

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-1115-0808-03

PRODUCT MODEL NO.: RBZ41GW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARBZ40GW
IC: 2503A-RBZ40GW

DATE: 29 September 2008

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Test Report No. RTS-1115-0808-03	Dates of Test July 29 – October 05, 2008	Author Data Arjun Bhatti

Statement of Performance:

The BlackBerry® smartphone, model RBZ41GW, part number CER-17672-001 Rev. 4, and accessories when configured and operated per RIM's operation instructions, performs within the requirements of the test standards.

Declaration:

We hereby certify that:

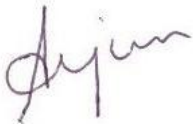
The test data reported herein is an accurate record of the performance of the sample(s) tested.

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:



Arjun Singh Rai Bhatti
Compliance Specialist
Date: 01 October 2008

Reviewed by:



Maurice Battler
Compliance Specialist
Date: 02 October 2008

Reviewed by:



Masud S. Attayi, P.Eng.
Team Lead, Regulatory Compliance
Date: 06 October 2008

Approved by:



Paul G. Cardinal, Ph.D.
Director
Date: 06 October 2008

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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, July 10, 2008
- 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. Document number RTS-1114-RBZ41GW-01
2. Document number RTS-1114-RBZ41GW-02
3. Cetecom test report number 4-3101-01-07A_08.

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 (RTS) EMI test facility
305 Phillip Street
Waterloo, Ontario
Canada, N2L 3W8
Phone: 519 888 7465
Fax: 519 888 6906

CETECOM ICT Services GmbH
Untertürkheimer Str. 6 – 10
D-66117 Saarbrücken
Germany
Phone: +49 (0) 681 5 98 84 55
Fax: +49 (0) 681 5 98 84 75

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

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The testing was performed on July 29 to October 05, 2008.

The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN
1	RBZ41GW	CER-17672-001 Rev. 2	2076184A
2	RBZ41GW	CER-17672-001 Rev. 2	20761A98
3	RBZ41GW	CER-17672-001 Rev. 3	20761806
4	RBZ41GW	CER-17672-001 Rev. 4	207BBCB4
5	RBZ41GW	CER-17672-001 Rev. 4	207B4C92

To view the differences between CER-17672-001 Rev. 2 and CER-17672-001 Rev. 3, see document number RTS-1114-RBZ41GW-01.

To view the differences between CER-17672-001 Rev. 3 and CER-17672-001 Rev. 4, see document number RTS-1114-RBZ41GW-02

Only the measurements that may have been impacted by the changes from Rev 2 to Rev 4 were re-measured.

BlackBerry® smartphone Accessories Tested

- 1) Folding Blade Charger, part number HDW-19129-001 with an output voltage of 5.0 volts dc, 700 mA with an attached USB cable with a length of 1.80 metres.
- 2) 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 meters.
- 3) Premium Multi-Button Stereo Headset, 3.5 mm, part number HDW-15765-001, 1.3 meters long.
- 4) Premium Mono Headset, 3.5 mm part number HDW-17906-001, 1.3 meters long

D. Support Equipment Used for the Testing of the EUT

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

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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	Pass	1
Part 15.209 Part 15.247	RSS-210 RSS-GEN	BT Radiated Spurious Emissions and Radiated Band Edge Compliance	See test report 4-3101-01-07A_08	-
Part 15.209 Part 15.247	RSS-210 RSS-GEN	WiFi Radiated Spurious Emissions and Radiated Band Edge Compliance	Pass	2
Part 15.247(a)	RSS-210	BT, 20 dB Bandwidth	Pass	3
Part 15.247(a)	RSS-210	BT, Carrier Frequency Separation	Pass	3
Part 15.247(a)	RSS-210	BT, Number of Hopping Frequencies	Pass	3
Part 15.247(a)	RSS-210	BT, Time of Occupancy (Dwell Time)	Pass	3
Part 15.247(b)	RSS-210	BT, Maximum Peak Conducted Output Power	Pass	3
Part 15.247(c)	RSS-210	BT, Band-Edge Compliance of RF Conducted Emissions	Pass	3
Part 15.247(c)	RSS-210	BT, Spurious RF Conducted Emissions	Pass	3
Part 15.247(b)	RSS-210	802.11b/g, 6 dB Bandwidth	Pass	4
Part 15.247(b)	RSS-210	802.11b/g, Maximum Conducted Output Power	Pass	4
Part 15.247(b)	RSS-210	802.11b/g, Band-Edge	Pass	4
Part 15.247(b)	RSS-210	802.11b/g, Peak Power Spectral Density	Pass	4
Part 15.247(b)	RSS-210	802.11b/g, Spurious RF Conducted Emissions	Pass	4

E. Modifications to EUT

No modifications were required on the EUT.

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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 , PIN 207BBCB4 in Bluetooth Tx mode with the 3.5 mm Stereo Multi-Button Headset was connected to the Captive Cable Charger.
2. The BlackBerry® smartphone, PIN 20761806 in 802.11b/g Tx mode with the 3.5 mm Premium Mono Headset was connected to the Folding Blade 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 10.15 dB below the limit at 2.274 MHz using the quasi peak detector with the Captive Cable Charger, 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.

The radiated emissions from the EUT were measured in standalone configuration transmitting at channels 1 & 11 at 6 Mbps, and channel 6 at 1 Mbps for 802.11b/g mode. 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 802.11b/g harmonics were investigated up to the 10th harmonic. The sample EUT emissions were in the noise floor (NF).

See APPENDIX 2 for the test data

b) Band-Edge Compliance of RF Radiated Emissions

The Band-Edge Compliance of RF Radiated Emissions for 802.11b/g, met the requirements as per 15.247, 15.209, and RSS-210/RSS-GEN.

See APPENDIX 2 for the test data

Measurement Uncertainty ±4.6 dB

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3) 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. The result includes both normal data rate and EDR.
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. The result includes both normal data rate and EDR.
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. The result includes both normal data rate and EDR.
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.
The result includes both normal data rate and EDR.
See APPENDIX 3 for the test data.

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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. The result includes both normal data rate and EDR.

See APPENDIX 3 for the test data.

4) WiFi 802.11b/g RF CONDUCTED EMISSIONS

a) 6dB Bandwidth

The EUT met the requirements of the 6 dB bandwidth as per 47 CFR 15.247(b) and RSS-210. Low channel (1), middle channel (6) and high channel (11) were measured.

See APPENDIX 4 for the test data.

b) Maximum Conducted Output Power

The EUT met the requirements of the maximum conducted output power as per 47 CFR 15.247(b) and RSS-210. Low channel (1), middle channel (6) and high channel (11) were measured.

See APPENDIX 4 for the test data

c) Band-Edge Compliance of RF Conducted Emissions

The EUT met the requirements of band-edge compliance of RF conducted emissions as per 47 CFR 15.247(b) and RSS-210. Low channel (1) and high channel (11) were measured.

See APPENDIX 4 for the test data.

d) Peak Power Spectral Density

The EUT met the requirements of peak power spectral density as per 47 CFR 15.247(b) and RSS-210. Low channel (1), middle channel (6) and high channel (11) were measured.

See APPENDIX 4 for the test data.

e) 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 30 MHz to 26 GHz. Low channel (1), middle channel (6) and high channel (11) were measured.

See APPENDIX 4 for the test data.

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G. Co-Location Measurements

The radiated emissions were measured up to 18 GHz for middle channels for simultaneous transmission in the following test configuration combinations: GSM850, PCS1900, Bluetooth and 802.11b/g.

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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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>
Preamplifier	Sonoma	310N/11909A	185831	08-11-21	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	08-11-16	Radiated Emissions
Hybrid Log Antenna	TDK	HLP-3003C	017301	08-12-15	Radiated Emissions
Horn Antenna	TDK	HRN-0118	030101	10-07-22	Radiated Emissions
EMI Receiver	Rohde & Schwarz	ESIB-40	100255	08-12-24	Radiated Emissions
EMC Analyzer	Agilent	E7405A	US40240226	09-09-22	Radiated Emissions
EMI Receiver	Agilent	8546A	3942A00517	08-11-19	Conducted AC Emissions
RF Filter Section	Agilent	85460A	3704A00481	08-11-19	Conducted AC Emissions
Power Supply	Chroma	6430	64300000349	N/R	50 Hz Power Source
Bluetooth Tester	Rohde & Schwarz	CBT	100034	08-12-06	RF Conducted /Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100370	08-12-06	Radiated Emissions
Spectrum Analyzer	HP	8563E	3745A08112	09-09-22	RF Conducted Emissions
DC Power Supply	HP	6632B	US37472178	09-09-17	RF Conducted Emissions
Environment Monitor	Control Company	1870	230355190	08-12-11	Radiated Emissions
Environment Monitor	Control Company	1870	230355189	08-12-11	RF Conducted Emissions
Temperature Probe	Control Company	15-077-21	51129471	09-05-12	Temperature Stability measurements
Environmental Chamber	ESPEC Corp.	SH-240S1	91007118	N/R	Temperature Stability measurements
Signal Generator	Agilent	8648C	4037U03155	09-09-20	RF Conducted Emissions
Power Meter	Agilent	N1911A	MY45100905	09-04-22	RF Conducted Emissions
Power Sensor	Agilent	N1921A	SG45240281	09-05-05	RF Conducted Emissions
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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AC Conducted Emission Test Results

The measurements were performed by Andrew Fleming and Savtej Sandhu.

Test Configuration 1

AC Power Line Conducted Emissions

The EUT met the requirements of the AC Power Line Conducted Emissions as per FCC CFR 47 Part 15, Subpart C and IC RSS-210.

The environmental test conditions were:

Temperature	24°C
Pressure	1020 mb
Relative Humidity	32%

Date of test: September 26, 2008

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	N	31.20	10.05	41.25	64.63	54.62	-23.37
0.186	L1	36.36	9.81	46.17	64.21	54.21	-18.05
0.267	L1	31.71	9.85	41.56	61.21	51.21	-19.65
0.267	N	28.77	9.81	38.58	61.21	51.21	-22.63
0.407	N	32.39	9.87	42.25	57.72	47.72	-15.47
0.443	L1	30.41	9.72	40.13	57.01	47.01	-16.89
0.533	L1	29.02	9.67	38.69	56.00	46.00	-17.31
2.058	L1	35.92	9.54	45.46	56.00	46.00	-10.54
2.274	L1	36.30	9.55	45.85	56.00	46.00	-10.15
2.468	N	35.78	9.60	45.39	56.00	46.00	-10.62
4.047	N	33.33	9.61	42.94	56.00	46.00	-13.06
4.358	L1	31.95	9.63	41.58	56.00	46.00	-14.42

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 Emission Test Graphs

Test Configuration 1

Figure 1-1

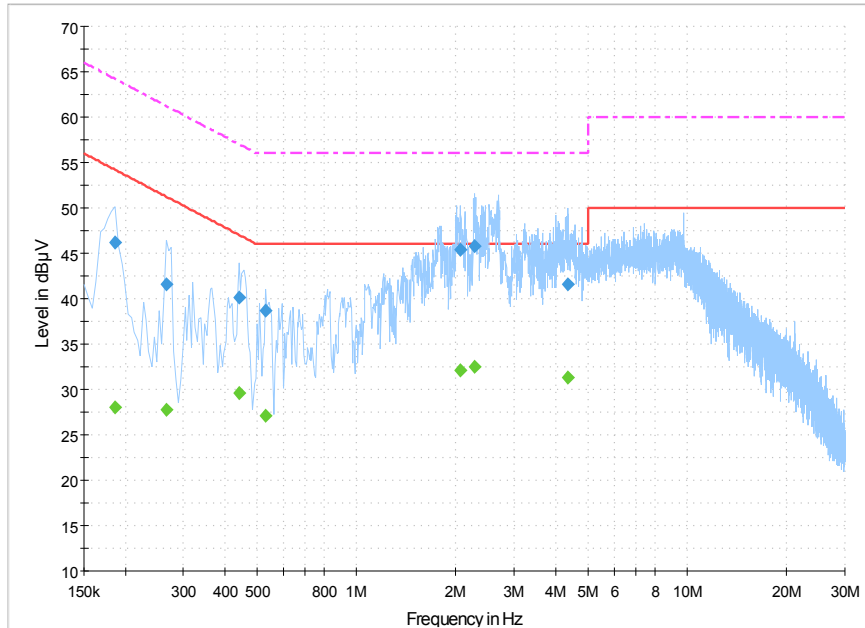
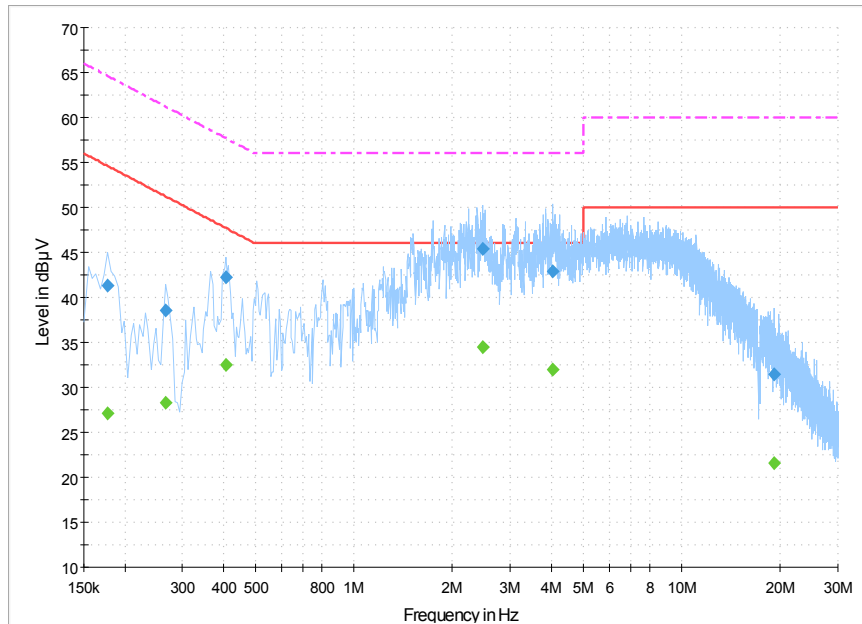


Figure 1-2



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AC Conducted Emission Test Results

Test Configuration 2

AC Power Line Conducted Emissions

The EUT met the requirements of the AC Power Line Conducted Emissions as per FCC CFR 47 Part 15, Subpart C and IC RSS-210.

The environmental test conditions were:

Temperature	24°C
Pressure	1008 mb
Relative Humidity	35%

Date of test: August 08, 2008

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dB)	Limit (QP) (dBµV)	Margin (QP) Limits (dB)
0.168	N	37.28	10.03	47.30	65.06	-17.75
0.177	L1	35.75	9.81	45.57	64.63	-19.06
0.1995	N	33.29	9.80	43.09	63.63	-20.54
0.231	N	28.20	9.81	38.01	62.41	-24.40
0.24	L1	29.94	9.88	39.82	62.10	-22.27
0.3435	L1	28.40	9.80	38.20	59.12	-20.92
0.5595	L1	21.82	9.66	31.48	56.00	-24.52
0.834	N	24.29	9.72	34.01	56.00	-21.99
0.861	L1	24.01	9.55	33.56	56.00	-22.45
2.4225	N	21.48	9.60	31.07	56.00	-24.93

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

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AC Conducted Emission Test Graphs

Test Configuration 2

Figure 1-3

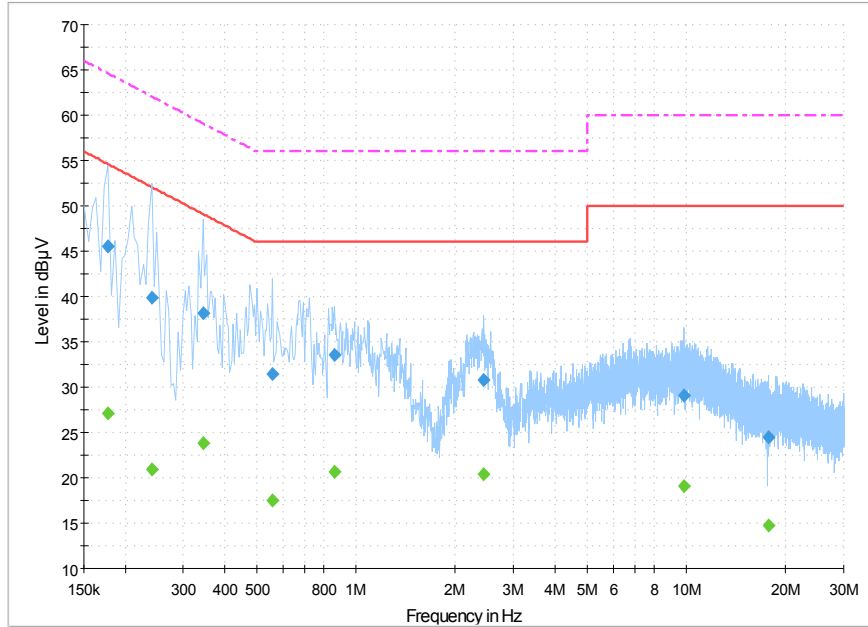
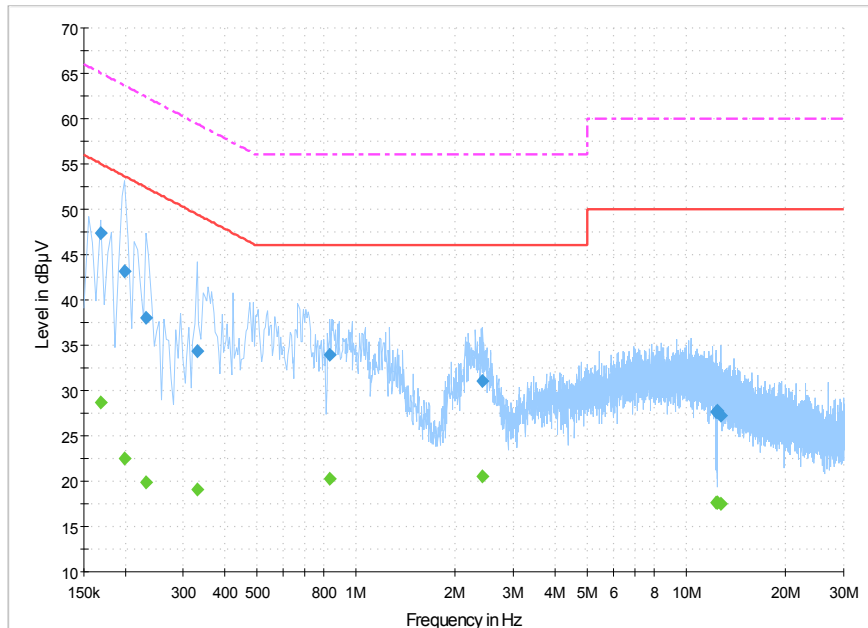


Figure 1-4



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APPENDIX 2 – WiFi RADIATED EMISSIONS TEST DATA

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Radiated Emissions Test Results

802.11b/g Band

The environmental test conditions were: Temperature 24°C
 Relative Humidity 33%

Date of Test: September 15, 2008

Measurements were performed by Arjun Rai Bhatti and Gurjeev Singh.

