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Lexmark International, Inc. TEST REPORT

SCOPE OF WORK
FCC TITLE 47 CFR PART 15.247
RSS-247 ISSUE 2 & RSS-GEN ISSUE 4
ON THE LEX-M08-001 WIRELESS PRINT SERVER

REPORT NUMBER
103509456LEX-004.1

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5/16/2018	7/1/2018

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93

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TEST REPORT

Report Number: **103509456LEX-004.1**
Project Number: **G103509456**

Report Issue Date: **5/16/2018**

Product Name: **Wireless Print Server**
Model: **LEX-M08-001**

FCC Standards: **FCC Title 47 CFR Part 15.247**
Industry Canada Standards: **RSS-247 Issue 2 & RSS-GEN Issue 4**

Tested by:
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731 Enterprise Drive
Lexington, KY 40510

Client:
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740 W New Circle Road, F61/004-2
Lexington, KY 40511

Report prepared by

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Report reviewed by

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1 Introduction and Conclusion

The tests indicated in section 2 were performed on the product constructed as described in section 3. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test method, a list of the actual test equipment used, documentation photos, results and raw data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested complied with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested.

The INTERTEK-Lexington is located at 731 Enterprise Drive, Lexington Kentucky, 40510. The radiated emission test site is a 10-meter semi-anechoic chamber. The chamber meets the characteristics of CISPR 16-1 and ANSI C63.4. For measurements, a remotely controlled flush-mount metal-top turntable is used to rotate the EUT a full 360 degrees. A remote controlled non-conductive antenna mast is used to scan the antenna height from one to four meters. The test site is listed with the FCC under registration number 485103. The test site is listed with Industry Canada under site number IC 2042M-1.

2 Test Summary

Page	Test full name	FCC Reference	IC Reference	Result
7	Peak Conducted Power	§ 15.247(b)(3)(4)	RSS-247 (5.4)	Pass
10	Occupied Bandwidth	§ 15.247(a)(2)	RSS-247 (5.2)	Pass
22	Conducted Spurious Emissions	§ 15.247(d)	RSS-247 (5.5)	Pass
29	Power Spectral Density	§ 15.247(e)	RSS-247 (5.2)	Pass
35	Radiated Spurious Emissions (Transmitter)	§ 15.247(d), § 15.209, and § 15.205	RSS-247 (5.5)	Pass
77	Radiated Spurious Emissions (Receiver)	§ 15.109	RSS-Gen (7.1.2)	Pass
85	AC Powerline Conducted Emissions	§ 15.107, § 15.207	RSS-Gen (8.8)	Pass
91	Antenna Requirement per FCC Part 15.203	§ 15.203	RSS-Gen (8.3)	Pass

3 Description of Equipment Under Test

Equipment Under Test	
Manufacturer	Lexmark International, Inc.
Model Number	LEX-M08-001
Serial Number	Test Sample 1, 2 and 3
Receive Date	5/7/2018
Test Start Date	5/7/2018
Test End Date	5/14/2018
Device Received Condition	Good
Test Sample Type	Production
Frequency Band	2412MHz – 2462MHz
Mode(s) of Operation	802.11b,g,n
Modulation Type	BPSK, QPSK, CCK, OFDM
Duty Cycle	100%
Transmission Control	Test Commands
Maximum Output Power (Peak)	802.11b: 19.89dBm 802.11g: 24.11dBm 802.11n: 23.62dBm
Maximum Antenna Gain	Internal Antenna: 2.8dBi External Antenna: 2.5dBi
Test Channels	802.11 b, g, n(HT20): Channels 1, 6, 11
Antenna Type (15.203)	PCB Antenna, External Antenna (Soldered to Board)
Operating Voltage	5V via USB

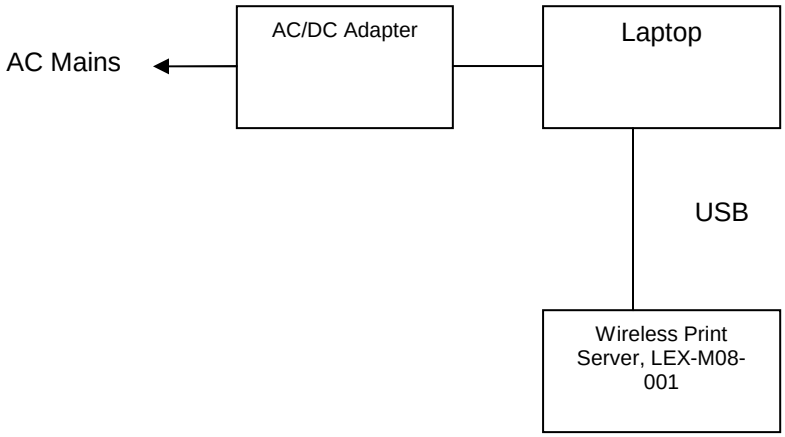
Description of Equipment Under Test
The LEX-M08-001 is a 2.4GHz Wi-Fi module supporting 802.11b/g/n standards. It was tested with two separate antennas; one internal to the module and one external.

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	Transmitting 802.11 b, g or n on low, mid or high channels and directly coupled to the measurement equipment via a coaxial connection
2	Transmitting 802.11 b, g or n on low, mid or high channels and utilizing the internal antenna.
3	Transmitting 802.11 b, g or n on low, mid or high channels and utilizing the external antenna.
4	Receive mode / idle mode

4 System setup including cable interconnection details, support equipment and simplified block diagram

4.1 EUT Block Diagram:



4.2 Cables:

Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
1	USB Cable	2m	Yes	None	Laptop Computer

4.3 Support Equipment:

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
Laptop	HP	ProBook 455 G4	5CD7212NG5

5 Peak Conducted Power

5.1 Test Limits:

§ 15.247(b)(3): For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

§ 15.247(b)(4): The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RSS-247 5.4(d): For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

5.2 Test Procedure:

ANSI C63.10:2013 § 11.9.1.3 and KDB Publication No. 558074: Guidance on Measurements for Digital Transmission Systems (47 CFR 15.247). The peak and average output power was measured using a wideband power sensor.

5.3 Test Equipment Used:

Description	Serial Number	Manufacturer	Model	Cal. Date	Cal. Due
Wideband Power Sensor	100155	Rohde&Schwarz	NRP-Z81	9/20/2017	9/20/2018

5.4 Test Results:

The device was found to be **compliant**. The peak output power was less than the limit.

5.5 Test Conditions:

Test Personnel:	Bryan Taylor	Test Date:	5/14/2018
Supervising/Reviewing Engineer: (Where Applicable)	NA	Ambient Temperature:	22.5C
Input Voltage:	DC Powered via USB	Relative Humidity:	43.7%
		Atmospheric Pressure:	989.3mbar

5.6 Test Data:

Mode	Channel	Freqeuncy (MHz)	Peak Power (dBm)	Average Power (dBm)	15.247 / RSS-247 Conducted Limit (dBm)	Peak Margin (dB)	Average Margin (dB)	Result
802.11b	1	2412	19.63	16.51	30	10.37	13.49	**Pass**
802.11b	6	2437	19.72	16.91	30	10.28	13.09	**Pass**
802.11b	11	2462	19.89	17.14	30	10.11	12.86	**Pass**
802.11g	1	2412	23.83	15.04	30	6.17	14.96	**Pass**
802.11g	6	2437	24.01	15.48	30	5.99	14.52	**Pass**
802.11g	11	2462	24.11	15.73	30	5.89	14.27	**Pass**
802.11n20	1	2412	23.36	14.89	30	6.64	15.11	**Pass**
802.11n20	6	2437	23.62	15.42	30	6.38	14.58	**Pass**
802.11n20	11	2462	23.60	15.70	30	6.40	14.30	**Pass**

6 Occupied Bandwidth

6.1 Test Limits:

§ 15.247(a)(2): For digital modulation systems, the minimum 6dB bandwidth shall be at least 500kHz.

RSS-247(5.2)(a): The minimum 6dB bandwidth shall be 500kHz.

6.2 Test Procedure:

ANSI C63.10: 2013 and KDB Publication No. 558074: Guidance on Measurements for Digital Transmission Systems (47 CFR 15.247)

6.3 Test Equipment Used:

Description	Asset Number	Manufacturer	Model	Cal. Date	Cal. Due
Spectrum Analyzer	3720	Rohde & Schwarz	FSEK30	9/20/2017	9/20/2018
Spectrum Analyzer	3065	Rohde & Schwarz	FSP	9/20/2017	9/20/2018

6.4 Test Results:

The device was found to be **compliant**. All occupied bandwidth measurements were greater than 500kHz.

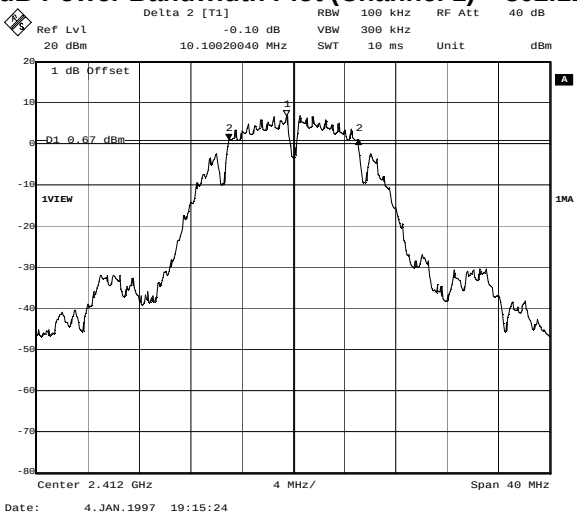
6.5 Test Conditions

Test Personnel:	Bryan Taylor	Test Date:	5/4/2018, 6/30/2018
Supervising/Reviewing Engineer: (Where Applicable)	NA	Ambient Temperature:	22.3C
Input Voltage:	5VDC via USB	Relative Humidity:	48.4%
		Atmospheric Pressure:	995.2mBar

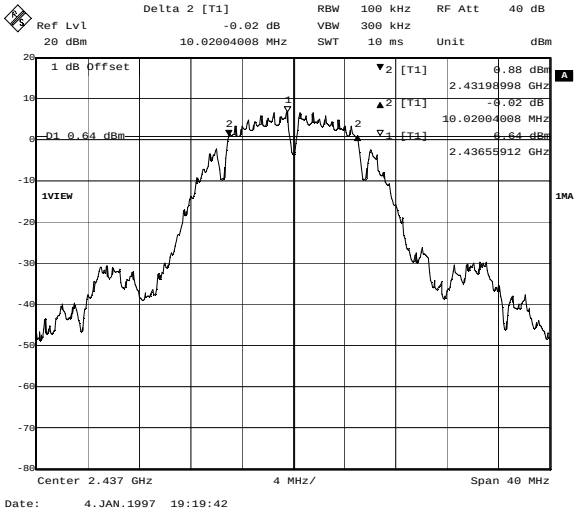
6.6 Test Data:

Mode	Channel Number	Frequency (MHz)	6dB Bandwidth (MHz)	99% Power Bandwidth (MHz)	Result
802.11b	1	2412	10.1MHz	13.5MHz	Pass
802.11b	6	2437	10.02MHz	13.5MHz	Pass
802.11b	11	2462	10.02MHz	13.7MHz	Pass
802.11g	1	2412	16.67MHz	16.9MHz	Pass
802.11g	6	2437	16.67MHz	17.0MHz	Pass
802.11g	11	2462	16.67MHz	17.1MHz	Pass
802.11n (20MHz)	1	2412	17.95MHz	18.3MHz	Pass
802.11n (20MHz)	6	2437	17.96MHz	18.6MHz	Pass
802.11n (20MHz)	11	2462	17.96MHz	18.5MHz	Pass

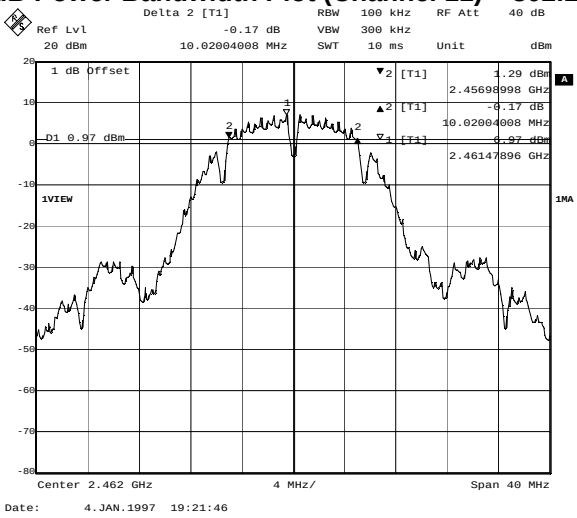
6dB Power Bandwidth Plot (Channel 1) – 802.11b



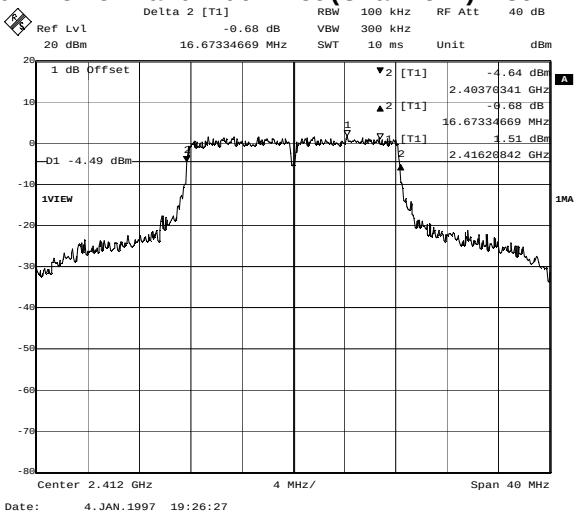
6dB Power Bandwidth Plot (Channel 6) – 802.11b



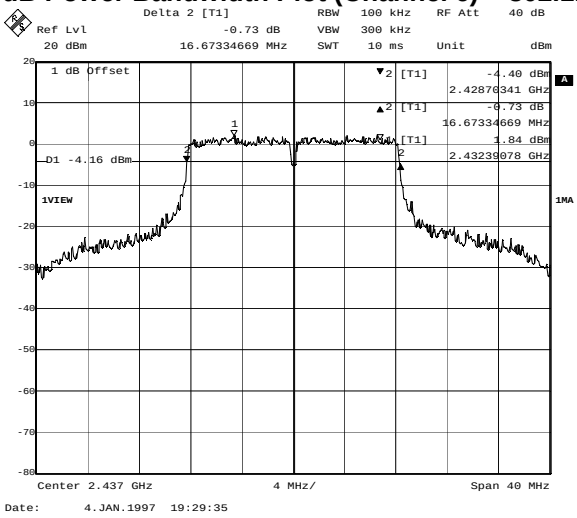
6dB Power Bandwidth Plot (Channel 11) – 802.11b



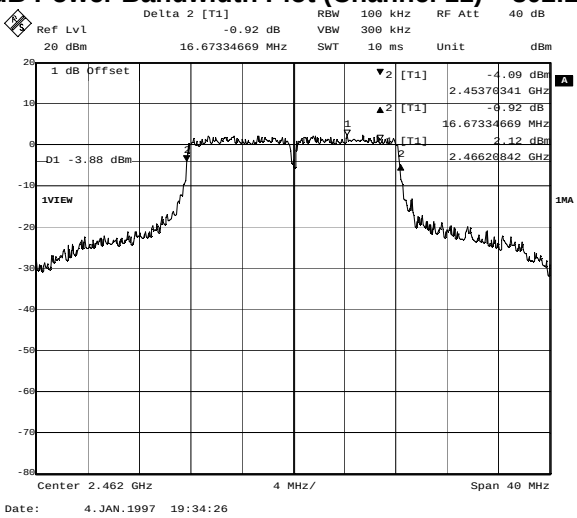
6dB Power Bandwidth Plot (Channel 1) – 802.11g



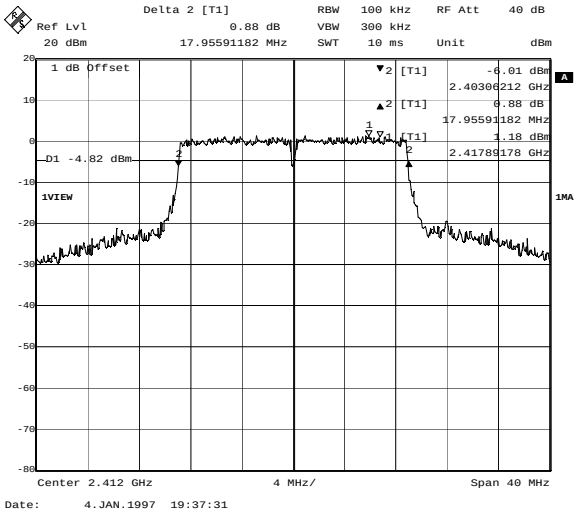
6dB Power Bandwidth Plot (Channel 6) – 802.11g



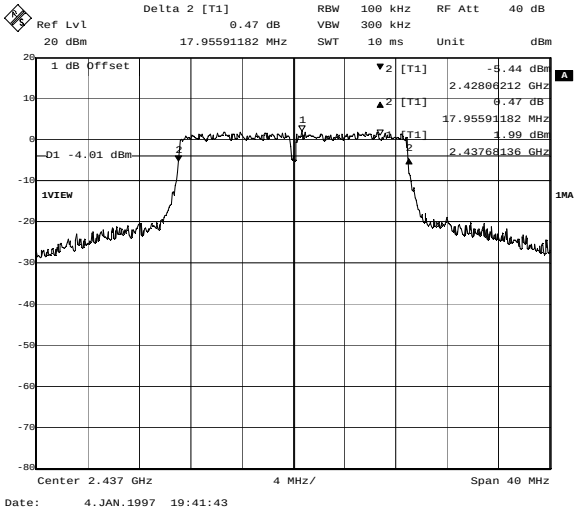
6dB Power Bandwidth Plot (Channel 11) – 802.11g



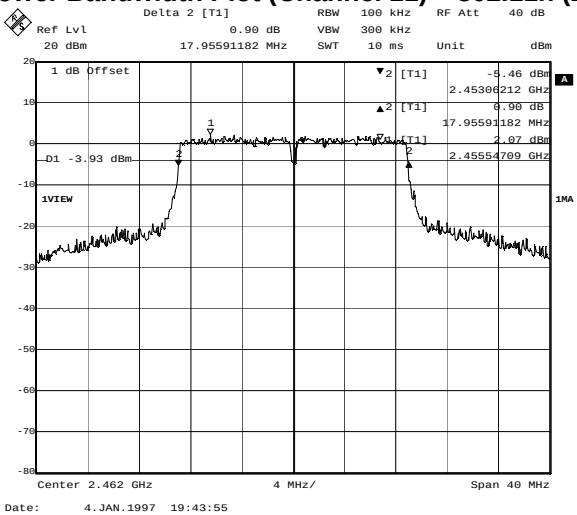
6dB Power Bandwidth Plot (Channel 1) – 802.11n (20MHz)



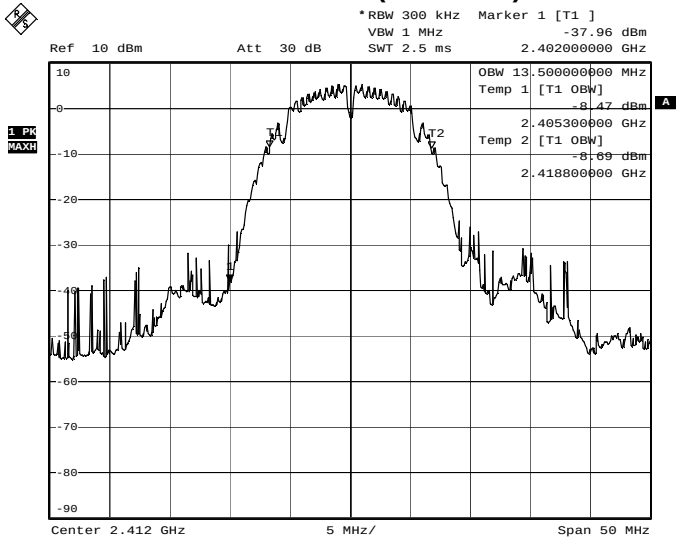
6dB Power Bandwidth Plot (Channel 6) – 802.11n (20MHz)



6dB Power Bandwidth Plot (Channel 11) – 802.11n (20MHz)



99% Power Bandwidth Plot (Channel 1) – 802.11b



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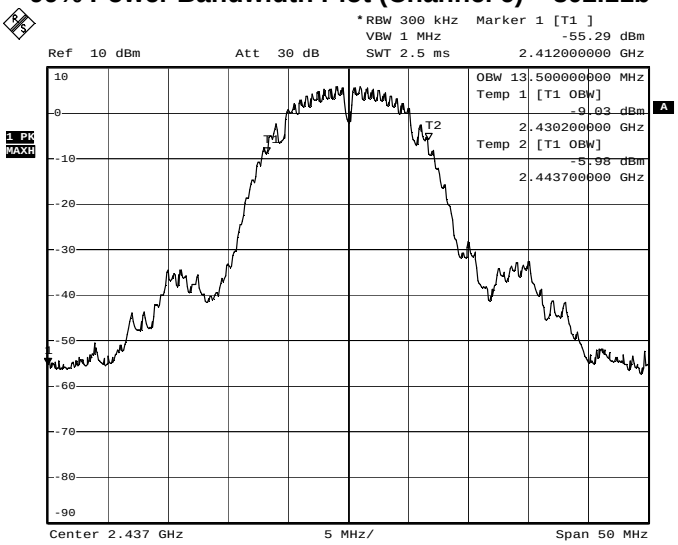
99% Power Bandwidth Plot (Channel 6) – 802.11b



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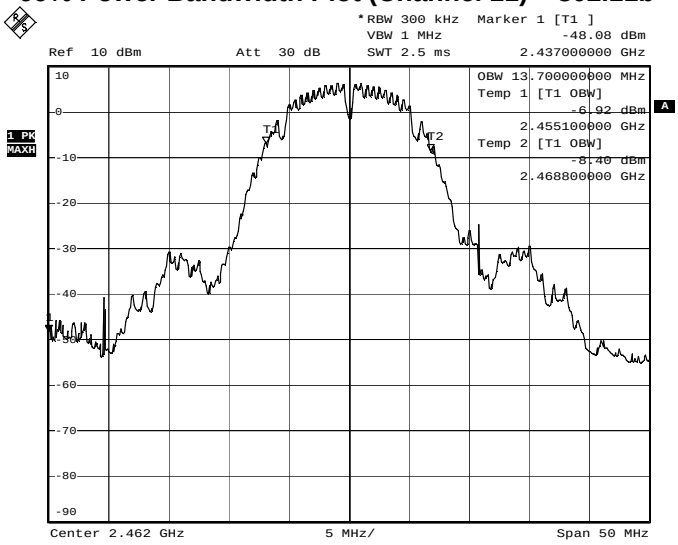

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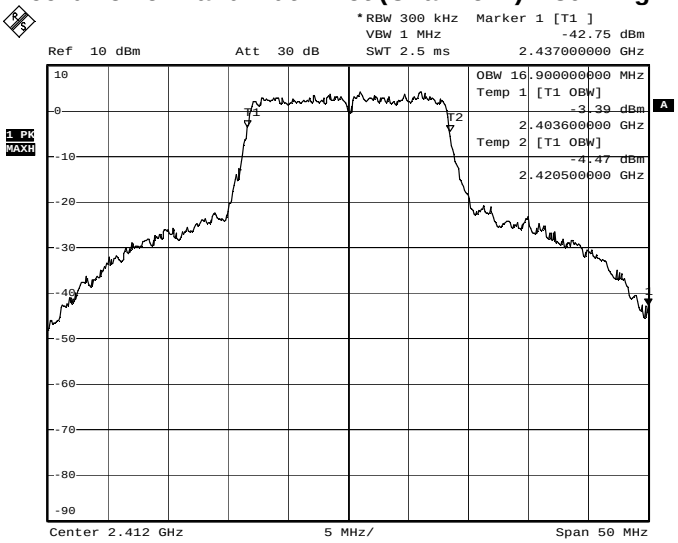
99% Power Bandwidth Plot (Channel 1) – 802.11g



