EMI Test Report

Tested in accordance with
Federal Communications Commission (FCC)
Personal Communications Services
CFR 47, Parts 2, 22, 24

REPORT NO.: RTS-6058-1408-12A

PRODUCT MODEL NO.:	RHB121LW
TYPE NAME:	BlackBerry® smartphone
FCC ID:	L6ARHB120LW
EMISSION DESIGNATOR (GSM):	247KGXW
EMISSION DESIGNATOR (EDGE):	245KG7W
EMISSION DESIGNATOR (WCDMA):	4M17F9W

DATE: August 11, 2014

RTS is accredited
according to
EN ISO/IEC 17025 by:

592

Statement of Performance:

The BlackBerry® smartphone, model RHB121LW, part number CER-59877-001- Rev2-905-02, and its accessories perform within the requirements of the test standards when configured and operated under BlackBerry's operation instructions.

Declaration:

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

Documented by:

Kevin Guo
Compliance Specialist I

Reviewed by:

Savtej Sandhu
Compliance Specialist II

Reviewed and Approved by:

Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance

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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, Subpart J, Equipment Authorization Procedures, Oct, 2013.
- FCC CFR 47 Part 22, Subpart H, Cellular Radiotelephone Services, Oct., 2013.
- FCC CFR 47 Part 24 Subpart E, Broadband PCS, Oct., 2013.

B. Associated Documents

1. MultiSourceDeclaration_R139-R140_10.3.0.890_Reg_only
2. RHB121LW-R140-HWD_CER-59877-001- Rev1-905-00
3. RHB121LW-R140-HWD_CER-59877-001- Rev2-905-01
4. RHB121LW-R140-HWD_CER-59877-001- Rev2-905-02
5. Test Report: RTS-6026-1302-28

C. Product Identification

Manufactured by BlackBerry Limited whose headquarters is located at:

2200 University Ave. E
Waterloo, Ontario
Canada, N2K 0A7
Phone: 519 888 7465
Fax: 519 888 7884

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

BlackBerry RTS EMC test facilities

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

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

The testing was performed from July 3 to August 8, 2014.

BlackBerry® smartphone Samples Tested

Sample	Model	CER NUMBER	PIN	Software Information
1	RHB121LW	CER-59877-001-Rev1-905-00	2FFEB308	OS Version: 10.3.0.686 Bundle: 686
2	RHB121LW	CER-59877-001-Rev1-905-00	2FFEC316	OS Version: 10.3.0.890 Bundle: 890
3	RHB121LW	CER-59877-001-Rev1-905-01	2FFEB310	OS Version: 10.3.0.686 Bundle: 686
4	RHB121LW	CER-59877-001-Rev1-905-02	2FFEC31A	OS Version: 10.3.0.890 Bundle: 890

Radiated Emissions testing was performed on samples 1, 2, 3 and 4.

Only the characteristics that may have been affected by the changes from RHB121LW Rev1 to Rev2 were re-tested. For more details, please view documents RHB121LW-R140-HWD_CER-59877-001-Rev1-905-00 and RHB121LW-R140-HWD_CER-59877-001- Rev2-905-01 and RHB121LW-R140-HWD_CER-59877-002

To view the differences between software bundles 10.3.0.686 and 10.3.0.890 see document:
MultiSourceDeclaration_R139-R140_10.3.0.890_Reg_only

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 Results Chart

SPECIFICATION	TEST TYPE	RESULT	TEST DATA APPENDIX
FCC CFR 47			
Part 2.1051 Part 2.1057 Part 22.917 Part 24.238	GSM850 / PCS1900 Conducted Spurious Emissions	Pass	See Test Report: RTS-6026-1302-28
Part 2.202 Part 2.1049 Part 22.917 Part 24.238	GSM 850 / PCS1900 Occupied Bandwidth and Channel Mask	Pass	See Test Report: RTS-6026-1302-28
Part 2.1055 Part 22.863 Part 24.235	GSM 850 /PCS 1900 Frequency Stability vs. Temperature and Voltage	Pass	See Test Report: RTS-6026-1302-28
Part 22.913(a)(2) Part 24.232(b)(c)	GSM850 ERP PCS1900 EIRP	Pass	1
Part 2.1053 Part 22.917 Part 24.238	GSM850 / PCS1900 Radiated Spurious/Harmonic Emissions	Pass	1
Part 2.1051 Part 22.917 Part 24.238	WCDMA Band II/V Conducted Spurious Emissions	Pass	See Test Report: RTS-6026-1302-28
Part 2.1049 Part 22.917 Part 24.238	WCDMA Band II/V Occupied Bandwidth and Channel Mask	Pass	See Test Report: RTS-6026-1302-28
Part 2.1055(a)(d) Part 22.917 Part 24.235	WCDMA Band II/V Frequency Stability vs. Temperature and Voltage	Pass	See Test Report: RTS-6026-1302-28
Part 22.913(a)(2) Part 24.232(c)	WCDMA Band V ERP WCDMA Band II EIRP	Pass	2
Part 22.917 Part 24.238	WCDMA Band II/V Radiated Spurious/Harmonic Emissions	Pass	2

