

EMI Test Report

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



A division of Research In Motion Limited

REPORT NO.: RTS-5995-1205-25

PRODUCT MODEL NO.: REU71UW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6AREU70UW
IC: 2503A-REU70UW

DATE: June 26, 2012

	EMI Test Report for the BlackBerry® smartphone Model REU71UW	
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

Statement of Performance:

The BlackBerry® smartphone, model REU71UW, part number CER-48921-001 Rev4, and its accessories perform within the requirements of the test standards when configured and operated under RIM's operation instructions.

Declaration:

We hereby certify that:

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

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

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

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

Documented by:



Savtej S. Sandhu
Regulatory Compliance Specialist
Date: June 26, 2012

Reviewed by:



Shuo Wang
Regulatory Compliance Specialist
Date: June 27, 2012

Reviewed and Approved by:



Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance
Date: June 28, 2012

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A. Scope

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

- o FCC CFR 47 Part 15, Subpart C, October, 2011
- o Industry Canada, RSS-210, Issue 8, December 2010, Licence-exempt Radio Apparatus
- o Industry Canada, RSS-GEN, Issue 3, December 2010, General Requirements and Information for the Certification of Radio Apparatus

B. Associated Documents

1. REU71UW_HW_Declaration_CER-48921-001_Rev3
2. REU71UW_HW_Declaration_CER-48921-001_Rev4
3. MultiSourceDeclaration_REU71UW_b1201
4. MultiSourceDeclaration_REU71UW_b1453

C. Product Identification

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

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

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

RIM Testing Services EMI test facilities	
305 Phillip Street	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 on March 22, April 24 to 27 and May 08, 17 to 28, 2012.

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The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN	SOFTWARE
1	REU71UW	CER-48921-001 Rev2	2975FFD0	V7.1.0.255 (Platform 9.0.0.427) Bundle 876
2	REU71UW	CER-48921-001 Rev3	29D04E0F	MFI Software
3	REU71UW	CER-48921-001 Rev3	29D05115	V7.1.0.358 (Platform 5.1.0.291) Bundle 1201
4	REU71UW	CER-48921-001 Rev3	29D04E1B	V7.1.0.358 (Platform 5.1.0.291) Bundle 1201
5	REU71UW	CER-48921-001 Rev4	29FAD975	MFI Software
6	REU71UW	CER-48921-001 Rev4	29FAD8E9	V7.1.0.443 (Platform 5.1.0.349) Bundle 1453
7	REU71UW	CER-48921-001 Rev4	29FAD981	V7.1.0.443 (Platform 5.1.0.349) Bundle 1453

AC Line Conducted Emissions testing was performed on sample 3.
Radiated Emissions testing was performed on samples 4, 6 and 7.
Conducted Emissions testing was performed on samples 1, 2 and 5.

Only the characteristics that may have been affected by the changes from model REU71UW Rev2 to REU71UW Rev4 were re-tested. For more information, see REU71UW_HW_Declaration_CER-48921-001_Rev3, and REU71UW_HW_Declaration_CER-48921-001_Rev4.

To view the differences between software bundles 876 to 1453, see documents MultiSourceDeclaration_REU71UW_b1201 and MultiSourceDeclaration_REU71UW_b1453.

BlackBerry® smartphone Accessories Tested

- 1) Fixed Blade Charger, part number HDW-47725-001, with an output voltage of 5.0 volts dc, 850mA
- 2) Fixed Blade LC Charger, part number HDW-44303-001, with an output voltage of 5.0 volts dc, 550 mA.
- 3) Stereo Headset, part number HDW-14322-005, with a lead length of 1.1 metres.
- 4) Wired Headset D, part number HDW-44306-001, with a lead length of 1.1 metres.
- 5) USB Data Cable, part number HDW-28109-003, 1.20 metres long.
- 6) USB Data Cable, part number HDW-48415-001, 1.00 metres long.
- 7) Bat. JS1, part number BAT-44582-001.

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D. Support Equipment Used for the Testing of the EUT

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

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E. Test Results Chart

SPECIFICATION		TEST TYPE	Meets Requirements	TEST DATA
FCC CFR 47	IC			APPENDIX
Part 15.207	RSS-210 RSS-GEN	Conducted AC Line Emission	Pass	1
Part 15.209 Part 15.247	RSS-210 RSS-GEN	BT Radiated Spurious Emissions	Pass	2
Part 15.209 Part 15.247	RSS-210 RSS-GEN	BT Radiated Band Edge Compliance	Pass	2
Part 15.209 Part 15.247	RSS-210 RSS-GEN	802.11b/g/n Radiated Spurious Emissions	Pass	2
Part 15.209 Part 15.247	RSS-210 RSS-GEN	802.11b/g/n 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/n, 6 dB Bandwidth	Pass	4
Part 15.247(b)	RSS-210	802.11b/g/n, Maximum Conducted Output Power	Pass	4
Part 15.247(b)	RSS-210	802.11b/g/n, Band-Edge	Pass	4
Part 15.247(b)	RSS-210	802.11b/g/n, Peak Power Spectral Density	Pass	4
Part 15.247(b)	RSS-210	802.11b/g/n, Spurious RF Conducted Emissions	Pass	4

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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:

Test Configuration	Operating Mode(s)	Charger + Accessories
1	Bluetooth Tx + Audio Playing	Fixed Blade Charger + Wired Headset D + USB Cable 1.00m + Bat. JS1
2	802.11b Tx + Video Playing	Fixed Blade LC Charger + Stereo Headset + USB Cable 1.20m + Bat. JS1

The sample EUT's conducted emissions were compared with respect to the FCC CFR 47 Part 15, Subpart C and IC RSS-210 limits. The sample EUT had a worst case test margin of 10.64 dB below the QP limit at 0.465 MHz the Fixed Blade Charger in Test Configuration 1.

See APPENDIX 1 for the test data.

Measurement Uncertainty ± 3.2 dB

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2) BLUETOOTH AND 802.11b/g/n 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 semi-anechoic chamber (SAC) with floor absorbers above 1 GHz. The SAC's FCC registration number is **778487** and the Industry Canada (IC) file number is **2503B-1**. The SAC with floor absorber'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 was 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", "2-DH5" and "3-DH5". The system's radiated emission levels were compared with respect to the FCC CFR 47 Part 15, Subpart C, 15.247 and RSS-210.

The BlackBerry® smartphone was measured in standalone configuration transmitting on channels 1, 6 & 11 at 1 Mbps for 802.11b mode, at 6 Mbps for 802.11g mode, and at MCS 0 for 802.11n 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 Bluetooth harmonics were investigated up to the 10th harmonic. The worst case test margin was 9.08 dB below the accepted limit at 9608.480 MHz.

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

Measurement Uncertainty ± 4.5 dB

See APPENDIX 2 for the test data

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3) BLUETOOTH RF CONDUCTED EMISSIONS

The Bluetooth conducted RF emissions from the BlackBerry® smartphone were measured using the methods outlined in FCC CFR 47 Part 15, Subpart C.

a) 20 dB Bandwidth

The BlackBerry® smartphone 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. The worst case 20 dB Bandwidth was 0.923 MHz for channel 0 in normal data rate mode and 1.317 MHz for channel 0 in EDR mode.
See APPENDIX 3 for the test data.

b) Carrier Frequency Separation

The BlackBerry® smartphone 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 BlackBerry® smartphone 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 BlackBerry® smartphone 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. The worst case Conducted Output Power level was 8.33 dBm (0.00681 W) for Channels 39 and 78 in normal data rate mode and 8.17 dBm (0.00656 W) for channel 78 in EDR mode.
See APPENDIX 3 for the test data.

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

The BlackBerry® smartphone 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.

g) **Spurious RF Conducted Emissions**

The BlackBerry® smartphone 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) 802.11b/g/n RF CONDUCTED EMISSIONS

The 802.11b/g/n conducted RF emissions from the BlackBerry® smartphone were measured using the methods outlined in FCC CFR 47 Part 15, Subpart C.

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. The worst case 6 dB Bandwidth was 11.00 MHz for channel 1 in 802.11b mode, 16.51 MHz for channel 6 in 802.11g mode, and 17.66 MHz for channel 1 in 802.11n mode. 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. The worst case Conducted Output Power level was 19.66 dBm (92.47 mW) for channel 11 in 802.11b mode, 17.46 dBm (55.72 mW) for channel 6 in 802.11g mode, and 14.23 dBm (26.49 mW) for channel 11 in 802.11n mode. 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.

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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. Compliance Test Equipment Used

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
EMI Test Receiver	Rohde & Schwarz	ESIB 40	100255	12-12-08	Conducted/Radiated Emissions
EMI Test Receiver	Rohde & Schwarz	ESU 40	100162	12-12-07	Conducted/Radiated Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017301	13-08-23	Radiated Emissions
Horn Antenna	CMT	3116	R52734-001	12-09-24	Radiated Emissions
Horn Antenna	ETS-Lindgren	3117	2538	13-08-04	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA4-SP	001	12-09-01	Radiated Emissions
Preamplifier	Sonoma	310N/11909A	185831	12-10-17	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	12-09-01	Radiated Emissions
L.I.S.N.	Rohde & Schwarz	ENV216	100060	13-10-25	Conducted Emissions
Environment Monitor	Omega	iTHX-SD	0380561	12-10-20	Radiated Emissions
EMC Analyzer	Agilent	E7405A	US40240226	13-01-03	Radiated Emissions
Spectrum Analyzer	HP	8563E	3745A08113	13-10-05	RF Conducted Emissions
DC Power Supply	HP	6632B	US37472178	12-09-27	RF Conducted Emissions
Environment Monitor	Omega	iTHX-SD	0340060	12-10-20	RF Conducted Emissions
Temperature Probe	Control Company	23609-234	21352860	12-09-14	Frequency Stability
Environmental Chamber	Test Equity	107	0900246	N/R	Frequency Stability
Bluetooth Tester	Rohde & Schwarz	CBT	119549	12-12-01	RF Conducted Emissions
Bluetooth Tester	Rohde & Schwarz	CBT35	100368	12-11-30	Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT35	100370	12-11-30	Radiated Emissions
Power Meter	Agilent	N1911A	MY45100951	13-08-16	RF Conducted / Frequency Stability
Power Sensor	Agilent	N1921A	MY45241383	12-08-30	RF Conducted / Frequency Stability
Digital Multimeter	Hewlett Packard	34401A	US36042324	12-11-16	Conducted/Radiated Emissions
Environment Monitor	Omega	iTHX-SD	0380567	12-10-20	Radiated Emissions

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APPENDIX 1 – AC CONDUCTED EMISSIONS TEST DATA/PLOTS

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AC Conducted Emission Test Results

The following tests were performed by Shuo Wang.

Test Configuration 1

The BlackBerry® smartphone was tested on May 08, 2012.

The environmental test conditions were: Temperature: 26 °C
Relative Humidity: 37 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.150	L1	32.34	11.20	43.54	66.00	56.00	-22.46
0.150	N	30.25	11.23	41.49	66.00	56.00	-24.51
0.177	L1	28.76	11.02	39.78	64.60	54.60	-24.82
0.429	L1	34.59	9.97	44.56	57.30	47.30	-12.74
0.438	N	31.34	9.96	41.30	57.10	47.10	-15.80
0.465	L1	36.03	9.93	45.96	56.60	46.60	-10.64
0.465	N	31.47	9.94	41.41	56.60	46.60	-15.19
0.749	L1	25.62	9.83	35.45	56.00	46.00	-20.55
1.136	L1	33.52	9.80	43.32	56.00	46.00	-12.68
1.275	N	23.23	9.80	33.03	56.00	46.00	-22.97
2.562	L1	21.77	9.85	31.63	56.00	46.00	-24.38

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

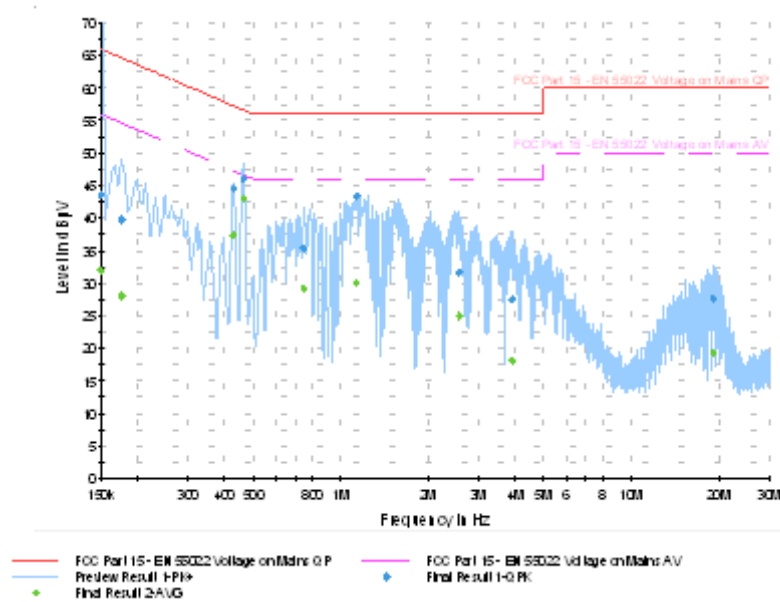
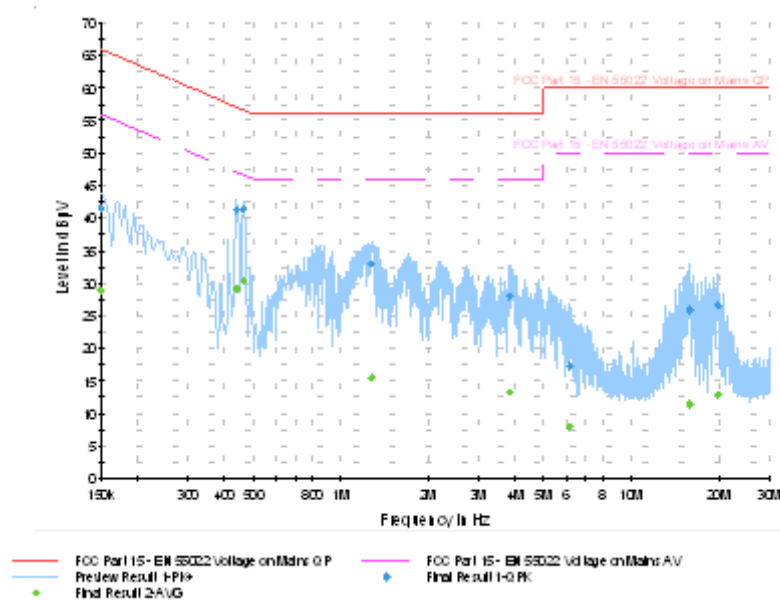


Figure 1-2: N Lines



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AC Conducted Emission Test Results

Test Configuration 2

The BlackBerry® smartphone was tested on May 08, 2012.

The environmental test conditions were: Temperature: 26 °C
Relative Humidity: 37 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.150	L1	32.43	11.20	43.64	66.00	56.00	-22.36
0.254	L1	37.20	10.48	47.69	61.60	51.60	-13.92
0.258	N	36.01	10.47	46.48	61.50	51.50	-15.02
0.276	L1	35.67	10.33	46.00	60.90	50.90	-14.90
0.407	L1	30.47	10.00	40.47	57.70	47.70	-17.23
0.704	N	27.37	9.84	37.21	56.00	46.00	-18.79
0.708	L1	30.37	9.83	40.21	56.00	46.00	-15.80
0.866	L1	32.60	9.81	42.42	56.00	46.00	-13.59
0.987	N	24.57	9.81	34.39	56.00	46.00	-21.62
1.262	N	26.00	9.80	35.80	56.00	46.00	-20.20
1.541	N	26.52	9.81	36.33	56.00	46.00	-19.67
2.432	L1	30.93	9.85	40.78	56.00	46.00	-15.22
2.643	N	23.86	9.86	33.72	56.00	46.00	-22.28

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 Emissions Test Graphs

Test Configuration 1

Figure 1-3: L1 lines

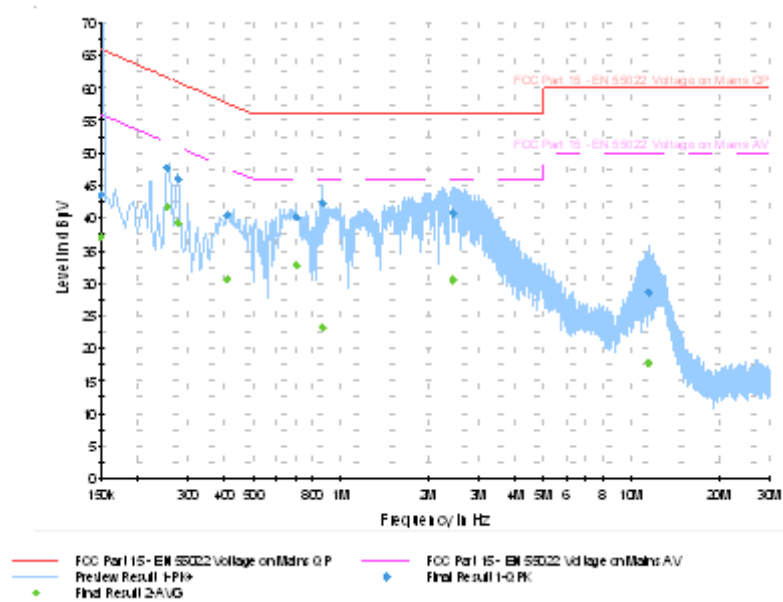
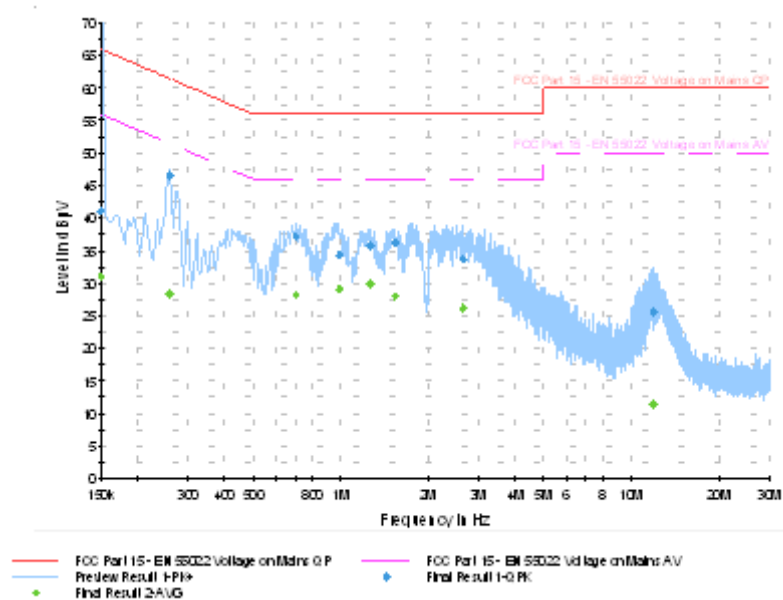


Figure 1-4: N Lines



	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 2	
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

APPENDIX 2 – BLUETOOTH AND 802.11b/g/n RADIATED EMISSIONS TEST DATA

	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 2	
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

Radiated Emissions Test Results
Bluetooth Band

Date of Test: April 25, 2012
Measurements were performed by Nielven Olis.

The environmental test conditions were: Temperature: 24 °C
Relative Humidity: 17 %

The test distance was 3.0 metres with a EUT height of 0.8 metres, and sweep frequency of 30 MHz to 1 GHz.

The BlackBerry® smartphone in Bluetooth Tx mode was in vertical down position.

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

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

Date of Test: April 24, 2012
Measurements were performed by Shuo Wang.

The environmental test conditions were: Temperature: 25 °C
Relative Humidity: 43 %

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

The BlackBerry® smartphone in Bluetooth Tx mode was in vertical up position.

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

	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 2	
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

Radiated Emissions Test Results cont'd
Bluetooth Band cont'd

Frequency (MHz)	Channel	Packet Type	Antenna		Test Angle (Deg.)	RBW / VBW	Measured Level (dBμV)	Correction Factor for preamp/antenna/ cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBμV/m)	Limit @ 3.0 m (dBμV/m)	Test Margin (dB)
			Pol. (V/H)	Height (metres)							
9608.480	0	DH5	H	2.00	187.00	1MHz/ 3MHz	35.71	20.76	56.47	74.00	-17.53
9608.480	0	DH5	H	2.00	187.00	1MHz/ 10Hz	24.16	20.76	44.92	54.00	-9.08
9608.616	0	2DH5	H	2.00	182.00	1MHz/ 3MHz	34.20	20.76	54.96	74.00	-19.04
9608.616	0	2DH5	H	2.00	182.00	1MHz/ 10Hz	24.12	20.76	44.88	54.00	-9.12
9608.064	0	3DH5	H	2.00	184.00	1MHz/ 3MHz	34.54	20.76	55.30	74.00	-18.70
9608.064	0	3DH5	H	2.00	184.00	1MHz/ 10Hz	24.04	20.76	44.80	54.00	-9.20

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

	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 2		
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW	

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

Date of test: April 25, 2012

Measurements were performed by Savtej Sandhu.

The environmental test conditions were: Temperature: 26 ° C
Relative Humidity: 14 %

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

The test distance was 3.0 metres.

Channel	Freq. (MHz)	Rx Antenna		Detector	VBW	Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
Low Channel, Packet Type DH5										
0	2402	Horn	V	PK	1 MHz	98.99	42.72	56.27	74.00	-17.73
0	2402	Horn	H	PK	1 MHz	105.32	43.66	61.66	74.00	-12.34
0	2402	Horn	V	AV	10 Hz	71.12	42.72	28.40	54.00	-25.60
0	2402	Horn	H	AV	10 Hz	74.34	43.66	30.68	54.00	-23.32
High Channel, Packet Type DH5										
78	2480	Horn	V	PK	1 MHz	99.26	48.66	50.60	74.00	-23.40
78	2480	Horn	H	PK	1 MHz	101.87	50.68	51.19	74.00	-22.81
78	2480	Horn	V	AV	10 Hz	71.36	48.66	22.70	54.00	-31.30
78	2480	Horn	H	AV	10 Hz	72.84	50.68	22.16	54.00	-31.84
Low Channel, Packet Type 2-DH5										
0	2402	Horn	V	PK	1 MHz	99.06	42.52	56.54	74.00	-17.46
0	2402	Horn	H	PK	1 MHz	105.19	42.97	62.22	74.00	-11.78
0	2402	Horn	V	AV	10 Hz	70.45	42.52	27.93	54.00	-26.07
0	2402	Horn	H	AV	10 Hz	73.62	42.97	30.65	54.00	-23.35
High Channel, Packet Type 2-DH5										
78	2480	Horn	V	PK	1 MHz	98.39	47.50	50.89	74.00	-23.11
78	2480	Horn	H	PK	1 MHz	101.58	49.27	52.31	74.00	-21.69
78	2480	Horn	V	AV	10 Hz	70.10	47.50	22.60	54.00	-31.40
78	2480	Horn	H	AV	10 Hz	71.77	49.27	22.50	54.00	-31.50

	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 2	
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

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

Channel	Freq. (MHz)	Rx Antenna		Detector	VBW	Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
Low Channel, Packet Type 3-DH5										
0	2402	Horn	V	PK	1 MHz	99.35	42.48	56.87	74.00	-17.13
0	2402	Horn	H	PK	1 MHz	105.27	43.53	61.74	74.00	-12.26
0	2402	Horn	V	AV	10 Hz	69.38	42.48	26.90	54.00	-27.10
0	2402	Horn	H	AV	10 Hz	72.47	43.53	28.94	54.00	-25.06
High Channel, Packet Type 3-DH5										
78	2480	Horn	V	PK	1 MHz	98.28	46.39	51.89	74.00	-22.11
78	2480	Horn	H	PK	1 MHz	101.86	48.13	53.73	74.00	-20.27
78	2480	Horn	V	AV	10 Hz	68.82	46.39	22.43	54.00	-31.57
78	2480	Horn	H	AV	10 Hz	70.65	48.13	22.52	54.00	-31.48

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

	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 2	
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

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

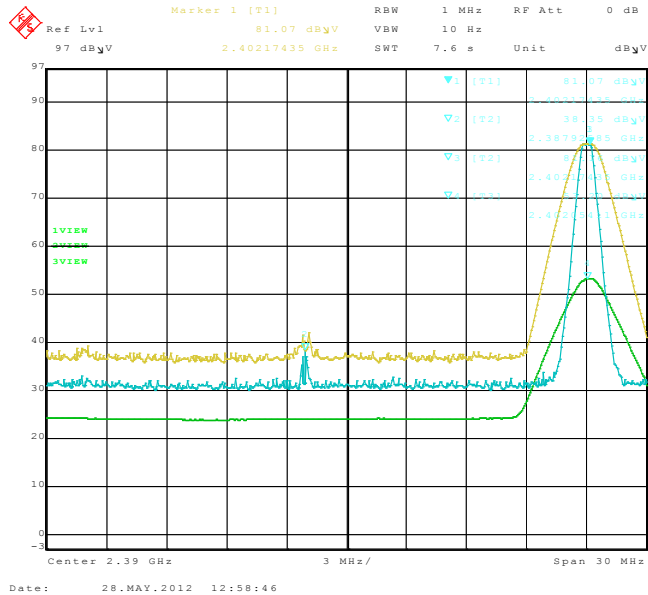


Figure 2-2: Band-Edge Compliance of RF Rad. Emissions.
Bluetooth, Single freq., Static PBRs,
DH5, Channel 0, Pol: H, Detector: PK

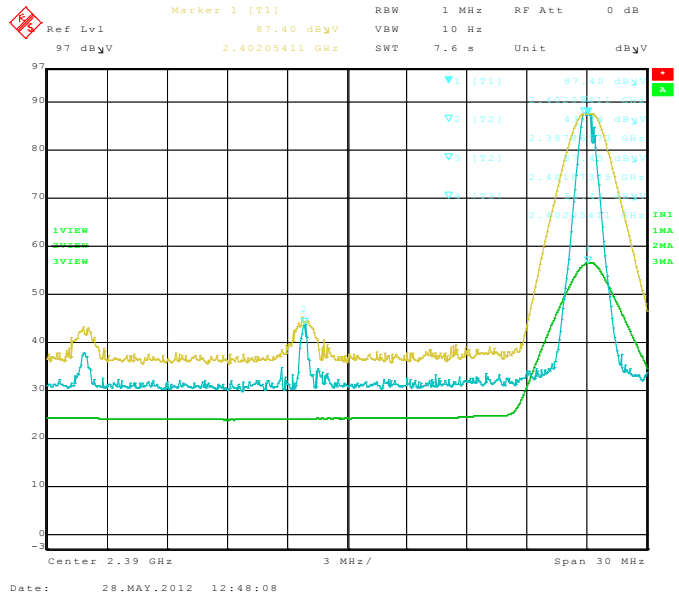


Figure 2-3: Band-Edge Compliance of RF Rad. Emissions.
Bluetooth, Single freq., Static PBRs,
DH5, Channel 78, Pol: V, Detector: PK

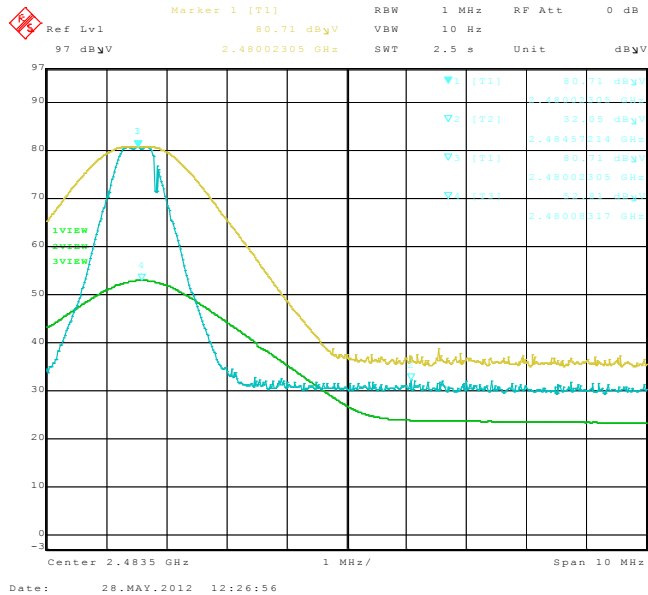
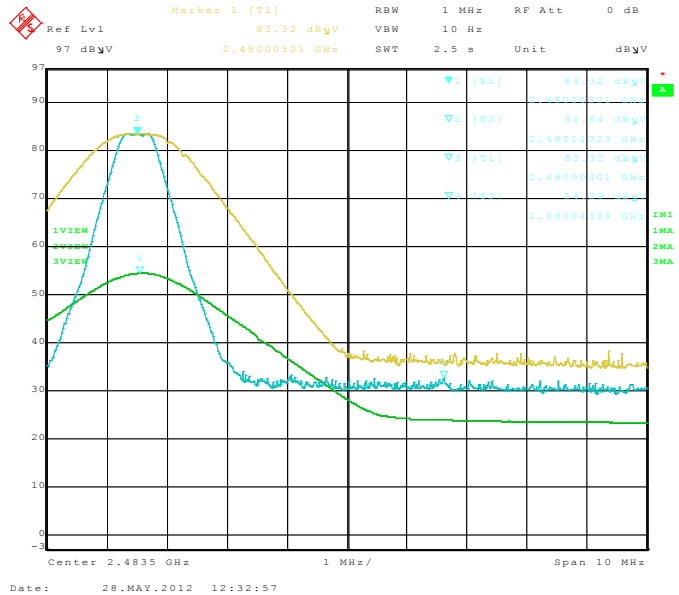


Figure 2-4: Band-Edge Compliance of RF Rad. Emissions.
Bluetooth, Single freq., Static PBRs,
DH5, Channel 78, Pol: H, Detector: PK



	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 2	
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Bluetooth Band-Edge Compliance of RF Radiated Emissions cont'd

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

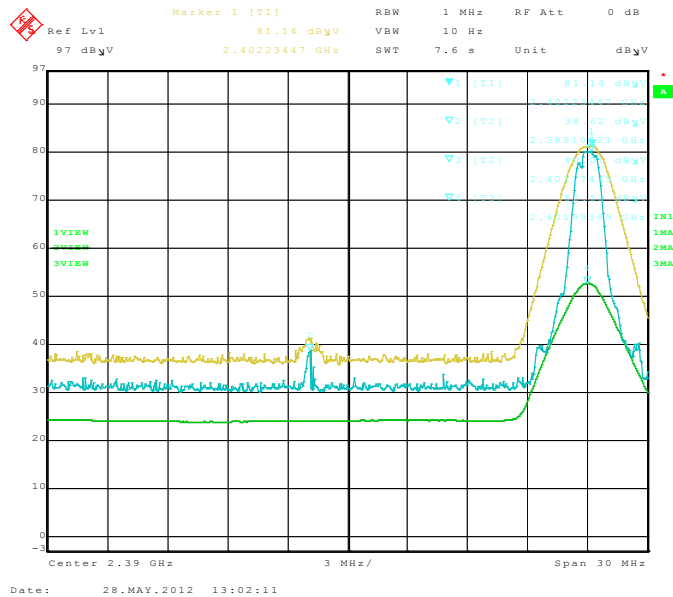


Figure 2-6: Band-Edge Compliance of RF Rad. Emissions.
Bluetooth, Single freq., Static PBRs,
2-DH5, Channel 0, Pol: H, Detector: PK

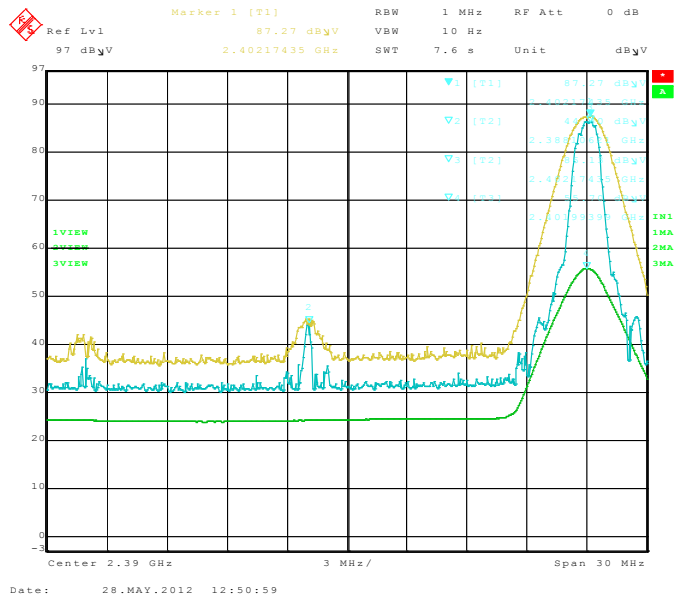


Figure 2-7: Band-Edge Compliance of RF Rad. Emissions.
Bluetooth, Single freq., Static PBRs,
2-DH5, Channel 78, Pol: V, Detector: PK