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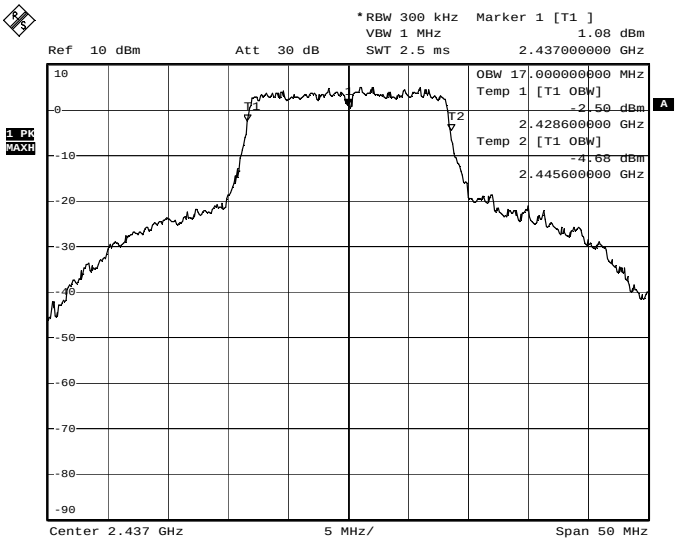

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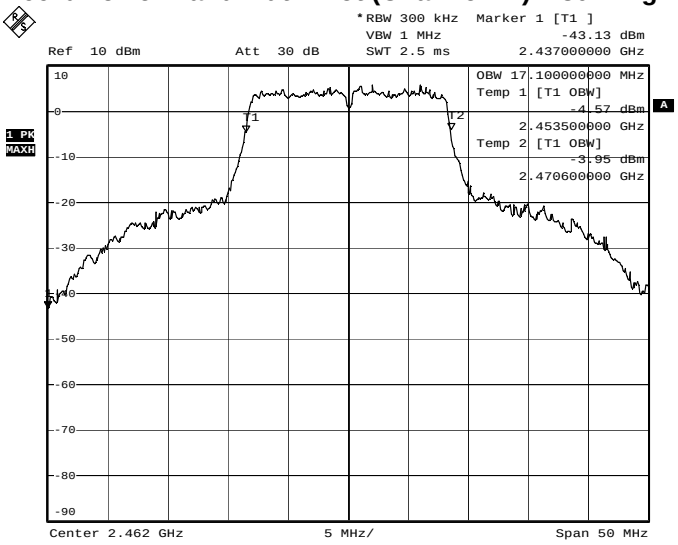
99% Power Bandwidth Plot (Channel 11) – 802.11g



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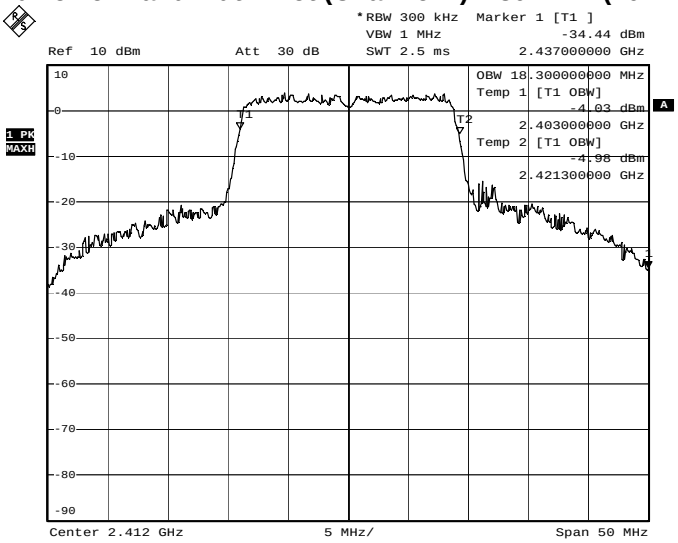
99% Power Bandwidth Plot (Channel 1) – 802.11n (20MHz)



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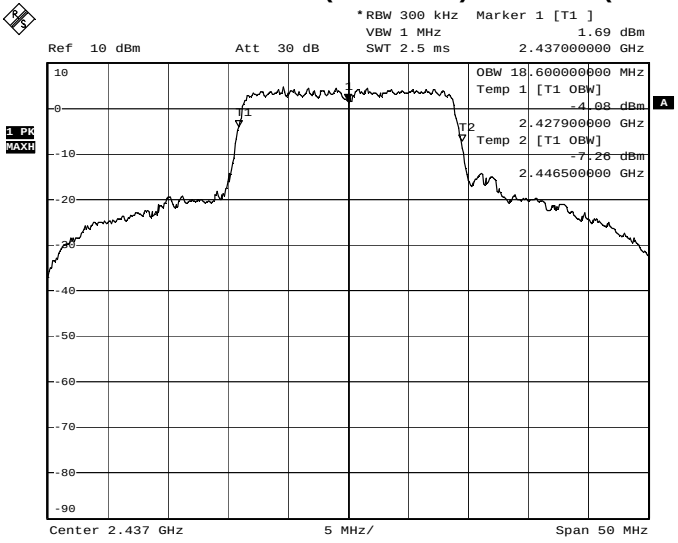
99% Power Bandwidth Plot (Channel 6) – 802.11n (20MHz)



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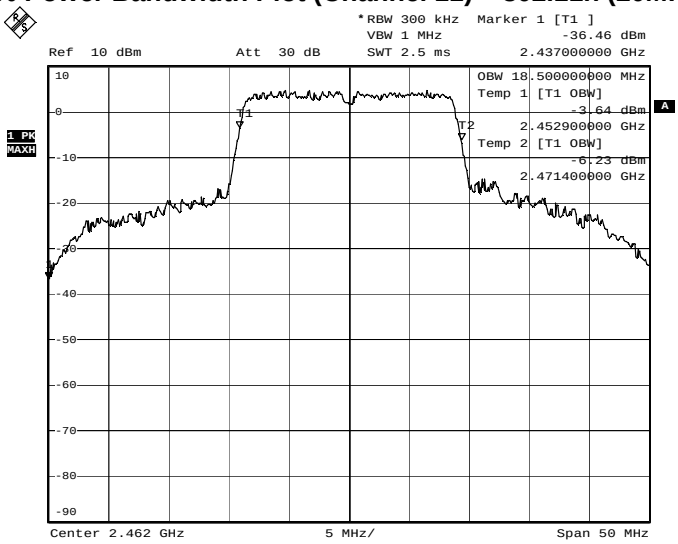
99% Power Bandwidth Plot (Channel 11) – 802.11n (20MHz)



Date: 30.JUN.2018 22:17:54

7 Conducted Spurious Emissions

7.1 Test Limits:

§ 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

RSS-247(5.5): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

7.2 Test Procedure:

ANSI C63.10: 2013 and KDB Publication No. 558074: Guidance on Measurements for Digital Transmission Systems (47 CFR 15.247)

7.3 Test Equipment Used:

Description	Asset Number	Manufacturer	Model	Cal. Date	Cal. Due
Spectrum Analyzer	3720	Rohde & Schwarz	FSEK30	9/20/2017	9/20/2018

7.4 Test Results:

The device was found to be **compliant**. The following plots show that there are no conducted spurious emissions exceeding the 20dB down criteria.

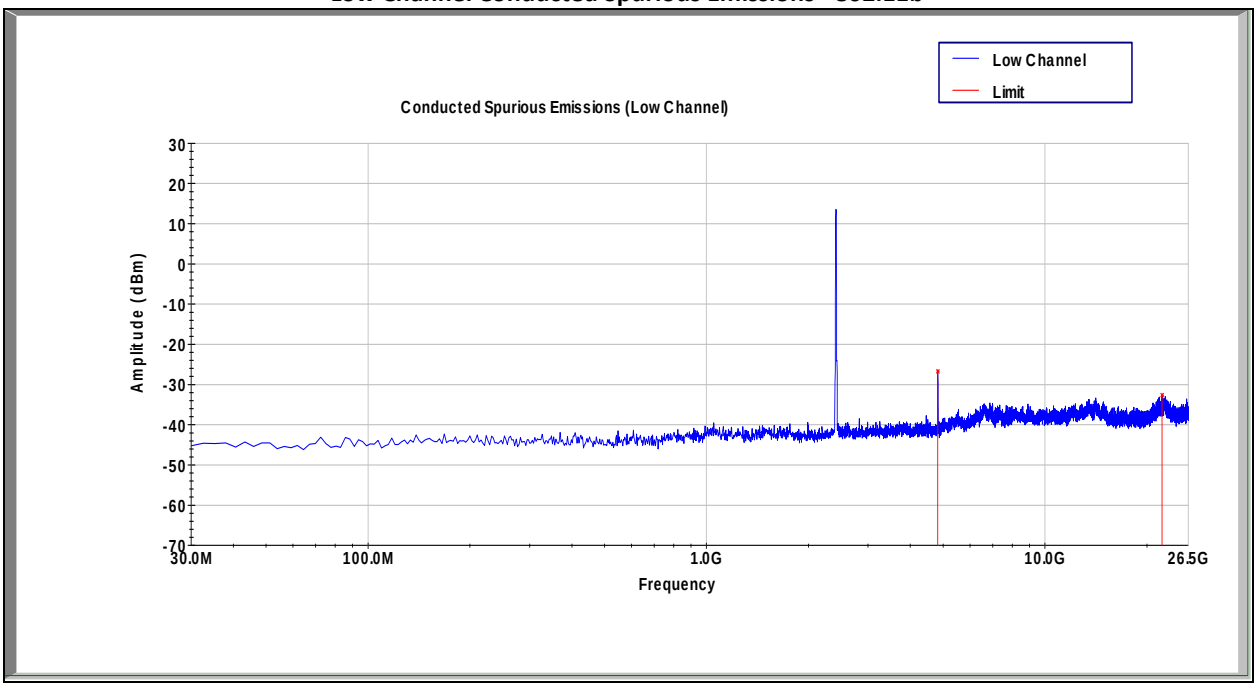
7.5 Test Conditions:

Test Personnel:	Bryan Taylor	Test Date:	5/7/2018
Supervising/Reviewing Engineer: (Where Applicable)	NA	Ambient Temperature:	22.5C
Input Voltage:	5VDC via USB	Relative Humidity:	42.4%
		Atmospheric Pressure:	989.4mbar

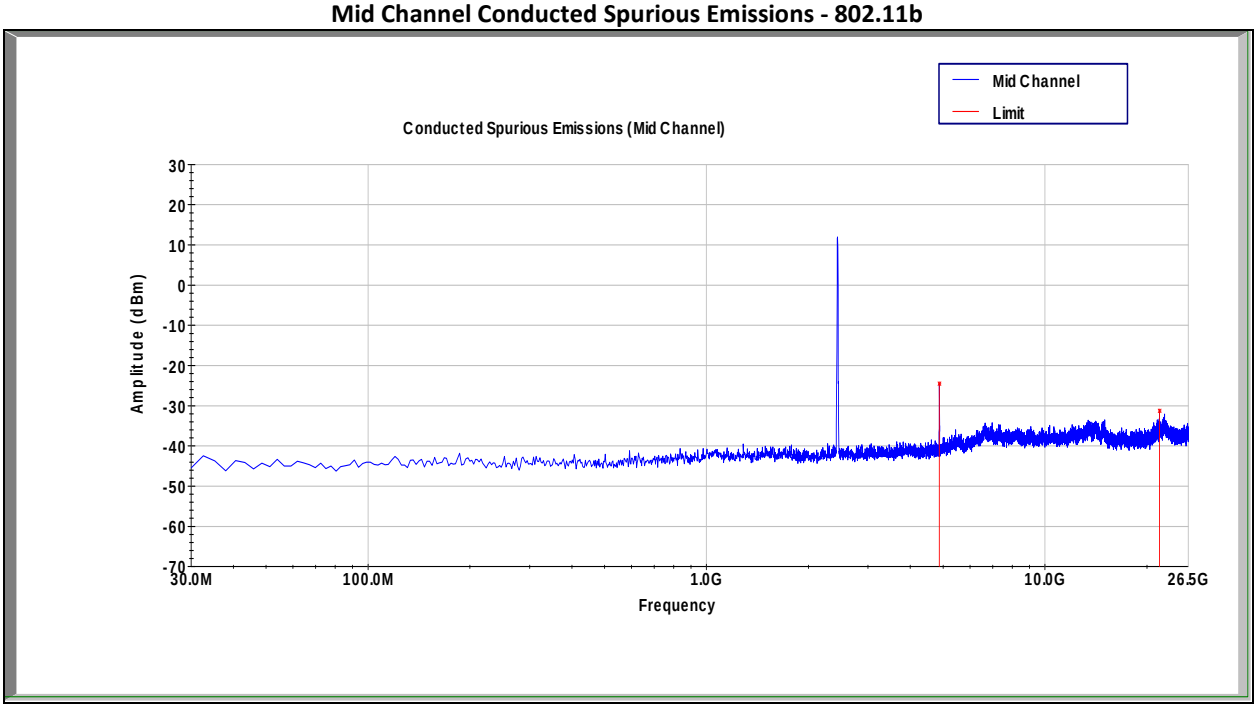
7.6 Test Data:

The data shown in the following plots illustrate the fundamental emission power using 100kHz RBW as well as the spurious emission power in 100kHz. All spurious emissions were attenuated below the fundamental by more than 30dB.

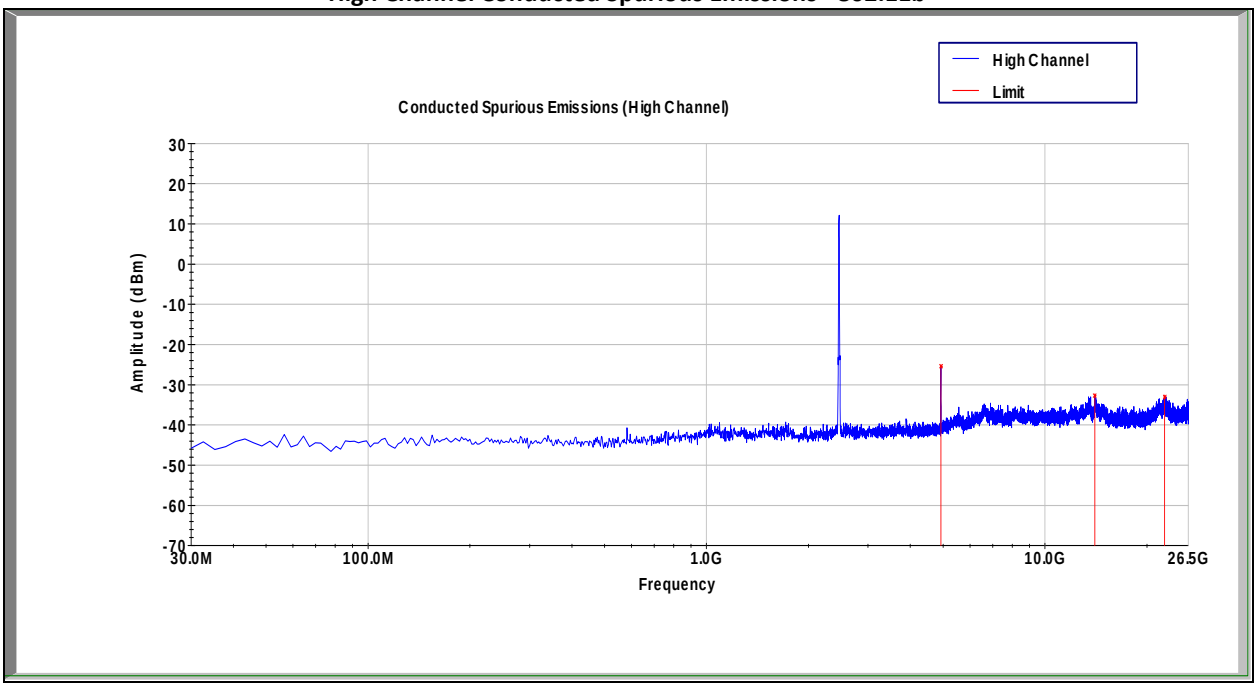
Low Channel Conducted Spurious Emissions - 802.11b



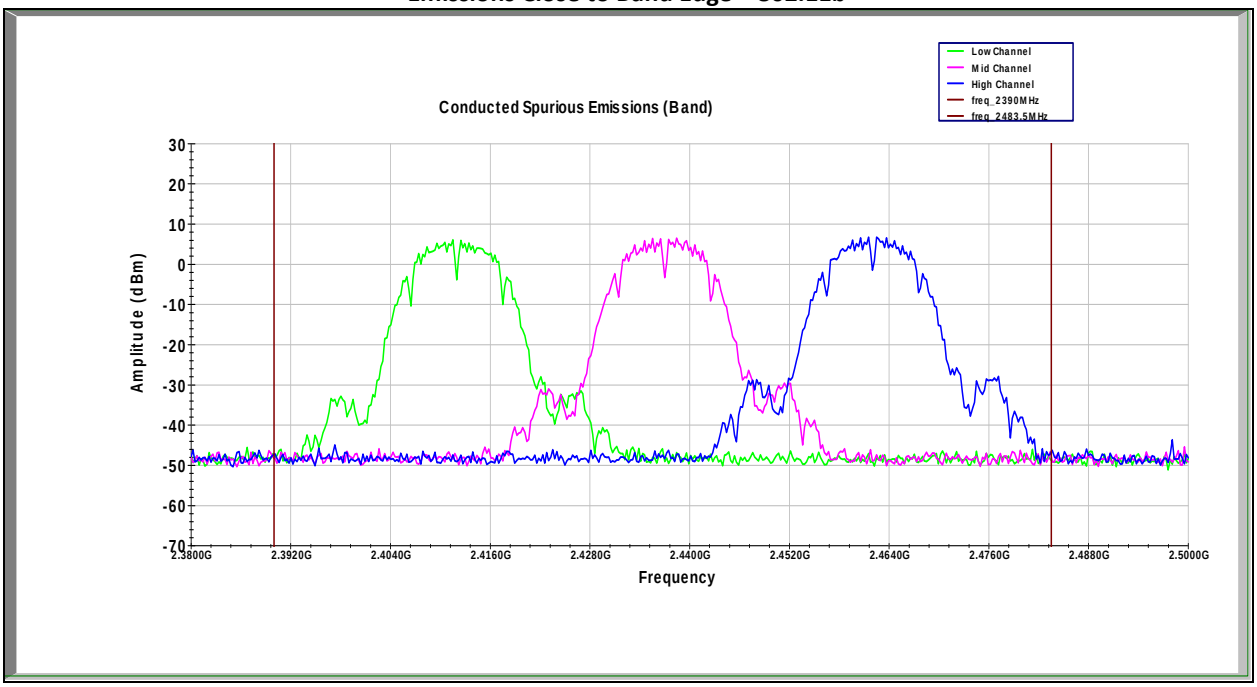
Mid Channel Conducted Spurious Emissions - 802.11b



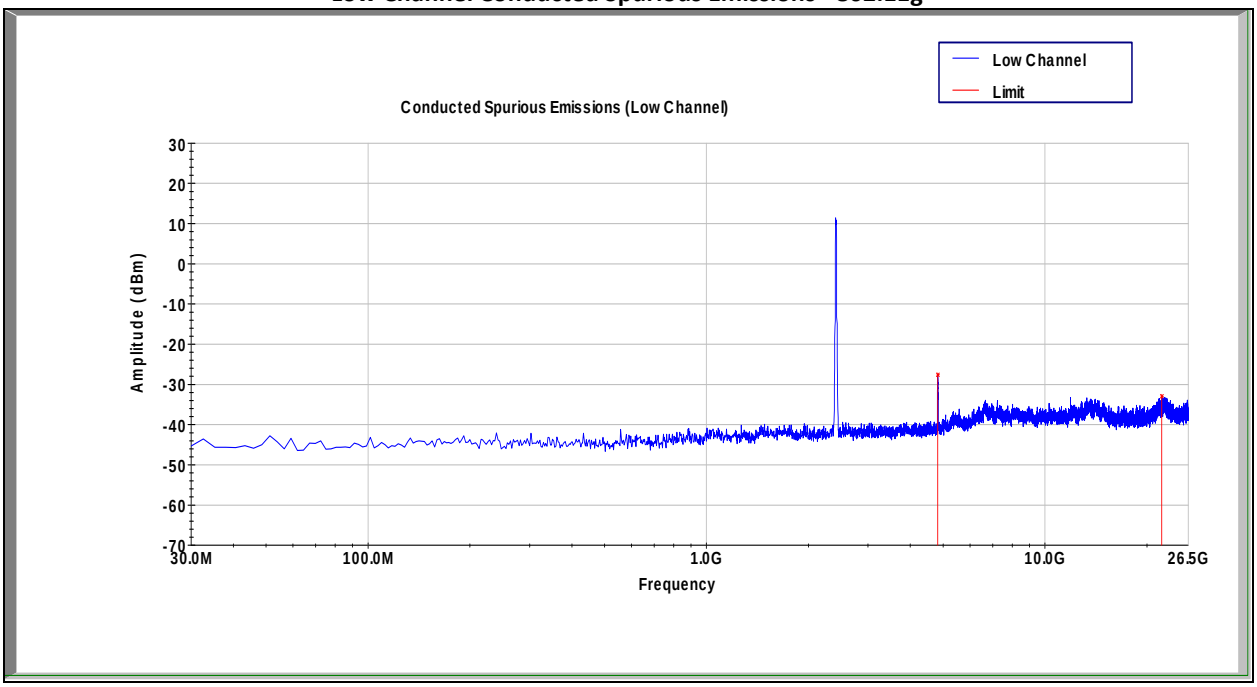
High Channel Conducted Spurious Emissions - 802.11b



