# 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 |

Testing Laboratory
3023

# 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<br>ANSI C63.4: 2014, ANSI C63.10: 2013<br>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 :

( Director / Vincent Lin )

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Description Page

# 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<br>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<br>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)<br>Mode 1: Transmit (802.11n-20BW 14.2Mbps)<br>Mode 1: Transmit (802.11n-40BW 30Mbps) |

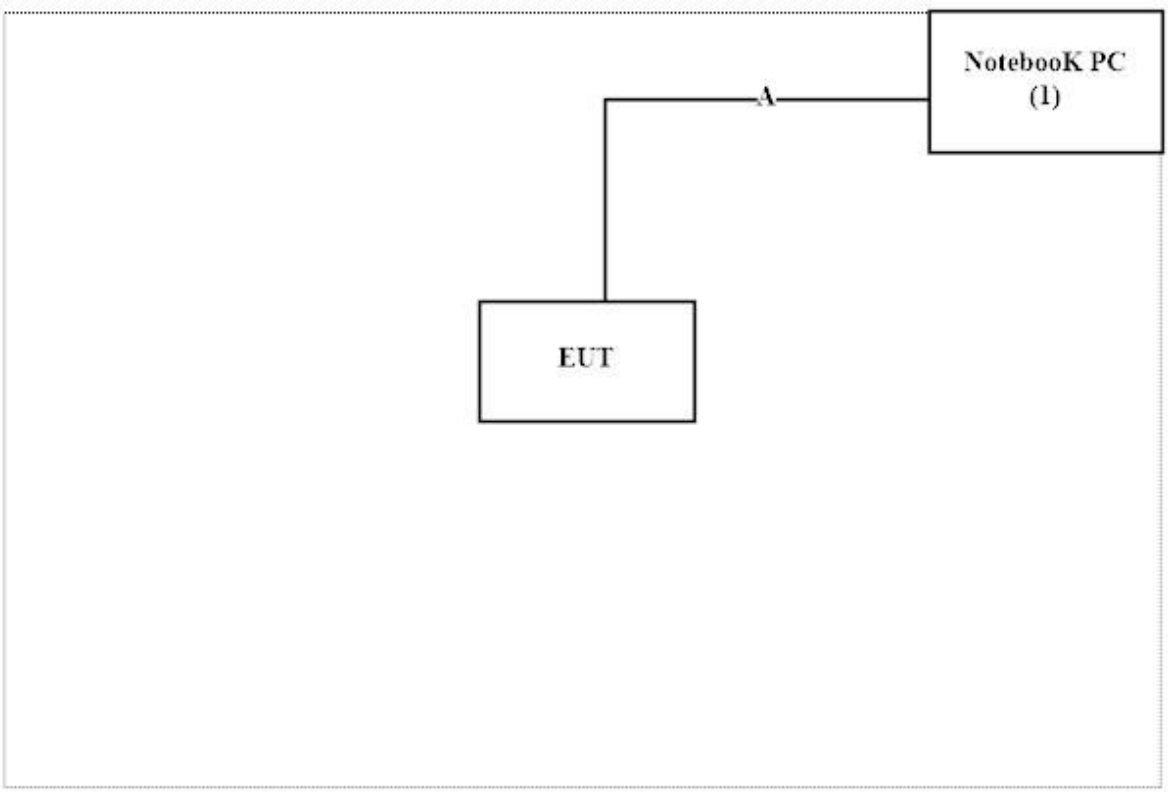
## 1.3. Tested System Datails

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” programon 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**

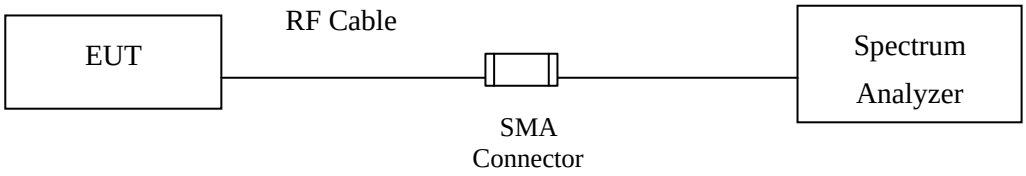
| | Equipment | Manufacturer | Model No. | Serial No. | Cali. Date | Due. Date |
|---|---|---|---|---|---|---|
| X | Spectrum Analyzer | R&S | FSP40 | 100170 | 2019/03/11 | 2020/03/10 |
| X | Loop Antenna | Teseq | HLA6121 | 37133 | 2017/10/13 | 2019/10/12 |
| X | Bilog Antenna | Schaffner Chase | CBL6112B | 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 :QuieTek EMI 2.0 V2.1.113.