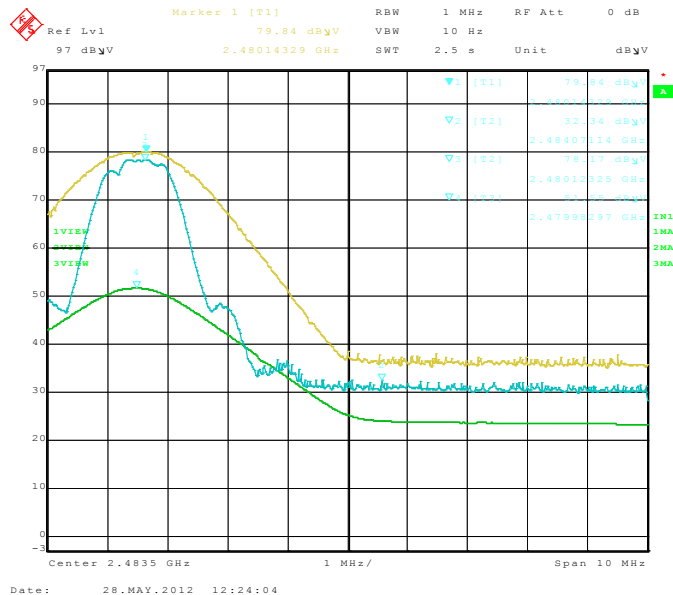
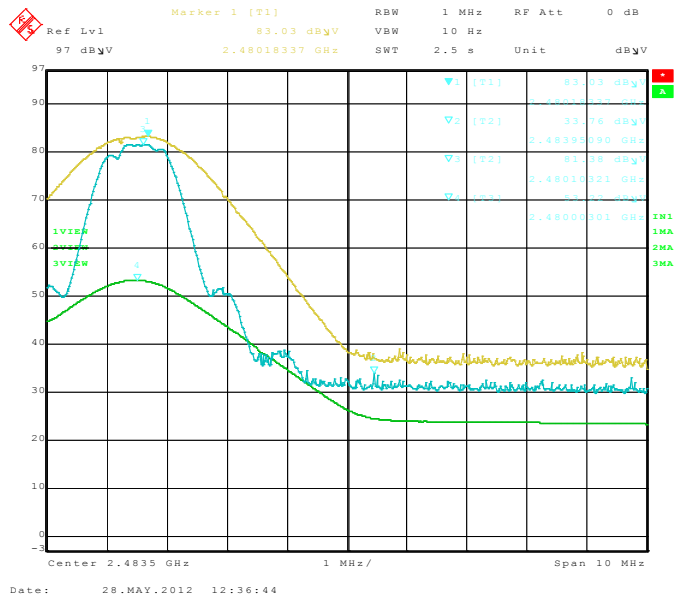


Figure 2-8: Band-Edge Compliance of RF Rad. Emissions.
Bluetooth, Single freq., Static PBRs,
2-DH5, Channel 78, Pol: H, Detector: PK



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

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

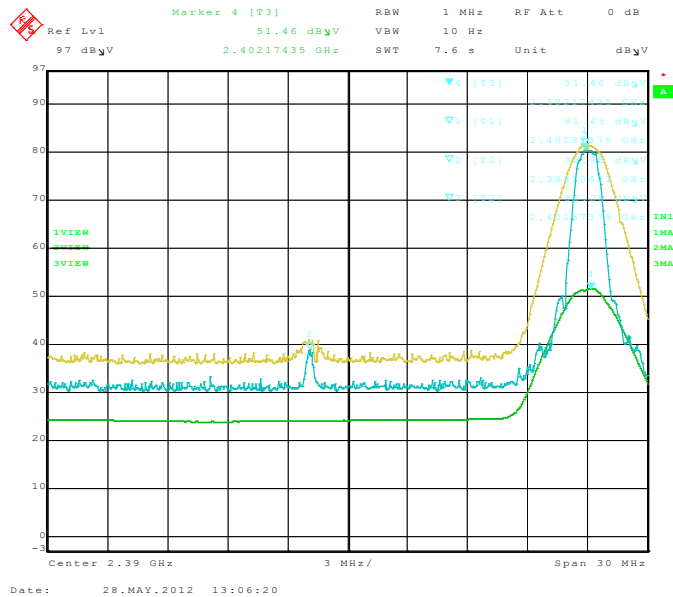


Figure 2-10: Band-Edge Compliance of RF Rad. Emissions.
Bluetooth, Single freq., Static PBRs,
3-DH5, Channel 0, Pol: H, Detector: PK

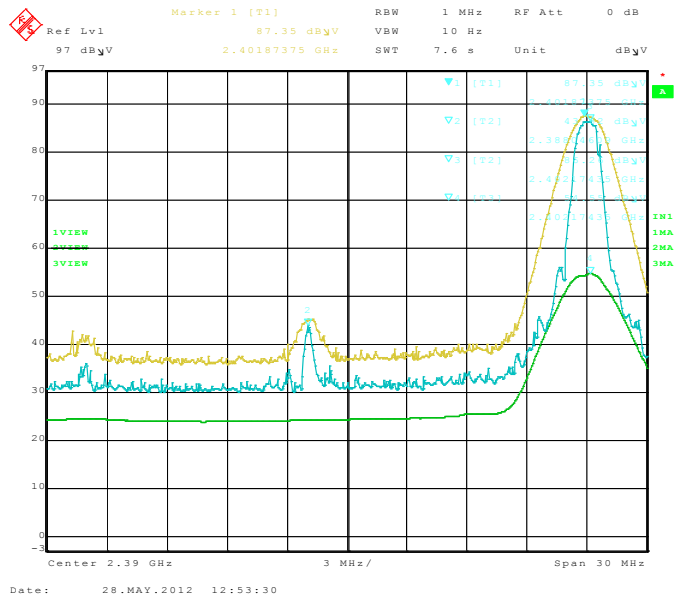


Figure 2-11: Band-Edge Compliance of RF Rad. Emissions.
Bluetooth, Single freq., Static PBRs,
3-DH5, Channel 78, Pol: V, Detector: PK

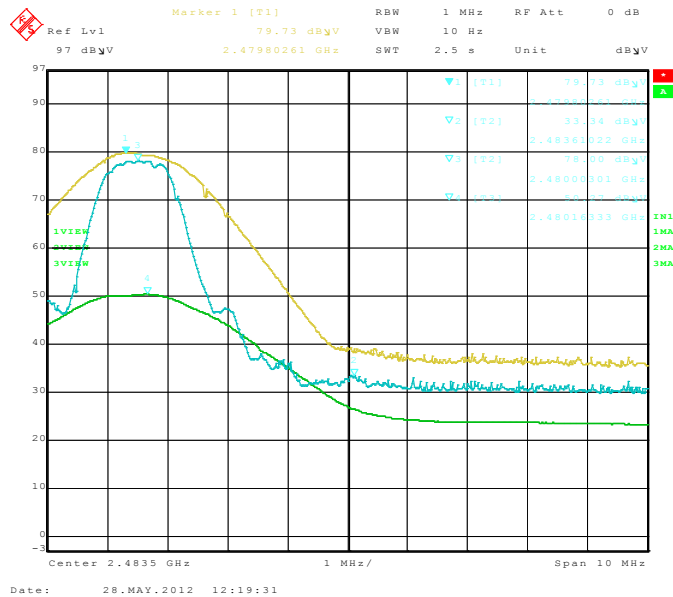
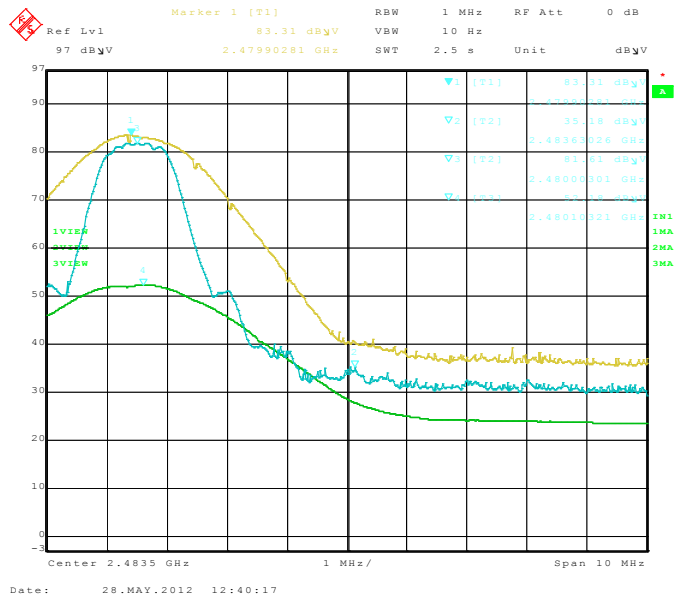


Figure 2-12: Band-Edge Compliance of RF Rad. Emissions.
Bluetooth, Single freq., Static PBRs,
3-DH5, Channel 78, Pol: H, Detector: PK



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Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

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

Date of Test: April 24 and May 28, 2012
Measurements were performed by Nielven Olis.

The environmental test conditions were: Temperature: 27 °C
Relative Humidity: 18 %

The test distance was 3.0 metres with a EUT height of 0.8 metres, and sweep frequency of 30 MHz to 1 GHz.

The BlackBerry® smartphone was in vertical up position.

The frequency sweep measurements were performed in 802.11b Tx mode at 1 Mbps on channels 1, 6 and 11, in 802.11g Tx mode at 6 Mbps on channels 1, 6 and 11, and in 802.11n Tx mode at MCS 0 on channels 1, 6 and 11.

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

Date of Test: April 26 & 27 and May 17, 2012
Measurements were performed by Shuo Wang.

The environmental test conditions were: Temperature: 25 °C
Relative Humidity: 37 %

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

The BlackBerry® smartphone was in vertical down position.

The frequency sweep measurements were performed in 802.11b Tx mode at 1 Mbps on channels 1, 6 and 11, in 802.11g Tx mode at 6 Mbps on channels 1, 6 and 11, and in 802.11n Tx mode at MCS 0 on channels 1, 6 and 11.

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

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Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

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

Date of Tests: April 25, 2012

Measurements performed by Savtej Sandhu.

The environmental test conditions were: Temperature: 26 °C
Relative Humidity: 14 %

802.11b Band

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

The test distance was 3 metres.

Channel	Freq. (MHz)	Rx Antenna		Detector	VBW	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
1	2412.00	Horn	V	PK	1 MHz	105.43	45.86	59.57	74.00	-14.43
1	2412.00	Horn	H	PK	1 MHz	107.47	49.01	58.46	74.00	-15.54
1	2412.00	Horn	V	AV	10 Hz	98.01	45.86	52.15	54.00	-1.85
1	2412.00	Horn	H	AV	10 Hz	100.30	49.01	51.29	54.00	-2.71

Channel	Freq. (MHz)	Rx Antenna		Detector	VBW	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
11	2462.00	Horn	V	PK	1 MHz	105.85	48.96	56.89	74.00	-17.11
11	2462.00	Horn	H	PK	1 MHz	110.77	51.49	59.28	74.00	-14.72
11	2462.00	Horn	V	AV	10 Hz	98.64	48.96	49.68	54.00	-4.32
11	2462.00	Horn	H	AV	10 Hz	103.18	51.49	51.69	54.00	-2.31

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802.11g Band

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

The test distance was 3 metres.

Channel	Freq. (MHz)	Rx Antenna		Detector	VBW	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
1	2412.00	Horn	V	PK	1 MHz	102.67	38.52	64.15	74.00	-9.85
1	2412.00	Horn	H	PK	1 MHz	107.51	39.80	67.71	74.00	-6.29
1	2412.00	Horn	V	AV	10 Hz	76.46	38.52	37.94	54.00	-16.06
1	2412.00	Horn	H	AV	10 Hz	79.83	39.80	40.03	54.00	-13.97

Channel	Freq. (MHz)	Rx Antenna		Detector	VBW	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
11	2462.00	Horn	V	PK	1 MHz	105.39	42.78	62.61	74.00	-11.39
11	2462.00	Horn	H	PK	1 MHz	109.51	41.56	67.95	74.00	-6.05
11	2462.00	Horn	V	AV	10 Hz	78.77	42.78	35.99	54.00	-18.01
11	2462.00	Horn	H	AV	10 Hz	81.69	41.56	40.13	54.00	-13.87

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802.11n Band

The measurements were performed on the BlackBerry® smartphone in standalone, vertical configuration on channels 1 and 11 for 802.11n mode at MCS 0.

The test distance was 3 metres.

Channel	Freq. (MHz)	Rx Antenna		Detector	VBW	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
1	2412.00	Horn	V	PK	1 MHz	100.62	36.95	63.67	74.00	-10.33
1	2412.00	Horn	H	PK	1 MHz	107.25	38.16	69.09	74.00	-4.91
1	2412.00	Horn	V	AV	10 Hz	75.22	36.95	38.27	54.00	-15.73
1	2412.00	Horn	H	AV	10 Hz	79.31	38.16	41.15	54.00	-12.85

Channel	Freq. (MHz)	Rx Antenna		Detector	VBW	Peak Corrected Reading (dBuV/m)	Delta Marker (dB)	Corrected Band edge (dBuV/m)	Limit (dBuV/m)	Diff. To Limit (dB)
		Type	POL.							
11	2462.00	Horn	V	PK	1 MHz	104.84	38.72	66.12	74.00	-7.88
11	2462.00	Horn	H	PK	1 MHz	108.95	36.72	72.23	74.00	-1.77
11	2462.00	Horn	V	AV	10 Hz	78.39	38.72	39.67	54.00	-14.33
11	2462.00	Horn	H	AV	10 Hz	80.89	36.72	44.17	54.00	-9.83

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

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

See figures 2-21 to 2-24 for the plots of the 802.11n band-edge compliance.

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

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

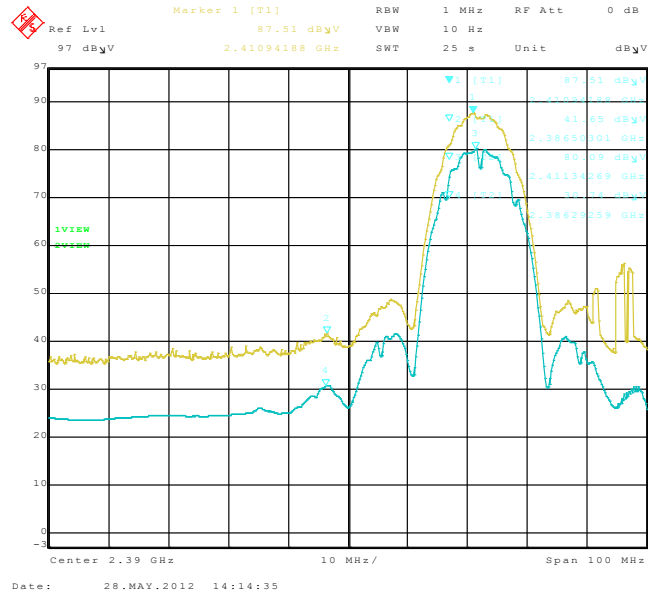


Figure 2-14: Band-Edge Compliance of RF Radiated Emission
802.11b, Channel 1, 2412 MHz, Max Pol: H,
Detector: PK

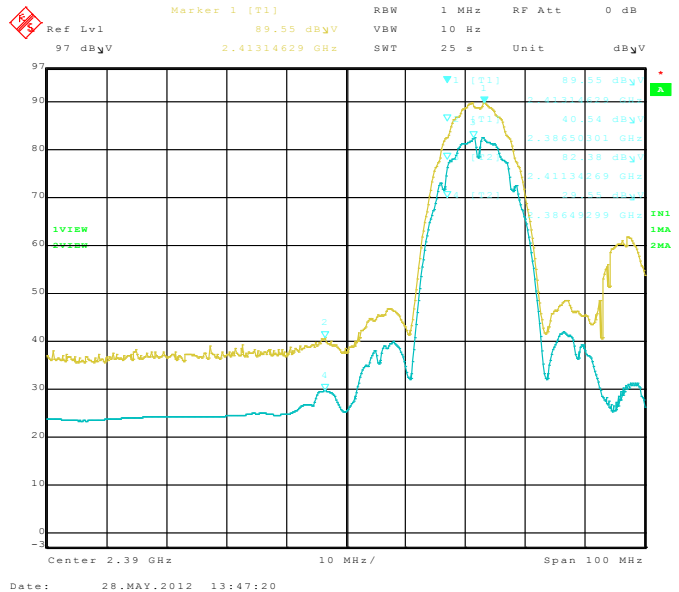


Figure 2-15: Band-Edge Compliance of RF Radiated Emission
802.11b, Channel 11, 2462 MHz, Max Pol: V,
Detector: PK

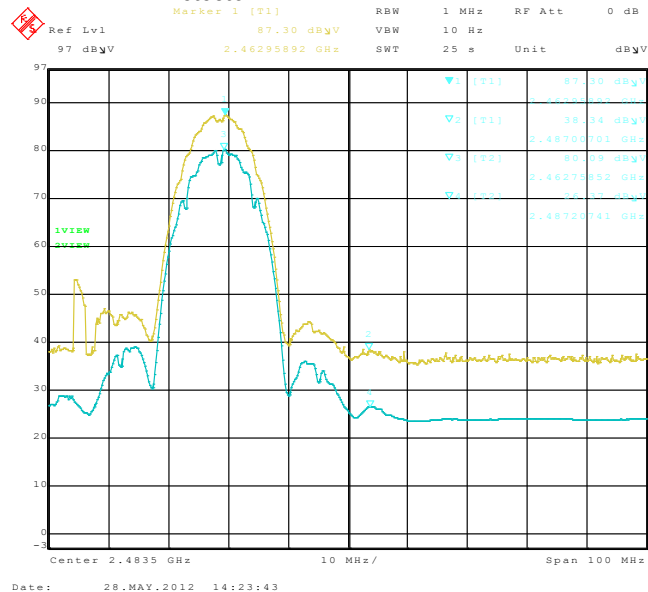
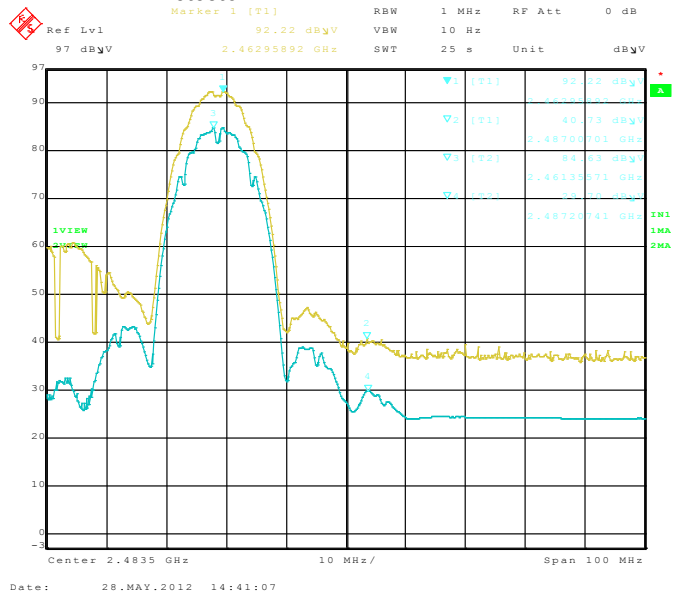


Figure 2-16: Band-Edge Compliance of RF Radiated Emission
802.11b, Channel 11, 2462 MHz, Max Pol: H,
Detector: PK



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

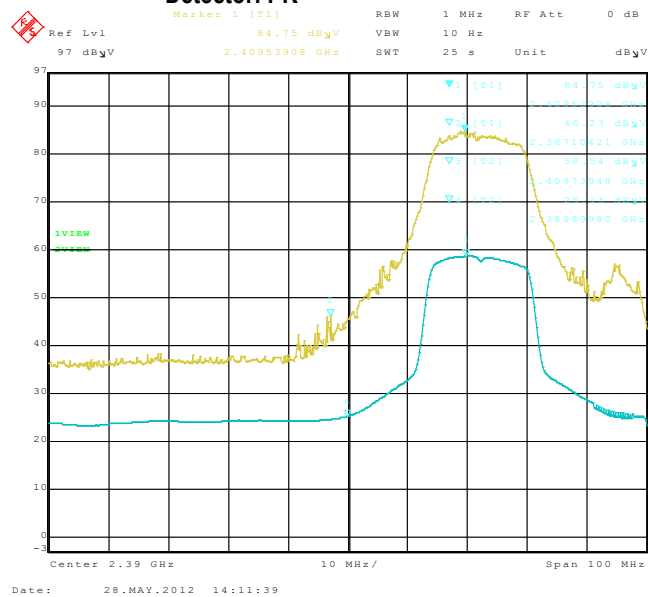


Figure 2-18: Band-Edge Compliance of RF Radiated Emission
802.11g, Channel 1, 2412 MHz, Max Pol: H,
Detector: PK

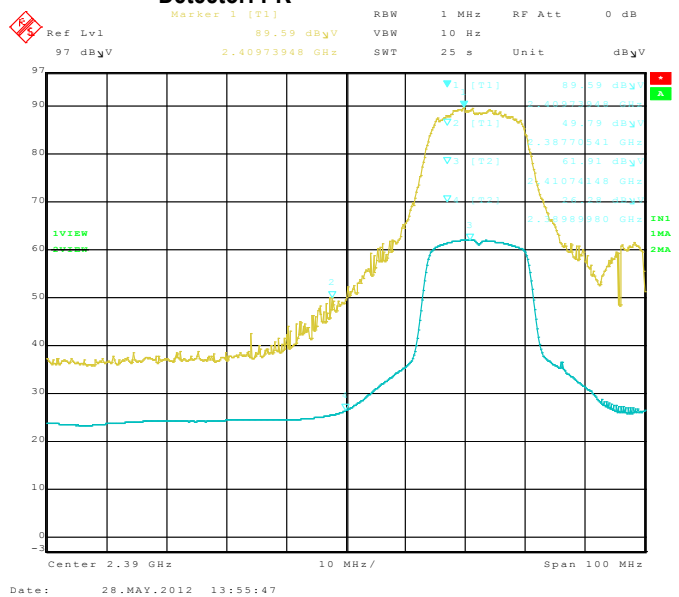


Figure 2-19: Band-Edge Compliance of RF Radiated Emission
802.11g, Channel 11, 2462 MHz, Max Pol: V,
Detector: PK

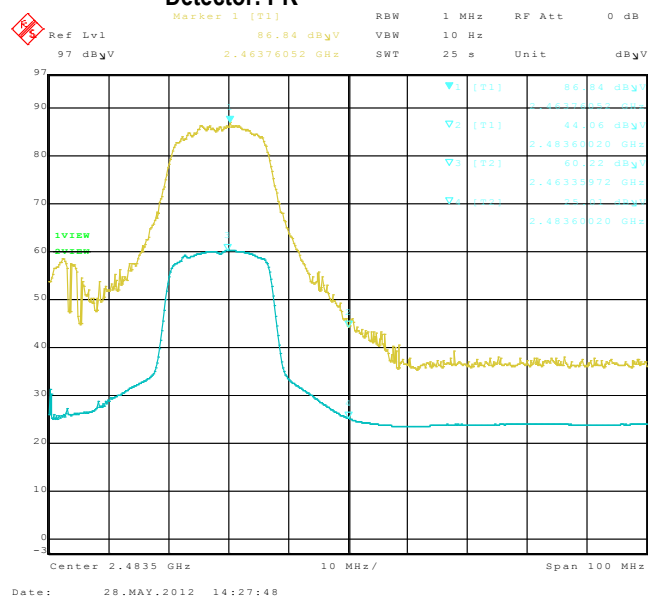
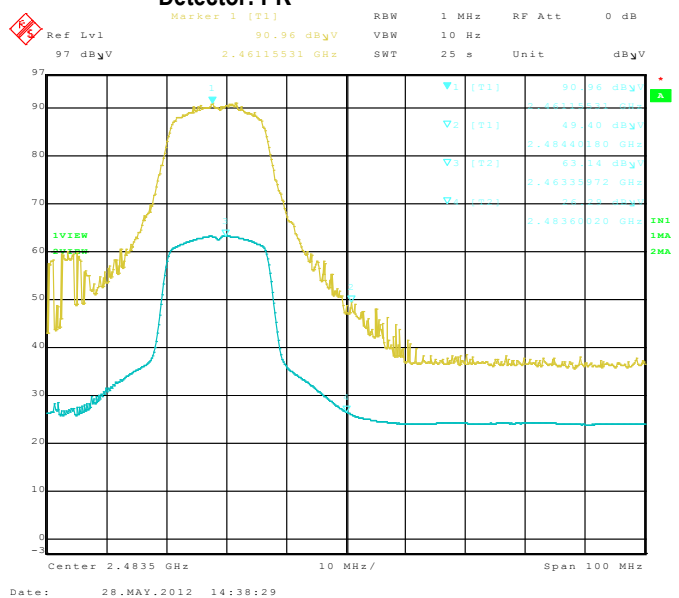


Figure 2-20: Band-Edge Compliance of RF Radiated Emission
802.11g, Channel 11, 2462 MHz, Max Pol: H,
Detector: PK



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Figure 2-21: Band-Edge Compliance of RF Radiated Emission
802.11n, Channel 1, 2412 MHz, Max Pol: V,
Detector: PK

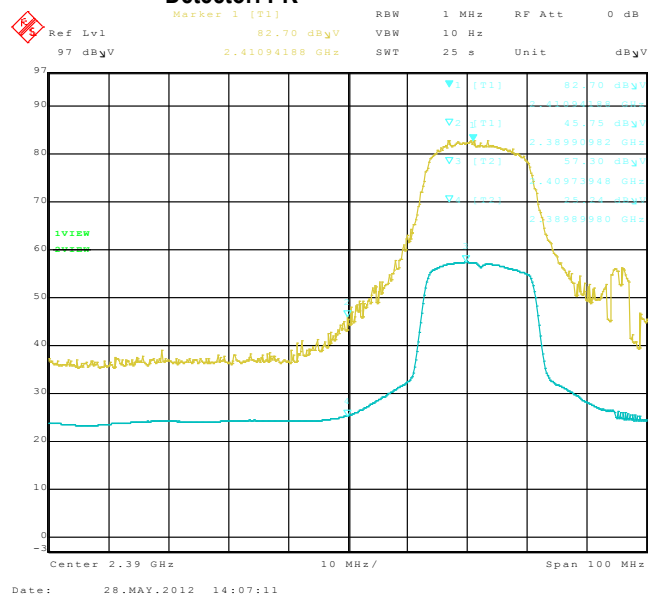


Figure 2-22: Band-Edge Compliance of RF Radiated Emission
802.11n, Channel 1, 2412 MHz, Max Pol: H,
Detector: PK

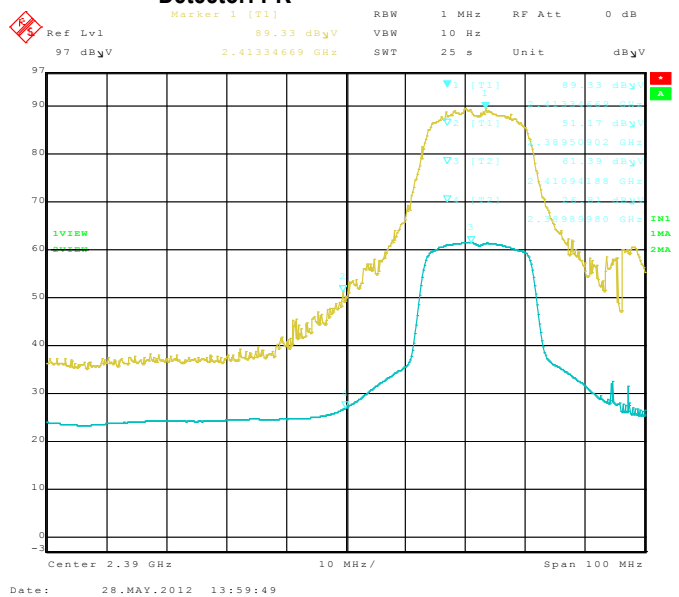


Figure 2-23: Band-Edge Compliance of RF Radiated Emission
802.11n, Channel 11, 2462 MHz, Max Pol: V,
Detector: PK

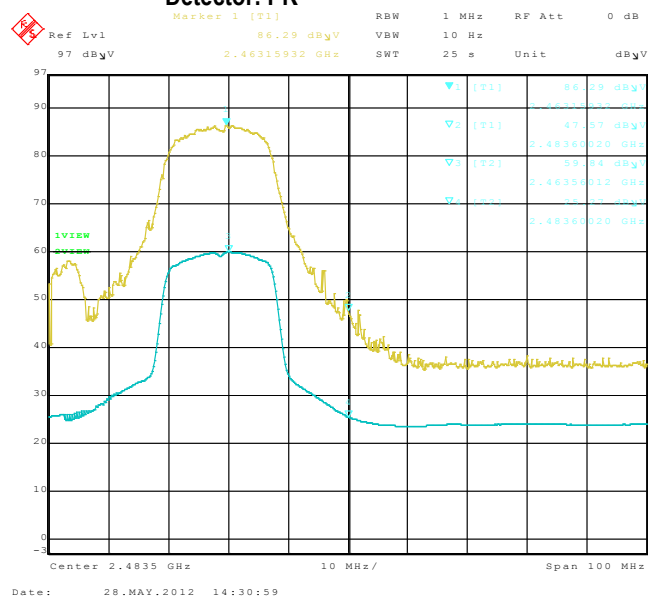
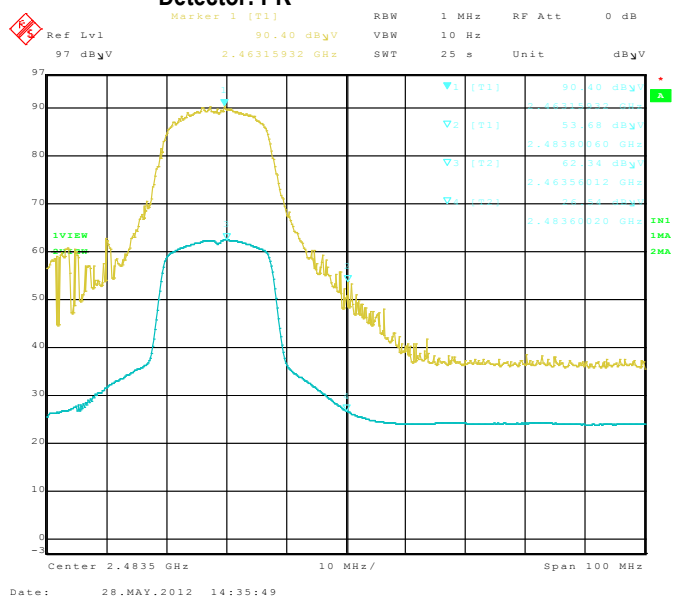


Figure 2-24: Band-Edge Compliance of RF Radiated Emission
802.11n, Channel 11, 2462 MHz, Max Pol: H,
Detector: PK



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APPENDIX 3 – BLUETOOTH CONDUCTED EMISSIONS TEST DATA/PLOTS

	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 3	
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

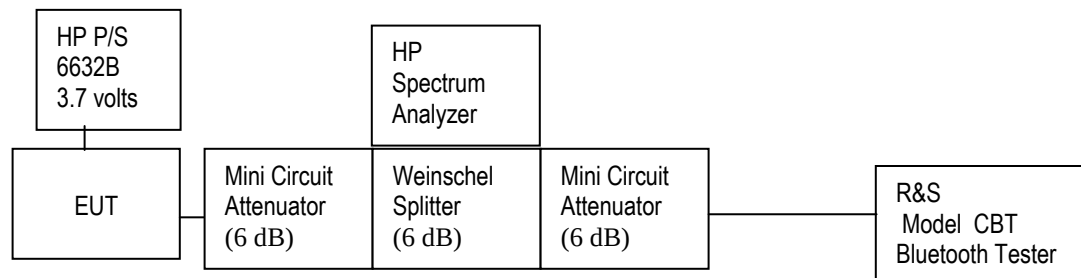
Bluetooth RF Conducted Emission Test Results

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

The measurements were performed by Kevin Guo.

Date of test: March 22, 2012

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.

The environmental test conditions were: Temperature: 24 °C
Relative Humidity: 34 %

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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 PBRs" and packet type "DH5" during the measurements.