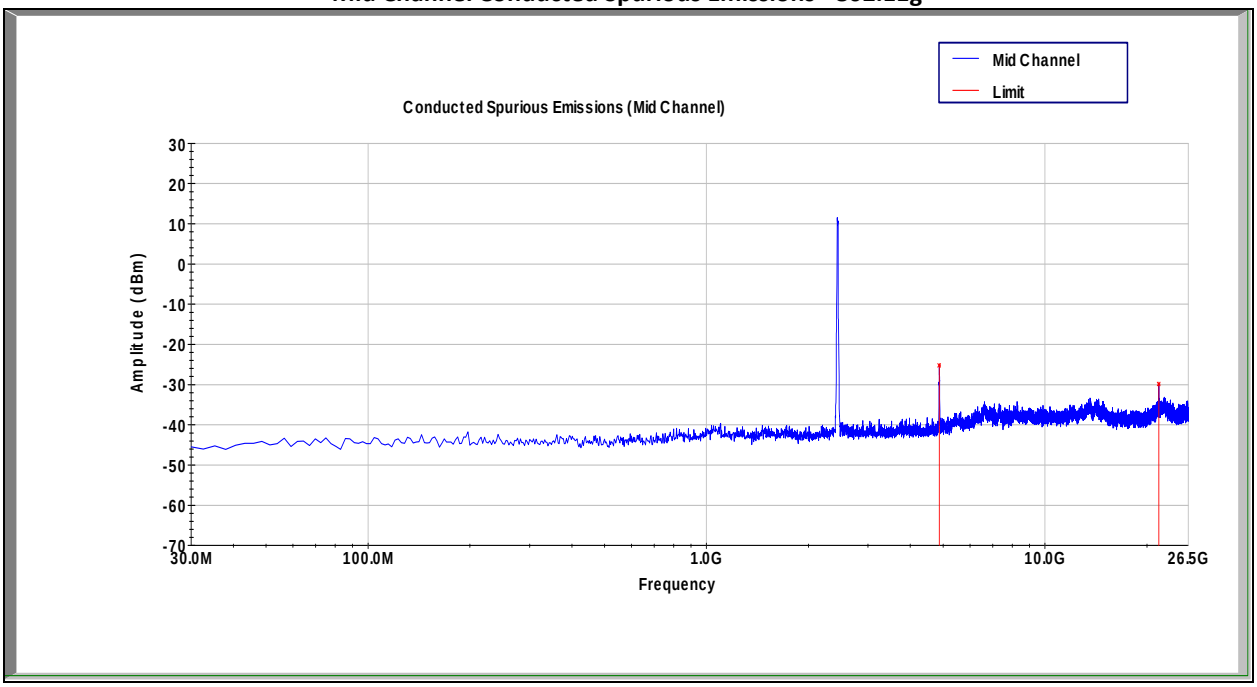
Emissions Close to Band Edge – 802.11b



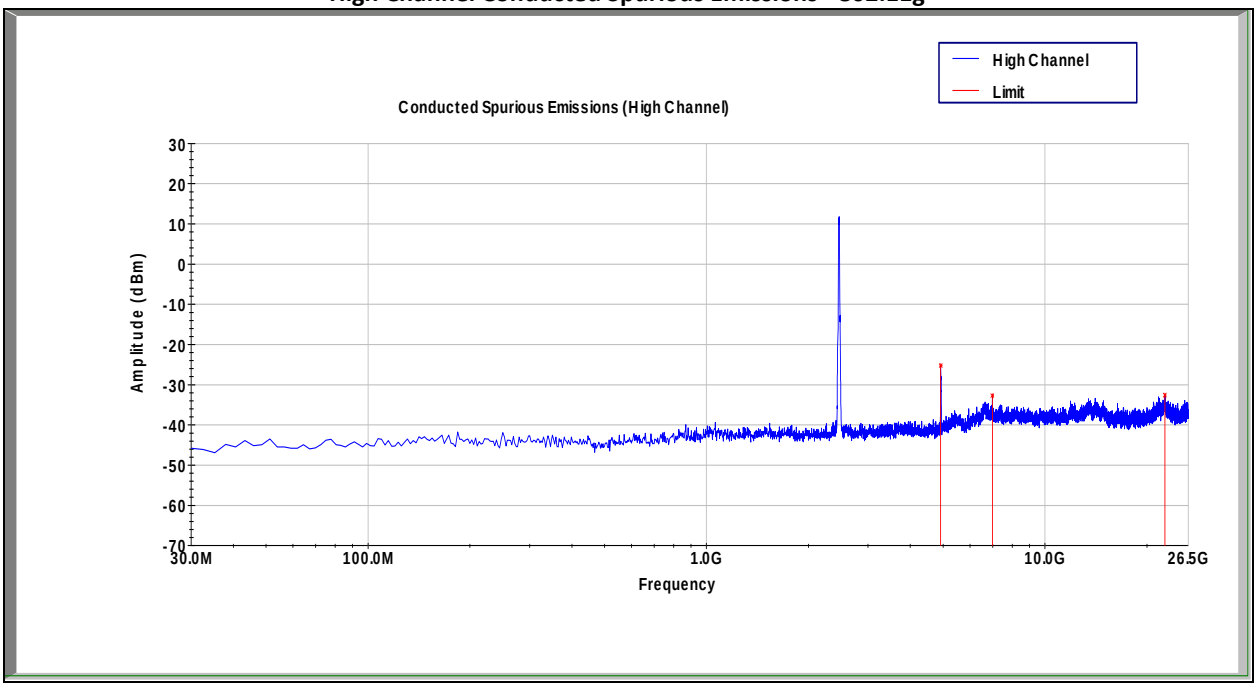
Low Channel Conducted Spurious Emissions - 802.11g



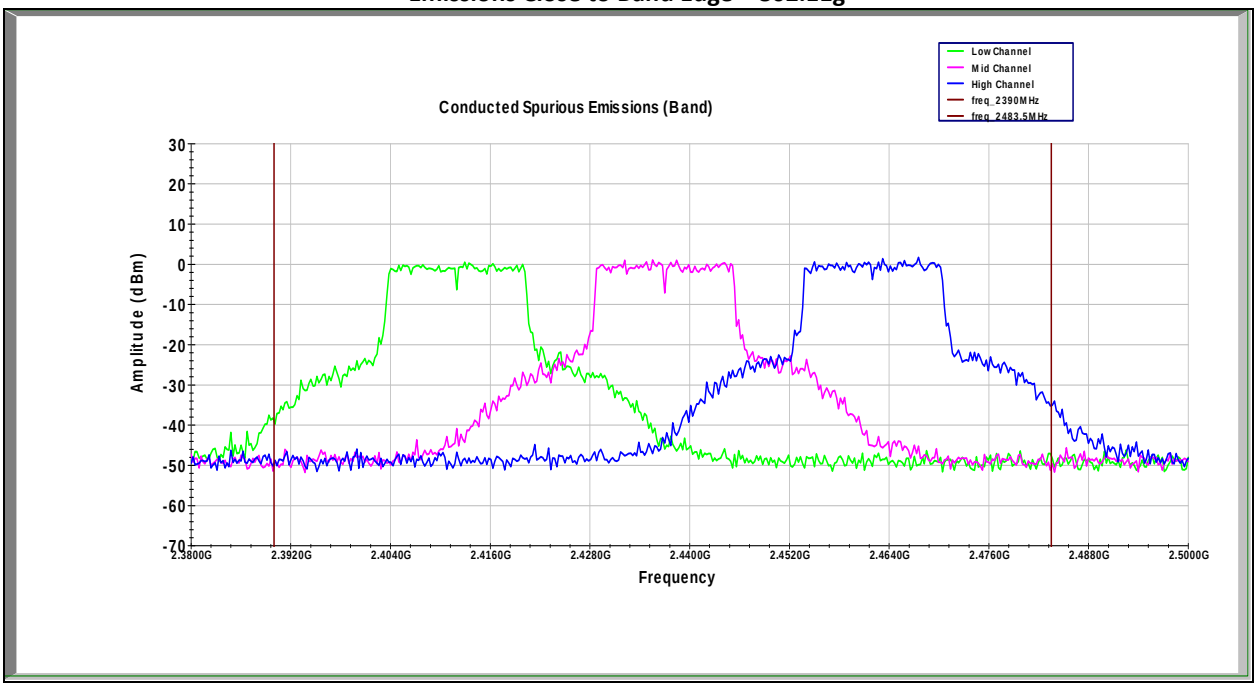
Mid Channel Conducted Spurious Emissions - 802.11g



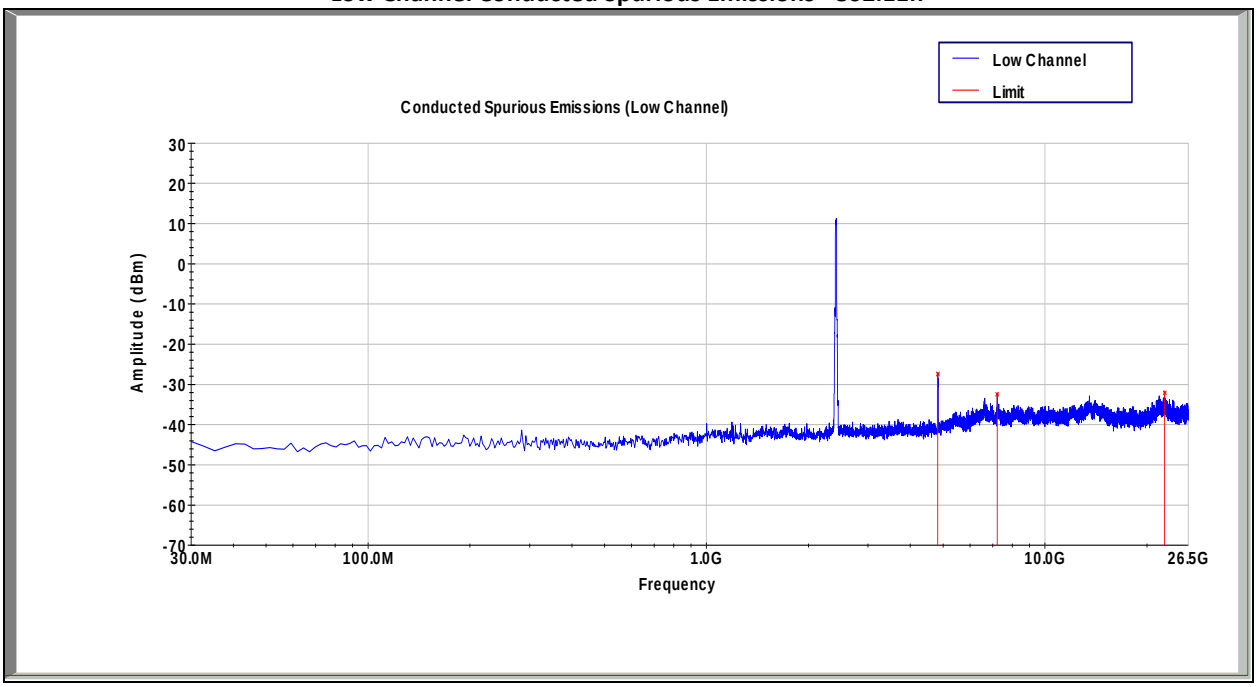
High Channel Conducted Spurious Emissions - 802.11g



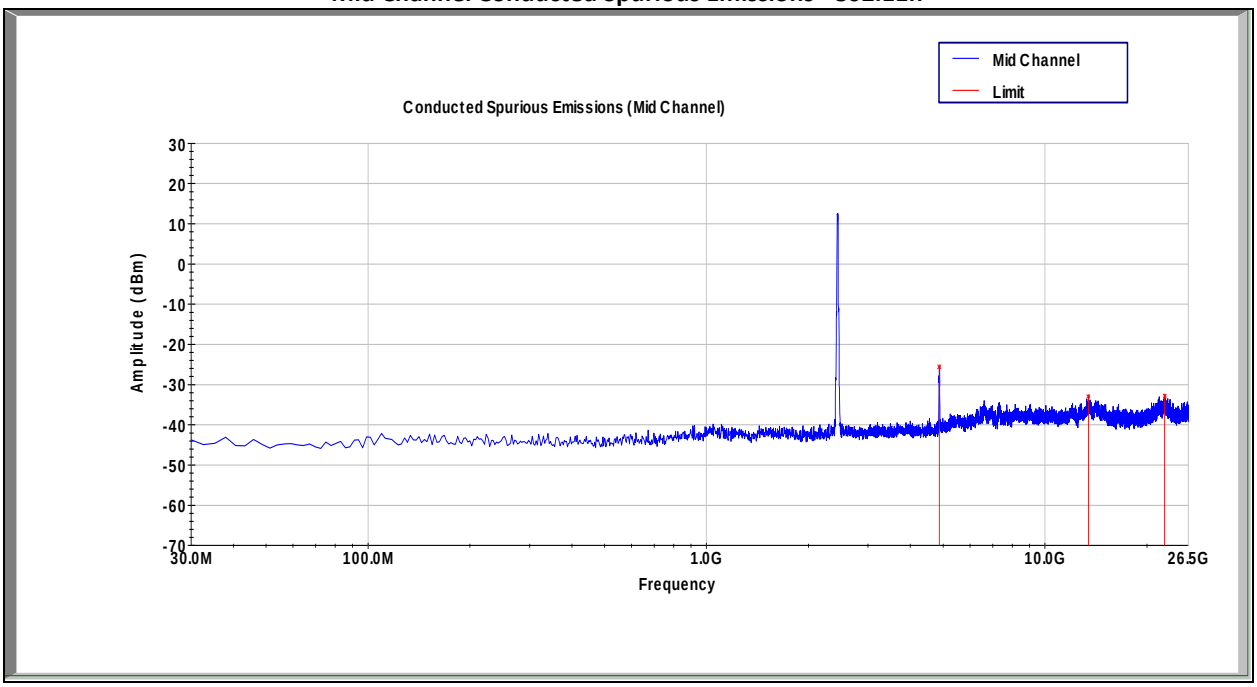
Emissions Close to Band Edge – 802.11g



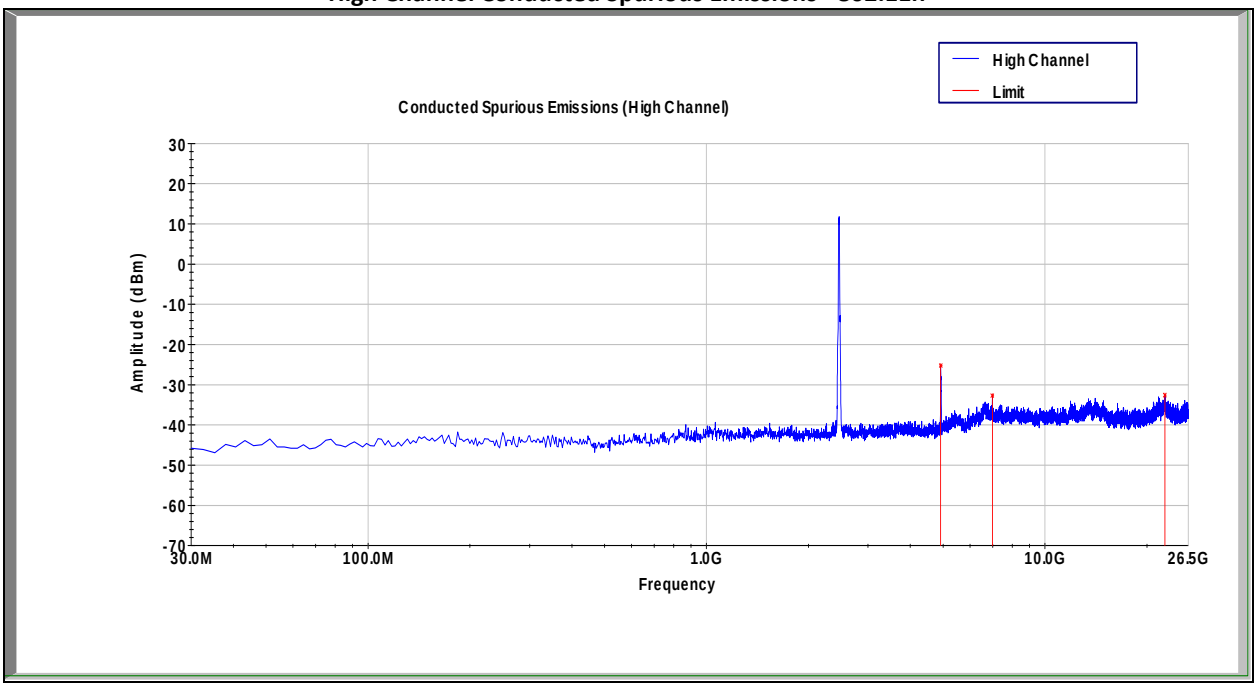
Low Channel Conducted Spurious Emissions - 802.11n



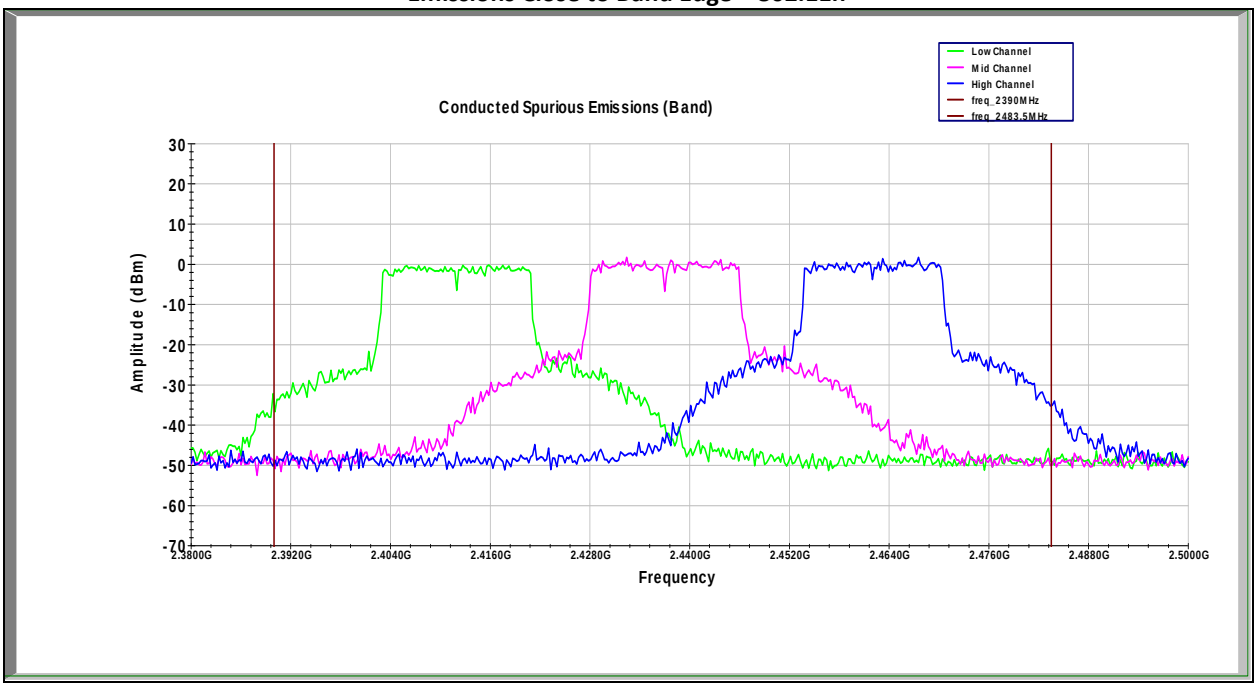
Mid Channel Conducted Spurious Emissions - 802.11n



High Channel Conducted Spurious Emissions - 802.11n



Emissions Close to Band Edge – 802.11n



8 Power Spectral Density

8.1 Test Limits:

§ 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

RSS-247(5.2)(b): The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d),(i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

8.2 Test Procedure:

ANSI C63.10: 2013 and KDB Publication No. 558074: Guidance on Measurements for Digital Transmission Systems (47 CFR 15.247)

8.3 Test Equipment Used:

Description	Asset Number	Manufacturer	Model	Cal. Date	Cal. Due
Spectrum Analyzer	3720	Rohde & Schwarz	FSEK30	9/20/2017	9/20/2018

8.4 Test Results:

The device was found to be **compliant**. The peak power spectral density did not exceed 8dBm in any 3kHz bandwidth on any operating channel using the PKPSD method.

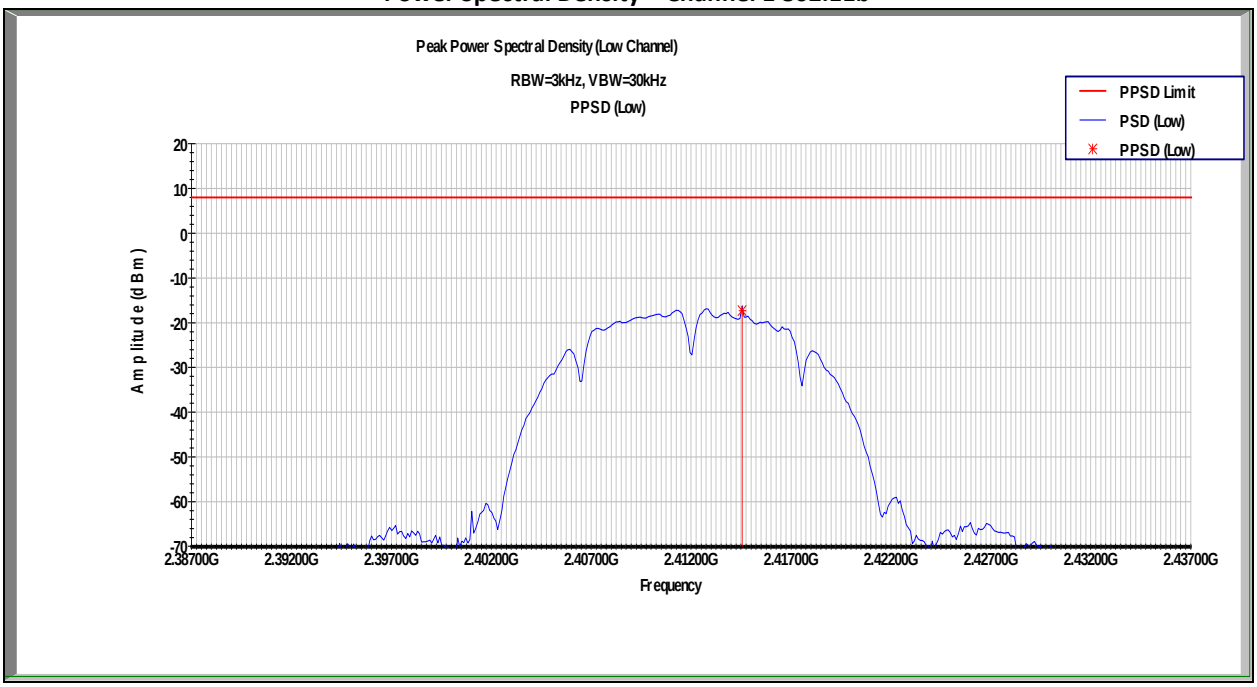
8.5 Test Conditions:

Test Personnel:	Bryan Taylor	Test Date:	5/7/2018
Supervising/Reviewing Engineer: (Where Applicable)	NA	Ambient Temperature:	22.5C
Input Voltage:	5VDC via USB	Relative Humidity:	42.4%
		Atmospheric Pressure:	989.4mbar

