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

RIM Testing Services (RTS)

A division of Research In Motion Limited

REPORT NO: RTS-1528-0903-16_Rev2

PRODUCT MODEL NO:	RCF71CW
TYPE NAME:	BlackBerry® smartphone
FCC ID:	L6ARCF70CW
IC:	2503A-RCF70CW
EMISSION DESIGNATOR (GSM):	247KG7W
EMISSION DESIGNATOR (EDGE):	247KGXW
EMISSION DESIGNATOR (CDMA):	1M29F9W

This Rev2 test report supersedes the previous version RTS-1528-0903-16 dated 21 May, 2009

DATE: 23 June 2009

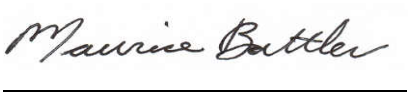
Statement of Performance:

The BlackBerry® smartphone, model RCF71CW, part number CER-24239-001 Rev. 3 and accessories when configured and operated per RIM's operation instructions, performs within the requirements of the test standards.

Declaration:

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

Documented by:



Maurice Battler
Compliance Specialist
Date: 23 June, 2009

Reviewed by:

Masud S. Attayi, P.Eng.
Team Lead, Regulatory Compliance
Date: 23 June, 2009

Approved by:

Paul G. Cardinal, Ph.D.
Director
Date: 23 June, 2009

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A) Scope

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

- FCC CFR 47 Part 2, Oct. 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. Document number RTS-1528-RCF71CW-01

C) Product Identification

Manufactured by Research In Motion Limited whose headquarters is located at:

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

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

RIM Testing Services (RTS) EMI test facilities

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

The testing was performed from March 11 to June 16, 2009.

The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN
1	RCF71CW	CER-24239-001 Rev. 2	307012B7
2	RCF71CW	CER-24239-001 Rev. 2	306FB2A7
3	RCF71CW	CER-24239-001 Rev. 2	306F5AAB
4	RCF71CW	CER-24239-001 Rev. 2	306F5A0B
5	RCF71CW	CER-24239-001 Rev. 3	307EED24

To view the differences between CER-24239-001 Rev. 2 and CER-24239-001 Rev. 3, see document number RTS-01528-RCF71CW-01.

Only the measurements that may have been impacted by the changes from Rev 2 to Rev 3 were re-measured.

D) Support Equipment Used for the Testing of the EUT

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

E) Test Voltage

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

F) Modifications to EUT

No modifications were required on the EUT.

G) 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

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.

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 CDMA2000 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 CDMA2000 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 CDMA2000 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 CDMA2000 and 1xEVDO mode on the low, middle and high channels.
See APPENDIX 1B for the test data.

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 CDMA2000 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.

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 BlackBerry® smartphone. The highest ERP measured was 31.71 dBm (1.48 W) at 848.80 MHz (channel 251).

The ERP in the 850 band, EDGE mode was measured on BlackBerry® smartphone. The highest ERP measured was 28.69 dBm (0.74 W) at 848.80 MHz (channel 251).

The ERP in the PCS band, GSM mode was measured on BlackBerry® smartphone. The highest ERP measured was 28.70 dBm (0.74 W) at 1850.2 MHz (channel 512).

The ERP in the PCS band, EDGE mode was measured on BlackBerry® smartphone. The highest ERP measured was 28.62 dBm (0.73 W) at 1880.0 MHz (channel 661).

The ERP in the Cellular band, Loopback service mode was measured on BlackBerry® smartphone. The highest ERP measured was 25.74 dBm (0.37 W) at 824.70 MHz (channel 1013).

The ERP in the Cellular band, 1xEVDO mode was measured on BlackBerry® smartphone. The highest ERP measured was 26.03 dBm (0.40 W) at 848.32 MHz (channel 777).

The EIRP in the PCS band, Loopback Service mode was measured on BlackBerry® smartphone. The highest EIRP measured was 25.49 dBm (0.35 W) at 1908.75 MHz (channel 1175).

The EIRP in the PCS band, 1xEVDO mode was measured on BlackBerry® smartphone. The highest EIRP measured was 26.49 dBm (0.45 W) at 1908.75 MHz (channel 1175).

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

The worst test margin in the 850 band for GSM, GPRS and EDGE modes harmonic emissions measured was 4.80 dB below the limit at 875.90 MHz.

The worst test margin in the PCS band for GSM, GPRS and EDGE modes harmonic emissions measured was 23.97 dB below the limit at 1947.866 MHz.

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 12.85 dB below the limit at 3347.02 MHz.

The worst test margin in the PCS band harmonic emissions measured was 6.72 dB below the limit at 3702.72 MHz.

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, PCS1900/Bluetooth and Cellular/Bluetooth, PCS/Bluetooth. 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

H) Compliance Test Equipment Used

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
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	09-06-03	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	10-03-31	Radiated Emissions
Hybrid Log Antenna	TDK	HLP-3003C	017301	09-10-24	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	09-07-03	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	Aglient	E7405A	US40240226	09-10-01	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	09-09-22	RF Conducted Emissions
DC Power Supply	HP	6632B	US37472178	09-09-24	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

Compliance Test Equipment Used cont'd

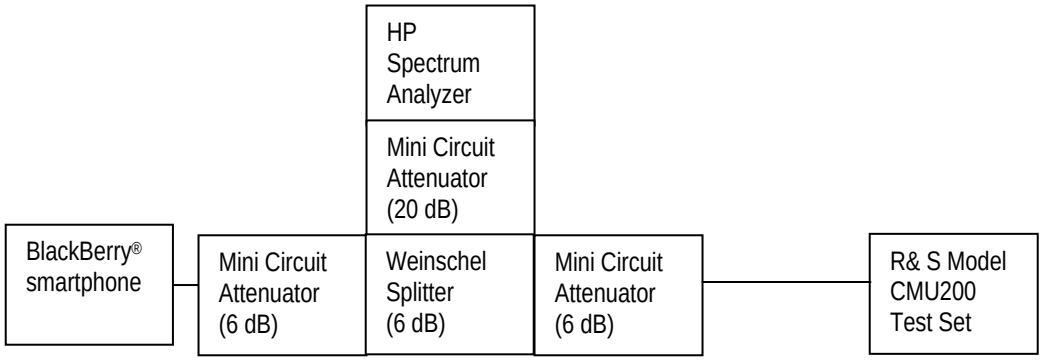
UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Temperature Probe	Control Company	15-077-21	51129471	09-05-12	Frequency Stability
Environmental Chamber	ESPEC Corp.	SH-240S1	91007118	N/R	Frequency Stability
Signal Generator	Agilent	8648C	4037U03155	09-09-20	Frequency Stability
Signal Generator	Agilent	E8257D	MY45140527	09-10-10	Radiated Emissions
Power Meter	Agilent	N1911A	MY45100951	09-06-23	Frequency Stability
Power Sensor	Agilent	N1921A	MY45241383	09-06-27	Frequency Stability

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

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 307012B7.

Test Setup Diagram



The environmental test conditions were:

Temperature: 24ºC
Pressure: 1027 mb
Relative Humidity: 21%

The measurements were performed by Maurice Battler.

GSM Conducted RF Emission Test Data cont'd

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

Date of Test: March 20, 2009

–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	273	246.7
837.6	268	243.3
848.8	273	245.0

1900 band Frequency (MHz)	-26dBc Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
1850.2	277	245.0
1880.0	275	245.0
1909.8	280	243.3

Measurement Plots for 850 and 1900 in GSM mode
Refer to the following measurement plots for more detail.
See Figures 1-13a to 1-24a for the plots of the –26dBc Bandwidth and 99% Occupied Bandwidth.
See Figures 1-25a to 1-28a for plots of the channel mask results.

The RF power output was at maximum for all the recorded measurements shown below.
Date of Test: March 20, 2009

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	245.0
837.6	245.0
848.8	243.3

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.

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

Date of Test: March 20, 2009

GSM Conducted RF Emission Test Data cont'd

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

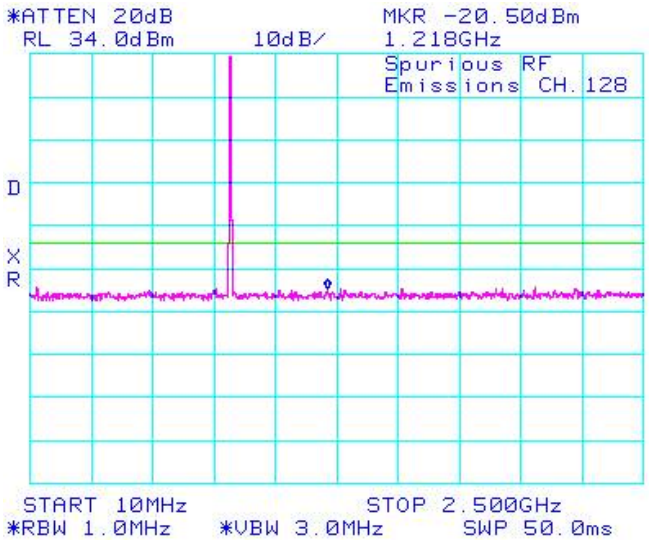


Figure 1-2a: GSM850 band, Spurious Conducted Emissions, Low channel

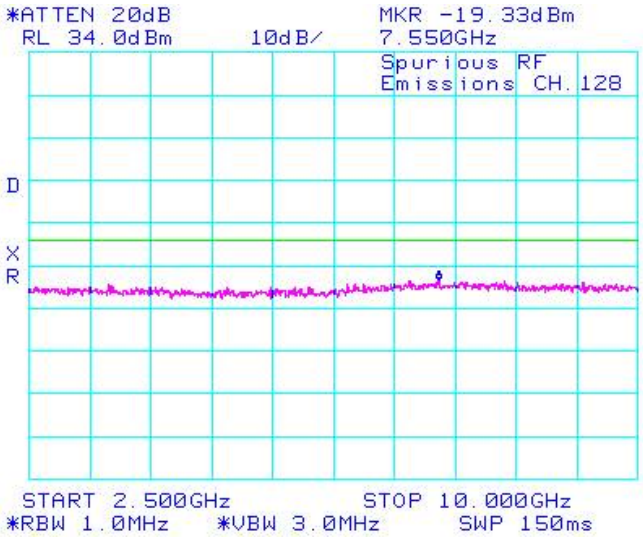


Figure 1-3a: GSM850 band, Spurious Conducted Emissions, Middle Channel

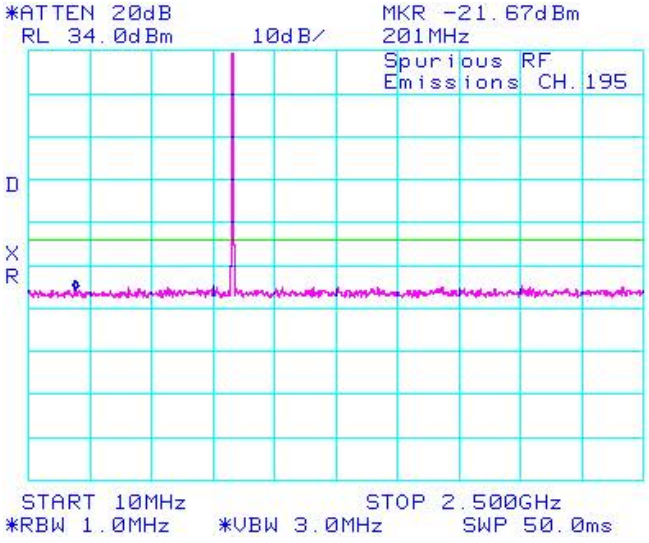
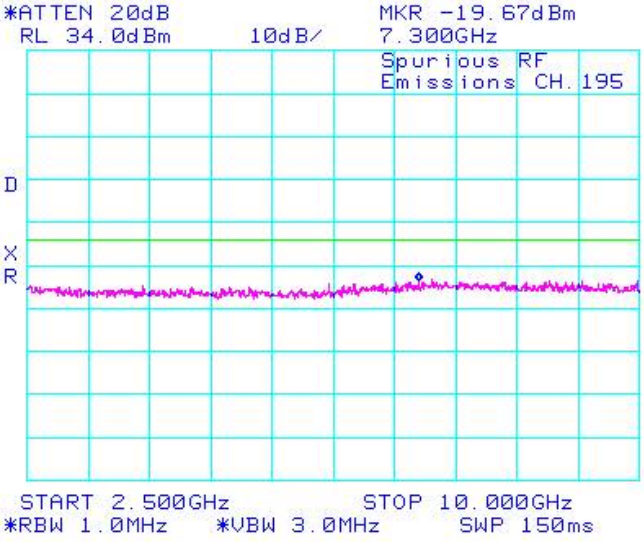


Figure 1-4a: GSM850 band, Spurious Conducted Emissions, Middle Channel



GSM Conducted RF Emission Test Data cont'd

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

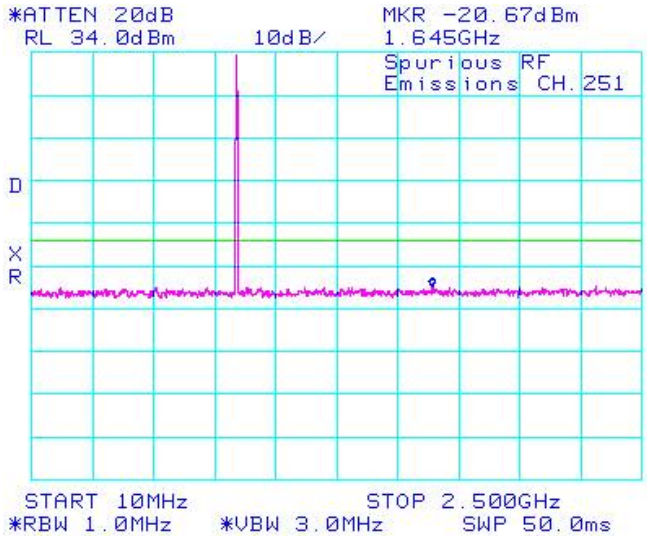


Figure 1-6a: GSM850 band, Spurious Conducted Emissions, High Channel

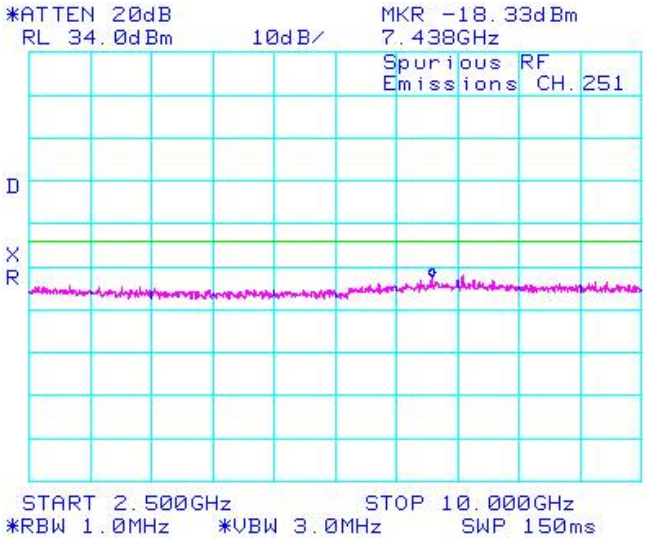


Figure 1-7a: PCS1900 band, Spurious Conducted Emissions, Low Channel

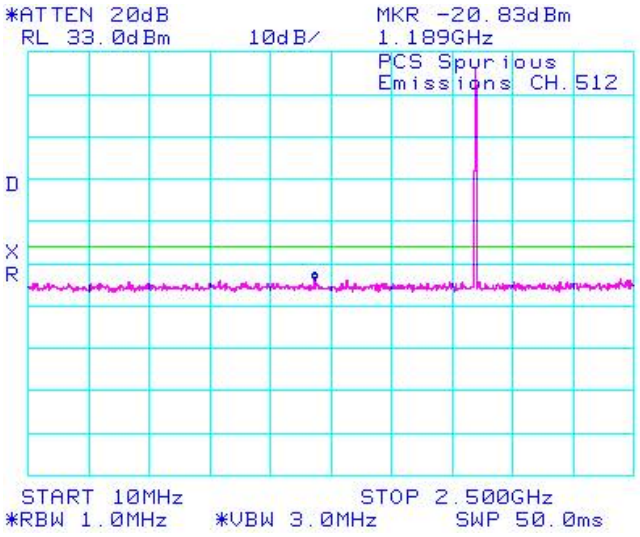
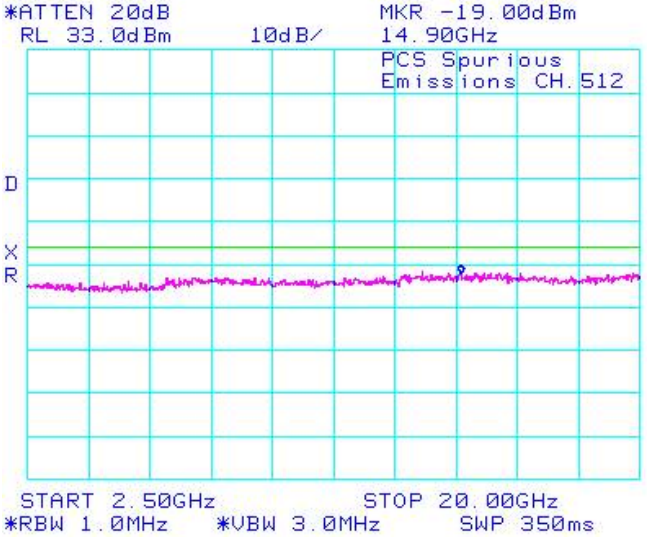


Figure 1-8a: PCS1900 band, Spurious Conducted Emissions, Low Channel



GSM Conducted RF Emission Test Data cont'd

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

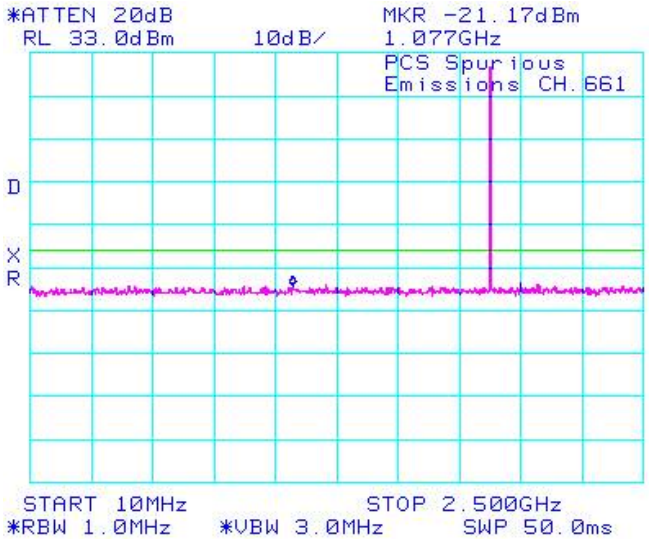


Figure 1-10a: PCS1900 band, Spurious Conducted Emissions, Middle Channel

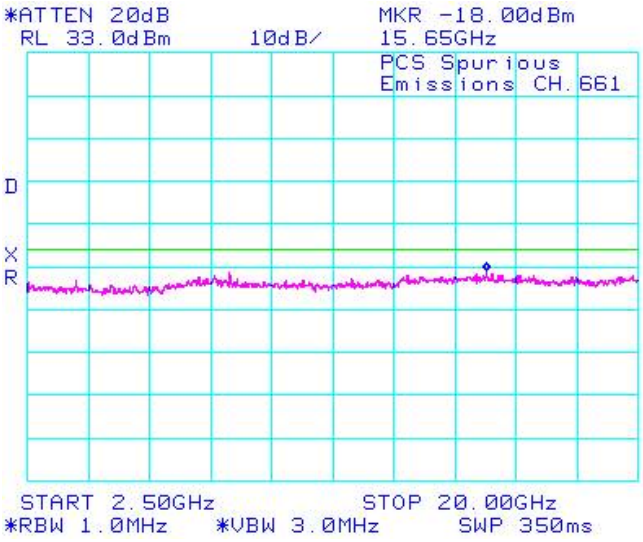


Figure 1-11a: PCS1900 band, Spurious Conducted Emissions, High Channel

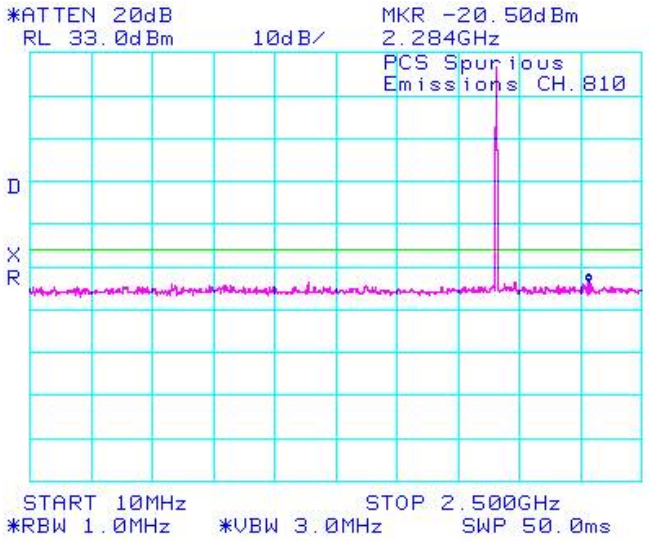
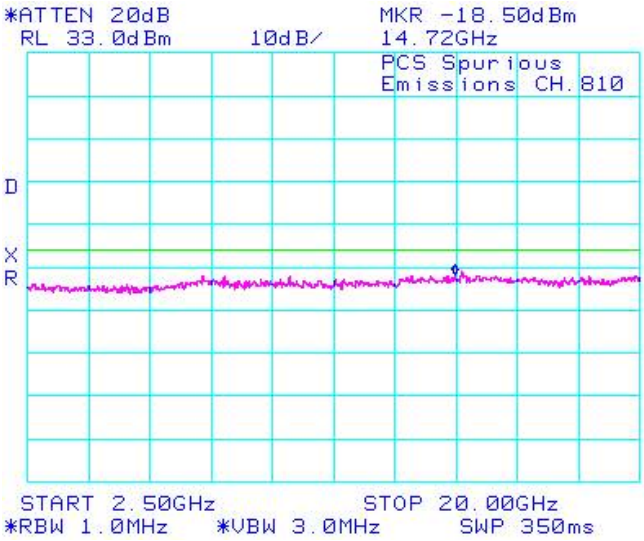


