

# **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

## **RIM Testing Services (RTS)**

**A division of Research In Motion Limited**

**REPORT NO.:** RTS-1364-0812-09

**PRODUCT MODEL NO.:** RCE21CW  
**TYPE NAME:** BlackBerry® smartphone  
**FCC ID:** L6ARCE20CW  
**IC:** 2503A-RCE20CW

**DATE:** 05 January, 2009

<b>RTS</b> RIM Testing Services	EMI Test Report for the BlackBerry® smartphone Model RCE21CW	
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**Statement of Performance:**

The BlackBerry® smartphone, model RCE21CW, part number CER-21463-001 Rev. 1, and accessories when configured and operated per RIM's operation instructions, performs within the requirements of the test standards.

**Declaration:**

We hereby certify that:

The test data reported herein is an accurate record of the performance of the sample(s) tested.

The test results are valid for the tested unit (s) only.

The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating parameters.

The test methods were consistent with the methods described in the relevant standards.

Documented by:



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Date: 18 December, 2008

Reviewed by:



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Date: 18 December, 2008

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Date: 05 January, 2009

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Director  
Date: 06 January, 2009

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## A. Scope

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

- FCC CFR 47 Part 15, Subpart C, July 10, 2008
- Industry Canada, RSS-210, Issue 7, June 2007, Low Power Licence-Exempt Radiocommunication Devices
- Industry Canada, RSS-GEN, Issue 2, June 2007, General Requirements and Information for the Certification of Radiocommunication Equipment

## B. Associated Documents

No associated documents.

## C. Product Identification

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

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

The equipment under test (EUT) was tested at the RIM Testing Services (RTS) EMI test facility, located at:

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

The testing was performed from December 02 to 17, 2008.

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The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN
1	RCE21CW	CER-21463-001 Rev. 1	304B38FA
2	RCE21CW	CER-21463-001 Rev. 1	304C20F4
3	RCE21CW	CER-21463-001 Rev. 1	3048F42E
4	RCE21CW	CER-21463-001 Rev. 1	3048F478

BlackBerry® smartphone Accessories Tested

- 1) Captive Cable Charger part number HDW-17957-003 with an output voltage of 5.0 volts dc, 700 mA and attached USB cable with a lead length of 1.80 metres
- 2) Mono Headset, 3.5 mm, HDW-12420-003, 1.3 metres long.
- 3) BlackBerry® Charging Pod, part number HDW-14389-001.

**D. Support Equipment Used for the Testing of the EUT**

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

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## E. Test Results Chart

SPECIFICATION		TEST TYPE	Meets Requirements	TEST DATA APPENDIX
FCC CFR 47	IC			
Part 15.207	RSS-GEN, 7.2.2	Conducted AC Line Emission	Yes	1
Part 15.209 Part 15.247	RSS-210, A8.5	Radiated Spurious Emissions and Radiated Band Edge Compliance	Yes	2
Part 15.247(a)	RSS-210, A8.1	Bluetooth 20 dB Bandwidth	Yes	3
Part 15.247(a)	RSS-210, A8.1	Bluetooth Carrier Frequency Separation	Yes	3
Part 15.247(a)	RSS-210, A8.1d	Bluetooth Number of Hopping Frequencies	Yes	3
Part 15.247(a)	RSS-210, A8.1c	Bluetooth Time of Occupancy (Dwell Time)	Yes	3
Part 15.247(b)	RSS-210, A8.4	Bluetooth Maximum Peak Conducted Output Power	Yes	3
Part 15.247(c)	RSS-210, A8.5	Bluetooth Band-Edge Compliance of RF Conducted Emissions	Yes	3
Part 15.247(c)	RSS-210, A8.5	Bluetooth Spurious RF Conducted Emissions	Yes	3

## F. Modifications to EUT

No modifications were required on the EUT.

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## G. 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, PIN 304C20F4 was in battery charging mode. The input voltage was 120 V, 60 Hz.

The following test configuration was measured:

1. The BlackBerry® smartphone in Bluetooth Tx mode with the 3.5 mm Mono Headset connected was sitting in the Charging Pod which was connected to the Captive Cable Charger.

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 worse case test margin of 15.90 dB below the limit at 0.443 MHz using the quasi peak detector.

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.

The BlackBerry® smartphone PIN 3048F42E and PIN 3048F478 were measured in standalone configuration with Bluetooth transmitting in single frequency mode at low channel (0), middle channel (39) and high channel (78) for packet type "DH5" and frequency hopping for packet type "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.

The Bluetooth harmonics were investigated up to the 10th harmonic. The sample EUT emissions were in the noise floor.

See APPENDIX 2 for the test data

### **Measurement Uncertainty ±4.6 dB**

### **Co-Location Measurements**

The radiated emissions were measured up to 18 GHz for middle channels for simultaneous transmission in the following test configuration combinations: CDMA cellular, CDMA PCS and Bluetooth. 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.



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### 3) Band-Edge Compliance of RF Radiated Emissions

The Band-Edge Compliance of RF Radiated Emissions for Bluetooth met the requirements as per 15.247, 15.209, and RSS-210/RSS-GEN.  
See APPENDIX 2 for the test data

### 4) BLUETOOTH RF CONDUCTED EMISSIONS

#### a) 20 dB Bandwidth

The EUT met the requirements of the 20 dB bandwidth as per 47 CFR 15.247(a) and RSS-210. Low channel (0), middle channel (39) and high channel (78) were measured.

See APPENDIX 3 for the test data.

#### b) Carrier Frequency Separation

The EUT met the requirements of the carrier frequency separation as per 47 CFR 15.247(a) and RSS-210. Channel 38 to 39 was measured.

See APPENDIX 3 for the test data.

#### c) Number of Hopping Frequencies

The EUT met the requirements of the number of hopping frequencies as per 47 CFR 15.247(a) and RSS-210. The number of hopping channels measured was 79.

See APPENDIX 3 for the test data.

#### d) Time of Occupancy (Dwell Time)

The EUT met the requirements of the dwell time as per 47 CFR 15.247(a) and RSS-210. Low channel (0), middle channel (39) and high channel (78) were measured in DH1, DH3 and DH5 modes. Bluetooth was operating in frequency hopping (Euro/US) mode during the measurements.

See APPENDIX 3 for the test data.

#### e) Maximum Peak Conducted Output Power

The EUT met the requirements of the maximum peak conducted output power as per 47 CFR 15.247(b) and RSS-210. Low channel (0), middle channel (39) and high channel (78) were measured.

See APPENDIX 3 for the test data.

#### f) Band-Edge Compliance of RF Conducted Emissions

The EUT met the requirements of the band-edge compliance of RF conducted emissions as per 47 CFR 15.247(c) and RSS-210. Channels 0 and 78 were measured in frequency hopping (Euro/US) mode and single frequency mode.

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g) Spurious RF Conducted Emissions

The EUT met the requirements of the spurious RF conducted emissions as per 47 CFR 15.247(c) and RSS-210. The frequency range measured was 10 MHz to 26 GHz. Low channel (0), middle channel (39) and high channel (78) were measured in single frequency mode and frequency hopping (Euro/US) mode. See APPENDIX 3 for the test data.

## H. 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	09-12-02	Conducted/Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA4-SP	001	09-06-03	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	09-02-29	Radiated Emissions
L.I.S.N.	Rohde & Schwarz	ENV216	100060	10-04-21	Conducted Emissions
Horn Antenna	TDK	HRN-0118	030101	10-07-22	Radiated Emissions
Environment Monitor	Control Company	1870	80117164	10-01-08	Conducted/Radiated Emissions
EMC Analyzer	Agilent	E7405A	US40240226	09-11-17	Radiated Emissions
Spectrum Analyzer	HP	8563E	3745A08112	09-09-22	RF Conducted Emissions
DC Power Supply	HP	6632B	US37472178	09-09-24	RF Conducted Emissions
Environment Monitor	Control Company	1870	80117164	10-01-08	RF Conducted Emissions
Temperature Probe	Control Company	15-077-21	51129471	09-05-12	Frequency Stability
Environmental Chamber	ESPEC Corp.	SH-240S1	91005607	N/R	Frequency Stability
Bluetooth Tester	Rohde & Schwarz	CBT	100034	09-12-09	RF Conducted Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100370	09-12-08	Radiated Emissions
Signal Generator	Agilent	8648C	4037U03155	09-09-20	Frequency Stability
Power Meter	Agilent	N1911A	MY45100905	09-04-22	Frequency Stability
Power Sensor	Agilent	N1921A	MY45100905	09-05-09	Frequency Stability
Digital Multimeter	Hewlett Packard	34401A	US36042324	09-01-01	Conducted/Radiated Emissions

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## APPENDIX 1 – AC CONDUCTED EMISSIONS TEST DATA/PLOTS

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### Bluetooth AC Conducted Emission Test Results

#### Test Configuration 1

Date of test: December 11, 2008

The measurements were performed by Heng Lin and Savtej Sandhu.