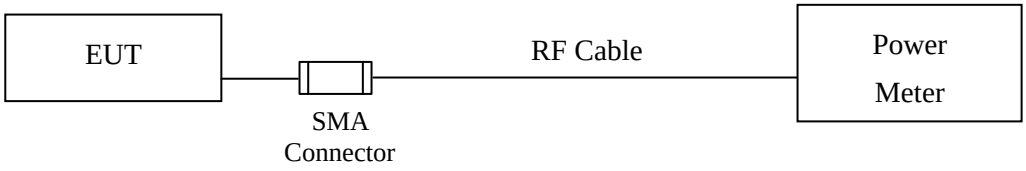
## 2. Maximun conducted output power

### 2.1. Test Setup

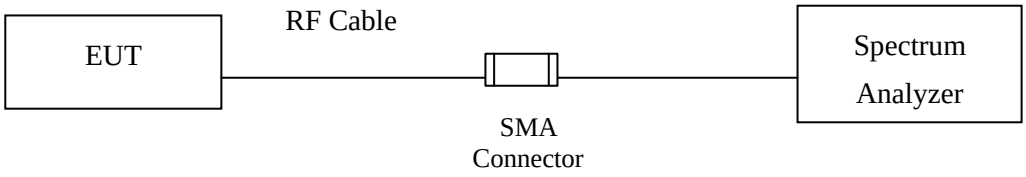
**99%Occupied Bandwidth**




**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 conductedoutput power over the frequency band of operation shall not exceed 1 W. provided the maximumantenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi areused, the maximum conducted output power shall bereduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximume.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 conductedoutput power over the frequency band of operation shall not exceed 1 W provided the maximumantenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi

areused, the maximum conducted output power shall bereduced 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 maximumconducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-topointU-NII devices may employ antennas with directional gain up to 23 dBi without any correspondingreduction in the maximum conducted output power. For fixedpoint-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reductionin maximum conducted output power is required for each 1 dB ofantenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipointsystems, omnidirectional applications, and multiple collocated transmitters transmitting the sameinformation. 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 exclusivelyfor fixed, point-to-point operations.

**(iv)** For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conductedoutput power over the frequency band of operation shall not exceed 250 mW provided the maximumantenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi areused, the maximum conducted output power shall bereduced 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 overthe frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where Bis the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6dBi 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 bandof 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 bythe amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNIIdevices operating in this band may employ transmitting antennas with directional gain greater than 6dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-pointoperations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiplecollocated transmitters transmitting the same information. The operator of the U-NII device, or if theequipment is professionally installed, the installer, is responsible for ensuring that systems employinghigh 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 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≦40MHz) 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=80MHz) Maximum conducted output power using KDB 789033 sectionE)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

