

FCC Test Report (Class II Permissive Change)

Product Name	MOXA IEEE 802.11 a/b/g/n
Model No	WAPN008
FCC ID	SLE-WAPN008

Applicant	Moxa Inc.
Address	FL.4, NO. 135. LANE 235, BAOQIAO RD. XINDIAN DIST.,NEW TAIPEI CITY, TAIWAN

Date of Receipt	Apr. 16, 2019
Issued Date	May 14, 2019
Report No.	1940228R-RFUSP48V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

Test Report

Issued Date: May 14, 2019

Report No.: 1940228R-RFUSP48V00



Product Name	MOXA IEEE 802.11 a/b/g/n
Applicant	Moxa Inc.
Address	FL.4, NO. 135. LANE 235, BAOQIAO RD. XINDIAN DIST.,NEW TAIPEI CITY, TAIWAN
Manufacturer	Moxa Inc.
Model No.	WAPN008
FCC ID.	SLE-WAPN008
EUT Rated Voltage	DC 3.3V
EUT Test Voltage	AC 120V/60Hz
Trade Name	MOXA
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2018 ANSI C63.4: 2014, ANSI C63.10: 2013 789033 D02 General UNII Test Procedures New Rules v02
Test Result	Complied

Documented By : Anita Chou
(Senior Engineering Adm. Specialist / Anita Chou)

Tested By : Sam Hsu
(Engineer / Sam Hsu)

Approved By : Vincent Lin
(Director / Vincent Lin)

TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION.....	4
1.1. EUT Description.....	4
1.2. Operational Description	6
1.3. Tested System Details.....	7
1.4. Configuration of tested System	7
1.5. EUT Exercise Software	7
1.6. Test Facility	8
1.7. List of Test Equipment	9
2. Maximun conducted output power.....	10
2.1. Test Setup	10
2.2. Limits	10
2.3. Test Procedure	12
2.4. Uncertainty	12
2.5. Test Result of Maximum conducted output power.....	13
3. Radiated Emission.....	19
3.1. Test Setup	19
3.2. Limits	20
3.3. Test Procedure	21
3.4. Uncertainty	21
3.5. Test Result of Radiated Emission.....	22
4. Band Edge.....	66
4.1. Test Setup	66
4.2. Limits	67
4.3. Test Procedure	67
4.4. Uncertainty	67
4.5. Test Result of Band Edge	68
5. Duty Cycle.....	97
5.1. Test Setup	97
5.2. Test Procedure	97
5.3. Uncertainty	97
5.4. Test Result of Duty Cycle.....	98
6. EMI Reduction Method During Compliance Testing	101
Attachment 1: EUT Test Photographs	
Attachment 2: EUT Detailed Photographs	

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	MOXA IEEE 802.11 a/b/g/n
Trade Name	MOXA
FCC ID.	SLE-WAPN008
Model No.	WAPN008
Frequency Range	802.11a/n-20MHz: 5180-5240MHz, 5745-5825MHz 802.11n-40MHz: 5190-5230, 5755-5795MHz
Number of Channels	802.11a/n-20MHz: 9; 802.11n-40MHz: 4
Data Rate	802.11a: 6 - 54Mbps 802.11n: up to 300Mbps
Type of Modulation	802.11a/n: OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna Type	Patch Antenna
Channel Control	Auto
Antenna Gain	Refer to the table "Antenna List"

Antenna List:

No.	Manufacturer	Part No.	Antenna Type	Peak Gain	Peak gain with cable loss
1	ANTONICS	100-57-61-02.4	Patch Antenna	9.1dBi For 5GHz	0.7 dBi For 5GHz

Note: 1. The antenna of EUT is conform to FCC 15.203

802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz
Channel 149:	5745 MHz	Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz
Channel 165:	5825 MHz						

802.11n-40MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz	Channel 151:	5755 MHz	Channel 159:	5795 MHz

Note:

1. This device is a MOXA IEEE 802.11 a/b/g/n built-in 2.4GHz and 5GHz transceiver, this report for 5G WLAN.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
4. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.
5. This is to request a Class II permissive change for FCC ID: SLE-WAPN008, originally granted on 08/01/2018.
The major change filed under this application is:
Change #1: Addition one Patch antenna, antenna type is different with the original application.
Change #2: Reduce the Output Power through firmware filing to demonstrate compliance .

Test Mode	Mode 1: Transmit (802.11a-6Mbps) Mode 1: Transmit (802.11n-20BW 14.2Mbps) Mode 1: Transmit (802.11n-40BW 30Mbps)
-----------	--

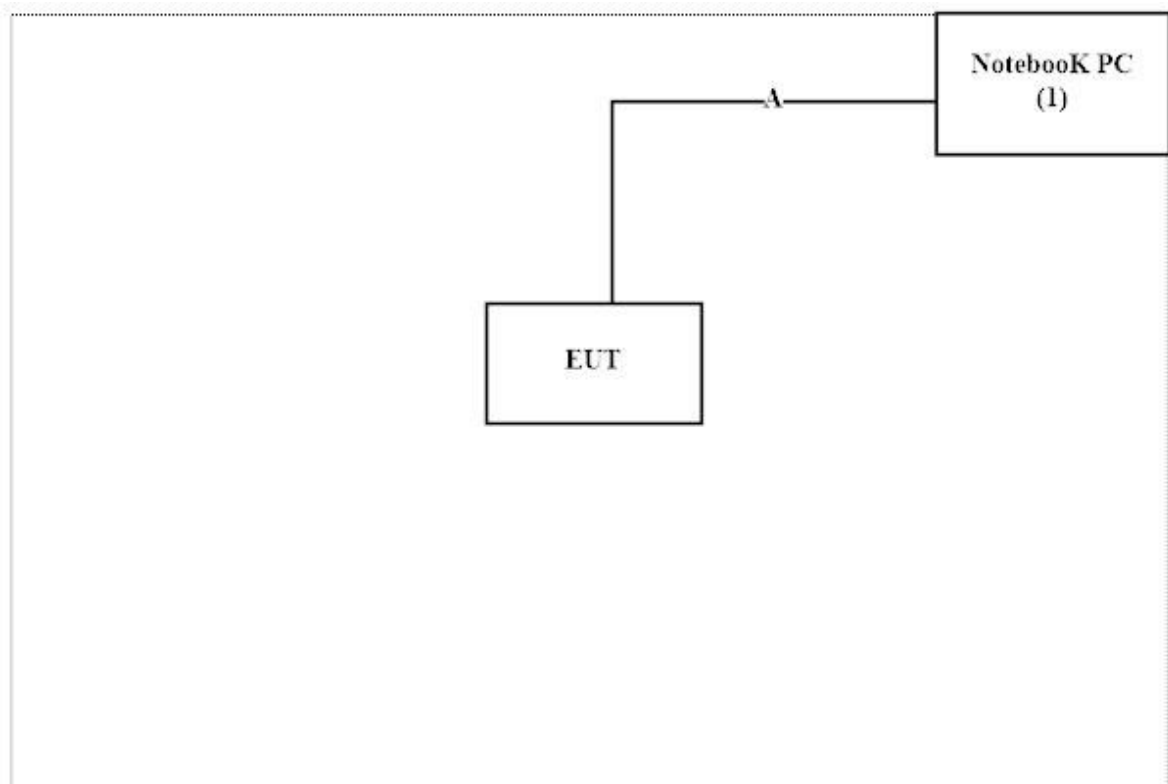
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude E5440	HG26TZ1	Non-Shielded, 0.8m

Signal Cable Type		Signal cable Description
A	LAN Cable	Shielded, 1.1m

1.4. Configuration of tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown on 1.4
- (2) Execute "ART2-GUI 2.3" program on the EUT.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Start the continuous transmission.
- (5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en.aspx

Site Description: Accredited by TAF
Accredited Number: 3023

Site Name: DEKRA Testing and Certification Co., Ltd
Site Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,
Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : info.tw@dekra.com

FCC Accreditation Number: TW3023

1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2019/02/26	2020/02/25
X	Spectrum Analyzer	Agilent	N9010A	MY53470892	2018/09/27	2019/09/26
X	Peak Power Analyzer	Keysight	8990B	MY51000410	2018/08/01	2019/07/31
X	Wideband Power Sensor	Keysight	N1923A	MY56080003	2018/07/25	2019/07/24
X	Wideband Power Sensor	Keysight	N1923A	MY56080004	2018/07/25	2019/07/24
X	EMI Test Receiver	R&S	ESCS 30	100369	2018/11/19	2019/11/18
X	LISN	R&S	ENV216	101105	2019/03/30	2020/03/29
X	LISN	R&S	ESH3-Z5	836679/014	2019/04/02	2020/04/01
X	Coaxial Cable	DEKRA	RG 400	LC018-RG	2018/06/21	2019/06/20

For Radiated measurements /Site3/CB8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Spectrum Analyzer	R&S	FSP40	100170	2019/03/11	2020/03/10
X	Loop Antenna	Teseq	HLA6121	37133	2017/10/13	2019/10/12
X	Bilog Antenna	Schaffner Chase	CBL6112B	2707	2018/06/24	2019/06/23
X	Coaxial Cable	DEKRA	RG 214	LC003-RG	2018/06/14	2019/06/13
X	Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330010	2018/06/14	2019/06/13
X	Horn Antenna	ETS-Lindgren	3117	00135205	2019/04/30	2020/04/29
X	Horn Antenna	SCHWARZBECK	9120D	576	2018/12/18	2019/12/17
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2019/04/16	2020/04/15
X	Horn Antenna	Com-Power	AH-840	101043	2019/01/19	2020/01/18
X	Amplifier + Cable	EMCI	EMC184045SE	980370	2019/03/27	2020/03/26
X	Filter	MICRO-TRONICS	BRM50702	G270	2018/08/06	2019/08/05
X	Filter	MICRO-TRONICS	BRM50716	G196	2018/08/06	2019/08/05

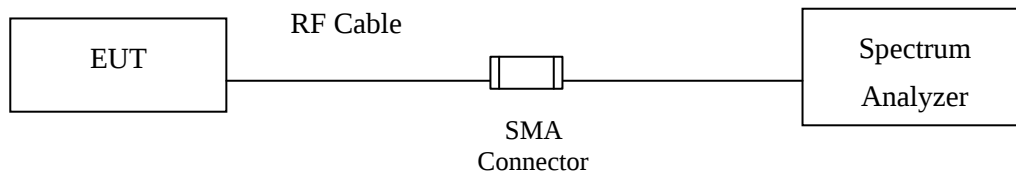
Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version :QuiTek EMI 2.0 V2.1.113.

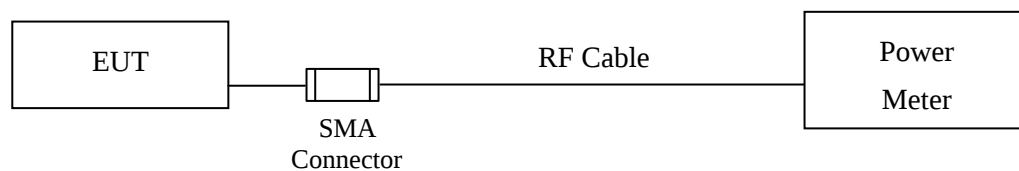
2. Maximun conducted output power

2.1. Test Setup

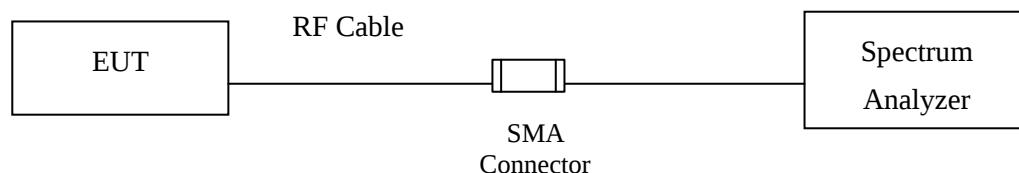
99%Occupied Bandwidth



Conduction Power Measurement (for 802.11an)



Conduction Power Measurement (for 802.11ac)



2.2. Limits

2.2.1. For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi

are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, if transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

2.2.2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

2.2.3. For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, if transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

2.3. Test Procedure

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater than the 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

802.11an($BW \leq 40\text{MHz}$) Maximum conducted output power using KDB 789033 section E)3)b)
Method PM-G (Measurement using a gated RF average power meter)

Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

802.11ac ($BW=80\text{MHz}$) Maximum conducted output power using KDB 789033 section E)2)b)
Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D03 section D) procedure is used for measurements.

2.4. Uncertainty

$\pm 1.27\text{dB}$

2.5. Test Result of Maximum conducted output power

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Maximum conducted output power
 Test Site : No.3 OATS
 Test Date : 2019/04/26
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Cable loss=1dB		Average Power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	19.25	--	--	--	--	--	--	--	<24dBm
40	5200	21.65	21.58	21.53	21.42	21.33	21.24	21.13	21.03	<24dBm
48	5240	21.63	--	--	--	--	--	--	--	<24dBm
149	5745	15.97	--	--	--	--	--	--	--	<30dBm
157	5785	16.03	15.95	15.86	15.75	15.69	15.62	15.51	15.43	<30dBm
165	5825	17.38	--	--	--	--	--	--	--	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

Note: The maximum conducted output power shall be reduced by the amount in dB that the directional gain the antenna exceeds 6 dBi.

Maximum conducted output power Measurement:

Channel No	Frequency Range (MHz)	99% Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
36	5180	--	19.25	24	--	Pass
40	5200	--	20.52	24	--	Pass
48	5240	--	20.54	24	--	Pass
149	5745	--	15.97	30	--	Pass
157	5785	--	16.03	30	--	Pass
165	5825	--	17.38	30	--	Pass

Note: Power Output Value =Reading value on average power meter + cable loss

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Maximum conducted output power
 Test Site : No.3 OATS
 Test Date : 2019/04/26
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)

CHAIN A

Cable loss=1dB		Average Power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	18.1	--	--	--	--	--	--	--	<24dBm
40	5200	18.73	18.64	18.56	18.46	18.34	18.26	18.18	18.12	<24dBm
48	5240	19.16	--	--	--	--	--	--	--	<24dBm
149	5745	16.48	--	--	--	--	--	--	--	<30dBm
157	5785	18	17.92	17.82	17.7	17.6	17.48	17.43	17.34	<30dBm
165	5825	17.95	--	--	--	--	--	--	--	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

CHAIN B

Cable loss=1dB		Average Power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	18.76	--	--	--	--	--	--	--	<24dBm
40	5200	18.97	18.88	18.76	18.69	18.64	18.58	18.46	18.37	<24dBm
48	5240	18.72	--	--	--	--	--	--	--	<24dBm
149	5745	17.05	--	--	--	--	--	--	--	<30dBm
157	5785	19.22	19.14	19.02	18.95	18.87	18.78	18.71	18.66	<30dBm
165	5825	19.5	--	--	--	--	--	--	--	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power Measurement:**(CHAIN A+ B)**

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
36	5180	--	18.10	18.76	21.45	24	--
44	5220	--	18.73	18.97	21.86	24	--
48	5240	--	19.16	18.72	21.96	24	--
149	5745	--	16.48	17.05	19.78	30	--
157	5785	--	18.00	19.22	21.66	30	--
165	5825	--	17.95	19.50	21.80	30	--

Note:

1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
3. 26 dB Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Maximum conducted output power
 Test Site : No.3 OATS
 Test Date : 2019/04/26
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)

CHAIN A

Cable loss=1dB		Average Power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	13.8	--	--	--	--	--	--	--	<24dBm
46	5230	20.41	20.34	20.27	20.15	20.04	19.99	19.92	19.80	<24dBm
151	5755	13.46	--	--	--	--	--	--	--	<30dBm
159	5795	18.43	18.34	18.24	18.13	18.07	18.02	17.97	17.87	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

CHAIN B

Cable loss=1dB		Average Power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	13.57	--	--	--	--	--	--	--	<24dBm
46	5230	20.51	20.46	20.36	20.3	20.20	20.11	20.05	20	<24dBm
151	5755	14.44	--	--	--	--	--	--	--	<30dBm
159	5795	19.84	19.72	19.61	19.55	19.47	19.38	19.32	19.23	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:
(CHAIN A+ B)**

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
38	5190	--	13.80	13.57	16.70	24	--
46	5230	--	20.41	20.51	23.47	24	--
151	5755	--	13.46	14.44	16.99	30	--
159	5795	--	18.43	19.84	22.20	30	--

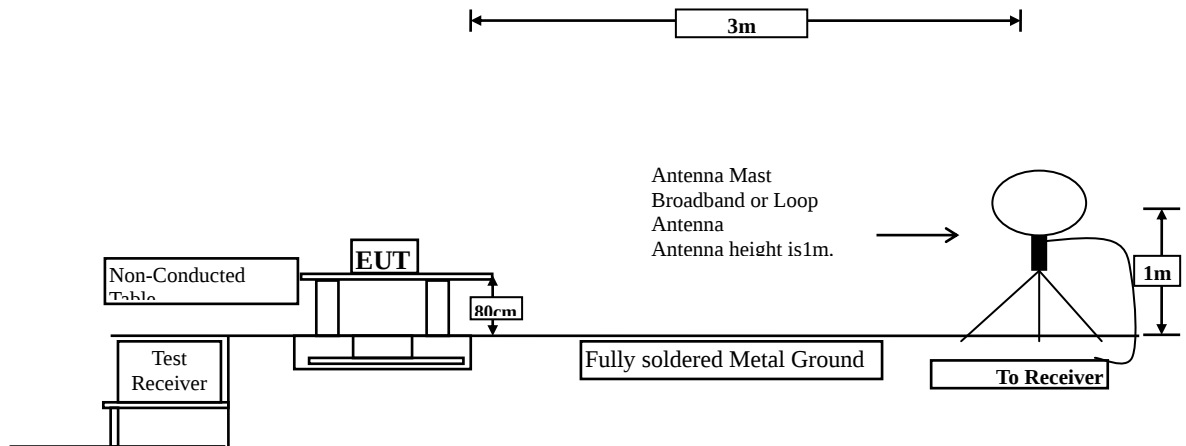
Note:

1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
3. 26 dB Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

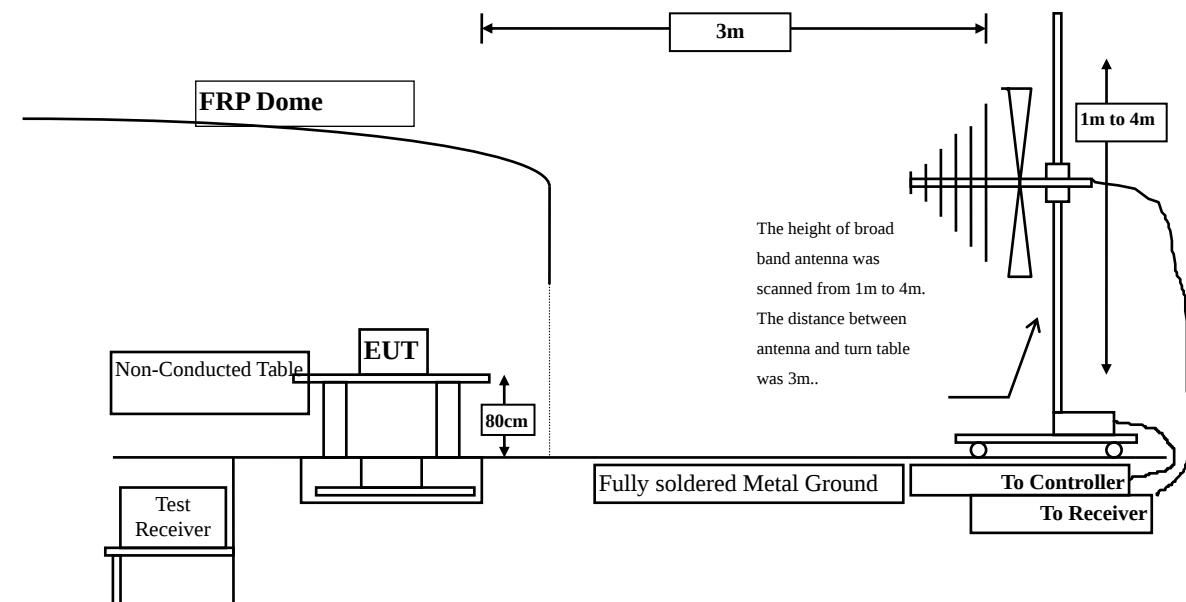
3. Radiated Emission

3.1. Test Setup

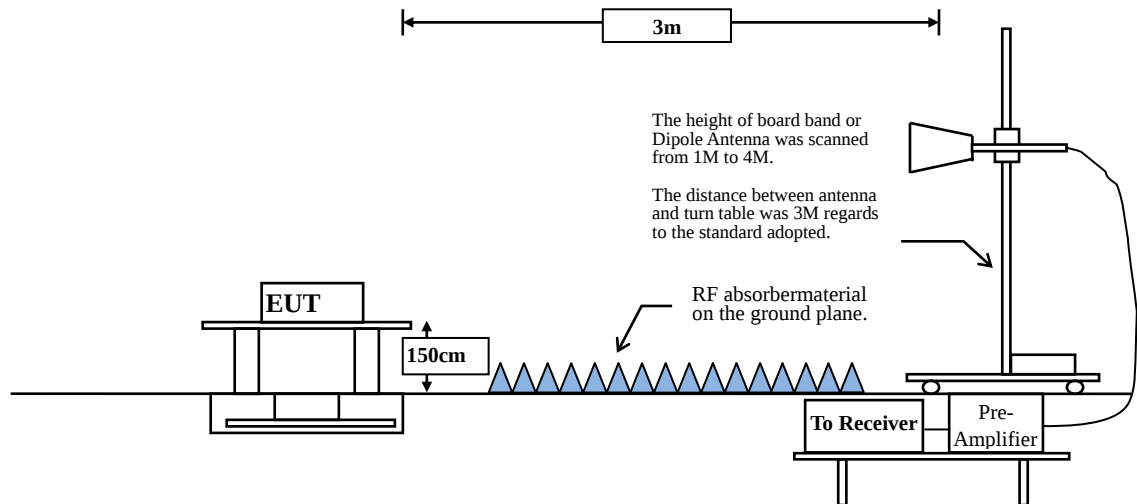
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBμV/m) = 20 log E field strength (uV/m)

3.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

3.4. Uncertainty

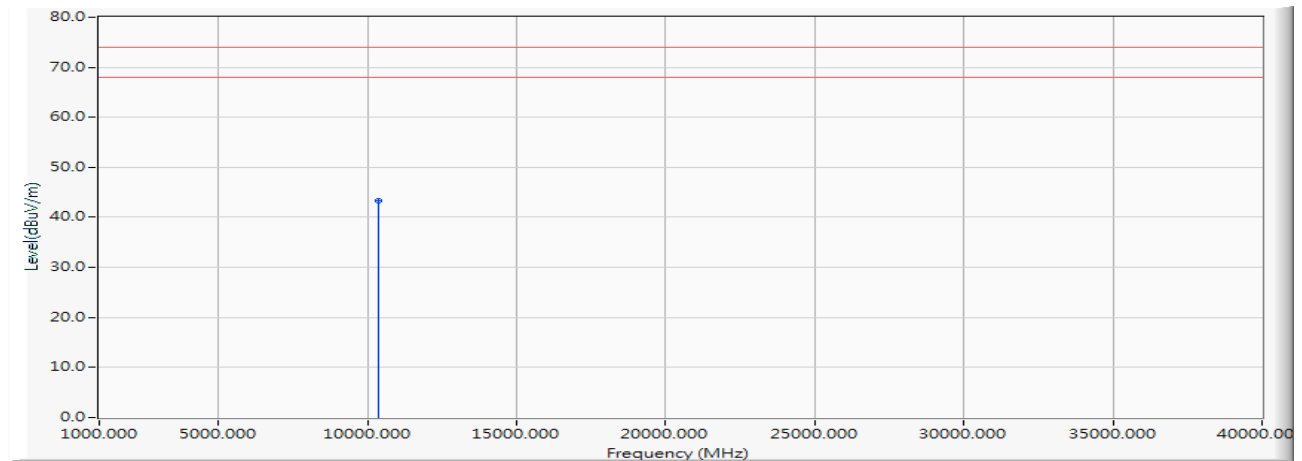
±4.08 dB below 1GHz

±4.22 dB above 1GHz

3.5. Test Result of Radiated Emission

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5180MHz)

