

EMI Test Report

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




A division of Research In Motion Limited

REPORT NO: RTS-2340-0911-17

PRODUCT MODEL NO:	RCS71CW
TYPE NAME:	BlackBerry® smartphone
FCC ID:	L6ARCS70CW
IC:	2503A-RCS70CW
EMISSION DESIGNATOR (GSM):	245KGXW
EMISSION DESIGNATOR (EDGE):	247KG7W
EMISSION DESIGNATOR (CDMA):	1M29F9W

DATE: 06 January 2010

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Statement of Performance:

The BlackBerry® smartphone, model RCS71CW, part number CER-27172-001 Rev. 5 and accessories performs within the requirements of the test standards when configured and operated under RIM's operation 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.

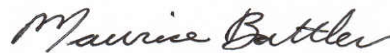
The test methods were consistent with the methods described in the relevant standards.

Documented by:



Michael Cino
Regulatory Compliance Associate
Date: 06 January, 2010

Reviewed by:



Maurice Battler
Compliance Specialist
Date: 06 January, 2010

Reviewed and Approved by:



Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance
Date: 06 January, 2010



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Table of Contents

A) SCOPE	4
B) ASSOCIATED DOCUMENTS	4
C) PRODUCT IDENTIFICATION	4
D) SUPPORT EQUIPMENT USED FOR THE TESTING OF THE EUT.....	5
E) TEST VOLTAGE	5
F) SUMMARY OF RESULTS.....	6
G) COMPLIANCE TEST EQUIPMENT USED	12
APPENDIX 1A – GSM CONDUCTED RF EMISSIONS TEST DATA/PLOTS	14
APPENDIX 1B – CDMA CONDUCTED RF EMISSIONS TEST DATA/PLOTS.....	28
APPENDIX 2A – GSM CONDUCTED RF OUTPUT POWER TEST DATA	44
APPENDIX 2B – CDMA CONDUCTED RF OUTPUT POWER TEST DATA	46
APPENDIX 3A – GSM FREQUENCY STABILITY TEST DATA.....	48
APPENDIX 3B – CDMA FREQUENCY STABILITY TEST DATA.....	60
APPENDIX 4A – GSM RADIATED EMISSIONS TEST DATA	72
APPENDIX 4B – CDMA RADIATED EMISSIONS TEST DATA.....	79

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

A) Scope

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

- FCC CFR 47 Part 2, Oct. 1, 2008
- FCC CFR 47 Part 22, Subpart H, Cellular Radiotelephone Services, Oct. 1, 2008
- FCC CFR 47 Part 24 Subpart E, Broadband PCS, Oct 1. 2008
- 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 4, February 2008, 2 GHz Personal Communications Services.

B) Associated Documents

- 1) HW_Declaration_CER-27172_Rev5

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	440 Phillip Street
Waterloo, Ontario	Waterloo, Ontario,
Canada, N2L 3W8	Canada , N2L 5R9
Phone: 519 888 7465	Phone: 519 888 7465
Fax: 519 888 6906	Fax: 519 888 6906

The testing was performed during Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010.

 EMI Test Report for the BlackBerry® smartphone Model RCS71CW		
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN
1	RCS71CW	CER-27172-001 Rev. 1	30FD0798
2	RCS71CW	CER-27172-001 Rev. 1	30F4F733
3	RCS71CW	CER-27172-001 Rev. 1	30F4F746
4	RCS71CW	CER-27172-001 Rev. 1	30F4F739
5	RCS71CW	CER-27172-001 Rev. 5	3131C343

Samples 1 and 2 were used for Conducted and Frequency Stability testing.
Samples 3, 4 and 5 were used for Radiated testing.


To view the differences between CER-27172-001 Rev. 1 and CER-27172-001 Rev. 5, see document number HW_Declaration_CER-27172_Rev5. Only the characteristics that may have been impacted by the changes were re-measured.

D) Support Equipment Used for the Testing of the EUT

No support equipment required; for list of equipment refer to section G, 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.

		EMI Test Report for the BlackBerry® smartphone Model RCS71CW	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010		Author Data Michael Cino

F) Summary of Results


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 22, Subpart H Part 24, Subpart E	RSS-GEN, 4.9	GSM Radiated Spurious/Harmonic Emissions	Pass	4A
Part 2.1051 Part 22.917 Part 22.901(d)	RSS-GEN, 4.9	CDMA Cell Conducted Spurious Emissions	Pass	1B
Part 2.1051 Part 24.238(a)	RSS-GEN, 4.9	CDMA PCS Conducted Spurious Emissions	Pass	1B
Part 2.202 Part 22.917	RSS-GEN, 4.6	CDMA Cell Occupied Bandwidth and Channel Mask	Pass	1B
Part 2.202 Part 24.238	RSS-GEN, 4.6	CDMA PCS Occupied Bandwidth and Channel Mask	Pass	1B
Part 2.1046(a)	RSS-133, 6.4 RSS-132, 4.4	CDMA Conducted RF Output Power	Pass	2B
Part 2.1055(a)(d) Part 22.917	RSS-132, 4.3	CDMA Cell Frequency Stability vs. Temperature and Voltage	Pass	3B

		EMI Test Report for the BlackBerry® smartphone Model RCS71CW	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010		Author Data Michael Cino

Summary of Results cont'd

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

- 1) 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.
- 2) 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
- 3) 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.
- 4) 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.
- 5) 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.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

- 6) The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage requirements for GSM850 as per 47 CFR 2.1055(a), 2.1055(d), CFR 22.917 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.


- 7) The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage requirements for the PCS1900 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.

- 8) The BlackBerry® smartphone met the requirements of the Conducted Spurious Emissions in the Cellular band as per 47 CFR 1057, CFR 22.917, CFR 22.901(d) and RSS-GEN, 4.9. The EUT was measured in Loopback and 1xEVDO mode on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz.
See APPENDIX 1B for the test data.

- 9) The BlackBerry® smartphone met the requirements of the Conducted Spurious Emissions in the PCS band as per 47 CFR 2.1057, CFR 24.238 and RSS-GEN, 4.9. The EUT was measured in Loopback and 1xEVDO mode on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz.
See APPENDIX 1B for the test data.

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

- 11) The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask in the PCS band as per 47 CFR 2.202, CFR 24.238 and RSS-GEN, 4.6. The channels were measured in Loopback and 1xEVDO mode on the low, middle and high channels.
See APPENDIX 1B for the test data.


			EMI Test Report for the BlackBerry® smartphone Model RCS71CW		
Test Report No. RTS-2340-0911-17		Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010			Author Data Michael Cino

- 12) The BlackBerry® smartphone met the requirements of the Conducted RF Output Power for both the Cellular and PCS bands as per 47 CFR 2.1046(a), RSS-133, 6.4 and RSS-132, 4.4. The channels were measured in Loopback and 1xEVDO mode on the low, middle and high channels.
See APPENDIX 2B for the test data.

- 13) The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage for Cellular 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 3B for the test data.

- 14) The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage requirements for the PCS 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 3B for the test data.

- 15) The radiated spurious emissions/harmonics and ERP/EIRP were measured for CDMA Cellular and PCS bands. 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.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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 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 the BlackBerry® smartphone. The highest ERP measured was 28.37 dBm (0.69 W) at 837.60 MHz (channel 195).

The ERP in the 850 band, EDGE mode was measured on the BlackBerry® smartphone. The highest ERP measured was 24.44 dBm (0.28 W) at 837.60 MHz (channel 195).

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


The EIRP in the PCS band, EDGE mode was measured on the BlackBerry® smartphone. The highest ERP measured was 25.99 dBm (0.40 W) at 1909.80 MHz (channel 810).

The ERP in the Cellular band, Loopback service mode was measured on the BlackBerry® smartphone. The highest ERP measured was 26.82 dBm (0.48 W) at 836.52 MHz (channel 384).

The ERP in the Cellular band, 1xEVDO mode was measured on the BlackBerry® smartphone. The highest ERP measured was 26.99 dBm (0.50 W) at 836.52 MHz (channel 384).

The EIRP in the PCS band, Loopback Service mode was measured on the BlackBerry® smartphone. The highest EIRP measured was 27.90 dBm (0.62 W) at 1880.00 MHz (channel 600).

The EIRP in the PCS band, 1xEVDO mode was measured on the BlackBerry® smartphone. The highest EIRP measured was 28.29 dBm (0.67 W) at 1880.00 MHz (channel 600).

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

The radiated spurious emission and carrier harmonics were measured up to the 10th harmonic for low, middle and high channels in the GSM850 and PCS1900 bands. Each band was measured in GSM and EDGE mode. Both the horizontal and vertical polarizations were measured.

All test margins in the 850 band for GSM and EDGE mode harmonic emissions measured were greater than 25.0 dB below the limit.

All test margins in the PCS band for GSM and EDGE mode harmonic emissions measured were greater than 25.0 dB below the limit.

The radiated carrier harmonics were measured up to the 10th harmonic for low, middle and high channels in the Cellular and PCS bands. Each band was measured in Loopback, Testdata, and 1xEVDO modes. Both the horizontal and vertical polarizations were measured.

The worst test margin in the Cellular band harmonic emissions measured was 9.56 dB below the limit at 1673.768 MHz in 1xEVDO mode.

The worst test margin in the PCS band harmonic emissions measured was 3.98 dB below the limit at 3759.224 MHz in Loopback mode.

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, CDMA Cellular/Bluetooth/802.11b, and CDMA PCS/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

 EMI Test Report for the BlackBerry® smartphone Model RCS71CW		
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

g) 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	09-11-07	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	09-11-07	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA4-SP	001	10-05-08	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	10-03-31	Radiated Emissions
Hybrid Log Antenna	TDK	HLP-3003C	017301	10-01-08	Radiated Emissions
Horn Antenna	TDK	HRN-0118	030101	10-07-22	Radiated Emissions
Horn Antenna	TDK	HRN-0118	030201	11-03-17	Radiated Emissions
Horn Antenna	Emco	3117	47653	11-07-15	Radiated Emissions
Horn Antenna	CMT	LHA 0180	R52734-001	09-12-17	Radiated Emissions
Preamplifier	TDK	18-26	030002	09-11-07	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	1018	11-03-12	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	974	11-10-16	Radiated Emissions
EMC Analyzer	Agilent	E7405A	US40240226	09-11-17	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	09-12-08	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	112394	09-12-07	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	102204	09-12-06	RF Conducted Emissions
Universal Radio Communication Tester	Agilent	8960	MY47510358	11-03-06	Frequency Stability, RF Conducted Emissions
EMI Receiver	Rohde & Schwarz	ESIB-40	100255	09-12-02	Radiated Emissions
Spectrum Analyzer	HP	8563E	3745A08112	11-09-30	RF Conducted Emissions
DC Power Supply	HP	6632B	US37472178	10-09-03	RF Conducted Emissions
Environment Monitor	Control Company	1870	230355190	10-02-12	Radiated Emissions
Environment Monitor	Control Company	1870	230355189	10-02-12	RF Conducted Emissions

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Compliance Test Equipment Used cont'd

<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>SERIAL NUMBER</u>	<u>CAL DUE DATE</u> (YY MM DD)	<u>USE</u>
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	8648C	4037U03155	10-12-11	Frequency Stability
Signal Generator	Agilent	E8257D	MY45140527	10-10-09	Radiated Emissions
Power Meter	Agilent	N1911A	MY45100951	11-01-05	Frequency Stability
Power Sensor	Agilent	N1921A	MY45241383	10-05-08	Frequency Stability

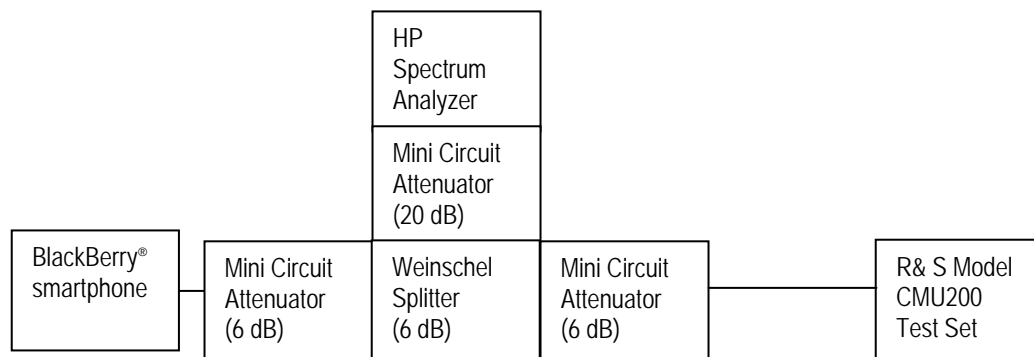
APPENDIX 1A – GSM CONDUCTED RF EMISSIONS TEST DATA/PLOTS

 EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A		
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data

This appendix contains measurement data pertaining to conducted spurious emissions, –26 dBc bandwidth, 99% power bandwidth and the channel mask on BlackBerry® smartphone PIN 30FD0798.

Test Setup Diagram




Date of Test: October 28, 2009

The environmental test conditions were:

Temperature: 25 °C
 Pressure: 1012 mb
 Relative Humidity: 30 %

The measurements were performed by Maurice Battler.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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 273 kHz, and for the PCS1900 band was measured to be 280 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	275	245.0
837.6	263	245.0
848.8	267	243.3

1900 band Frequency (MHz)	-26dBc Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
1850.2	263	245.0
1880.0	270	245.0
1909.8	273	245.0


Measurement Plots for 850 and 1900 in GSM mode

Refer to the following measurement plots for more detail.

See Figures 1-13a to 1-24a for the plots of 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.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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	246.7
837.6	245.0
848.8	245.0

1900 band Frequency (MHz)	99% Occupied Bandwidth (kHz)
1850.2	246.7
1880.0	245.0
1909.8	246.7


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 plots of the channel mask results.

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

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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

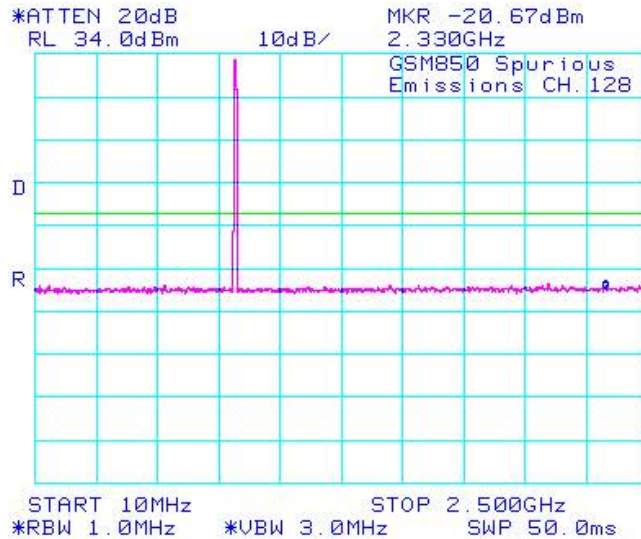


Figure 1-2a: GSM850 band, Spurious Conducted Emissions, Low channel

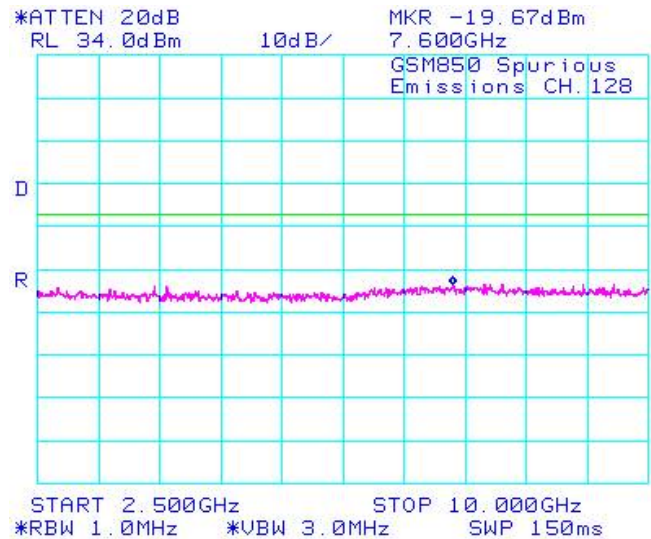


Figure 1-3a: GSM850 band, Spurious Conducted Emissions, Middle Channel

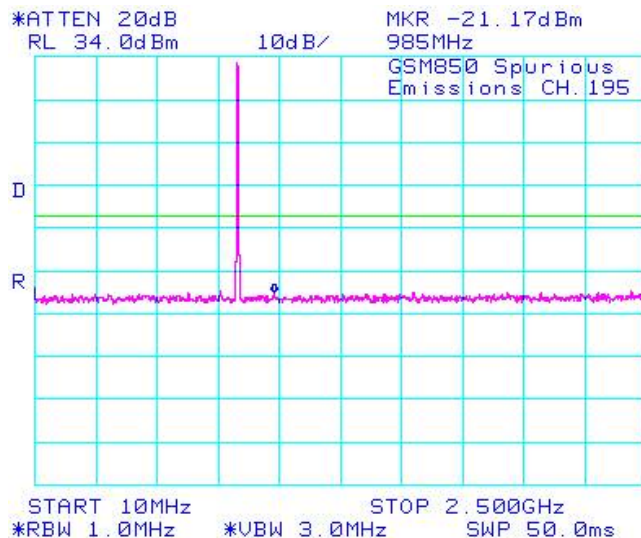
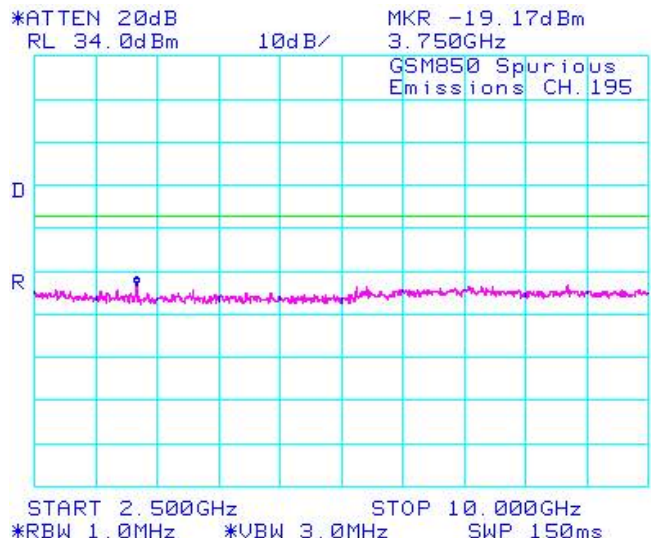



Figure 1-4a: GSM850 band, Spurious Conducted Emissions, Middle Channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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

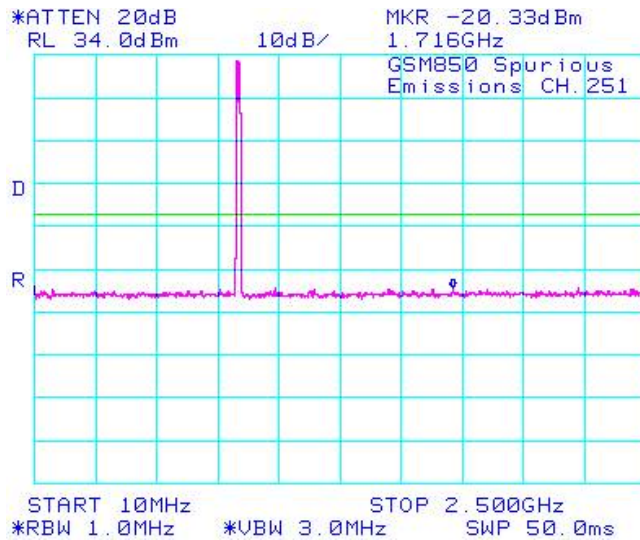


Figure 1-6a: GSM850 band, Spurious Conducted Emissions, High Channel

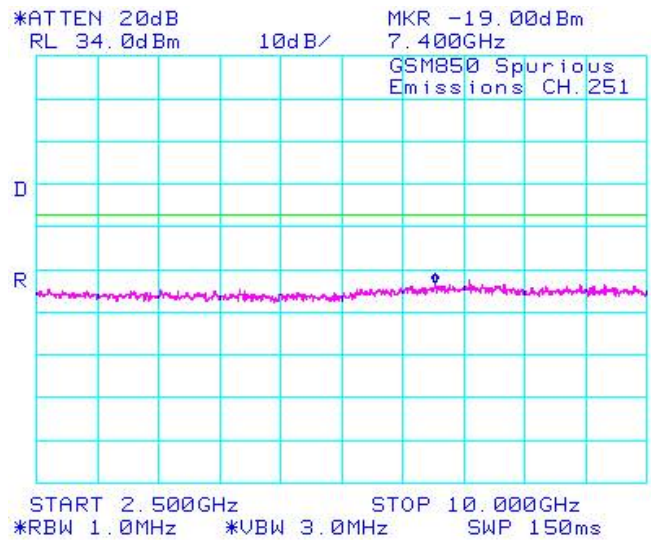


Figure 1-7a: PCS1900 band, Spurious Conducted Emissions, Low Channel

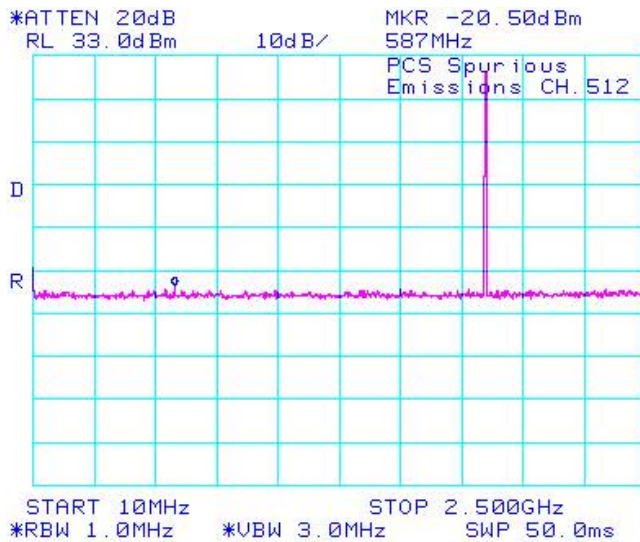
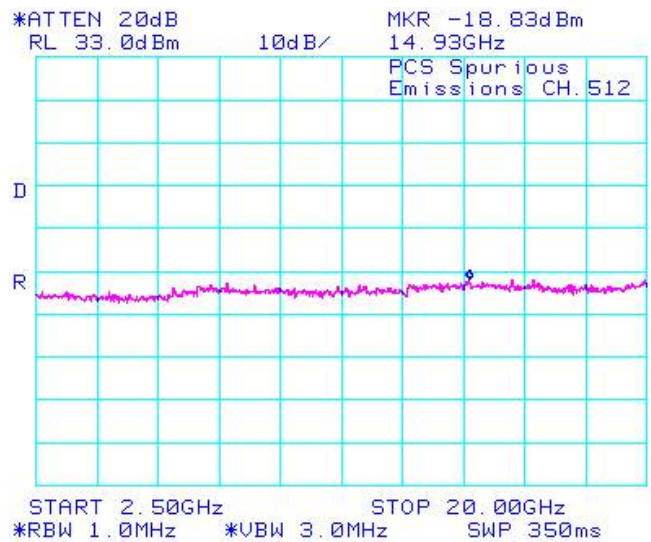