±1.27dB

## 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 | -- |

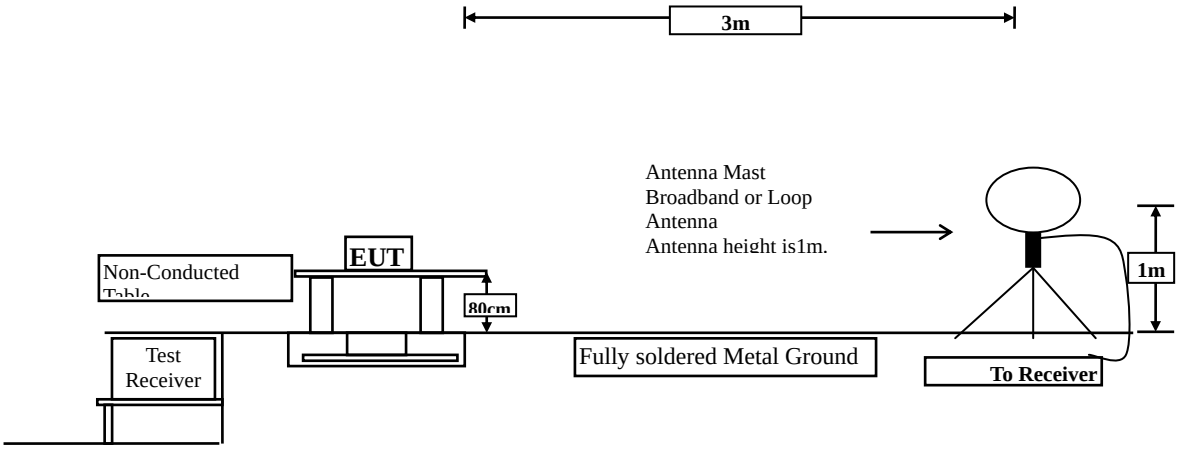
Note:

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.

