traffic Channel Number | UMTS1900 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|--------------------------|-----------------|-----------------------|----------------------|---------|
| 9262 | 1852.4 | 3.6 | 20 | -11.98 | -0.0065 |
| 9400 | 1880.0 | 3.6 | 20 | -23.79 | -0.0127 |
| 9538 | 1907.6 | 3.6 | 20 | -24.63 | -0.0129 |

| Traffic Channel Number | UMTS1900 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|--------------------------|-----------------|-----------------------|----------------------|---------|
| 9262 | 1852.4 | 3.7 | 20 | -20.83 | -0.0112 |
| 9400 | 1880.0 | 3.7 | 20 | -24.69 | -0.0131 |
| 9538 | 1907.6 | 3.7 | 20 | -25.85 | -0.0136 |

| Traffic Channel Number | UMTS1900 Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|--------------------------|-----------------|-----------------------|----------------------|---------|
| 9262 | 1852.4 | 4.2 | 20 | -24.66 | -0.0133 |
| 9400 | 1880.0 | 4.2 | 20 | -18.37 | -0.0098 |
| 9538 | 1907.6 | 4.2 | 20 | -26.72 | -0.0140 |


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|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

UMTS band 2 Results: channel 9262 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 9262 | 1852.4 | 3.6 | -30 | -25.47 | -0.0137 |
| 9262 | 1852.4 | 3.6 | -20 | -16.91 | -0.0091 |
| 9262 | 1852.4 | 3.6 | -10 | -17.58 | -0.0095 |
| 9262 | 1852.4 | 3.6 | 0 | 16.08 | 0.0087 |
| 9262 | 1852.4 | 3.6 | 10 | 15.95 | 0.0086 |
| 9262 | 1852.4 | 3.6 | 20 | -11.98 | -0.0065 |
| 9262 | 1852.4 | 3.6 | 30 | -23.15 | -0.0125 |
| 9262 | 1852.4 | 3.6 | 40 | -25.44 | -0.0137 |
| 9262 | 1852.4 | 3.6 | 50 | -28.15 | -0.0152 |
| 9262 | 1852.4 | 3.6 | 60 | -26.73 | -0.0144 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 9262 | 1852.4 | 3.7 | -30 | -24.66 | -0.0133 |
| 9262 | 1852.4 | 3.7 | -20 | -9.89 | -0.0053 |
| 9262 | 1852.4 | 3.7 | -10 | -7.28 | -0.0039 |
| 9262 | 1852.4 | 3.7 | 0 | 19.00 | 0.0103 |
| 9262 | 1852.4 | 3.7 | 10 | 14.54 | 0.0079 |
| 9262 | 1852.4 | 3.7 | 20 | -20.83 | -0.0112 |
| 9262 | 1852.4 | 3.7 | 30 | -16.88 | -0.0091 |
| 9262 | 1852.4 | 3.7 | 40 | -21.33 | -0.0115 |
| 9262 | 1852.4 | 3.7 | 50 | -24.41 | -0.0132 |
| 9262 | 1852.4 | 3.7 | 60 | -23.41 | -0.0126 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 9262 | 1852.4 | 4.2 | -30 | -22.61 | -0.0122 |
| 9262 | 1852.4 | 4.2 | -20 | 8.76 | 0.0047 |
| 9262 | 1852.4 | 4.2 | -10 | -11.66 | -0.0063 |
| 9262 | 1852.4 | 4.2 | 0 | 12.25 | 0.0066 |
| 9262 | 1852.4 | 4.2 | 10 | -15.49 | -0.0084 |
| 9262 | 1852.4 | 4.2 | 20 | -24.66 | -0.0133 |
| 9262 | 1852.4 | 4.2 | 30 | -22.46 | -0.0121 |
| 9262 | 1852.4 | 4.2 | 40 | -23.42 | -0.0126 |
| 9262 | 1852.4 | 4.2 | 50 | -23.91 | -0.0129 |
| 9262 | 1852.4 | 4.2 | 60 | -14.34 | -0.0077 |


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|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