Horizontal

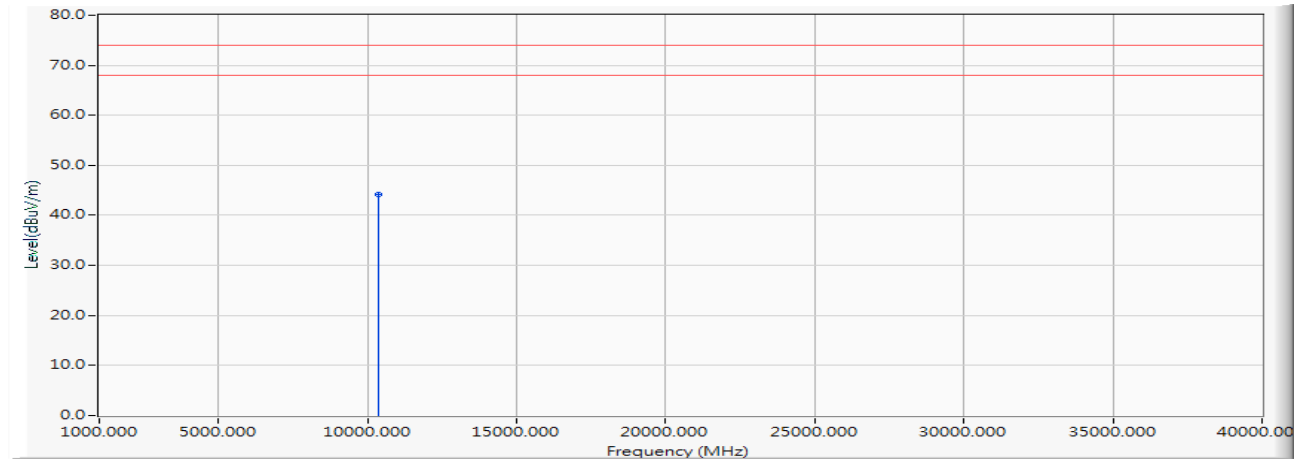


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10360.000	15.135	28.221	43.356	-30.644	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5180MHz)

Vertical

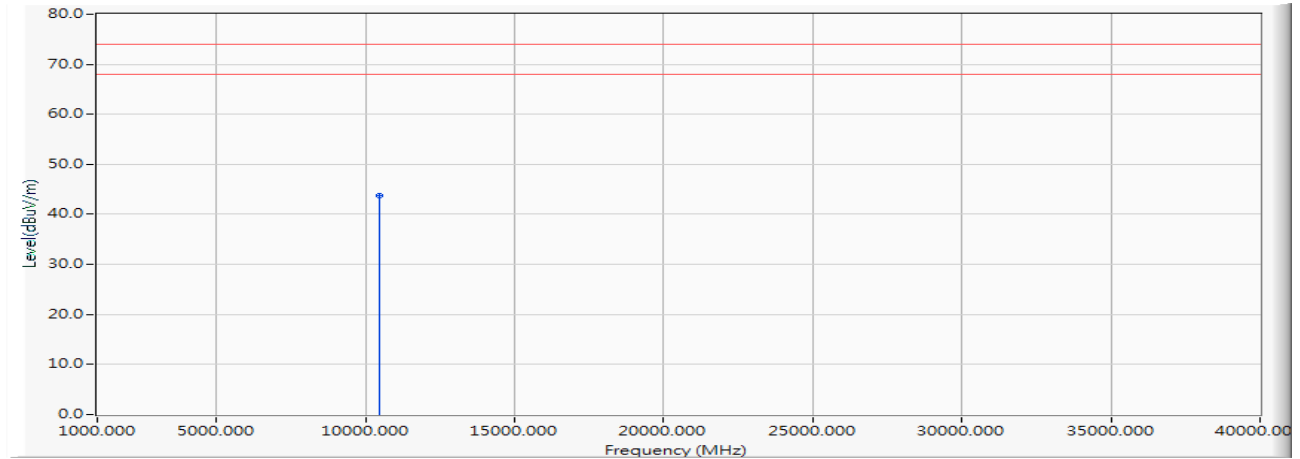
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10360.000	15.135	29.035	44.170	-29.830	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5220MHz)

Horizontal

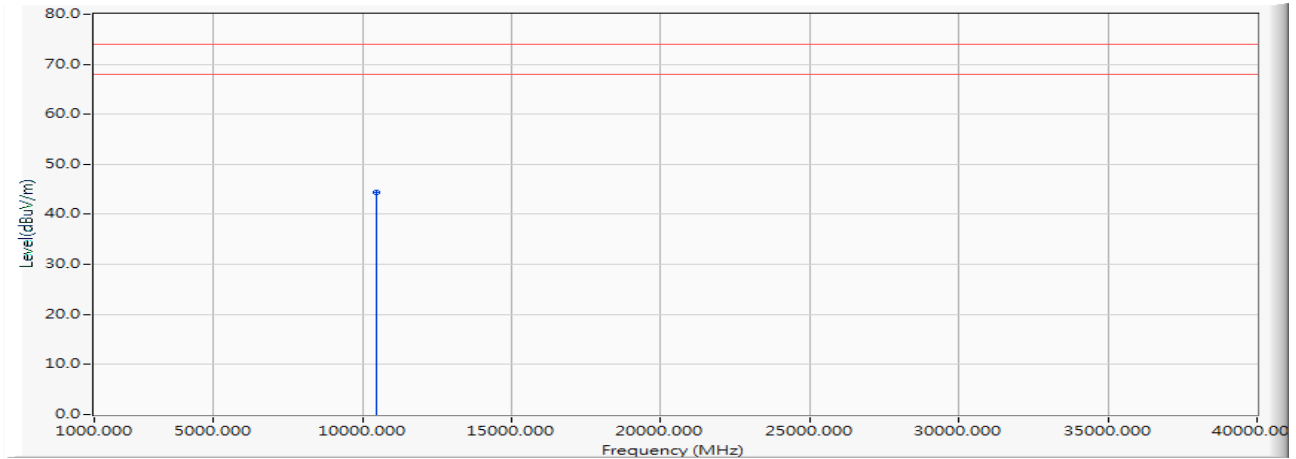


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10440.000	15.197	28.475	43.672	-30.328	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5220MHz)

Vertical

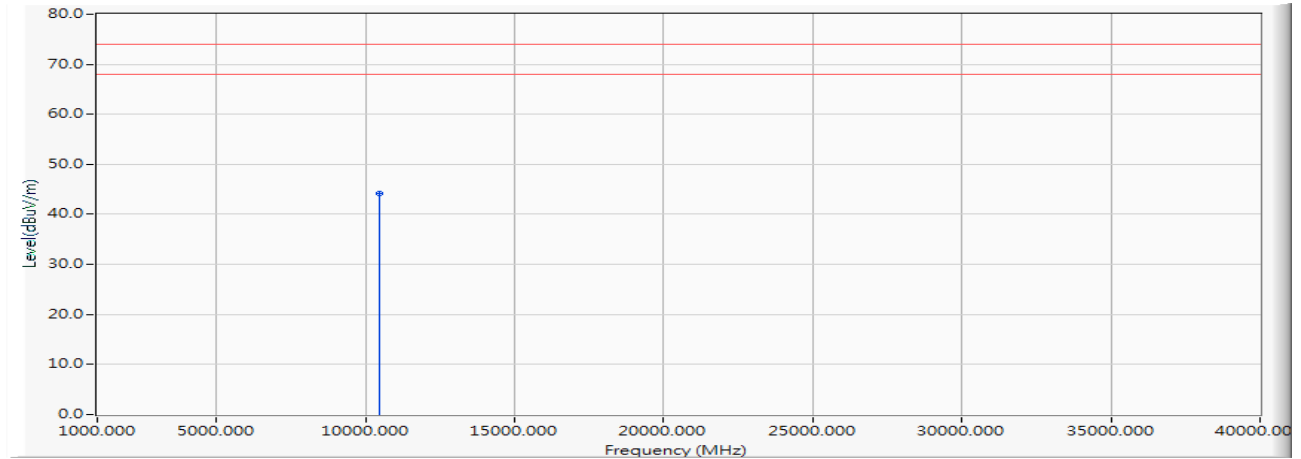
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10440.000	15.197	29.248	44.445	-29.555	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5240MHz)

Horizontal

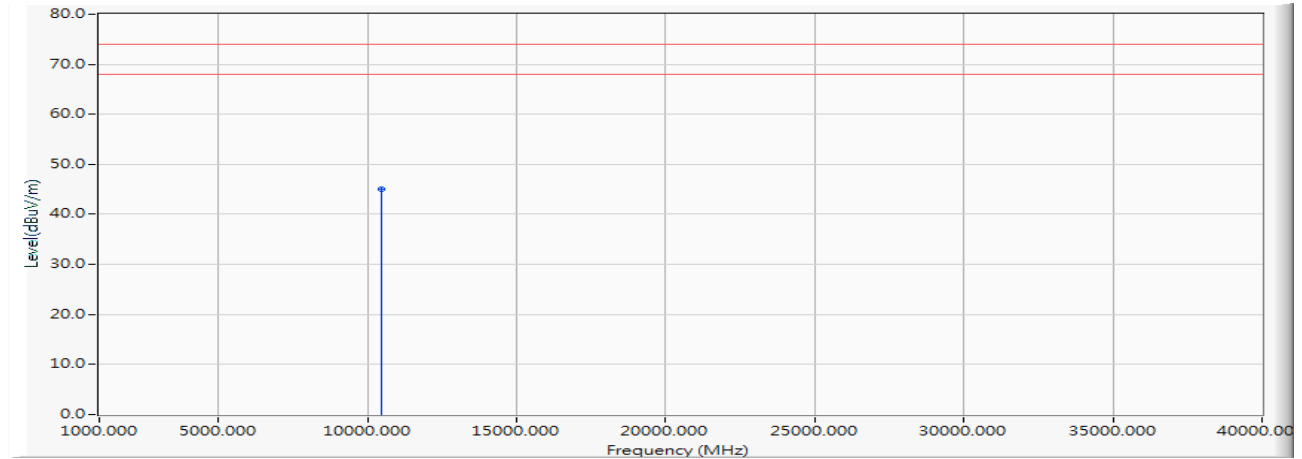


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10480.000	15.173	28.951	44.124	-29.876	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5240MHz)

Vertical

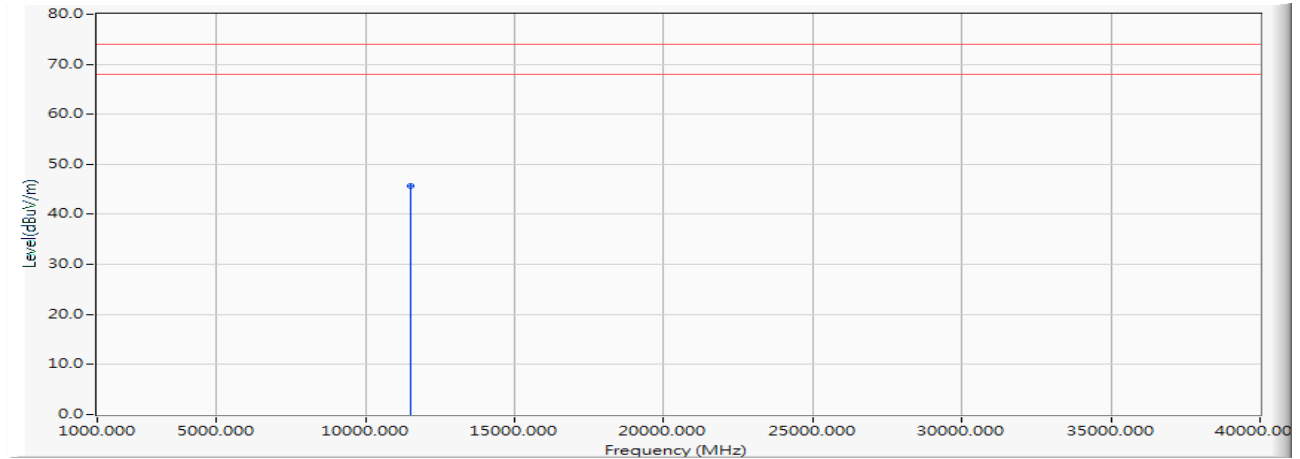
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10480.000	15.173	29.767	44.940	-29.060	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5745MHz)

Horizontal

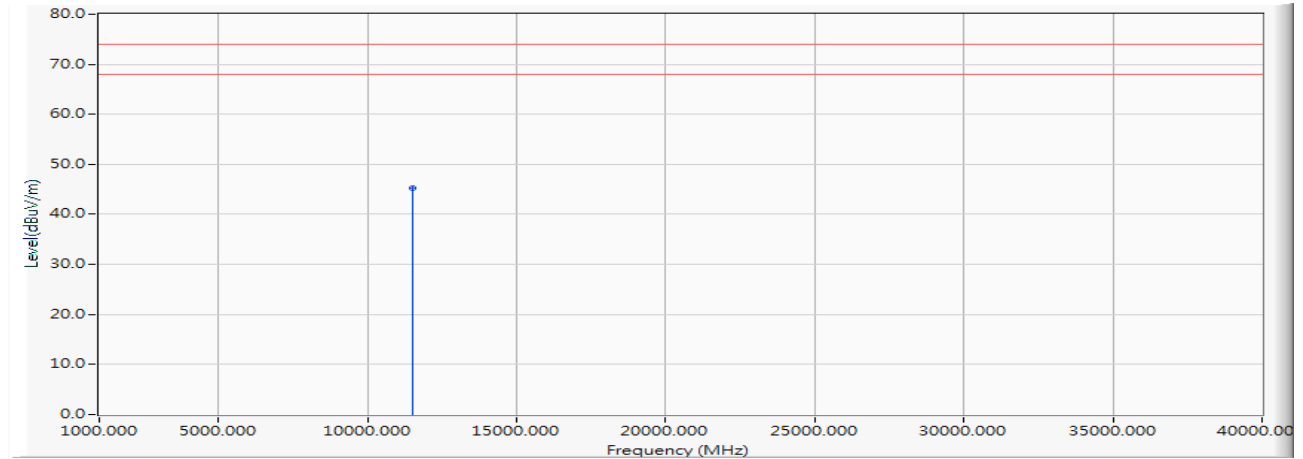


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11490.000	16.670	28.952	45.623	-28.377	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5745MHz)

Vertical

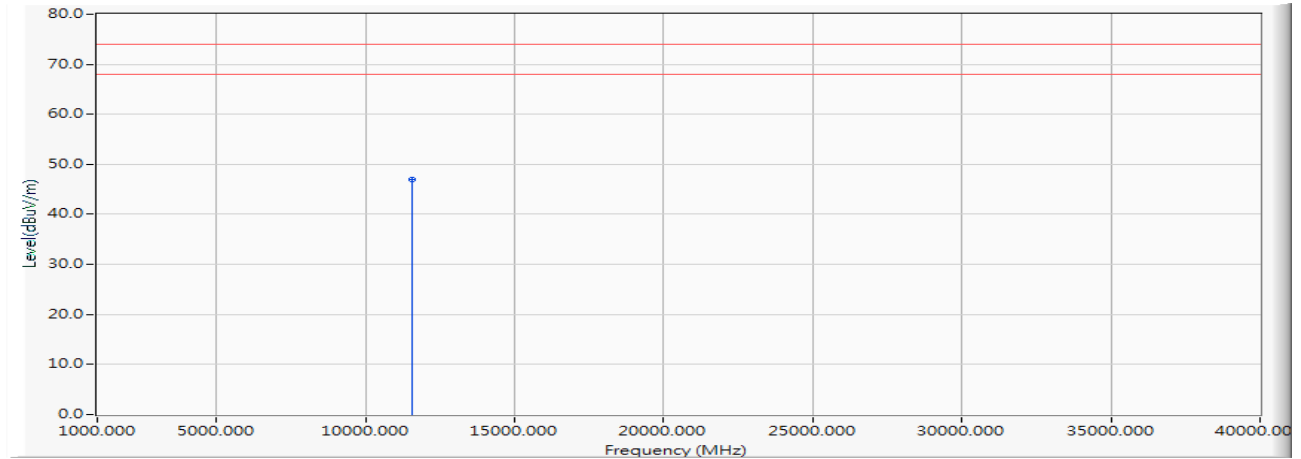
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11490.000	16.670	28.550	45.221	-28.779	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5785MHz)

Horizontal

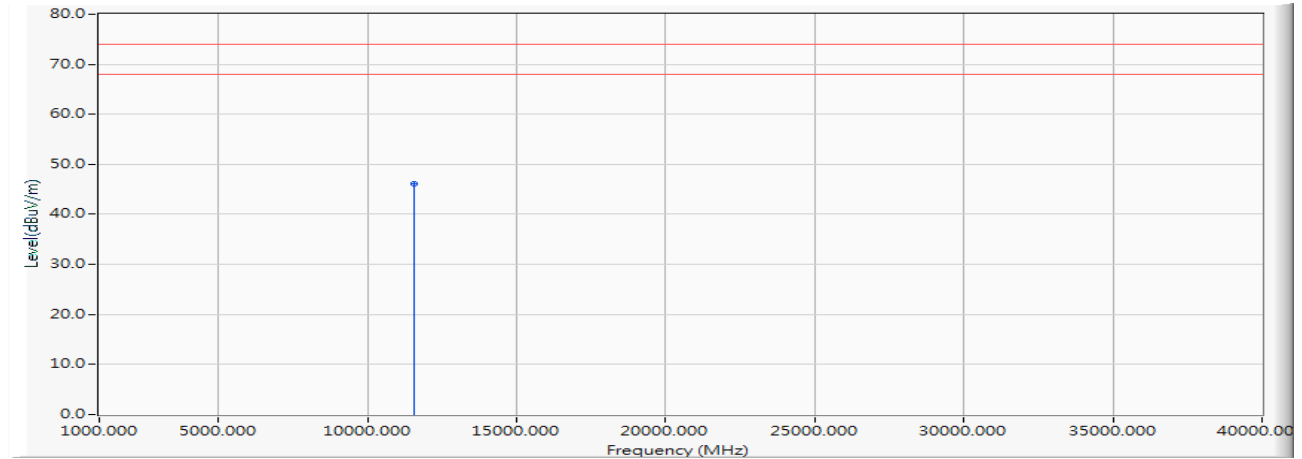


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11570.000	16.618	30.420	47.038	-26.962	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5785MHz)

Vertical

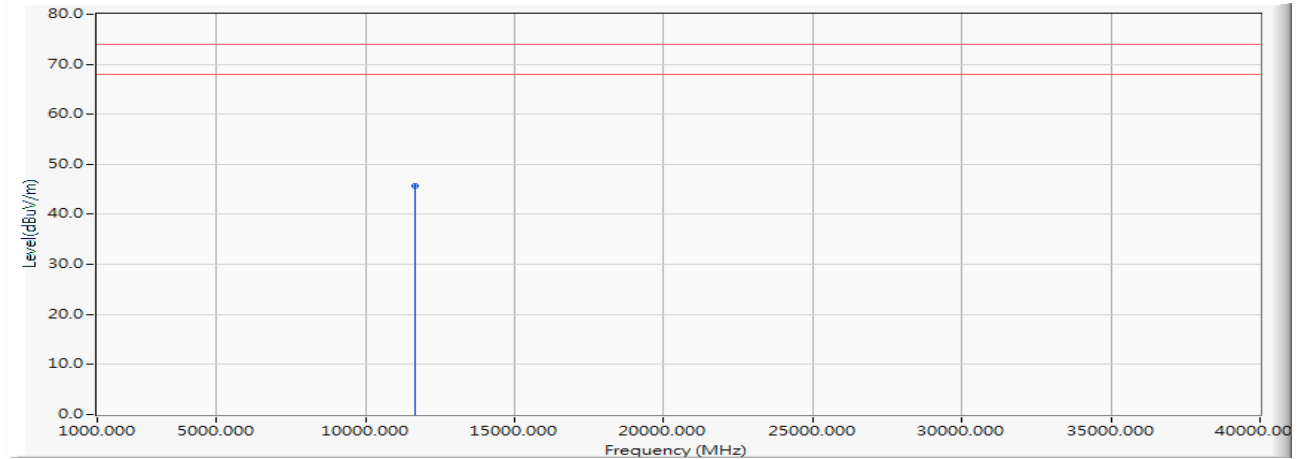
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11570.000	16.618	29.548	46.166	-27.834	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5825MHz)

Horizontal

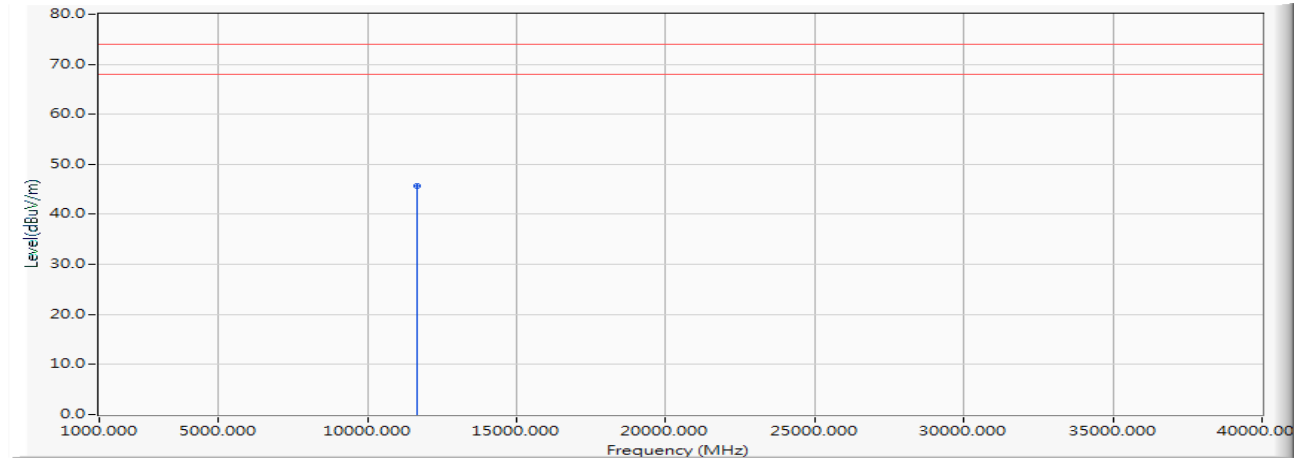


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11650.000	16.763	28.964	45.728	-28.272	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5825MHz)

Vertical

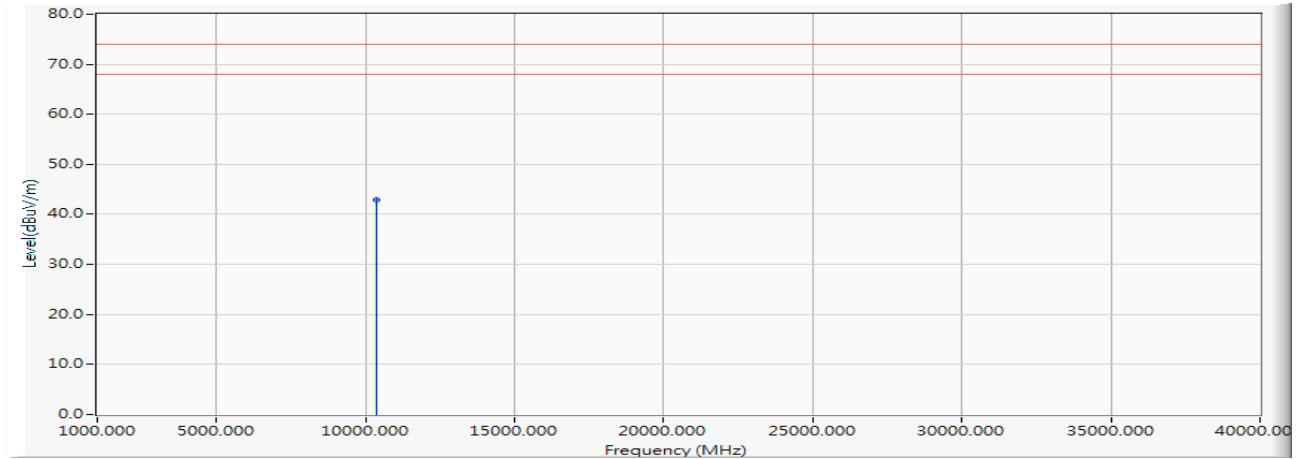
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11650.000	16.763	28.951	45.715	-28.285	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5180MHz)

