

Partial EMI Test Report

Tested in accordance with
Federal Communications Commission (FCC)
Personal Communications Services
CFR 47, Part 15 Subpart C
&
Industry Canada (IC) RSS-210, RSS-GEN




A division of Research In Motion Limited

REPORT NO.: RTS-2068-1005-34

PRODUCT MODEL NO.: RCZ31CW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARCZ30CW
IC: 2503A-RCZ30CW

DATE: May 11, 2010

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Statement of Performance:

The BlackBerry® smartphone, model RCZ31CW, part number CER-27171-003 Rev 1, and its accessories perform within the requirements of the test standards when configured and operated under RIM's operation instructions.

Declaration:

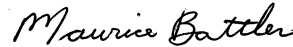
We hereby certify that:
 The test data reported herein is an accurate record of the performance of the sample(s) tested.
 The test results are valid for the tested unit (s) only.
 The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating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

Documented by:



Michael Cino
 Regulatory Compliance Associate
 Date: May 11, 2010

Reviewed by:



Maurice Battler
 Compliance Specialist
 Date: May 11, 2010

Reviewed and Approved by:



Masud S. Attayi, P.Eng.
 Manager, Regulatory Compliance
 Date: May 17, 2010



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A. Scope

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

- o FCC CFR 47 Part 15, Subpart C, October, 2009
- o Industry Canada, RSS-210, Issue 7, June 2007, Low Power Licence-Exempt Radiocommunication Devices
- o Industry Canada, RSS-GEN, Issue 2, June 2007, General Requirements and Information for the Certification of Radiocommunication Equipment

B. Associated Documents

1. Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)
2. RCL21CW_RCZ31CW_HW_Difference_Document_FINAL

C. Product Identification

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

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


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

RIM Testing Services EMI test facilities

305 Phillip Street
 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 March 12 to April 30, 2010.

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The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN
1	RCZ31CW	CER-27171-003 Rev 1	3156D4DB
2	RCZ31CW	CER-27171-003 Rev 1	31570195

Radiated Emissions testing was performed on samples 1 and 2.
AC Conducted Emissions testing was performed on sample 2.

BlackBerry® smartphone Accessories Tested

- 1) Fixed Blade Charger, part number HDW-24481-001, with an output voltage of 5.0 volts dc, 700 mA and attached USB cable with a lead length of 1.80 metres.
- 2) Folding Blade Charger, part number HDW-17955-001, with an output voltage of 5.0 volts dc.
- 3) Stereo Headset, part number HDW-14322-003 with a lead length of 1.3 metres.
- 4) USB Data Cable, part number HDW-06610-005, 1.50 metres long.
- 5) Alternate Stereo Headset (HDW-24529-001), 1.1 metres long.

D. Support Equipment Used for the Testing of the EUT

No support equipment used. See section *G. Compliance Test Equipment Used.*


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 March 12 to April 30, 2010

Author Data
 Michael Cino

E. Test Results Chart

SPECIFICATION		TEST TYPE	Meets Requirements	TEST DATA
FCC CFR 47	IC			APPENDIX
Part 15.207	RSS-210 RSS-GEN	Conducted AC Line Emission	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.209 Part 15.247	RSS-210 RSS-GEN	BT Radiated Spurious Emissions and Radiated Band Edge Compliance	Pass	1
Part 15.209 Part 15.247	RSS-210 RSS-GEN	802.11 b/g Radiated Spurious Emissions and Radiated Band Edge Compliance	Pass	1
Part 15.247(a)	RSS-210	BT, 20 dB Bandwidth	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(a)	RSS-210	BT, Carrier Frequency Separation	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(a)	RSS-210	BT, Number of Hopping Frequencies	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(a)	RSS-210	BT, Time of Occupancy (Dwell Time)	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(b)	RSS-210	BT, Maximum Peak Conducted Output Power	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(c)	RSS-210	BT, Band-Edge Compliance of RF Conducted Emissions	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(c)	RSS-210	BT, Spurious RF Conducted Emissions	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(b)	RSS-210	802.11b/g, 6 dB Bandwidth	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(b)	RSS-210	802.11b/g, Maximum Conducted Output Power	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(b)	RSS-210	802.11b/g, Band-Edge	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW;	-

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			IC: 2503A-RCL20CW)	
Part 15.247(b)	RSS-210	802.11b/g, Peak Power Spectral Density	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-
Part 15.247(b)	RSS-210	802.11b/g, Spurious RF Conducted Emissions	See Test Report RTS-2068-0909-23 (FCC ID: L6ARCL20CW; IC: 2503A-RCL20CW)	-

F. Summary of Results

1) AC LINE CONDUCTED EMISSIONS

The conducted emissions were measured using the test procedure outlined in CISPR Recommendation 22 through a 50 Ohm Line Impedance Stabilization Network (LISN), which was inserted in the power line to the equipment to provide the specified impedance for measurements. The EUT was placed on a nonconductive wooden table, 80 cm high that was positioned 40 cm from a vertical ground plane. The RF output of the network was connected to an EMI receiver system with characteristics that duplicate those of the receiver specified in CISPR Publication 16.

BlackBerry® smartphone was in battery charging mode. The input voltage was 120 V, 60 Hz.


The following test configurations were measured:

1. The BlackBerry® smartphone in Bluetooth Tx mode and attached to the Stereo Headset, was connected to the Folding Blade Charger.
2. The BlackBerry® smartphone in 802.11b Tx mode and connected to the Alternate Stereo Headset was connected to the Fixed Blade Charger via the 1.5 metre USB Cable.

The sample EUT's conducted emissions were compared with respect to the FCC CFR 47 Part 15, Subpart C and IC RSS-210 limits. The sample EUT had a worst case test margin of 9.12 dB below the QP limit at 2.238 MHz using the quasi-peak detector with the Fixed Blade Charger in Test Configuration 1.

See APPENDIX 1 for the test data

Measurement Uncertainty ±3.0 dB

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2) RADIATED EMISSIONS

a) Radiated Spurious and Harmonic Emissions

The EUT was placed on a nonconductive styrofoam table, 80 cm high that was positioned on a remotely controlled turntable. The test distance used between the EUT and the receiving antenna was three metres. The turntable was rotated to determine the azimuth of the peak emissions. Then the emissions were maximized by elevating the antenna in the range of 1 to 4 metres. The maximum emission level was recorded. The frequency range measured was from 30 MHz to 25.0 GHz. Both the horizontal and vertical polarizations of the emissions were measured.

The measurements were done in a semi-anechoic chamber (SAC) below 1 GHz and a fully-anechoic room (FAR) above 1 GHz. The SAC's FCC registration number is **778487** and the Industry Canada (IC) file number is **2503B-1**. The FAR's FCC registration number is **959115** and the IC file number is **2503C-1**.

