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-0552-0804-15_Rev1

PRODUCT MODEL NO:	RBT71UW
TYPE NAME:	BlackBerry® smartphone
FCC ID:	L6ARBT70UW
IC:	2503A-RBT70UW
EMISSION DESIGNATOR (GSM):	243KG7W
EMISSION DESIGNATOR (EDGE):	243KGXW
EMISSION DESIGNATOR (WCDMA):	4M17F9W

This Rev1 test report supersedes the previous version RTS-0552-0804-15 dated 13 May 2008

DATE: 17 May 2008

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Statement of Performance:

The BlackBerry® smartphone, model RBT71UW, part number CER-17671-001 Rev. 2 and accessories when configured and operated per RIM's operation instructions, perform 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 and Tested by:

Maurice Battler
Compliance Specialist
Date: 17 May, 2008

Reviewed by:

Masud S. Attayi, P.Eng.
Team Lead, Regulatory Compliance
Date: 17 May 2008

Approved by:

Paul G. Cardinal, Ph.D.
Director
Date: 17 May 2008

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Table of Contents

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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, 2006
- FCC CFR 47 Part 22, Subpart H, Cellular Radiotelephone Services, Oct. 1, 2006
- FCC CFR 47 Part 24 Subpart E, Broadband PCS, Oct 1. 2006
- 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 Document

1. Document number RTS-0552-RBT71UW-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 RIM Testing Services (RTS) EMI test facility, located at:

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

The testing was performed on March 07 to May 16, 2008.

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The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN
1	RBT71UW	CER-17671-001 Rev. 1	206CE411
2	RBT71UW	CER-17671-001 Rev. 1	206CE13A
3	RBT71UW	CER-17671-001 Rev. 2	206EB117

To view the differences between CER-17671-001 Rev. 1 and CER-17671-001 Rev. 2, see document number RTS-0552-RBT71UW-01.

Only the measurements that may have been impacted by the changes from Rev 1 to Rev 2 were re-measured.

Conducted RF measurements were performed on BlackBerry® smartphone sample 1. Radiated Emission measurements were performed on BlackBerry® smartphone samples 2 and 3.

D. Support Equipment Used for the Testing of the EUT

1) Communication Tester, Rohde & Schwarz, model CMU 200, serial number 837493/073
2) Communication Tester, Rohde & Schwarz, model CMU 200, serial number 102204
3) DC Power Supply, HP, model 6632B, serial number US37472178

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.

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G. Summary of Results

SPECIFICATION		TEST TYPE	RESULT	TEST DATA APPENDIX
FCC CFR 47	IC			
Part 2.1051 Part 22.917 Part 22.901(d)	RSS-132	Conducted Spurious Emissions	Pass	1
Part 2.1051 Part 24.238(a)	RSS-133	Conducted Spurious Emissions	Pass	1
Part 2.202 Part 22.917	RSS-132	Occupied Bandwidth and Channel Mask	Pass	1
Part 2.202 Part 24.238	RSS-133	Occupied Bandwidth and Channel Mask	Pass	1
Part 2.1046(a)	RSS-133 RSS-132	Conducted RF Output Power	Pass	2
Part 2.1055(a)(d) Part 22.917	RSS-132	Frequency Stability vs. Temperature and Voltage	Pass	3
Part 2.1055(a)(d) Part 24.235	RSS-133	Frequency Stability vs. Temperature and Voltage	Pass	3
Part 22, Subpart H	RSS-132	Radiated Spurious/Harmonic Emissions, ERP, LO	Pass	4
Part 24, Subpart E	RSS-133	Radiated Spurious/Harmonic Emissions, EIRP, LO	Pass	4

1) The EUT met the requirements of the Tx Conducted Spurious Emissions requirements in the GSM850 and WCDMA Band V 850 as per 47 CFR 2.1051, CFR 22.917, CFR 22.901(d) and RSS-132. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 10 GHz. See APPENDIX 1 for test data.

2) The EUT met the requirements of the Tx Conducted Spurious Emissions requirements in the PCS1900 and WCDMA Band II 1900 as per 47 CFR 2.1051, CFR 24.238(a) and RSS-133. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz. See APPENDIX 1 for test data

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3) The EUT met the requirements of the Occupied Bandwidth and channel mask requirements in the GSM850 and WCDMA Band V 850 as per 47 CFR 2.202, CFR 22.917 and RSS-132. The EUT was on the low, middle and high channels.
See APPENDIX 1 for test data.

4) The EUT met the requirements of the Occupied Bandwidth and channel mask requirements in the PCS1900 and WCDMA Band II 1900 as per 47 CFR 2.202, CFR 24.238 and RSS-133. The EUT was measured on the low, middle and high channels.
See APPENDIX 1 for test data.

5) The EUT met the requirements of the Conducted RF Output Power requirements for the GSM850, WCDMA850, PCS1900 and WCDMA1900 as per 47 CFR 2.1046(a). The EUT was measured on the low, middle and high channels.
See APPENDIX 2 for the test data.

6) The EUT met the requirements of the Frequency Stability vs. Temperature and Voltage requirements for GSM850 and WCDMA850 as per 47 CFR 2.1055(a), 2.1055(d), CFR 22.917 and RSS-132. 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 3 for the test data.

7) The EUT met the requirements of the Frequency Stability vs. Temperature and Voltage requirements for the PCS1900 and WCDMA1900 as per 47 CFR 2.1055(a), 2.1055(d), 24.235 and RSS-133. 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 3 for the test data.

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8) The radiated spurious emissions/harmonics and ERP/EIRP were measured for GSM850, WCDMA850, PCS1900 and WCDMA1900. For WCDMA both the RMC and HSDPA modes were verified and the worse case mode was tested and reported. The results are within the limits. The EUT was placed on a nonconductive styrofoam table, 100 cm high that was positioned on a remotely controlled turntable. The test distance used between the EUT 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. The maximum emissions level was recorded. Both the horizontal and vertical polarisations of the emissions were measured. The maximum emissions level was recorded. The EUT was then substituted with an antenna placed in the same location as the EUT. 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 polarisations of the emissions were measured.

   The measurements were performed in a semi-anechoic chamber. The semi-anechoic chamber FCC registration number is **778487** and the Industry Canada file number is **2503B-1**. The EUT was measured on the low, middle and high channels.

   The ERP in the GSM850 band was measured on BlackBerry® smartphone, PIN 206CE13A. The highest ERP measured was 28.30 dBm (0.676 W) at 837.6 MHz (channel 195), GSM mode.

   The ERP in the GSM850 band was measured on BlackBerry® smartphone, PIN 206CE13A. The highest ERP measured was 26.46 dBm (0.443 W) at 848.8 MHz (channel 251), EDGE mode.

   The ERP in the WCDMA850 band was measured on BlackBerry® smartphone, PIN 206CE13A. The highest ERP measured was 21.19 dBm (0.132 W) at 846.6 MHz (channel 4233).

   The EIRP in the PCS1900 band was measured on BlackBerry® smartphone, PIN 206CEB117. The highest EIRP measured was 27.89 dBm (0.615 W) at 1880.0 MHz (channel 661), GSM/GPRS mode.

   The EIRP in the PCS1900 band was measured on BlackBerry® smartphone, PIN 206CEB117. The highest EIRP measured was 26.97 dBm (0.498 W) at 1880.0 MHz (channel 661), EDGE mode.

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The EIRP in the WCDMA1900 was measured on BlackBerry® smartphone, PIN 206CEB117. The highest EIRP measured was 23.40 dBm (0.219 W) at 1880 MHz (channel 9400).

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, WCDMA850, PCS, WCDMA1900, GPS, Bluetooth, 802.11b/g and 802.11a.

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.

The radiated carrier harmonics were measured up to the 10th harmonic for low, middle and high channels in the GSM850, WCDMA850, PCS1900 and WCDMA1900 bands. The modes tested were GSM, GPRS, EDGE and WCDMA. Both the horizontal and vertical polarizations were measured. The harmonic emissions above the 8th harmonic were in the noise floor (NF) for the GSM850 band, above the 3rd harmonic for the PCS band, WCDMA band V, and WCDMA band II.

The worst test margin in the GSM850 band for GSM, GPRS and EDGE modes harmonic emissions measured was 13.25 dB below the limit at 6593.60 MHz.

The worst test margin in the WCDMA850 mode harmonic emissions measured was 39.64 dB below the limit at 1693.20 MHz.

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The worst test margin in the PCS band for GSM, GPRS and EDGE modes harmonic emissions measured was 26.09 dB below the limit at 3819.60 MHz.

The worse test margin for WCDMA1900 mode emissions measured was -16.65 dB below the limit at 5773.5 MHz.

The EUT's RF local oscillator (LO) emissions were measured for the GSM850, WCDMA850, PCS1900 and WCDMA1900 bands in the standalone configuration on the low and high channels. Both the horizontal and vertical polarizations were measured. The RF LO emissions were in the NF.

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 4.

Measurement Uncertainty ±4.6 dB

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H. Compliance Test Equipment Used

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Preamplifier	Sonoma	310N/11909A	185831	08-11-21	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	08-11-16	Radiated Emissions
Hybrid Log Antenna	TDK	HLP-3003C	017401	08-08-04	Radiated Emissions
Horn Antenna	TDK	HRN-0118	030101	08-07-26	Radiated Emissions
Horn Antenna	TDK	HRN-0118	030201	09-01-17	Radiated Emissions
Horn Antenna	Emco	3116	2538	08-09-25	Radiated Emissions
Preamplifier	TDK	18-26	030002	08-11-20	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	973	08-12-18	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	974	08-09-28	Radiated Emissions
EMC Analyzer	Aglient	E7405A	US40240226	08-10-01	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	08-12-06	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	102204	09-12-06	RF Conducted Emissions
Spectrum Analyzer	HP	8563E	3745A08112	08-09-22	RF Conducted Emissions
DC Power Supply	HP	6632B	US37472178	08-09-24	RF Conducted Emissions
Environment Monitor	Control Company	1870	230355190	08-12-11	Radiated Emissions
Environment Monitor	Control Company	1870	230355189	08-12-11	RF Conducted Emissions
Temperature Probe	Hart Scientific	61161-302	21352860	08-08-14	Frequency Stability
Environmental Chamber	ESPEC Corp.	SH-240S1	91007118	N/R	Frequency Stability
Signal Generator	Agilent	8648C	4037U03155	09-09-20	Frequency Stability
Power Meter	Agilent	E4419B	GB40202821	08-09-19	Frequency Stability
Power Sensor	Agilent	8481A	MY41095417	08-09-19	Frequency Stability

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APPENDIX 1 - CONDUCTED RF EMISSIONS TEST DATA/PLOTS

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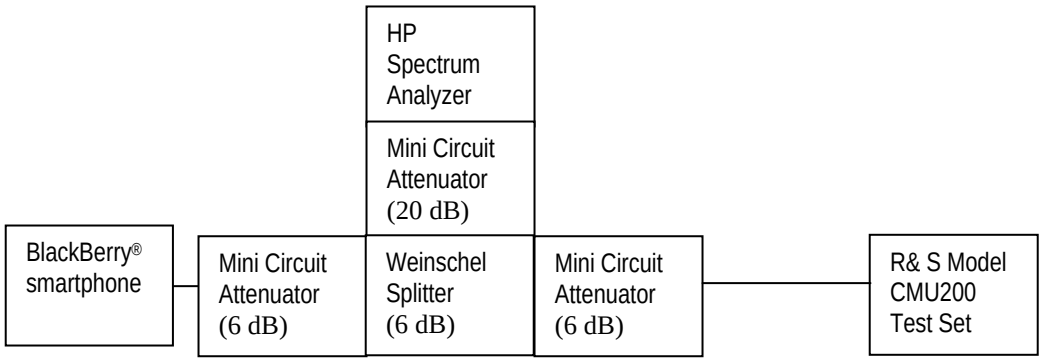
Conducted RF Emission Test Data cont'd

This appendix contains measurement data pertaining to conducted spurious emissions, –26 dBc bandwidth, 99% power bandwidth and the channel mask on BlackBerry® smartphone PIN 206CE411.

Test Setup Diagram



The environmental test conditions were:

Temperature	24ºC
Pressure	1015 mb
Relative Humidity	21%

The measurements were performed by Maurice Battler.

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Conducted RF Emission Test Data cont'd

The conducted spurious emissions – As per 47 CFR 2.1051, CFR 24.238(a), RSS-133, 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 1-1 to 1-12 for the plots of the conducted spurious emissions.

Date of Test: March 11, 2008

–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 268 kHz, and for the PCS1900 band was measured to be 272 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 GSM850 band and PCS1900 band selected Frequencies in GSM mode.

850 band Frequency (MHz)	-26dBc Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
824.2	262	241.7
837.6	265	243.3
848.8	268	240.0

1900 band Frequency (MHz)	-26dBc Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
1850.2	272	241.7
1880.0	268	240.0
1909.8	267	240.0

Measurement Plots for GSM850 and PCS1900 in GSM mode
Refer to the following measurement plots for more detail.
See Figures 1-13 to 1-24 for the plots of the –26dBc Bandwidth and 99% Occupied Bandwidth.
See Figures 1-25 to 1-28 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 11, 2008

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Conducted RF Emission Test Data cont'd

Test Data for GSM850 band and PCS1900 band selected Frequencies in EDGE mode.

850 band Frequency (MHz)	99% Occupied Bandwidth (kHz)
824.2	241.7
837.6	238.3
848.8	243.3

1900 band Frequency (MHz)	99% Occupied Bandwidth (kHz)
1850.2	241.7
1880.0	243.3
1909.8	241.7

Measurement Plots for GSM850 band and PCS1900 band in EDGE mode
Refer to the following measurement plots for more detail.

See Figures 1-29 to 1-34 for the plots of the 99% Occupied Bandwidth.
See Figures 1-35 to 1-38 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 11, 2008

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Conducted RF Emission Test Data cont'd

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

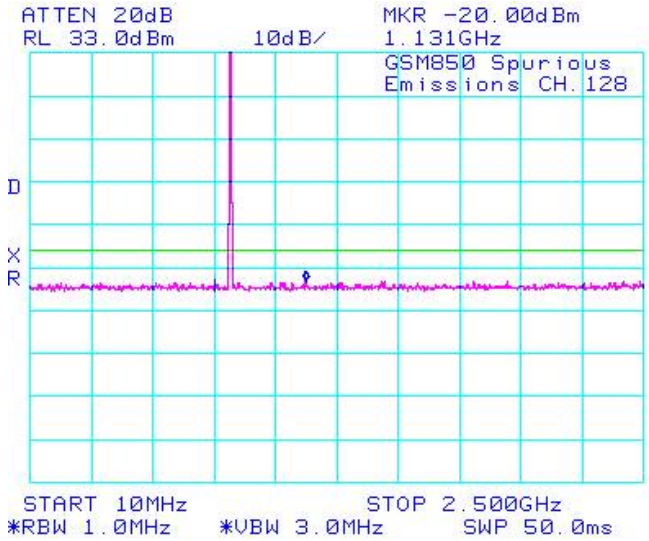


Figure 1-2: GSM850 band, Spurious Conducted Emissions, Low channel

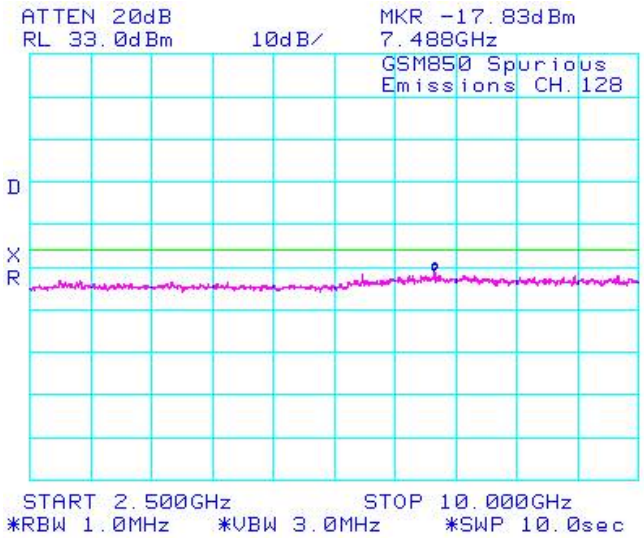


Figure 1-3: GSM850 band, Spurious Conducted Emissions, Middle Channel

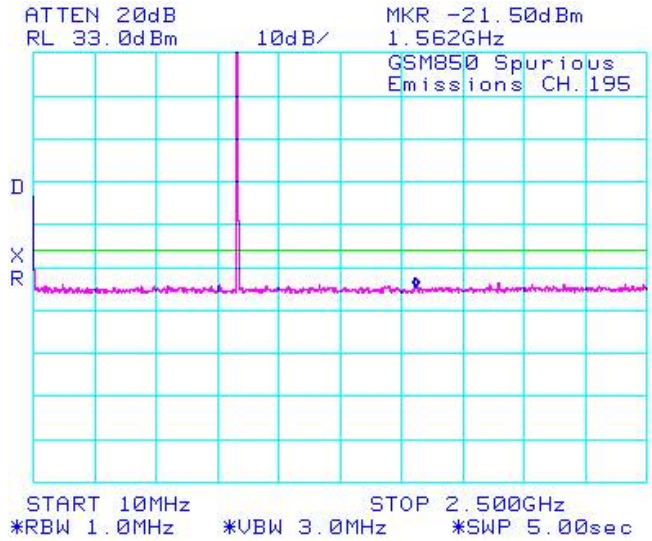
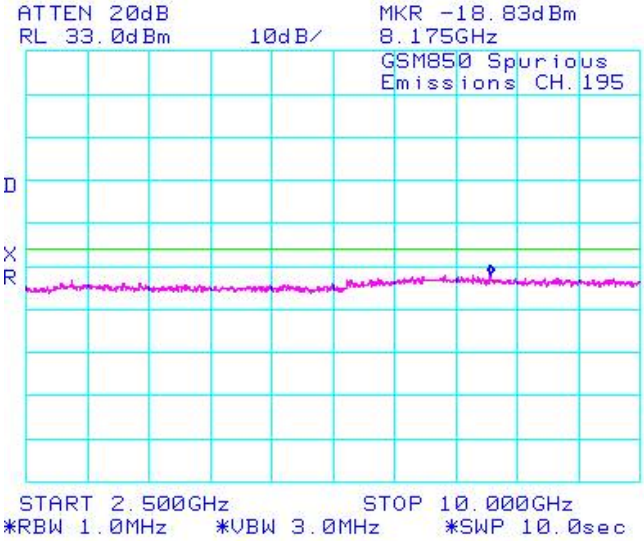


Figure 1-4: GSM850 band, Spurious Conducted Emissions, Middle Channel



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Conducted RF Emission Test Data cont'd