The environmental test conditions were:

Temperature	29°C
Pressure	1012mb
Relative Humidity	29%

FCC CFR 47 Part 15, Subpart B and IC ICES-003, Class B

Frequency (MHz)	Line	Reading (QP) (dBμV)	Correction Factor (dB)	Corrected Reading (QP) (dB)	Limit (QP) (dBμV)	Limit (AV) (dBμV)	Margin (QP) Limits (dB)
0.168	L1	38.13	9.94	48.07	65.06	55.06	-16.99
0.263	L1	32.92	9.85	42.77	61.35	51.35	-18.58
0.321	L1	30.08	9.80	39.89	59.68	49.68	-19.79
0.443	L1	31.40	9.72	41.12	57.01	47.01	<b>-15.90</b>
0.461	N	28.00	9.89	37.89	56.68	46.68	-18.79
0.834	L1	22.50	9.56	32.05	56.00	46.00	-23.95
4.704	N	21.71	9.60	31.31	56.00	46.00	-24.69
4.727	L1	25.42	9.67	35.08	56.00	46.00	-20.92
8.412	L1	30.04	9.76	39.81	60.00	50.00	-20.19
9.659	N	25.82	9.66	35.48	60.00	50.00	-24.52

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

Measurements were done with the quasi-peak detector.

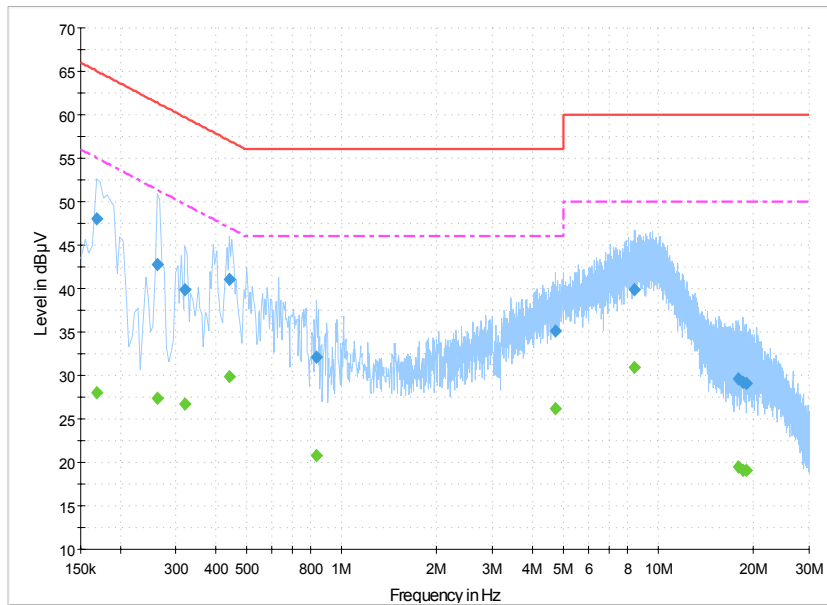
See figure 1-1 and figure 1-2 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

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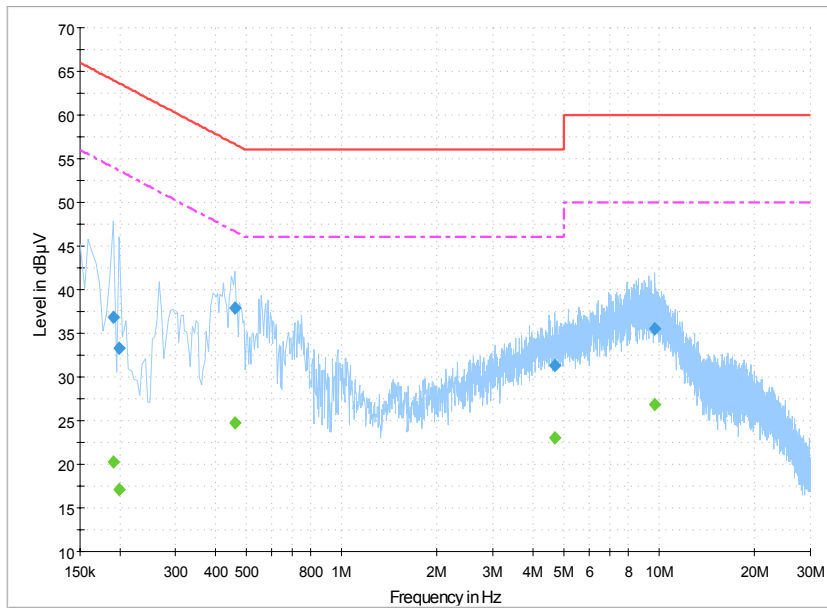
## AC Conducted Emissions Test Graphs

### Test Configuration 1

**Figure 1-1: L1 lines**



**Figure 1-2: N Lines**



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## APPENDIX 2 – RADIATED EMISSIONS TEST DATA

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### Radiated Emissions Test Data Results

#### **Bluetooth Band**

Date of Test: December 02, 2008

The measurements were performed by Gurjeev Singh and Savtej Sandhu.

The environmental test conditions were:

Temperature	24°C
Pressure	1007 mb
Relative Humidity	22%

Test Distance was 3.0 metres with a EUT height of 0.8 metre, sweep frequency of 30 MHz to 1 GHz

The BlackBerry® smartphone PIN 3048F42E was in standalone, vertical position.

The frequency sweep measurements were performed in single frequency mode using packet type “DH5”, channel 0.

All emissions were in the NF.

Date of Test: December 08, 2008

The environmental test conditions were:

Temperature	24°C
Pressure	1020 mb
Relative Humidity	31%

Test Distance was 3.0 metres with a EUT height of 0.8 metre, sweep frequency of 1 GHz to 25GHz

The BlackBerry® smartphone PIN 3048F478 was in standalone, vertical position.

The frequency sweep measurements were performed in single frequency mode using packet type “DH5”, channel 0.

All emissions were in the NF.

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Radiated Emissions Test Data Results cont'd

**Bluetooth Band**

Date of Test: December 08, 2008

The environmental test conditions were:

Temperature	24°C
Pressure	1020 mb
Relative Humidity	31%

Test Distance was 3.0 metres with a EUT height of 0.8 metre, sweep frequency of 30 MHz to 1 GHz

The BlackBerry® smartphone PIN 3048F478 was in standalone, vertical position.

The frequency sweep measurements were performed in single frequency mode using packet type “DH5”, channel 39.

All emissions were in the NF.

Date of Test: December 02, 2008

The environmental test conditions were:

Temperature	24°C
Pressure	1007 mb
Relative Humidity	22%

Test Distance was 3.0 metres with a EUT height of 0.8 metre, sweep frequency of 1.0 GHz to 25 GHz.

The BlackBerry® smartphone PIN 3048F42E was in standalone, vertical position.

The frequency sweep measurements were performed in single frequency mode using packet type “DH5”, channel 39.

All emissions were in the NF.



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Radiated Emissions Test Data Results cont'd

**Bluetooth Band**

Date of Test: December 02, 2008

The environmental test conditions were: Temperature 24°C  
Pressure 1007 mb  
Relative Humidity 22%

Test Distance was 3.0 metres with a EUT height of 0.8 metre, sweep frequency of 30 MHz to 1 GHz

The BlackBerry® smartphone PIN 3048F42E was in standalone, vertical position.

The frequency sweep measurements were performed in single frequency mode using packet type "DH5", channel 78.

All emissions were in the NF.

Date of Test: December 08, 2008

The environmental test conditions were: Temperature 24°C  
Pressure 1020 mb  
Relative Humidity 31%

Test Distance was 3.0 metres with a EUT height of 0.8 metre, sweep frequency of 1.0 GHz to 25 GHz

The BlackBerry® smartphone PIN 3048F478 was in standalone, vertical position.

The frequency sweep measurements were performed in single frequency mode using packet type "DH5", channel 78.

All emissions were in the NF.