The EUT was configured and operated to produce the maximum radiated emissions while still keeping within RIM's specifications.

i) The BlackBerry® smartphones was measured in a standalone configuration with Bluetooth transmitting in single frequency mode at low channel (0), middle channel (39) and high channel (78) for packet types "DH5", "2-DH5" and "3-DH5". The system's radiated emission levels were compared with respect to the FCC CFR 47 Part 15, Subpart C, 15.247 and RSS-210.

ii) The BlackBerry® smartphones were measured in standalone configuration transmitting at channels 1, 6 & 11 at 1 Mbps, and channel 6 at 6 Mbps for 802.11b/g modes. The system's radiated emission levels were compared with respect to the FCC CFR 47 Part 15 Subpart C, 15.247 and RSS-210.

The sample EUT's Radiated emissions were compared with respect to the FCC CFR 47 Part 15, Subpart C and IC RSS-210 limits. The sample EUT had a worst case test margin of 23.22 dB below the average limit at 1430.056 MHz during 802.11b/g testing.


See APPENDIX 1 for the test data

b) Band-Edge Compliance of RF Radiated Emissions

The BlackBerry® smartphone met the requirements for band-edge compliance of RF radiated emissions for Bluetooth and 802.11b/g as per the requirements of 15.247, 15.209, and RSS-210/RSS-GEN.


See APPENDIX 1 for the test data.

Measurement Uncertainty ± 4.6 dB


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G. Compliance Test Equipment Used

<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>SERIAL NUMBER</u>	<u>CAL DUE DATE</u> (YY MM DD)	<u>USE</u>
EMI Test Receiver	Rohde & Schwarz	ESIB 40	100255	10-12-01	Radiated Emissions
EMI Test Receiver	Rohde & Schwarz	ESU 40	100162	10-11-29	Conducted/Radiated Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017401	10-09-26	Radiated Emissions
Horn Antenna	CMT	LHA 0180	R52734-001	12-01-21	Radiated Emissions
Horn Antenna	ETS-Lindgren	3117	47563	11-07-15	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA4-SP	001	11-02-17	Radiated Emissions
Preamplifier	Sonoma	310N/11909A	185831	10-11-14	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	11-02-19	Radiated Emissions
Environment Monitor	Control Company	1870	230355190	11-01-08	Radiated Emissions
L.I.S.N.	Rohde & Schwarz	ENV216	100060	10-12-11	Conducted Emissions
EMC Analyzer	Agilent	E7405A	US40240226	10-12-10	Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100368	10-11-25	Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100370	10-11-26	Radiated Emissions
Digital Multimeter	Hewlett Packard	34401A	US36042324	10-10-08	Conducted/Radiated Emissions
Environment Monitor	Control Company	1870	230355159	11-01-08	Radiated Emissions

	EMI Test Report for the BlackBerry® smartphone Model RCZ31CW APPENDIX 1	
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APPENDIX 1 – AC CONDUCTED EMISSIONS TEST DATA/PLOTS

	EMI Test Report for the BlackBerry® smartphone Model RCZ31CW	
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AC Conducted Emission Test Results

The following tests were performed by Heng Lin.

Test Configuration 1

The BlackBerry® smartphone was tested on April 26, 2010.

The environmental test conditions were: Temperature: 24 °C
Pressure: 998 mb
Relative Humidity: 22 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.177	L1	34.70	11.02	45.72	64.63	54.63	-18.91
0.177	N	35.14	11.05	46.19	64.63	54.63	-18.44
0.317	N	29.50	10.15	39.65	59.80	49.80	-20.15
0.339	L1	26.97	10.10	37.07	59.23	49.23	-22.16
0.452	N	33.14	9.94	43.08	56.85	46.85	-13.76
0.456	L1	32.94	9.93	42.88	56.77	46.77	-13.89
0.834	N	29.65	9.82	39.47	56.00	46.00	-16.53
1.118	N	29.37	9.81	39.18	56.00	46.00	-16.83
1.221	L1	28.93	9.80	38.73	56.00	46.00	-17.27
2.094	L1	37.02	9.83	46.85	56.00	46.00	-9.15
2.103	N	32.93	9.83	42.76	56.00	46.00	-13.24
2.238	L1	37.05	9.83	46.88	56.00	46.00	-9.12
2.310	N	33.33	9.84	43.17	56.00	46.00	-12.83
3.179	L1	30.02	9.88	39.90	56.00	46.00	-16.10
4.313	L1	27.35	9.90	37.26	56.00	46.00	-18.75

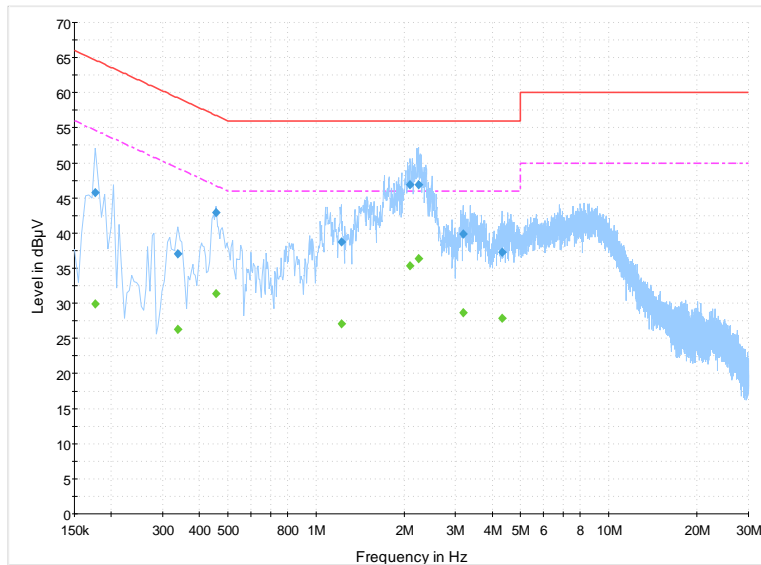
All other emission levels had a test margin of greater than 25 dB.

Measurements were done with the quasi-peak detector. See figure 1-1 and figure 1-2 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

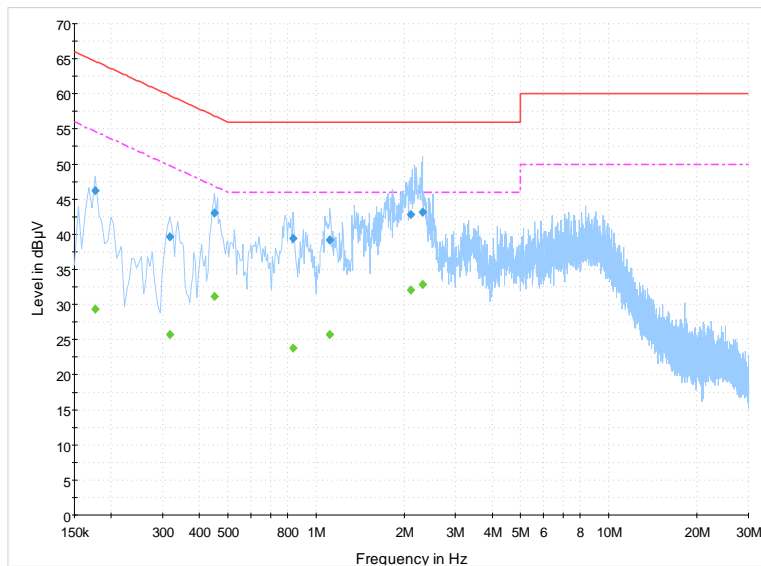
Test Configuration 1

Figure 1-1: L1 lines




— EN 55022 Conducted EMI Class B QP.LimitLine - - - EN 55022 Conducted EMI Class B AVG.LimitLine
— Preview Result - PK Detector ◆ Final Result - QP Detector
— Final Result - AVG Detector

Figure 1-2: N Lines



— EN 55022 Conducted EMI Class B QP.LimitLine - - - EN 55022 Conducted EMI Class B AVG.LimitLine
— Preview Result - PK Detector ◆ Final Result - QP Detector
— Final Result - AVG Detector

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AC Conducted Emission Test Results

Test Configuration 2

The BlackBerry® smartphone was tested on April 26, 2010.