Horizontal



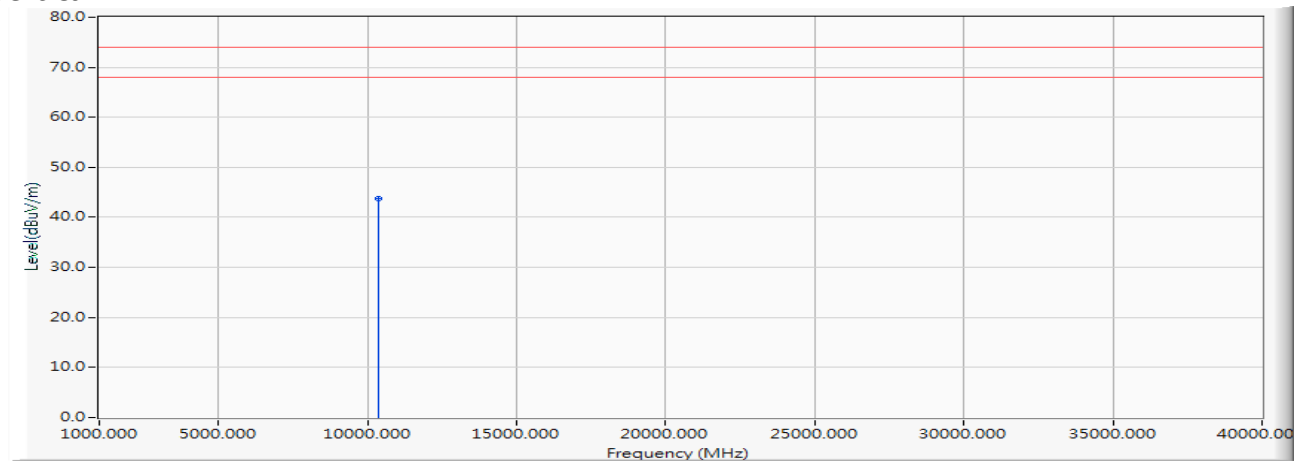
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10360.000	15.135	27.811	42.946	-31.054	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5180MHz)

Vertical



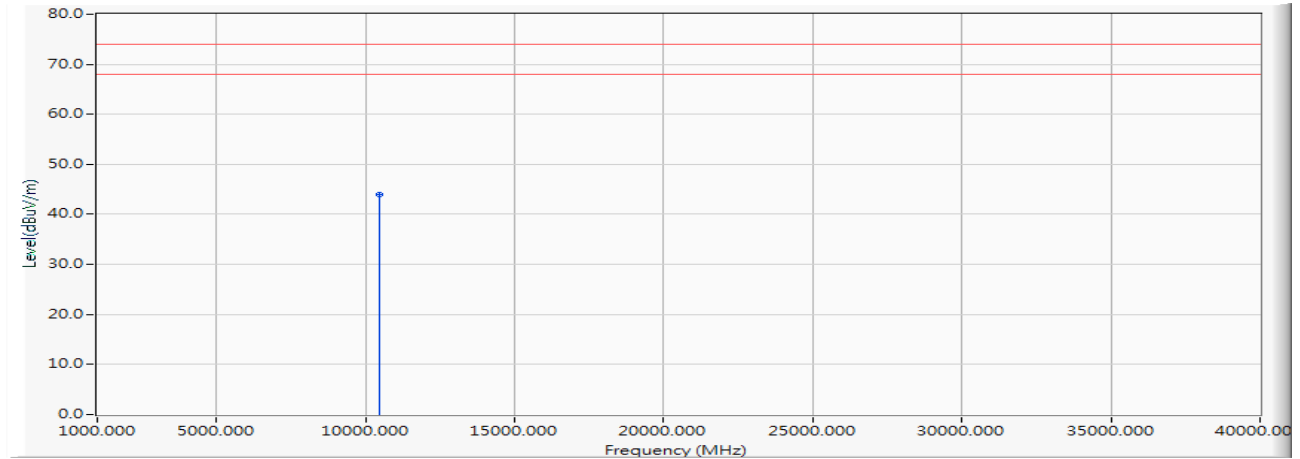
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10360.000	15.135	28.705	43.840	-30.160	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5220MHz)

Horizontal

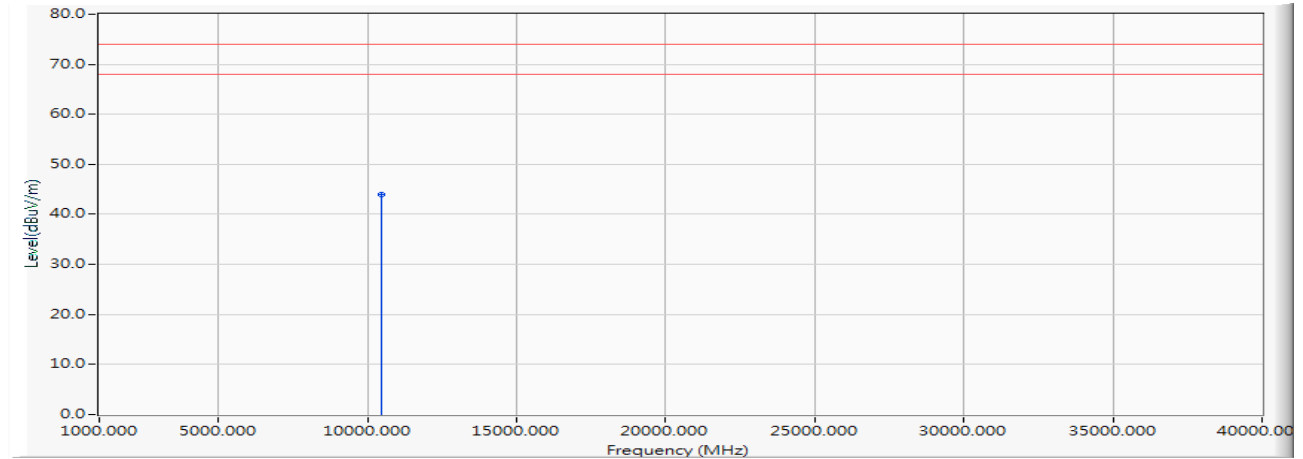


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10440.000	15.197	28.845	44.042	-29.958	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5220MHz)

Vertical

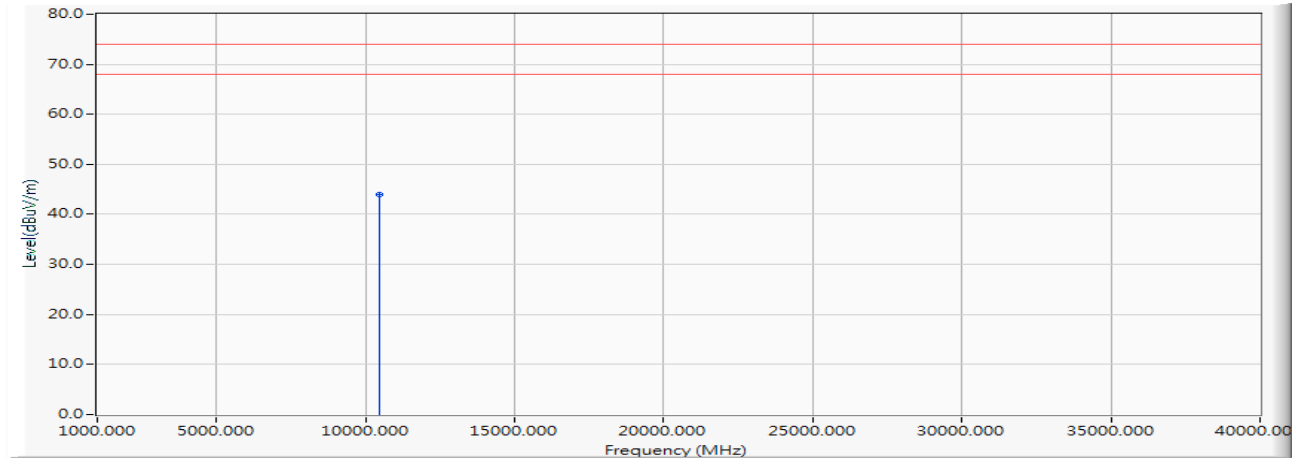
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10440.000	15.197	28.688	43.885	-30.115	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5240MHz)

Horizontal

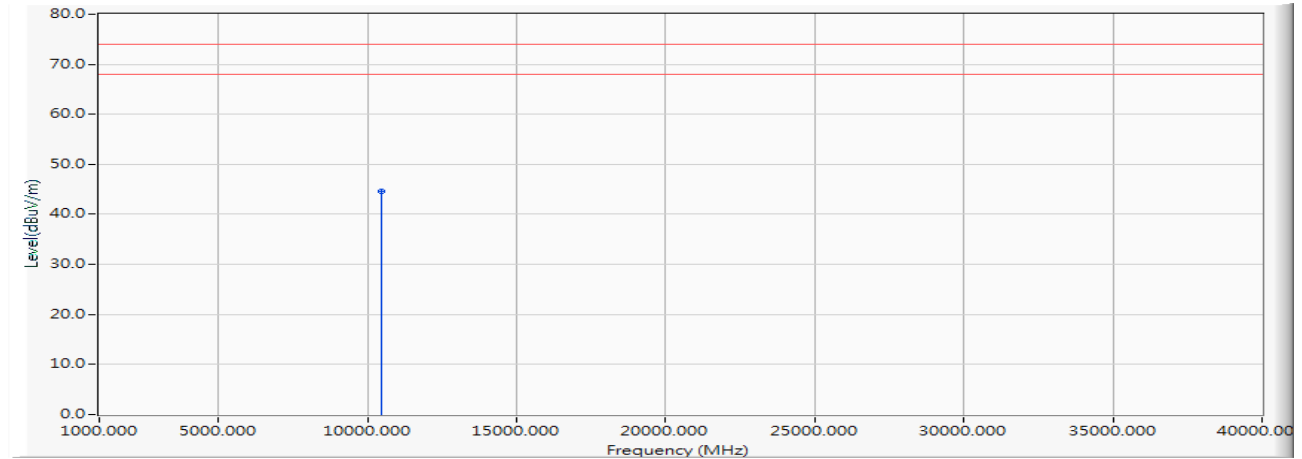


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10480.000	15.173	28.901	44.074	-29.926	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5240MHz)

Vertical

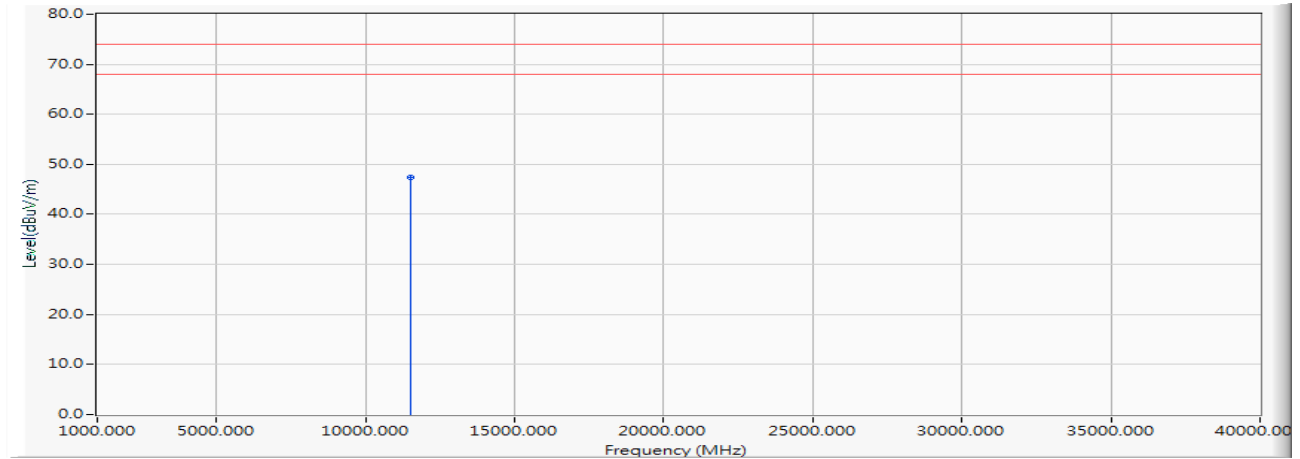
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10480.000	15.173	29.347	44.520	-29.480	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5745MHz)

Horizontal

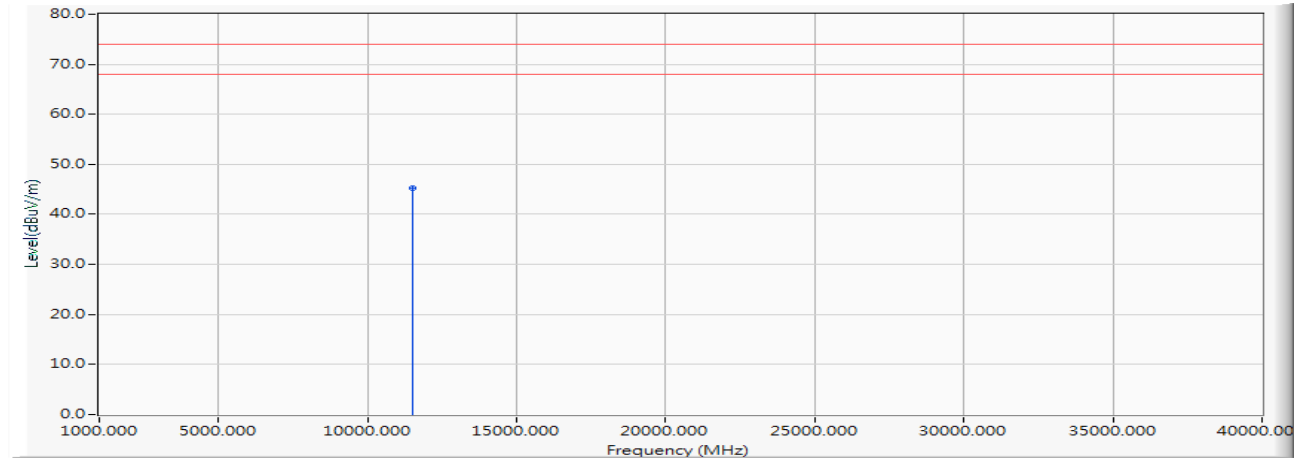


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11490.000	16.670	30.792	47.463	-26.537	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5745MHz)

Vertical

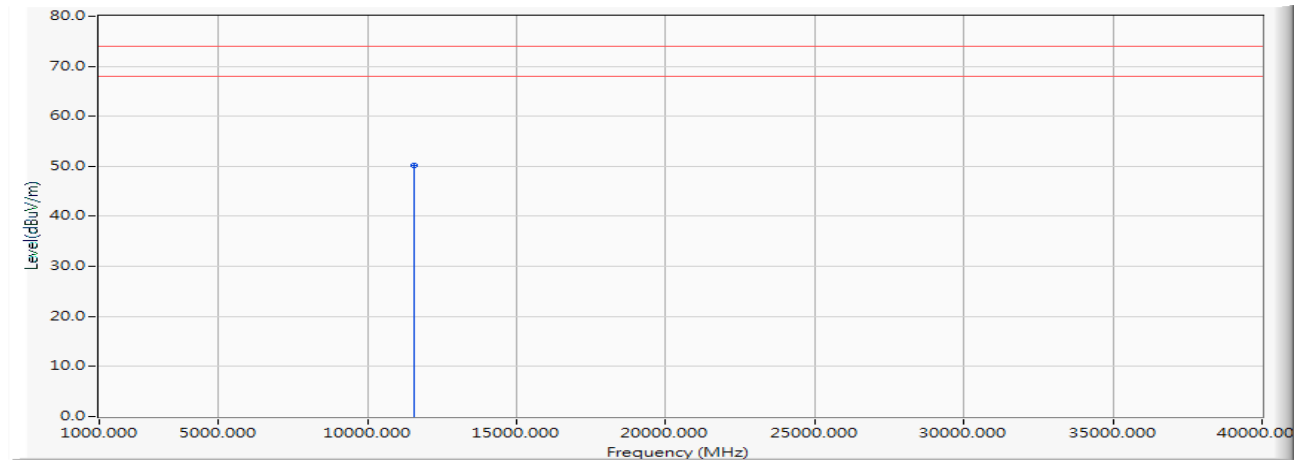
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11490.000	16.670	28.540	45.211	-28.789	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5785MHz)

Horizontal

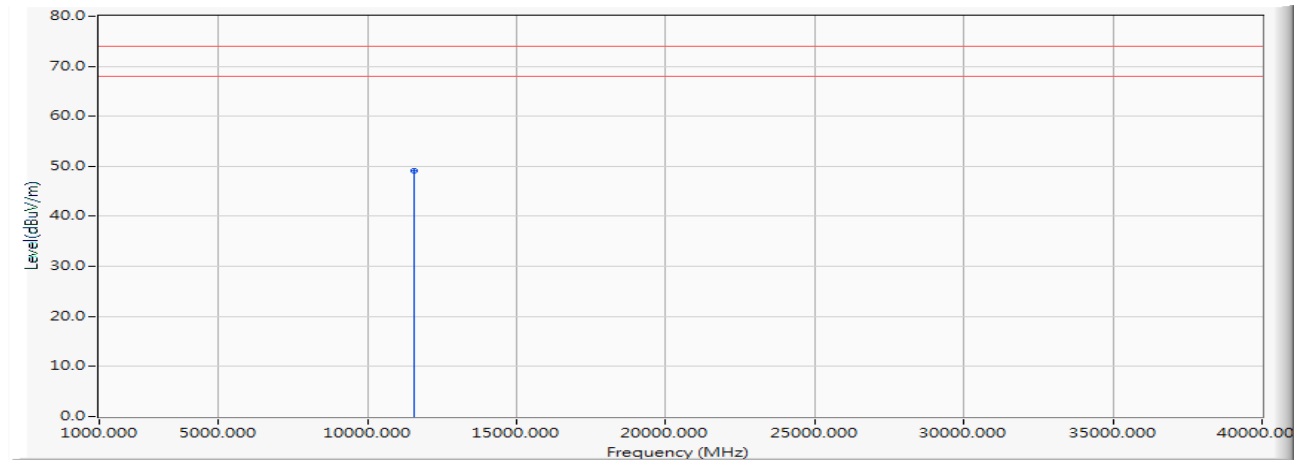


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11570.000	16.618	33.670	50.288	-23.712	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5785MHz)

Vertical

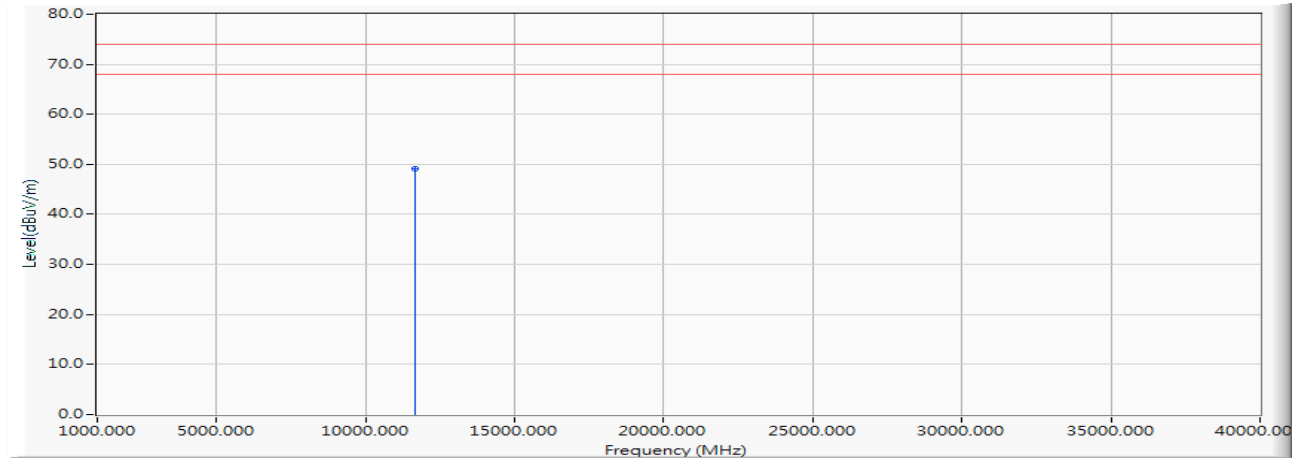
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11570.000	16.618	32.418	49.036	-24.964	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5825MHz)

Horizontal

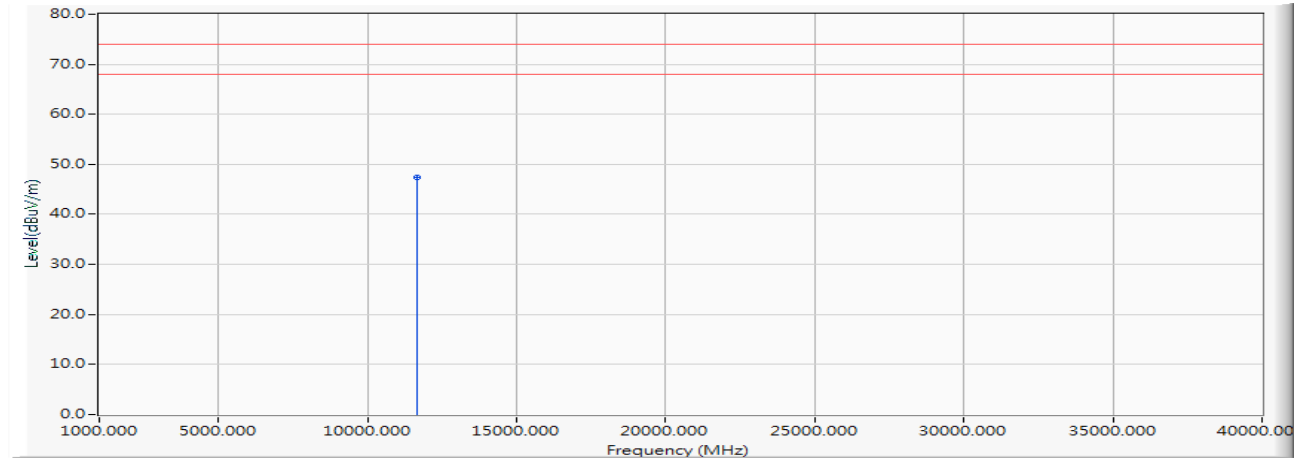


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11650.000	16.763	32.344	49.108	-24.892	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5825MHz)

Vertical

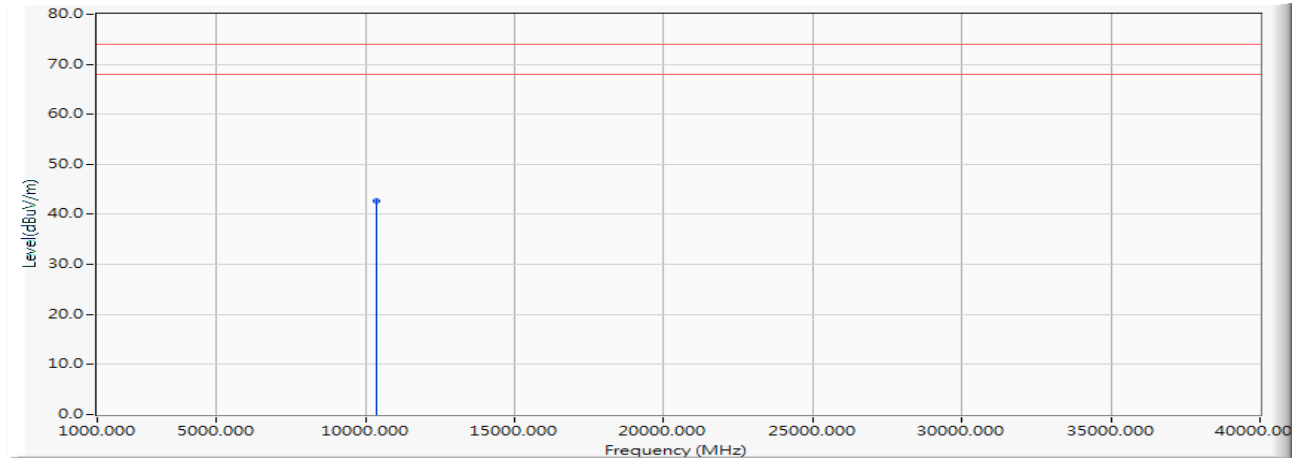
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11650.000	16.763	30.661	47.425	-26.575	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5190MHz)