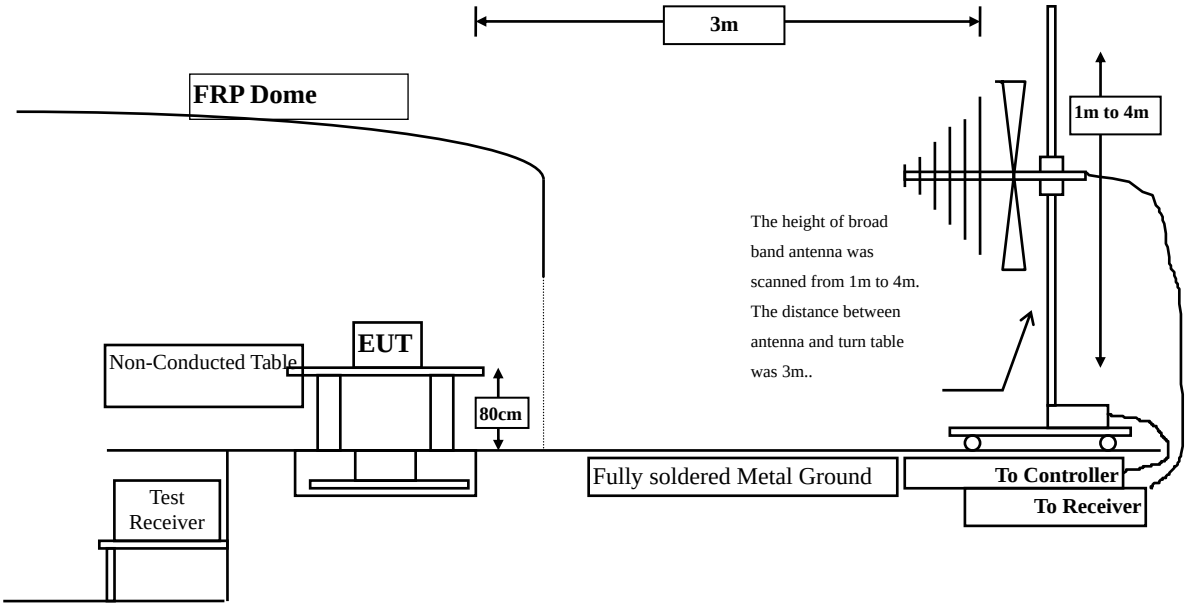
# 3. Radiated Emission

## 3.1. Test Setup

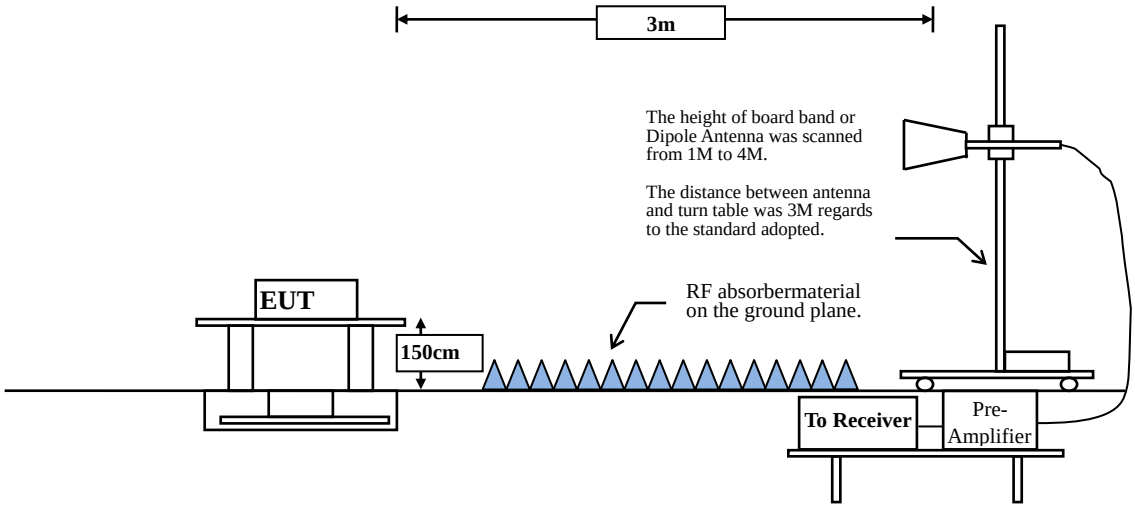
Radiated Emission Under 30MHz




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~1GHzare 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 form 9kHz - 10th Harmonic of fundamental was investigated.