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

Date of test: December 11, 2008

The measurements were performed by Andrew Fleming and Arjun Rai Bhatti

The environmental test conditions were:

Temperature	23°C
Pressure	1011 mb
Humidity	23 %

BlackBerry® smartphone PIN 3048F42E was in standalone, vertical, Pattern type “Static PBRs” and packet type “DH5” 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)
<b>Low Channel</b>									
0	2402.0	Horn   V	PK	1 MHz	91.66	49.31	42.35	74	-31.65
0	2402.0	Horn   H	PK	1 MHz	92.72	51.03	41.69	74	-32.31
0	2402.0	Horn   V	AVE.	10 Hz	75.61	49.31	26.30	54	-27.70
0	2402.0	Horn   H	AVE.	10 Hz	75.99	51.03	24.96	54	-29.04
<b>High Channel</b>									
78	2480.0	Horn   V	PK	1 MHz	93.90	46.92	46.98	74	-27.02
78	2480.0	Horn   H	PK	1 MHz	93.31	46.51	46.80	74	-27.20
78	2480.0	Horn   V	AVE.	10 Hz	76.72	46.92	29.80	54	-24.20
78	2480.0	Horn   H	AVE.	10 Hz	76.22	46.51	29.71	54	-24.29

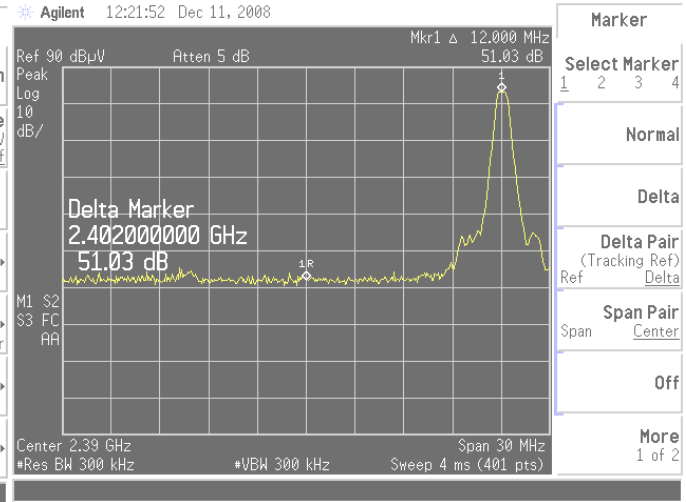
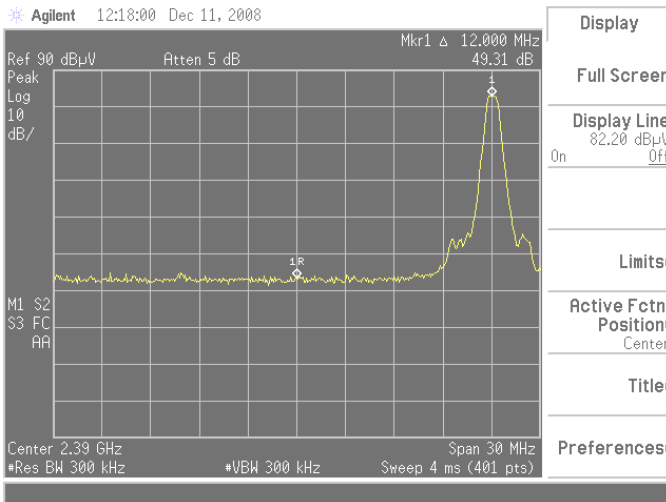
See figures 2-1 to 2-4 for the plots of the Bluetooth band-edge compliance.

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

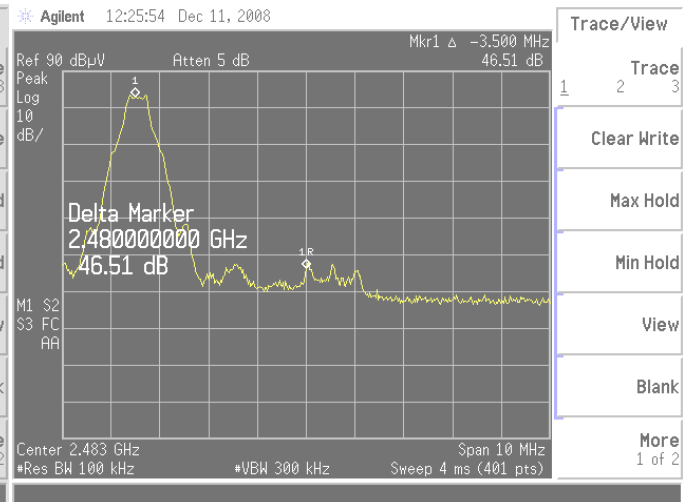
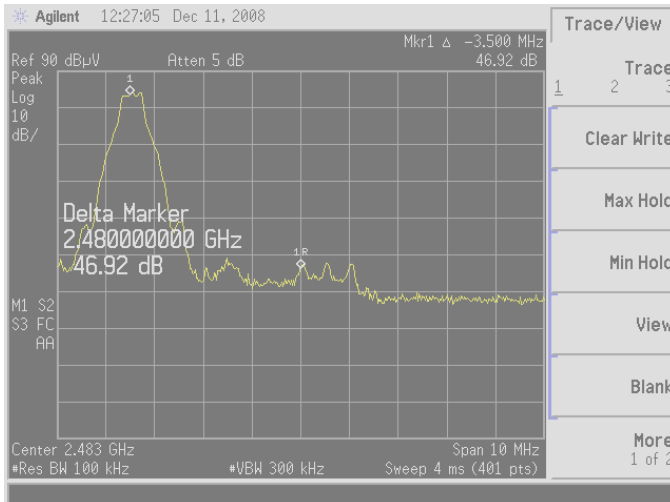
**Figure 2-1:** Band-Edge Compliance of RF Rad. Emissions.  
Bluetooth, Single freq., Static PBRs,  
DH5, Channel 0, Pol: V, Detector: PK

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



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

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



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## APPENDIX 3 – BLUETOOTH CONDUCTED EMISSIONS TEST DATA/PLOTS

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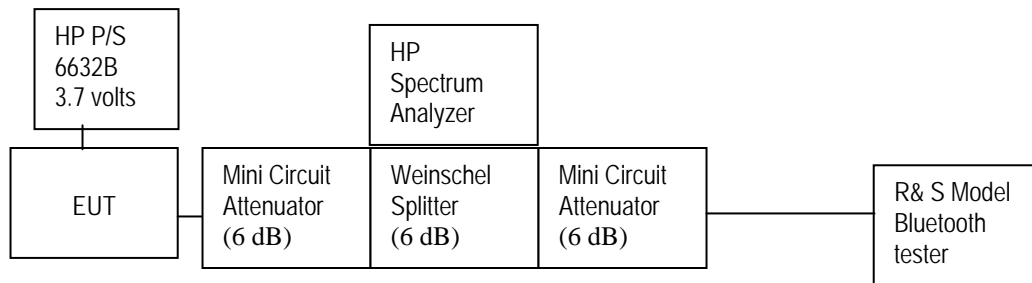
### Bluetooth RF Conducted Emission Test Results

Date of test: December 05, 2008

The measurements were performed by Maurice Battler.

Bluetooth power output from BlackBerry® smartphone PIN 304B38FA was at maximum for all the recorded measurements shown below.

#### Test Setup Diagram



A reference offset of 12.4 dB was applied to the spectrum analyzer reference level for the attenuators and coaxial cable loss in the test circuit.

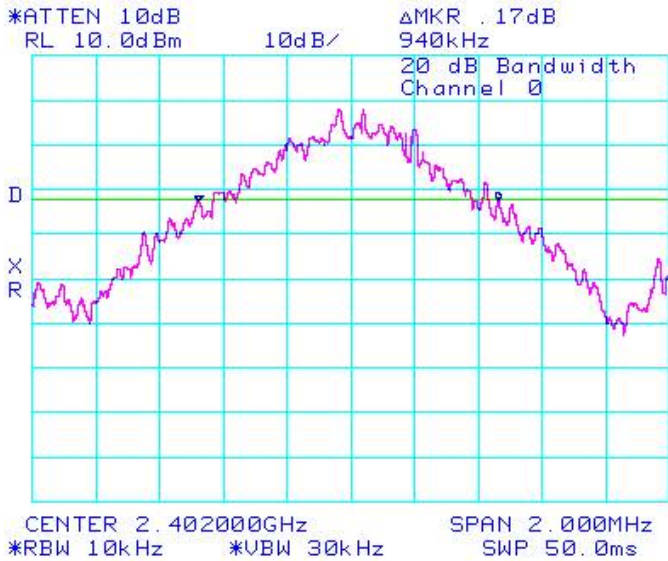


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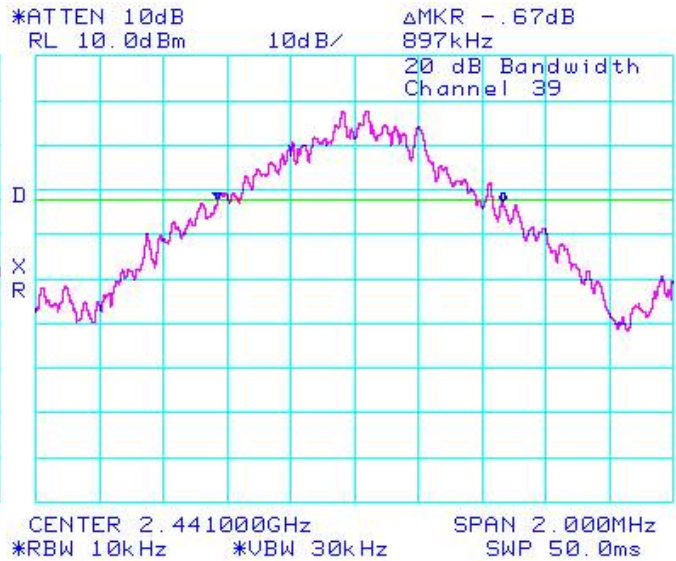
**Figure 3-1: 20 dB Bandwidth**

