

EMI Test Report

Tested in accordance with
Federal Communications Commission (FCC)
Personal Communications Services
CFR 47 Parts 2, 22, 24 and 27
&
Industry Canada (IC) RSS-132, 133 and 139



A division of Research In Motion Limited

REPORT NO: RTS-2671-1006-34

PRODUCT MODEL NO:	RDB71UW
TYPE NAME:	BlackBerry® smartphone
FCC ID:	L6ARDB70UW
IC:	2503A-RDB70UW
EMISSION DESIGNATOR (GSM):	248KGXW
EMISSION DESIGNATOR (EDGE):	248KG7W
EMISSION DESIGNATOR (WCDMA):	4M19F9W

DATE: 07 June 2010

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Test Report No. RTS-2671-1006-34	Dates of Test April 7, May 4, 21 & June 7, 2010	FCC ID: L6ARDB70UW IC: 2503A-RDB70UW

Statement of Performance:

The BlackBerry® smartphone, model RDB71UW, part number CER-31896-001 Rev 3 and accessories performs within the requirements of the test standards when configured and operated per RIM's instructions.

Declaration:

We hereby certify that:

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

Documented by:



Fahd Faisal
Regulatory Compliance Associate
Date: 7 June 2010

Reviewed by:



Michael Cino
Regulatory Compliance Associate
Date: 10 June 2010

Reviewed and Approved by:



Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance
Date: 16 June 2010

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A) Scope

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

- FCC CFR 47 Part 2, October 2009
- FCC CFR 47 Part 22, Subpart H, Cellular Radiotelephone Services, October 2009
- FCC CFR 47 Part 24 Subpart E, Broadband PCS, October 2009
- FCC CFR 47 Part 27 Subpart C, Technical Standards, October 2009
- Industry Canada, RSS-132 Issue 2, September 2005, Cellular Telephones Employing New Technologies Operating in the Bands 824-849 MHz and 869-894 MHz.
- Industry Canada, RSS-133 Issue 5, February 2009, 2 GHz Personal Communications Services.
- Industry Canada, RSS-139 Issue 2, February 2009, Advanced Wireless Services Equipment Operating in the Bands 1710 – 1755 and 2110 – 2155 MHz

B) Associated Documents

- 1) 9300_RDB71UW_HW_Declaration_Rev2
- 2) 9300_RDB71UW_HW_Declaration_Rev3
- 3) RTS-2671-1005-97
- 4) CETECOM test report 1-2190-01-02/10
- 5) MultiSourceDeclaration_9300_b1169

C) Product Identification

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

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

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

RIM Testing Services EMI test facilities
440 Phillip Street
Waterloo, Ontario,
Canada , N2L 5R9
Phone: 519 888 7465
Fax: 519 888 6906

CETECOM ICT Services GmbH
Untertürkheimer Str. 6 – 10
D-66117 Saarbrücken
Germany

The testing was performed on April 7, May 4, 21 & June 7, 2010.

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The sample EUT included:

SAMPLE	MODEL	CER NUBER	PIN	SOFTWARE
1	RDB71UW	CER-31896-001 Rev 1	2215C8CE	V5.0.0.606 (Platform 6.3.0.1) Bundle 1019
2	RDB71UW	CER-31896-001 Rev 3	22490E28	V5.0.0.684 (Platform 6.3.0.11) Bundle 1169

RF Conducted Emissions testing was performed on sample 1.

RF Radiated Emissions testing was performed on sample 2.

To view the differences between CER-31896-001 Rev 1 and CER-31896-001 Rev 2, see document number 9300_RDB71UW_HW_Declaration _Rev 2.

To view the differences between CER-31896-001 Rev 2 and CER-31896-001 Rev 3, see document number 9300_RDB71UW_HW_Declaration _Rev 3.

To view the differences between bundles 1019 and 1169, see the document number MultiSourceDeclaration_9300_b1169.

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

D) Support Equipment Used for the Testing of the EUT

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

E) Test Voltage

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

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F) Test Results Chart

SPECIFICATION		TEST TYPE	RESULT	TEST DATA APPENDIX
FCC CFR 47	IC			
Part 2.1051 Part 22.917 Part 22.901	RSS-GEN, 4.9	GSM 850 Conducted Spurious Emissions	See Test Report RTS-2671-1005-97	-
Part 2.1051 Part 24.238(a)	RSS-GEN, 4.9	GSM PCS Conducted Spurious Emissions	See Test Report RTS-2671-1005-97	-
Part 2.202 Part 22.917	RSS-GEN, 4.6	GSM 850 Occupied Bandwidth and Channel Mask	See Test Report RTS-2671-1005-97	-
Part 2.202 Part 24.238	RSS-GEN, 4.6	GSM PCS Occupied Bandwidth and Channel Mask	See Test Report RTS-2671-1005-97	-
Part 2.1046(a)	RSS-133, 6.4 RSS-132, 4.4	GSM Conducted RF Output Power	Pass	2A
Part 2.1055(a)(d) Part 22.917	RSS-132, 4.3	GSM 850 Frequency Stability vs. Temperature and Voltage	See Test Report RTS-2671-1005-97	-
Part 2.1055(a)(d) Part 24.235	RSS-132, 4.3	GSM PCS Frequency Stability vs. Temperature and Voltage	See Test Report RTS-2671-1005-97	-
Part 24, Subpart E	RSS-GEN, 4.9	GSM PCS EIRP	Pass	4
Part 22, Subpart H,	RSS-GEN, 4.9	GSM 850 ERP WCDMA UMTS 1700 EIRP	See CETECOM test report 1-2190-01-02/10	-
Part 22, Subpart H Part 24, Subpart E	RSS-GEN, 4.9	GSM Radiated Spurious/Harmonic Emissions	See CETECOM test report 1-2190-01-02/10	-
Part 27.53	RSS-139, 6.5	WCDMA UMTS1700 Conducted Spurious Emissions	Pass	1
Part 2.202 Part 27.53	RSS-GEN, 2.3	WCDMA UMTS1700 Occupied Bandwidth and Channel Mask	Pass	1
Part 2.1046(a)	RSS-139, 6.4	WCDMA UMTS1700 Conducted RF Output Power	Pass	2B
Part 2.1055(a)(d) Part 27.54	RSS-139, 6.3	WCDMA UMTS1700 Frequency Stability vs. Temperature and Voltage	Pass	3
Part 27.53	RSS-139, 6.5	WCDMA UMTS1700 Radiated Spurious/Harmonic Emissions	See CETECOM test report 1-2190-01-02/10	-
Part 27.50	RSS-139, 6.4	WCDMA UMTS1700 EIRP	See CETECOM test report 1-2190-01-02/10	-