Horizontal

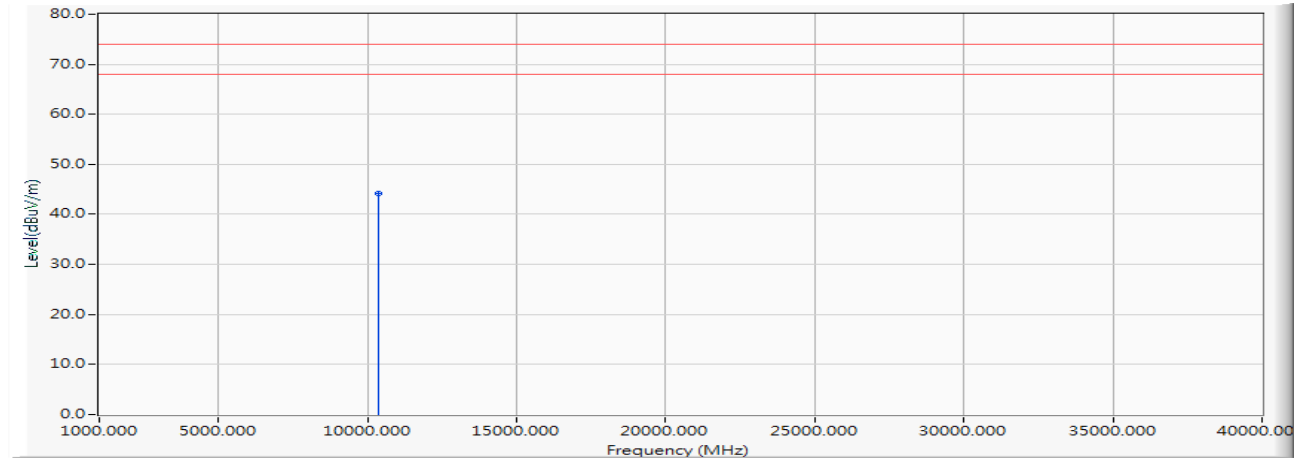


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10380.000	15.325	27.322	42.647	-31.353	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5190MHz)

Vertical

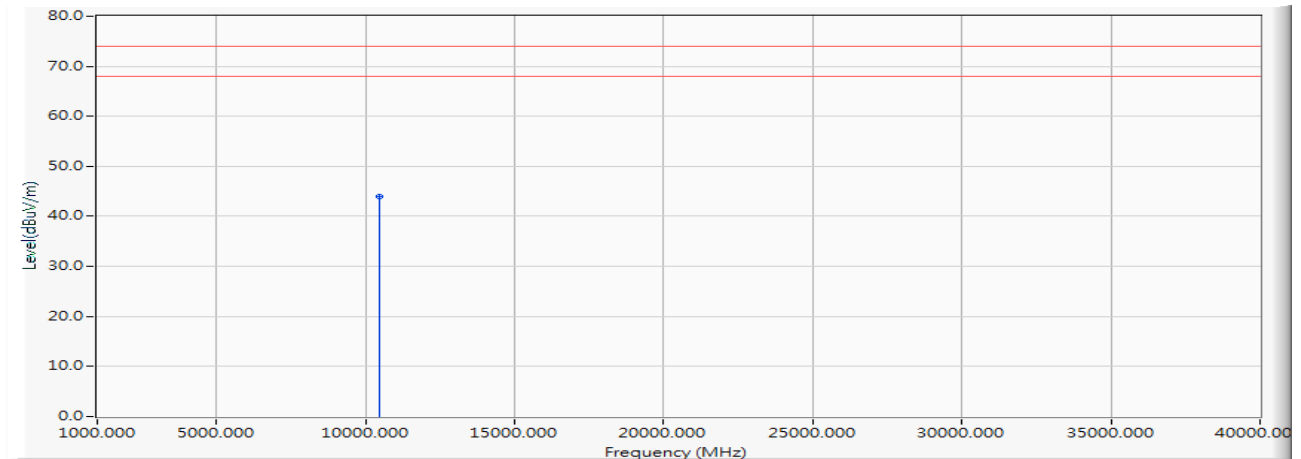
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10380.000	15.325	28.840	44.165	-29.835	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5230MHz)

Horizontal

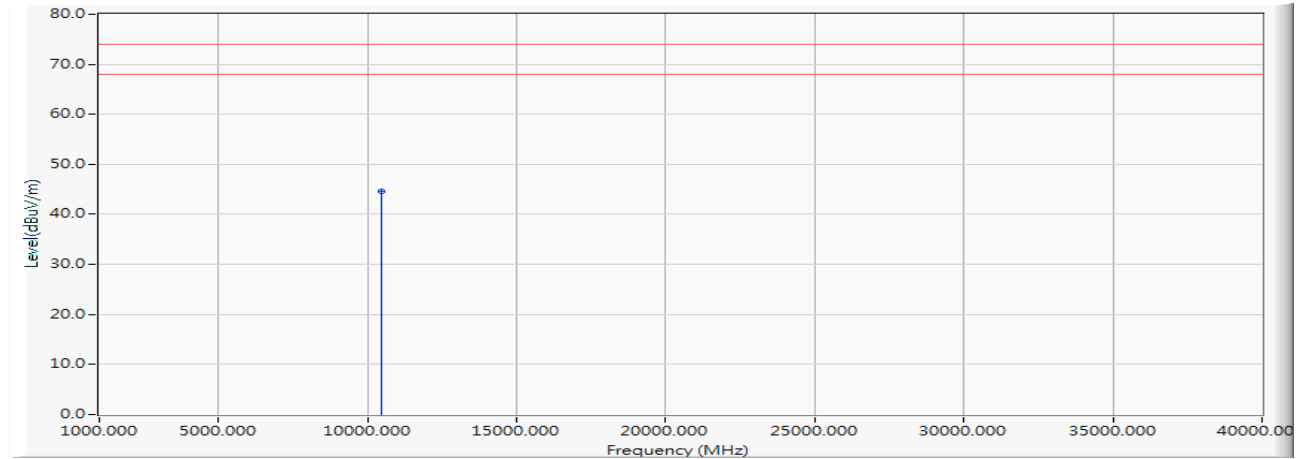


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10460.000	15.253	28.720	43.973	-30.027	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5230MHz)

Vertical

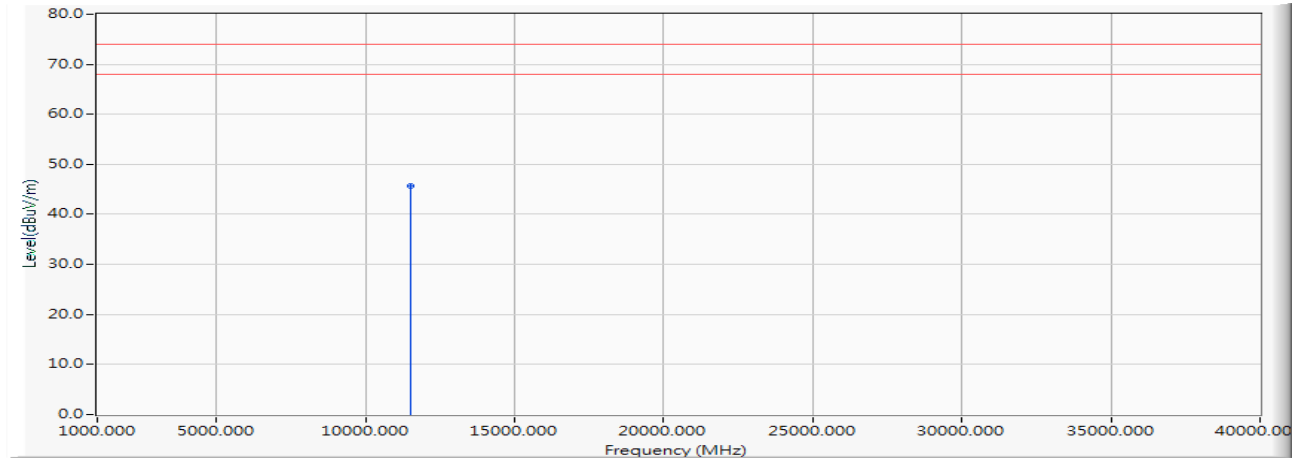
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10460.000	15.253	29.415	44.668	-29.332	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5755MHz)

Horizontal

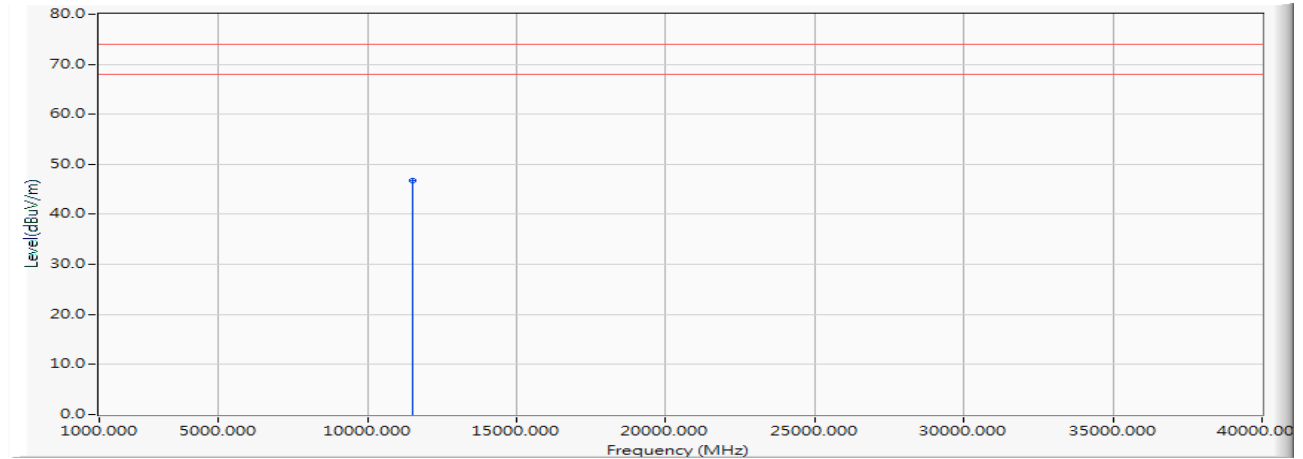


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11510.000	16.649	29.051	45.699	-28.301	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5755MHz)

Vertical

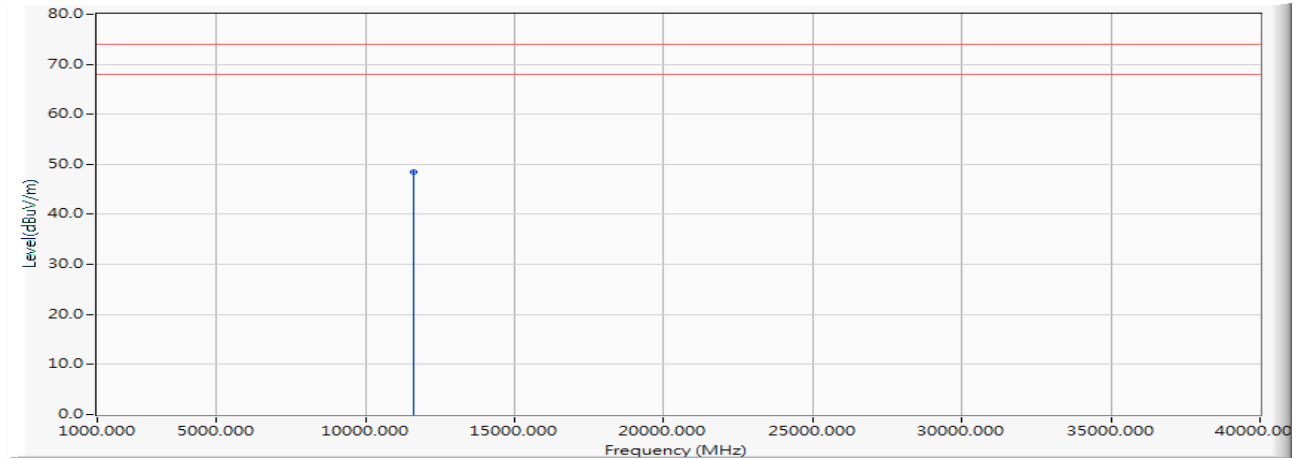
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11510.000	16.649	30.148	46.796	-27.204	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5795MHz)

Horizontal

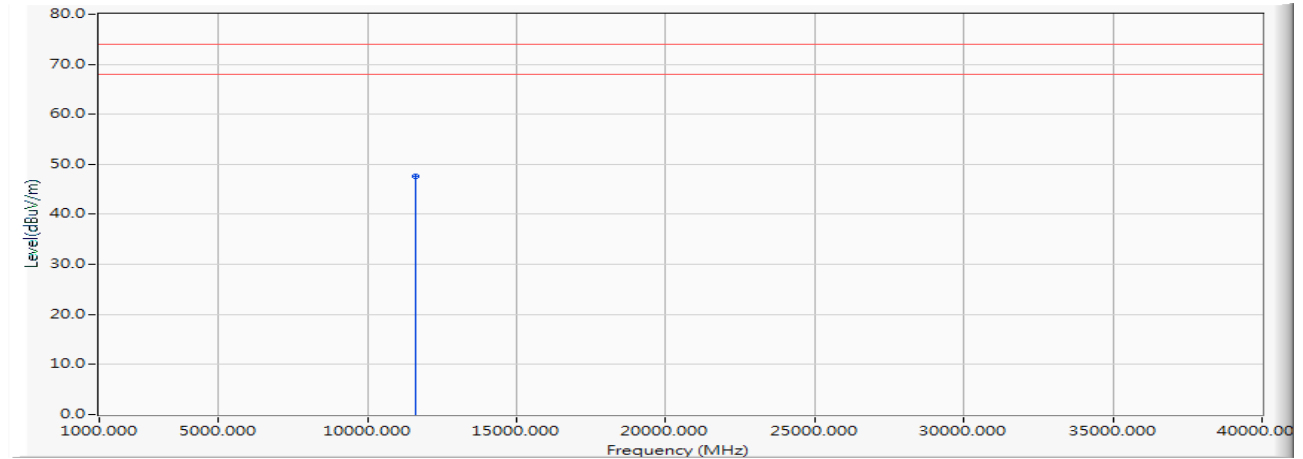


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11590.000	16.702	31.847	48.549	-25.451	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Date : 2019/04/30
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5795MHz)

Vertical

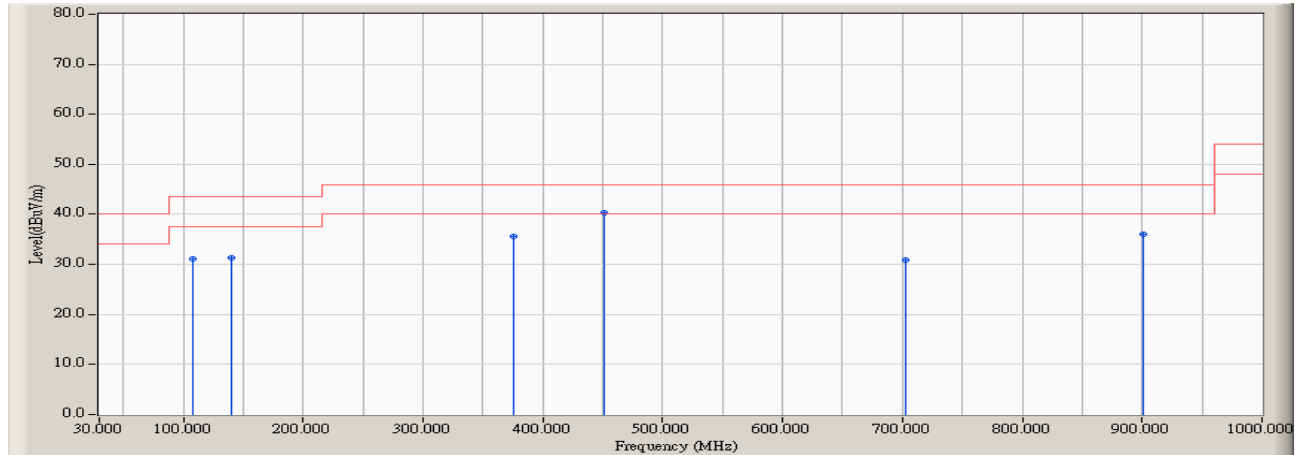
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11590.000	16.702	30.863	47.565	-26.435	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5220MHz)

Horizontal



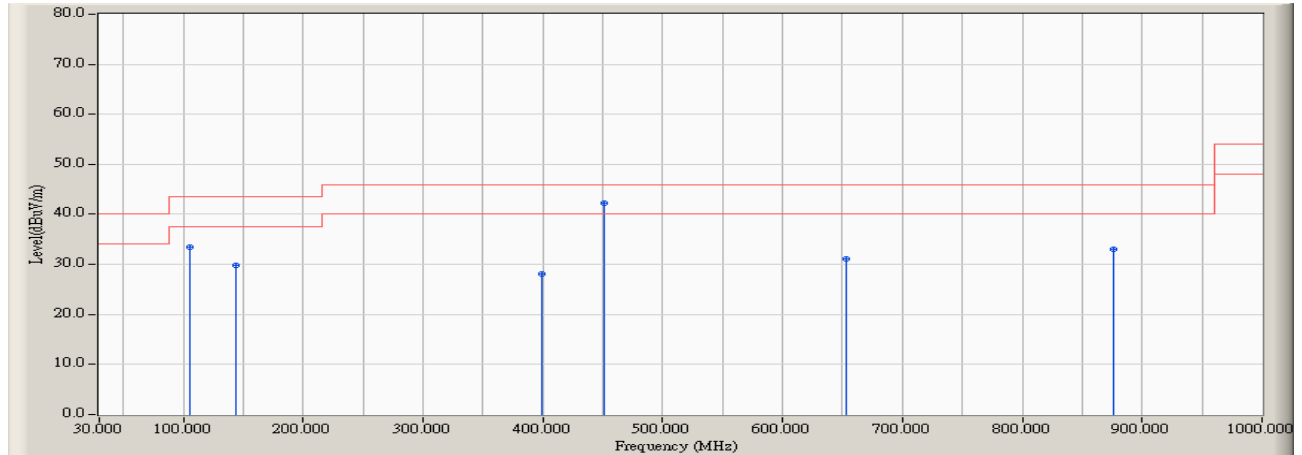
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		107.600	19.035	12.015	31.050	-12.450	43.500	QUASIPeAK
2		140.580	19.151	12.179	31.330	-12.170	43.500	QUASIPeAK
3		375.320	24.046	11.576	35.622	-10.378	46.000	QUASIPeAK
4	*	450.980	25.466	14.929	40.395	-5.605	46.000	QUASIPeAK
5		703.180	28.609	2.310	30.919	-15.081	46.000	QUASIPeAK
6		901.060	30.814	5.197	36.011	-9.989	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5220MHz)

Vertical



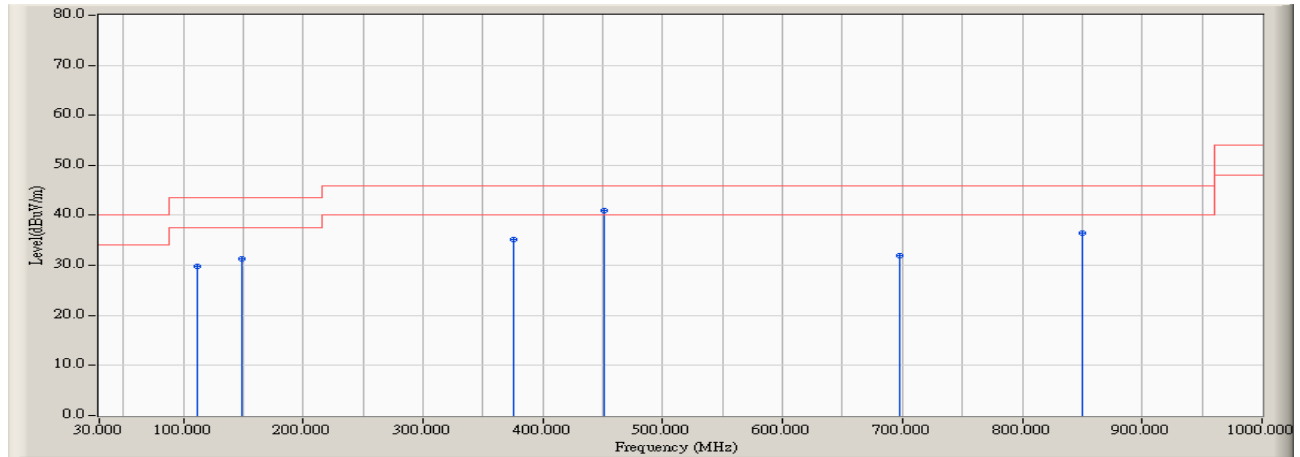
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		105.660	18.773	14.584	33.357	-10.143	43.500	QUASIPeAK
2		144.460	18.856	10.895	29.751	-13.749	43.500	QUASIPeAK
3		398.600	24.701	3.430	28.131	-17.869	46.000	QUASIPeAK
4	*	450.980	25.466	16.785	42.251	-3.749	46.000	QUASIPeAK
5		652.740	28.466	2.593	31.059	-14.941	46.000	QUASIPeAK
6		875.840	30.662	2.465	33.127	-12.873	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5785MHz)

Horizontal



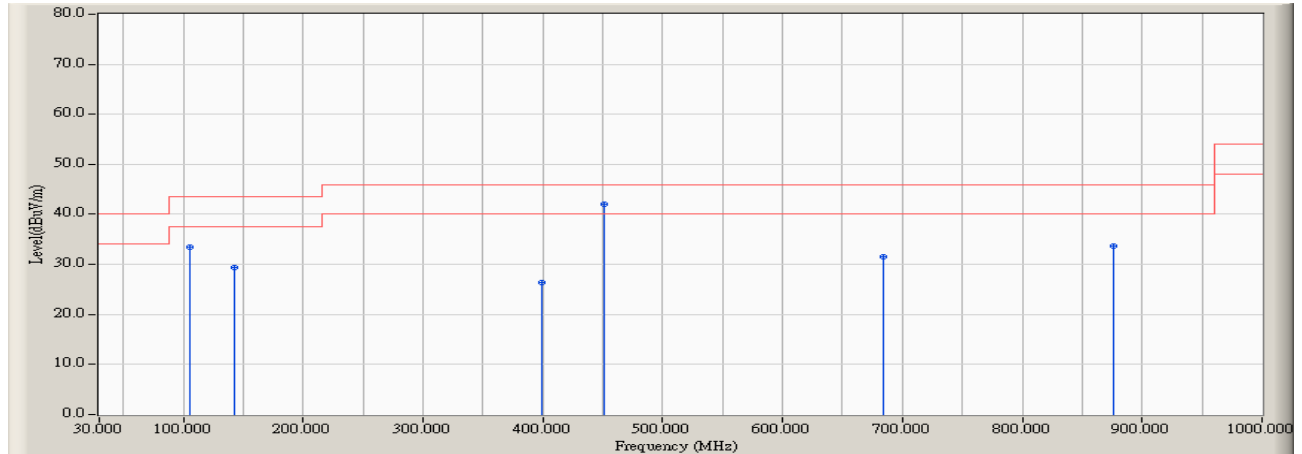
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		111.480	19.429	10.462	29.891	-13.609	43.500	QUASIPeAK
2		148.340	18.561	12.815	31.376	-12.124	43.500	QUASIPeAK
3		375.320	24.046	11.056	35.102	-10.898	46.000	QUASIPeAK
4	*	450.980	25.466	15.399	40.865	-5.135	46.000	QUASIPeAK
5		697.360	28.563	3.451	32.014	-13.986	46.000	QUASIPeAK
6		850.620	30.533	5.882	36.415	-9.585	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5785MHz)