**Single freq., Static PBRs, DH5**



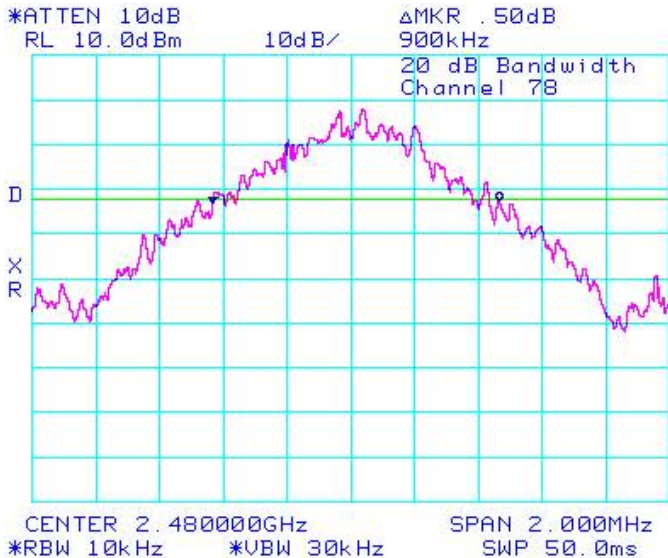
**Figure 3-2: 20 dB Bandwidth**

**Single freq., Static PBRs, DH5**



**Figure 3-3: 20 dB Bandwidth**

**Single freq., Static PBRs, DH5**



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Bluetooth RF Conducted Emission Test Results cont'd

**Carrier Frequency Separation**

The EUT met the requirements of the Carrier Frequency Separation as per 47 CFR 15.247(a) and RSS-210. Channel 38 to 39 was measured. Bluetooth was operating in frequency hopping (Euro/US) mode.

Using pattern type “Static PRBS” and packet type “DH5” during the measurements.

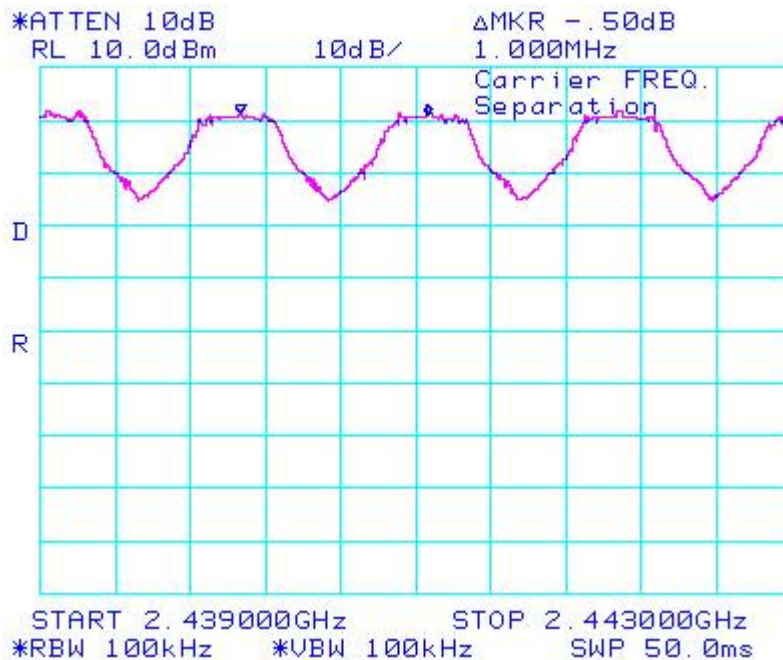
Bluetooth Channels	Limit (MHz)	Measured Level (MHz)
38 to 39	≥ 0.025 or 20 dB bandwidth	1.000

The environmental test conditions were:

Temperature	22°C
Pressure	1017 mb
Relative Humidity	23%

See figure 3-4 for the plot of the Carrier Frequency Separation measurement.

**Figure 3-4: Carrier Frequency Separation, Freq. Hopping, Static PBRs, DH5, Channels 38 to 39**





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Bluetooth RF Conducted Emission Test Results cont'd

**Number of Hopping Frequencies**

The EUT met the requirements of the number of hopping frequencies as per 47 CFR 15.247(a) and RSS-210. Bluetooth was operating in frequency hopping (Euro/US) mode.

Using pattern type "Static PRBS" and packet type "DH5" during the measurements.

<b>Limit (CH)</b>	<b>Number of Hopping Frequencies (CH)</b>
≥75	79

The environmental test conditions were:

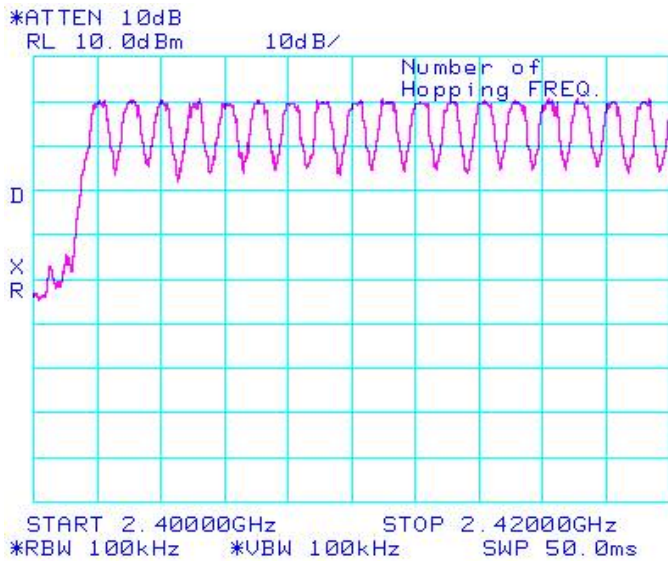
Temperature	22°C
Pressure	1017 mb
Relative Humidity	23%

See figures 3-5 to 3-8 for the plots of the number of hopping frequencies.

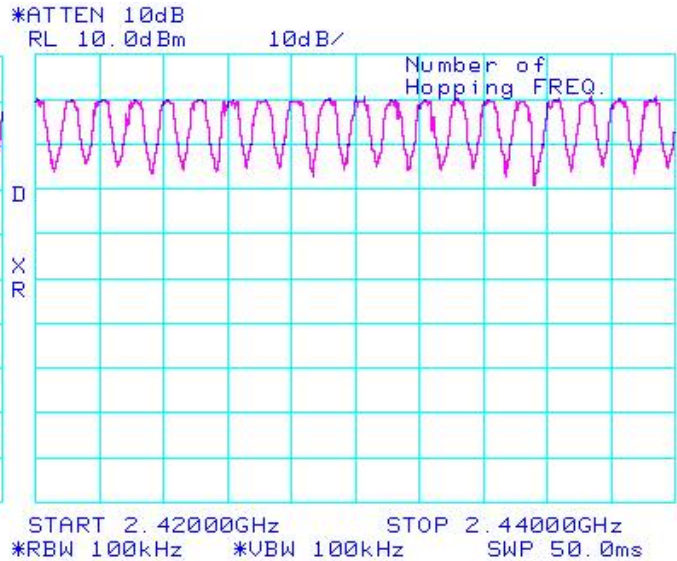
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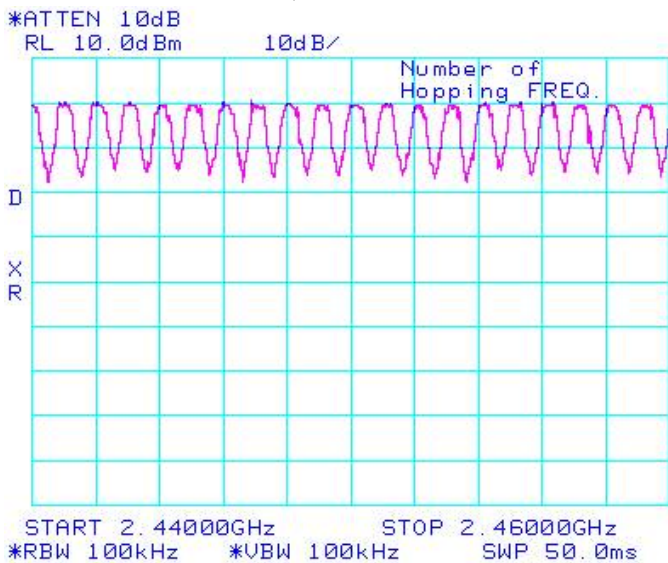
**Figure 3-5: Number of Hopping Frequencies**  
Static PBRs, DH5