Bluetooth Channel	Limit (MHz)	Measured Level (MHz)
0	≤1.0	0.923
39	≤1.0	0.917
78	≤1.0	0.917

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

Figure 3-1: 20 dB Bandwidth

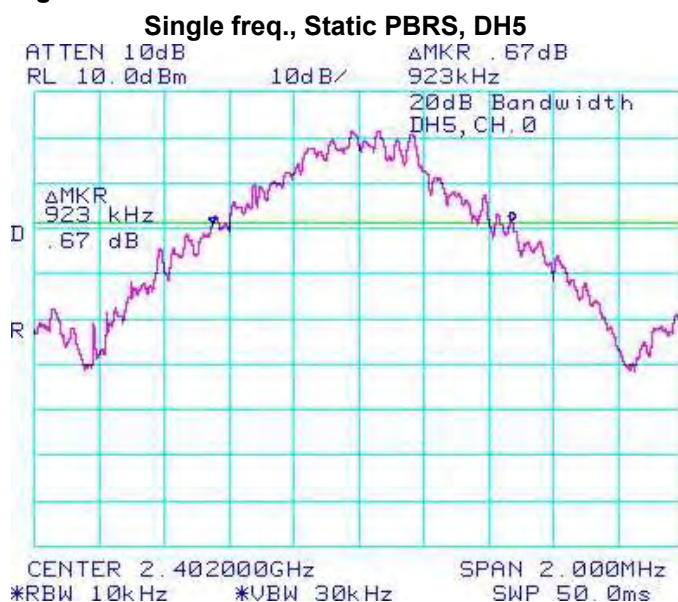
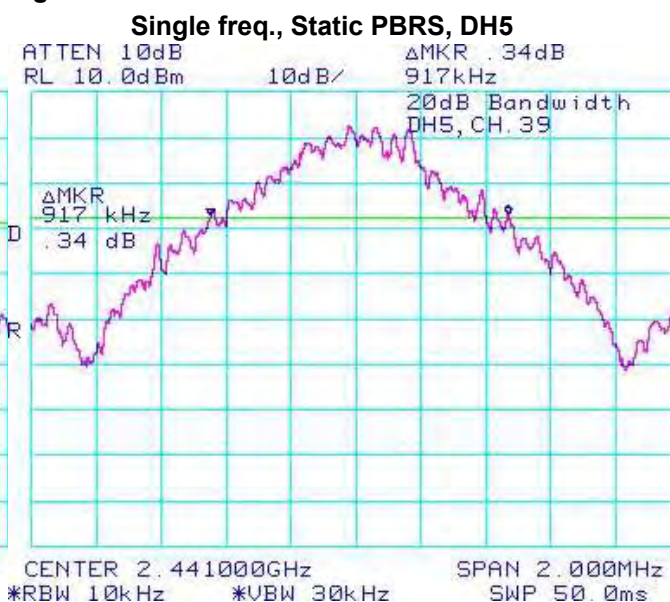


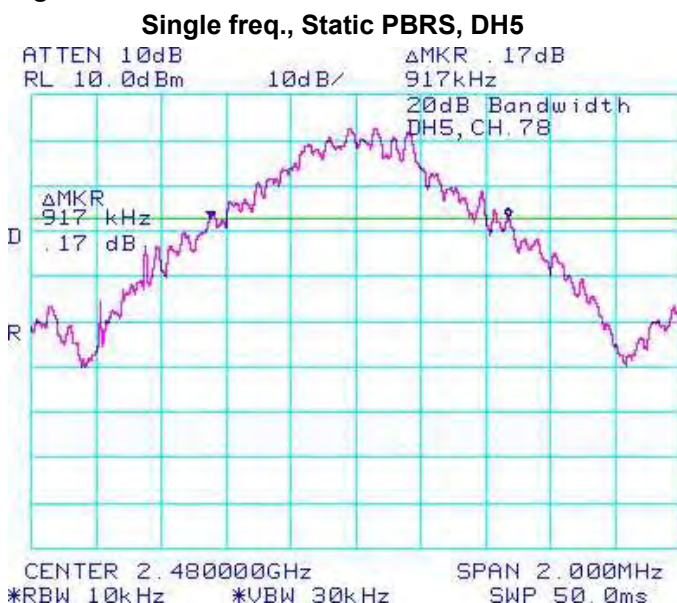
Figure 3-2: 20 dB Bandwidth



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-3: 20 dB Bandwidth



Using Pattern type “Static PBRs” and packet type “2-DH5” during the measurements.

Bluetooth Channel	Limit (MHz)	Measured Level (MHz)
0	≤1.5	1.317
39	≤1.5	1.313
78	≤1.5	1.313

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

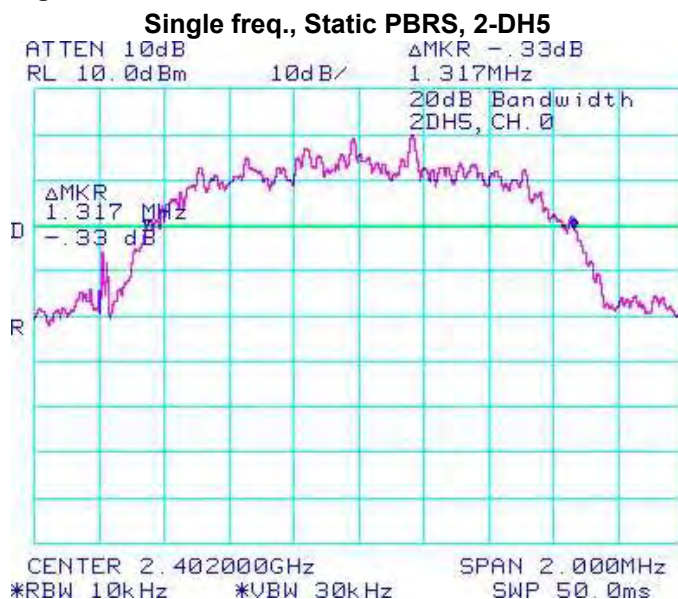


Figure 3-5: 20 dB Bandwidth

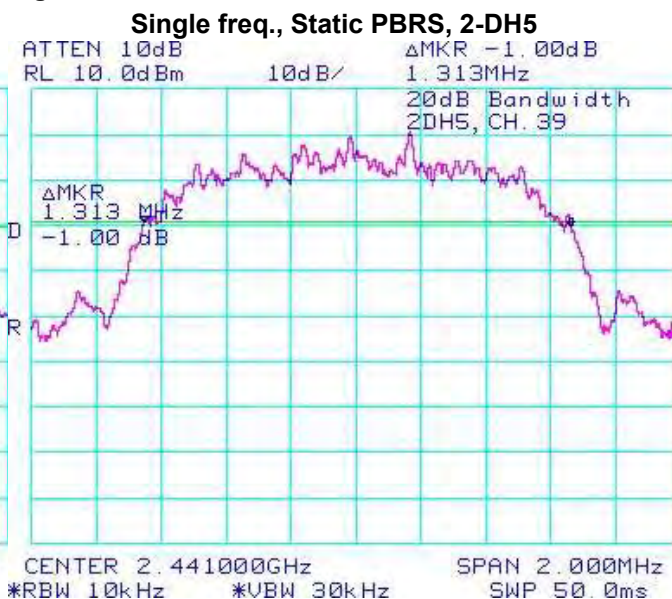
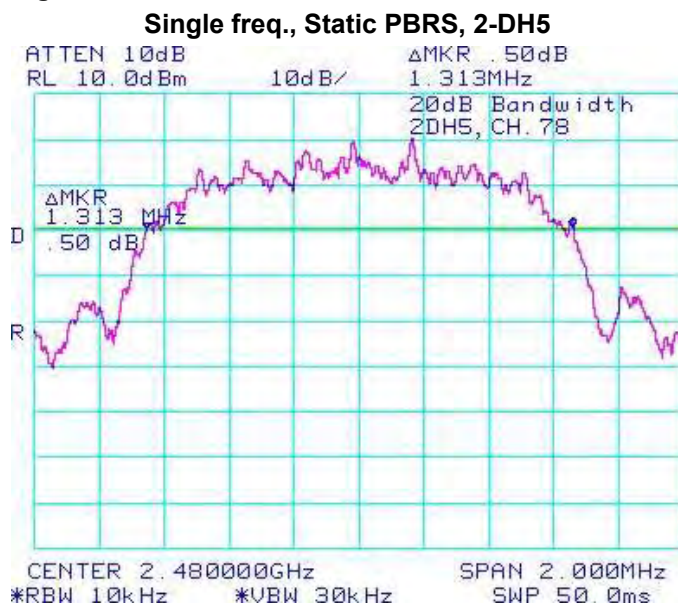


Figure 3-6: 20 dB Bandwidth



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

Bluetooth Channel	Limit (MHz)	Measured Level (MHz)
0	≤1.5	1.310
39	≤1.5	1.307
78	≤1.5	1.303

See figures 3-7 to 3-9 for the plots of the 20 dB bandwidth measurements.

Figure 3-7: 20 dB Bandwidth

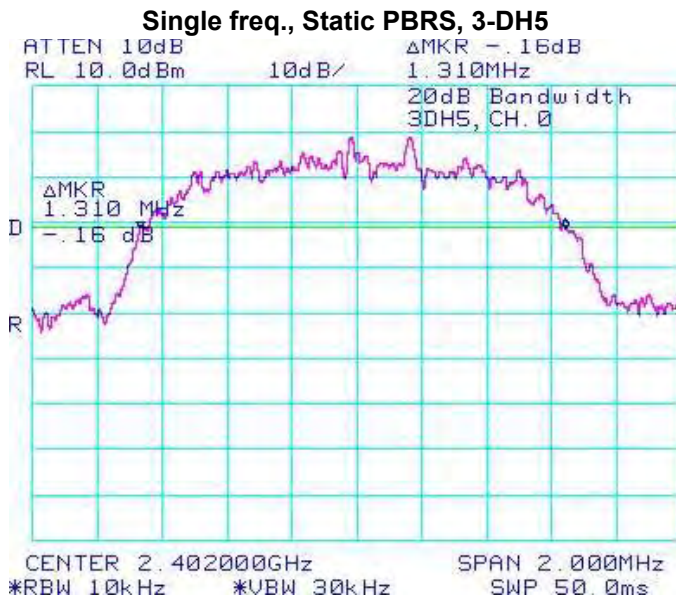
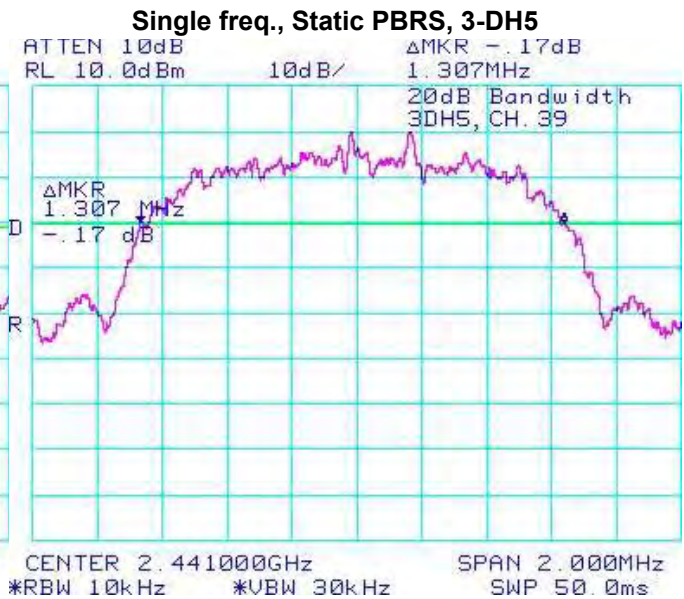


Figure 3-8: 20 dB Bandwidth

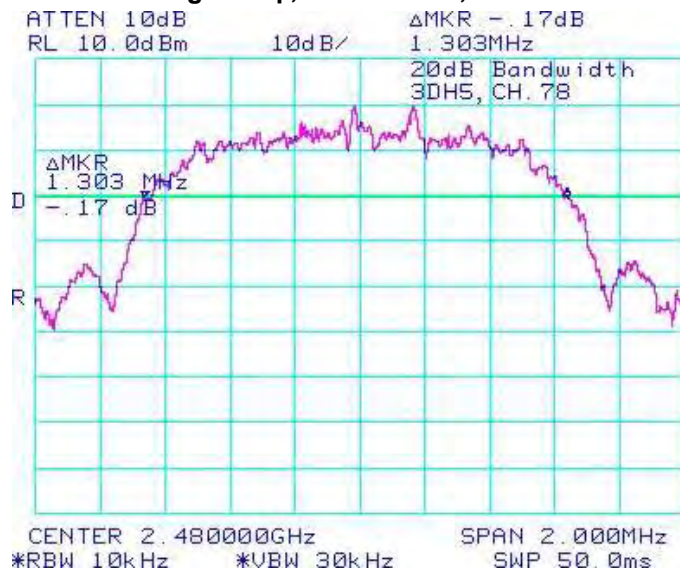


	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 3	
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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-9: 20 dB Bandwidth

Single freq., Static PBRs, 3-DH5



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Bluetooth RF Conducted Emission Test Results cont'd

Carrier Frequency Separation

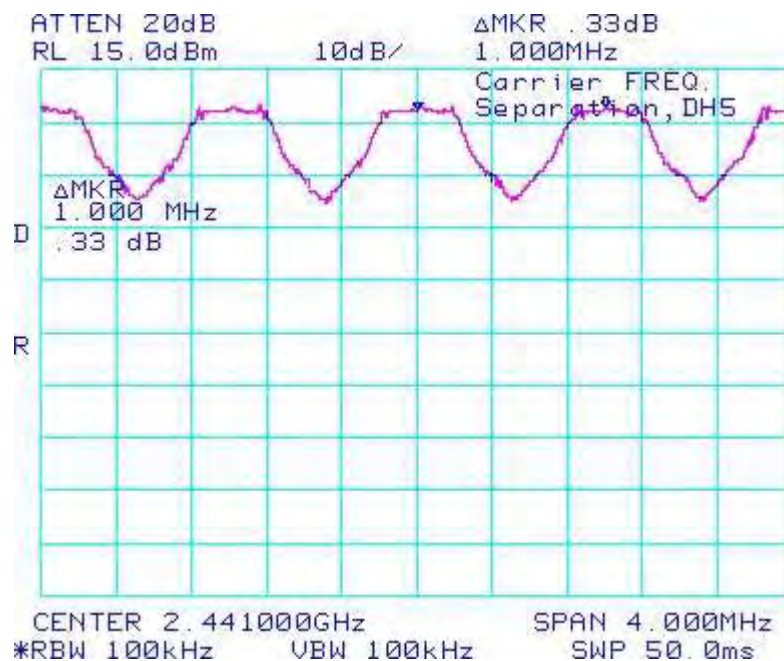
The EUT met the requirements of the Carrier Frequency Separation as per 47 CFR 15.247(a) and RSS-210. Channel 38 to 39 was measured. Bluetooth was operating in frequency hopping (Euro/US) mode.

Using pattern type “Static PBRs” 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

See figure 3-10 for the plot of the Carrier Frequency Separation measurement.

Figure 3-10: Carrier Frequency Separation, Freq. Hopping, Static PBRs, DH5, Channels 38 to 39



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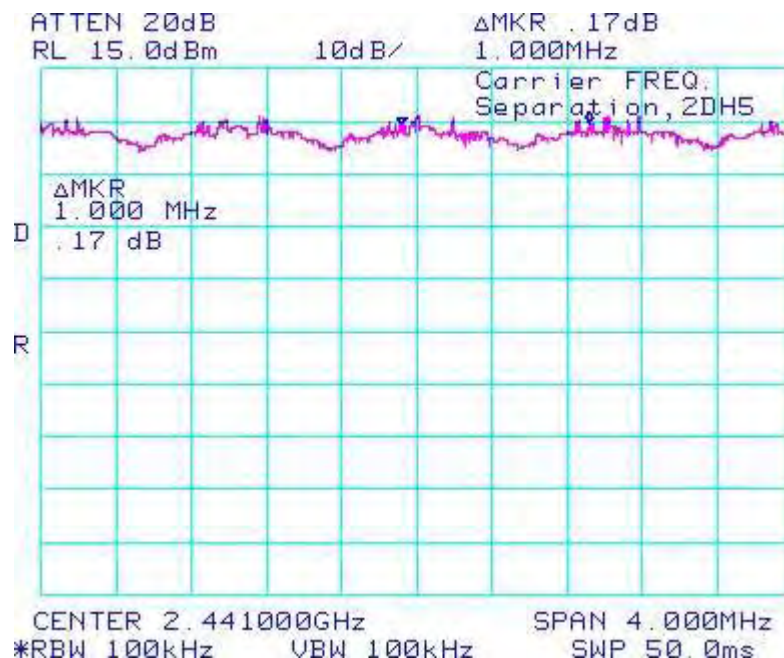
Bluetooth RF Conducted Emission Test Results cont'd

Using Pattern type “Static PBRs” and packet type “2-DH5” during the measurements.

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

See figure 3-11 for the plot of the Carrier Frequency Separation measurement.

Figure 3-11: Carrier Frequency Separation, Freq. Hopping, Static PBRs, 2-DH5, Channels 38 to 39



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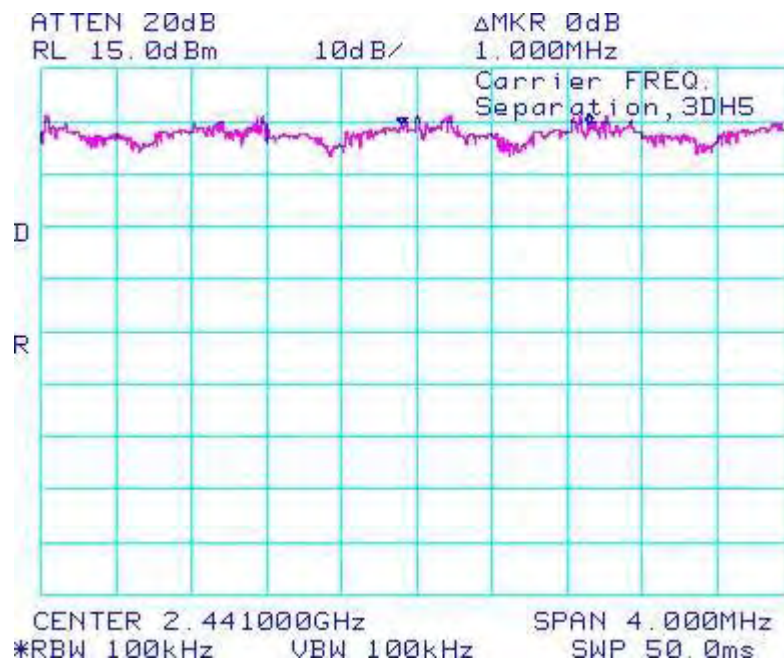
Bluetooth RF Conducted Emission Test Results cont'd

Using Pattern type “Static PBRs” 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

See figure 3-12 for the plot of the Carrier Frequency Separation measurement.

Figure 3-12: 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 PBRs” and packet type “DH5” during the measurements.

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

See figures 3-13 to 3-16 for the plots of the number of hopping frequencies.

Figure 3-13: Number of Hopping Frequencies
Static PBRs, DH5

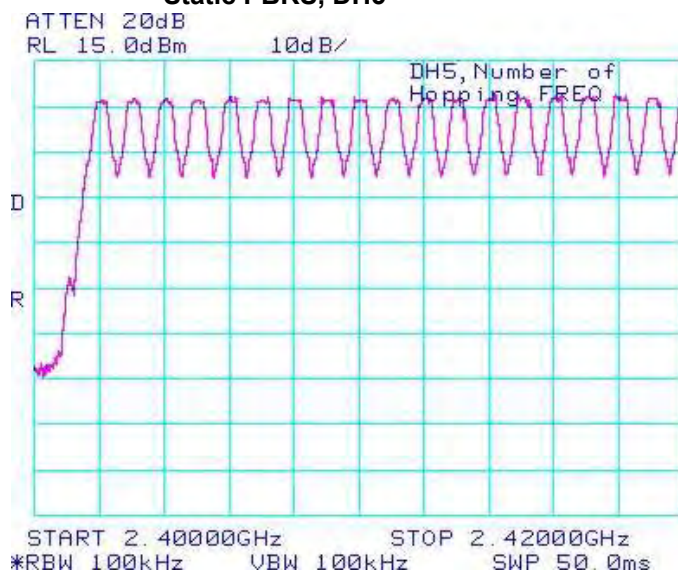
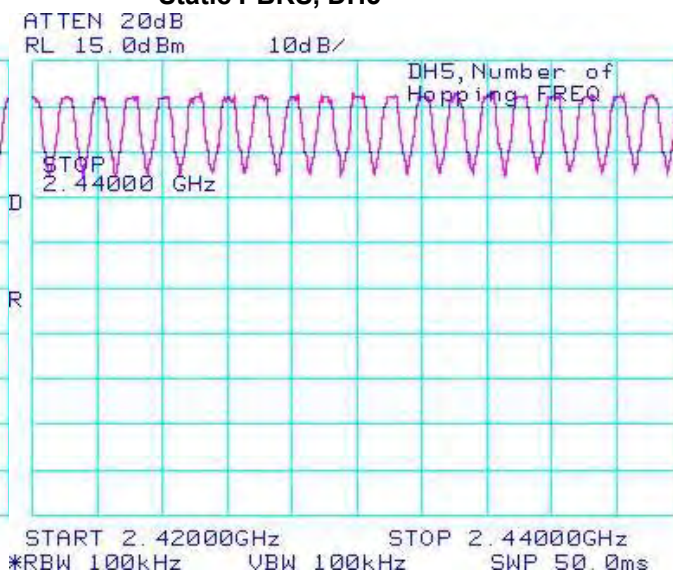


Figure 3-14: Number of Hopping Frequencies
Static PBRs, DH5



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-15: Number of Hopping Frequencies

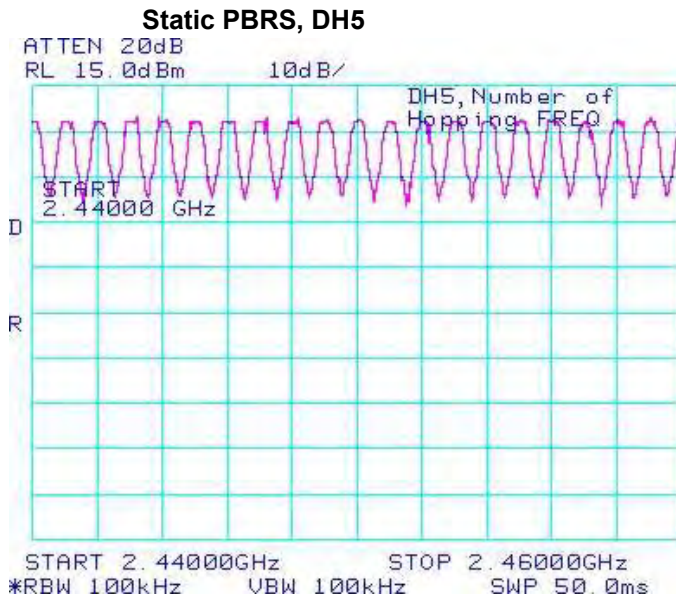
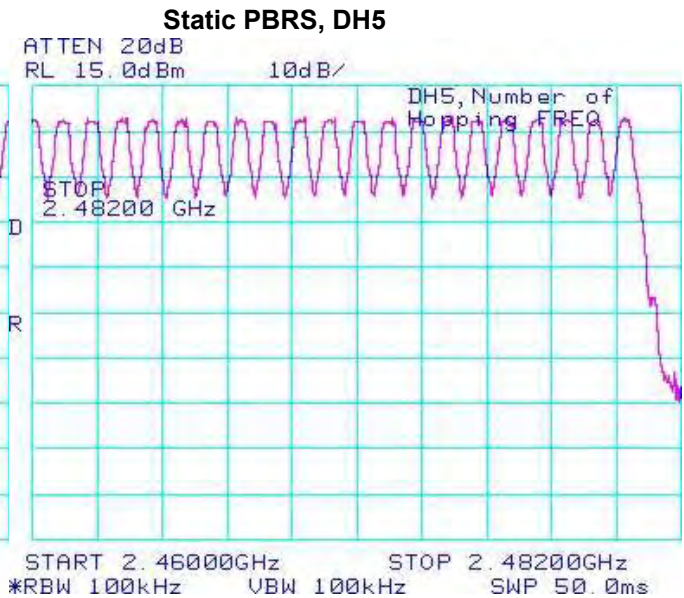


Figure 3-16: Number of Hopping Frequencies



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 (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.

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Bluetooth RF Conducted Emission Test Results cont'd

Bluetooth Channel	Mode	Tx Time (ms)	Dwell Time/31.6 sec. (msec.)	Limit (msec.)	Margin (msec.)
0	DH1	0.4088	$0.4088 \times 320.0 = 130.82$	400	269.18
39	DH1	0.4125	$0.4125 \times 320.0 = 132.00$	400	268.00
78	DH1	0.4107	$0.4107 \times 320.0 = 131.42$	400	268.58
0	DH3	1.6712	$1.6712 \times 159.9 = 267.22$	400	132.78
39	DH3	1.6650	$1.6650 \times 159.9 = 266.23$	400	133.77
78	DH3	1.6650	$1.6650 \times 159.9 = 266.23$	400	133.77
0	DH5	2.9200	$2.9200 \times 106.8 = 311.86$	400	88.14
39	DH5	2.9200	$2.9200 \times 106.8 = 311.86$	400	88.14
78	DH5	2.9200	$2.9200 \times 106.8 = 311.86$	400	88.14

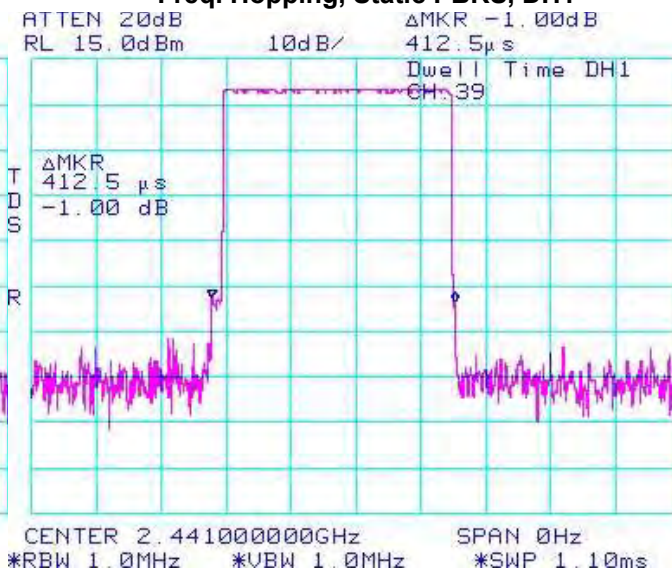
See figures 3-17 to 3-25 for the plots of the dwell time.

Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-17: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRS, DH1



Figure 3-18: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRS, DH1



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-19: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRS, DH1

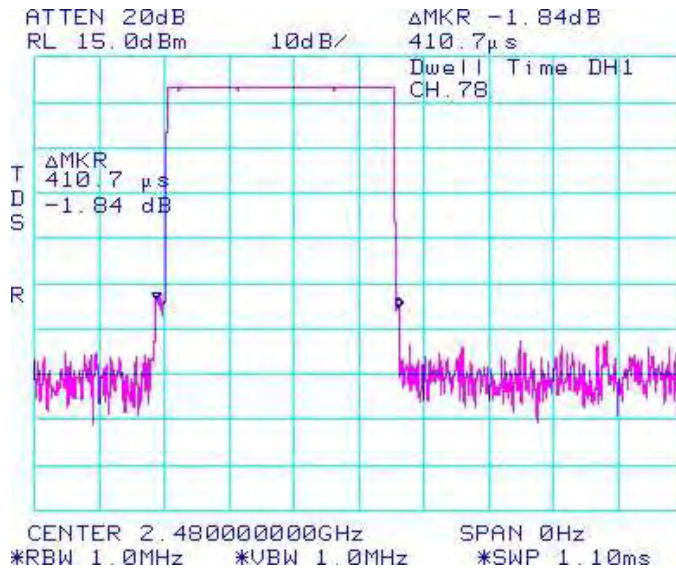


Figure 3-20: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRS, DH3

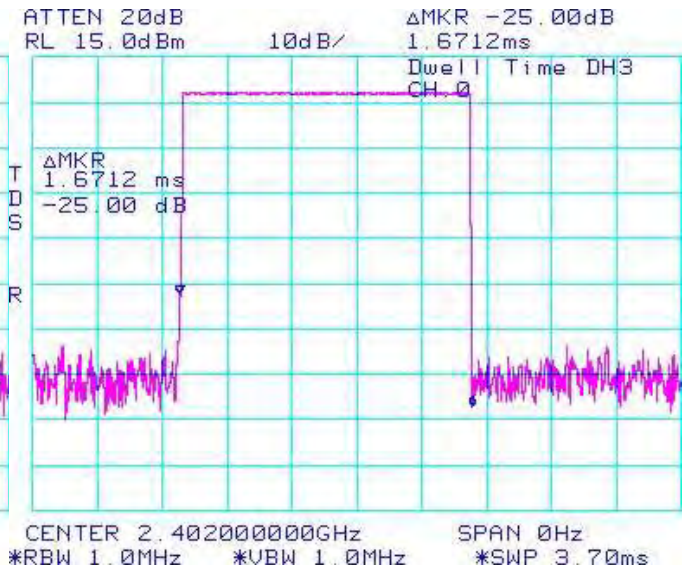


Figure 3-21: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRS, DH3

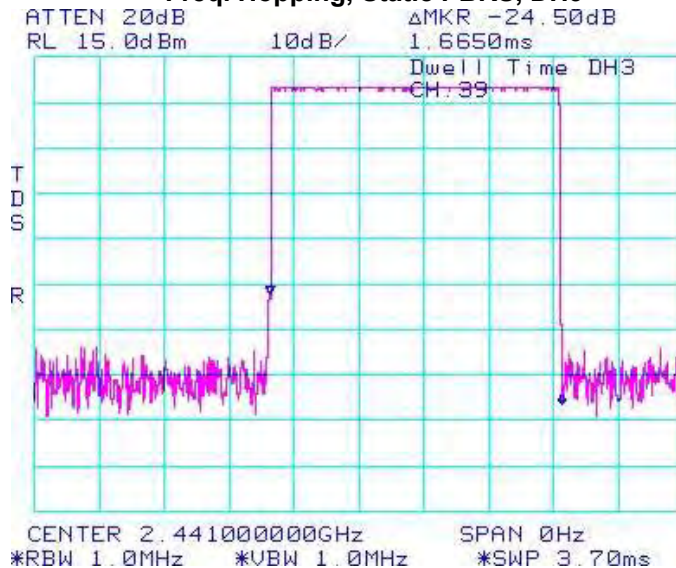
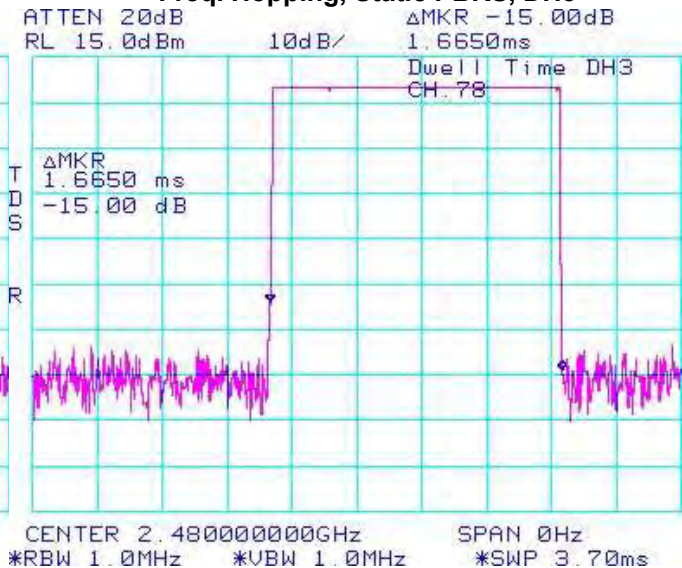


Figure 3-22: Time of Occupancy (Dwell Time)
Freq. Hopping, Static PBRS, DH3



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-23: Time of Occupancy (Dwell Time)

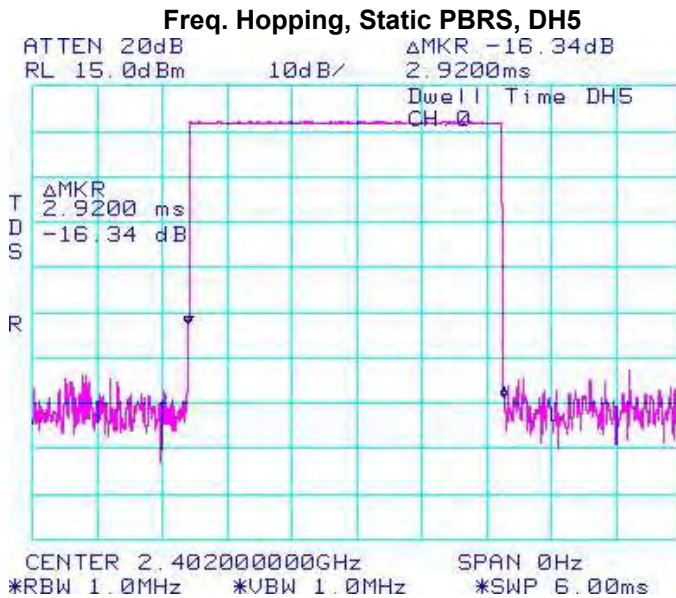


Figure 3-24: Time of Occupancy (Dwell Time)

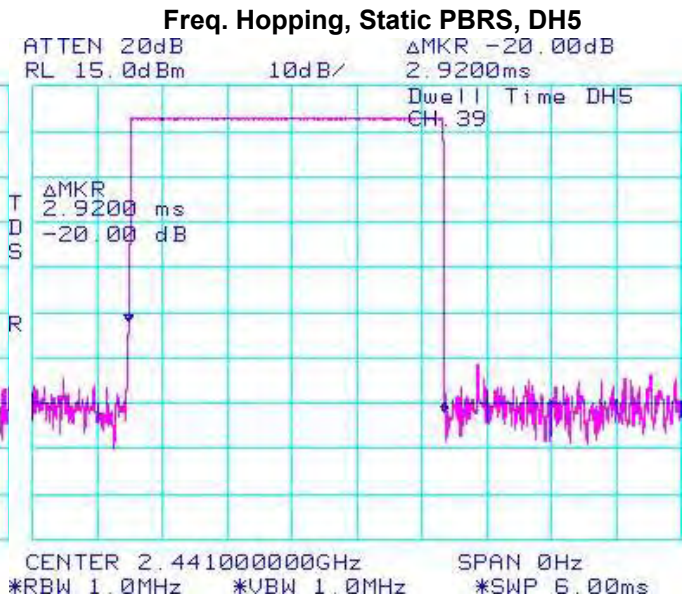
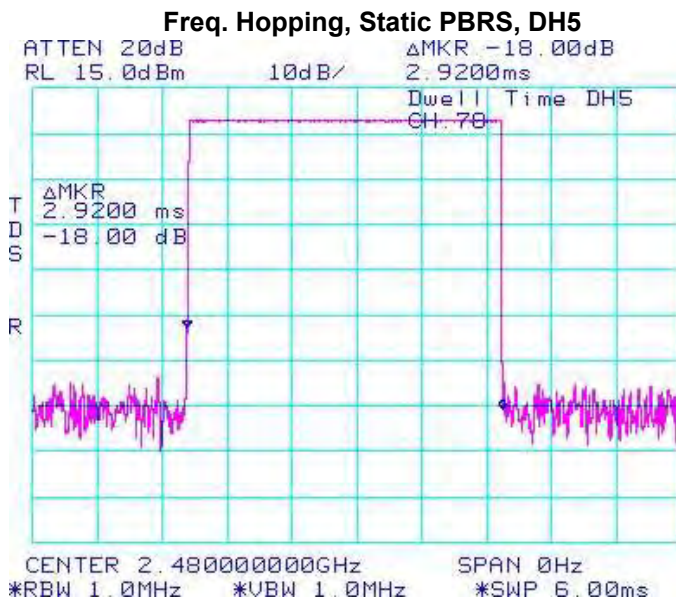


Figure 3-25: Time of Occupancy (Dwell Time)



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Bluetooth RF Conducted Emission Test Results cont'd

Maximum Peak Conducted Output Power

The EUT met the requirements of the maximum peak conducted output power of class 1 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 PBRs" and packet type "DH5" during the measurements.