Figure 1-8a: PCS1900 band, Spurious Conducted Emissions, Low Channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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

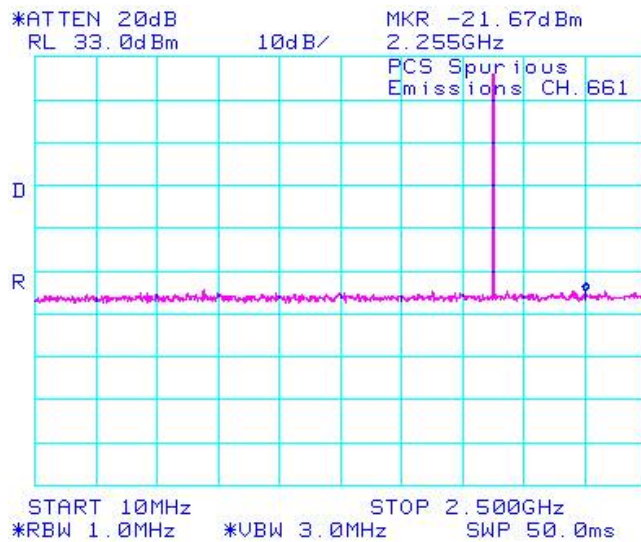


Figure 1-10a: PCS1900 band, Spurious Conducted Emissions, Middle Channel

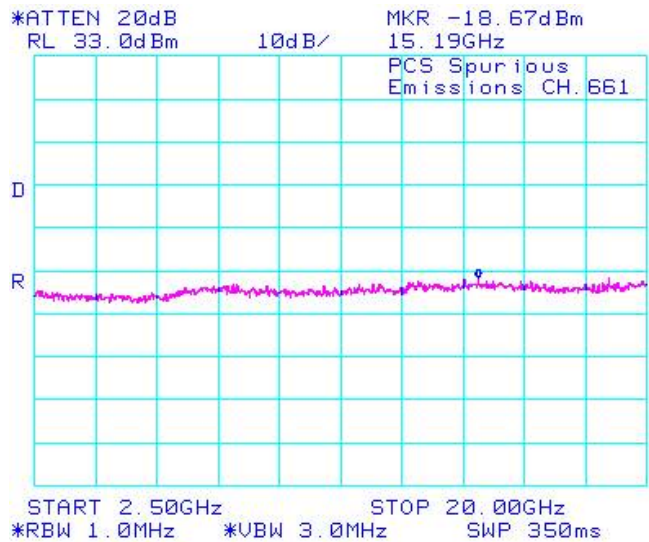


Figure 1-11a: PCS1900 band, Spurious Conducted Emissions, High Channel

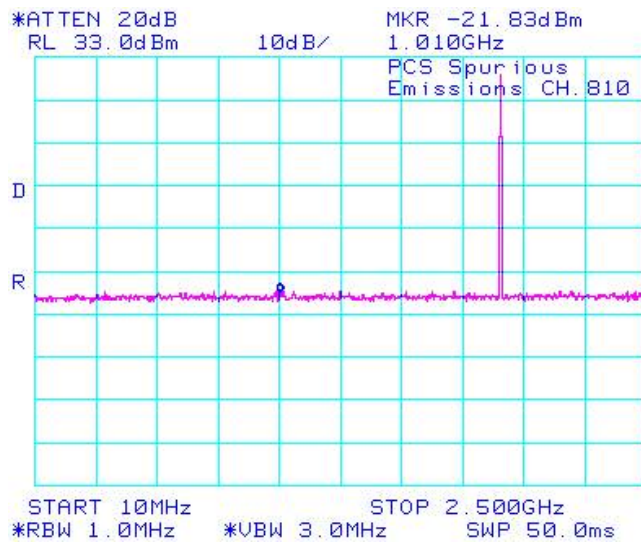
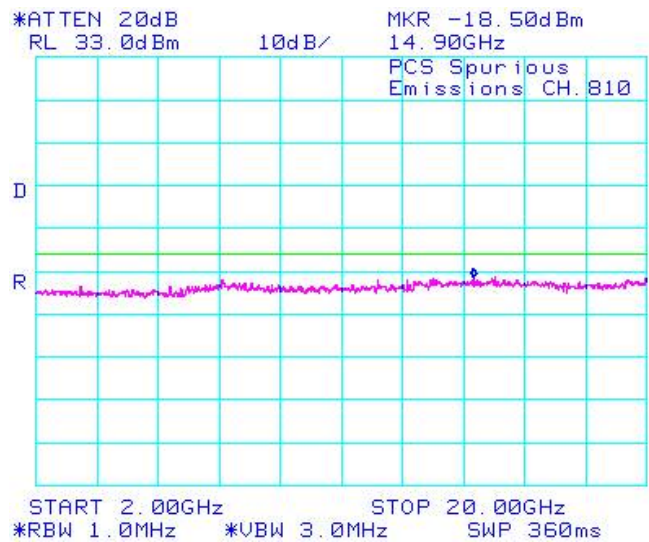



Figure 1-12a: PCS1900 band, Spurious Conducted Emissions, High Channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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

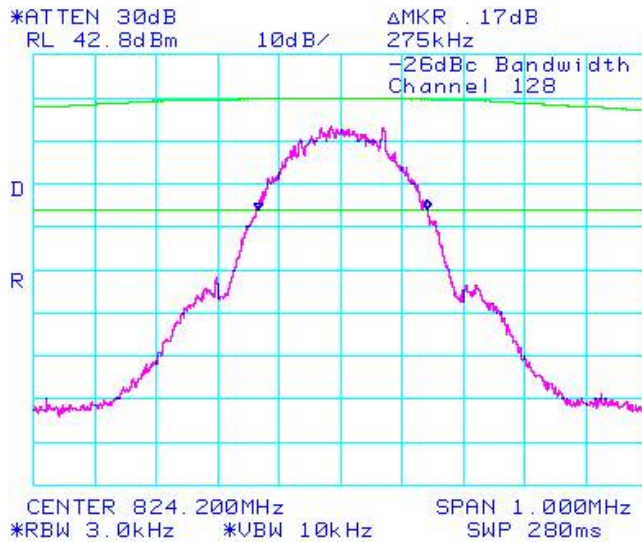


Figure 1-14a: Occupied Bandwidth, GSM850 band Low Channel in GSM mode

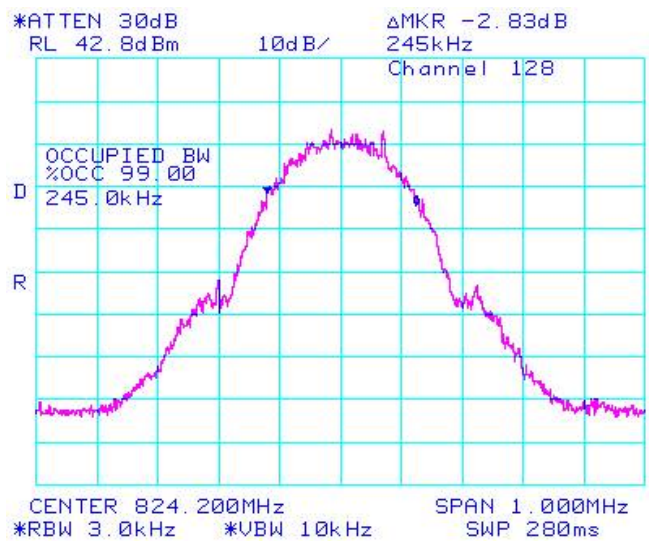


Figure 1-15a: -26dBc bandwidth, GSM850 band Middle Channel in GSM mode

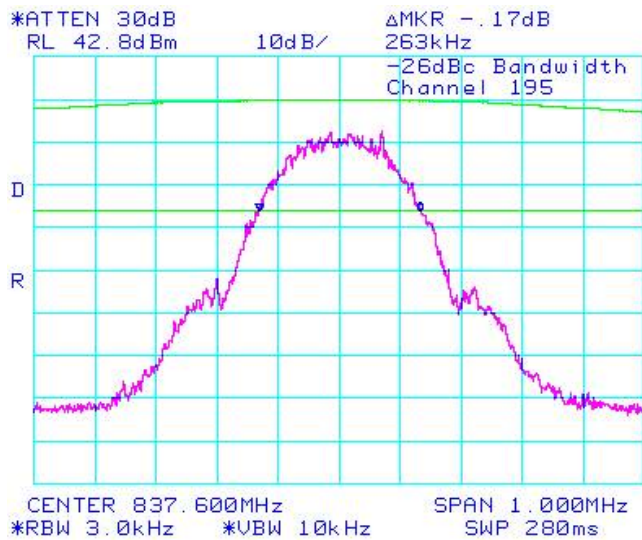
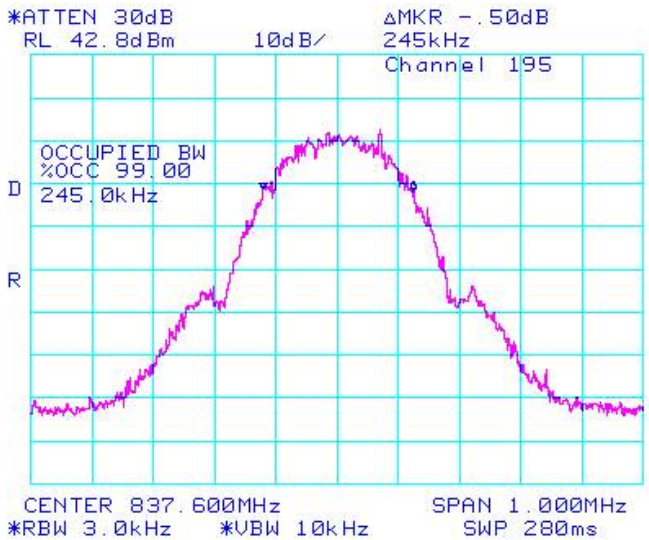



Figure 1-16a: Occupied Bandwidth, GSM850 band Middle Channel in GSM mode



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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

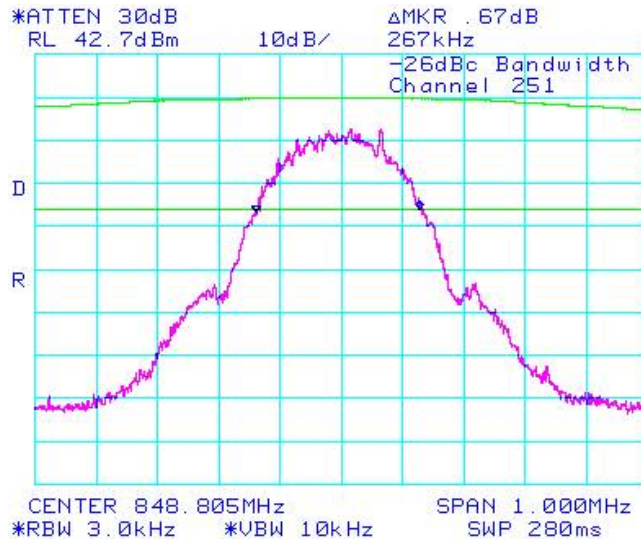


Figure 1-18a: Occupied Bandwidth, GSM850 band High Channel in GSM mode

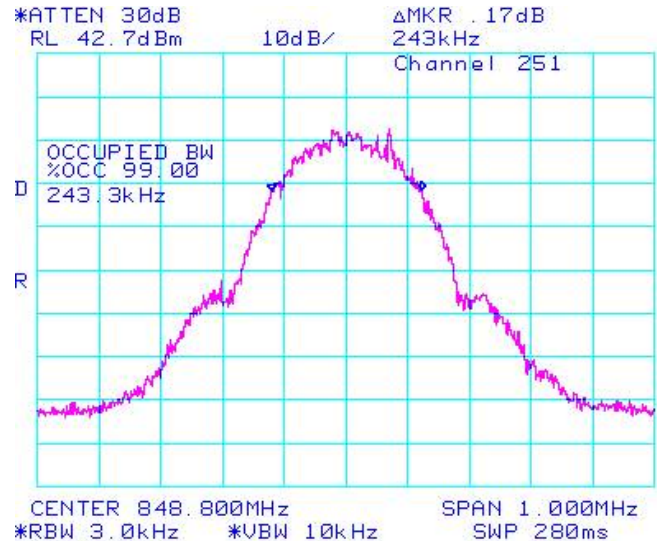


Figure 1-19a: -26dBc bandwidth, PCS1900 Low Channel in GSM mode

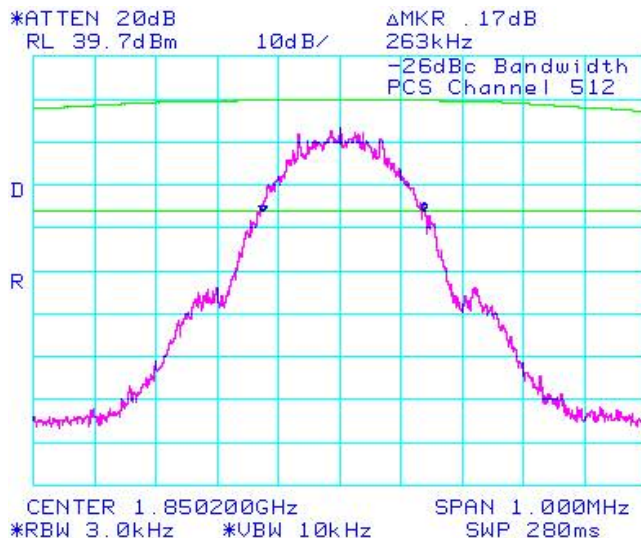
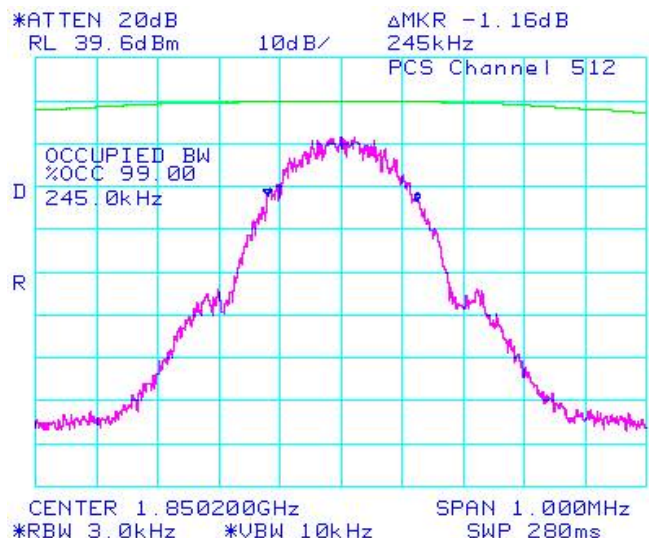



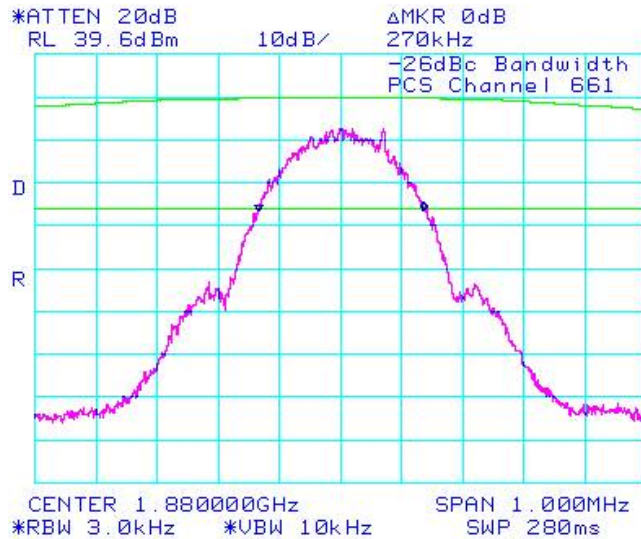
Figure 1-20a: Occupied Bandwidth, PCS1900 Low Channel in GSM mode



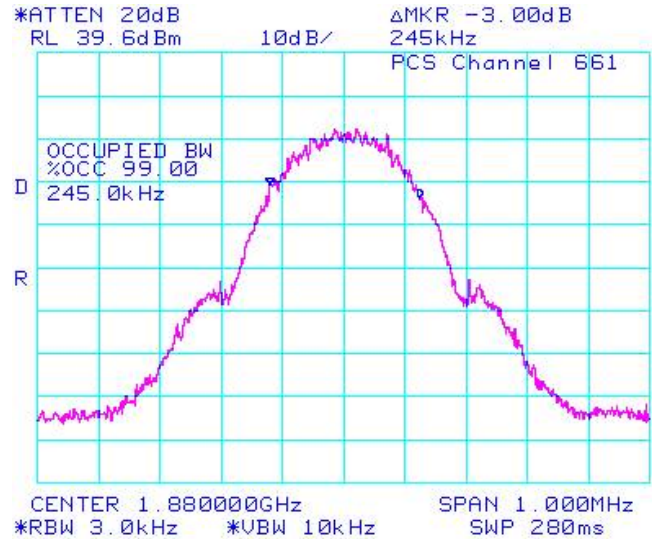
	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

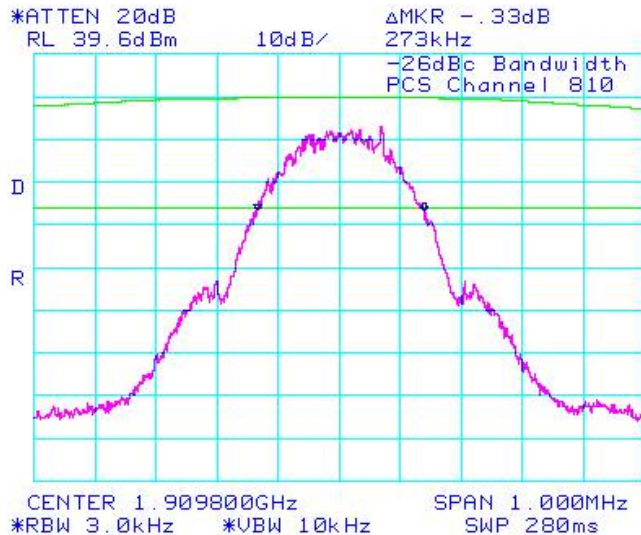
**Figure 1-21a: -26dBc bandwidth, PCS1900
Middle Channel in GSM mode**



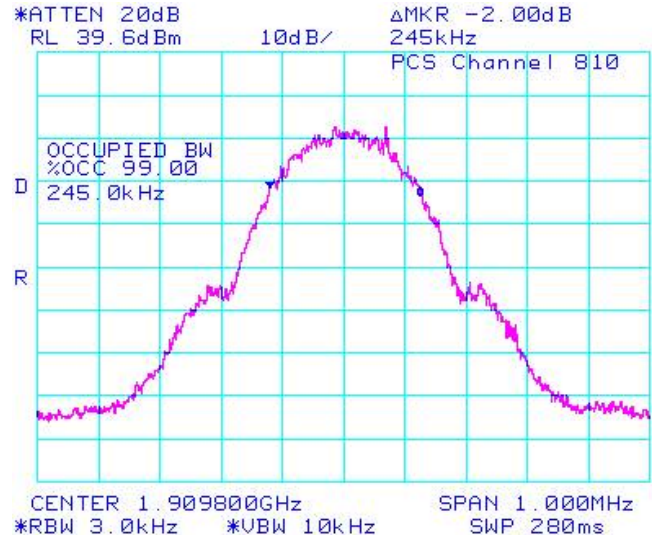
**Figure 1-22a: Occupied Bandwidth, PCS1900
Middle Channel in GSM mode**




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



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



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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