Figure 1-12a: PCS1900 band, Spurious Conducted Emissions, High Channel



GSM Conducted RF Emission Test Data cont'd

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

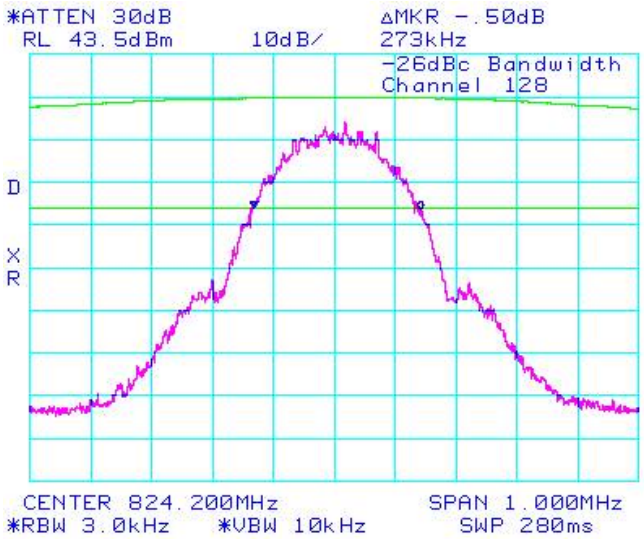


Figure 1-14a: Occupied Bandwidth, GSM850 band Low Channel in GSM mode

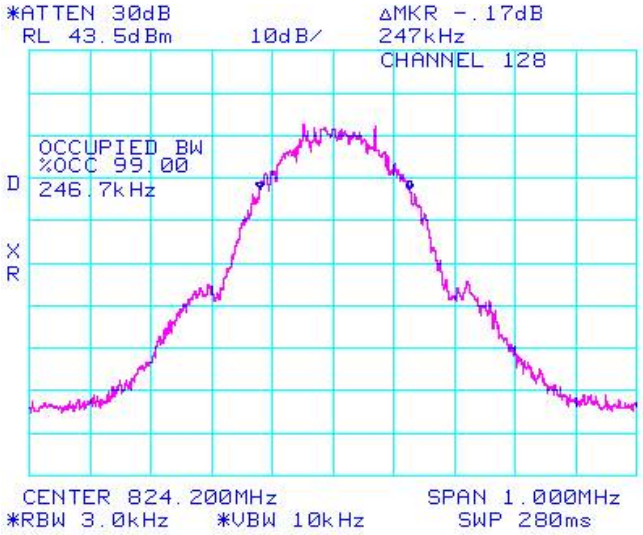


Figure 1-15a: -26dBc bandwidth, GSM850 band Middle Channel in GSM mode

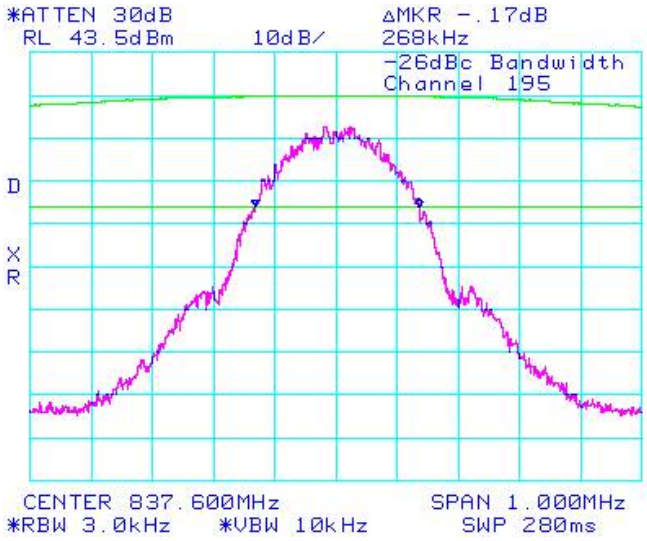
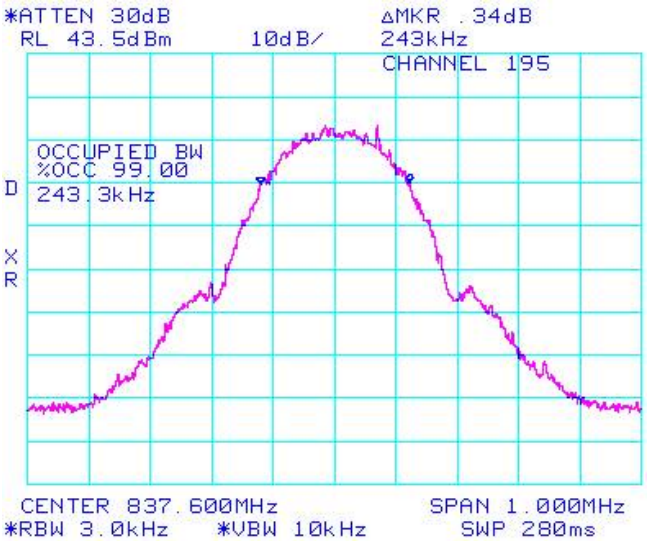


Figure 1-16a: Occupied Bandwidth, GSM850 band Middle Channel in GSM mode



GSM Conducted RF Emission Test Data cont'd

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

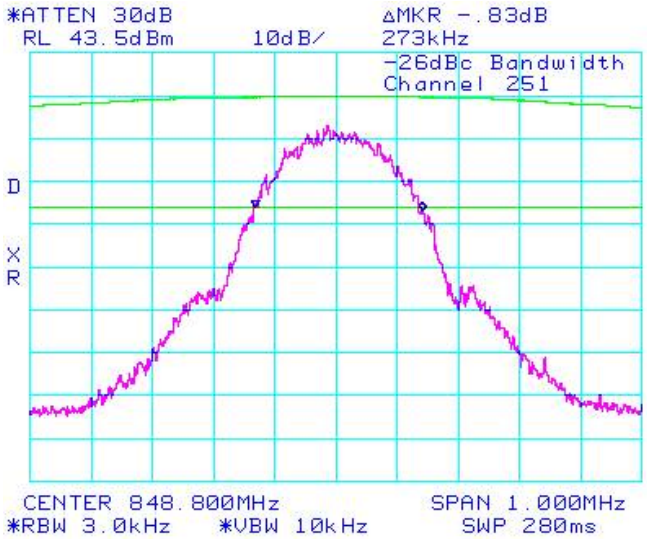


Figure 1-18a: Occupied Bandwidth, GSM850 band High Channel in GSM mode

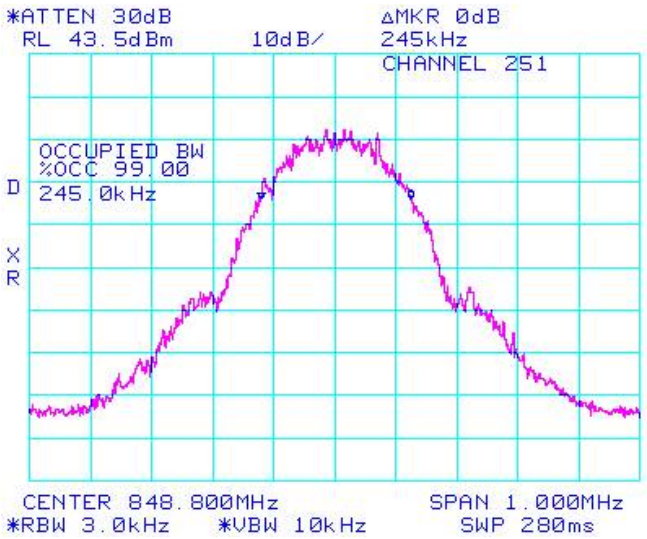


Figure 1-19a: -26dBc bandwidth, PCS1900 Low Channel in GSM mode

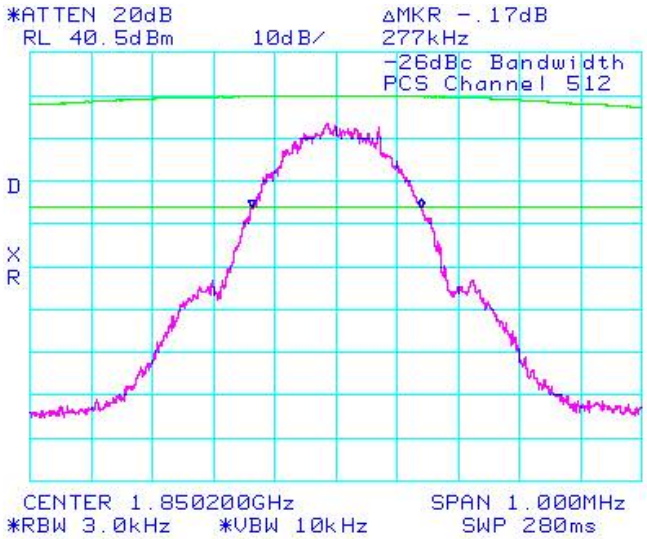
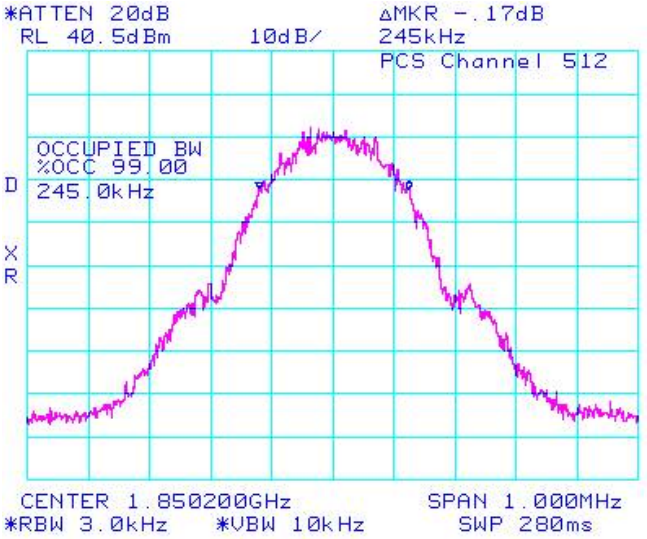


Figure 1-20a: Occupied Bandwidth, PCS1900 Low Channel in GSM mode



GSM Conducted RF Emission Test Data cont'd

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

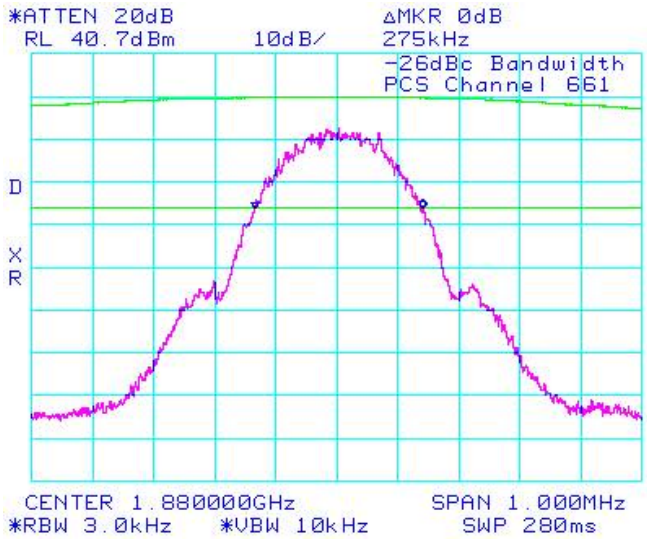


Figure 1-22a: Occupied Bandwidth, PCS1900 Middle Channel in GSM mode

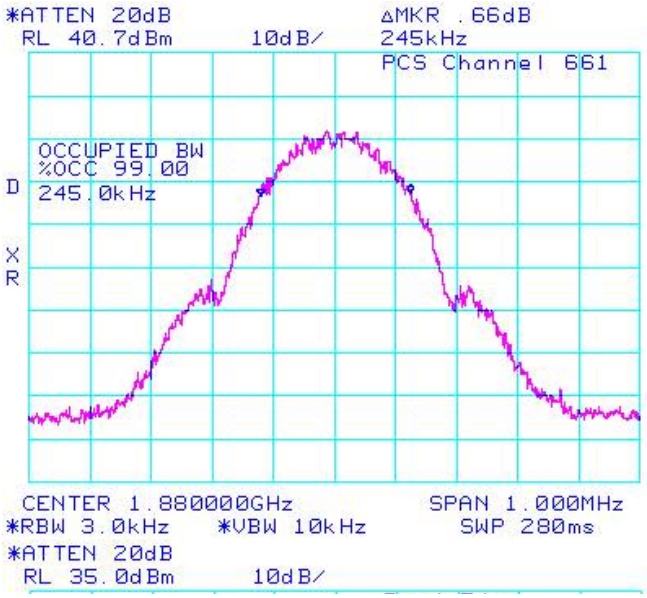


Figure 1-23a: -26dBc bandwidth, PCS1900 High Channel in GSM mode

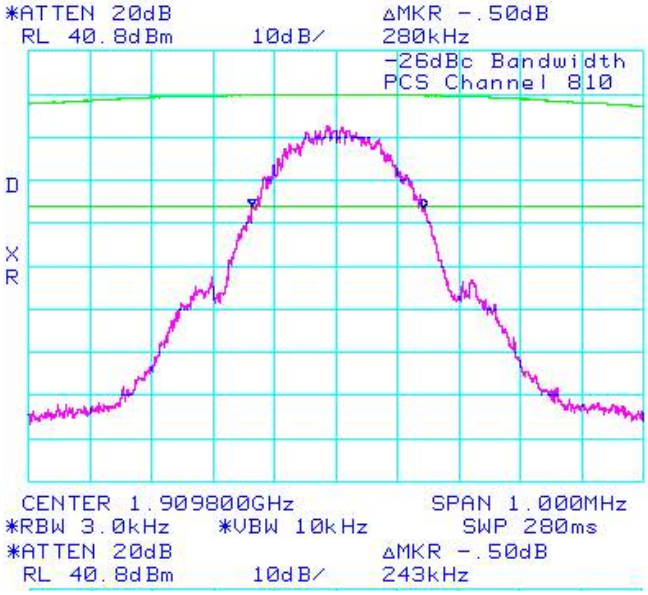
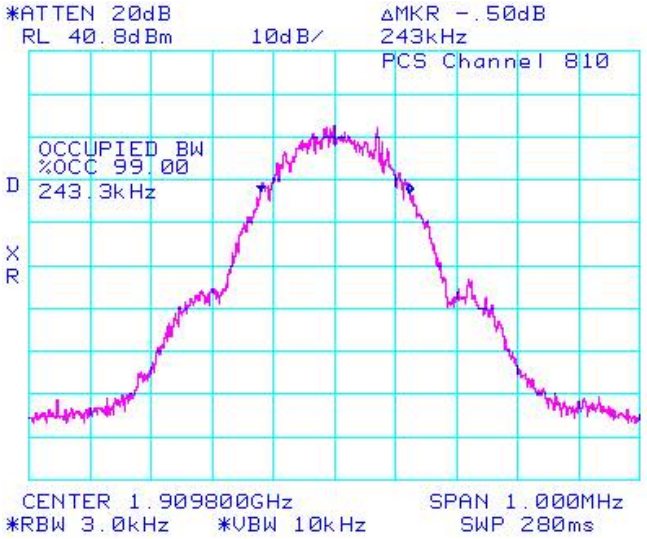


Figure 1-24a: Occupied Bandwidth, PCS1900 High Channel in GSM mode



GSM Conducted RF Emission Test Data cont'd

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

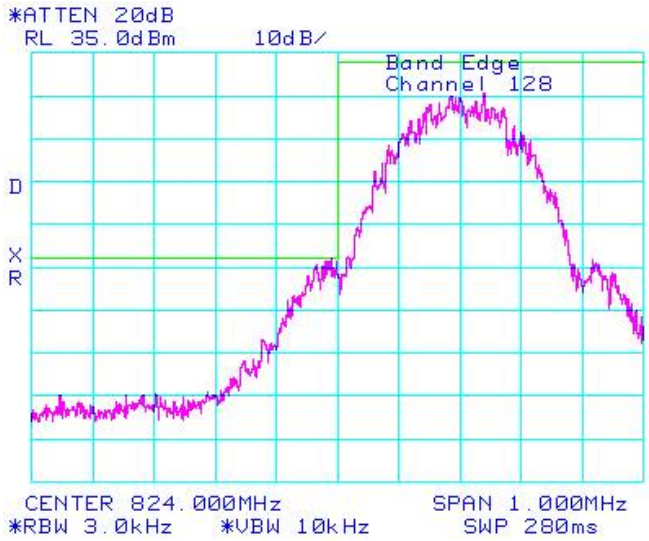


Figure 1-26a: GSM850 band High Channel Mask in GSM mode

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

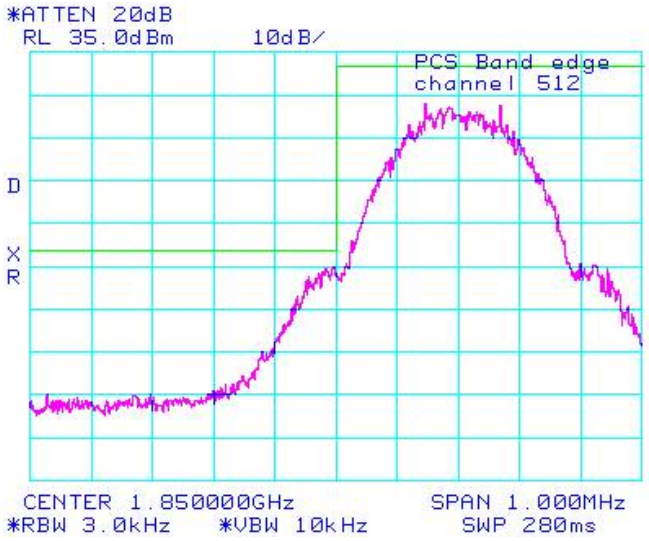
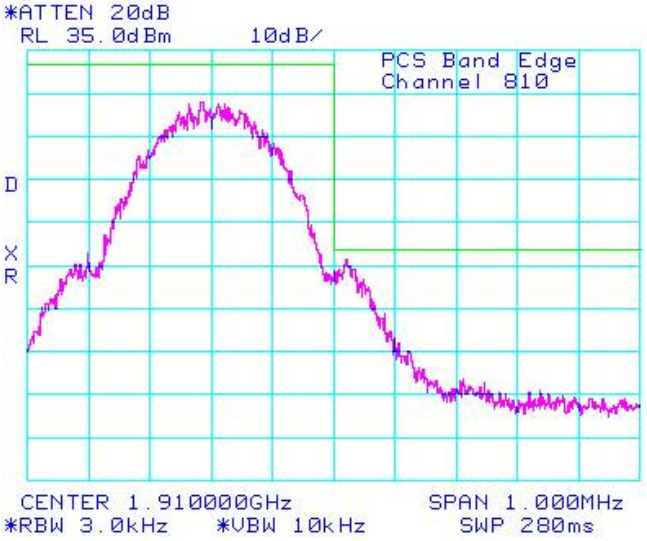