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

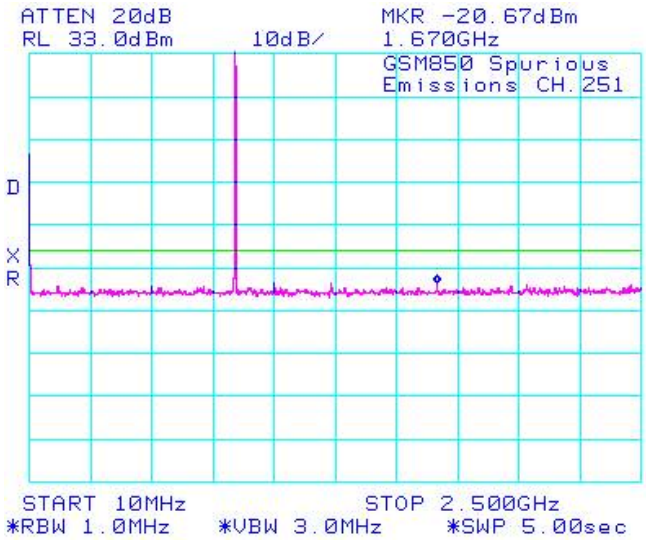


Figure 1-6: GSM850 band, Spurious Conducted Emissions, High Channel

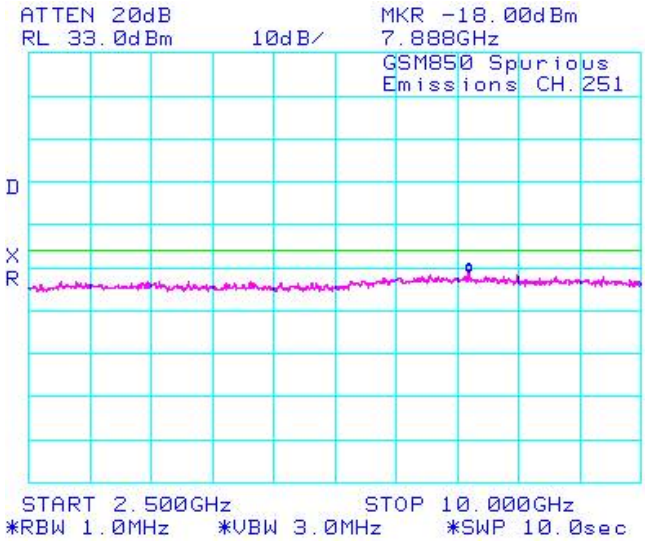


Figure 1-7: PCS1900 band, Spurious Conducted Emissions, Low Channel

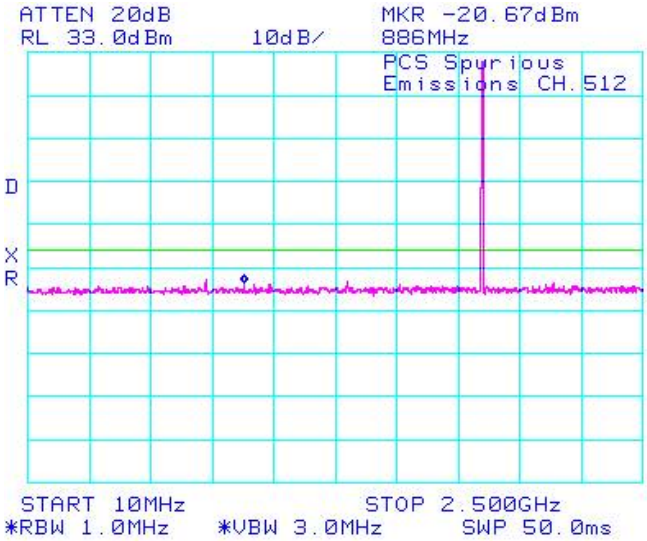
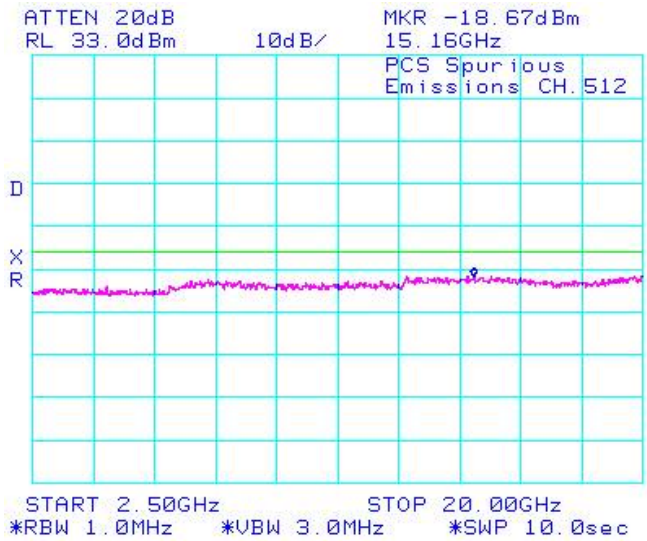


Figure 1-8: PCS1900 band, Spurious Conducted Emissions, Low Channel



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Conducted RF Emission Test Data cont'd

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

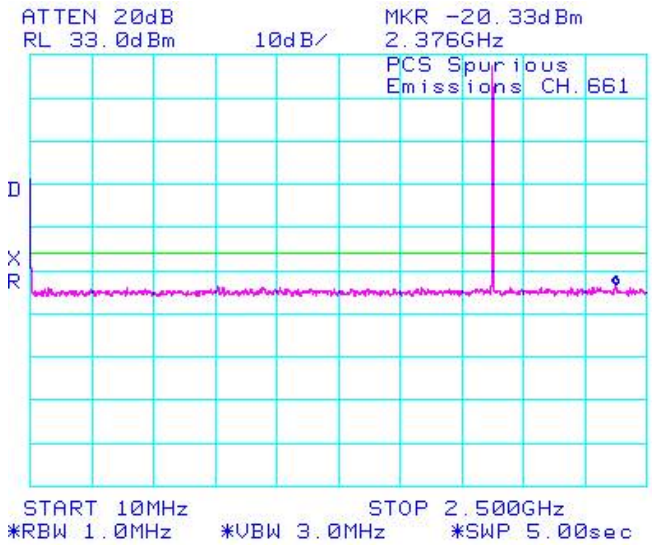


Figure 1-10: PCS1900 band, Spurious Conducted Emissions, Middle Channel

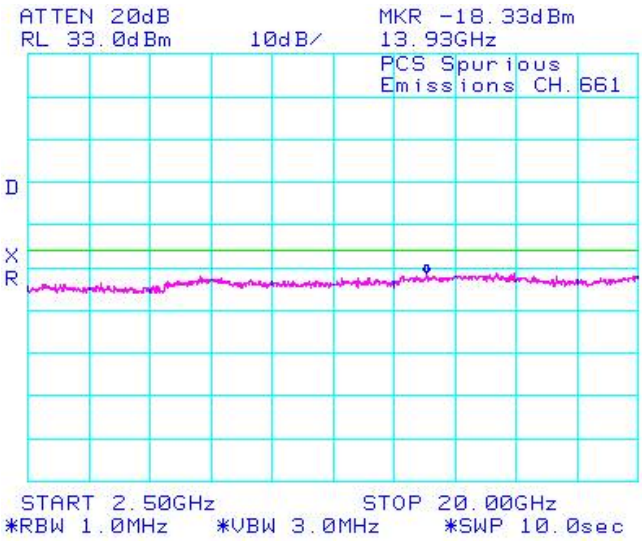


Figure 1-11: PCS1900 band, Spurious Conducted Emissions, High Channel

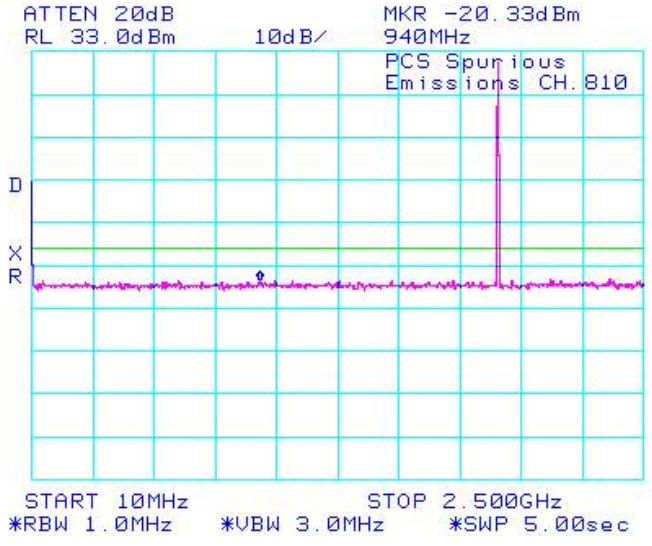
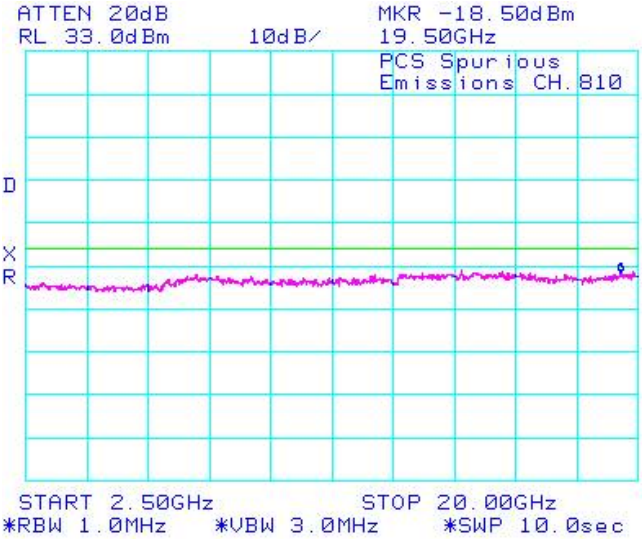


Figure 1-12: PCS1900 band, Spurious Conducted Emissions, High Channel



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Conducted RF Emission Test Data cont'd

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

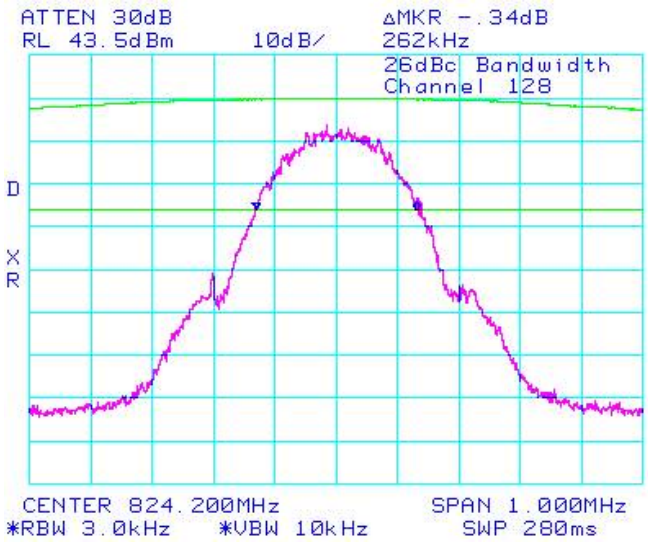

Figure 1-14: Occupied Bandwidth, GSM850 band Low Channel in GSM mode

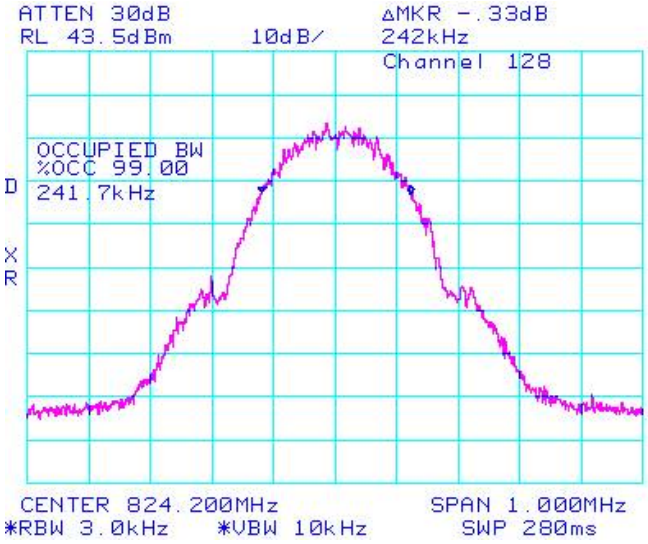

Figure 1-15: -26dBc bandwidth, GSM850 band Middle Channel in GSM mode

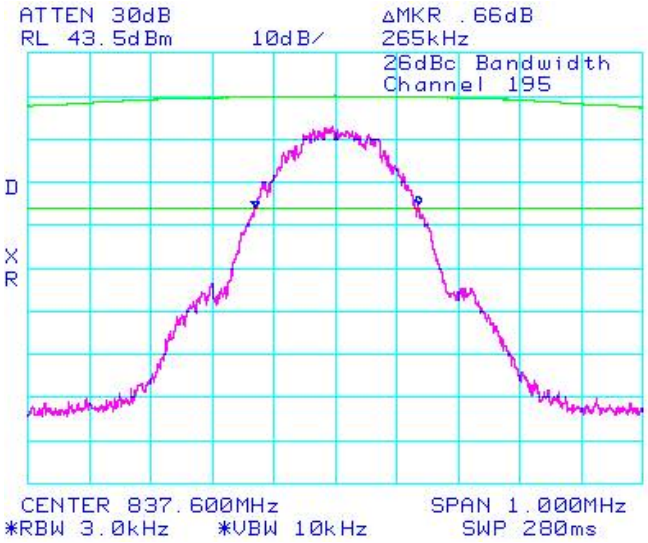

Figure 1-16: Occupied Bandwidth, GSM850 band Middle Channel in GSM mode

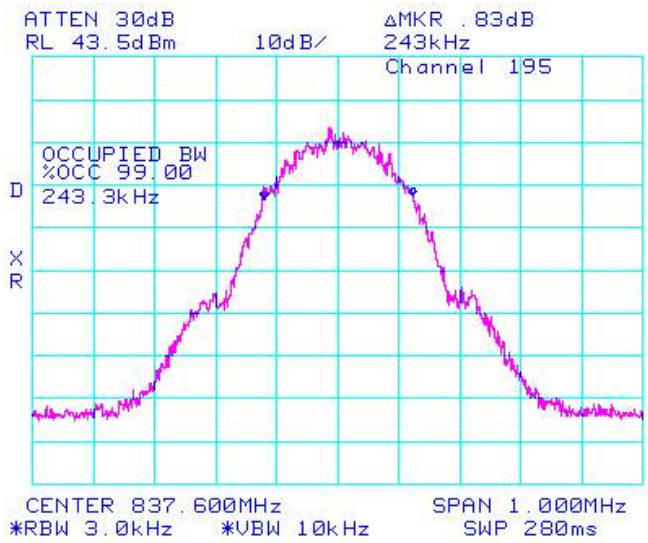

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Figure 1-17: -26dBc bandwidth, GSM850 band High Channel in GSM mode

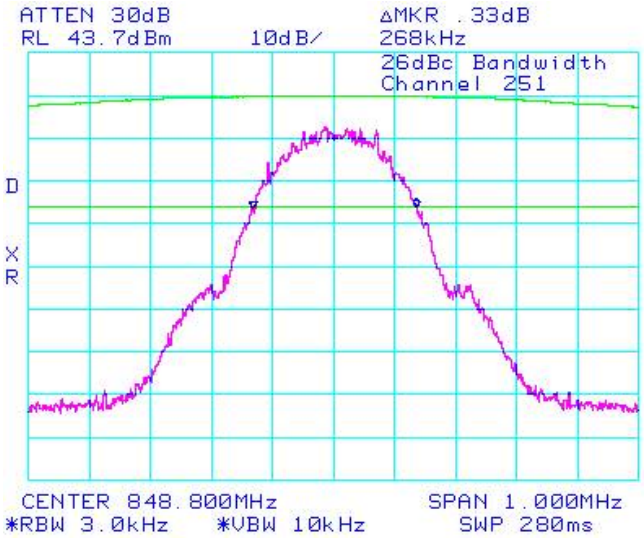

Figure 1-18: Occupied Bandwidth, GSM850 band High Channel in GSM mode

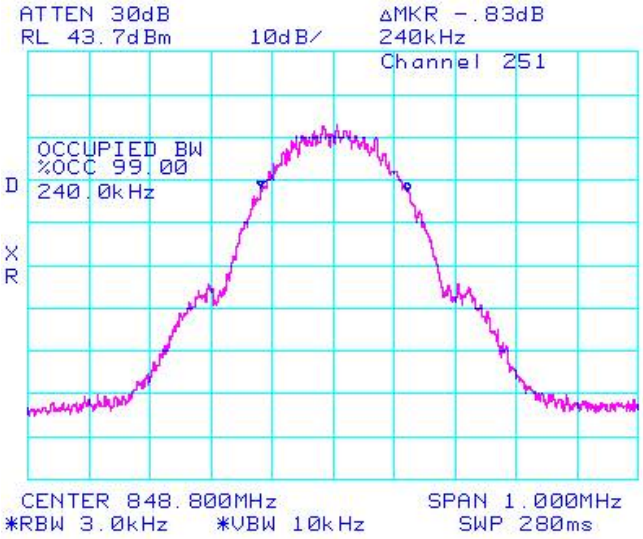

Figure 1-19: -26dBc bandwidth, PCS1900 Low Channel in GSM mode

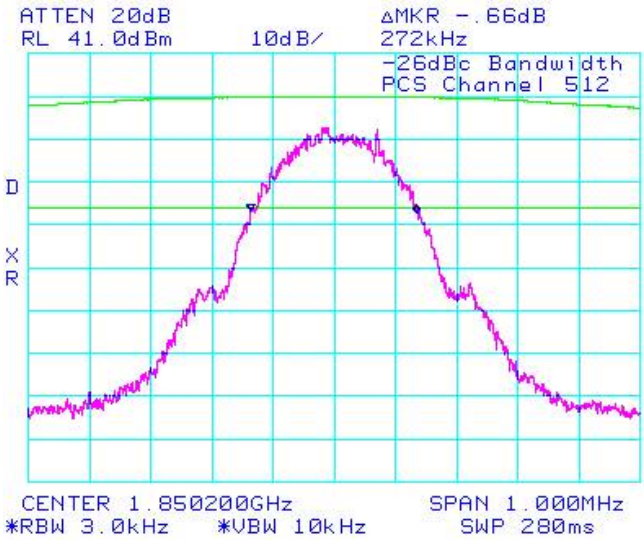

Figure 1-20: Occupied Bandwidth, PCS1900 Low Channel in GSM mode

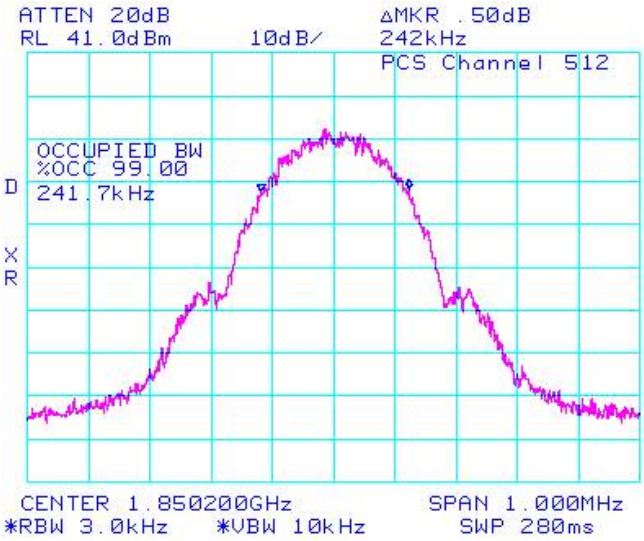

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Figure 1-21: -26dBc bandwidth, PCS1900 Middle Channel in GSM mode