Bluetooth Channel	Measured Level (dBm)	Measured Level (W)	Class 1 Limit (dBm)
0	7.17	0.00521	0.0 to 20.0
39	8.33	0.00681	0.0 to 20.0
78	8.33	0.00681	0.0 to 20.0

See figures 3-26 to 3-28 for the plots of the maximum peak conducted output power.

Figure 3-26: Max. Peak Conducted Output Power

Single Freq., Static PBRs, DH5

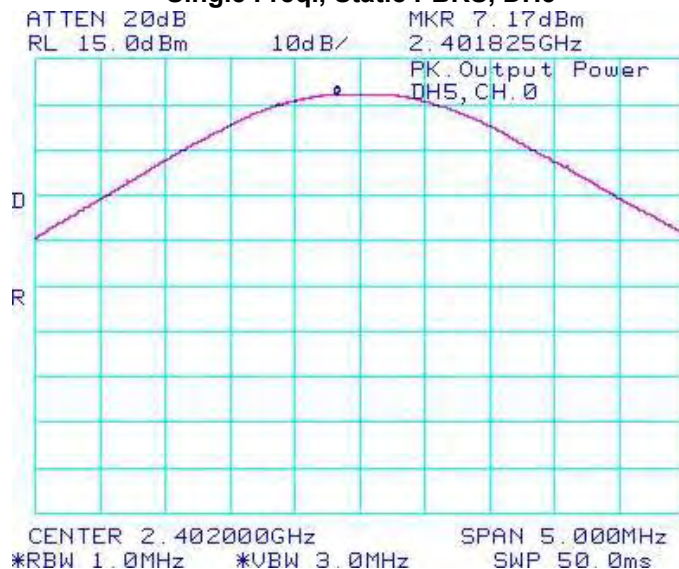
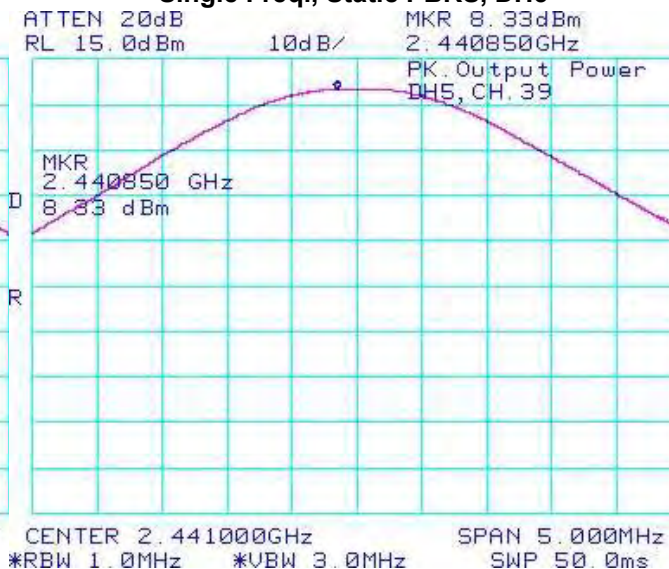


Figure 3-27: Max. Peak Conducted Output Power

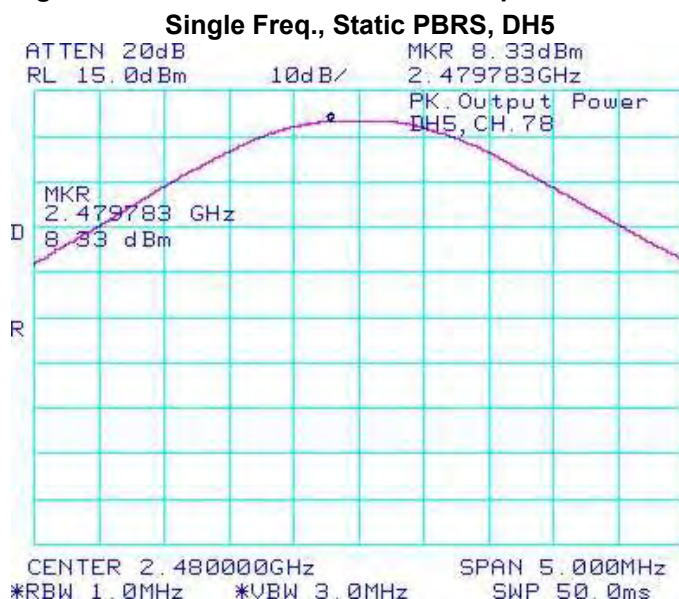
Single Freq., Static PBRs, DH5



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-28: Max. Peak Conducted Output Power



Using Pattern type “Static PBRs” and packet type “2-DH5” during the measurements.

Bluetooth Channel	Measured Level (dBm)	Measured Level (W)	Class 1 Limit (dBm)
0	6.67	0.00465	0.0 to 20.0
39	7.67	0.00585	0.0 to 20.0
78	7.83	0.00607	0.0 to 20.0

See figures 3-29 to 3-31 for the plots of the maximum peak conducted output power.

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-29: Max. Peak Conducted Output Power

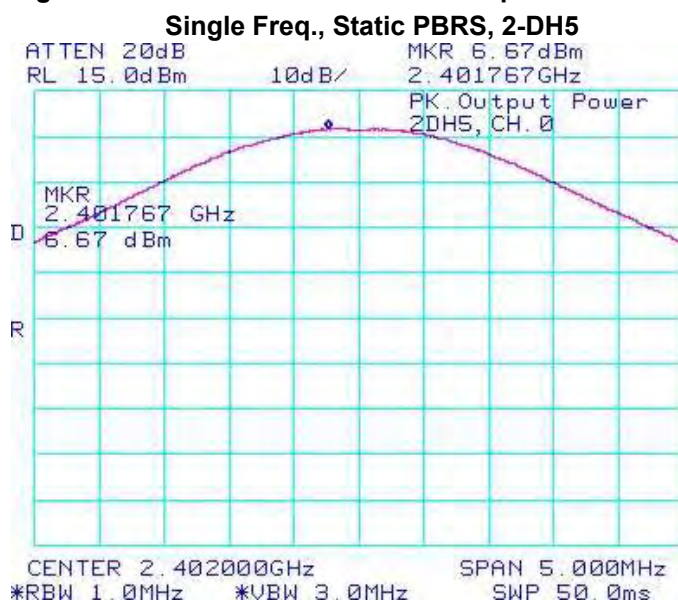


Figure 3-30: Max. Peak Conducted Output Power

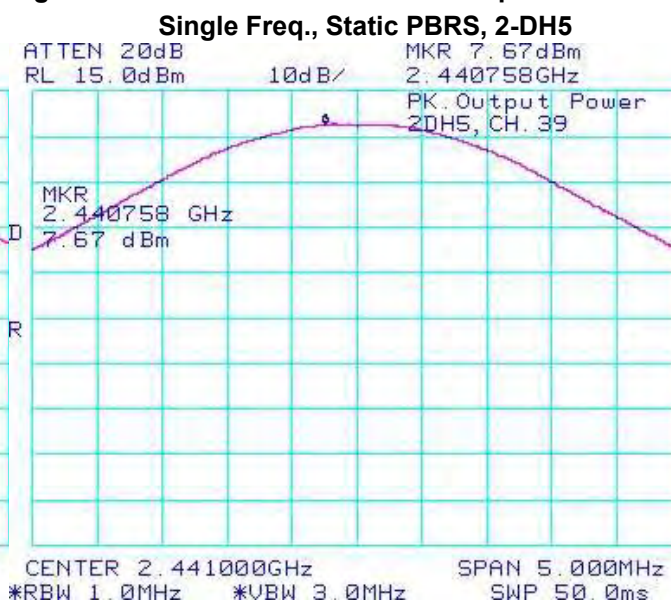
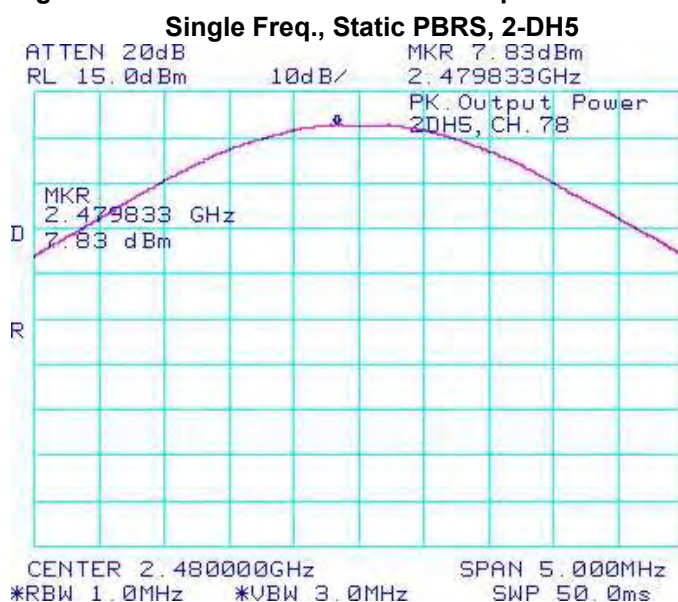


Figure 3-31: Max. Peak Conducted Output Power



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Bluetooth RF Conducted Emission Test Results cont'd

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

Bluetooth Channel	Measured Level (dBm)	Measured Level (W)	Class 1 Limit (dBm)
0	6.83	0.00482	0.0 to 20.0
39	8.00	0.00631	0.0 to 20.0
78	8.17	0.00656	0.0 to 20.0

See figures 3-32 to 3-34 for the plots of the maximum peak conducted output power.

Figure 3-32: Max. Peak Conducted Output Power
Single Freq., Static PBRs, 3-DH5

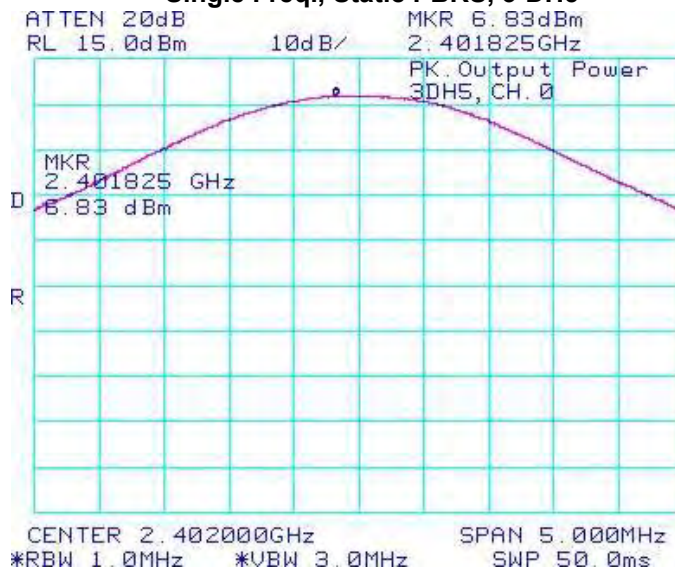
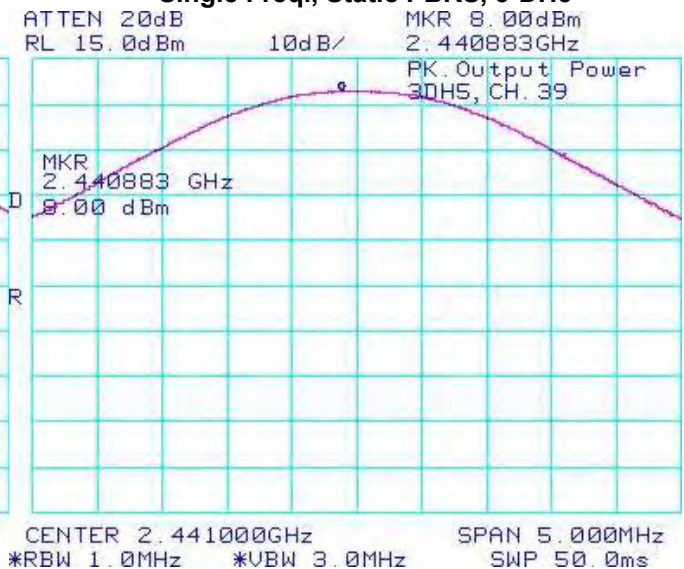


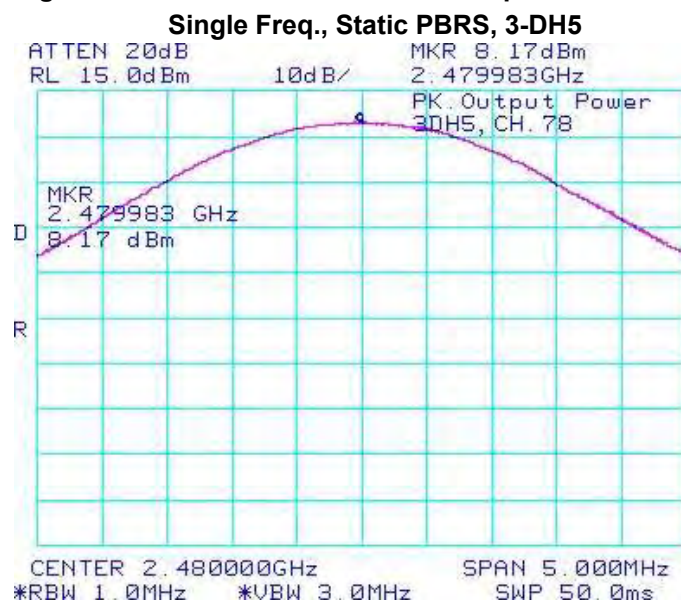
Figure 3-33: Max. Peak Conducted Output Power
Single Freq., Static PBRs, 3-DH5



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-34: Max. Peak Conducted Output Power



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

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

Bluetooth Channel	Operating Mode	Measured Level (dBc)	Limit (dBc)	Margin (dB)
0	Single Frequency	-39.83	-20	-19.83
78	Single Frequency	-39.33	-20	-19.33
0	Hopping	-40.00	-20	-20.00
78	Hopping	-40.83	-20	-20.83

See figures 3-35 to 3-38 for the plots of the band edge compliance measurements.

Figure 3-35: Band Edge Compliance

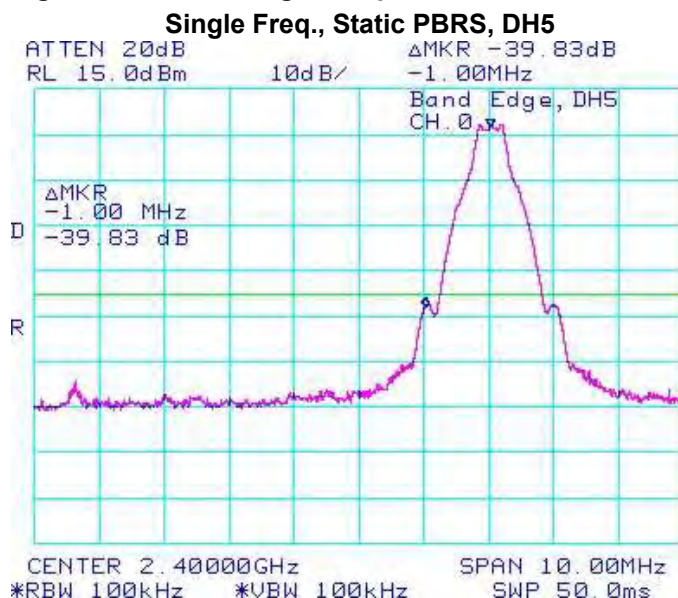
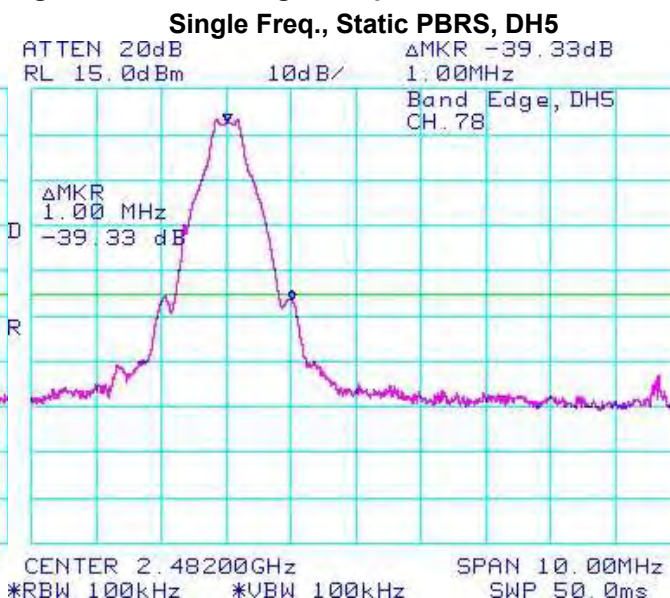


Figure 3-36: Band Edge Compliance



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-37: Band Edge Compliance

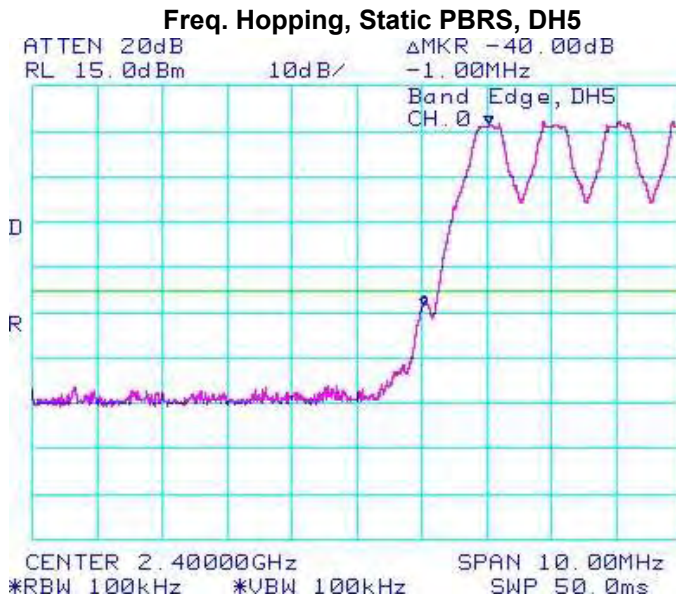
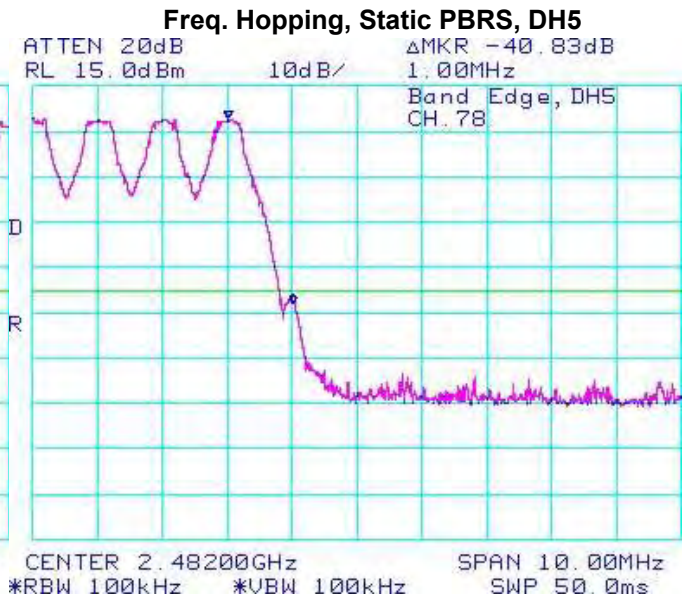


Figure 3-38: Band Edge Compliance



Using pattern type "Static PBRs" and packet type "2-DH5" during the measurements.

Bluetooth Channel	Operating Mode	Measured Level (dBc)	Limit (dBc)	Margin (dB)
0	Single Frequency	-32.00	-20	-12.00
78	Single Frequency	-35.34	-20	-15.34
0	Hopping	-31.17	-20	-11.17
78	Hopping	-36.83	-20	-16.83

See figures 3-39 to 3-42 for the plots of the band edge compliance measurements.

	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 3	
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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-39: Band Edge Compliance

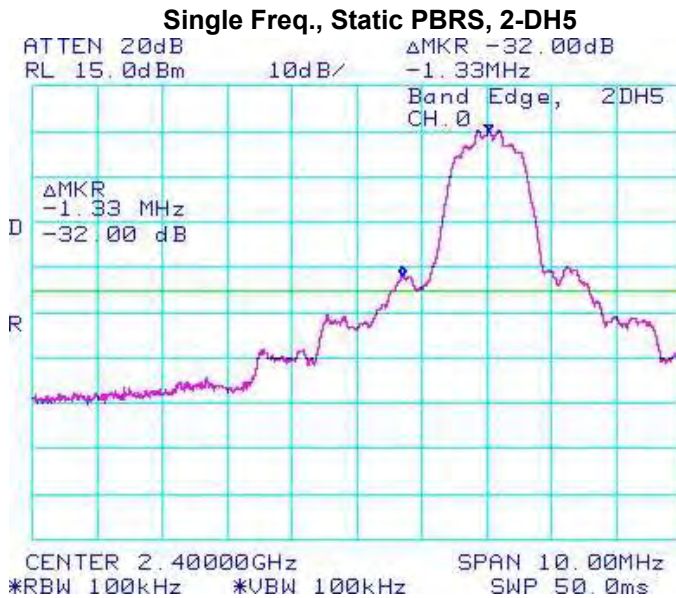


Figure 3-40: Band Edge Compliance

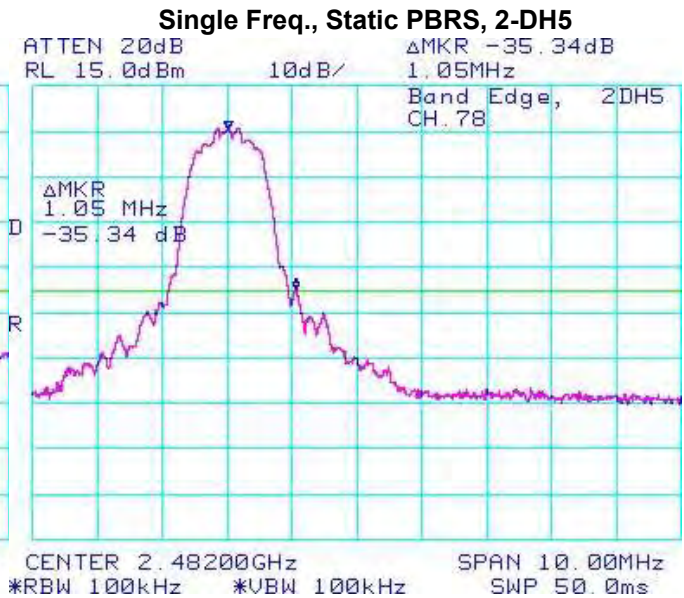


Figure 3-41: Band Edge Compliance

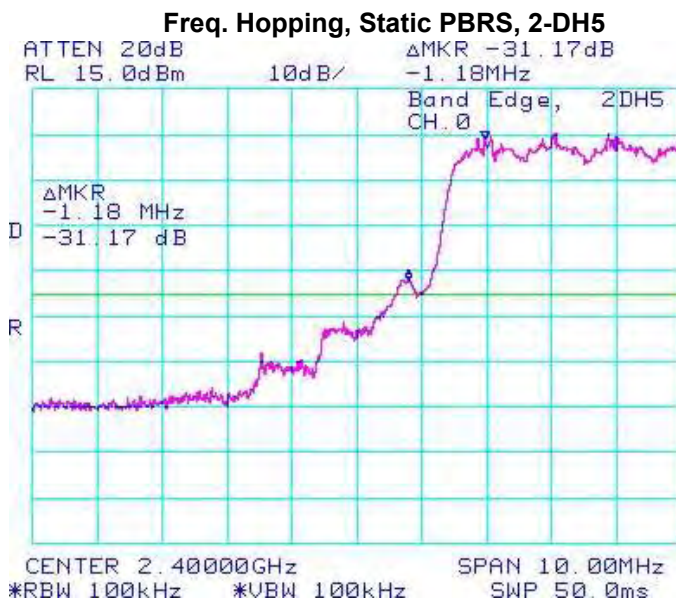
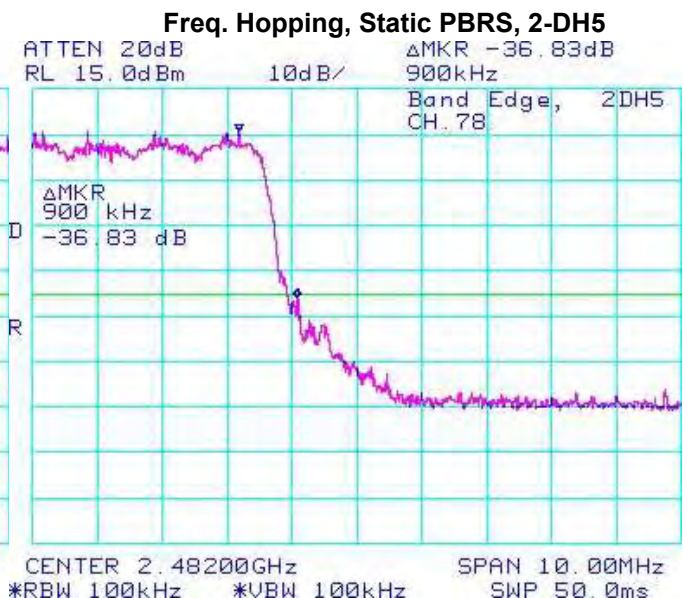


Figure 3-42: Band Edge Compliance



	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 3	
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

Bluetooth RF Conducted Emission Test Results cont'd

Using pattern type "Static PBRs" and packet type "3-DH5" during the measurements.

Bluetooth Channel	Operating Mode	Measured Level (dBc)	Limit (dBc)	Margin (dB)
0	Single Frequency	-32.00	-20	-12.00
78	Single Frequency	-30.50	-20	-10.50
0	Hopping	-32.17	-20	-12.17
78	Hopping	-30.00	-20	-10.00

See figures 3-43 to 3-46 for the plots of the band edge compliance measurements.

Figure 3-43: Band Edge Compliance

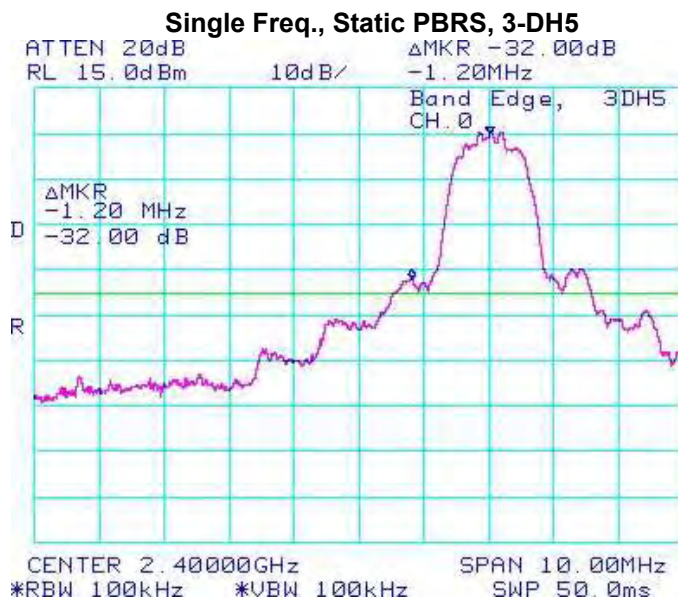
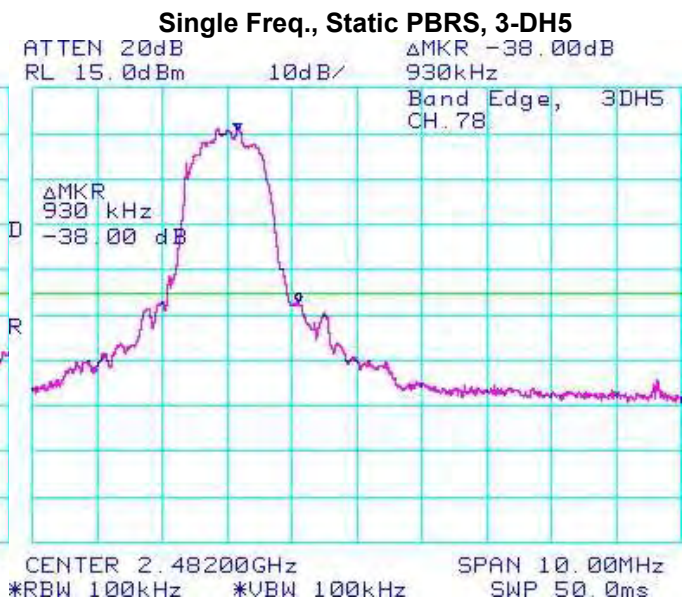


Figure 3-44: Band Edge Compliance



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-45: Band Edge Compliance

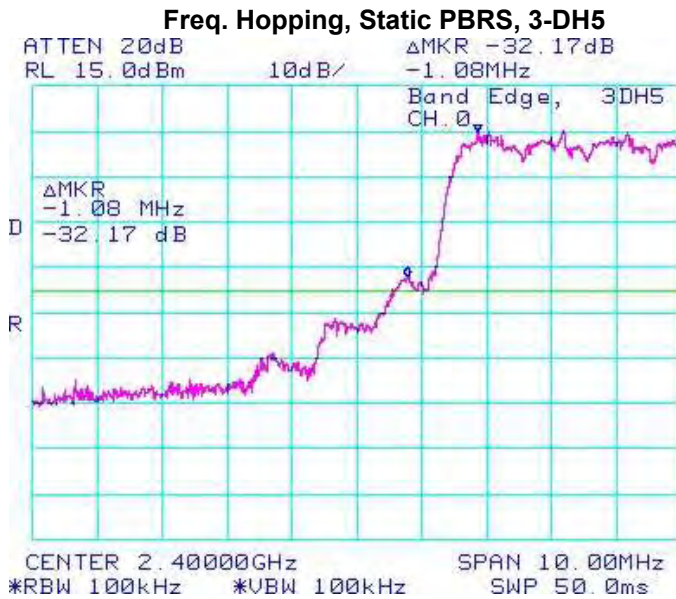
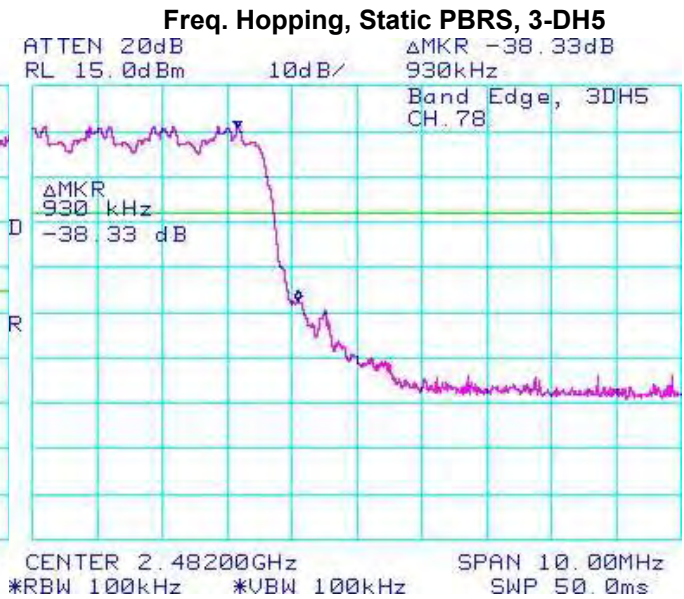


Figure 3-46: Band Edge Compliance



	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 3	
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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 PBRs” 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	7.17	-25.00	-32.17	-20
39	8.33	-21.00	-29.33	-20
78	8.33	-21.67	-30.00	-20
Hopping mode	7.17	-21.33	-28.50	-20

See figures 3-47 to 3-50 for the plots of the spurious RF conducted emissions.