Figure 1-28a: PCS1900, High Channel Mask in GSM mode



GSM Conducted RF Emission Test Data cont'd

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

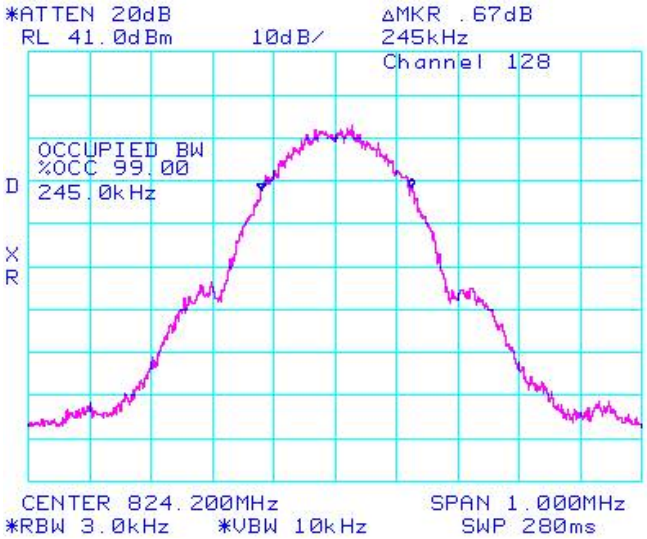


Figure 1-30a: Occupied Bandwidth, GSM850 Band, Middle Channel in EDGE mode

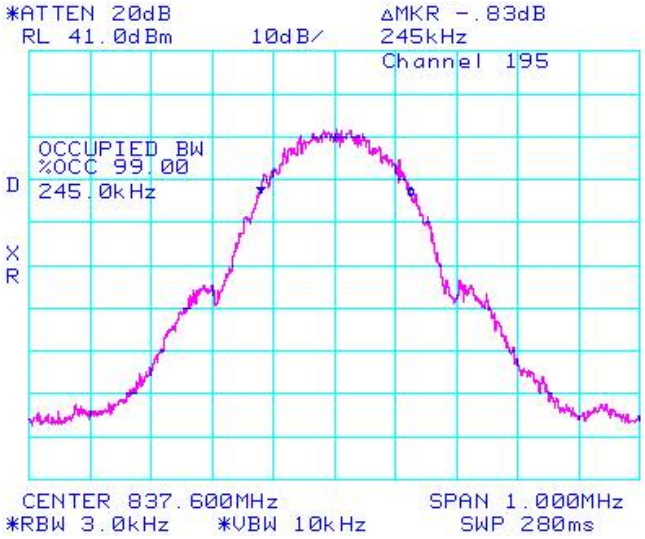


Figure 1-31a: Occupied Bandwidth, GSM850 band, High Channel in EDGE mode

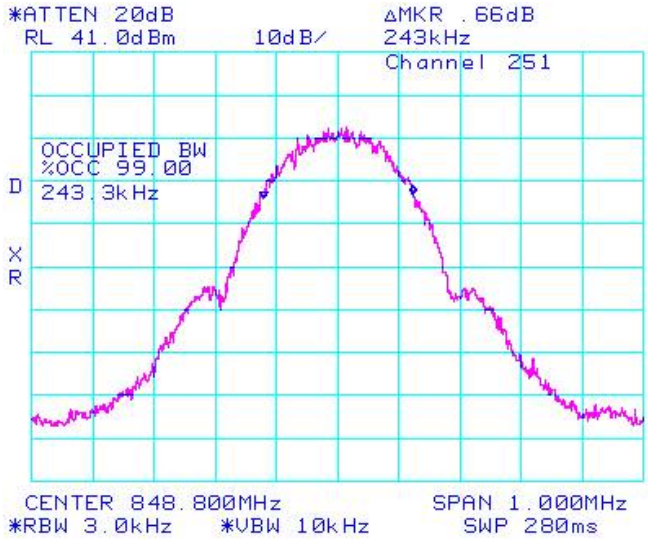
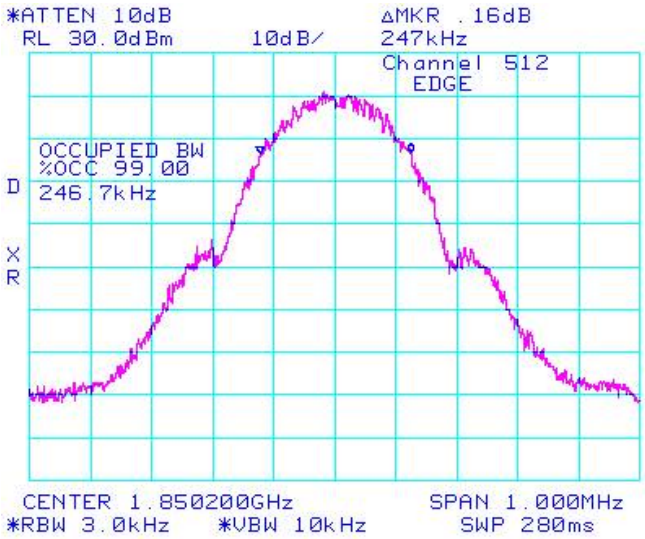


Figure 1-32a: Occupied Bandwidth, PCS1900 Band, Low Channel in EDGE mode



GSM Conducted RF Emission Test Data cont'd

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

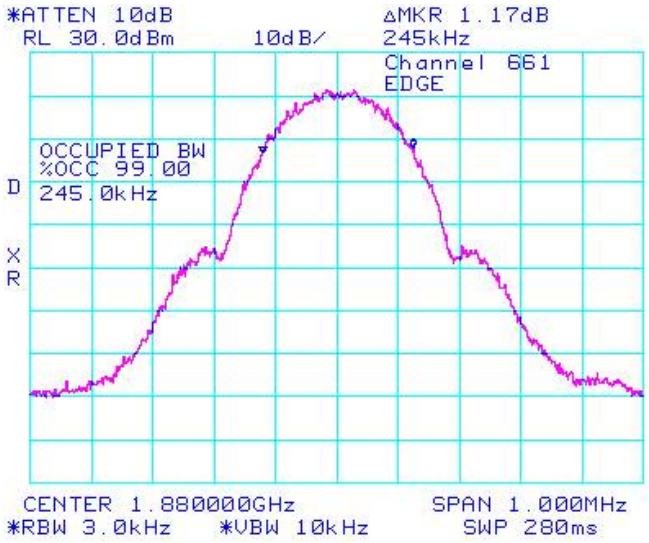
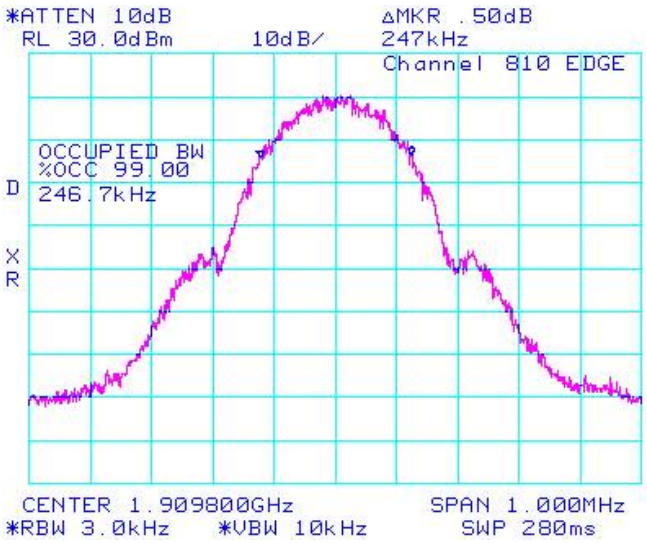


Figure 1-34a: Occupied Bandwidth, PCS1900 Band, High Channel in EDGE mode

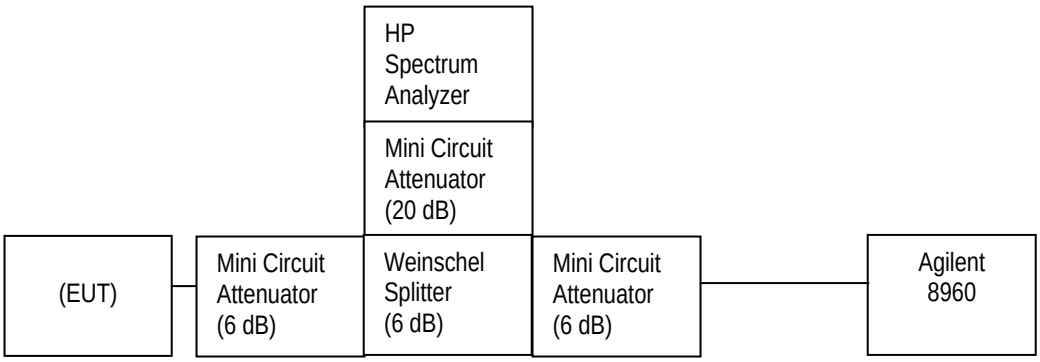


APPENDIX 1B – CDMA CONDUCTED RF EMISSIONS TEST DATA/PLOTS

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 307012B7.

Test Setup Diagram



The environmental test conditions were: Temperature: 24ºC
Pressure: 1028 mb
Relative Humidity: 21%

The measurements were performed by Maurice Battler.

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.

Date of Test: March 24, 2009

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	1.287

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

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.

CDMA Conducted RF Emission Test Data cont'd

Figure 7-1b: Cellular, Spurious Conducted Emissions, Low channel

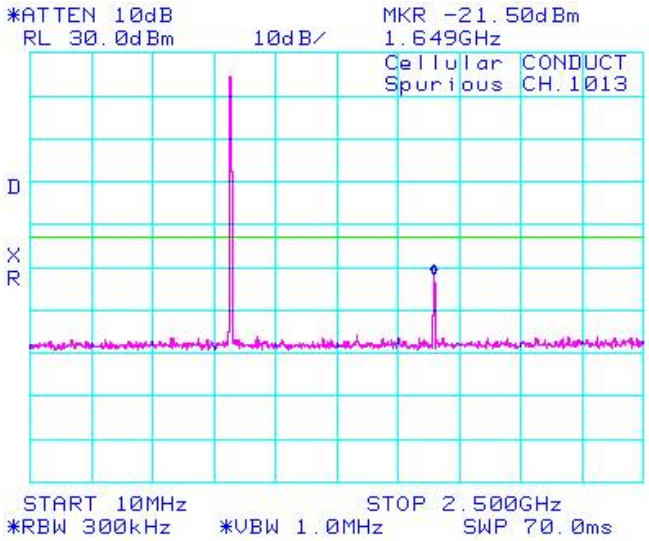


Figure 1-2b: Cellular, Spurious Conducted Emissions, Low channel

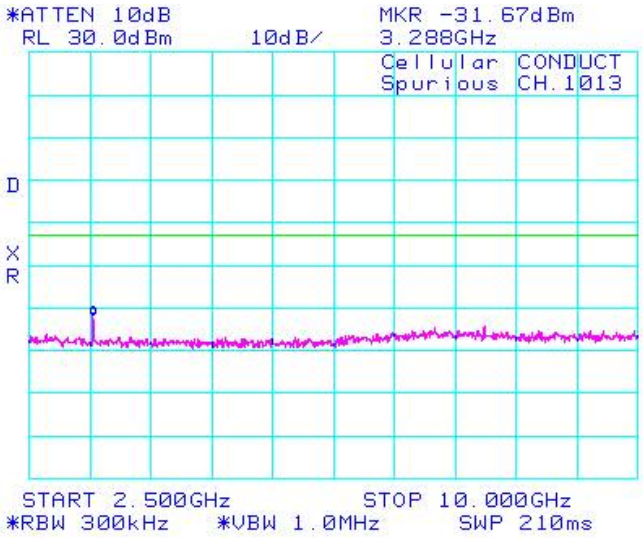


Figure 1-3b: Cellular, Spurious Conducted Emissions, Middle channel

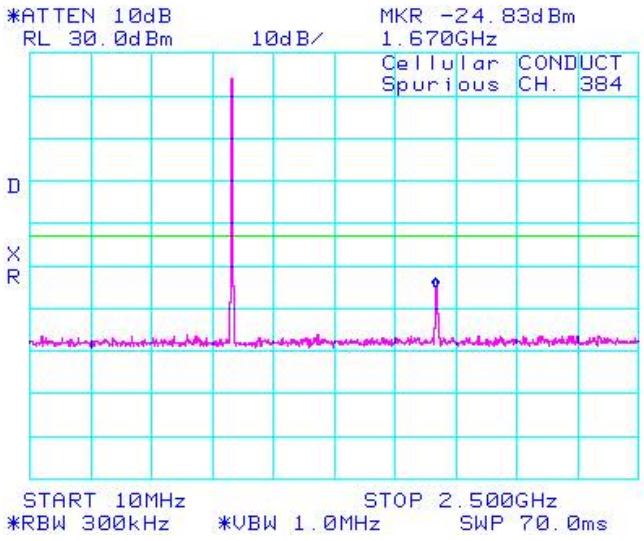
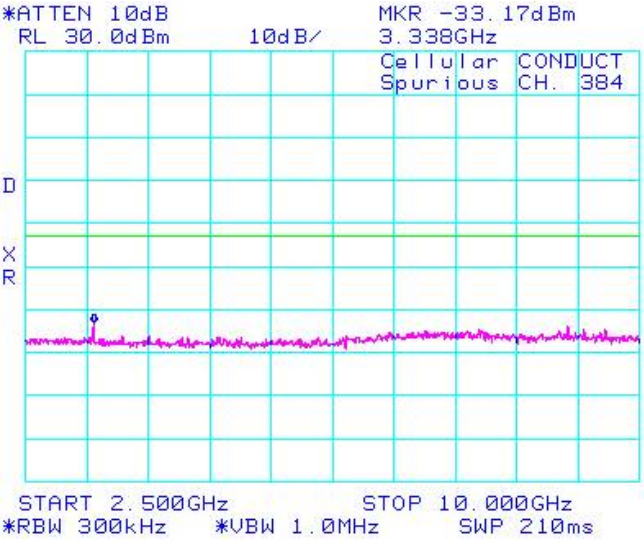


Figure 1-4b: Cellular, Spurious Conducted Emissions, Middle channel



CDMA Conducted RF Emission Test Data cont'd

Figure 8-5b: Cellular, Spurious Conducted Emissions, High Channel

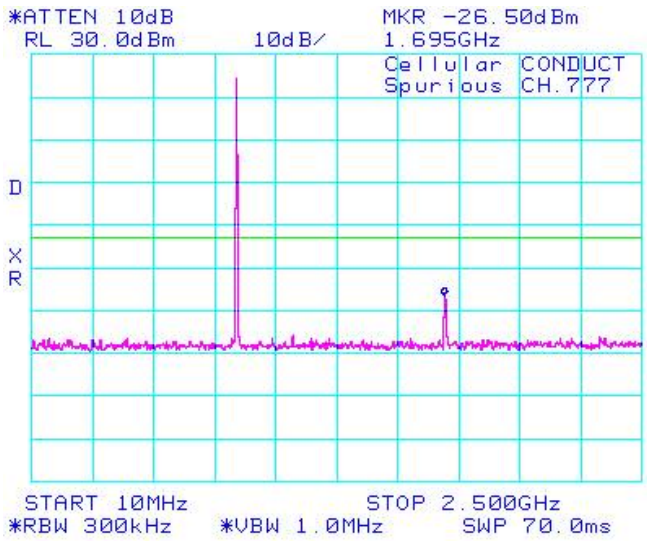


Figure 1-6b: Cellular, Spurious Conducted Emissions, High Channel

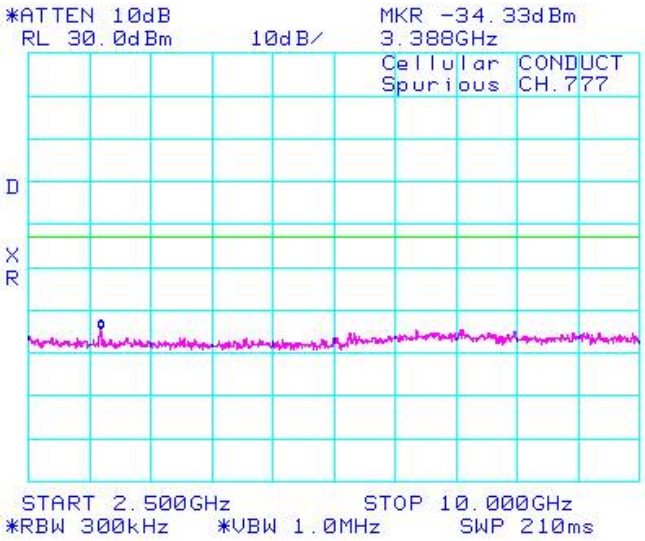


Figure 1-7b: PCS, Spurious Conducted Emissions, Low Channel

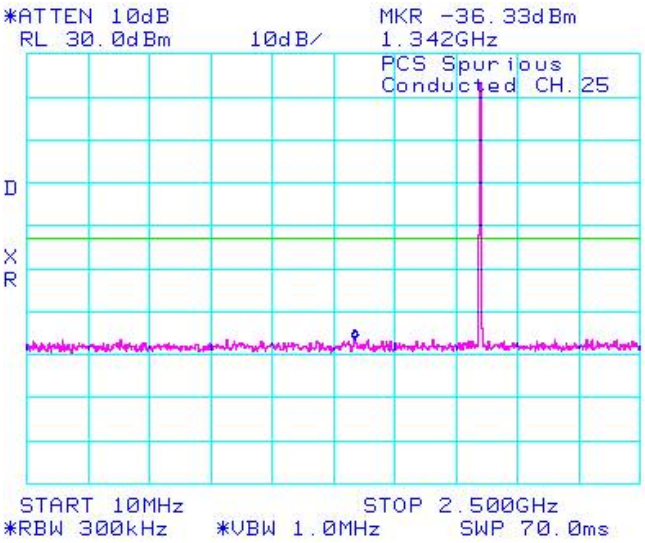
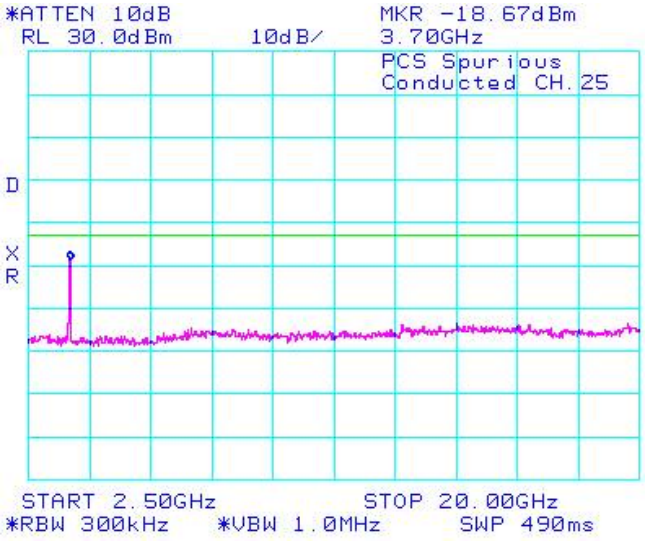