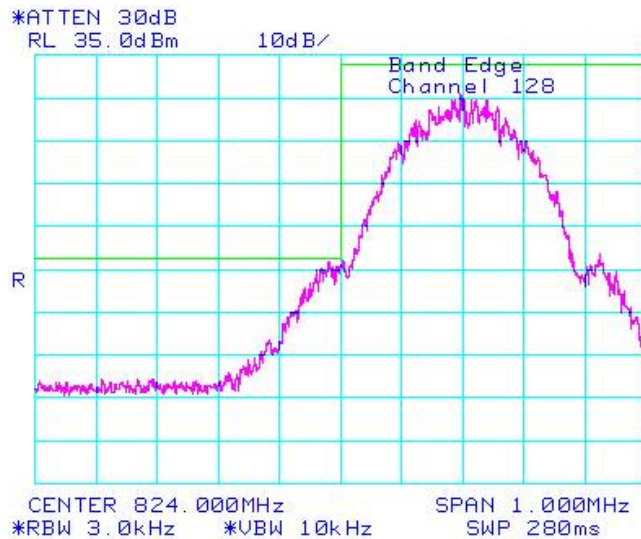


Figure 1-26a: GSM850 band High Channel Mask in GSM mode

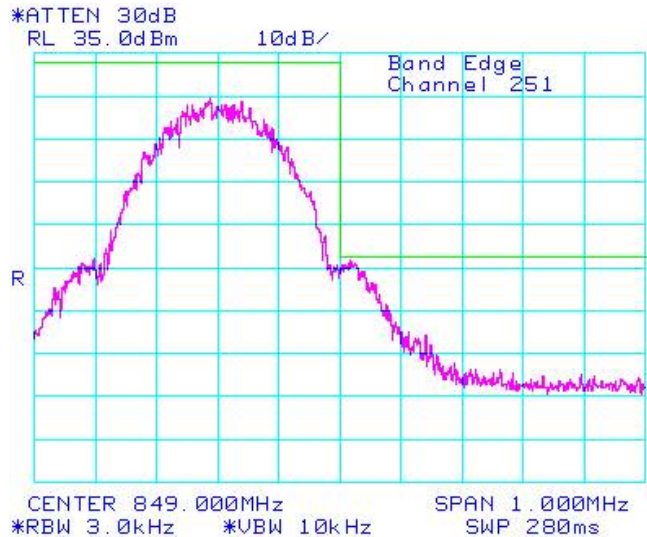


Figure 1-27a: PCS1900, Low Channel Mask in GSM mode

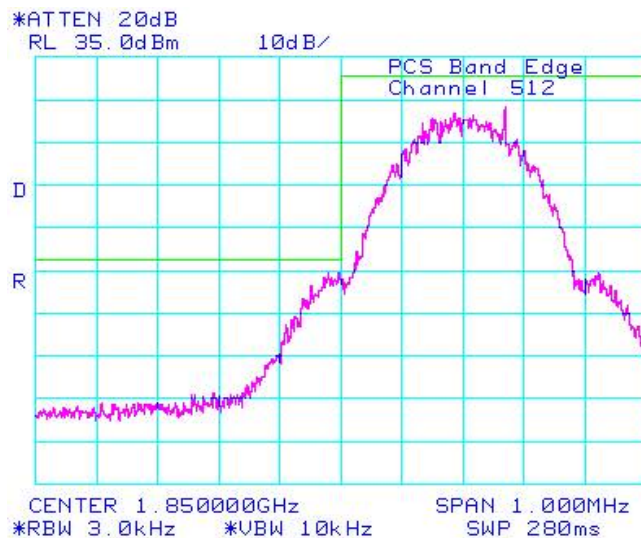
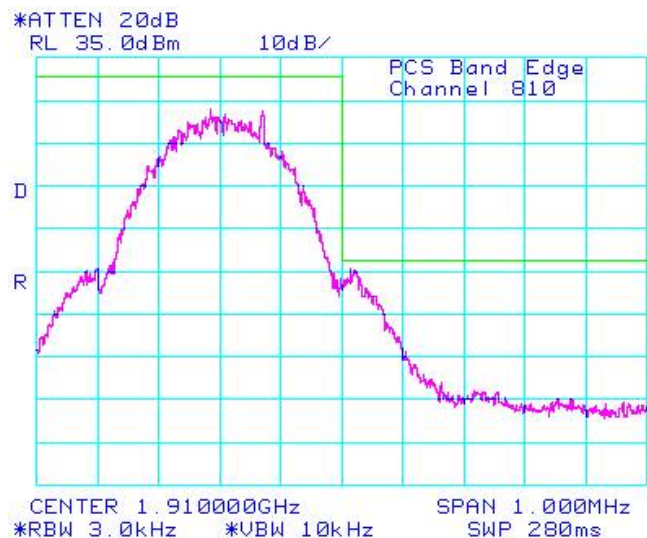



Figure 1-28a: PCS1900, High Channel Mask in GSM mode



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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

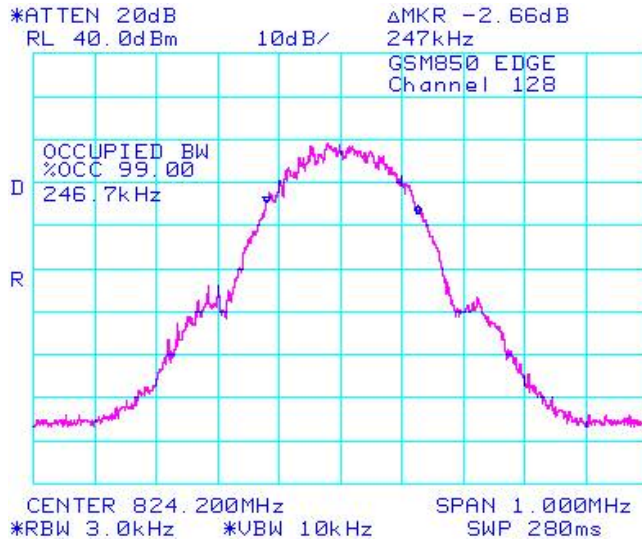


Figure 1-30a: Occupied Bandwidth, GSM850 Band, Middle Channel in EDGE mode

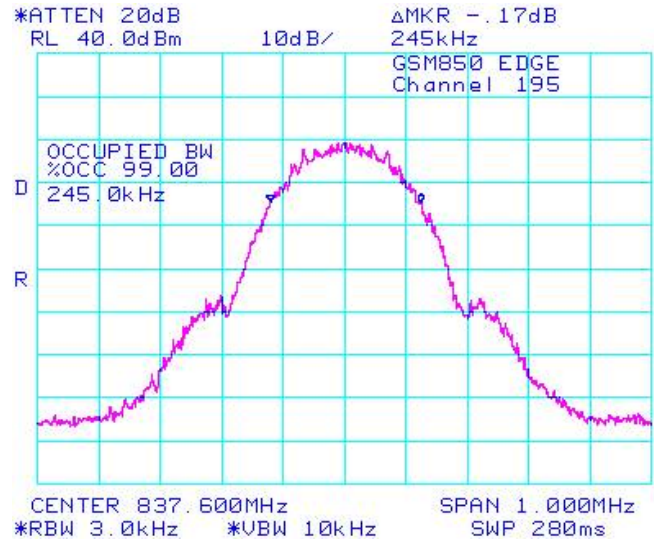


Figure 1-31a: Occupied Bandwidth, GSM850 band, High Channel in EDGE mode

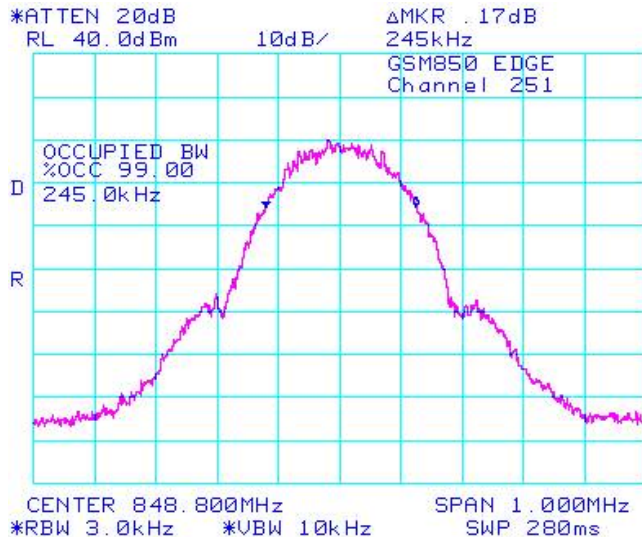
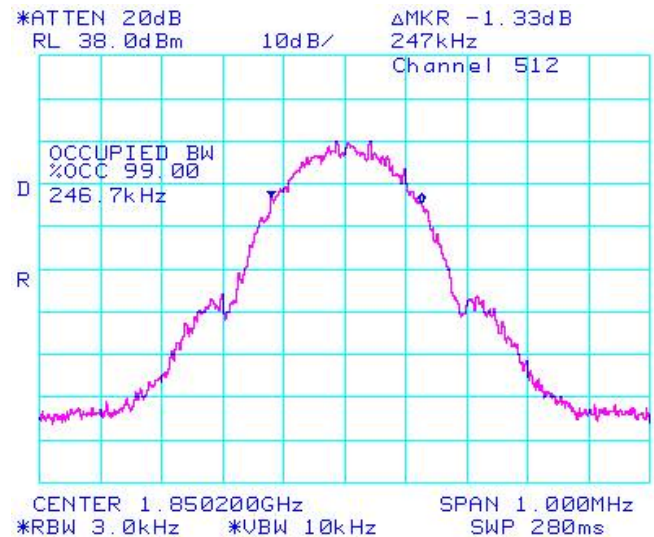



Figure 1-32a: Occupied Bandwidth, PCS1900 Band, Low Channel in EDGE mode



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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

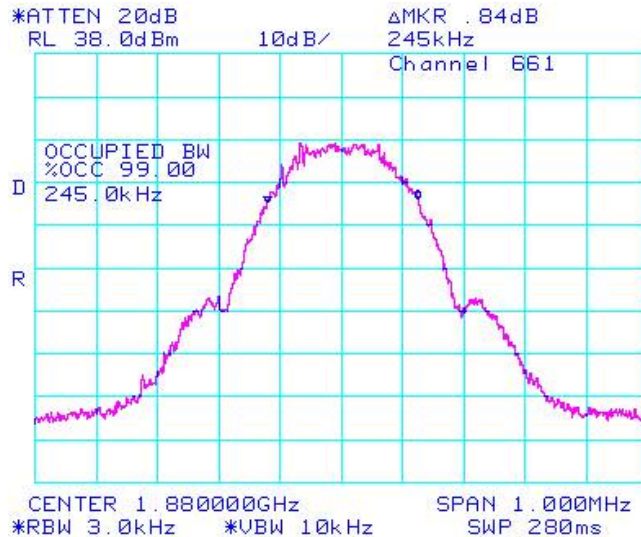


Figure 1-34a: Occupied Bandwidth, PCS1900 Band, High Channel in EDGE mode

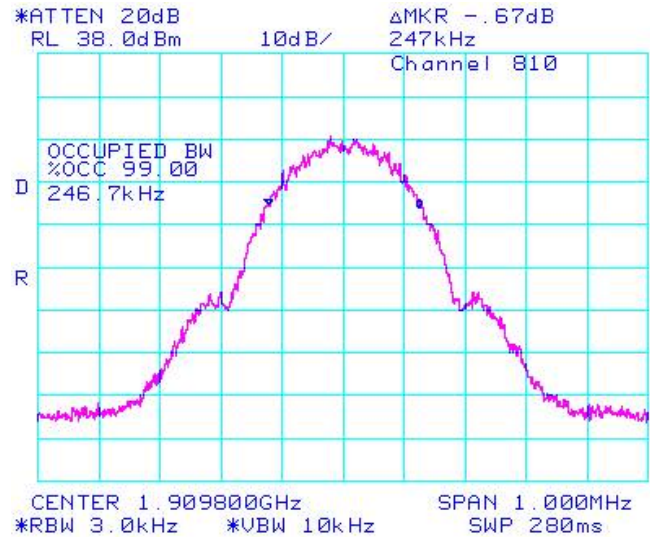


Figure 1-35a: GSM850 band, Low Channel Mask in EDGE mode

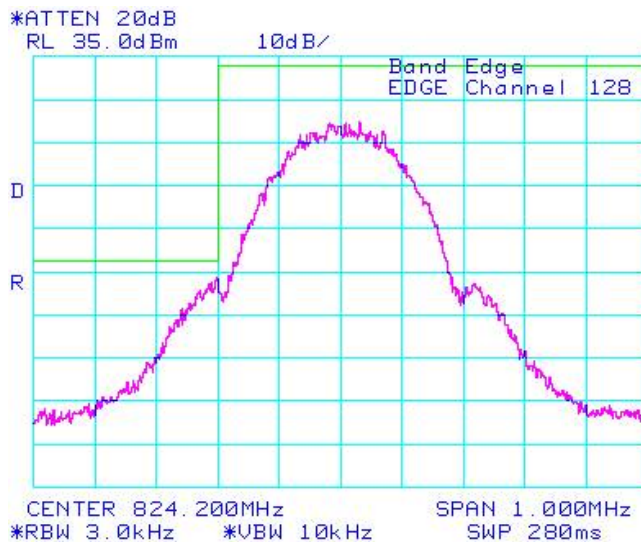
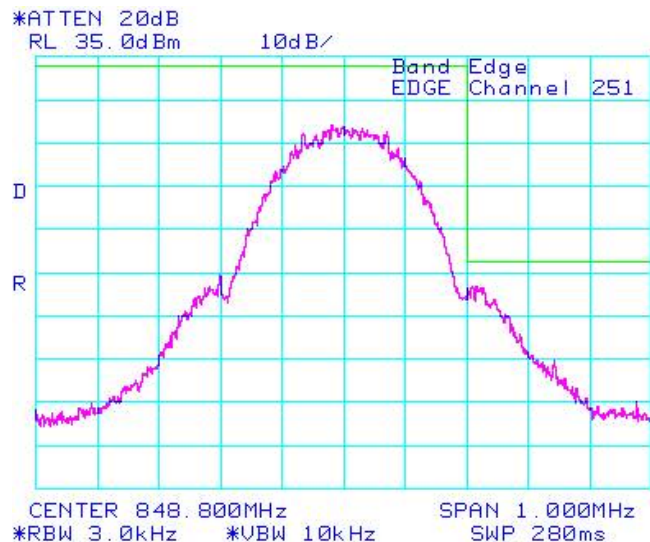



Figure 1-36a: GSM850 band High Channel Mask in EDGE mode



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Conducted RF Emission Test Data cont'd

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

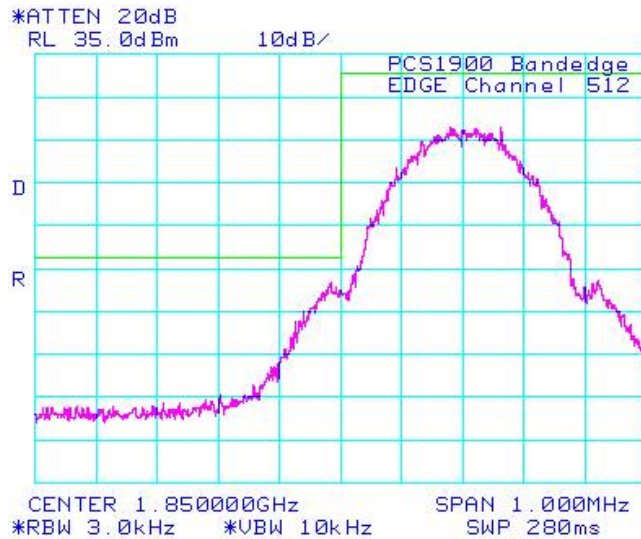
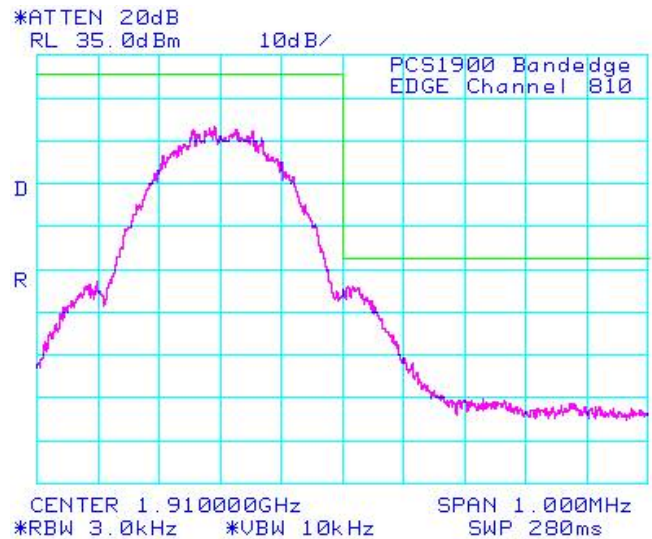



Figure 1-38a: PCS1900, High Channel Mask in EDGE mode



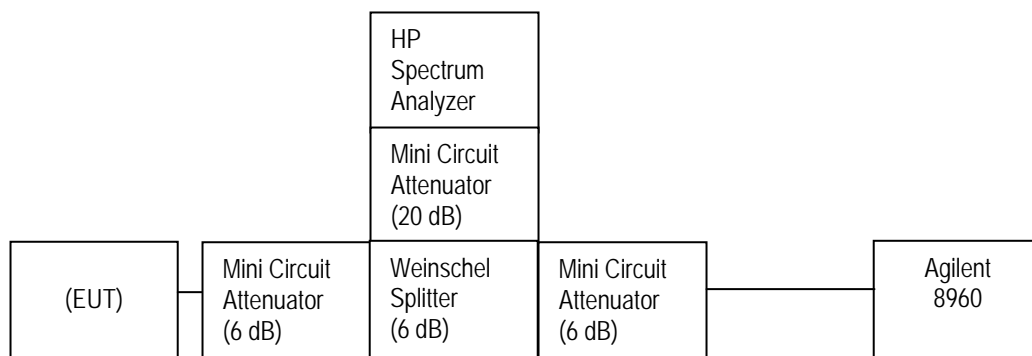
APPENDIX 1B – CDMA CONDUCTED RF EMISSIONS TEST DATA/PLOTS

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA 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 PIN 30FD0798.

Test Setup Diagram




Date of Test: October 26, 2009

The environmental test conditions were:

Temperature: 24 °C
Pressure: 1020 mb
Relative Humidity: 25 %

The measurements were performed by Maurice Battler.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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

Test Data for Cellular and PCS selected Frequencies in CDMA2000 mode

Cellular Frequency (MHz)	99% Occupied Bandwidth (MHz)
824.700	1.287
836.520	1.280
848.310	1.280


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

Measurement Plots for Cellular and PCS in CDMA2000 mode

Refer to the following measurement plots for more detail.

See Figures 1-13b to 1-18b for the plots of the 99% Occupied Bandwidth.
See Figures 1-19b to 1-24b for plots of the channel mask results.