Test Distance was 3.0 metres with a height of 0.8 metres, 30 MHz to 1000 MHz.
The BlackBerry® smartphone PIN 20761A98 was in standalone, vertical position.

The frequency sweep measurements were performed in 802.11b/g Tx mode, channel 1, 2412 MHz.

All emissions had a test margin greater than 25.0 dB.

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

Date of Test: September 24, 2008

Test Distance was 1.0 metres with a height of 0.8 metres, 1GHz to 7GHz, 7GHz to 18GHz
and 18GHz to 25GHz..

The BlackBerry® smartphone PIN 207B4C92 was in standalone, vertical position.

The frequency sweep measurements were performed in 802.11b/g Tx mode, channel 1, 2412 MHz.

All emissions had a test margin greater than 25.0 dB.

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The environmental test conditions were: Temperature 25°C
 Relative Humidity 30%

Date of Test: September 15, 2008

Test Distance was 3.0 metres with a height of 0.8 metres, 30 MHz to 1000 MHz.
 The BlackBerry® smartphone PIN 20761A98 was in standalone, vertical position.

The frequency sweep measurements were performed in 802.11b/g Tx mode, channel 6, 2437 MHz.

All emissions had a test margin greater than 25.0 dB.

The environmental test conditions were: Temperature 23°C
 Relative Humidity 33%

Date of Test: September 24, 2008

Test Distance was 1.0 metres with a height of 0.8 metres, 1GHz to 7GHz, 7GHz to 18GHz
 and 18GHz to 25GHz..
 The BlackBerry® smartphone PIN 207B4C92 was in standalone, vertical position.

The frequency sweep measurements were performed in 802.11b/g Tx mode, channel 6, 2437 MHz.

All emissions had a test margin greater than 25.0 dB.

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Radiated Emissions Test Results cont'd

802.11b/g Band

Date of Test: September 30, 2008

Test Distance was 1.0 meter, with a height of 0.8 m, 1 to 25 GHz.

The corrected readings were adjusted to take into account the 3.0 to 1.0 meter distance factor.

The harmonic measurements were performed on channels 1, 6 and 11 for 802.11 b/g mode.

Type	Channel	Frequency (MHz)	Antenna		Reading (Peak)	Corrected Reading	Detector	Peak Limit	Diff. To Limit
			Type	Pol	(dBuV)				
Handheld Standalone, USB side up									
Single frequency mode Low Channel									
2 nd	1	4824.0	Horn	V	NF	NF	PK	74.00	-
2 nd	1	4824.0	Horn	H	NF				
2 nd	1	4824.0	Horn	V	NF	NF	AVE	54.00	-
2 nd	1	4824.0	Horn	H	NF				
The harmonics were investigated up to the 10 th harmonic. Emissions were in the NF.									
Single frequency mode Middle Channel									
2 nd	6	4874.0	Horn	V	NF	NF	PK	74.00	-
2 nd	6	4874.0	Horn	H	NF				
2 nd	6	4874.0	Horn	V	NF	NF	AVE	54.00	-
2 nd	6	4874.0	Horn	H	NF				
The harmonics were investigated up to the 10 th harmonic. Emissions were in the NF									
Single frequency mode High Channel									
2 nd	11	4924.00	Horn	V	NF	NF	PK	74.00	-
2 nd	11	4924.00	Horn	H	NF				
2 nd	11	4924.00	Horn	V	NF	NF	AVE	54.00	-
2 nd	11	4924.00	Horn	H	NF				
The harmonics were investigated up to the 10 th harmonic. Emissions were in the NF									

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

Date of Test: October 2, 2008

The test distance was 3 metres.

The measurements were performed on BlackBerry® smartphone PIN 207B4C92, standalone in vertical configuration on channel 1 for 802.11 b/g mode.

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	2412.0	Horn	V	PK	1.0 MHz	103.02	39.72	63.3	74	-10.7
1	2412.0	Horn	H	PK	1.0 MHz	105.4	37.64	67.76	74	-6.24
1	2412.0	Horn	V	AVE.	10 Hz	87.95	39.72	48.23	54	-5.77
1	2412.0	Horn	H	AVE.	10 Hz	89.16	37.64	51.52	54	-2.48

The measurements were performed on the BlackBerry® smartphone PIN 207B4C92, standalone in vertical position, on channel 11 for 802.11 b/g mode.

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	2462.0	Horn	V	PK	1.0 MHz	99.66	38.89	60.77	74	-13.23
11	2462.0	Horn	H	PK	1.0 MHz	105.91	42.91	63	74	-11
11	2462.0	Horn	V	AVE.	10 Hz	84.19	38.89	45.3	54	-8.7
11	2462.0	Horn	H	AVE.	10 Hz	90.5	42.91	47.59	54	-6.41

See figures 2-5 to 2-8 for the plots of the 802.11b/g band-edge compliance.

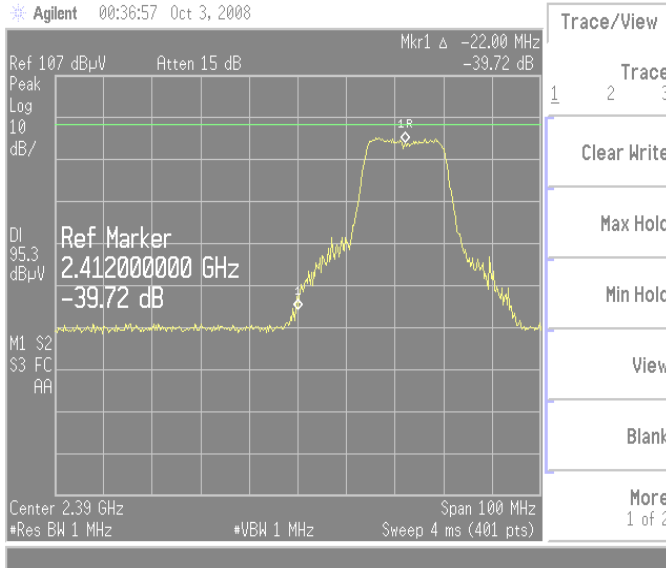
The environmental test conditions were: Temperature 24°C
 Relative Humidity 31%

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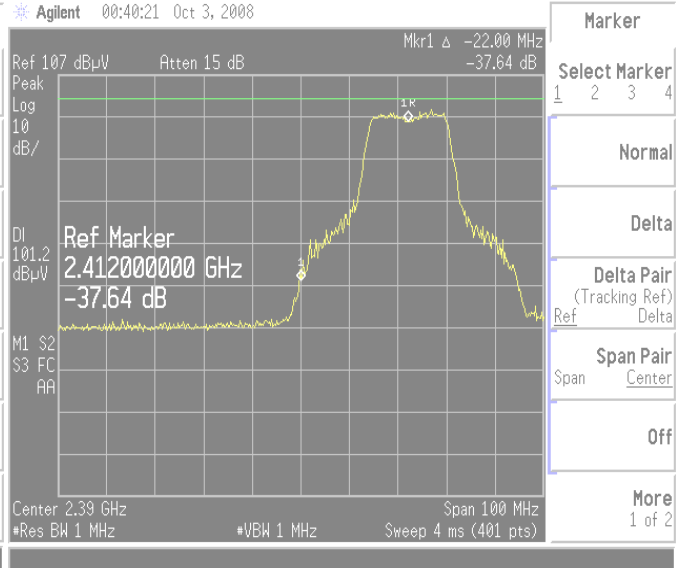
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802.11b/g Band-Edge Compliance of RF Radiated Emissions cont'd

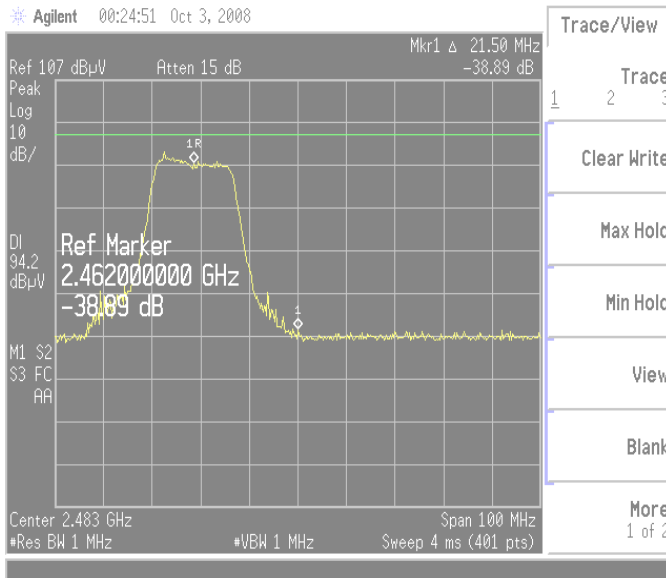
**Figure 2-5: Band-Edge Compliance of RF Radiated Emission
802.11b/g, Channel 1, 2412 MHz, Max Pol: V,
Detector: PK**



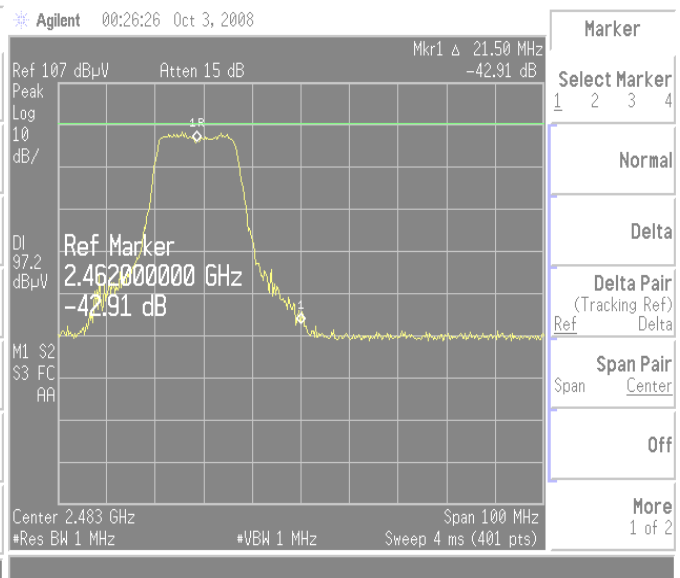
**Figure 2-6: Band-Edge Compliance of RF Radiated Emission
802.11b/g, Channel 1, 2412 MHz, Max Pol: H,
Detector: PK**



**Figure 2-7: Band-Edge Compliance of RF Radiated Emission
802.11b/g, Channel 11, 2462 MHz, Max Pol: V,
Detector: PK**



**Figure 2-8: Band-Edge Compliance of RF Radiated Emission
802.11b/g, Channel 11, 2462 MHz, Max Pol: H,
Detector: PK**



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APPENDIX 3 – BLUETOOTH CONDUCTED EMISSIONS TEST DATA/PLOTS

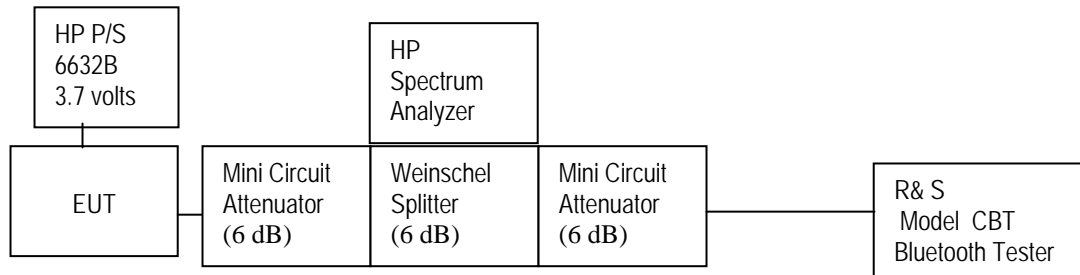
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Bluetooth RF Conducted Emission Test Results

Bluetooth power output from BlackBerry® smartphone PIN 2076184A was at maximum for all the recorded measurements shown below.
The measurements were performed by Maurice Battler.

Date of test: July 29, 2008

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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Bluetooth RF Conducted Emission Test Results cont'd

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. Bluetooth was operating in single frequency mode.

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

Bluetooth Channel	Limit (MHz)	Measured Level (MHz)
0	≤1.0	0.930
39	≤1.0	0.923
78	≤1.0	0.923

See figures 3-1 to 3-3 for the plots of the 20 dB bandwidth measurements.

The environmental test conditions were:

Temperature	23°C
Pressure	1011 mb
Relative Humidity	34%

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-1: 20 dB Bandwidth

Single freq., Static PBRs, DH5

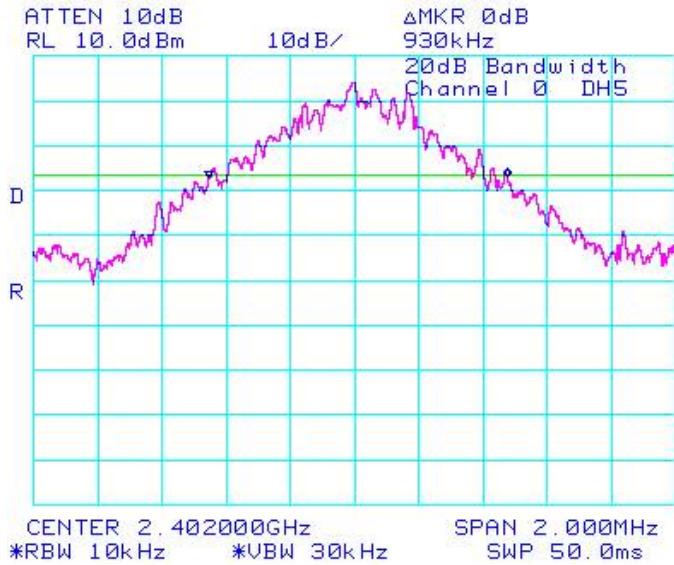


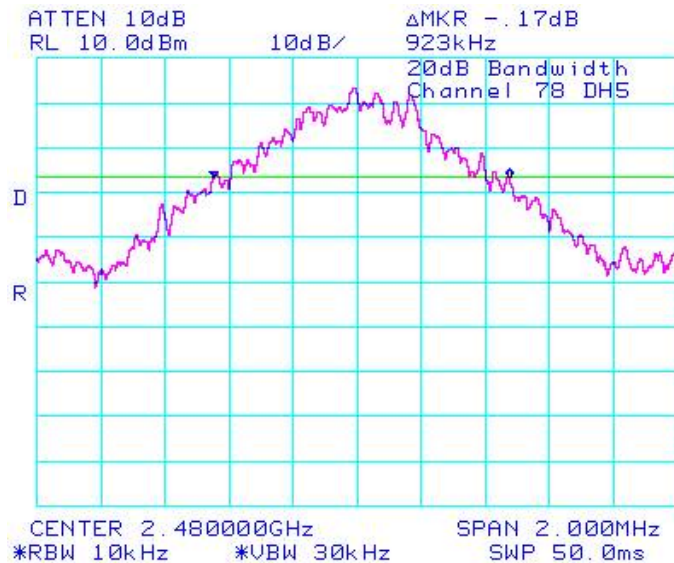
Figure 3-2: 20 dB Bandwidth

Single freq., Static PBRs, DH5



Figure 3-3: 20 dB Bandwidth

Single freq., Static PBRs, DH5



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Author Data
Arjun Bhatti

Bluetooth RF Conducted Emission Test Results cont'd

Using Pattern type “Static PRBS” and packet type “3-DH5” during the measurements.

Bluetooth Channel	Limit (MHz)	Measured Level (MHz)
0	≤1.5	1.233
39	≤1.5	1.247
78	≤1.5	1.247

The environmental test conditions were: Temperature 23°C
 Pressure 1011 mb
 Relative Humidity 34%

See figures 3-4 to 3-6 for the plots of the 20 dB bandwidth measurements.