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G) Summary of Results

1) Conducted Emission Measurements

- a) The BlackBerry® smartphone met the requirements of the Conducted Spurious Emissions in the UMTS1700 band as per 47 CFR 27.53 and RSS-139, 6.5. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz.
See APPENDIX 1B for the test data.
- b) The BlackBerry® smartphone met the requirements of the Occupied Bandwidth in the UMTS1700 band as per 47 CFR 2.202, CFR 27.53 and RSS-139, 2.3. The low, middle and high channels were measured. The worst case 99% Occupied Bandwidth was 4.158 MHz
See APPENDIX 1B for the test data.
- c) The BlackBerry® smartphone met the requirements of the Conducted RF Output Power for the UMTS1700 band as per 47 CFR 2.1046(a), RSS-139, 6.4 and RSS-132, 4.4. The low, middle and high channels were measured.
See APPENDIX 2B for the test data.
- d) The BlackBerry® smartphone met the requirements of the Frequency Stability vs. Temperature and Voltage for UMTS1700 band as per 47 CFR 2.1055(a)(d), CFR 27.54 and RSS-139, 6.3. The maximum frequency error measured was less than 0.1 ppm. The temperature range was from -30°C to +60°C in 10° temperature steps. The BlackBerry® smartphone was measured on low, middle and high channels at each temperature step. The BlackBerry® smartphone was measured at low (3.6 volts), nominal (3.7 volts) and high (4.2 volts) dc input voltage at each temperature step and channel at maximum output power.
See APPENDIX 3B for the test data.

2) Radiated Emission Measurements

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

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

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

The EIRP in the PCS band, GSM mode was measured on BlackBerry® smartphone. The highest ERP measured was 31.98 dBm (1.58 W) at 1880.00 MHz (channel 661).

The EIRP in the PCS band, EDGE mode was measured on BlackBerry® smartphone. The highest ERP measured was 29.84 dBm (0.96 W) at 1880.00 MHz (channel 661).

Sample Calculation:

Field Strength (dB μ V/M) is calculated as follows:

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

To view the test data see APPENDIX 4A and 4B.

Measurement Uncertainty ± 4.6 dB

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3) Compliance Test Equipment Used

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Preamplifier	Sonoma	310N/11909A	185831	10-11-14	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	10-11-06	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA4-SP	001	11-02-17	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	11-02-19	Radiated Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017301	11-02-02	Radiated Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017401	10-09-26	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030101	10-07-22	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030201	11-03-12	Radiated Emissions
Horn Antenna	Emco	3117	47563	11-07-15	Radiated Emissions
Horn Antenna	CMT	LHA 0180	R52734-001	12-01-21	Radiated Emissions
Preamplifier	TDK RF Solutions	18-26	030002	10-11-06	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	1018	11-03-12	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	974	10-10-16	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	10-11-30	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	112394	10-11-30	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	102204	10-11-25	RF Conducted Emissions
EMI Receiver	Rohde & Schwarz	ESIB-40	100255	10-11-30	Radiated Emissions
EMI Receiver	Rohde & Schwarz	ESU-40	100162	10-11-29	Radiated Emissions
Spectrum Analyzer	HP	8563E	3745A08112	11-09-30	RF Conducted Emissions
DC Power Supply	HP	6632B	US37472178	10-06-23	RF Conducted Emissions
Environment Monitor	Control Company	1870	230355190	11-01-08	Radiated Emissions

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Compliance Test Equipment Used cont'd

<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>SERIAL NUMBER</u>	<u>CAL DUE DATE</u> (YY MM DD)	<u>USE</u>
Environment Monitor	Control Company	1870	230355189	11-01-08	RF Conducted Emissions
Environment Monitor	Control Company	1870	80117164	11-01-08	Radiated Emissions
Temperature Probe	Control Company	15-077-21	51129471	10-05-01*	Frequency Stability
Environmental Chamber	ESPEC Corp.	SH-240S1	91007118	N/R	Frequency Stability
Signal Generator	Agilent	E8257D	MY45140527	11-11-05	Radiated Emissions
Signal Generator	Agilent	83630B	3844A00927	10-10-31	Radiated Emissions

* All testing done with the respective equipment was completed before the calibration due date