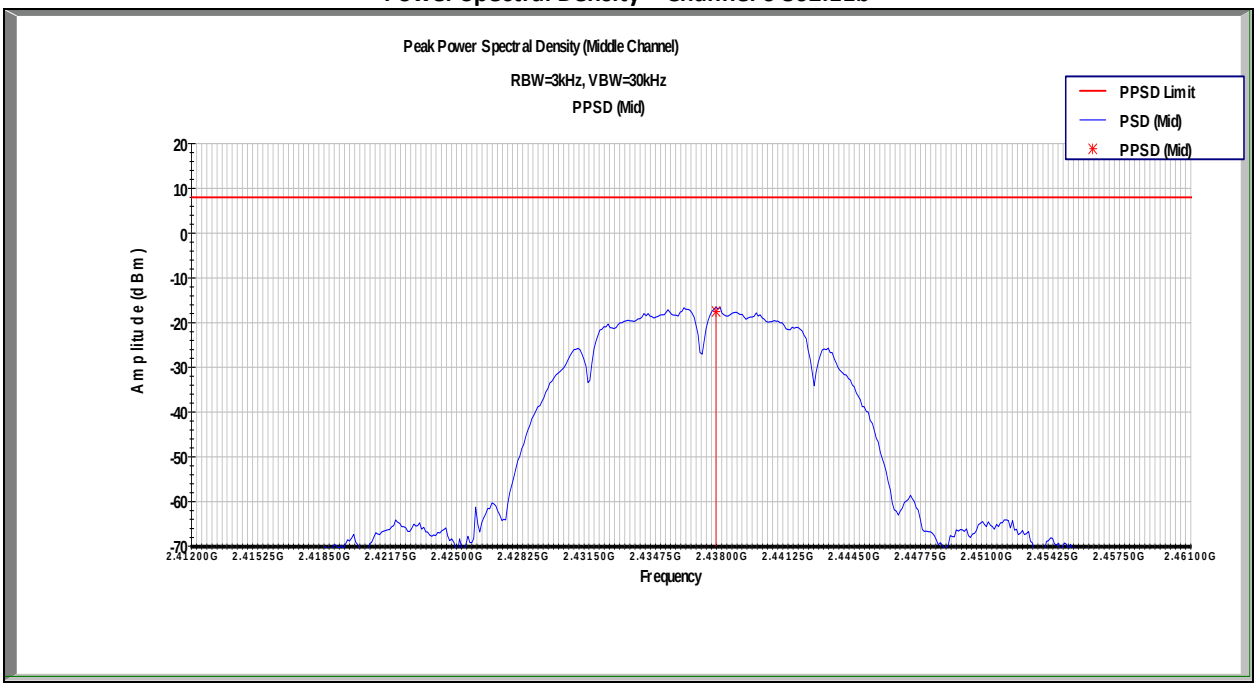
8.6 Power Spectral Density Data

Mode	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)	Result
802.11b	2.415 GHz	-17.323	8	25.323	Pass
	2.438 GHz	-17.547	8	25.547	Pass
	2.461 GHz	-17.246	8	25.246	Pass
802.11g	2.417 GHz	-12.703	8	20.703	Pass
	2.442 GHz	-12.038	8	20.038	Pass
	2.467 GHz	-11.728	8	19.728	Pass
802.11n (20MHz)	2.413 GHz	-11.232	8	19.232	Pass
	2.443 GHz	-10.315	8	18.315	Pass
	2.463 GHz	-10.695	8	18.695	Pass

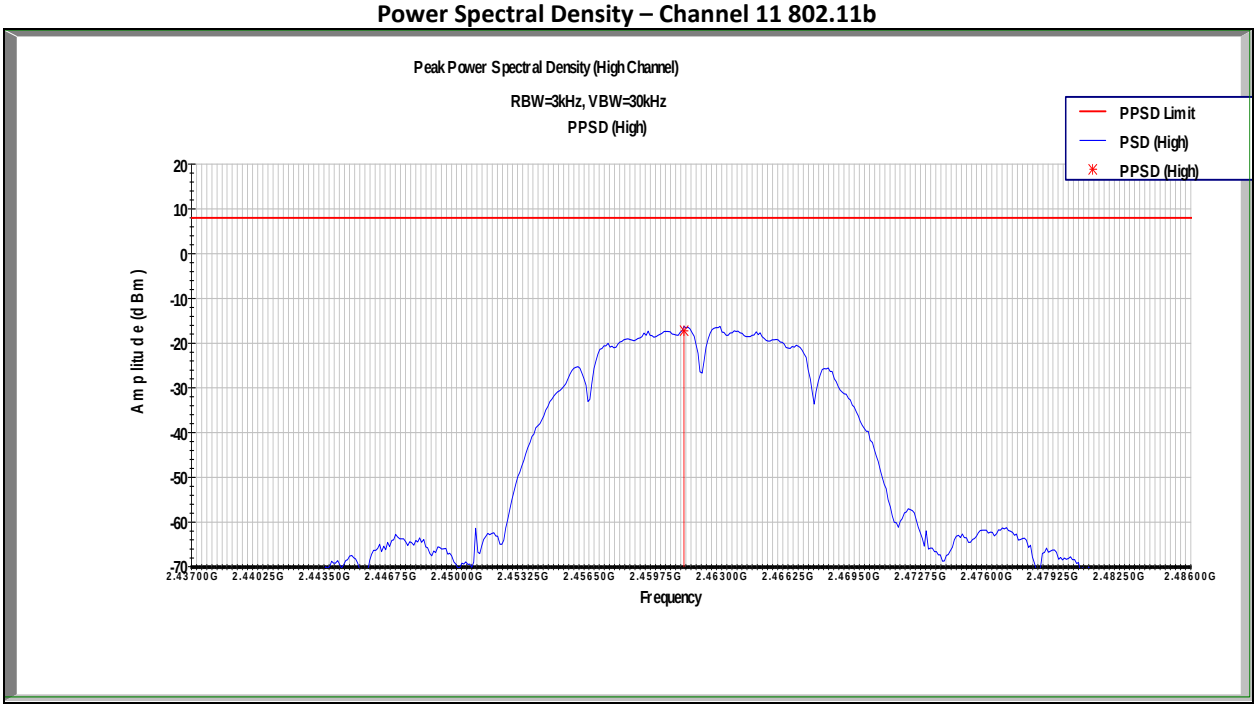
Power Spectral Density – Channel 1 802.11b



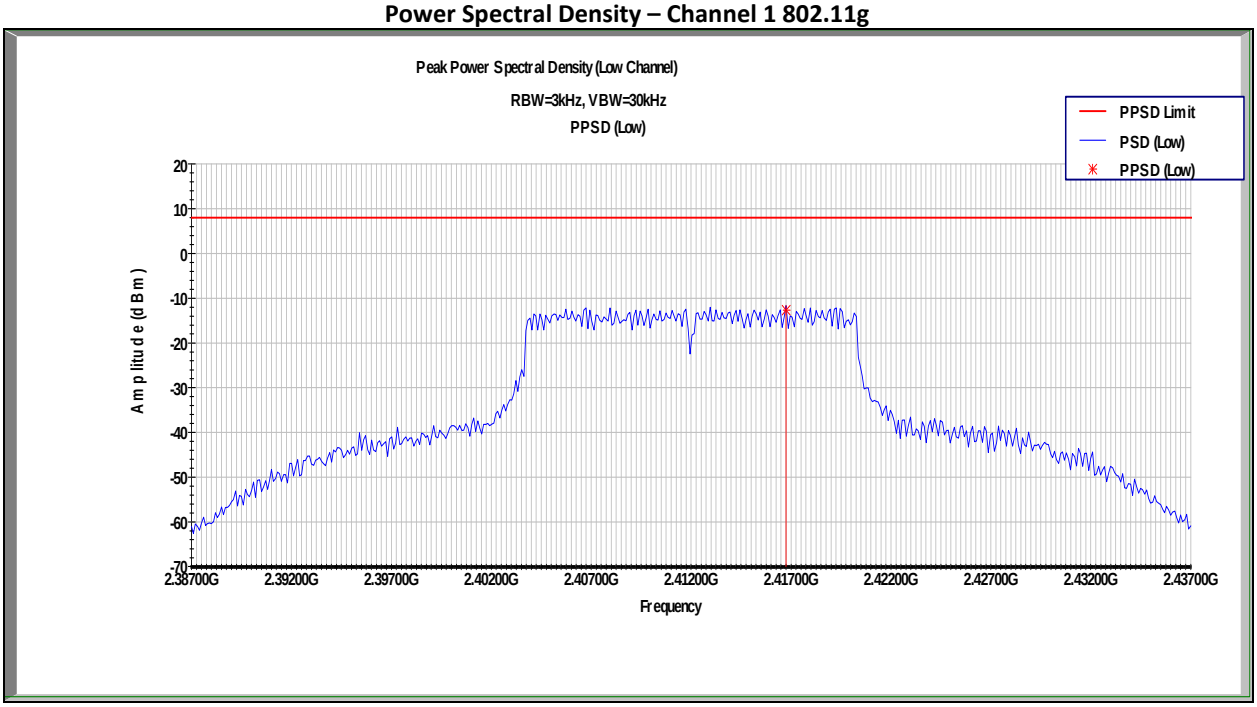
Power Spectral Density – Channel 6 802.11b



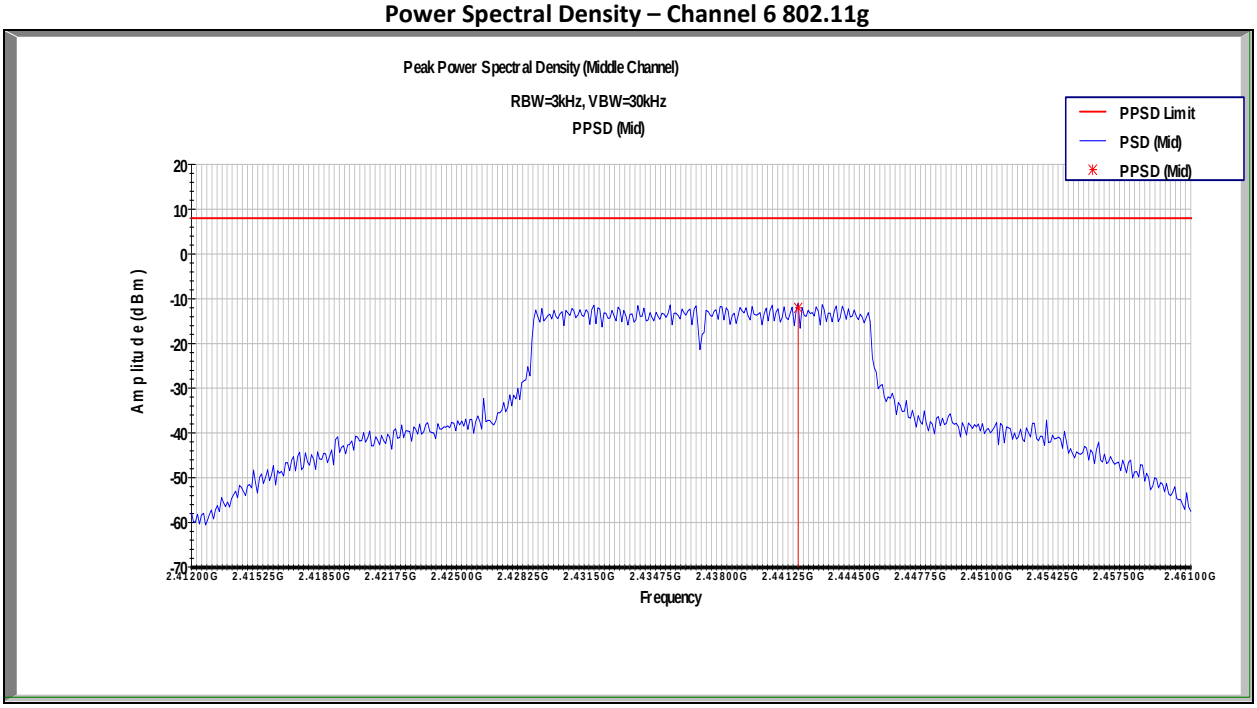
Power Spectral Density – Channel 11 802.11b



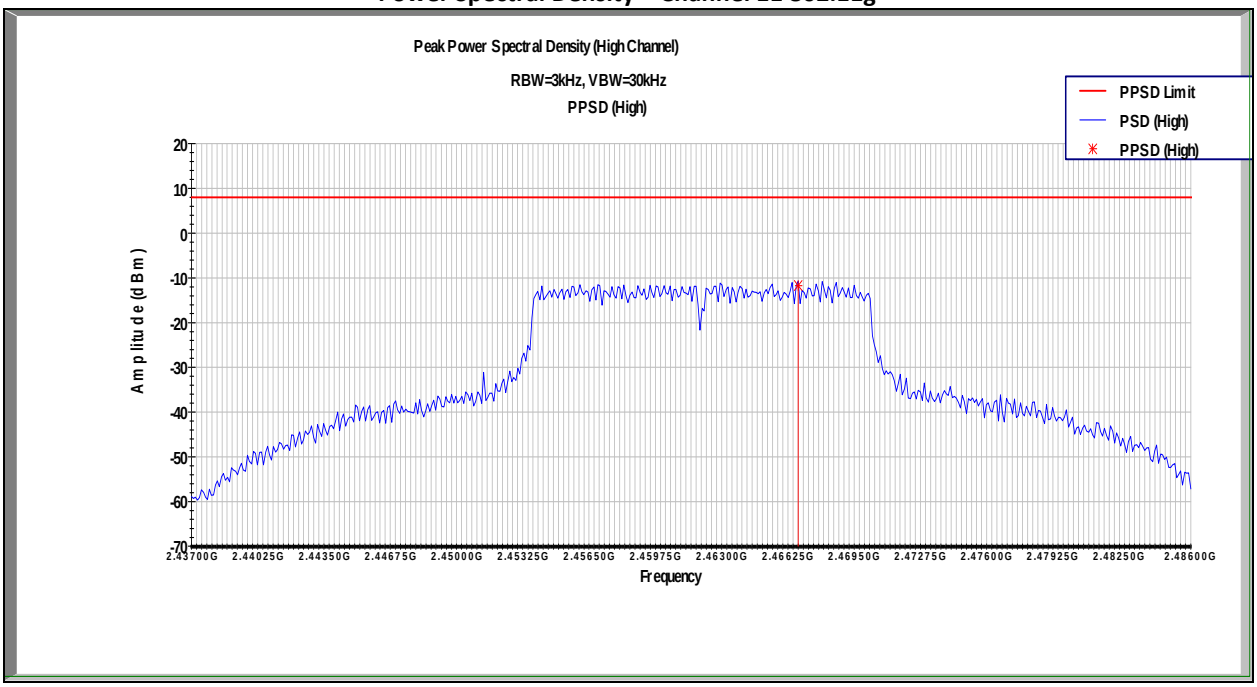
Power Spectral Density – Channel 1 802.11g



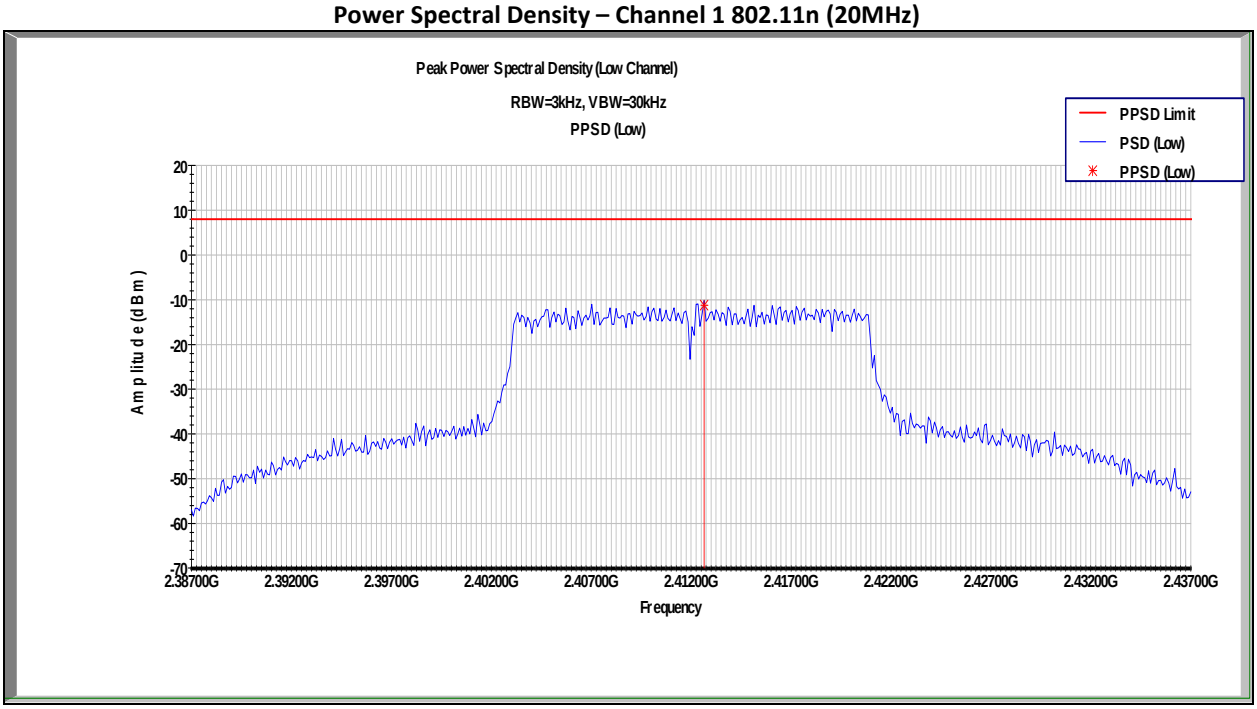
Power Spectral Density – Channel 6 802.11g



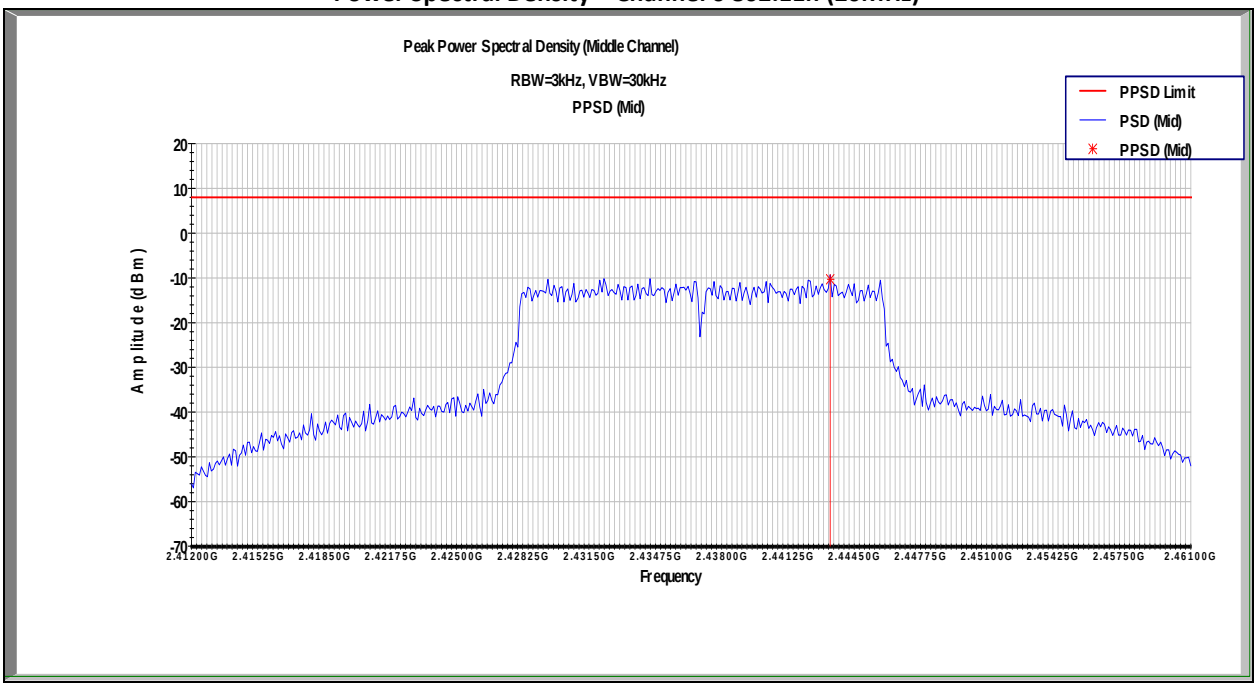
Power Spectral Density – Channel 11 802.11g



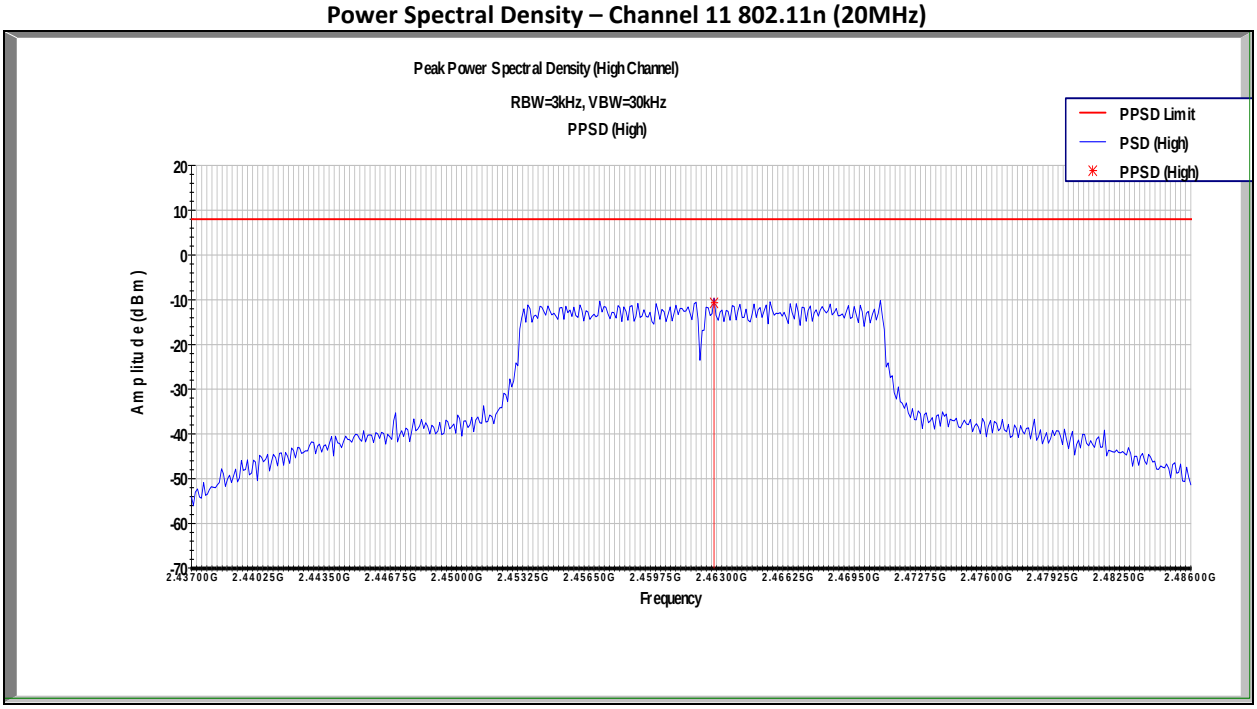
Power Spectral Density – Channel 1 802.11n (20MHz)



Power Spectral Density – Channel 6 802.11n (20MHz)



Power Spectral Density – Channel 11 802.11n (20MHz)



9 Radiated Spurious Emissions (Transmitter)

9.1 Test Limits:

§ 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

RSS-247(5.5): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Part 15.205(a): Restricted Bands of Operations

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
[1] 0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2655–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	([2])
13.36–13.41.			