UMTS band 2 Results: channel 9400 @ maximum transmitted power

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|----------------|
| 9400 | 1880.0 | 3.6 | -30 | -22.23 | -0.0118 |
| 9400 | 1880.0 | 3.6 | -20 | -13.03 | -0.0069 |
| 9400 | 1880.0 | 3.6 | -10 | -27.15 | -0.0144 |
| 9400 | 1880.0 | 3.6 | 0 | 13.41 | 0.0071 |
| 9400 | 1880.0 | 3.6 | 10 | -11.05 | -0.0059 |
| 9400 | 1880.0 | 3.6 | 20 | -23.79 | -0.0127 |
| 9400 | 1880.0 | 3.6 | 30 | -24.03 | -0.0128 |
| 9400 | 1880.0 | 3.6 | 40 | -31.91 | -0.0170 |
| 9400 | 1880.0 | 3.6 | 50 | -36.90 | -0.0196 |
| 9400 | 1880.0 | 3.6 | 60 | -44.10 | -0.0235 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 9400 | 1880.0 | 3.7 | -30 | -14.53 | -0.0077 |
| 9400 | 1880.0 | 3.7 | -20 | -17.84 | -0.0095 |
| 9400 | 1880.0 | 3.7 | -10 | -9.34 | -0.0050 |
| 9400 | 1880.0 | 3.7 | 0 | -13.50 | -0.0072 |
| 9400 | 1880.0 | 3.7 | 10 | -10.62 | -0.0056 |
| 9400 | 1880.0 | 3.7 | 20 | -24.69 | -0.0131 |
| 9400 | 1880.0 | 3.7 | 30 | -25.51 | -0.0136 |
| 9400 | 1880.0 | 3.7 | 40 | -22.09 | -0.0118 |
| 9400 | 1880.0 | 3.7 | 50 | -27.30 | -0.0145 |
| 9400 | 1880.0 | 3.7 | 60 | -27.07 | -0.0144 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 9400 | 1880.0 | 4.2 | -30 | -8.71 | -0.0046 |
| 9400 | 1880.0 | 4.2 | -20 | -18.55 | -0.0099 |
| 9400 | 1880.0 | 4.2 | -10 | -8.61 | -0.0046 |
| 9400 | 1880.0 | 4.2 | 0 | -12.31 | -0.0065 |
| 9400 | 1880.0 | 4.2 | 10 | -6.56 | -0.0035 |
| 9400 | 1880.0 | 4.2 | 20 | -18.37 | -0.0098 |
| 9400 | 1880.0 | 4.2 | 30 | -10.99 | -0.0058 |
| 9400 | 1880.0 | 4.2 | 40 | -16.62 | -0.0088 |
| 9400 | 1880.0 | 4.2 | 50 | -24.06 | -0.0128 |
| 9400 | 1880.0 | 4.2 | 60 | -28.64 | -0.0152 |


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|---|--|-----------------------------------|
|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

UMTS band 2 Results: channel 9538 @ maximum transmitted power


| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 9538 | 1907.6 | 3.6 | -30 | -23.62 | -0.0124 |
| 9538 | 1907.6 | 3.6 | -20 | -22.11 | -0.0116 |
| 9538 | 1907.6 | 3.6 | -10 | -12.76 | -0.0067 |
| 9538 | 1907.6 | 3.6 | 0 | 8.91 | 0.0047 |
| 9538 | 1907.6 | 3.6 | 10 | -14.65 | -0.0077 |
| 9538 | 1907.6 | 3.6 | 20 | -24.63 | -0.0129 |
| 9538 | 1907.6 | 3.6 | 30 | -17.38 | -0.0091 |
| 9538 | 1907.6 | 3.6 | 40 | -26.89 | -0.0141 |
| 9538 | 1907.6 | 3.6 | 50 | -21.03 | -0.0110 |
| 9538 | 1907.6 | 3.6 | 60 | -28.53 | -0.0150 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 9538 | 1907.6 | 3.7 | -30 | -31.49 | -0.0165 |
| 9538 | 1907.6 | 3.7 | -20 | -11.18 | -0.0059 |
| 9538 | 1907.6 | 3.7 | -10 | -21.30 | -0.0112 |
| 9538 | 1907.6 | 3.7 | 0 | -9.51 | -0.0050 |
| 9538 | 1907.6 | 3.7 | 10 | -15.20 | -0.0080 |
| 9538 | 1907.6 | 3.7 | 20 | -25.85 | -0.0136 |
| 9538 | 1907.6 | 3.7 | 30 | -12.66 | -0.0066 |
| 9538 | 1907.6 | 3.7 | 40 | -21.10 | -0.0111 |
| 9538 | 1907.6 | 3.7 | 50 | -26.09 | -0.0137 |
| 9538 | 1907.6 | 3.7 | 60 | -22.38 | -0.0117 |

