EMI Test Report

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

A division of Research In Motion Limited

REPORT NO: RTS-1689-0907-19

PRODUCT MODEL NO:	RCM71UW
TYPE NAME:	BlackBerry® smartphone
FCC ID:	L6ARCM70UW
IC:	2503A-RCM70UW
EMISSION DESIGNATOR (GSM):	243KG7W
EMISSION DESIGNATOR (EDGE):	242KGXW
EMISSION DESIGNATOR (WCDMA):	4M19F9W

DATE: 08 September, 2009

Statement of Performance:

The BlackBerry® smartphone, model RCM71UW, part number CER-23758-001 Rev 4 and accessories performs within the requirements of the test standards when configured and operated per RIM's instructions.

Declaration:

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

Documented by:

Michael Cino
Regulatory Compliance Intern
Date: 08 September, 2009

Reviewed by:

Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance
Date: 10 September, 2009

Approved by:

Paul G. Cardinal, Ph.D.
Director
Date: 13 September, 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 5, February 2009, 2 GHz Personal Communications Services.

B) Associated Documents

1. HW_Declaration_CER-23758-001 Rev 3
2. HW_Declaration_CER-23758-001 Rev 4

C) Product Identification

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

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

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

RIM Testing Services EMI test facilities

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

The testing was performed from July 10 to September 01, 2009.

The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN
1	RCM71UW	CER-23758-001 Rev 2	210B4F98
2	RCM71UW	CER-23758-001 Rev 2	210BAA2E
3	RCM71UW	CER-23758-001 Rev 2	210BAA6C
4	RCM71UW	CER-23758-001 Rev 2	210BAA24
5	RCM71UW	CER-23758-001 Rev 2	210BA9E8
6	RCM71UW	CER-23758-001 Rev 3	211A0A31
7	RCM71UW	CER-23758-001 Rev 3	211A6E0A
8	RCM71UW	CER-23758-001 Rev 3	211A6FEB
9	RCM71UW	CER-23758-001 Rev 4	2117948C

RF Conducted Emissions testing was performed on samples 1, 3 and 6.
Radiated Emissions testing was performed on samples 2, 4, 5, 7, 8 and 9.

To view the differences between CER-23758-001 Rev 2 and CER-23758-001 Rev 3, see document number HW_Declaration_CER-23758-001-Rev 3. To view the differences between CER-23758-001 Rev 3 and CER-23758-001 Rev 4, see document number HW_Declaration_CER-23758-001-Rev 4.

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

D) Support Equipment Used for the Testing of the EUT

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

E) Test Voltage

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

F) Summary of Results

SPECIFICATION		TEST TYPE	RESULT	TEST DATA APPENDIX
FCC CFR 47	IC			
Part 2.1051 Part 22.917 Part 22.901	RSS-GEN, 4.9	GSM 850 Conducted Spurious Emissions	Pass	1A
Part 2.1051 Part 24.238(a)	RSS-GEN, 4.9	GSM PCS Conducted Spurious Emissions	Pass	1A
Part 2.202 Part 22.917	RSS-GEN, 4.6	GSM 850 Occupied Bandwidth and Channel Mask	Pass	1A
Part 2.202 Part 24.238	RSS-GEN, 4.6	GSM PCS Occupied Bandwidth and Channel Mask	Pass	1A
Part 2.1046(a)	RSS-133, 6.4 RSS-132, 4.4	GSM Conducted RF Output Power	Pass	2A
Part 2.1055(a)(d) Part 22.917	RSS-132, 4.3	GSM 850 Frequency Stability vs. Temperature and Voltage	See Test Report RTS-1689-0909-27	-
Part 2.1055(a)(d) Part 24.235	RSS-132, 4.3	GSM PCS Frequency Stability vs. Temperature and Voltage	See Test Report RTS-1689-0909-27	-
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	RSS-GEN, 4.9	WCDMA UMTS850 Conducted Spurious Emissions	Pass	1B
Part 2.1051 Part 24.238(a)	RSS-GEN, 4.9	WCDMA UMTS1900 Conducted Spurious Emissions	Pass	1B
Part 2.202 Part 22.917	RSS-GEN, 4.6	WCDMA UMTS850 Occupied Bandwidth and Channel Mask	Pass	1B
Part 2.202 Part 24.238	RSS-GEN, 4.6	WCDMA UMTS1900 Occupied Bandwidth and Channel Mask	Pass	1B
Part 2.1046(a)	RSS-133, 6.4 RSS-132, 4.4	WCDMA Conducted RF Output Power	Pass	2B
Part 2.1055(a)(d) Part 22.917	RSS-132, 4.3	WCDMA UMTS850 Frequency Stability vs. Temperature and Voltage	Pass	3

Summary of Results cont'd

Part 2.1055(a)(d) Part 24.235	RSS-GEN, 4.7	WCDMA UMTS1900 Frequency Stability vs. Temperature and Voltage	Pass	3
Part 22, Subpart H	RSS-GEN, 4.9	WCDMA UMTS850 Radiated Spurious/Harmonic Emissions, ERP	Pass	4B
Part 24, Subpart E	RSS-GEN, 4.9	WCDMA UMTS1900 Radiated Spurious/Harmonic Emissions, EIRP	Pass	4B

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

7) The BlackBerry® smartphone met the requirements of the Conducted Spurious Emissions in the UMTS850 band as per 47 CFR 1057, CFR 22.917, CFR 22.901(d) and RSS-GEN, 4.9. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 10 GHz.
See APPENDIX 1B for the test data.

8) The BlackBerry® smartphone met the requirements of the Conducted Spurious Emissions in the UMTS1900 band as per 47 CFR 2.1057, CFR 24.238 and RSS-GEN, 4.9. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz.
See APPENDIX 1B for the test data.

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

10) The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask in the UMTS1900 band as per 47 CFR 2.202, CFR 24.238 and RSS-GEN, 4.6. The low, middle and high channels were measured.
See APPENDIX 1B for the test data.

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

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

13) The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage requirements for the UMTS1900 band as per 47 CFR 2.1055(a)(d), CFR 24.235 and RSS-GEN, 4.7. The maximum frequency error measured was less than 0.1 ppm.
The temperature range was from -30°C to +60°C in 10 degree temperature steps. The BlackBerry® smartphone was measured on low, middle and high channels at each temperature step. The BlackBerry® smartphone was measured at low (3.6 volts), nominal (3.7 volts) and high (4.2 volts) dc input voltage at each temperature step and channel at maximum output power.
See APPENDIX 3B for the test data.

14) The radiated spurious emissions/harmonics and ERP/EIRP were measured for GSM 850, PCS 1900, and UMTS 850 and 1900 bands (WCDMA bands 5 and 2 respectively). The results are within the limits. The BlackBerry® smartphone was placed on a nonconductive styrofoam table, 100 cm high that was positioned on a remotely controlled turntable. The test distance used between the BlackBerry® smartphone and the receiving antenna was three metres. Then the emissions were maximized by elevating the antenna in the range of 1 to 4 metres. The turntable was rotated to determine the azimuth of the peak emissions. Both the horizontal and vertical polarizations of the emissions were measured. The maximum emissions level was recorded. The BlackBerry® smartphone was then substituted with an antenna placed in the same location as the BlackBerry® smartphone. A Dipole antenna was used for the ERP measurements and a Horn antenna was used for EIRP measurements. The substitution antenna was connected into a signal generator that was set to the test frequency.

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

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

The ERP in the 850 band, GSM mode was measured on BlackBerry® smartphone. The highest ERP measured was 30.11 dBm (1.03 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 27.19 dBm (0.52 W) at 848.80 MHz (channel 251).

The EIRP in the PCS band, GSM mode was measured on BlackBerry® smartphone. The highest ERP measured was 30.80 dBm (1.20 W) at 1909.80 MHz (channel 810).

The EIRP in the PCS band, EDGE mode was measured on BlackBerry® smartphone. The highest ERP measured was 28.51 dBm (0.71 W) at 1909.80 MHz (channel 810).

The ERP in the 850 band, UMTS mode was measured on BlackBerry® smartphone. The highest ERP measured was 23.92 dBm (0.25 W) at 846.60 MHz (channel 4233).

The EIRP in the 1900 band, UMTS mode was measured on BlackBerry® smartphone. The highest ERP measured was 26.13 dBm (0.41 W) at 1907.50 MHz (channel 9538).

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

The worst test margin in the 850 band for GSM mode harmonic emissions was 18.10 dB below the limit at 1648.606 MHz.

The worst test margin in the 850 band for EDGE mode harmonic emissions was 20.52 dB below the limit at 1675.449 MHz.

The worst test margin in the PCS band for GSM mode harmonic emissions was 22.27 dB below the limit at 1700.833 MHz.

The worst test margin in the PCS band for EDGE mode harmonic emissions was 21.01 dB below the limit at 3700.545 MHz.

The radiated spurious emission and carrier harmonics were measured up to the 10th harmonic for low, middle and high channels in the UMTS850 and 1900 bands. Both the horizontal and vertical polarizations were measured.

The test margins in the UMTS850 and 1900 band harmonic emissions were greater than 25 dB below the accepted limits for all tested frequencies.

Co-Location Measurements

The radiated emissions were measured up to 18 GHz for middle channels for simultaneous transmission in the following test configuration combinations:
GSM850/Bluetooth/802.11b, PCS1900/Bluetooth/802.11b,
UMTS850/Bluetooth/802.11b, UMTS1900/Bluetooth/802.11b
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

G) 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	10-05-08	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	ETS-Lindgren	3117	47653	11-07-15	Radiated Emissions
Horn Antenna	CMT	LHA 0180	R52734-001	09-12-17	Radiated Emissions
Preamplifier	TDK	18-26	030002	09-11-07	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	1018	11-03-12	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	974	11-10-16	Radiated Emissions
EMC Analyzer	Agilent	E7405A	US40240226	09-10-01	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

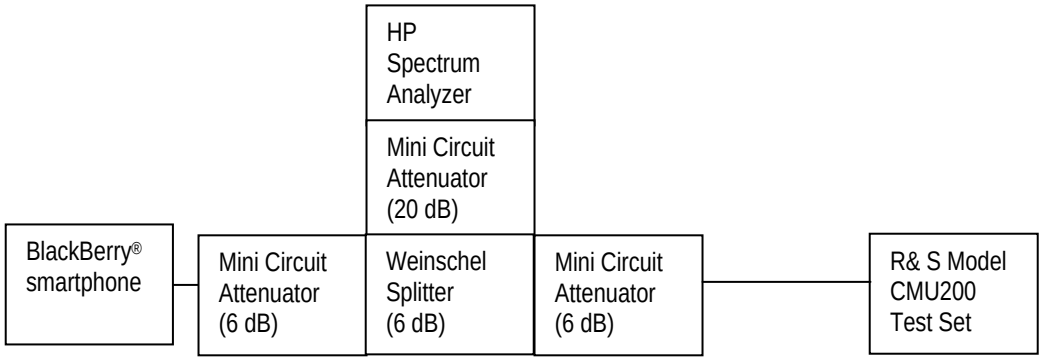
UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Temperature Probe	Control Company	15-077-21	51129471	10-05-01	Frequency Stability
Environmental Chamber	ESPEC Corp.	SH-240S1	91007118	N/R	Frequency Stability
Signal Generator	Agilent	8648C	4037U03155	09-09-20	Frequency Stability
Signal Generator	Agilent	E8257D	MY45140527	09-10-10	Radiated Emissions
Power Meter	Agilent	N1911A	MY45100905	11-01-05	Frequency Stability
Power Sensor	Agilent	N1921A	SG45240281	10-05-08	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 210B4F98.

Test Setup Diagram



Date of Test: July 22, 2009

The environmental test conditions were:

Temperature: 23 ºC
Pressure: 1017 mb
Relative Humidity: 32 %

The following 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.

–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 267 kHz, and for the PCS1900 band was measured to be 267 kHz as shown below. This results in a 3.0 kHz resolution bandwidth.
On any frequency outside the frequency block and outside the adjacent 1 MHz bands, a resolution bandwidth of at least 1 MHz was employed.

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

850 band Frequency (MHz)	-26dBc Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
824.2	263	240.0
837.6	268	241.7
848.8	267	240.0

1900 band Frequency (MHz)	-26dBc Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
1850.2	257	240.0
1880.0	255	243.3
1909.8	267	238.3

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.

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	241.7
837.6	241.7
848.8	238.3

1900 band Frequency (MHz)	99% Occupied Bandwidth (kHz)
1850.2	240.0
1880.0	238.3
1909.8	240.0

Measurement Plots for 850 and 1900 bands in EDGE mode
Refer to the following measurement plots for more detail.

See Figures 1-29a to 1-34a for the plots of the 99% Occupied Bandwidth.
See Figures 1-35a to 1-38a for the plots of channel mask EDGE results.

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

GSM Conducted RF Emission Test Data cont'd

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

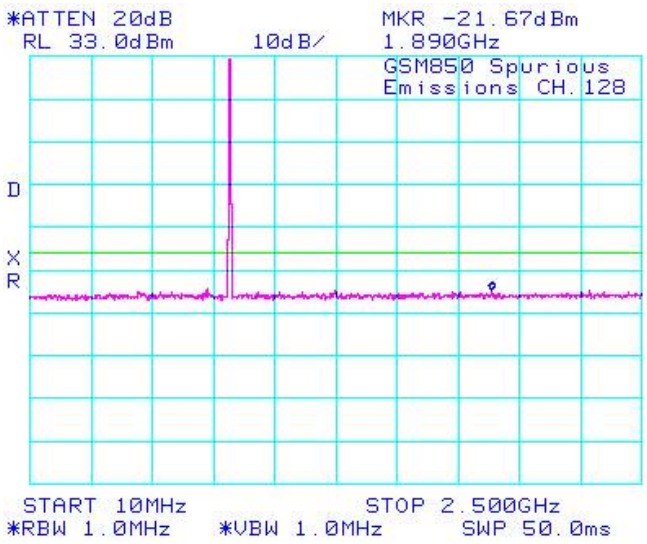


Figure 1-2a: GSM850 band, Spurious Conducted Emissions, Low channel

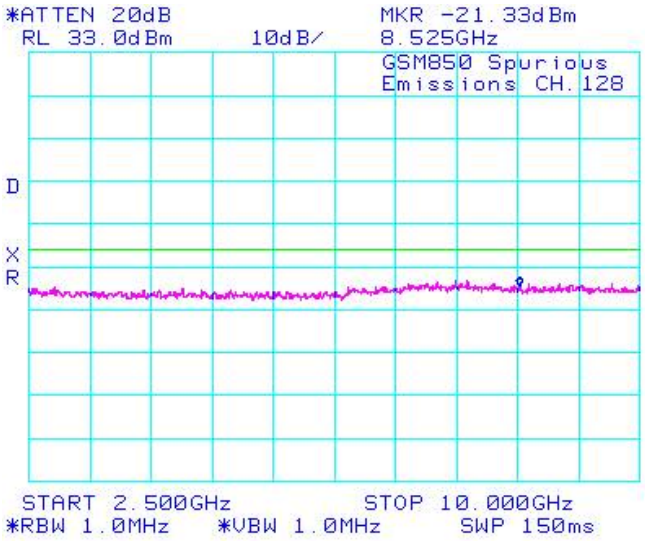


Figure 1-3a: GSM850 band, Spurious Conducted Emissions, Middle Channel

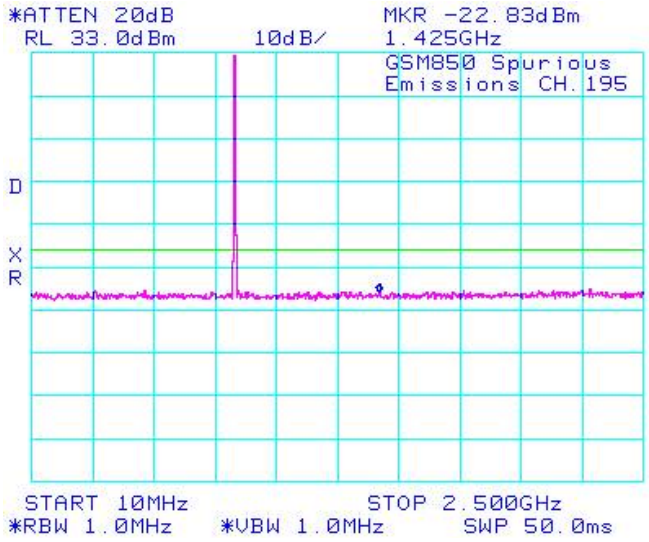
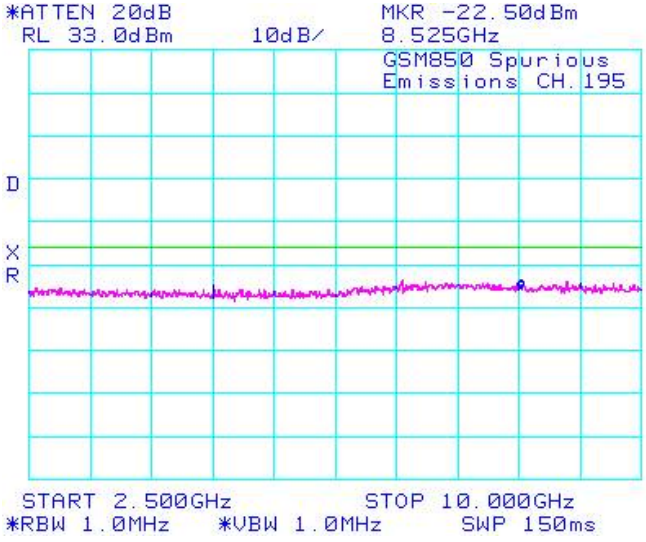