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-47: Spurious RF Conducted Emissions

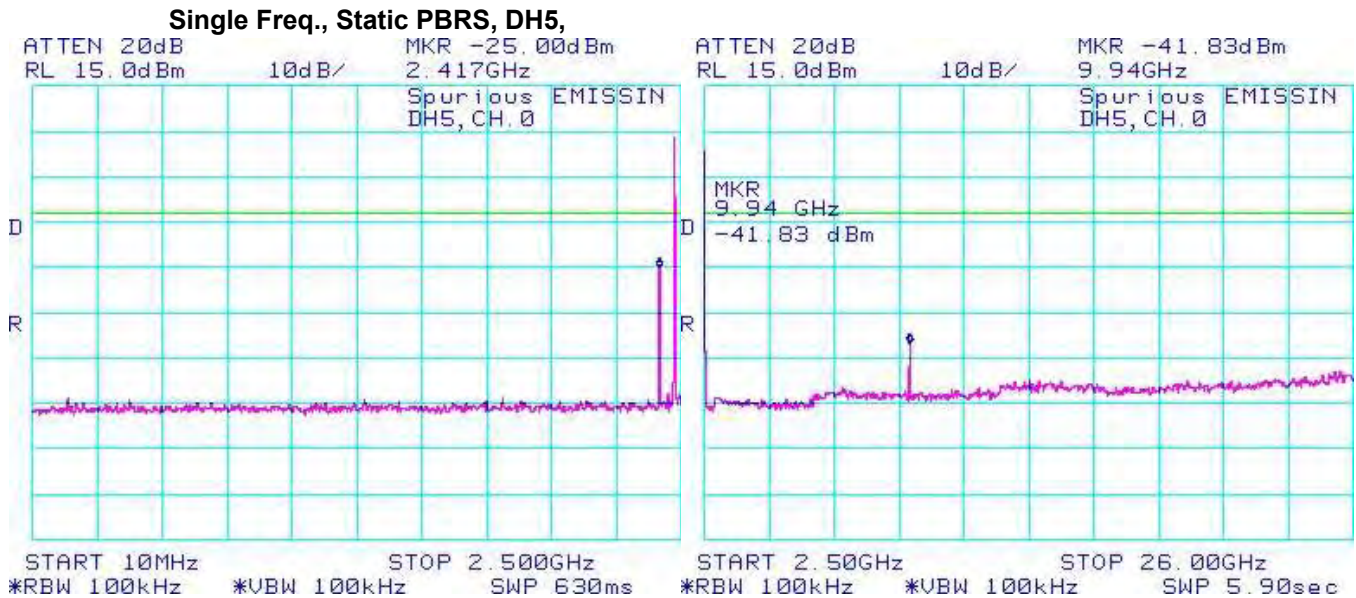
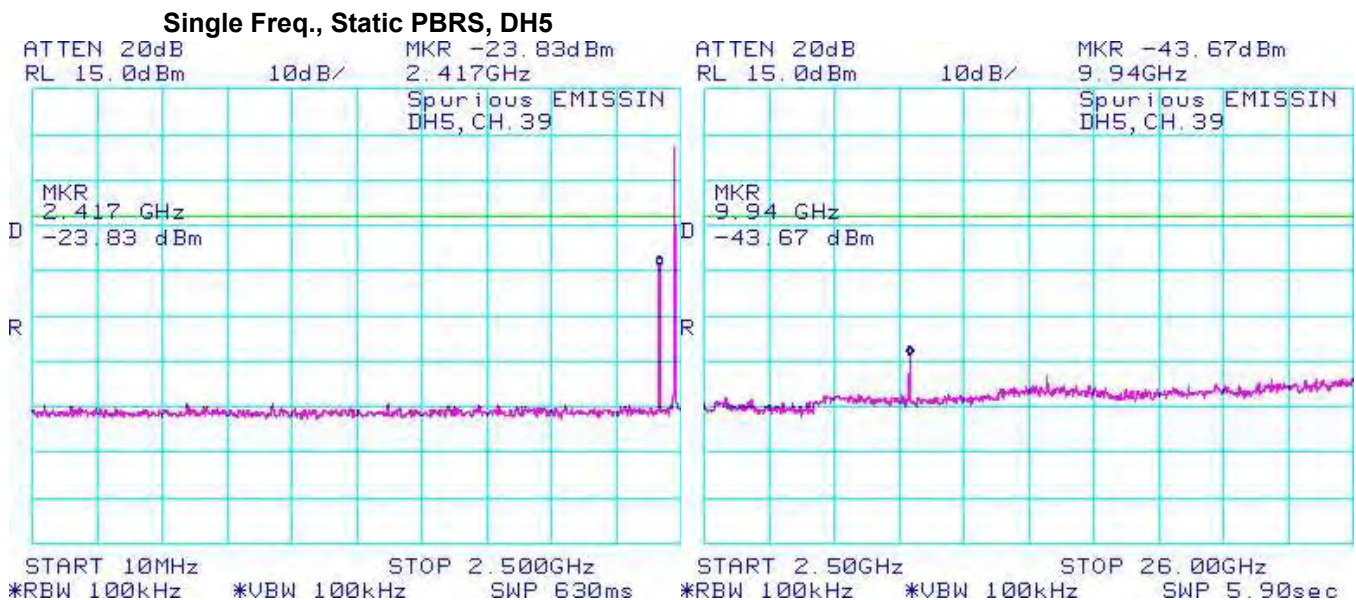


Figure 3-48: Spurious RF Conducted Emissions



	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 3	
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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-49: Spurious RF Conducted Emissions

Single Freq., Static PBRS, DH5

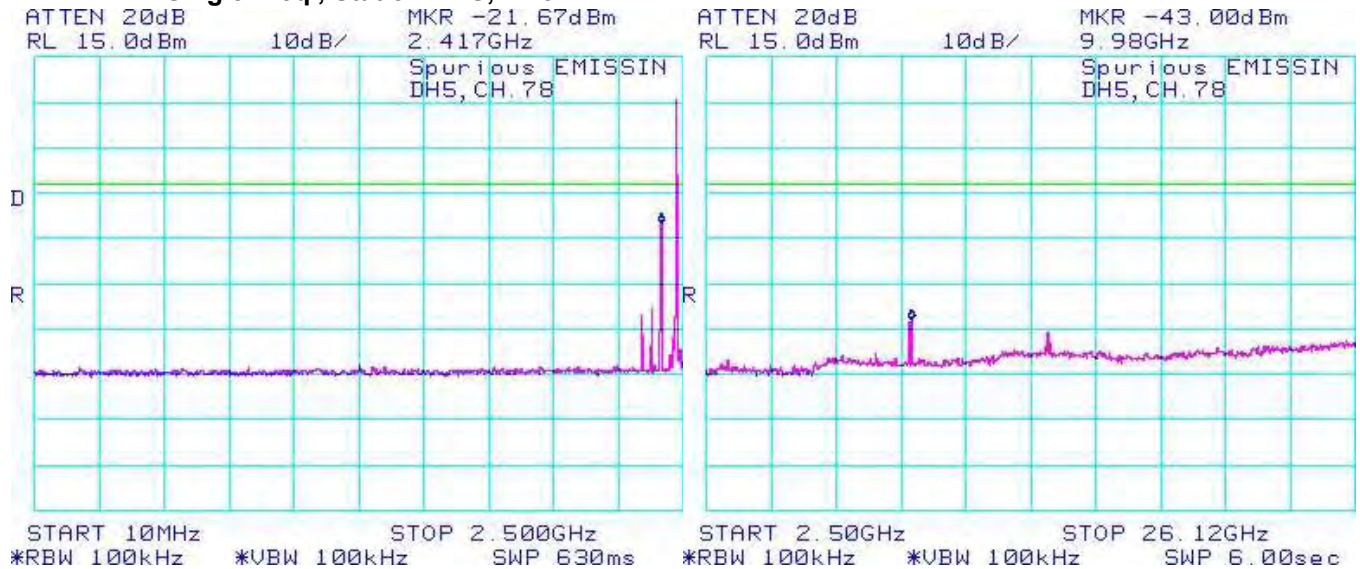
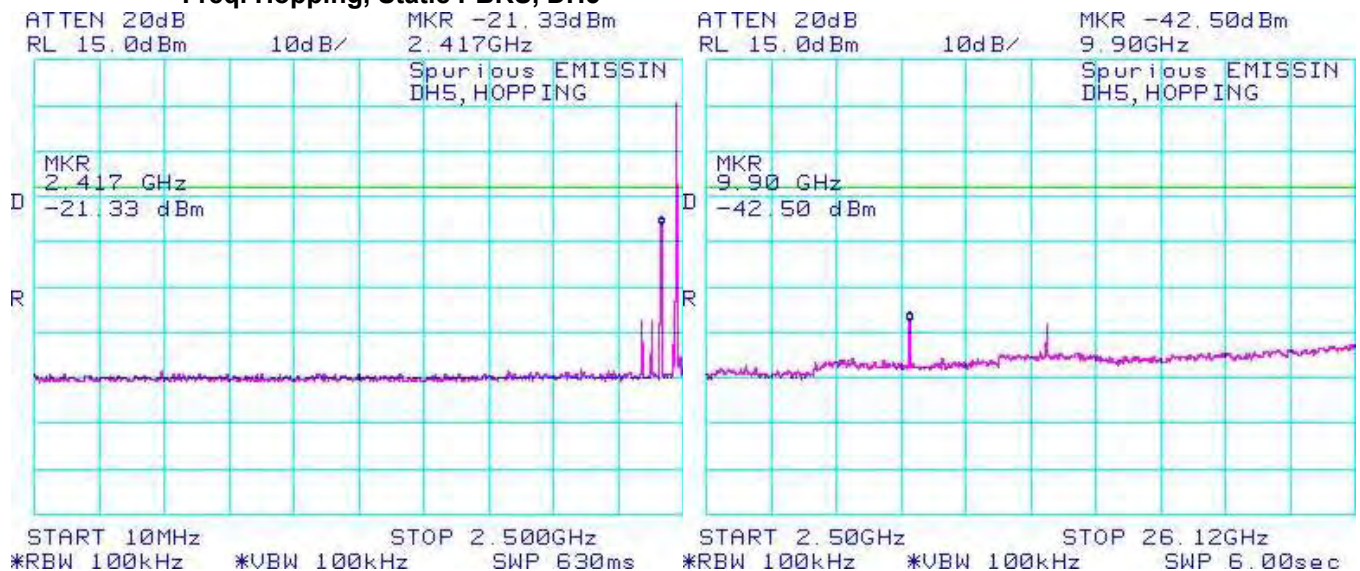


Figure 3-50: Spurious RF Conducted Emissions

Freq. Hopping, Static PBRS, DH5



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Bluetooth RF Conducted Emission Test Results cont'd

Using pattern type "Static PBRs" and packet type "2-DH5" during the measurements.

Bluetooth Channel	Channel Power (dBm)	Max. Measured Level (dBm)	Max. Measured Level from carrier (dBc)	Limit (dBc)
0	6.67	-21.50	-28.17	-20
39	7.67	-22.50	-30.17	-20
78	7.83	-21.50	-29.33	-20
Hopping mode	6.67	-21.67	-28.34	-20

See figures 3-51 to 3-54 for the plots of the spurious RF conducted emissions.

	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 3	
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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-51: Spurious RF Conducted Emissions

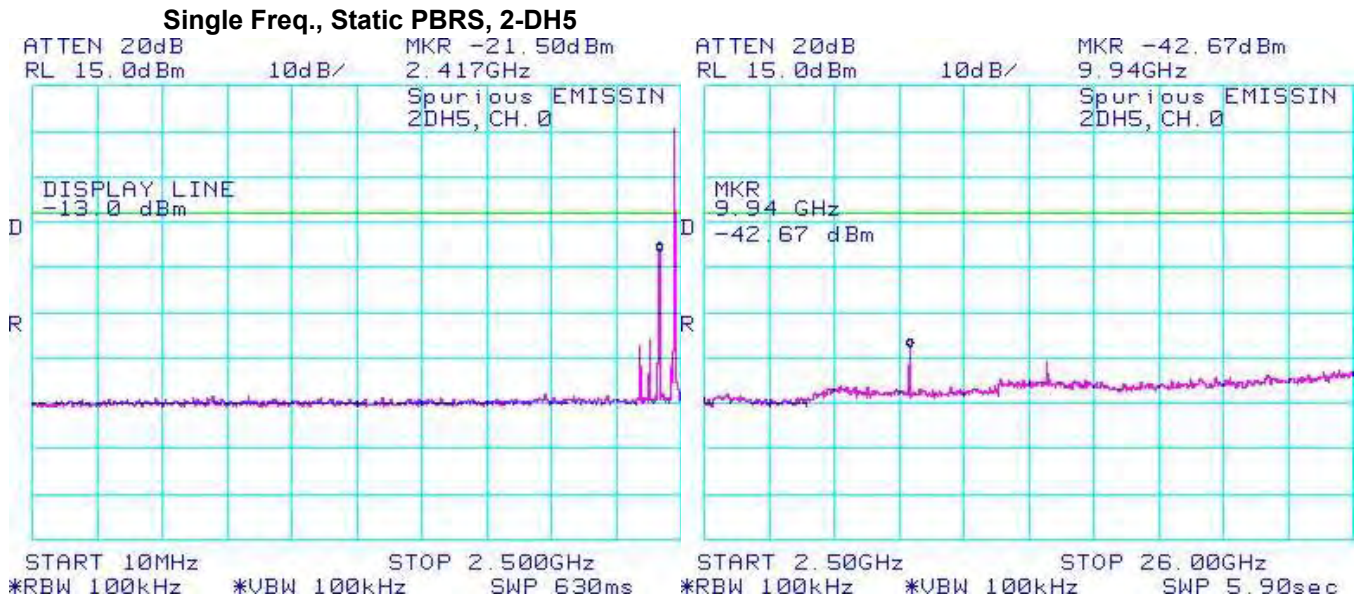
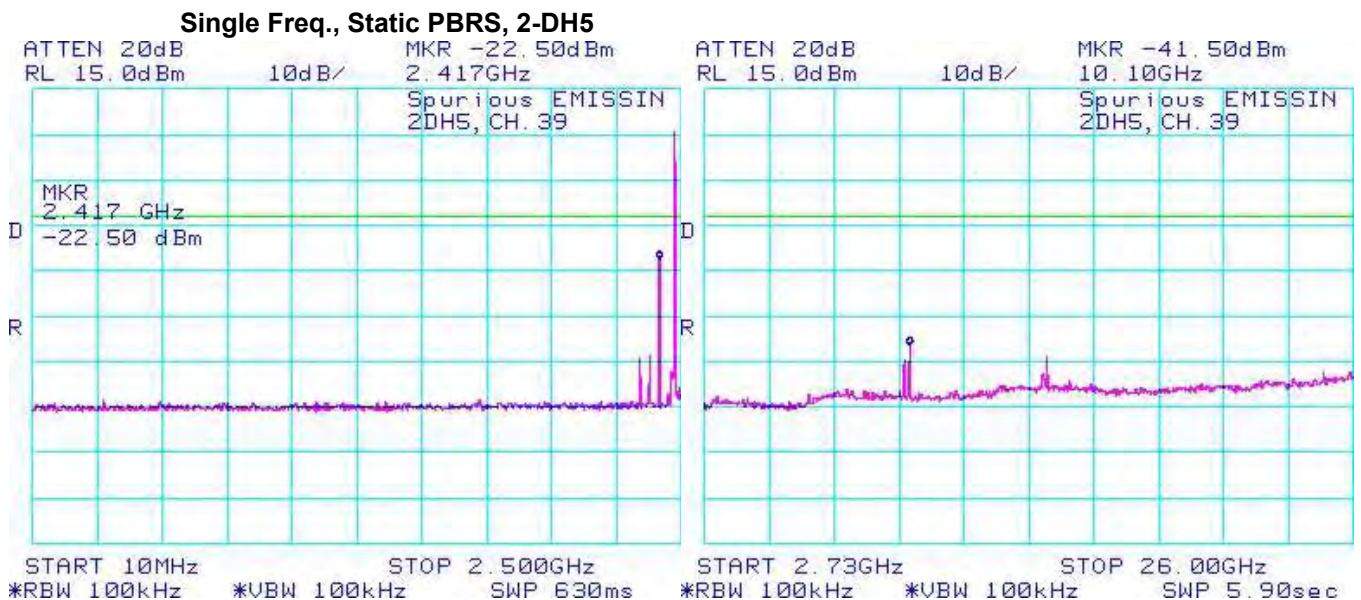


Figure 3-52: Spurious RF Conducted Emissions



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-53: Spurious RF Conducted Emissions

Single Freq., Static PBRs, 2-DH5

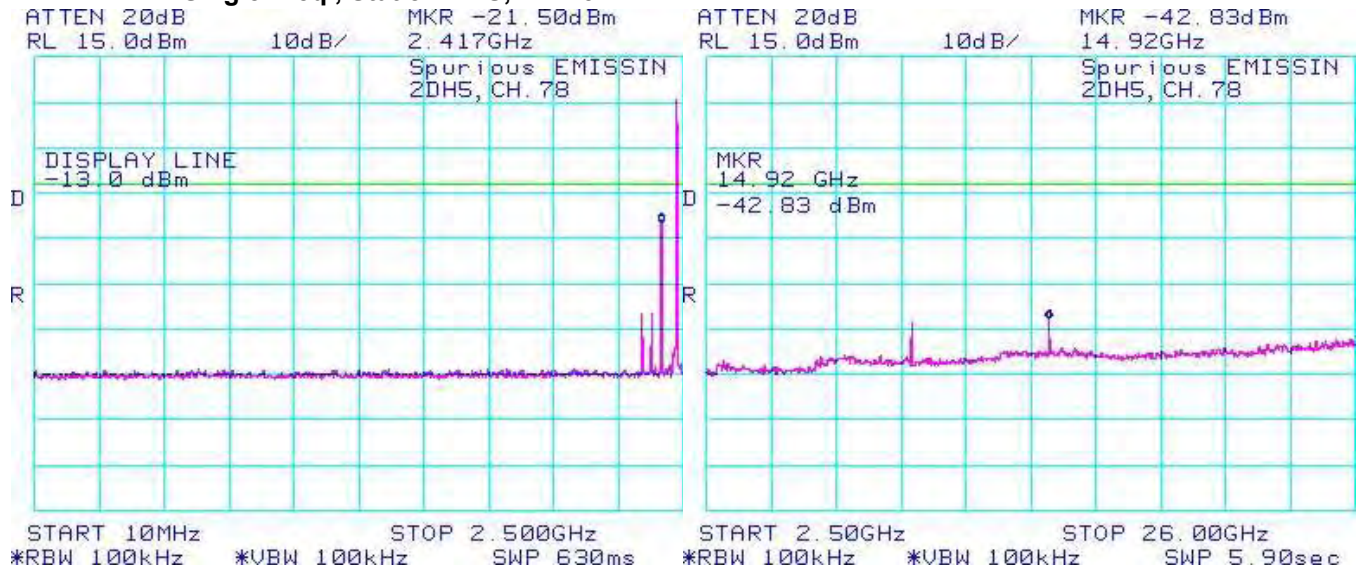
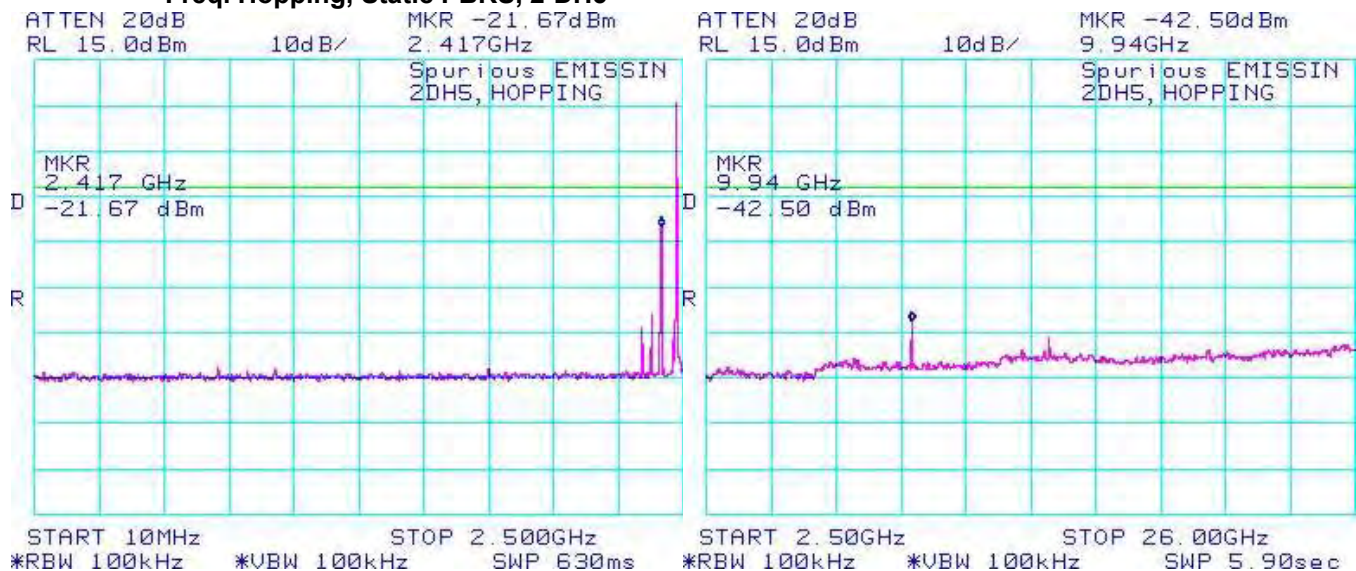


Figure 3-54: Spurious RF Conducted Emissions

Freq. Hopping, Static PBRs, 2-DH5



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Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

Bluetooth RF Conducted Emission Test Results cont'd

Using pattern type "Static PBRS" 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	6.83	-22.67	-29.50	-20
39	8.00	-24.00	-32.00	-20
78	8.17	-21.83	-30.00	-20
Hopping mode	6.83	-40.50	-47.33	-20

See figures 3-55 to 3-58 for the plots of the spurious RF conducted emissions.

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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-55: Spurious RF Conducted Emissions

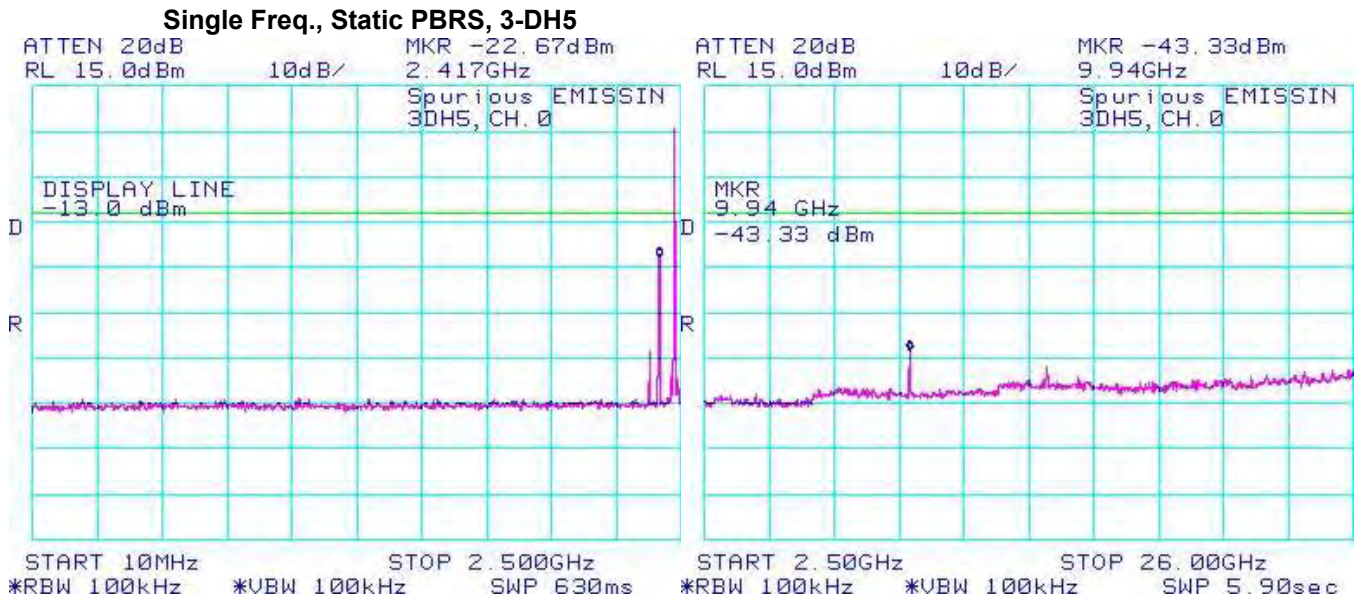
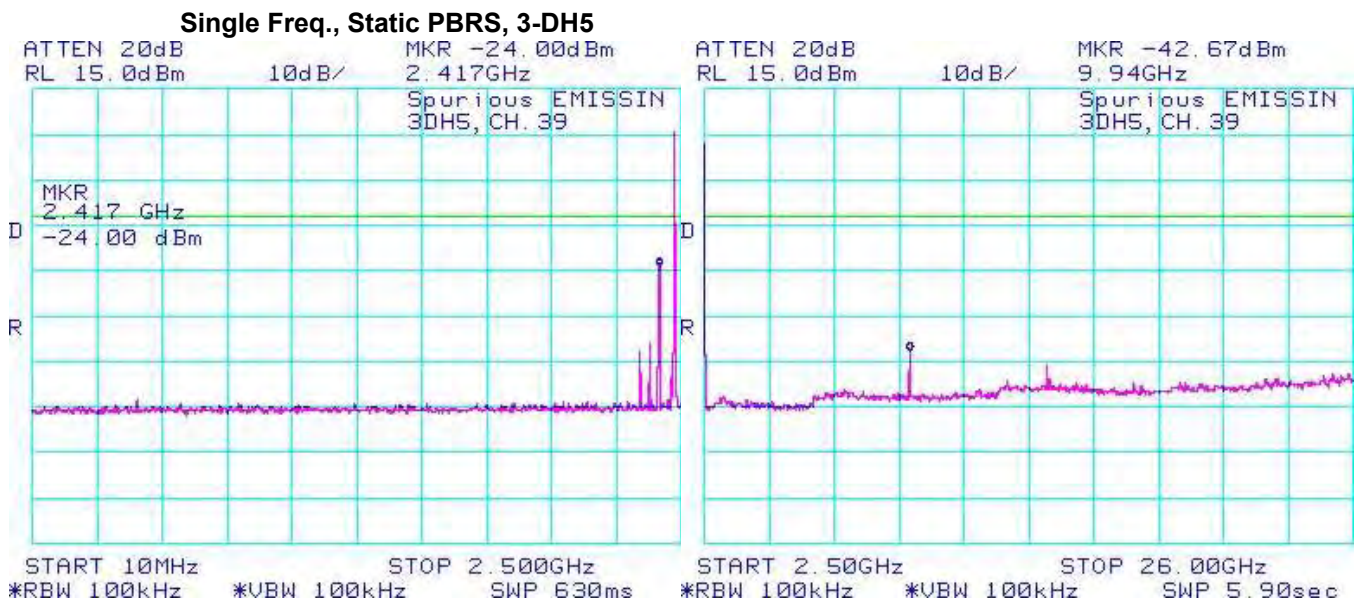


Figure 3-56: Spurious RF Conducted Emissions



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Bluetooth RF Conducted Emission Test Results cont'd

Figure 3-57: Spurious RF Conducted Emissions

Single Freq., Static PBRs, 3-DH5

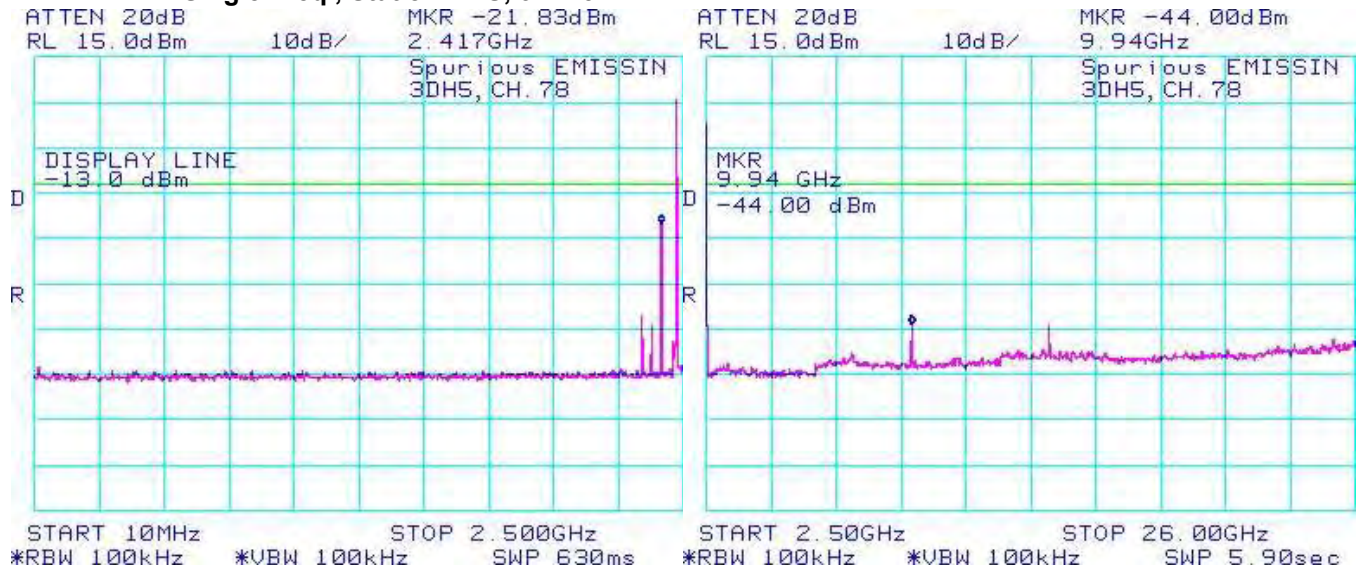
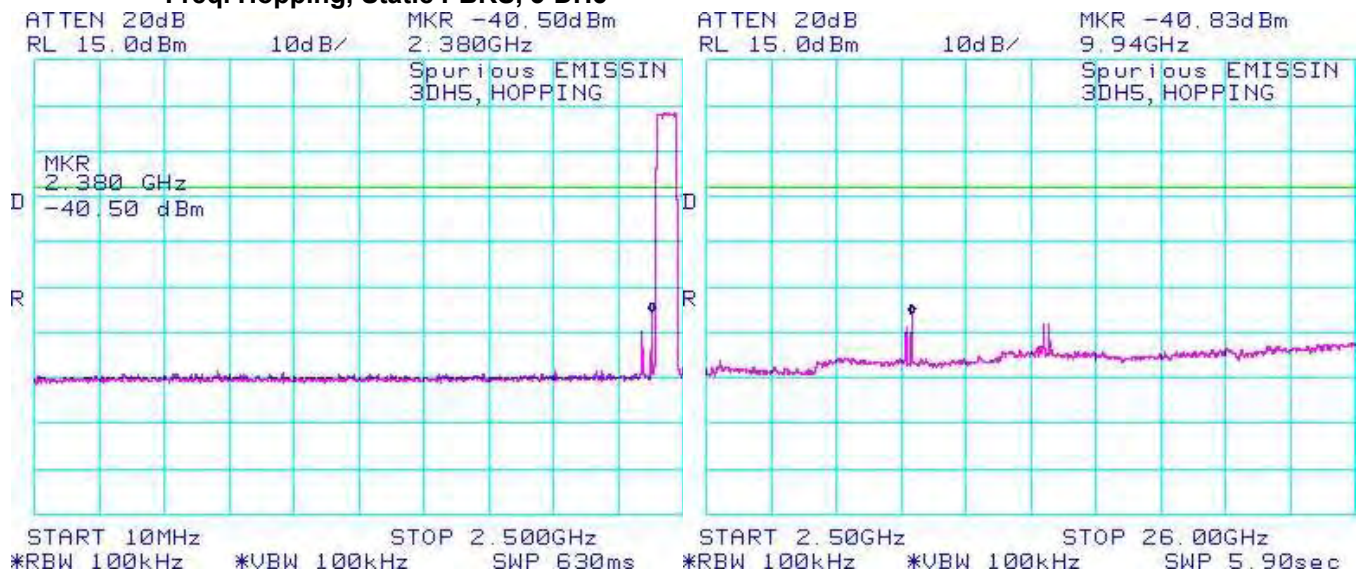


Figure 3-58: Spurious RF Conducted Emissions

Freq. Hopping, Static PBRs, 3-DH5



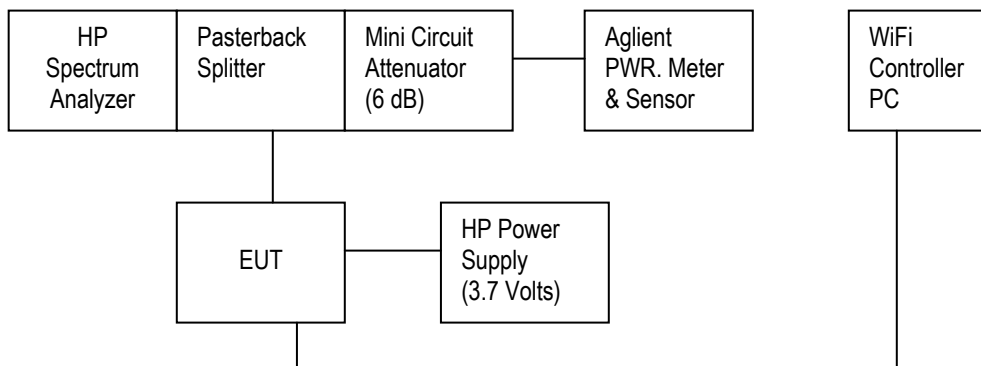
	EMI Test Report for the BlackBerry® smartphone Model REU71UW APPENDIX 4	
Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

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

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Test Report No. RTS-5995-1205-25	Dates of Test March 22, April 24 to 27 and May 08, 17 to 28, 2012	FCC ID: L6AREU70UW IC: 2503A-REU70UW

802.11b/g/n RF Conducted Emission Test Results

Test Setup Diagram



A reference offset of 20.4 dB was applied to the spectrum analyzer and 6.6 dB was applied to the Power Meter reference level for the attenuators and coaxial cable loss in the test circuit.