| Traffic Channel Number | Frequency (MHz) | Voltage (Volts) | Temperature (Celsius) | Frequency Error (Hz) | PPM |
|------------------------|-----------------|-----------------|-----------------------|----------------------|---------|
| 9538 | 1907.6 | 4.2 | -30 | -18.34 | -0.0096 |
| 9538 | 1907.6 | 4.2 | -20 | -23.70 | -0.0124 |
| 9538 | 1907.6 | 4.2 | -10 | -18.49 | -0.0097 |
| 9538 | 1907.6 | 4.2 | 0 | -14.53 | -0.0076 |
| 9538 | 1907.6 | 4.2 | 10 | -11.47 | -0.0060 |
| 9538 | 1907.6 | 4.2 | 20 | -26.72 | -0.0140 |
| 9538 | 1907.6 | 4.2 | 30 | -15.09 | -0.0079 |
| 9538 | 1907.6 | 4.2 | 40 | -22.78 | -0.0119 |
| 9538 | 1907.6 | 4.2 | 50 | -27.34 | -0.0143 |
| 9538 | 1907.6 | 4.2 | 60 | -27.02 | -0.0142 |

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|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

APPENDIX 4A – GSM RADIATED EMISSIONS TEST DATA

| | | | |
|---|---|--|----------------------------|
|  | | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | | Author Data Fahd Faisal |

Radiated Power Test Data Results

Date of test: February 18, May 17 and 19, 2010

The measurements were performed by Kevin Rose.

The environmental tests conditions were: Temperature: 24 – 25 °C
Pressure: 1013 – 1022 mb
Relative Humidity: 23 – 26 %

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

Test distance is 3.0 metres

GSM850 Band

GSM Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method | | | | | |
|------|-----|-----------|------|------------|------|-------------------|------------------------|---------------------|---------|---|------|----------------|------------------------|
| | | | | | | | | Tracking Generator | | | | | |
| Type | Ch | Frequency | Band | Type | Pol. | Reading (dBuV) | Max (V,H) (dBuV) | Pol. | Reading | Corrected Reading (relative to Dipole) | | Limit (dBm) | Diff. To Limit (dB) |
| | | (MHz) | | | | | | Tx-Rx | (dBm) | (dBm) | (W) | | |
| F0 | 128 | 824.20 | 850 | Dipole | V | 74.43 | 86.38 | V-V | 16.26 | 31.30 | 1.35 | 38.50 | -7.20 |
| F0 | 128 | 824.20 | 850 | Dipole | H | 86.38 | | H-H | 14.72 | | | | |
| F0 | 195 | 837.60 | 850 | Dipole | V | 78..37 | 86.29 | V-V | 16.95 | 32.63 | 1.83 | 38.50 | -5.87 |
| F0 | 195 | 837.60 | 850 | Dipole | H | 86.29 | | H-H | 15.38 | | | | |
| F0 | 251 | 848.80 | 850 | Dipole | V | 78.26 | 87.02 | V-V | 18.66 | 34.15 | 2.60 | 38.50 | -4.35 |
| F0 | 251 | 848.80 | 850 | Dipole | H | 87.02 | | H-H | 15.91 | | | | |