Figure 1-8b: PCS, Spurious Conducted Emissions, Low Channel



CDMA Conducted RF Emission Test Data cont'd

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

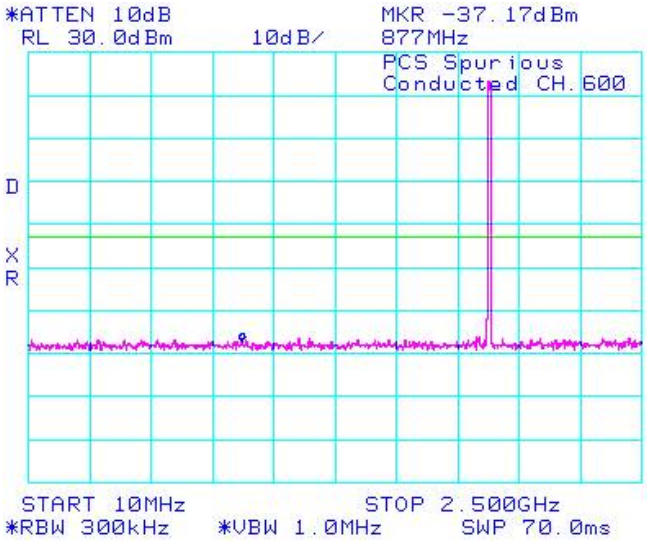


Figure 1-10b: PCS, Spurious Conducted Emissions, Middle Channel

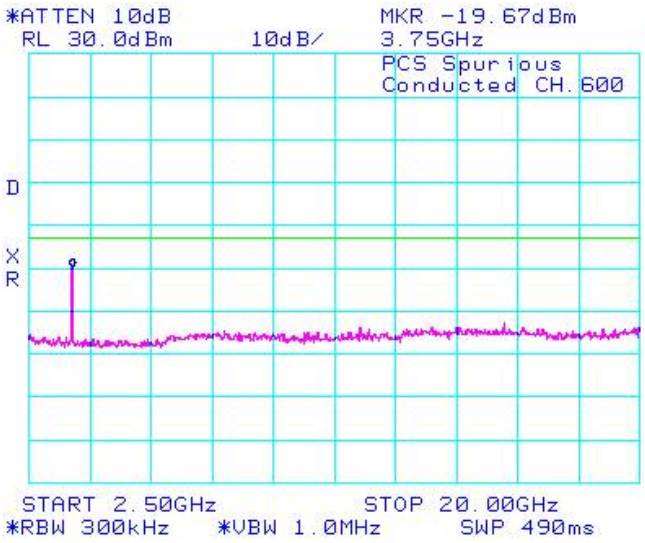


Figure 1-11b: PCS, Spurious Conducted Emissions, High Channel

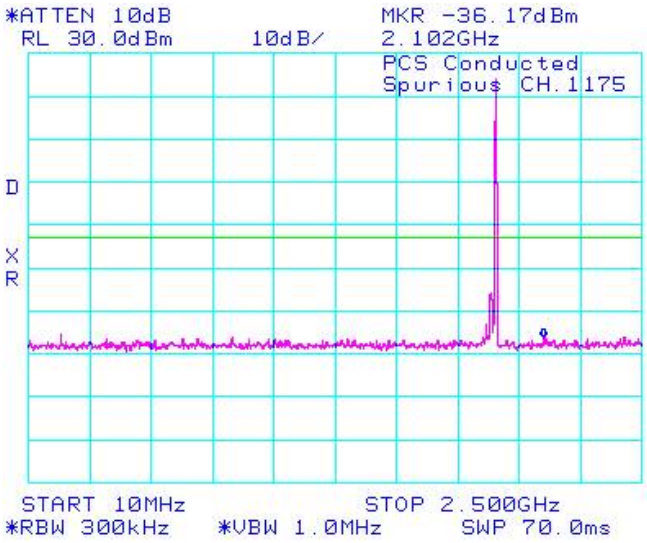
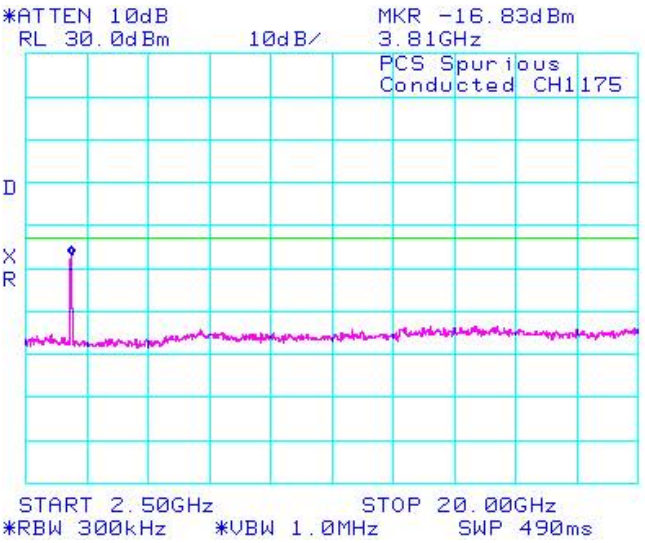


Figure 1-12b: PCS, Spurious Conducted Emissions, High Channel



CDMA Conducted RF Emission Test Data cont'd

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

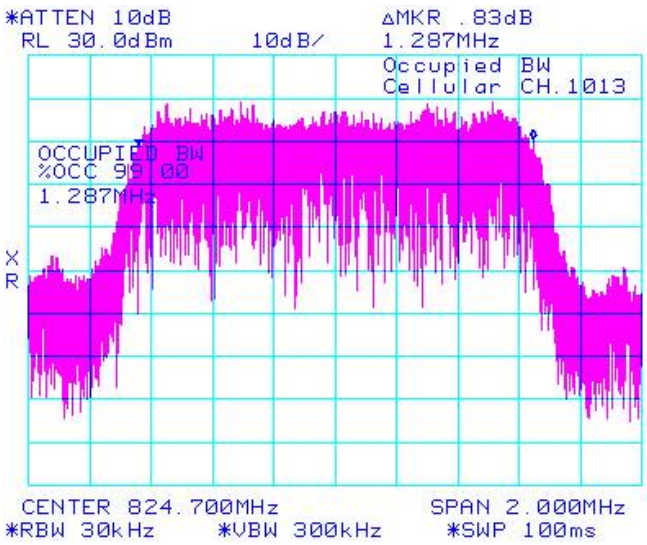


Figure 1-14b: Occupied Bandwidth, Cellular Middle Channel

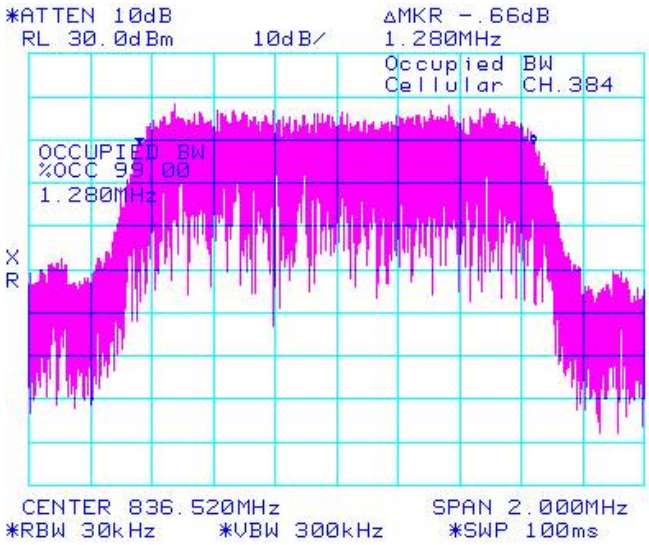


Figure 1-15b: Occupied Bandwidth, Cellular High Channel

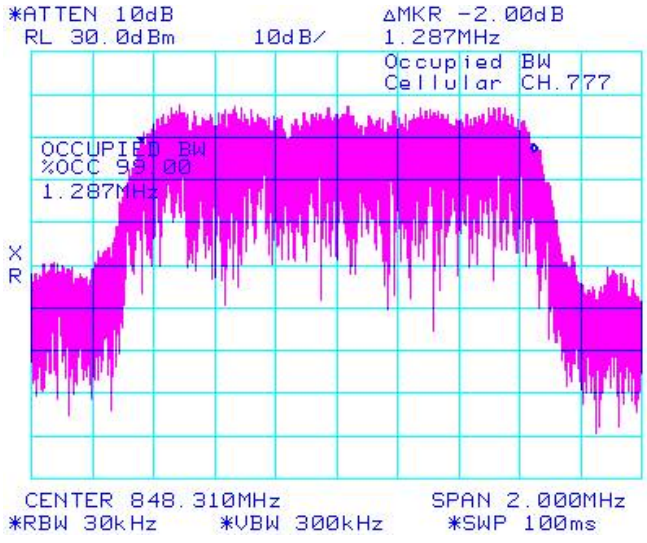
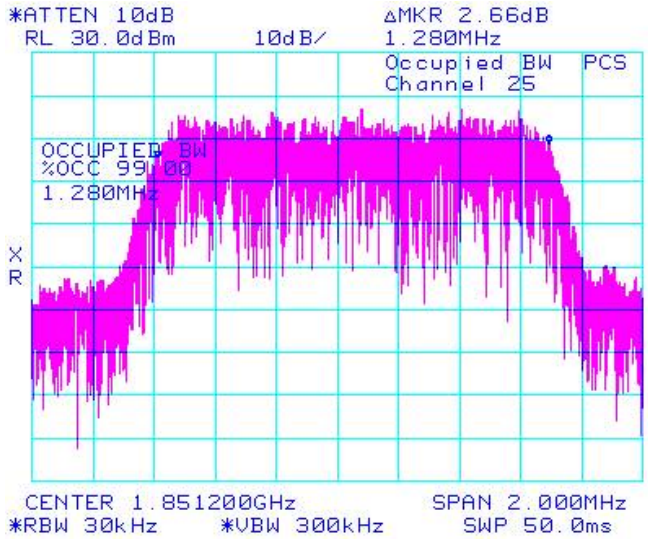


Figure 1-16b: Occupied Bandwidth, PCS Low Channel



CDMA Conducted RF Emission Test Data cont'd

Figure 10-17b: Occupied Bandwidth, PCS Middle Channel

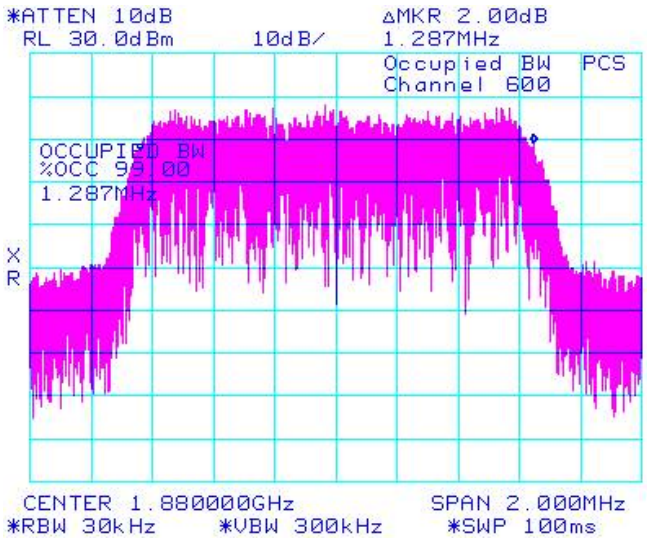


Figure 1-18b: Occupied Bandwidth, PCS High Channel

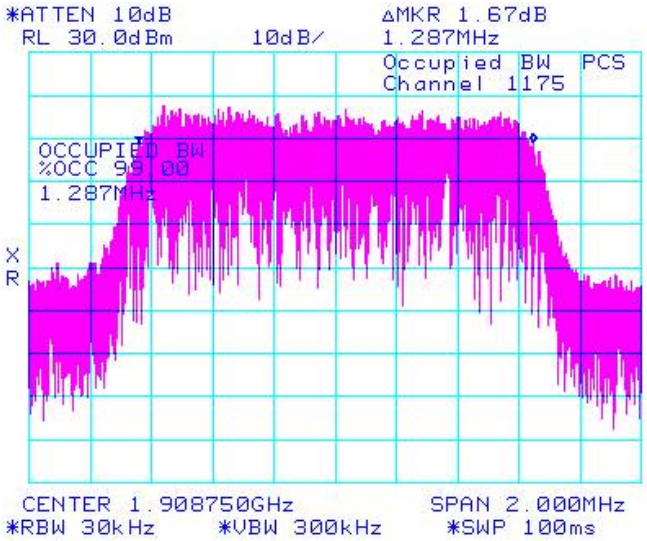


Figure 1-19b: Cellular CDMA2000, Low Channel Mask

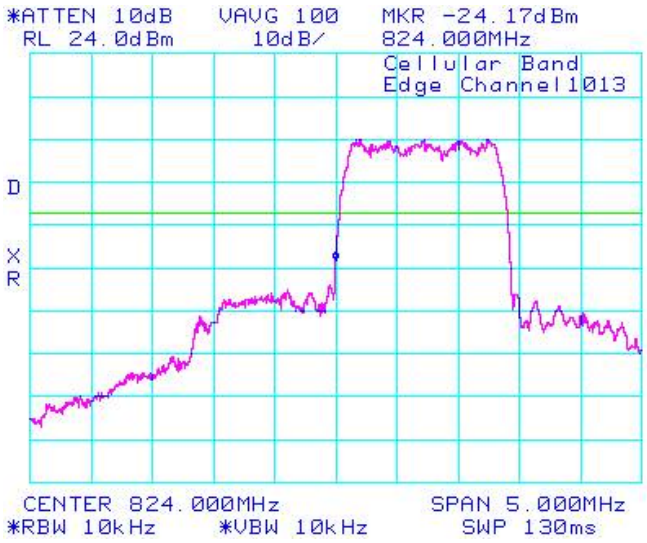
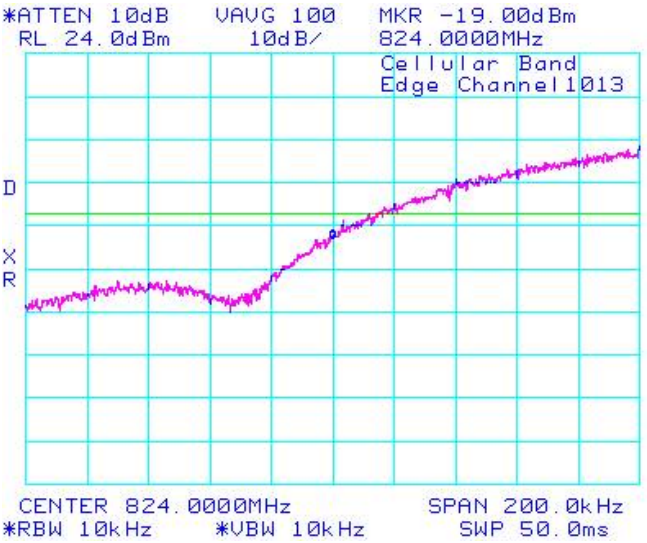


Figure 1-20b: Cellular CDMA2000, Low Channel Mask



CDMA Conducted RF Emission Test Data cont'd

Figure 11-21b: Cellular CDMA2000, High Channel Mask

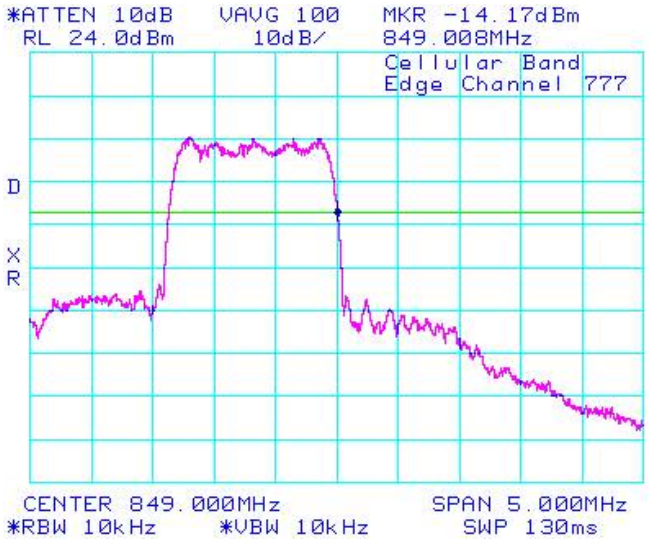


Figure 1-22b: Cellular CDMA2000, High Channel Mask

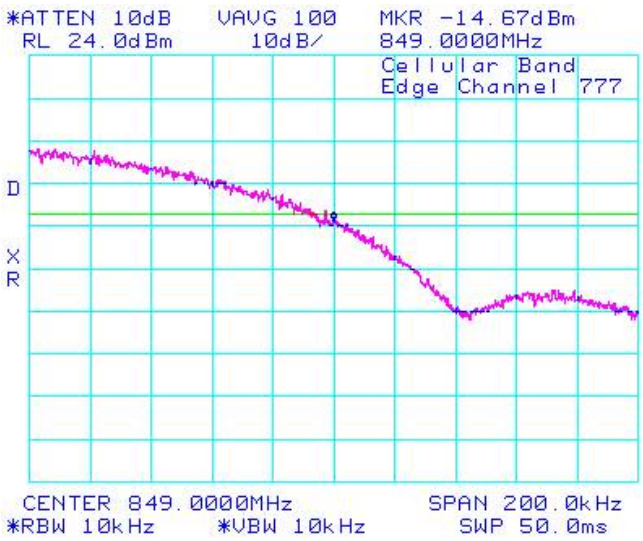


Figure 1-23b: PCS, Low Channel Mask

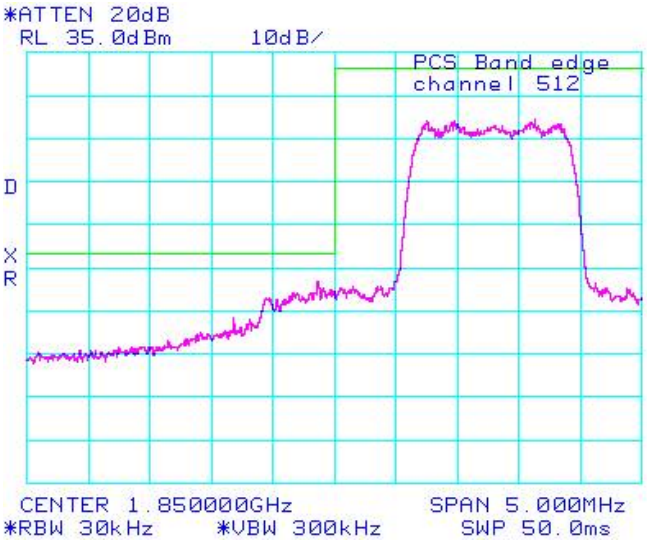
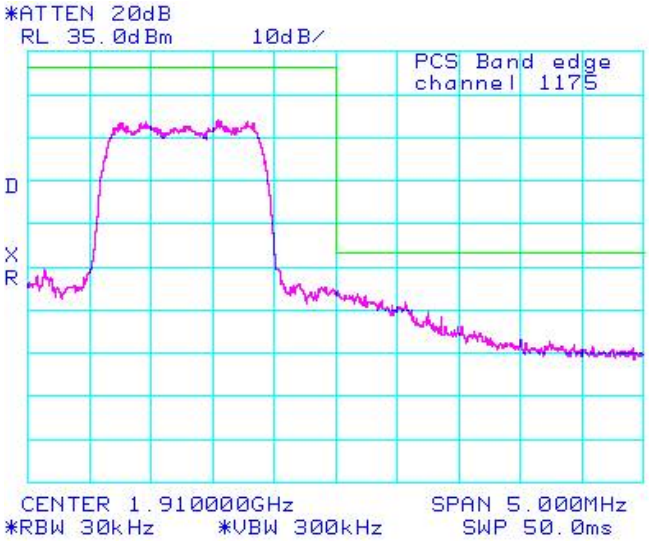


Figure 1-24b: PCS, High Channel Mask



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.
Date of Test: March 24, 2009

The environmental test conditions were: Temperature: 25ºC
Pressure: 1025 mb
Relative Humidity: 21%

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

Cellular Frequency (MHz)	99% Occupied Bandwidth (MHz)
824.700	1.273
836.520	1.287
848.310	1.287

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 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.