[1] Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.
[2] Above 38.6

Part 15.209(a): Field Strength Limits for Restricted Bands of Operation

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2,400 / F (kHz)	300
0.490 - 1.705	24,000 / F (kHz)	30
1.705 - 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

9.2 Test Procedure:

ANSI C63.10: 2013 and KDB Publication No. 558074: Guidance on Measurements for Digital Transmission Systems (47 CFR 15.247)

9.3 Example of Field Strength Calculation Method:

The measured field strength was calculated by summing the readings taken from the spectrum analyzer with the appropriate correction factors associated with the antenna losses and cable losses. The calculation formula and sample calculations are listed below:

Formula:
FS = RA + AF + CF

FS = Field Strength in dBµV/m
RA = Receiver Amplitude in dBµV
AF = Antenna Factor in dB
CF = Cable Attenuation Factor in dB (Including preamplifier and filter attenuation)

Example Calculation:

RA = 19.48 dBµV
AF = 18.52 dB
CF = 0.78 dB

FS = 19.48 + 18.52 + 0.78 = 38.78 dBµV/m
Level in µV/m = Common Antilogarithm [(38.78 dBµV/m)/20] = 86.89 µV/m

9.4 Test Equipment Used:

Description	Asset	Manufacturer	Model	Cal Date	Cal Due
EMI Test Receiver	3900	Rohde&Schwarz	ESU40	9/20/2017	9/20/2018
Bilog Antenna	3133	ETS Lindgren	3142C	4/6/2017	10/6/2018
Horn Antenna	3780	ETS Lindgren	3117	6/1/2017	6/1/2018
Horn Antenna (18 - 40GHz)	3779	ETS	3116c	6/5/2017	6/5/2018
Preamplifier	3921	Rohde&Schwarz	TS-PR40	12/1/2018	12/1/2019
Preamplifier	3918	Rohde&Schwarz	TS-PR18	12/1/2018	12/1/2019
System Controller	4096	ETS Lindgren	2090	Verify at Time of Use	Verify at Time of Use
System Controller	3957	Sunol Sciences	SC99V	Verify at Time of Use	Verify at Time of Use
3m Cable Antenna→Preamp	3074			11/29/2017	11/29/2018
3m Cable Preamp→Chamber	2588			11/29/2017	11/29/2018
3m Cable Chamber→Control Room	2593			11/29/2017	11/29/2018
3m Cable Control Room→Receiver	2592			11/29/2017	11/29/2018

9.5 Test Conditions:

Test Personnel:	Brian Daffin, Bryan Taylor	Test Date:	5/7/2018 – 5/14/2018
Supervising/Reviewing Engineer: (Where Applicable)	NA	Ambient Temperature:	22.8C
Input Voltage:	5VDC via USB	Relative Humidity:	51.3%
		Atmospheric Pressure:	995.6mbar

9.6 Test Results:

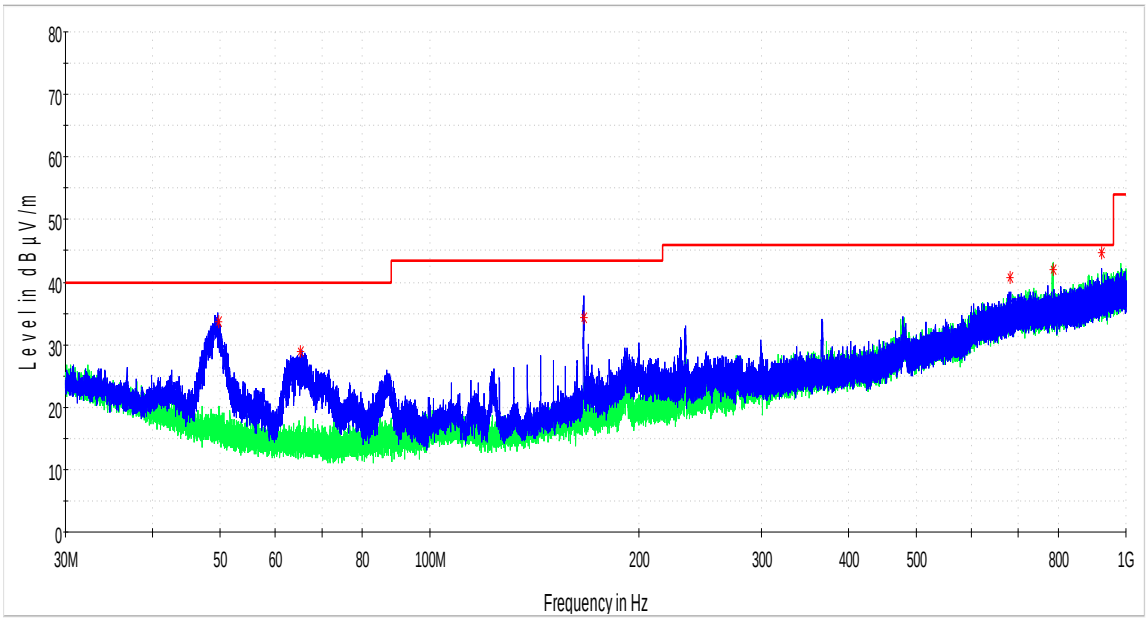
The device was found to be **compliant**. All spurious emissions were attenuated by at least 20dB below the level of the fundamental as required by Part 15.247(d). Additionally, all emissions falling within restricted bands of operation and at the band edges were found to be below the limit specified in Part 15.209(a). The spurious emissions listed in the following tables are the worst case emissions. Emissions were investigated with the test sample positioned in 3 orthogonal axis and the worst case reported.

9.7 Test Data (Emissions in the Spurious Domain):

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/07/2018
Temp/Humidity/Pressure:	23.2/43.8/985.4
Comment:	802.11b Channel 6; External Antenna; 17dBm setting on test tool



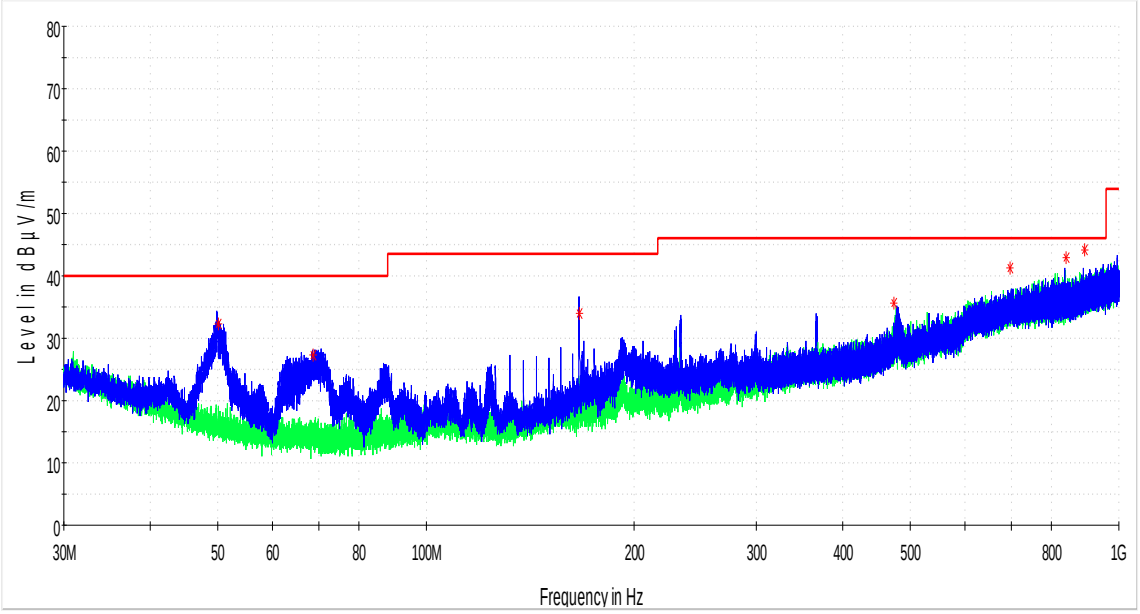
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
49.745000	33.74	40.00	6.26	120.000	98.4	V	340.0	16.4
65.242000	28.86	40.00	11.14	120.000	102.9	V	36.0	15.1
166.600000	34.28	43.52	9.24	120.000	98.9	V	275.0	18.3
680.610000	40.63	46.02	5.39	120.000	249.1	V	310.0	33.0
785.730000	41.96	46.02	4.06	120.000	97.2	H	230.0	34.0
921.840000	44.73	46.02	1.29	120.000	98.0	V	18.0	36.2

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/07/2018
Temp/Humidity/Pressure:	23.2/43.8/985.4
Comment:	802.11b Channel 6; Internal Antenna; 17dBm setting on test tool



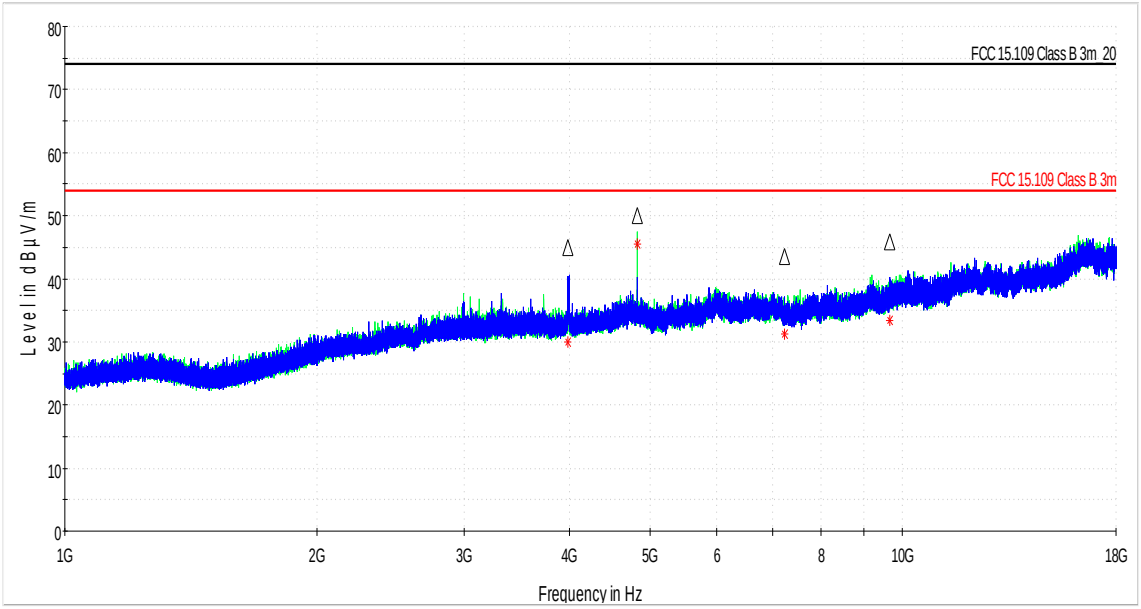
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
50.115000	32.28	40.00	7.72	120.000	98.3	V	8.0	16.3
68.647000	27.22	40.00	12.78	120.000	99.8	V	18.0	15.0
166.600000	33.93	43.52	9.59	120.000	99.0	V	274.0	18.3
473.660000	35.68	46.02	10.34	120.000	139.5	V	348.0	28.5
696.560000	41.26	46.02	4.76	120.000	174.2	V	146.0	33.5
840.560000	42.88	46.02	3.14	120.000	246.0	H	0.0	34.8
893.160000	44.14	46.02	1.88	120.000	388.7	V	310.0	35.8

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11b Channel 1; External Antenna; 15dbm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3985.858000	44.92	74.00	29.08	1000.000	176.0	V	187.0	6.5
4824.003000	50.00	74.00	24.00	1000.000	300.0	H	216.0	7.6
7229.704000	43.53	74.00	30.47	1000.000	286.0	V	246.0	10.3
9652.169000	45.94	74.00	28.06	1000.000	300.0	H	226.0	13.5

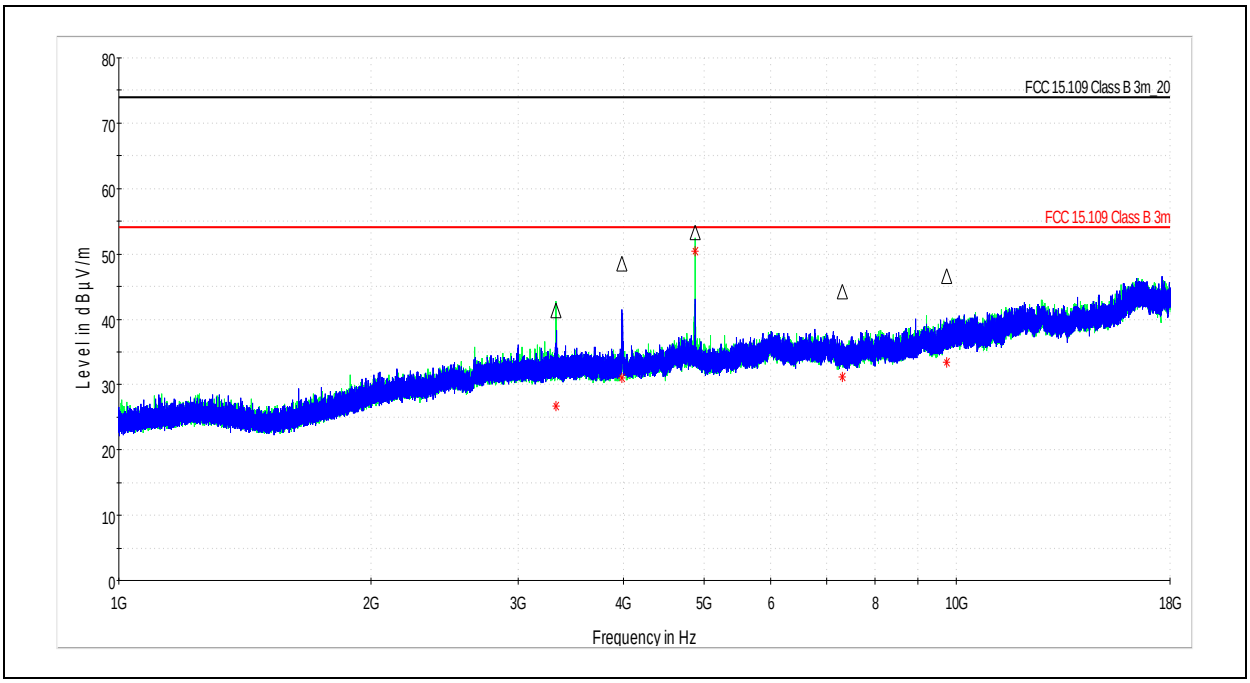
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3985.858000	29.96	54.00	24.04	1000.000	176.0	V	187.0	6.5
4824.003000	45.47	54.00	8.53	1000.000	300.0	H	216.0	7.6
7229.704000	31.18	54.00	22.82	1000.000	286.0	V	246.0	10.3
9652.169000	33.34	54.00	20.66	1000.000	300.0	H	226.0	13.5

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11b Channel 6; External Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3324.835000	41.36	74.00	32.64	1000.000	400.0	H	32.0	5.3
3985.287000	48.57	74.00	25.43	1000.000	180.0	V	180.0	6.5
4873.920500	53.31	74.00	20.69	1000.000	300.0	H	240.0	7.4
7310.918000	44.18	74.00	29.82	1000.000	339.0	V	194.0	10.5
9746.098000	46.54	74.00	27.46	1000.000	300.0	H	176.0	13.7

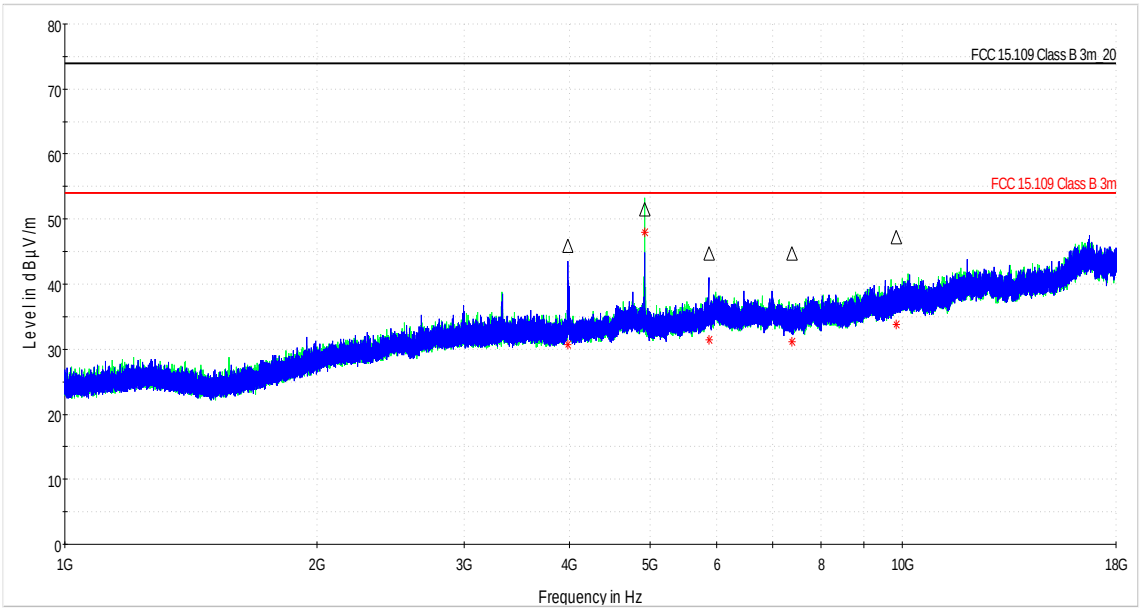
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3324.835000	26.79	54.00	27.21	1000.000	400.0	H	32.0	5.3
3985.287000	31.08	54.00	22.92	1000.000	180.0	V	180.0	6.5
4873.920500	50.43	54.00	3.57	1000.000	300.0	H	240.0	7.4
7310.918000	31.23	54.00	22.77	1000.000	339.0	V	194.0	10.5
9746.098000	33.47	54.00	20.53	1000.000	300.0	H	176.0	13.7

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11b Channel 11; External Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3985.981000	45.89	74.00	28.11	1000.000	300.0	V	185.0	6.5
4923.862000	51.50	74.00	22.50	1000.000	288.0	H	230.0	7.4
5874.968000	44.75	74.00	29.25	1000.000	172.0	V	8.0	9.4
7387.414500	44.79	74.00	29.21	1000.000	300.0	V	223.0	10.6
9845.730500	47.24	74.00	26.76	1000.000	300.0	H	306.0	13.9

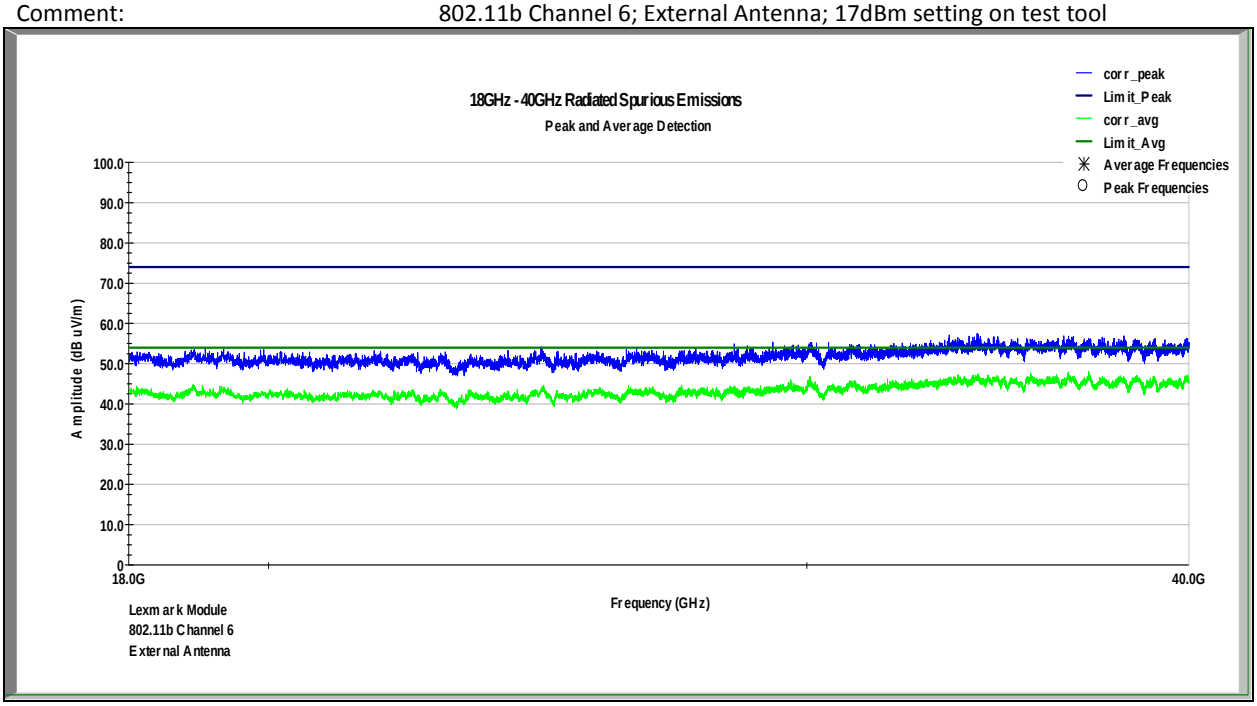
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3985.981000	30.70	54.00	23.30	1000.000	300.0	V	185.0	6.5
4923.862000	48.03	54.00	5.97	1000.000	288.0	H	230.0	7.4
5874.968000	31.49	54.00	22.51	1000.000	172.0	V	8.0	9.4
7387.414500	31.12	54.00	22.88	1000.000	300.0	V	223.0	10.6
9845.730500	33.76	54.00	20.24	1000.000	300.0	H	306.0	13.9

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Bryan Taylor
Date:	05/14/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11b Channel 6; External Antenna; 17dBm setting on test tool

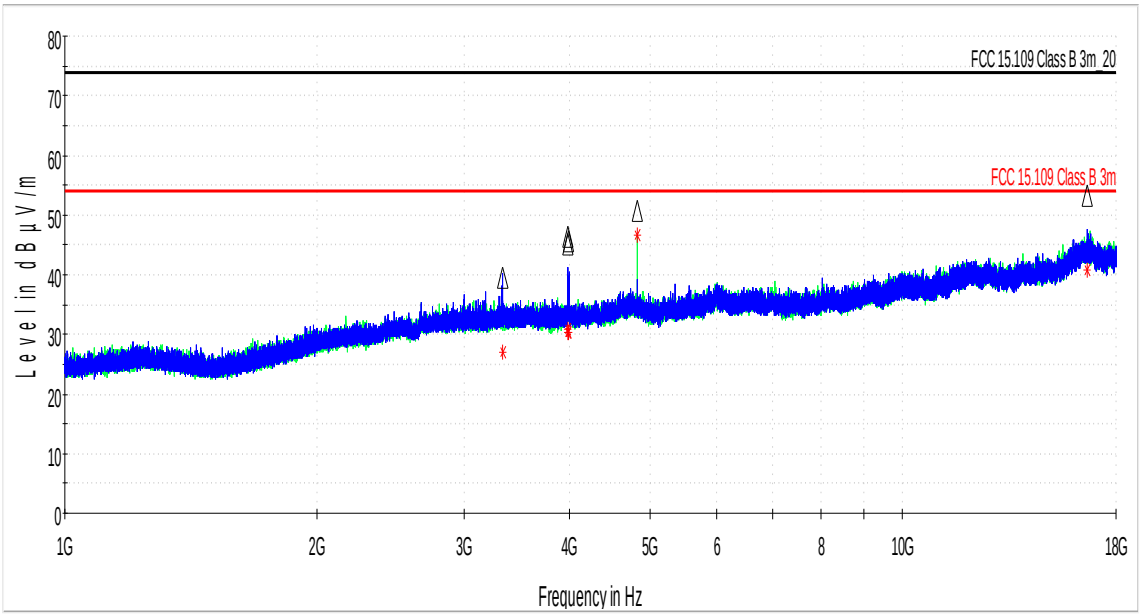


*Worst case vertical and horizontal scan performed at 1m. No significant emissions were found.