EDGE Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method | | | | | |
|------|-----|-----------|------|------------|------|-------------------|-------|---------------------|---------|-------------------|-------|-------|----------|
| | | | | | | | | Tracking Generator | | | | | |
| Type | Ch | Frequency | Band | Type | Pol. | Reading | Max | Pol. | Reading | Corrected Reading | | Limit | Diff. To |
| | | (MHz) | | | | (dBuV) | (V,H) | | | (dBuV) | Tx-Rx | | |
| F0 | 128 | 824.20 | 850 | Dipole | V | 76.04 | 84.23 | V-V | 14.11 | 29.15 | 0.82 | 38.50 | -9.35 |
| F0 | 128 | 824.20 | 850 | Dipole | H | 84.23 | | H-H | 12.57 | | | | |
| F0 | 195 | 837.60 | 850 | Dipole | V | 76.97 | 84.47 | V-V | 15.13 | 30.81 | 1.21 | 38.50 | -7.69 |
| F0 | 195 | 837.60 | 850 | Dipole | H | 84.47 | | H-H | 13.56 | | | | |
| F0 | 251 | 848.80 | 850 | Dipole | V | 76.73 | 85.74 | V-V | 17.38 | 32.87 | 1.94 | 38.50 | -5.63 |
| F0 | 251 | 848.80 | 850 | Dipole | H | 85.74 | | H-H | 11.27 | | | | |

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|  | | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

Radiated Power Test Data Results cont'd


PCS1900 Band

GSM Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method | | | | | |
|------|-----|--------------------|------|------------|------|-------------------|----------------------|---------------------|------------------|--|------|----------------|--------------------------|
| | | | | | | | | 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) |
| F0 | 512 | 1850.20 | 1900 | Horn | V | 80.8 | 93.04 | V-V | -0.85 | 32.68 | 1.85 | 33.00 | -0.32 |
| F0 | 512 | 1850.20 | 1900 | Horn | H | 93.04 | | H-H | -0.96 | | | | |
| F0 | 661 | 1880.00 | 1900 | Horn | V | 81.75 | 92.15 | V-V | -1.62 | 32.14 | 1.64 | 33.00 | -0.86 |
| F0 | 661 | 1880.00 | 1900 | Horn | H | 92.15 | | H-H | -1.73 | | | | |
| F0 | 810 | 1909.80 | 1900 | Horn | V | 83.19 | 92.09 | V-V | -0.36 | 32.48 | 1.77 | 33.00 | -0.52 |
| F0 | 810 | 1909.80 | 1900 | Horn | H | 92.09 | | H-H | -0.80 | | | | |

EDGE Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method | | | | | |
|------|-----|--------------------|------|------------|------|-------------------|----------------------|---------------------|------------------|--|------|----------------|--------------------------|
| | | | | | | | | 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) |
| F0 | 512 | 1850.20 | 1900 | Horn | V | 84.97 | 90.59 | V-V | -7.78 | 29.67 | 0.93 | 33.00 | -3.33 |
| F0 | 512 | 1850.20 | 1900 | Horn | H | 90.59 | | H-H | -6.71 | | | | |
| F0 | 661 | 1880.00 | 1900 | Horn | V | 80.2 | 89.74 | V-V | -7.69 | 29.54 | 0.90 | 33.00 | -3.46 |
| F0 | 661 | 1880.00 | 1900 | Horn | H | 89.74 | | H-H | -6.74 | | | | |
| F0 | 810 | 1909.80 | 1900 | Horn | V | 77.93 | 89.61 | V-V | -7.36 | 29.69 | 0.93 | 33.00 | -3.31 |
| F0 | 810 | 1909.80 | 1900 | Horn | H | 89.61 | | H-H | -6.63 | | | | |

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|---|--|-----------------------------------|
|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

Radiated Emissions Test Data Results

GSM850

GSM Mode

Date of Test: March 11, 2010

The measurements were performed by Fahd Faisal.

The environmental test conditions were: Temperature: 23 °C

Pressure: 1006 mb

Relative Humidity: 26 %

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

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

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

All emissions had a test margin greater than 25.0 dB.

Date of Test: March 15, 2010

The measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 23 °C

Pressure: 1015 mb


Relative Humidity: 28 %

Test Distance was 3.0 metres with a height of 1.0 metre, 1 GHz to 9 GHz.

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

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

All emissions had a test margin greater than 25.0 dB.

| | | |
|---|--|-----------------------------------|
|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

Radiated Emissions Test Data Results cont'd

GSM850

EDGE Mode

Date of Test: March 11, 2010

The environmental test conditions were: Temperature: 23 °C

Pressure: 1006 mb

Relative Humidity: 26 %

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

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

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

All emissions had a test margin greater than 25.0 dB.