F.Summary of Results

1) Radiated Emission Measurements

The radiated spurious emissions/harmonics and ERP/EIRP were measured for GSM 850 and PCS 1900. The results are within the limits. The BlackBerry® smartphone was placed on a nonconductive styrofoam table, 80 cm high that was positioned on a remotely controlled turntable. The test distance used between the BlackBerry® smartphone and the receiving antenna was three meters. Then the emissions were maximized by elevating the antenna in the range of 1 to 4 meters. The turntable was rotated to determine the azimuth of the peak emissions. Both the horizontal and vertical polarizations of the emissions were measured. The maximum emissions level was recorded. The BlackBerry® smartphone was then substituted with an antenna placed in the same location as the BlackBerry® smartphone. A Dipole antenna was used for the ERP measurements and a Horn antenna was used for EIRP measurements. The substitution antenna was connected into a signal generator that was set to the test frequency.

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

The following measurements were done in a semi-anechoic chamber (SAC) below 1 GHz and a modified Semi-anechoic Chamber ((SAC) with floor absorber) above 1 GHz. The SAC's FCC registration number is **778487** and the Industry Canada (IC) file number is **2503B-1**. The modified SAC with floor absorber'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.

a) The radiated spurious emissions/harmonics and ERP/EIRP were measured for GSM 850 and PCS 1900. The results are within the limits.

- The highest ERP in the 850 band Call mode measured was 28.91 dBm (0.78 W) at 848.80 MHz (channel 251).

- The highest ERP in the 850 band EDGE mode measured was 27.05 dBm (0.51 W) at 848.80 MHz (channel 251).

- The highest EIRP in the PCS band Call mode measured was 29.16 dBm (0.82 W) at 1850.20 MHz (channel 512).

- The highest EIRP in the PCS band EDGE mode measured was 28.72 dBm (0.74 W) at 1850.20 MHz (channel 512).

The radiated spurious emission and carrier harmonics were measured up to the 10th harmonic for low, middle, and high channels in the GSM 850 and PCS 1900. Each band was measured in CALL and EDGE modes, with both the horizontal and vertical polarizations.

- The worst margin was 18.9 dB below the limit at 2510.024 MHz in Call mode in band GSM850.
- The worst margin was 25.65 dB below the limit at 2509.6 MHz in EDGE mode in band GSM850.
- All margins in the PCS1900 for harmonic emissions were at least 25 dB below the limit for all test frequencies in CALL mode.
- All margins in the PCS1900 for harmonic emissions were at least 25 dB below the limit for all test frequencies in EDGE mode.

See Appendix 1 for test data.

b) The radiated spurious emissions/harmonics and ERP/EIRP were measured for WCDMA Band II/V.

- The highest ERP in the WCDMA band V, Call Service mode was 23.87 dBm (0.24 W) at 846.40 MHz (channel 4233).
- The highest ERP in the WCDMA band V, HSUPA mode was 22.34 dBm (0.17 W) at 826.40 MHz (channel 4132).
- The highest EIRP in the WCDMA band II, Call Service mode measured was 27.03 dBm (0.50 W) at 1907.60 MHz (channel 9538).
- The highest EIRP in the WCDMA band II, HSUPA mode measured was 26.47 dBm (0.44 W) at 1907.60 MHz (channel 9538).
-

The radiated carrier harmonics were measured up to the 10th harmonic for low, middle and high channels in the WCDMA Band V, WCDMA Band II. Each band was measured in Call, and HSUPA modes. Both the horizontal and vertical polarizations were measured.

- All margins in the WCDMA Band V for harmonic emissions were at least 25 dB below the limit for all test frequencies.
- All margins in the WCDMA Band II for harmonic emissions were at least 25 dB below the limit for all test frequencies.