The environmental test conditions were: Temperature: 24 °C
Pressure: 998 mb
Relative Humidity: 22 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.362	L1	31.27	10.07	41.34	58.69	48.69	-17.36
0.627	L1	25.86	9.85	35.71	56.00	46.00	-20.29
0.861	L1	26.16	9.81	35.97	56.00	46.00	-20.03

All other emission levels had a test margin of greater than 25 dB.

Measurements were done with the quasi-peak detector.

See figure 1-3 and figure 1-4 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 2

Figure 1-3: L1 lines

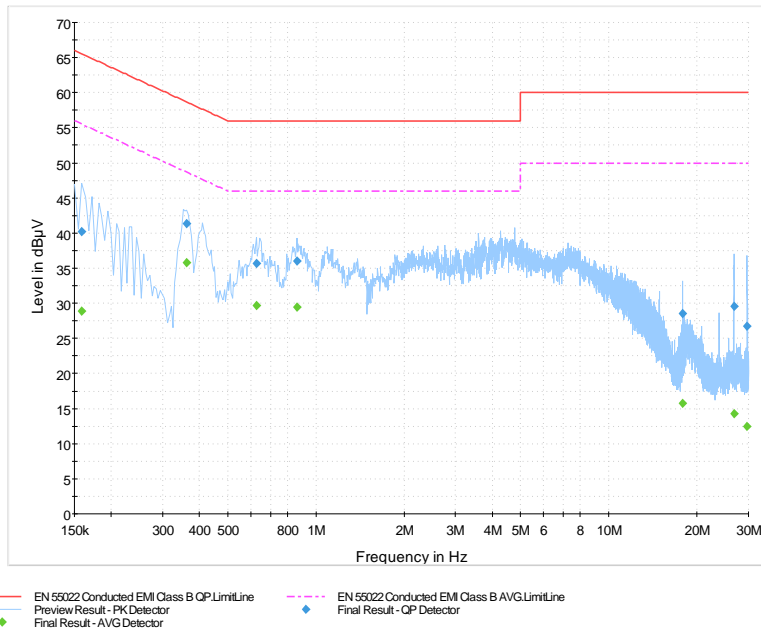
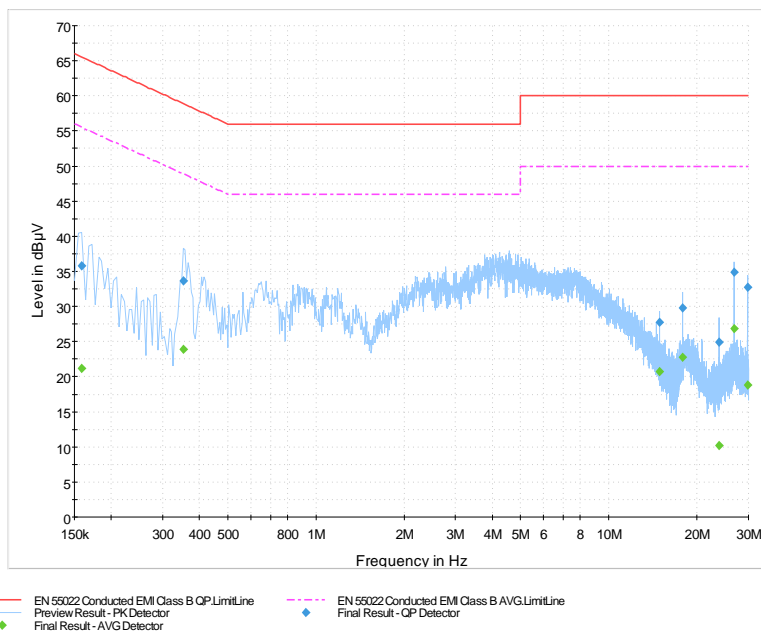




Figure 1-4: N Lines



	EMI Test Report for the BlackBerry® smartphone Model RCZ31CW APPENDIX 2	
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APPENDIX 2 – BLUETOOTH AND 802.11b/g RADIATED EMISSIONS TEST DATA

	EMI Test Report for the BlackBerry® smartphone Model RCZ31CW	
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Radiated Emissions Test Results
Test Configuration 1

The following measurements were performed by Fahd Faisal.
The EUT was in Bluetooth Tx mode and was in standalone, USB up position.
The BlackBerry® smartphone was tested on March 12 and April 01, 2010.

The environmental test conditions were: Temperature: 22 – 26 °C
Pressure: 1006 – 1011 mb
Relative Humidity: 21 – 25 %

The frequency sweep measurements were performed in single frequency Tx mode on channels 0, 39 and 78 using packet types “DH5”, “2-DH5” and “3-DH5”.
The test distance was 3.0 metres with an EUT height of 0.8m, at a frequency of 30-1000MHz
All emissions had a test margin of greater than 25.0 dB.


The following measurements were performed by Heng Lin.
The EUT was in Bluetooth Tx mode and was in standalone, USB down position.
The BlackBerry® smartphone, was tested on April 05 – 20, and April 27 – 30, 2010

The environmental test conditions were: Temperature: 24 °C
Pressure: 1003 – 1020 mb
Relative Humidity: 24 – 30 %

The measurements were performed in single frequency Tx mode using packet types “DH5”, “2-DH5” and “3-DH5” on channels 0, 39 and 78.

The test distance was 3.0 metres with a height of 0.8 metres, 1GHz to 25GHz.

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

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Band-Edge Compliance of RF Radiated Emissions Test Results
Bluetooth Band

Date of test: April 26, 2010


The following measurements were performed by Kevin Rose.

The environmental test conditions were: Temperature: 24 °C
Pressure: 1022 mb
Relative Humidity: 30 %

The BlackBerry® smartphone was in standalone, vertical, position, pattern type “Static PBRs” in “DH5”, “2-DH5” and “3-DH5” modulation during the measurements.

The test distance was 3.0 metres.