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/09/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11b Channel 1; Internal Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3331.006000	39.39	74.00	34.61	1000.000	304.0	V	0.0	5.3
3985.986500	46.38	74.00	27.62	1000.000	258.0	H	106.0	6.5
3989.097000	45.17	74.00	28.83	1000.000	196.0	V	185.0	6.5
3998.910450	45.72	74.00	28.28	1000.000	300.0	V	186.0	6.5
4824.070500	50.66	74.00	23.34	1000.000	300.0	H	253.0	7.6
16616.008500	53.37	74.00	20.63	1000.000	400.0	V	71.0	21.7

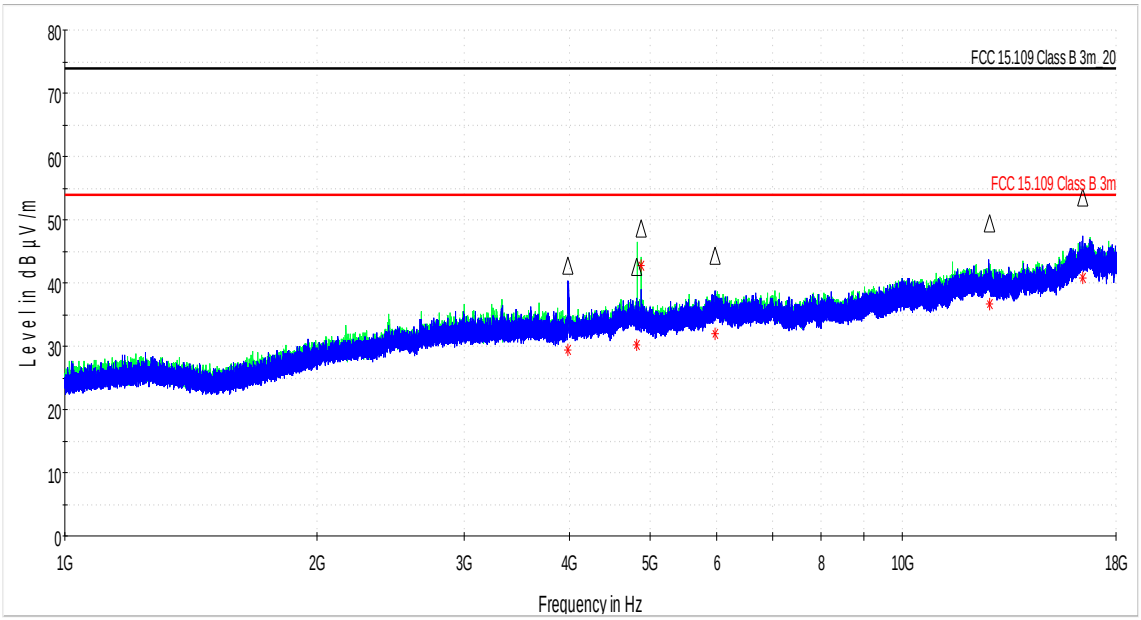
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3331.006000	27.01	54.00	26.99	1000.000	304.0	V	0.0	5.3
3985.986500	30.75	54.00	23.25	1000.000	258.0	H	106.0	6.5
3989.097000	30.35	54.00	23.65	1000.000	196.0	V	185.0	6.5
3998.910450	30.29	54.00	23.71	1000.000	300.0	V	186.0	6.5
4824.070500	46.56	54.00	7.44	1000.000	300.0	H	253.0	7.6
16616.008500	40.72	54.00	13.28	1000.000	400.0	V	71.0	21.7

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/09/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11b Channel 6; Internal Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3986.222500	42.67	74.00	31.33	1000.000	261.0	V	50.0	6.5
4821.327000	42.50	74.00	31.50	1000.000	278.0	H	251.0	7.6
4874.066000	48.63	74.00	25.37	1000.000	300.0	H	258.0	7.4
5973.447000	44.29	74.00	29.71	1000.000	400.0	V	50.0	9.3
12702.063000	49.43	74.00	24.57	1000.000	225.0	V	202.0	16.9
16432.816500	53.47	74.00	20.53	1000.000	400.0	V	253.0	21.5

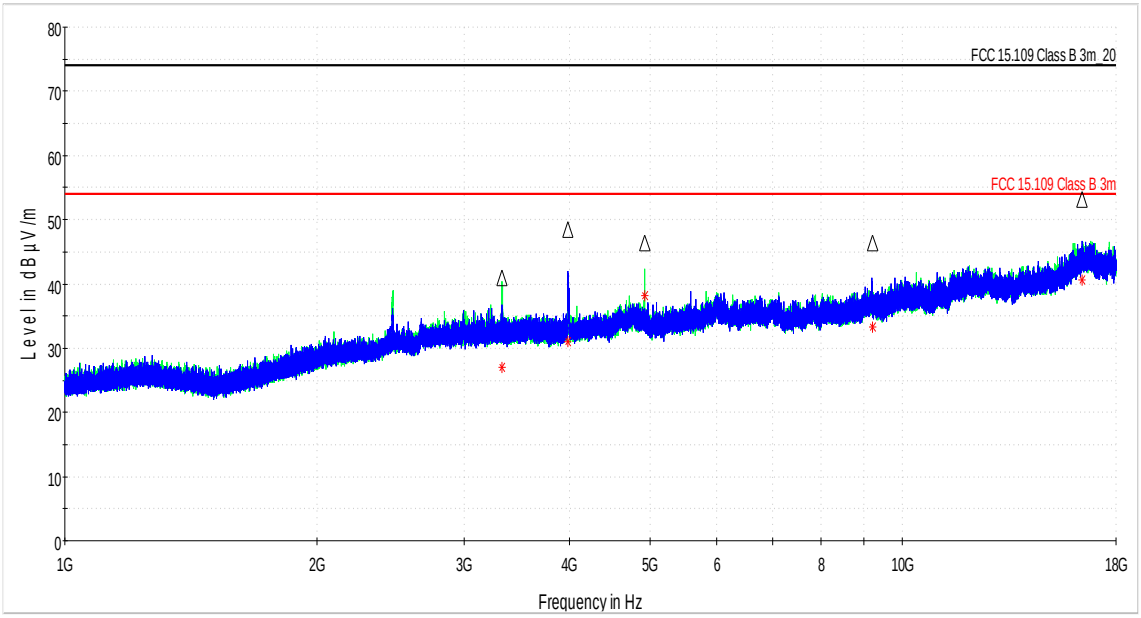
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3986.222500	29.49	54.00	24.51	1000.000	261.0	V	50.0	6.5
4821.327000	30.24	54.00	23.76	1000.000	278.0	H	251.0	7.6
4874.066000	42.78	54.00	11.22	1000.000	300.0	H	258.0	7.4
5973.447000	31.91	54.00	22.09	1000.000	400.0	V	50.0	9.3
12702.063000	36.72	54.00	17.28	1000.000	225.0	V	202.0	16.9
16432.816500	40.71	54.00	13.29	1000.000	400.0	V	253.0	21.5

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/09/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11b Channel 11; Internal Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3324.968000	41.04	74.00	32.96	1000.000	400.0	H	55.0	5.3
3985.387000	48.42	74.00	25.58	1000.000	193.0	V	182.0	6.5
4923.923500	46.37	74.00	27.63	1000.000	300.0	H	273.0	7.4
9211.849500	46.44	74.00	27.56	1000.000	259.0	V	218.0	12.8
16394.371500	53.08	74.00	20.92	1000.000	300.0	V	124.0	21.3

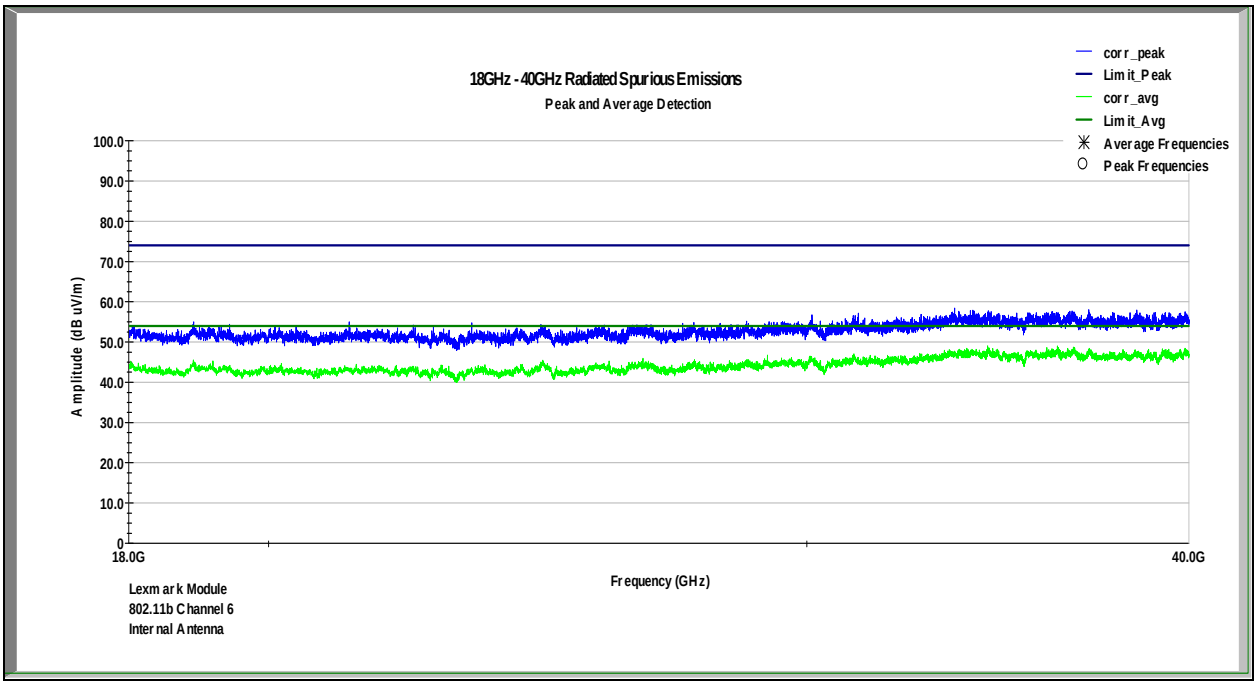
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3324.968000	26.93	54.00	27.07	1000.000	400.0	H	55.0	5.3
3985.387000	31.10	54.00	22.90	1000.000	193.0	V	182.0	6.5
4923.923500	38.25	54.00	15.75	1000.000	300.0	H	273.0	7.4
9211.849500	33.25	54.00	20.75	1000.000	259.0	V	218.0	12.8
16394.371500	40.61	54.00	13.39	1000.000	300.0	V	124.0	21.3

802.11b Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Bryan Taylor
Date:	05/14/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11b Channel 6; Internal Antenna; 17dBm setting on test tool

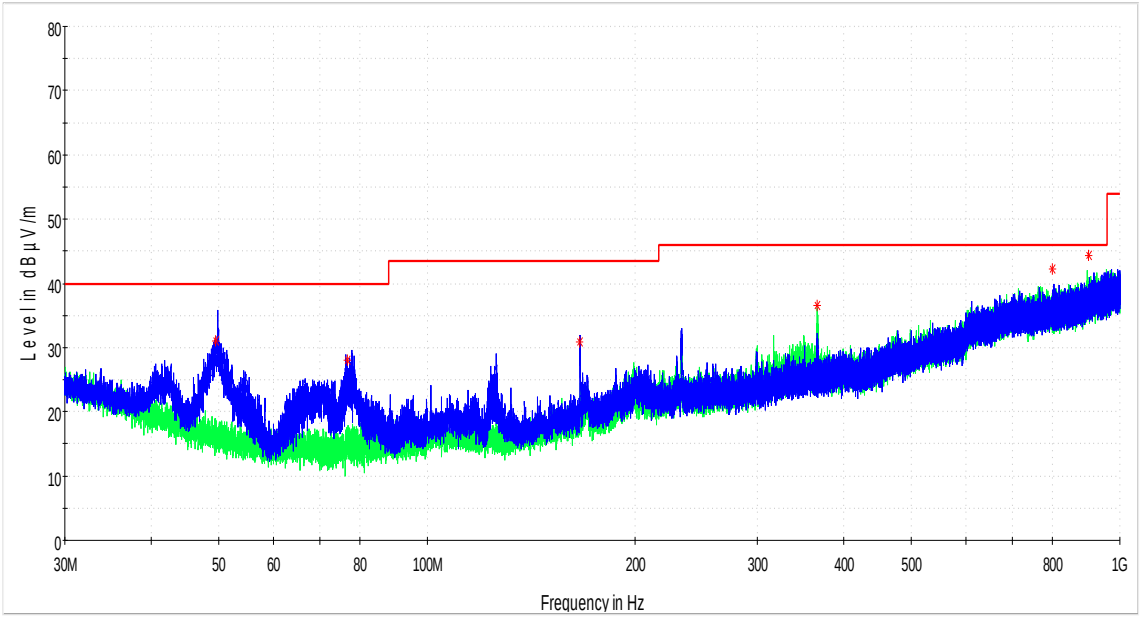


*Worst case vertical and horizontal scan performed at 1m. No significant emissions were found.

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 6; External Antenna; 17dBm setting on test tool



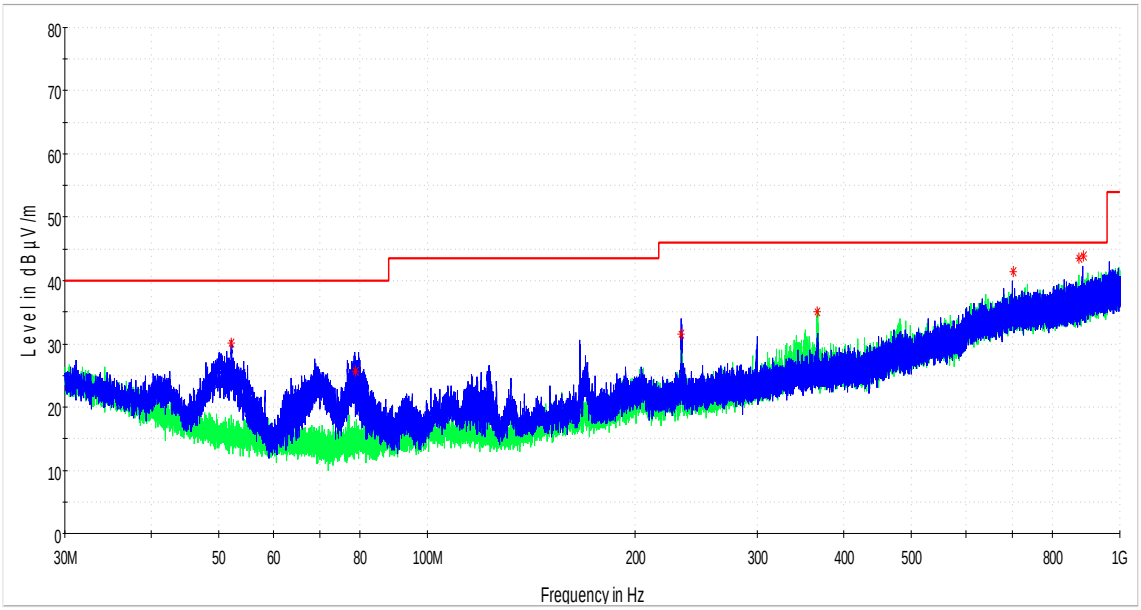
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
49.522000	30.98	40.00	9.02	120.000	99.8	V	322.0	16.5
76.790000	28.05	40.00	11.95	120.000	100.4	V	246.0	15.5
166.100000	30.91	43.52	12.61	120.000	97.7	V	248.0	18.3
365.460000	36.55	46.02	9.47	120.000	127.1	H	256.0	25.7
800.200000	42.28	46.02	3.74	120.000	397.0	V	218.0	34.3
901.700000	44.36	46.02	1.66	120.000	317.6	H	128.0	36.0

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 6; Internal Antenna; 17dBm setting on test tool



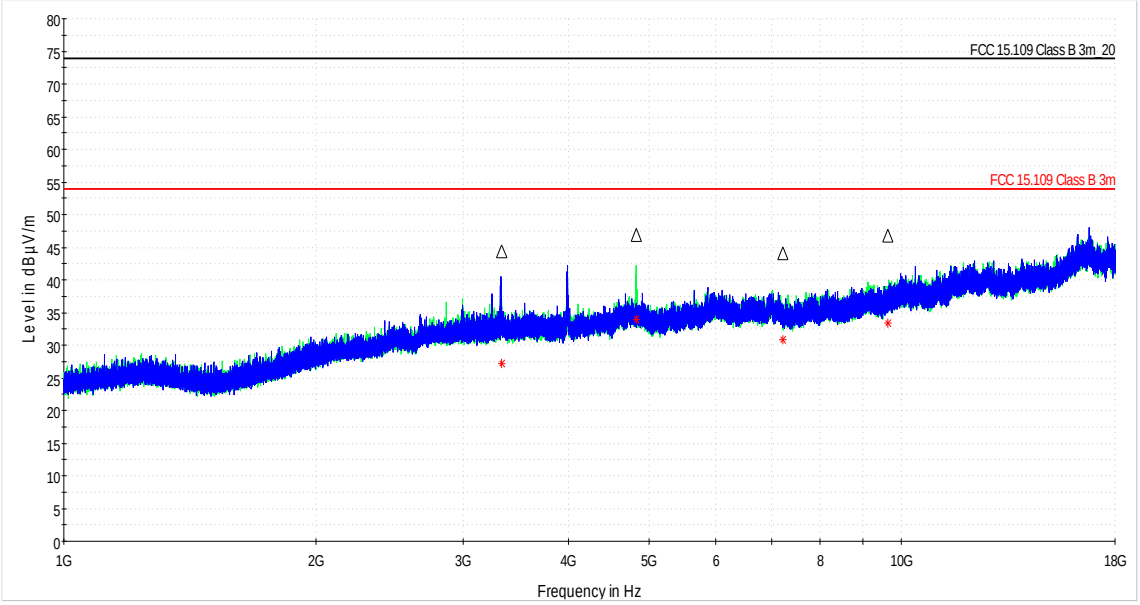
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
52.232000	30.03	40.00	9.97	120.000	97.7	V	330.0	16.1
78.828000	25.58	40.00	14.42	120.000	97.8	V	236.0	15.6
232.480000	31.54	46.02	14.48	120.000	98.3	V	246.0	20.9
365.680000	35.01	46.02	11.01	120.000	127.7	H	264.0	25.7
702.370000	41.44	46.02	4.58	120.000	232.4	V	284.0	33.6
874.320000	43.46	46.02	2.56	120.000	124.4	H	248.0	35.2
886.280000	43.90	46.02	2.12	120.000	162.9	V	301.0	35.6

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 1; External Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3332.812000	44.32	74.00	29.68	1000.000	400.0	V	330.0	5.3
4825.538000	46.91	74.00	27.09	1000.000	351.0	H	245.0	7.6
7227.369500	44.12	74.00	29.88	1000.000	400.0	V	1.0	10.3
9647.049500	46.80	74.00	27.20	1000.000	400.0	V	7.0	13.5

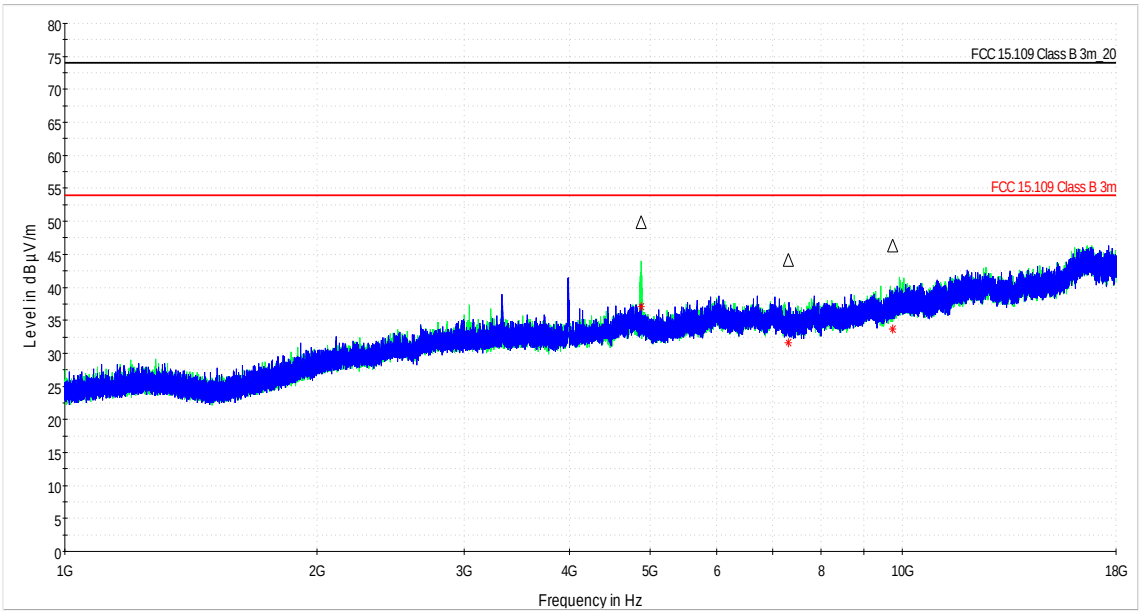
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3332.812000	27.20	54.00	26.80	1000.000	400.0	V	330.0	5.3
4825.538000	33.89	54.00	20.11	1000.000	351.0	H	245.0	7.6
7227.369500	30.90	54.00	23.10	1000.000	400.0	V	1.0	10.3
9647.049500	33.31	54.00	20.69	1000.000	400.0	V	7.0	13.5

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 6; External Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4874.209000	49.89	74.00	24.11	1000.000	300.0	H	238.0	7.4
7309.495500	44.11	74.00	29.89	1000.000	256.0	H	260.0	10.5
9746.935500	46.36	74.00	27.64	1000.000	294.0	V	300.0	13.7

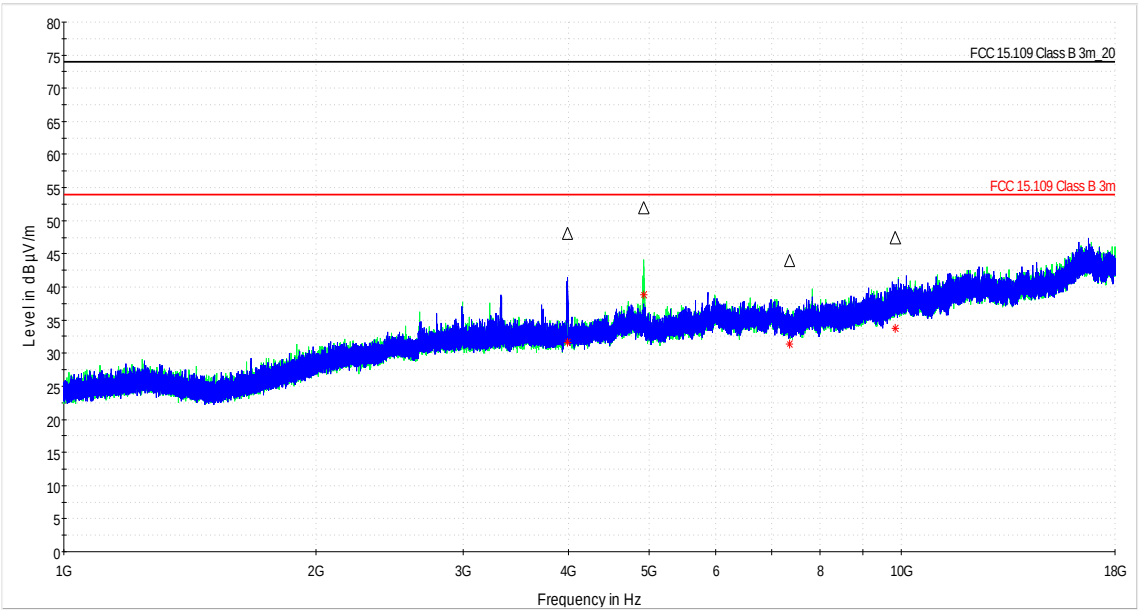
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
4874.209000	37.02	54.00	16.98	1000.000	300.0	H	238.0	7.4
7309.495500	31.68	54.00	22.32	1000.000	256.0	H	260.0	10.5
9746.935500	33.61	54.00	20.39	1000.000	294.0	V	300.0	13.7