Date of Test: March 15, 2010

The environmental test conditions were: Temperature: 25 °C

Pressure: 1012 mb


Relative Humidity: 29 %

Test Distance was 3.0 metres with a height of 1.0 metre, 1 GHz to 9 GHz.

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

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

All emissions had a test margin greater than 25.0 dB.

| | | |
|---|--|-----------------------------------|
|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

PCS1900

GSM Mode

Date of Test: March 16, 2010

The environmental test conditions were: Temperature: 22 °C
Pressure: 996 mb
Relative Humidity: 22 %

Test Distance was 3.0 metres with a height of 1.0 metre, 30 MHz to 1000 MHz.
The BlackBerry® smartphone was in standalone, USB Up position.

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

All emissions had a test margin greater than 25.0 dB.


Date of Test: March 15, 2010

The environmental test conditions were: Temperature: 23 – 25 °C
Pressure: 1003 – 1023 mb
Relative Humidity: 29 – 30 %

Test Distance was 3.0 metres with a height of 1.0 metre, 1 GHz to 20 GHz.
The BlackBerry® smartphone was in standalone, USB up position.

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

All emissions had a test margin greater than 25.0 dB.

| | | |
|---|--|-----------------------------------|
|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

Radiated Emissions Test Data Results cont'd

PCS1900

EDGE Mode

Date of Test: March 16, 2010

The environmental test conditions were: Temperature: 22 °C

Pressure: 996 mb

Relative Humidity: 22 %

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

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

The measurements were performed in PCS1900 EDGE Tx mode on channels 512, 661 and 810.

All emissions had a test margin greater than 25.0 dB.

Date of Test: March 19, 2010

The environmental test conditions were: Temperature: 24 °C

Pressure: 1021 mb


Relative Humidity: 28 %

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


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

The measurements were performed in PCS1900 EDGE Tx mode on channels 512, 661 and 810.

All emissions had a test margin greater than 25.0 dB.

| | | |
|---|--|-----------------------------------|
|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

APPENDIX 4B – WCDMA RADIATED EMISSIONS TEST DATA

| | | | |
|---|---|--|----------------------------|
|  | | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | | Author Data Fahd Faisal |

Radiated Power Test Data Results

Date of test: November 02, 2009

The measurements were performed by Kevin Rose.


The environmental tests conditions were: Temperature: 25 °C
Pressure: 1013 mb
Relative Humidity: 23 %

The BlackBerry® smartphone was in standalone, Horizontal down position.
Test distance is 3.0 metres

UMTS Band 2 (1900 MHz)

Call Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method | | | | | |
|------|------|-----------|--------|------------|------|-------------------|-------|---------------------|---------|-------------------|-------|-------|----------|
| | | | | | | | | Tracking Generator | | | | | |
| Type | Ch | Frequency | Band | Type | Pol. | Reading | Max | Pol. | Reading | Corrected Reading | | Limit | Diff. To |
| | | (MHz) | | | | (dBuV) | (V,H) | | | (dBuV) | Tx-Rx | | |
| F0 | 9262 | 1852.40 | Band 2 | Horn | V | 78.15 | 85.96 | V-V | -12.30 | 25.16 | 0.33 | 33.00 | -7.84 |
| F0 | 9262 | 1852.40 | Band 2 | Horn | H | 85.96 | | H-H | -11.22 | | | | |
| F0 | 9400 | 1880.00 | Band 2 | Horn | V | 77.93 | 86.05 | V-V | -11.38 | 25.85 | 0.38 | 33.00 | -7.15 |
| F0 | 9400 | 1880.00 | Band 2 | Horn | H | 86.05 | | H-H | -10.43 | | | | |
| F0 | 9538 | 1907.60 | Band 2 | Horn | V | 77.93 | 86.05 | V-V | -10.68 | 26.33 | 0.43 | 33.00 | -6.67 |
| F0 | 9538 | 1907.60 | Band 2 | Horn | H | 86.05 | | H-H | -9.99 | | | | |

| | | |
|---|--|-----------------------------------|
|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

Radiated Emissions Test Data Results

UMTS Band 2 (1800 MHz)

Date of Test: February 10, 2010

The measurements were performed by Fahd Faisal

The environmental test conditions were: Temperature: 24 °C
Pressure: 1015 mb
Relative Humidity: 21 %

Test Distance was 3.0 metres with a height of 1.0 metre, 30 MHz to 1000 MHz.
The BlackBerry® smartphone was in standalone, Vertical Upside down position.