CDMA Conducted RF Emission Test Data cont'd

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

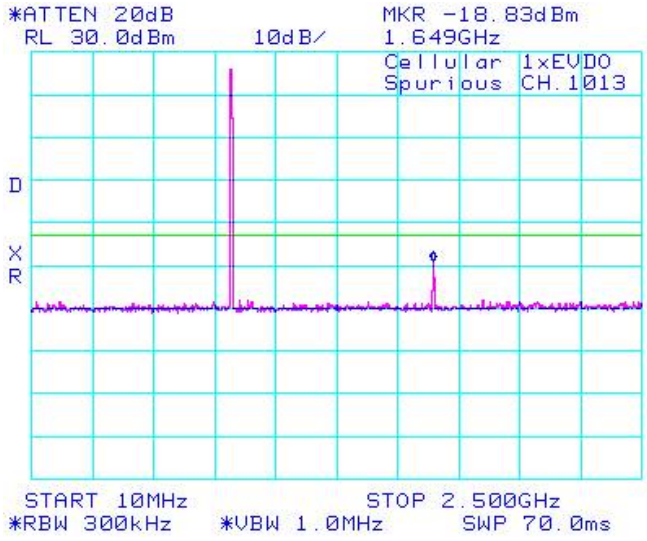


Figure 1-26b: Cellular, Spurious Conducted Emissions, Low channel

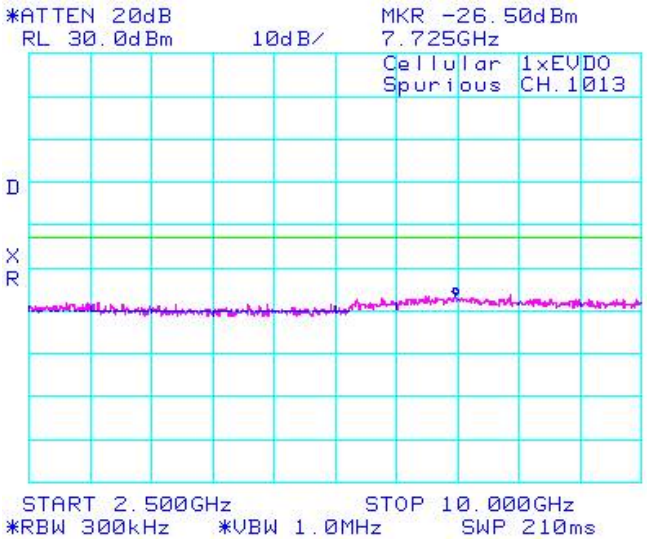


Figure 1-27b: Cellular, Spurious Conducted Emissions, Middle channel

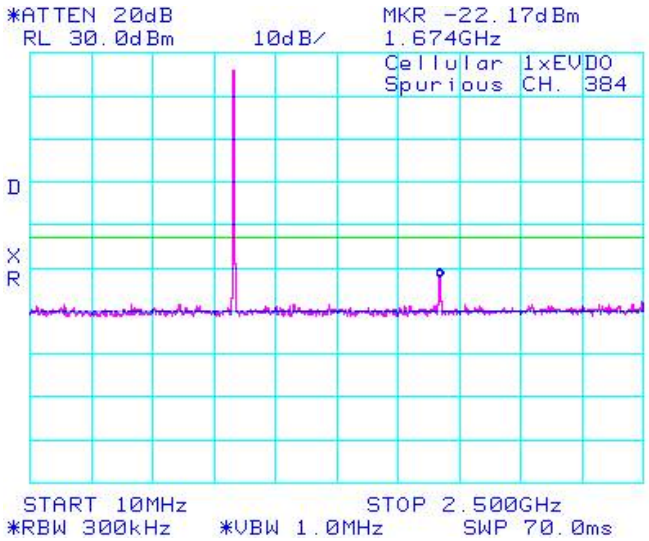
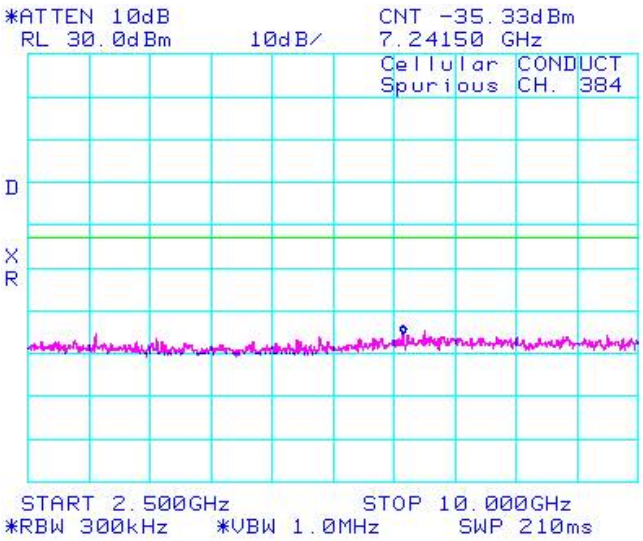


Figure 1-28b: Cellular, Spurious Conducted Emissions, Middle channel



CDMA Conducted RF Emission Test Data cont'd

Figure 12-29b: Cellular, Spurious Conducted Emissions, High Channel

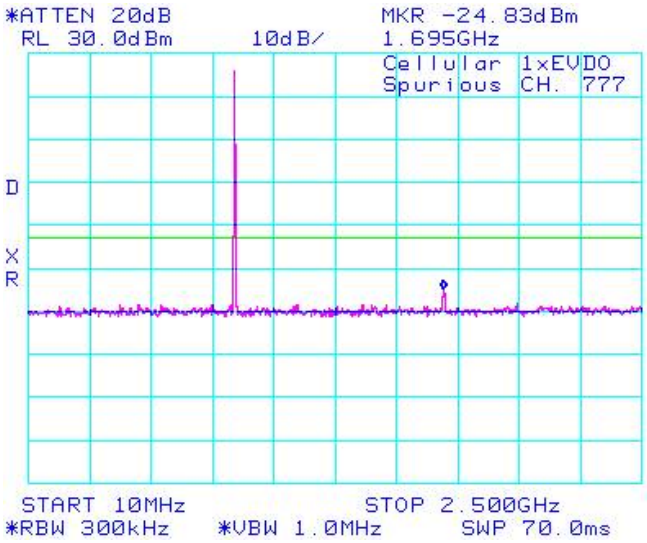


Figure 1-30b: Cellular, Spurious Conducted Emissions, High Channel

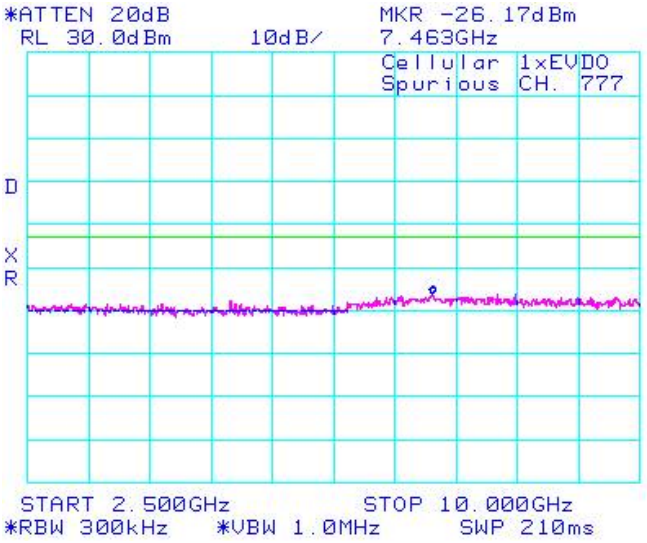


Figure 1-31b: PCS, Spurious Conducted Emissions, Low Channel

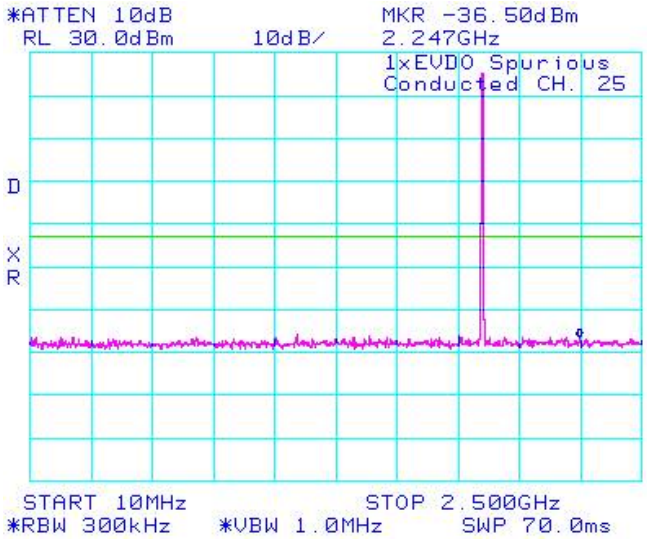
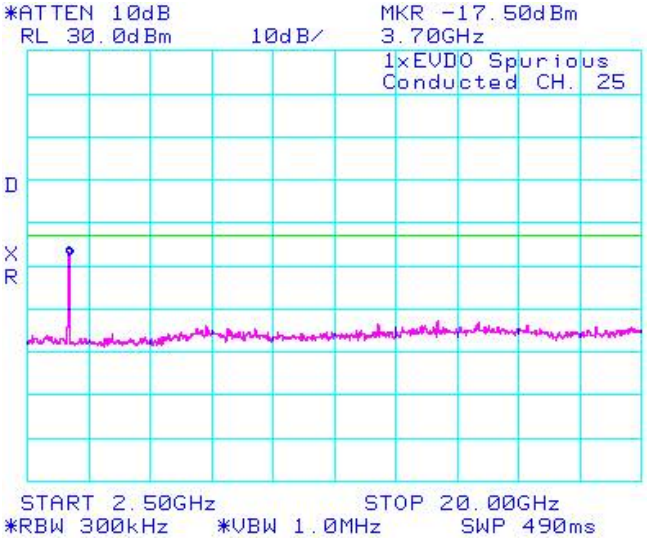


Figure 1-32b: PCS, Spurious Conducted Emissions, Low Channel



CDMA Conducted RF Emission Test Data cont'd

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

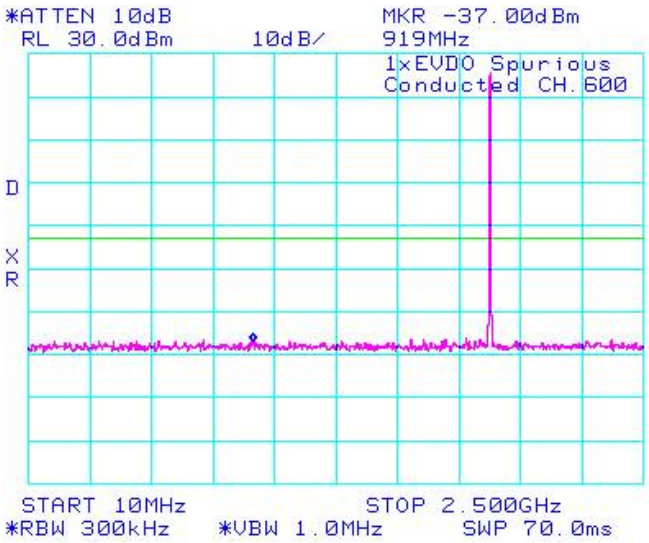


Figure 1-34b: PCS, Spurious Conducted Emissions, Middle Channel

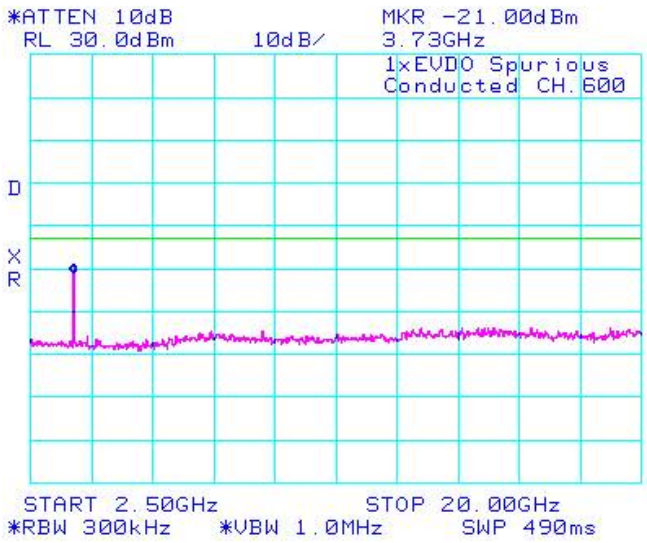


Figure 1-35b: PCS, Spurious Conducted Emissions, High Channel

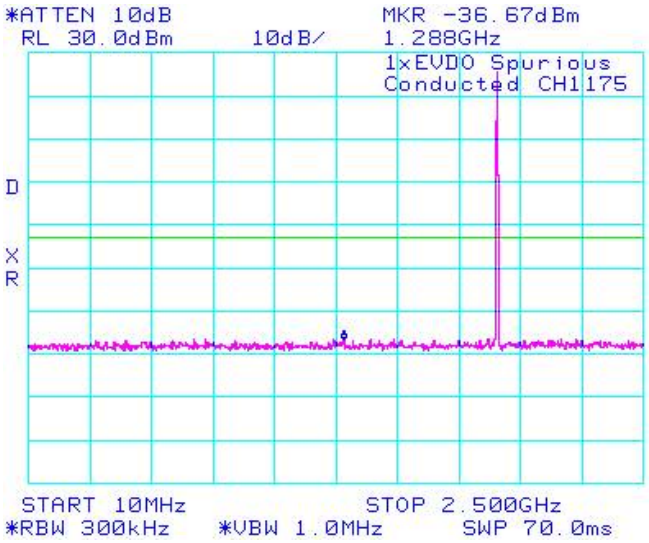
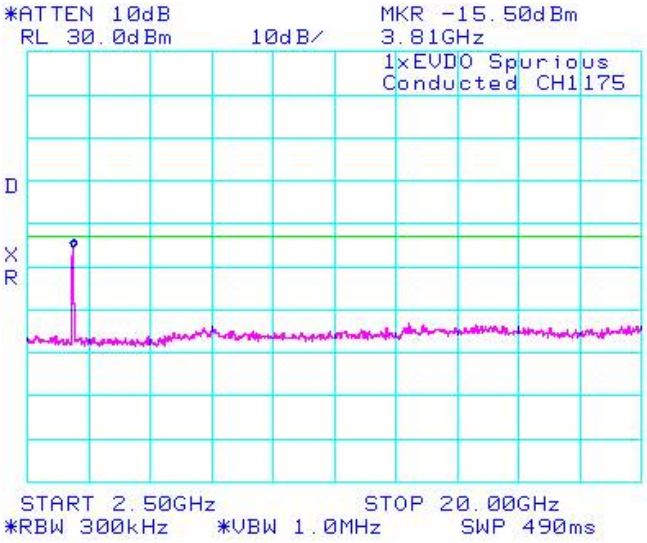


Figure 1-36b: PCS, Spurious Conducted Emissions, High Channel



CDMA Conducted RF Emission Test Data cont'd

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

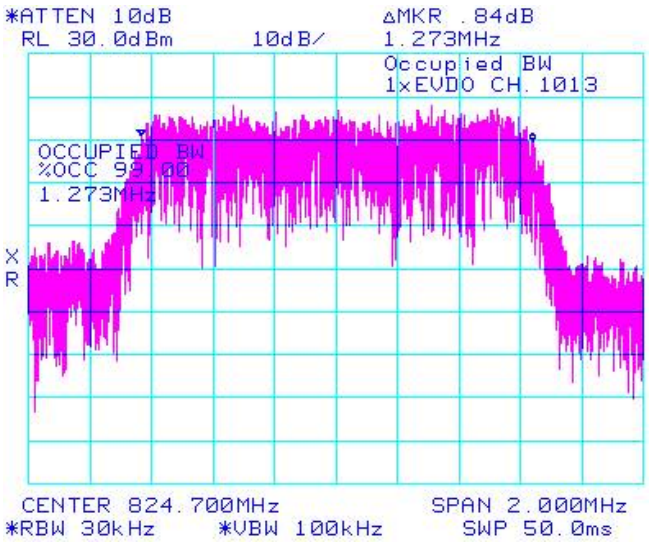


Figure 1-38b: Occupied Bandwidth, Cellular Middle Channel

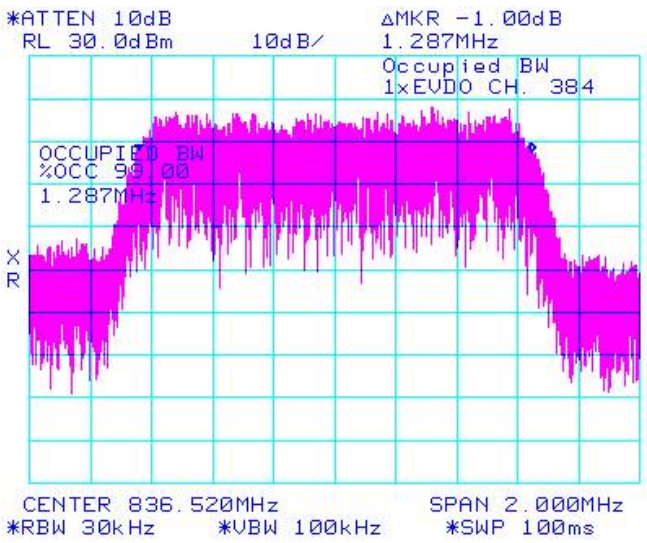


Figure 1-39b: Occupied Bandwidth, Cellular High Channel

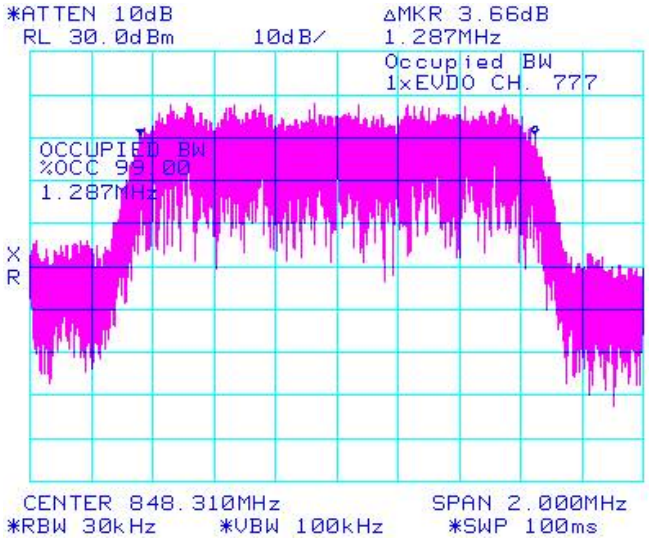
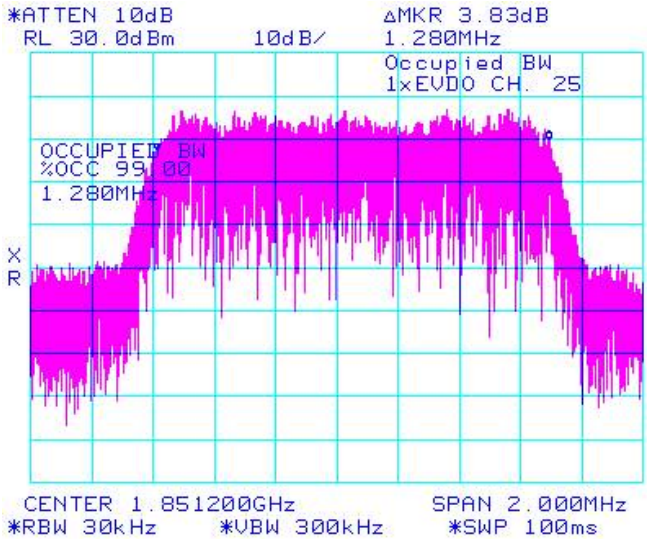