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-4: 20 dB Bandwidth

Single freq., Static PBRs, 3-DH5

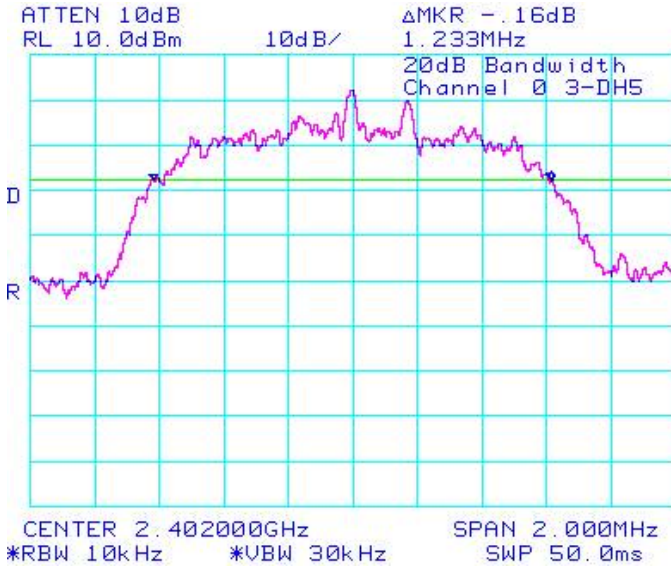


Figure 3-5: 20 dB Bandwidth

Single freq., Static PBRs, 3-DH5

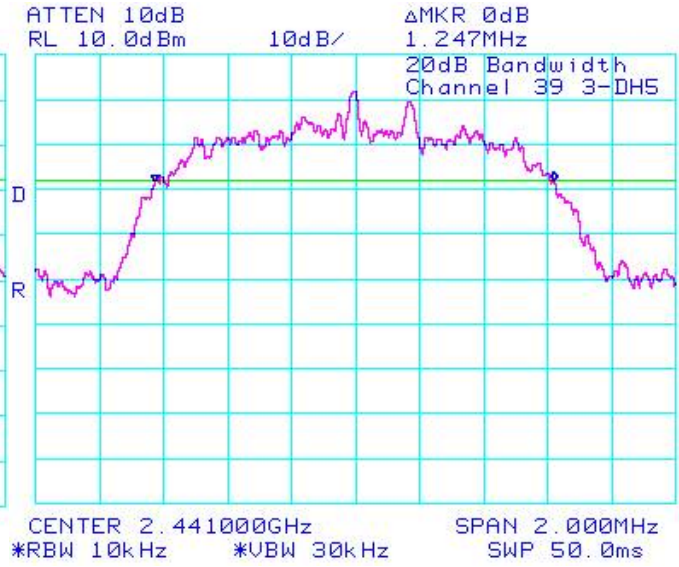
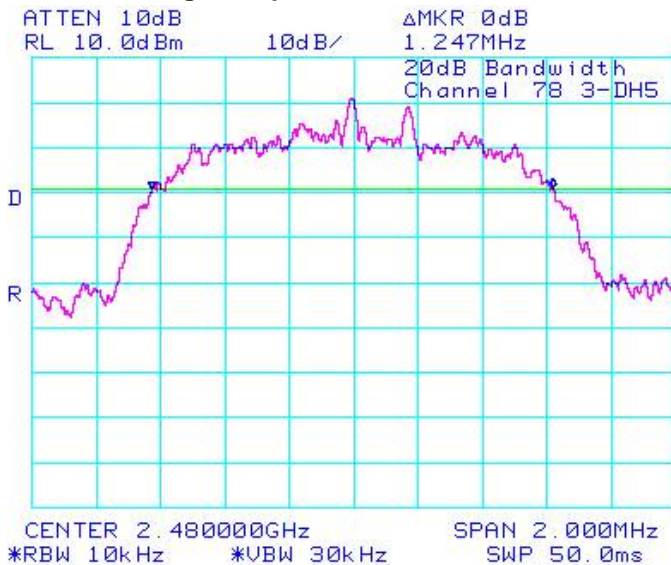


Figure 3-6: 20 dB Bandwidth

Single freq., Static PBRs, 3-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.

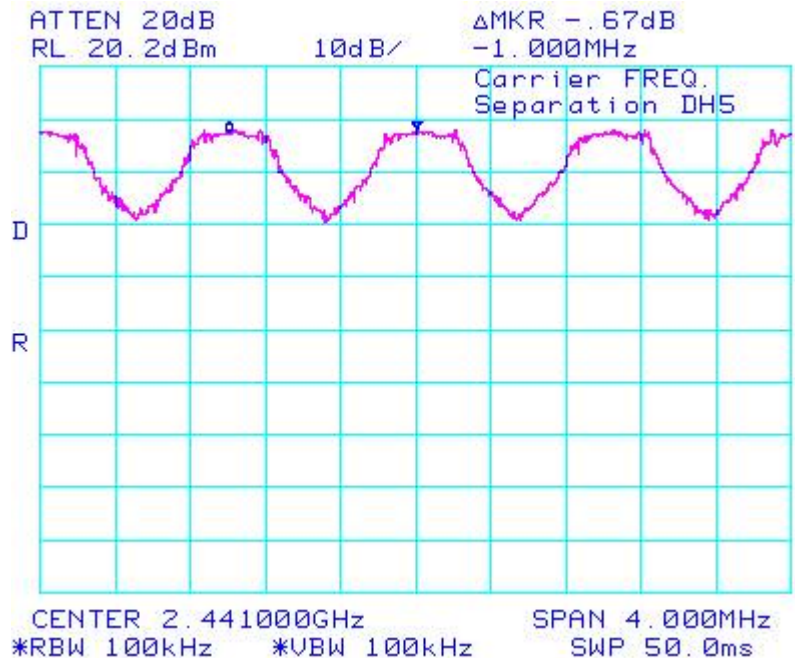
Bluetooth Channels	Limit (MHz)	Measured Level (MHz)
38 to 39	≥ 0.025 or 20 dB bandwidth	1.000

The environmental test conditions were:

Temperature	23°C
Pressure	1011 mb
Relative Humidity	34%

See figure 3-7 for the plot of the Carrier Frequency Separation measurement.

Figure 3-7: Carrier Frequency Separation, Freq. Hopping, Static PBRs, DH5, Channels 38 to 39



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Bluetooth RF Conducted Emission Test Results cont'd

Using Pattern type “Static PRBS” and packet type “3-DH5” during the measurements.

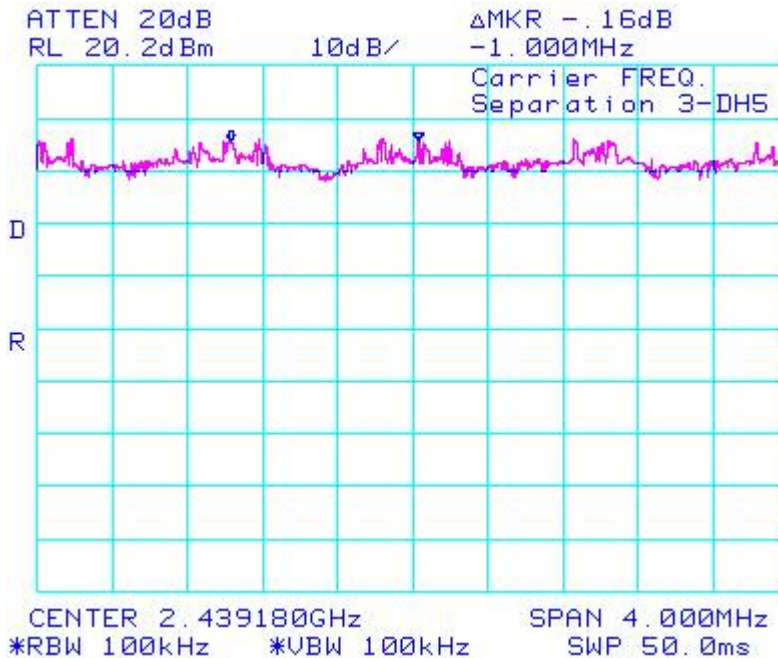
Bluetooth Channels	Limit (MHz)	Measured Level (MHz)
38 to 39	≥ 0.025 or 20 dB bandwidth	1.000

The environmental test conditions were:

Temperature	23°C
Pressure	1011 mb
Relative Humidity	34%

See figure 3-8 for the plot of the Carrier Frequency Separation measurement.

Figure 3-8: Carrier Frequency Separation, Freq. Hopping, Static PBRS, 3-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.

Limit (CH)	Number of Hopping Frequencies (CH)
≥75	79

The environmental test conditions were: Temperature 23°C
 Pressure 1011 mb
 Relative Humidity 34%

See figures 3-9 to 3-12 for the plots of the number of hopping frequencies.

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Bluetooth RF Conducted Emission Test Results cont'd

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

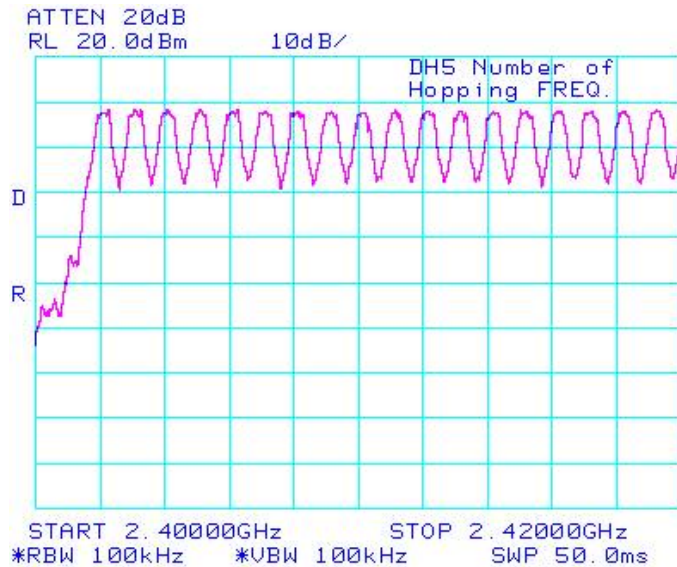


Figure 3-7: Number of Hopping Frequencies
Static PBRs, DH5

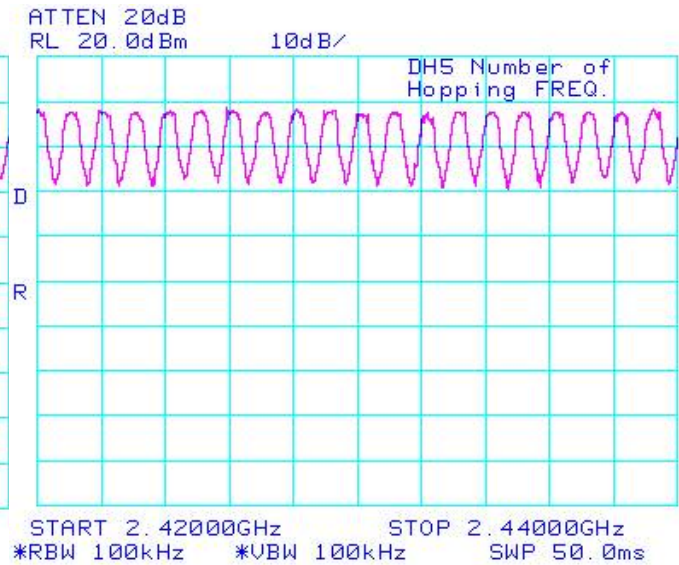


Figure 3-8: Number of Hopping Frequencies
Static PBRs, DH5

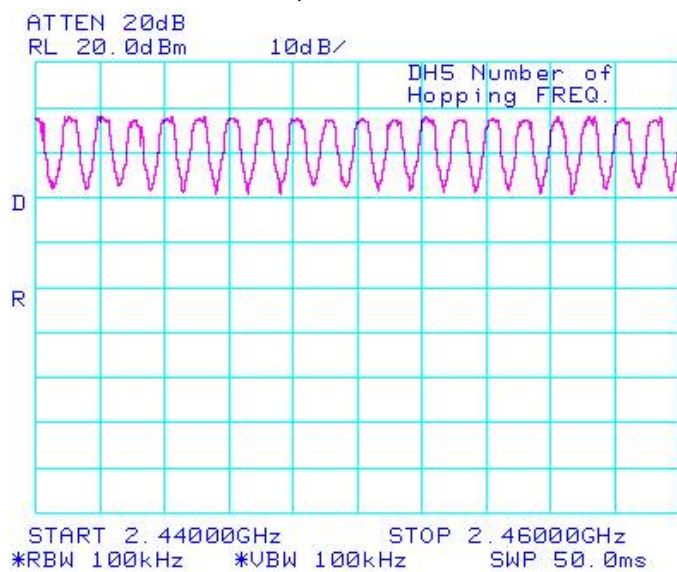
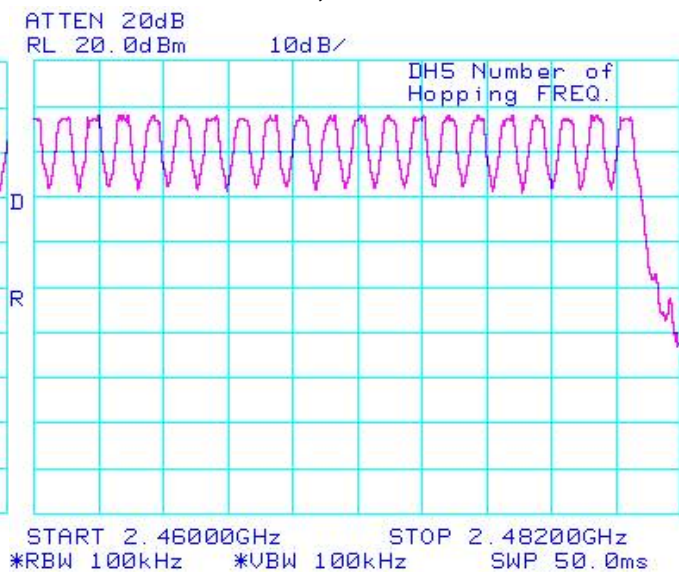


Figure 3-9: Number of Hopping Frequencies
Static PBRs, DH5



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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 μ sec 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 (79×0.4) 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	0.5250	$0.5250 \times 320.0 = 168.00$	400	232.00
39	DH1	0.5104	$0.5104 \times 320.0 = 163.33$	400	236.67
78	DH1	0.5308	$0.5308 \times 320.0 = 169.86$	400	230.14
0	DH3	1.7667	$1.7667 \times 159.9 = 282.50$	400	117.50
39	DH3	1.7467	$1.7467 \times 159.9 = 279.30$	400	120.70
78	DH3	1.7867	$1.7867 \times 159.9 = 285.69$	400	114.31
0	DH5	3.0083	$3.0083 \times 106.8 = 321.29$	400	78.71
39	DH5	2.9917	$2.9917 \times 106.8 = 319.51$	400	80.49
78	DH5	2.9667	$2.9667 \times 106.8 = 316.84$	400	83.16

The environmental test conditions were: Temperature 22°C
 Pressure 1004 mb
 Relative Humidity 36%

See figures 3-13 to 3-21 for the plots of the dwell time.

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-13: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRs, DH1

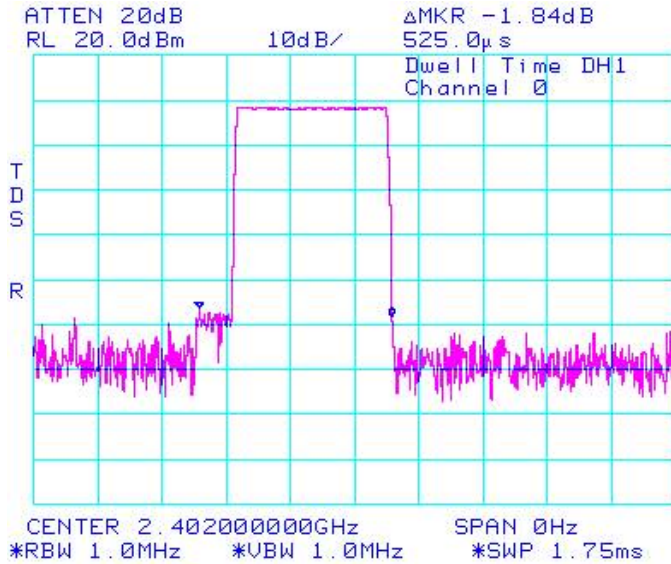


Figure 3-14: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRs, DH1

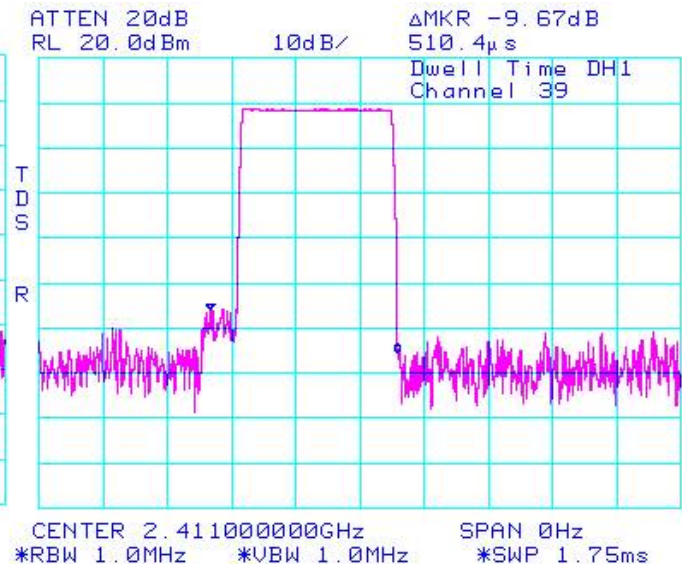


Figure 3-15: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRs, DH1

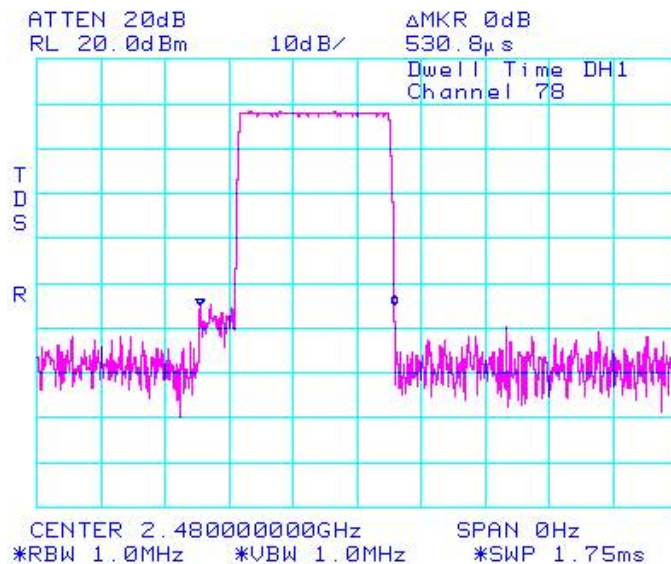
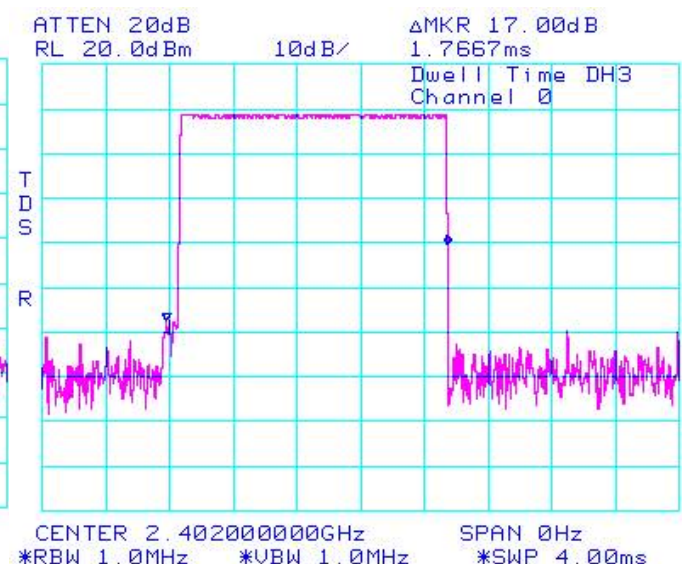