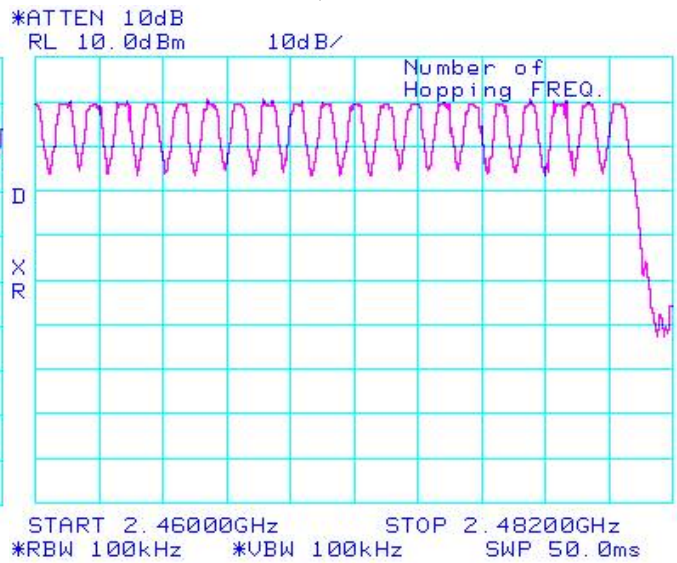
**Figure 3-6: Number of Hopping Frequencies**  
Static PBRs, DH5



**Figure 3-7: Number of Hopping Frequencies**  
Static PBRs, DH5



**Figure 3-8: Number of Hopping Frequencies**  
Static PBRs, DH5



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Bluetooth RF Conducted Emission Test Results cont'd

**Time of Occupancy (Dwell Time)**

The EUT met the requirements of the time of occupancy (dwell time) as per 47 CFR 15.247(a) and RSS-210. Low channel (0), middle channel (39) and high channel (78) were measured in packet types DH1, DH3 and DH5. Bluetooth was operating in frequency hopping (Euro/US) mode during the measurements. The frequency hopping is 1600 hops per second for a dwell time of 625 usec for 79 channels.

A DH1 packet needs one time slot for transmitting and one time slot for receiving. The frequency hopping is 800 hops per second with 79 channels which is 10.127 times per second. As per 15.247(a) (iii) "The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed". Therefore for 31.6 seconds (79x0.4) there are 320.0 times of appearance.

A DH3 packet needs one time slot for transmitting and one time slot for receiving. The frequency hopping is 400 hops per second with 79 channels which is 5.06 times per second. Therefore for 31.6 seconds there are 159.9 times of appearance.

A DH5 packet needs one time slot for transmitting and one time slot for receiving. The frequency hopping is 266.7 hops per second with 79 channels which is 3.38 times per second. Therefore for 31.6 seconds there are 106.8 times of appearance.

Bluetooth Channel	Mode	Tx Time (ms)	Dwell Time/31.6 sec. (msec.)	Limit (msec.)	Margin (msec.)
0	DH1	0.5113	0.5113 x 320.0 = 163.62	400	236.38
39	DH1	0.5287	0.5287 x 320.0 = 169.18	400	230.82
78	DH1	0.5113	0.5113x 320.0 = 163.62	400	236.38
0	DH3	1.7680	1.7680 x 159.9 = 282.70	400	117.30
39	DH3	1.7680	1.7680x 159.9 = 282.70	400	117.30
78	DH3	1.7680	1.7680 x 159.9 = 282.70	400	117.30
0	DH5	3.0333	3.0333 x 106.8 = 323.96	400	76.04
39	DH5	3.0217	3.0217 x 106.8 = 322.72	400	77.28
78	DH5	3.0217	3.0217 x 106.8 = 322.72	400	77.28

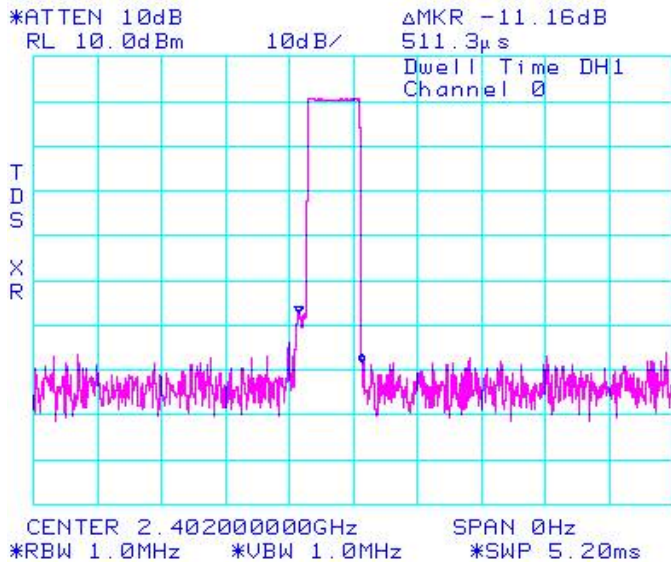
The environmental test conditions were:   Temperature        22°C  
   Pressure             1017 mb  
   Relative Humidity   23%

See figures 3-9 to 3-17 for the plots of the dwell time.

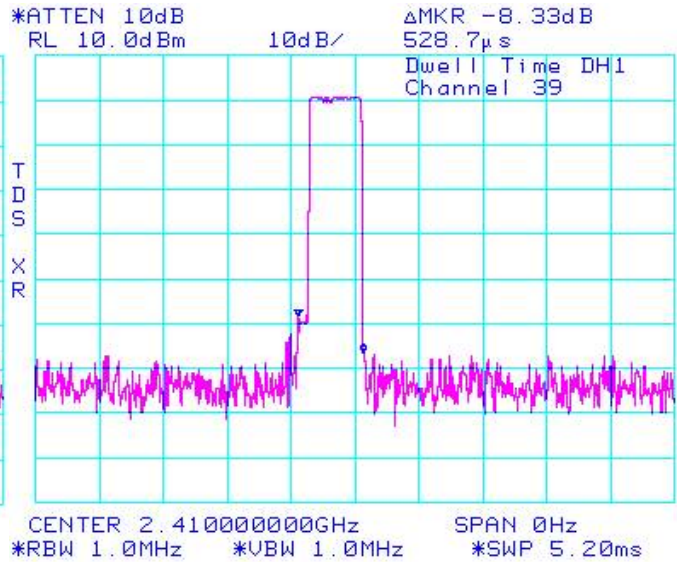
<b>RTS</b> RIM Testing Services	EMI Test Report for the BlackBerry® smartphone Model RCE21CW <b>APPENDIX 3</b>	
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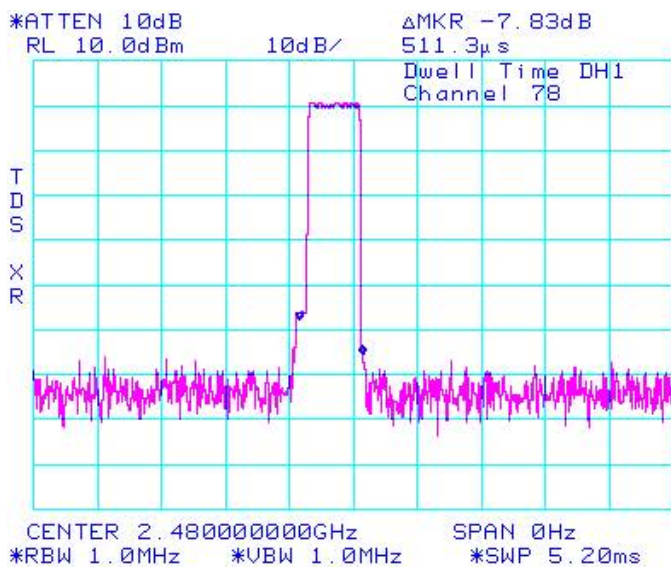
**Figure 3-9: Time of Occupancy (Dwell Time)**  
Freq. Hopping, Static PBRS, DH1