See Appendix 2 for test data.

c) Co-Location Radiated Measurements

The radiated emissions were measured up to 18 GHz for middle channels for simultaneous transmission in the following test configuration combinations:

- GSM 850 + Bluetooth(DH5) + 802.11b
- PCS 1900 + Bluetooth(2DH5) + 802.11g
- WCDMA Band II + Bluetooth(3DH5)+ 802.11n(2.4GHz).
- WCDMA Band V + Bluetooth(DH5) + 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.

Sample Calculation:

Corrected Signal level (CSL) is calculated as follows:
CSL (dBm) = Measured Level (dBµV) – Antenna Gain (dBi) + Free Space loss (dB) – 107(dB) + Cable Loss (dB) - Preamp (dB) + Filter Loss (dB) -2.15(dB)

Measurement Uncertainty ±4.3 dB

G. Compliance Test Equipment Used

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Preamplifier	Sonoma	310N/11909A	185831	14-10-16	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	14-10-16	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA4-SP	001	14-10-23	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	14-10-23	Radiated Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017301	14-08-13	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030101	14-08-07	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030201	15-05-07	Radiated Emissions
Horn Antenna	Emco	3117	47563	15-08-07	Radiated Emissions
Horn Antenna	ETS	3116	2538	14-09-29	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	974	14-11-27	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	14-11-24	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	112394	14-11-25	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	109747	14-11-25	RF Conducted Emissions
EMI Receiver	Rohde & Schwarz	ESIB-40	100255	14-12-11	Radiated Emissions
EMI Receiver	Rohde & Schwarz	ESU-40	100162	14-12-08	Radiated Emissions
Environment Monitor	Omega	iTHX-SD	0380561	16-11-15	Radiated Emissions
Environment Monitor	Omega	iTHX-SD	0340060	16-11-15	RF Conducted Emissions
Environment Monitor	Omega	iTHX-SD	0380567	16-11-15	Radiated Emissions

Compliance Test Equipment Used cont'd

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	101469	14-12-09	Radiated /RF Conducted Emission
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	109949	14-12-07	Radiated /RF Conducted Emission
Signal Generator	Agilent	E8257D	MY45140527	14-12-10	Radiated Emissions
Signal Generator	Agilent	83630B	3844A00927	14-11-23	Radiated Emissions
Spectrum Analyzer	Rohde & Schwarz	FSV	101820	14-11-21	RF Conducted Emissions
Spectrum Analyzer	Rohde & Schwarz	FSP	100884	14-11-21	RF Conducted Emissions

H. Test Software used

SOFTWARE	COMPANY	VERSION	USE
EMC32	Rohde & Schwarz	8.53.0	Radiated Emissions
TDK Standard Emission Test	TDK RF Solutions	8.53.1.62	Radiated Emissions

APPENDIX 1 – GSM RADIATED EMISSIONS TEST DATA

Radiated Power Test Data Results

Date of test: July 29, 2014

The following measurements were performed by Rex Zhang.
The environmental tests conditions were: Temperature: 24.8 °C
Relative Humidity: 36.2 %

The BlackBerry® smartphone was standalone, USB down and screen pointing to RX antenna when the turntable is at 0 degree position.
Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height.

GSM850 Band in Call Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method / Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBm)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	128	824.20	850	Dipole	V	-34.17	-24.80	V-V	9.99	27.46	0.56	38.50	11.04
F0	128	824.20	850	Dipole	H	-24.80		H-H	9.43				
F0	190	836.60	850	Dipole	V	-34.64	-24.98	V-V	10.66	27.80	0.60	38.50	10.70
F0	190	836.60	850	Dipole	H	-24.98		H-H	8.73				
F0	251	848.80	850	Dipole	V	-34.82	-25.27	V-V	11.82	**28.91**	0.78	38.50	9.59
F0	251	848.80	850	Dipole	H	-25.27		H-H	9.05				

GSM850 Band in EDGE Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method / Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBm)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	128	824.20	850	Dipole	V	-35.90	-27.23	V-V	7.23	24.70	0.30	38.50	13.80
F0	128	824.20	850	Dipole	H	-27.23		H-H	6.97				
F0	190	836.60	850	Dipole	V	-35.77	-26.77	V-V	8.87	26.01	0.40	38.50	12.49
F0	190	836.60	850	Dipole	H	-26.77		H-H	6.91				
F0	251	848.80	850	Dipole	V	-36.55	-27.15	V-V	9.96	**27.05**	0.51	38.50	11.45
F0	251	848.80	850	Dipole	H	-27.15		H-H	7.17				

Radiated Power Test Data Results cont'd

Date of test: July 29, 2014
The following measurements were performed by Rex Zhang.