Channel	Freq. (MHz)	Rx Antenna Type	POL.	Detector (PK, AVE.)	VBW (MHz)	Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
Low Channel, Packet Type DH5										
0	2402	Horn	V	PK	1 MHz	92.11	57.72	34.39	74	-39.61
0	2402	Horn	H	PK	1 MHz	99.13	59.51	39.62	74	-34.38
0	2402	Horn	V	AVE.	10 Hz	63.04	57.72	5.32	54	-48.68
0	2402	Horn	H	AVE.	10 Hz	66.72	59.51	7.21	54	-46.79
High Channel, Packet Type DH5										
78	2480	Horn	V	PK	1 MHz	89.42	52.34	37.08	74	-36.92
78	2480	Horn	H	PK	1 MHz	100.61	60.95	39.66	74	-34.34
78	2480	Horn	V	AVE.	10 Hz	61.68	52.34	9.34	54	-44.66
78	2480	Horn	H	AVE.	10 Hz	67.29	60.95	6.34	54	-47.66
Low Channel, Packet Type 2-DH5										
0	2402	Horn	V	PK	1 MHz	89.12	48.51	40.61	74	-33.39
0	2402	Horn	H	PK	1 MHz	95.01	55.21	39.8	74	-34.20
0	2402	Horn	V	AVE.	10 Hz	59.72	48.51	11.21	54	-42.79
0	2402	Horn	H	AVE.	10 Hz	63.36	55.21	8.15	54	-45.85
High Channel, Packet Type 2-DH5										
78	2480	Horn	V	PK	1 MHz	85.68	42.43	43.25	74	-30.75
78	2480	Horn	H	PK	1 MHz	97.07	43.87	53.2	74	-20.80
78	2480	Horn	V	AVE.	10 Hz	58.5	42.43	16.07	54	-37.93
78	2480	Horn	H	AVE.	10 Hz	64.19	43.87	20.32	54	-33.68

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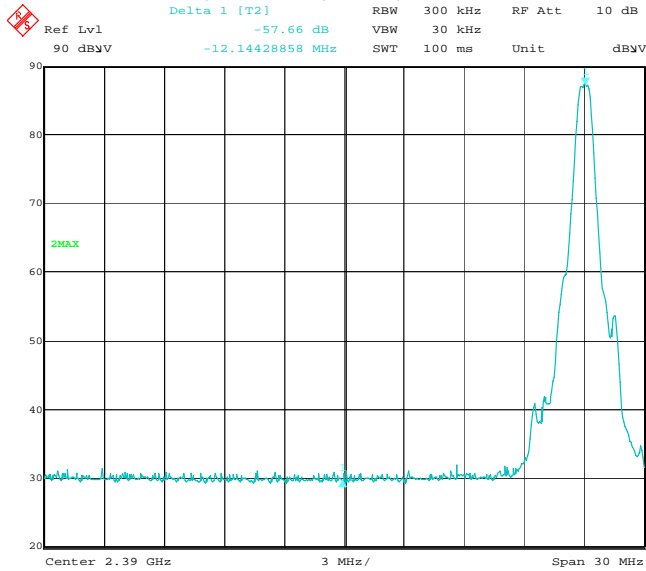
Band-Edge Compliance of RF Radiated Emissions Test Results
Bluetooth Band cont'd

Low Channel, Packet Type 3-DH5										
0	2402	Horn	V	PK	1 MHz	92.15	48.81	43.34	74	-30.66
0	2402	Horn	H	PK	1 MHz	95.18	54.19	40.99	74	-33.01
0	2402	Horn	V	AVE.	10 Hz	62.52	48.81	13.71	54	-40.29
0	2402	Horn	H	AVE.	10 Hz	63.27	54.19	9.08	54	-44.92
High Channel, Packet Type 3-DH5										
78	2480	Horn	V	PK	1 MHz	86.04	42.51	43.53	74	-30.47
78	2480	Horn	H	PK	1 MHz	97.08	44.35	52.73	74	-21.27
78	2480	Horn	V	AVE.	10 Hz	58.43	53.5	4.93	54	-49.07
78	2480	Horn	H	AVE.	10 Hz	64.08	44.35	19.73	54	-34.27

See figures 2-1 to 2-12 for the plots of the Bluetooth band-edge compliance.

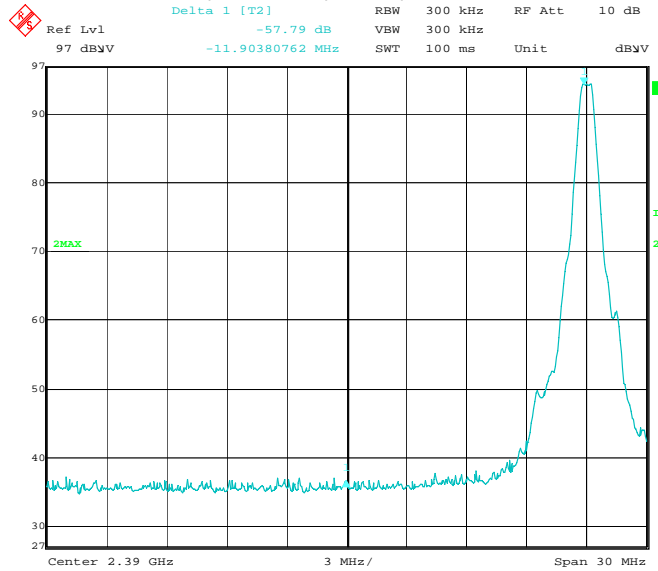
Bluetooth Band-Edge Compliance of RF Radiated Emissions cont'd

Figure 2-1: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 DH5, Channel 0, Pol: V, Detector: PK



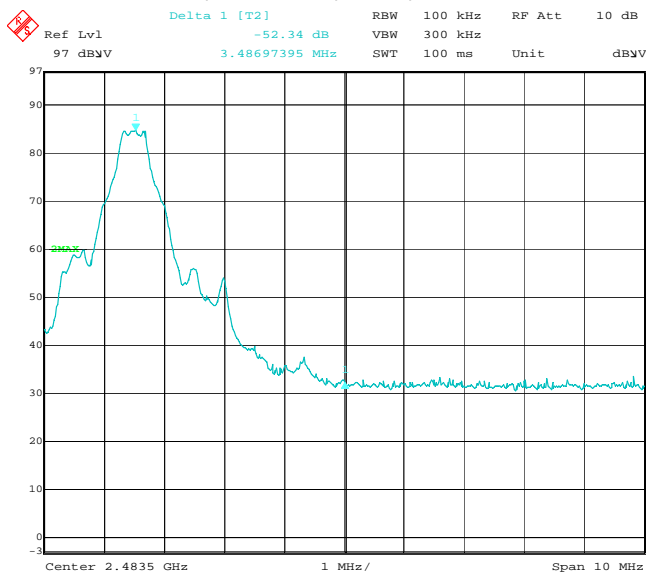
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Figure 2-2: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 DH5, Channel 0, Pol: H, Detector: PK