Figure 1-4a: GSM850 band, Spurious Conducted Emissions, Middle Channel



GSM Conducted RF Emission Test Data cont'd

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

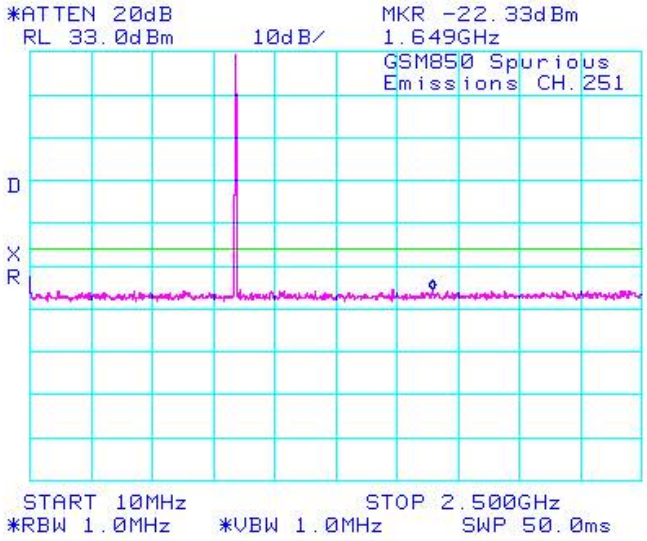


Figure 1-6a: GSM850 band, Spurious Conducted Emissions, High Channel

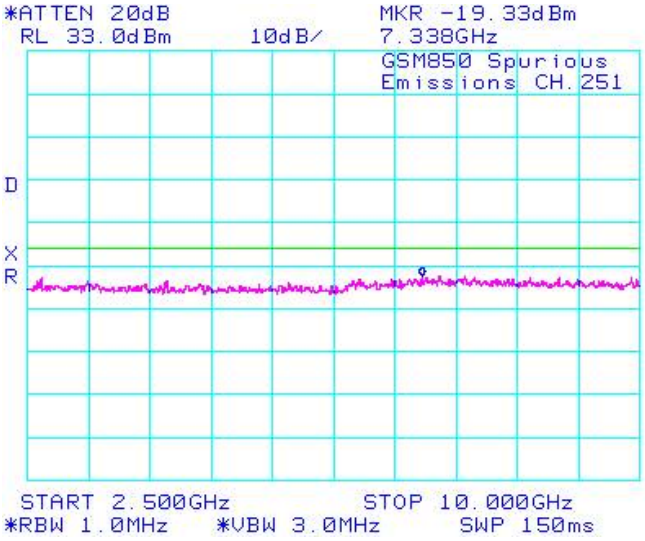


Figure 1-7a: PCS1900 band, Spurious Conducted Emissions, Low Channel

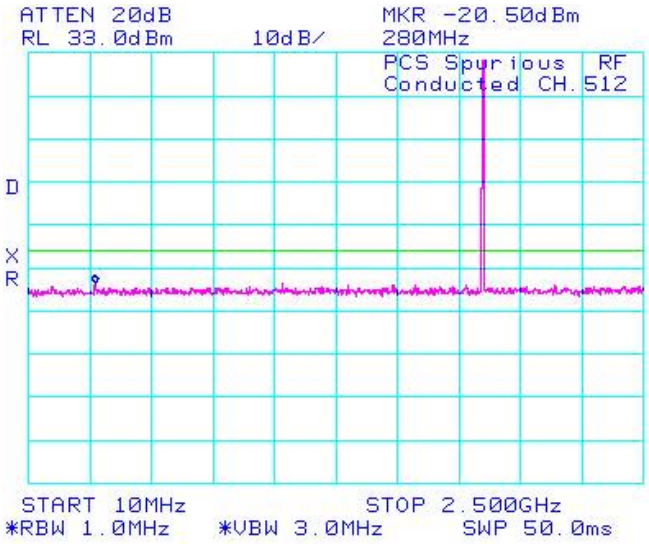
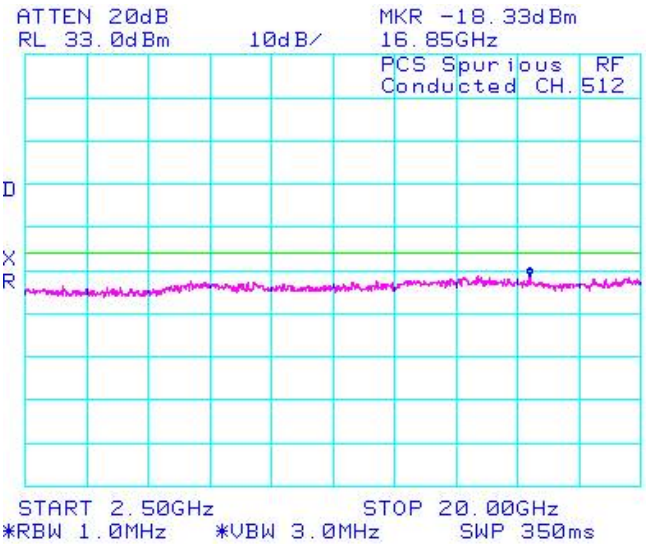


Figure 1-8a: PCS1900 band, Spurious Conducted Emissions, Low Channel



GSM Conducted RF Emission Test Data cont'd

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

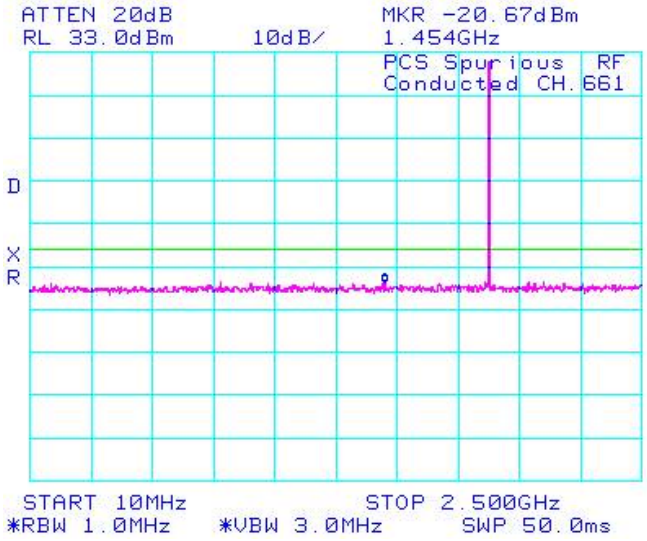


Figure 1-10a: PCS1900 band, Spurious Conducted Emissions, Middle Channel

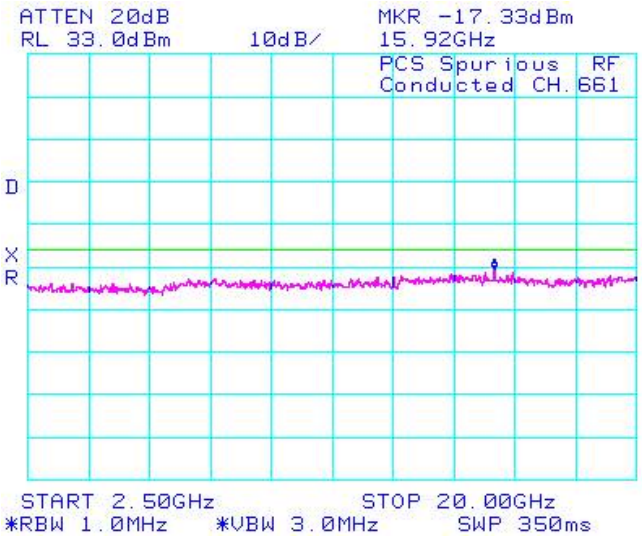


Figure 1-11a: PCS1900 band, Spurious Conducted Emissions, High Channel

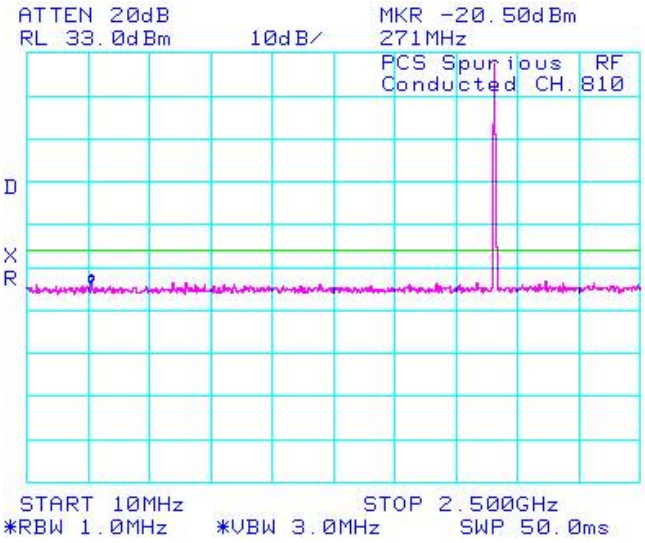
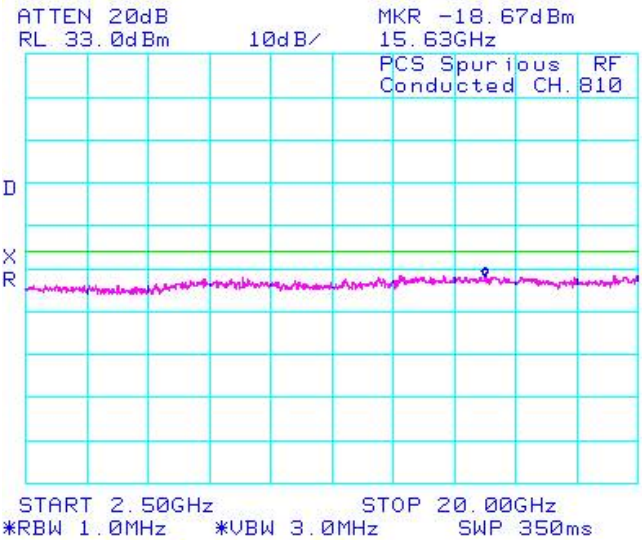


Figure 1-12a: PCS1900 band, Spurious Conducted Emissions, High Channel



GSM Conducted RF Emission Test Data cont'd

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

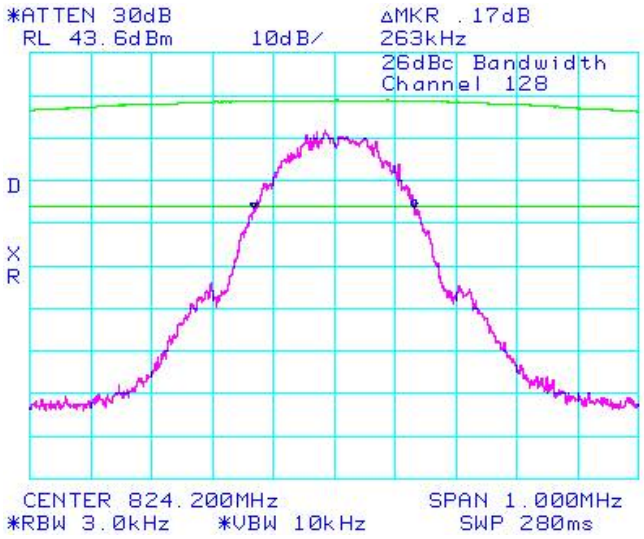


Figure 1-14a: Occupied Bandwidth, GSM850 band Low Channel in GSM mode

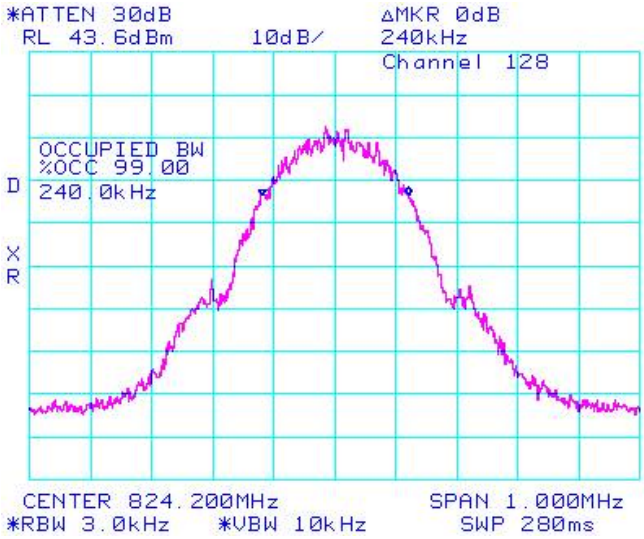
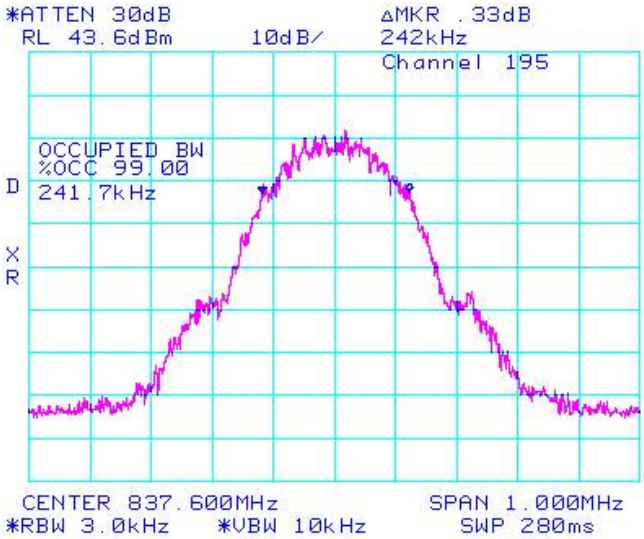