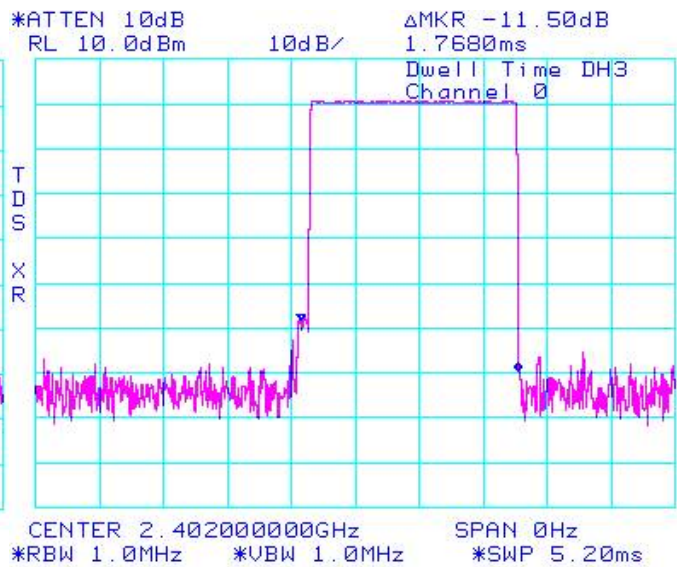
**Figure 3-10: Time of Occupancy (Dwell Time)**  
Freq. Hopping, Static PBRS, DH1



**Figure 3-11: Time of Occupancy (Dwell Time)**  
Freq. Hopping, Static PBRS, DH1



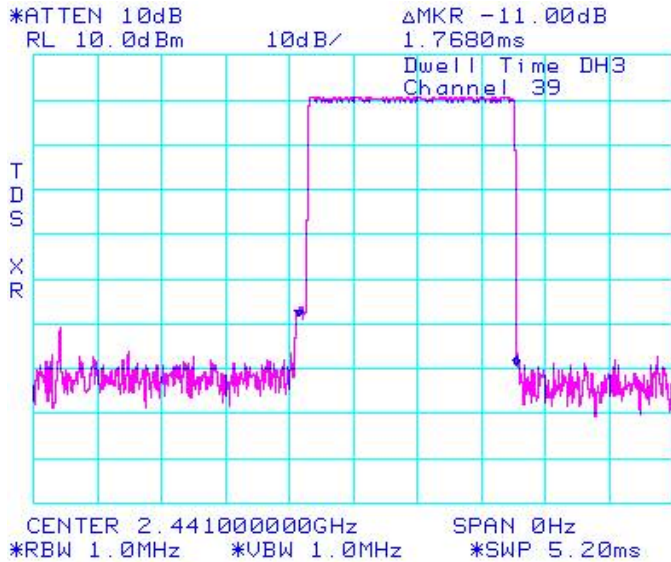
**Figure 3-12: Time of Occupancy (Dwell Time)**  
Freq. Hopping, Static PBRS, DH3



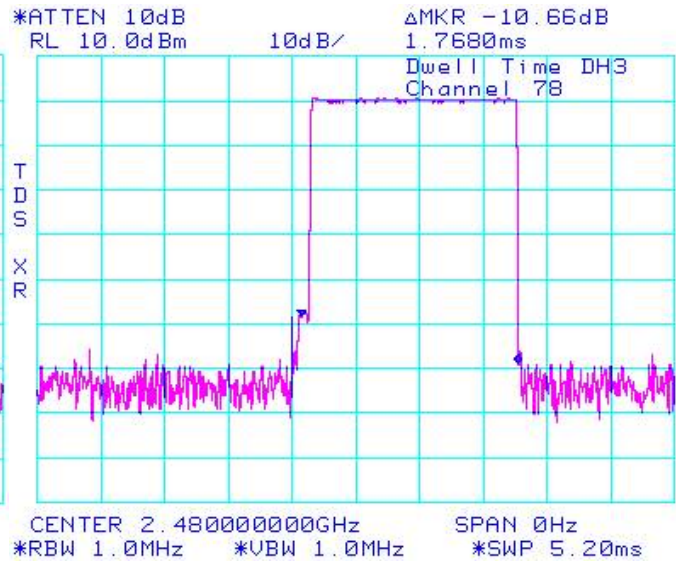
<b>RTS</b> RIM Testing Services	EMI Test Report for the BlackBerry® smartphone Model RCE21CW <b>APPENDIX 3</b>	
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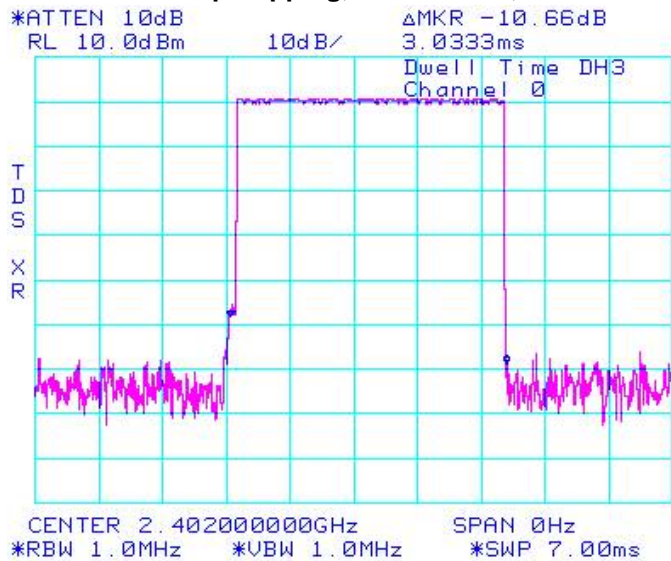
**Figure 3-13: Time of Occupancy (Dwell Time)**  
Freq. Hopping, Static PBRs, DH3



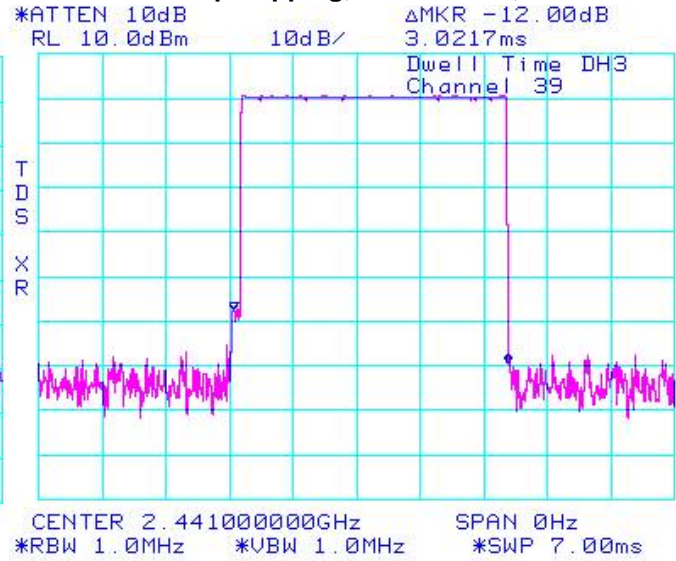
**Figure 3-14 : Time of Occupancy (Dwell Time)**  
Freq. Hopping, Static PBRs, DH3