The environmental tests conditions were: Temperature: 24.4 °C
Relative Humidity: 39.9 %

The BlackBerry® smartphone was standalone, horizontal up and top pointing to RX antenna when the turntable is at 0 degree position.
Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height.

PCS1900 Band in Call Mode

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBm)	Max (V,H) dBm	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	512	1850.20	1900	Horn	V	-29.60	-22.77	V-V	-11.41	**29.16**	0.82	33	3.84
F0	512	1850.20	1900	Horn	H	-22.77		H-H	-10.55				
F0	661	1880.00	1900	Horn	V	-29.71	-23.56	V-V	-11.51	28.71	0.74	33	4.29
F0	661	1880.00	1900	Horn	H	-23.56		H-H	-10.58				
F0	810	1909.80	1900	Horn	V	-29.90	-23.64	V-V	-11.08	28.94	0.78	33	4.06
F0	810	1909.80	1900	Horn	H	-23.64		H-H	-10.59				

PCS1900 Band in EDGE Mode

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) dBuV	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	512	1850.20	1900	Horn	V	-29.93	-23.23	V-V	-11.89	**28.72**	0.74	33	4.28
F0	512	1850.20	1900	Horn	H	-23.23		H-H	-10.99				
F0	661	1880.00	1900	Horn	V	-29.98	-24.04	V-V	-12.03	28.18	0.66	33	4.82
F0	661	1880.00	1900	Horn	H	-24.04		H-H	-11.11				
F0	810	1909.80	1900	Horn	V	-30.25	-23.94	V-V	-11.44	28.60	0.72	33	4.40
F0	810	1909.80	1900	Horn	H	-23.94		H-H	-10.93				

Radiated Emissions Test Data Results cont'd

GSM850 Call Mode

The following measurements were performed by Rex Zhang.

Date of Test: July 7, 2014
The environmental test conditions were: Temperature: 25.7 ºC
Relative Humidity: 36.4 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was standalone, with USB facing down and top pointing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in GSM850 Call Tx mode, channels 128, 190, 251.

All emissions were at least 25.0 dB below the limit.

The following measurements were performed by Kevin Guo.

Date of Test: July 3 and 26, 2014
The environmental test conditions were: Temperature: 25.4 ºC
Relative Humidity: 41.7 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1 GHz to 9 GHz.

The BlackBerry® smartphone was standalone, with horizontal and the top pointing to the RX antenna when the turntable is at 0 degree position.

The measurements were performed in GSM850 Call Tx mode, channels 128, 190, 251.

Frequency (MHz)	Channel Of Occurrence	Antenna		Test Angle (Deg.)	Detector (PK or QP)	Measured Level (dBµV)	Correction Factor for preamp/antenna/ cables/ filter (dB)	Field Strength Level (reading+corr) (dBm)	Limit @ 3.0 m (dBm)	Test Margin (dB)
		Pol. (V/H)	Height (meters)							
1673.152	190	H	2.45	162	PK	48.84	-85.89	-37.5	-13.00	-24.5
2510.024	190	H	2.60	175	PK	47.25	-90.75	-31.9	-13.00	**-18.9**

All other emissions were at least 25.0 dB below the limit.

Radiated Emissions Test Data Results cont'd

GSM850 EDGE Mode

Date of Test: July 7, 2014
The environmental test conditions were: Temperature: 25.7 ºC
Relative Humidity: 36.4 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was standalone, with horizontal facing down and top pointing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in GSM850 EDGE Tx mode, channels 128, 190, 251.
All emissions were at least 25.0 dB below the limit.

Date of Test: July 3 and 26, 2014
The environmental test conditions were: Temperature: 25.4 ºC
Relative Humidity: 41.7 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1 GHz to 9 GHz.

The BlackBerry® smartphone was standalone, with horizontal down and the top pointing to the RX antenna when the turntable is at 0 degree position.

All emissions were at least 25.0 dB below the limit.

Radiated Emissions Test Data Results cont'd

PCS1900 CALL Mode

Date of Test: June 8, 2014

The environmental test conditions were: Temperature: 25.7 ºC
Relative Humidity: 17.5 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was standalone, with horizontal up and the top facing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in PCS1900 Call Tx mode, channels 512, 661, 810.
All emissions were at least 25.0 dB below the limit.