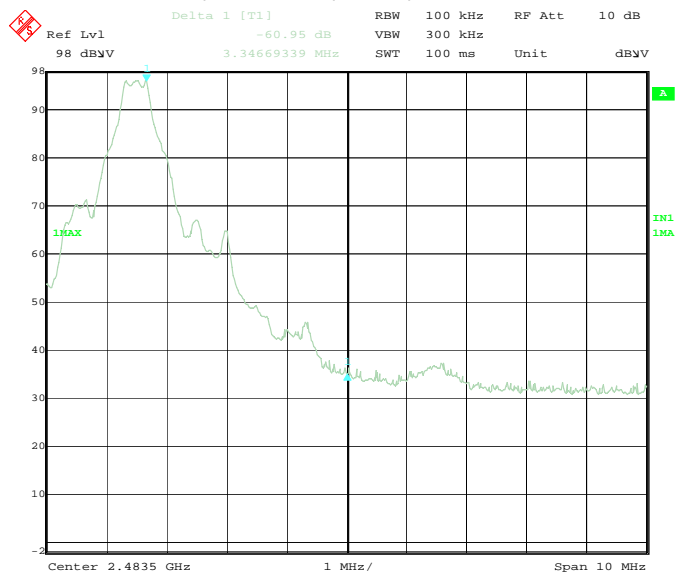
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Figure 2-3: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 DH5, Channel 78, Pol: V, Detector: PK



Date: 3.MAY.2010 13:27:50

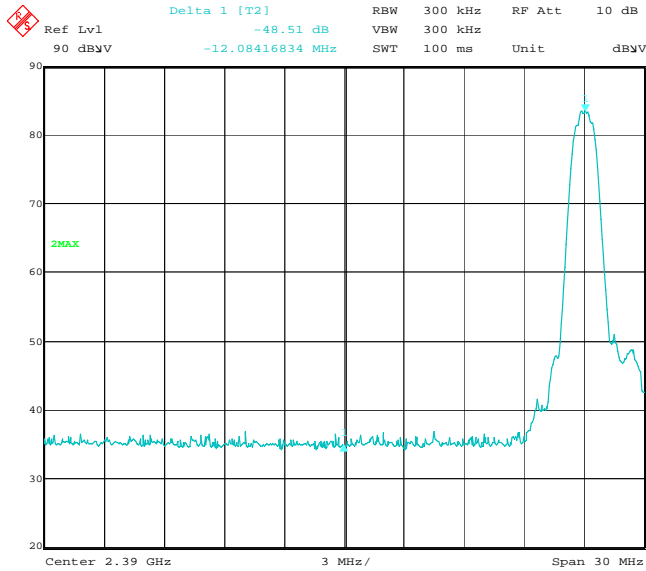
Figure 2-4: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 DH5, Channel 78, Pol: H, Detector: PK



Date: 3.MAY.2010 13:39:13

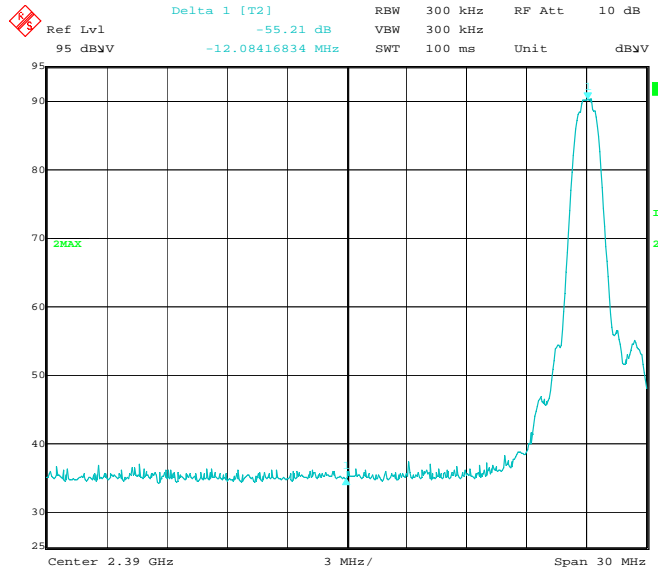
Bluetooth Band-Edge Compliance of RF Radiated Emissions cont'd

Figure 2-5: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 2-DH5, Channel 0, Pol: V, Detector: PK



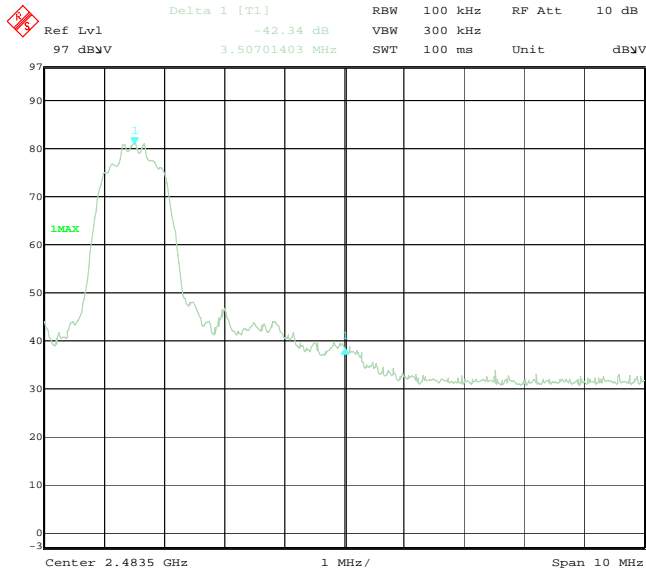
Date: 3.MAY.2010 11:28:04

Figure 2-6: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 2-DH5, Channel 0, Pol: H, Detector: PK



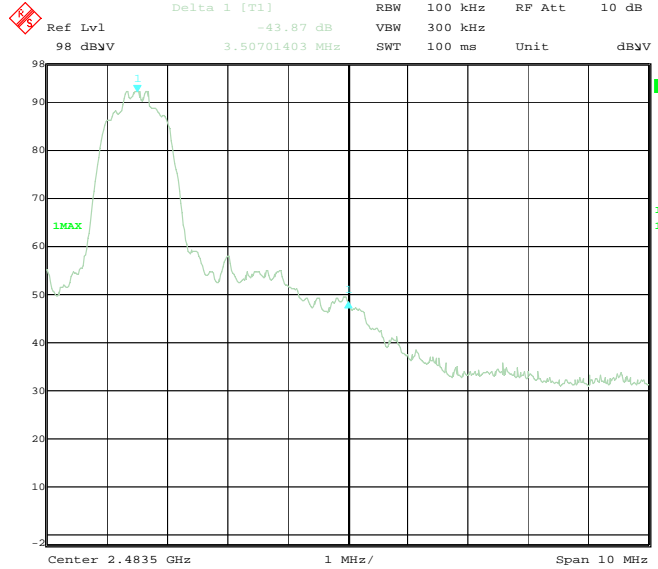
Date: 3.MAY.2010 13:04:51

Figure 2-7: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 2-DH5, Channel 78, Pol: V, Detector: PK



Date: 3.MAY.2010 13:25:40

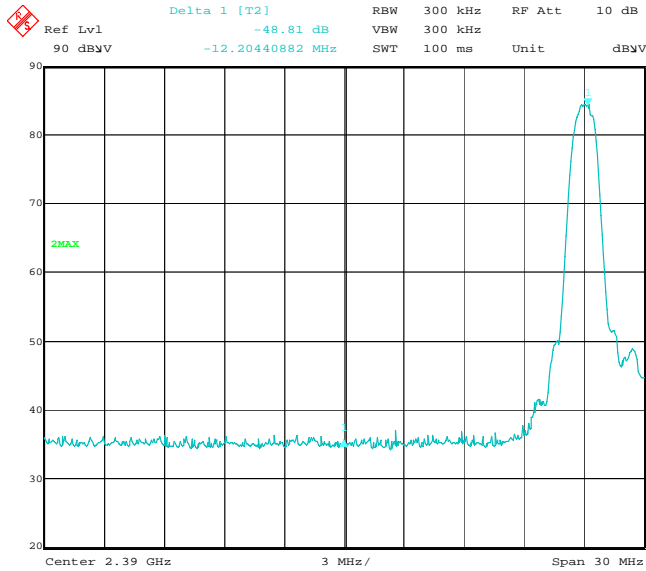
Figure 2-8: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 2-DH5, Channel 78, Pol: H, Detector: PK