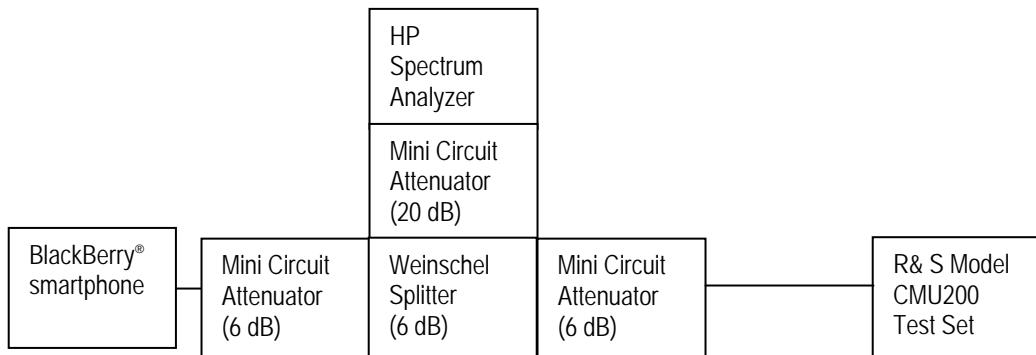
APPENDIX 1 – WCDMA CONDUCTED RF EMISSIONS TEST DATA/PLOTS

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WCDMA Conducted RF Emission Test Data

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

Test Setup Diagram



Date of Test: May 04, 2010

The environmental test conditions were: Temperature: 23 °C
Pressure: 1007 mb
Relative Humidity: 30 %

The following measurements were performed by Maurice Battler.

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WCDMA Conducted RF Emission Test Data cont'd

The conducted spurious emissions – As per 47 CFR 27.53 and RSS-139, 6.5 were measured from 10 MHz to 20 GHz. The EUT emissions were in the noise floor. See figures 1-1b to 1-6b for the plots of the conducted spurious emissions.

-26 dBc Bandwidth and Occupied Bandwidth (99%)

For each carrier frequency of low, middle and high, the modulation spectrum was measured by both methods of 99% power bandwidth and -26 dBc bandwidth.

The resolution bandwidth required for out-of-band emissions in the 1 MHz bands immediately outside and adjacent to the frequency block, was determined to be at least 1% of the emission bandwidth.

The worst case -26dBc bandwidth for the UMTS1700 band was measured to be 4.633 MHz as shown below. This results in a 3.0 kHz resolution bandwidth.

On any frequency outside the frequency block and outside the adjacent 1 MHz bands, a resolution bandwidth of at least 2 MHz was employed.

Test Data for 1700 band selected Frequencies in UMTS mode.

1700 band Frequency (MHz)	-26dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
1712.4	4.633	4.158
1732.6	4.633	4.158
1752.6	4.625	4.158

Measurement Plots for 1700 band in UMTS mode

Refer to the following measurement plots for more detail.

See Figures 1-7b to 1-12b for the plots of the -26dBc Bandwidth and 99% Occupied Bandwidth.

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

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

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WCDMA Conducted RF Emission Test Data cont'd

Figure 1-1b: UMTS1700 band, Spurious Conducted Emissions, Low channel

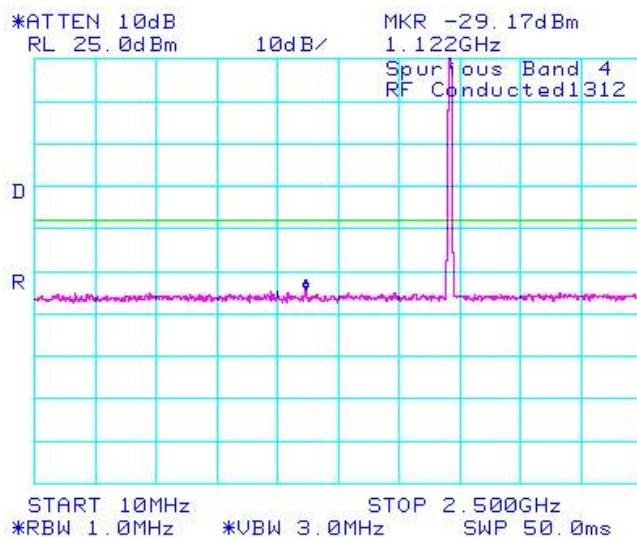


Figure 1-2b: UMTS1700 band, Spurious Conducted Emissions, Low channel



Figure 1-3b: UMTS1700 band, Spurious Conducted Emissions, Middle Channel

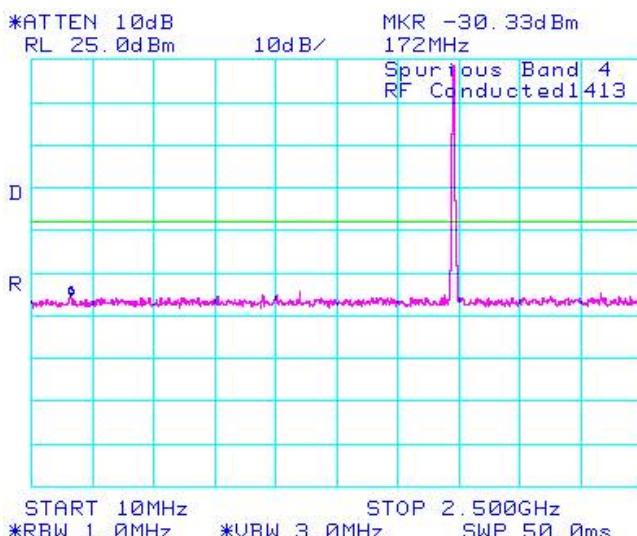
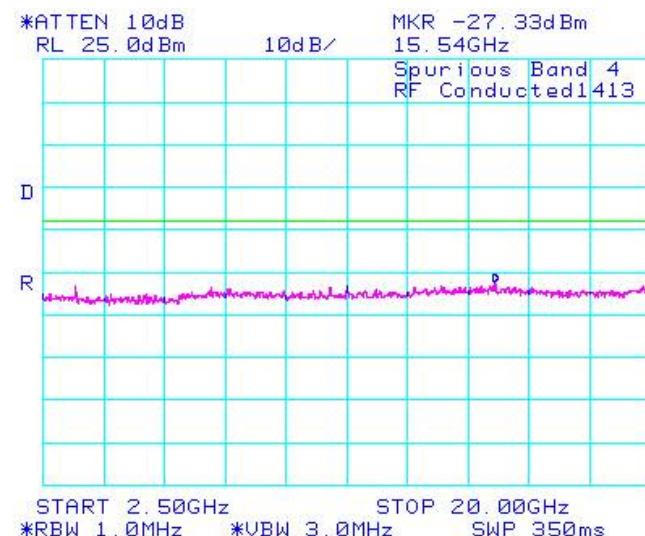