Figure 3-16: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRs, DH3



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-17: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRs, DH3

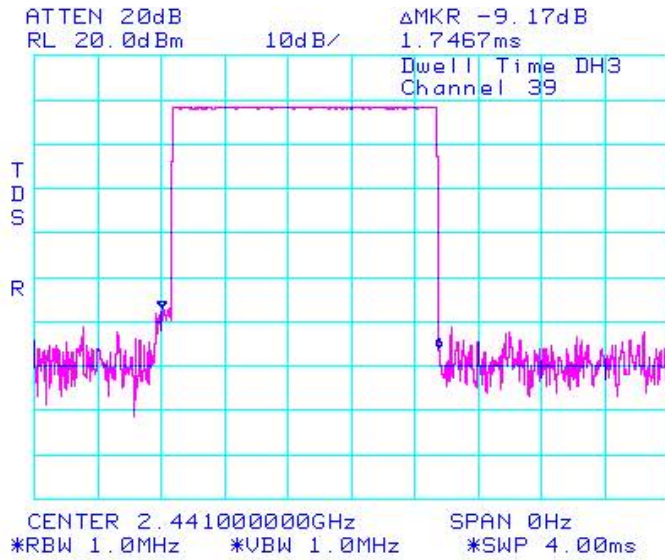


Figure 3-18 : Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRs, DH3

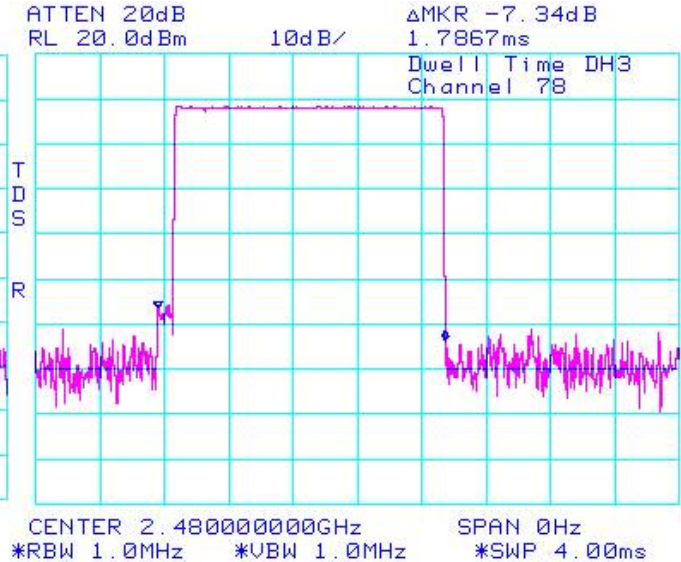


Figure 3-19: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRs, DH5

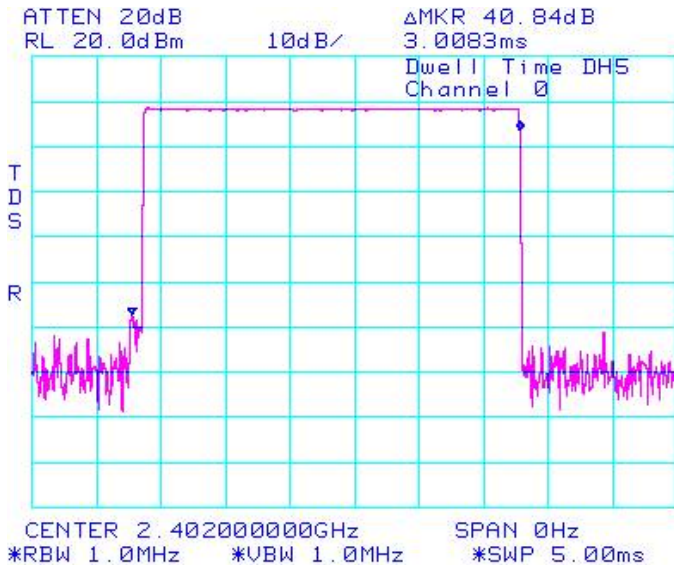
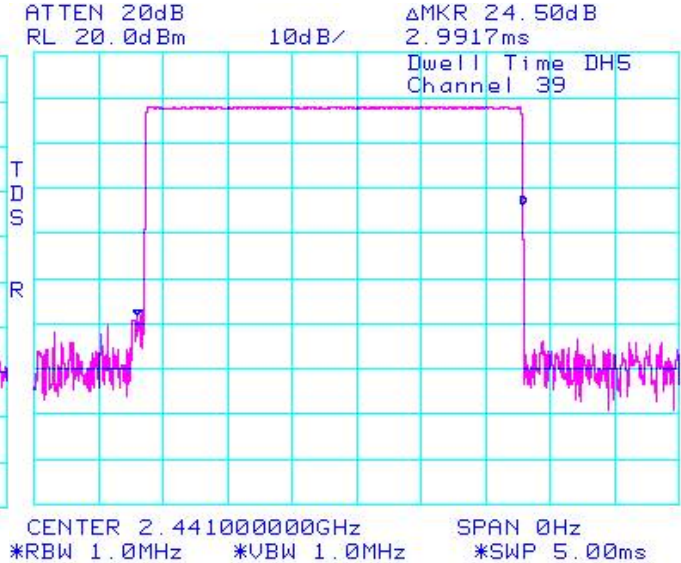


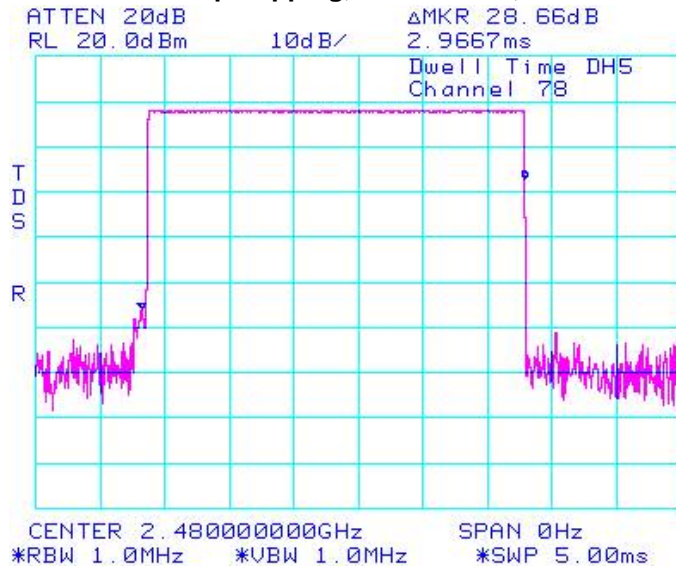
Figure 3-20: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRs, DH5



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-21: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PRBS, DH5



Maximum Peak Conducted Output Power

The EUT met the requirements of the maximum peak conducted output power of class 2 as per 47 CFR 15.247(b) and RSS-210. Low channel (0), middle channel (39) and high channel (78) were measured. Bluetooth was operating in single frequency mode during the measurements. A reference offset of 12.4 dB was applied to the spectrum analyzer reference level for the coaxial cable loss and attenuators in the test circuit.

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

Bluetooth Channel	Measured Level (dBm)	Class 1 Limit (dBm)
0	8.67	0.0 to 20.0
39	8.50	0.0 to 20.0
78	8.17	0.0 to 20.0

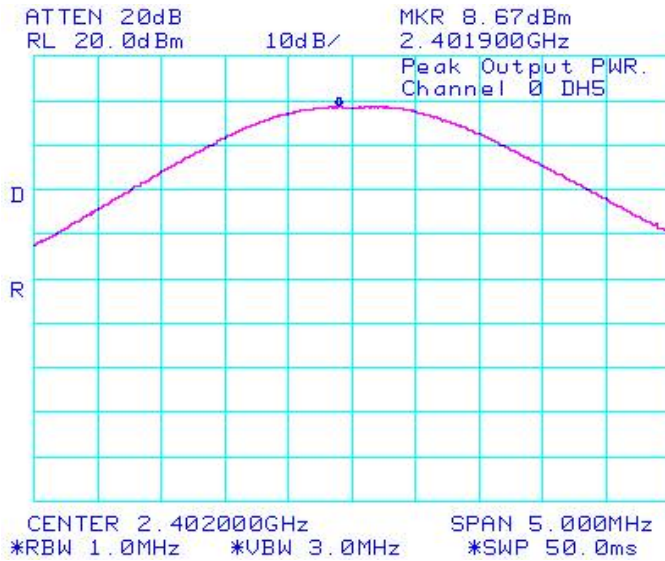
The environmental test conditions were: Temperature 22°C
Pressure 1004 mb
Relative Humidity 36%

See figures 3-22 to 3-24 for the plots of the maximum peak conducted output power.

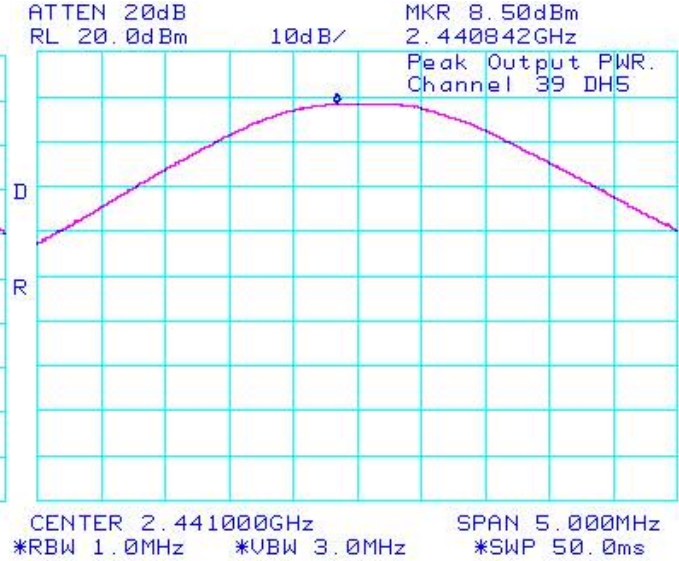
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Bluetooth RF Conducted Emission Test Results cont'd

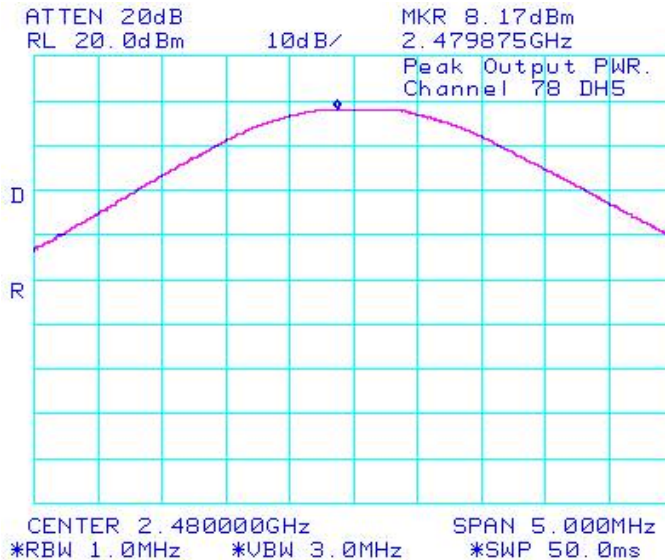
**Figure 3-22: Max. Peak Conducted Output Power
Single Freq., Static PBRS, DH5**



**Figure 3-23: Max. Peak Conducted Output Power
Single Freq., Static PBRS, DH5**



**Figure 3-24: Max. Peak Conducted Output Power
Single Freq., Static PBRS, DH5**



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Bluetooth RF Conducted Emission Test Results cont'd

Using Pattern type "Static PRBS" and packet type "3-DH5" during the measurements.

Bluetooth Channel	Measured Level (dBm)	Class 1 Limit (dBm)
0	6.67	0.0 to 20.0
39	6.50	0.0 to 20.0
78	5.83	0.0 to 20.0

The environmental test conditions were: Temperature 22°C
Pressure 1004 mb
Relative Humidity 36%

See figures 3-25 to 3-27 for the plots of the maximum peak conducted output power.

Figure 3-25: Max. Peak Conducted Output Power Single Freq., Static PBRS, 3-DH5

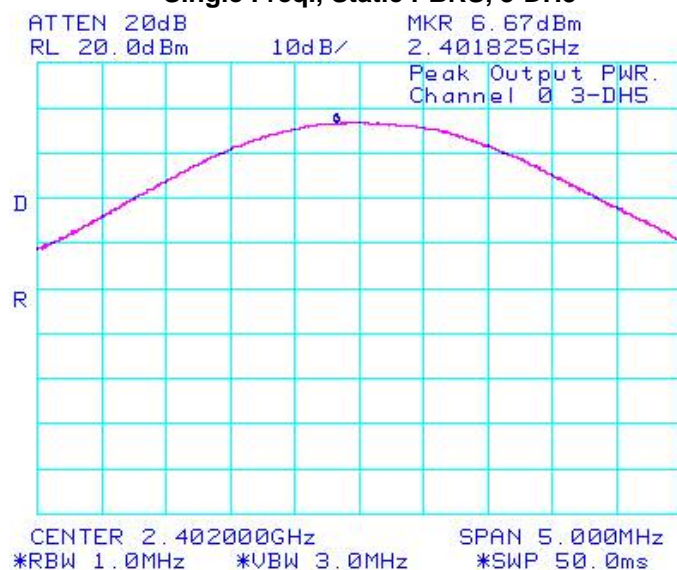
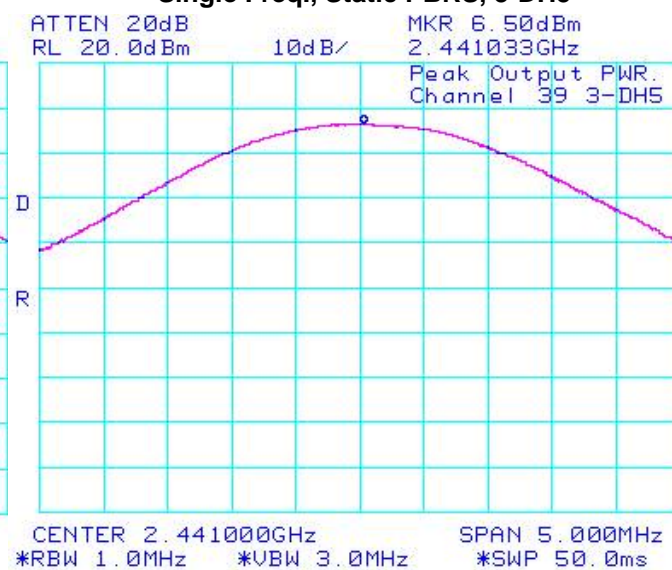


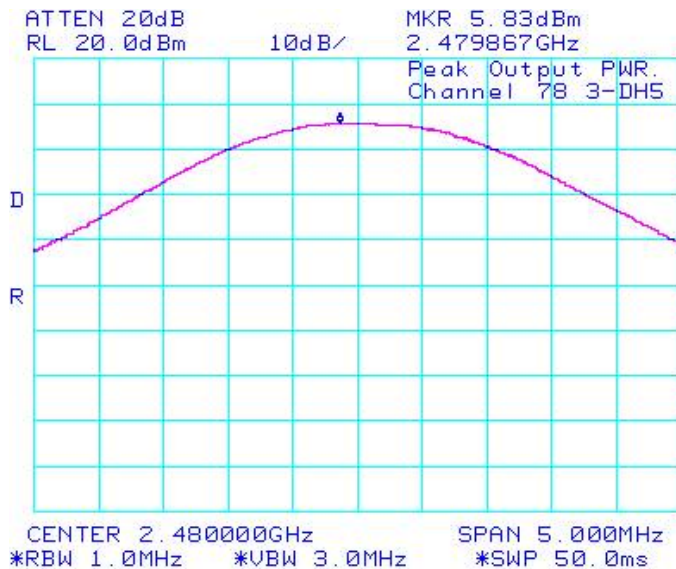
Figure 3-26: Max. Peak Conducted Output Power Single Freq., Static PBRS, 3-DH5



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Bluetooth RF Conducted Emission Test Results cont'd

**Figure 3-27: Max. Peak Conducted Output Power
Single Freq., Static PBRS, 3-DH5**



Band Edge Compliance

The EUT met the requirements of the band edge compliance as per 47 CFR 15.247(c) and RSS-210. Low channel (0) and high channel (78) were measured. Bluetooth was operating in single frequency and hopping mode.

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

Bluetooth Channel	Operating Mode	Measured Level (dBc)	Limit (dBc)	Margin (dB)
0	Single Frequency	-32.17	-20	-12.17
78	Single Frequency	-34.33	-20	-14.33
0 - 78	Hopping	-33.00	-20	-13.00
0 - 78	Hopping	-34.33	-20	-14.33

The environmental test conditions were: Temperature 22°C
 Pressure 1004 mb
 Relative Humidity 36%

See figures 3-28 to 3-31 for the plots of the band edge compliance measurements.