Date of test: April 30 and May 22, 2012

The measurements on the BlackBerry® smartphone were performed by Kevin Guo.

The environmental test conditions were: Temperature: 27 °C
Relative Humidity: 37 %

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802.11b/g/n 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, 6 Mbps, 24 Mbps, and 54 Mbps each for 802.11g mode, and MCS 0, 4, and 7 for 802.11n mode.

Channel	Data Rate	Limit (kHz)	Measured Level (MHz)
1	1 Mbps	≥ 500	10.03
	5.5 Mbps	≥ 500	10.40
	11 Mbps	≥ 500	11.00
	6 Mbps	≥ 500	16.03
	24 Mbps	≥ 500	16.35
	54 Mbps	≥ 500	16.48
	MCS 0	≥ 500	16.93
	MCS 4	≥ 500	17.42
	MCS 7	≥ 500	17.66
6	1 Mbps	≥ 500	10.03
	5.5 Mbps	≥ 500	10.37
	11 Mbps	≥ 500	10.93
	6 Mbps	≥ 500	16.27
	24 Mbps	≥ 500	16.39
	54 Mbps	≥ 500	16.51
	MCS 0	≥ 500	16.47
	MCS 4	≥ 500	17.01
	MCS 7	≥ 500	17.33
11	1 Mbps	≥ 500	10.00
	5.5 Mbps	≥ 500	10.27
	11 Mbps	≥ 500	10.78
	6 Mbps	≥ 500	16.20
	24 Mbps	≥ 500	16.31
	54 Mbps	≥ 500	16.40
	MCS 0	≥ 500	16.97
	MCS 4	≥ 500	17.40
	MCS 7	≥ 500	17.61

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

See figures 4-1a to 4-9a for the plots of the 6 dB bandwidth measurements for Channels 1, 6, and 11, at 1 Mbps each for 802.11b mode, 6 Mbps each for 802.11g mode, and MCS 0 each for 802.11n mode.

Figure 4-1a: 6 dB Bandwidth

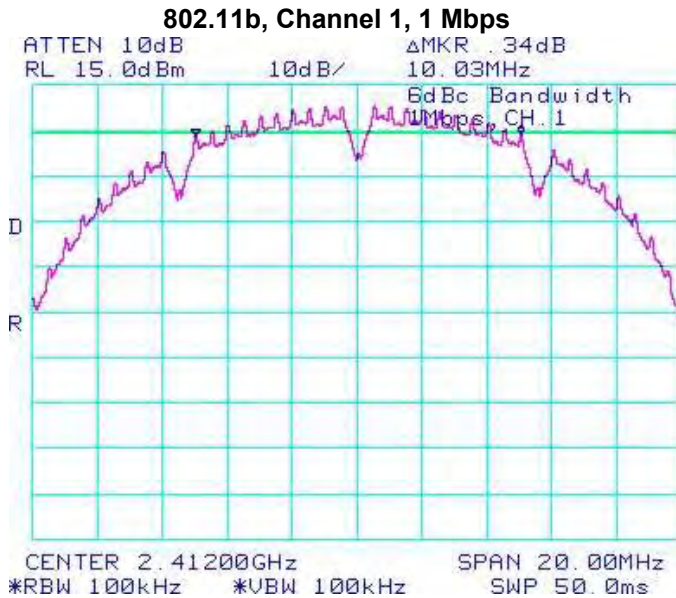


Figure 4-2a: 6 dB Bandwidth

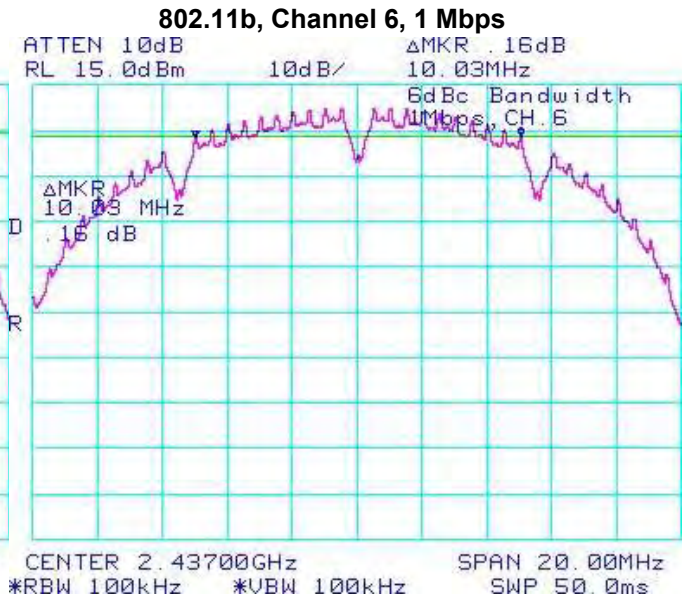


Figure 4-3a: 6 dB Bandwidth

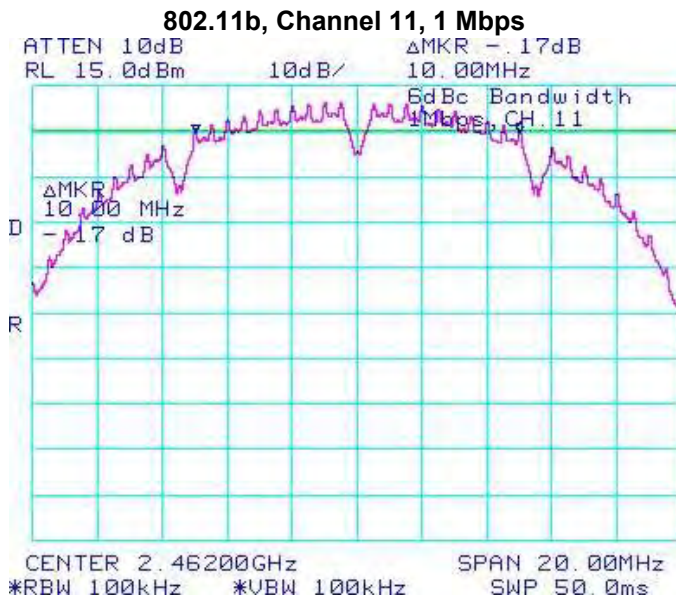
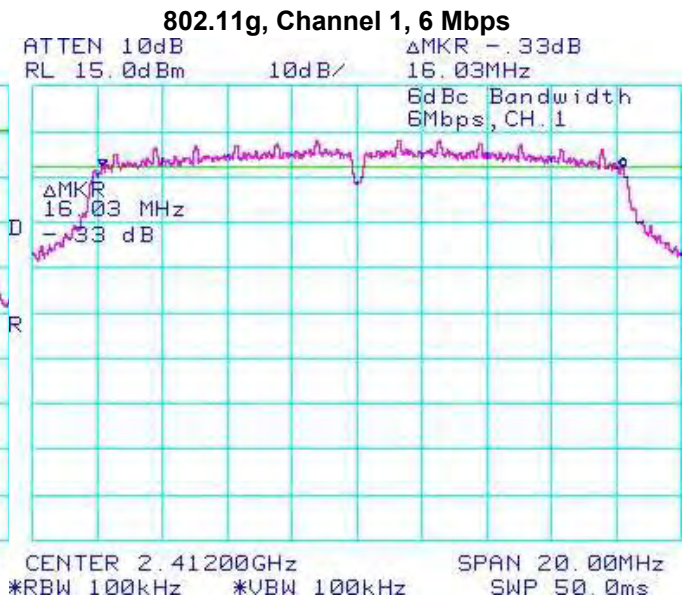


Figure 4-4a: 6 dB Bandwidth



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

Figure 4-5a: 6 dB Bandwidth

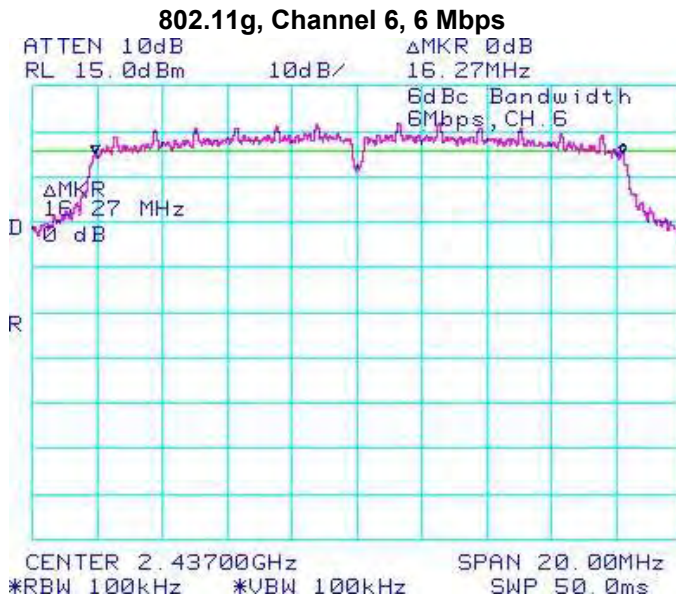


Figure 4-6a: 6 dB Bandwidth

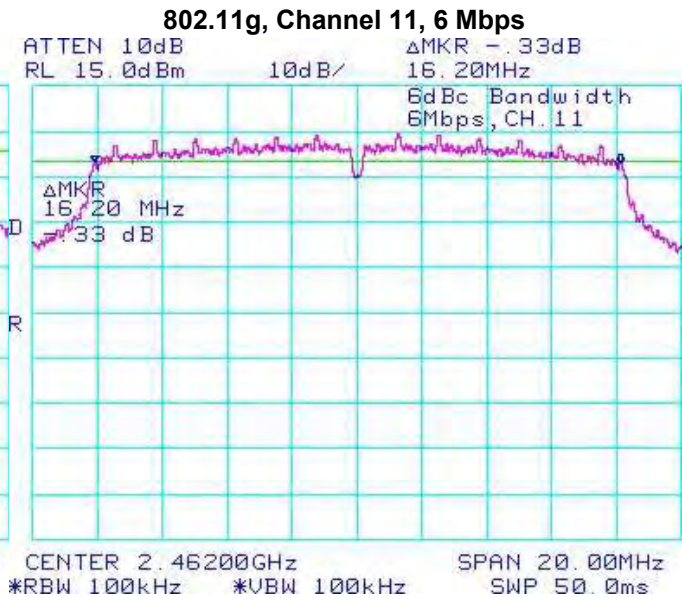


Figure 4-7a: 6 dB Bandwidth

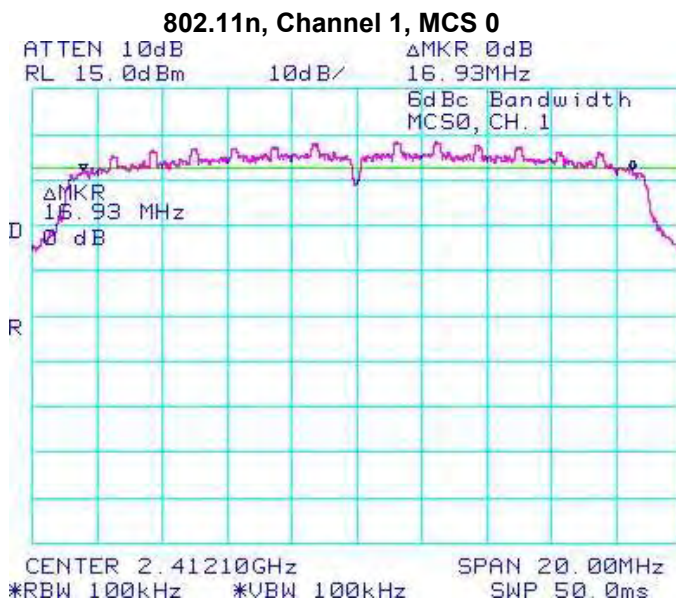
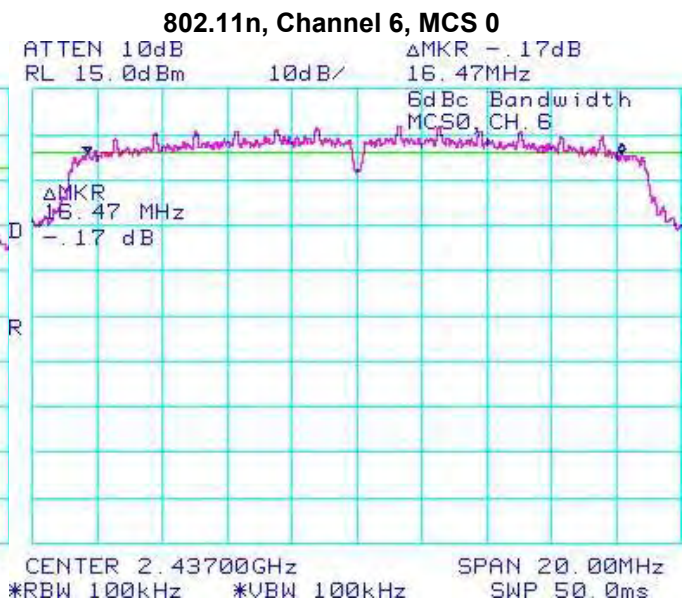
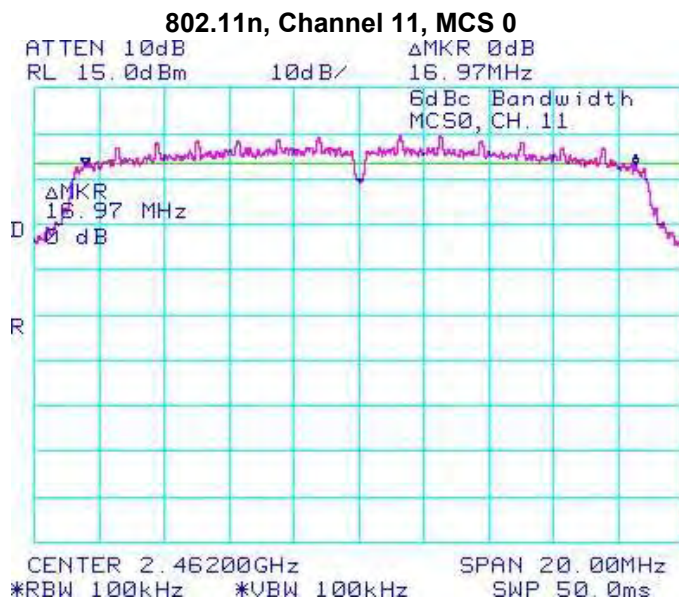


Figure 4-8a: 6 dB Bandwidth



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Figure 4-9a: 6 dB Bandwidth



The table below shows partial test results on model REU71UW, part number CER-48921-001 Rev4.

Channel	Data Rate	Limit (kHz)	Measured Level (MHz)
1	1 Mbps	≥ 500	10.07
	6 Mbps	≥ 500	16.00
	MCS 0	≥ 500	16.93
6	1 Mbps	≥ 500	10.00
	6 Mbps	≥ 500	16.10
	MCS 0	≥ 500	17.07
11	1 Mbps	≥ 500	10.00
	6 Mbps	≥ 500	16.07
	MCS 0	≥ 500	16.73

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

See figures 4-1b to 4-9b for the plots of the 6 dB bandwidth measurements for Channels 1, 6, and 11, at 1 Mbps each for 802.11b mode, 6 Mbps each for 802.11g mode, and MCS 0 each for 802.11n mode.

Figure 4-1b: 6 dB Bandwidth

802.11b, Channel 1, 1 Mbps

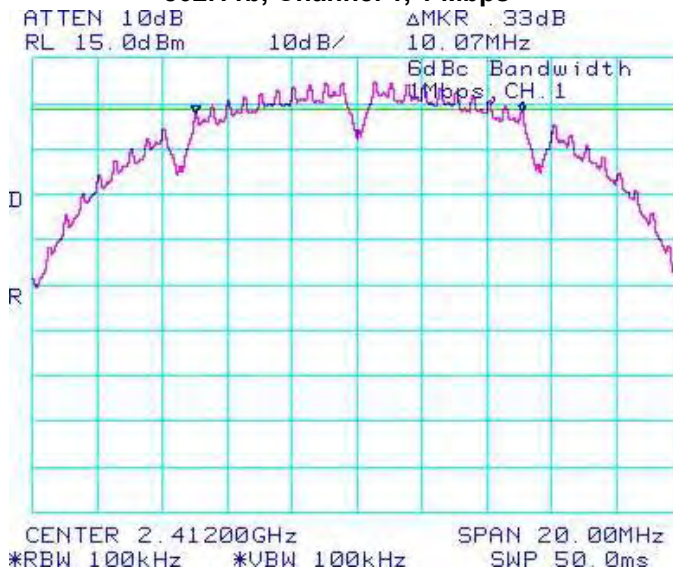


Figure 4-2b: 6 dB Bandwidth

802.11b, Channel 6, 1 Mbps

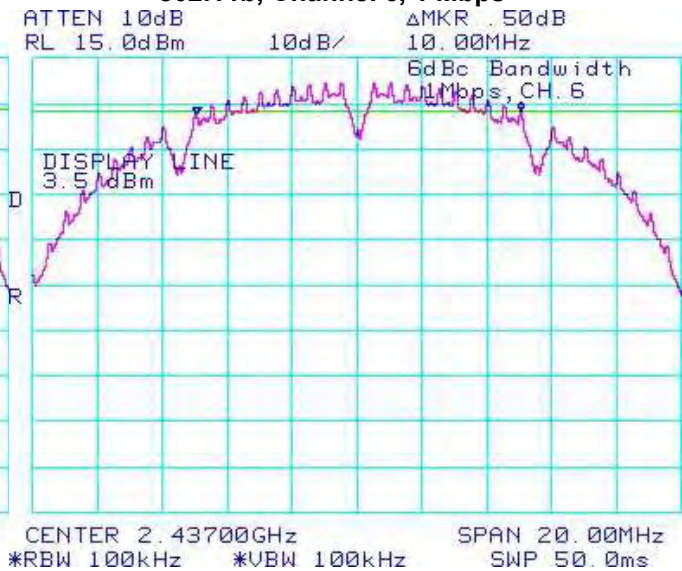


Figure 4-3b: 6 dB Bandwidth

802.11b, Channel 11, 1 Mbps

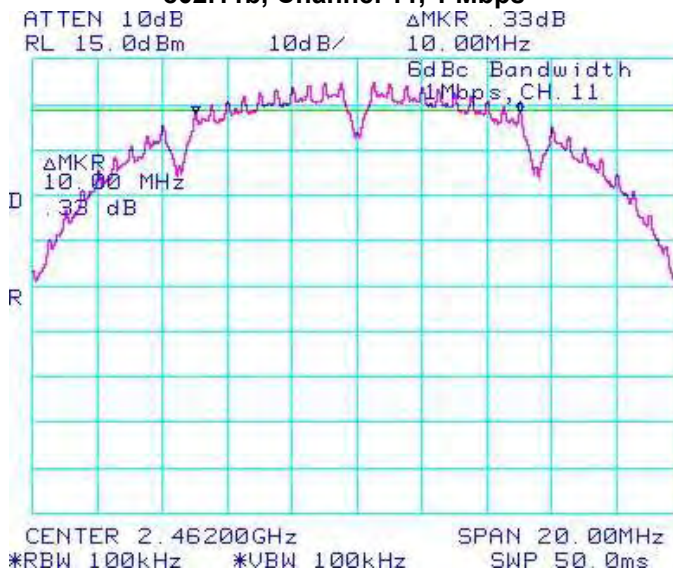


Figure 4-4b: 6 dB Bandwidth

802.11g, Channel 1, 6 Mbps



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

Figure 4-5b: 6 dB Bandwidth

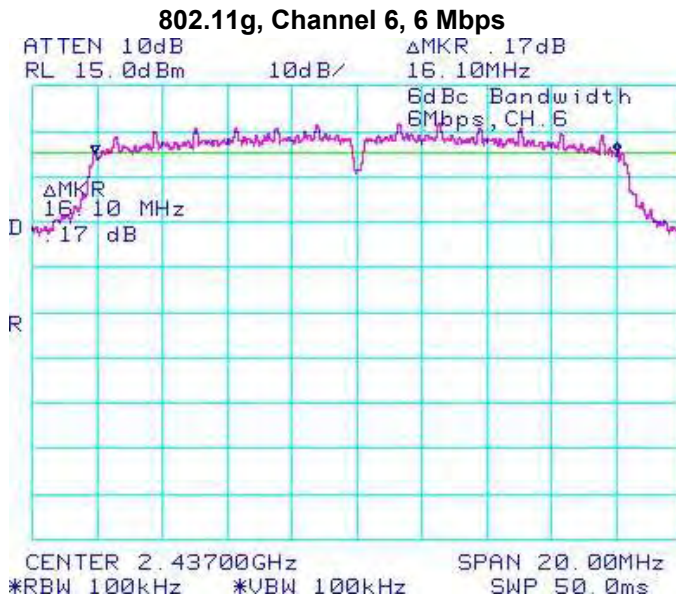


Figure 4-6b: 6 dB Bandwidth

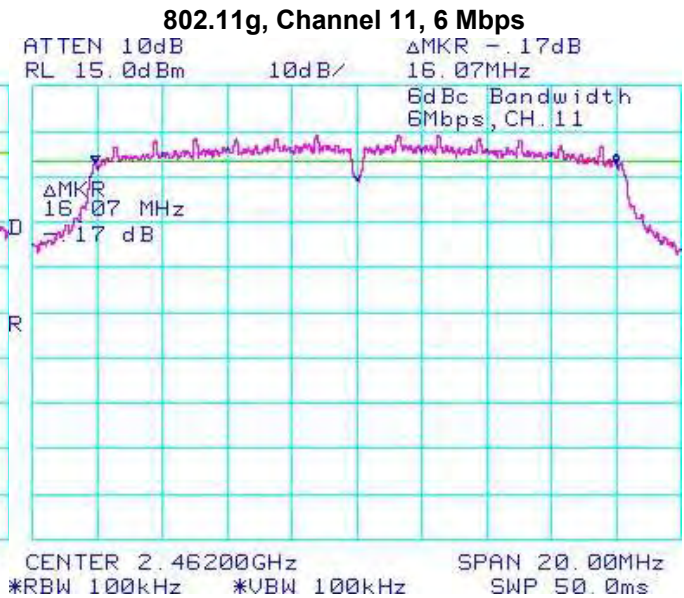


Figure 4-7b: 6 dB Bandwidth

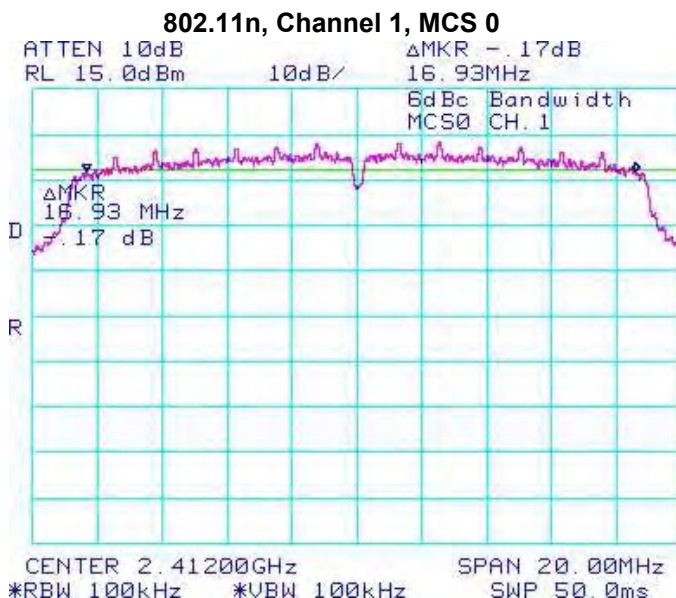
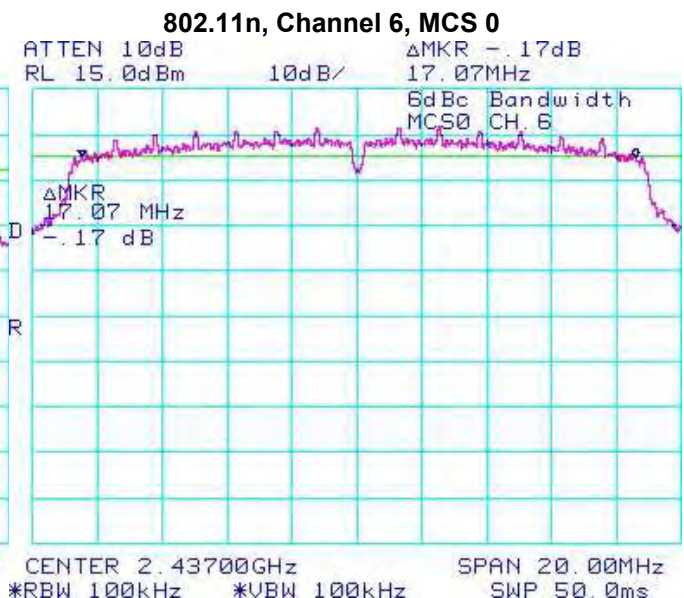
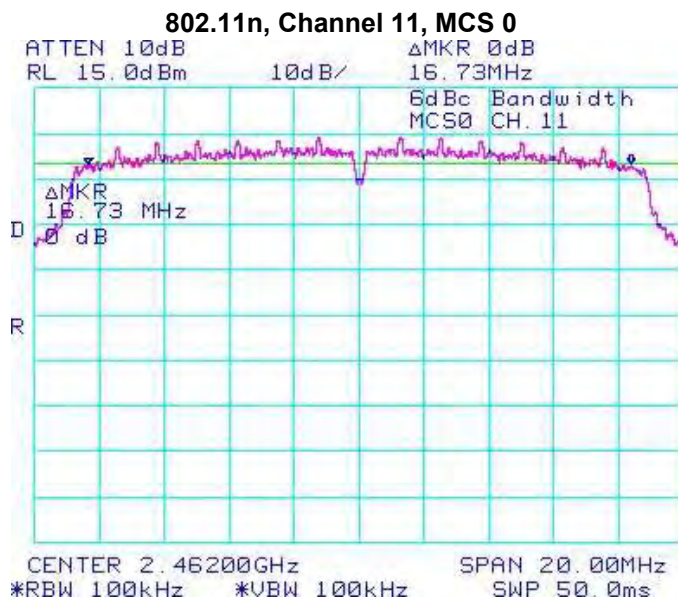


Figure 4-8b: 6 dB Bandwidth



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Figure 4-9b: 6 dB Bandwidth



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

Maximum Conducted Output Power

The EUT met the requirements of the maximum conducted output power of class 1 as per 47 CFR 15.247(b)(3) and RSS-210. Channels 1, 6 and 11 were measured at 1 Mbps, 5.5 Mbps, and 11 Mbps each for 802.11b mode, 6 Mbps, 24 Mbps, and 54 Mbps each for 802.11g mode, and MCS 0, 4 and 7 for 802.11n mode using an Aglient power meter, model N1911A with model N1921A power sensor. A reference offset of 18.4 dB was applied to the power meter reference level for the coaxial cable loss and attenuators in the test circuit.

Channel	Data Rate	Class 2 Limit (W)	Measured Level (dBm)	Measured Level (mW)
1	1 Mbps	< 1.00	18.67	73.62
	5.5 Mbps	< 1.00	18.52	71.12
	11 Mbps	< 1.00	18.59	72.28
	6 Mbps	< 1.00	14.32	27.04
	24 Mbps	< 1.00	14.21	26.36
	54 Mbps	< 1.00	12.75	18.84
	MCS 0	< 1.00	14.12	25.82
	MCS 4	< 1.00	13.82	24.10
	MCS 7	< 1.00	11.02	12.65
6	1 Mbps	< 1.00	18.30	67.61
	5.5 Mbps	< 1.00	18.17	65.61
	11 Mbps	< 1.00	18.20	66.07
	6 Mbps	< 1.00	17.46	55.72
	24 Mbps	< 1.00	14.65	29.17
	54 Mbps	< 1.00	13.32	21.48
	MCS 0	< 1.00	13.51	22.44
	MCS 4	< 1.00	13.32	21.48
	MCS 7	< 1.00	11.55	14.29

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

Channel	Data Rate	Class 2 Limit (W)	Measured Level (dBm)	Measured Level (mW)
11	1 Mbps	< 1.00	19.66	92.47
	5.5 Mbps	< 1.00	19.61	91.41
	11 Mbps	< 1.00	19.66	92.47
	6 Mbps	< 1.00	15.49	35.40
	24 Mbps	< 1.00	15.39	34.59
	54 Mbps	< 1.00	13.82	24.10
	MCS 0	< 1.00	14.14	25.94
	MCS 4	< 1.00	13.58	22.80
	MCS 7	< 1.00	11.86	15.35

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

The table below shows partial test results on model REU71UW, part number CER-48921-001 Rev4.

Channel	Data Rate	Class 2 Limit (W)	Measured Level (dBm)	Measured Level (mW)
1	1 Mbps	< 1.00	17.67	58.48
	5.5 Mbps	< 1.00	17.56	57.02
	11 Mbps	< 1.00	17.50	56.23
	6 Mbps	< 1.00	14.23	26.49
	24 Mbps	< 1.00	14.06	25.47
	54 Mbps	< 1.00	12.21	16.63
	MCS 0	< 1.00	14.15	26.00
	MCS 4	< 1.00	14.06	25.47
	MCS 7	< 1.00	11.54	14.26
6	1 Mbps	< 1.00	17.71	59.02
	5.5 Mbps	< 1.00	17.66	58.34
	11 Mbps	< 1.00	17.59	57.41
	6 Mbps	< 1.00	17.13	51.64
	24 Mbps	< 1.00	14.57	28.64
	54 Mbps	< 1.00	13.01	20.00
	MCS 0	< 1.00	13.77	23.82
	MCS 4	< 1.00	13.83	24.15
	MCS 7	< 1.00	12.21	16.63
11	1 Mbps	< 1.00	18.26	66.99
	5.5 Mbps	< 1.00	18.17	65.61
	11 Mbps	< 1.00	18.11	64.71
	6 Mbps	< 1.00	15.18	32.96
	24 Mbps	< 1.00	15.10	32.36
	54 Mbps	< 1.00	13.48	22.28
	MCS 0	< 1.00	14.23	26.49
	MCS 4	< 1.00	14.05	25.41
	MCS 7	< 1.00	12.66	18.45

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802.11b/g/n 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, 6 Mbps, 24 Mbps, and 54 Mbps each for 802.11g mode, and MCS 0, 4 and 7 for 802.11n mode.

Channel	Data Rate	Limit (dBc)	Measured Level (dBc)	Margin (dBc)
1	1 Mbps	< -20	-41.34	-21.34
	5.5 Mbps	< -20	-42.5	-22.50
	11 Mbps	< -20	-42.5	-22.50
	6 Mbps	< -20	-27.50	-7.50
	24 Mbps	< -20	-29.66	-9.66
	54 Mbps	< -20	-29.83	-9.83
	MCS 0	< -20	-25.83	-5.83
	MCS 4	< -20	-27.33	-7.33
	MCS 7	< -20	-28.21	-8.21
11	1 Mbps	< -20	-41.33	-21.33
	5.5 Mbps	< -20	-42.33	-22.33
	11 Mbps	< -20	-42.16	-22.16
	6 Mbps	< -20	-31.16	-11.16
	24 Mbps	< -20	-35.16	-15.16
	54 Mbps	< -20	-37.34	-17.34
	MCS 0	< -20	-29.50	-9.50
	MCS 4	< -20	-33.50	-13.50
	MCS 7	< -20	-37.00	-17.00

See figures 4-10a to 4-15a for the plots of the band edge compliance measurements for Channels 1 and 11, at 1 Mbps each for 802.11b mode, 6 Mbps each for 802.11g mode, and MCS 0 each for 802.11n mode.