Figure 1-4b: UMTS1700 band, Spurious Conducted Emissions, Middle Channel



WCDMA Conducted RF Emission Test Data cont'd

Figure 1-5b: UMTS1700 band, Spurious Conducted Emissions, High Channel

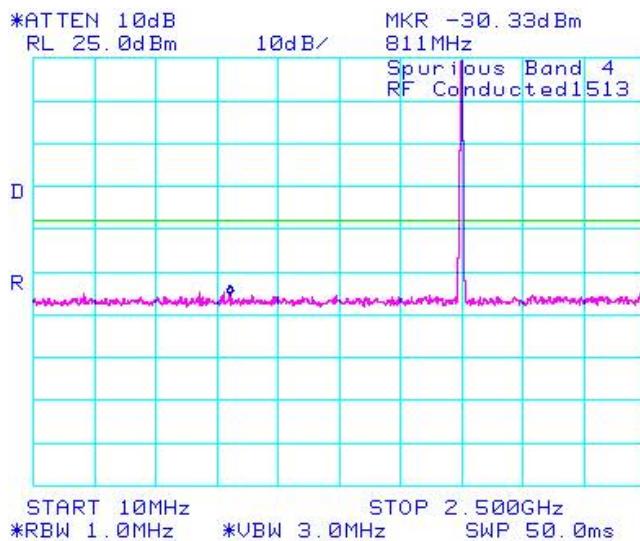


Figure 1-6b: UMTS1700 band, Spurious Conducted Emissions, High Channel

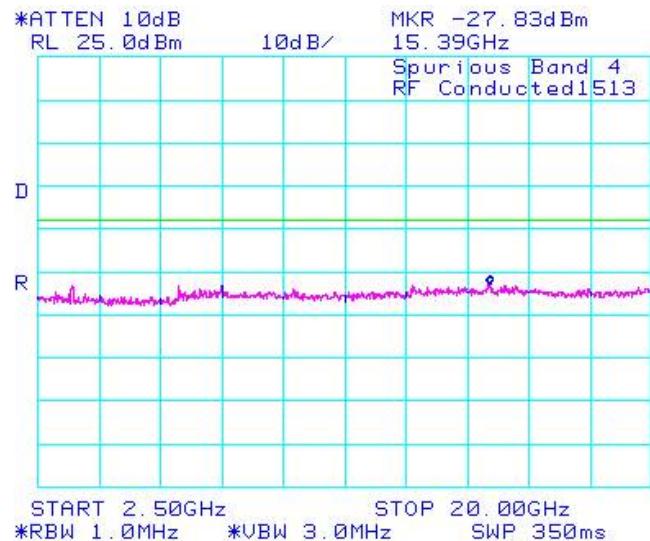


Figure 1-7b: -26dBc bandwidth, UMTS1700 band Low Channel

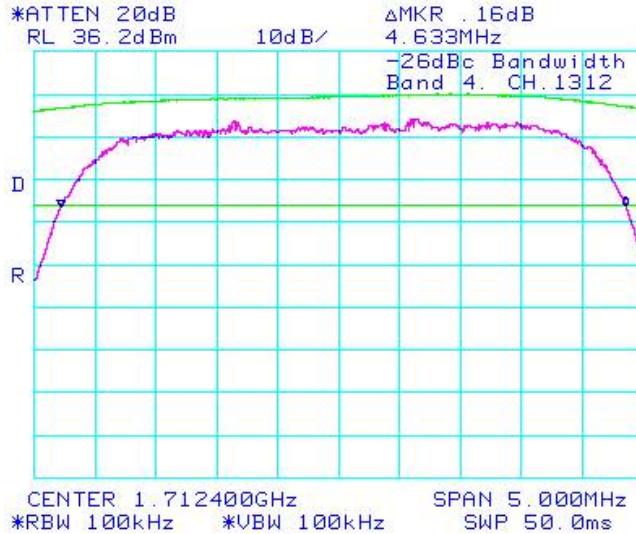
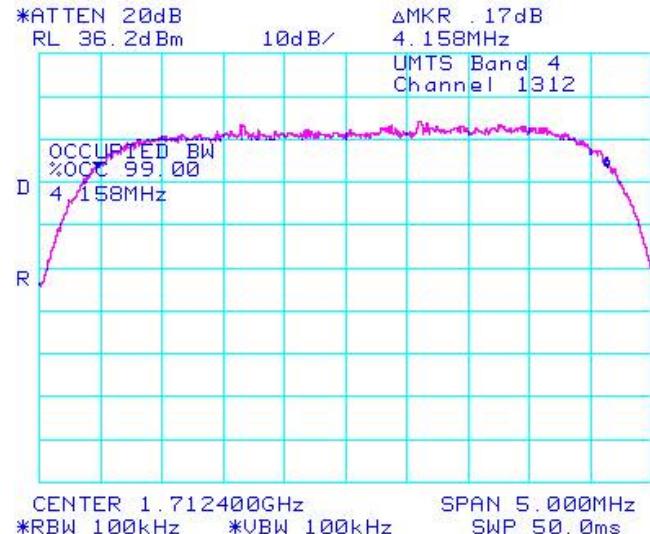