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-28: Band Edge Compliance

Single Freq., Static PBRS, DH5

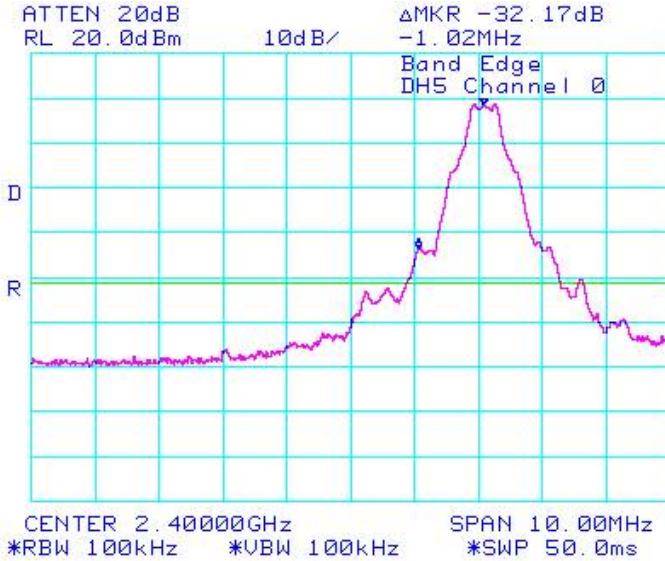


Figure 3-29: Band Edge Compliance

Single Freq., Static PBRS, DH5

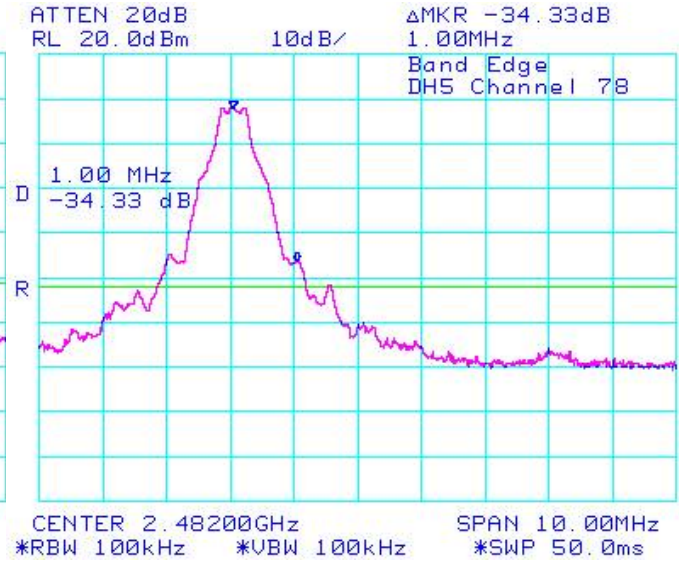


Figure 3-30: Band Edge Compliance

Freq. Hopping, Static PBRS, DH5

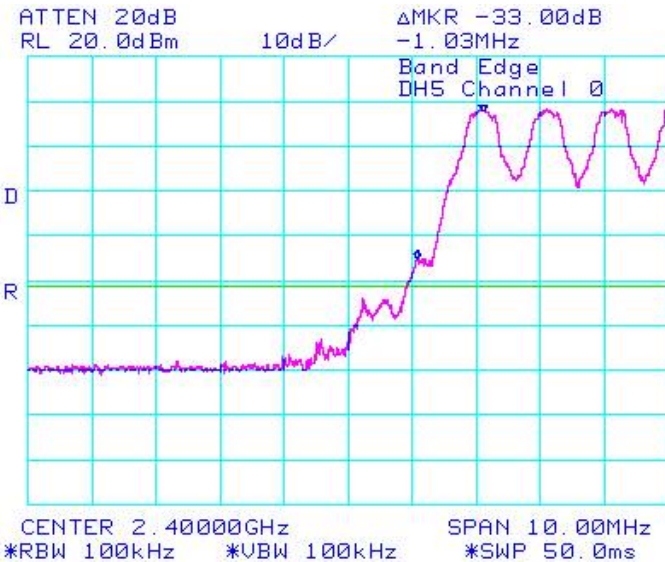
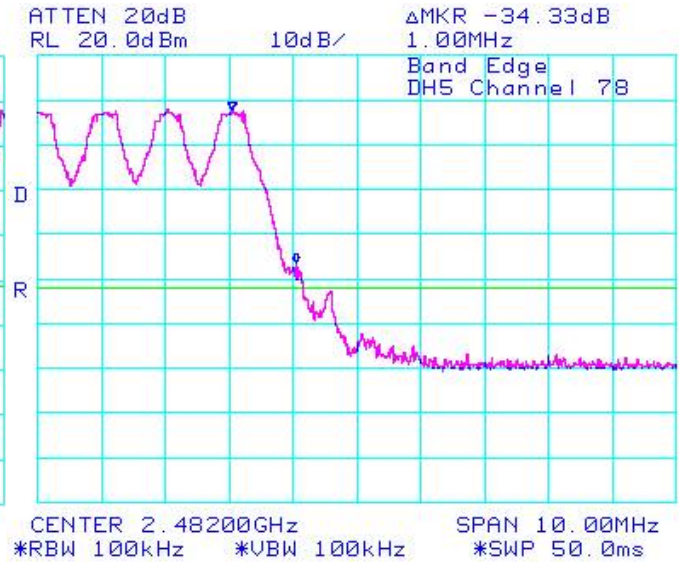


Figure 3-31: Band Edge Compliance

Freq. Hopping, Static PBRS, DH5



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Bluetooth RF Conducted Emission Test Results cont'd

Using pattern type “Static PRBS” and packet type “3-DH5” during the measurements.

Bluetooth Channel	Operating Mode	Measured Level (dBc)	Limit (dBc)	Margin (dB)
0	Single Frequency	-32.50	-20	-12.50
78	Single Frequency	-36.00	-20	-16.00
0 - 78	Hopping	-34.67	-20	-14.67
0 - 78	Hopping	-36.34	-20	-16.34

The environmental test conditions were:

Temperature	22°C
Pressure	1004 mb
Relative Humidity	36%

See figures 3-32 to 3-35 for the plots of the band edge compliance measurements.

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-32: Band Edge Compliance

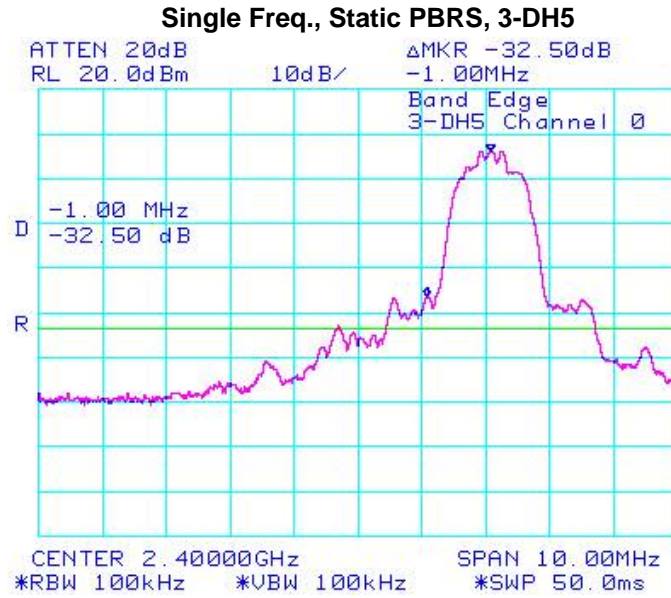


Figure 3-33: Band Edge Compliance

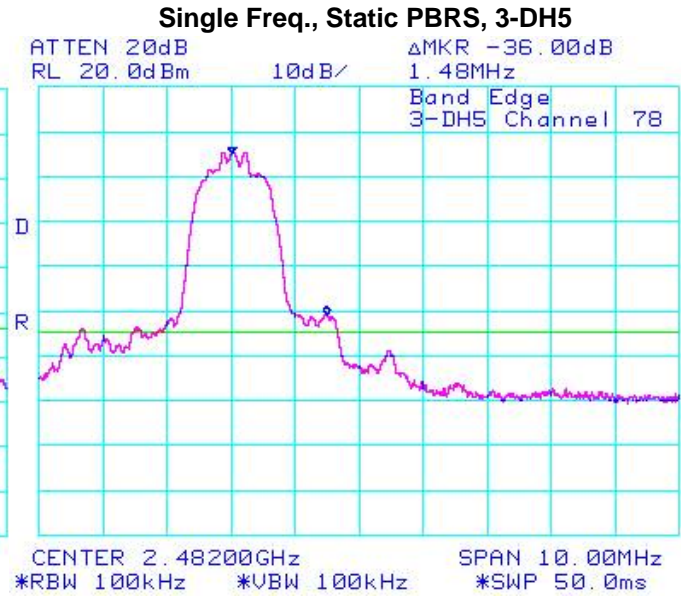


Figure 3-34: Band Edge Compliance

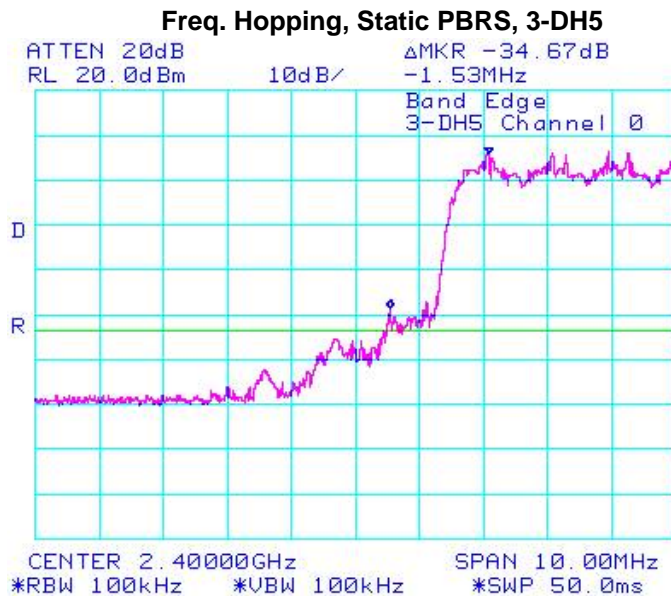
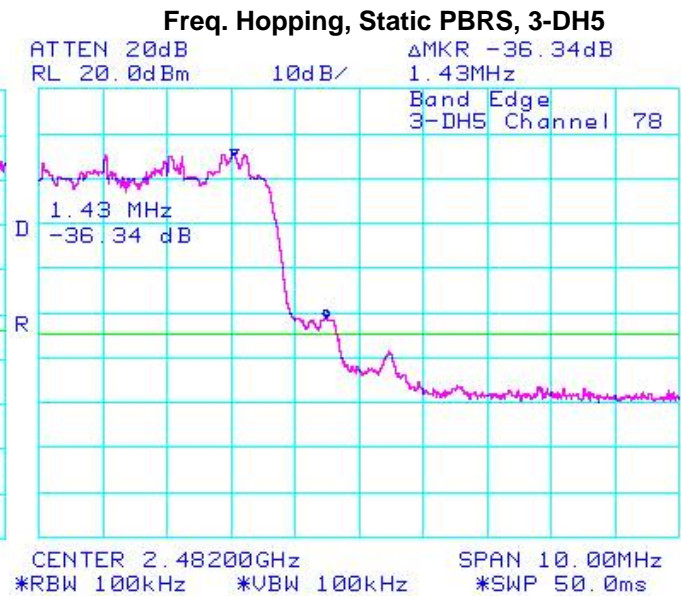


Figure 3-35: Band Edge Compliance



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Bluetooth RF Conducted Emission Test Results cont'd

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. Low channel (0), mid channel (39) and high channel (78) were measured. Bluetooth was operating in single frequency and hopping mode. 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.

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

Bluetooth Channel	Channel Power (dBm)	Max. Measured Level (dBm)	Max. Measured Level from carrier (dBc)	Limit (dBc)
0	8.67	-44.00	-52.67	-20
39	8.50	-45.00	-53.50	-20
78	8.17	-45.67	-53.84	-20
Hopping mode	8.17	-46.17	-54.34	-20

The environmental test conditions were: Temperature 23°C
 Pressure 1004 mb
 Relative Humidity 37%

See figures 2-36 to 2-39 for the plots of the spurious RF conducted emissions.

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 2-36: Spurious RF Conducted Emissions
Single Freq., Static PBRs, DH5,

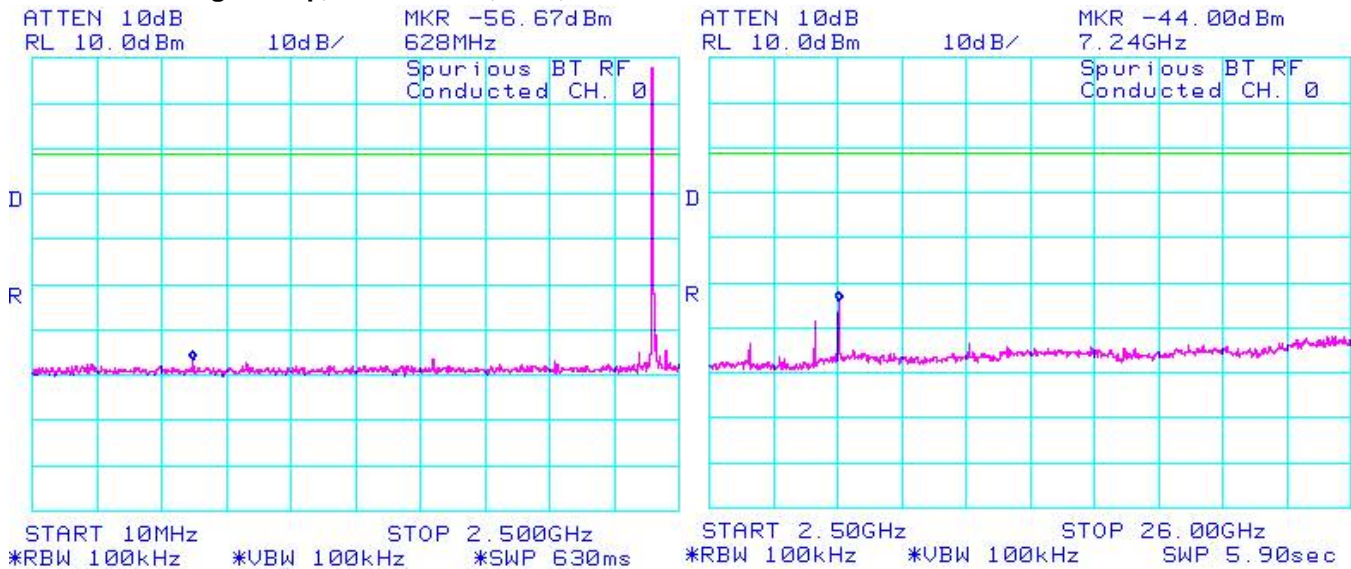
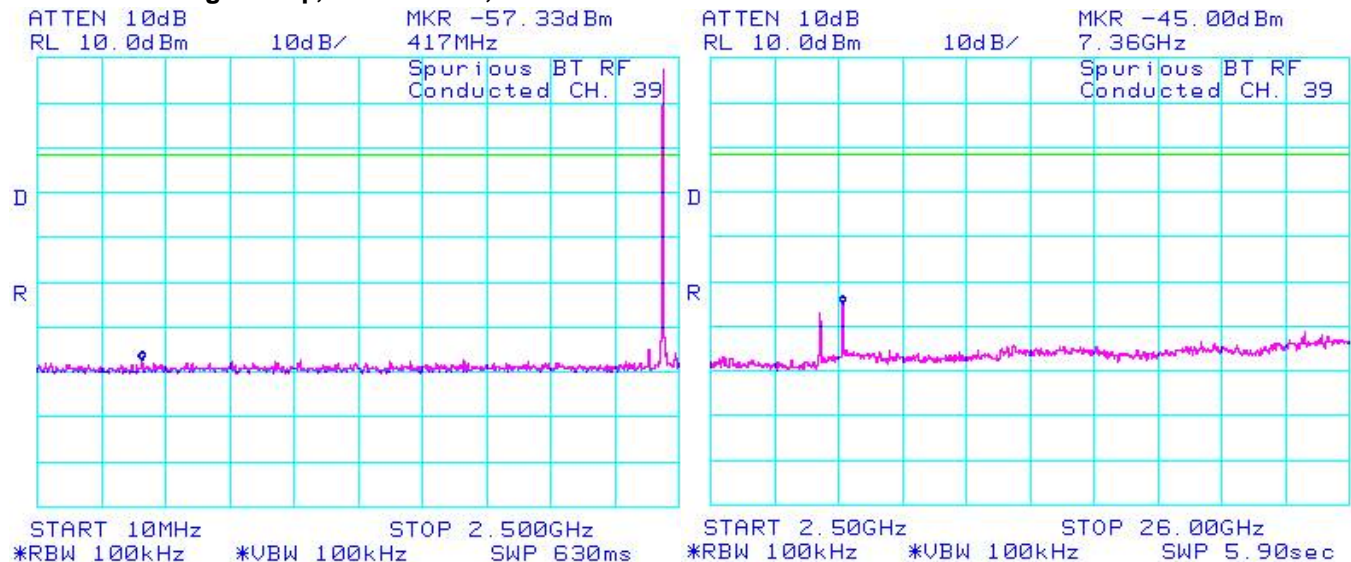


Figure 2-37: Spurious RF Conducted Emissions
Single Freq., Static PBRs, DH5



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 2-38: Spurious RF Conducted Emissions
Single Freq., Static PBRs, DH5