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

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

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

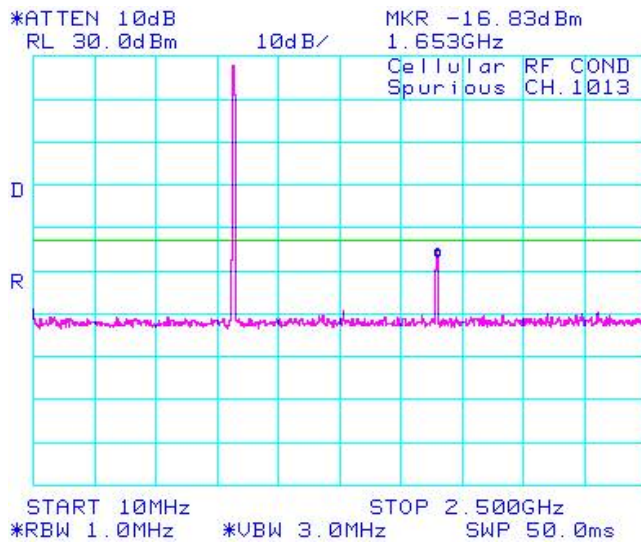


Figure 1-2b: Cellular, Spurious Conducted Emissions, Low channel

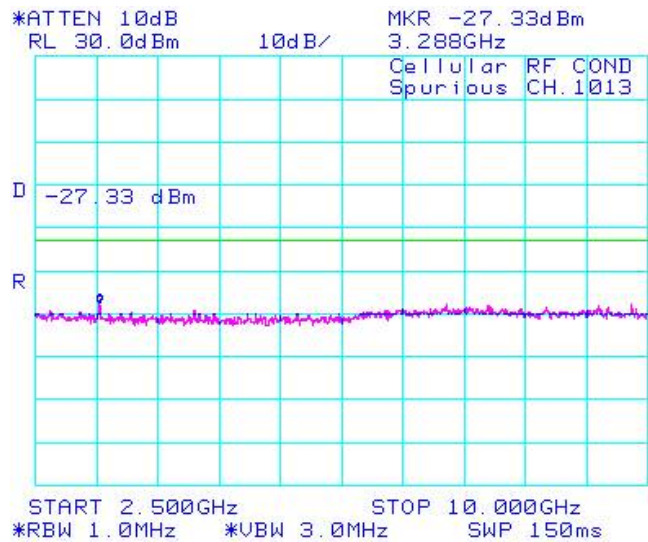


Figure 1-3b: Cellular, Spurious Conducted Emissions, Middle channel

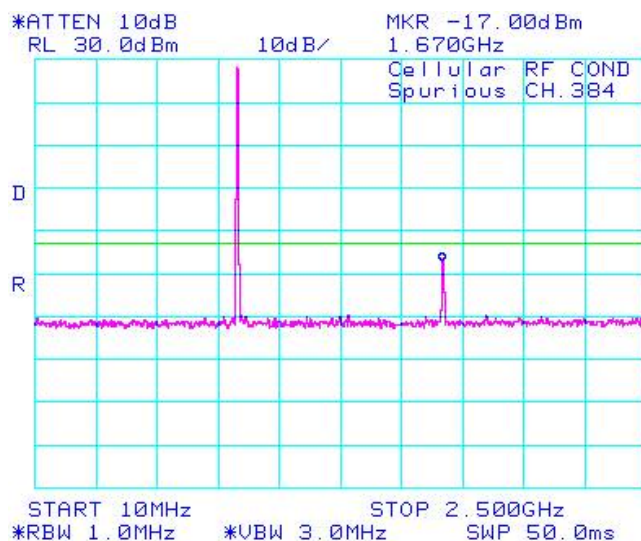
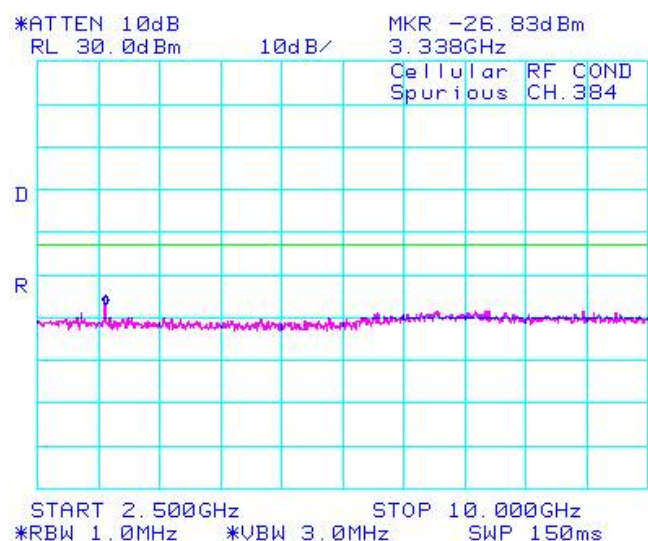



Figure 1-4b: Cellular, Spurious Conducted Emissions, Middle channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

Figure 1-5b: Cellular, Spurious Conducted Emissions, High Channel

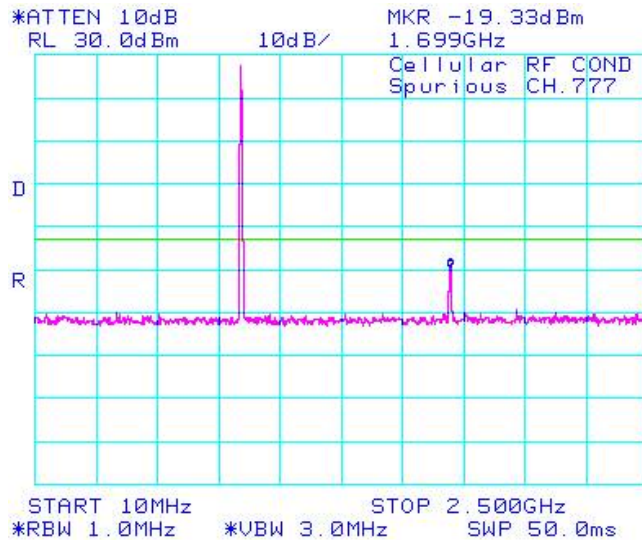


Figure 1-6b: Cellular, Spurious Conducted Emissions, High Channel

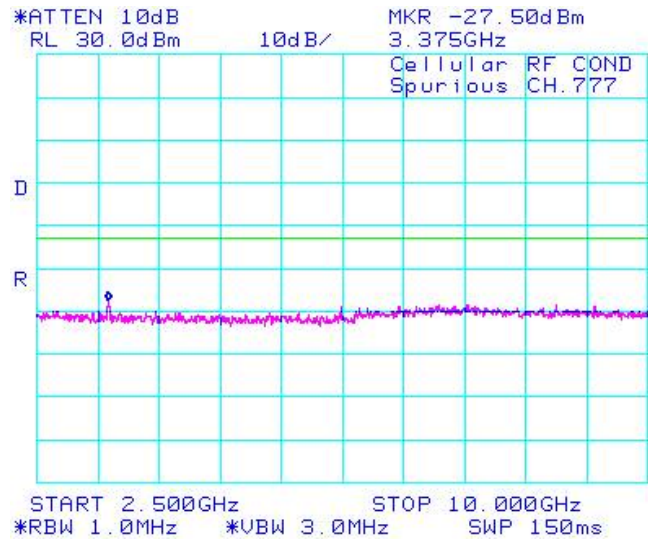


Figure 1-7b: PCS, Spurious Conducted Emissions, Low Channel

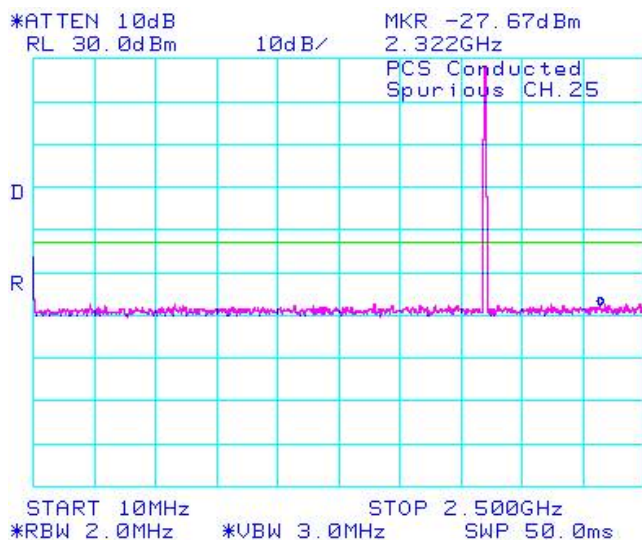
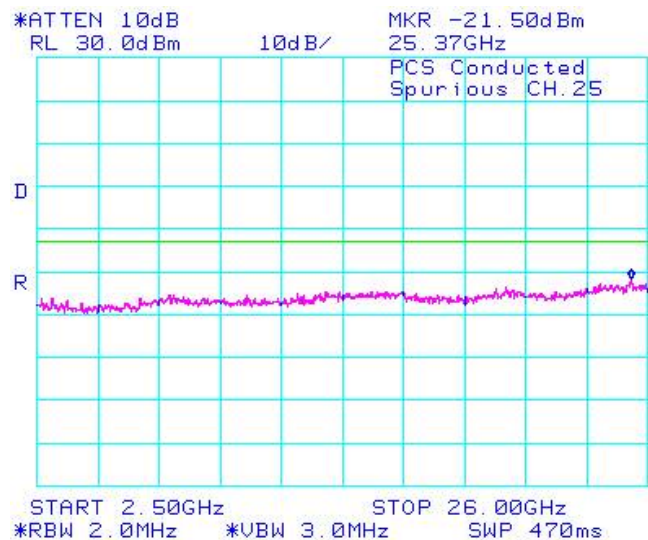



Figure 1-8b: PCS, Spurious Conducted Emissions, Low Channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

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

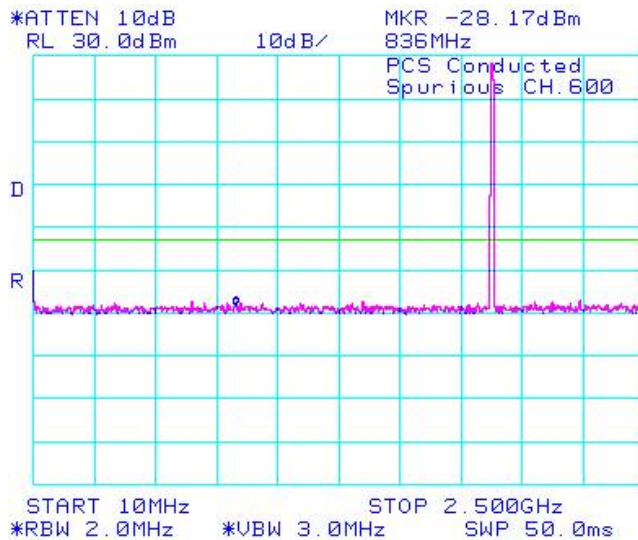


Figure 1-10b: PCS, Spurious Conducted Emissions, Middle Channel

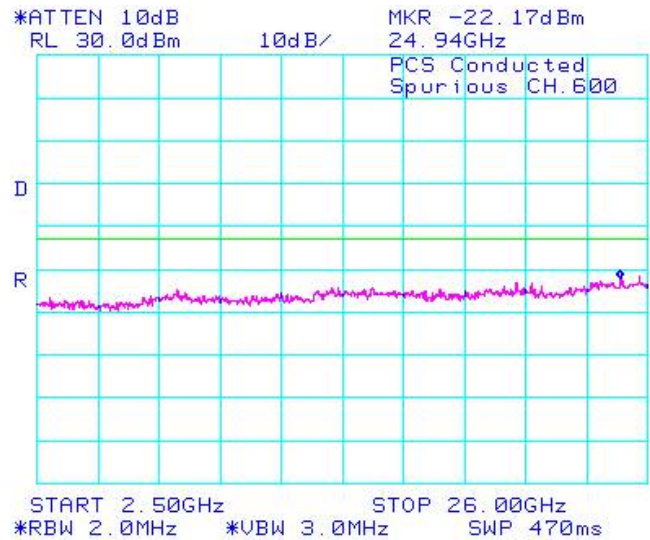


Figure 1-11b: PCS, Spurious Conducted Emissions, High Channel

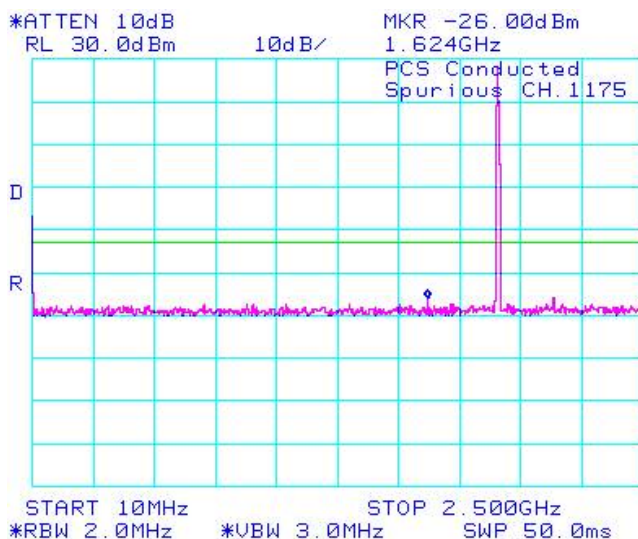
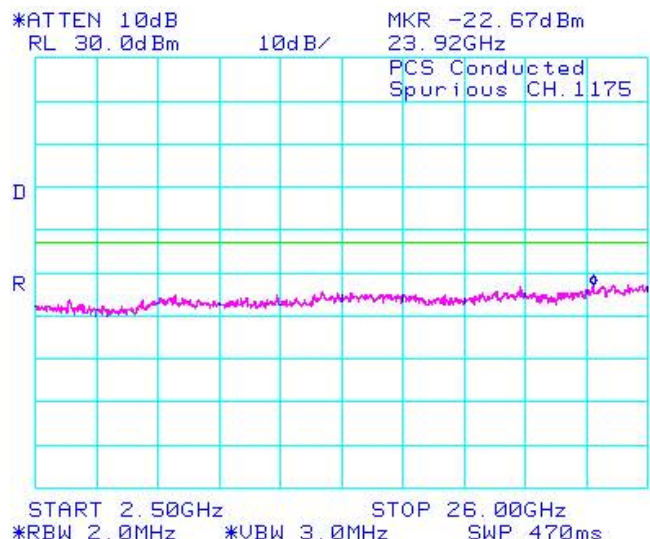



Figure 1-12b: PCS, Spurious Conducted Emissions, High Channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

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

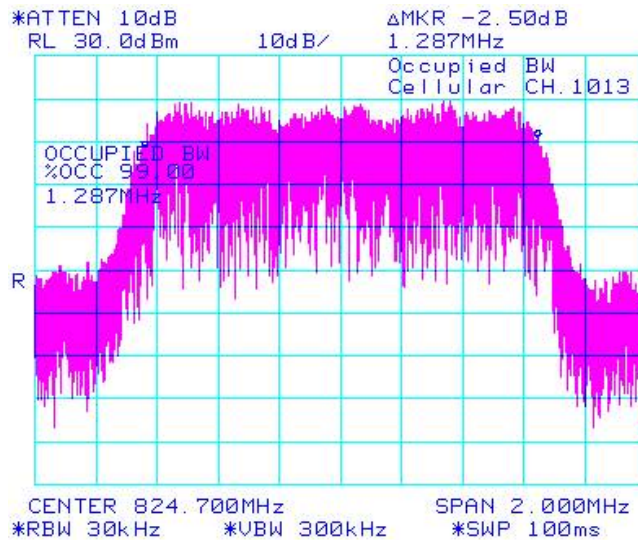


Figure 1-14b: Occupied Bandwidth, Cellular Middle Channel

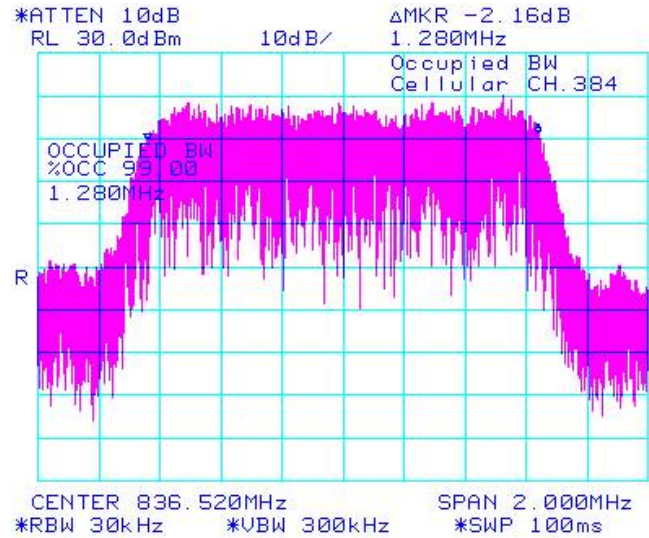


Figure 1-15b: Occupied Bandwidth, Cellular High Channel

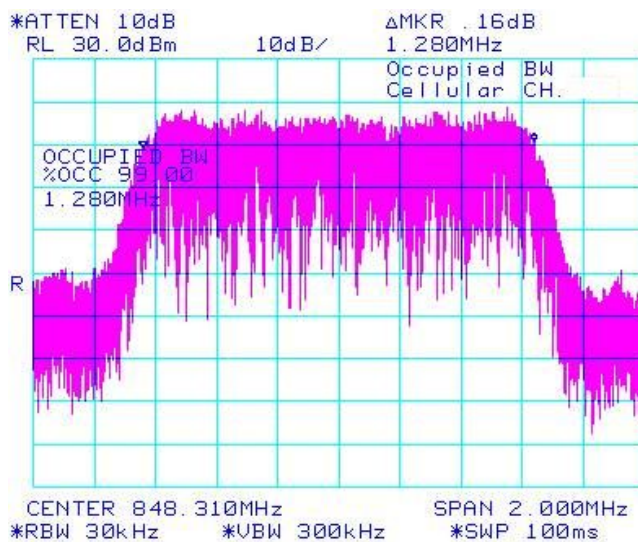
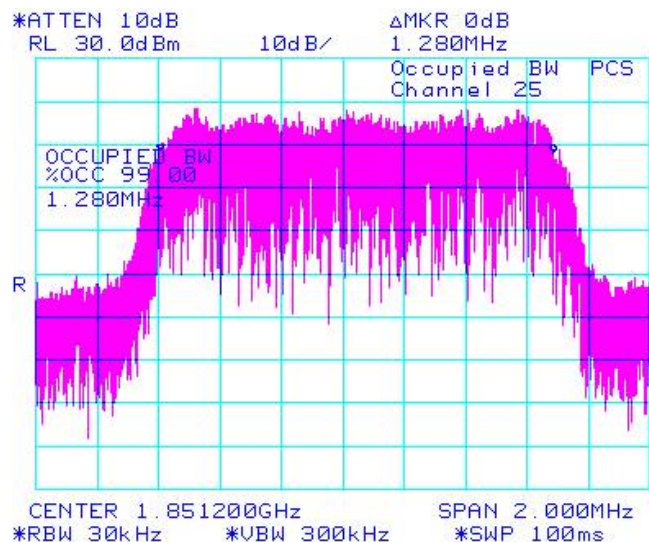



Figure 1-16b: Occupied Bandwidth, PCS Low Channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

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

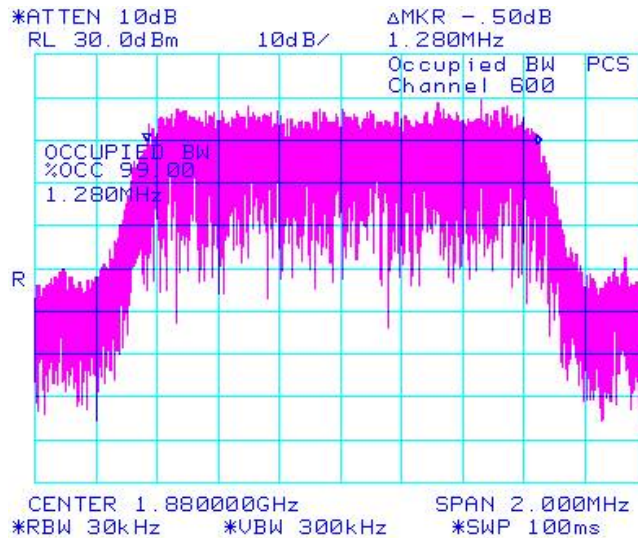


Figure 1-18b: Occupied Bandwidth, PCS High Channel

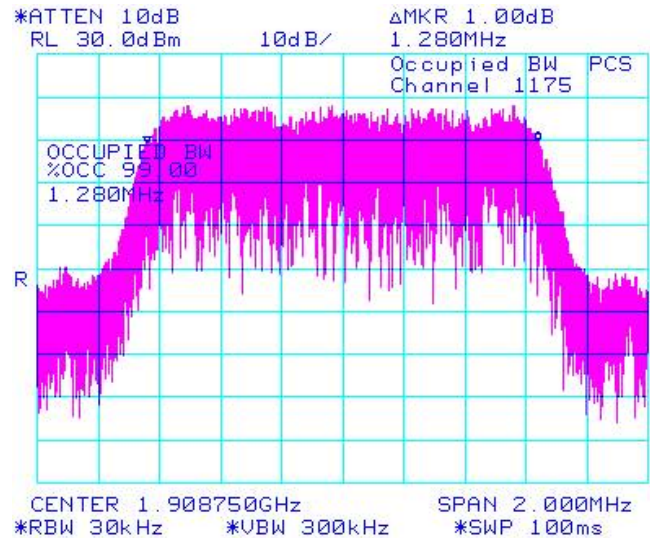


Figure 1-19b: Cellular CDMA2000, Low Channel Mask

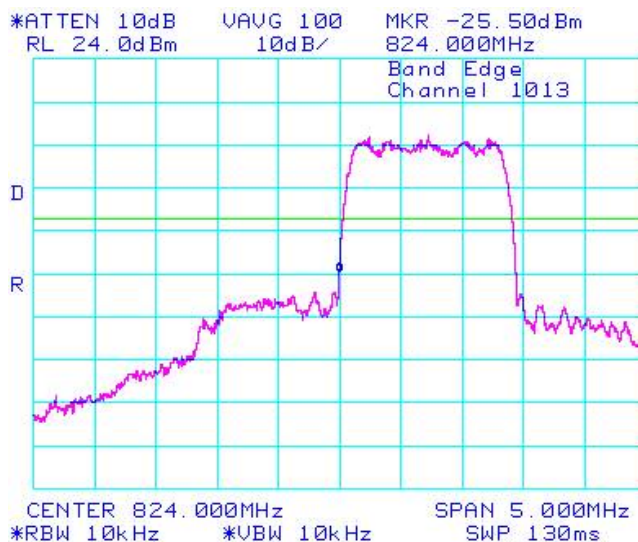
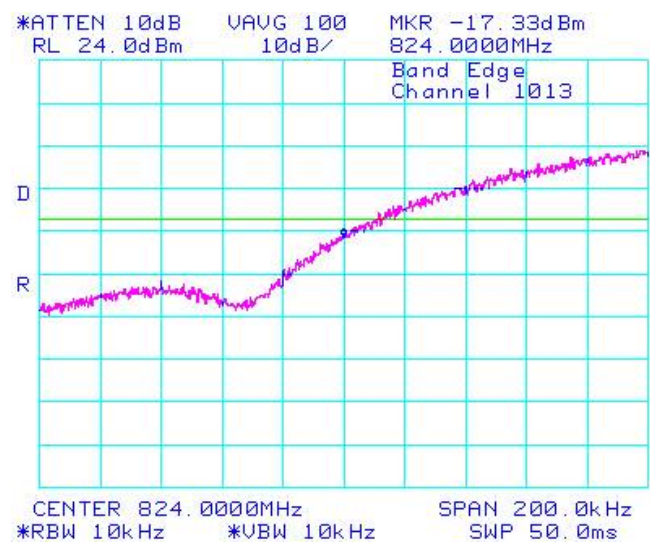