Vertical



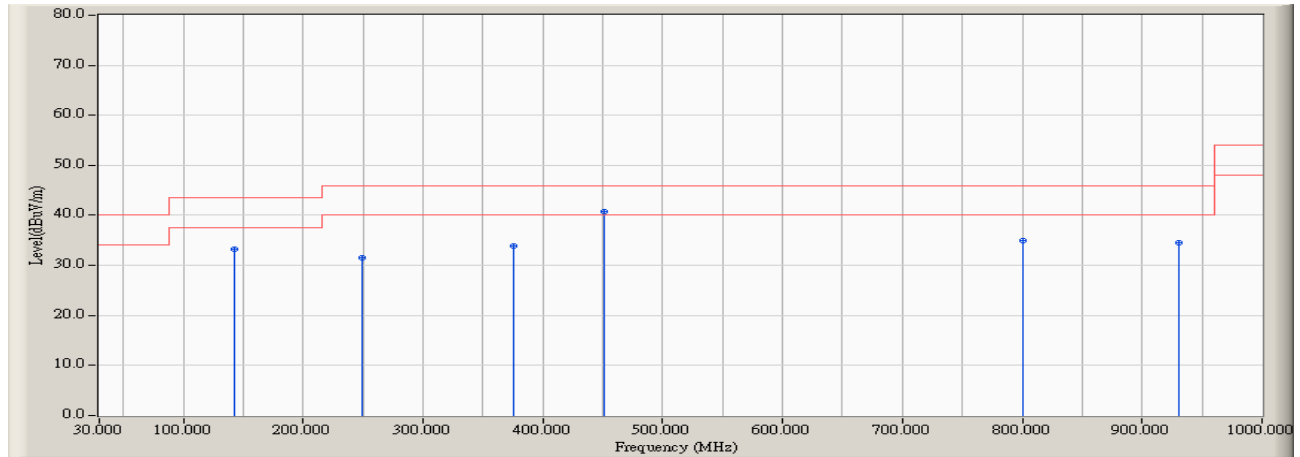
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		105.660	18.773	14.593	33.366	-10.134	43.500	QUASIPeAK
2		142.520	19.008	10.318	29.326	-14.174	43.500	QUASIPeAK
3		398.600	24.701	1.647	26.348	-19.652	46.000	QUASIPeAK
4	*	450.980	25.466	16.674	42.140	-3.860	46.000	QUASIPeAK
5		683.780	28.535	2.894	31.429	-14.571	46.000	QUASIPeAK
6		875.840	30.662	2.913	33.575	-12.425	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5220MHz)

Horizontal



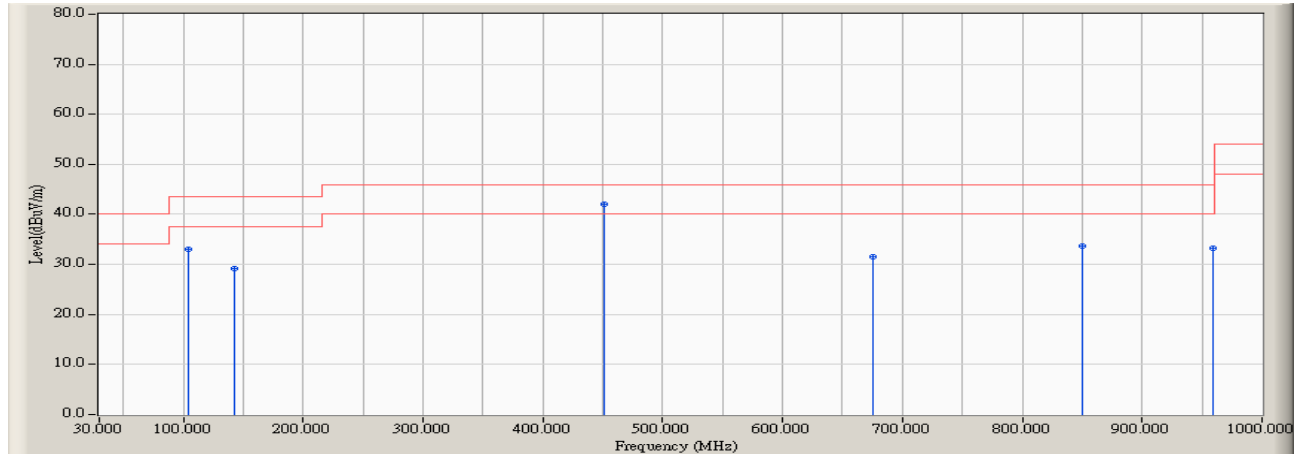
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		142.520	19.008	14.177	33.185	-10.315	43.500	QUASIPeAK
2		249.220	20.618	10.903	31.521	-14.479	46.000	QUASIPeAK
3		375.320	24.046	9.869	33.915	-12.085	46.000	QUASIPeAK
4	*	450.980	25.466	15.304	40.770	-5.230	46.000	QUASIPeAK
5		800.180	29.646	5.211	34.857	-11.143	46.000	QUASIPeAK
6		930.160	31.273	3.272	34.545	-11.455	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5220MHz)

Vertical



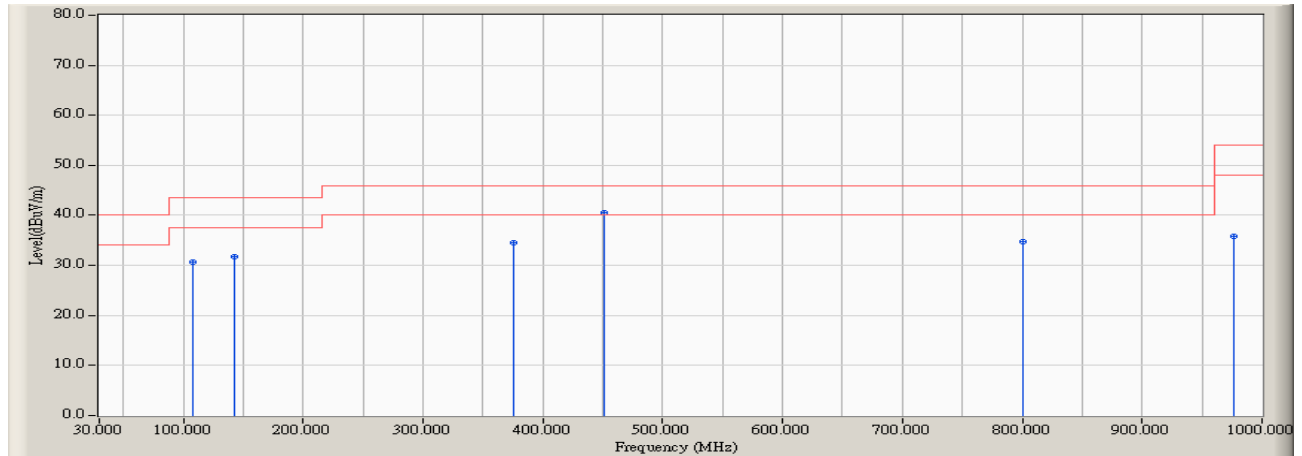
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		103.720	18.501	14.584	33.085	-10.415	43.500	QUASIPeAK
2		142.520	19.008	10.099	29.107	-14.393	43.500	QUASIPeAK
3	*	450.980	25.466	16.490	41.956	-4.044	46.000	QUASIPeAK
4		676.020	28.518	3.003	31.521	-14.479	46.000	QUASIPeAK
5		850.620	30.533	3.090	33.623	-12.377	46.000	QUASIPeAK
6		959.260	31.668	1.599	33.267	-12.733	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5785MHz)

Horizontal



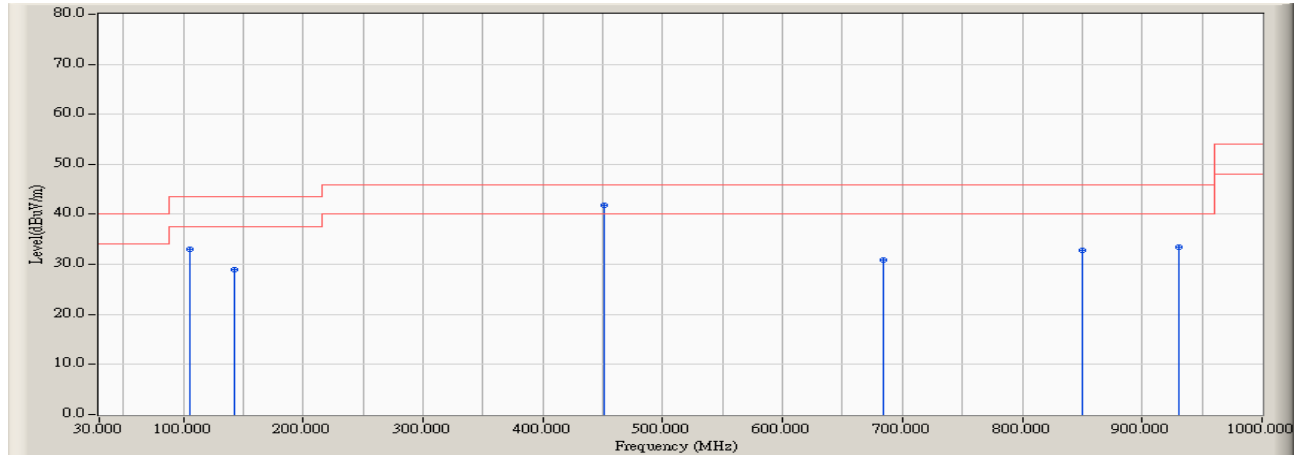
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		107.600	19.035	11.627	30.662	-12.838	43.500	QUASIPeAK
2		142.520	19.008	12.650	31.658	-11.842	43.500	QUASIPeAK
3		375.320	24.046	10.588	34.634	-11.366	46.000	QUASIPeAK
4	*	450.980	25.466	15.047	40.513	-5.487	46.000	QUASIPeAK
5		800.180	29.646	5.012	34.658	-11.342	46.000	QUASIPeAK
6		976.720	31.807	4.068	35.875	-18.125	54.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5785MHz)

Vertical



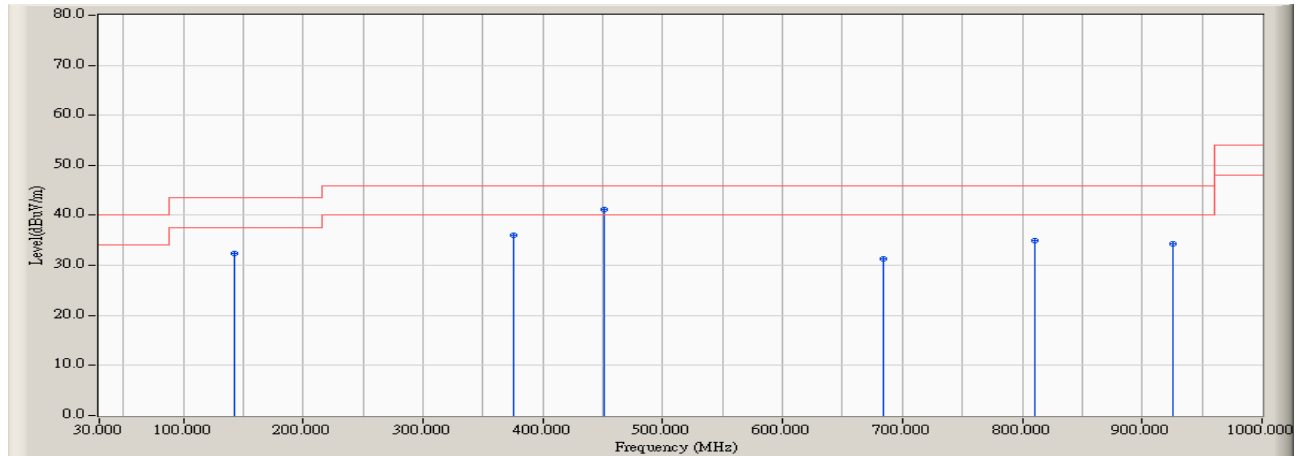
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		105.660	18.773	14.320	33.093	-10.407	43.500	QUASIPeAK
2		142.520	19.008	9.903	28.911	-14.589	43.500	QUASIPeAK
3	*	450.980	25.466	16.392	41.858	-4.142	46.000	QUASIPeAK
4		683.780	28.535	2.272	30.807	-15.193	46.000	QUASIPeAK
5		850.620	30.533	2.322	32.855	-13.145	46.000	QUASIPeAK
6		930.160	31.273	2.111	33.384	-12.616	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5230MHz)

Horizontal



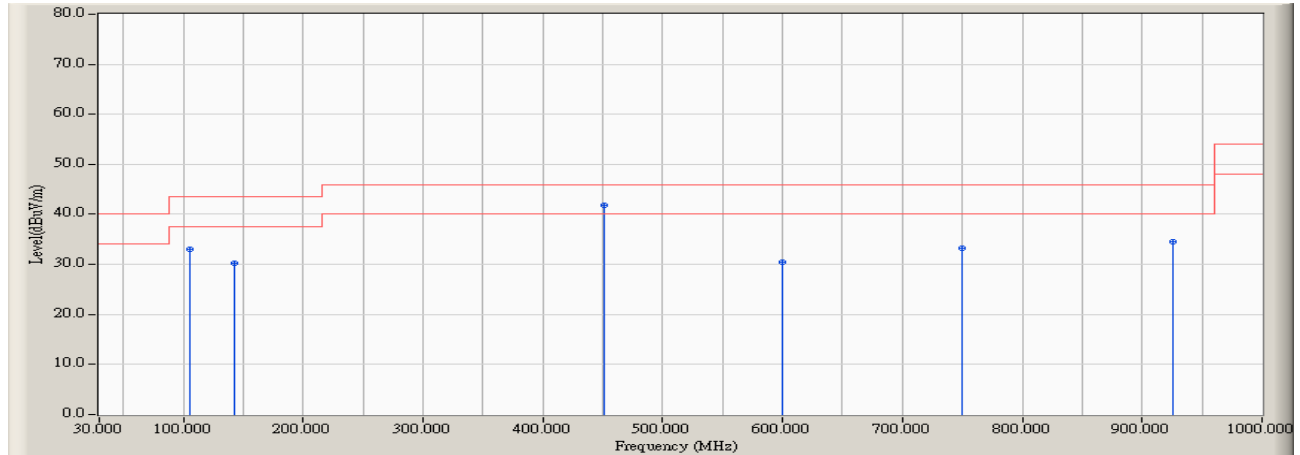
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		142.520	19.008	13.274	32.282	-11.218	43.500	QUASIPeAK
2		375.320	24.046	11.979	36.025	-9.975	46.000	QUASIPeAK
3	*	450.980	25.466	15.634	41.100	-4.900	46.000	QUASIPeAK
4		683.780	28.535	2.723	31.258	-14.742	46.000	QUASIPeAK
5		809.880	29.822	5.052	34.874	-11.126	46.000	QUASIPeAK
6		926.280	31.216	3.076	34.292	-11.708	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5230MHz)

Vertical



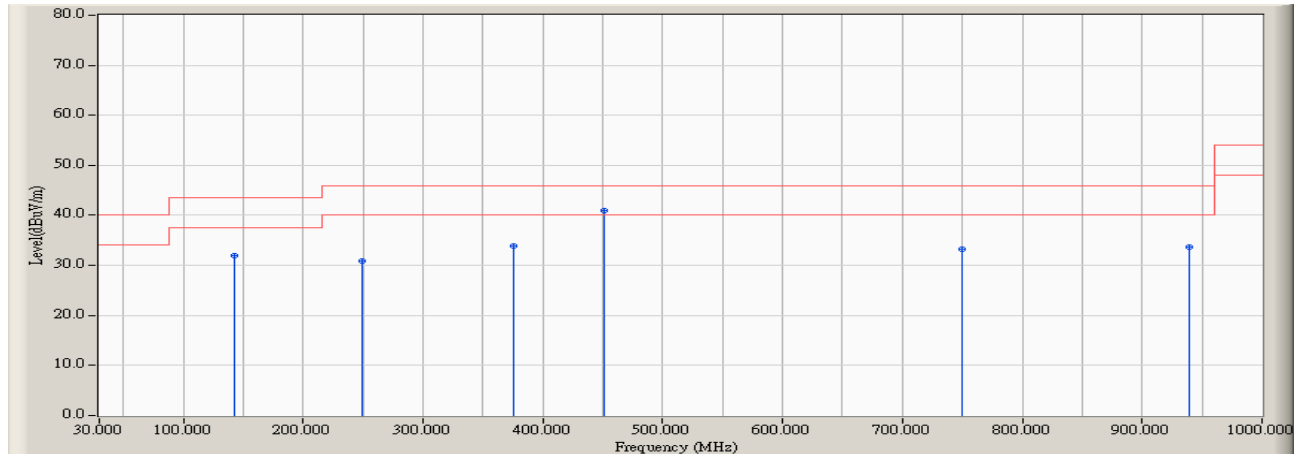
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		105.660	18.773	14.202	32.975	-10.525	43.500	QUASIPeAK
2		142.520	19.008	11.136	30.144	-13.356	43.500	QUASIPeAK
3	*	450.980	25.466	16.305	41.771	-4.229	46.000	QUASIPeAK
4		600.360	27.782	2.589	30.371	-15.629	46.000	QUASIPeAK
5		749.740	29.261	3.908	33.169	-12.831	46.000	QUASIPeAK
6		926.280	31.216	3.225	34.441	-11.559	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5755MHz)

Horizontal



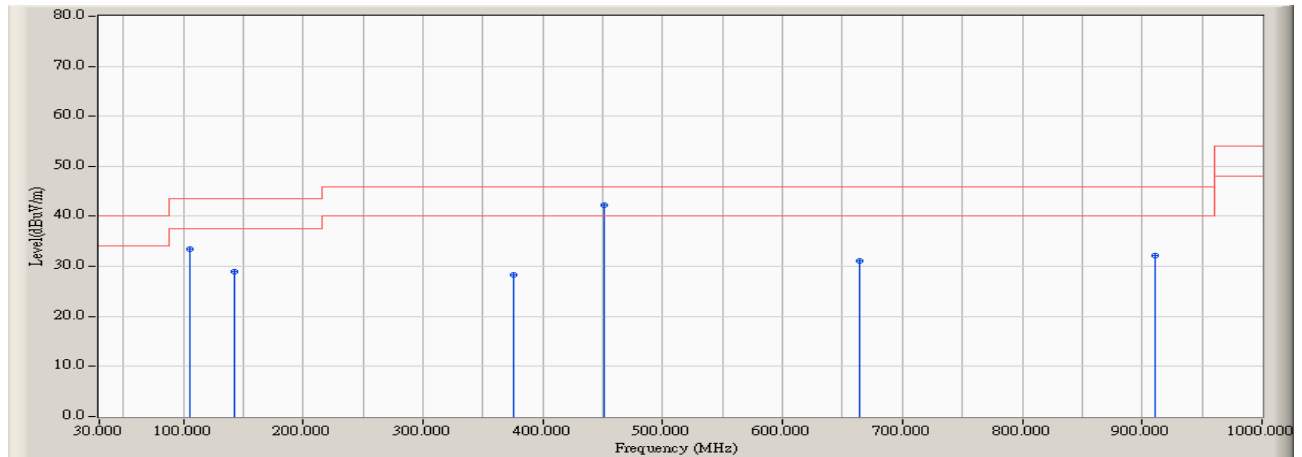
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		142.520	19.008	12.846	31.854	-11.646	43.500	QUASIPeAK
2		249.220	20.618	10.346	30.964	-15.036	46.000	QUASIPeAK
3		375.320	24.046	9.947	33.993	-12.007	46.000	QUASIPeAK
4	*	450.980	25.466	15.419	40.885	-5.115	46.000	QUASIPeAK
5		749.740	29.261	3.981	33.242	-12.758	46.000	QUASIPeAK
6		939.860	31.429	2.186	33.615	-12.385	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Date : 2019/05/08
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5755MHz)

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		105.660	18.773	14.683	33.456	-10.044	43.500	QUASIPeAK
2		142.520	19.008	10.000	29.008	-14.492	43.500	QUASIPeAK
3		375.320	24.046	4.237	28.283	-17.717	46.000	QUASIPeAK
4	*	450.980	25.466	16.705	42.171	-3.829	46.000	QUASIPeAK
5		664.380	28.492	2.630	31.122	-14.878	46.000	QUASIPeAK
6		910.760	30.970	1.305	32.275	-13.725	46.000	QUASIPeAK

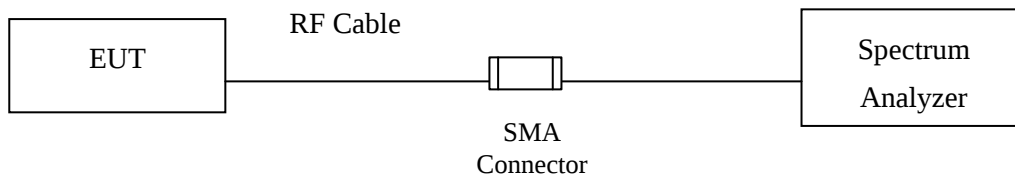
Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.
6. No emission found between lowest internal used/generated frequency to 30MHz.

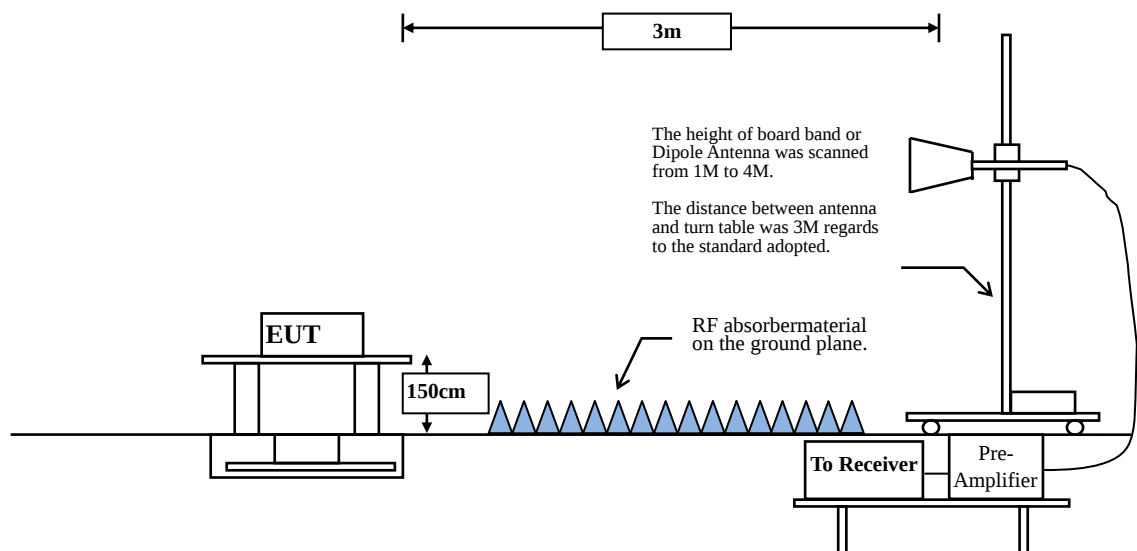
4. Band Edge

4.1. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



4.2. Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBμV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks :

1. RF Voltage (dBμV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10:2013 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