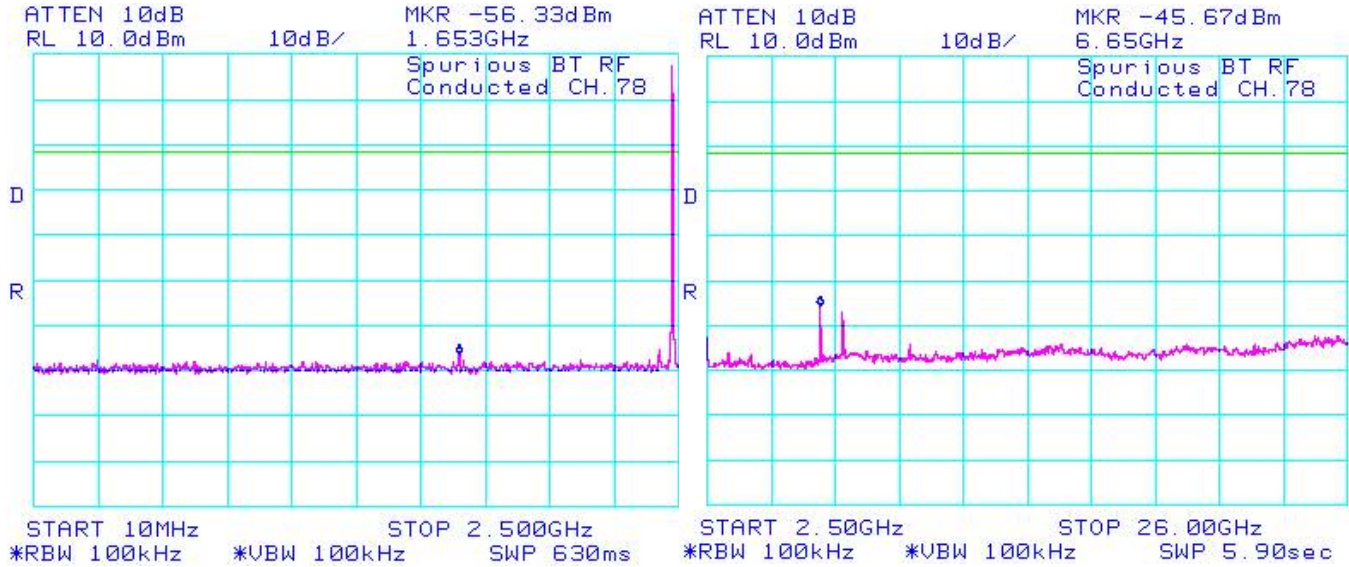
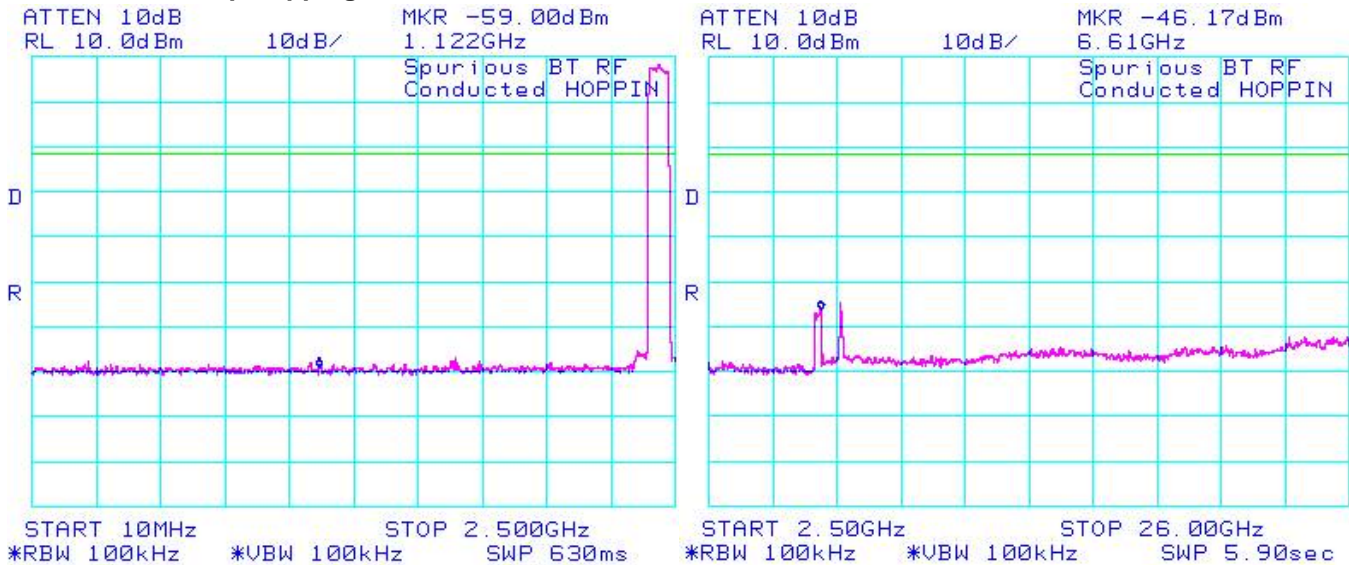


Figure 2-39: Spurious RF Conducted Emissions
Freq. Hopping, Static PBRs, DH5



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Arjun Bhatti

Bluetooth RF Conducted Emission Test Results cont'd

Using pattern type “Static PRBS” and packet type “3-DH5” during the measurements.

Bluetooth Channel	Channel Power (dBm)	Max. Measured Level (dBm)	Max. Measured Level from carrier (dBc)	Limit (dBc)
0	6.67	-47.17	-53.84	-20
39	6.50	-46.67	-53.17	-20
78	5.83	-46.33	-52.16	-20
Hopping mode	5.83	-46.17	-52.00	-20

The environmental test conditions were:

Temperature	23°C
Pressure	1004 mb
Relative Humidity	37%

See figures 3-40 to 3-43 for the plots of the spurious RF conducted emissions.

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-40 : Spurious RF Conducted Emissions

Single Freq., Static PBRS, 3-DH5

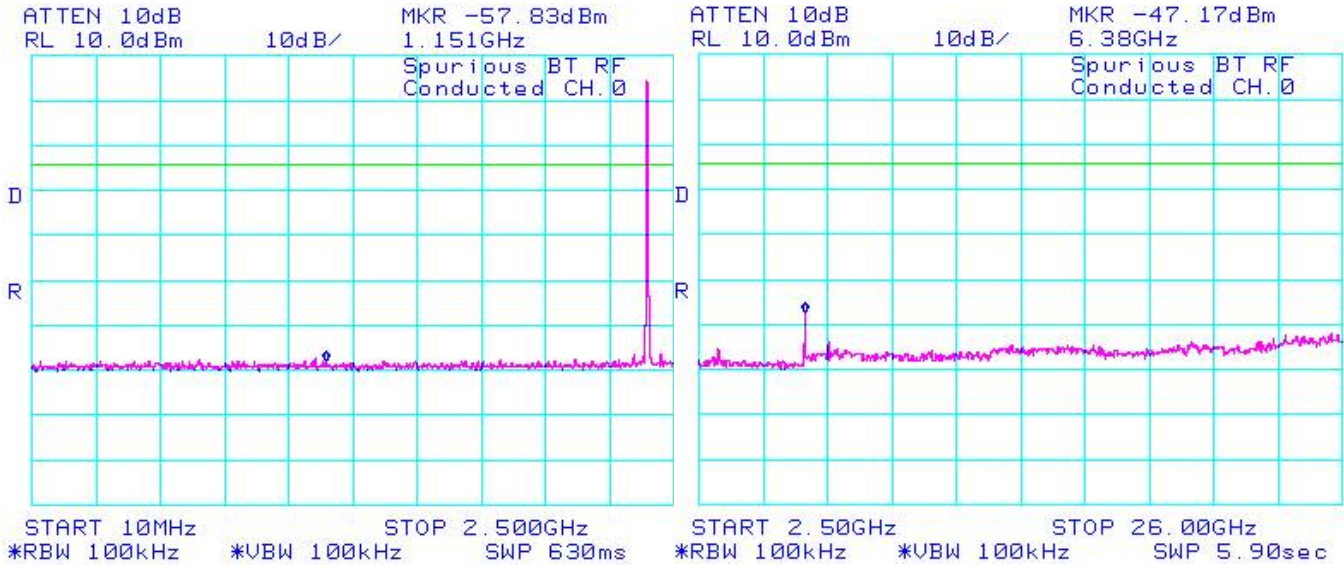
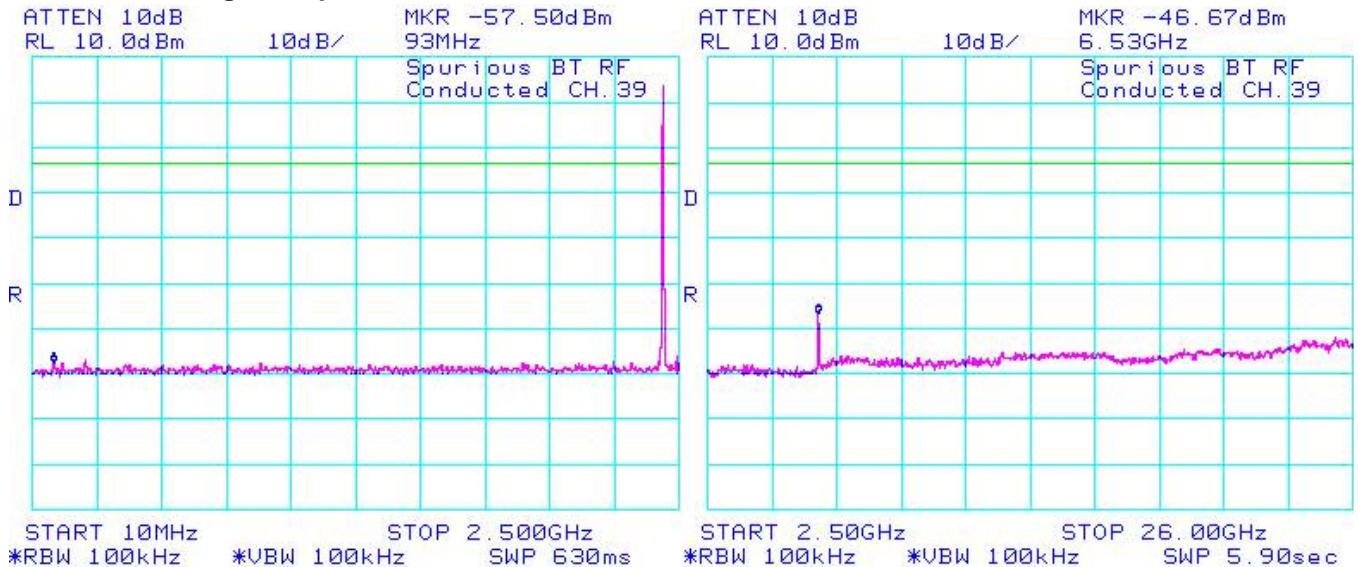


Figure 3-41: Spurious RF Conducted Emissions

Single Freq., Static PBRS, 3-DH5



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-42: Spurious RF Conducted Emissions
Single Freq., Static PBRs, 3-DH5

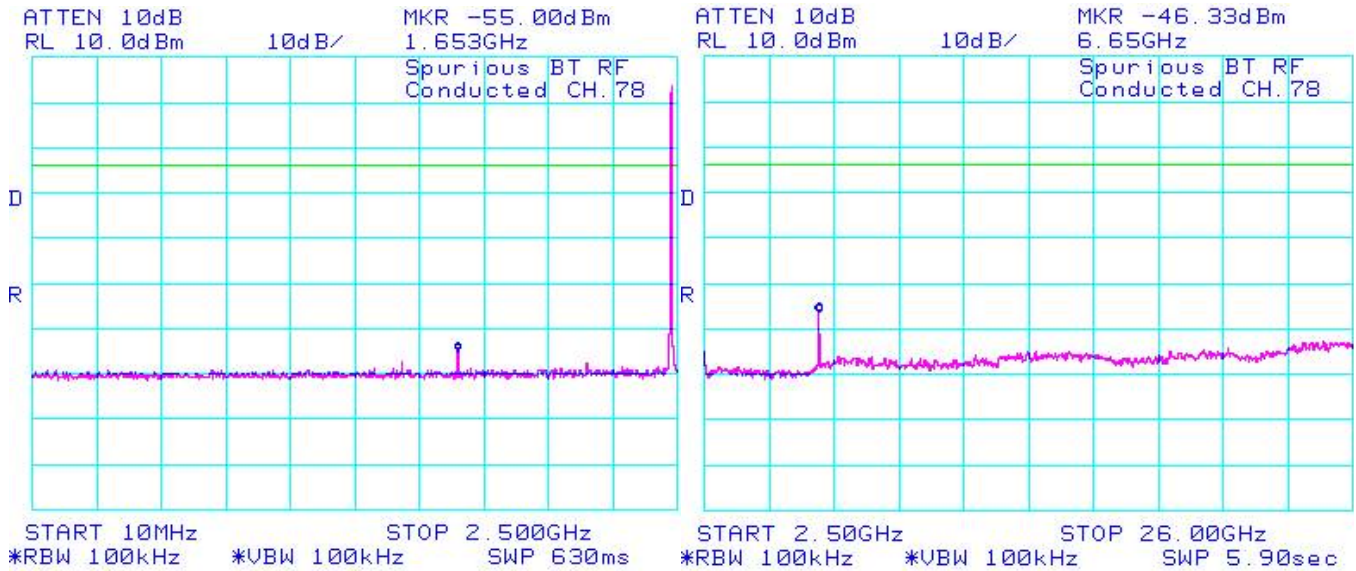
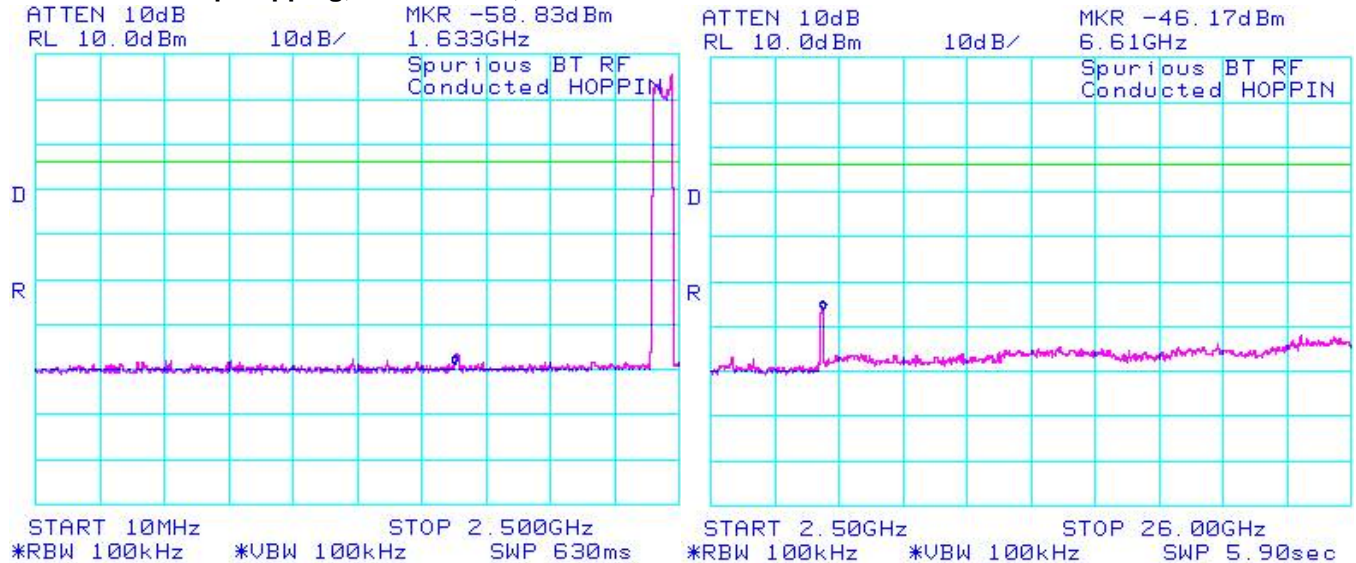


Figure 3-43 : Spurious RF Conducted Emissions
Freq. Hopping, Static PBRs, 3-DH5



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APPENDIX 4 – 802.11b/g CONDUCTED EMISSIONS TEST DATA/PLOTS

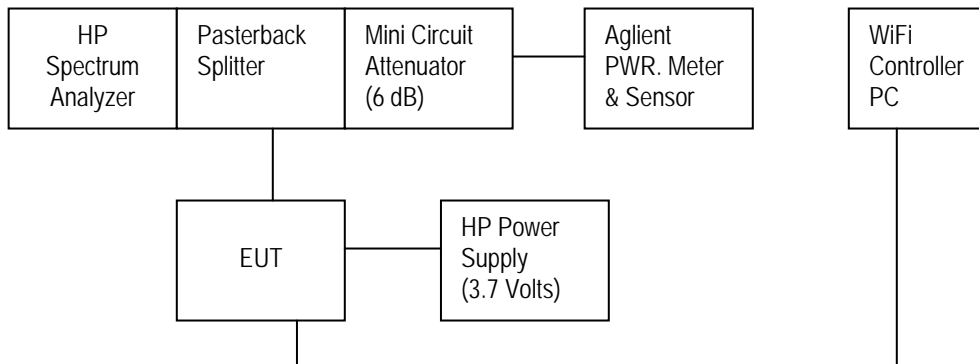
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802.11b/g RF Conducted Emission Test Results

802.11b/g Target Power Output for all the recorded measurements shown below:

Channel	Frequency	802.11b		802.11g	
		Data Rate	Power output (dBm)	Data Rate	Power output (dBm)
1	2412 MHz	1 Mbps	18.0	6 Mbps	14.0
		5.5 Mbps	18.0	24 Mbps	14.0
		11 Mbps	18.0	54 Mbps	13.0
6	2437 MHz	1 Mbps	18.0	6 Mbps	17.5
		5.5 Mbps	18.0	24 Mbps	14.5
		11 Mbps	18.0	54 Mbps	13.0
11	2462 MHz	1 Mbps	18.0	6 Mbps	14.0
		5.5 Mbps	18.0	24 Mbps	14.0
		11 Mbps	18.0	54 Mbps	13.0

Test Setup Diagram



A reference offset of 20.4 dB was applied to the spectrum analyzer and 6.4 dB was applied to the Power Meter reference level for the attenuators and coaxial cable loss in the test circuit.

Date of test: August 15, 2008

The measurements on BlackBerry® smartphone PIN 2076184A were performed by Maurice Battler.