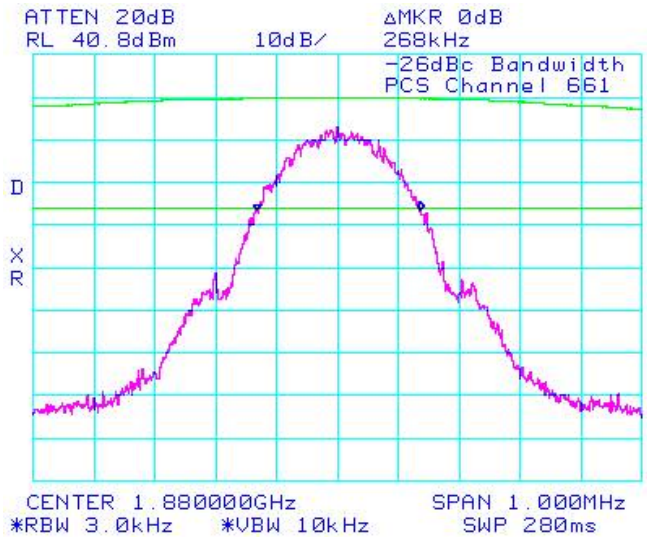

Figure 1-22: Occupied Bandwidth, PCS1900 Middle Channel in GSM mode

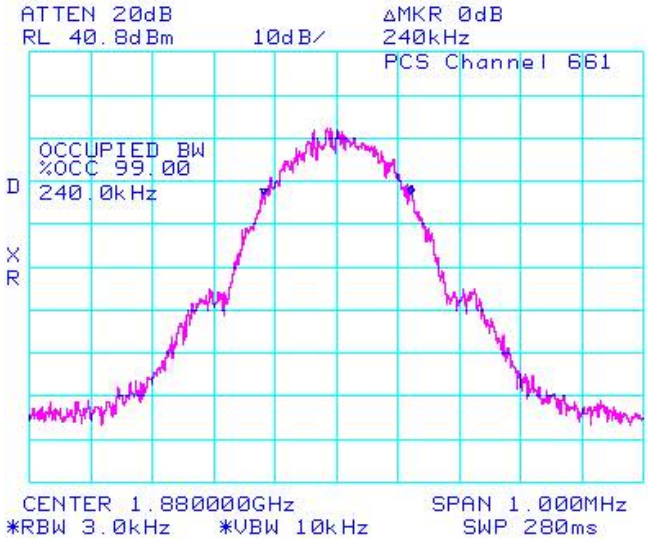

Figure 1-23: -26dBc bandwidth, PCS1900 High Channel in GSM mode

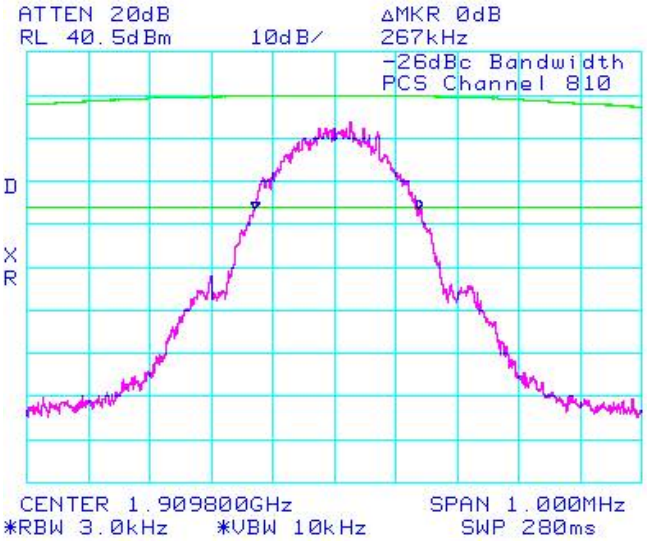

Figure 1-24: Occupied Bandwidth, PCS1900 High Channel in GSM mode

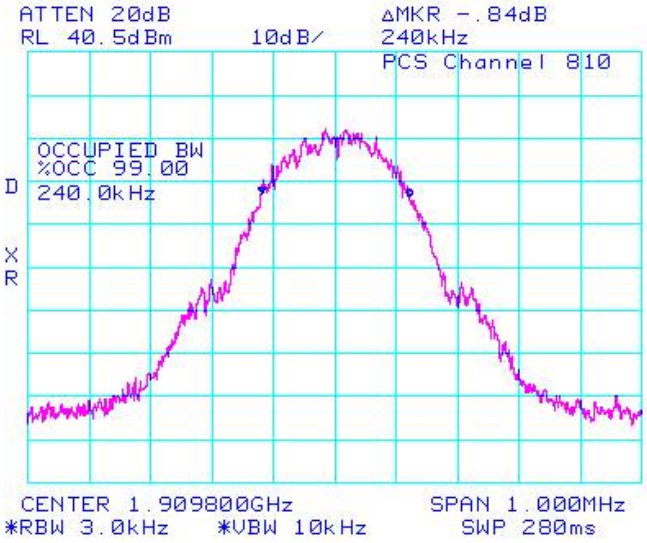

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Figure 1-25: GSM850 band, Low Channel Mask in GSM mode

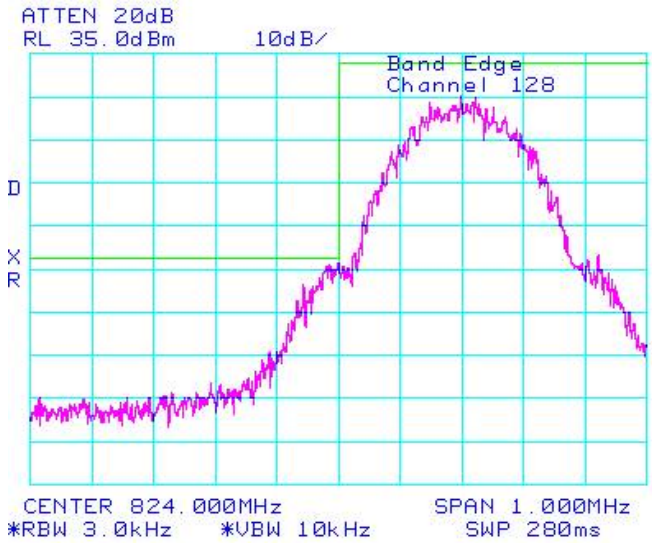

Figure 1-26: GSM850 band High Channel Mask in GSM mode

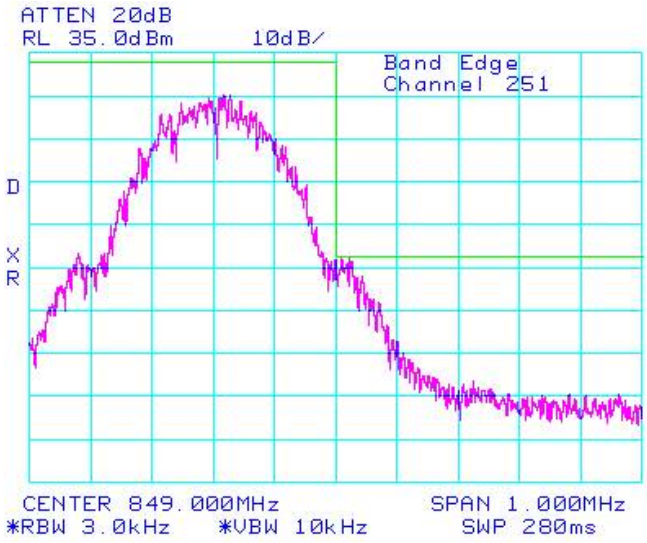

Figure 1-27: PCS1900, Low Channel Mask in GSM mode

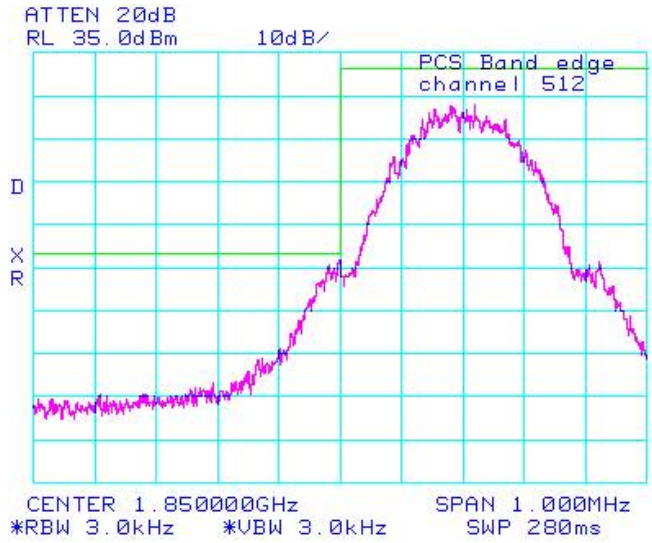

Figure 1-28: PCS1900, High Channel Mask in GSM mode

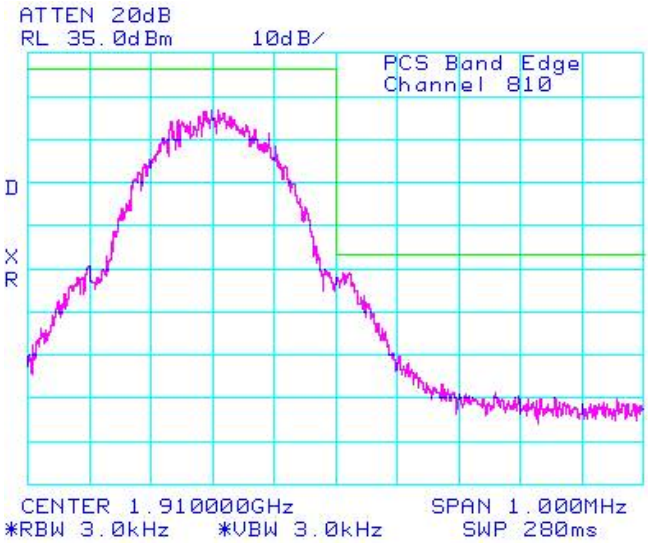

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Figure 1-29: Occupied Bandwidth, GSM850 Band, Low Channel in EDGE mode

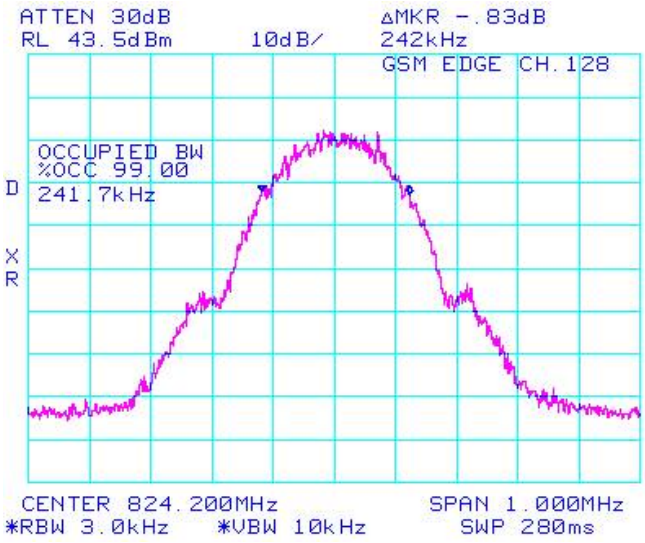

Figure 1-30: Occupied Bandwidth, GSM850 Band, Middle Channel in EDGE mode

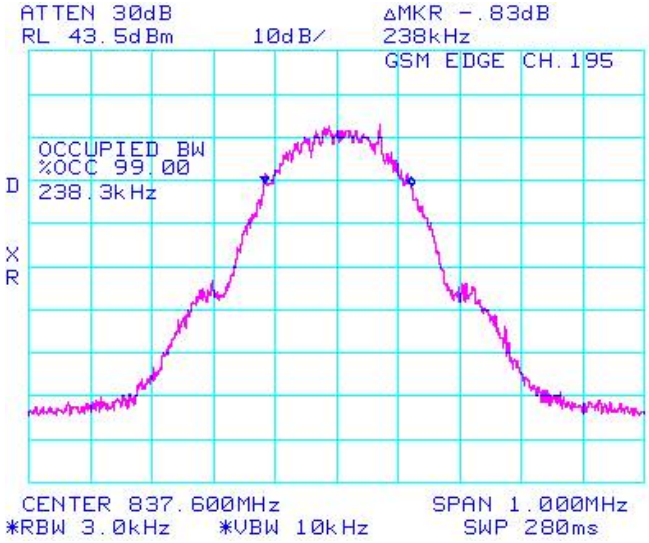

Figure 1-31: Occupied Bandwidth, GSM850 band, High Channel in EDGE mode

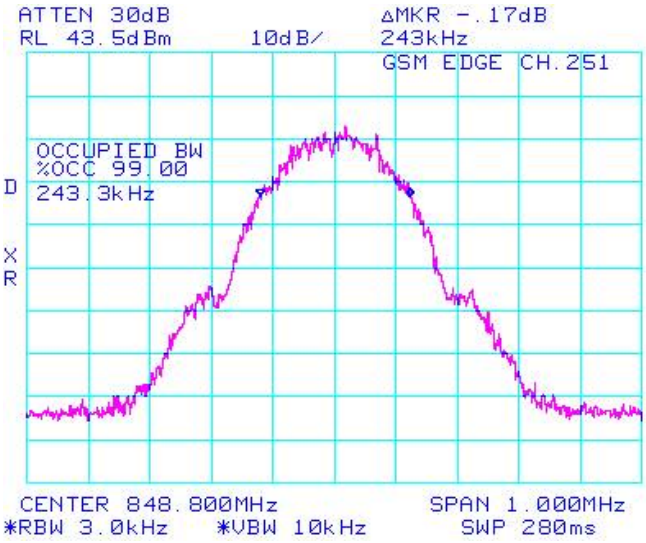

Figure 1-32: Occupied Bandwidth, PCS1900 Band, Low Channel in EDGE mode

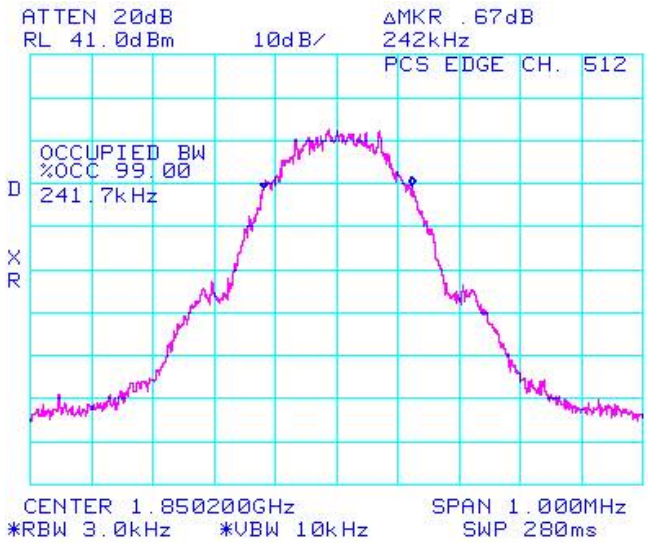

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Figure 1-33: Occupied Bandwidth, PCS1900 Band, Middle Channel in EDGE mode

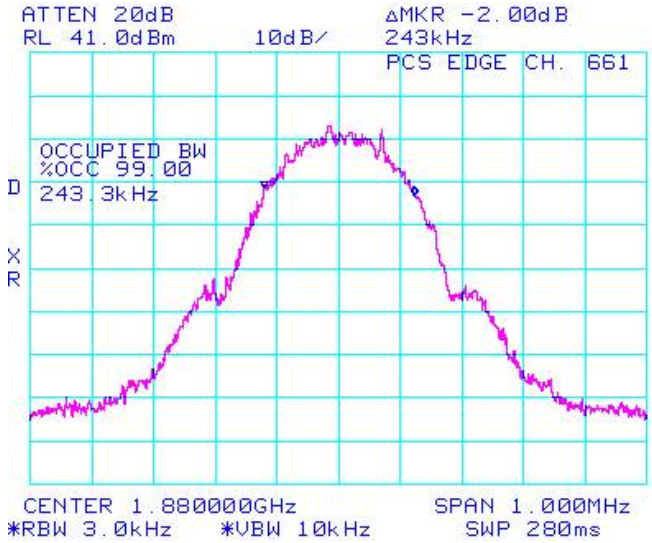

Figure 1-34: Occupied Bandwidth, PCS1900 Band, High Channel in EDGE mode

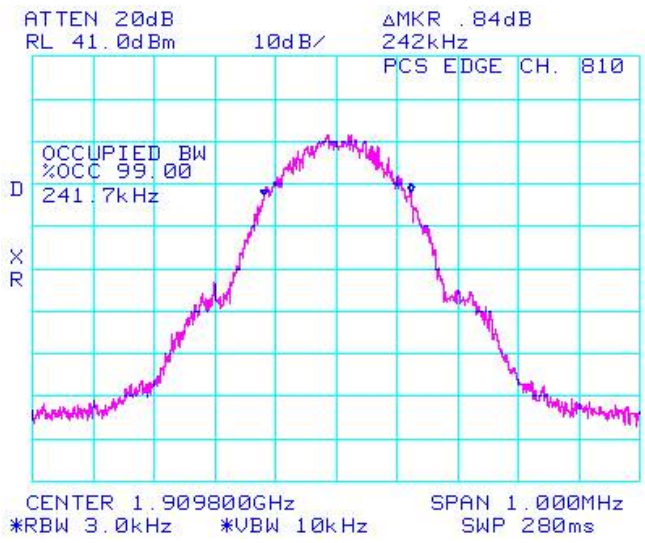

Figure 1-35: GSM850 band, Low Channel Mask in EDGE mode

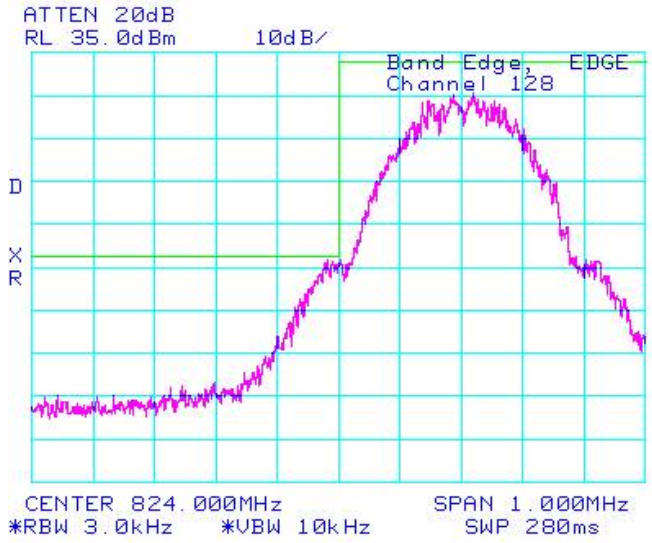

Figure 1-36: GSM850 band High Channel Mask in EDGE mode

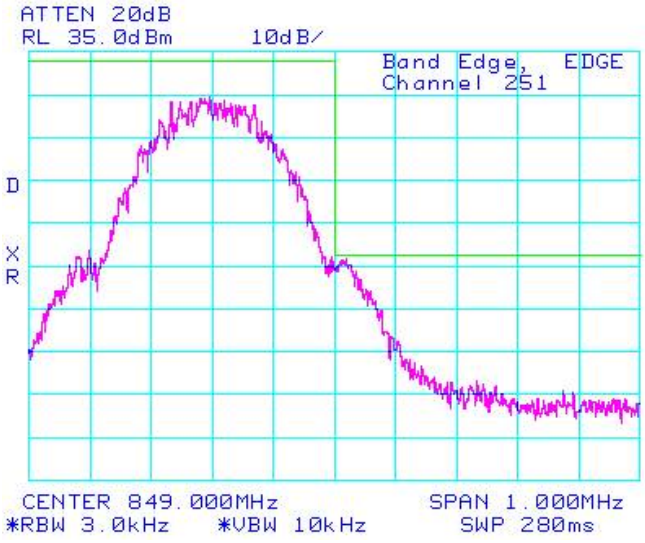

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Figure 1-37: PCS1900, Low Channel Mask in EDGE mode

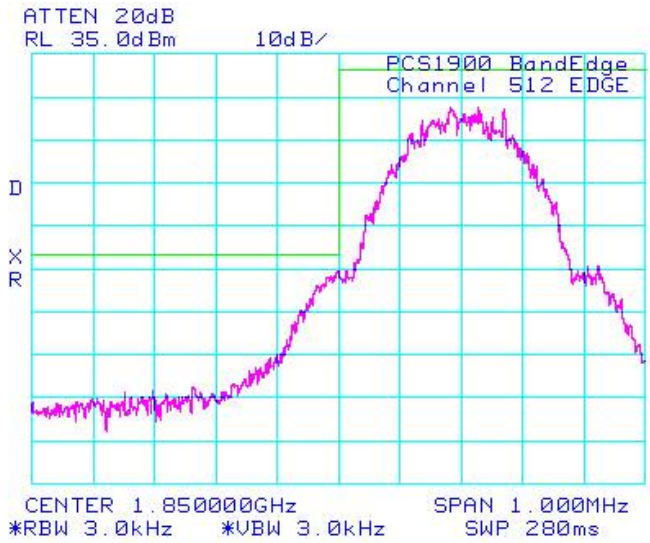
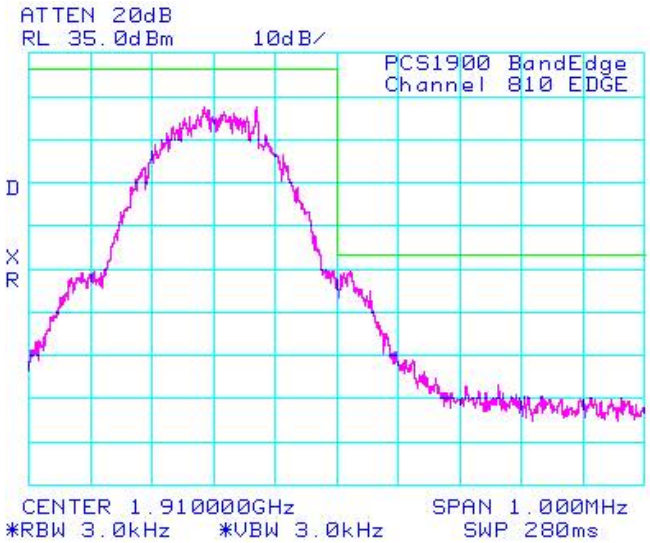


Figure 1-38: PCS1900, High Channel Mask in EDGE mode



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Conducted RF Emission Test Data cont'd

The conducted spurious emissions – As per 47 CFR 2.1051, CFR 2.202, CFR 24.238(a), CFR 22.917, RSS-133, 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 1-39 to 1-50 for the plots of the conducted spurious emissions.