Figure 1-40b: Occupied Bandwidth, PCS Low Channel



CDMA Conducted RF Emission Test Data cont'd

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

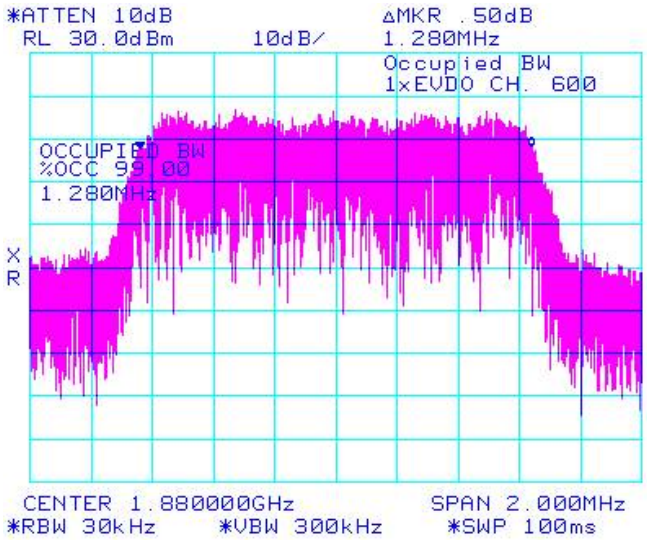


Figure 1-42b: Occupied Bandwidth, PCS High Channel

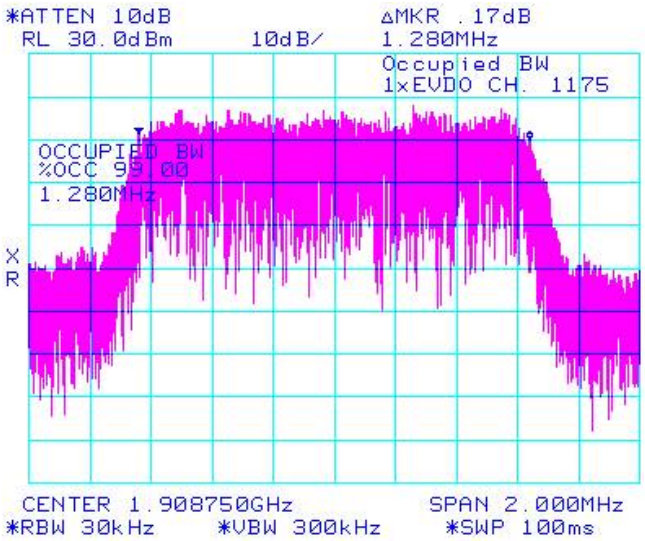


Figure 1-43b: Cellular CDMA2000, Low Channel Mask

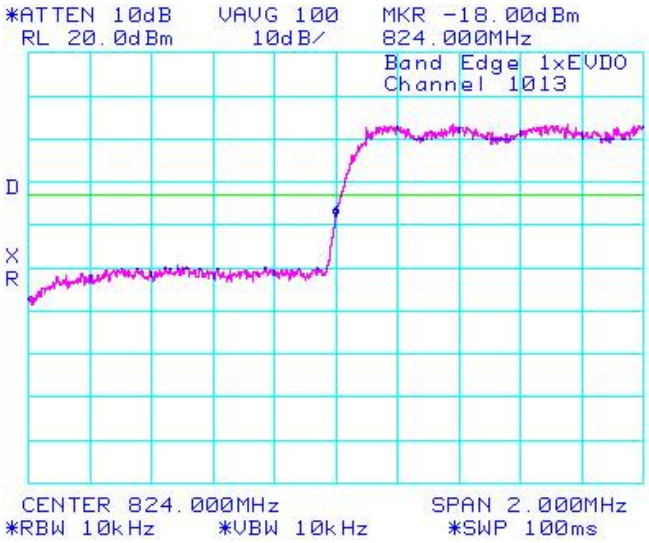
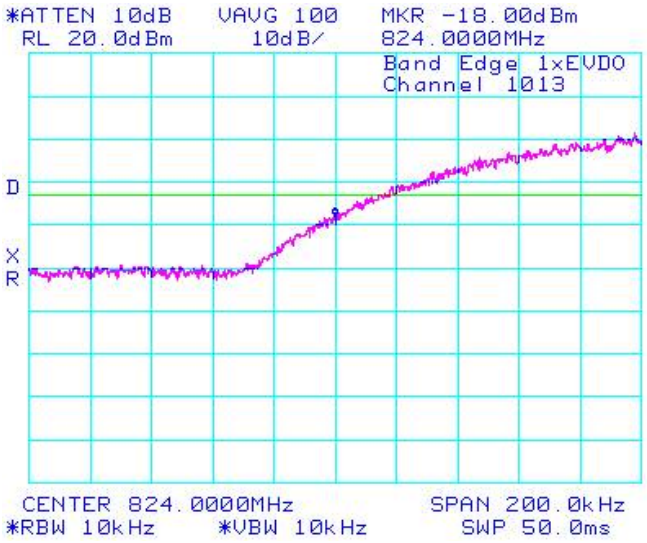


Figure 1-44b: Cellular CDMA2000, Low Channel Mask



CDMA Conducted RF Emission Test Data cont'd

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

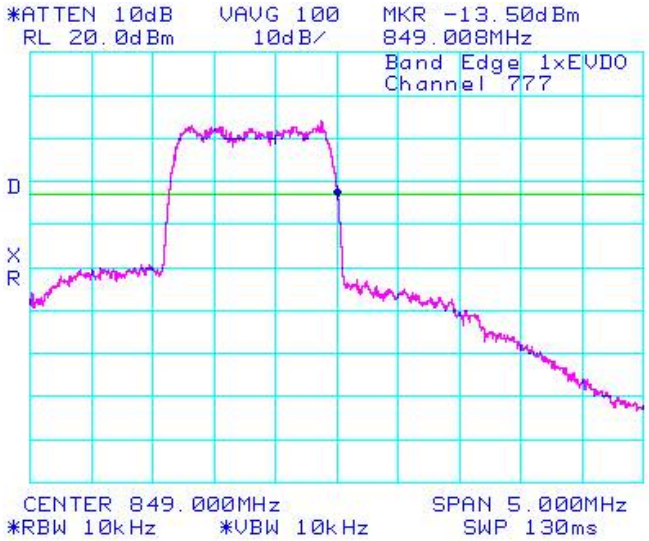


Figure 1-46b: Cellular CDMA2000, High Channel Mask

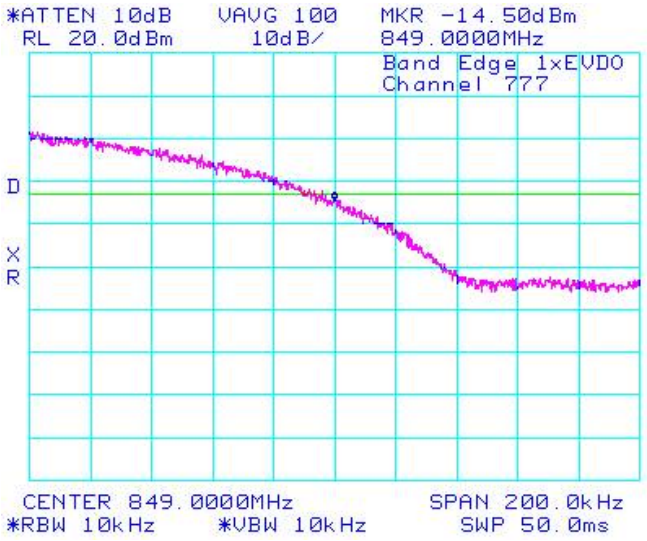


Figure 1-47b: PCS, Low Channel Mask

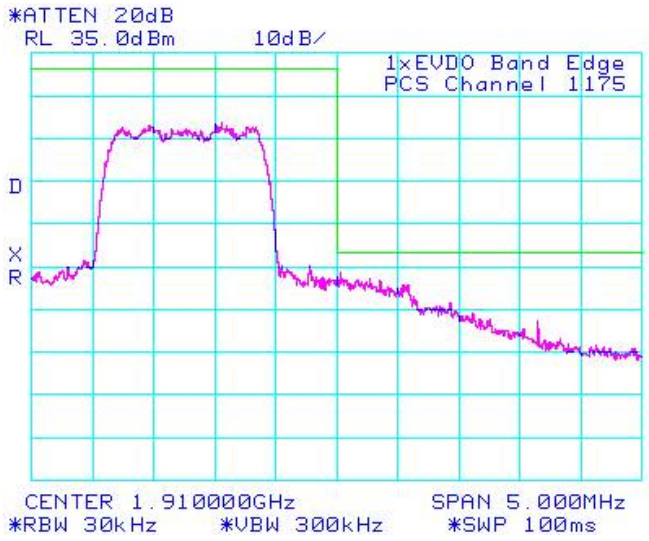
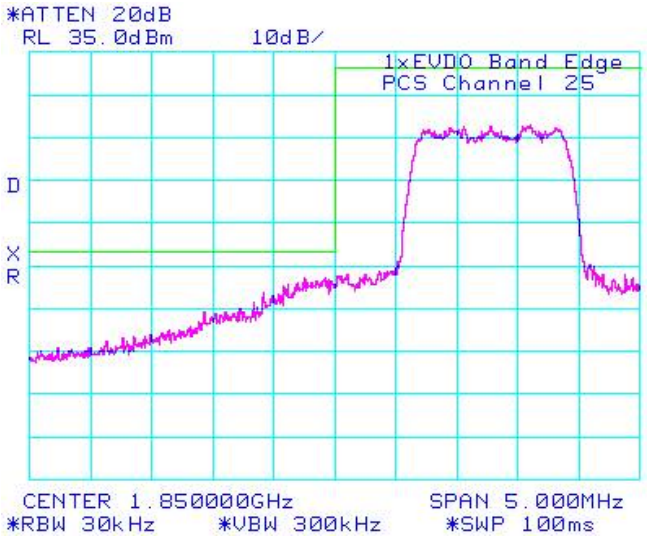


Figure 1-48b: PCS, High Channel Mask



APPENDIX 2A – GSM CONDUCTED RF OUTPUT POWER TEST DATA

GSM Conducted RF Output Power Test Data

The conducted RF output power was measured on the BlackBerry® smartphone PIN 307012B7 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 33.5 dBm ±0.5 dB for GSM850 and 30.0 dBm ±0.5 dB for PCS.
Peak nominal output power is 30.5 dBm ±0.5 dB for GSM850 EDGE Mode and 28.5 dBm ±0.5 dB for PCS EDGE Mode.

Date of Test: March 18, 2009

The measurements were performed by Maurice Battler

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (Watts)	Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (Watts)
GSM850				GSM850 EDGE/GPRS/GSM (2-timeslot)			
128	824.20	32.8	1.91	128	824.20	30.2	1.05
189	837.60	33.5	2.24	189	837.60	30.9	1.23
251	848.80	33.3	2.14	251	848.80	30.7	1.17
PCS				PCS EDGE/GPRS/GSM (2-timeslot)			
512	1850.2	29.5	0.98	512	1850.2	28.5	0.71
661	1880.0	29.2	0.83	661	1880.0	28.1	0.65
810	1909.8	29.7	0.93	810	1909.8	28.6	0.72

APPENDIX 2B – CDMA CONDUCTED RF OUTPUT POWER TEST DATA

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 307012B7 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 24.50 dBm ±0.5 dB for Cellular and 23.50 dBm ±0.5 dB for PCS.

Date of Test: March 18, 2009

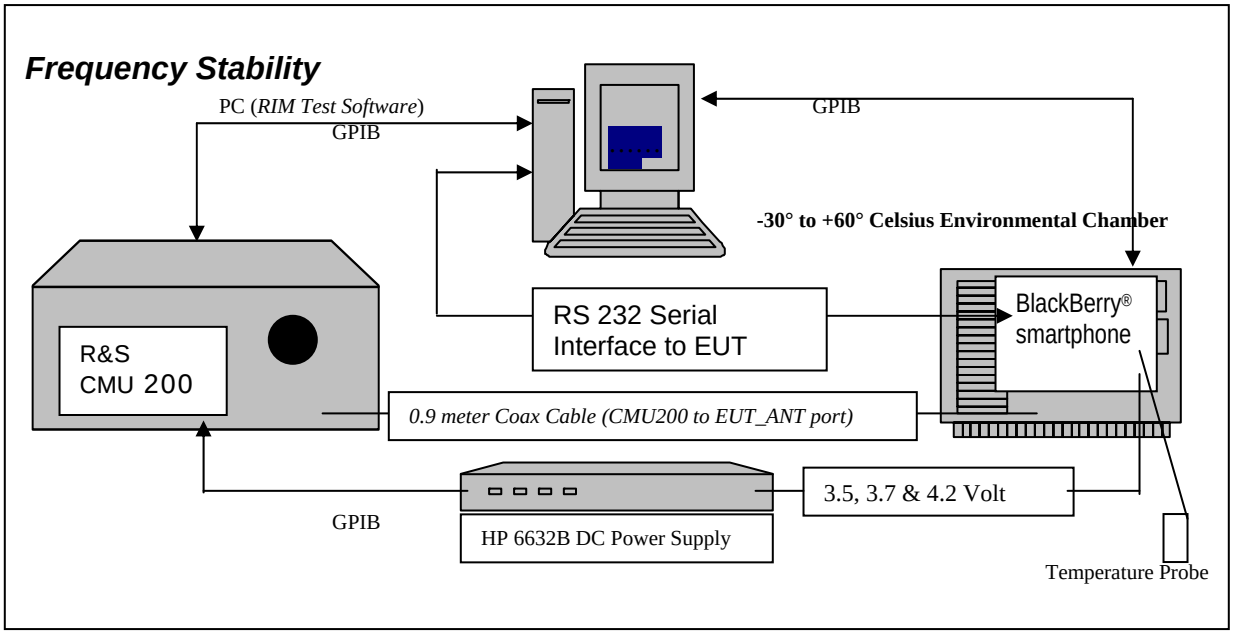
Test Results

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	24.1	0.257	RC1	24.6	0.288	24.6	0.288	-	-
				RC3	24.5	0.282	24.5	0.282	24.5	0.282
	384	23.9	0.246	RC1	24.4	0.275	24.4	0.275	-	-
				RC3	24.3	0.269	24.3	0.269	24.3	0.269
	777	24.0	0.251	RC1	24.4	0.275	24.4	0.275	-	-
				RC3	24.7	0.295	24.3	0.269	24.3	0.269

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	22.9	0.195	RC1	23.4	0.219	23.4	0.219	-	-
				RC3	23.3	0.214	23.3	0.214	23.3	0.214
	600	23.0	0.200	RC1	23.5	0.224	23.4	0.219	-	-
				RC3	23.5	0.224	23.5	0.224	23.5	0.224
	1175	22.8	0.191	RC1	23.6	0.229	23.6	0.229	-	-
				RC3	23.6	0.229	23.6	0.229	23.6	0.229

APPENDIX 3A – GSM FREQUENCY STABILITY TEST DATA

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:

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.

PROCEDURE:

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

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

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

The maximum frequency error in the GSM850 band measured was **-0.0667 PPM**.
The maximum frequency error in the PCS1900 band measured was **-0.0566 PPM**.

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

The BlackBerry® smartphone PIN 307012B7 was tested on March 19, 2009.

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.6	20	-46.17	-0.0560
189	836.40	3.6	20	-50.37	-0.0602
250	848.60	3.6	20	-45.01	-0.0530

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.7	20	-38.55	-0.0468
189	836.40	3.7	20	-39.32	-0.0470
250	848.60	3.7	20	-39.71	-0.0468

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	4.2	20	-43.26	-0.0525
189	836.40	4.2	20	-46.88	-0.0560
250	848.60	4.2	20	-41.13	-0.0485

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	-40.55	-0.0492
128	824.20	3.6	-20	-39.71	-0.0482
128	824.20	3.6	-10	-45.14	-0.0548
128	824.20	3.6	0	-39.13	-0.0475
128	824.20	3.6	10	-41.00	-0.0497
128	824.20	3.6	20	-46.17	-0.0560
128	824.20	3.6	30	-45.98	-0.0558
128	824.20	3.6	40	-45.01	-0.0546
128	824.20	3.6	50	-49.91	-0.0606
128	824.20	3.6	60	-47.01	-0.0570

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.7	-30	-22.34	-0.0271
128	824.20	3.7	-20	-40.23	-0.0488
128	824.20	3.7	-10	-40.81	-0.0495
128	824.20	3.7	0	-45.20	-0.0548
128	824.20	3.7	10	-36.74	-0.0446
128	824.20	3.7	20	-38.55	-0.0468
128	824.20	3.7	30	-43.72	-0.0530
128	824.20	3.7	40	-45.46	-0.0552
128	824.20	3.7	50	-47.07	-0.0571
128	824.20	3.7	60	-45.07	-0.0547

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	4.2	-30	-40.16	-0.0487
128	824.20	4.2	-20	-34.42	-0.0418
128	824.20	4.2	-10	-41.58	-0.0504
128	824.20	4.2	0	-38.61	-0.0468
128	824.20	4.2	10	-41.84	-0.0508
128	824.20	4.2	20	-43.26	-0.0525
128	824.20	4.2	30	-45.01	-0.0546
128	824.20	4.2	40	-37.97	-0.0461
128	824.20	4.2	50	-48.49	-0.0588
128	824.20	4.2	60	-39.52	-0.0479

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	-34.68	-0.0415
189	836.40	3.6	-20	-36.29	-0.0434
189	836.40	3.6	-10	-45.01	-0.0538
189	836.40	3.6	0	-41.00	-0.0490
189	836.40	3.6	10	-51.08	-0.0611
189	836.40	3.6	20	-50.37	-0.0602
189	836.40	3.6	30	-43.84	-0.0524
189	836.40	3.6	40	-47.72	-0.0571
189	836.40	3.6	50	-53.98	-0.0645
189	836.40	3.6	60	-52.69	-0.0630

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	3.7	-30	-39.97	-0.0478
189	836.40	3.7	-20	-40.16	-0.0480
189	836.40	3.7	-10	-38.42	-0.0459
189	836.40	3.7	0	-37.65	-0.0450
189	836.40	3.7	10	-32.93	-0.0394
189	836.40	3.7	20	-39.32	-0.0470
189	836.40	3.7	30	-44.30	-0.0530
189	836.40	3.7	40	-46.49	-0.0556
189	836.40	3.7	50	-48.56	-0.0581
189	836.40	3.7	60	-51.27	-0.0613

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	4.2	-30	-42.49	-0.0508
189	836.40	4.2	-20	-29.77	-0.0356
189	836.40	4.2	-10	-42.68	-0.0510
189	836.40	4.2	0	-39.07	-0.0467
189	836.40	4.2	10	-39.45	-0.0472
189	836.40	4.2	20	-46.88	-0.0560
189	836.40	4.2	30	-44.81	-0.0536
189	836.40	4.2	40	-41.00	-0.0490
189	836.40	4.2	50	-48.36	-0.0578
189	836.40	4.2	60	-37.52	-0.0449

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	-30.41	-0.0358
250	848.60	3.6	-20	-37.58	-0.0443
250	848.60	3.6	-10	-41.13	-0.0485
250	848.60	3.6	0	-47.33	-0.0558
250	848.60	3.6	10	-54.37	-0.0641
250	848.60	3.6	20	-45.01	-0.0530
250	848.60	3.6	30	-42.49	-0.0501
250	848.60	3.6	40	-46.62	-0.0549
250	848.60	3.6	50	-48.75	-0.0574
250	848.60	3.6	60	-56.63	**-0.0667**

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
250	848.60	3.7	-30	-32.35	-0.0381
250	848.60	3.7	-20	-34.42	-0.0406
250	848.60	3.7	-10	-34.87	-0.0411
250	848.60	3.7	0	-39.45	-0.0465
250	848.60	3.7	10	-36.10	-0.0425
250	848.60	3.7	20	-39.71	-0.0468
250	848.60	3.7	30	-40.87	-0.0482
250	848.60	3.7	40	-38.94	-0.0459
250	848.60	3.7	50	-52.63	-0.0620
250	848.60	3.7	60	-45.07	-0.0531

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
250	848.60	4.2	-30	-39.65	-0.0467
250	848.60	4.2	-20	-27.12	-0.0320
250	848.60	4.2	-10	-36.03	-0.0425
250	848.60	4.2	0	-37.90	-0.0447
250	848.60	4.2	10	-38.68	-0.0456
250	848.60	4.2	20	-41.13	-0.0485
250	848.60	4.2	30	-45.72	-0.0539
250	848.60	4.2	40	-36.81	-0.0434
250	848.60	4.2	50	-45.98	-0.0542
250	848.60	4.2	60	-47.14	-0.0556

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

Date of Test: March 18, 2009

Traffic Channel Number	PCS Frequency (MHz	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	*PPM*
512	1850.2	3.6	20	-89.75	-0.0485
661	1880.0	3.6	20	-89.95	-0.0478
810	1909.8	3.6	20	-83.10	-0.0435

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	3.7	20	-85.36	-0.0461
661	1880.0	3.7	20	-81.81	-0.0435
810	1909.8	3.7	20	-82.01	-0.0429