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802.11b/g RF Conducted Emission Test Results cont'd

6 dB Bandwidth

The EUT met the requirements of the 6 dB bandwidth as per 47 CFR 15.247(a)(2) and RSS-210. Channels 1, 6 and 11 were measured at 1 Mbps, 5.5 Mbps, and 11Mbps each for 802.11b mode and 6 Mbps, 24 Mbps, and 54 Mbps each for 802.11g mode.

Channel	Data Rate	Limit (kHz)	Measured Level (MHz)
1	1 Mbps	≥ 500	11.20
	5.5 Mbps	≥ 500	11.83
	11 Mbps	≥ 500	10.90
	6 Mbps	≥ 500	16.60
	24 Mbps	≥ 500	16.70
	54 Mbps	≥ 500	16.70
6	1 Mbps	≥ 500	11.20
	5.5 Mbps	≥ 500	11.73
	11 Mbps	≥ 500	11.20
	6 Mbps	≥ 500	16.03
	24 Mbps	≥ 500	16.67
	54 Mbps	≥ 500	16.67
11	1 Mbps	≥ 500	10.23
	5.5 Mbps	≥ 500	11.70
	11 Mbps	≥ 500	10.67
	6 Mbps	≥ 500	16.53
	24 Mbps	≥ 500	16.67
	54 Mbps	≥ 500	16.67

See figures 4-1 to 4-6 for the plots of the 6 dB bandwidth measurements for Channels 1, 6, and 11, at 1 Mbps each for 802.11b mode and at 6 Mbps each for 802.11g mode.

The environmental test conditions were:

Temperature	23°C
Pressure	1015 mb
Relative Humidity	32%

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802.11b/g RF Conducted Emission Test Results cont'd

Figure 4-1: 6 dB Bandwidth

802.11b, Channel 1, 1 Mbps

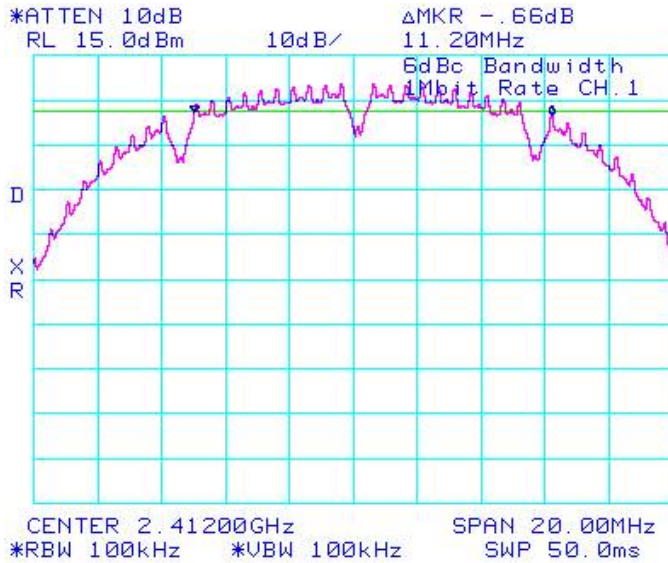


Figure 4-2: 6 dB Bandwidth

802.11b, Channel 6, 1 Mbps

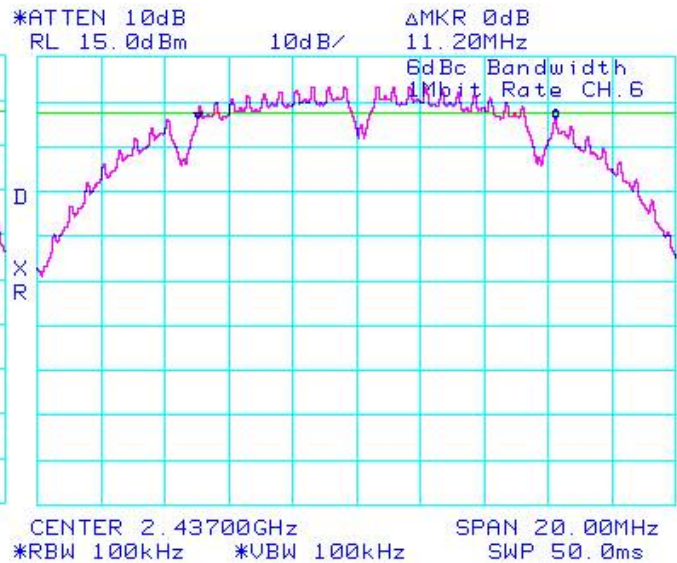
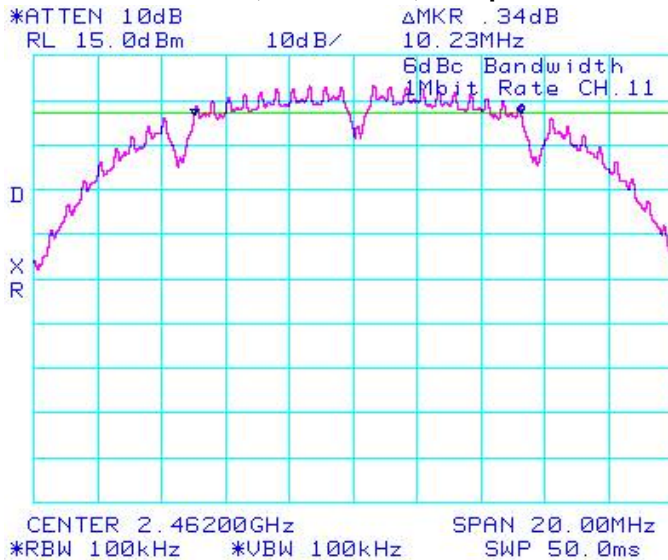


Figure 4-3: 6 dB Bandwidth

802.11b, Channel 11, 1 Mbps



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802.11b/g RF Conducted Emission Test Results cont'd

Band Edge Compliance

The EUT met the requirements of the band edge compliance as per 47 CFR 15.247(c) and RSS-210. Channels 1 and 11 were measured at 1 Mbps, 5.5 Mbps, and 11 Mbps each for 802.11b mode and 6 Mbps, 24 Mbps, and 54 Mbps each for 802.11g mode.

Channel	Data Rate	Limit (dBc)	Measured Level (dBc)	Margin (dBc)
1	1 Mbps	< -20	-41.66	-21.66
	5.5 Mbps	< -20	-45.17	-25.17
	11 Mbps	< -20	-44.00	-24.00
	6 Mbps	< -20	-27.00	-7.00
	24 Mbps	< -20	-30.66	-10.66
	54 Mbps	< -20	-32.00	-12.00
11	1 Mbps	< -20	-53.16	-33.16
	5.5 Mbps	< -20	-56.66	-36.66
	11 Mbps	< -20	-55.50	-35.50
	6 Mbps	< -20	-42.66	-22.66
	24 Mbps	< -20	-45.00	-25.00
	54 Mbps	< -20	-45.83	-25.83

See figures 4-7 to 4-10 for the plots of the band edge compliance measurements for Channels 1, and 11, at 1 Mbps each for 802.11b mode and at 6 Mbps each for 802.11g mode.

The environmental test conditions were:

Temperature	23°C
Pressure	1015 mb
Relative Humidity	32%

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802.11b/g RF Conducted Emission Test Results cont'd

Figure 4-7: Band Edge Compliance

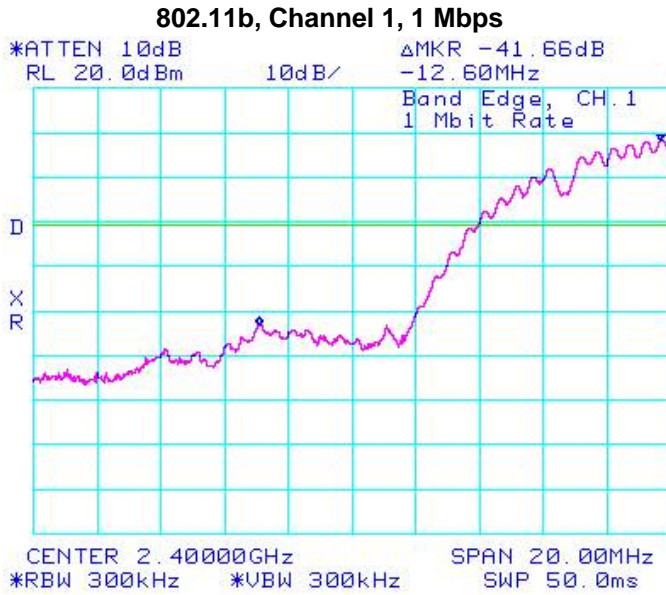


Figure 4-8: Band Edge Compliance

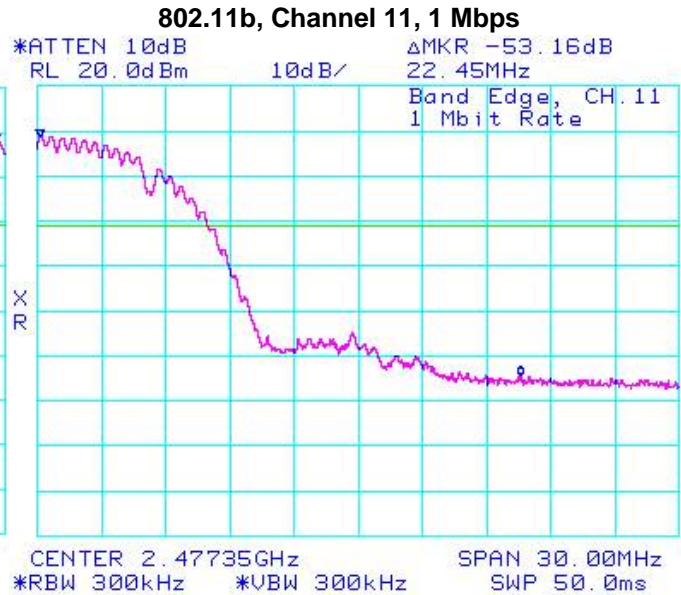


Figure 4-9: Band Edge Compliance

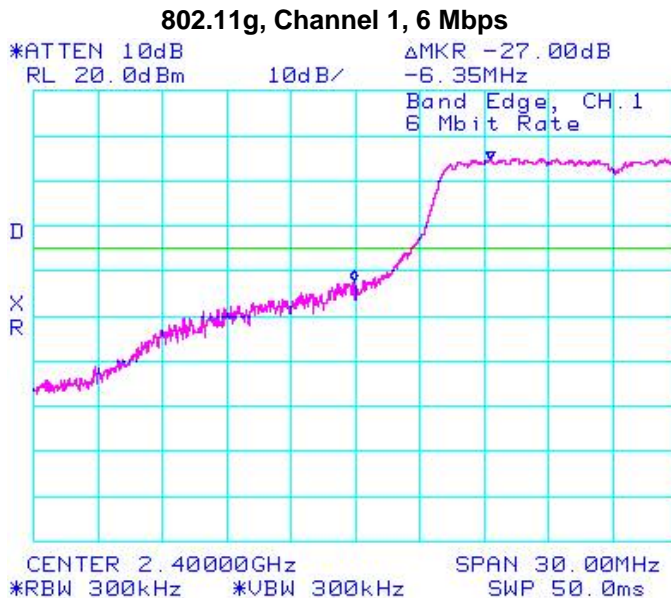
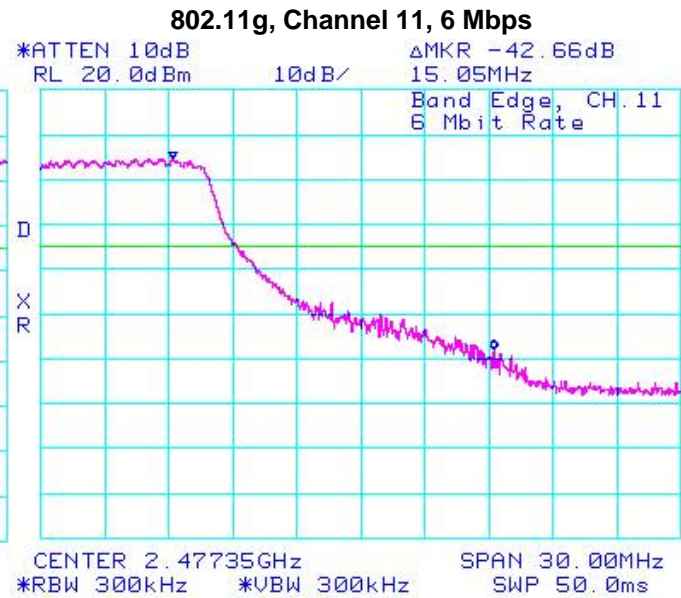


Figure 4-10: Band Edge Compliance



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802.11b/g RF Conducted Emission Test Results cont'd

Figure 4-11: Peak Power Spectral Density

802.11b, Channel 1, 1 Mbps

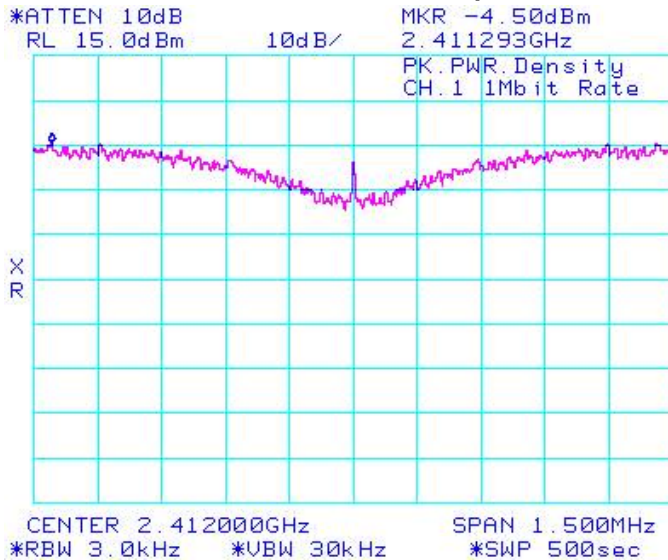


Figure 4-12: Peak Power Spectral Density

802.11b, Channel 6, 1 Mbps

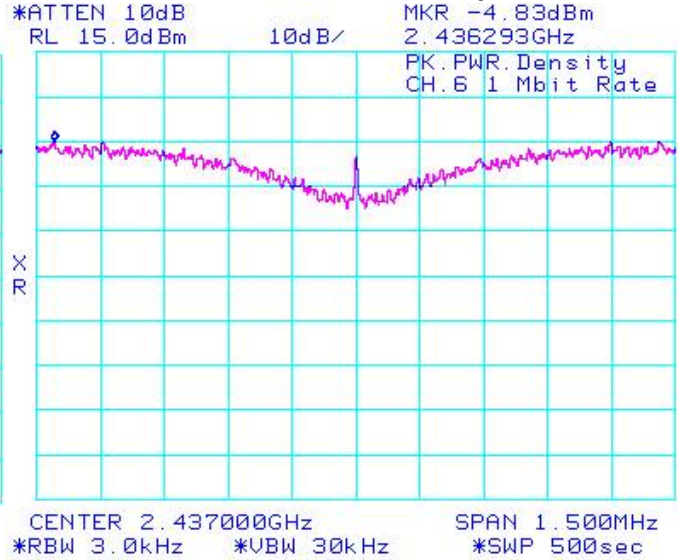
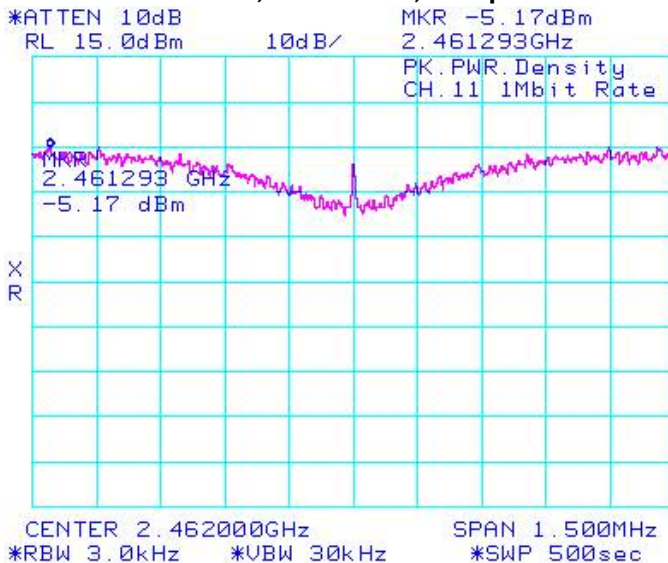


Figure 4-13: Peak Power Spectral Density

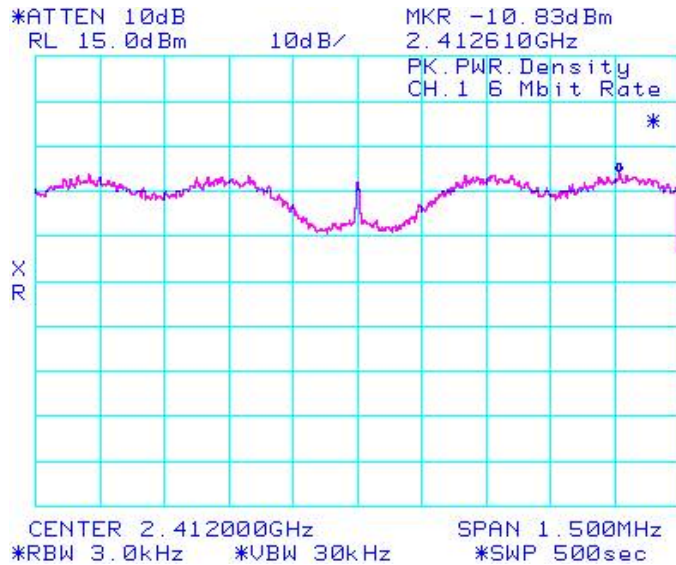
802.11b, Channel 11, 1 Mbps



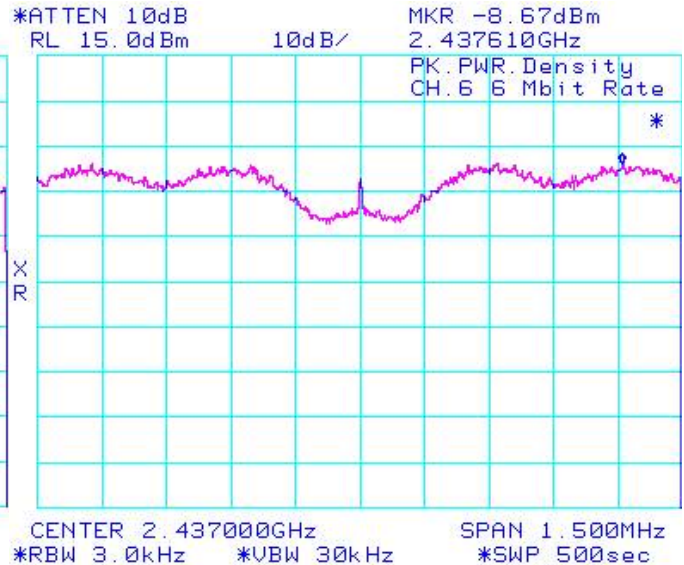
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802.11b/g RF Conducted Emission Test Results cont'd