**Figure 3-15: Time of Occupancy (Dwell Time)**  
Freq. Hopping, Static PBRs, DH5



**Figure 3-16: Time of Occupancy (Dwell Time)**  
Freq. Hopping, Static PBRs, DH5

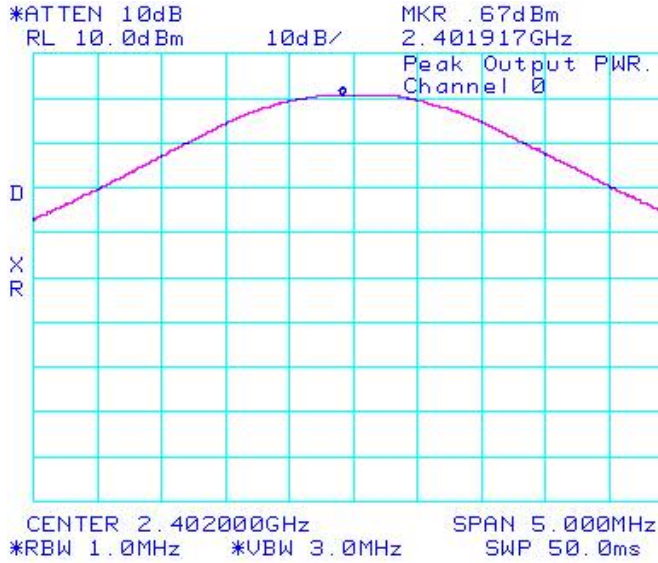




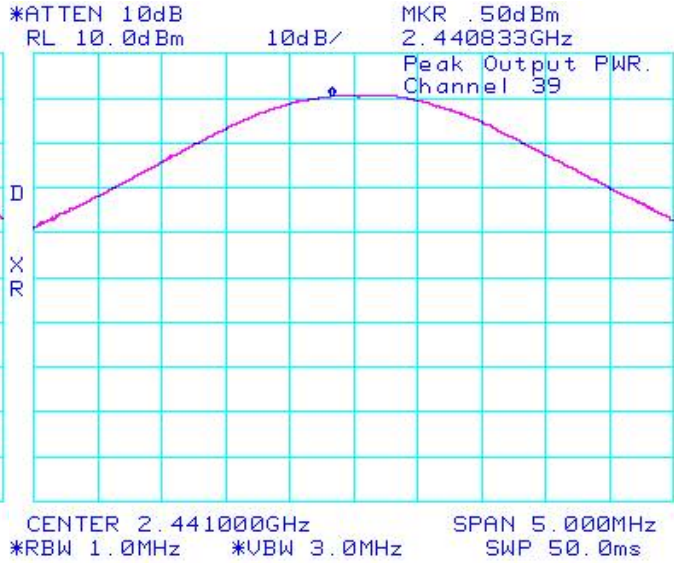
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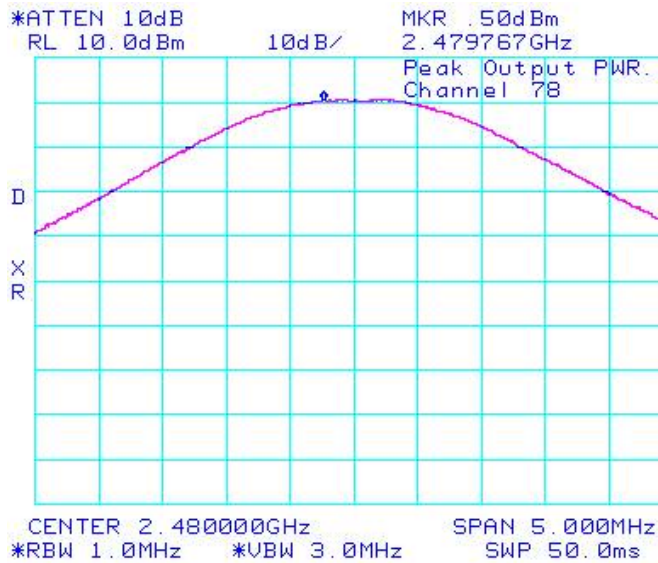
**Figure 3-18: Max. Peak Conducted Output Power  
Single Freq., Static PBRS, DH5**



**Figure 3-19: Max. Peak Conducted Output Power  
Single Freq., Static PBRS, DH5**



**Figure 3-20: Max. Peak Conducted Output Power  
Single Freq., Static PBRS, DH5**



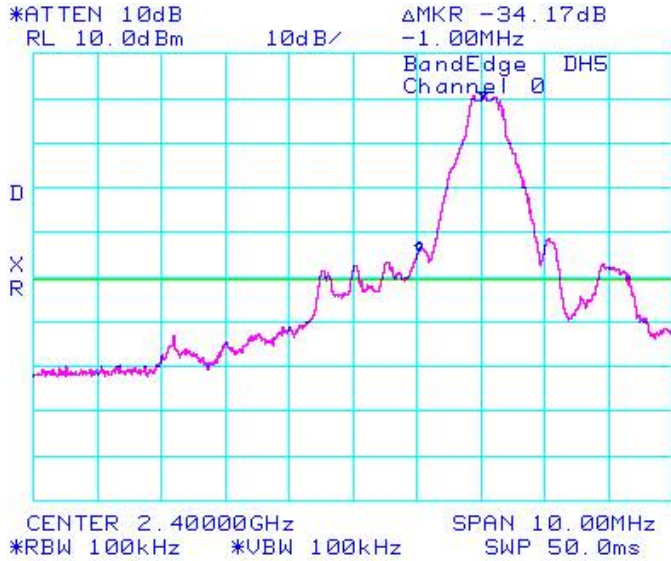




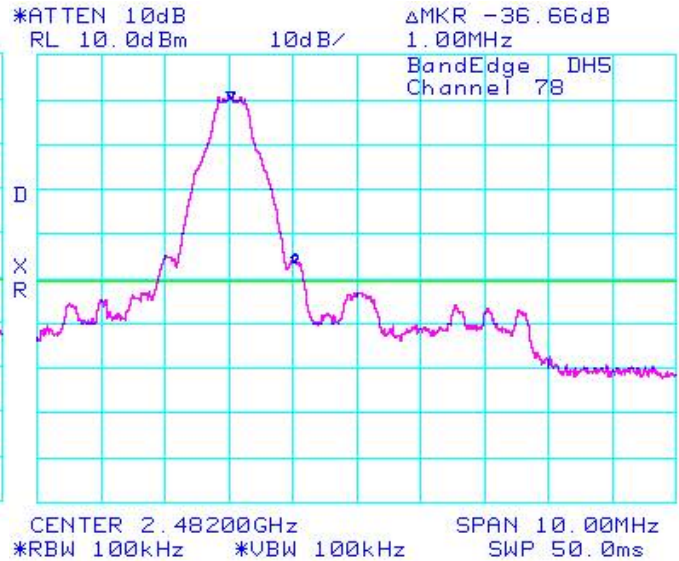
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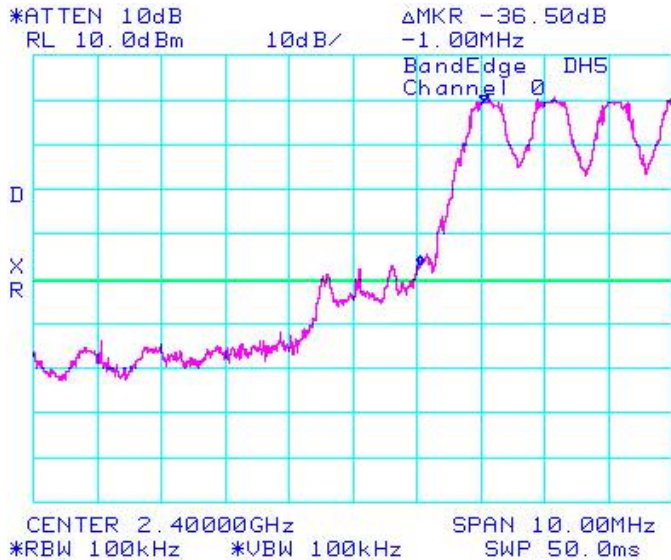
**Figure 3-21: Band Edge Compliance**  
Single Freq., Static PBRS, DH5



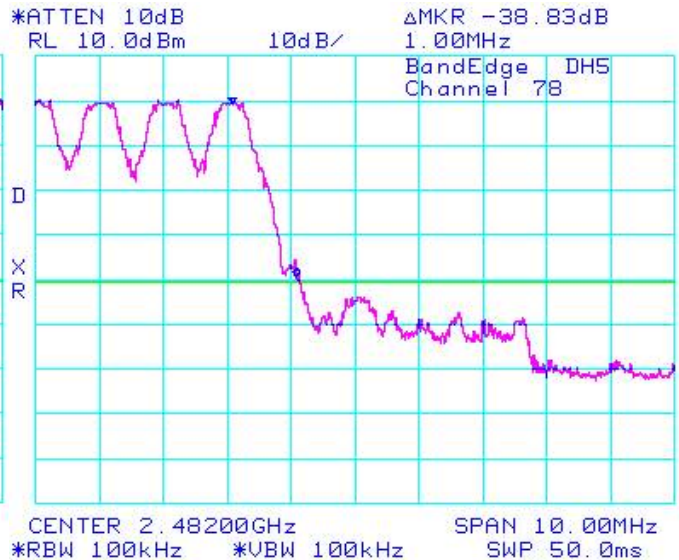
**Figure 3-22: Band Edge Compliance**  
Single Freq., Static PBRS, DH5