Figure 1-20b: Cellular CDMA2000, Low Channel Mask



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

Figure 1-21b: Cellular CDMA2000, High Channel Mask

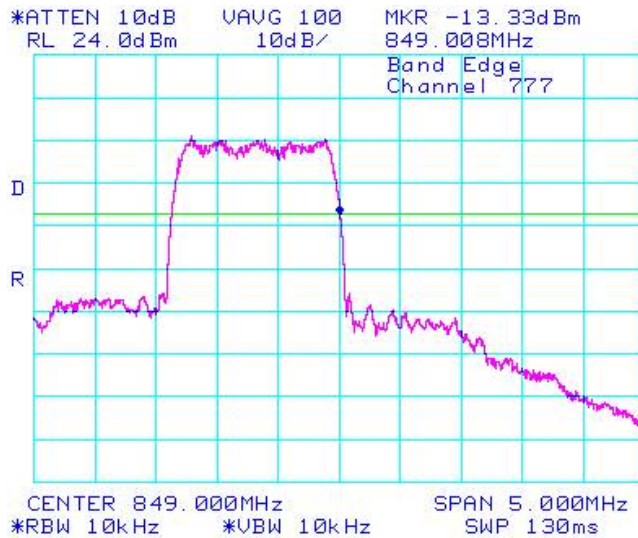


Figure 1-22b: Cellular CDMA2000, High Channel Mask

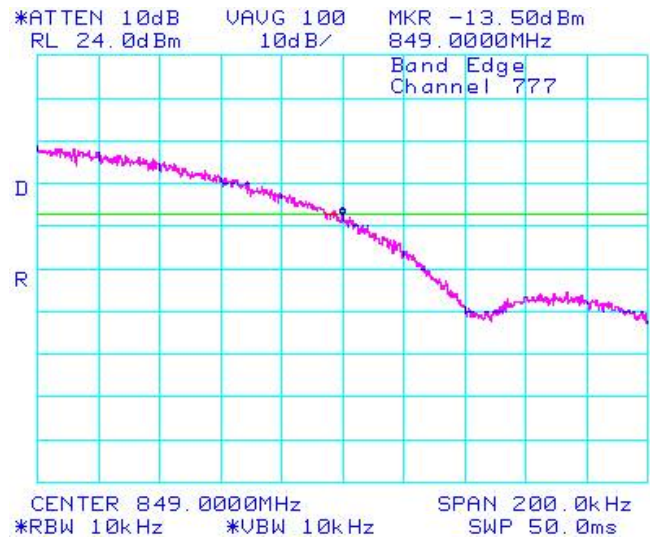


Figure 1-23b: PCS, Low Channel Mask

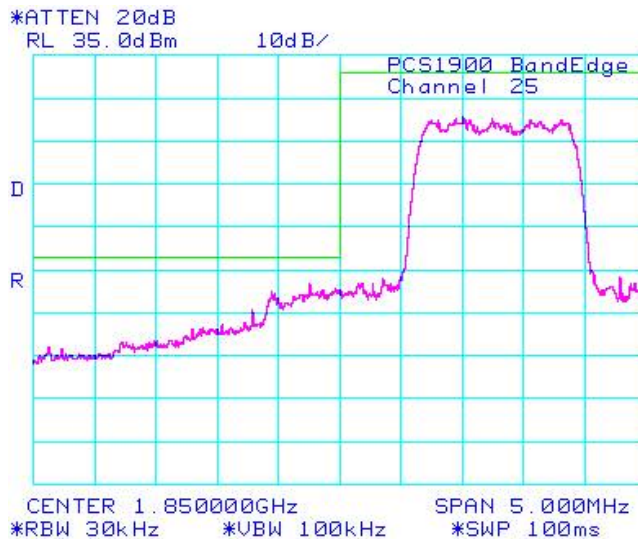
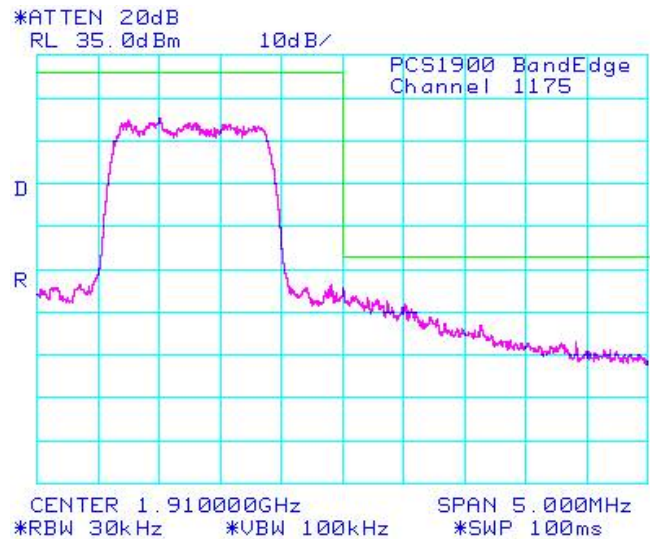



Figure 1-24b: PCS, High Channel Mask



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA 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. See figures 1-25b to 1-36b for the plots of the conducted spurious emissions.

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

Cellular Frequency (MHz)	99% Occupied Bandwidth (MHz)
824.700	1.280
836.520	1.280
848.310	1.280

PCS Frequency (MHz)	99% Occupied Bandwidth (MHz)
1851.200	1.280
1880.000	1.287
1908.750	1.280


Measurement Plots for Cellular and PCS in 1xEVDO mode

Refer to the following measurement plots for more detail.

See Figures 1-37b to 1-42b for the plots of the 99% Occupied Bandwidth.

See Figures 1-43b to 1-48b for plots of the channel mask results.

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

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

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

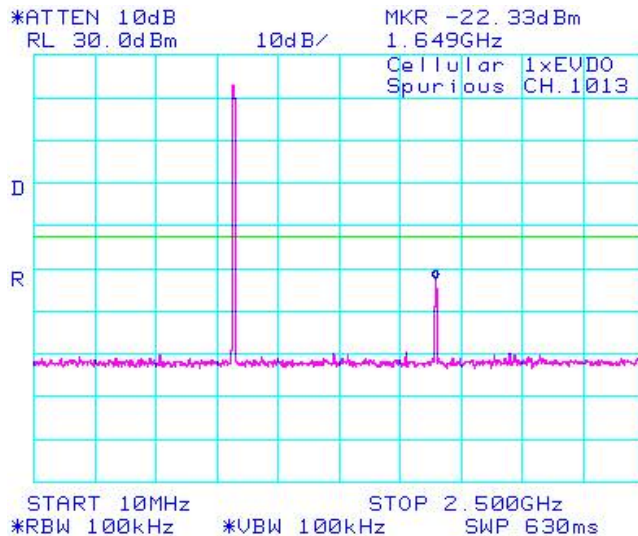


Figure 1-26b: Cellular, Spurious Conducted Emissions, Low channel

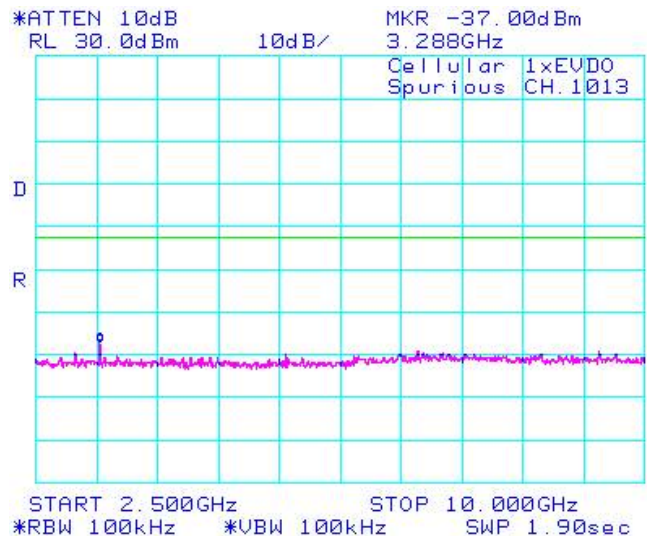


Figure 1-27b: Cellular, Spurious Conducted Emissions, Middle channel

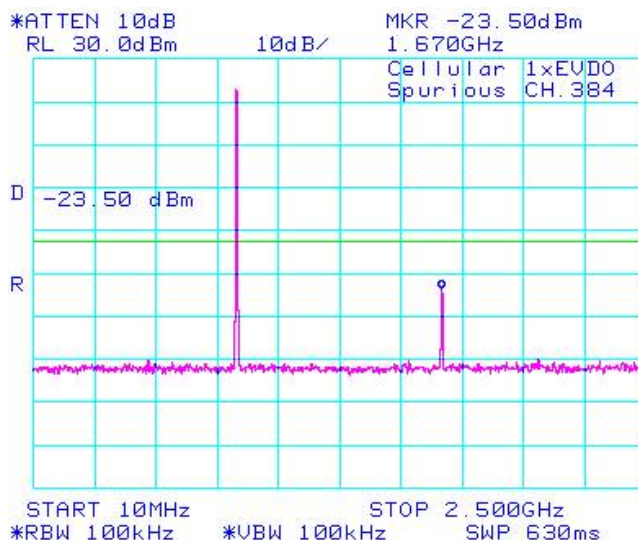
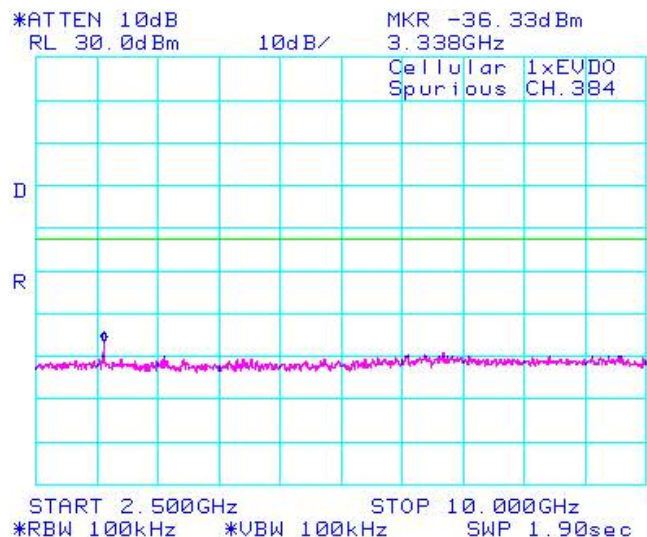



Figure 1-28b: Cellular, Spurious Conducted Emissions, Middle channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

Figure 1-29b: Cellular, Spurious Conducted Emissions, High Channel

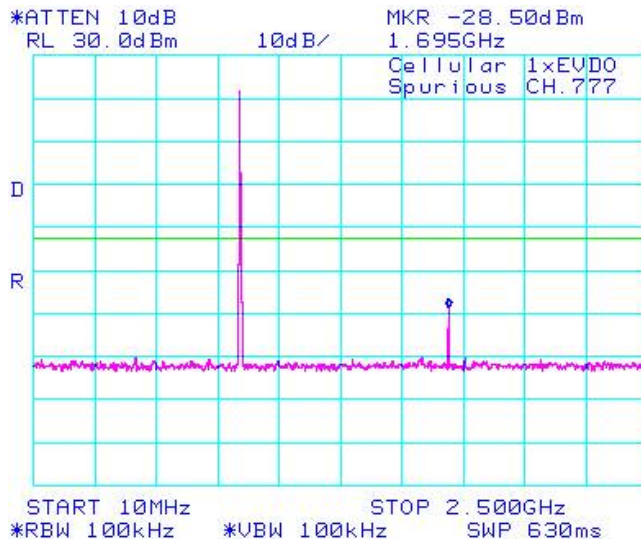


Figure 1-30b: Cellular, Spurious Conducted Emissions, High Channel

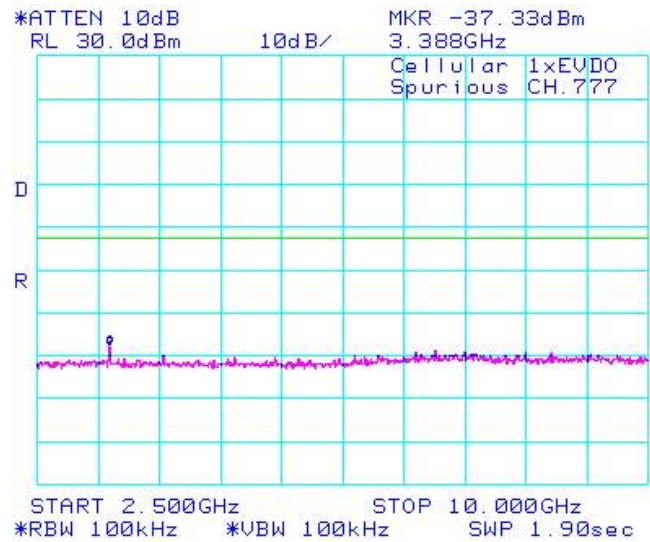


Figure 1-31b: PCS, Spurious Conducted Emissions, Low Channel

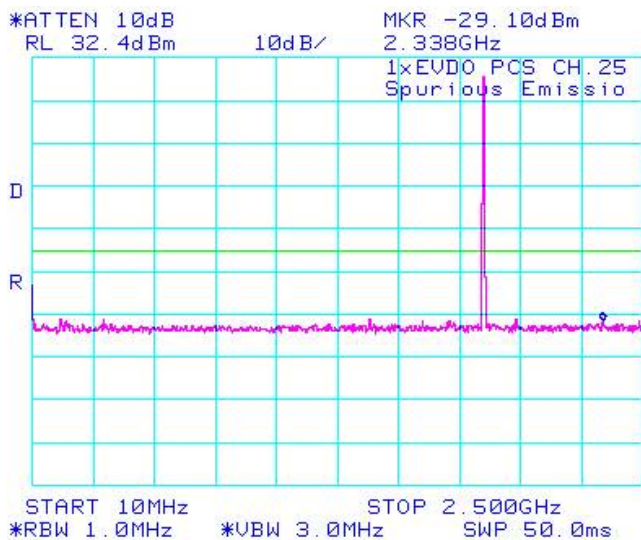
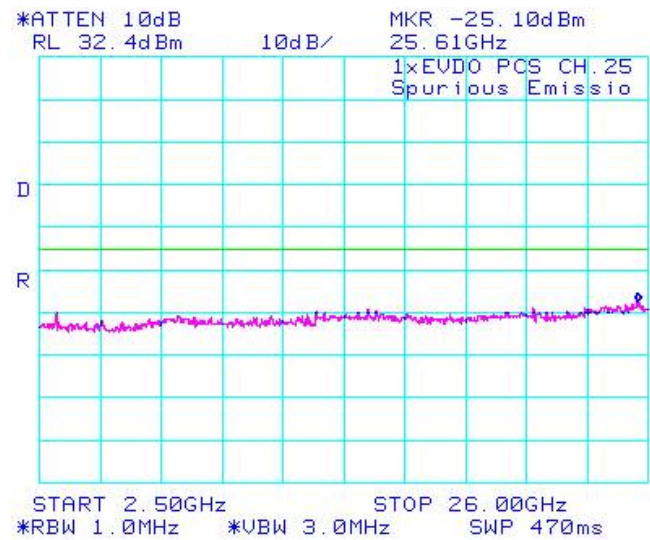



Figure 1-32b: PCS, Spurious Conducted Emissions, Low Channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

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

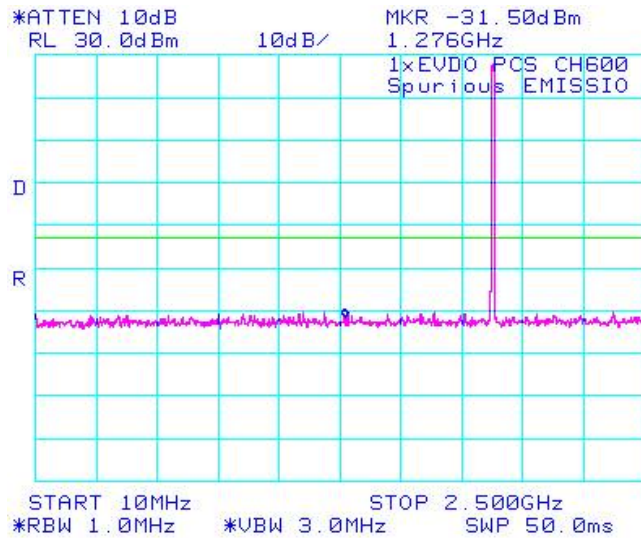


Figure 1-34b: PCS, Spurious Conducted Emissions, Middle Channel

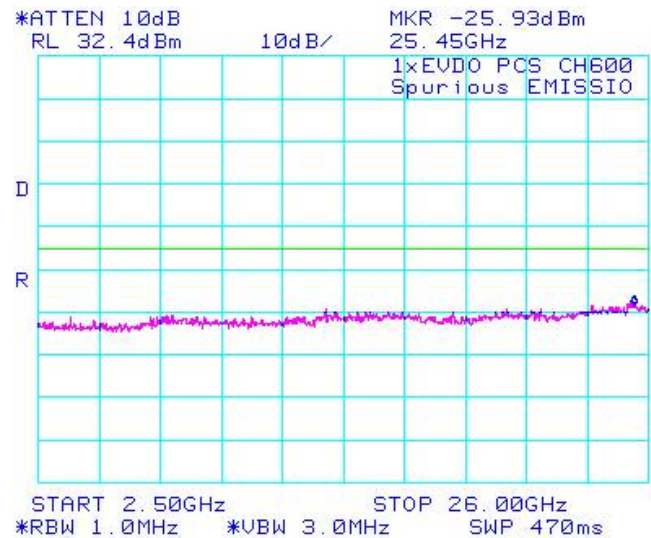


Figure 1-35b: PCS, Spurious Conducted Emissions, High Channel

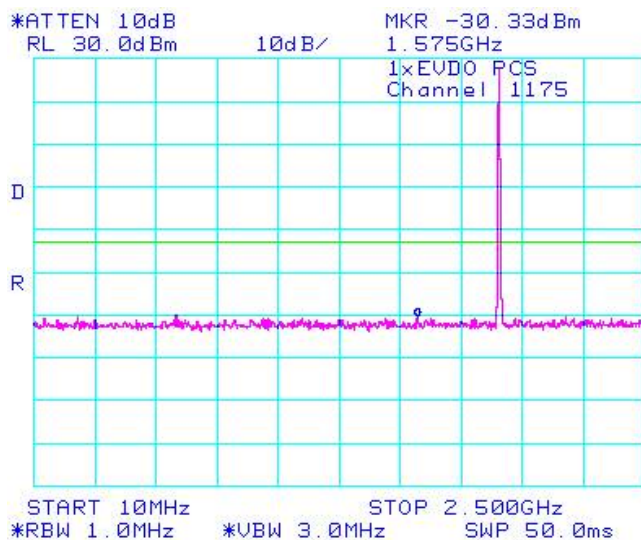
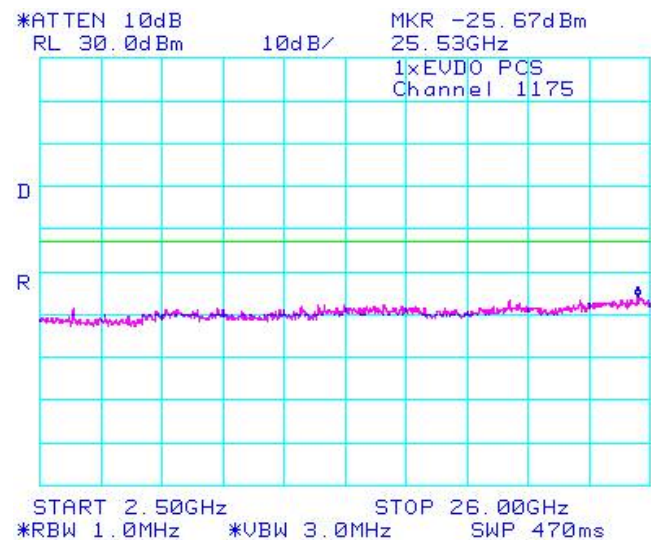



Figure 1-36b: PCS, Spurious Conducted Emissions, High Channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