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 11; External Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3998.902500	48.16	74.00	25.84	1000.000	174.0	V	173.0	6.5
4923.871000	51.96	74.00	22.04	1000.000	300.0	H	228.0	7.4
7349.449000	43.96	74.00	30.04	1000.000	400.0	H	228.0	10.6
9842.011500	47.39	74.00	26.61	1000.000	249.0	H	254.0	13.9

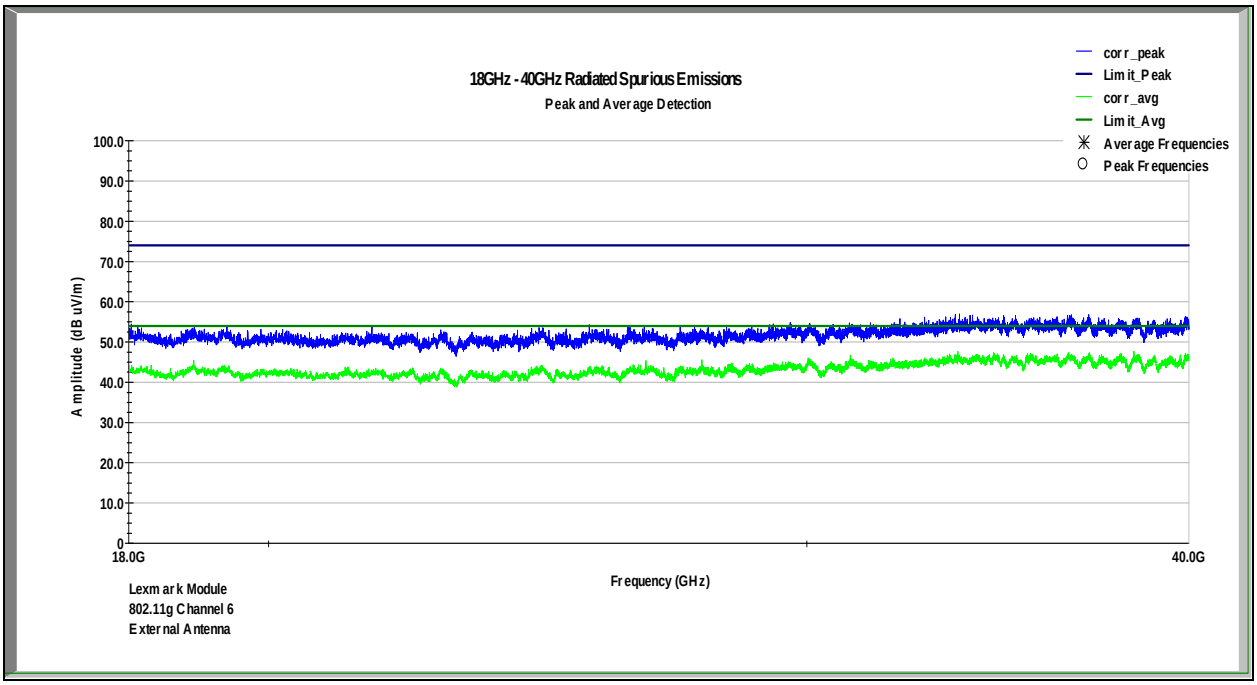
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3998.902500	31.67	54.00	22.33	1000.000	174.0	V	173.0	6.5
4923.871000	38.86	54.00	15.14	1000.000	300.0	H	228.0	7.4
7349.449000	31.40	54.00	22.60	1000.000	400.0	H	228.0	10.6
9842.011500	33.82	54.00	20.18	1000.000	249.0	H	254.0	13.9

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Bryan Taylor
Date:	05/14/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 6; External Antenna; 17dBm setting on test tool

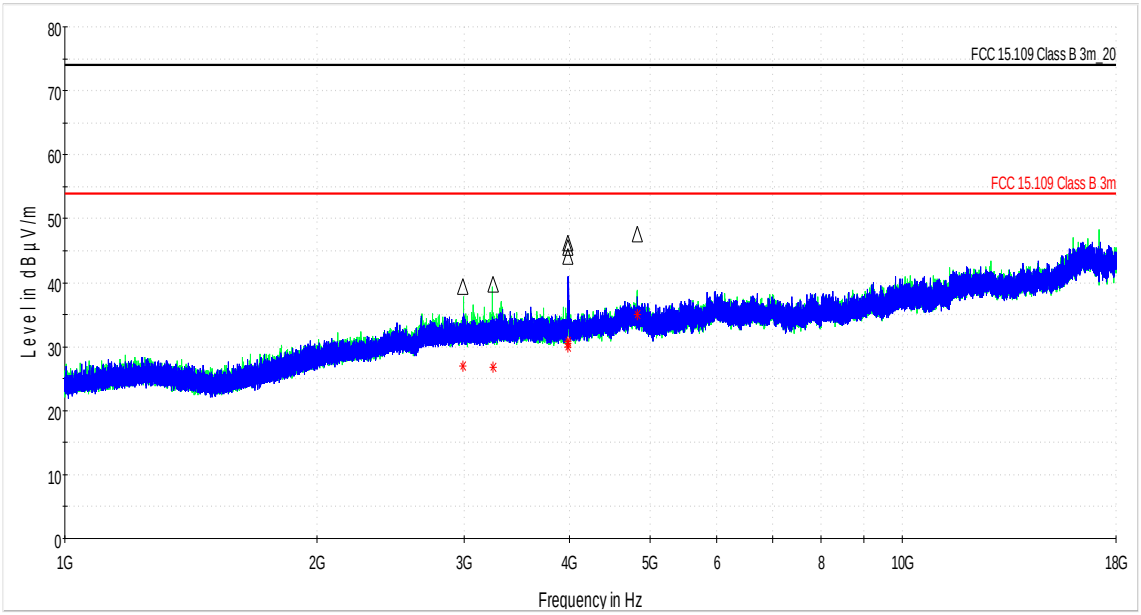


*Worst case vertical and horizontal scan performed at 1m. No significant emissions were found.

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/09/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 1; Internal Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2989.019000	39.35	74.00	34.65	1000.000	400.0	H	274.0	4.8
3245.647500	39.74	74.00	34.26	1000.000	306.0	H	322.0	5.1
3985.898750	45.59	74.00	28.41	1000.000	300.0	V	180.0	6.5
3988.636850	46.15	74.00	27.85	1000.000	300.0	V	185.0	6.5
3990.777500	44.11	74.00	29.89	1000.000	237.0	V	139.0	6.5
4823.945000	47.56	74.00	26.44	1000.000	300.0	H	252.0	7.6

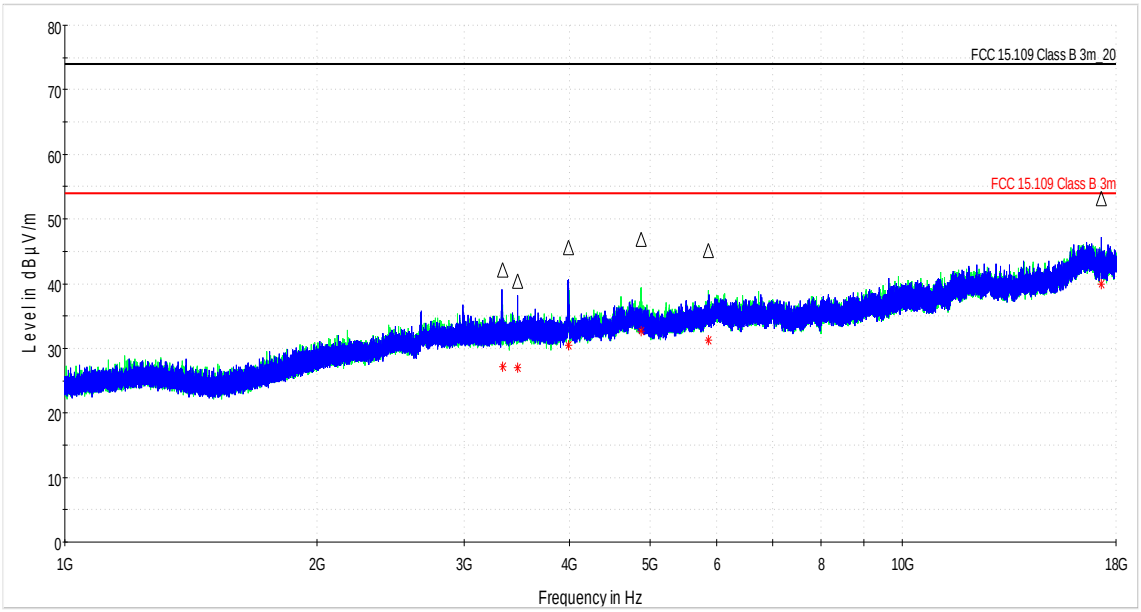
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2989.019000	27.01	54.00	26.99	1000.000	400.0	H	274.0	4.8
3245.647500	26.82	54.00	27.18	1000.000	306.0	H	322.0	5.1
3985.898750	30.40	54.00	23.60	1000.000	300.0	V	180.0	6.5
3988.636850	30.74	54.00	23.26	1000.000	300.0	V	185.0	6.5
3990.777500	29.88	54.00	24.12	1000.000	237.0	V	139.0	6.5
4823.945000	34.96	54.00	19.04	1000.000	300.0	H	252.0	7.6

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/09/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 6; Internal Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3331.580500	42.17	74.00	31.83	1000.000	400.0	V	318.0	5.3
3469.287000	40.36	74.00	33.64	1000.000	209.0	V	22.0	5.3
3994.168900	45.68	74.00	28.32	1000.000	190.0	V	185.0	6.5
4879.920000	46.86	74.00	27.14	1000.000	100.0	H	274.0	7.4
5871.982000	45.18	74.00	28.82	1000.000	188.0	H	50.0	9.3
17287.950000	53.22	74.00	20.78	1000.000	300.0	V	2.0	20.9

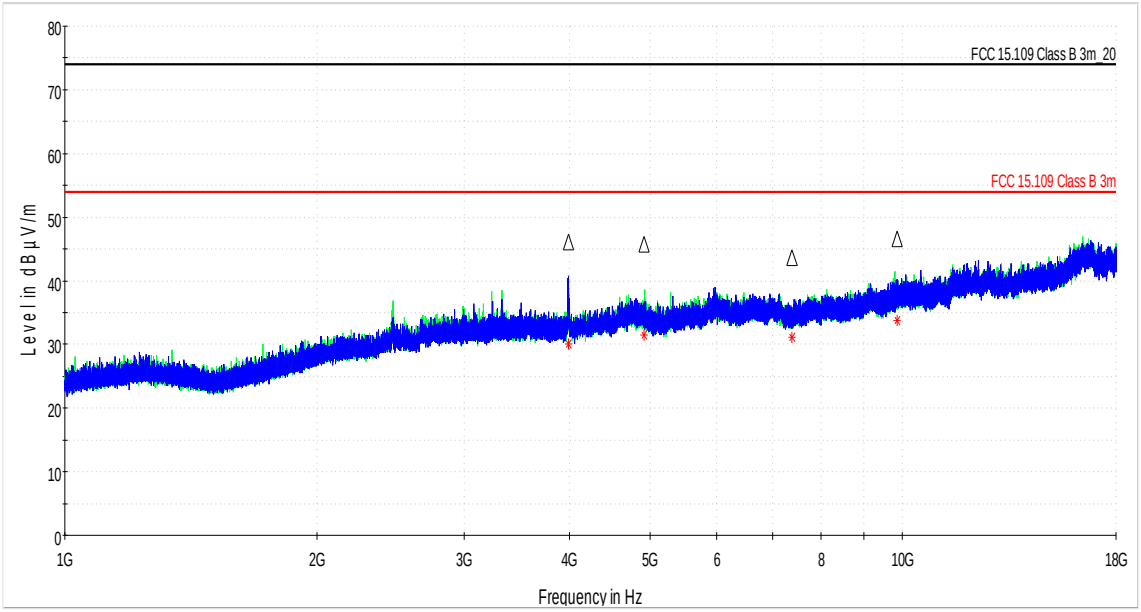
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3331.580500	27.20	54.00	26.80	1000.000	400.0	V	318.0	5.3
3469.287000	26.94	54.00	27.06	1000.000	209.0	V	22.0	5.3
3994.168900	30.43	54.00	23.57	1000.000	190.0	V	185.0	6.5
4879.920000	32.65	54.00	21.35	1000.000	100.0	H	274.0	7.4
5871.982000	31.29	54.00	22.71	1000.000	188.0	H	50.0	9.3
17287.950000	39.99	54.00	14.01	1000.000	300.0	V	2.0	20.9

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/09/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 11; Internal Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3999.291180	45.98	74.00	28.02	1000.000	208.0	V	182.0	6.5
4918.783000	45.79	74.00	28.21	1000.000	400.0	H	270.0	7.4
7381.103000	43.69	74.00	30.31	1000.000	300.0	V	38.0	10.6
9852.344500	46.59	74.00	27.41	1000.000	400.0	V	178.0	13.9

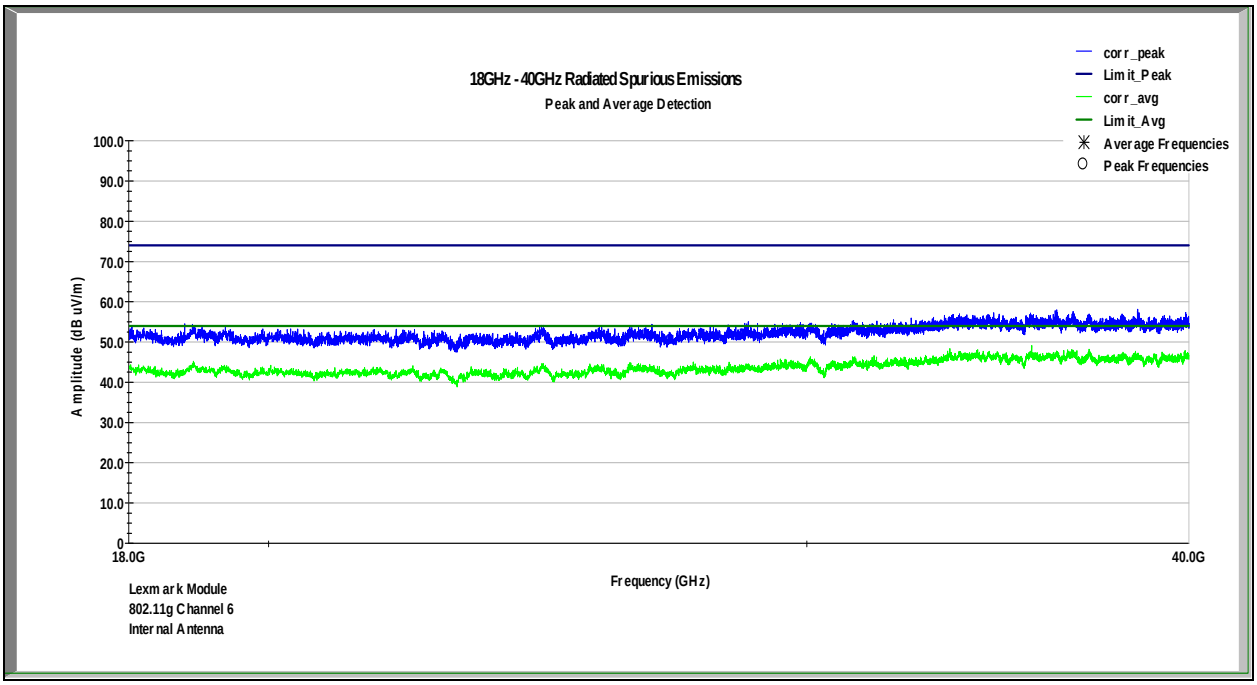
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3999.291180	30.12	54.00	23.88	1000.000	208.0	V	182.0	6.5
4918.783000	31.41	54.00	22.59	1000.000	400.0	H	270.0	7.4
7381.103000	31.10	54.00	22.90	1000.000	300.0	V	38.0	10.6
9852.344500	33.78	54.00	20.22	1000.000	400.0	V	178.0	13.9

802.11g Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Bryan Taylor
Date:	05/14/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11g Channel 6; Internal Antenna; 17dBm setting on test tool

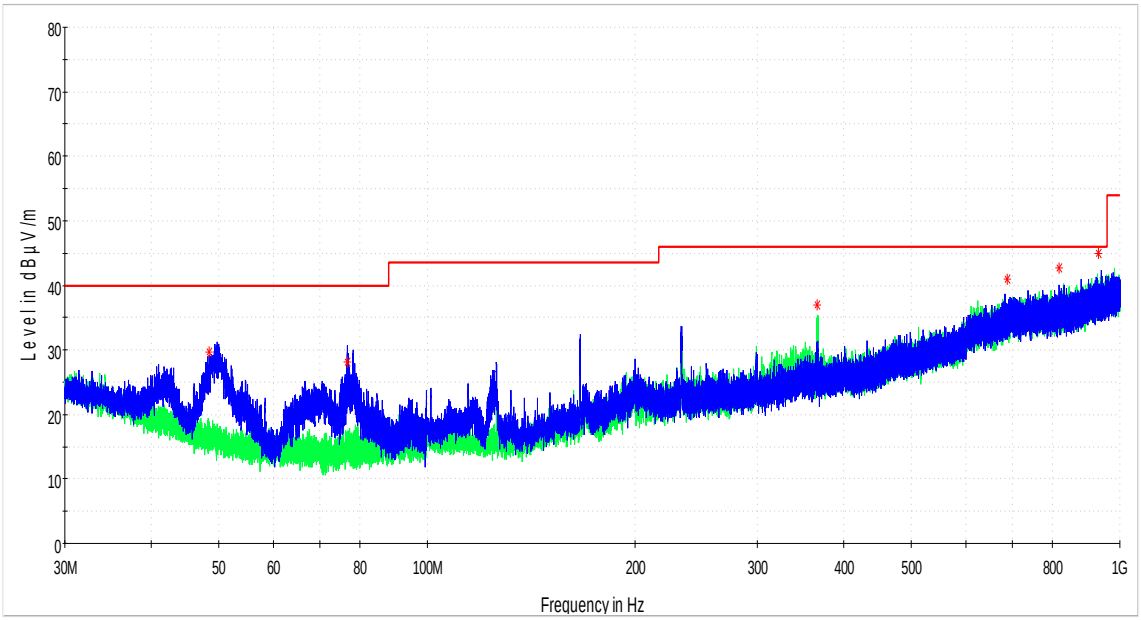


*Worst case vertical and horizontal scan performed at 1m. No significant emissions were found.

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 6; External Antenna; 17dBm setting on test tool



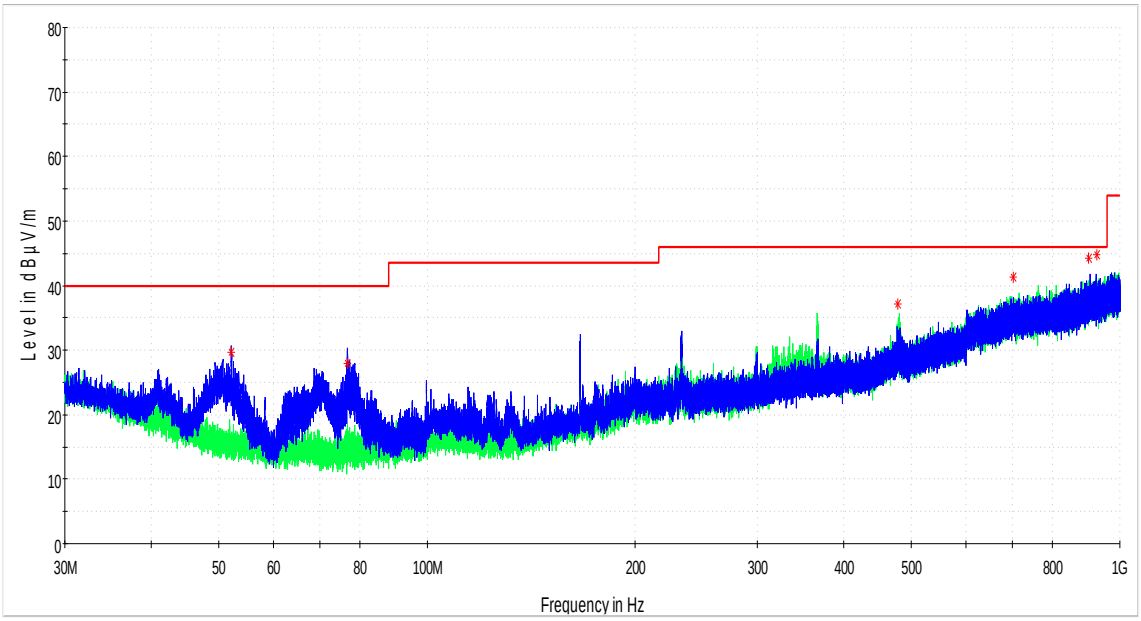
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
48.516000	29.69	40.00	10.31	120.000	98.0	V	330.0	16.9
76.809000	28.07	40.00	11.93	120.000	100.1	V	248.0	15.5
365.400000	36.97	46.02	9.05	120.000	127.3	H	256.0	25.7
687.730000	41.00	46.02	5.02	120.000	305.1	V	173.0	33.2
816.660000	42.65	46.02	3.37	120.000	386.4	V	0.0	34.6
931.660000	45.00	46.02	1.02	120.000	397.3	H	57.0	36.3

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	B. Taylor
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 6; Internal Antenna; 17dBm setting on test tool



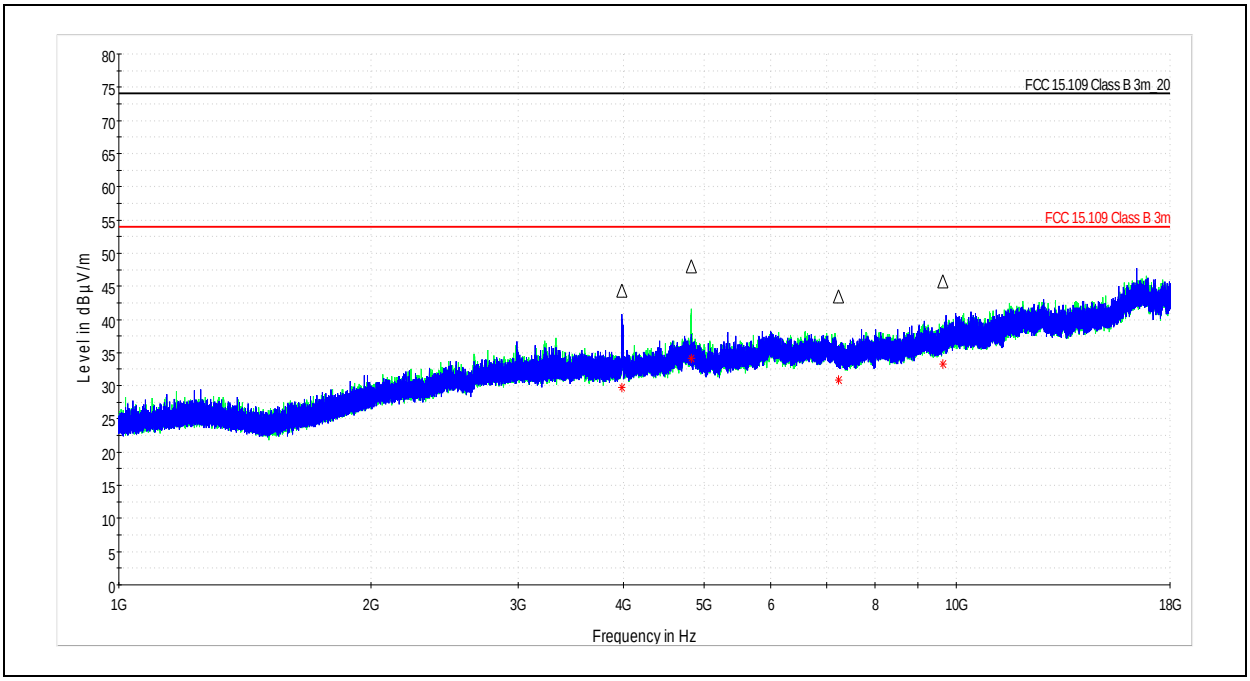
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
52.225000	29.67	40.00	10.33	120.000	100.2	V	312.0	16.1
76.802000	27.86	40.00	12.14	120.000	100.7	V	246.0	15.5
478.720000	37.08	46.02	8.94	120.000	186.8	H	73.0	28.6
701.430000	41.33	46.02	4.69	120.000	224.2	H	292.0	33.6
901.260000	44.27	46.02	1.75	120.000	234.9	V	350.0	36.0
926.120000	44.83	46.02	1.19	120.000	339.5	V	220.0	36.3