Date of Test: March 18, 08

–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 WCDMA Band V 850, was measured to be 4.658 MHz, and for the WCDMA Band II 1900, was measured to be 1.675 MHz as shown below.
This results in a 100 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 WCDMA Band V 850 and WCDMA Band II 1900 selected Frequencies in RMC mode.

WCDMA Band V 850 Frequency (MHz)	-26dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
824.2	4.633	4.167
837.6	4.658	4.167
848.8	4.642	4.158

WCDMA Band II PCS Frequency (MHz)	-26dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
1850.2	4.658	4.167
1880.0	4.650	4.175
1909.8	4.675	4.167

Measurement Plots for WCDMA850 and WCDMA1900 in RMC mode
Refer to the following measurement plots for more detail.
See Figures 1-51 to 1-62 for the plots of the –26dBc Bandwidth and 99% Occupied Bandwidth. See Figures 1-63 to 1-66 for plots of channel mask results.

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

The EUT was in RMC mode at 12.2 kbps.

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Conducted RF Emission Test Data cont'd

Figure 1-39: WCDMA Band V 850, Spurious Conducted Emissions, Low channel

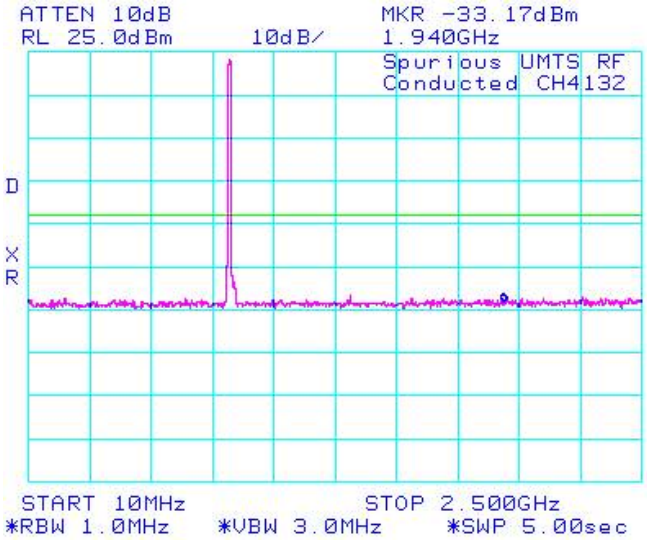


Figure 1-40: WCDMA Band V 850, Spurious Conducted Emissions, Low channel

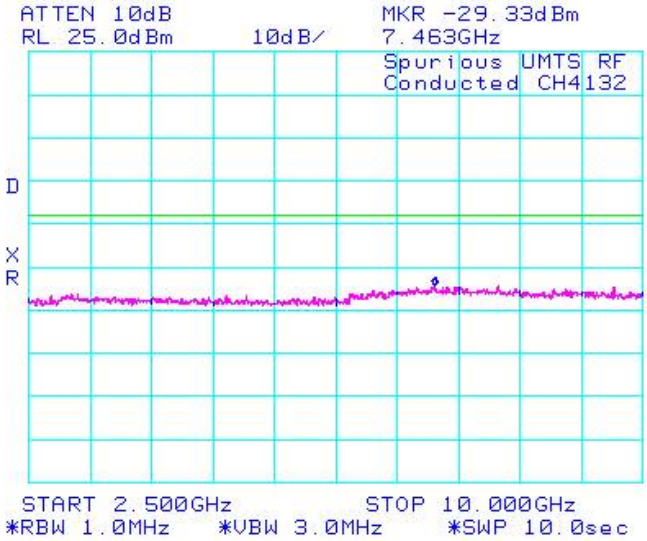


Figure 1-41: WCDMA Band V 850, Spurious Conducted Emissions, Middle Channel

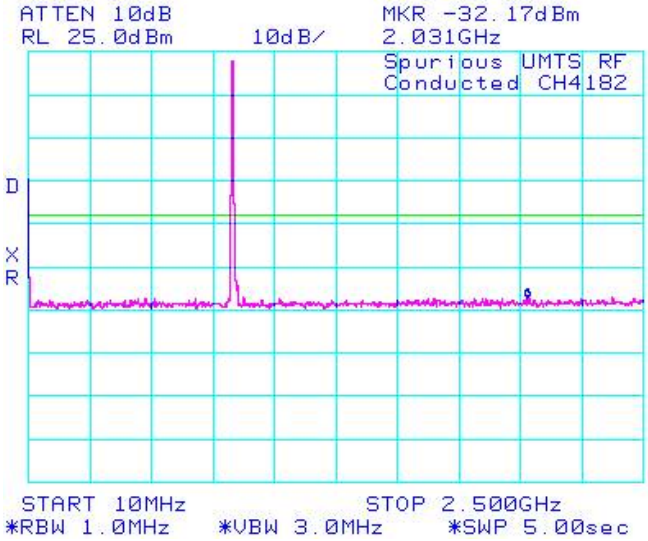
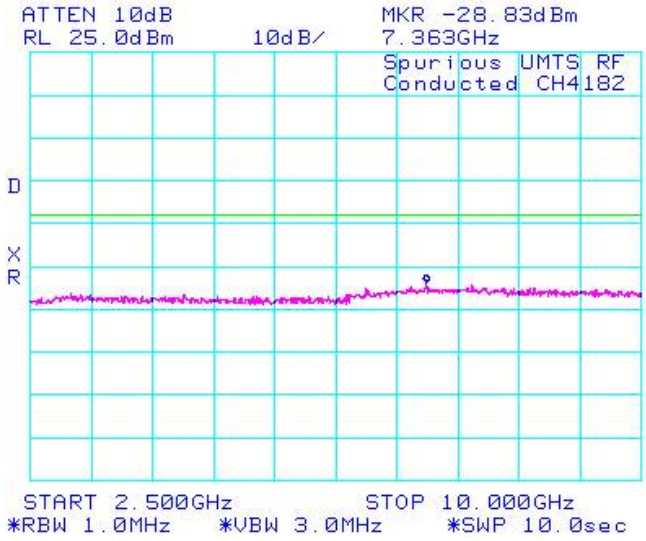


Figure 1-42: WCDMA Band V 850, , Spurious Conducted Emissions, Middle Channel



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Conducted RF Emission Test Data cont'd

Figure 1-43: WCDMA Band V 850 Spurious Conducted Emissions, High Channel

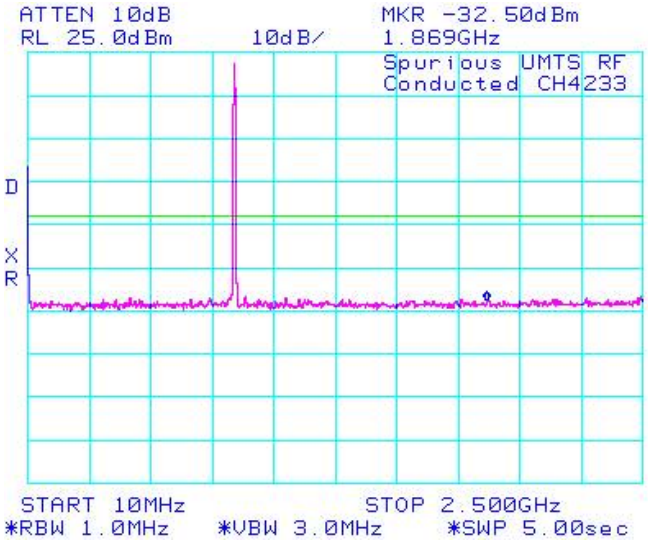

Figure 1-44: WCDMA Band V 850 Spurious Conducted Emissions, High Channel

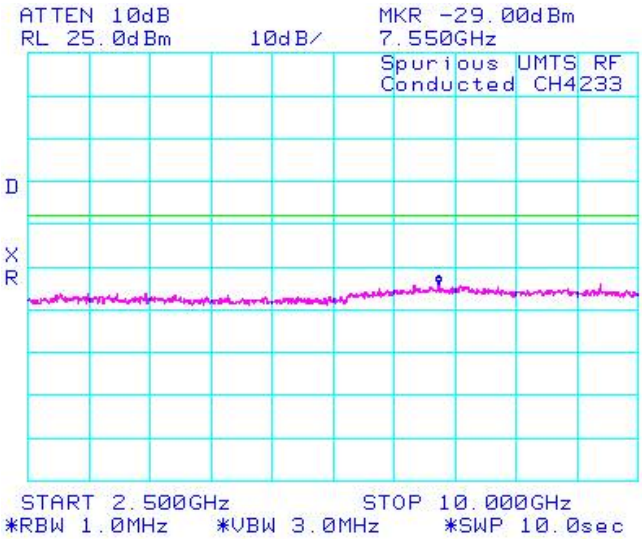

Figure 1-45: WCDMA Band II 1900 Spurious Conducted Emissions, Low Channel

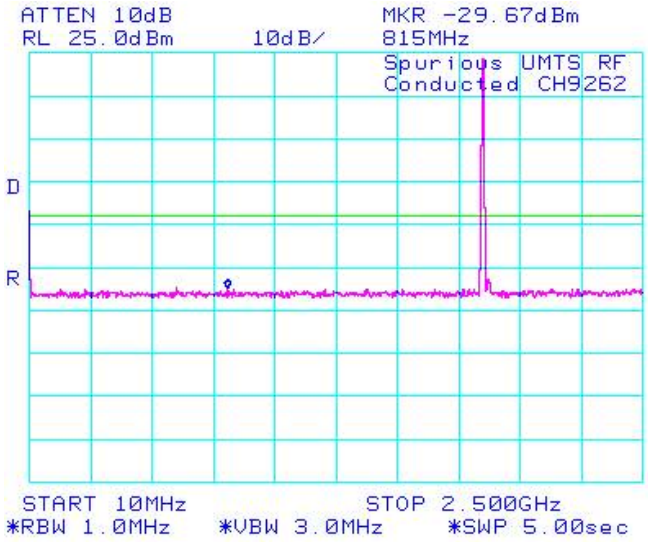

Figure 1-46: WCDMA Band II 1900, Spurious Conducted Emissions, Low Channel

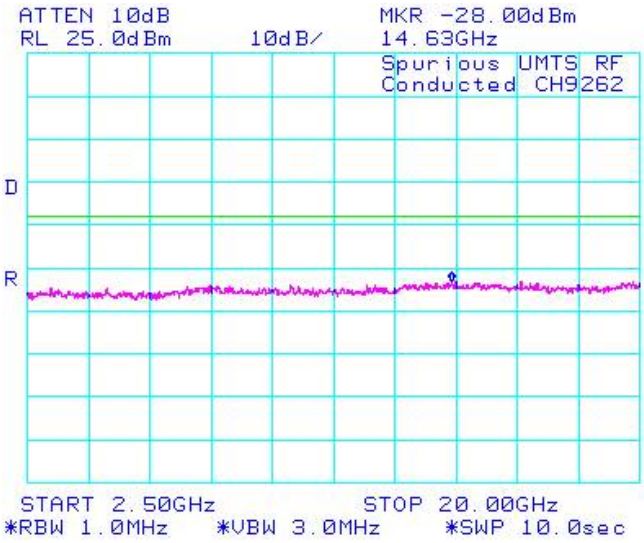

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Figure 1-47: WCDMA Band II 1900, Spurious Conducted Emissions, Middle Channel

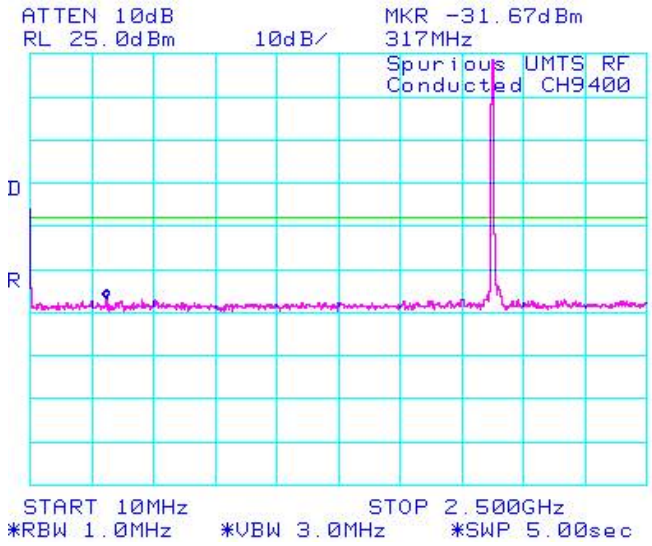

Figure 1-48: WCDMA Band II 1900, Spurious Conducted Emissions, Middle Channel

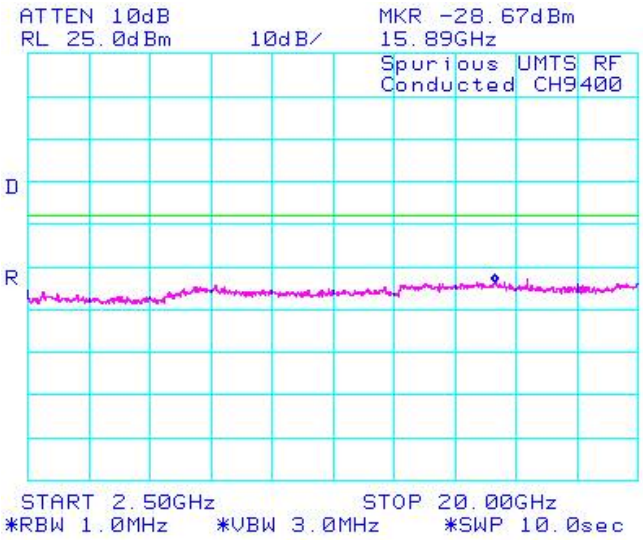

Figure 1-49: WCDMA Band II 1900, Spurious Conducted Emissions, High Channel

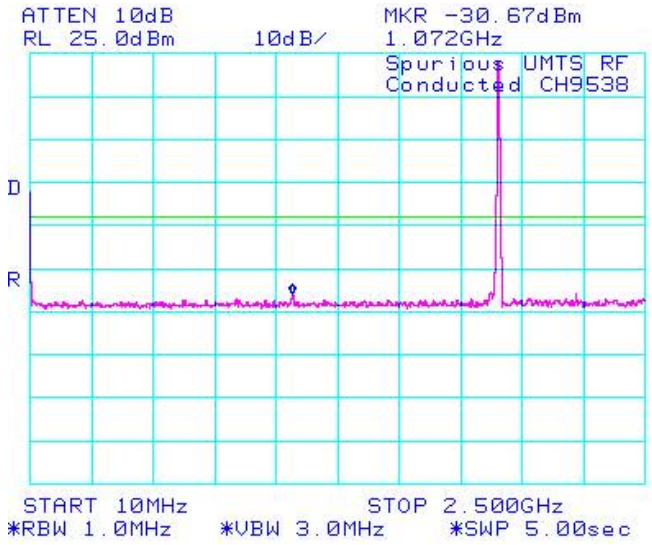

Figure 1-50: WCDMA Band II 1900, Spurious Conducted Emissions, High Channel

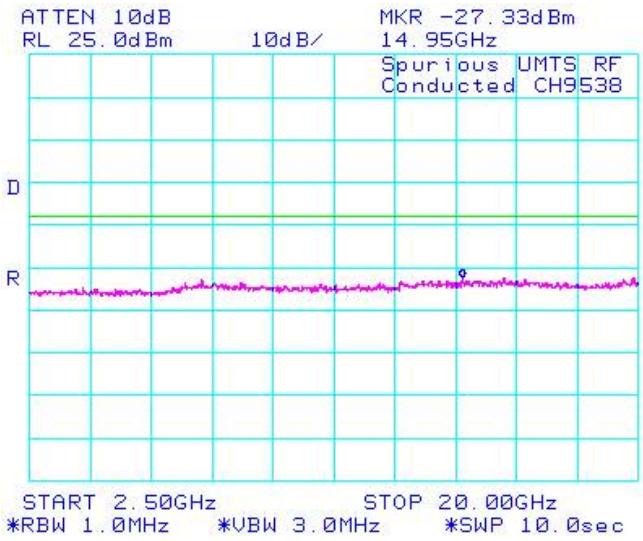

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Figure 1-51: -26dBc bandwidth, WCDMA Band V 850 Low Channel in RMC mode

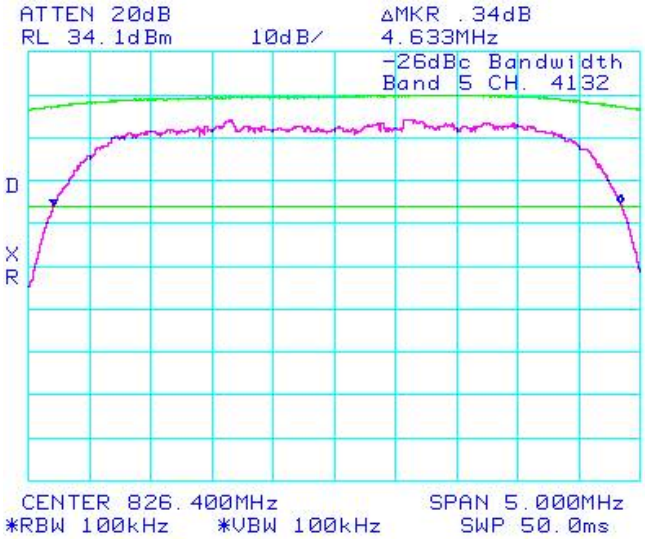

Figure 1-52:Occupied Bandwidth, WCDMA Band V 850 Low Channel in RMC mode

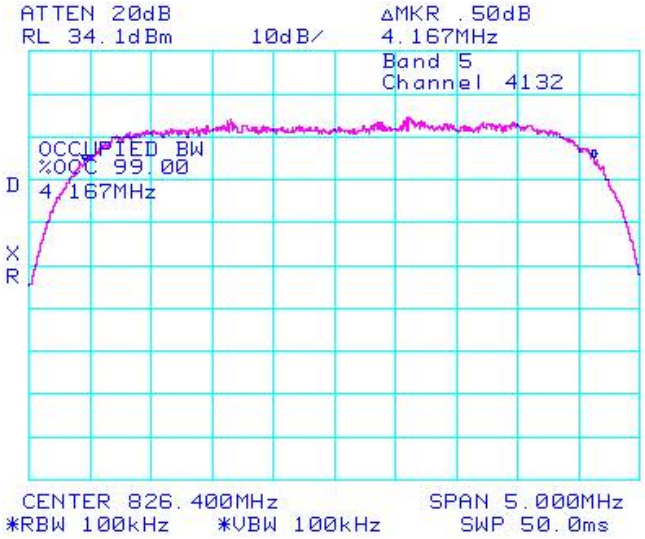

Figure 1-53: -26dBc bandwidth, WCDMA Band V 850 Middle Channel in RMC mode

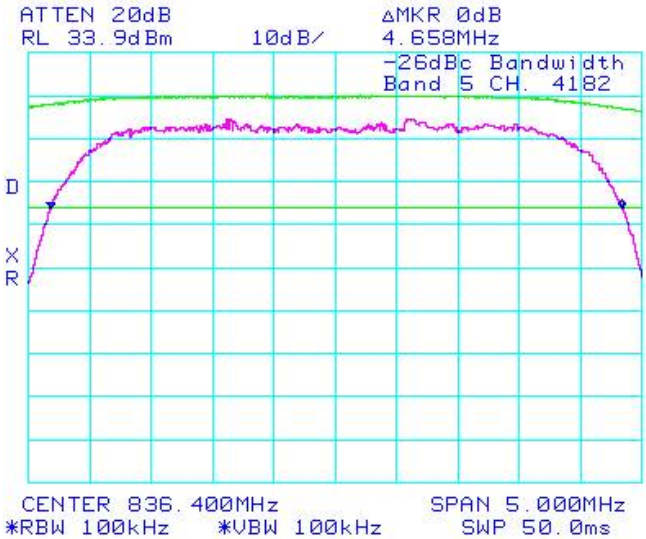

Figure 1-54:Occupied Bandwidth, WCDMA Band V 850 Middle Channel in RMC mode

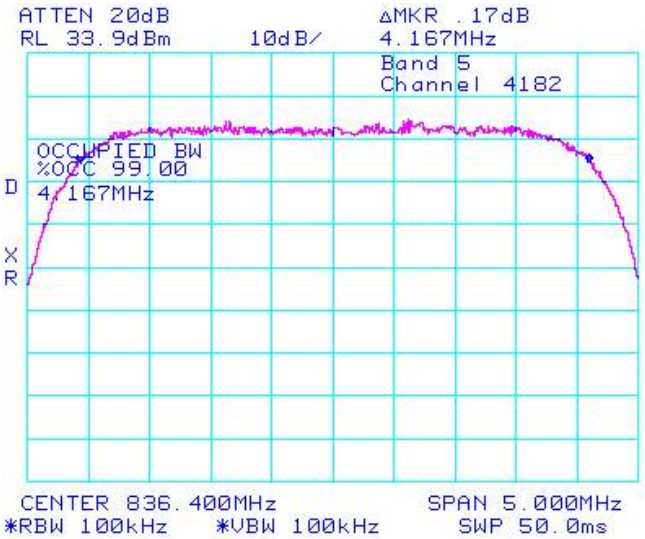

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Figure 1-55: -26dBc bandwidth, WCDMA Band V 850 High Channel in RMC mode