Figure 1-15a: -26dBc bandwidth, GSM850 band Middle Channel in GSM mode

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

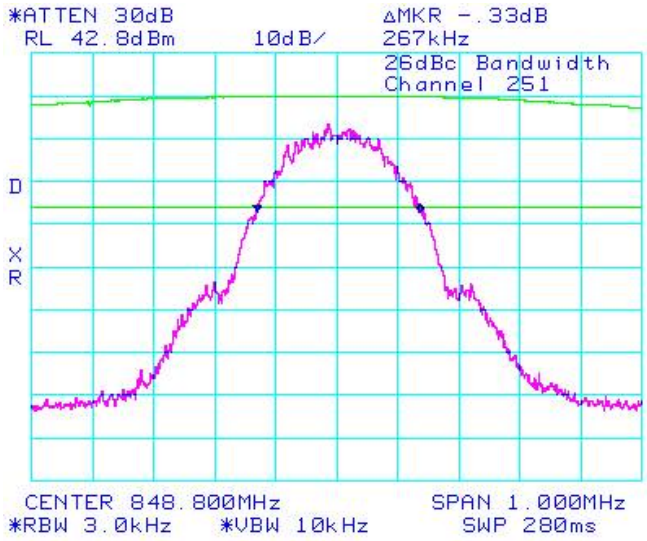


Figure 1-18a: Occupied Bandwidth, GSM850 band High Channel in GSM mode

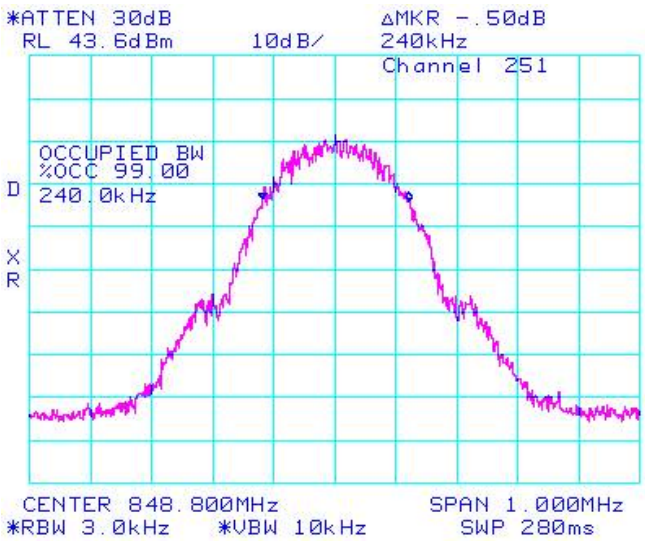


Figure 1-19a: -26dBc bandwidth, PCS1900 Low Channel in GSM mode

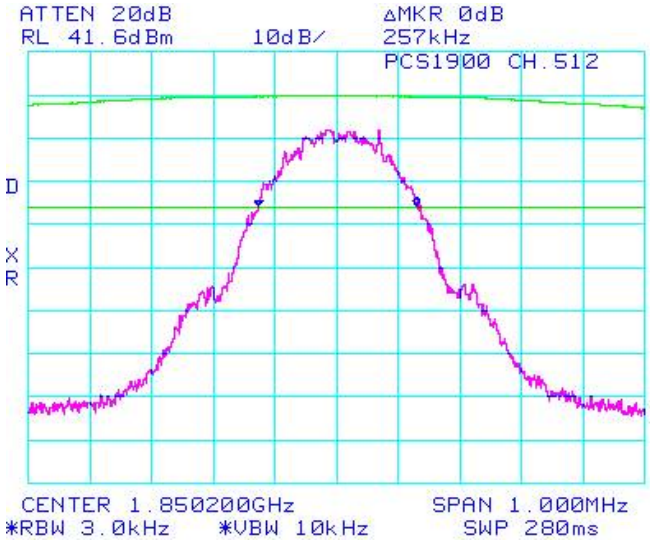
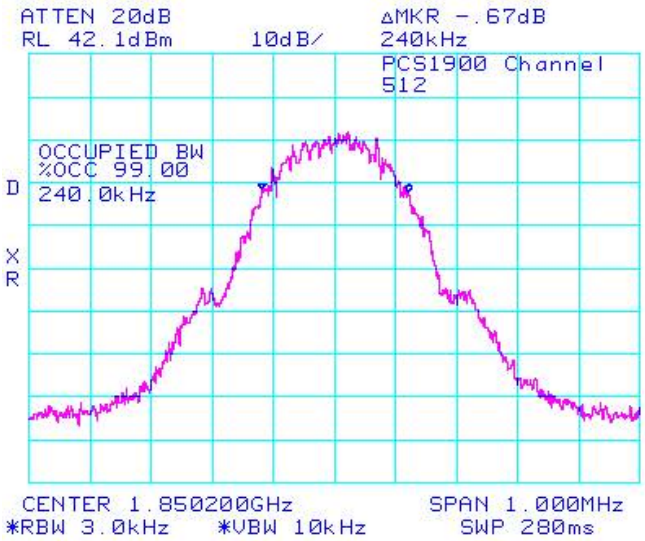


Figure 1-20a: Occupied Bandwidth, PCS1900 Low Channel in GSM mode



GSM Conducted RF Emission Test Data cont'd

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

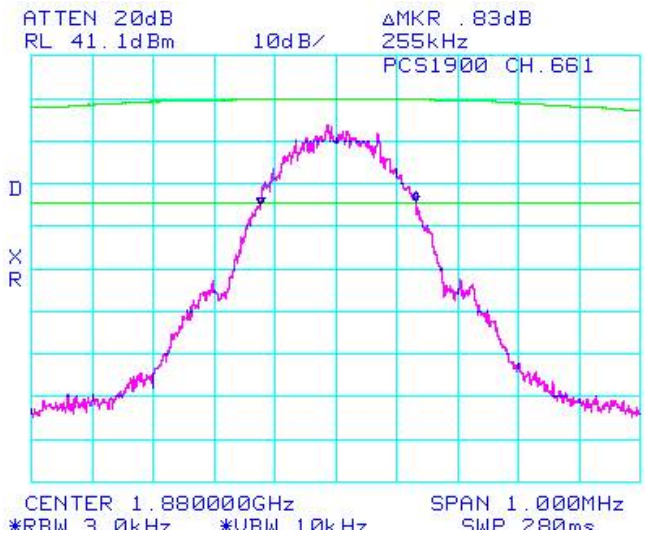


Figure 1-22a: Occupied Bandwidth, PCS1900 Middle Channel in GSM mode

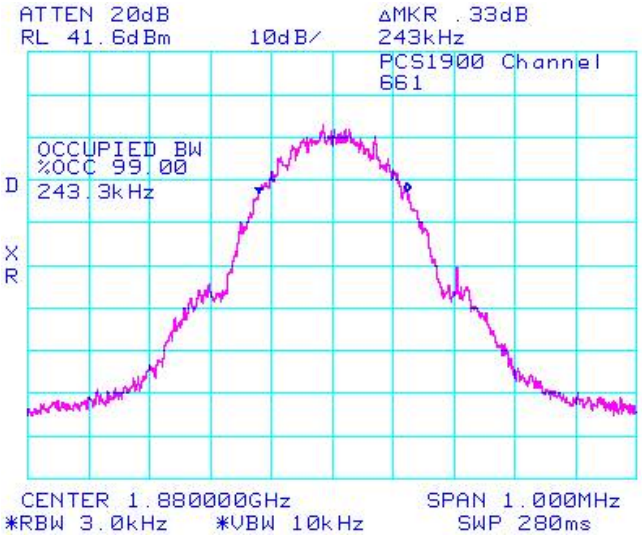


Figure 1-23a: -26dBc bandwidth, PCS1900 High Channel in GSM mode

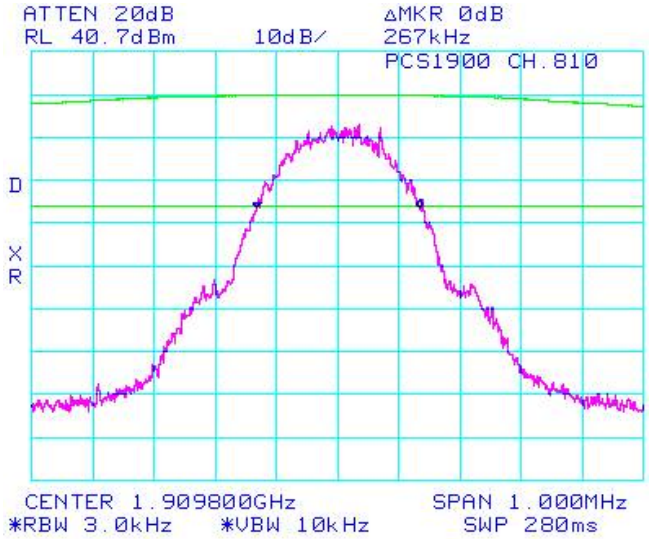
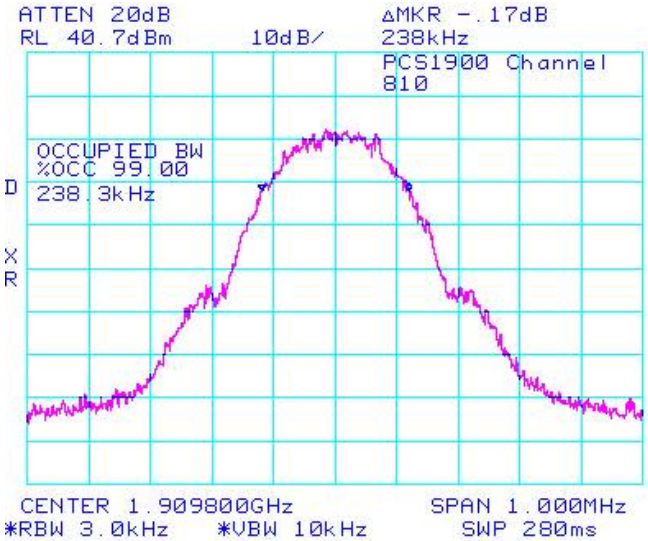


Figure 1-24a: Occupied Bandwidth, PCS1900 High Channel in GSM mode



GSM Conducted RF Emission Test Data cont'd

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

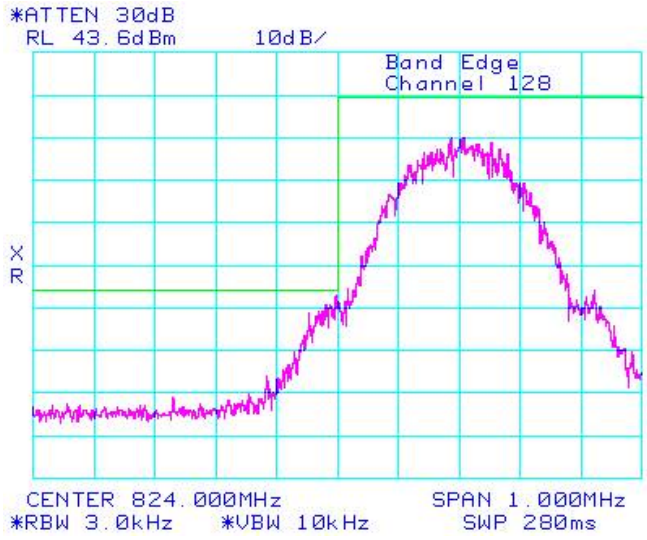


Figure 1-26a: GSM850 band High Channel Mask in GSM mode

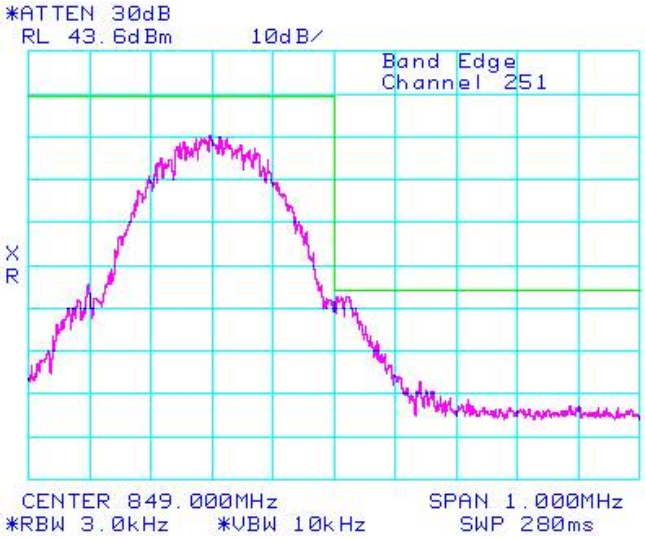


Figure 1-27a: PCS1900, Low Channel Mask in GSM mode

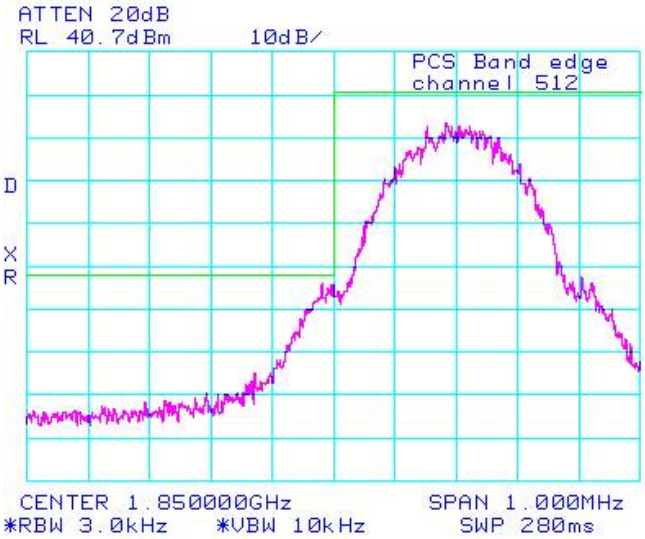
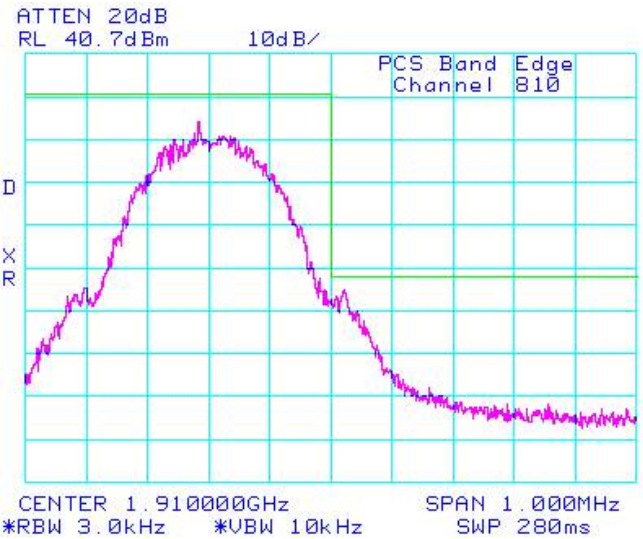