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 1; External Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3986.262000	44.35	74.00	29.65	1000.000	197.0	V	186.0	6.5
4824.722000	48.06	74.00	25.94	1000.000	300.0	H	219.0	7.6
7240.402500	43.42	74.00	30.58	1000.000	400.0	H	203.0	10.3
9645.143500	45.67	74.00	28.33	1000.000	300.0	V	264.0	13.5

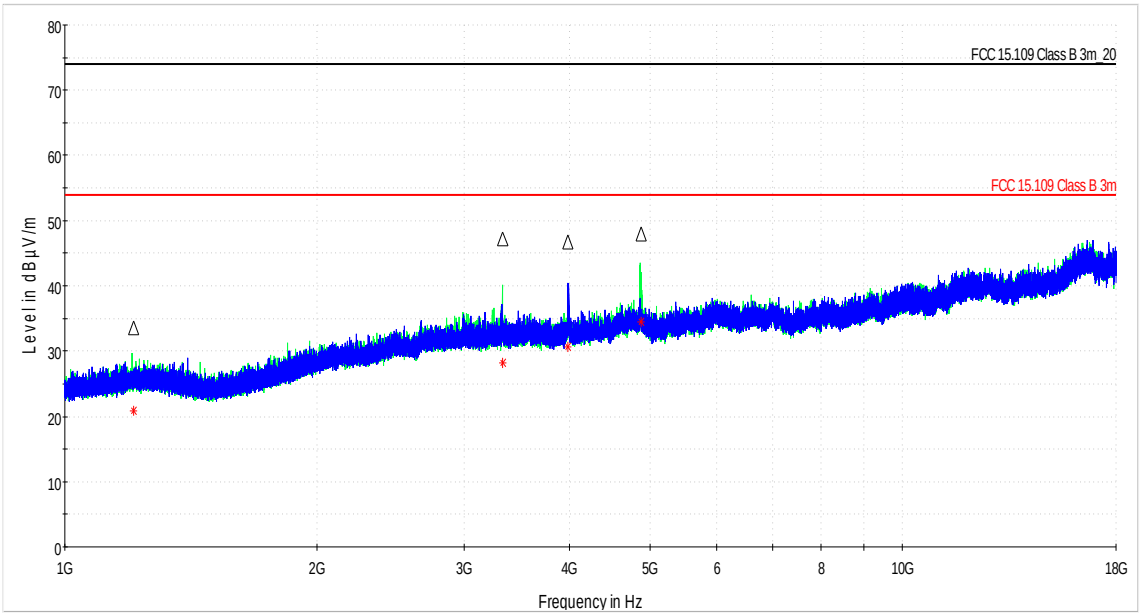
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3986.262000	29.80	54.00	24.20	1000.000	197.0	V	186.0	6.5
4824.722000	34.12	54.00	19.88	1000.000	300.0	H	219.0	7.6
7240.402500	30.90	54.00	23.10	1000.000	400.0	H	203.0	10.3
9645.143500	33.33	54.00	20.67	1000.000	300.0	V	264.0	13.5

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 6; External Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1209.168500	33.52	74.00	40.48	1000.000	400.0	H	306.0	-1.2
3331.684500	47.19	74.00	26.81	1000.000	286.0	H	71.0	5.3
3985.997500	46.72	74.00	27.28	1000.000	300.0	V	196.0	6.5
4874.574500	47.99	74.00	26.01	1000.000	300.0	H	241.0	7.4

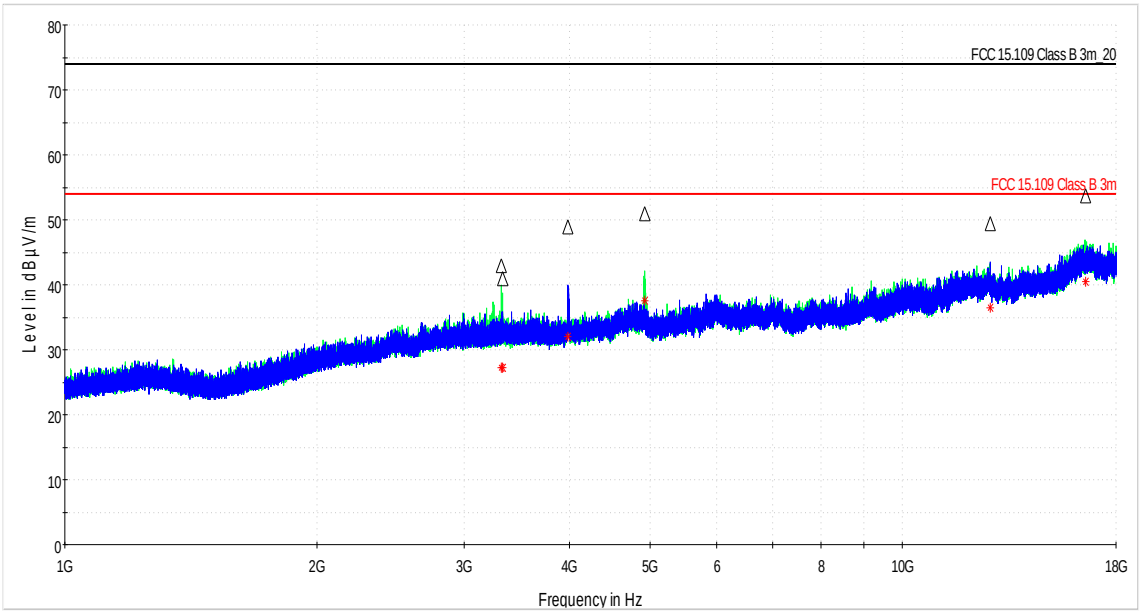
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1209.168500	20.77	54.00	33.23	1000.000	400.0	H	306.0	-1.2
3331.684500	28.27	54.00	25.73	1000.000	286.0	H	71.0	5.3
3985.997500	30.60	54.00	23.40	1000.000	300.0	V	196.0	6.5
4874.574500	34.49	54.00	19.51	1000.000	300.0	H	241.0	7.4

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/08/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 11; External Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3320.842500	42.91	74.00	31.09	1000.000	338.0	H	81.0	5.3
3332.601500	41.00	74.00	33.00	1000.000	258.0	H	274.0	5.3
3990.270000	48.86	74.00	25.14	1000.000	187.0	V	181.0	6.5
4924.106500	50.87	74.00	23.13	1000.000	300.0	H	230.0	7.4
12734.832000	49.42	74.00	24.58	1000.000	300.0	V	10.0	17.0
16545.436500	53.72	74.00	20.28	1000.000	400.0	H	274.0	21.2

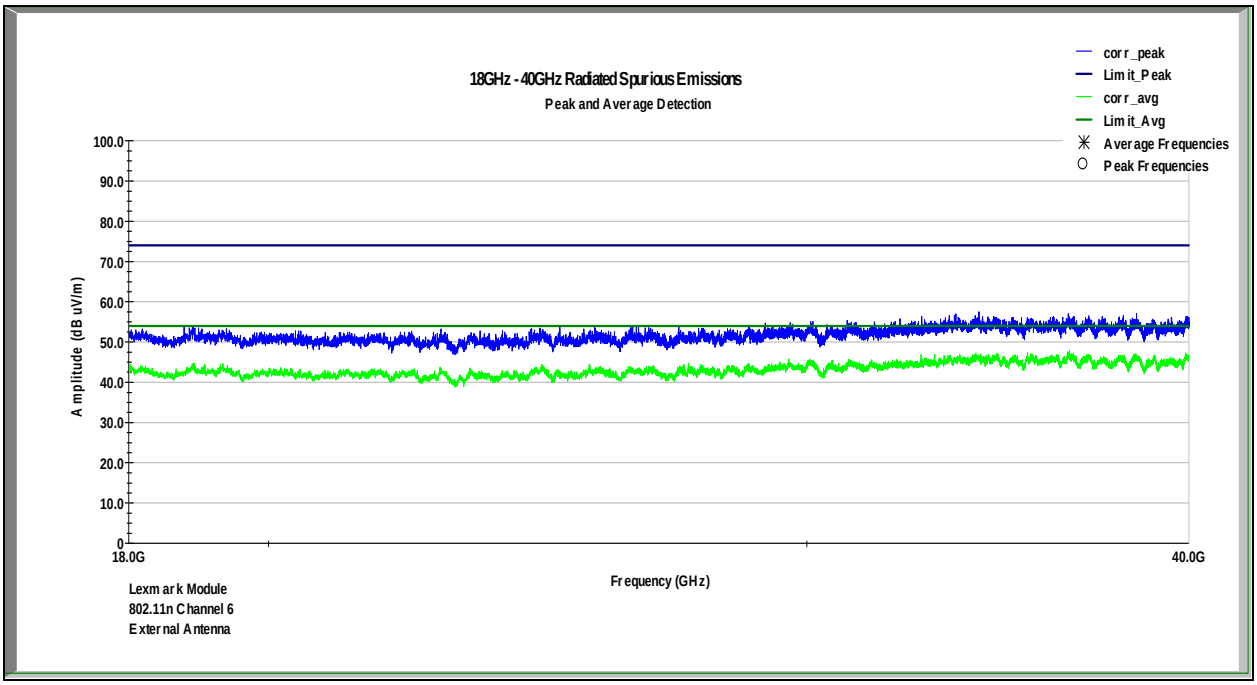
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3320.842500	27.21	54.00	26.79	1000.000	338.0	H	81.0	5.3
3332.601500	27.21	54.00	26.79	1000.000	258.0	H	274.0	5.3
3990.270000	32.05	54.00	21.95	1000.000	187.0	V	181.0	6.5
4924.106500	37.54	54.00	16.46	1000.000	300.0	H	230.0	7.4
12734.832000	36.53	54.00	17.47	1000.000	300.0	V	10.0	17.0
16545.436500	40.40	54.00	13.60	1000.000	400.0	H	274.0	21.2

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Bryan Taylor
Date:	05/14/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 6; External Antenna; 17dBm setting on test tool

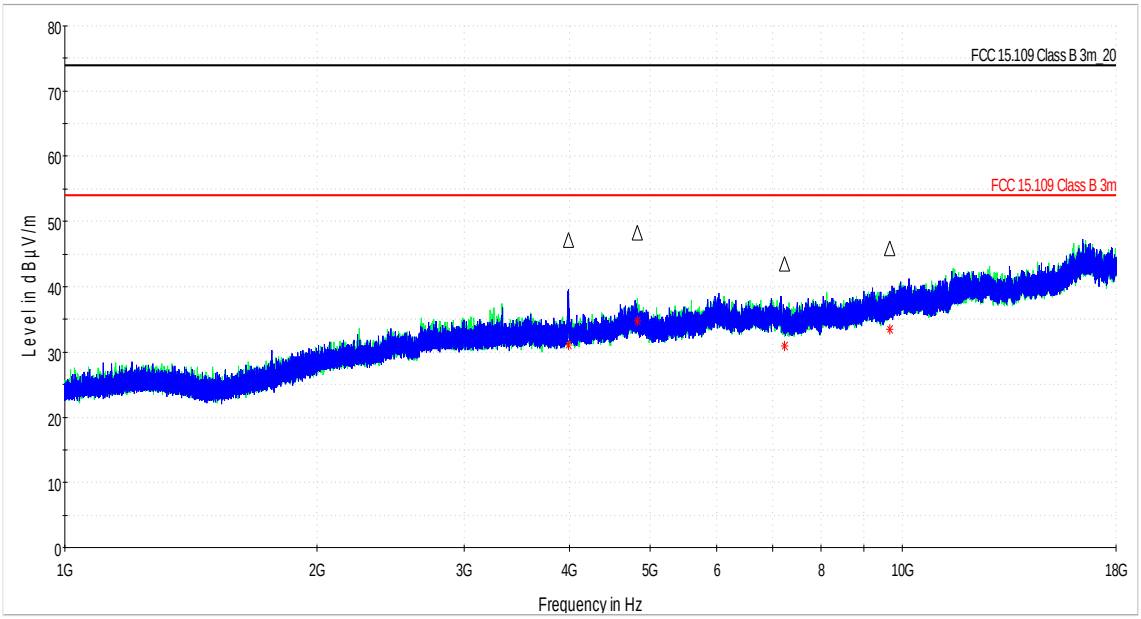


*Worst case vertical and horizontal scan performed at 1m. No significant emissions were found.

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/09/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 1; Internal Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3995.069180	47.20	74.00	26.80	1000.000	200.0	V	174.0	6.5
4823.970500	48.33	74.00	25.67	1000.000	300.0	H	241.0	7.6
7241.478500	43.51	74.00	30.49	1000.000	300.0	H	110.0	10.3
9654.122000	45.96	74.00	28.04	1000.000	400.0	V	92.0	13.5

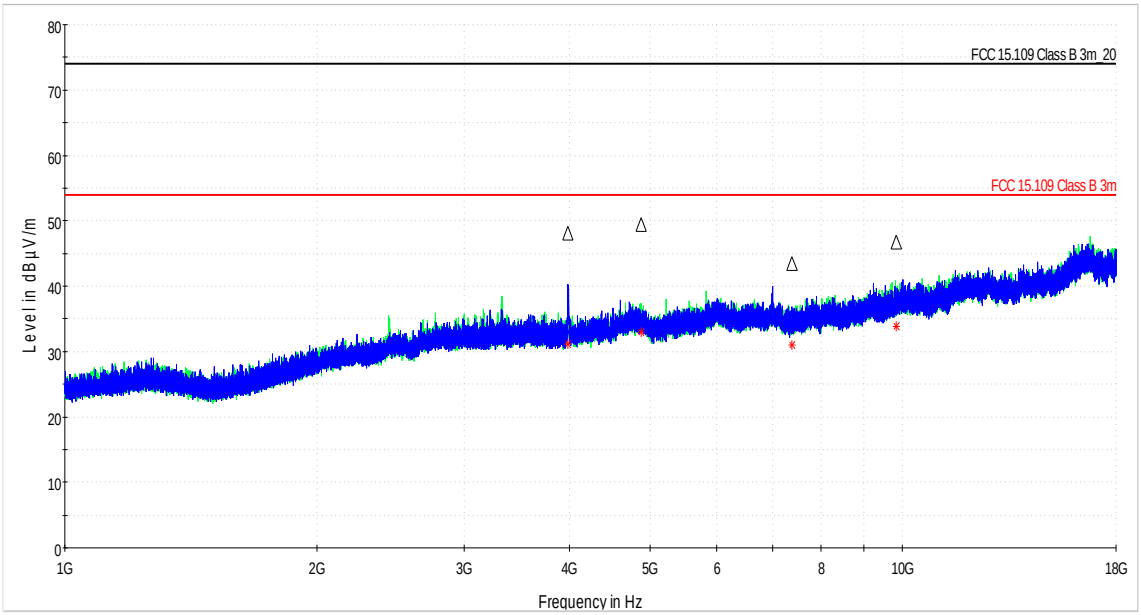
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3995.069180	31.04	54.00	22.96	1000.000	200.0	V	174.0	6.5
4823.970500	34.74	54.00	19.26	1000.000	300.0	H	241.0	7.6
7241.478500	30.89	54.00	23.11	1000.000	300.0	H	110.0	10.3
9654.122000	33.42	54.00	20.58	1000.000	400.0	V	92.0	13.5

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/09/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 6; Internal Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3985.450000	48.03	74.00	25.97	1000.000	190.0	V	174.0	6.5
4875.286000	49.38	74.00	24.62	1000.000	266.0	H	264.0	7.4
7380.585500	43.41	74.00	30.59	1000.000	400.0	V	230.0	10.6
9828.856000	46.76	74.00	27.24	1000.000	400.0	H	58.0	14.0

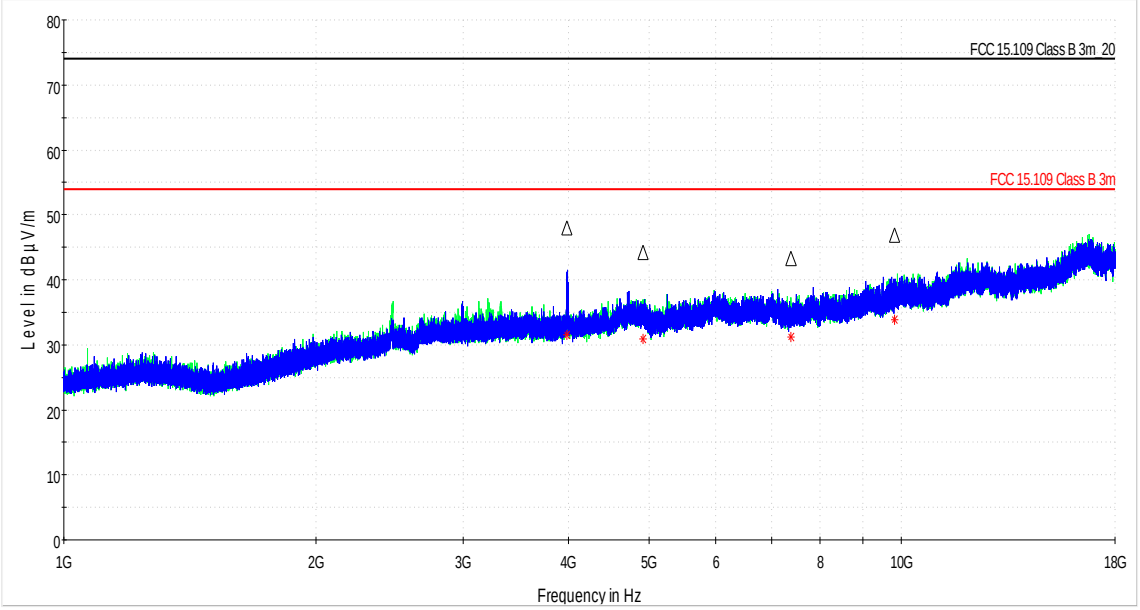
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3985.450000	31.20	54.00	22.80	1000.000	190.0	V	174.0	6.5
4875.286000	33.00	54.00	21.00	1000.000	266.0	H	264.0	7.4
7380.585500	31.07	54.00	22.93	1000.000	400.0	V	230.0	10.6
9828.856000	33.83	54.00	20.17	1000.000	400.0	H	58.0	14.0

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Brian Daffin
Date:	05/09/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 11; Internal Antenna; 17dBm setting on test tool



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3988.949860	47.94	74.00	26.06	1000.000	195.0	V	176.0	6.5
4915.663500	44.19	74.00	29.81	1000.000	300.0	H	246.0	7.5
7386.167500	43.24	74.00	30.76	1000.000	259.0	H	139.0	10.6
9824.307500	46.84	74.00	27.16	1000.000	352.0	H	252.0	14.0

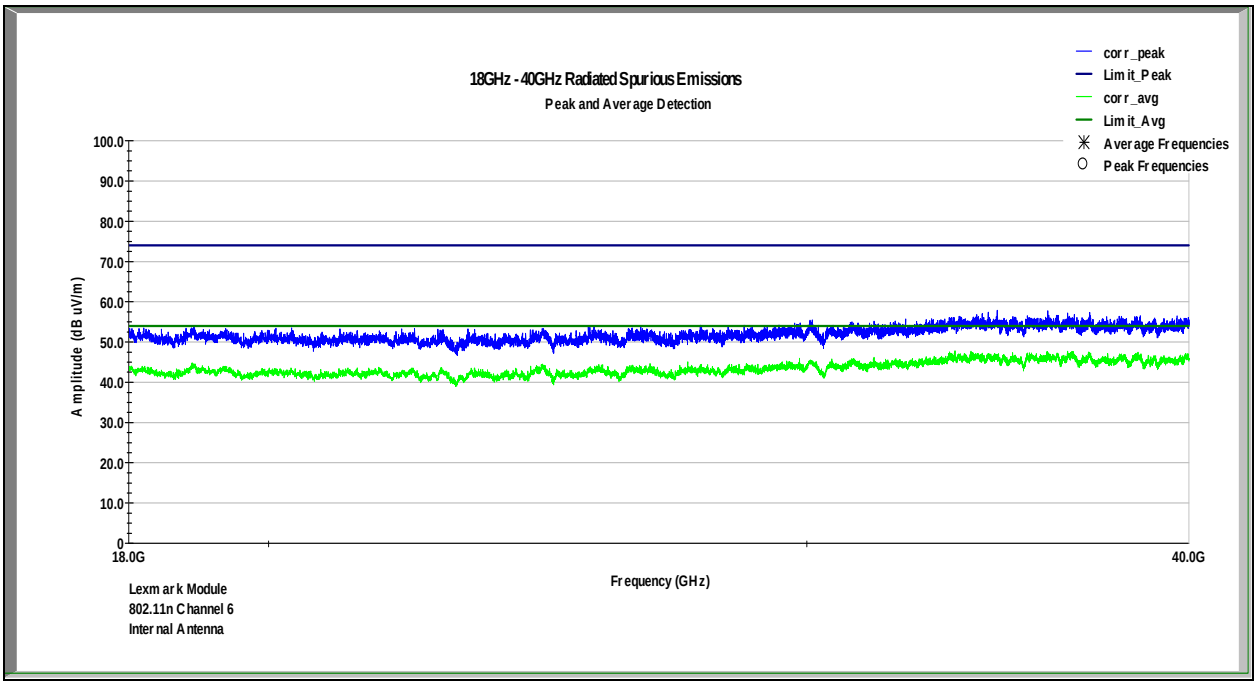
Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
3988.949860	31.57	54.00	22.43	1000.000	195.0	V	176.0	6.5
4915.663500	30.94	54.00	23.06	1000.000	300.0	H	246.0	7.5
7386.167500	31.17	54.00	22.83	1000.000	259.0	H	139.0	10.6
9824.307500	33.84	54.00	20.16	1000.000	352.0	H	252.0	14.0

802.11n Radiated Emission Results

EUT Information

EUT Name:	LEX-M08-001 WiFi Module
Manufacturer:	Lexmark
Test Engineer:	Bryan Taylor
Date:	05/14/2018
Temp/Humidity/Pressure:	22.3C/35.8%/982.0mbar
Comment:	802.11n Channel 6; Internal Antenna; 17dBm setting on test tool



*Worst case vertical and horizontal scan performed at 1m. No significant emissions were found.