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

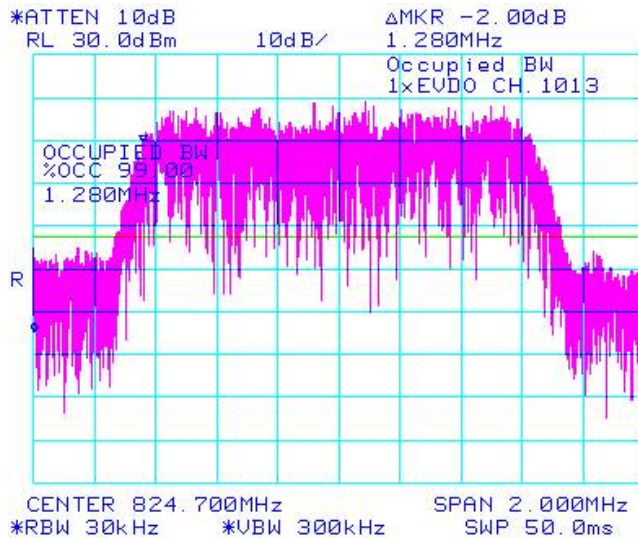


Figure 1-38b: Occupied Bandwidth, Cellular Middle Channel

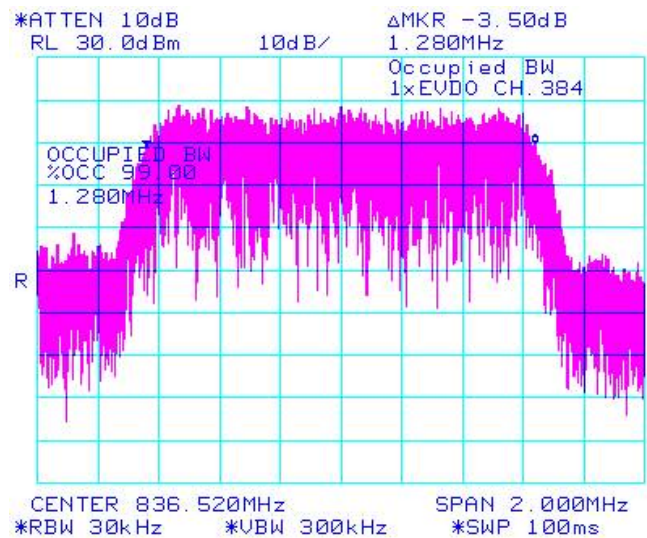


Figure 1-39b: Occupied Bandwidth, Cellular High Channel

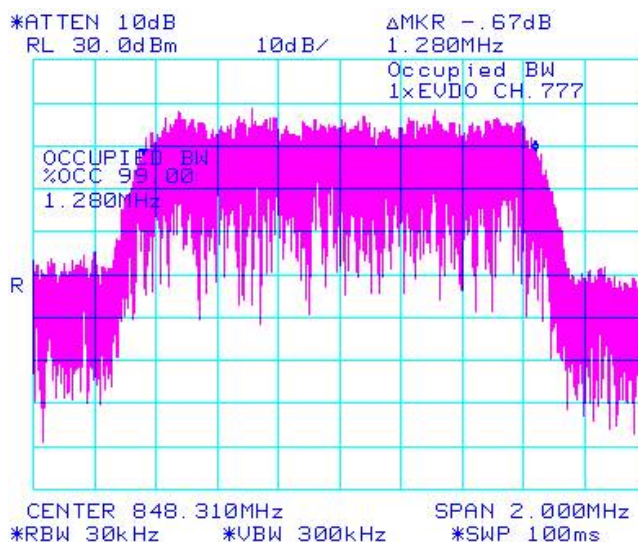
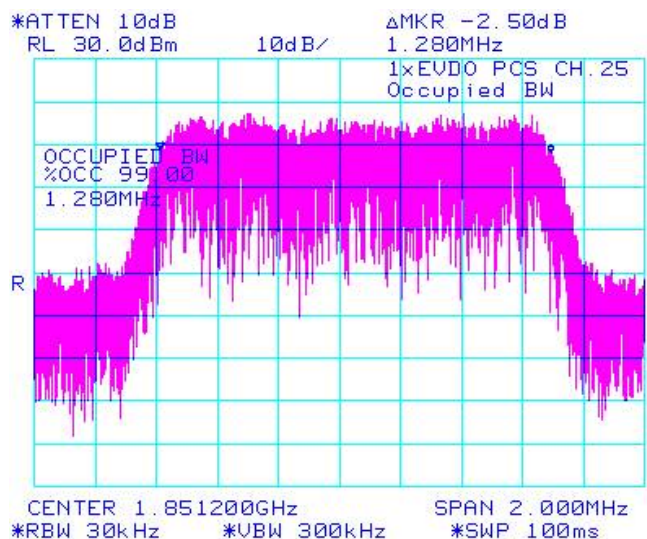



Figure 1-40b: Occupied Bandwidth, PCS Low Channel



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

Figure 1-41b: Occupied Bandwidth, PCS Middle Channel

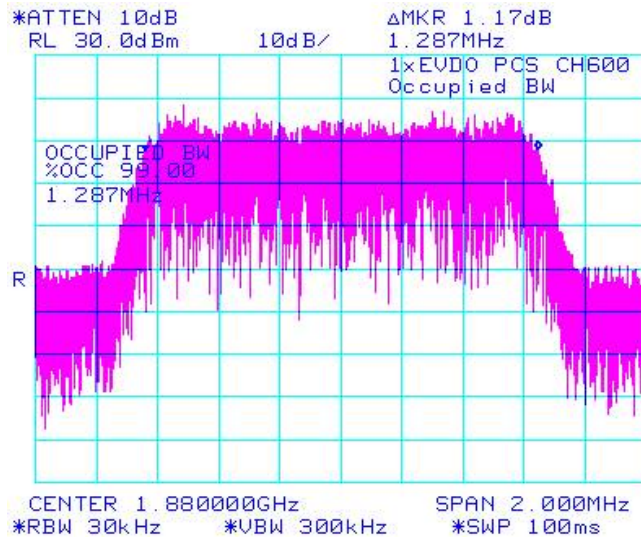


Figure 1-42b: Occupied Bandwidth, PCS High Channel

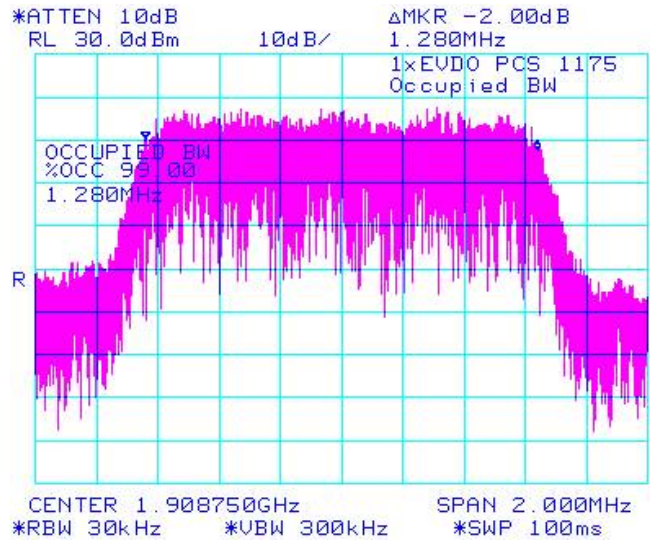


Figure 1-43b: Cellular CDMA2000, Low Channel Mask

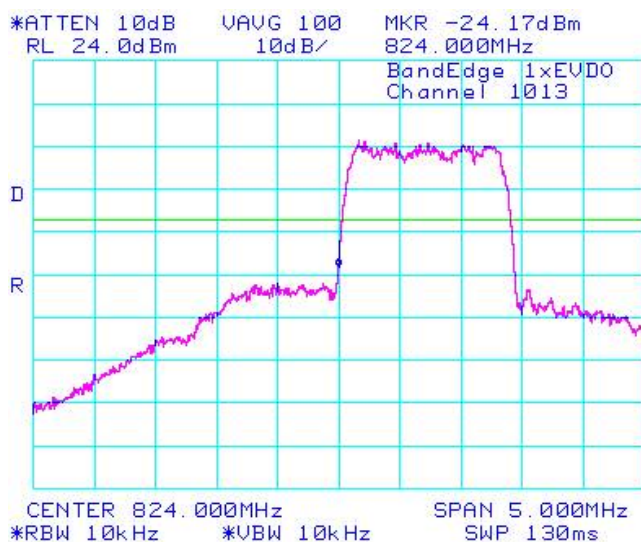
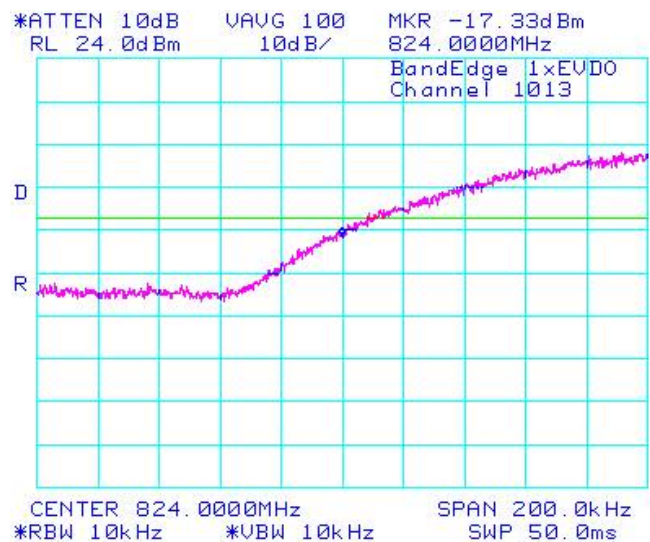



Figure 1-44b: Cellular CDMA2000, Low Channel Mask



	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 1B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Conducted RF Emission Test Data cont'd

Figure 1-45b: Cellular CDMA2000, High Channel Mask

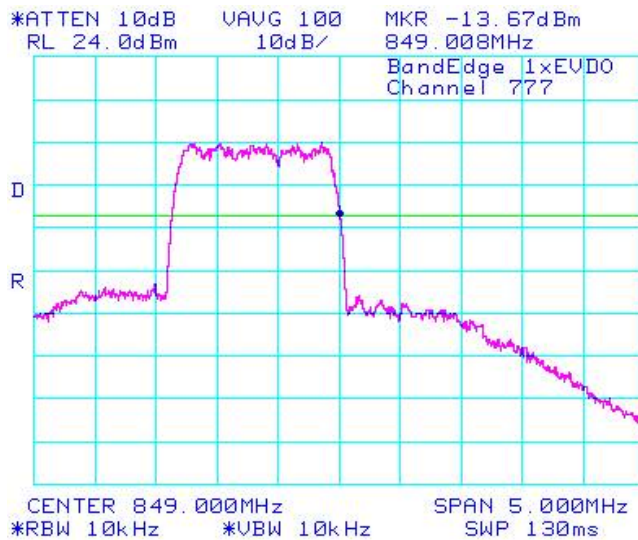


Figure 1-46b: Cellular CDMA2000, High Channel Mask

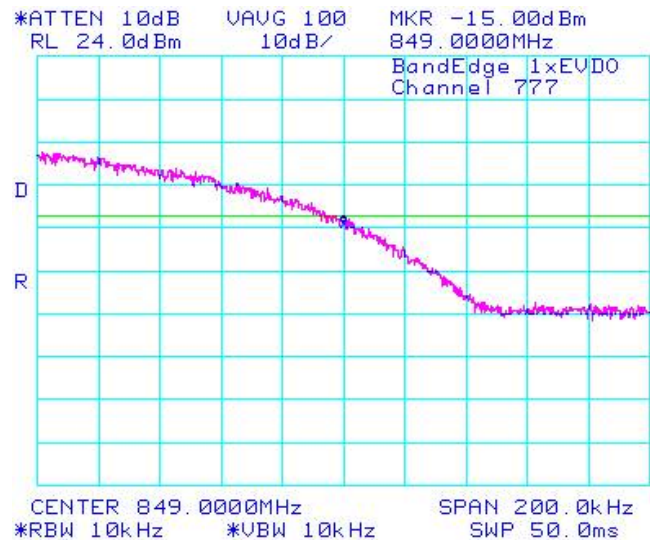


Figure 1-47b: PCS, Low Channel Mask

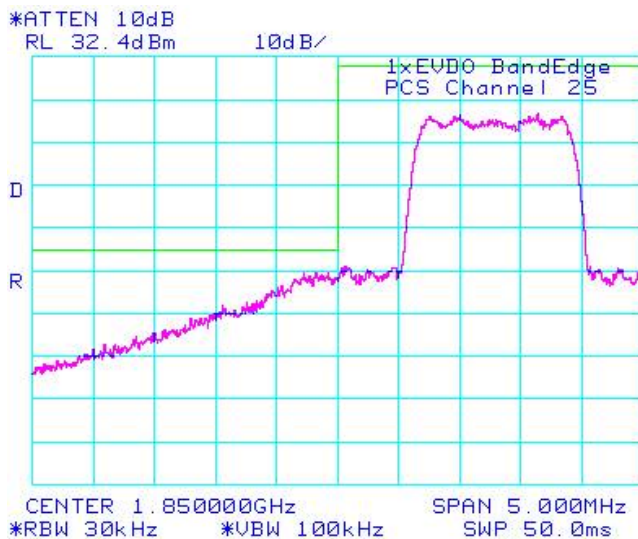
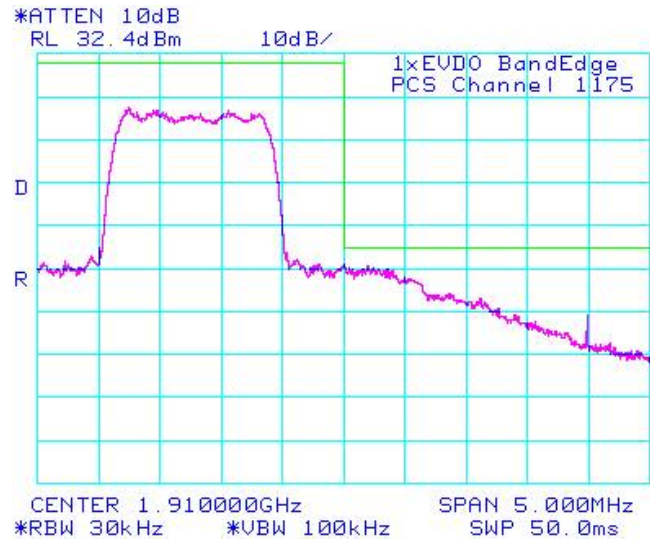



Figure 1-48b: PCS, High Channel Mask



APPENDIX 2A – GSM CONDUCTED RF OUTPUT POWER TEST DATA

		EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 2A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino	

GSM Conducted RF Output Power Test Data

The conducted RF output power was measured on the BlackBerry® smartphone PIN 30F4F733 using the Communication Tester, Rohde & Schwarz, model CMU 200. The low, middle and high channels were measured at maximum radio 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 32.0 dBm \pm 0.5 dB for GSM850 and 29.0 dBm \pm 0.5 dB for PCS.

Peak nominal output power is 29.5 dBm \pm 0.5 dB for GSM850 EDGE Mode and 28.0 dBm \pm 0.5 dB for PCS EDGE Mode.


Date of Test: November 05, 2009

The environmental conditions were: Temperature: 24 °C
 Pressure: 1016 mb
 Humidity: 24 %

The measurements were performed by Daoud Attayi

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (Watts)	Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (Watts)
<u>GSM850</u>				<u>GSM850 EDGE/GPRS/GSM (2-timeslot)</u>			
128	824.20	32.1	1.62	128	824.20	29.5	0.89
189	837.60	32.2	1.66	189	837.60	29.6	0.91
251	848.80	32.1	1.62	251	848.80	29.5	0.89
<u>PCS</u>				<u>PCS EDGE/GPRS/GSM (2-timeslot)</u>			
512	1850.2	28.8	0.76	512	1850.2	27.8	0.60
661	1880.0	28.8	0.76	661	1880.0	27.8	0.60
810	1909.8	29.0	0.79	810	1909.8	28.0	0.63

APPENDIX 2B – CDMA CONDUCTED RF OUTPUT POWER TEST DATA

		EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 2B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010		Author Data Michael Cino

CDMA Conducted RF Output Power Test Data

The measurements were performed by Maurice Battler.

The conducted RF output power was measured on the BlackBerry® smartphone PIN 30F4F733 using the CDMA base station simulator. Low, middle and high channels were measured at maximum radio output power at different service options and modes. Peak nominal output power is 24.0 dBm \pm 0.5 dB for Cellular and 23.5 dBm \pm 0.5 dB for PCS.

Date of Test: November 05, 2009


The environmental conditions were: Temperature: 24 °C
Pressure: 1016 mb
Humidity: 24 %

The measurements were performed by Daoud Attayi

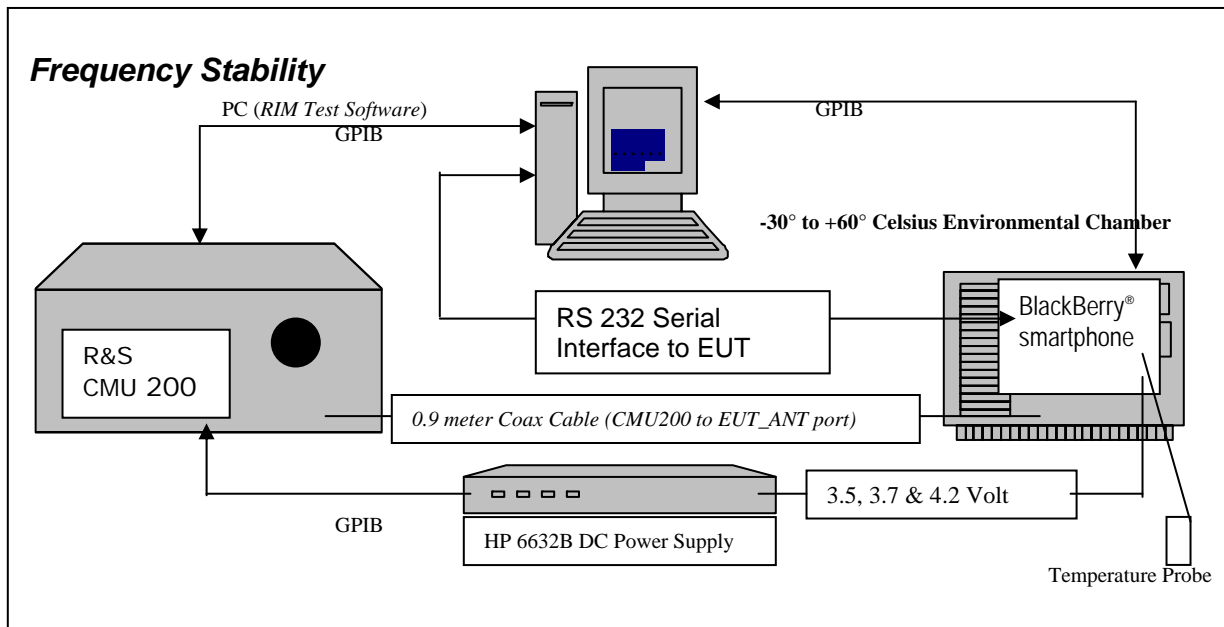
Test Results

Band	Channel	1x EvDO (153.6kbps)		CDMA2000 RC	SO2 Loopback		SO55 Loopback		TDSO SO32	
		(dBm)	(Watts)		(dBm)	(Watts)	(dBm)	(Watts)	(dBm)	(Watts)
CDMA 800	1013	24.3	0.27	RC1	24.4	0.28	24.3	0.27	-	-
				RC3	24.3	0.27	24.4	0.28	24.4	0.28
	384	24.1	0.26	RC1	24.2	0.26	24.3	0.27	-	-
				RC3	24.1	0.26	24.2	0.26	24.3	0.27
	777	23.7	0.23	RC1	23.8	0.24	23.8	0.24	-	-
				RC3	23.7	0.23	23.7	0.23	23.8	0.24
Band	Channel	1x EvDO (153.6kbps)		CDMA2000 RC	SO2 Loopback		SO55 Loopback		TDSO SO32	
		(dBm)	(Watts)		(dBm)	(Watts)	(dBm)	(Watts)	(dBm)	(Watts)
CDMA 1900	25	23.1	0.20	RC1	23.3	0.21	23.3	0.21	-	-
				RC3	23.3	0.21	23.3	0.21	23.2	0.21
	600	23.8	0.24	RC1	23.9	0.25	23.8	0.24	-	-
				RC3	23.8	0.24	23.8	0.24	23.8	0.24
	1175	23.6	0.23	RC1	23.8	0.24	23.7	0.23	-	-
				RC3	23.7	0.23	23.8	0.24	23.8	0.24

APPENDIX 3A – GSM FREQUENCY STABILITY TEST DATA

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

GSM Frequency Stability Test Data



The measurements were performed by Maurice Battler.

CFR 47 Chapter 1 - Federal Communications Commission Rules

Part 2 Required Measurements

2.995 Frequency Stability - Procedures

(a,b) Frequency Stability - Temperature Variation

(d) Frequency Stability - Voltage Variation

24.235 *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:

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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 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.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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 BlackBerry® smartphone PIN 30FD0798 was tested on October 28, 2009.

The maximum frequency error in the GSM850 band measured was **-0.0550 PPM**.

The maximum frequency error in the PCS1900 band measured was **-0.0424 PPM**.


			EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3A		
Test Report No. RTS-2340-0911-17		Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010			Author Data Michael Cino

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

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.6	20	-27.64	-0.0335
189	836.40	3.6	20	-30.15	-0.0360
250	848.60	3.6	20	-30.54	-0.0360

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.7	20	-31.32	-0.0380
189	836.40	3.7	20	-32.35	-0.0387
250	848.60	3.7	20	-25.63	-0.0302

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	4.2	20	-26.28	-0.0319
189	836.40	4.2	20	-32.09	-0.0384
250	848.60	4.2	20	-30.41	-0.0358


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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	-24.02	-0.0291
128	824.20	3.6	-20	-44.10	-0.0535
128	824.20	3.6	-10	-33.77	-0.0410
128	824.20	3.6	0	-33.06	-0.0401
128	824.20	3.6	10	-31.45	-0.0382
128	824.20	3.6	20	-27.64	-0.0335
128	824.20	3.6	30	-32.61	-0.0396
128	824.20	3.6	40	-37.26	-0.0452
128	824.20	3.6	50	-31.64	-0.0384
128	824.20	3.6	60	-36.48	-0.0443

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.7	-30	-27.64	-0.0335
128	824.20	3.7	-20	-31.70	-0.0385
128	824.20	3.7	-10	-23.25	-0.0282
128	824.20	3.7	0	-22.92	-0.0278
128	824.20	3.7	10	-32.67	-0.0396
128	824.20	3.7	20	-31.32	-0.0380
128	824.20	3.7	30	-25.63	-0.0311
128	824.20	3.7	40	-29.57	-0.0359
128	824.20	3.7	50	-31.90	-0.0387
128	824.20	3.7	60	-28.28	-0.0343

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	4.2	-30	-35.39	-0.0429
128	824.20	4.2	-20	-22.21	-0.0269
128	824.20	4.2	-10	-28.61	-0.0347
128	824.20	4.2	0	-22.66	-0.0275
128	824.20	4.2	10	-23.18	-0.0281
128	824.20	4.2	20	-26.28	-0.0319
128	824.20	4.2	30	-23.76	-0.0288
128	824.20	4.2	40	-35.19	-0.0427
128	824.20	4.2	50	-31.58	-0.0383
128	824.20	4.2	60	-27.06	-0.0328


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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	-17.05	-0.0204
189	836.40	3.6	-20	-46.04	-0.0550
189	836.40	3.6	-10	-28.80	-0.0344
189	836.40	3.6	0	-33.06	-0.0395
189	836.40	3.6	10	-26.09	-0.0312
189	836.40	3.6	20	-30.15	-0.0360
189	836.40	3.6	30	-33.25	-0.0398
189	836.40	3.6	40	-37.26	-0.0445
189	836.40	3.6	50	-33.25	-0.0398
189	836.40	3.6	60	-30.09	-0.0360

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	3.7	-30	-22.66	-0.0271
189	836.40	3.7	-20	-38.29	-0.0458
189	836.40	3.7	-10	-24.02	-0.0287
189	836.40	3.7	0	-26.86	-0.0321
189	836.40	3.7	10	-29.12	-0.0348
189	836.40	3.7	20	-32.35	-0.0387
189	836.40	3.7	30	-17.11	-0.0205
189	836.40	3.7	40	-28.67	-0.0343
189	836.40	3.7	50	-30.93	-0.0370
189	836.40	3.7	60	-30.09	-0.0360

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	4.2	-30	-32.22	-0.0385
189	836.40	4.2	-20	-31.45	-0.0376
189	836.40	4.2	-10	-30.28	-0.0362
189	836.40	4.2	0	-19.24	-0.0230
189	836.40	4.2	10	-14.59	-0.0174
189	836.40	4.2	20	-32.09	-0.0384
189	836.40	4.2	30	-24.86	-0.0297
189	836.40	4.2	40	-35.00	-0.0418
189	836.40	4.2	50	-31.38	-0.0375
189	836.40	4.2	60	-32.35	-0.0387


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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	-28.99	-0.0342
250	848.60	3.6	-20	-34.35	-0.0405
250	848.60	3.6	-10	-21.95	-0.0259
250	848.60	3.6	0	-28.28	-0.0333
250	848.60	3.6	10	-37.77	-0.0445
250	848.60	3.6	20	-30.54	-0.0360
250	848.60	3.6	30	-32.87	-0.0387
250	848.60	3.6	40	-37.77	-0.0445
250	848.60	3.6	50	-28.99	-0.0342
250	848.60	3.6	60	-27.18	-0.0320

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
250	848.60	3.7	-30	-28.28	-0.0333
250	848.60	3.7	-20	-32.67	-0.0385
250	848.60	3.7	-10	-25.05	-0.0295
250	848.60	3.7	0	-25.57	-0.0301
250	848.60	3.7	10	-28.41	-0.0335
250	848.60	3.7	20	-25.63	-0.0302
250	848.60	3.7	30	-22.60	-0.0266
250	848.60	3.7	40	-24.41	-0.0288
250	848.60	3.7	50	-29.19	-0.0344
250	848.60	3.7	60	-27.89	-0.0329

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
250	848.60	4.2	-30	-36.87	-0.0434
250	848.60	4.2	-20	-21.76	-0.0256
250	848.60	4.2	-10	-24.92	-0.0294
250	848.60	4.2	0	-25.57	-0.0301
250	848.60	4.2	10	-26.02	-0.0307
250	848.60	4.2	20	-30.41	-0.0358
250	848.60	4.2	30	-31.90	-0.0376
250	848.60	4.2	40	-33.45	-0.0394
250	848.60	4.2	50	-29.83	-0.0352
250	848.60	4.2	60	-31.64	-0.0373

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	3.6	20	-70.84	-0.0383
661	1880.0	3.6	20	-60.31	-0.0321
810	1909.8	3.6	20	-71.22	-0.0373

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	3.7	20	-74.71	-0.0404
661	1880.0	3.7	20	-52.30	-0.0278
810	1909.8	3.7	20	-63.02	-0.0330

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	4.2	20	-54.18	-0.0293
661	1880.0	4.2	20	-39.58	-0.0211
810	1909.8	4.2	20	-49.46	-0.0259

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	-58.76	-0.0318
512	1850.2	3.6	-20	-78.45	-0.0424
512	1850.2	3.6	-10	-66.44	-0.0359
512	1850.2	3.6	0	-66.25	-0.0358
512	1850.2	3.6	10	-60.63	-0.0328
512	1850.2	3.6	20	-70.84	-0.0383
512	1850.2	3.6	30	-66.38	-0.0359
512	1850.2	3.6	40	-62.89	-0.034
512	1850.2	3.6	50	-75.61	-0.0409
512	1850.2	3.6	60	-72.32	-0.0391

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	3.7	-30	-41.91	-0.0227
512	1850.2	3.7	-20	-60.50	-0.0327
512	1850.2	3.7	-10	-56.11	-0.0303
512	1850.2	3.7	0	-59.21	-0.032
512	1850.2	3.7	10	-55.60	-0.0301
512	1850.2	3.7	20	-74.71	-0.0404
512	1850.2	3.7	30	-62.63	-0.0339
512	1850.2	3.7	40	-43.26	-0.0234
512	1850.2	3.7	50	-71.93	-0.0389
512	1850.2	3.7	60	-70.00	-0.0378


Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	4.2	-30	-54.43	-0.0294
512	1850.2	4.2	-20	-45.98	-0.0249
512	1850.2	4.2	-10	-48.75	-0.0263
512	1850.2	4.2	0	-43.91	-0.0237
512	1850.2	4.2	10	-22.73	-0.0123
512	1850.2	4.2	20	-54.18	-0.0293
512	1850.2	4.2	30	-58.11	-0.0314
512	1850.2	4.2	40	-50.82	-0.0275
512	1850.2	4.2	50	-62.12	-0.0336
512	1850.2	4.2	60	-41.65	-0.0225

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	-43.07	-0.0229
661	1880	3.6	-20	-52.76	-0.0281
661	1880	3.6	-10	-69.80	-0.0371
661	1880	3.6	0	-63.09	-0.0336
661	1880	3.6	10	-62.51	-0.0333
661	1880	3.6	20	-60.31	-0.0321
661	1880	3.6	30	-67.74	-0.036
661	1880	3.6	40	-59.86	-0.0318
661	1880	3.6	50	-72.58	-0.0386
661	1880	3.6	60	-61.08	-0.0325

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880	3.7	-30	-49.07	-0.0261
661	1880	3.7	-20	-39.26	-0.0209
661	1880	3.7	-10	-60.50	-0.0322
661	1880	3.7	0	-66.70	-0.0355
661	1880	3.7	10	-46.36	-0.0247
661	1880	3.7	20	-52.30	-0.0278
661	1880	3.7	30	-56.69	-0.0302
661	1880	3.7	40	-44.04	-0.0234
661	1880	3.7	50	-72.64	-0.0386
661	1880	3.7	60	-64.12	-0.0341

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880	4.2	-30	-58.70	-0.0312
661	1880	4.2	-20	-34.09	-0.0181
661	1880	4.2	-10	-48.49	-0.0258
661	1880	4.2	0	-43.39	-0.0231
661	1880	4.2	10	-42.49	-0.0226
661	1880	4.2	20	-39.58	-0.0211
661	1880	4.2	30	-55.66	-0.0296
661	1880	4.2	40	-50.30	-0.0268
661	1880	4.2	50	-59.66	-0.0317
661	1880	4.2	60	-53.08	-0.0282

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino


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	-45.78	-0.024
810	1909.8	3.6	-20	-62.89	-0.0329
810	1909.8	3.6	-10	-68.12	-0.0357
810	1909.8	3.6	0	-52.50	-0.0275
810	1909.8	3.6	10	-48.56	-0.0254
810	1909.8	3.6	20	-71.22	-0.0373
810	1909.8	3.6	30	-59.08	-0.0309
810	1909.8	3.6	40	-41.39	-0.0217
810	1909.8	3.6	50	-73.74	-0.0386
810	1909.8	3.6	60	-64.12	-0.0336

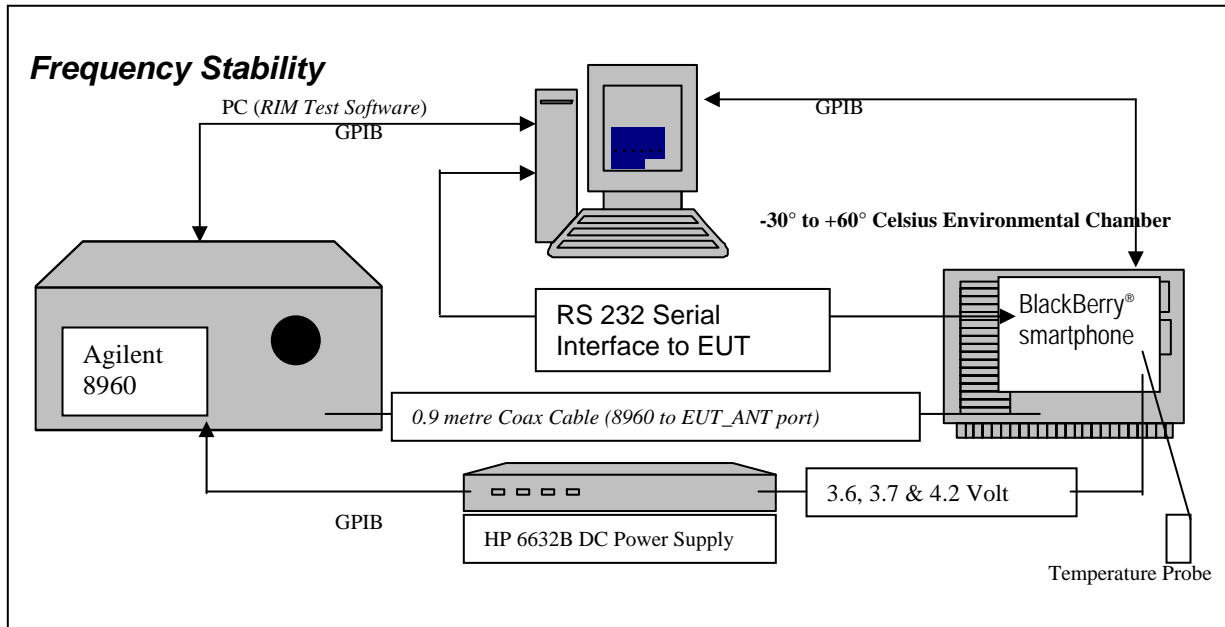
Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.8	3.7	-30	-49.14	-0.0257
810	1909.8	3.7	-20	-65.28	-0.0342
810	1909.8	3.7	-10	-61.28	-0.0321
810	1909.8	3.7	0	-65.99	-0.0346
810	1909.8	3.7	10	-48.36	-0.0253
810	1909.8	3.7	20	-63.02	-0.033
810	1909.8	3.7	30	-56.44	-0.0296
810	1909.8	3.7	40	-39.84	-0.0209
810	1909.8	3.7	50	-71.55	-0.0375
810	1909.8	3.7	60	-52.69	-0.0276

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.8	4.2	-30	-56.50	-0.0296
810	1909.8	4.2	-20	-53.72	-0.0281
810	1909.8	4.2	-10	-41.33	-0.0216
810	1909.8	4.2	0	-35.00	-0.0183
810	1909.8	4.2	10	-41.65	-0.0218
810	1909.8	4.2	20	-49.46	-0.0259
810	1909.8	4.2	30	-52.63	-0.0276
810	1909.8	4.2	40	-48.95	-0.0256
810	1909.8	4.2	50	-63.67	-0.0333
810	1909.8	4.2	60	-51.33	-0.0269

APPENDIX 3B – CDMA FREQUENCY STABILITY TEST DATA

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

CDMA Frequency Stability Test Data



CFR 47 Chapter 1 - Federal Communications Commission Rules

Part 2 Required Measurements

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

24.236 Frequency Stability.


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

The RCS71CW BlackBerry® smartphone, (referred as EUT herein and after) transmitted frequencies are less than 0.1 ppm of the received frequency from the Agilent 8960 CDMA Base Station Simulator

The EUT meets the requirements as stated in CFR 47 chapter 1, Section 24.235, RSS-GEN, 4.7, 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 base station simulator and the EUT antenna port; located inside the environmental chamber.

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

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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

PCS Frequency (MHz)	Cable loss (dB)	Cellular Frequency (MHz)	Cable loss (dB)
1851.20	1.20	824.70	0.90
1880.00	1.20	836.52	0.90
1908.75	1.20	848.31	0.90

Procedure:


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

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

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

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

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

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

PROCEDURE:

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


15. Switch on the HP 6632B power supply; AGILENT 8960, and Environmental Chamber.
16. Start test program
17. Set the Temperature to -30°C and maintain a period of one- hour soak time, with the EUT supply voltage disabled.
18. Set power supply voltage to 3.6 volts.
19. Set up base station simulator.
20. Command the base station simulator to switch to the low channel.
21. Enable the voltage to the EUT, and connect a link to the base station simulator.
22. EUT is commanded to Transmit 100 Bursts.
23. Software logs the following data from the base station simulator, power supply and temperature chamber: Traffic Channel Number, Traffic Channel Frequency, Power Level, Chamber Temperature, Supply Voltage, Power, Frequency Error.
24. The base station simulator commands the EUT to change frequency to the middle channel and high channel and repeats steps 7 to 9.
25. Repeat steps 5 to 10 changing the supply voltage to 3.7 Volts
26. Increase temperature by 10°C and soak for 1/2 hour.
27. Repeat steps 4 - 12 for temperatures -30°C to 60°C .
28. 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 BlackBerry® smartphone PIN 30FD0798 was tested on October 26, 2009.

The measurements were performed by Maurice Battler.

The maximum frequency error in the Cellular band measured was **-0.0150 PPM**.
The maximum frequency error in the PCS band measured was **-0.0140 PPM**.


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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

Traffic Channel Number	Cellular Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	3.6	20	-0.0015	23.89
384	836.520	3.6	20	-0.0050	23.78
777	848.310	3.6	20	-0.0011	23.14

Traffic Channel Number	Cellular Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	3.7	20	-0.0019	23.85
384	836.520	3.7	20	-0.0097	23.75
777	848.310	3.7	20	-0.0002	23.13

Traffic Channel Number	Cellular Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	4.2	20	-0.0010	23.88
384	836.520	4.2	20	-0.0032	23.81
777	848.310	4.2	20	-0.0009	23.09


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Cellular Results: channel 1013 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	3.6	-30	-6.83	-0.0083
1013	824.700	3.6	-20	-3.86	-0.0047
1013	824.700	3.6	-10	-1.08	-0.0013
1013	824.700	3.6	0	0.97	0.0012
1013	824.700	3.6	10	2.32	0.0028
1013	824.700	3.6	20	-1.21	-0.0015
1013	824.700	3.6	30	-1.51	-0.0018
1013	824.700	3.6	40	-3.77	-0.0046
1013	824.700	3.6	50	-2.90	-0.0035
1013	824.700	3.6	60	-2.29	-0.0028

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	3.7	-30	-5.38	-0.0065
1013	824.700	3.7	-20	-1.42	-0.0017
1013	824.700	3.7	-10	-0.37	-0.0004
1013	824.700	3.7	0	2.64	0.0032
1013	824.700	3.7	10	1.58	0.0019
1013	824.700	3.7	20	-1.53	-0.0019
1013	824.700	3.7	30	-2.44	-0.0030
1013	824.700	3.7	40	-2.78	-0.0034
1013	824.700	3.7	50	-2.34	-0.0028
1013	824.700	3.7	60	-0.37	-0.0004

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	4.2	-30	1.33	0.0016
1013	824.700	4.2	-20	-0.29	-0.0004
1013	824.700	4.2	-10	-1.14	-0.0014
1013	824.700	4.2	0	-1.35	-0.0016
1013	824.700	4.2	10	-1.52	-0.0018
1013	824.700	4.2	20	-0.79	-0.0010
1013	824.700	4.2	30	-0.49	-0.0006
1013	824.700	4.2	40	-0.41	-0.0005
1013	824.700	4.2	50	-0.37	-0.0004
1013	824.700	4.2	60	-1.55	-0.0019


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Cellular Results: channel 384 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
384	836.520	3.6	-30	-12.58	-0.0150
384	836.520	3.6	-20	-2.50	-0.0030
384	836.520	3.6	-10	1.89	0.0023
384	836.520	3.6	0	8.02	0.0096
384	836.520	3.6	10	8.97	0.0107
384	836.520	3.6	20	-4.22	-0.0050
384	836.520	3.6	30	-2.33	-0.0028
384	836.520	3.6	40	-4.02	-0.0048
384	836.520	3.6	50	-2.49	-0.0030
384	836.520	3.6	60	2.80	0.0033

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
384	836.520	3.7	-30	-6.79	-0.0081
384	836.520	3.7	-20	-0.51	-0.0006
384	836.520	3.7	-10	-0.83	-0.0010
384	836.520	3.7	0	2.46	0.0029
384	836.520	3.7	10	1.72	0.0021
384	836.520	3.7	20	-8.09	-0.0097
384	836.520	3.7	30	-3.98	-0.0048
384	836.520	3.7	40	-2.90	-0.0035
384	836.520	3.7	50	-2.75	-0.0033
384	836.520	3.7	60	0.17	0.0002

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
384	836.520	4.2	-30	-1.07	-0.0013
384	836.520	4.2	-20	0.06	0.0001
384	836.520	4.2	-10	0.15	0.0002
384	836.520	4.2	0	0.44	0.0005
384	836.520	4.2	10	0.21	0.0003
384	836.520	4.2	20	-2.66	-0.0032
384	836.520	4.2	30	-1.74	-0.0021
384	836.520	4.2	40	-1.11	-0.0013
384	836.520	4.2	50	-0.40	-0.0005
384	836.520	4.2	60	-0.10	-0.0001


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Cellular Results: channel 777 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
777	848.310	3.6	-30	-9.68	-0.0114
777	848.310	3.6	-20	-1.20	-0.0014
777	848.310	3.6	-10	-0.19	-0.0002
777	848.310	3.6	0	5.80	0.0068
777	848.310	3.6	10	5.66	0.0067
777	848.310	3.6	20	-0.98	-0.0011
777	848.310	3.6	30	-3.74	-0.0044
777	848.310	3.6	40	-2.49	-0.0029
777	848.310	3.6	50	-1.74	-0.0021
777	848.310	3.6	60	2.13	0.0025

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
777	848.310	3.7	-30	-4.42	-0.0052
777	848.310	3.7	-20	-0.11	-0.0001
777	848.310	3.7	-10	-0.62	-0.0007
777	848.310	3.7	0	2.72	0.0032
777	848.310	3.7	10	1.98	0.0023
777	848.310	3.7	20	-0.15	-0.0002
777	848.310	3.7	30	-2.64	-0.0031
777	848.310	3.7	40	-1.86	-0.0022
777	848.310	3.7	50	-1.66	-0.0020
777	848.310	3.7	60	0.55	0.0006

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
777	848.310	4.2	-30	0.04	0.0000
777	848.310	4.2	-20	0.70	0.0008
777	848.310	4.2	-10	0.50	0.0006
777	848.310	4.2	0	1.13	0.0013
777	848.310	4.2	10	0.28	0.0003
777	848.310	4.2	20	-0.74	-0.0009
777	848.310	4.2	30	-0.05	-0.0001
777	848.310	4.2	40	-0.33	-0.0004
777	848.310	4.2	50	-0.16	-0.0002
777	848.310	4.2	60	1.67	0.0020


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

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

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	3.6	20	22.75	-0.0008
600	1880.00	3.6	20	23.15	0.0007
1175	1908.75	3.6	20	22.85	-0.0015

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	3.7	20	22.76	-0.0023
600	1880.00	3.7	20	23.13	-0.0024
1175	1908.75	3.7	20	22.80	-0.0024

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	4.2	20	22.75	-0.0014
600	1880.00	4.2	20	23.04	-0.0012
1175	1908.75	4.2	20	22.82	-0.0020


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

PCS Results: channel 25 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	3.6	-30	-25.55	-0.0138
25	1851.20	3.6	-20	-10.51	-0.0057
25	1851.20	3.6	-10	-2.72	-0.0015
25	1851.20	3.6	0	6.62	0.0036
25	1851.20	3.6	10	11.47	0.0062
25	1851.20	3.6	20	-1.55	-0.0008
25	1851.20	3.6	30	-6.76	-0.0036
25	1851.20	3.6	40	-11.38	-0.0061
25	1851.20	3.6	50	-10.85	-0.0059
25	1851.20	3.6	60	-5.08	-0.0027

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	3.7	-30	-18.56	-0.0100
25	1851.20	3.7	-20	-3.47	-0.0019
25	1851.20	3.7	-10	-4.58	-0.0025
25	1851.20	3.7	0	6.53	0.0035
25	1851.20	3.7	10	5.01	0.0027
25	1851.20	3.7	20	-4.22	-0.0023
25	1851.20	3.7	30	-10.93	-0.0059
25	1851.20	3.7	40	-9.13	-0.0049
25	1851.20	3.7	50	-7.13	-0.0038
25	1851.20	3.7	60	-0.45	-0.0002