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	4.2	20	-64.12	-0.0347
661	1880.0	4.2	20	-62.05	-0.0330
810	1909.8	4.2	20	-62.31	-0.0326

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	-77.23	-0.0417
512	1850.2	3.6	-20	-72.84	-0.0394
512	1850.2	3.6	-10	-84.78	-0.0458
512	1850.2	3.6	0	-89.17	-0.0482
512	1850.2	3.6	10	-88.40	-0.0478
512	1850.2	3.6	20	-89.75	-0.0485
512	1850.2	3.6	30	-92.14	-0.0498
512	1850.2	3.6	40	-104.28	-0.0564
512	1850.2	3.6	50	-90.66	-0.0490
512	1850.2	3.6	60	-99.12	-0.0536

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	3.7	-30	-54.50	-0.0295
512	1850.2	3.7	-20	-80.91	-0.0437
512	1850.2	3.7	-10	-60.37	-0.0326
512	1850.2	3.7	0	-73.93	-0.0400
512	1850.2	3.7	10	-79.36	-0.0429
512	1850.2	3.7	20	-85.36	-0.0461
512	1850.2	3.7	30	-80.78	-0.0437
512	1850.2	3.7	40	-103.38	-0.0559
512	1850.2	3.7	50	-87.69	-0.0474
512	1850.2	3.7	60	-91.95	-0.0497

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	4.2	-30	-61.60	-0.0333
512	1850.2	4.2	-20	-56.82	-0.0307
512	1850.2	4.2	-10	-65.73	-0.0355
512	1850.2	4.2	0	-66.51	-0.0359
512	1850.2	4.2	10	-59.66	-0.0322
512	1850.2	4.2	20	-64.12	-0.0347
512	1850.2	4.2	30	-81.23	-0.0439
512	1850.2	4.2	40	-75.10	-0.0406
512	1850.2	4.2	50	-78.58	-0.0425
512	1850.2	4.2	60	-80.84	-0.0437

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	-65.35	-0.0348
661	1880	3.6	-20	-75.55	-0.0402
661	1880	3.6	-10	-75.81	-0.0403
661	1880	3.6	0	-79.94	-0.0425
661	1880	3.6	10	-83.30	-0.0443
661	1880	3.6	20	-89.95	-0.0478
661	1880	3.6	30	-75.03	-0.0399
661	1880	3.6	40	-101.25	-0.0539
661	1880	3.6	50	-92.47	-0.0492
661	1880	3.6	60	-106.35	**-0.0566**

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880	3.7	-30	-54.82	-0.0292
661	1880	3.7	-20	-64.64	-0.0344
661	1880	3.7	-10	-54.82	-0.0292
661	1880	3.7	0	-72.64	-0.0386
661	1880	3.7	10	-82.91	-0.0441
661	1880	3.7	20	-81.81	-0.0435
661	1880	3.7	30	-75.48	-0.0401
661	1880	3.7	40	-82.91	-0.0441
661	1880	3.7	50	-86.91	-0.0462
661	1880	3.7	60	-93.95	-0.0500

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880	4.2	-30	-59.54	-0.0317
661	1880	4.2	-20	-62.63	-0.0333
661	1880	4.2	-10	-64.44	-0.0343
661	1880	4.2	0	-65.35	-0.0348
661	1880	4.2	10	-58.31	-0.0310
661	1880	4.2	20	-62.05	-0.0330
661	1880	4.2	30	-81.17	-0.0432
661	1880	4.2	40	-69.03	-0.0367
661	1880	4.2	50	-78.13	-0.0416
661	1880	4.2	60	-71.55	-0.0381

PCS1900 Results: channel 810 @ maximum transmitted power

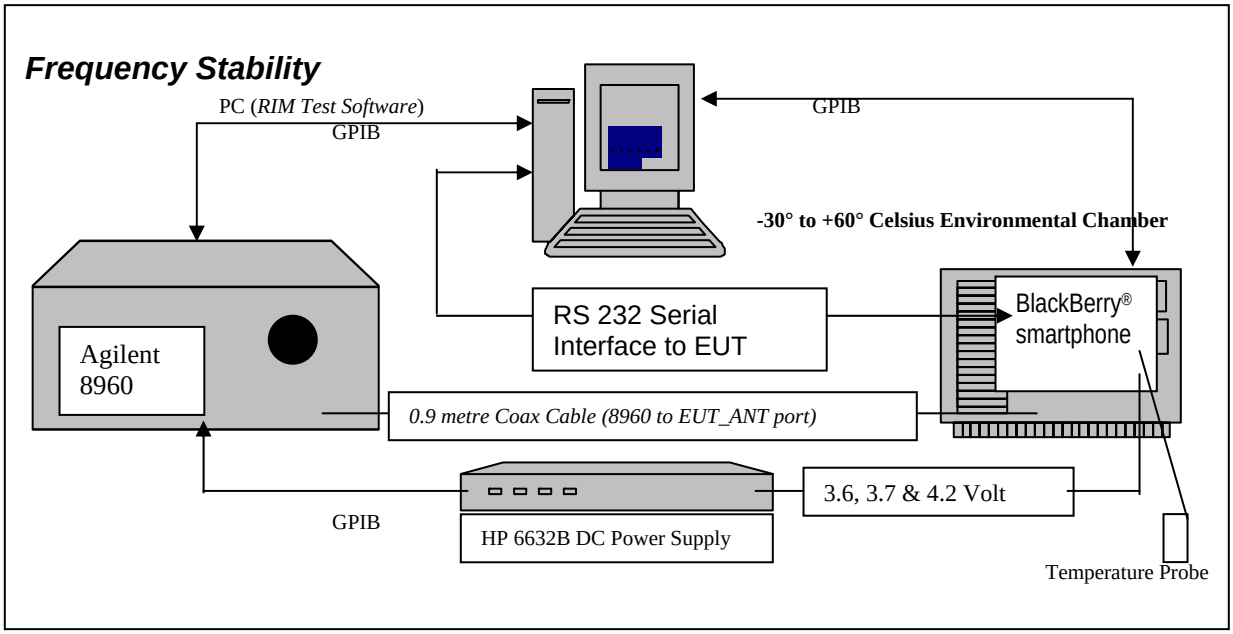
Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.8	3.6	-30	-48.24	-0.0253
810	1909.8	3.6	-20	-85.62	-0.0448
810	1909.8	3.6	-10	-67.03	-0.0351
810	1909.8	3.6	0	-77.29	-0.0405
810	1909.8	3.6	10	-71.03	-0.0372
810	1909.8	3.6	20	-83.10	-0.0435
810	1909.8	3.6	30	-76.97	-0.0403
810	1909.8	3.6	40	-95.76	-0.0501
810	1909.8	3.6	50	-90.72	-0.0475
810	1909.8	3.6	60	-101.44	-0.0531

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.8	3.7	-30	-48.04	-0.0252
810	1909.8	3.7	-20	-74.19	-0.0388
810	1909.8	3.7	-10	-60.57	-0.0317
810	1909.8	3.7	0	-72.64	-0.0380
810	1909.8	3.7	10	-84.52	-0.0443
810	1909.8	3.7	20	-82.01	-0.0429
810	1909.8	3.7	30	-75.74	-0.0397
810	1909.8	3.7	40	-84.91	-0.0445
810	1909.8	3.7	50	-84.59	-0.0443
810	1909.8	3.7	60	-91.11	-0.0477

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.8	4.2	-30	-54.05	-0.0283
810	1909.8	4.2	-20	-60.57	-0.0317
810	1909.8	4.2	-10	-71.09	-0.0372
810	1909.8	4.2	0	-57.73	-0.0302
810	1909.8	4.2	10	-65.48	-0.0343
810	1909.8	4.2	20	-62.31	-0.0326
810	1909.8	4.2	30	-74.84	-0.0392
810	1909.8	4.2	40	-68.51	-0.0359
810	1909.8	4.2	50	-80.20	-0.0420
810	1909.8	4.2	60	-72.58	-0.0380

APPENDIX 3B – CDMA FREQUENCY STABILITY TEST DATA

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 RCF71CW 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.

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

PCS Frequency (MHz)	Cable loss (dB)
1851.20	1.20
1880.00	1.20
1908.75	1.20

Cellular Frequency (MHz)	Cable loss (dB)
824.70	0.90
836.52	0.90
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.

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 307012B7 was tested on March 18, 2009.
The measurements were performed by Maurice Battler.

The maximum frequency error in the Cellular band measured was **-0.0142 PPM.**
The maximum frequency error in the PCS band measured was **-0.0067 PPM**.

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	-1.27	-0.0015
384	836.520	3.6	20	2.12	0.0025
777	848.310	3.6	20	-0.48	-0.0006

Traffic Channel Number	Cellular Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	3.7	20	-1.41	-0.0017
384	836.520	3.7	20	-1.10	-0.0013
777	848.310	3.7	20	-1.12	-0.0013

Traffic Channel Number	Cellular Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	4.2	20	-0.71	-0.0009
384	836.520	4.2	20	-0.36	-0.0004
777	848.310	4.2	20	-0.66	-0.0008

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	-8.31	-0.0101
1013	824.700	3.6	-20	-2.00	-0.0024
1013	824.700	3.6	-10	-4.87	-0.0059
1013	824.700	3.6	0	-1.89	-0.0023
1013	824.700	3.6	10	1.87	0.0023
1013	824.700	3.6	20	-1.27	-0.0015
1013	824.700	3.6	30	-2.91	-0.0035
1013	824.700	3.6	40	-3.52	-0.0043
1013	824.700	3.6	50	-3.74	-0.0045
1013	824.700	3.6	60	-2.55	-0.0031

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	3.7	-30	-6.63	-0.0080
1013	824.700	3.7	-20	-0.98	-0.0012
1013	824.700	3.7	-10	-6.39	-0.0077
1013	824.700	3.7	0	-0.32	-0.0004
1013	824.700	3.7	10	1.52	0.0018
1013	824.700	3.7	20	-1.41	-0.0017
1013	824.700	3.7	30	-2.23	-0.0027
1013	824.700	3.7	40	-1.63	-0.0020
1013	824.700	3.7	50	-2.18	-0.0026
1013	824.700	3.7	60	1.29	0.0016

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1013	824.700	4.2	-30	0.56	0.0007
1013	824.700	4.2	-20	-0.01	0.0000
1013	824.700	4.2	-10	-0.92	-0.0011
1013	824.700	4.2	0	-2.29	-0.0028
1013	824.700	4.2	10	-1.66	-0.0020
1013	824.700	4.2	20	-0.71	-0.0009
1013	824.700	4.2	30	-1.26	-0.0015
1013	824.700	4.2	40	-0.77	-0.0009
1013	824.700	4.2	50	-0.44	-0.0005
1013	824.700	4.2	60	-1.68	-0.0020

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	-11.91	**-0.0142**
384	836.520	3.6	-20	2.82	0.0034
384	836.520	3.6	-10	-8.77	-0.0105
384	836.520	3.6	0	3.02	0.0036
384	836.520	3.6	10	6.83	0.0082
384	836.520	3.6	20	2.12	0.0025
384	836.520	3.6	30	-1.27	-0.0015
384	836.520	3.6	40	-1.61	-0.0019
384	836.520	3.6	50	-2.42	-0.0029
384	836.520	3.6	60	3.80	0.0045

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
384	836.520	3.7	-30	-7.91	-0.0095
384	836.520	3.7	-20	-0.99	-0.0012
384	836.520	3.7	-10	-7.29	-0.0087
384	836.520	3.7	0	0.80	0.0010
384	836.520	3.7	10	1.74	0.0021
384	836.520	3.7	20	-1.10	-0.0013
384	836.520	3.7	30	-2.21	-0.0026
384	836.520	3.7	40	-1.81	-0.0022
384	836.520	3.7	50	-2.11	-0.0025
384	836.520	3.7	60	2.22	0.0027

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
384	836.520	4.2	-30	-0.72	-0.0009
384	836.520	4.2	-20	0.06	0.0001
384	836.520	4.2	-10	-1.31	-0.0016
384	836.520	4.2	0	0.13	0.0002
384	836.520	4.2	10	0.06	0.0001
384	836.520	4.2	20	-0.36	-0.0004
384	836.520	4.2	30	0.20	0.0002
384	836.520	4.2	40	-1.16	-0.0014
384	836.520	4.2	50	0.10	0.0001
384	836.520	4.2	60	0.39	0.0005

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	-0.72	-0.0009
777	848.310	3.6	-20	0.06	0.0001
777	848.310	3.6	-10	-1.31	-0.0016
777	848.310	3.6	0	0.13	0.0002
777	848.310	3.6	10	0.06	0.0001
777	848.310	3.6	20	-0.36	-0.0004
777	848.310	3.6	30	0.20	0.0002
777	848.310	3.6	40	-1.16	-0.0014
777	848.310	3.6	50	0.10	0.0001
777	848.310	3.6	60	0.39	0.0005

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
777	848.310	3.7	-30	-3.07	-0.0036
777	848.310	3.7	-20	-0.15	-0.0002
777	848.310	3.7	-10	-3.61	-0.0043
777	848.310	3.7	0	0.36	0.0004
777	848.310	3.7	10	1.18	0.0014
777	848.310	3.7	20	-1.12	-0.0013
777	848.310	3.7	30	-1.40	-0.0016
777	848.310	3.7	40	-1.52	-0.0018
777	848.310	3.7	50	-1.65	-0.0019
777	848.310	3.7	60	1.61	0.0019

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
777	848.310	4.2	-30	-0.77	-0.0009
777	848.310	4.2	-20	-0.73	-0.0009
777	848.310	4.2	-10	-0.67	-0.0008
777	848.310	4.2	0	-0.49	-0.0006
777	848.310	4.2	10	0.12	0.0001
777	848.310	4.2	20	-0.66	-0.0008
777	848.310	4.2	30	-0.68	-0.0008
777	848.310	4.2	40	-0.45	-0.0005
777	848.310	4.2	50	0.26	0.0003
777	848.310	4.2	60	-0.12	-0.0001

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	-1.56	-0.0008
600	1880.00	3.6	20	2.94	0.0016
1175	1908.75	3.6	20	0.60	0.0003

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	3.7	20	-1.43	-0.0008
600	1880.00	3.7	20	-2.12	-0.0011
1175	1908.75	3.7	20	-2.02	-0.0011

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	4.2	20	-1.44	-0.0008
600	1880.00	4.2	20	-0.66	-0.0004
1175	1908.75	4.2	20	-0.37	-0.0002

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	-9.04	-0.0049
25	1851.20	3.6	-20	-2.28	-0.0012
25	1851.20	3.6	-10	-6.74	-0.0036
25	1851.20	3.6	0	-2.89	-0.0016
25	1851.20	3.6	10	2.87	0.0016
25	1851.20	3.6	20	-1.56	-0.0008
25	1851.20	3.6	30	-3.78	-0.0020
25	1851.20	3.6	40	-4.31	-0.0023
25	1851.20	3.6	50	-5.31	-0.0029
25	1851.20	3.6	60	-3.97	-0.0021

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	3.7	-30	-8.52	-0.0046
25	1851.20	3.7	-20	-0.23	-0.0001
25	1851.20	3.7	-10	-9.92	-0.0054
25	1851.20	3.7	0	1.00	0.0005
25	1851.20	3.7	10	2.65	0.0014
25	1851.20	3.7	20	-1.43	-0.0008
25	1851.20	3.7	30	-2.27	-0.0012
25	1851.20	3.7	40	-3.04	-0.0016
25	1851.20	3.7	50	-3.48	-0.0019
25	1851.20	3.7	60	5.93	0.0032

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
25	1851.20	4.2	-30	-0.50	-0.0003
25	1851.20	4.2	-20	-1.06	-0.0006
25	1851.20	4.2	-10	0.06	0.0000
25	1851.20	4.2	0	-0.31	-0.0002
25	1851.20	4.2	10	-1.44	-0.0008
25	1851.20	4.2	20	-0.23	-0.0001
25	1851.20	4.2	30	-0.16	-0.0001
25	1851.20	4.2	40	0.22	0.0001
25	1851.20	4.2	50	0.56	0.0003
25	1851.20	4.2	60	-0.50	-0.0003

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	-12.66	**-0.0067**
600	1880.00	3.6	-20	3.37	0.0018
600	1880.00	3.6	-10	-9.83	-0.0052
600	1880.00	3.6	0	4.18	0.0022
600	1880.00	3.6	10	11.81	0.0063
600	1880.00	3.6	20	2.94	0.0016
600	1880.00	3.6	30	-2.22	-0.0012
600	1880.00	3.6	40	-2.10	-0.0011
600	1880.00	3.6	50	-4.71	-0.0025
600	1880.00	3.6	60	8.43	0.0045

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
600	1880.00	3.7	-30	-6.80	-0.0036
600	1880.00	3.7	-20	-1.03	-0.0005
600	1880.00	3.7	-10	-8.64	-0.0046
600	1880.00	3.7	0	0.66	0.0003
600	1880.00	3.7	10	1.00	0.0005
600	1880.00	3.7	20	-2.12	-0.0011
600	1880.00	3.7	30	-3.19	-0.0017
600	1880.00	3.7	40	-3.67	-0.0019
600	1880.00	3.7	50	-4.69	-0.0025
600	1880.00	3.7	60	3.39	0.0018

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
600	1880.00	4.2	-30	-0.53	-0.0003
600	1880.00	4.2	-20	-2.40	-0.0013
600	1880.00	4.2	-10	-1.24	-0.0007
600	1880.00	4.2	0	-1.61	-0.0009
600	1880.00	4.2	10	-1.11	-0.0006
600	1880.00	4.2	20	-0.66	-0.0004
600	1880.00	4.2	30	-1.88	-0.0010
600	1880.00	4.2	40	-1.11	-0.0006
600	1880.00	4.2	50	-0.44	-0.0002
600	1880.00	4.2	60	0.77	0.0004

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	-9.95	-0.0052
1175	1908.75	3.6	-20	1.18	0.0006
1175	1908.75	3.6	-10	-9.93	-0.0052
1175	1908.75	3.6	0	-1.01	-0.0005
1175	1908.75	3.6	10	5.67	0.0030
1175	1908.75	3.6	20	0.60	0.0003
1175	1908.75	3.6	30	-3.07	-0.0016
1175	1908.75	3.6	40	-3.59	-0.0019
1175	1908.75	3.6	50	-4.61	-0.0024
1175	1908.75	3.6	60	5.98	0.0031

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1175	1908.75	3.7	-30	-6.69	-0.0035
1175	1908.75	3.7	-20	-1.52	-0.0008
1175	1908.75	3.7	-10	-6.67	-0.0035
1175	1908.75	3.7	0	0.07	0.0000
1175	1908.75	3.7	10	1.59	0.0008
1175	1908.75	3.7	20	-2.02	-0.0011
1175	1908.75	3.7	30	-3.62	-0.0019
1175	1908.75	3.7	40	-4.05	-0.0021
1175	1908.75	3.7	50	-3.23	-0.0017
1175	1908.75	3.7	60	1.81	0.0010

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1175	1908.75	4.2	-30	-0.46	-0.0002
1175	1908.75	4.2	-20	-2.26	-0.0012
1175	1908.75	4.2	-10	-1.64	-0.0009
1175	1908.75	4.2	0	-1.91	-0.0010
1175	1908.75	4.2	10	0.06	0.0000
1175	1908.75	4.2	20	-0.37	-0.0002
1175	1908.75	4.2	30	-1.93	-0.0010
1175	1908.75	4.2	40	-1.08	-0.0006
1175	1908.75	4.2	50	-0.32	-0.0002
1175	1908.75	4.2	60	-0.36	-0.0002

APPENDIX 4A – GSM RADIATED EMISSIONS TEST DATA

Radiated Power Test Data Results

GSM850 Band

The measurements were performed by Andrew Fleming.