Figure 1-8b: Occupied Bandwidth, UMTS1700 band Low Channel



WCDMA Conducted RF Emission Test Data cont'd

Figure 1-9b: -26dBc bandwidth, UMTS1700 band Middle Channel

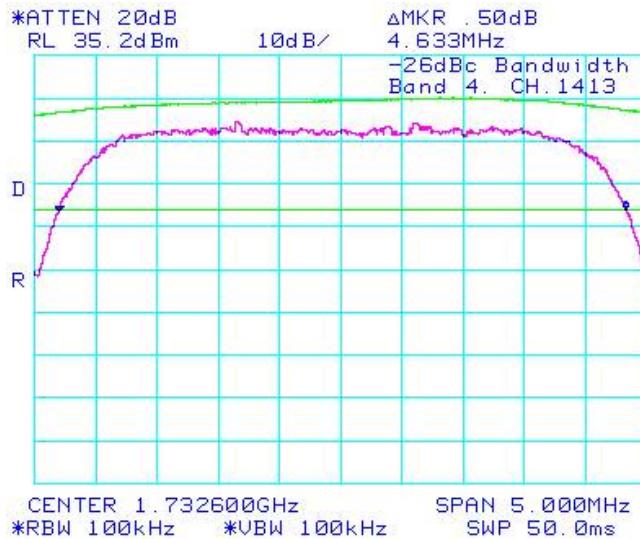


Figure 1-10b: Occupied Bandwidth, UMTS1700 band Middle Channel

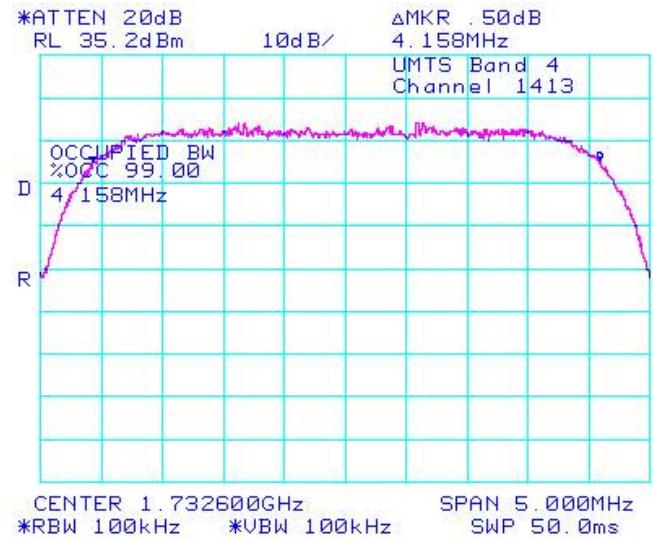


Figure 1-11b: -26dBc bandwidth, UMTS1700 band High Channel

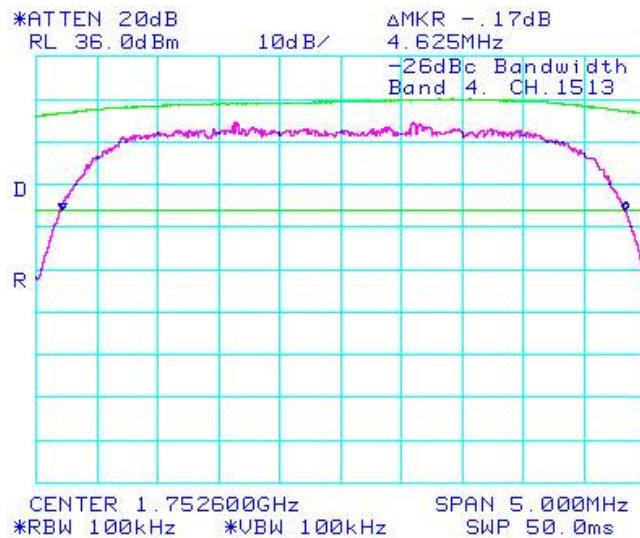
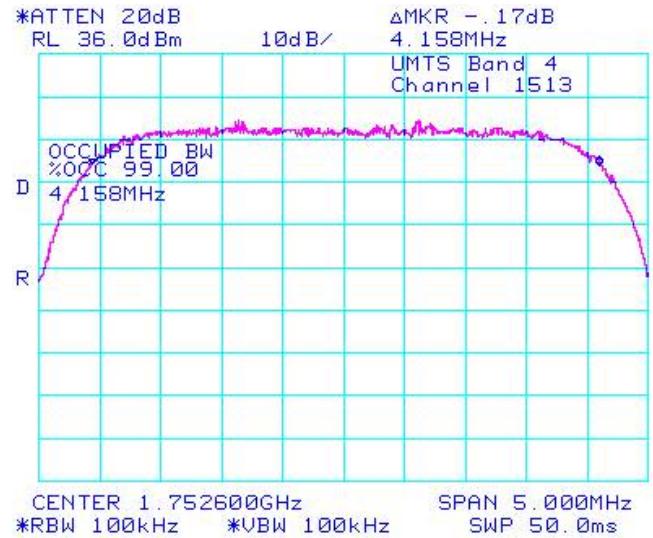


Figure 1-12b: Occupied Bandwidth, UMTS1700 band High Channel



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WCDMA Conducted RF Emission Test Data cont'd