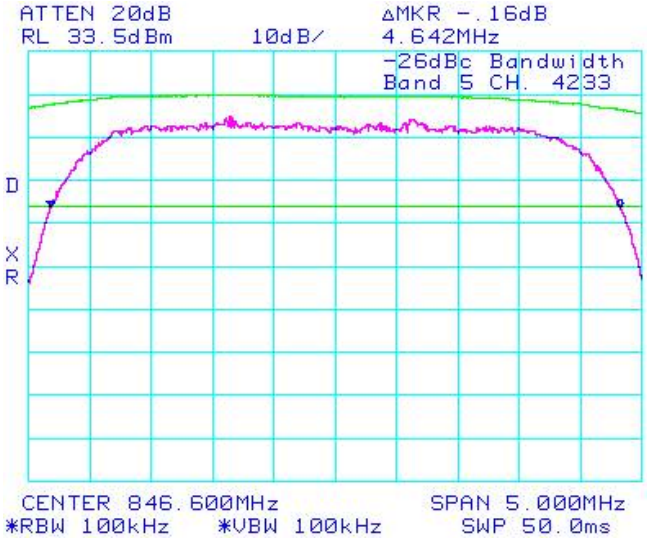

Figure 1-56:Occupied Bandwidth, WCDMA Band V 850 High Channel in RMC mode

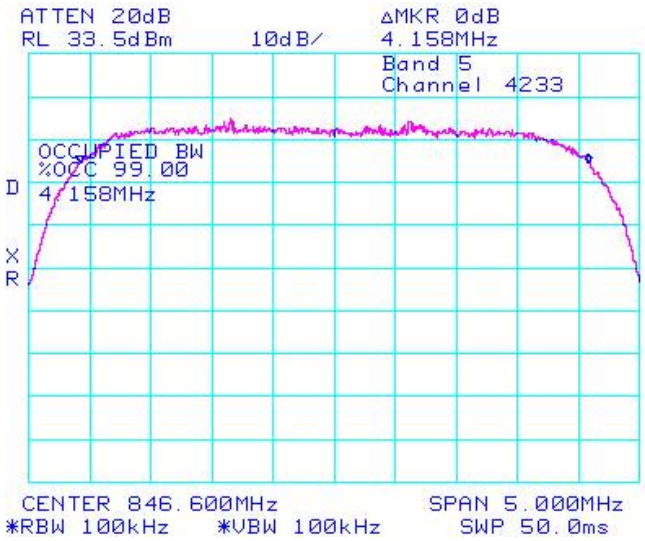

Figure 1-57: -26dBc bandwidth, WCDMA Band II 1900 Low Channel in RMC mode

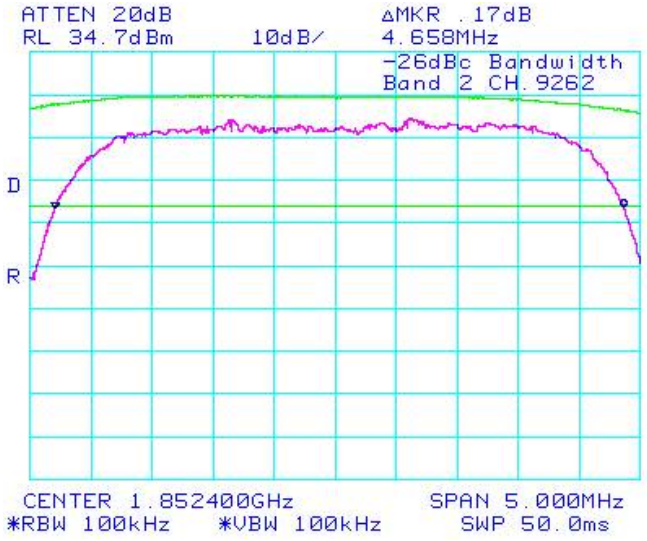

Figure 1-58:Occupied Bandwidth, WCDMA Band II 1900 Low Channel in RMC mode

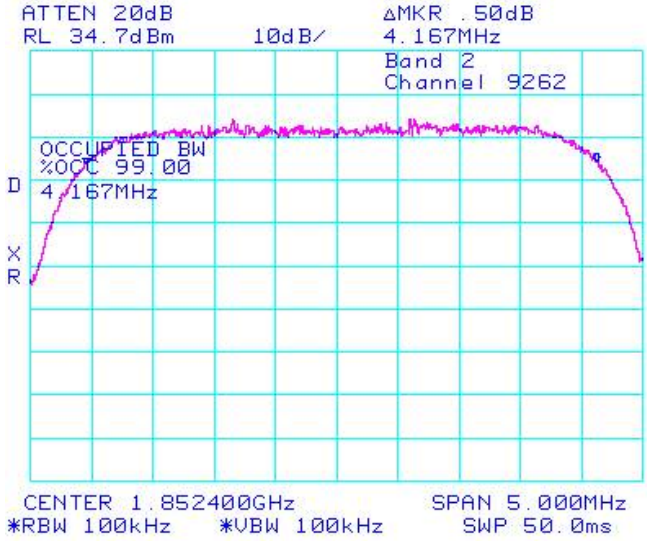

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Figure 1-59: -26dBc bandwidth, WCDMA Band II 1900 Middle Channel in RMC mode

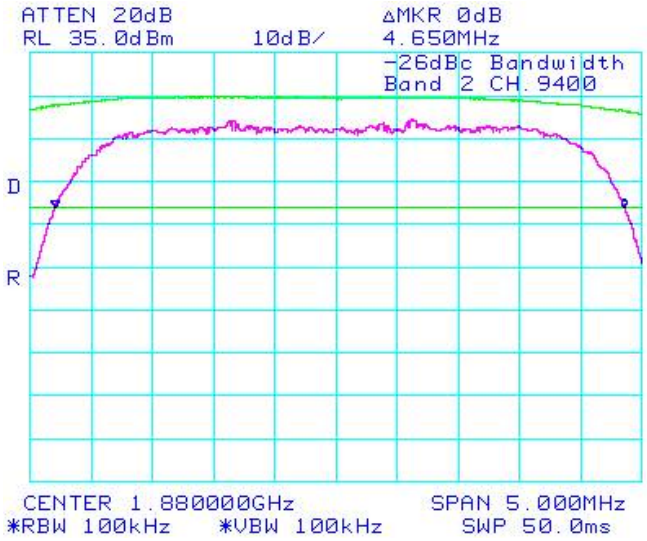


Figure 1-60:Occupied Bandwidth, WCDMA Band II 1900 Middle Channel in RMC mode

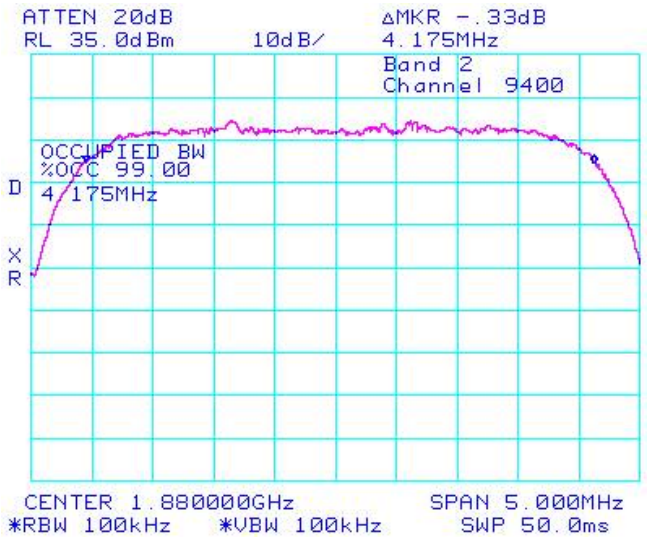


Figure 1-61: -26dBc bandwidth, WCDMA Band II 1900 High Channel in RMC mode

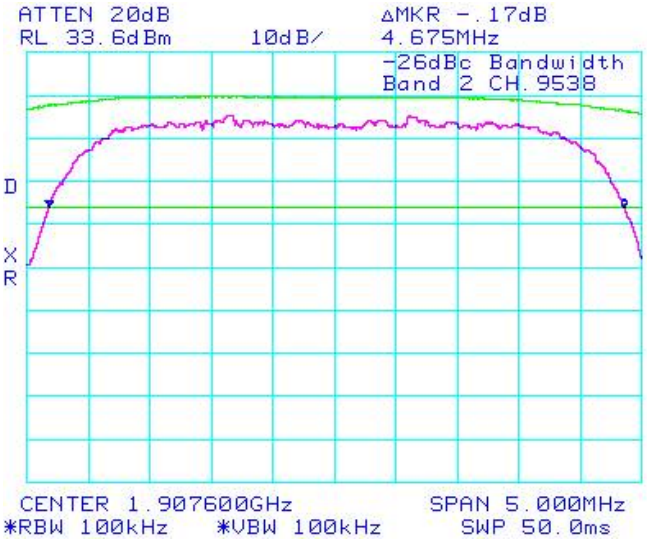
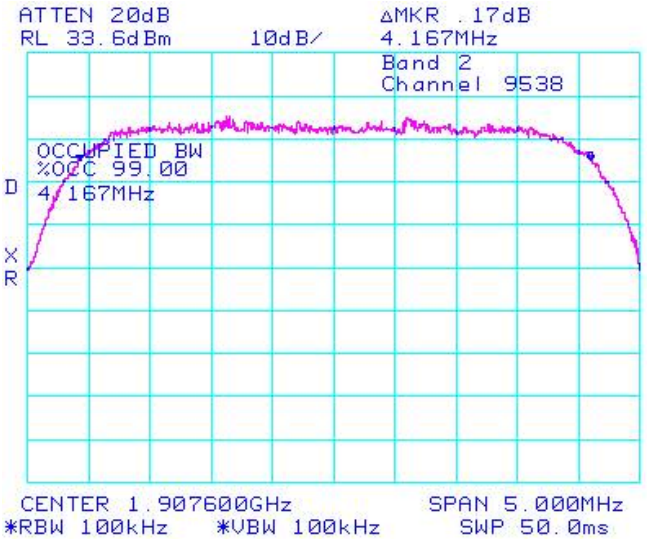


Figure 1-62:Occupied Bandwidth, WCDMA Band II 1900 High Channel in RMC mode



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Conducted RF Emission Test Data cont'd

Figure 1-63: WCDMA Band V 850 Low Channel Mask in RMC mode

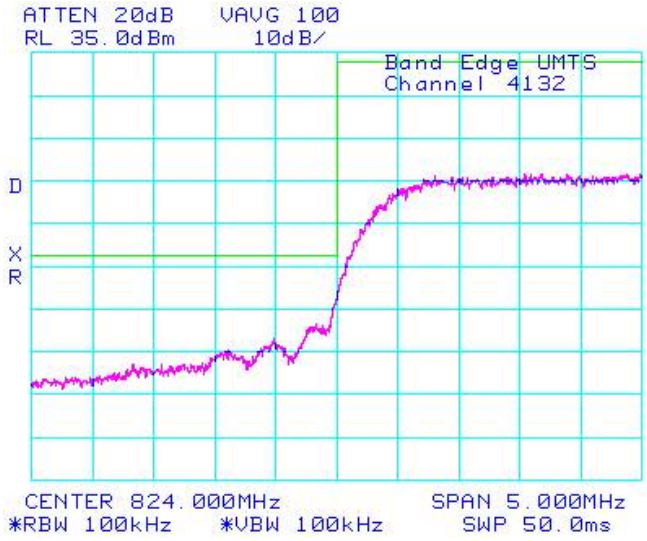


Figure 1-64: WCDMA Band V 850 High Channel Mask in RMC mode

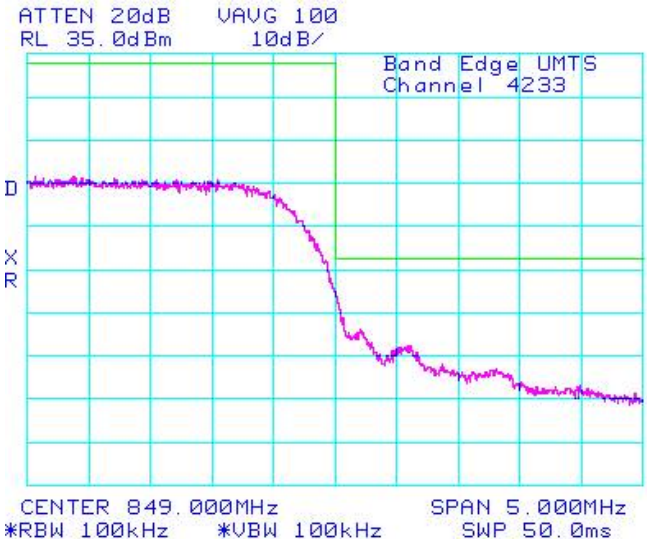


Figure 1-65: WCDMA Band II 1900 Low Channel Mask in RMC mode

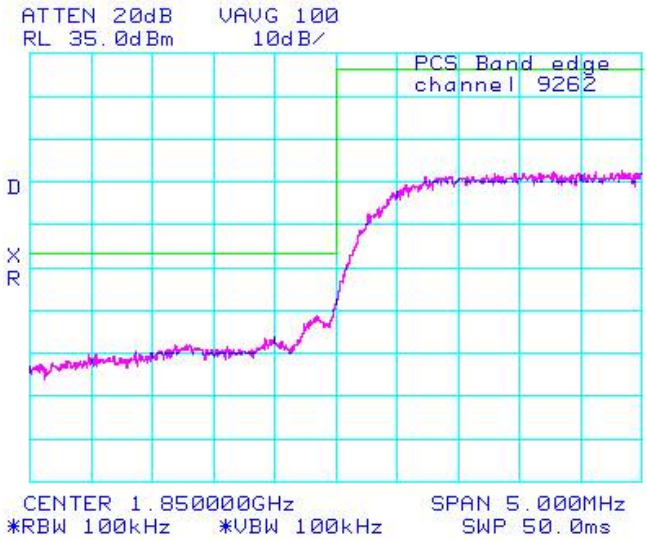
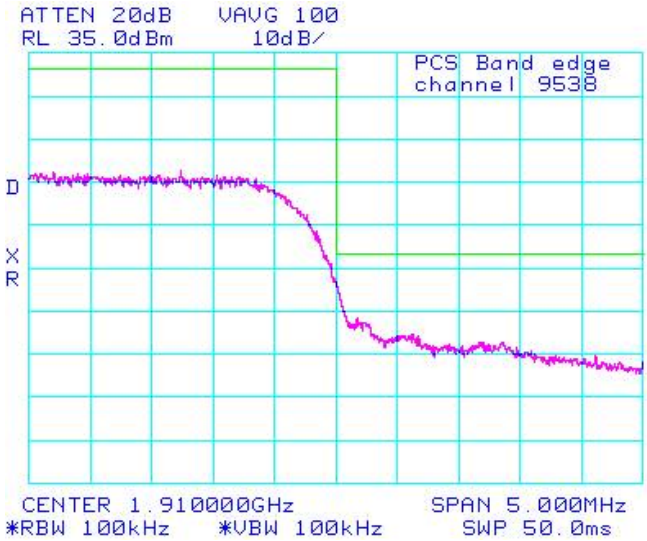


Figure 1-66: WCDMA Band II 1900 High Channel Mask in RMC mode



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APPENDIX 2 – CONDUCTED RF OUTPUT POWER TEST DATA

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Conducted RF Output Power Test Data

The conducted RF output power was measured 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 33.0 dBm ±0.5 dB for GSM850 and 30.5 dBm ±0.5 dB for PCS.
Peak nominal output power is 31.0 dBm ±0.5 dB for Edge GSM850 and 28.5 dBm ±0.5 dB for Edge PCS.
Peak nominal output power is 23.0 dBm ±0.5 dB for WCDMA band V and 24.0 dBm ±0.5 dB for WCDMA band II.

Date of Test: March 18, 2008

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	32.9	1.95	128	824.20	31.2	1.32
189	837.60	33.0	2.00	189	837.60	31.3	1.35
251	848.80	33.1	2.04	251	848.80	31.5	1.41
PCS				PCS EDGE/GPRS/GSM (2-timeslot)			
512	1850.2	30.9	1.23	512	1850.2	29.0	0.79
661	1880.0	30.7	1.17	661	1880.0	28.7	0.74
810	1909.8	30.5	1.12	810	1909.8	28.4	0.69
WCDMA Band V				WCDMA Band II			
4132	826.40	23.16	0.21	9262	1852.4	24.04	0.25
4182	836.20	23.23	0.21	9400	1880.0	24.04	0.25
4233	846.60	22.90	0.19	9538	1907.6	23.77	0.24

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APPENDIX 3 – FREQUENCY STABILITY TEST DATA

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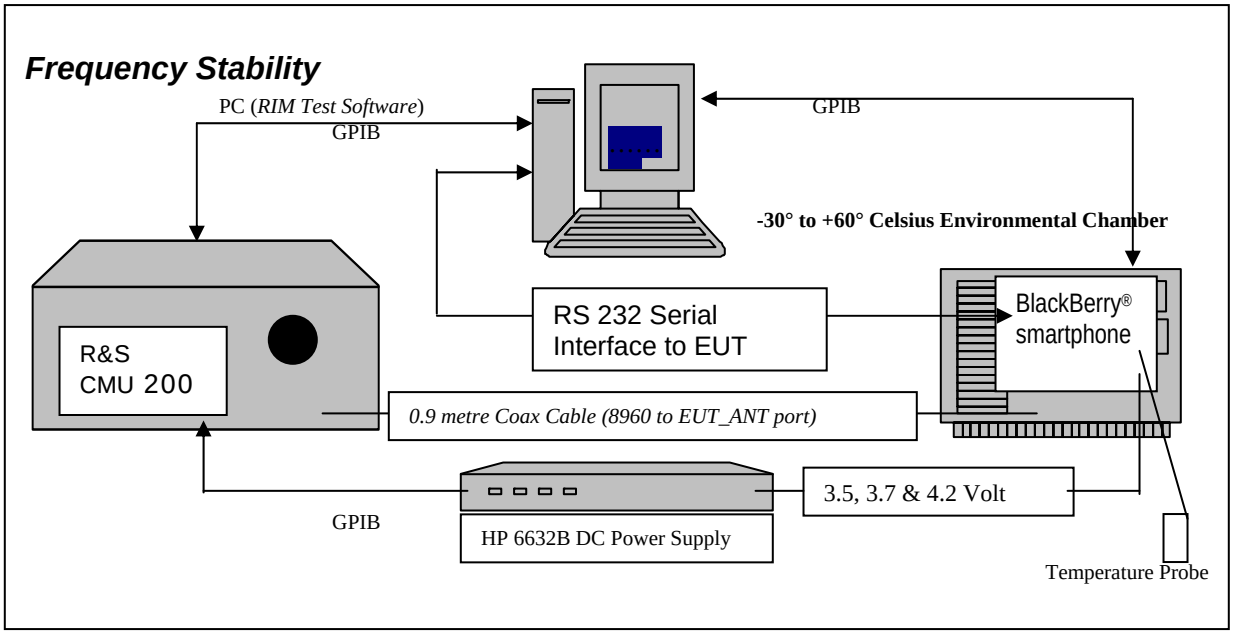
Frequency Stability Test Data



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, RSS-133, CFR 47 chapter 1, Section 22.917 and RSS-132 Frequency Stability.