## 3.4. Uncertainty

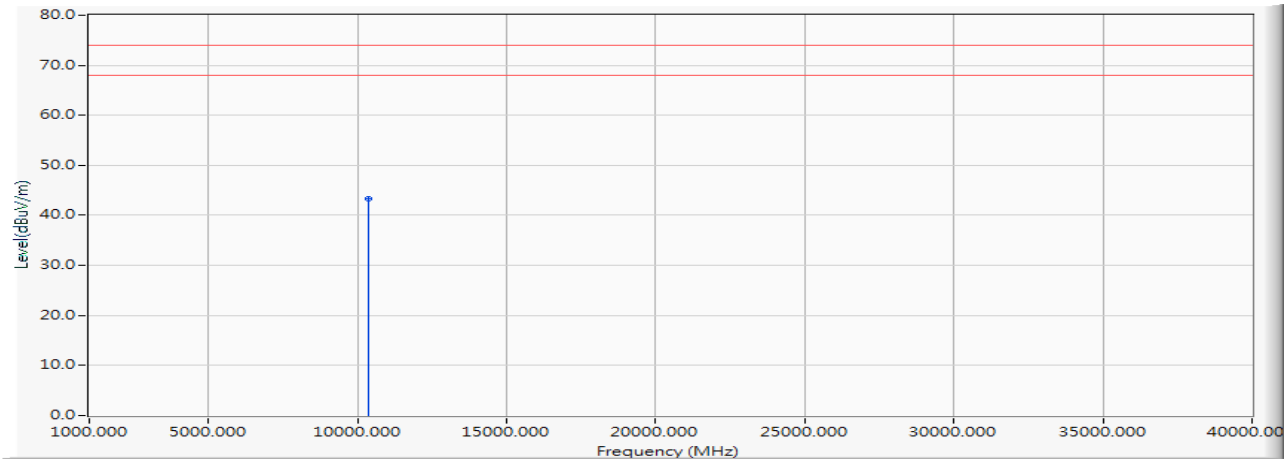
±4.08 dB below 1GHz

±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**



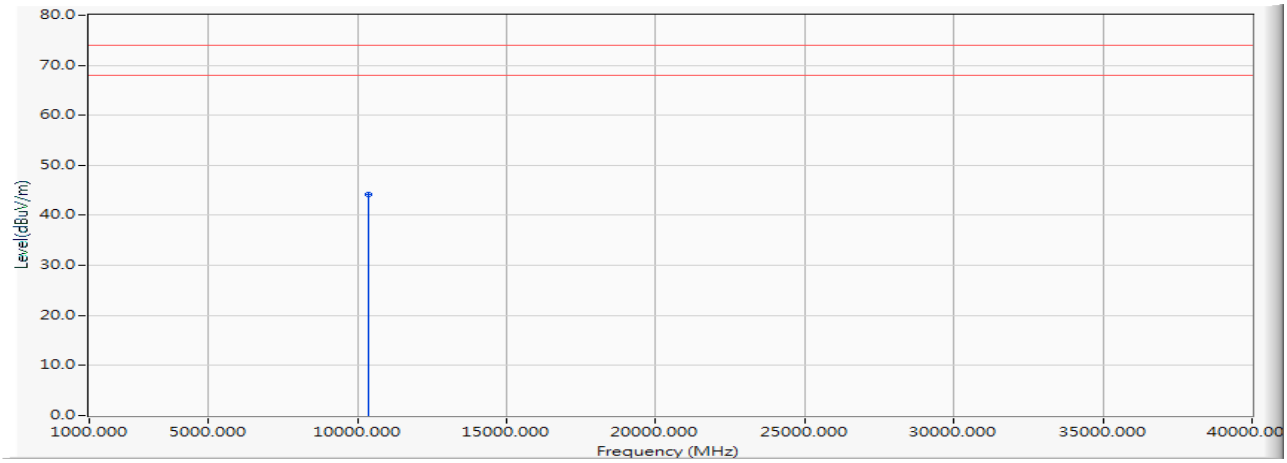

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10360.000 | 15.135 | 28.221 | 43.356 | -30.644 | 74.000 | PEAK |

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**



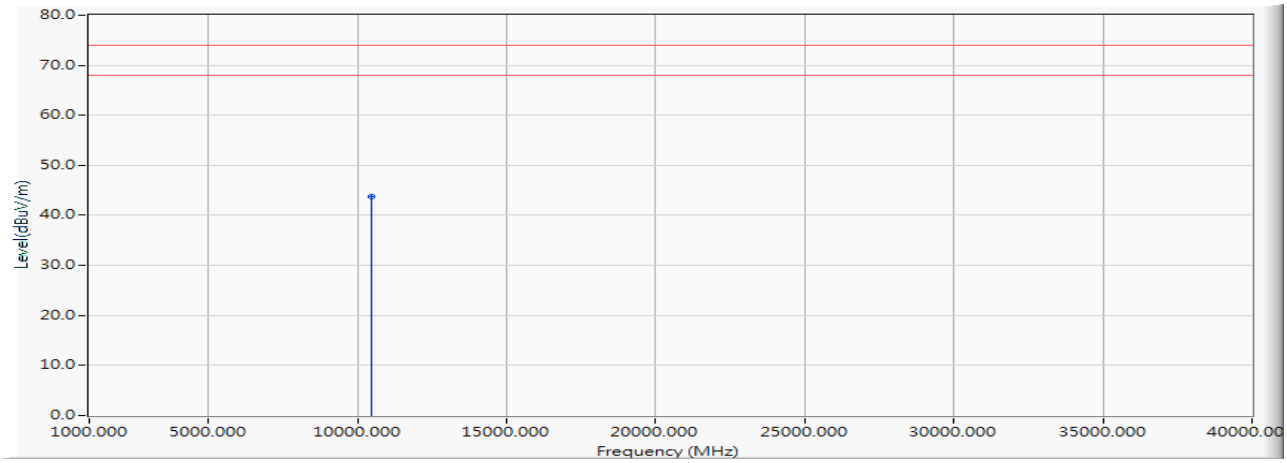

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10360.000 | 15.135 | 29.035 | 44.170 | -29.830 | 74.000 | PEAK |