4.4. Uncertainty

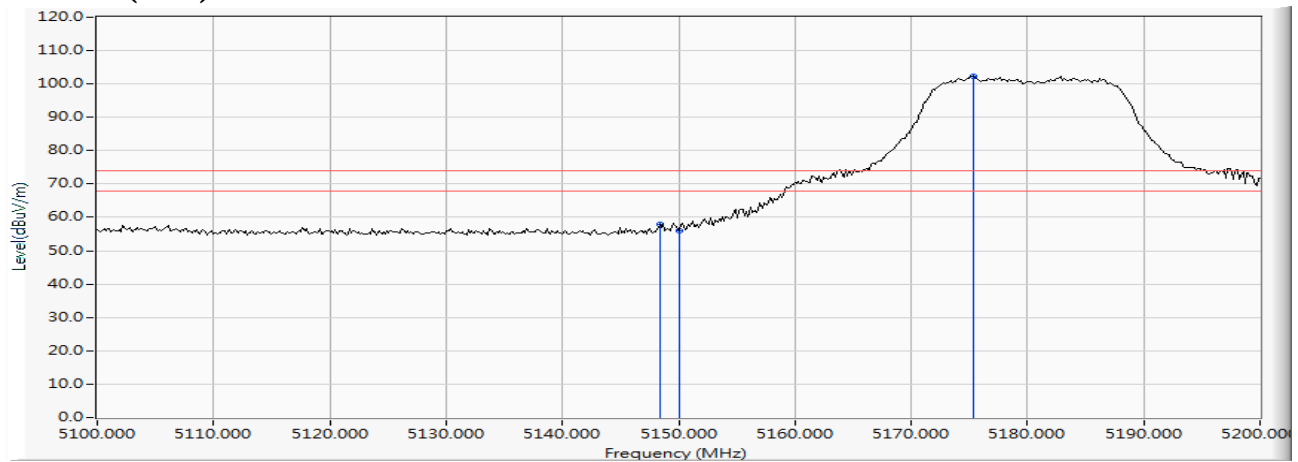
±4.08 dB below 1GHz

±4.22 dB above 1GHz

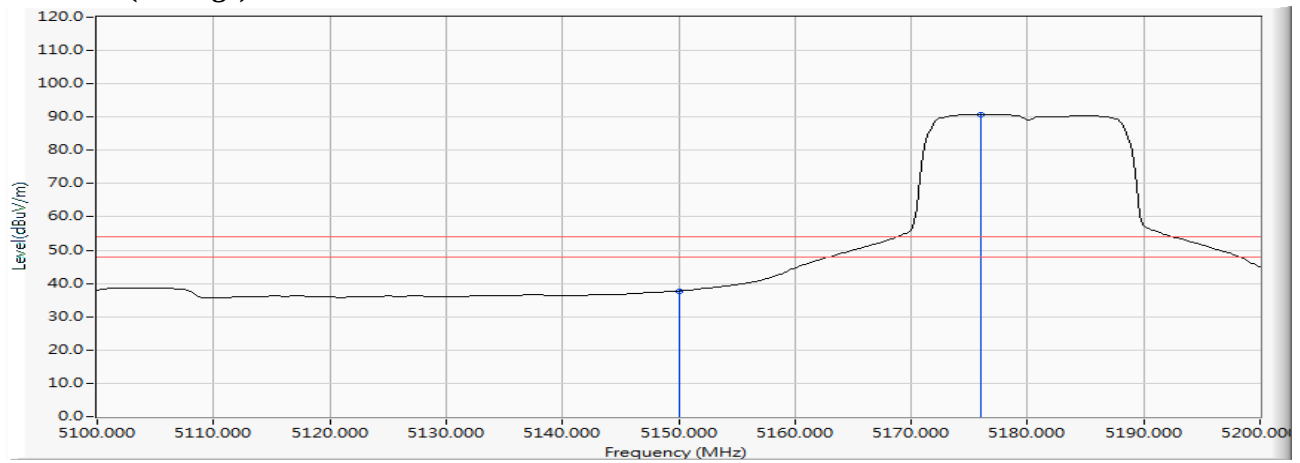
4.5. Test Result of Band Edge

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 36 (5180MHz)

Horizontal (Peak)



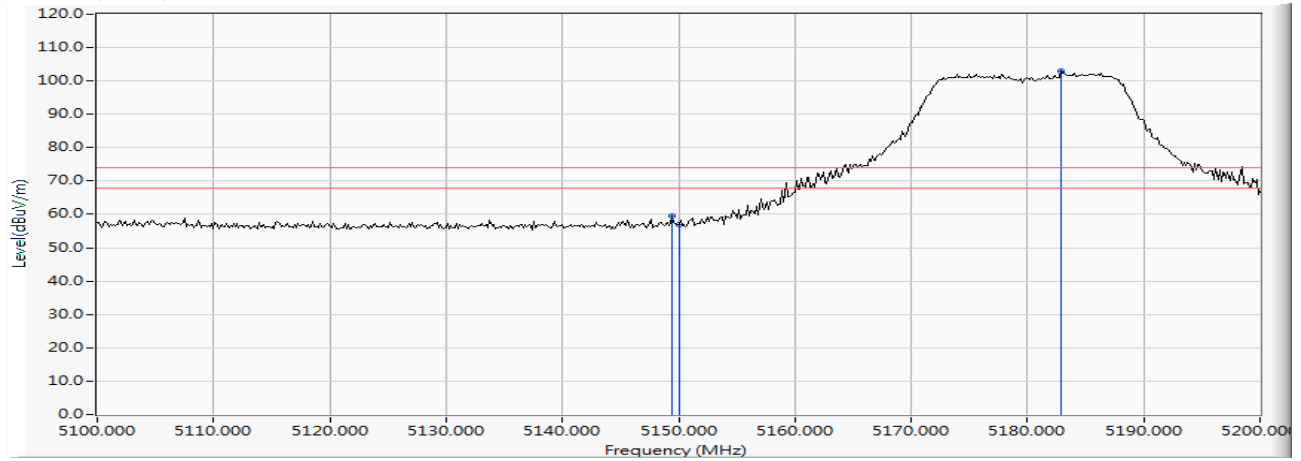
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5148.406	10.475	47.568	58.043	-15.957	74.000	PEAK
2		5150.000	10.470	45.580	56.051	-17.949	74.000	PEAK
3	*	5175.362	10.406	91.856	102.262	--	--	PEAK

Horizontal (Average)

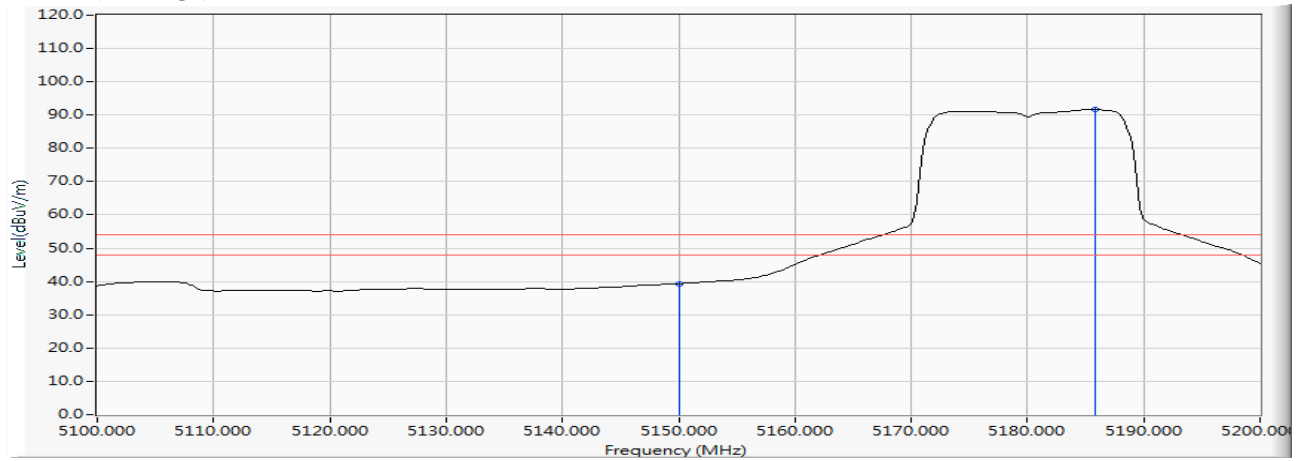
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5150.000	10.470	27.289	37.760	-16.240	54.000	AVERAGE
2	*	5175.942	10.404	80.383	90.787	--	--	AVERAGE

- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
 2. Measurement Level = Reading Level + Correct Factor.
 3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 36 (5180MHz)

Vertical (Peak)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5149.420	12.388	47.124	59.512	-14.488	74.000	PEAK
2		5150.000	12.390	44.495	56.885	-17.115	74.000	PEAK
3	*	5182.899	12.512	90.556	103.068	--	--	PEAK

Vertical (Average)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5150.000	12.390	26.937	39.327	-14.673	54.000	AVERAGE
2	*	5185.797	12.523	79.127	91.650	--	--	AVERAGE

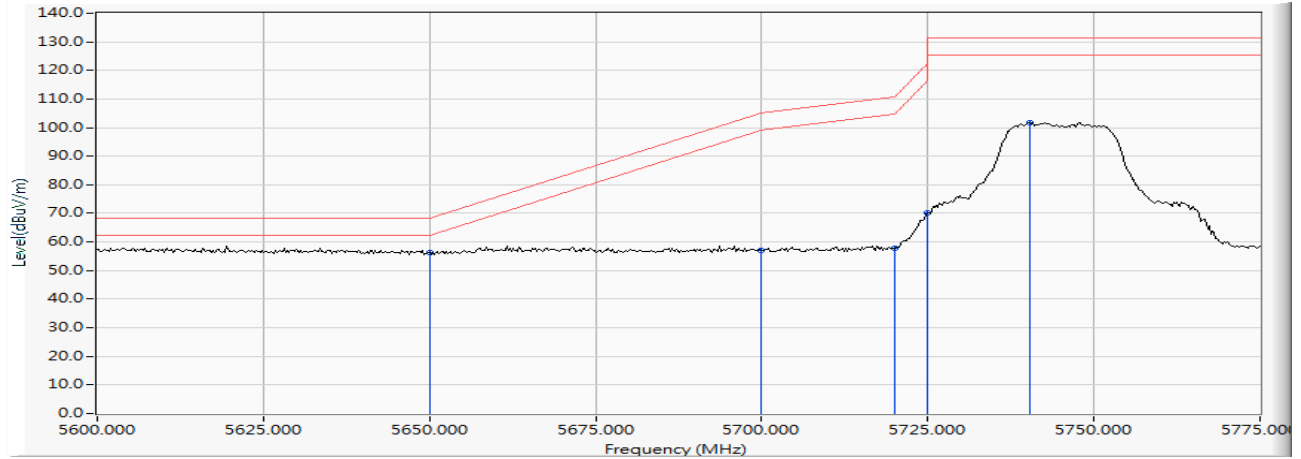
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 149 (5745MHz)

Horizontal (Peak)

RF Radiated Measurement:

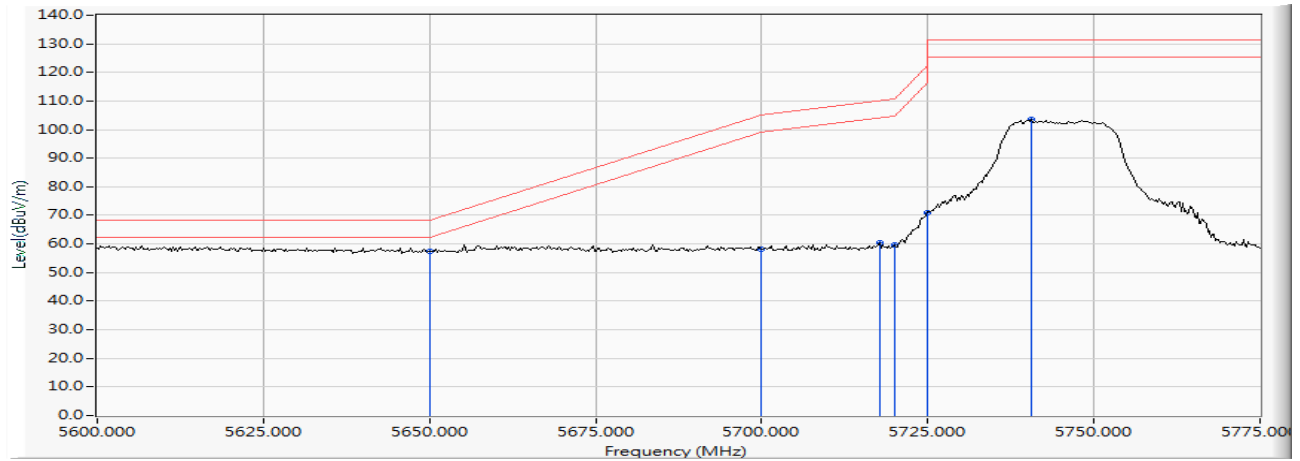


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5650.000	11.554	44.894	56.449	-11.771	68.220	PEAK
2		5700.000	11.647	45.411	57.058	-48.142	105.200	PEAK
3		5720.000	11.607	46.075	57.682	-53.118	110.800	PEAK
4		5725.000	11.592	58.644	70.236	--	--	PEAK
5		5740.254	11.543	90.280	101.824	--	--	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 149 (5745MHz)

Vertical (Peak)

RF Radiated Measurement:

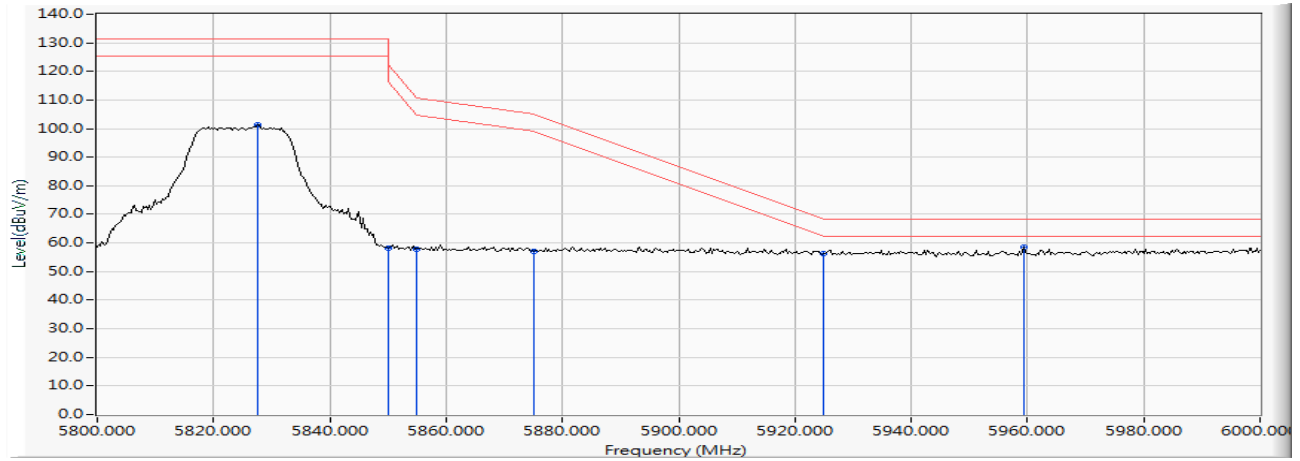


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5650.000	13.029	44.515	57.544	-10.676	68.220	PEAK
2		5700.000	13.003	45.229	58.232	-46.968	105.200	PEAK
3		5717.681	12.955	47.481	60.436	-49.715	110.151	PEAK
4		5720.000	12.947	46.582	59.529	-51.271	110.800	PEAK
5		5725.000	12.930	58.064	70.994	--	--	PEAK
6		5740.507	12.876	90.857	103.734	--	--	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 165 (5825MHz)

Horizontal (Peak)

RF Radiated Measurement:

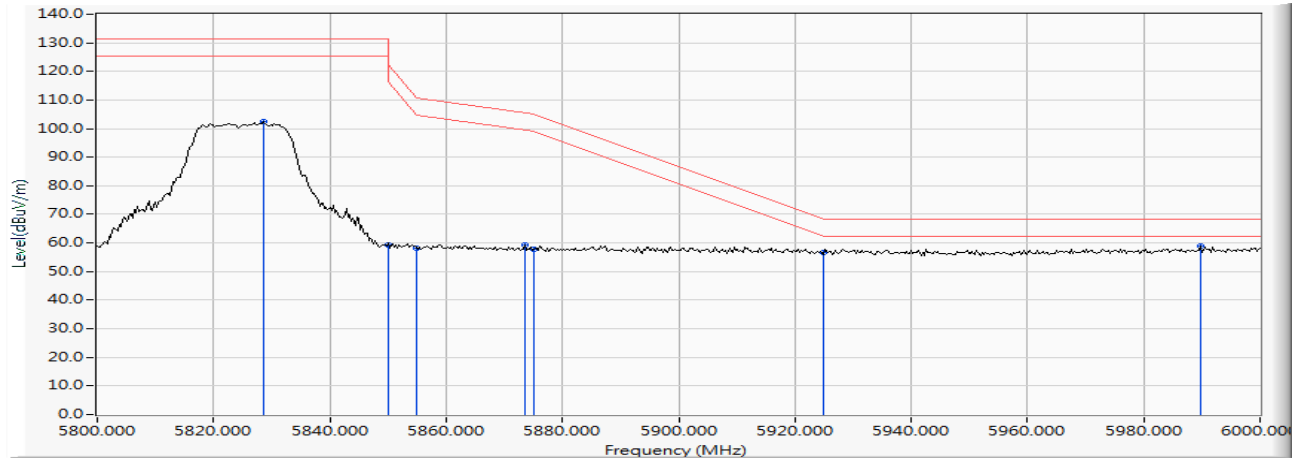


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5827.536	11.546	89.952	101.497	--	--	PEAK
2		5850.000	11.701	46.573	58.274	-63.926	122.200	PEAK
3		5855.000	11.735	46.220	57.955	-52.845	110.800	PEAK
4		5875.000	11.873	45.230	57.103	-48.097	105.200	PEAK
5		5925.000	12.068	44.060	56.129	-12.071	68.200	PEAK
6	*	5959.420	12.096	46.308	58.404	-9.796	68.200	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) - Channel 165 (5825MHz)

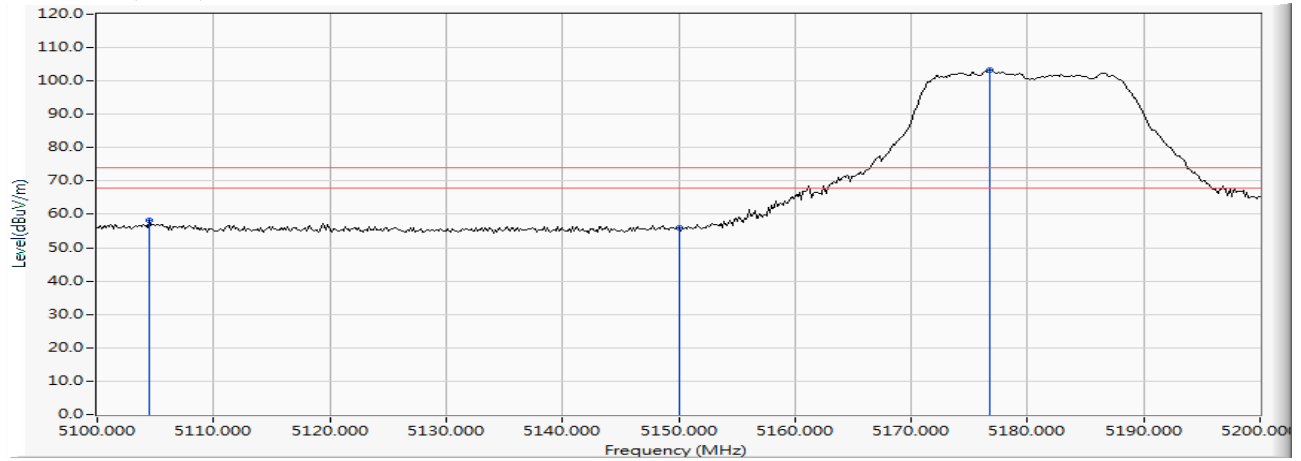
Vertical (Peak)

RF Radiated Measurement:

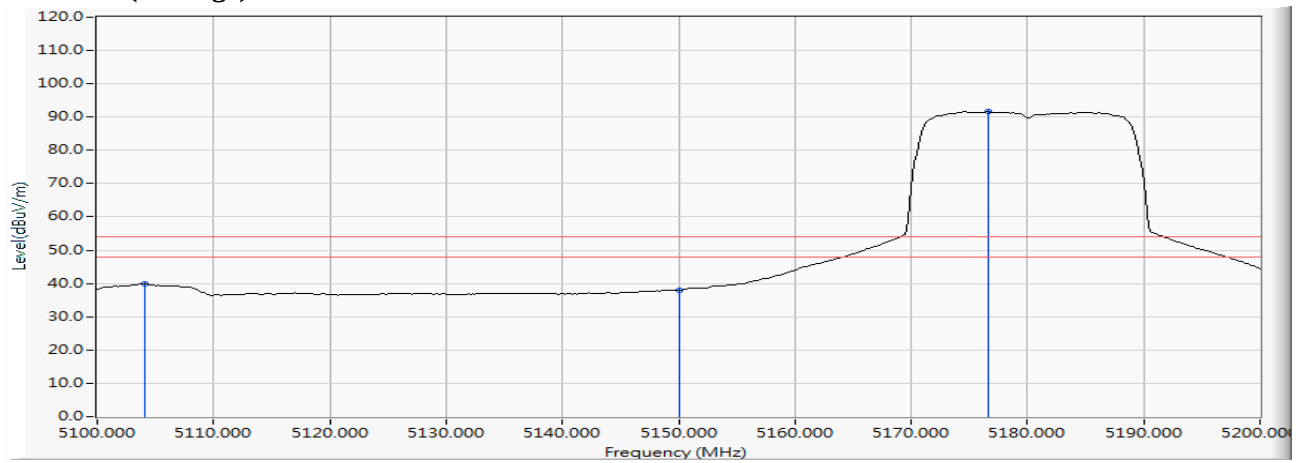


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5828.696	12.728	89.841	102.570	--	--	PEAK
2		5850.000	12.774	46.629	59.403	-62.797	122.200	PEAK
3		5855.000	12.784	45.374	58.158	-52.642	110.800	PEAK
4		5873.623	12.823	46.401	59.224	-46.362	105.586	PEAK
5		5875.000	12.825	44.834	57.659	-47.541	105.200	PEAK
6		5925.000	12.911	43.587	56.498	-11.702	68.200	PEAK
7	*	5989.855	12.997	45.761	58.758	-9.442	68.200	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 36 (5180MHz)

Horizontal (Peak)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5104.493	10.563	47.511	58.074	-15.926	74.000	PEAK
2		5150.000	10.470	45.576	56.047	-17.953	74.000	PEAK
3	*	5176.812	10.402	92.828	103.230	--	--	PEAK

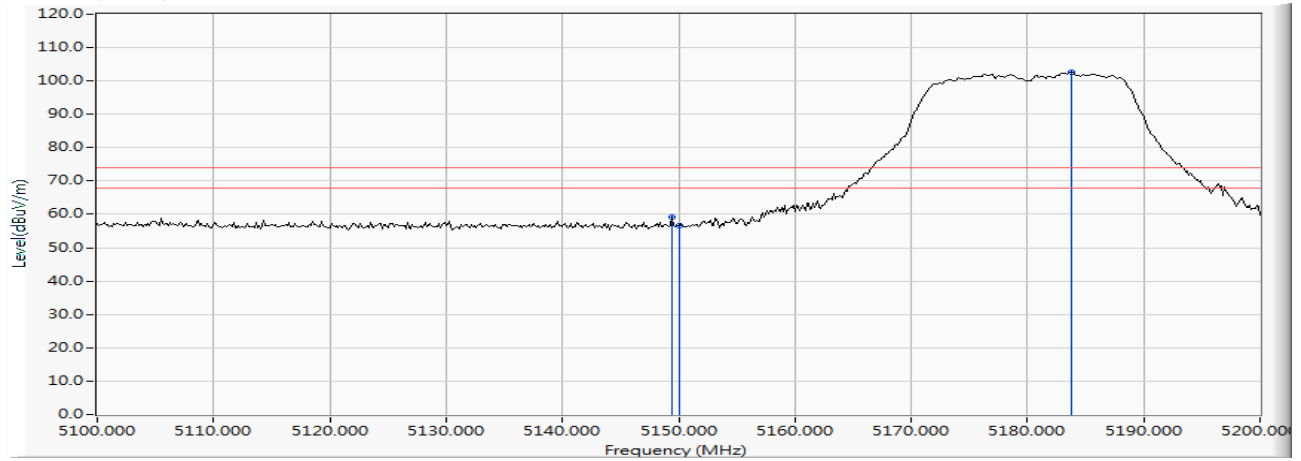
Horizontal (Average)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5104.058	10.564	29.414	39.978	-14.022	54.000	AVERAGE
2		5150.000	10.470	27.431	37.902	-16.098	54.000	AVERAGE
3	*	5176.667	10.402	81.208	91.610	--	--	AVERAGE