Figure 1-28a: PCS1900, High Channel Mask in GSM mode



GSM Conducted RF Emission Test Data cont'd

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

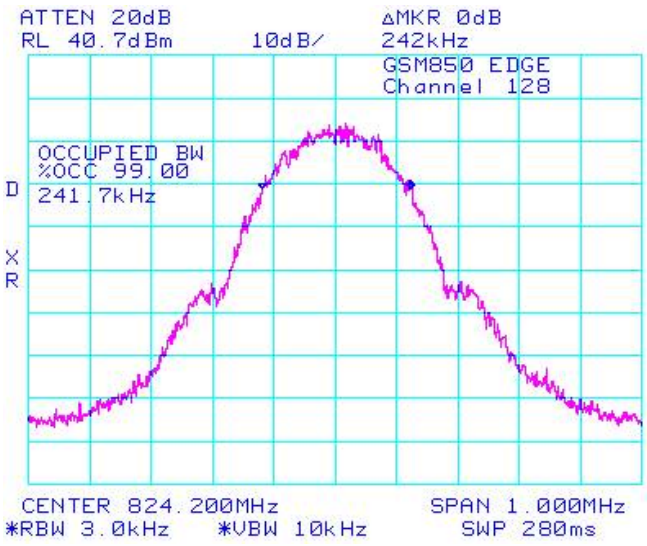


Figure 1-30a: Occupied Bandwidth, GSM850 Band, Middle Channel in EDGE mode

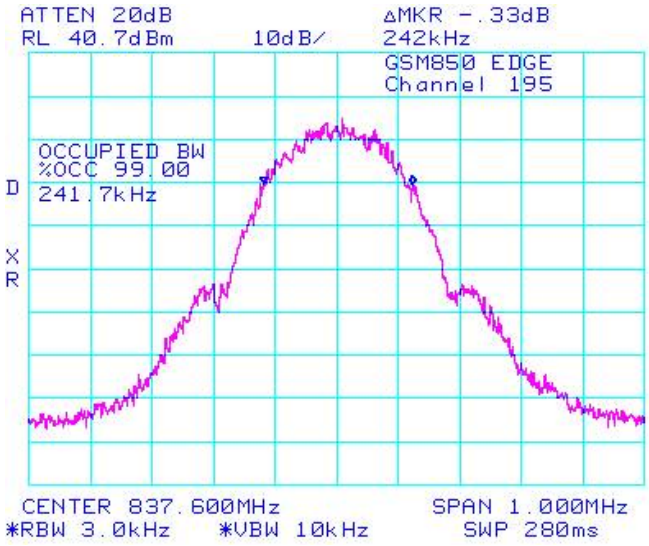


Figure 1-31a: Occupied Bandwidth, GSM850 band, High Channel in EDGE mode

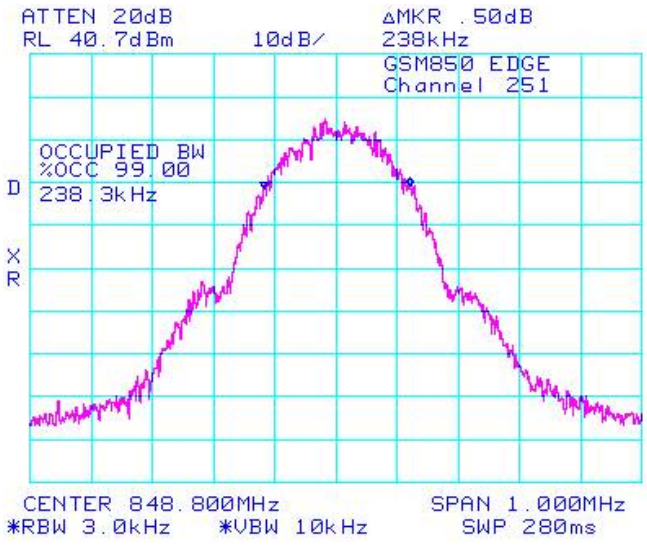
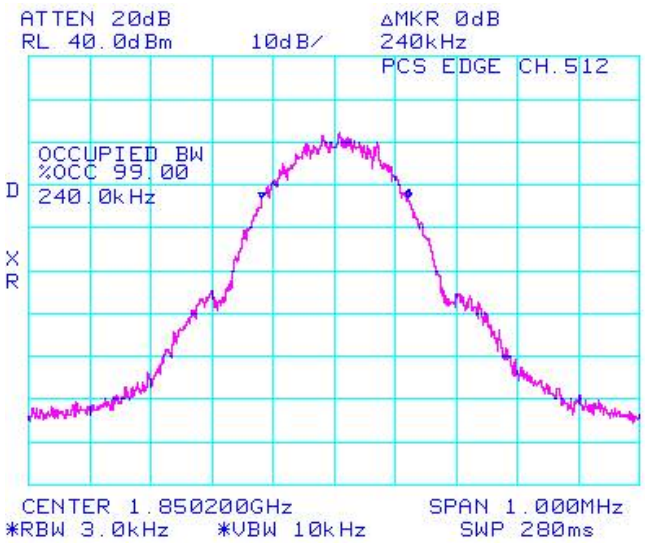


Figure 1-32a: Occupied Bandwidth, PCS1900 Band, Low Channel in EDGE mode



GSM Conducted RF Emission Test Data cont'd

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

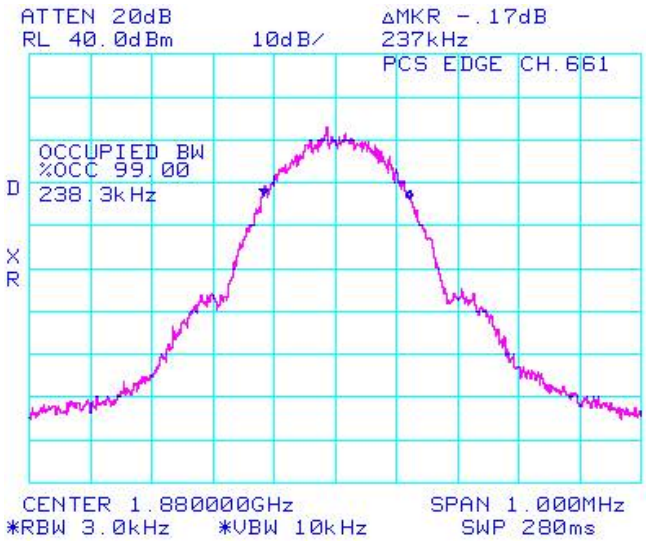


Figure 1-34a: Occupied Bandwidth, PCS1900 Band, High Channel in EDGE mode

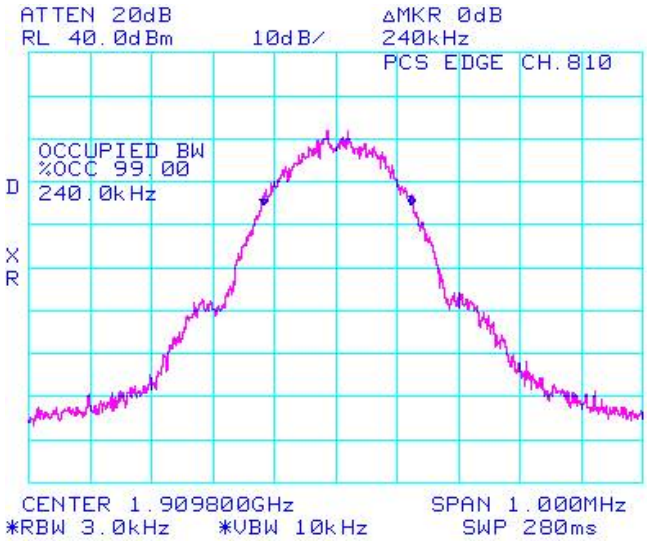


Figure 1-35a: GSM850 Band, Low Channel Mask in EDGE mode

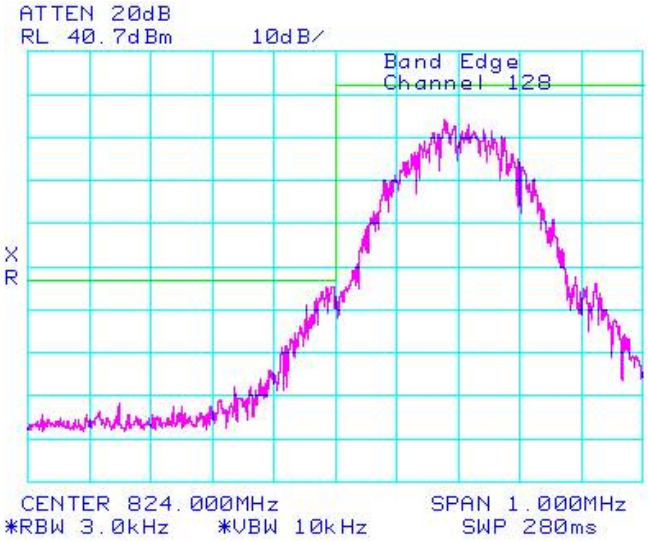
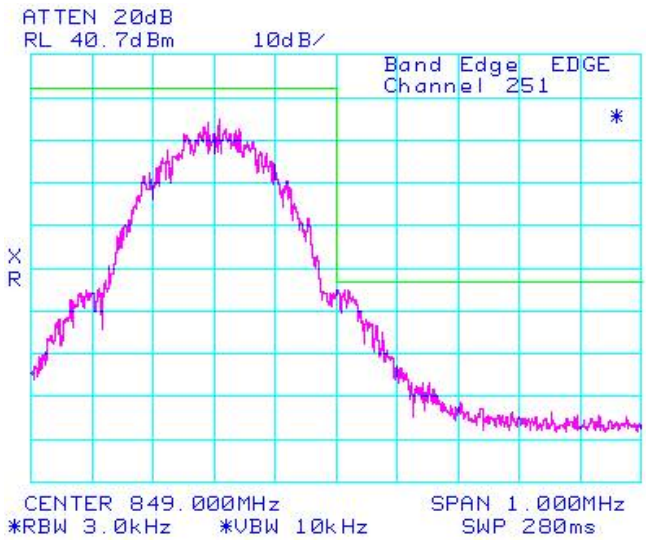


Figure 1-36a: GSM850 Band, High Channel Mask in EDGE mode



GSM Conducted RF Emission Test Data cont'd

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

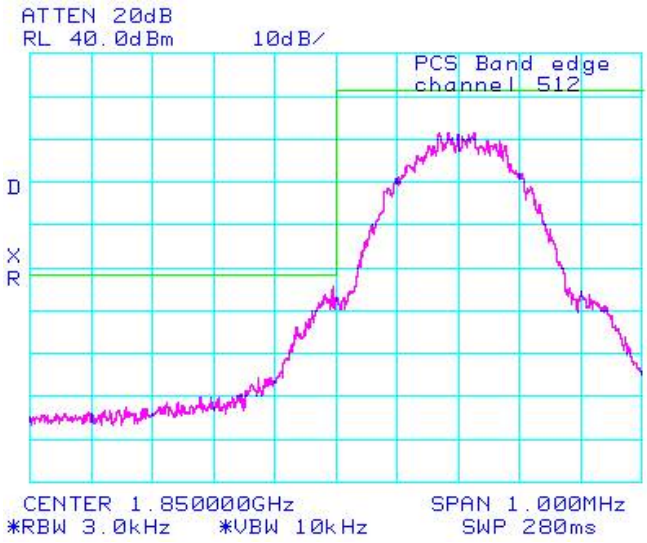
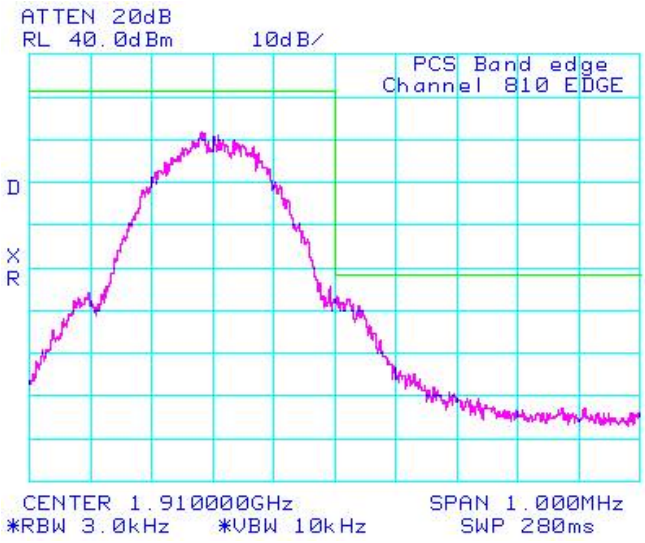


Figure 1-38a: PCS1900 Band, High Channel Mask in EDGE mode

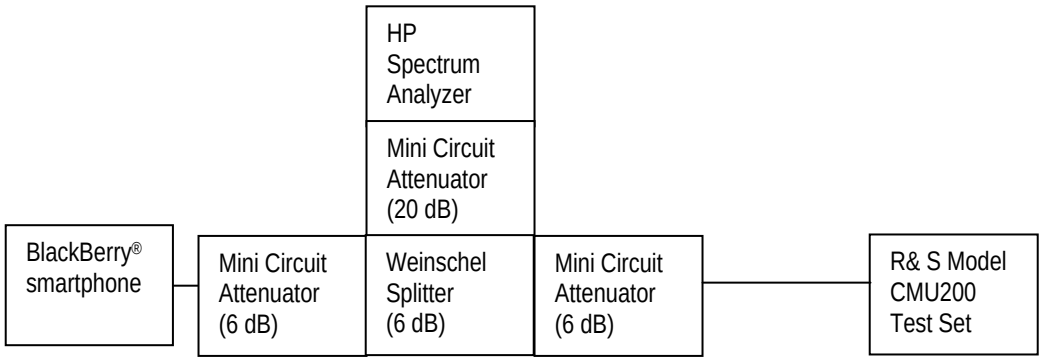


APPENDIX 1B – WCDMA CONDUCTED RF EMISSIONS TEST DATA/PLOTS

WCDMA Conducted RF Emission Test Data

This appendix contains measurement data pertaining to conducted spurious emissions, 99% power bandwidth and the channel mask on BlackBerry® smartphone PIN 210B4F98.

Test Setup Diagram



Date of Test: July 23, 2009

The environmental test conditions were:	Temperature:	23 ºC
	Pressure:	1009 mb
	Relative Humidity:	33 %

The following measurements were performed by Maurice Battler.

WCDMA Conducted RF Emission Test Data cont'd

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

–26 dBc Bandwidth and Occupied Bandwidth (99%)

For each carrier frequency of low, middle and high, the modulation spectrum was measured by both methods of 99% power bandwidth and –26 dBc bandwidth.
The resolution bandwidth required for out-of-band emissions in the 1 MHz bands immediately outside and adjacent to the frequency block, was determined to be at least 1% of the emission bandwidth.
The worst case –26dBc bandwidth for the UMTS850 band was measured to be 4.667 MHz, and for the UMTS1900 band was measured to be 4.675 MHz as shown below. This results in a 3.0 kHz resolution bandwidth.
On any frequency outside the frequency block and outside the adjacent 1 MHz bands, a resolution bandwidth of at least 2 MHz was employed.

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

850 band Frequency (MHz)	-26dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
826.4	4.667	4.192
836.4	4.650	4.167
846.6	4.667	4.158

1900 band Frequency (MHz)	-26dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
1852.4	4.675	4.175
1880.0	4.675	4.183
1907.6	4.667	4.175