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

Figure 4-10a: Band Edge Compliance

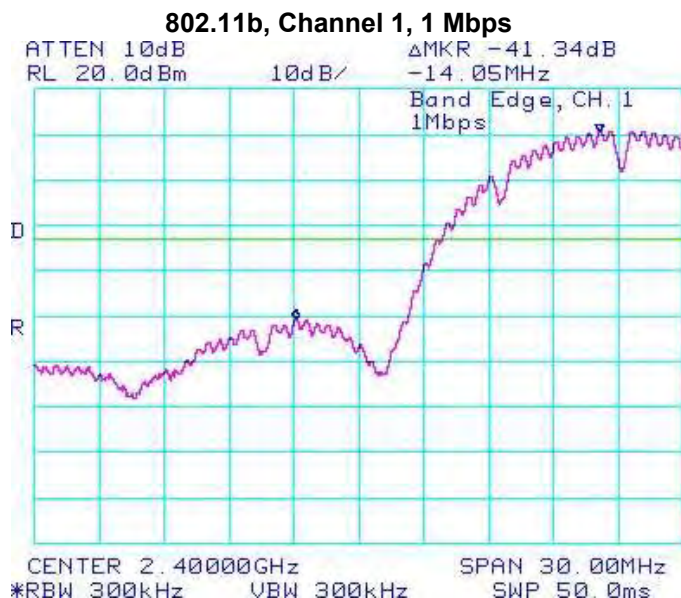


Figure 4-11a: Band Edge Compliance

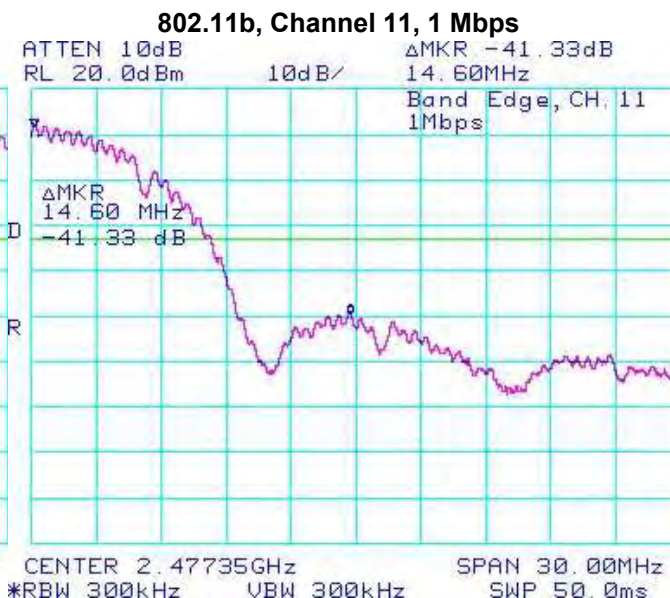


Figure 4-12a: Band Edge Compliance

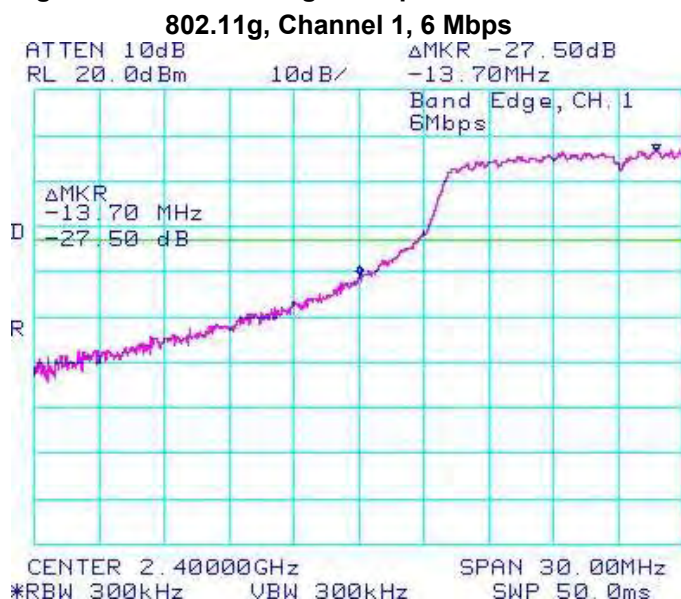
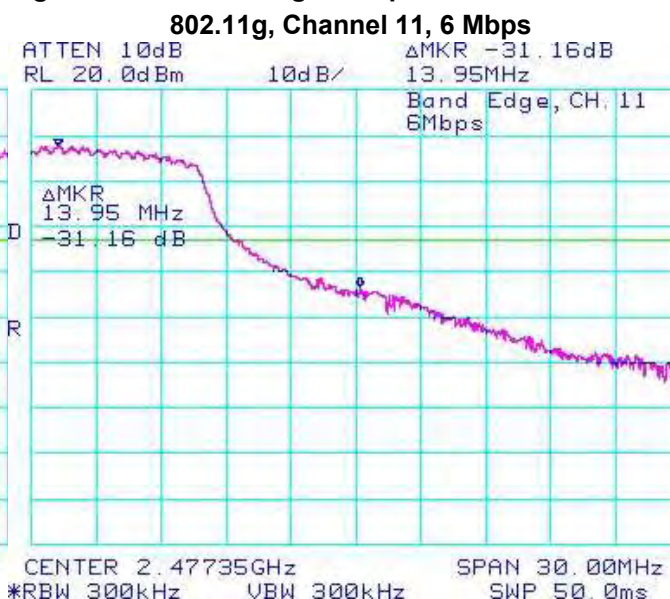


Figure 4-13a: Band Edge Compliance



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

Figure 4-14a: Band Edge Compliance

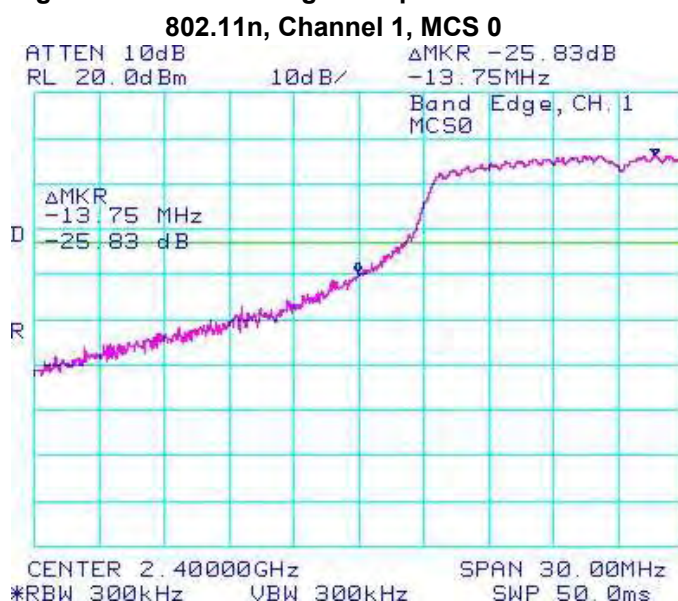
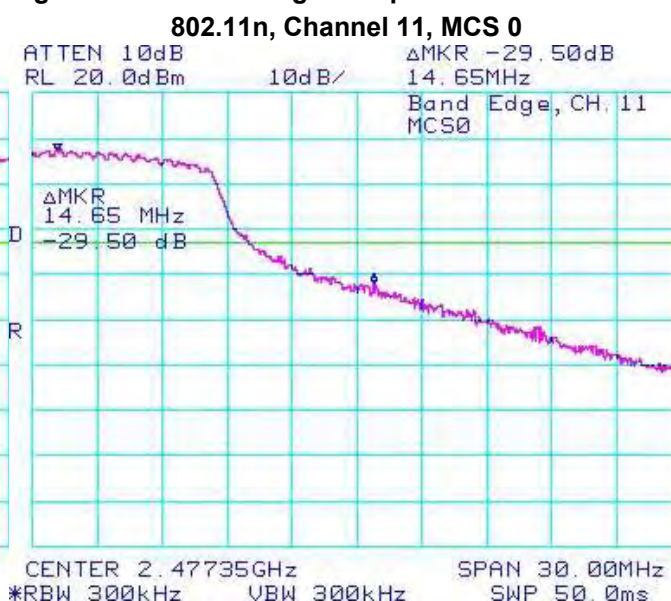


Figure 4-15a: Band Edge Compliance



The table below shows partial test results on model REU71UW, part number CER-48921-001 Rev4.

Channel	Data Rate	Limit (dBc)	Measured Level (dBc)	Margin (dBc)
1	1 Mbps	< -20	-41.34	-21.34
	6 Mbps	< -20	-27.50	-7.50
	MCS 0	< -20	-25.83	-5.83
11	1 Mbps	< -20	-41.33	-21.33
	6 Mbps	< -20	-31.16	-11.16
	MCS 0	< -20	-29.50	-9.50

See figures 4-10b to 4-15b for the plots of the band edge compliance measurements for Channels 1 and 11, at 1 Mbps each for 802.11b mode, 6 Mbps each for 802.11g mode, and MCS 0 each for 802.11n mode.

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

Figure 4-10b: Band Edge Compliance

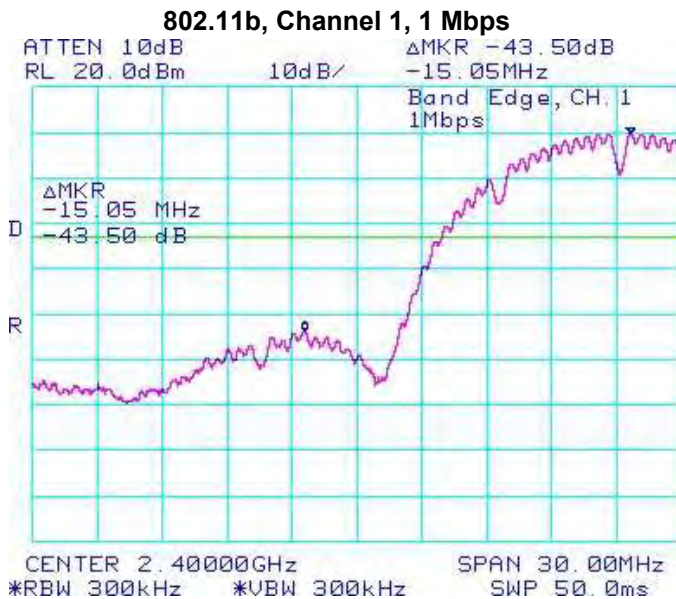


Figure 4-11b: Band Edge Compliance

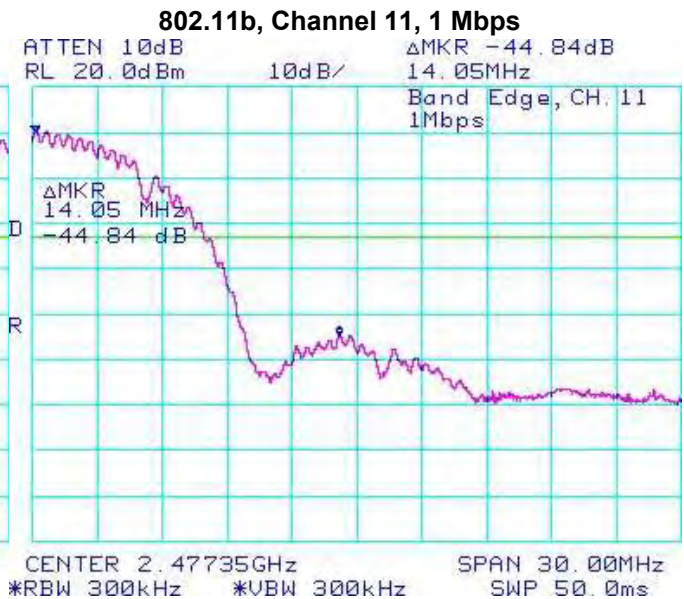


Figure 4-12b: Band Edge Compliance

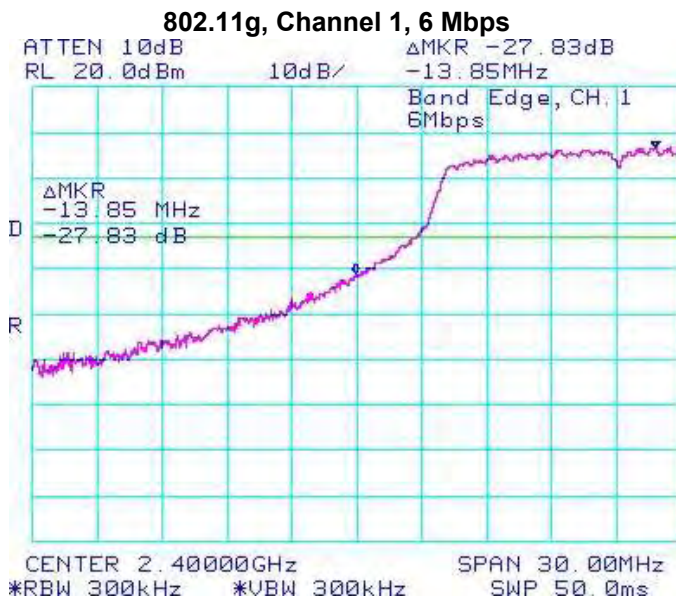
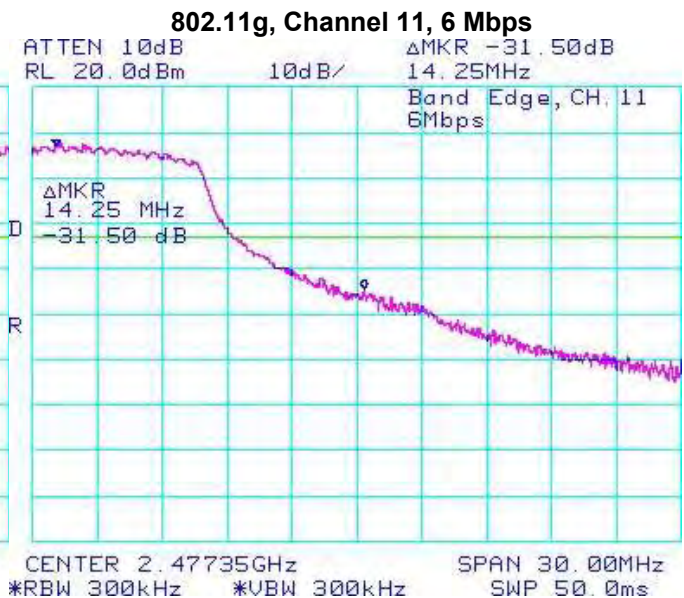


Figure 4-13b: Band Edge Compliance



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

Figure 4-14b: Band Edge Compliance

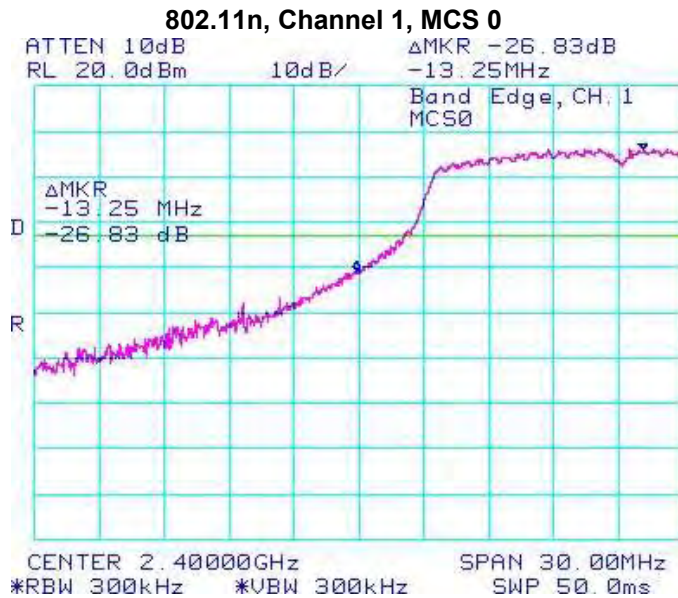
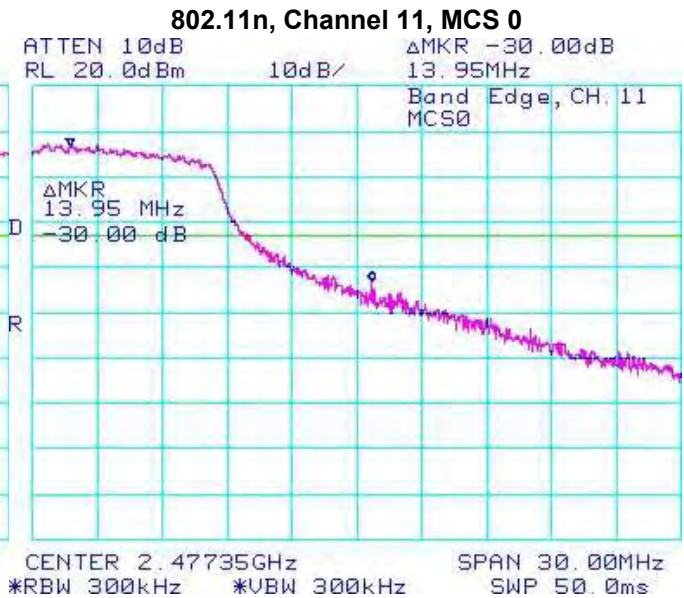


Figure 4-15b: Band Edge Compliance



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

Peak Power Spectral Density

The EUT met the requirements of the peak power spectral density as per 47 CFR 15.247(d) and RSS-210. Channels 1, 6 and 11 were measured at 1 Mbps, 5.5 Mbps, and 11 Mbps each for 802.11b mode, 6 Mbps, 24 Mbps, and 54 Mbps each for 802.11g mode, and MCS 0, 4, and 7 for 802.11n mode.

Channel	Data Rate	Limit (dBm)	Measured Level (dBm)	Margin (dBm)
1	1 Mbps	< 8.00	-1.67	-9.67
	5.5 Mbps	< 8.00	-3.41	-11.41
	11 Mbps	< 8.00	-4.12	-12.12
	6 Mbps	< 8.00	-9.17	-17.17
	24 Mbps	< 8.00	-9.55	-17.55
	54 Mbps	< 8.00	-10.83	-18.83
	MCS 0	< 8.00	-8.83	-16.83
	MCS 4	< 8.00	-9.50	-17.50
	MCS 7	< 8.00	-11.50	-19.50
6	1 Mbps	< 8.00	-1.83	-9.83
	5.5 Mbps	< 8.00	-3.20	-11.20
	11 Mbps	< 8.00	-4.50	-12.50
	6 Mbps	< 8.00	-7.17	-15.17
	24 Mbps	< 8.00	-9.44	-17.44
	54 Mbps	< 8.00	-11.38	-19.38
	MCS 0	< 8.00	-5.33	-13.33
	MCS 4	< 8.00	-7.86	-15.86
	MCS 7	< 8.00	-10.33	-18.33
11	1 Mbps	< 8.00	-0.50	-8.50
	5.5 Mbps	< 8.00	-2.13	-10.13
	11 Mbps	< 8.00	-3.50	-11.50
	6 Mbps	< 8.00	-8.00	-16.00
	24 Mbps	< 8.00	-9.50	-17.50
	54 Mbps	< 8.00	-11.50	-19.50
	MCS 0	< 8.00	-7.50	-15.50
	MCS 4	< 8.00	-9.00	-17.00
	MCS 7	< 8.00	-11.15	-19.15

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

See figures 4-16a to 4-24a for the plots of the peak power spectral density for Channels 1, 6 and 11, at 1 Mbps each for 802.11b mode, 6 Mbps each for 802.11g mode, and MCS 0 for 802.11n mode.

Figure 4-16a: Peak Power Spectral Density

802.11b, Channel 1, 1 Mbps

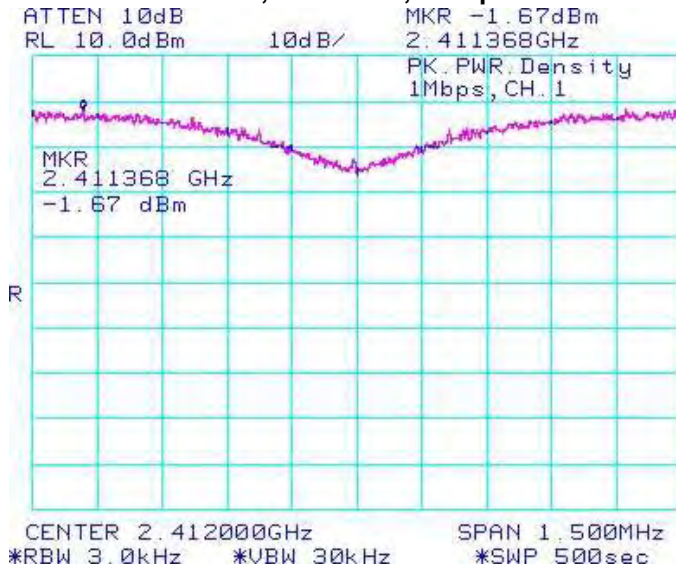


Figure 4-17a: Peak Power Spectral Density

802.11b, Channel 6, 1 Mbps

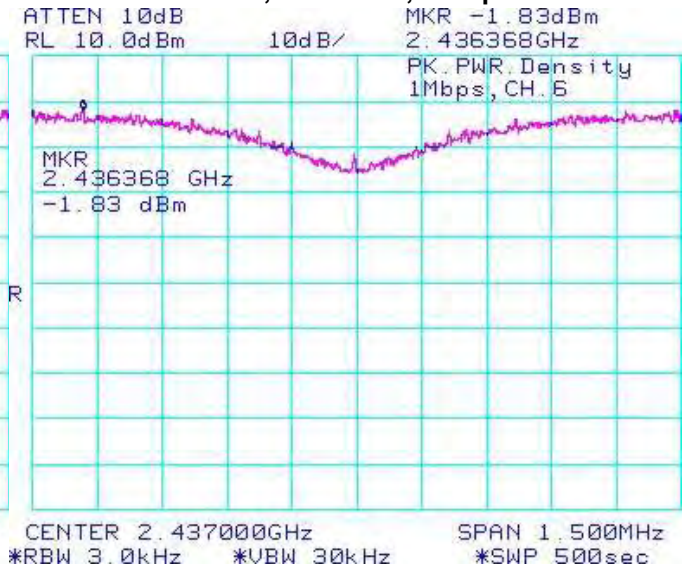
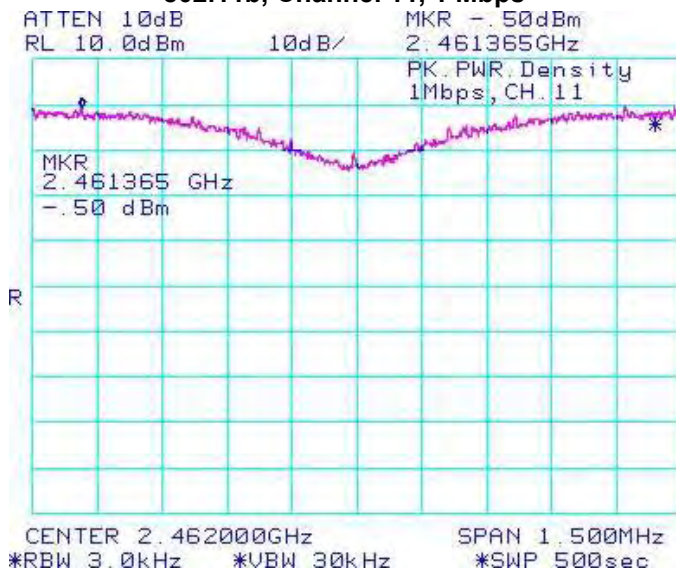


Figure 4-18a: Peak Power Spectral Density

802.11b, Channel 11, 1 Mbps



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

Figure 4-19a: Peak Power Spectral Density

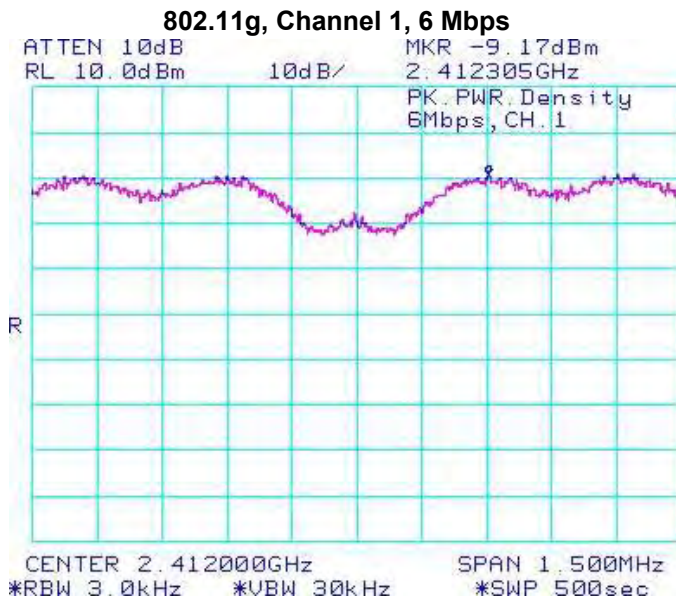


Figure 4-20a: Peak Power Spectral Density

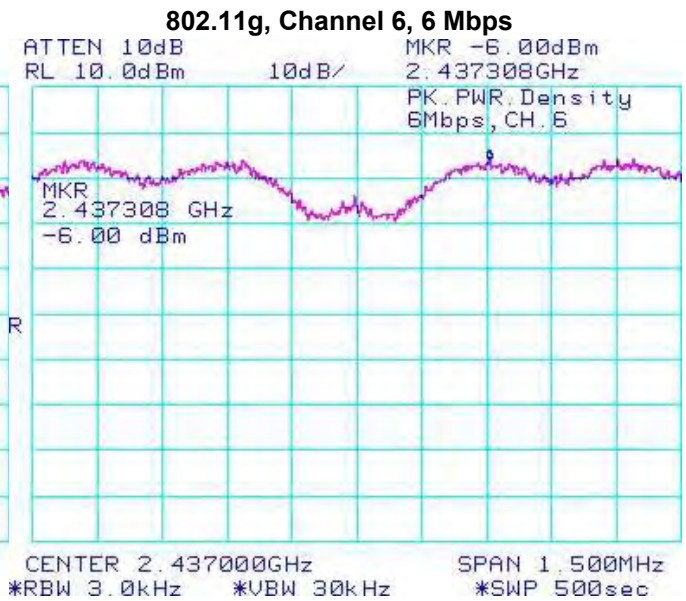
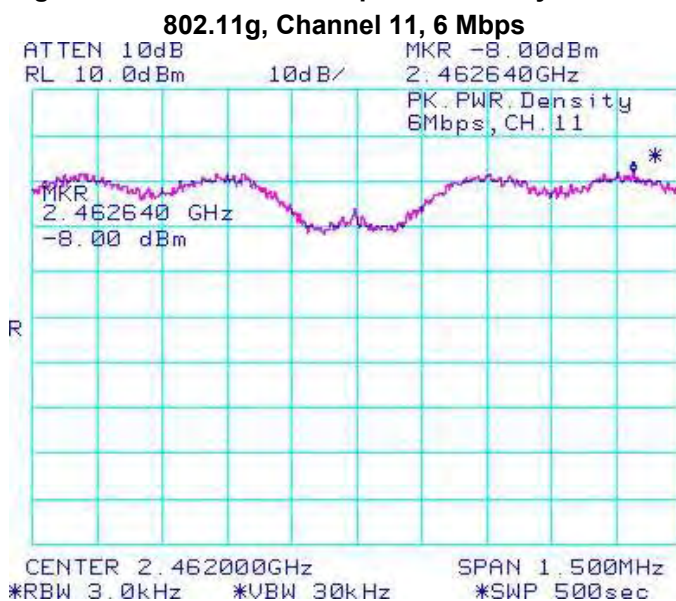


Figure 4-21a: Peak Power Spectral Density



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

Figure 4-22a: Peak Power Spectral Density

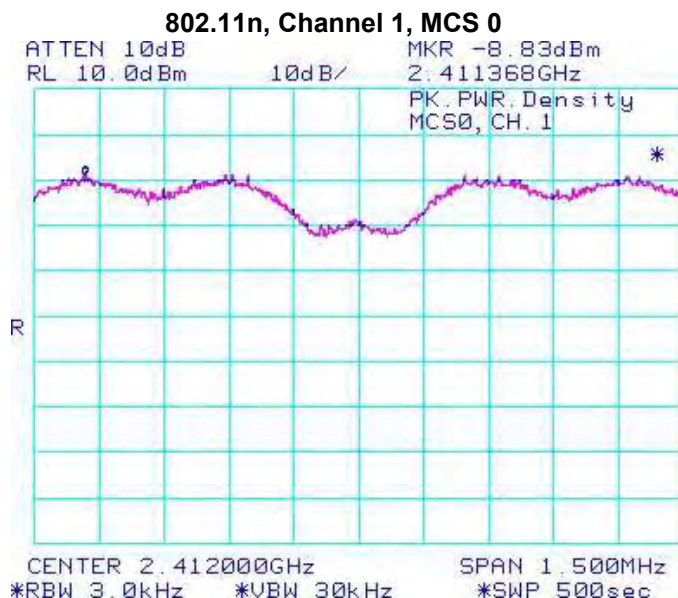


Figure 4-23a: Peak Power Spectral Density

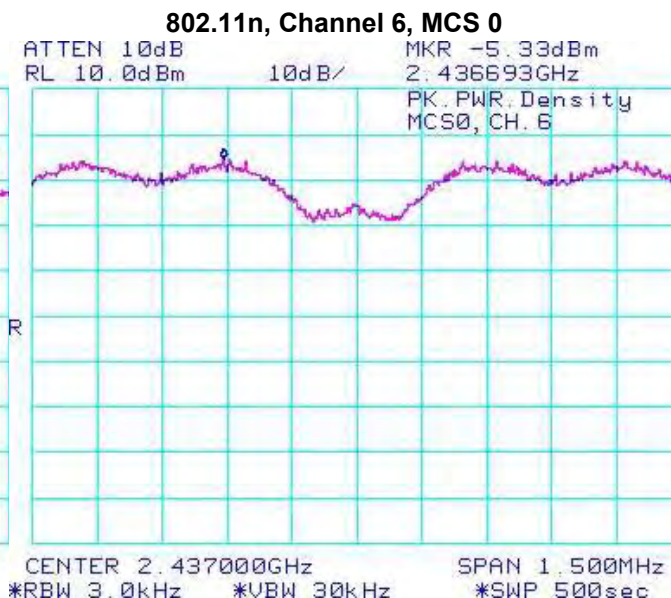
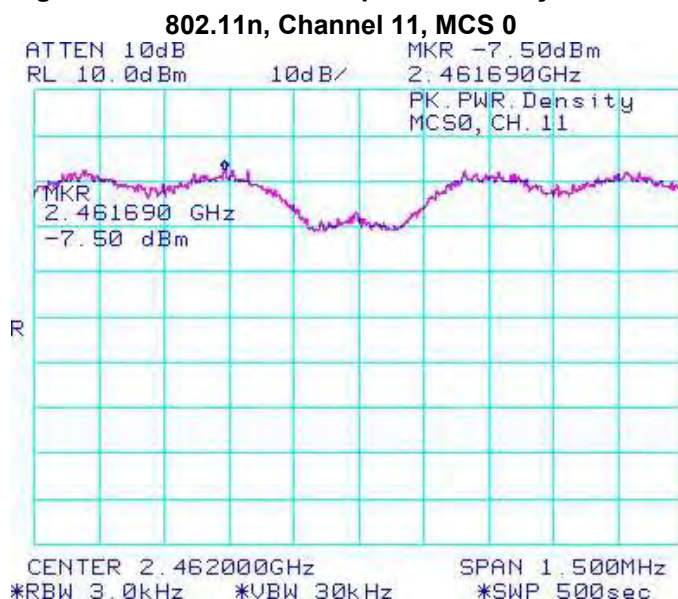


Figure 4-24a: Peak Power Spectral Density



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

The table below shows partial test results on model REU71UW, part number CER-48921-001 Rev4.

Channel	Data Rate	Limit (dBm)	Measured Level (dBm)	Margin (dBm)
1	1 Mbps	< 8.00	-2.67	-10.67
	6 Mbps	< 8.00	-9.50	-17.50
	MCS 0	< 8.00	-8.83	-16.83
6	1 Mbps	< 8.00	-2.83	-10.83
	6 Mbps	< 8.00	-6.17	-14.17
	MCS 0	< 8.00	-5.83	-13.83
11	1 Mbps	< 8.00	-2.33	-10.33
	6 Mbps	< 8.00	-8.00	-16.00
	MCS 0	< 8.00	-7.83	-15.83

See figures 4-16b to 4-24b for the plots of the peak power spectral density for Channels 1, 6 and 11, at 1 Mbps each for 802.11b mode, 6 Mbps each for 802.11g mode, and MCS 0 for 802.11n mode.