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	4.2	-30	-2.80	-0.0015
25	1851.20	4.2	-20	-2.15	-0.0012
25	1851.20	4.2	-10	-2.52	-0.0014
25	1851.20	4.2	0	-2.48	-0.0013
25	1851.20	4.2	10	-1.09	-0.0006
25	1851.20	4.2	20	-2.68	-0.0014
25	1851.20	4.2	30	-2.59	-0.0014
25	1851.20	4.2	40	-3.70	-0.0020
25	1851.20	4.2	50	-2.94	-0.0016
25	1851.20	4.2	60	-3.73	-0.0020


	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

PCS Results: channel 600 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
600	1880.00	3.6	-30	-25.95	-0.0138
600	1880.00	3.6	-20	-5.37	-0.0029
600	1880.00	3.6	-10	2.42	0.0013
600	1880.00	3.6	0	14.09	0.0075
600	1880.00	3.6	10	15.99	0.0085
600	1880.00	3.6	20	1.35	0.0007
600	1880.00	3.6	30	-9.84	-0.0052
600	1880.00	3.6	40	-8.57	-0.0046
600	1880.00	3.6	50	-6.15	-0.0033
600	1880.00	3.6	60	4.86	0.0026

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
600	1880.00	3.7	-30	-12.24	-0.0065
600	1880.00	3.7	-20	-3.51	-0.0019
600	1880.00	3.7	-10	-3.30	-0.0018
600	1880.00	3.7	0	2.69	0.0014
600	1880.00	3.7	10	0.63	0.0003
600	1880.00	3.7	20	-4.47	-0.0024
600	1880.00	3.7	30	-6.63	-0.0035
600	1880.00	3.7	40	-8.02	-0.0043
600	1880.00	3.7	50	-6.98	-0.0037
600	1880.00	3.7	60	1.00	0.0005

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
600	1880.00	4.2	-30	0.63	0.0003
600	1880.00	4.2	-20	-1.04	-0.0006
600	1880.00	4.2	-10	-2.37	-0.0013
600	1880.00	4.2	0	-2.59	-0.0014
600	1880.00	4.2	10	-2.11	-0.0011
600	1880.00	4.2	20	-2.29	-0.0012
600	1880.00	4.2	30	-2.79	-0.0015
600	1880.00	4.2	40	-2.21	-0.0012
600	1880.00	4.2	50	-2.61	-0.0014
600	1880.00	4.2	60	-2.04	-0.0011

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 3B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino


PCS Results: channel 1175 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1175	1908.75	3.6	-30	-26.78	-0.0140
1175	1908.75	3.6	-20	-4.06	-0.0021
1175	1908.75	3.6	-10	-3.03	-0.0016
1175	1908.75	3.6	0	10.59	0.0056
1175	1908.75	3.6	10	8.13	0.0043
1175	1908.75	3.6	20	-2.86	-0.0015
1175	1908.75	3.6	30	-3.66	-0.0019
1175	1908.75	3.6	40	-11.17	-0.0059
1175	1908.75	3.6	50	-7.96	-0.0042
1175	1908.75	3.6	60	1.22	0.0006

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1175	1908.75	3.7	-30	-15.07	-0.0079
1175	1908.75	3.7	-20	-1.56	-0.0008
1175	1908.75	3.7	-10	-3.17	-0.0017
1175	1908.75	3.7	0	1.84	0.0010
1175	1908.75	3.7	10	1.18	0.0006
1175	1908.75	3.7	20	-4.57	-0.0024
1175	1908.75	3.7	30	-8.69	-0.0046
1175	1908.75	3.7	40	-8.42	-0.0044
1175	1908.75	3.7	50	-6.27	-0.0033
1175	1908.75	3.7	60	-1.17	-0.0006

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1175	1908.75	4.2	-30	-4.02	-0.0021
1175	1908.75	4.2	-20	-1.71	-0.0009
1175	1908.75	4.2	-10	-2.68	-0.0014
1175	1908.75	4.2	0	-1.55	-0.0008
1175	1908.75	4.2	10	-0.52	-0.0003
1175	1908.75	4.2	20	-3.86	-0.0020
1175	1908.75	4.2	30	-3.57	-0.0019
1175	1908.75	4.2	40	-3.01	-0.0016
1175	1908.75	4.2	50	-3.47	-0.0018
1175	1908.75	4.2	60	-2.53	-0.0013

APPENDIX 4A – GSM RADIATED EMISSIONS TEST DATA

		EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010		Author Data Michael Cino

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 PIN 30F4F746 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	Max	Pol.	Reading	Corrected Reading		Limit	Diff. To
		(MHz)				(dBuV)	(V,H)			(dBuV)	Tx-Rx		
F0	128	824.20	850	Dipole	V	77.59	86.24	V-V	12.11	27.15	0.52	38.50	-11.35
F0	128	824.20	850	Dipole	H	86.24		H-H	11.57				
F0	195	837.60	850	Dipole	V	79.02	86.45	V-V	12.69	28.37	0.69	38.50	-10.13
F0	195	837.60	850	Dipole	H	86.45		H-H	12.10				
F0	251	848.80	850	Dipole	V	78.49	86.42	V-V	12.63	28.12	0.65	38.50	-10.38
F0	251	848.80	850	Dipole	H	86.42		H-H	12.04				

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	72.11	80.17	V-V	7.28	22.32	0.17	38.50	-16.18
F0	128	824.20	850	Dipole	H	80.17		H-H	5.45				
F0	195	837.60	850	Dipole	V	72.14	80.58	V-V	8.76	24.44	0.28	38.50	-14.06
F0	195	837.60	850	Dipole	H	80.58		H-H	6.06				
F0	251	848.80	850	Dipole	V	72.31	80.72	V-V	7.16	22.65	0.18	38.50	-15.85
F0	251	848.80	850	Dipole	H	80.72		H-H	6.20				

Radiated Power Test Data Results cont'd

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Page 73 of 87


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.	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator)		Limit (dBm)	Diff to Limit (dB)
F0	512	1850.20	1900	Horn	V	88.98	88.98	V-V	-9.75	27.21	0.53	33.00	-5.79
F0	512	1850.20	1900	Horn	H	81.49		H-H	-9.17				
F0	661	1880.00	1900	Horn	V	89.53	89.53	V-V	-9.21	28.28	0.67	33.00	-4.72
F0	661	1880.00	1900	Horn	H	79.84		H-H	-8.00				
F0	810	1909.80	1900	Horn	V	90.88	90.88	V-V	-8.68	29.69	0.93	33.00	-3.31
F0	810	1909.80	1900	Horn	H	81.68		H-H	-6.63				

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.	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator)		Limit (dBm)	Diff to Limit (dB)
F0	512	1850.20	1900	Horn	V	84.96	84.96	V-V	-13.90	23.20	0.21	33.00	-9.80
F0	512	1850.20	1900	Horn	H	77.57		H-H	-13.18				
F0	661	1880.00	1900	Horn	V	86.35	86.35	V-V	-12.17	25.14	0.33	33.00	-7.86
F0	661	1880.00	1900	Horn	H	77.82		H-H	-11.14				
F0	810	1909.80	1900	Horn	V	87.14	87.14	V-V	-11.28	25.99	0.40	33.00	-7.01
F0	810	1909.80	1900	Horn	H	77.83		H-H	-10.33				

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Emissions Test Data Results

GSM850

GSM Mode

Date of Test: October 19, 2009

The measurements were performed by Fahd Faisal.

The environmental test conditions were: Temperature: 23 °C

Pressure: 1012 mb

Relative Humidity: 31 %

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

The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical position.

The measurements were performed in GSM850 Tx mode on channels 128, 195 and 251.

All emissions had a test margin greater than 25.0 dB.

Date of Test: October 19 and 21, 2009

The measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24 – 25 °C

Pressure: 982 – 1017 mb


Relative Humidity: 27 – 31 %

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

The BlackBerry® smartphone PIN 30F4F739 was in standalone, Horizontal position.

The measurements were performed in GSM850 Tx mode on channels 128, 195 and 251.

All emissions had a test margin greater than 25.0 dB.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Emissions Test Data Results cont'd

GSM850

EDGE Mode

Date of Test: October 19, 2009

The measurements were performed by Fahd Faisal.

The environmental test conditions were: Temperature: 23 °C

Pressure: 1012 mb

Relative Humidity: 31 %

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

The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical position.

The measurements were performed in GSM850 EDGE Tx mode on channels 128, 195 and 251.

All emissions had a test margin greater than 25.0 dB.

Date of Test: October 27, 2009

The measurements were performed by Heng Lin.

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 9 GHz.

The BlackBerry® smartphone PIN 30F4F739 was in standalone, Horizontal position.

The measurements were performed in GSM850 EDGE Tx mode on channels 128, 195 and 251.

All emissions had a test margin greater than 25.0 dB.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

PCS1900

GSM Mode

Date of Test: October 19, 2009

The measurements were performed by Fahd Faisal.

The environmental test conditions were: Temperature: 24 °C

Pressure: 1009 mb

Relative Humidity: 31 %

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

The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical 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: October 19, 21, and November 02, 2009

The measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24 – 25 °C

Pressure: 982 – 1017 mb


Relative Humidity: 22 – 31 %

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

The BlackBerry® smartphone PIN 30F4F739 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 RCS71CW APPENDIX 4A	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Emissions Test Data Results cont'd

PCS1900

EDGE Mode

Date of Test: October 20, 2009

The measurements were performed by Fahd Faisal.

The environmental test conditions were: Temperature: 24 °C

Pressure: 1009 mb

Relative Humidity: 31 %

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

The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical 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: October 27 to 28 and November 02, 2009

The measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24 – 25 °C

Pressure: 982 – 1017 mb

Relative Humidity: 22 – 31 %


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

The BlackBerry® smartphone PIN 30F4F739 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.

APPENDIX 4B – CDMA RADIATED EMISSIONS TEST DATA

		EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010		Author Data Michael Cino

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 PIN 30F4F746 was in standalone, USB down position.
Test distance is 3.0 metres


Cellular Band

Loopback Service Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method					
								Tracking Generator					
Type	Ch	Frequency	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole)		Limit (dBm)	Diff. To Limit (dB)
		(MHz)								(dBm)	(dBm)		
F0	1013	824.70	800	Dipole	V	63.91	82.69	V-V	9.79	24.93	0.31	39.00	-14.07
F0	1013	824.70	800	Dipole	H	82.69		H-H	7.89				
F0	384	836.52	800	Dipole	V	64.86	83.64	V-V	11.78	26.82	0.48	39.00	-12.18
F0	384	836.52	800	Dipole	H	83.64		H-H	9.03				
F0	777	848.32	800	Dipole	V	68.59	82.82	V-V	9.39	24.42	0.28	39.00	-14.58
F0	777	848.32	800	Dipole	H	82.82		H-H	8.40				

1xEVDO Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method					
								Tracking Generator					
Type	Ch	Frequency	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole)		Limit (dBm)	Diff. To Limit (dB)
		(MHz)								(dBm)	(W)		
F0	1013	824.70	800	Dipole	V	73.38	83.41	V-V	10.59	25.73	0.37	39.00	-13.27
F0	1013	824.70	800	Dipole	H	83.41		H-H	8.59				
F0	384	836.52	800	Dipole	V	74.62	83.72	V-V	11.95	26.99	0.50	39.00	-12.01
F0	384	836.52	800	Dipole	H	83.72		H-H	9.11				
F0	777	848.32	800	Dipole	V	72.7	83.00	V-V	9.61	24.64	0.29	39.00	-14.36
F0	777	848.32	800	Dipole	H	83.00		H-H	8.59				

		EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4B	
Test Report No. RTS-2340-0911-17		Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Power Test Data Results cont'd

PCS Band

Loopback Service Mode


The BlackBerry® smartphone PIN 30F4F746 was in standalone, USB up position.
Test distance is 3.0 metres

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method					
								Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol.	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator)		Limit (dBm)	Diff to Limit (dB)
F0	25	1851.25	1900	Horn	V	88.79	88.79	V-V	-10.12	27.24	0.53	33.00	-5.76
F0	25	1851.25	1900	Horn	H	81.07		H-H	-9.14				
F0	600	1880.00	1900	Horn	V	88.94	88.94	V-V	-9.64	27.90	0.62	33.00	-5.10
F0	600	1880.00	1900	Horn	H	79.82		H-H	-8.38				
F0	1175	1908.75	1900	Horn	V	87.9	87.9	V-V	-10.58	26.75	0.47	33.00	-6.25
F0	1175	1908.75	1900	Horn	H	76.86		H-H	-9.57				

1xEVDO Mode

The BlackBerry® smartphone PIN 30F4F746 was in standalone, USB down position.
Test distance is 3.0 metres

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method					
								Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol.	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator)		Limit (dBm)	Diff to Limit (dB)
F0	25	1851.25	1900	Horn	V	89.32	89.32	V-V	-9.60	27.94	0.62	33.00	-5.06
F0	25	1851.25	1900	Horn	H	83.24		H-H	-8.44				
F0	600	1880.00	1900	Horn	V	89.26	89.26	V-V	-9.30	28.29	0.67	33.00	-4.71
F0	600	1880.00	1900	Horn	H	81.79		H-H	-7.99				
F0	1175	1908.75	1900	Horn	V	89.17	89.17	V-V	-9.36	28.07	0.64	33.00	-4.93
F0	1175	1908.75	1900	Horn	H	80.47		H-H	-8.25				

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Emissions Test Data Results

Cellular Band

Loopback Service

Date of Test: October 19, 2009

The measurements were performed by Fahd Faisal

The environmental test conditions were: Temperature: 24 °C
Pressure: 1017 mb
Relative Humidity: 30 %

Test Distance was 3.0 metres with a height of 1.0 metre, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical position.

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

All emissions had a test margin greater than 25.0 dB.

Date of Test: October 19 and 26, 2009

The measurements were performed by Heng Lin.


The environmental test conditions were: Temperature: 24 – 25 °C
Pressure: 982 – 1019 mb
Relative Humidity: 22 – 31 %

Test Distance was 3.0 metres with a height of 1.0 metre, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 30F4F739 was in standalone, USB up position.

The measurements were performed in Cellular Tx mode, channel 1013.

Frequency (MHz)	Channel of Occurrence	Antenna		Test Angle (Deg.)	Detector (PK or QP)	Measured Level (dBµV)	Correction Factor for preamp/antenna/ cables/ filter (dB)	Field Strength Level (reading+corr) (dBm)	Limit @ 3.0 m (dBm)	Test Margin (dB)
		Pol. (V/H)	Height (metres)							
1648.712	1013	H	1.00	146.00	PK	65.16	-91.78	-26.62	-13.00	-13.62
3300.220	1013	H	1.00	16.00	PK	54.00	-83.87	-29.87	-13.00	-16.87
1673.704	384	V	1.00	112.00	PK	67.95	-91.40	-23.46	-13.00	-10.46
3345.920	384	H	1.00	302.00	PK	58.22	-83.77	-25.54	-13.00	-12.54
1695.856	777	V	1.00	294.00	PK	62.62	-91.96	-29.34	-13.00	-16.34
3392.044	777	V	1.00	92.00	PK	53.93	-82.35	-28.42	-13.00	-15.42

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

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Emissions Test Data Results cont'd

Cellular Band

Test Data

Date of Test: October 19, 2009

The measurements were performed by Fahd Faisal

The environmental test conditions were: Temperature: 24 °C

Pressure: 1017 mb

Relative Humidity: 30 %

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

The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical position.

The measurements were performed in Cellular Data Tx mode, on channel 384.

All emissions had a test margin greater than 25.0 dB.

Date of Test: October 23, 2009

The measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 25 °C

Pressure: 1020 mb

Relative Humidity: 30 %


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

The BlackBerry® smartphone PIN 30F4F739 was in standalone, USB up position.

The measurements were performed in Cellular Data Tx mode, channel 384.

Frequency (MHz)	Channel of Occurrence	Antenna		Test Angle (Deg.)	Detector (PK or QP)	Measured Level (dBµV)	Correction Factor for preamp/antenna/ cables/ filter (dB)	Field Strength Level (reading+corr) (dBm)	Limit @ 3.0 m (dBm)	Test Margin (dB)
		Pol. (V/H)	Height (metres)							
1673.816	384	V	1.00	0.00	PK	61.40	-91.41	-30.01	-13.00	-17.01
3346.196	384	H	1.00	0.00	PK	57.05	-83.77	-26.72	-13.00	-13.72

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

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Emissions Test Data Results cont'd

Cellular Band

1xEVDO

Date of Test: October 20, 2009

The measurements were performed by Fahd Faisal.

The environmental test conditions were: Temperature: 24 °C

Pressure: 1017 mb

Relative Humidity: 30 %

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

The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical position.

The measurements were performed in Cellular 1xEVDO Tx mode, on channels 1013, 384 and 777.

All emissions had a test margin greater than 25.0 dB.

Date of Test: October 27, 2009

The measurements were performed by Heng Lin.

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 9 GHz.

The BlackBerry® smartphone PIN 30F4F739 was in standalone, USB up position.

The measurements were performed in Cellular 1xEVDO Tx mode, on channels 1013, 384 and 777.

Frequency (MHz)	Channel of Occurrence	Antenna		Test Angle (Deg.)	Detector (PK or QP)	Measured Level (dBµV)	Correction Factor for preamp/antenna/ cables/ filter (dB)	Field Strength Level (reading+corr) (dBm)	Limit @ 3.0 m (dBm)	Test Margin (dB)
		Pol. (V/H)	Height (metres)							
1648.792	1013	V	1.00	159.00	PK	66.73	-90.98	-24.24	-13.00	-11.24
3299.772	1013	V	1.00	260.00	PK	52.27	-83.02	-30.75	-13.00	-17.75
1673.768	384	V	1.00	87.00	PK	68.85	-91.41	-22.56	-13.00	-9.56
3346.144	384	H	1.00	305.00	PK	59.71	-83.77	-24.06	-13.00	-11.06
1695.936	777	V	1.00	114.00	PK	63.40	-91.96	-28.57	-13.00	-15.57
3391.868	777	V	1.00	276.00	PK	52.34	-82.35	-30.01	-13.00	-17.01


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

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Page 84 of 87

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Emissions Test Data Results cont'd

PCS Band

Loopback Service

Date of Test: October 19, 2009

The measurements were performed by Kevin Rose.

The environmental test conditions were: Temperature: 24 °C
Pressure: 1017 mb
Relative Humidity: 30 %

Test Distance was 3.0 metres with a height of 1.0 metre, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical position.

The measurements were performed in PCS Tx mode, on channels 25, 600 and 1175.
All emissions had a test margin greater than 25.0 dB.

Date of Test: October 19 to 20 and November 03, 2009, and January 05, 2010.
The measurements were performed by Heng Lin.


The environmental test conditions were: Temperature: 24 – 25 °C
Pressure: 982 – 1017 mb
Relative Humidity: 22 – 31%

Test Distance was 3.0 metres with a height of 1.0 metre.

The BlackBerry® smartphone PIN 3131C343 was tested from 1 GHz to 7 GHz, and the
BlackBerry® smartphone PIN 30F4F739 was tested from 7 GHz to 20 GHz. Both were in
standalone, Horizontal top-down position.

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

All emissions had a test margin greater than 25.0 dB.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Emissions Test Data Results cont'd

PCS Band

Test Data

Date of Test: October 19, 2009

The measurements were performed by Kevin Rose.

The environmental test conditions were: Temperature: 24 °C

Pressure: 1017 mb

Relative Humidity: 30 %

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

The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical position.

The measurements were performed in PCS Data Tx mode, on channel 600.

All emissions had a test margin greater than 25.0 dB.

Date of Test: October 19 and November 03, 2009 and January 05, 2010

The measurements were performed by Heng Lin.

The environmental test conditions were: Temperature: 24 – 25 °C

Pressure: 982 – 1017 mb


Relative Humidity: 22 – 31 %

Test Distance was 3.0 metres with a height of 1.0 metre.

The BlackBerry® smartphone PIN 3131C343 was tested from 1 GHz to 7 GHz, and the BlackBerry® smartphone PIN 30F4F739 was tested from 7 GHz to 20 GHz. Both were in standalone, Horizontal top-down position.

The measurements were performed in PCS Tx mode, channel 600.

All emissions had a test margin greater than 25.0 dB.

	EMI Test Report for the BlackBerry® smartphone Model RCS71CW APPENDIX 4B	
Test Report No. RTS-2340-0911-17	Dates of Test Oct. 19 to Nov. 5, 2009 and Jan. 04 to 05, 2010	Author Data Michael Cino

Radiated Emissions Test Data Results cont'd

PCS Band

1xEVDO

Date of Test: October 19, 2009

The measurements were performed by Kevin Rose.

The environmental test conditions were: Temperature: 24 °C
Pressure: 1017 mb
Relative Humidity: 30 %

Test Distance was 3.0 metres with a height of 1.0 metre, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 30F4F746 was in standalone, vertical position.

The measurements were performed in PCS 1xEVDO Tx mode on channels 25, 600 and 1175.

All emissions had a test margin greater than 25.0 dB.

Date of Test: January 04, 2010

The measurements were performed by Steven Wang.

The environmental test conditions were: Temperature: 25 °C
Pressure: 982 mb
Relative Humidity: 31 %

Test Distance was 3.0 metres with a height of 1.0 metre, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 3131C343 was in standalone, Horizontal top-down position.

The measurements were performed in PCS 1xEVDO Tx mode on channels 25, 600 and 1175.

All emissions had a test margin greater than 25.0 dB.