Date: 3.MAY.2010 13:41:58

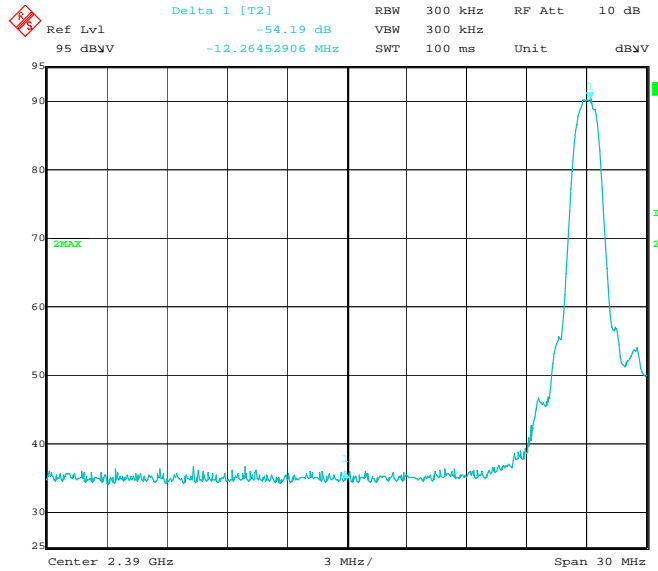
Bluetooth Band-Edge Compliance of RF Radiated Emissions cont'd

Figure 2-9: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 3-DH5, Channel 0, Pol: V, Detector: PK



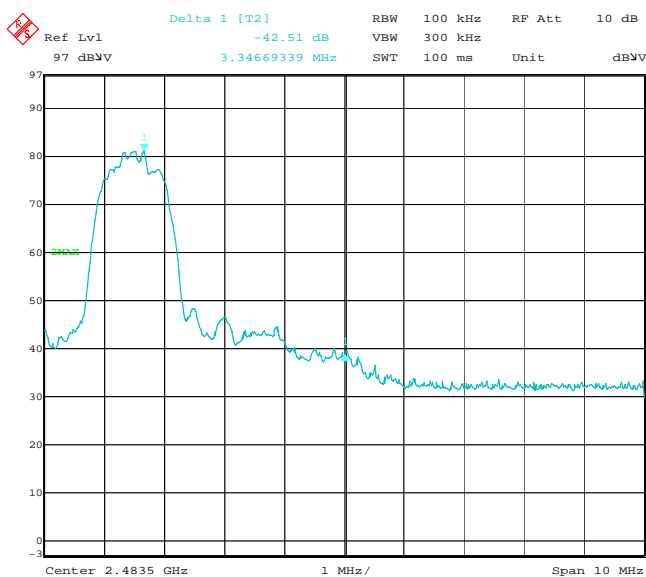
Date: 3.MAY.2010 11:15:48

Figure 2-10: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 3-DH5, Channel 0, Pol: H, Detector: PK



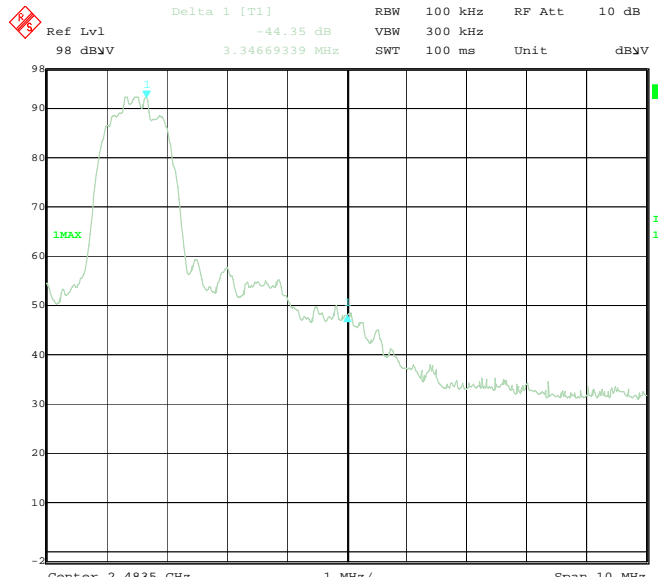
Date: 3.MAY.2010 13:00:38

Figure 2-11: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 3-DH5, Channel 78, Pol: V, Detector: PK




Date: 3.MAY.2010 13:18:49

Figure 2-12: Band-Edge Compliance of RF Rad. Emissions.
 Bluetooth, Single freq., Static PBRS,
 3-DH5, Channel 78, Pol: H, Detector: PK



Date: 3.MAY.2010 13:47:35

	EMI Test Report for the BlackBerry® smartphone Model RCZ31CW	
	APPENDIX 2	
Test Report No. RTS-2068-1005-34	Dates of Test March 12 to April 30, 2010	Author Data Michael Cino

Radiated Emissions Test Results cont'd
802.11b/g Band

Date of Test: April 01, 2010

The following measurements were performed by Kevin Rose.

The environmental test conditions were: Temperature: 26 °C
Pressure: 1011 mb
Relative Humidity: 21 %

The frequency sweep measurements were performed in 802.11b Tx mode at 1 Mbps on channels 1, 6 and 11, and in 802.11g Tx mode at 6 Mbps on channel 6.

The BlackBerry® smartphone was in standalone, USB up position.
The test distance was 3.0 metres with a height of 0.8 metres, 30 MHz to 1000 MHz.
All emissions had a test margin greater than 25.0 dB.

Date of Test: April 20 – 27, 2010

Measurements were performed by Michael Cino.


The environmental test conditions were: Temperature: 24 °C
Pressure: 1003 – 1020 mb
Relative Humidity: 25 – 30 %

The frequency sweep measurements were performed in 802.11b Tx mode at 1 Mbps on channels 1, 6 and 11, and in 802.11g Tx mode at 6 Mbps on channel 6.

The BlackBerry® smartphone was in standalone, USB down position.
The test distance was 1.0 metres with a height of 0.8 metres, 1GHz to 25GHz.

BlackBerry® smartphone PIN 31570195											
Frequency (MHz)	Channel	Modulation	Antenna		Test Angle (Deg.)	RBW / VBW	Measured Level (dBµV)	Correction Factor for preamp/antenna/ cables/ filter (dB)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
			Pol. (V/H)	Height (metres)							
1430.056	11	802.11b	H	1.38	316.00	1MHz / 10Hz	28.08	2.70	30.78	54.00	-23.22

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

	EMI Test Report for the BlackBerry® smartphone Model RCZ31CW	
	APPENDIX 2	
Test Report No. RTS-2068-1005-34	Dates of Test March 12 to April 30, 2010	Author Data Michael Cino

802.11b/g Band-Edge Compliance of RF Radiated Emissions

Date of Test: April 26, 2010

The following measurements performed by Kevin Rose.