Figure 4-16b: Peak Power Spectral Density

802.11b, Channel 1, 1 Mbps

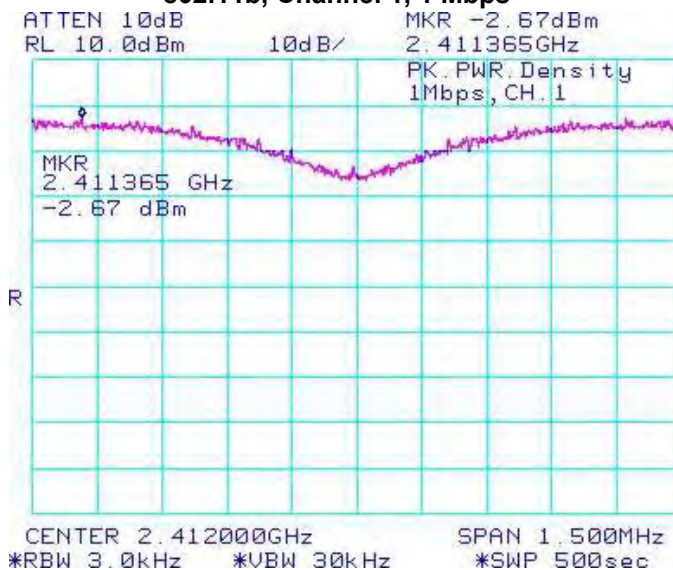
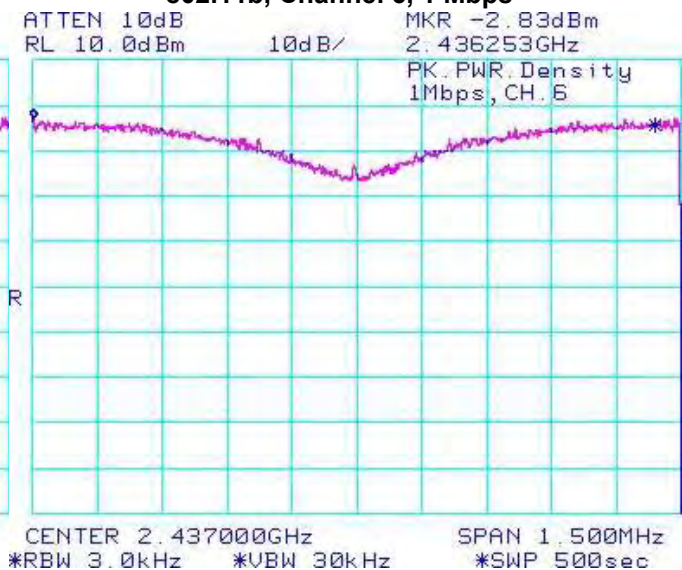


Figure 4-17b: Peak Power Spectral Density

802.11b, Channel 6, 1 Mbps



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

Figure 4-18b: Peak Power Spectral Density

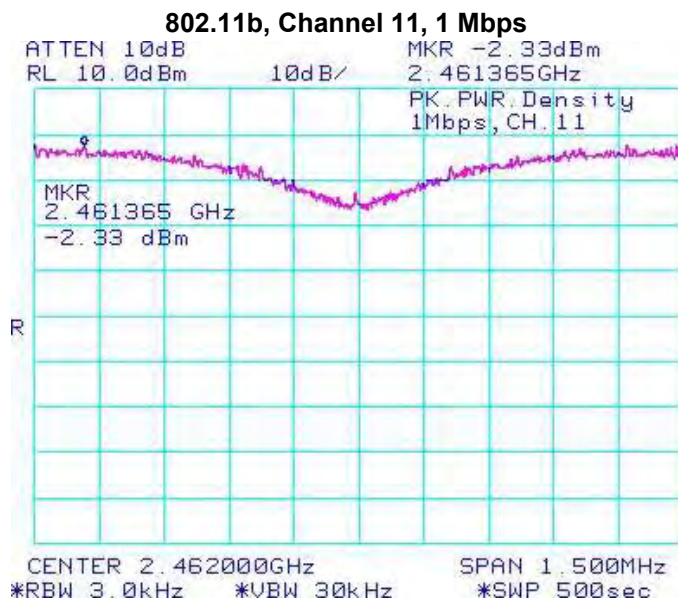


Figure 4-19b: Peak Power Spectral Density

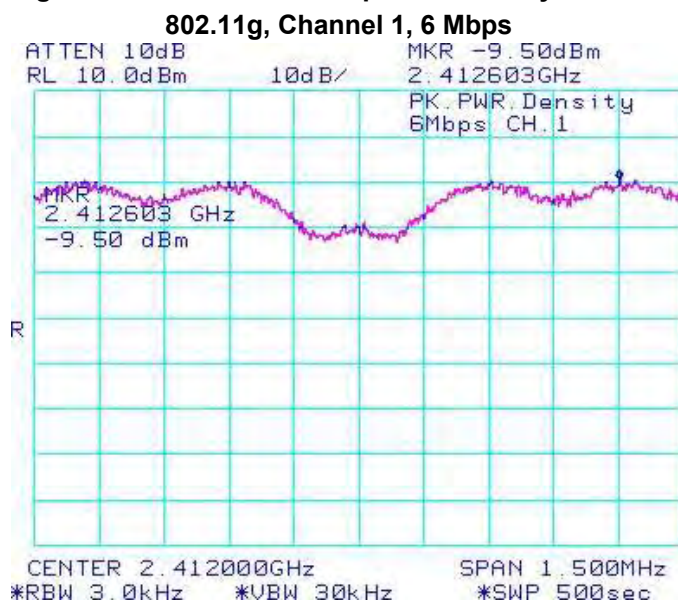
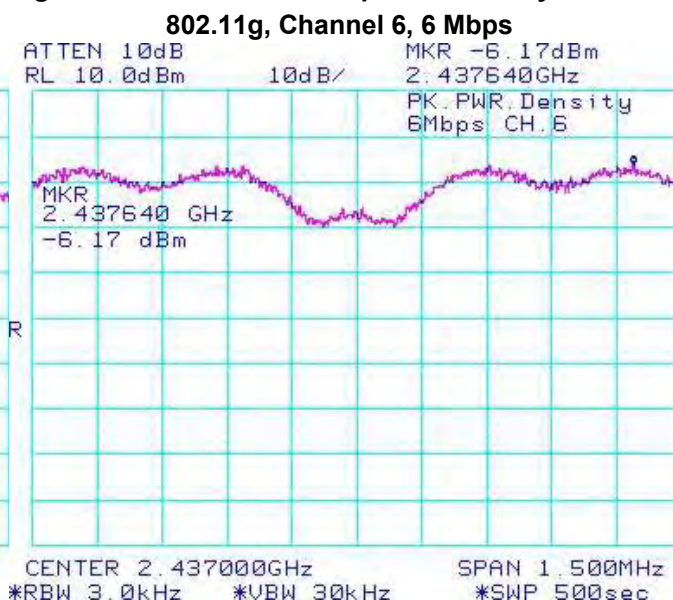


Figure 4-20b: Peak Power Spectral Density



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

Figure 4-21b: Peak Power Spectral Density

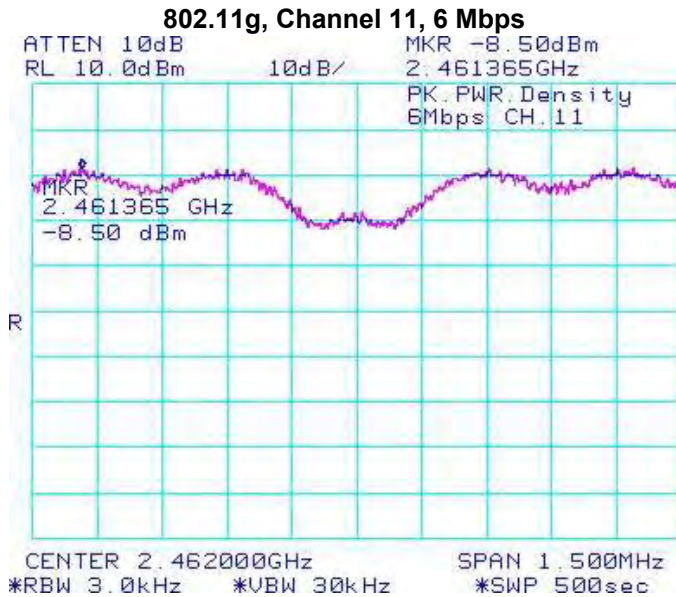


Figure 4-22b: Peak Power Spectral Density

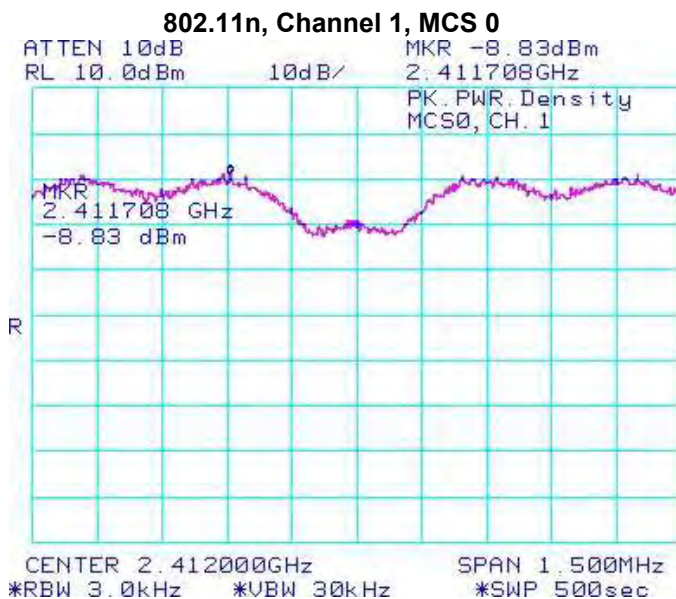
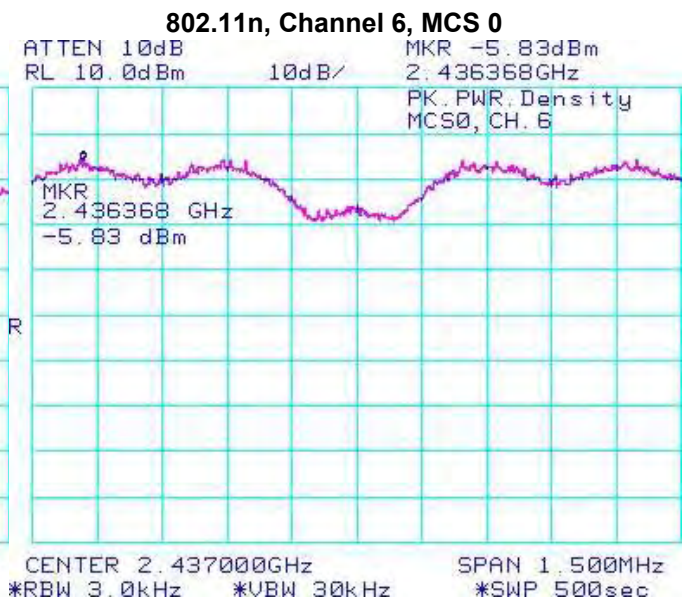


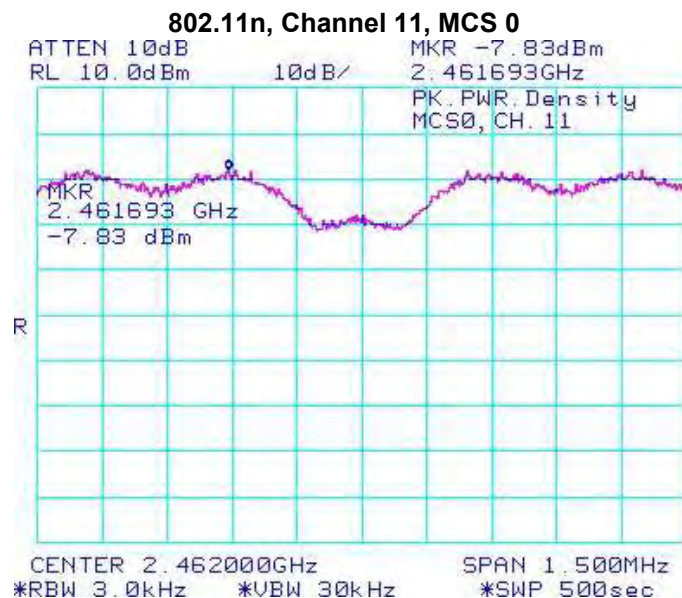
Figure 4-23b: Peak Power Spectral Density



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

Figure 4-24b: Peak Power Spectral Density



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802.11b/g/n 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, 6 Mbps, 24 Mbps, and 54 Mbps each for 802.11g mode, and MCS 0, 4, and 7 for 802.11n mode. Peak power was measured using an Agilent power meter, model N1911A with model N1921A power sensor. A reference offset of 18.4 dB was applied to the power meter reference level for the coaxial cable loss and attenuators in the test circuit.

Channel	Data Rate	Power (dBm)	Max. Measured Level (dBm)	Max. Measured Level from Carrier (dBc)	Limit (dBc)
1	1 Mbps	18.67	-49.17	-67.84	-20
	5.5 Mbps	18.52	-47.63	-66.15	-20
	11 Mbps	18.59	-50.11	-68.70	-20
	6 Mbps	14.32	-47.50	-61.82	-20
	24 Mbps	14.21	-49.00	-63.21	-20
	54 Mbps	12.75	-48.82	-61.57	-20
	MCS 0	14.12	-49.33	-63.45	-20
	MCS 4	13.82	-49.75	-63.57	-20
	MCS 7	11.02	-50.50	-61.52	-20
6	1 Mbps	18.30	-49.50	-67.80	-20
	5.5 Mbps	18.17	-51.00	-69.17	-20
	11 Mbps	18.20	-51.50	-69.70	-20
	6 Mbps	17.46	-49.67	-67.13	-20
	24 Mbps	14.65	-48.50	-63.15	-20
	54 Mbps	13.32	-50.05	-63.37	-20
	MCS 0	13.51	-48.00	-61.51	-20
	MCS 4	13.32	-49.00	-62.32	-20
	MCS 7	11.55	-50.50	-62.05	-20

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

Channel	Data Rate	Power (dBm)	Max. Measured Level (dBm)	Max. Measured Level from Carrier (dBc)	Limit (dBc)
11	1 Mbps	19.66	-45.67	-65.33	-20
	5.5 Mbps	19.61	-46.50	-66.11	-20
	11 Mbps	19.66	-48.00	-67.66	-20
	6 Mbps	15.49	-48.67	-64.16	-20
	24 Mbps	15.39	-49.88	-65.27	-20
	54 Mbps	13.82	-51.33	-65.15	-20
	MCS 0	14.14	-48.67	-62.81	-20
	MCS 4	13.58	-51.23	-64.81	-20
	MCS 7	11.86	-51.80	-63.66	-20

The emissions were in the NF.

See figures 4-25 to 4-33 for the plots of the spurious RF conducted emissions for Channels 1, 6 and 11, at 1 Mbps each for 802.11b mode, 6 Mbps each for 802.11g mode, and MCS 0 each for 802.11n mode.

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

Figure 4-25: Spurious Conducted RF Emissions

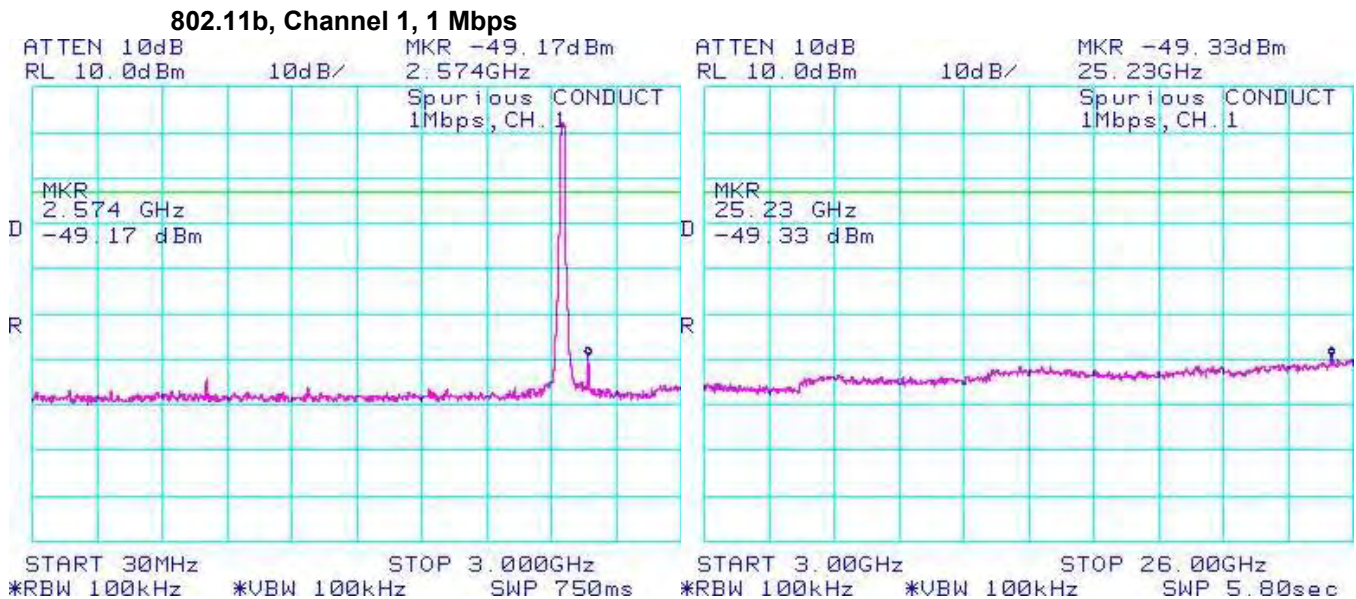
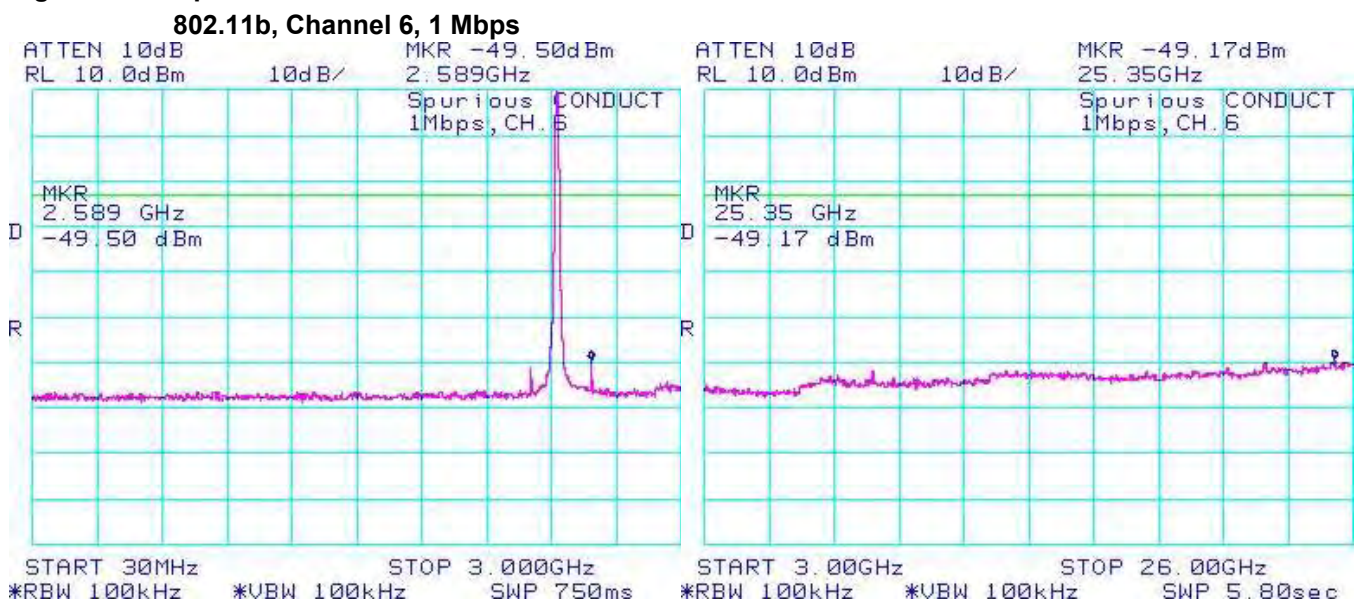


Figure 4-26 : Spurious Conducted RF Emissions



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

Figure 4-27: Spurious Conducted RF Emissions

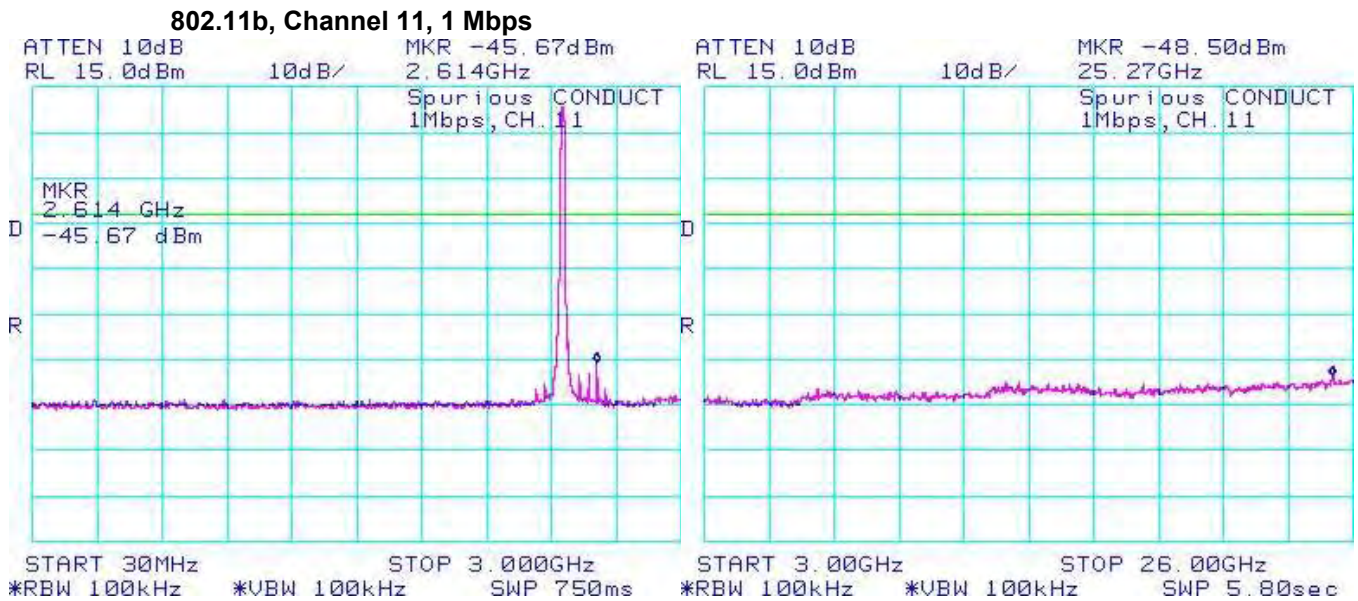
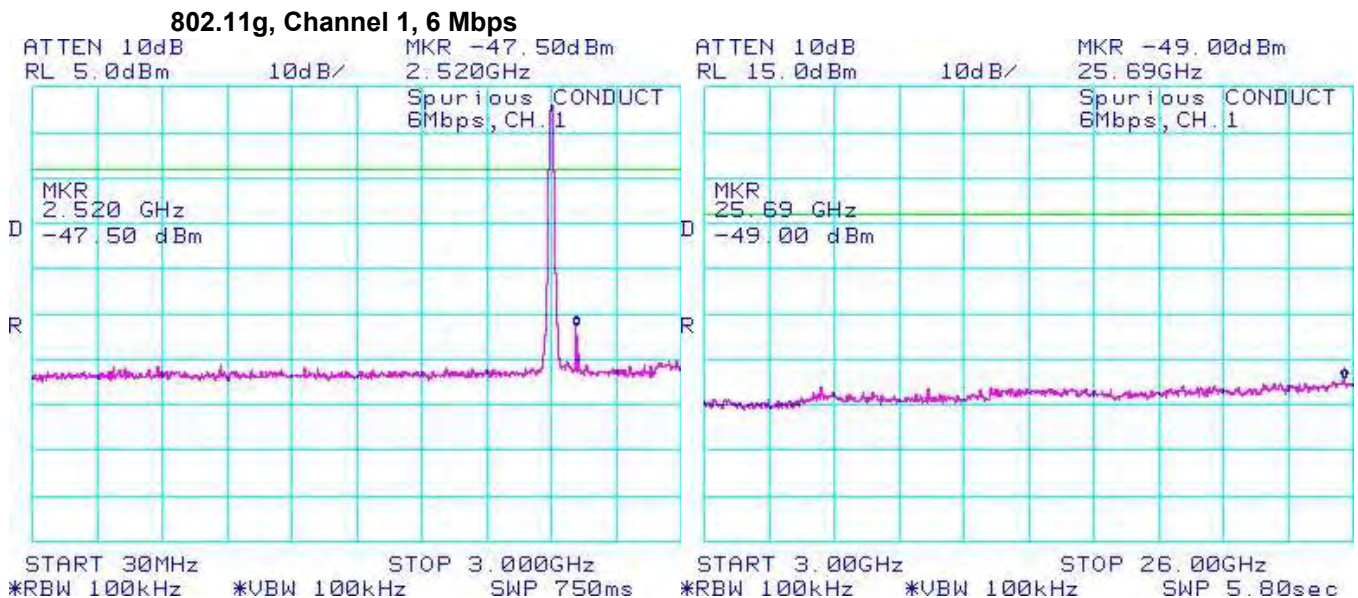


Figure 4-28: Spurious Conducted RF Emissions



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

Figure 4-29: Spurious Conducted RF Emissions

802.11g, Channel 6, 6 Mbps

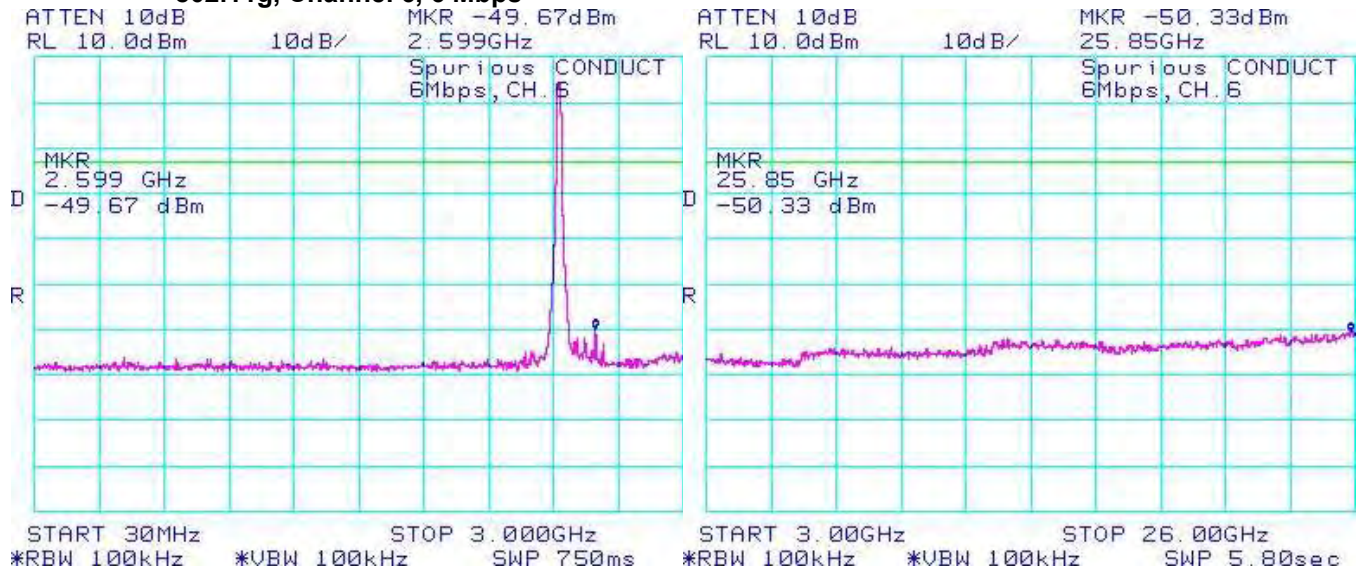
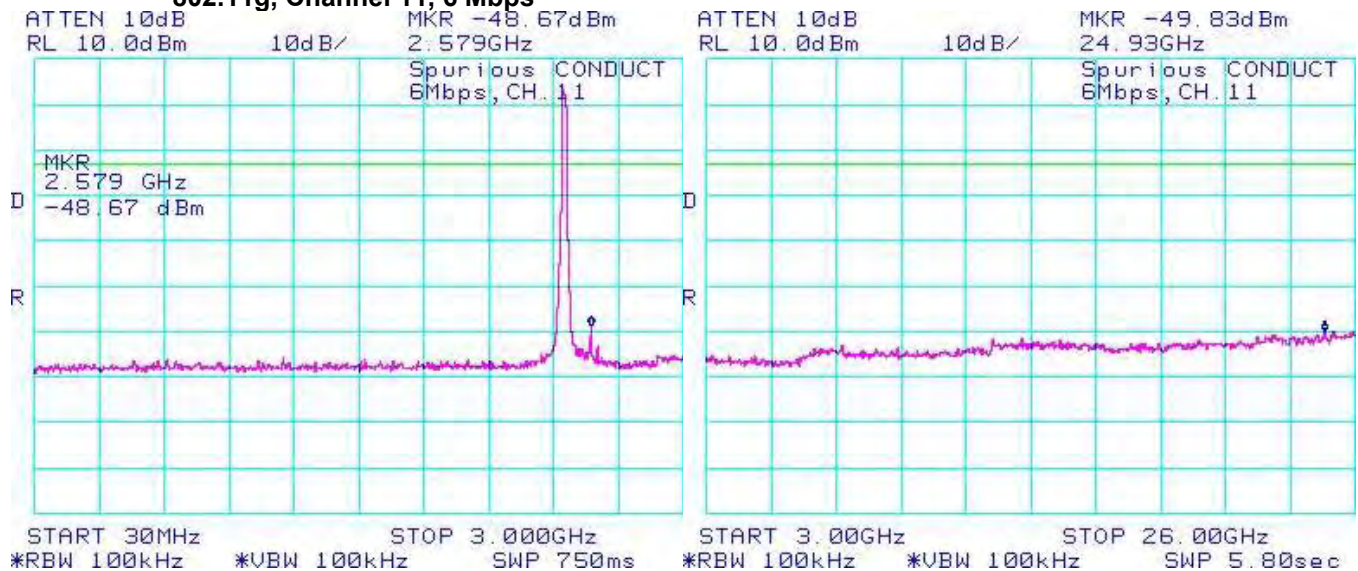


Figure 4-30: Spurious Conducted RF Emissions

802.11g, Channel 11, 6 Mbps



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

Figure 4-31: Spurious Conducted RF Emissions

802.11n, Channel 1, MCS 0

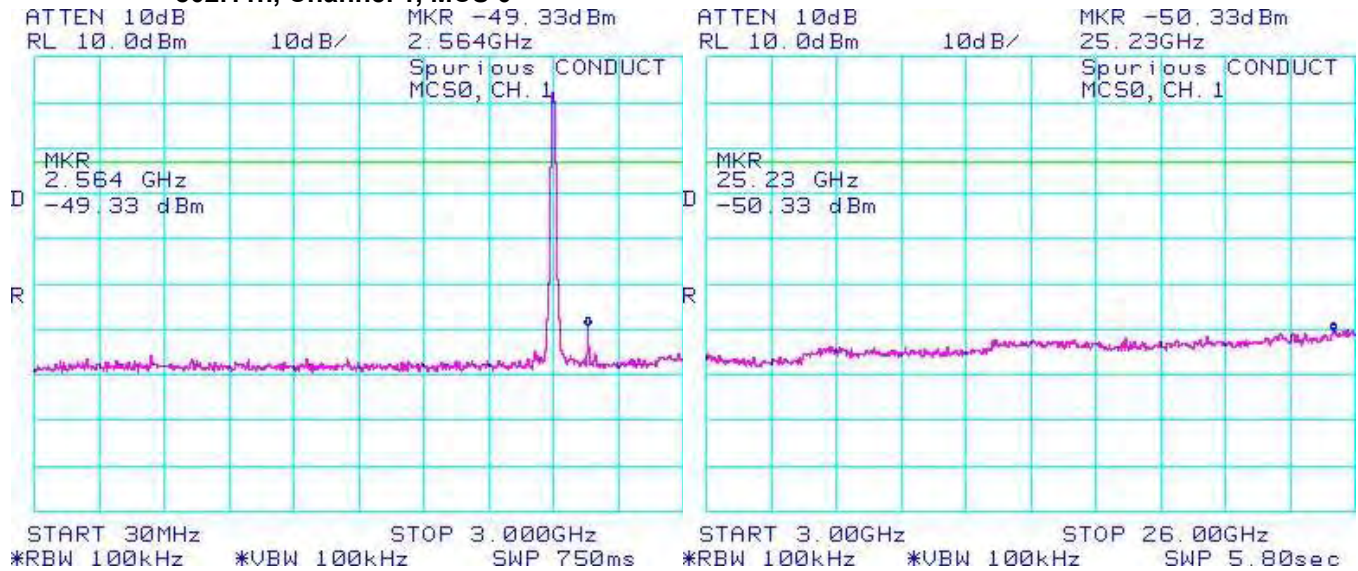
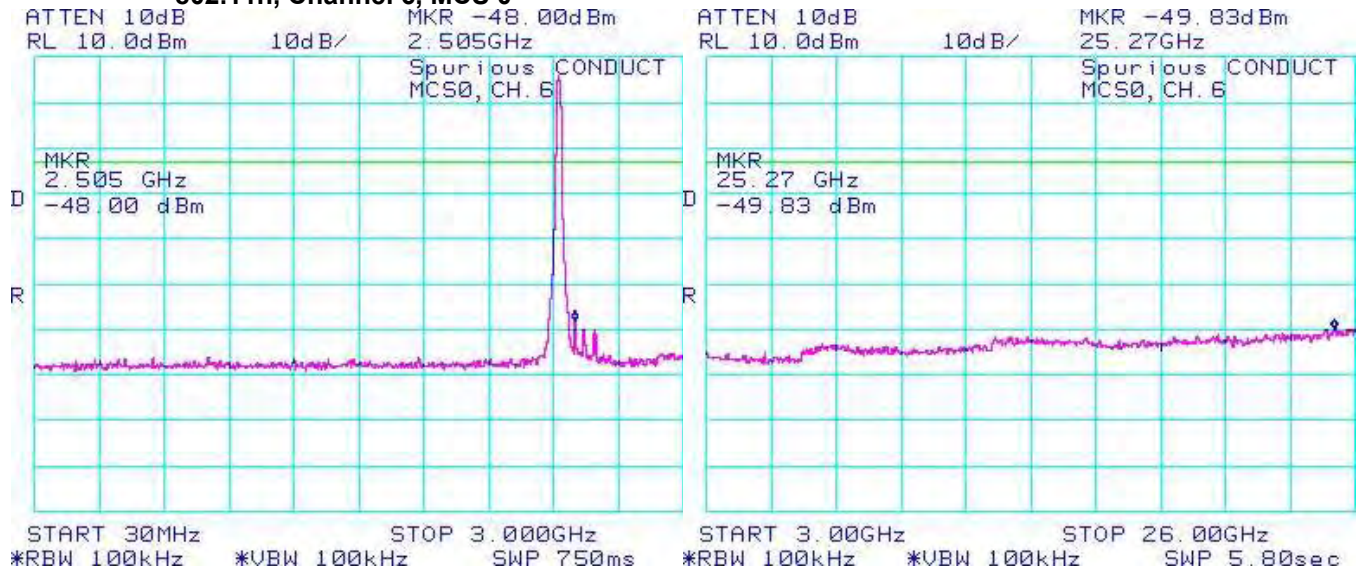


Figure 4-32: Spurious Conducted RF Emissions

802.11n, Channel 6, MCS 0



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

Figure 4-33: Spurious Conducted RF Emissions

802.11n, Channel 11, MCS 0