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

Calibration for the Cable Loss was performed in the RF Laboratory using the Agilent power meter and Agilent Signal Generator.
The cable assembly from the RF input to the RF output was measured at the following Frequencies:

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PCS Frequency (MHz)	Cable loss (dB)
1850.2	1.40
1880.0	1.40
1909.8	1.40

GSM 850 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, 826.4, 836.4 MHz for the WCDMA band V 850 and WCDMA band II 1900, 1852.4, 1880.0 and 1907.6 MHz. This frequency was recorded in MHz and deviation from nominal, in Parts Per Million.
After the initial one-hour soak at the beginning of the tests, a period of thirty minutes soak was initialized between each ascending temperature step, before proceeding to the next measurement test cycle.

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PROCEDURE:

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

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

Procedure 5 to 10 was repeated at room temperature (20°C) with the power supply voltage set to 3.6, 3.7 and 4.2 volts.
The maximum frequency error in the GSM850 band measured was **-0.0604 PPM**.
The maximum frequency error in the PCS band measured was **-0.0340 PPM**.
The maximum frequency error in the WCDMA850 band measured was **0.0261 PPM.**
The maximum frequency error in the WCDMA1900 band measured was **-0.0155 PPM**

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

Date of Test: March 11, 2008

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.6	20	32.03	0.0389
189	836.40	3.6	20	31.90	0.0381
250	848.60	3.6	20	27.18	0.0320

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.7	20	23.83	0.0289
189	836.40	3.7	20	24.15	0.0289
250	848.60	3.7	20	23.25	0.0274

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	4.2	20	26.67	0.0324
189	836.40	4.2	20	27.18	0.0325
250	848.60	4.2	20	30.09	0.0355

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GSM850 Results: channel 128 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.6	-30	50.62	0.0614
128	824.20	3.6	-20	-7.17	-0.0087
128	824.20	3.6	-10	39.20	0.0476
128	824.20	3.6	0	33.00	0.0400
128	824.20	3.6	10	35.00	0.0425
128	824.20	3.6	20	32.03	0.0389
128	824.20	3.6	30	-23.57	-0.0286
128	824.20	3.6	40	-51.01	-0.0619
128	824.20	3.6	50	-40.55	-0.0492
128	824.20	3.6	60	-45.39	-0.0551

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.7	-30	-6.84	-0.0083
128	824.20	3.7	-20	-22.66	-0.0275
128	824.20	3.7	-10	31.12	0.0378
128	824.20	3.7	0	21.31	0.0259
128	824.20	3.7	10	20.92	0.0254
128	824.20	3.7	20	23.83	0.0289
128	824.20	3.7	30	-26.47	-0.0321
128	824.20	3.7	40	-49.72	-0.0603
128	824.20	3.7	50	-32.87	-0.0399
128	824.20	3.7	60	-46.69	-0.0566

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	4.2	-30	10.53	0.0128
128	824.20	4.2	-20	-16.79	-0.0204
128	824.20	4.2	-10	33.51	0.0407
128	824.20	4.2	0	25.89	0.0314
128	824.20	4.2	10	22.41	0.0272
128	824.20	4.2	20	26.67	0.0324
128	824.20	4.2	30	-28.93	-0.0351
128	824.20	4.2	40	-50.62	-0.0614
128	824.20	4.2	50	-36.48	-0.0443
128	824.20	4.2	60	-48.82	-0.0592

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GSM850 Results: channel 189 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	3.6	-30	-6.91	-0.0083
189	836.40	3.6	-20	-15.17	-0.0181
189	836.40	3.6	-10	36.61	0.0438
189	836.40	3.6	0	28.54	0.0341
189	836.40	3.6	10	26.54	0.0317
189	836.40	3.6	20	31.90	0.0381
189	836.40	3.6	30	-24.99	-0.0299
189	836.40	3.6	40	-49.40	-0.0591
189	836.40	3.6	50	-37.39	-0.0447
189	836.40	3.6	60	-45.78	-0.0547

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	3.7	-30	-6.33	-0.0076
189	836.40	3.7	-20	-27.25	-0.0326
189	836.40	3.7	-10	32.22	0.0385
189	836.40	3.7	0	19.50	0.0233
189	836.40	3.7	10	17.31	0.0207
189	836.40	3.7	20	24.15	0.0289
189	836.40	3.7	30	-27.51	-0.0329
189	836.40	3.7	40	-48.82	-0.0584
189	836.40	3.7	50	-34.68	-0.0415
189	836.40	3.7	60	-46.30	-0.0554

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	4.2	-30	11.75	0.0140
189	836.40	4.2	-20	-17.95	-0.0215
189	836.40	4.2	-10	35.45	0.0424
189	836.40	4.2	0	25.96	0.0310
189	836.40	4.2	10	24.02	0.0287
189	836.40	4.2	20	27.18	0.0325
189	836.40	4.2	30	-28.28	-0.0338
189	836.40	4.2	40	-50.88	-0.0608
189	836.40	4.2	50	-39.13	-0.0468
189	836.40	4.2	60	-48.36	-0.0578

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GSM850 Results: channel 250 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
250	848.60	3.6	-30	-7.30	-0.0086
250	848.60	3.6	-20	-23.50	-0.0277
250	848.60	3.6	-10	33.96	0.0400
250	848.60	3.6	0	22.66	0.0267
250	848.60	3.6	10	22.21	0.0262
250	848.60	3.6	20	27.18	0.0320
250	848.60	3.6	30	-27.12	-0.0320
250	848.60	3.6	40	-49.78	-0.0587
250	848.60	3.6	50	-35.84	-0.0422
250	848.60	3.6	60	-46.43	-0.0547

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
250	848.60	3.7	-30	5.68	0.0067
250	848.60	3.7	-20	-30.35	-0.0358
250	848.60	3.7	-10	33.00	0.0389
250	848.60	3.7	0	16.53	0.0195
250	848.60	3.7	10	16.27	0.0192
250	848.60	3.7	20	23.25	0.0274
250	848.60	3.7	30	-29.32	-0.0346
250	848.60	3.7	40	-49.78	-0.0587
250	848.60	3.7	50	-33.32	-0.0393
250	848.60	3.7	60	-47.27	-0.0557

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
250	848.60	4.2	-30	11.95	0.0141
250	848.60	4.2	-20	-17.05	-0.0201
250	848.60	4.2	-10	35.06	0.0413
250	848.60	4.2	0	26.41	0.0311
250	848.60	4.2	10	24.47	0.0288
250	848.60	4.2	20	30.09	0.0355
250	848.60	4.2	30	-32.22	-0.0380
250	848.60	4.2	40	-51.27	**-0.0604**
250	848.60	4.2	50	-38.68	-0.0456
250	848.60	4.2	60	-49.59	-0.0584

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

Date of Test: March 12, 2008

Traffic Channel Number	PCS Frequency (MHz	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	*PPM*
512	1850.2	3.6	20	16.79	0.0091
661	1880.0	3.6	20	9.17	0.0049
810	1909.8	3.6	20	-11.88	-0.0062

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	3.7	20	-16.08	-0.0087
661	1880.0	3.7	20	-18.34	-0.0098
810	1909.8	3.7	20	-21.44	-0.0112

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	4.2	20	-15.30	-0.0083
661	1880.0	4.2	20	-16.59	-0.0088
810	1909.8	4.2	20	-14.01	-0.0073

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PCS 1900 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	37.97	0.0205
512	1850.2	3.6	-20	39.39	0.0213
512	1850.2	3.6	-10	-26.47	-0.0143
512	1850.2	3.6	0	-14.46	-0.0078
512	1850.2	3.6	10	-8.72	-0.0047
512	1850.2	3.6	20	16.79	0.0091
512	1850.2	3.6	30	-44.10	-0.0238
512	1850.2	3.6	40	-62.05	-0.0335
512	1850.2	3.6	50	-51.98	-0.0281
512	1850.2	3.6	60	-52.24	-0.0282

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	3.7	-30	47.78	0.0258
512	1850.2	3.7	-20	-11.88	-0.0064
512	1850.2	3.7	-10	-45.98	-0.0249
512	1850.2	3.7	0	-33.06	-0.0179
512	1850.2	3.7	10	-33.13	-0.0179
512	1850.2	3.7	20	-16.08	-0.0087
512	1850.2	3.7	30	-49.07	-0.0265
512	1850.2	3.7	40	-57.21	-0.0309
512	1850.2	3.7	50	-38.36	-0.0207
512	1850.2	3.7	60	-56.63	-0.0306

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.2	4.2	-30	62.83	0.0340
512	1850.2	4.2	-20	20.79	0.0112
512	1850.2	4.2	-10	-39.97	-0.0216
512	1850.2	4.2	0	-25.18	-0.0136
512	1850.2	4.2	10	-31.06	-0.0168
512	1850.2	4.2	20	-15.30	-0.0083
512	1850.2	4.2	30	-52.11	-0.0282
512	1850.2	4.2	40	-60.57	-0.0327
512	1850.2	4.2	50	-44.36	-0.0240
512	1850.2	4.2	60	-62.96	**-0.0340**

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PCS 1900 Results: channel 661 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880	3.6	-30	45.01	0.0239
661	1880	3.6	-20	22.41	0.0119
661	1880	3.6	-10	-38.03	-0.0202
661	1880	3.6	0	-20.60	-0.0110
661	1880	3.6	10	-20.15	-0.0107
661	1880	3.6	20	9.17	0.0049
661	1880	3.6	30	-47.14	-0.0251
661	1880	3.6	40	-60.37	-0.0321
661	1880	3.6	50	-45.65	-0.0243
661	1880	3.6	60	-52.43	-0.0279

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880	3.7	-30	47.85	0.0255
661	1880	3.7	-20	-12.40	-0.0066
661	1880	3.7	-10	-44.17	-0.0235
661	1880	3.7	0	-35.13	-0.0187
661	1880	3.7	10	-42.55	-0.0226
661	1880	3.7	20	-18.34	-0.0098
661	1880	3.7	30	-51.79	-0.0275
661	1880	3.7	40	-57.86	-0.0308
661	1880	3.7	50	-40.03	-0.0213
661	1880	3.7	60	-53.92	-0.0287

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880	4.2	-30	-18.60	-0.0099
661	1880	4.2	-20	24.09	0.0128
661	1880	4.2	-10	-38.61	-0.0205
661	1880	4.2	0	-27.83	-0.0148
661	1880	4.2	10	-29.06	-0.0155
661	1880	4.2	20	-16.59	-0.0088
661	1880	4.2	30	-51.85	-0.0276
661	1880	4.2	40	-61.73	-0.0328
661	1880	4.2	50	-41.58	-0.0221
661	1880	4.2	60	16.47	0.0088

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PCS 1900 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	48.30	0.0253
810	1909.8	3.6	-20	14.92	0.0078
810	1909.8	3.6	-10	-36.55	-0.0191
810	1909.8	3.6	0	-28.41	-0.0149
810	1909.8	3.6	10	-31.06	-0.0163
810	1909.8	3.6	20	-11.88	-0.0062
810	1909.8	3.6	30	-49.98	-0.0262
810	1909.8	3.6	40	-59.66	-0.0312
810	1909.8	3.6	50	-42.04	-0.0220
810	1909.8	3.6	60	-57.47	-0.0301

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.8	3.7	-30	52.76	0.0276
810	1909.8	3.7	-20	-16.34	-0.0086
810	1909.8	3.7	-10	-47.20	-0.0247
810	1909.8	3.7	0	-36.55	-0.0191
810	1909.8	3.7	10	-48.43	-0.0254
810	1909.8	3.7	20	-21.44	-0.0112
810	1909.8	3.7	30	-56.63	-0.0297
810	1909.8	3.7	40	-54.95	-0.0288
810	1909.8	3.7	50	-38.55	-0.0202
810	1909.8	3.7	60	-55.92	-0.0293

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.8	4.2	-30	-20.02	-0.0105
810	1909.8	4.2	-20	25.76	0.0135
810	1909.8	4.2	-10	-35.13	-0.0184
810	1909.8	4.2	0	-27.57	-0.0144
810	1909.8	4.2	10	-31.96	-0.0167
810	1909.8	4.2	20	-14.01	-0.0073
810	1909.8	4.2	30	-55.53	-0.0291
810	1909.8	4.2	40	-61.15	-0.0320
810	1909.8	4.2	50	-49.20	-0.0258
810	1909.8	4.2	60	15.11	0.0079

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WCDMA Band V 850 Channel results: channels 4132, 4182 and 4233 @ 20°C maximum transmitted power

Date of Test: March 12, 2008

Traffic Channel Number	WCDMA850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.40	3.6	20	4.76	0.0058
4182	836.40	3.6	20	-4.62	-0.0055
4233	846.60	3.6	20	-12.60	-0.0149

Traffic Channel Number	WCDMA850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.40	3.7	20	9.89	0.0120
4182	836.40	3.7	20	9.72	0.0116
4233	846.60	3.7	20	4.32	0.0051

Traffic Channel Number	WCDMA850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.40	4.2	20	8.90	0.0108
4182	836.40	4.2	20	12.08	0.0144
4233	846.60	4.2	20	6.44	0.0076

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WCDMA Band V 850 Results: channel 4132 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.40	3.6	-30	-6.35	-0.0077
4132	826.40	3.6	-20	3.91	0.0047
4132	826.40	3.6	-10	6.69	0.0081
4132	826.40	3.6	0	-5.20	-0.0063
4132	826.40	3.6	10	8.47	0.0102
4132	826.40	3.6	20	4.76	0.0058
4132	826.40	3.6	30	-8.22	-0.0100
4132	826.40	3.6	40	2.21	0.0027
4132	826.40	3.6	50	-11.72	-0.0142
4132	826.40	3.6	60	2.41	0.0029

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.40	3.7	-30	6.00	0.0073
4132	826.40	3.7	-20	5.84	0.0071
4132	826.40	3.7	-10	6.79	0.0082
4132	826.40	3.7	0	12.77	0.0155
4132	826.40	3.7	10	4.78	0.0058
4132	826.40	3.7	20	9.89	0.0120
4132	826.40	3.7	30	2.70	0.0033
4132	826.40	3.7	40	3.46	0.0042
4132	826.40	3.7	50	-8.61	-0.0104
4132	826.40	3.7	60	-2.53	-0.0031

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4132	826.40	4.2	-30	4.56	0.0055
4132	826.40	4.2	-20	4.75	0.0282
4132	826.40	4.2	-10	8.48	0.0103
4132	826.40	4.2	0	15.24	0.0184
4132	826.40	4.2	10	5.89	0.0071
4132	826.40	4.2	20	8.90	0.0108
4132	826.40	4.2	30	-7.98	-0.0097
4132	826.40	4.2	40	9.31	0.0113
4132	826.40	4.2	50	-11.86	-0.0143
4132	826.40	4.2	60	-3.69	-0.0045

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WCDMA Band V 850 Results: channel 4182 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4182	836.40	3.6	-30	12.15	0.0145
4182	836.40	3.6	-20	8.94	0.0107
4182	836.40	3.6	-10	6.28	0.0075
4182	836.40	3.6	0	21.80	**0.0261**
4182	836.40	3.6	10	12.51	0.0150
4182	836.40	3.6	20	-4.62	-0.0055
4182	836.40	3.6	30	14.21	0.0170
4182	836.40	3.6	40	13.35	0.0160
4182	836.40	3.6	50	-4.78	-0.0057
4182	836.40	3.6	60	15.12	0.0181

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4182	836.40	3.7	-30	13.61	0.0163
4182	836.40	3.7	-20	11.14	0.0133
4182	836.40	3.7	-10	6.38	0.0076
4182	836.40	3.7	0	10.62	0.0127
4182	836.40	3.7	10	9.41	0.0113
4182	836.40	3.7	20	9.72	0.0116
4182	836.40	3.7	30	18.36	0.0219
4182	836.40	3.7	40	16.40	0.0196
4182	836.40	3.7	50	-3.48	-0.0042
4182	836.40	3.7	60	14.13	0.0169

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4182	836.40	4.2	-30	14.01	0.0167
4182	836.40	4.2	-20	9.34	0.0279
4182	836.40	4.2	-10	-3.31	-0.0040
4182	836.40	4.2	0	12.74	0.0152
4182	836.40	4.2	10	11.17	0.0134
4182	836.40	4.2	20	12.08	0.0144
4182	836.40	4.2	30	14.94	0.0179
4182	836.40	4.2	40	19.29	0.0231
4182	836.40	4.2	50	-6.27	-0.0075
4182	836.40	4.2	60	13.95	0.0167

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WCDMA Band V 850 Results: channel 4233 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4233	846.60	3.6	-30	-7.28	-0.0086
4233	846.60	3.6	-20	11.81	0.0140
4233	846.60	3.6	-10	-2.45	-0.0029
4233	846.60	3.6	0	-9.20	-0.0109
4233	846.60	3.6	10	7.52	0.0089
4233	846.60	3.6	20	-12.60	-0.0149
4233	846.60	3.6	30	-3.01	-0.0036
4233	846.60	3.6	40	-6.82	-0.0081
4233	846.60	3.6	50	7.39	0.0087
4233	846.60	3.6	60	3.20	0.0038

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4233	846.60	3.7	-30	-3.22	-0.0038
4233	846.60	3.7	-20	-14.53	-0.0172
4233	846.60	3.7	-10	-2.43	-0.0029
4233	846.60	3.7	0	8.19	0.0097
4233	846.60	3.7	10	7.78	0.0092
4233	846.60	3.7	20	4.32	0.0051
4233	846.60	3.7	30	3.74	0.0044
4233	846.60	3.7	40	-5.45	-0.0064
4233	846.60	3.7	50	7.19	0.0085
4233	846.60	3.7	60	-2.55	-0.0030

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
4233	846.60	4.2	-30	4.61	0.0054
4233	846.60	4.2	-20	13.52	0.0274
4233	846.60	4.2	-10	-10.41	-0.0123
4233	846.60	4.2	0	10.51	0.0124
4233	846.60	4.2	10	9.12	0.0108
4233	846.60	4.2	20	6.44	0.0076
4233	846.60	4.2	30	3.08	0.0036
4233	846.60	4.2	40	6.03	0.0071
4233	846.60	4.2	50	6.42	0.0076
4233	846.60	4.2	60	-5.97	-0.0070

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WCDMA Band II 1900 Channel results: channels 9262, 9400 and 9538 @ 20°C maximum transmitted power

Date of Test: March 12-13, 2008

Traffic Channel Number	WCDMA PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	3.6	20	8.26	0.0045
9400	1880.0	3.6	20	10.35	0.0055
9538	1907.6	3.6	20	5.16	0.0027

Traffic Channel Number	WCDMA PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	3.7	20	-10.57	-0.0057
9400	1880.0	3.7	20	-7.64	-0.0041
9538	1907.6	3.7	20	-9.66	-0.0051

Traffic Channel Number	WCDMA PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	4.2	20	-10.19	-0.0055
9400	1880.0	4.2	20	11.51	0.0061
9538	1907.6	4.2	20	-9.78	-0.0051

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WCDMA Band II 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	-18.48	-0.0100
9262	1852.4	3.6	-20	6.36	0.0034
9262	1852.4	3.6	-10	-7.80	-0.0042
9262	1852.4	3.6	0	-11.52	-0.0062
9262	1852.4	3.6	10	3.46	0.0019
9262	1852.4	3.6	20	8.26	0.0045
9262	1852.4	3.6	30	-18.02	-0.0097
9262	1852.4	3.6	40	-19.53	-0.0105
9262	1852.4	3.6	50	-15.17	-0.0082
9262	1852.4	3.6	60	-15.82	-0.0085