Figure 1-13b: UMTS1700 band, Low Channel Mask

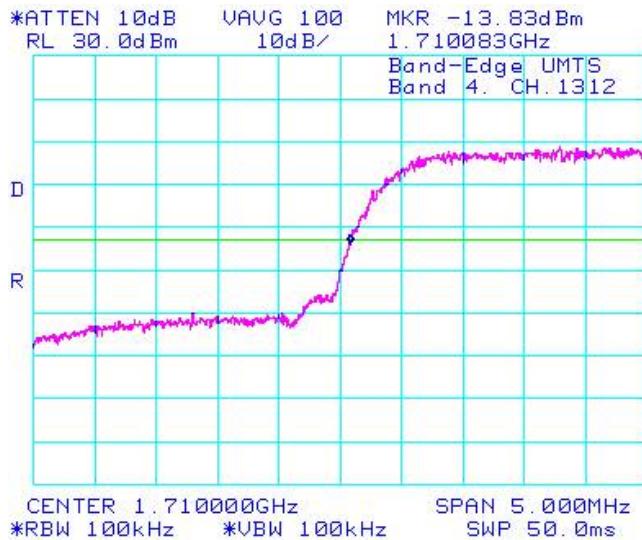
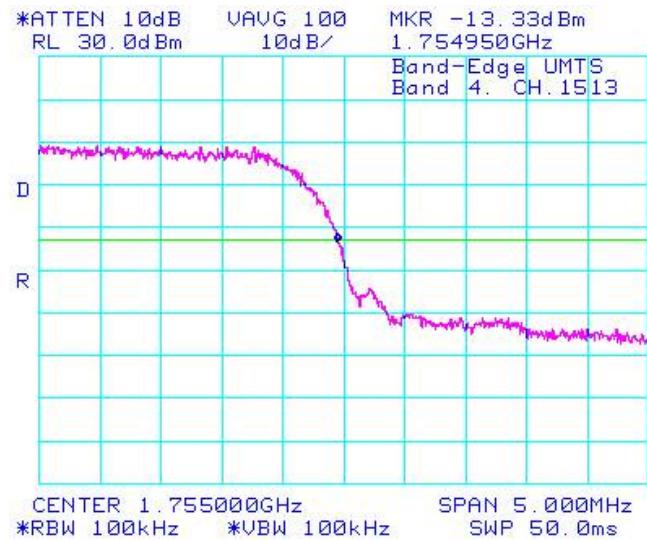


Figure 1-14b: UMTS1700 band High Channel Mask



APPENDIX 2A – GSM CONDUCTED RF OUTPUT POWER TEST DATA

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GSM Conducted RF Output Power Test Data

The following measurements were performed by Daoud Attayi.

The conducted RF output power was measured on the BlackBerry® smartphone using the Communication Tester, Rohde & Schwarz, model CMU 200. The low, middle and high channels were measured at maximum radio output power. The insertion loss of the coaxial cable from the CMU 200 to the BlackBerry® smartphone was compensated for in the measurements.

Date of Test: May 21, 2010

The environmental test conditions were: Temperature: 22.5-24 °C
Pressure: 1002-1013 mb
Relative Humidity: 23-24 %

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (Watts)	Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (Watts)
<u>GSM850</u>				<u>GSM850 EDGE/GPRS/GSM (2-timeslot)</u>			
128	824.20	31.3	1.35	128	824.20	29.1	0.81
189	837.60	32.1	1.62	189	837.60	29.9	0.98
251	848.80	32.7	1.86	251	848.80	30.5	1.12
<u>PCS</u>				<u>PCS EDGE/GPRS/GSM (2-timeslot)</u>			
512	1850.2	29.3	0.85	512	1850.2	27.2	0.52
661	1880.0	30.5	1.12	661	1880.0	28.1	0.65
810	1909.8	30.2	1.05	810	1909.8	28.2	0.66

APPENDIX 2B – WCDMA CONDUCTED RF OUTPUT POWER TEST DATA

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WCDMA Conducted RF Output Power Test Data

The following measurements were performed by Daoud Attayi.

The conducted RF output power was measured on the BlackBerry® smartphone using the Communication Tester, Rohde & Schwarz, model CMU 200. The low, middle and high channels were measured at maximum radio output power. The insertion loss of the coaxial cable from the CMU 200 to the BlackBerry® smartphone was compensated for in the measurements.

Date of Test: May 21, 2010

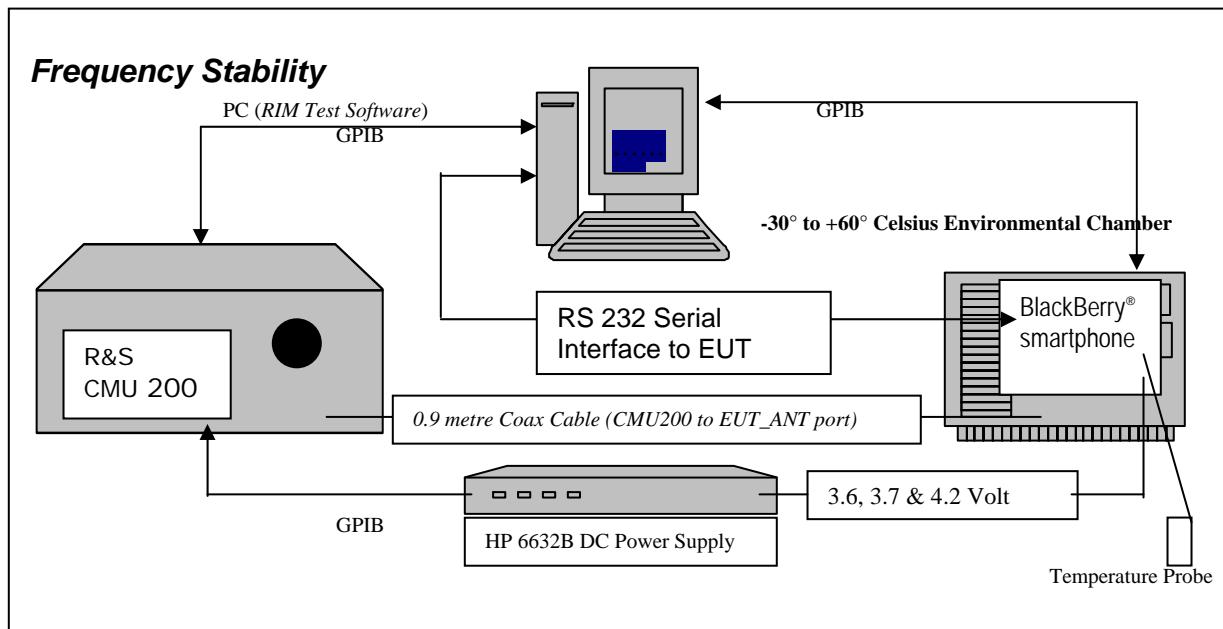
The environmental test conditions were:

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

	Band	FDD IV (1700)		
	Channel	1312	1413	1513
	Freq (MHz)	1712.4	1732.6	1752.6
Mode	Subtest	Conducted Transmit Power (dBm)		
Rel99	12.2 kbps RMC	23.60	23.39	23.95
Rel99	12.2 kbps AMR, SRB 3.4 kbps	23.56	23.35	23.95
Rel5 HSDPA	1	23.03	22.75	23.40
Rel5 HSDPA	2	23.04	22.71	23.45
Rel5 HSDPA	3	23.05	22.70	23.42
Rel5 HSDPA	4	23.02	22.72	23.43

APPENDIX 3 – WCDMA FREQUENCY STABILITY TEST DATA

WCDMA Frequency Stability Test Data



The following measurements were performed by Maurice Battler.

CFR 47 Chapter 1 - Federal Communications Commission Rules

Part 2 Required Measurements

2.1055 Frequency Stability - Procedures

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

24.235 Frequency Stability.

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

The EUT meets the requirements as stated in CFR 47 chapter 1, Section 27.54, CFR 47 and RSS-139, 6.3 Frequency Stability.

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

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

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

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

Procedure:

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

The chamber was switched on and the temperature was set to -30°C.

After the chamber stabilized at -30 °C there was a soak period of one hour to alleviate moisture in the chamber, the EUT voltage was enabled.

The system software recorded the frequency, power, and associated measurements.

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

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

The EUT output power and frequency was measured at 3.6 volts, 3.7 volts and 4.2 volts. The transmit frequency was varied in 3 steps consisting of 1712.4, 1732.6 and 1752.5 MHz for the UMTS1700 band. This frequency was recorded in MHz and deviation from nominal, in Parts Per Million.

After the initial one-hour soak at the beginning of the tests, a period of thirty minutes soak was initialized between each ascending temperature step, before proceeding to the next measurement test cycle.

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PROCEDURE:

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

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

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

The maximum frequency error in the UMTS1700 band measured was **0.0233 PPM**.

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UMTS1700 Channel results: channels 1312, 1412 and 1512 @ 20°C maximum transmitted power

The BlackBerry® smartphone was tested on April 7, 2010.

Traffic Channel Number	UMTS1700 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	3.6	20	24.25	0.0142
1412	1732.4	3.6	20	-5.28	-0.0030
1512	1752.4	3.6	20	10.25	0.0059

Traffic Channel Number	UMTS1700 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	3.7	20	8.54	0.0050
1412	1732.4	3.7	20	11.17	0.0064
1512	1752.4	3.7	20	23.04	0.0131

Traffic Channel Number	UMTS1700 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	4.2	20	11.22	0.0065
1412	1732.4	4.2	20	-8.73	-0.0050
1512	1752.4	4.2	20	9.89	0.0056

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UMTS1700 Results: channel 4132 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	3.6	-30	13.69	0.0080
1312	1712.4	3.6	-20	17.49	0.0102
1312	1712.4	3.6	-10	-4.09	-0.0024
1312	1712.4	3.6	0	5.19	0.0030
1312	1712.4	3.6	10	12.56	0.0073
1312	1712.4	3.6	20	24.25	0.0142
1312	1712.4	3.6	30	15.18	0.0089
1312	1712.4	3.6	40	7.52	0.0044
1312	1712.4	3.6	50	11.03	0.0064
1312	1712.4	3.6	60	2.49	0.0015

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	3.7	-30	15.40	0.0090
1312	1712.4	3.7	-20	19.81	0.0116
1312	1712.4	3.7	-10	3.63	0.0021
1312	1712.4	3.7	0	14.89	0.0087
1312	1712.4	3.7	10	9.63	0.0056
1312	1712.4	3.7	20	8.54	0.0050
1312	1712.4	3.7	30	9.99	0.0058
1312	1712.4	3.7	40	12.19	0.0071
1312	1712.4	3.7	50	7.32	0.0043
1312	1712.4	3.7	60	-5.23	-0.0031

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	4.2	-30	18.48	0.0108
1312	1712.4	4.2	-20	16.40	0.0096
1312	1712.4	4.2	-10	3.51	0.0020
1312	1712.4	4.2	0	11.14	0.0065
1312	1712.4	4.2	10	13.60	0.0079
1312	1712.4	4.2	20	11.22	0.0065
1312	1712.4	4.2	30	14.79	0.0086
1312	1712.4	4.2	40	13.11	0.0077
1312	1712.4	4.2	50	-3.65	-0.0021
1312	1712.4	4.2	60	9.11	0.0053