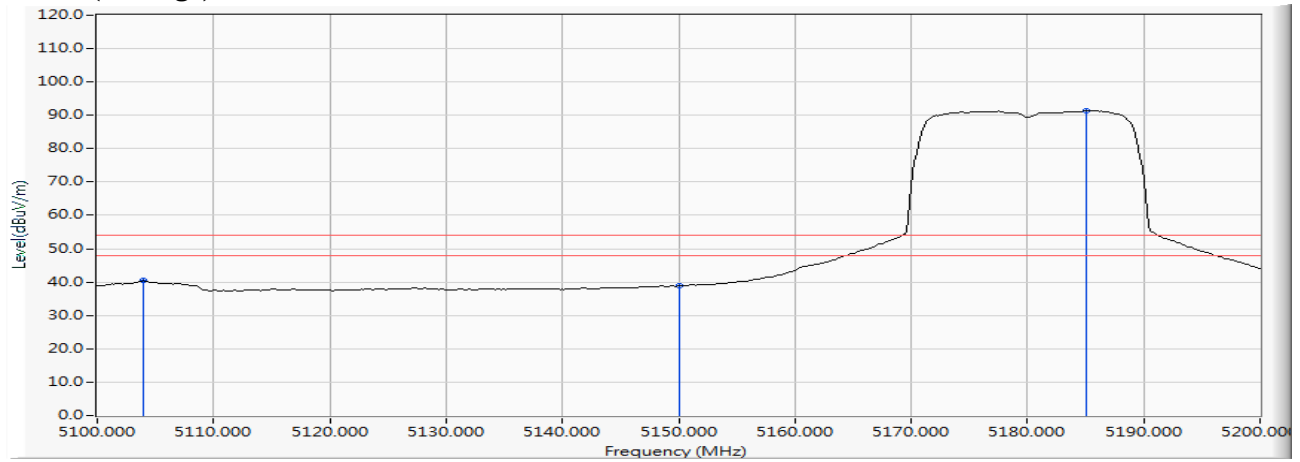
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 36 (5180MHz)

Vertical (Peak)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5149.420	12.388	46.786	59.174	-14.826	74.000	PEAK
2		5150.000	12.390	44.081	56.471	-17.529	74.000	PEAK
3	*	5183.768	12.515	90.173	102.688	--	--	PEAK

Vertical (Average)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5103.913	12.230	28.158	40.387	-13.613	54.000	AVERAGE
2		5150.000	12.390	26.391	38.781	-15.219	54.000	AVERAGE
3	*	5185.072	12.520	78.830	91.350	--	--	AVERAGE

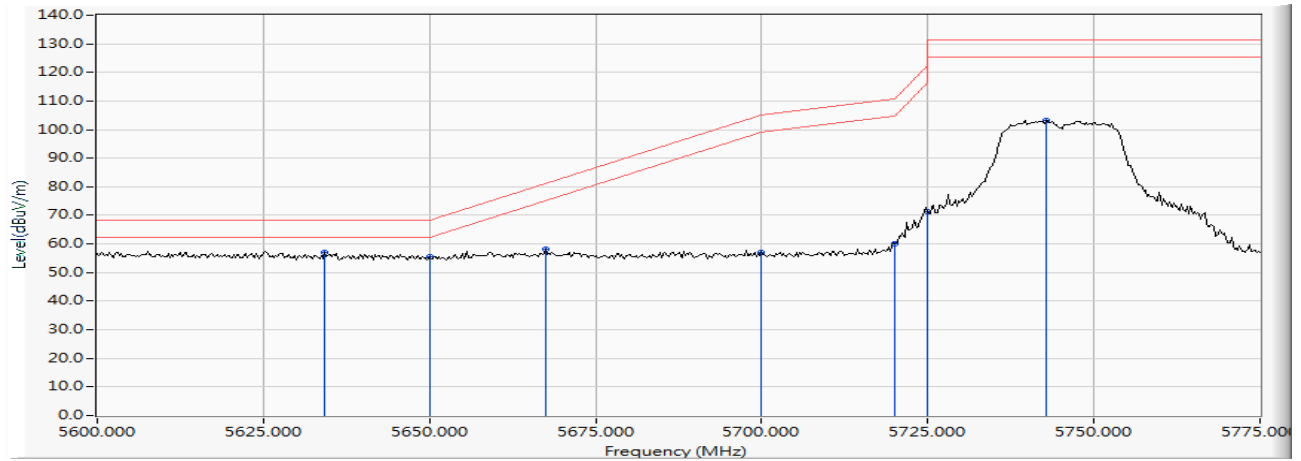
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 149 (5745MHz)

Horizontal (Peak)

RF Radiated Measurement:

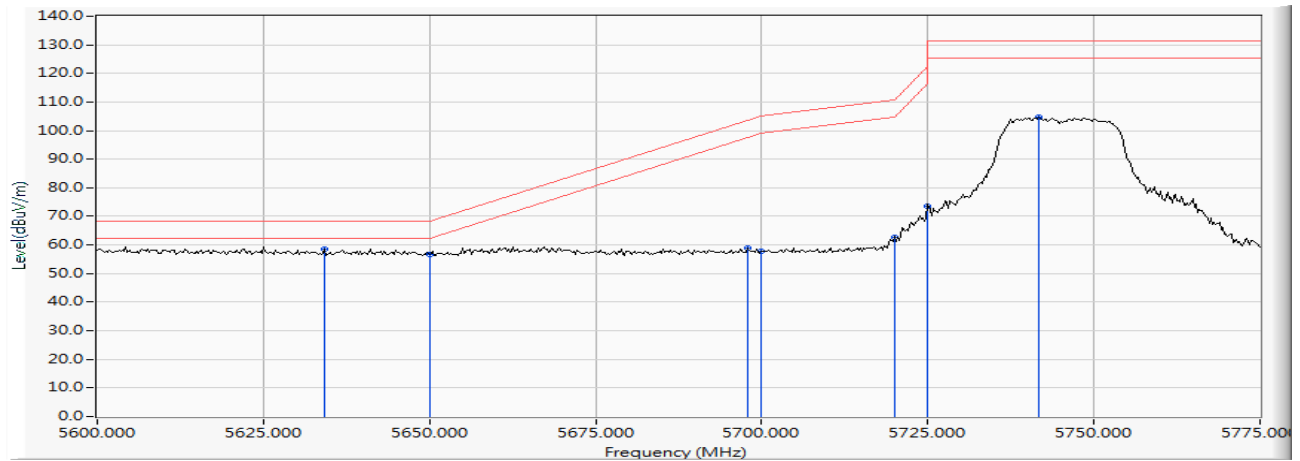


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5634.239	11.517	45.623	57.140	-11.080	68.220	PEAK
2		5650.000	11.554	43.890	55.445	-12.775	68.220	PEAK
3		5667.464	11.596	46.466	58.062	-23.074	81.136	PEAK
4		5700.000	11.647	45.317	56.964	-48.236	105.200	PEAK
5		5720.000	11.607	48.472	60.079	-50.721	110.800	PEAK
6		5725.000	11.592	59.563	71.155	--	--	PEAK
7		5742.790	11.536	91.765	103.300	--	--	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 149 (5745MHz)

Vertical (Peak)

RF Radiated Measurement:

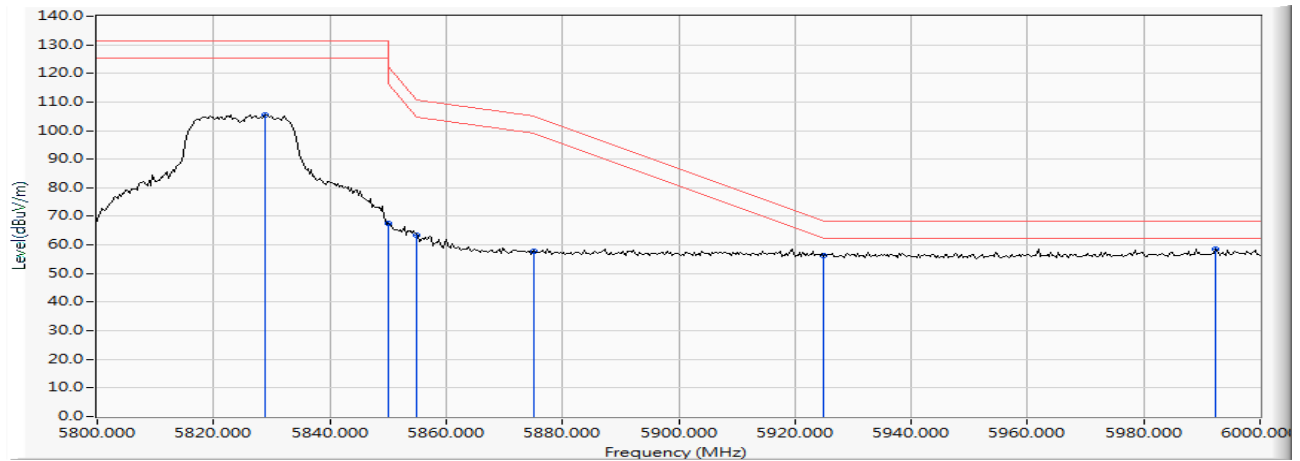


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5634.239	13.033	45.671	58.704	-9.516	68.220	PEAK
2		5650.000	13.029	43.583	56.612	-11.608	68.220	PEAK
3		5697.899	13.007	45.750	58.757	-44.889	103.646	PEAK
4		5700.000	13.003	44.864	57.867	-47.333	105.200	PEAK
5		5720.000	12.947	49.853	62.800	-48.000	110.800	PEAK
6		5725.000	12.930	60.663	73.593	--	--	PEAK
7		5741.775	12.873	91.780	104.652	--	--	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 165 (5825MHz)

Horizontal (Peak)

RF Radiated Measurement:

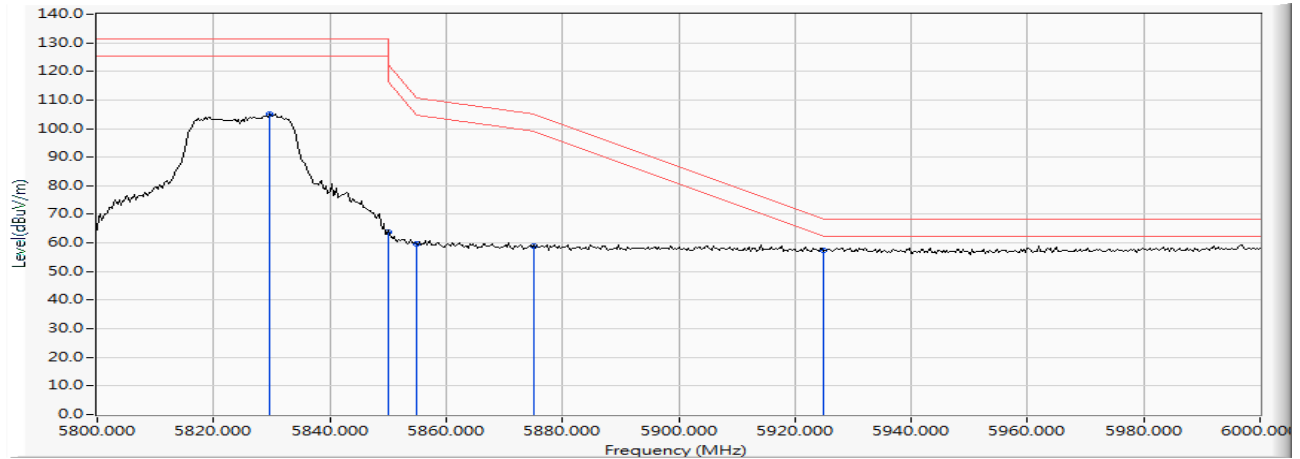


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5828.986	11.555	94.027	105.582	--	--	PEAK
2		5850.000	11.701	55.825	67.526	-54.674	122.200	PEAK
3		5855.000	11.735	51.759	63.494	-47.306	110.800	PEAK
4		5875.000	11.873	46.077	57.950	-47.250	105.200	PEAK
5		5925.000	12.068	44.132	56.201	-11.999	68.200	PEAK
6	*	5992.464	12.126	46.607	58.732	-9.468	68.200	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 165 (5825MHz)

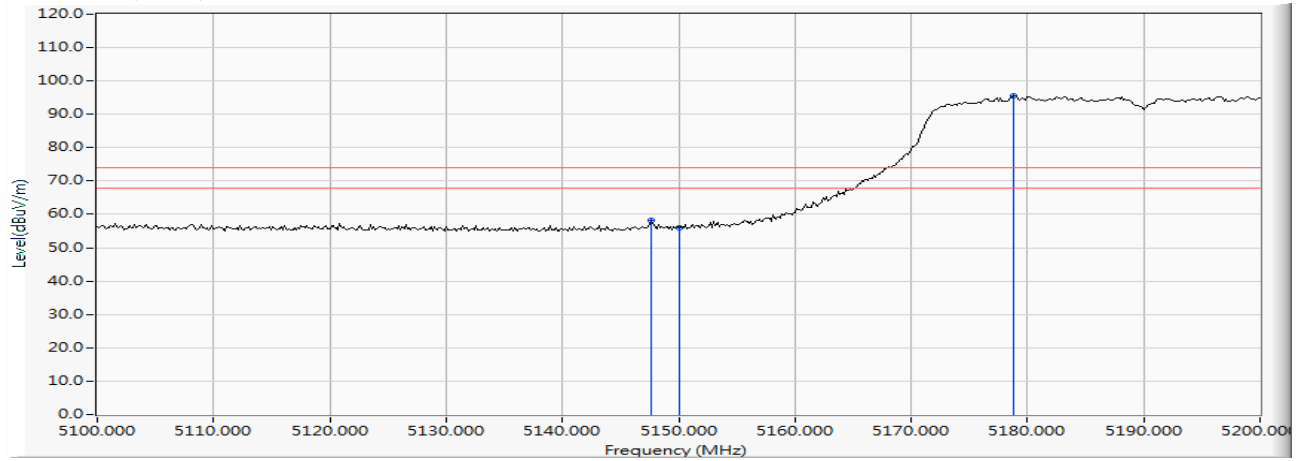
Vertical (Peak)

RF Radiated Measurement:

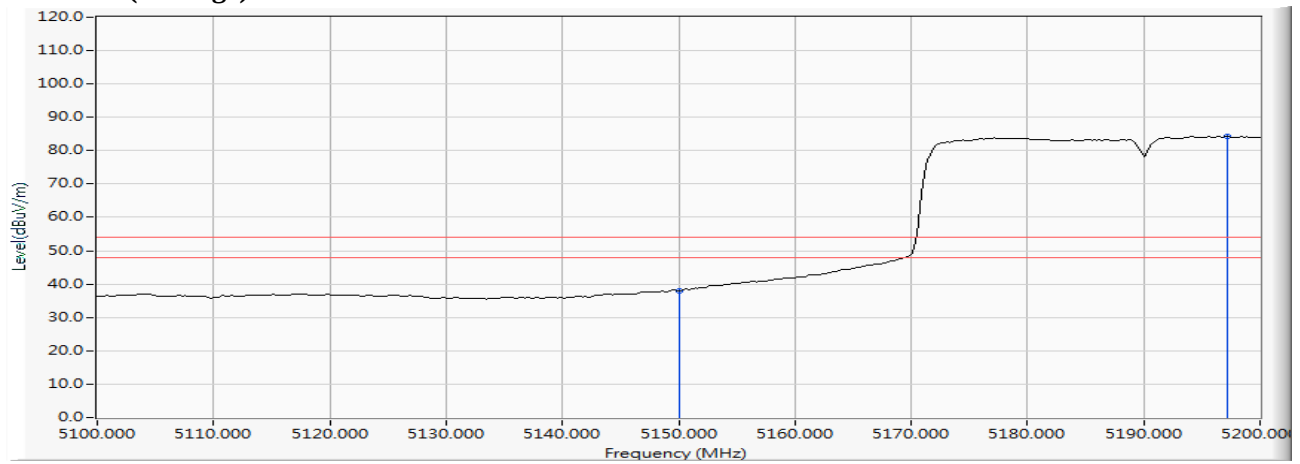


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5829.565	12.731	92.457	105.188	--	--	PEAK
2		5850.000	12.774	50.994	63.768	-58.432	122.200	PEAK
3		5855.000	12.784	46.833	59.617	-51.183	110.800	PEAK
4		5875.000	12.825	46.202	59.027	-46.173	105.200	PEAK
5	*	5925.000	12.911	44.363	57.274	-10.926	68.200	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2018/02/28
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 38 (5190MHz)

Horizontal (Peak)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5147.681	10.476	47.729	58.206	-15.794	74.000	PEAK
2		5150.000	10.470	45.643	56.114	-17.886	74.000	PEAK
3	*	5178.841	10.397	85.083	95.480	--	--	PEAK

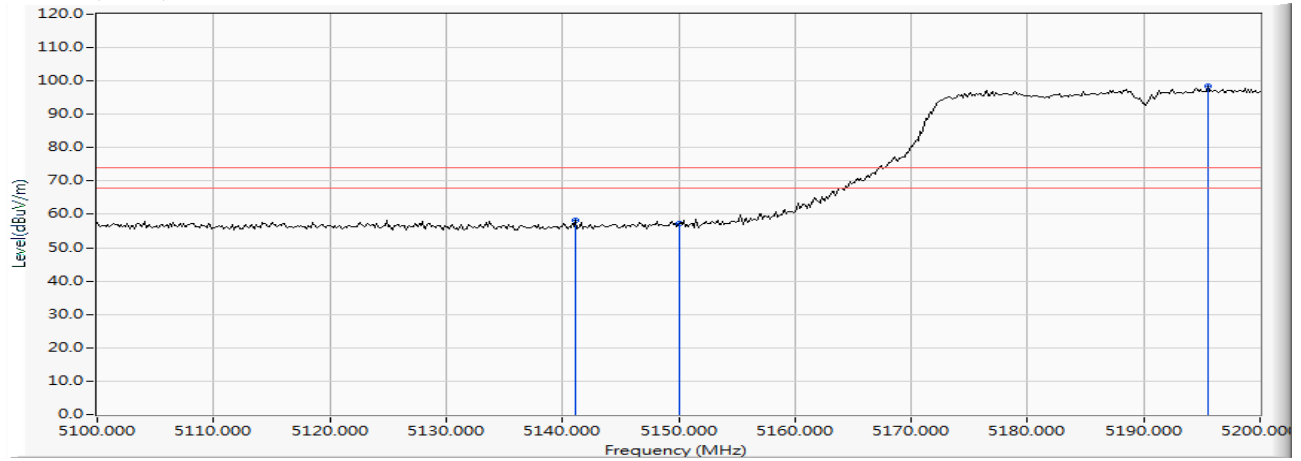
Horizontal (Average)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5150.000	10.470	27.517	37.988	-16.012	54.000	AVERAGE
2	*	5197.246	10.342	73.879	84.220	--	--	AVERAGE

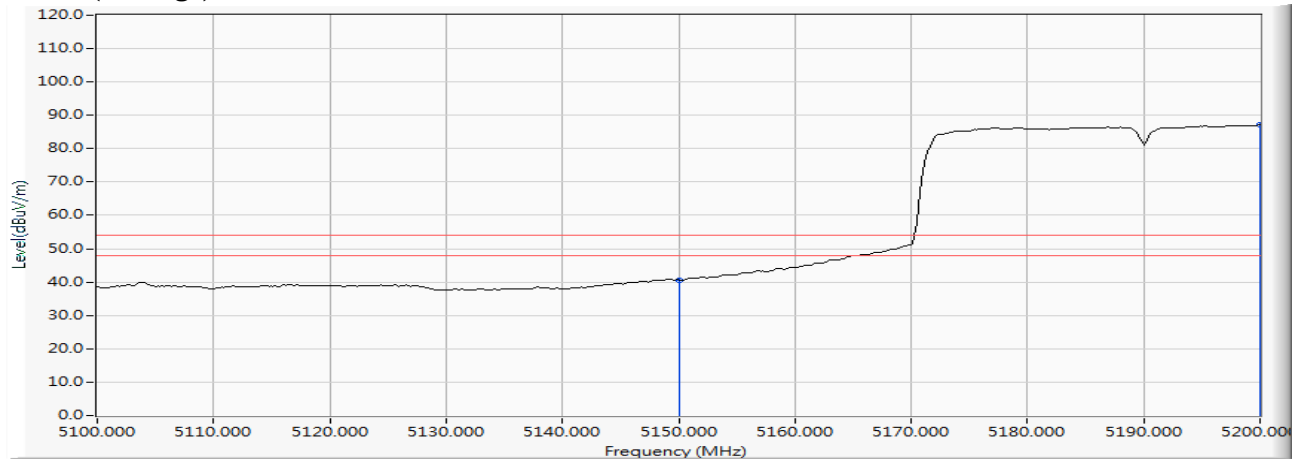
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2018/02/28
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 38 (5190MHz)

Vertical (Peak)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5141.159	12.356	45.930	58.287	-15.713	74.000	PEAK
2		5150.000	12.390	44.923	57.313	-16.687	74.000	PEAK
3	*	5195.507	12.552	85.934	98.486	--	--	PEAK

Vertical (Average)

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5150.000	12.390	28.187	40.577	-13.423	54.000	AVERAGE
2	*	5200.000	12.569	74.580	87.149	--	--	AVERAGE

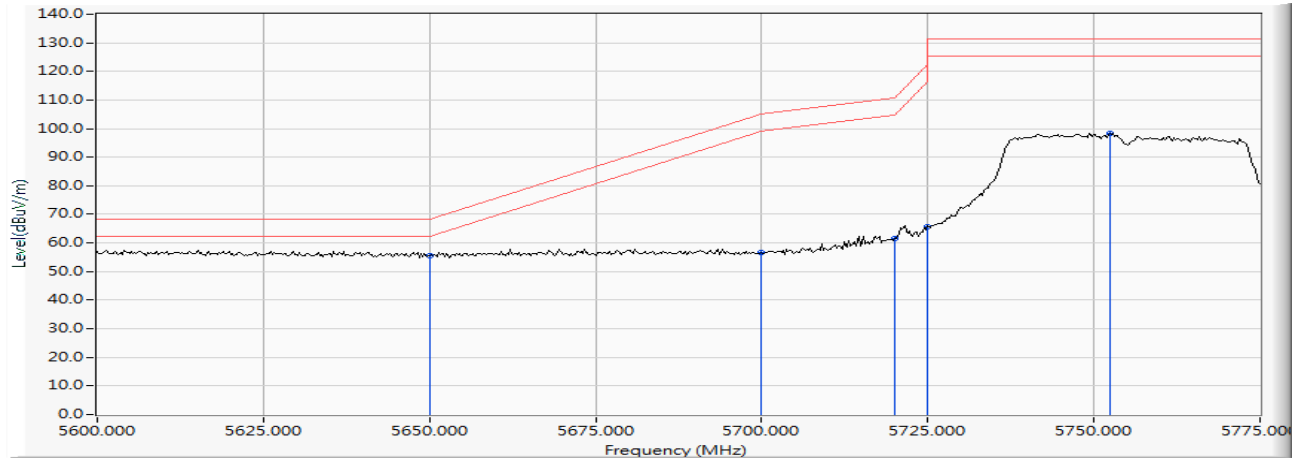
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 151 (5755MHz)

Horizontal (Peak)

RF Radiated Measurement:

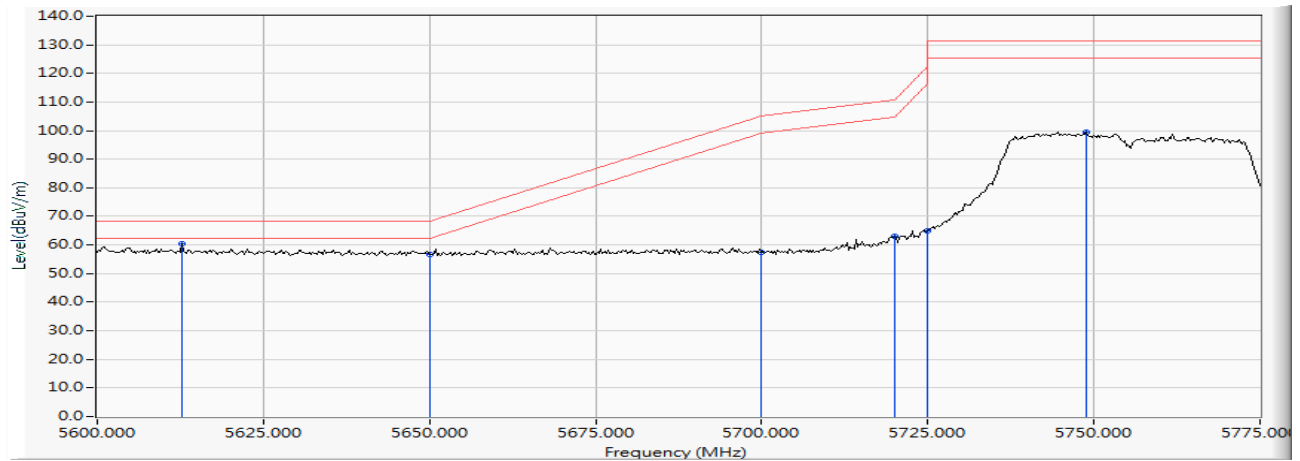


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5650.000	11.554	43.897	55.452	-12.768	68.220	PEAK
2		5700.000	11.647	44.884	56.531	-48.669	105.200	PEAK
3		5720.000	11.607	49.999	61.606	-49.194	110.800	PEAK
4		5725.000	11.592	54.149	65.741	-56.459	122.200	PEAK
5		5752.428	11.505	86.862	98.367	--	--	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 151 (5755MHz)