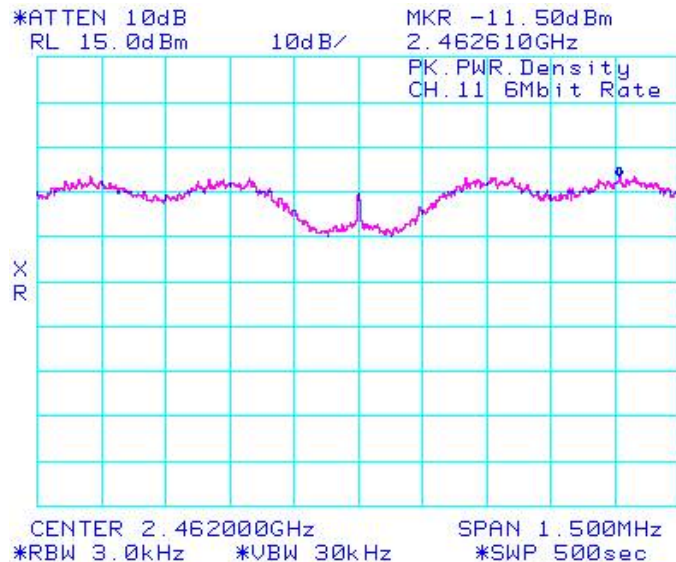
**Figure 4-14: Peak Power Spectral Density
802.11g, Channel 1, 6 Mbps**



**Figure 4-15: Peak Power Spectral Density
802.11g, Channel 6, 6 Mbps**



**Figure 4-16: Peak Power Spectral Density
802.11g, Channel 11, 6 Mbps**



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802.11b/g RF Conducted Emission Test Results cont'd

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. Channels 1, 6 and 11 were measured at 1 Mbps, 5.5 Mbps, and 11 Mbps each for 802.11b mode and 6 Mbps, 24 Mbps, and 54 Mbps each for 802.11g mode. Peak power was measured from the spectrum analyzer. A reference offset of 18.4 dB was applied to the spectrum analyzer reference level for the attenuators and coaxial cable loss in the test circuit.

Channel	Data Rate	Power (dBm)	Max. Measured Level (dBm)	Max. Measured Level from Carrier (dBc)	Limit (dBc)
1	1 Mbps	17.63	-50.33	-67.96	-20
	5.5 Mbps	17.42	-50.33	-67.75	-20
	11 Mbps	17.39	-50.50	-67.89	-20
	6 Mbps	13.71	-49.00	-62.71	-20
	24 Mbps	13.63	-50.17	-63.80	-20
	54 Mbps	12.65	-49.50	-62.15	-20
6	1 Mbps	17.43	-49.67	-67.10	-20
	5.5 Mbps	17.43	-48.00	-65.43	-20
	11 Mbps	17.41	-50.00	-67.41	-20
	6 Mbps	16.36	-50.00	-66.36	-20
	24 Mbps	13.95	-49.17	-63.12	-20
	54 Mbps	12.43	-49.67	-62.10	-20
11	1 Mbps	17.38	-50.17	-67.55	-20
	5.5 Mbps	17.46	-50.17	-67.63	-20
	11 Mbps	17.43	-49.83	-67.26	-20
	6 Mbps	13.32	-49.67	-62.99	-20
	24 Mbps	13.37	-49.00	-62.37	-20
	54 Mbps	12.38	-49.33	-61.71	-20

The emissions were in the NF.

See figures 4-17 to 4-22 for the plots of the spurious RF conducted emissions for Channels 1, 6 and 11, at 1 Mbps each for 802.11b mode and at 6 Mbps each for 802.11g mode.

The environmental test conditions were:

Temperature	22°C
Pressure	1017 mb
Relative Humidity	34%

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802.11b/g RF Conducted Emission Test Results cont'd

Figure 4-17: Spurious Conducted RF Emissions

802.11b, Channel 1, 1 Mbps

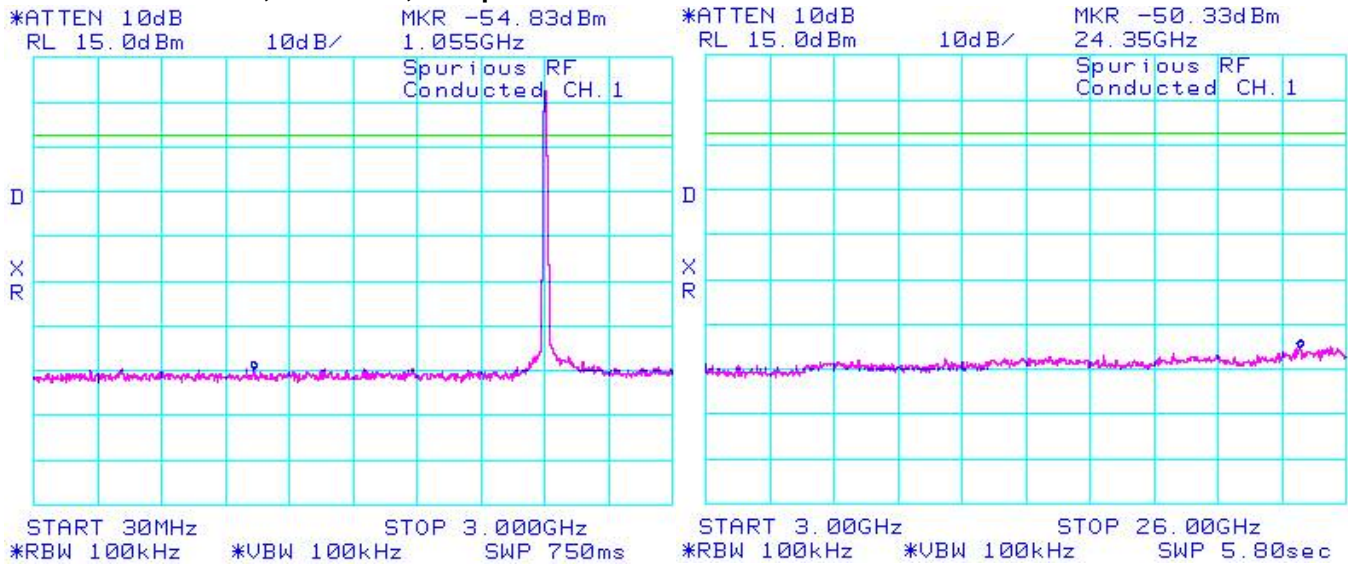
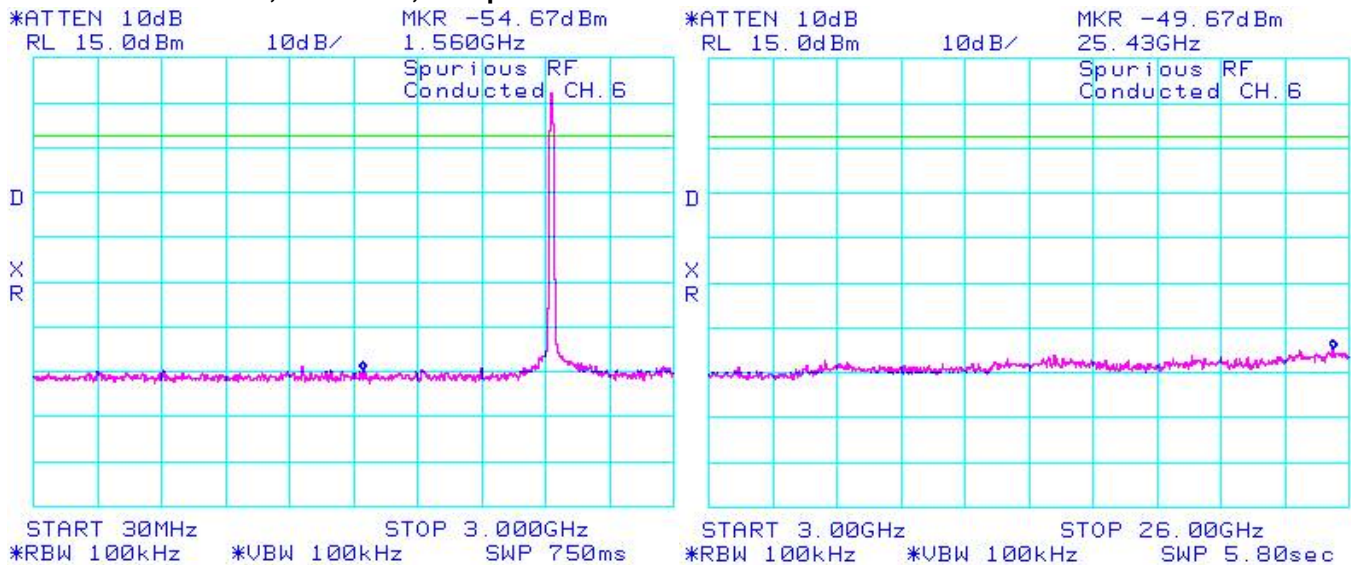


Figure 4-18 : Spurious Conducted RF Emissions

802.11b, Channel 6, 1 Mbps



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802.11b/g RF Conducted Emission Test Results cont'd

Figure 4-19: Spurious Conducted RF Emissions

802.11b, Channel 11, 1 Mbps

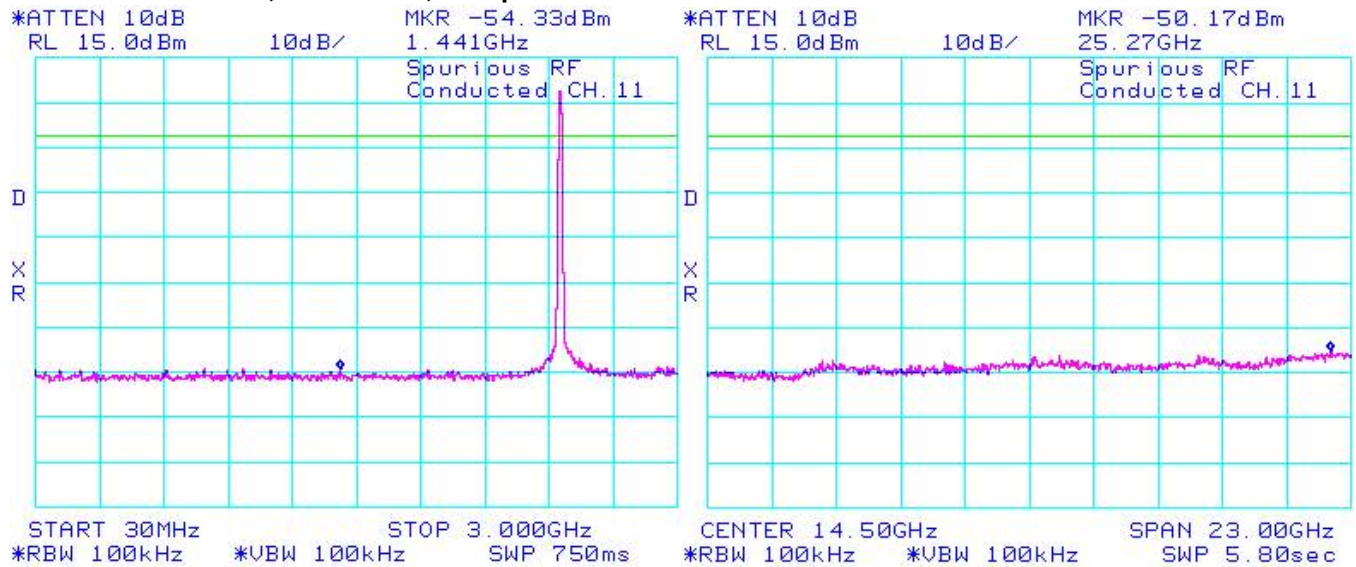
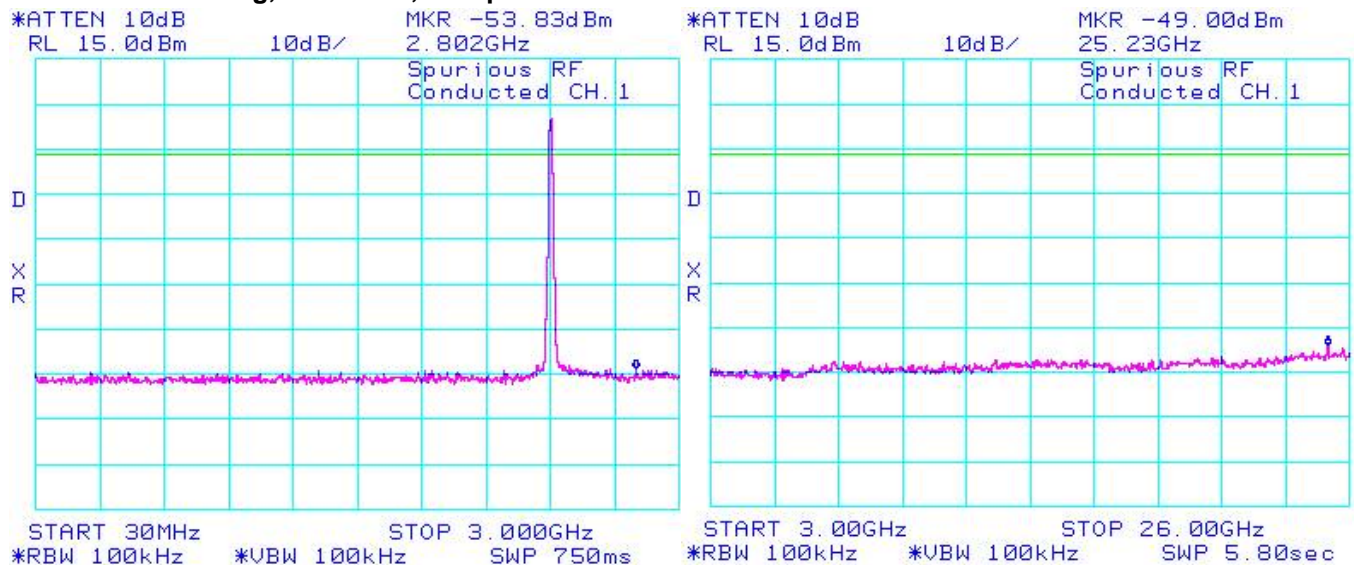


Figure 4-20: Spurious Conducted RF Emissions

802.11g, Channel 1, 6 Mbps



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802.11b/g RF Conducted Emission Test Results cont'd

Figure 4-21: Spurious Conducted RF Emissions
802.11g, Channel 6, 6 Mbps

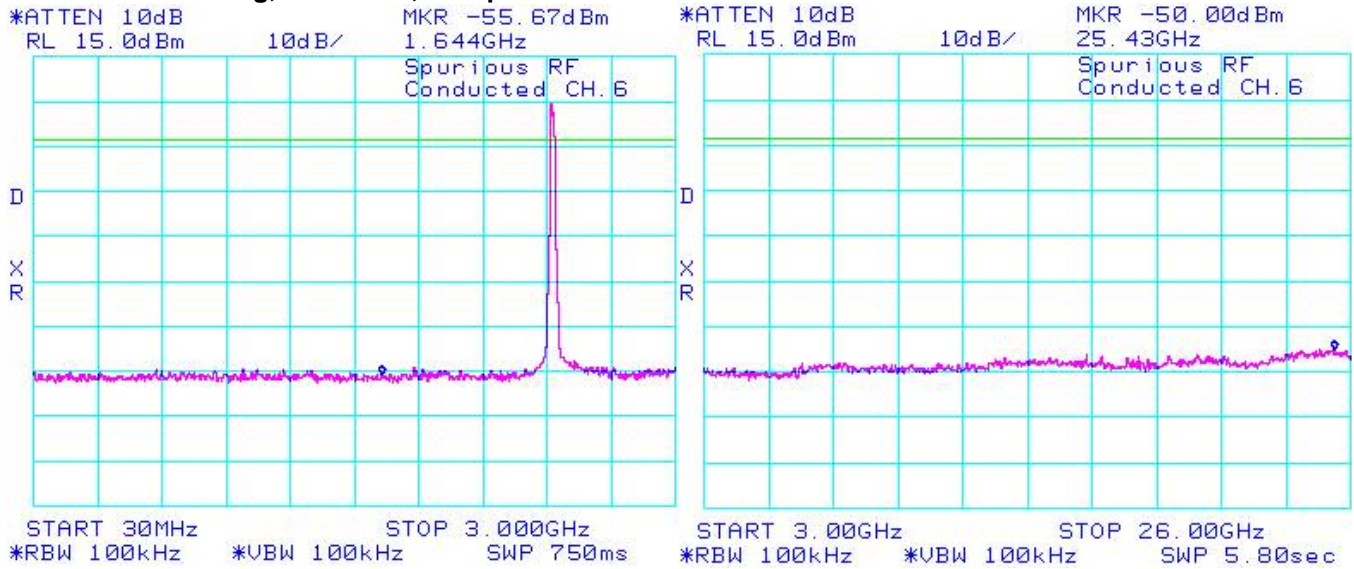


Figure 4-22: Spurious Conducted RF Emissions
802.11g, Channel 11, 6 Mbps