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

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

WCDMA Conducted RF Emission Test Data cont'd

Figure 1-7a: UMTS850 band, Spurious Conducted Emissions, Low channel

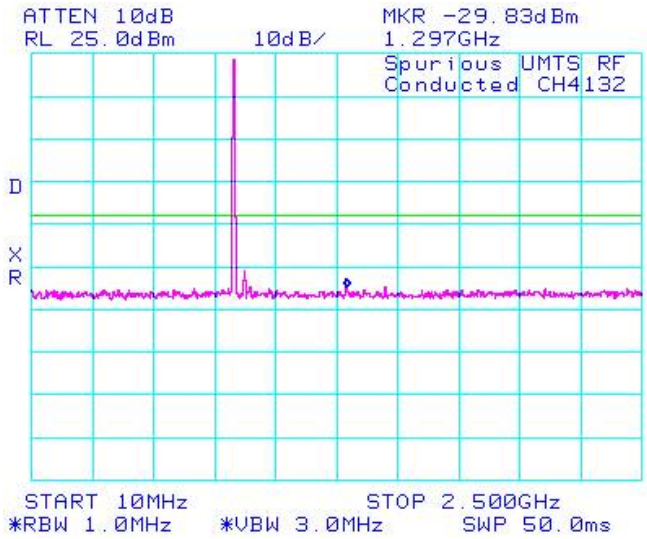


Figure 1-8a: UMTS850 band, Spurious Conducted Emissions, Low channel

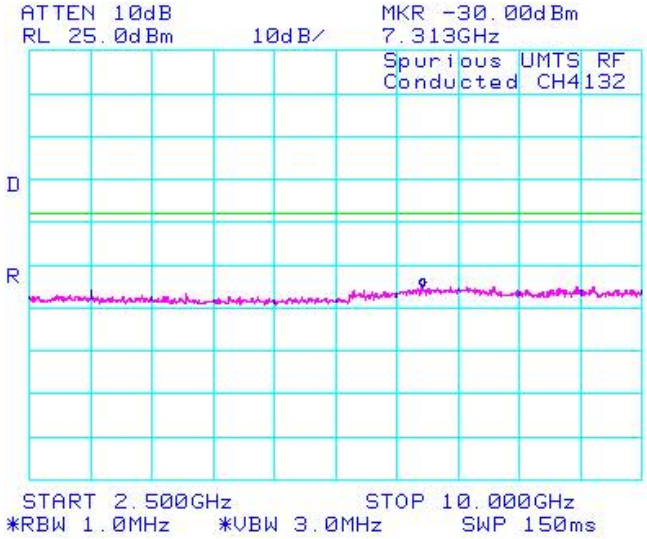


Figure 1-9a: UMTS850 band, Spurious Conducted Emissions, Middle Channel

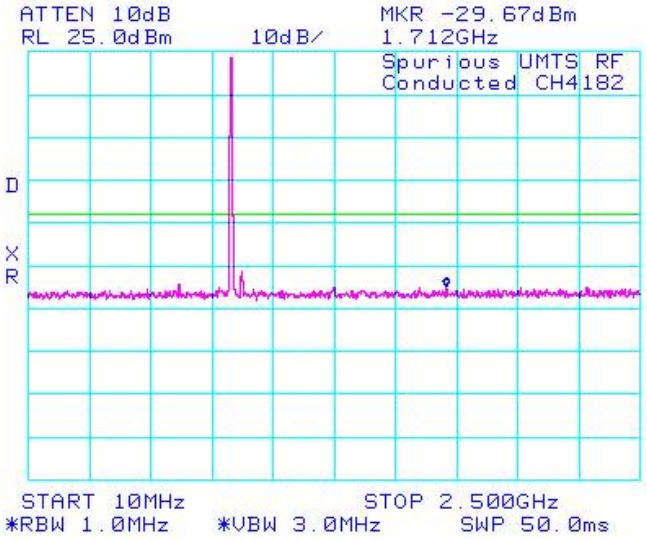
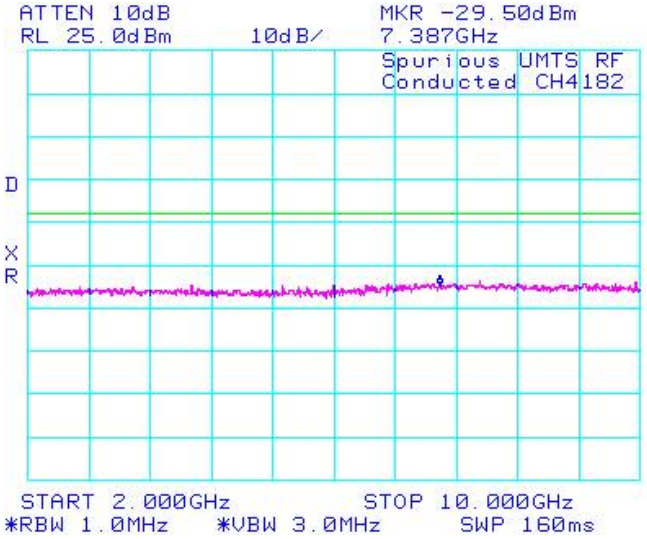


Figure 1-10a: UMTS850 band, Spurious Conducted Emissions, Middle Channel



WCDMA Conducted RF Emission Test Data cont'd

Figure 1-11a: UMTS850 band, Spurious Conducted Emissions, High Channel

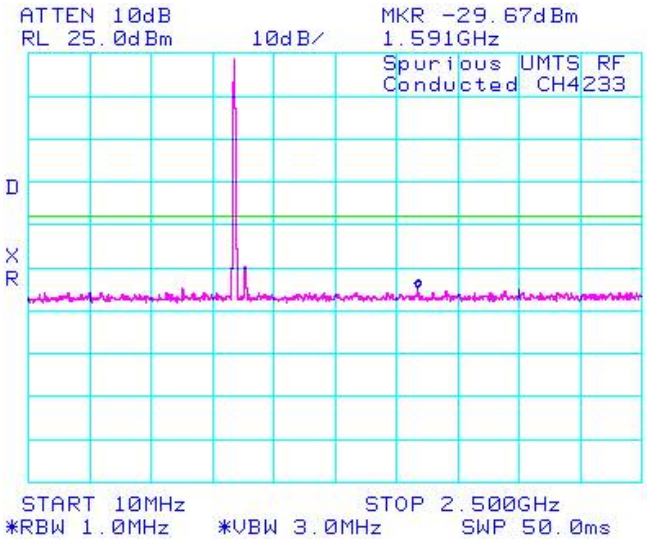


Figure 1-12a: UMTS850 band, Spurious Conducted Emissions, High Channel

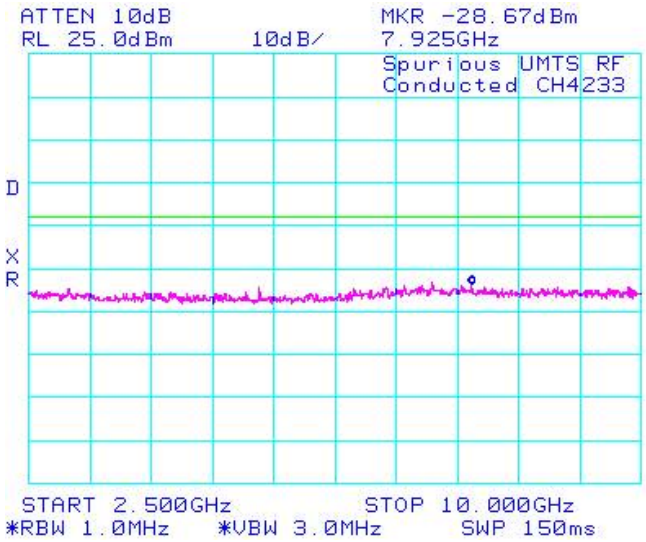


Figure 1-7a: UMTS1900 band, Spurious Conducted Emissions, Low Channel

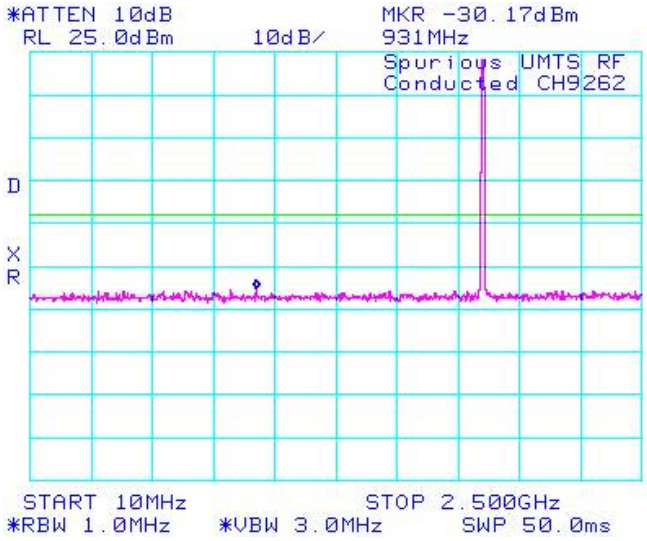
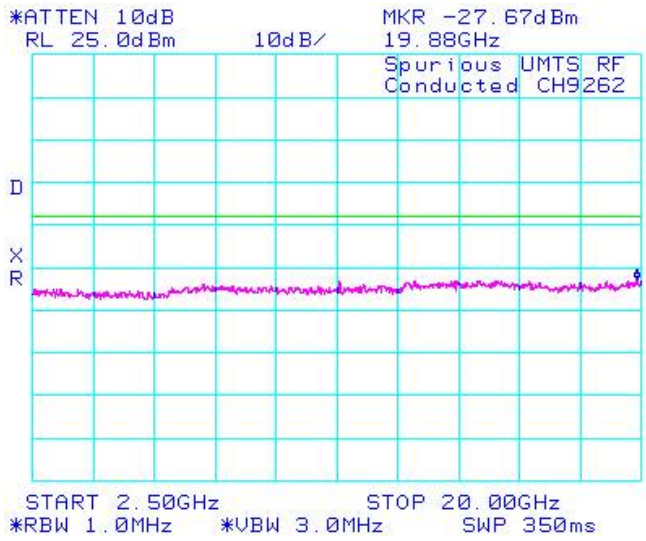


Figure 1-8a: UMTS1900 band, Spurious Conducted Emissions, Low Channel



WCDMA Conducted RF Emission Test Data cont'd

Figure 1-9a: UMTS1900 band, Spurious Conducted Emissions, Middle Channel

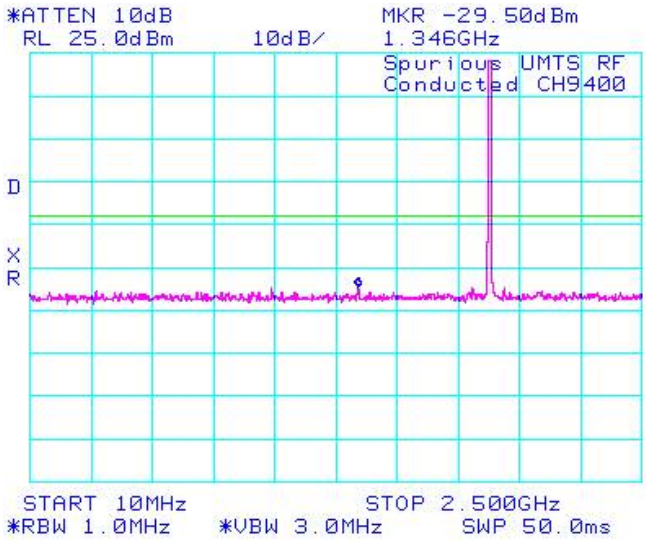


Figure 1-10a: UMTS1900 band, Spurious Conducted Emissions, Middle Channel

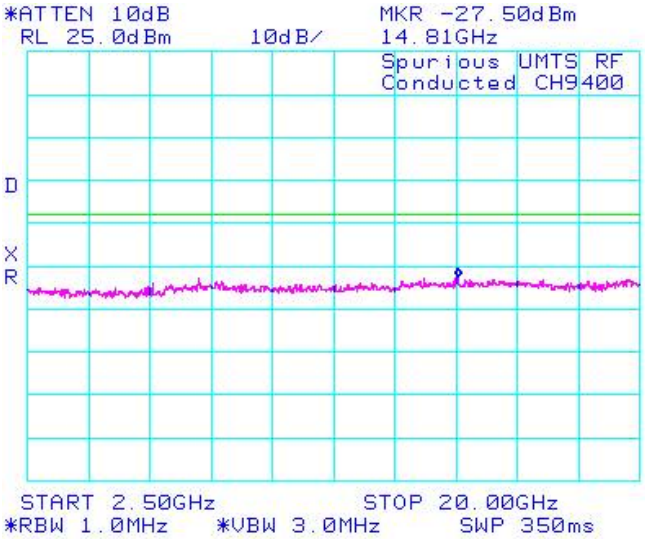


Figure 1-11a: UMTS1900 band, Spurious Conducted Emissions, High Channel

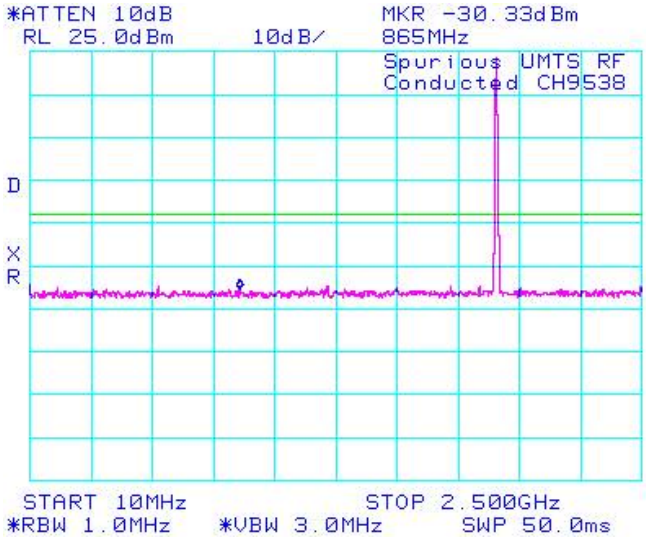
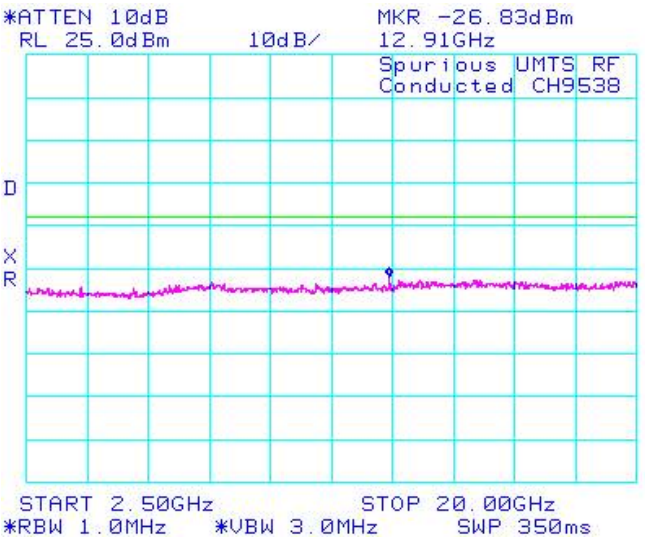


Figure 1-12a: UMTS1900 band, Spurious Conducted Emissions, High Channel



WCDMA Conducted RF Emission Test Data cont'd

Figure 1-13a: -26dBc bandwidth, UMTS850 band Low Channel

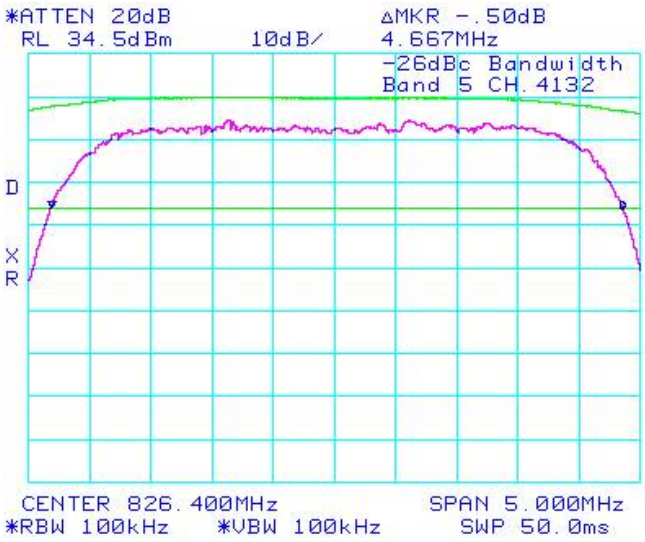


Figure 1-14a: Occupied Bandwidth, UMTS850 band Low Channel

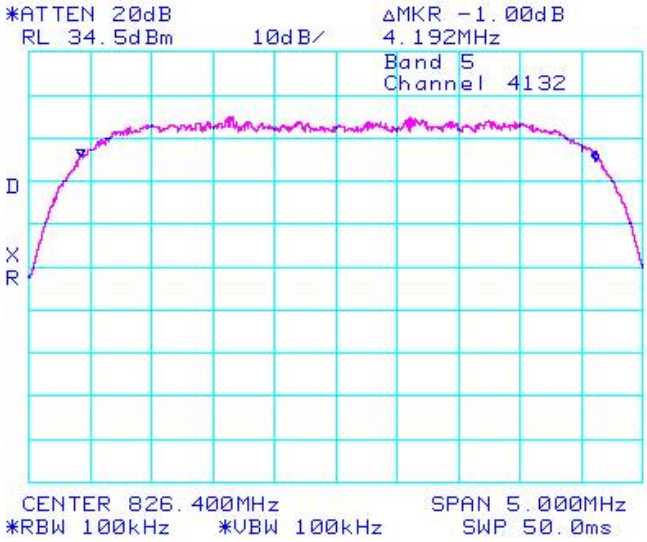
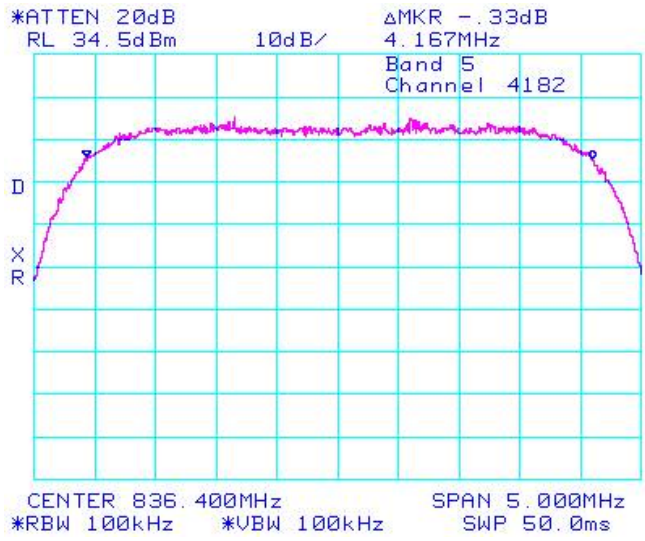