The measurements were performed in Call Tx mode, on channels 9262, 9400 and 9538.

All emissions had a test margin greater than 25.0 dB.


Date of Test: March 26, 2010

The measurements were performed by Steven Wang.

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

Test Distance was 3.0 metres with a height of 1.0 metre, 1 GHz to 20 GHz.
The BlackBerry® smartphone was in standalone, Vertical Upside down position.

All other emissions had a test margin greater than 25.0 dB.

| | | | |
|---|---|--|----------------------------|
|  | | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | | Author Data Fahd Faisal |

Radiated Power Test Data Results

Date of test: November 02, 2009

The measurements were performed by Kevin Rose.


The environmental tests conditions were: Temperature: 25 °C
Pressure: 1013 mb
Relative Humidity: 23 %

The BlackBerry® smartphone was in standalone, Horizontal down position.
Test distance is 3.0 metres

UMTS Band 5 (850 MHz)

Call Mode

| EUT | | | | Rx Antenna | | Spectrum Analyzer | | Substitution Method | | | | | |
|------|------|-----------|--------|------------|------|-------------------|------------------------|---------------------|------------------|---|------|----------------|------------------------|
| | | | | | | | | Tracking Generator | | | | | |
| Type | Ch | Frequency | Band | Type | Pol. | Reading (dBuV) | Max (V,H) (dBuV) | Pol. | Reading (dBm) | Corrected Reading (relative to Dipole) | | Limit (dBm) | Diff. To Limit (dB) |
| | | (MHz) | | | | | | Tx-Rx | | (dBm) | (W) | | |
| F0 | 4132 | 826.40 | UMTS 5 | Dipole | V | 66.03 | 75.92 | V-V | 5.92 | 20.96 | 0.12 | 33.00 | -12.04 |
| F0 | 4132 | 826.40 | UMTS 5 | Dipole | H | 75.92 | | H-H | 4.53 | | | | |
| F0 | 4182 | 836.40 | UMTS 5 | Dipole | V | 67.31 | 75.26 | V-V | 5.79 | 21.47 | 0.14 | 33.00 | -11.53 |
| F0 | 4182 | 836.40 | UMTS 5 | Dipole | H | 75.26 | | H-H | 3.87 | | | | |
| F0 | 4233 | 846.60 | UMTS 5 | Dipole | V | 68.48 | 76.24 | V-V | 7.88 | 23.37 | 0.22 | 33.00 | -9.63 |
| F0 | 4233 | 846.60 | UMTS 5 | Dipole | H | 76.24 | | H-H | 5.26 | | | | |

| | | |
|---|--|-----------------------------------|
|  | EMI Test Report for the BlackBerry® smartphone Model RCY71UW APPENDIX 3B | |
| Test Report No. RTS-2337-1002-51 | Dates of Test February 10 to March 26 and May 17 to 19, 2010 | Author Data Fahd Faisal |

Radiated Emissions Test Data Results

UMTS Band 5 (850 MHz)

Date of Test: March 16, 2010

The measurements were performed by Fahd Faisal

The environmental test conditions were: Temperature: 24 °C
Pressure: 1012 mb
Relative Humidity: 22 %

Test Distance was 3.0 metres with a height of 1.0 metre, 30 MHz to 1000 MHz.
The BlackBerry® smartphone was in standalone, Vertical Upside down position.

The measurements were performed in Call Tx mode, on channels 4132, 1413 and 1513.

All emissions had a test margin greater than 25.0 dB.

Date of Test: March 26, 2010.

The measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 23 °C
Pressure: 1017 mb
Relative Humidity: 33 %

Test Distance was 3.0 metres with a height of 1.0 metre, 1 GHz to 9 GHz.
The BlackBerry® smartphone was in standalone, Vertical Upside down position.

All other emissions had a test margin greater than 25.0 dB.