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	3.7	-30	-28.75	**-0.0155**
9262	1852.4	3.7	-20	7.17	0.0039
9262	1852.4	3.7	-10	-14.98	-0.0081
9262	1852.4	3.7	0	-15.37	-0.0083
9262	1852.4	3.7	10	12.08	0.0065
9262	1852.4	3.7	20	-10.57	-0.0057
9262	1852.4	3.7	30	-23.01	-0.0124
9262	1852.4	3.7	40	-11.95	-0.0064
9262	1852.4	3.7	50	-26.08	-0.0141
9262	1852.4	3.7	60	-17.07	-0.0092

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.4	4.2	-30	-12.51	-0.0068
9262	1852.4	4.2	-20	7.90	0.0043
9262	1852.4	4.2	-10	-13.66	-0.0074
9262	1852.4	4.2	0	-13.37	-0.0072
9262	1852.4	4.2	10	-5.68	-0.0031
9262	1852.4	4.2	20	-10.19	-0.0055
9262	1852.4	4.2	30	-12.34	-0.0067
9262	1852.4	4.2	40	-11.06	-0.0060
9262	1852.4	4.2	50	-10.62	-0.0057
9262	1852.4	4.2	60	-19.84	-0.0107

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WCDMA Band II 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	-17.23	-0.0092
9400	1880.0	3.6	-20	-4.04	-0.0022
9400	1880.0	3.6	-10	-11.15	-0.0059
9400	1880.0	3.6	0	10.64	0.0057
9400	1880.0	3.6	10	-10.59	-0.0056
9400	1880.0	3.6	20	10.35	0.0055
9400	1880.0	3.6	30	-17.97	-0.0096
9400	1880.0	3.6	40	-25.04	-0.0133
9400	1880.0	3.6	50	-27.80	-0.0148
9400	1880.0	3.6	60	-8.38	-0.0045

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9400	1880.0	3.7	-30	-25.28	-0.0134
9400	1880.0	3.7	-20	12.92	0.0069
9400	1880.0	3.7	-10	-7.54	-0.0040
9400	1880.0	3.7	0	15.29	0.0081
9400	1880.0	3.7	10	7.68	0.0041
9400	1880.0	3.7	20	-7.64	-0.0041
9400	1880.0	3.7	30	-13.90	-0.0074
9400	1880.0	3.7	40	-21.85	-0.0116
9400	1880.0	3.7	50	-15.85	-0.0084
9400	1880.0	3.7	60	-16.54	-0.0088

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9400	1880.0	4.2	-30	-20.51	-0.0109
9400	1880.0	4.2	-20	-10.10	-0.0054
9400	1880.0	4.2	-10	-3.86	-0.0021
9400	1880.0	4.2	0	9.09	0.0048
9400	1880.0	4.2	10	-7.61	-0.0041
9400	1880.0	4.2	20	11.51	0.0061
9400	1880.0	4.2	30	4.20	0.0022
9400	1880.0	4.2	40	-9.55	-0.0051
9400	1880.0	4.2	50	-14.89	-0.0079
9400	1880.0	4.2	60	-14.69	-0.0078

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WCDMA Band II 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	-22.72	-0.0119
9538	1907.6	3.6	-20	-6.68	-0.0035
9538	1907.6	3.6	-10	-20.95	-0.0110
9538	1907.6	3.6	0	-6.18	-0.0032
9538	1907.6	3.6	10	-5.22	-0.0027
9538	1907.6	3.6	20	5.16	0.0027
9538	1907.6	3.6	30	-14.14	-0.0074
9538	1907.6	3.6	40	-6.59	-0.0035
9538	1907.6	3.6	50	-17.93	-0.0094
9538	1907.6	3.6	60	-9.31	-0.0049

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9538	1907.6	3.7	-30	-22.09	-0.0116
9538	1907.6	3.7	-20	12.24	0.0064
9538	1907.6	3.7	-10	-8.33	-0.0044
9538	1907.6	3.7	0	11.90	0.0062
9538	1907.6	3.7	10	-5.49	-0.0029
9538	1907.6	3.7	20	-9.66	-0.0051
9538	1907.6	3.7	30	-10.21	-0.0054
9538	1907.6	3.7	40	-5.37	-0.0028
9538	1907.6	3.7	50	-6.90	-0.0036
9538	1907.6	3.7	60	-19.91	-0.0104

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9538	1907.6	4.2	-30	-10.82	-0.0057
9538	1907.6	4.2	-20	-16.80	-0.0088
9538	1907.6	4.2	-10	8.76	0.0046
9538	1907.6	4.2	0	-13.57	-0.0071
9538	1907.6	4.2	10	15.67	0.0082
9538	1907.6	4.2	20	-9.78	-0.0051
9538	1907.6	4.2	30	5.84	0.0031
9538	1907.6	4.2	40	-13.24	-0.0069
9538	1907.6	4.2	50	-25.73	-0.0135
9538	1907.6	4.2	60	-12.95	-0.0068

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APPENDIX 4 – RADIATED EMMISIONS TEST DATA

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Radiated Power Test Data Results

GSM850 Band

GSM Mode

The environmental tests conditions were: Temperature 24° C
Pressure 1016 mb
Relative Humidity 22%

Date of test: March 07, 2008 Test distance is 3.0 metres

The measurements were performed by Gurjeev Singh and Vimal Olaganathan.

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)
GSM850 Band (ERP) BlackBerry® smartphone, PIN 206CE13A Standalone, USB down position													
F0	128	824.20	850	Dipole	V	74.35	85.86	V-V	11.81	27.49	0.561	38.50	-11.01
F0	128	824.20	850	Dipole	V	85.86		H-H	11.18				
F0	195	837.60	850	Dipole	V	73.22	85.45	V-V	12.62	**28.30**	0.676	38.50	-10.20
F0	195	837.60	850	Dipole	V	85.45		H-H	10.55				
F0	251	848.80	850	Dipole	V	73.58	85.21	V-V	12.18	27.86	0.611	38.50	-10.64
F0	251	848.80	850	Dipole	V	85.21		H-H	10.27				

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Radiated Power Test Data Results, Cont'd

GSM850 Band

GPRS Mode

The environmental tests conditions were: Temperature 24° C
Pressure 1016 mb
Relative Humidity 22%

Date of test: March 07, 2008 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)
GSM850 Band (ERP) BlackBerry® smartphone Standalone, USB down position													
F0	128	824.20	850	Dipole	V	72.58	84.69	V-V	10.64	26.32	0.429	38.50	-12.18
F0	128	824.20	850	Dipole	H	84.69		H-H	9.94				
F0	195	837.60	850	Dipole	V	71.68	83.85	V-V	10.83	26.51	0.448	38.50	-11.99
F0	195	837.60	850	Dipole	H	83.85		H-H	8.87				
F0	251	848.80	850	Dipole	V	72.34	83.72	V-V	10.74	26.42	0.439	38.50	-12.08
F0	251	848.80	850	Dipole	H	83.72		H-H	8.77				

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Radiated Power Test Data Results, Cont'd

GSM850 Band

EDGE Mode

The environmental tests conditions were: Temperature 24° C
Pressure 1016 mb
Relative Humidity 22%

Date of test: March 07, 2008 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)
GSM850 Band (ERP) BlackBerry® smartphone Standalone, USB down position													
F0	128	824.20	850	Dipole	V	72.08	84.48	V-V	10.37	26.05	0.403	38.50	-12.45
F0	128	824.20	850	Dipole	H	84.48		H-H	9.68				
F0	195	837.60	850	Dipole	V	71.84	78.62	V-V	5.55	21.23	0.133	38.50	-17.27
F0	195	837.60	850	Dipole	H	78.62		H-H	3.76				
F0	251	848.80	850	Dipole	V	71.74	83.76	V-V	10.78	**26.46**	0.443	38.50	-12.04
F0	251	848.80	850	Dipole	H	83.76		H-H	8.81				

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Radiated Power Test Data Results, Cont'd

WCDMA850 Band

RMC Mode

The environmental tests conditions were: Temperature 23° C
Pressure 1026 mb
Relative Humidity 22%

Date of test: March 17, 2008 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)
WCDMA Band V 850 (ERP) BlackBerry® smartphone Standalone, USB down position, RMC mode at 12.2 kps													
F0	4132	826.40	850	Dipole	V	65.95	77.35	V-V	4.80	20.48	0.112	38.50	-18.02
F0	4132	826.40	850	Dipole	H	77.35		H-H	3.13				
F0	4182	836.40	850	Dipole	V	65.20	77.30	V-V	5.17	20.85	0.122	38.50	-17.65
F0	4182	836.40	850	Dipole	H	77.30		H-H	3.52				
F0	4233	846.60	850	Dipole	V	65.26	77.72	V-V	5.70	**21.19**	0.132	38.50	-17.31
F0	4233	846.60	850	Dipole	H	77.72		H-H	4.32				

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Radiated Power Test Data Results cont'd

PCS1900 Band

GSM Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1009 mb
Relative Humidity 28%

Date of test: April 22, 2008 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)
PCS BAND (EIRP) BlackBerry® smartphone Standalone, USB up position													
F0	512	1850.20	1900	Horn	V	90.70	90.7	V-V	-9.78	26.55	0.452	33	-6.45
F0	512	1850.20	1900	Horn	H	85.42		H-H	-8.34				
F0	661	1880.00	1900	Horn	V	90.76	90.76	V-V	-8.34	**27.89**	0.615	33	-5.11
F0	661	1880.00	1900	Horn	H	84.67		H-H	-6.85				
F0	810	1909.80	1900	Horn	V	89.61	89.61	V-V	-8.54	26.88	0.488	33	-6.12
F0	810	1909.80	1900	Horn	H	83.89		H-H	-7.49				

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Radiated Power Test Data Results cont'd

PCS1900 Band

GPRS Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1009 mb
Relative Humidity 28%

Date of test: April 22, 2008 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)
PCS BAND (EIRP) BlackBerry® smartphone Standalone, USB up position													
F0	512	1850.20	1900	Horn	V	87.80	87.80	V-V	-10.13	25.58	0.361	33	-7.42
F0	512	1850.20	1900	Horn	H	82.90		H-H	-9.31				
F0	661	1880.00	1900	Horn	V	87.19	87.19	V-V	-9.44	26.80	0.479	33	-6.20
F0	661	1880.00	1900	Horn	H	82.13		H-H	-7.94				
F0	810	1909.80	1900	Horn	V	86.78	86.78	V-V	-9.48	26.21	0.418	33	-6.79
F0	810	1909.80	1900	Horn	H	80.82		H-H	-8.16				

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Radiated Power Test Data Results cont'd

PCS1900 Band

EDGE Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1009 mb
Relative Humidity 28%

Date of test: April 22, 2008 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)
PCS BAND (EIRP) BlackBerry® smartphone Standalone, USB up position													
F0	512	1850.20	1900	Horn	V	87.78	87.78	V-V	-10.04	25.66	0.361	33	-7.34
F0	512	1850.20	1900	Horn	H	82.70		H-H	-9.23				
F0	661	1880.00	1900	Horn	V	87.53	87.53	V-V	-9.17	**26.97**	0.498	33	-6.03
F0	661	1880.00	1900	Horn	H	81.84		H-H	-7.77				
F0	810	1909.80	1900	Horn	V	87.00	87.00	V-V	-9.28	26.45	0.442	33	-6.55
F0	810	1909.80	1900	Horn	H	80.76		H-H	-7.92				

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Radiated Power Test Data Results cont'd

WCDMA1900

RMC Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1009 mb
Relative Humidity 28%

Date of test: may 12, 2008 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)
WCDMA1900 BAND II (EIRP) BlackBerry® smartphone Standalone, USB up position, RMC mode at 12.2 kps.													
F0	9262	1852.40	1900	Horn	V	84.96	84.96	V-V	-14.82	21.48	0.141	33	-11.52
F0	9262	1852.40	1900	Horn	H	80.06		H-H	-13.41				
F0	9400	1880.00	1900	Horn	V	86.14	86.14	V-V	-12.81	**23.40**	0.219	33	-9.60
F0	9400	1880.00	1900	Horn	H	79.5		H-H	-11.34				
F0	9538	1907.60	1900	Horn	V	86.36	86.36	V-V	-12.54	22.87	0.194	33	-10.13
F0	9538	1907.60	1900	Horn	H	79.67		H-H	-11.50				

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Radiated Emissions Test Data Results

GSM850

The environmental test conditions were: Temperature 23ºC
Pressure 997 mb
Relative Humidity 22%

Date of Test: March 12-13 2008

The measurements were performed by Vimal Olaganathan.

The frequency sweep from 30 MHz to 9 GHz was performed in GSM 850 Tx mode, at centre channel. Test distance was 3.0 metres with a EUT height of 1.0 metre,
The BlackBerry® smartphone PIN 206CE13A was in standalone, vertical position.

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Radiated Emissions Test Data Results cont'd

GSM850

The environmental test conditions were: Temperature 24ºC
Pressure 1016 mb
Relative Humidity 22%

Date of Test: March 07, 2008
The measurements were performed by Vimal Olaganathan

The measurements were performed in GSM850 Tx mode.
Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CE13A was in standalone.

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)	Limit (dBm)	Diff to Limit (dB)
GSM850 Band (Harmonics) BlackBerry® smartphone Standalone, USB up **Low Channel –** 824.2 MHz												
2nd	128	1648.40	850	Horn	V	46.85	52.21	V-V	-10.18	-45.98	-13	-32.98
2nd	128	1648.40	850	Horn	H	52.21		H-H	-9.30			
3rd	128	2472.60	850	Horn	V	48.09	59.24	V-V	8.27	-29.42	-13	-16.42
3rd	128	2472.60	850	Horn	H	59.24		H-H	6.79			
4th	128	3296.80	850	Horn	V	NF	40.20	V-V	-11.56	-47.86	-13	-34.86
4th	128	3296.80	850	Horn	H	40.2		H-H	-12.11			
5th	128	4121.00	850	Horn	V	NF	40.33	V-V	-8.79	-44.96	-13	-31.96
5th	128	4121.00	850	Horn	H	40.33		H-H	-8.36			
6th	128	4945.20	850	Horn	V	NF	NF	-	-	-	-13	-
6th	128	4945.20	850	Horn	H	NF		-	-			
7th	128	5769.40	850	Horn	V	NF	NF	-	-	-	-13	-
7th	128	5769.40	850	Horn	H	NF		-	-			
8th	128	6593.60	850	Horn	V	44.75	45.26	V-V	12.98	-26.25	-13	**-13.25**
8th	128	6593.60	850	Horn	H	45.26		H-H	14.23			
The emissions were investigated up to the 10th harmonic. Emissions above the 8th harmonic were in the NF.												

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Radiated Emissions Test Data Results cont'd

GSM850 Mode cont'd

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)	Limit (dBm)	Diff to Limit (dB)
GSM850 Band (Harmonics) BlackBerry® smartphone Standalone, USB up **Middle Channel –** 837.6 MHz												
2nd	195	1675.20	850	Horn	V	43.43	51.78	V-V	-11.35	-46.39	-13	-33.39
2nd	195	1675.20	850	Horn	H	51.78		H-H	-9.37			
3rd	195	2512.80	850	Horn	V	48.90	58.56	V-V	7.99	-29.54	-13	-16.54
3rd	195	2512.80	850	Horn	H	58.56		H-H	7.12			
4th	195	3350.40	850	Horn	V	NF	NF	-	-	-	-13	-
4th	195	3350.40	850	Horn	H	NF		-	-			
5th	195	4188.00	850	Horn	V	NF	NF	-	-	-	-13	-
5th	195	4188.00	850	Horn	H	NF		-	-			
6th	195	5025.60	850	Horn	V	NF	NF	-	-	-	-13	-
6th	195	5025.60	850	Horn	H	NF		-	-			
7th	195	5863.20	850	Horn	V	NF	NF	-	-	-	-13	-
7th	195	5863.20	850	Horn	H	NF		-	-			
8th	195	6700.80	850	Horn	V	43.81	43.81	V-V	10.13	-28.41	-13	-15.41
8th	195	6700.80	850	Horn	H	43.21		H-H	12.28			
The emissions were investigated up to the 10th harmonic. Emissions above the 8th harmonic were in the NF.												

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Radiated Emissions Test Data Results cont'd

GSM850 Mode cont'd

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)	Limit (dBm)	Diff to Limit (dB)
GSM850 Band (Harmonics) BlackBerry® smartphone Standalone, USB up **High Channel –** 848.8 MHz												
2nd	251	1697.60	850	Horn	V	44.91	52.04	V-V	-10.59	-45.16	-13	-32.16
2nd	251	1697.60	850	Horn	H	52.04		H-H	-8.14			
3rd	251	2546.40	850	Horn	V	46.64	57.80	V-V	7.90	-29.58	-13	-16.58
3rd	251	2546.40	850	Horn	H	57.80		H-H	6.50			
4th	251	3395.20	850	Horn	V	NF	NF	-	-	-	-13	-
4th	251	3395.20	850	Horn	H	NF		-	-			
5th	251	4244.00	850	Horn	V	NF	NF	-	-	-	-13	-
5th	251	4244.00	850	Horn	H	NF		-	-			
6th	251	5092.80	850	Horn	V	NF	NF	-	-	-	-13	-
6th	251	5092.80	850	Horn	H	NF		-	-			
7th	251	5941.60	850	Horn	V	NF	NF	-	-	-	-13	-
7th	251	5941.60	850	Horn	H	NF		-	-			
8th	251	6790.40	850	Horn	V	41.81	42.22	V-V	9.08	-30.61	-13	-17.61
8th	251	6790.40	850	Horn	H	42.22		H-H	10.02			
The emissions were investigated up to the 10th harmonic. Emissions above the 8th harmonic were in the NF.												

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Radiated Emissions Test Data Results cont'd

GPRS850 Mode

The environmental test conditions were: Temperature 24ºC
Pressure 1010 mb
Relative Humidity 28%

The measurements were performed in GSM850 GPRS Tx mode.

Date of Test: March 07 2008

Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CE13A was in standalone.

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)	Limit (dBm)	Diff to Limit (dB)
GSM850 Band (Harmonics) BlackBerry® smartphone Standalone, USB up **Low Channel –** 824.2 MHz												
2nd	128	1648.40	850	Horn	V	44.14	48.48	V-V	-14.71	-49.94	-13	-36.94
2nd	128	1648.40	850	Horn	H	48.48		H-H	-13.26			
3rd	128	2472.60	850	Horn	V	47.44	58.22	V-V	6.27	-31.42	-13	-18.42
3rd	128	2472.60	850	Horn	H	58.22		H-H	5.51			
4th	128	3296.80	850	Horn	V	NF	NF	-	-	-	-13	-
4th	128	3296.80	850	Horn	H	NF		-	-			
5th	128	4121.00	850	Horn	V	NF	39.66	-	-9.89	-45.58	-13	-32.58
5th	128	4121.00	850	Horn	H	39.66		-	-8.98			
6th	128	4945.20	850	Horn	V	NF	NF	-	-	-	-13	-
6th	128	4945.20	850	Horn	H	NF		-	-			
7th	128	5769.40	850	Horn	V	NF	NF	-	-	-	-13	-
7th	128	5769.40	850	Horn	H	NF		-	-			
8th	128	6593.60	850	Horn	V	42.97	44.48	V-V	12.14	-26.80	-13	-13.80
8th	128	6593.60	850	Horn	H	44.48		H-H	13.68			
The emissions were investigated up to the 10th harmonic. Emissions above the 8th harmonic were in the NF.												