The environmental test conditions were: Temperature: 24 ° C
Pressure: 1022 mb
Relative Humidity: 30 %


802.11b Band

The measurements were performed on BlackBerry® smartphone, in vertical standalone configuration on channels 1 and 11 for 802.11b mode at 1 Mbps.

The test distance was 3 metres.

Channel	Freq. (MHz)	Rx Antenna		Detector (MHz)	VBW For Peak (dBuV/m)	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
1.0	2402.00	Horn	V	PK	1 MHz	105.64	50.69	54.95	74.00	-19.05
1.0	2402.00	Horn	H	PK	1 MHz	103.98	48.57	55.41	74.00	-18.59
1.0	2402.00	Horn	V	AV	10 Hz	101.06	50.69	50.37	54.00	-3.63
1.0	2402.00	Horn	H	AV	10 Hz	99.45	48.57	50.88	54.00	-3.12

Channel	Freq. (MHz)	Rx Antenna		Detector (MHz)	VBW For Peak (dBuV/m)	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
11.0	2480.00	Horn	V	PK	1 MHz	104.70	0.00	104.70	74.00	30.70
11.0	2480.00	Horn	H	PK	1 MHz	102.55	48.63	53.92	74.00	-20.08
11.0	2480.00	Horn	V	AV	10 Hz	100.26	0.00	100.26	54.00	46.26
11.0	2480.00	Horn	H	AV	10 Hz	98.13	48.63	49.50	54.00	-4.50

	EMI Test Report for the BlackBerry® smartphone Model RCZ31CW	
	APPENDIX 2	
Test Report No. RTS-2068-1005-34	Dates of Test March 12 to April 30, 2010	Author Data Michael Cino

802.11g Band

The measurements were performed on BlackBerry® smartphone, standalone, vertical configuration on channels 1 and 11 for 802.11g mode at 6 Mbps.

The test distance was 3 metres.

Channel	Freq. (MHz)	Rx Antenna		Detector (MHz)	VBW For Peak (dBuV/m)	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
1.0	2402.00	Horn	V	PK	1 MHz	103.70	36.03	67.67	74.00	-6.33
1.0	2402.00	Horn	H	PK	1 MHz	97.92	40.59	57.33	74.00	-16.67
1.0	2402.00	Horn	V	AV	10 Hz	89.44	36.03	53.41	54.00	-0.59
1.0	2402.00	Horn	H	AV	10 Hz	84.41	40.59	43.82	54.00	-10.18

Channel	Freq. (MHz)	Rx Antenna		Detector (MHz)	VBW For Peak (dBuV/m)	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
11.0	2480.00	Horn	V	PK	1 MHz	102.70	43.01	59.69	74.00	-14.31
11.0	2480.00	Horn	H	PK	1 MHz	100.01	43.05	56.96	74.00	-17.04
11.0	2480.00	Horn	V	AV	10 Hz	87.93	43.01	44.92	54.00	-9.08
11.0	2480.00	Horn	H	AV	10 Hz	85.39	43.05	42.34	54.00	-11.66

See figures 2-13 to 2-16 for the plots of the 802.11b band-edge compliance.
See figures 2-17 to 2-20 for the plots of the 802.11g band-edge compliance.

802.11b/g Band-Edge Compliance of RF Radiated Emissions cont'd

Figure 2-13: Band-Edge Compliance of RF Radiated Emission
 802.11b, Channel 1, 2412 MHz, Max Pol: V,
 Detector: PK

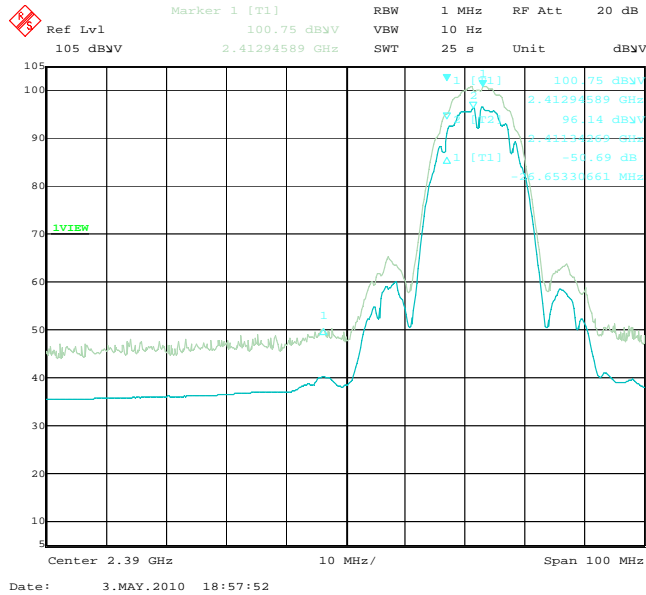


Figure 2-14: Band-Edge Compliance of RF Radiated Emission
 802.11b, Channel 1, 2412 MHz, Max Pol: H,
 Detector: PK

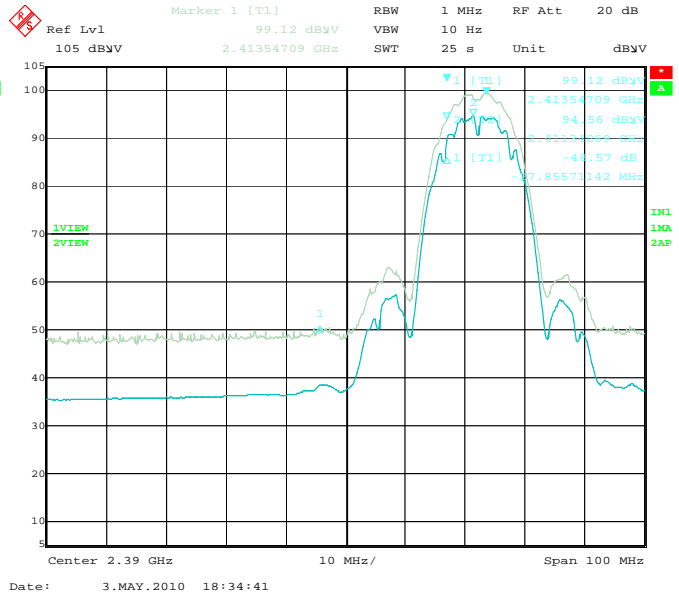


Figure 2-15: Band-Edge Compliance of RF Radiated Emission
 802.11b, Channel 11, 2462 MHz, Max Pol: V,
 Detector: PK