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**



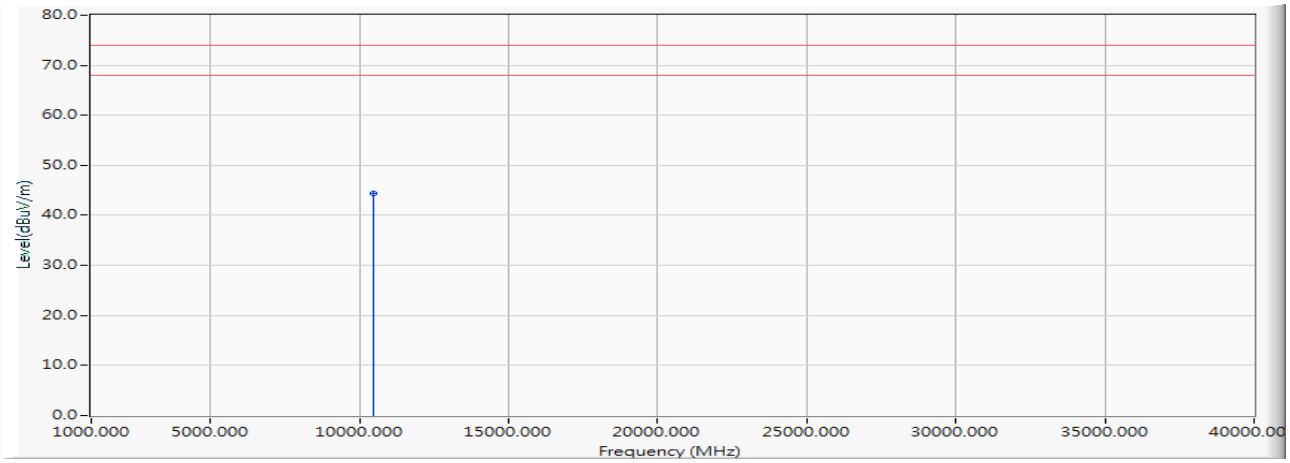

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10440.000 | 15.197 | 28.475 | 43.672 | -30.328 | 74.000 | PEAK |

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**



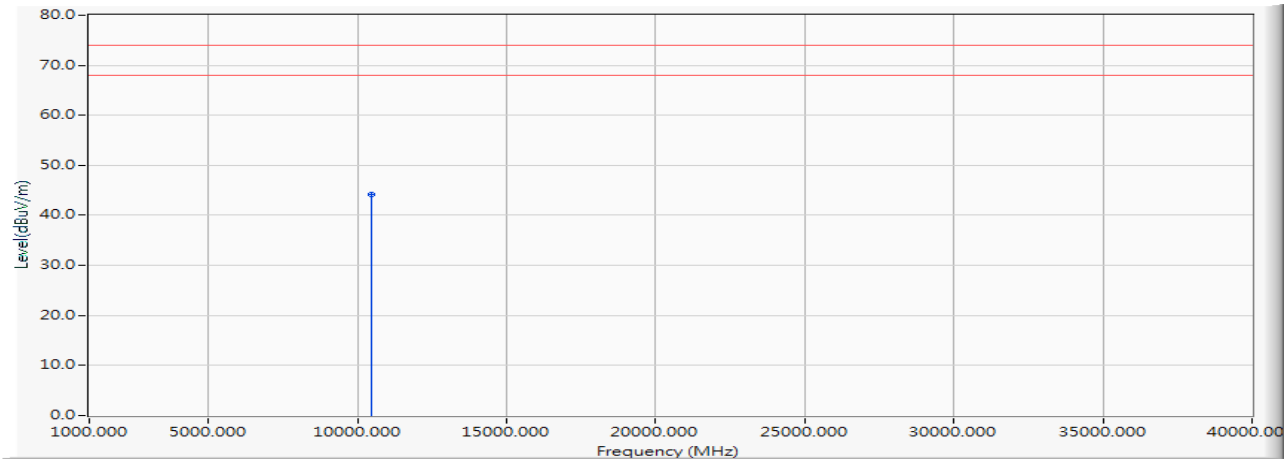

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10440.000 | 15.197 | 29.248 | 44.445 | -29.555 | 74.000 | PEAK |