GSM Mode

Date of test: June 16, 2009
The environmental tests conditions were: Temperature: 24°C
Pressure: 1016 mb
Relative Humidity: 23 %

The BlackBerry® smartphone PIN 307EED24 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. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	128	824.20	850	Dipole	V	79.42	88.01	V-V	13.86	28.90	0.78	38.50	-9.60
F0	128	824.20	850	Dipole	H	88.01		H-H	12.18				
F0	195	837.60	850	Dipole	V	80.36	88.34	V-V	15.11	30.79	1.20	38.50	-7.71
F0	195	837.60	850	Dipole	H	88.34		H-H	13.31				
F0	251	848.80	850	Dipole	V	79.7	87.57	V-V	16.22	**31.71**	1.48	38.50	-6.79
F0	251	848.80	850	Dipole	H	87.57		H-H	12.61				

Radiated Power Test Data Results, Cont'd

GSM850 Band

GPRS Mode

Date of test: June 16, 2009
The environmental tests conditions were: Temperature: 24°C
Pressure: 1016 mb
Relative Humidity: 23 %

The BlackBerry® smartphone PIN 307EED24 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. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	128	824.20	850	Dipole	V	76.72	85.38	V-V	11.12	26.16	0.41	38.50	-12.34
F0	128	824.20	850	Dipole	H	85.38		H-H	9.68				
F0	195	837.60	850	Dipole	V	77.92	85.53	V-V	12.16	27.84	0.61	38.50	-10.66
F0	195	837.60	850	Dipole	H	85.53		H-H	10.56				
F0	251	848.80	850	Dipole	V	77.08	84.81	V-V	13.06	28.55	0.72	38.50	-9.95
F0	251	848.80	850	Dipole	H	84.81		H-H	9.85				

Radiated Power Test Data Results, Cont'd

GSM850 Band

EDGE Mode

Date of test: June 16, 2009
The environmental tests conditions were: Temperature: 24°C
Pressure: 1016 mb
Relative Humidity: 23 %

The BlackBerry® smartphone PIN 307EED24 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. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	128	824.20	850	Dipole	V	76.75	85.45	V-V	11.15	26.19	0.42	38.50	-12.31
F0	128	824.20	850	Dipole	H	85.45		H-H	9.62				
F0	195	837.60	850	Dipole	V	77.79	85.59	V-V	12.67	28.35	0.68	38.50	-10.15
F0	195	837.60	850	Dipole	H	85.59		H-H	10.61				
F0	251	848.80	850	Dipole	V	77.11	84.95	V-V	13.20	**28.69**	0.74	38.50	-9.81
F0	251	848.80	850	Dipole	H	84.95		H-H	9.99				

Radiated Power Test Data Results cont'd

The measurements were performed by Arjun Rai Bhatti.

PCS1900 Band

GSM Mode

Date of test: March 25, 2009
The environmental test conditions were: Temperature: 25ºC
Pressure: 1007 mb
Relative Humidity: 23%

The BlackBerry® smartphone PIN 306FB2A7 was in standalone, USB down position
Test Distance was 3.0 metres.

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	512	1850.20	1900	Horn	V	90.87	90.87	V-V	-4.80	**28.70**	0.74	33	-4.30
F0	512	1850.20	1900	Horn	H	85.47		H-H	-3.60				
F0	661	1880.00	1900	Horn	V	90.50	90.50	V-V	-4.80	27.92	0.62	33	-5.08
F0	661	1880.00	1900	Horn	H	85.37		H-H	-3.70				
F0	810	1909.80	1900	Horn	V	91.16	91.16	V-V	-3.00	28.69	0.74	33	-4.31
F0	810	1909.80	1900	Horn	H	84.27		H-H	-2.80				

Radiated Power Test Data Results cont'd

PCS1900 Band

GPRS Mode

Date of test: March 25, 2009
The environmental test conditions were: Temperature: 25ºC
Pressure: 1007 mb
Relative Humidity: 23%

The BlackBerry® smartphone PIN 306FB2A7 was in standalone, USB down position
Test Distance was 3.0 metres.

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
										Corrected Reading (relative to Isotropic Radiator)			
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol. Tx-Rx	Reading (dBm)	(dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	512	1850.20	1900	Horn	V	90.63	90.63	V-V	-4.90	28.09	0.64	33	-4.91
F0	512	1850.20	1900	Horn	H	85.09		H-H	-3.70				
F0	661	1880.00	1900	Horn	V	91.65	91.65	V-V	-3.70	29.12	0.82	33	-3.88
F0	661	1880.00	1900	Horn	H	85.19		H-H	-2.50				
F0	810	1909.80	1900	Horn	V	90.88	90.88	V-V	-3.40	28.29	0.67	33	-4.71
F0	810	1909.80	1900	Horn	H	84.01		H-H	-3.20				

Radiated Power Test Data Results cont'd

PCS1900 Band

EDGE Mode

Date of test: March 25, 2009
The environmental test conditions were: Temperature: 25ºC
Pressure: 1007 mb
Relative Humidity: 23%

The BlackBerry® smartphone PIN 306FB2A7 was in standalone, USB up position
Test Distance was 3.0 metres.

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	512	1850.20	1900	Horn	V	90.95	90.95	V-V	-4.70	28.09	0.64	33	-4.91
F0	512	1850.20	1900	Horn	H	85.25		H-H	-3.70				
F0	661	1880.00	1900	Horn	V	91.27	91.27	V-V	-4.10	**28.62**	0.73	33	-4.38
F0	661	1880.00	1900	Horn	H	85.12		H-H	-3.00				
F0	810	1909.80	1900	Horn	V	90.80	90.80	V-V	-3.80	27.99	0.63	33	-5.01
F0	810	1909.80	1900	Horn	H	84.51		H-H	-3.50				

Radiated Emissions Test Data Results

GSM850

The measurements were performed by Arjun Rai Bhatti.

Date of Test: March 11, 2009
The environmental test conditions were: Temperature: 23ºC
Pressure: 1004 mb
Relative Humidity: 25%

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306F5A0B was in standalone, vertical position.

The measurements were performed in GSM850 Tx mode, channel 128.

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)	(dB)			
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)			(dBm)	(dBm)	(dB)
876.05	V	1.72	24	PK	29.14	-47.50	-18.36	-13.00	-5.36

All other emissions had a test margin greater than 25.0 dB

The measurements were performed in GSM850 Tx mode, channel 195

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)	(dB)			
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)			(dBm)	(dBm)	(dB)
875.90	V	1.69	239	PK	29.71	-47.51	-17.80	-13.00	**-4.80**

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

The measurements were performed in GSM850 Tx mode, channel 251

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)	(dB)			
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)			(dBm)	(dBm)	(dB)
875.90	V	1.65	11	PK	28.78	-47.51	-18.73	-13.00	-5.73

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

Radiated Emissions Test Data Results cont'd

GSM Mode

The measurements were performed by Heng Lin.
Date of Test: March 12, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 32%
Pressure: 1006
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in GSM Tx mode, channel 128, 195 and 251.
All emissions had a test margin greater than 25.0 dB.

850

GPRS Mode

The measurements were performed by Heng Lin.
Date of Test: March 19, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 30%
Pressure: 1022
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, USB down position.
The measurements were performed in GSM GPRS Tx mode, channel 195.
All emissions had a test margin greater than 25.0 dB.

Radiated Emissions Test Data Results cont'd

GSM850

EDGE Mode

The measurements were performed by Heng Lin.
Date of Test: March 13, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 28%
Pressure: 1022

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, USB down position.
The measurements were performed in GSM850 EDGE Tx mode, channels 128, 195 and 251.
All emissions had a test margin greater than 25.0 dB

PCS1900

The measurements were performed by Arjun Rai Bhatti.

Date of Test: March 24, 2009
The environmental test conditions were: Temperature: 25ºC
Pressure: 1020 mb
Relative Humidity: 21%

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306FB2A7 was in standalone, vertical position
The measurements were performed in PCS1900 Tx mode, channels 512, 661 and 810.

All emissions had a test margin greater than 25.0 dB.

The measurements were performed by Heng Lin.
Date of Test: March 12, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 22%
Pressure: 1029

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, vertical position.
The measurements were performed in PCS1900 Tx mode, channels 512, 661 and 810.

All emissions had a test margin greater than 25.0 dB.

Radiated Emissions Test Data Results cont'd

PCS1900

GPRS Mode

The measurements were performed by Arjun Rai Bhatti.

Date of Test: March 24, 2009
The environmental test conditions were: Temperature: 25ºC
Pressure: 1020 mb
Relative Humidity: 21%

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306F5A0B was in standalone, vertical position
The measurements were performed in PCS1900 Tx mode, channel 661.

All emissions had a test margin greater than 25.0 dB.

The measurements were performed by Heng Lin.
Date of Test: March 31, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 33%
Pressure: 1011

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, horizontal face down position.
The measurements were performed in PCS1900 Tx mode, channels 512, 661 and 810.

All emissions had a test margin greater than 25.0 dB.

Radiated Emissions Test Data Results cont'd

PCS1900

EDGE Mode

The measurements were performed by Arjun Rai Bhatti.

Date of Test: March 24, 2009
The environmental test conditions were: Temperature: 25ºC
Pressure: 1020 mb
Relative Humidity: 21%

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306FB2A7 was in standalone, vertical position
The measurements were performed in PCS1900 Tx mode, channels 512, 661 and 810.

All emissions had a test margin greater than 25.0 dB.

The measurements were performed by Heng Lin.
Date of Test: March 20, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 27%
Pressure: 1027

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, horizontal face down position.
The measurements were performed in PCS1900 Tx mode.
On channels 512 and 661 all emissions had a test margin greater than 25.0 dB.

The measurements were performed in PCS1900 EDGE Tx mode, channel 810.

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height							
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)	(dBµV)	(dB)	(dBm)	(dBm)	(dB)
1947.866	V	4.00	135	PK	53.45	-90.42	-36.97	-13.00	**-23.97**

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

APPENDIX 4B – CDMA RADIATED EMISSIONS TEST DATA

Radiated Power Test Data Results

The measurements were performed by Andrew Fleming.

Cellular Band

Loopback Service

Date of test: June 16, 2009
The environmental tests conditions were: Temperature: 24°C
Pressure: 1016 mb
Relative Humidity: 23 %

The BlackBerry® smartphone PIN 307EED24 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. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	1013	824.70	850	Dipole	V	71.01	83.5	V-V	10.60	**25.74**	0.37	39.00	-13.3
F0	1013	824.70	850	Dipole	V	83.5		H-H	8.30				
F0	384	836.52	850	Dipole	V	72.21	83.02	V-V	10.40	25.44	0.35	39.00	-13.6
F0	384	836.52	850	Dipole	V	83.02		H-H	7.60				
F0	777	848.32	850	Dipole	V	71.99	83.28	V-V	10.60	25.63	0.36	39.00	-13.4
F0	777	848.32	850	Dipole	V	83.28		H-H	8.70				

Radiated Power Test Data Results cont'd

Cellular Band

1xEVDO

Date of test: June 16, 2009
The environmental test conditions were: Temperature: 24°C
Pressure: 1016 mb
Relative Humidity: 23 %

The BlackBerry® smartphone PIN 307EED24 was in standalone, USB down position.
Test Distance was 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. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	1013	824.70	850	Dipole	V	75.68	84.41	V-V	9.70	24.84	0.30	39.00	-14.2
F0	1013	824.70	850	Dipole	V	84.41		H-H	8.80				
F0	384	836.52	850	Dipole	V	75.16	83.47	V-V	9.60	24.64	0.29	39.00	-14.4
F0	384	836.52	850	Dipole	V	83.47		H-H	8.70				
F0	777	848.32	850	Dipole	V	73.08	83.13	V-V	11.00	**26.03**	0.40	39.00	-13.0
F0	777	848.32	850	Dipole	V	83.13		H-H	8.50				

Radiated Power Test Data Results cont'd

PCS Band

Loopback Service

The measurements were performed by Andrew Fleming.

Date of test: March 25, 2009
The environmental test conditions were: Temperature 23ºC
Pressure 1010 mb
Relative Humidity 33%

The BlackBerry® smartphone PIN 306FB2A7 was in standalone, USB down position.
Test Distance was 3.0 metres.

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	25	1851.25	1900	Horn	V	87.39	87.39	V-V	-8.50	24.59	0.29	33	-8.41
F0	25	1851.25	1900	Horn	H	81.42		H-H	-7.20				
F0	600	1880.00	1900	Horn	V	87.45	87.45	V-V	-8.10	25.02	0.32	33	-7.98
F0	600	1880.00	1900	Horn	H	80.71		H-H	-6.60				
F0	1175	1908.75	1900	Horn	V	87.60	87.60	V-V	-6.90	**25.49**	0.35	33	-7.51
F0	1175	1908.75	1900	Horn	H	71.98		H-H	-6.00				

Radiated Power Test Data Results cont'd

PCS Band

1xEVDO

Date of test: March 25, 2009
The environmental test conditions were: Temperature 23ºC
Pressure 1013 mb
Relative Humidity 32%

The BlackBerry® smartphone PIN 306FB2A7 was in standalone, USB down position.
Test Distance was 3.0 metres.

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	25	1851.25	1900	Horn	V	88.23	88.23	V-V	-7.90	25.39	0.35	33	-7.61
F0	25	1851.25	1900	Horn	H	82.39		H-H	-6.40				
F0	600	1880.00	1900	Horn	V	88.37	88.37	V-V	-7.20	25.92	0.39	33	-7.08
F0	600	1880.00	1900	Horn	H	81.42		H-H	-5.70				
F0	1175	1908.75	1900	Horn	V	88.57	88.57	V-V	-6.10	**26.49**	0.45	33	-6.51
F0	1175	1908.75	1900	Horn	H	80.94		H-H	-5.00				

Radiated Emissions Test Data Results

Cellular Band

Loopback Service

Date of Test: March 12, 2009
The measurements were performed by Andrew Fleming and Arjun Rai Bhatti.
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 22%
Pressure: 1027

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306F5A0B 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.

The measurements were performed by Heng Lin and Savtej Sandhu.
Date of Test: March 25, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 30%
Pressure: 1014

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, horizontal top-down position.
The measurements were performed in CDMA Cellular Tx mode, channel 1013.

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)	(dB)	(dBm)	(dBm)	(dB)
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)					
1649.108	H	2.52	142	PK	62.49	-89.69	-27.20	-13.00	14.20
3297.926	H	1.00	171	PK	53.21	-82.67	-29.46	-13.00	16.46

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

Radiated Emissions Test Data Results cont'd

Cellular Band

Loopback Service

Date of Test: March 17, 2009
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 30%
Pressure: 1020

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, horizontal top-down position.

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

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)	(dB)			
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)			(dBm)	(dBm)	(dB)
3343.717	H	1.00	161	PK	45.00	-82.44	-37.44	-13.00	-24.44

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

Date of Test: March 17, 2009
The environmental test conditions were: Temperature 24ºC
Relative Humidity 31%
Pressure 1016

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, horizontal top-down position.
The measurements were performed in Cellular Tx mode, channel 777.

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)	(dB)			
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)			(dBm)	(dBm)	(dB)
1696.443	H	1.00	243	PK	59.82	-90.94	-31.12	-13.00	-18.12
3393.978	H	1.00	222	PK	50.85	-82.27	-31.42	-13.00	-18.42

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

Radiated Emissions Test Data Results cont'd

Cellular Band

Test Data

Date of Test: March 12, 2009
The measurements were performed by Andrew Fleming.
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 22%
Pressure: 1027

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306F5A0B was in standalone, vertical position.

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

All emissions had a test margin greater than 25.0 dB.

The measurements were performed by Heng Lin and Savtej Sandhu.
Date of Test: March 17, 2009
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 30%
Pressure: 1020
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in Cellular Tx mode, channel 384.

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height				(dB)			
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)	(dBµV)		(dBm)	(dBm)	(dB)
1673.317	H	1.00	209	PK	56.92	-90.36	-33.44	-13.00	-20.44
3345.621	H	1.00	163	PK	55.13	-82.43	-27.30	-13.00	-14.30

Radiated Emissions Test Data Results cont'd

Cellular Band

1xEVDO

Date of Test: March 13, 2009
The measurements were performed by Andrew Fleming.
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 21%
Pressure: 1020

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306F5A0B was in standalone, vertical position.

The measurements were performed in Cellular Tx mode, on channel 1013, 384 and 777.
All emissions had a test margin greater than 25.0 dB.

The measurements were performed by Savtej Sandhu.
Date of Test: March 17, 2009
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 30%
Pressure: 1020

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in Cellular Tx mode, channel 1013.
All emissions had a test margin greater than 25.0 dB.

Radiated Emissions Test Data Results cont'd

Cellular Band

1xEVDO

Date of Test: March 17, 2009
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 30%
Pressure: 1020

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in Cellular Tx mode, channel 384.

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	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)
1672.776	H	3.05	218	PK	61.68	-90.36	-28.68	-13.00	-15.68
3347.024	H	1.00	202	PK	56.57	-82.42	-25.85	-13.00	**-12.85**

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

Date of Test: March 17, 2009
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 30%
Pressure: 1020
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in Cellular Tx mode, channel 777.

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	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)
1696.483	H	1.00	238	PK	58.71	-90.94	-32.23	-13.00	-19.23
3390.912	V	1.31	161	PK	49.17	-82.10	-32.93	-13.00	-19.93

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

Radiated Emissions Test Data Results cont'd

PCS Band

Loopback Service

Date of Test: March 13, 2009
The measurements were performed by Andrew Fleming.
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 22%
Pressure: 1027

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306F5A0B 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.

The measurements were performed by Savtej Sandhu.
Date of Test: March 18, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 34%
Pressure: 1013
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in PCS Tx mode, channel 25

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)	(dB)	(dBm)	(dBm)	(dB)
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)					
3703.417	H	1.00	28	PK	60.43	-80.16	-19.73	-13.00	-6.73

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

Radiated Emissions Test Data Results cont'd

PCS Band

Loopback Service

Date of Test: March 18, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 34%
Pressure: 1013
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in PCS Tx mode, channel 600

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)	(dB)			
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)			(dBm)	(dBm)	(dB)
3760.451	H	1.00	43	PK	56.93	-80.53	-23.60	-13.00	-10.60

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

Date of Test: March 18, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 34%
Pressure: 1013
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in PCS Tx mode, channel 1175

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)	(dB)			
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)			(dBm)	(dBm)	(dB)
3817.144	H	1.00	83	PK	50.09	-80.48	-30.39	-13.00	-17.39

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

Radiated Emissions Test Data Results cont'd

PCS Band

Test Data

Date of Test: March 13, 2009
The measurements were performed by Andrew Fleming.
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 30%
Pressure: 1020

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306F5A0B was in standalone, vertical position.

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

All emissions had a test margin greater than 25.0 dB.

The measurements were performed by Savtej Sandhu.
Date of Test: April 01, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 30%
Pressure: 1020
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was 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.

Radiated Emissions Test Data Results cont'd

PCS Band

1xEVDO

Date of Test: March 13, 2009
The measurements were performed by Andrew Fleming.
The environmental test conditions were: Temperature: 25ºC
Relative Humidity: 21%
Pressure: 1021

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 306F5A0B was in standalone, vertical position.

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

All emissions had a test margin greater than 25.0 dB.

The measurements were performed by Savtej Sandhu.
Date of Test: March 18, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 34%
Pressure: 1018
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in PCS Tx mode, channel 25.

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height							
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)	(dBµV)	(dB)	(dBm)	(dBm)	(dB)
1931.673	V	3.00	0	PK	60.42	-90.17	-29.75	-13.00	-16.75
3702.715	H	1.00	28	PK	60.43	-80.15	-19.72	-13.00	**-6.72**

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

Radiated Emissions Test Data Results cont'd

PCS Band

1xEVDO

Date of Test: March 18, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 34%
Pressure: 1018
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in PCS Tx mode, channel 600.

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter (dB)	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)		(dBm)	(dBm)	(dB)
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)					
1960.411	H	3.00	186	PK	58.35	-90.62	-32.27	-13.00	-19.27
3760.511	H	1.00	41	PK	58.35	-80.53	-22.18	-13.00	-9.18

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

Date of Test: March 18, 2009
The environmental test conditions were: Temperature: 24ºC
Relative Humidity: 34%
Pressure: 1018
Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 306F5AAB was in standalone, Horizontal top-down position.
The measurements were performed in PCS Tx mode, channel 1175.

Frequency	Antenna		Test Angle	Detector	Measured Level	Correction Factor for preamp/antenna/ cables/ filter (dB)	Field Strength Level (reading+corr)	Limit @ 3.0 m	Test Margin
	Pol.	Height			(dBµV)		(dBm)	(dBm)	(dB)
(MHz)	(V/H)	(metres)	(Deg.)	(PK or QP)					
1989.469	V	4.00	173	PK	59.70	-90.48	-30.78	-13.00	-17.78
3817.305	H	1.00	41	PK	59.08	-80.55	-21.47	-13.00	-8.47

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