Figure 1-15a: -26dBc bandwidth, UMTS850 band Middle Channel

Figure 1-16a: Occupied Bandwidth, UMTS850 band Middle Channel



WCDMA Conducted RF Emission Test Data cont'd

Figure 1-17a: -26dBc bandwidth, UMTS850 band High Channel

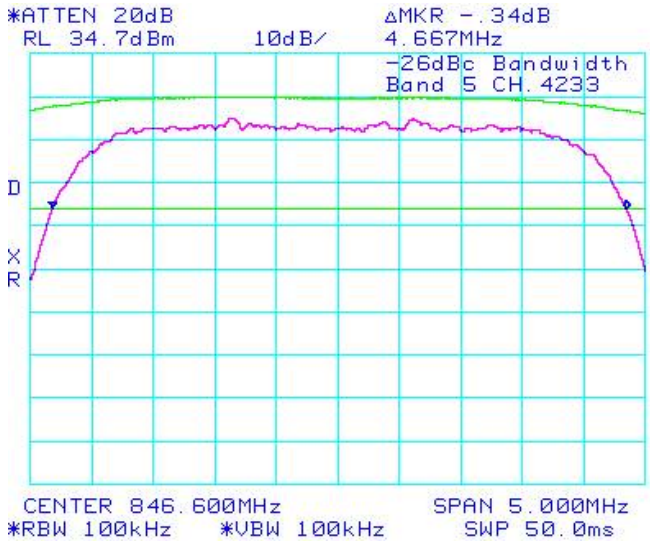


Figure 1-18a: Occupied Bandwidth, UMTS850 band High Channel

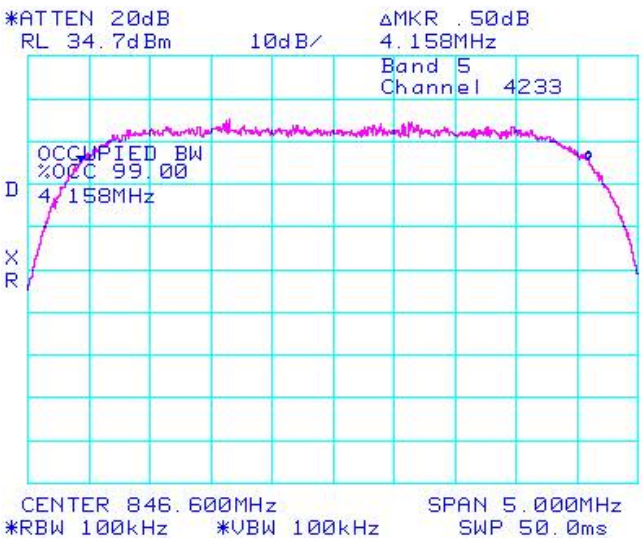


Figure 1-19a: -26dBc bandwidth, UMTS1900 band Low Channel

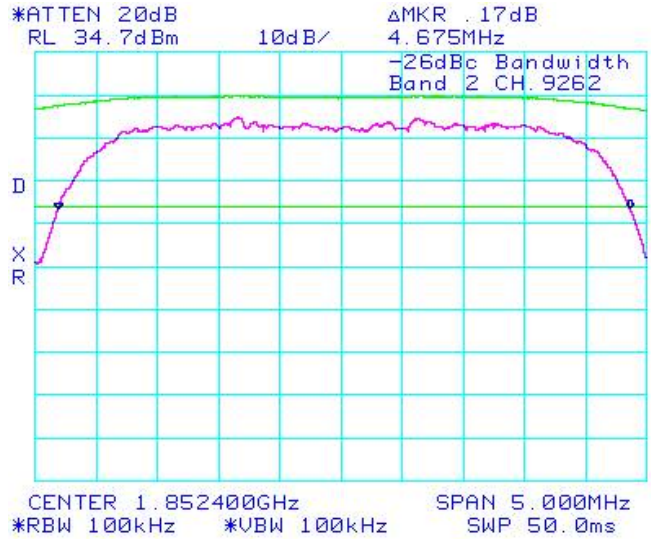
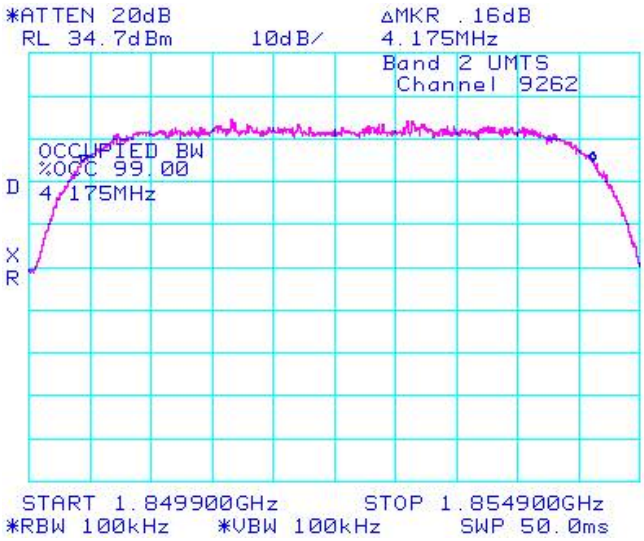


Figure 1-20a: Occupied Bandwidth, UMTS1900 band Low Channel



WCDMA Conducted RF Emission Test Data cont'd

Figure 1-21a: -26dBc bandwidth, UMTS1900 band Middle Channel

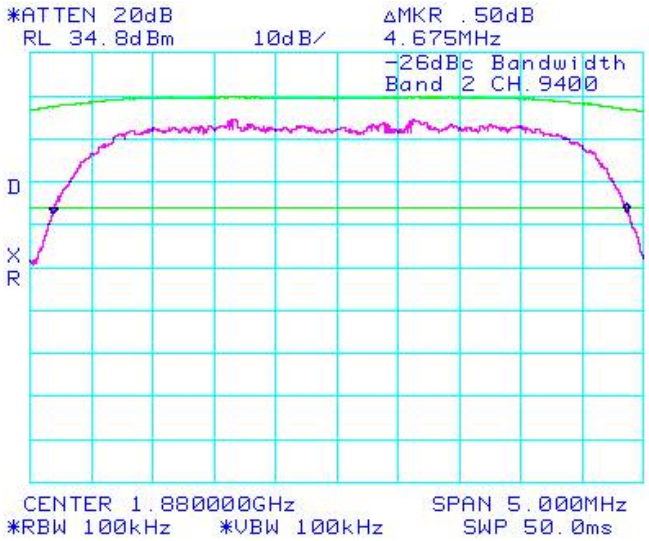


Figure 1-22a: Occupied Bandwidth, UMTS1900 band Middle Channel

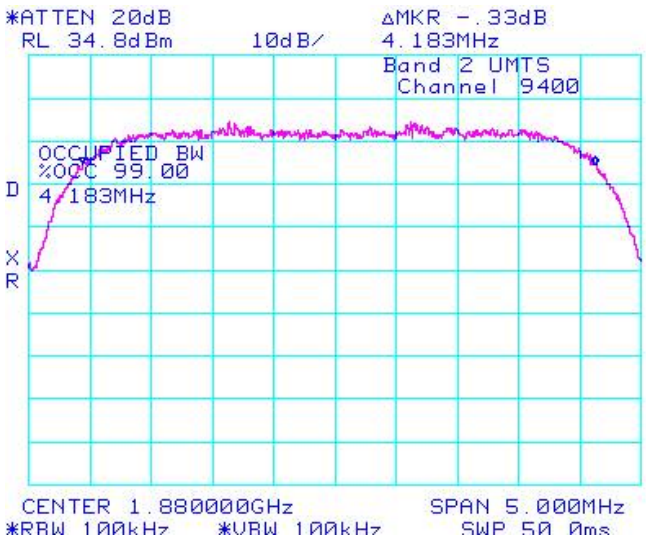


Figure 1-23a: -26dBc bandwidth, UMTS1900 band High Channel

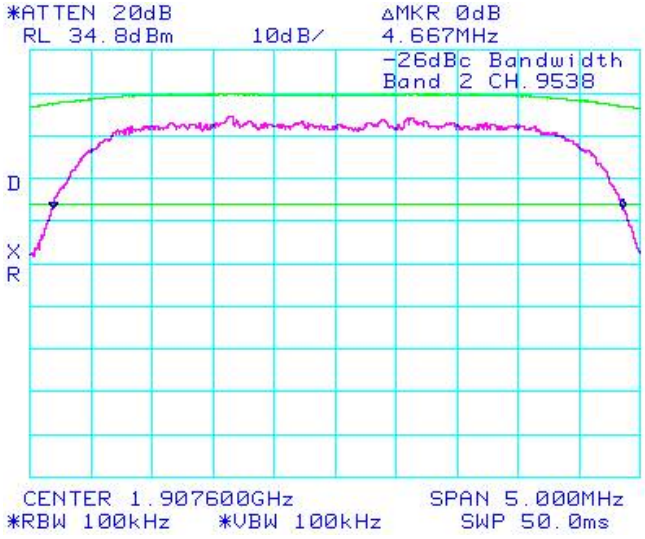
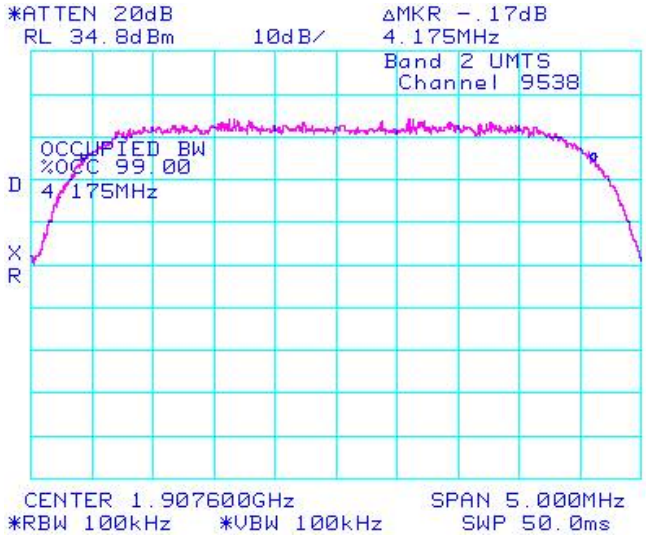


Figure 1-24a: Occupied Bandwidth, UMTS1900 band High Channel



WCDMA Conducted RF Emission Test Data cont'd

Figure 1-25a: UMTS850 band, Low Channel Mask

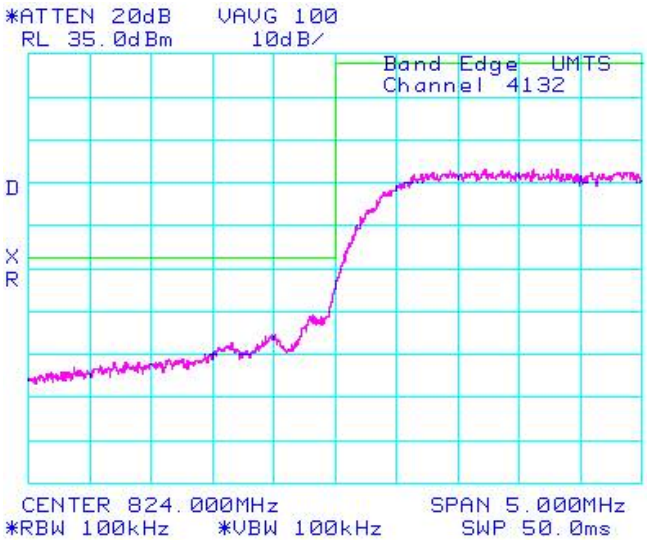


Figure 1-26a: UMTS850 band High Channel Mask

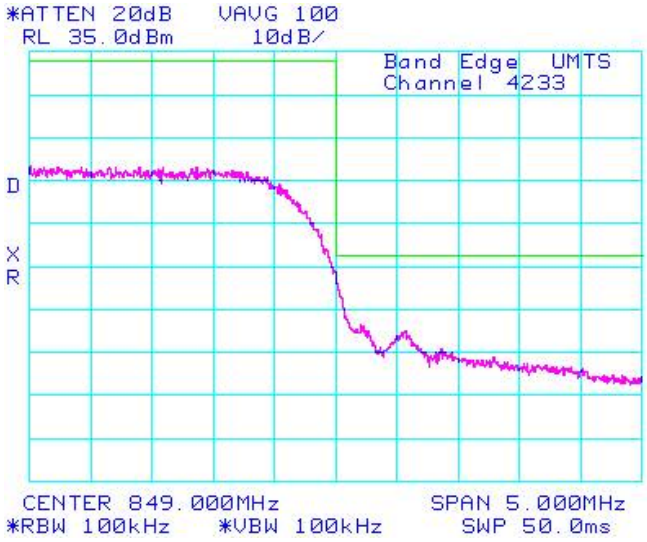


Figure 1-27a: UMTS1900 band, Low Channel Mask

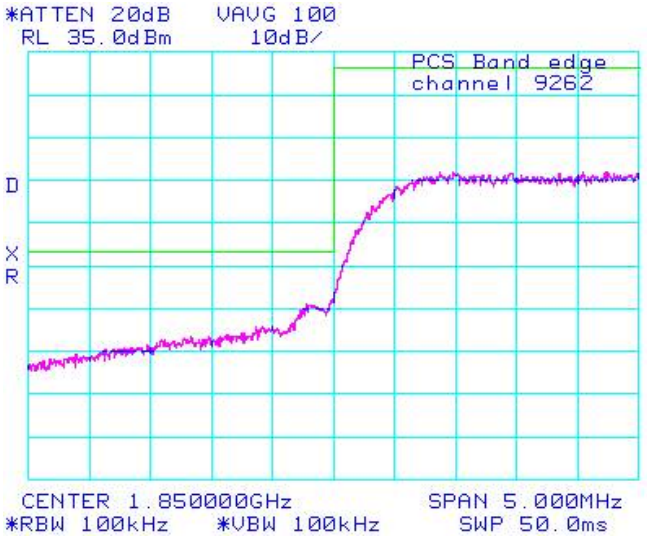
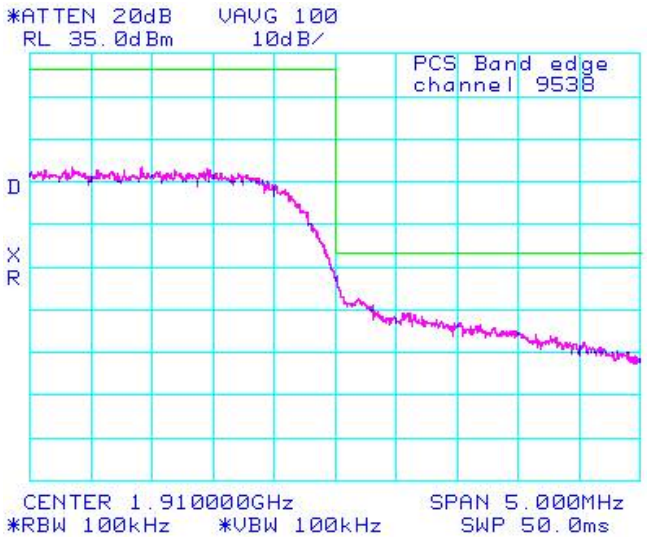


Figure 1-28a: UMTS1900 band, High Channel Mask



APPENDIX 2A – GSM CONDUCTED RF OUTPUT POWER TEST DATA

GSM Conducted RF Output Power Test Data

The following measurements were performed by Daoud Attayi.