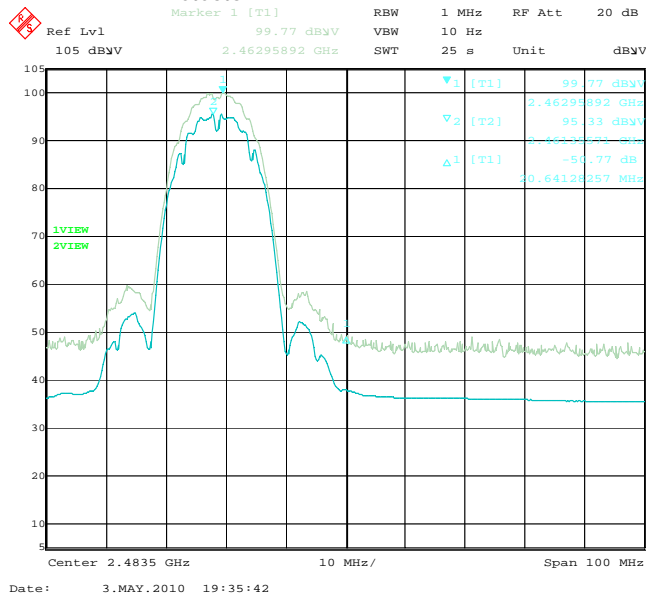
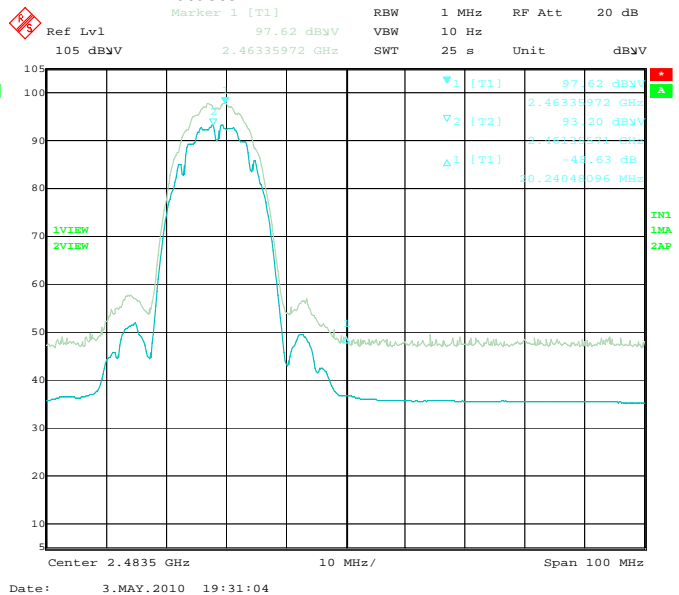


Figure 2-16: Band-Edge Compliance of RF Radiated Emission
 802.11b, Channel 11, 2462 MHz, Max Pol: H,
 Detector: PK



802.11b/g Band-Edge Compliance of RF Radiated Emissions cont'd

Figure 2-17: Band-Edge Compliance of RF Radiated Emission
 802.11g, Channel 1, 2412 MHz, Max Pol: V,
 Detector: PK

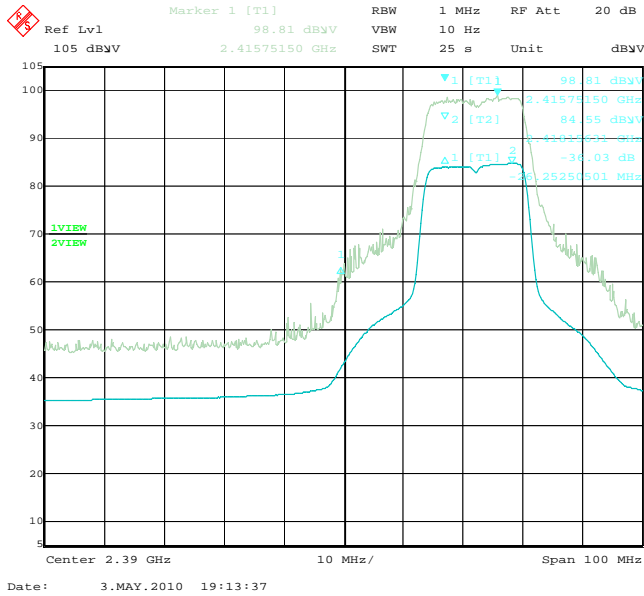


Figure 2-18: Band-Edge Compliance of RF Radiated Emission
 802.11g, Channel 1, 2412 MHz, Max Pol: H,
 Detector: PK

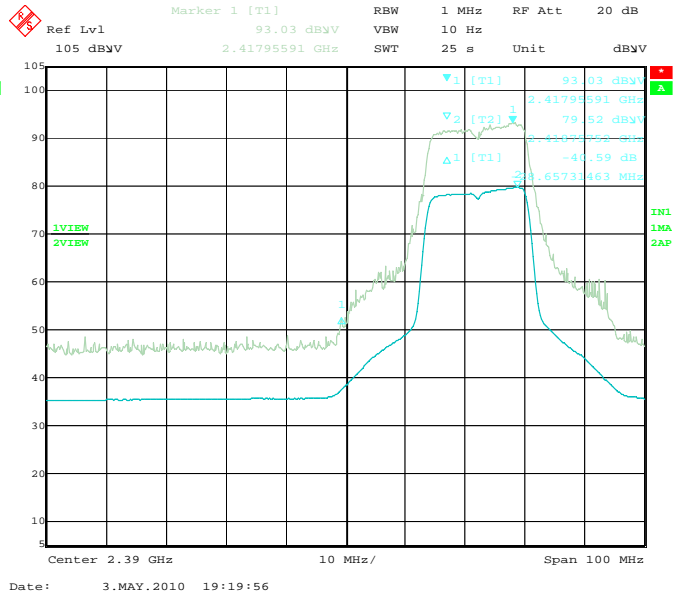


Figure 2-19: Band-Edge Compliance of RF Radiated Emission
 802.11g, Channel 11, 2462 MHz, Max Pol: V,
 Detector: PK

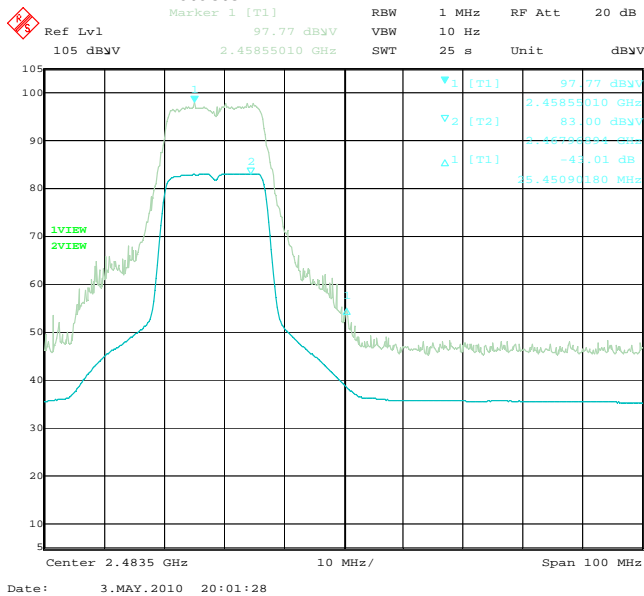


Figure 2-20: Band-Edge Compliance of RF Radiated Emission
 802.11g, Channel 11, 2462 MHz, Max Pol: H,
 Detector: PK