Vertical (Peak)

RF Radiated Measurement:

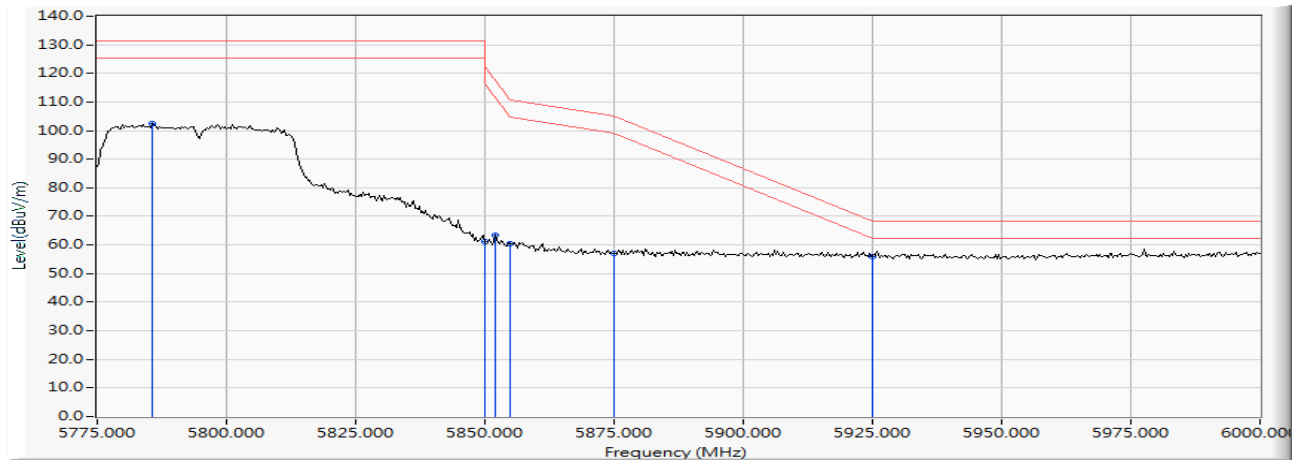


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	5612.681	13.038	47.237	60.275	-7.945	68.220	PEAK
2		5650.000	13.029	43.630	56.659	-11.561	68.220	PEAK
3		5700.000	13.003	44.532	57.535	-47.665	105.200	PEAK
4		5720.000	12.947	49.957	62.904	-47.896	110.800	PEAK
5		5725.000	12.930	51.906	64.836	-57.364	122.200	PEAK
6		5748.877	12.846	86.703	99.549	--	--	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 159 (5795MHz)

Horizontal (Peak)

RF Radiated Measurement:

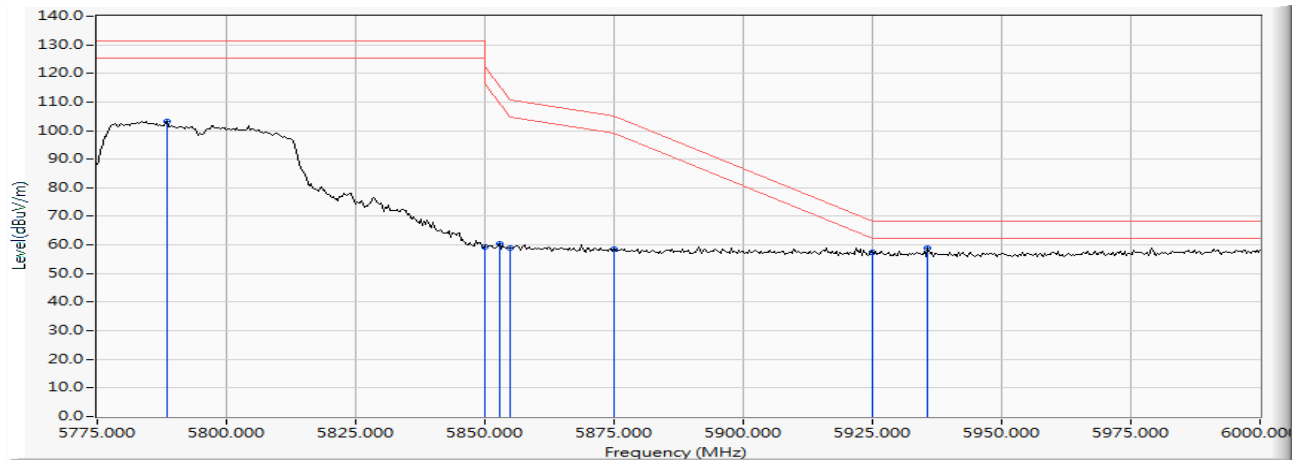


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5785.761	11.399	90.892	102.291	--	--	PEAK
2		5850.000	11.701	49.666	61.367	-60.833	122.200	PEAK
3		5851.957	11.715	51.656	63.370	-54.368	117.738	PEAK
4		5855.000	11.735	48.658	60.393	-50.407	110.800	PEAK
5		5875.000	11.873	45.242	57.115	-48.085	105.200	PEAK
6	*	5925.000	12.068	43.975	56.044	-12.156	68.200	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Date : 2019/04/24
 Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 159 (5795MHz)

Vertical (Peak)

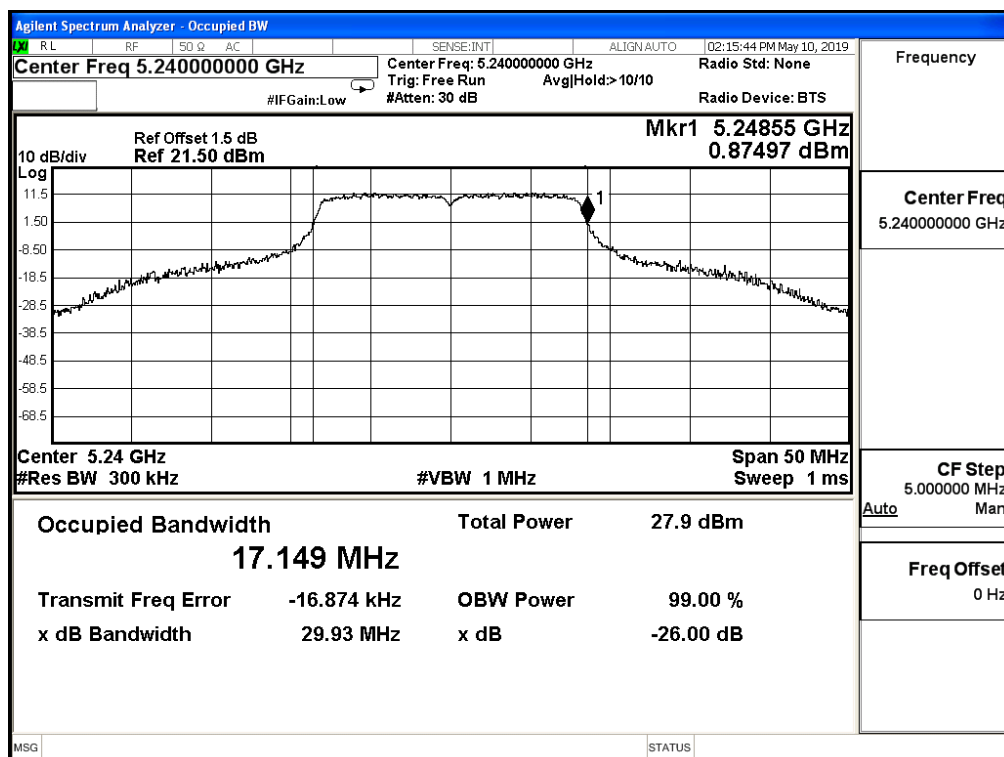
RF Radiated Measurement:



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		5788.370	12.708	90.401	103.109	--	--	PEAK
2		5850.000	12.774	46.415	59.189	-63.011	122.200	PEAK
3		5852.935	12.780	47.820	60.600	-54.908	115.508	PEAK
4		5855.000	12.784	46.252	59.036	-51.764	110.800	PEAK
5		5875.000	12.825	45.641	58.466	-46.734	105.200	PEAK
6		5925.000	12.911	44.550	57.461	-10.739	68.200	PEAK
7	*	5935.761	12.925	45.911	58.837	-9.363	68.200	PEAK

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : Band Edge Data
 Test Date : 2019/05/10
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Test Frequency (MHz)	Measurement Level (MHz)	Limit (MHz)	Result
5240	5248.55	<5250	PASS



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Date : 2019/05/10
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)

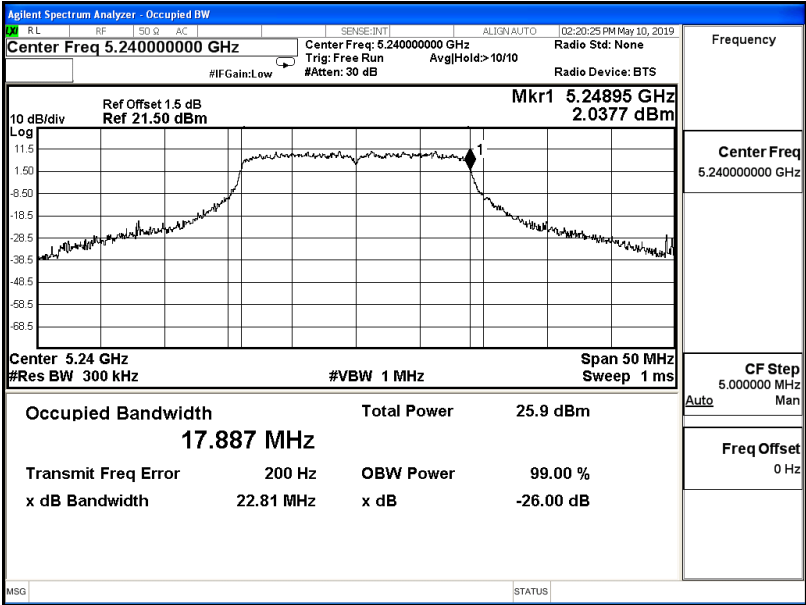
Chain A

Test Frequency (MHz)	Measurement Level (MHz)	Limit (MHz)	Result
5240	5248.95	<5250	PASS

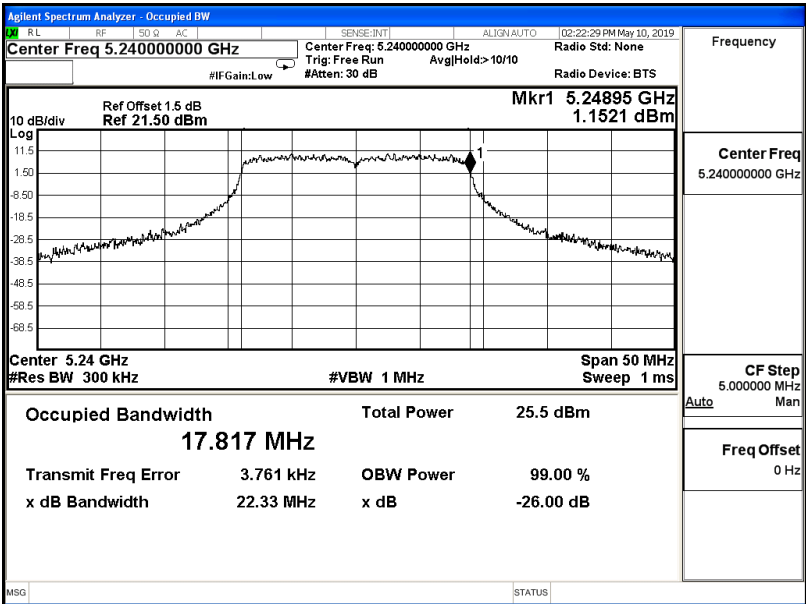
Chain B

Test Frequency (MHz)	Measurement Level (MHz)	Limit (MHz)	Result
5240	5248.95	<5250	PASS

Chain A



Chain B



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Date : 2019/05/10
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)

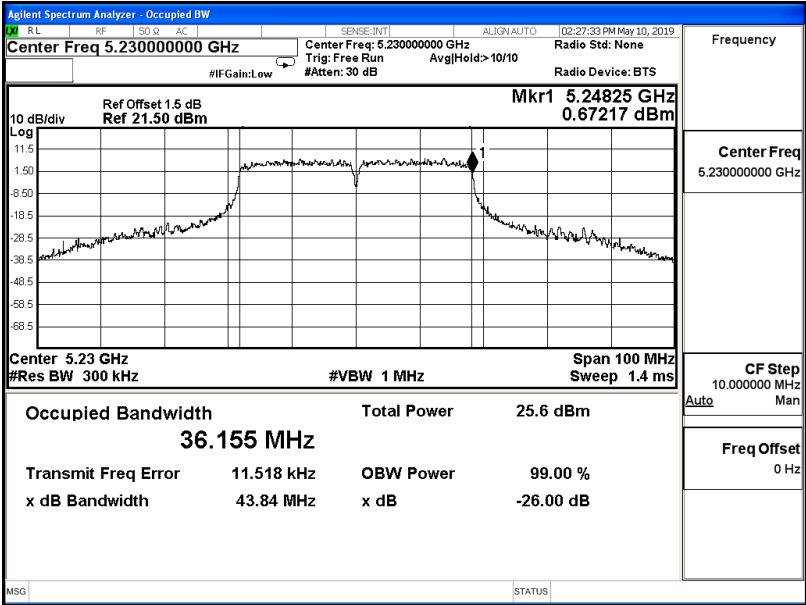
Chain A

Test Frequency (MHz)	Measurement Level (MHz)	Limit (MHz)	Result
5230	5248.25	<5250	PASS

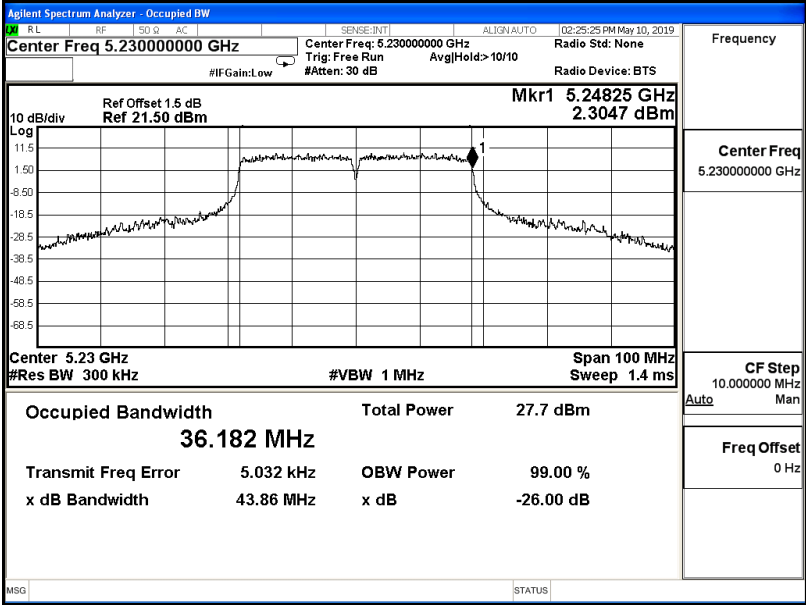
Chain B

Test Frequency (MHz)	Measurement Level (MHz)	Limit (MHz)	Result
5230	5248.25	<5250	PASS

Chain A

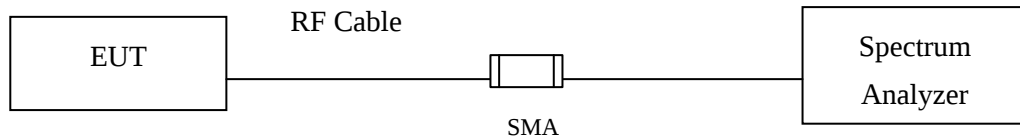


Chain B



5. Duty Cycle

5.1. Test Setup



5.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to U-NII test procedure of KDB789033 for compliance to FCC 47CFR 15.407 requirements.

5.3. Uncertainty

$\pm 2.31\text{msec}$

5.4. Test Result of Duty Cycle

Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Duty Cycle
Test Mode : Transmit

Duty Cycle Formula:

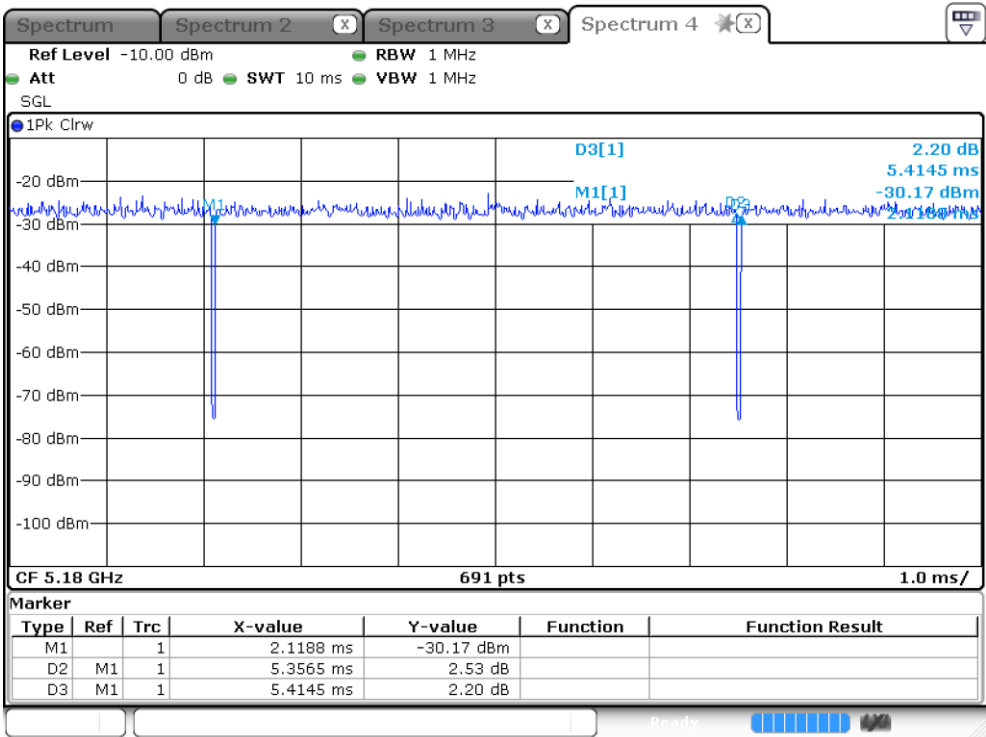
$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$

$\text{Duty Factor} = 10 \text{ Log } (1/\text{Duty Cycle})$

Results:

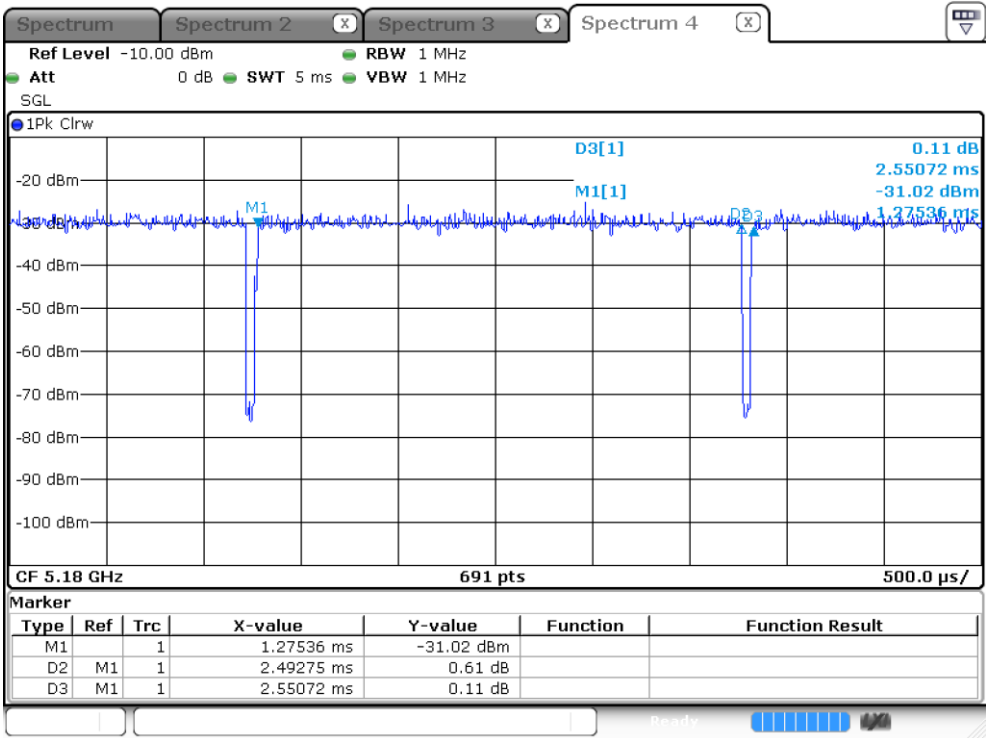
5GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11 a	5.3565	5.4145	98.93	0.05
802.11 n20	2.4928	2.5507	97.73	0.10
802.11 n40	1.1913	1.2609	94.48	0.25

802.11a

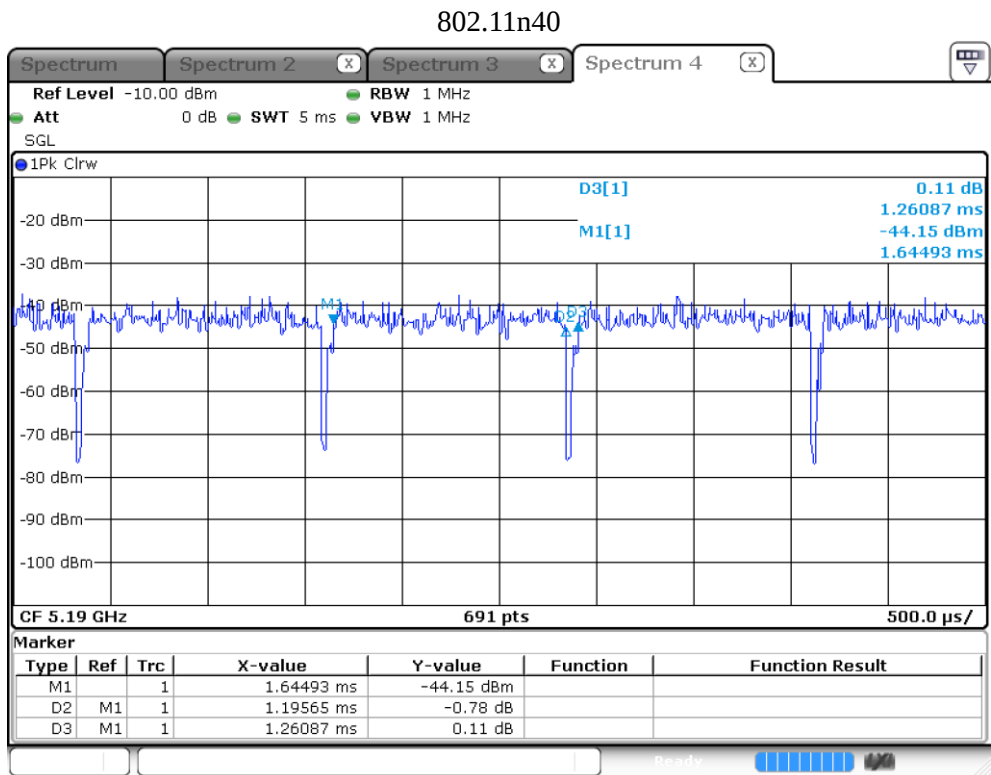


Date: 6.JAN.2007 22:12:03

802.11n20



Date: 6.JAN.2007 22:22:45



Date: 2.JAN.2007 07:02:30

6. EMI Reduction Method During Compliance Testing

No modification was made during testing.