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UMTS1700 Results: channel 4182 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1412	1732.4	3.6	-30	11.35	0.0066
1412	1732.4	3.6	-20	-4.87	-0.0028
1412	1732.4	3.6	-10	7.58	0.0044
1412	1732.4	3.6	0	6.71	0.0039
1412	1732.4	3.6	10	3.88	0.0022
1412	1732.4	3.6	20	-5.28	-0.0030
1412	1732.4	3.6	30	-7.46	-0.0043
1412	1732.4	3.6	40	9.35	0.0054
1412	1732.4	3.6	50	8.41	0.0049
1412	1732.4	3.6	60	-7.32	-0.0042

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1412	1732.4	3.7	-30	5.33	0.0031
1412	1732.4	3.7	-10	-7.31	-0.0042
1412	1732.4	3.7	0	-5.65	-0.0033
1412	1732.4	3.7	10	6.73	0.0039
1412	1732.4	3.7	20	9.98	0.0058
1412	1732.4	3.7	30	11.17	0.0064
1412	1732.4	3.7	40	12.13	0.0070
1412	1732.4	3.7	50	12.39	0.0072
1412	1732.4	3.7	60	-5.54	-0.0032

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1412	1732.4	4.2	-30	13.32	0.0077
1412	1732.4	4.2	-20	9.87	0.0057
1412	1732.4	4.2	-10	-12.02	-0.0069
1412	1732.4	4.2	0	14.05	0.0081
1412	1732.4	4.2	10	5.46	0.0032
1412	1732.4	4.2	20	-8.73	-0.0050
1412	1732.4	4.2	30	-6.50	-0.0038
1412	1732.4	4.2	40	-6.71	-0.0039
1412	1732.4	4.2	50	-4.68	-0.0027
1412	1732.4	4.2	60	-9.66	-0.0056

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UMTS1700 Results: channel 4233 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1512	1752.4	3.6	-30	40.91	0.0233
1512	1752.4	3.6	-20	12.25	0.0070
1512	1752.4	3.6	-10	13.60	0.0078
1512	1752.4	3.6	0	30.56	0.0174
1512	1752.4	3.6	10	18.22	0.0104
1512	1752.4	3.6	20	10.25	0.0059
1512	1752.4	3.6	30	21.80	0.0124
1512	1752.4	3.6	40	12.48	0.0071
1512	1752.4	3.6	50	13.37	0.0076
1512	1752.4	3.6	60	8.07	0.0046

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1512	1752.4	3.7	-30	6.61	0.0038
1512	1752.4	3.7	-20	24.12	0.0138
1512	1752.4	3.7	-10	19.87	0.0113
1512	1752.4	3.7	0	23.07	0.0132
1512	1752.4	3.7	10	12.31	0.0070
1512	1752.4	3.7	20	23.04	0.0131
1512	1752.4	3.7	30	14.22	0.0081
1512	1752.4	3.7	40	17.84	0.0102
1512	1752.4	3.7	50	9.84	0.0056
1512	1752.4	3.7	60	15.72	0.0090

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1512	1752.4	4.2	-30	10.96	0.0063
1512	1752.4	4.2	-20	13.90	0.0079
1512	1752.4	4.2	-10	16.27	0.0093
1512	1752.4	4.2	0	14.69	0.0084
1512	1752.4	4.2	10	22.28	0.0127
1512	1752.4	4.2	20	9.89	0.0056
1512	1752.4	4.2	30	9.41	0.0054
1512	1752.4	4.2	40	5.77	0.0033
1512	1752.4	4.2	50	14.71	0.0084
1512	1752.4	4.2	60	18.75	0.0107

APPENDIX 4 – GSM RADIATED EMISSIONS TEST DATA

 Testing Services™	EMI Test Report for the BlackBerry® smartphone Model RDB71UW APPENDIX 4									
Test Report No. RTS-2671-1006-34	Dates of Test April 7, May 4, 21 & June 7, 2010									

Radiated Power Test Data Results

Date of test: June 7, 2010

The measurements were performed by Heng Lin.

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

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

PCS1900 Band

GSM Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method				Limit	Diff to Limit		
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol.	Reading (dBm)	Tracking Generator					
										Corrected Reading (relative to Isotropic Radiator)					
										(dBm)	(W)	(dBm)	(dB)		
F0	512	1850.20	1900	Horn	V	87.12	92.03	V-V	-6.67	31.62	1.45	33.00	-1.38		
F0	512	1850.20	1900	Horn	H	92.03		H-H	-1.91						
F0	661	1880.00	1900	Horn	V	85.24	92.18	V-V	-8.58	31.98	1.58	33.00	-1.02		
F0	661	1880.00	1900	Horn	H	92.18		H-H	-1.78						
F0	810	1909.80	1900	Horn	V	85.67	91.88	V-V	-6.81	31.81	1.52	33.00	-1.19		
F0	810	1909.80	1900	Horn	H	91.88		H-H	-1.03						

EDGE Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method					
Type	Ch	Frequency (MHz)	Band	Rx Antenna		Spectrum Analyzer		Tracking Generator				Limit	Diff to Limit
								Corrected Reading (relative to Isotropic Radiator)					
								(dBm)	(W)	(dBm)	(dB)		
F0	512	1850.20	1900	Horn	V	85.19	88.74	V-V	-8.70	28.33	0.68	33.00	-4.67
F0	512	1850.20	1900	Horn	H	88.74		H-H	-5.20				
F0	661	1880.00	1900	Horn	V	84.4	90.04	V-V	-9.42	29.84	0.96	33.00	-3.16
F0	661	1880.00	1900	Horn	H	90.04		H-H	-3.92				
F0	810	1909.80	1900	Horn	V	85.26	88.06	V-V	-7.22	27.99	0.63	33.00	-5.01
F0	810	1909.80	1900	Horn	V	88.06		H-H	-4.85				

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