The conducted RF output power was measured on the BlackBerry® smartphone PIN 210BAA6C 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 31.5 dBm ±0.5 dB for GSM850 and 30.0 dBm ±0.5 dB for PCS. Peak nominal output power is 29.5 dBm ±0.5 dB for GSM850 EDGE Mode (2-timeslot uplink) and 28.0 dBm ±0.5 dB for PCS EDGE Mode (2-timeslot uplink).

Date of Test: July 15, 2009

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	31.6	1.45	128	824.20	29.6	0.91
189	837.60	31.7	1.48	189	837.60	29.7	0.93
251	848.80	31.7	1.48	251	848.80	29.9	0.98
PCS				PCS EDGE/GPRS/GSM (2-timeslot)			
512	1850.2	30.5	1.12	512	1850.2	28	0.63
661	1880.0	30.4	1.10	661	1880.0	28	0.63
810	1909.8	30.1	1.02	810	1909.8	27.7	0.59

APPENDIX 2B – WCDMA CONDUCTED RF OUTPUT POWER TEST DATA

WCDMA Conducted RF Output Power Test Data

The following measurements were performed by Daoud Attayi.

The conducted RF output power was measured on the BlackBerry® smartphone PIN 211A0A31 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 23.5 dBm ±0.5 dB for UMTS850 and 22.5 dBm ±0.5 dB for UMTS1900.

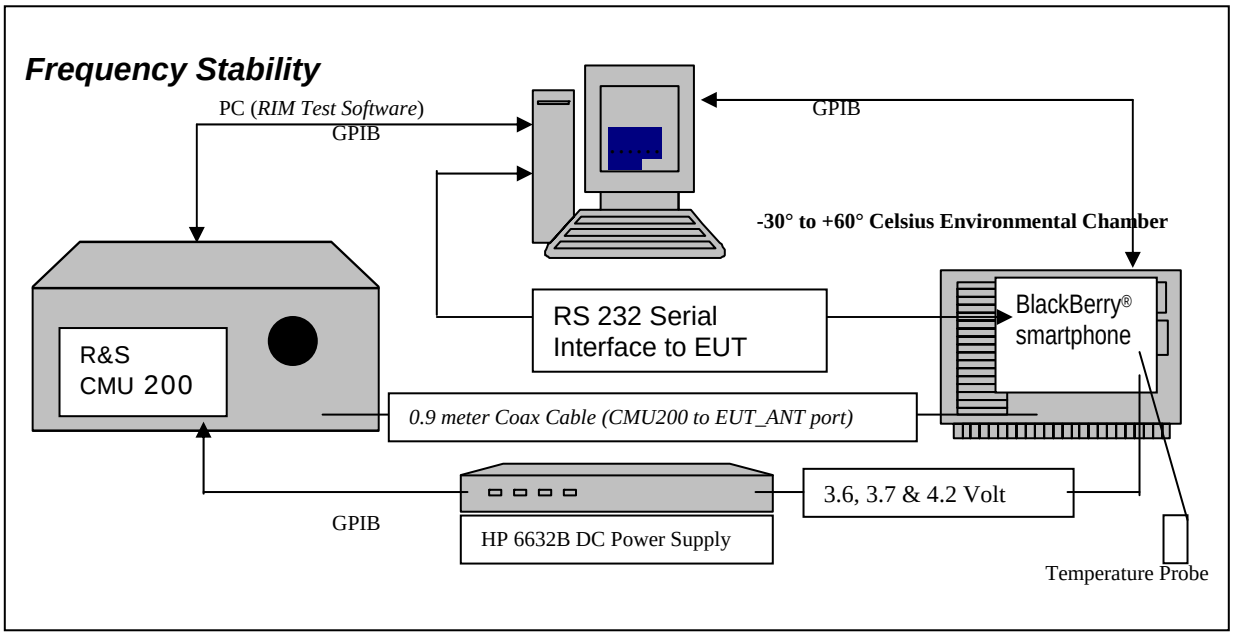
Date of Test: August 28, 2009

The environmental tests conditions were: Temperature: 22 °C
Pressure: 1009 mb
Relative Humidity: 32 %

	Band	**UMTS850**			**UMTS1900**		
	Channel	4132	4182	4233	9262	9400	9538
	Freq (MHz)	826.4	836.4	846.6	1852.4	1880.0	1907.6
Mode	**Subtest**	**Conducted Transmit Power (dBm)**			**Conducted Transmit Power (dBm)**		
Rel99	12.2 kbps RMC	23.48	23.42	23.54	22.30	22.40	22.50
Rel99	12.2 kbps AMR, SRB 3.4 kbps	23.47	23.42	23.53	22.40	22.50	22.60
Rel5 HSDPA	1	23.30	23.20	23.30	22.20	22.40	22.50
Rel5 HSDPA	2	23.20	23.30	23.40	22.10	22.30	22.40
Rel5 HSDPA	3	23.10	23.10	23.30	22.00	22.20	22.60
Rel5 HSDPA	4	23.20	23.10	23.30	22.05	22.30	22.30

APPENDIX 3 – WCDMA FREQUENCY STABILITY TEST DATA

WCDMA Frequency Stability Test Data



The following measurements were performed by Maurice Battler.

CFR 47 Chapter 1 - Federal Communications Commission Rules

Part 2 Required Measurements
2.1055 Frequency Stability - Procedures
(a,b) Frequency Stability - Temperature Variation
(d) Frequency Stability - Voltage Variation

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

The EUT meets the requirements as stated in CFR 47 chapter 1, Section 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:

UMTS1900 Frequency (MHz)	Cable loss (dB)
1852.4	1.20
1880.0	1.20
1907.6	1.20

UMTS850 Frequency (MHz)	Cable loss (dB)
826.4	0.90
836.4	0.90
846.6	0.90

Procedure:

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

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

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

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

The EUT output power and frequency was measured at 3.6 volts, 3.7 volts and 4.2 volts. The transmit frequency was varied in 3 steps consisting of 826.4, 836.4, and 846.6 MHz for the UMTS850 band, 1852.4, 1880.0 and 1907.6 MHz for the UMTS1900 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 UMTS850 band measured was **0.0339 PPM**.
The maximum frequency error in the UMTS1900 band measured was **-0.0150 PPM.**

UMTS850 Channel results: channels 4132, 4182 and 4233 @ 20°C maximum transmitted power

The BlackBerry® smartphone PIN 210B4F98 was tested on August 19, 2009.

Traffic Channel Number	UMTS850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.4	3.6	20	6.18	0.0075
4182	836.4	3.6	20	9.70	0.0116
4233	846.6	3.6	20	2.82	0.0033

Traffic Channel Number	UMTS850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.4	3.7	20	-7.52	-0.0091
4182	836.4	3.7	20	13.47	0.0161
4233	846.6	3.7	20	7.52	0.0089

Traffic Channel Number	UMTS850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.4	4.2	20	-2.18	-0.0026
4182	836.4	4.2	20	-11.41	-0.0136
4233	846.6	4.2	20	7.51	0.0089

UMTS850 Results: channel 4132 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.4	3.6	-30	21.00	0.0254
4132	826.4	3.6	-20	-15.06	-0.0182
4132	826.4	3.6	-10	-11.80	-0.0143
4132	826.4	3.6	0	-3.37	0.0086
4132	826.4	3.6	10	-4.78	-0.0058
4132	826.4	3.6	20	6.18	0.0075
4132	826.4	3.6	30	-12.63	-0.0153
4132	826.4	3.6	40	-4.47	-0.0054
4132	826.4	3.6	50	6.12	0.0074
4132	826.4	3.6	60	-10.03	-0.0121

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.4	3.7	-30	28.00	0.0335
4132	826.4	3.7	-20	7.84	0.0094
4132	826.4	3.7	-10	8.01	0.0096
4132	826.4	3.7	0	13.52	-0.0078
4132	826.4	3.7	10	3.56	0.0043
4132	826.4	3.7	20	9.70	0.0116
4132	826.4	3.7	30	-3.92	-0.0047
4132	826.4	3.7	40	10.93	0.0131
4132	826.4	3.7	50	13.43	0.0161
4132	826.4	3.7	60	5.37	0.0064

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.4	4.2	-30	25.00	0.0295
4132	826.4	4.2	-20	-2.70	-0.0032
4132	826.4	4.2	-10	6.39	0.0076
4132	826.4	4.2	0	5.34	0.0231
4132	826.4	4.2	10	-8.47	-0.0100
4132	826.4	4.2	20	2.82	0.0033
4132	826.4	4.2	30	12.22	0.0144
4132	826.4	4.2	40	-8.53	-0.0101
4132	826.4	4.2	50	-7.90	-0.0093
4132	826.4	4.2	60	7.13	0.0084

UMTS850 Results: channel 4182 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4182	836.4	3.6	-30	25.00	0.0303
4182	836.4	3.6	-20	-9.37	-0.0113
4182	836.4	3.6	-10	-13.66	-0.0165
4182	836.4	3.6	0	-12.79	-0.0155
4182	836.4	3.6	10	12.82	0.0155
4182	836.4	3.6	20	-7.52	-0.0091
4182	836.4	3.6	30	11.14	0.0135
4182	836.4	3.6	40	3.74	0.0045
4182	836.4	3.6	50	-10.88	-0.0132
4182	836.4	3.6	60	-5.62	-0.0068

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4182	836.4	3.7	-30	25.00	0.0299
4182	836.4	3.7	-20	4.36	0.0052
4182	836.4	3.7	-10	2.67	0.0032
4182	836.4	3.7	0	8.00	0.0096
4182	836.4	3.7	10	9.20	0.0110
4182	836.4	3.7	20	13.47	0.0161
4182	836.4	3.7	30	-4.43	-0.0053
4182	836.4	3.7	40	7.46	0.0089
4182	836.4	3.7	50	-4.90	-0.0059
4182	836.4	3.7	60	3.10	0.0037

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4182	836.4	4.2	-30	22.00	0.0260
4182	836.4	4.2	-20	-8.91	-0.0105
4182	836.4	4.2	-10	-8.47	-0.0100
4182	836.4	4.2	0	-7.97	-0.0094
4182	836.4	4.2	10	-9.43	-0.0111
4182	836.4	4.2	20	7.52	0.0089
4182	836.4	4.2	30	5.45	0.0064
4182	836.4	4.2	40	-6.61	-0.0078
4182	836.4	4.2	50	16.20	0.0191
4182	836.4	4.2	60	4.87	0.0058

UMTS850 Results: channel 4233 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4233	846.6	3.6	-30	28.00	**0.0339**
4233	846.6	3.6	-20	-14.82	-0.0179
4233	846.6	3.6	-10	-7.83	-0.0095
4233	846.6	3.6	0	7.13	0.0086
4233	846.6	3.6	10	18.68	0.0226
4233	846.6	3.6	20	-2.18	-0.0026
4233	846.6	3.6	30	5.78	0.0070
4233	846.6	3.6	40	3.95	0.0048
4233	846.6	3.6	50	11.95	0.0145
4233	846.6	3.6	60	-4.44	-0.0054

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4233	846.6	3.7	-30	24.00	0.0287
4233	846.6	3.7	-20	9.09	0.0109
4233	846.6	3.7	-10	14.85	0.0178
4233	846.6	3.7	0	-6.50	-0.0078
4233	846.6	3.7	10	13.15	0.0157
4233	846.6	3.7	20	-11.41	-0.0136
4233	846.6	3.7	30	16.30	0.0195
4233	846.6	3.7	40	17.94	0.0215
4233	846.6	3.7	50	18.14	0.0217
4233	846.6	3.7	60	9.16	0.0109

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4233	846.6	4.2	-30	23.00	0.0272
4233	846.6	4.2	-20	7.89	0.0093
4233	846.6	4.2	-10	5.95	0.0070
4233	846.6	4.2	0	19.59	0.0231
4233	846.6	4.2	10	3.92	0.0046
4233	846.6	4.2	20	7.51	0.0089
4233	846.6	4.2	30	-2.66	-0.0031
4233	846.6	4.2	40	5.08	0.0060
4233	846.6	4.2	50	1.86	0.0022
4233	846.6	4.2	60	-9.54	-0.0113

UMTS1900 Channel results: channels 9262, 9400, & 9538 @ 20°C maximum transmitted power

Date of Test: August 19, 2009

Traffic Channel Number	UMTS1900 Frequency (MHz	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	*PPM*
9262	1852.4	3.6	20	-11.47	-0.0061
9400	1880.0	3.6	20	10.47	0.0055
9538	1907.6	3.6	20	-12.21	-0.0066

Traffic Channel Number	UMTS1900 Frequency (MHz	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	3.7	20	7.02	0.0037
9400	1880.0	3.7	20	-24.00	-0.0126
9538	1907.6	3.7	20	-12.95	-0.0070

Traffic Channel Number	UMTS1900 Frequency (MHz	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	4.2	20	-8.12	-0.0043
9400	1880.0	4.2	20	-13.69	-0.0072
9538	1907.6	4.2	20	-17.61	-0.0095

UMTS1900 Results: channel 9262 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	3.6	-30	-14.01	-0.0076
9262	1852.4	3.6	-20	-21.09	-0.0114
9262	1852.4	3.6	-10	-12.41	-0.0067
9262	1852.4	3.6	0	-12.21	-0.0070
9262	1852.4	3.6	10	-12.59	-0.0068
9262	1852.4	3.6	20	-18.45	-0.0100
9262	1852.4	3.6	30	-17.61	-0.0095
9262	1852.4	3.6	40	-25.63	-0.0138
9262	1852.4	3.6	50	-16.01	-0.0086
9262	1852.4	3.6	60	-16.48	-0.0089

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	3.7	-30	-8.00	-0.0043
9262	1852.4	3.7	-20	-15.53	-0.0083
9262	1852.4	3.7	-10	3.95	0.0021
9262	1852.4	3.7	0	7.02	-0.0043
9262	1852.4	3.7	10	12.05	0.0064
9262	1852.4	3.7	20	-11.47	-0.0061
9262	1852.4	3.7	30	-11.09	-0.0059
9262	1852.4	3.7	40	-13.05	-0.0069
9262	1852.4	3.7	50	-18.81	-0.0100
9262	1852.4	3.7	60	-18.48	-0.0098

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	4.2	-30	-26.57	-0.0139
9262	1852.4	4.2	-20	-15.53	-0.0081
9262	1852.4	4.2	-10	7.10	0.0037
9262	1852.4	4.2	0	-24.00	-0.0072
9262	1852.4	4.2	10	-6.20	-0.0032
9262	1852.4	4.2	20	10.47	0.0055
9262	1852.4	4.2	30	-23.39	-0.0123
9262	1852.4	4.2	40	-13.38	-0.0070
9262	1852.4	4.2	50	-5.08	-0.0027
9262	1852.4	4.2	60	-19.24	-0.0101

UMTS1900 Results: channel 9400 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9400	1880.0	3.6	-30	-10.62	-0.0057
9400	1880.0	3.6	-20	-9.37	-0.0051
9400	1880.0	3.6	-10	-22.25	-0.0120
9400	1880.0	3.6	0	-17.17	-0.0093
9400	1880.0	3.6	10	-21.96	-0.0119
9400	1880.0	3.6	20	-12.21	-0.0066
9400	1880.0	3.6	30	-26.79	-0.0145
9400	1880.0	3.6	40	-17.17	-0.0093
9400	1880.0	3.6	50	-16.05	-0.0087
9400	1880.0	3.6	60	-19.47	-0.0105