Date of Test: July 4-16, 2014

The environmental test conditions were: Temperature: 24.3 – 27 ºC
Relative Humidity: 23.6 – 36.2 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1 GHz to 20 GHz.

The BlackBerry® smartphone was standalone, with side button jack pointing up and the LCD facing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in PCS1900 Call Tx mode, channels 512, 661, 810.

All emissions were at least 25.0 dB below the limit.

Radiated Emissions Test Data Results cont'd

PCS1900 EDGE Mode

Date of Test: June 8, 2014

The environmental test conditions were: Temperature: 25.7 ºC
Relative Humidity: 17.5 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was standalone, with horizontal up and the top facing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in PCS1900 EDGE Tx mode, channels 512, 661, 810.
All emissions were at least 25.0 dB below the limit.

Date of Test: July 4-16, 2014

The environmental test conditions were: Temperature: 24.3 – 27 ºC
Relative Humidity: 23.6 – 36.2 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1 GHz to 20 GHz.

Measurements were performed in PCS1900 EDGE Tx mode, channels 512, 661, 810.

All emissions were at least 25.0 dB below the limit.

APPENDIX 2 – WCDMA Band II/V RADIATED EMISSIONS TEST DATA

Radiated Power Test Data Results

The following measurements were performed by Rex Zhang.

Date of Test: July 29, 2014

The environmental tests conditions were: Temperature: 25.8 °C
Relative Humidity: 37.1 %

The BlackBerry® smartphone was standalone, horizontally with LCD facing down and top pointing to the RX antenna when the turntable is at 0 degree position.
Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height.

WCDMA Band V Call Service Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBm)	Max (V,H) (dBm)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	4132	826.40	V	Dipole	V	-38.26	-28.67	V-V	6.46	23.78	0.24	38.5	14.72
F0	4132	826.40	V	Dipole	H	-28.67		H-H	6.11				
F0	4182	836.40	V	Dipole	V	-38.05	-29.23	V-V	6.39	23.51	0.22	38.5	14.99
F0	4182	836.40	V	Dipole	H	-29.23		H-H	4.93				
F0	4233	846.60	V	Dipole	V	-38.17	-28.89	V-V	6.74	**23.87**	0.24	38.5	14.63
F0	4233	846.60	V	Dipole	H	-28.89		H-H	5.33				

WCDMA Band V HSUPA Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBm)	Max (V,H) (dBm)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole) (dBm)	(W)	Limit (dBm)	Diff. To Limit (dB)
F0	4132	826.40	V	Dipole	V	-39.57	-30.13	V-V	5.02	**22.34**	0.17	38.50	16.16
F0	4132	826.40	V	Dipole	H	-30.13		H-H	4.66				
F0	4182	836.40	V	Dipole	V	-39.35	-30.80	V-V	4.83	21.95	0.16	38.50	16.55
F0	4182	836.40	V	Dipole	H	-30.80		H-H	3.39				
F0	4233	846.60	V	Dipole	V	-39.74	-30.45	V-V	5.15	22.28	0.17	38.50	16.22
F0	4233	846.60	V	Dipole	H	-30.45		H-H	3.76				

Radiated Power Test Data Results cont'd

Date of Test: July 29, 2014

The environmental test conditions were: Temperature: 25.2 ºC
Relative Humidity: 36.8 %

The BlackBerry® smartphone was standalone, USB down with LCD facing to the RX antenna when the turntable is at 0 degree position.
Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height.

WCDMA Band II Call Service Mode

								Substitution Method					
EUT				Rx Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBm)	Max (V,H) (dBm)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	9262	1852.40	II	Horn	V	-26.37	-26.37	V-V	-14.66	25.76	0.38	33.0	7.24
F0	9262	1852.40	II	Horn	H	-27.69		H-H	-13.89				
F0	9400	1880.00	II	Horn	V	-25.89	-25.89	V-V	-13.87	26.27	0.42	33.0	6.73
F0	9400	1880.00	II	Horn	H	-28.51		H-H	-13.02				
F0	9538	1907.60	II	Horn	V	-25.18	-25.18	V-V	-12.96	**27.03**	0.50	33.0	5.97
F0	9538	1907.60	II	Horn	H	-29.50		H-H	-12.49				