**Figure 3-23: Band Edge Compliance**  
Freq. Hopping, Static PBRS, DH5



**Figure 3-24: Band Edge Compliance**  
Freq. Hopping, Static PBRS, DH5

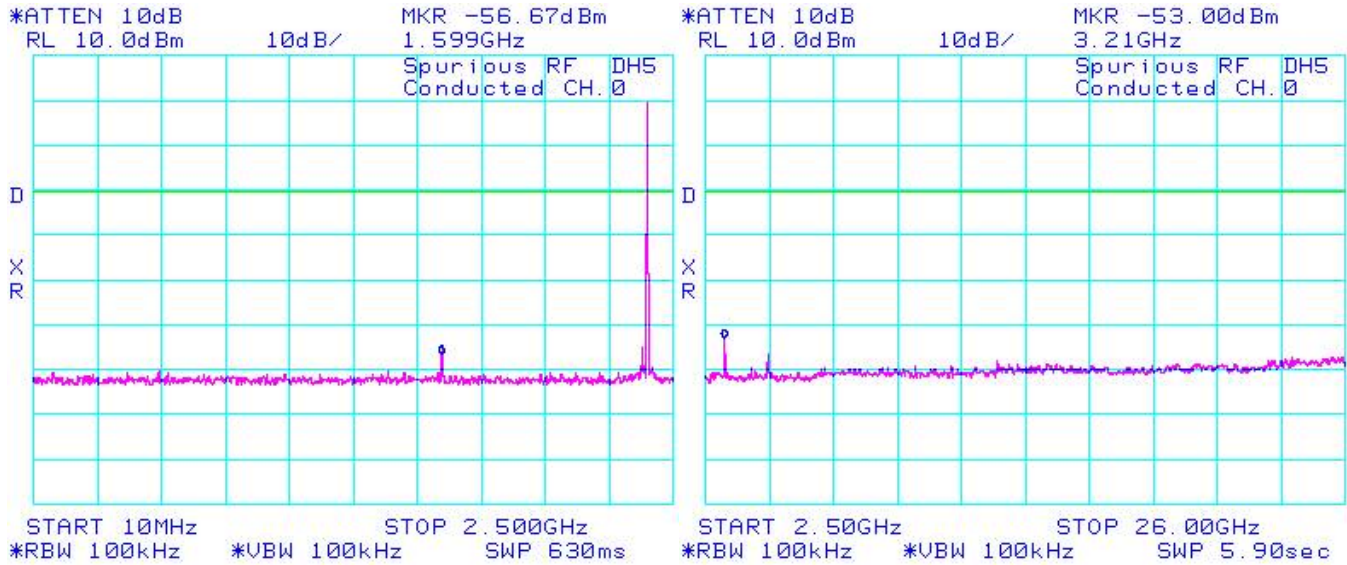




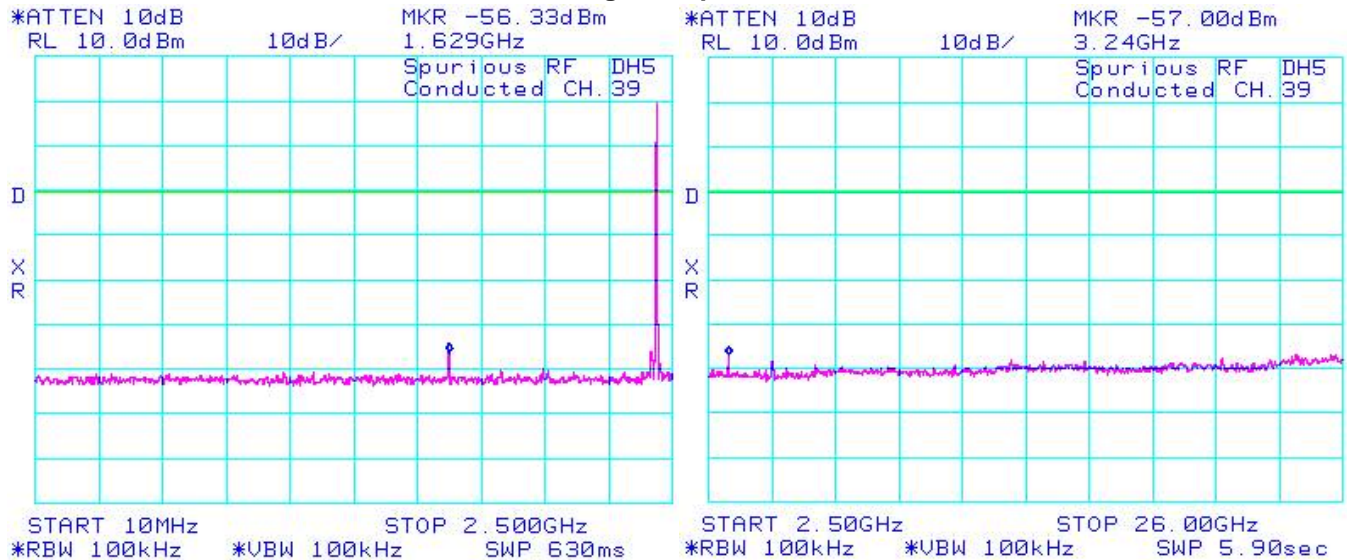
<b>RTS</b> RIM Testing Services	EMI Test Report for the BlackBerry® smartphone Model RCE21CW <b>APPENDIX 3</b>	
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Bluetooth RF Conducted Emission Test Results cont'd

**Figure 2-25: Spurious RF Conducted Emissions  
Single Freq., Static PBRs, DH5,**



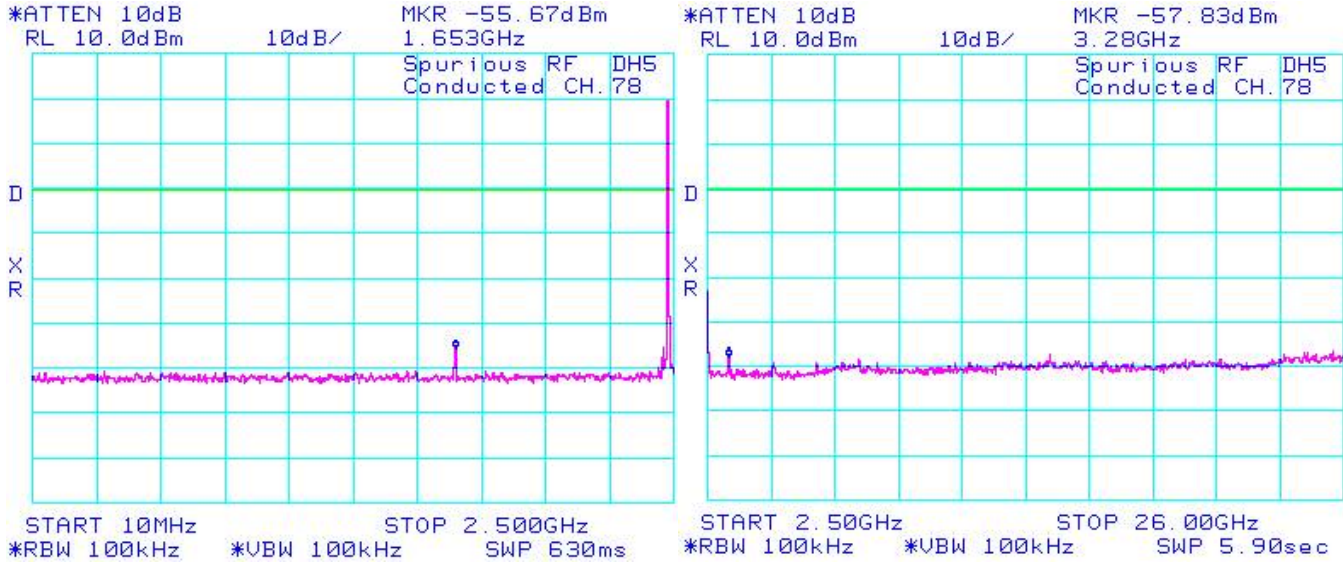
**Figure 2-26: Spurious RF Conducted Emissions  
Single Freq., Static PBRs, DH5**



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Bluetooth RF Conducted Emission Test Results cont'd

**Figure 2-27: Spurious RF Conducted Emissions  
Single Freq., Static PBRS, DH5**



**Figure 2-28: Spurious RF Conducted Emissions  
Freq. Hopping, Static PBRS, DH5**