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9400	1880.0	3.7	-30	-9.83	-0.0052
9400	1880.0	3.7	-20	-15.47	-0.0082
9400	1880.0	3.7	-10	-8.27	-0.0044
9400	1880.0	3.7	0	-14.22	-0.0076
9400	1880.0	3.7	10	12.42	0.0066
9400	1880.0	3.7	20	7.02	0.0037
9400	1880.0	3.7	30	-17.14	-0.0091
9400	1880.0	3.7	40	-14.22	-0.0076
9400	1880.0	3.7	50	-7.11	-0.0038
9400	1880.0	3.7	60	-5.40	-0.0029

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9400	1880.0	4.2	-30	-22.22	-0.0116
9400	1880.0	4.2	-20	-12.01	-0.0063
9400	1880.0	4.2	-10	-14.42	-0.0076
9400	1880.0	4.2	0	-9.12	-0.0048
9400	1880.0	4.2	10	-17.52	-0.0092
9400	1880.0	4.2	20	-24.00	-0.0126
9400	1880.0	4.2	30	-3.80	-0.0020
9400	1880.0	4.2	40	-9.12	-0.0048
9400	1880.0	4.2	50	-22.69	-0.0119
9400	1880.0	4.2	60	-25.10	-0.0132

UMTS1900 Results: channel 9538 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9538	1907.6	3.6	-30	-23.67	-0.0128
9538	1907.6	3.6	-20	-25.02	-0.0135
9538	1907.6	3.6	-10	-19.91	-0.0107
9538	1907.6	3.6	0	-12.95	-0.0070
9538	1907.6	3.6	10	-16.24	-0.0088
9538	1907.6	3.6	20	-12.95	-0.0070
9538	1907.6	3.6	30	-13.40	-0.0072
9538	1907.6	3.6	40	-8.73	-0.0047
9538	1907.6	3.6	50	-27.76	**-0.0150**
9538	1907.6	3.6	60	-21.32	-0.0115

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9538	1907.6	3.7	-30	8.33	0.0044
9538	1907.6	3.7	-20	-14.28	-0.0076
9538	1907.6	3.7	-10	-8.85	-0.0047
9538	1907.6	3.7	0	-8.12	-0.0043
9538	1907.6	3.7	10	17.36	0.0092
9538	1907.6	3.7	20	-8.12	-0.0043
9538	1907.6	3.7	30	-6.24	-0.0033
9538	1907.6	3.7	40	-13.81	-0.0073
9538	1907.6	3.7	50	-17.03	-0.0091
9538	1907.6	3.7	60	8.10	0.0043

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9538	1907.6	4.2	-30	-9.67	-0.0051
9538	1907.6	4.2	-20	-11.02	-0.0058
9538	1907.6	4.2	-10	-12.12	-0.0064
9538	1907.6	4.2	0	-13.69	-0.0072
9538	1907.6	4.2	10	-8.94	-0.0047
9538	1907.6	4.2	20	-13.69	-0.0072
9538	1907.6	4.2	30	-15.87	-0.0083
9538	1907.6	4.2	40	-6.30	-0.0033
9538	1907.6	4.2	50	-8.44	-0.0044
9538	1907.6	4.2	60	-16.11	-0.0084

APPENDIX 4A – GSM RADIATED EMISSIONS TEST DATA

Radiated Power Test Data Results

The following measurements were performed by Kevin Rose.

Date of test: July 20, 2009
The environmental tests conditions were: Temperature: 25 °C
Pressure: 1007 mb
Relative Humidity: 23 %

The BlackBerry® smartphone PIN 210BAA24 was in standalone, USB up position.
Test distance is 3.0 metres.

GSM850 Band

GSM Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method Tracking Generator					
Type	Ch	Frequency (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	75.79	86.83	V-V	13.55	28.59	0.72	38.50	-9.91
F0	128	824.20	850	Dipole	H	86.83		H-H	12.16				
F0	195	837.60	850	Dipole	V	75.83	86.06	V-V	14.10	29.78	0.95	38.50	-8.72
F0	195	837.60	850	Dipole	H	86.06		H-H	11.02				
F0	251	848.80	850	Dipole	V	75.77	86.77	V-V	14.62	**30.11**	1.03	38.50	-8.39
F0	251	848.80	850	Dipole	H	86.77		H-H	12.16				

EDGE Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	128	824.20	850	Dipole	V	73.25	83.54	V-V	10.26	25.30	0.34	38.50	-13.20
F0	128	824.20	850	Dipole	H	83.54		H-H	8.87				
F0	195	837.60	850	Dipole	V	73.45	82.37	V-V	10.41	26.09	0.41	38.50	-12.41
F0	195	837.60	850	Dipole	H	82.37		H-H	7.33				
F0	251	848.80	850	Dipole	V	72.93	83.85	V-V	11.70	**27.19**	0.52	38.50	-11.31
F0	251	848.80	850	Dipole	H	83.85		H-H	9.24				

Radiated Power Test Data Results cont'd

The following measurements were performed by Kevin Rose.

Date of tests: September 1, 2009
The environmental tests conditions were: Temperature: 23 °C
Pressure: 1023 mb
Relative Humidity: 31 %

The BlackBerry® smartphone PIN 2117948C was in standalone, USB up position
Test distance is 3.0 metres.

PCS1900 Band

GSM Mode

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	512	1850.20	1900	Horn	V	91.44	91.44	V-V	-7.66	29.62	0.92	33.00	-3.38
F0	512	1850.20	1900	Horn	H	80.07		H-H	-6.76				
F0	661	1880.00	1900	Horn	V	92.11	92.11	V-V	-6.36	30.34	1.08	33.00	-2.66
F0	661	1880.00	1900	Horn	H	82.16		H-H	-5.94				
F0	810	1909.80	1900	Horn	V	92.57	92.57	V-V	-6.30	**30.80**	1.20	33.00	-2.20
F0	810	1909.80	1900	Horn	H	83.69		H-H	-5.52				

EDGE Mode

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	512	1850.20	1900	Horn	V	89.42	89.42	V-V	-9.66	27.64	0.58	33.00	-5.36
F0	512	1850.20	1900	Horn	H	78.46		H-H	-8.74				
F0	661	1880.00	1900	Horn	V	90.21	90.21	V-V	-8.24	28.48	0.70	33.00	-4.52
F0	661	1880.00	1900	Horn	H	80.45		H-H	-7.80				
F0	810	1909.80	1900	Horn	V	90.26	90.26	V-V	-8.57	**28.51**	0.71	33.00	-4.49
F0	810	1909.80	1900	Horn	H	78.71		H-H	-7.81				

Radiated Emissions Test Data Results

GSM850

GSM Mode

The following measurements were performed by Kevin Rose.

Date of Test: July 10 – 13, 2009
The environmental test conditions were: Temperature: 24 ºC
Pressure: 1011 – 1014 mb
Relative Humidity: 30 %

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 210BAA24 was in standalone, vertical position.

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

All emissions had a test margin greater than 25.0 dB.

The following measurements were performed by Heng Lin.

Date of Test: July 13 – 14 and August 13, 2009
The environmental test conditions were: Temperature: 25 – 27 ºC
Pressure: 1014 – 1018 mb
Relative Humidity: 26 – 31 %

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

The measurements were performed in GSM Tx mode on channels 128 and 251 for BlackBerry® smartphone PIN 210BAA2E, and on channel 195 for BlackBerry® smartphone PIN 211A6E0A.

BlackBerry® smartphone PIN 210BAA2E										
Frequency (MHz)	Channel Of Occurrence	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)
1648.606	128	H	1.00	338.00	PK	60.89	-91.98	-31.10	-13.00	**-18.10**
1697.564	251	H	1.00	342.00	PK	60.78	-92.61	-31.83	-13.00	-18.83

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

Radiated Emissions Test Data Results cont'd

GSM850

EDGE Mode

The following measurements were performed by Fahd Faisal.

Date of Test: July 13, 2009
The environmental test conditions were: Temperature: 24 ºC
Pressure: 1011 mb
Relative Humidity: 30 %

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 210BAA24 was in standalone, vertical upright position.

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

All emissions had a test margin greater than 25.0 dB

The following measurements were performed by Heng Lin.

Date of Test: July 14, 2009
The environmental test conditions were: Temperature: 25 ºC
Pressure: 1018 mb
Relative Humidity: 27 %

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 9 GHz.
The BlackBerry® smartphone PIN 210BA9E8 was in standalone, horizontal position.

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

Frequency (MHz)	Channel Of Occurrence	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)
1648.494	128	H	1.00	139.00	PK	56.30	-91.98	-35.68	-13.00	-22.68
1675.449	195	H	1.00	146.00	PK	58.80	-92.32	-33.52	-13.00	**-20.52**
1697.580	251	H	1.00	318.00	PK	57.04	-92.61	-35.57	-13.00	-22.57

All other emissions had a test margin greater than 25.0 dB

Radiated Emissions Test Data Results cont'd

PCS1900

GSM Mode

The following measurements were performed by Andrew Fleming.

Date of Test: July 23, 2009
The environmental test conditions were: Temperature: 23 ºC
Pressure: 1010 mb
Relative Humidity: 30 %

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 210BAA24 was in standalone, vertical position.

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

All emissions had a test margin greater than 25.0 dB.

The following measurements were performed by Heng Lin.

Date of Test: July 13 and 17, 2009
The environmental test conditions were: Temperature: 25 – 26 ºC
Pressure: 1007 – 1013 mb
Relative Humidity: 24 – 29 %

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

The measurements were performed in PCS1900 Tx mode on channels 512, 661 and 810 for the BlackBerry® smartphone PIN 210BAA2E from 1 GHz to 18 GHz and for the BlackBerry® smartphone PIN 210BAA24 from 18GHz to 20 GHz.

BlackBerry® smartphone PIN 210BAA2E										
Frequency (MHz)	Channel Of Occurrence	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)
1673.718	512	V	1.00	200.00	PK	59.48	-96.44	-36.96	-13.00	-23.96
2026.474	512	V	1.00	259.00	PK	53.59	-90.87	-37.28	-13.00	-24.28
3699.872	512	V	1.00	232.00	PK	46.21	-83.21	-37.00	-13.00	-24.00
1700.833	661	V	1.00	274.00	PK	60.92	-96.19	-35.27	-13.00	**-22.27**
2059.038	661	V	1.00	299.00	PK	53.60	-90.32	-36.72	-13.00	-23.72
3759.840	661	V	3.02	325.00	PK	45.11	-83.37	-38.26	-13.00	-25.26
1743.526	810	V	1.00	208.00	PK	59.43	-95.82	-36.40	-13.00	-23.40
2076.074	810	V	1.26	259.00	PK	53.81	-90.74	-36.93	-13.00	-23.93

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

Radiated Emissions Test Data Results cont'd

PCS1900

EDGE Mode

The following measurements were performed by Andrew Fleming.

Date of Test: July 13, 2009
The environmental test conditions were: Temperature: 23 ºC
Pressure: 1010 mb
Relative Humidity: 30 %

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 210BAA24 was in standalone, vertical position.

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

All emissions had a test margin greater than 25.0 dB.

The following measurements were performed by Steven Wang.

Date of Test: July 15 – 17, and August 13 – 19, 2009
The environmental test conditions were: Temperature: 25 – 28 ºC
Pressure: 1007 – 1018 mb
Relative Humidity: 27 – 31 %

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

The measurements were performed in PCS1900 EDGE Tx mode on channel 512 for the BlackBerry® smartphone PIN 211A6E0A, and on channels 661 and 810 for the BlackBerry® smartphone PIN 210BAA2E. The BlackBerry® smartphone PIN 210BA9E8 was also tested on channel 810 from 18 GHz to 20 GHz.

BlackBerry® smartphone PIN 211A6E0A										
Frequency (MHz)	Channel Of Occurrence	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)
3700.545	512	H	1.00	221.00	PK	47.63	-81.64	-34.01	-13.00	**-21.01**
BlackBerry® smartphone PIN 210BAA2E										
1701.138	661	V	1.00	74.00	PK	58.77	-96.18	-37.41	-13.00	-24.41

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

APPENDIX 4B – WCDMA RADIATED EMISSIONS TEST DATA

Radiated Power Test Data Results

The following measurements were performed by Andrew Fleming.

Date of tests: July 20, 2009
The environmental tests conditions were: Temperature: 25 °C
Pressure: 1007 mb
Relative Humidity: 23 %

The BlackBerry® smartphone PIN 210BAA24 was in standalone, USB down position.
Test distance is 3.0 metres

WCDMA Band

UMTS850 Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	4132	826.40	UMTS 850	Dipole	V	70.8	80.28	V-V	7.75	22.80	0.19	33.00	-10.20
F0	4132	826.40	UMTS 850	Dipole	H	80.28		H-H	5.47				
F0	4182	836.40	UMTS 850	Dipole	V	69.51	80.56	V-V	8.47	23.42	0.22	33.00	-9.58
F0	4182	836.40	UMTS 850	Dipole	H	80.56		H-H	6.19				
F0	4233	846.60	UMTS 850	Dipole	V	71.02	81.16	V-V	9.08	**23.92**	0.25	33.00	-9.08
F0	4233	846.60	UMTS 850	Dipole	H	81.16		H-H	6.79				

UMTS1900 Mode

EUT				Receive Antenna		Spectrum Analyzer		Substitution Method Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	9262	1852.40	UMTS 1900	Horn	V	87.53	87.53	V-V	-11.57	25.68	0.37	33.00	-7.32
F0	9262	1852.40	UMTS 1900	Horn	H	77.06		H-H	-10.70				
F0	9400	1880.00	UMTS 1900	Horn	V	87.32	87.32	V-V	-10.99	26.07	0.40	33.00	-6.93
F0	9400	1880.00	UMTS 1900	Horn	H	76.5		H-H	-10.21				
F0	9538	1907.50	UMTS 1900	Horn	V	87.42	87.42	V-V	-11.26	**26.13**	0.41	33.00	-6.87
F0	9538	1907.50	UMTS 1900	Horn	H	78.57		H-H	-10.19				

Radiated Emissions Test Data Results cont'd

UMTS850

The following measurements were performed by Kevin Rose.

Date of Test: August 13 and 20, 2009
The environmental test conditions were: Temperature: 26 ºC
Pressure: 1001 – 1012 mb
Relative Humidity: 32 %

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 211A6FEB was in standalone, vertical position.

The measurements were performed in UMTS850 Tx mode, on channels 4357, 4407, and 4458.

All emissions had a test margin greater than 25.0 dB.

The following measurements were performed by Heng Lin.

Date of Test: July 16 and August 13, 2009
The environmental test conditions were: Temperature: 25 ºC
Pressure: 1007 – 1018 mb
Relative Humidity: 30 – 31 %

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

The measurements were performed in UMTS Tx mode on channels 4357 and 4458 for BlackBerry® smartphone PIN 210BAA2E, and on channel 4407 for BlackBerry® smartphone PIN 211A6E0A.

All emissions had a test margin greater than 25.0 dB.

Radiated Emissions Test Data Results cont'd

UMTS1900

The following measurements were performed by Fahd Faisal.

Date of Test: August 20, 2009
The environmental test conditions were: Temperature: 26 ºC
Pressure: 1011 mb
Relative Humidity: 31 %

Test Distance was 3.0 metres with a height of 1.0 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 211A6FEB was in standalone, vertical position.

The measurements were performed in UMTS1900 Tx mode on channels 9262, 9400 and 9538.

All emissions had a test margin greater than 25.0 dB.

The following measurements were performed by Heng Lin.

Date of Test: August 11 and 19, 2009
The environmental test conditions were: Temperature: 25 – 26 ºC
Pressure: 1011 – 1013 mb
Relative Humidity: 27 – 30 %

Test Distance was 3.0 metres with a height of 1.0 metres, 1 GHz to 20 GHz.
The BlackBerry® smartphone PIN 211A6E0A was in standalone, USB down position.

The measurements were performed in UMTS1900 Tx mode on channels 9262, 9400 and 9538.

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