WCDMA Band II HSUPA Mode

								Substitution Method					
EUT				Rx Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBm)	Max (V,H) (dBm)	Pol. Tx-Rx	Reading (dBm)	Corrected Reading (relative to Isotropic Radiator) (dBm)	(W)	Limit (dBm)	Diff to Limit (dB)
F0	9262	1852.40	II	Horn	V	-26.90	-26.90	V-V	-15.21	25.33	0.34	33.0	7.67
F0	9262	1852.40	II	Horn	H	-28.17		H-H	-14.32				
F0	9400	1880.00	II	Horn	V	-26.41	-26.41	V-V	-14.40	25.77	0.38	33.0	7.23
F0	9400	1880.00	II	Horn	H	-29.02		H-H	-13.52				
F0	9538	1907.60	II	Horn	V	-25.70	-25.70	V-V	-13.52	**26.47**	0.44	33.0	6.53
F0	9538	1907.60	II	Horn	H	-30.00		H-H	-13.05				

Radiated Emissions Test Data Results cont'd

WCDMA Band V Call Service Mode

The following measurements were performed by Savtej Sandhu.

Date of Test: July 8, 2014

The environmental test conditions were: Temperature: 23.9 ºC
Relative Humidity: 36.9 %

The BlackBerry® smartphone was standalone, with horizontal down and top pointing to the RX antenna when the turntable is at 0 degree position.

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and the frequency range scanned was 30MHz – 1GHz.

Measurements were performed in WCDMA Band V Call mode on channels 4132, 4182, and 4233.

All emissions were at least 25.0 dB below the limit.

The following measurements were performed by Masud Attayi

Date of Test: July 7-16, 2014

The environmental test conditions were: Temperature: 23.2 - 25.6 ºC
Relative Humidity: 17.7 - 31.7 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1 GHz to 9 GHz.

The BlackBerry® smartphone was standalone, horizontal with LCD facing up and top pointing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in WCDMA Band V Call mode on channels 4132, 4182, and 4233.

All emissions were at least 25.0 dB below the limit.

Radiated Emissions Test Data Results cont'd

WCDMA V HSUPA Mode

Date of Test: July 8, 2014

The environmental test conditions were: Temperature: 23.9 ºC
Relative Humidity: 36.9 %

The BlackBerry® smartphone was standalone, with horizontal down and top pointing to the RX antenna when the turntable is at 0 degree position.

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and the frequency range scanned was 30MHz – 1GHz.

Measurements were performed in WCDMA Band V HSUPA mode on channels 4132, 4182, and 4233.

All emissions were at least 25.0 dB below the limit.

Date of Test: July 7-16, 2014

The environmental test conditions were: Temperature: 23.2 - 25.6 ºC
Relative Humidity: 17.7 - 31.7 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1 GHz to 9 GHz.

The BlackBerry® smartphone was standalone, horizontal with LCD facing up and top pointing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in WCDMA Band V HSUPA mode on channels 4132, 4182, and 4233.

All emissions were at least 25.0 dB below the limit.

Radiated Emissions Test Data Results cont'd

WCDMA Band II Call Service mode

Date of Test: July 8, 2014

The environmental test conditions were: Temperature: 23.9 ºC
Relative Humidity: 36.9 %

The BlackBerry® smartphone was standalone, with USB down and LCD screen pointing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in WCDMA Band II Call mode on channels 9262, 9400 and 9538.

All emissions were at least 25.0 dB below the limit.

Date of Test: July 7-16, 2014

The environmental test conditions were: Temperature: 23.2 - 25.6 ºC
Relative Humidity: 17.7 - 31.7 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1GHz to 20 GHz.

The BlackBerry® smartphone was standalone, USB up with LCD facing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in WCDMA Band II Call mode on channels 9262, 9400, 9538.

All emissions were at least 25.0 dB below the limit.

Radiated Emissions Test Data Results cont'd

WCDMA Band II HSUPA Mode

Date of Test: July 8, 2014

The environmental test conditions were: Temperature: 23.9 ºC
Relative Humidity: 36.9 %

The BlackBerry® smartphone was standalone, with USB down and LCD screen pointing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in WCDMA Band II HSUPA mode on channels 9262, 9400, and 9538.

All emissions were at least 25.0 dB below the limit.

Date of Test: July 7-16, 2014

The environmental test conditions were: Temperature: 23.2 - 25.6 ºC
Relative Humidity: 17.7 - 31.7 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1GHz to 20 GHz.

The BlackBerry® smartphone was standalone, USB up with LCD facing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in WCDMA Band II HSUPA mode on channels 9262, 9400, 9538.

All emissions were at least 25.0 dB below the limit.