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Radiated Emissions Test Data Results cont'd

GPRS850 Mode cont'd

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)	Limit (dBm)	Diff to Limit (dB)
GSM850 Band (Harmonics) BlackBerry® smartphone Standalone, USB up **Middle Channel –** 837.6 MHz												
2nd	195	1675.20	850	Horn	V	43.73	49.91	V-V	-13.8	-48.47	-13	-35.47
2nd	195	1675.20	850	Horn	H	49.91		H-H	-11.45			
3rd	195	2512.80	850	Horn	V	46.9	58.65	V-V	8.38	-29.15	-13	-16.15
3rd	195	2512.80	850	Horn	H	58.65		H-H	7.43			
4th	195	3350.40	850	Horn	V	NF	NF	-	-	-	-13	-
4th	195	3350.40	850	Horn	H	NF		-	-			
5th	195	4188.00	850	Horn	V	NF	NF	-	-	-	-13	-
5th	195	4188.00	850	Horn	H	NF		-	-			
6th	195	5025.60	850	Horn	V	NF	NF	-	-	-	-13	-
6th	195	5025.60	850	Horn	H	NF		-	-			
7th	195	5863.20	850	Horn	V	NF	NF	-	-	-	-13	-
7th	195	5863.20	850	Horn	H	NF		-	-			
8th	195	6700.80	850	Horn	V	42.75	43.32	V-V	9.86	-29.21	-13	-16.21
8th	195	6700.80	850	Horn	H	43.32		H-H	11.48			
The emissions were investigated up to the 10th harmonic. Emissions above the 8th harmonic were in the NF.												

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Radiated Emissions Test Data Results cont'd

GPRS850 Mode cont'd

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)	Limit (dBm)	Diff to Limit (dB)
GSM850 Band (Harmonics) BlackBerry® smartphone Standalone, USB up **High Channel –** 848.8 MHz												
2nd	251	1697.60	850	Horn	V	43.47	51.11	V-V	-12.07	-46.36	-13	-33.36
2nd	251	1697.60	850	Horn	H	51.11		H-H	-9.34			
3rd	251	2546.40	850	Horn	V	45.77	56.26	V-V	6.01	-31.47	-13	-18.47
3rd	251	2546.40	850	Horn	H	56.26		H-H	4.95			
4th	251	3395.20	850	Horn	V	NF	NF	-	-	-	-13	-
4th	251	3395.20	850	Horn	H	NF		-	-			
5th	251	4244.00	850	Horn	V	NF	NF	-	-	-	-13	-
5th	251	4244.00	850	Horn	H	NF		-	-			
6th	251	5092.80	850	Horn	V	NF	NF	-	-	-	-13	-
6th	251	5092.80	850	Horn	H	NF		-	-			
7th	251	5941.60	850	Horn	V	NF	NF	-	-	-	-13	-
7th	251	5941.60	850	Horn	H	NF		-	-			
8th	251	6790.40	850	Horn	V	39.88	40.78	V-V	6.16	-32.43	-13	-19.43
8th	251	6790.40	850	Horn	H	40.78		H-H	8.20			
The emissions were investigated up to the 10th harmonic. Emissions above the 8th harmonic were in the NF.												

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Radiated Emissions Test Data Results cont'd

EDGE850 Mode

The environmental test conditions were: Temperature 24ºC
Pressure 1016 mb
Relative Humidity 22%

The measurements were performed in GSM850 EDGE Tx mode.

Date of Test: March 07, 2008

Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CE13A was in standalone.

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)	Limit (dBm)	Diff to Limit (dB)
GSM850 Band (Harmonics) BlackBerry® smartphone Standalone, USB up **Low Channel –** 824.2 MHz												
2nd	128	1648.40	850	Horn	V	44.66	49.26	V-V	-13.94	-49.23	-13	-36.23
2nd	128	1648.40	850	Horn	H	49.26		H-H	-12.55			
3rd	128	2472.60	850	Horn	V	46.72	58.42	V-V	6.43	-31.26	-13	-18.26
3rd	128	2472.60	850	Horn	H	58.42		H-H	5.86			
4th	128	3296.80	850	Horn	V	NF	NF	V-V	-	-	-13	-
4th	128	3296.80	850	Horn	H	NF		H-H	-			
5th	128	4121.00	850	Horn	V	NF	39.61	V-V	-9.94	-46.04	-13	-33.04
5th	128	4121.00	850	Horn	H	39.61		H-H	-9.44			
6th	128	4945.20	850	Horn	V	NF	NF	-	-	-	-13	-
6th	128	4945.20	850	Horn	H	NF		-	-			
7th	128	5769.40	850	Horn	V	NF	NF	-	-	-	-13	-
7th	128	5769.40	850	Horn	H	NF		-	-			
8th	128	6593.60	850	Horn	V	43.03	43.93	V-V	11.09	-27.48	-13	-14.48
8th	128	6593.60	850	Horn	H	43.93		H-H	13.00			
The emissions were investigated up to the 10th harmonic. Emissions above the 8th harmonic were in the NF.												

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Radiated Emissions Test Data Results cont'd

EDGE850 Mode cont'd

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)	Limit (dBm)	Diff to Limit (dB)
GSM850 Band (Harmonics) BlackBerry® smartphone Standalone, USB up **Middle Channel –** 837.6 MHz												
2nd	195	1675.20	850	Horn	V	42.83	49.36	V-V	-13.26	-49.29	-13	-36.29
2nd	195	1675.20	850	Horn	H	49.36		H-H	-12.27			
3rd	195	2512.80	850	Horn	V	46.61	57.94	V-V	7.40	-30.13	-13	-17.13
3rd	195	2512.80	850	Horn	H	57.94		H-H	6.50			
4th	195	3350.40	850	Horn	V	NF	NF	-	-	-	-13	-
4th	195	3350.40	850	Horn	H	NF		-	-			
5th	195	4188.00	850	Horn	V	NF	NF	-	-	-	-13	-
5th	195	4188.00	850	Horn	H	NF		-	-			
6th	195	5025.60	850	Horn	V	NF	NF	-	-	-	-13	-
6th	195	5025.60	850	Horn	H	NF		-	-			
7th	195	5863.20	850	Horn	V	NF	NF	-	-	-	-13	-
7th	195	5863.20	850	Horn	H	NF		-	-			
8th	195	6700.80	850	Horn	V	42.31	42.59	V-V	8.64	-29.88	-13	-16.88
8th	195	6700.80	850	Horn	H	42.59		H-H	10.81			
The emissions were investigated up to the 10th harmonic. Emissions above the 8th harmonic were in the NF.												

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Radiated Emissions Test Data Results cont'd

EDGE850 Mode cont'd

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)	Limit (dBm)	Diff to Limit (dB)
GSM850 Band (Harmonics) B BlackBerry® smartphone Standalone, USB up **High Channel –** 848.8 MHz												
2nd	251	1697.60	850	Horn	V	42.55	51.09	V-V	-10.17	-46.38	-13	-33.38
2nd	251	1697.60	850	Horn	H	51.09		H-H	-9.36			
3rd	251	2546.40	850	Horn	V	45.34	55.61	V-V	5.17	-32.31	-13	-19.31
3rd	251	2546.40	850	Horn	H	55.61		H-H	4.14			
4th	251	3395.20	850	Horn	V	NF	NF	-	-	-	-13	-
4th	251	3395.20	850	Horn	H	NF		-	-			
5th	251	4244.00	850	Horn	V	NF	NF	-	-	-	-13	-
5th	251	4244.00	850	Horn	H	NF		-	-			
6th	251	5092.80	850	Horn	V	NF	NF	-	-	-	-13	-
6th	251	5092.80	850	Horn	H	NF		-	-			
7th	251	5941.60	850	Horn	V	NF	NF	-	-	-	-13	-
7th	251	5941.60	850	Horn	H	NF		-	-			
8th	251	6790.40	850	Horn	V	41.24	41.24	V-V	7.31	-32.09	-13	-19.09
8th	251	6790.40	850	Horn	H	41.07		H-H	8.54			
The emissions were investigated up to the 10th harmonic. Emissions above the 8th harmonic were in the NF.												

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Radiated Emissions Test Data Results cont'd

GSM850 Mode

The environmental test conditions were: Temperature 24ºC
Pressure 1016 mb
Relative Humidity 22%

The measurements were performed in GSM850 Tx mode.

Date of Test: March 07, 2008

Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CE13A was in standalone.

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)	Limit (dBm)	Diff to Limit (dB)
GSM BAND **RF Local Oscillator (LO_1)** BlackBerry® smartphone Standalone, USB up **Low Channel (824.2 MHz)**												
F0	128	3296.8	850	Horn	V	NF	NF	V-V	-	-	-13	-
F0	128	3296.8	850	Horn	H	NF						
Emissions were in the NF. **High Channel (848.8 MHz)**												
F0	251	3395.2	850	Horn	V	NF	NF	V-V	-	-	-13	-
F0	251	3395.2	850	Horn	H	NF						
Emissions were in the NF. **RF LO_2** **Low Channel (824.2 MHz)**												
F0	128	3476.80	850	Horn	V	NF	NF	V-V	-	-	-13	-
F0	128	3476.80	850	Horn	H	NF						
Emissions were in the NF. **High Channel (848.8 MHz)**												
F0	251	3575.20	850	Horn	V	NF	NF	V-V	-	-	-13	-
F0	251	3575.20	850	Horn	H	NF						
Emissions were in the NF.												

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Radiated Emissions Test Data Results cont'd

WCDMA850

RMC Tx Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1020 mb
Relative Humidity 22%

Date of Test: March 28 2008

The frequency sweep from 30 MHz to 9 GHz was performed in WCDMA850 Tx mode at centre channel.
Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CE13A was in standalone, vertical position.

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Radiated Emissions Test Data Results cont'd

WCDMA850 RMC Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1016 mb
Relative Humidity 22%
The measurements were performed in WCDMA Tx mode. Date of Test: March 17, 2008

Test Distance was 1.0 metre with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CEB117 was in standalone.

								Substitution Method				
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Pol. Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	Limit (dBm)	Diff to Limit (dB)
WCDMA BAND V (Harmonics) BlackBerry® smartphone Standalone, USB down **Low Channel** 826.4 MHz												
2nd	4132	1652.80	5	Horn	V	48.84	49.56	V-V	-21.79	-58.43	-13	-45.43
2nd	4132	1652.80	5	Horn	H	49.56		H-H	-21.75			
3rd	4132	2479.20	5	Horn	V	47.71	47.71	V-V	-20.49	-57.75	-13	-44.75
3rd	4132	2479.20	5	Horn	H	NF		H-H	-20.22			
The emissions were investigated up to the 10th harmonic. Emissions above the 3rd harmonic were in the NF **Middle Channel** 836.4 MHz												
2nd	4182	1672.80	5	Horn	V	49.61	51.78	V-V	-18.99	-55.82	-13	-42.82
2nd	4182	1672.80	5	Horn	H	51.78		H-H	-19.06			
The emissions were investigated up to the 10th harmonic. Emissions above the 2nd harmonic were in the NF **High Channel** 846.6 MHz												
2nd	4233	1693.20	5	Horn	V	51.95	53.99	V-V	-15.62	-52.64	-13	**-39.64**
2nd	4233	1693.20	5	Horn	H	53.99		H-H	-15.91			
The emissions were investigated up to the 10th harmonic. Emissions above the 2nd harmonic were in the NF												

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Radiated Emissions Test Data Results cont'd

WCDMA850 RMC Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1018 mb
Relative Humidity 24%

The measurements were performed in WCDMA Tx mode. Date of Test: May 12, 2008

Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CEB117 was in standalone.

EUT				Rx Antenna		Spectrum Analyzer			Substitution Method Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Corrected Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	Limit (dBm)	Diff to Limit (dB)
RF LO_1 . BlackBerry® smartphone Standalone, Vertical **Low Channel**													
F0	Low	3296.00	850	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	Low	3296.00	850	Horn	H	NF							
Emissions were in the NF. **High Channel**													
F0	High	3396.00	850	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	High	3396.00	850	Horn	H	NF							
Emissions were in the NF. **RF LO_2** **Low Channel**													
F0	Low	3476.00	850	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	Low	3476.00	850	Horn	H	NF							
Emissions were in the NF. **High Channel**													
F0	High	3576.00	850	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	High	3576.00	850	Horn	H	NF							
Emissions were in the NF.													

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Radiated Emissions Test Data Results cont'd

PCS1900

GSM Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1016 mb
Relative Humidity 23%

Date of Test: April 14 2008
The frequency sweep from 30 MHz to 19 GHz were performed in PCS1900 Tx mode at centre channel.
Test distance was 3.0 metres with a EUT height of 1.0 metres.
The BlackBerry® smartphone PIN 206CE13A was in standalone, vertical position.

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Radiated Emissions Test Data Results cont'd

PCS1900

GSM Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1011 mb
Relative Humidity 27%

The measurements were performed in PCS Tx mode. Date of Test: April 18, 2008
The test distance was 3.0 metres with a EUT height of 1.0 metres.
The BlackBerry® smartphone PIN 206CE13A was in standalone, vertical position.

								Substitution Method				
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Pol. Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	Limit (dBm)	Diff to Limit (dB)
PCS BAND (Harmonics) BlackBerry® smartphone Standalone, USB up **Low Channel** 1850.2 MHz												
2nd	512	3700.40	1900	Horn	V	41.37	41.37	V-V	-5.83	-41.90	-13	-28.90
2nd	512	3700.40	1900	Horn	H	39.01		H-H	-6.28			
The emissions were investigated up to the 10th harmonic. Emissions above the 2nd harmonic were in the NF **Middle Channel** 1880.0 MHz												
2nd	661	3760.00	1900	Horn	V	42.43	42.43	V-V	-3.92	-40.05	-13	-27.05
2nd	661	3760.00	1900	Horn	H	40.99		H-H	-3.93			
3rd	661	5640.00	1900	Horn	V	39.25	39.25	V-V	0.89	-38.68	-13	-
3rd	661	5640.00	1900	Horn	H	NF		H-H	-			
The emissions were investigated up to the 10th harmonic. Emissions above the 3rd harmonic were in the NF **High Channel** 1909.8 MHz												
2nd	810	3819.60	1900	Horn	V	43.94	43.94	V-V	-3.18	-39.09	-13	**-26.09**
2nd	810	3819.60	1900	Horn	H	43.56		H-H	-2.89			
3rd	810	5729.4	1900	Horn	V	39.44	39.44	V-V	2.60	-37.02	-13	-
3rd	810	5729.4	1900	Horn	H	NF		H-H	-			
The emissions were investigated up to the 10th harmonic. Emissions above the 3rd harmonic were in the NF												

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Radiated Emissions Test Data Results cont'd

GPRS1900 Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1011 mb
Relative Humidity 27%

The measurements were performed in PCS GPRS Tx mode.

Date of Test: April 18, 2008

Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CEB117 was in standalone.

								Substitution Method				
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Pol. Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	Limit (dBm)	Diff to Limit (dB)
PCS BAND (Harmonics) BlackBerry® smartphone Standalone, USB up **Low Channel** 1850.2 MHz												
2nd	512	3700.40	1900	Horn	V	38.74	38.74	V-V	-9.69	-45.76	-13	-32.76
2nd	512	3700.40	1900	Horn	H	37.88		H-H	-10.02			
The emissions were investigated up to the 10th harmonic. Emissions above the 2nd harmonic were in the NF **Middle Channel** 1880.0 MHz												
2nd	661	3760.00	1900	Horn	V	40.11	40.11	V-V	-7.13	-43.26	-13	-30.26
2nd	661	3760.00	1900	Horn	H	39.01		H-H	-7.55			
The emissions were investigated up to the 10th harmonic. Emissions above the 2nd harmonic were in the NF **High Channel** 1909.8 MHz												
2nd	810	3819.60	1900	Horn	V	41.26	41.26	V-V	-6.60	-42.47	-13	-29.47
2nd	810	3819.60	1900	Horn	H	39.87		H-H	-6.27			
The emissions were investigated up to the 10th harmonic. Emissions above the 2nd harmonic were in the NF												

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Radiated Emissions Test Data Results cont'd

EDGE1900 Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1011 mb
Relative Humidity 27%

The measurements were performed in PCS EDGE Tx mode.

Date of Test: April 18, 2008

Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CEB117 was in standalone.

								Substitution Method				
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Pol. Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	Limit (dBm)	Diff to Limit (dB)
PCS BAND (Harmonics) BlackBerry® smartphone Standalone, USB up **Low Channel** 1850.2 MHz												
2nd	512	3700.40	1900	Horn	V	38.78	38.78	V-V	-9.38	-44.14	-13	-31.14
2nd	512	3700.40	1900	Horn	H	37.49		H-H	-8.07			
The emissions were investigated up to the 10th harmonic. Emissions above the 2nd harmonic were in the NF **Middle Channel** 1880.0 MHz												
2nd	661	3760.00	1900	Horn	V	40.56	40.56	V-V	-6.10	-41.78	-13	-28.78
2nd	661	3760.00	1900	Horn	H	39.06		H-H	-5.65			
The emissions were investigated up to the 10th harmonic. Emissions above the 2nd harmonic were in the NF **High Channel** 1909.8 MHz												
2nd	810	3819.60	1900	Horn	V	43.26	43.26	V-V	-4.01	-40.14	-13	-27.14
2nd	810	3819.60	1900	Horn	H	39.89		H-H	-3.94			
The emissions were investigated up to the 10th harmonic. Emissions above the 2nd harmonic were in the NF												

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Radiated Emissions Test Data Results cont'd

PCS1900

GSM Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1011 mb
Relative Humidity 27%

The measurements were performed in PCS Tx mode. Date of Test: April 18, 2008

Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CEB117 was in standalone.

EUT				Rx Antenna		Spectrum Analyzer			Substitution Method Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Corrected Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	Limit (dBm)	Diff to Limit (dB)
RF LO_1 . BlackBerry® smartphone Standalone, Vertical													
Low Channel													
F0	512	3700.4	1900	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	512	3700.4	1900	Horn	H	NF							
Emissions were in the NF.													
High Channel													
F0	810	3819.6	1900	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	810	3819.6	1900	Horn	H	NF							
Emissions were in the NF.													
RF LO_2													
Low Channel													
F0	512	3860.4	1900	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	512	3860.4	1900	Horn	H	NF							
Emissions were in the NF.													
High Channel													
F0	810	3979.6	1900	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	810	3979.6	1900	Horn	H	NF							
Emissions were in the NF.													

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Radiated Emissions Test Data Results cont'd

WCDMA1900

RMC Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1017 mb
Relative Humidity 23%

Date of Test: April 15 2008
The frequency sweep from 30 MHz to 20 GHz was performed in WCDMA1900 Tx mode at centre channel.
Test Distance was 3.0 metres with a EUT height of 1.0 metres.
The BlackBerry® smartphone PIN 206CE13A was in standalone, vertical position.

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		(PK or AVE)	(dBµV)	(dB/m)	(dB/m)	(dB)	(dB)
(MHz)	(V/H)	(metres)	(Deg.)						
5773.500	V	3.17	167	PK	42.38	-72.03	-29.65	-13.00	**-16.65**
5780.860	H	1.65	62	PK	41.81	-72.03	-30.22	-13.00	-17.22

The environmental test conditions were: Temperature 23ºC
Pressure 1017 mb
Relative Humidity 24%

Date of Test: April 10, 2008

The harmonics up to the 10th harmonic on low, mid and high channels were performed for the Band II harmonics. BlackBerry® smartphone PIN 206CE13A was in WCDMA Tx mode.

Test Distance was 1.0 metre with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CEB117 was in standalone, vertical position.

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

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Radiated Emissions Test Data Results cont'd

WCDMA1900 RMC Mode

The environmental test conditions were: Temperature 23ºC
Pressure 1018 mb
Relative Humidity 24%

The measurements were performed in WCDMA Tx mode. Date of Test: May 12, 2008

Test Distance was 3.0 metres with a EUT height of 1.0 metre.
The BlackBerry® smartphone PIN 206CEB117 was in standalone.

EUT				Rx Antenna		Spectrum Analyzer			Substitution Method Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Corrected Reading (dBuV)	Max (V,H) (dBuV)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	Limit (dBm)	Diff to Limit (dB)
RF LO_1 . BlackBerry® smartphone Standalone, Vertical **Low Channel**													
F0	9262	3700.00	2	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	9262	3700.00	2	Horn	H	NF							
Emissions were in the NF. **High Channel**													
F0	9538	3820.00	2	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	9538	3820.00	2	Horn	H	NF							
Emissions were in the NF. **RF LO_2** **Low Channel**													
F0	9262	3860.00	2	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	9262	3860.00	2	Horn	H	NF							
Emissions were in the NF. **High Channel**													
F0	9538	3980.00	2	Horn	V	NF	NF	-	V-V	-	-	-	-
F0	9538	3980.00	2	Horn	H	NF							
Emissions were in the NF.													

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