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**



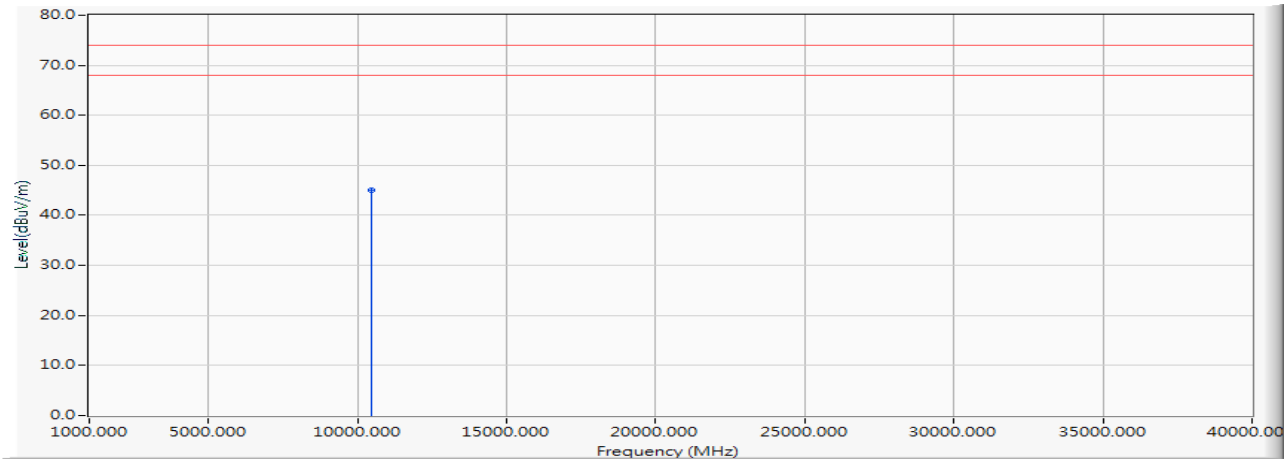

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10480.000 | 15.173 | 28.951 | 44.124 | -29.876 | 74.000 | PEAK |

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**



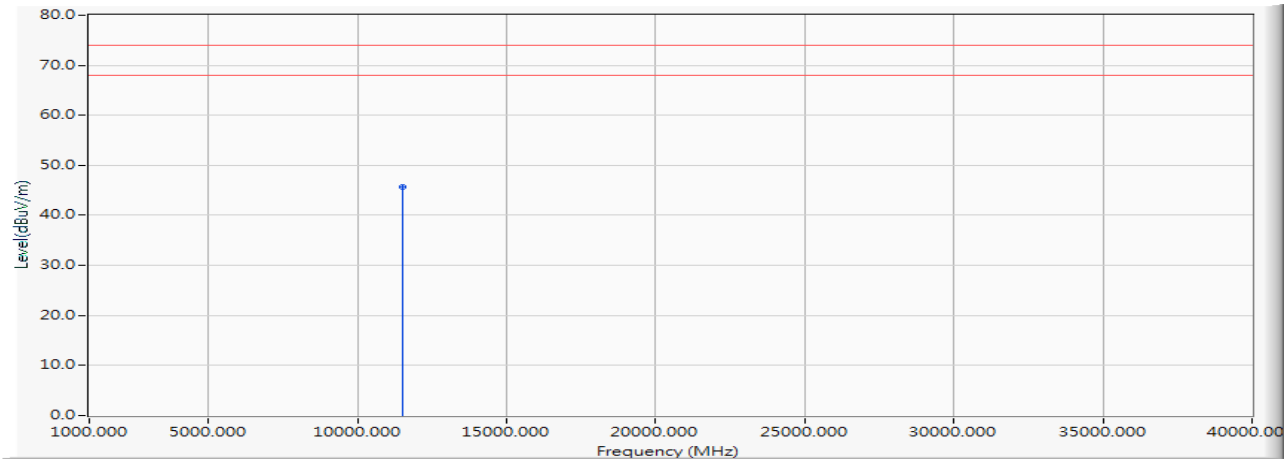

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10480.000 | 15.173 | 29.767 | 44.940 | -29.060 | 74.000 | PEAK |

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**



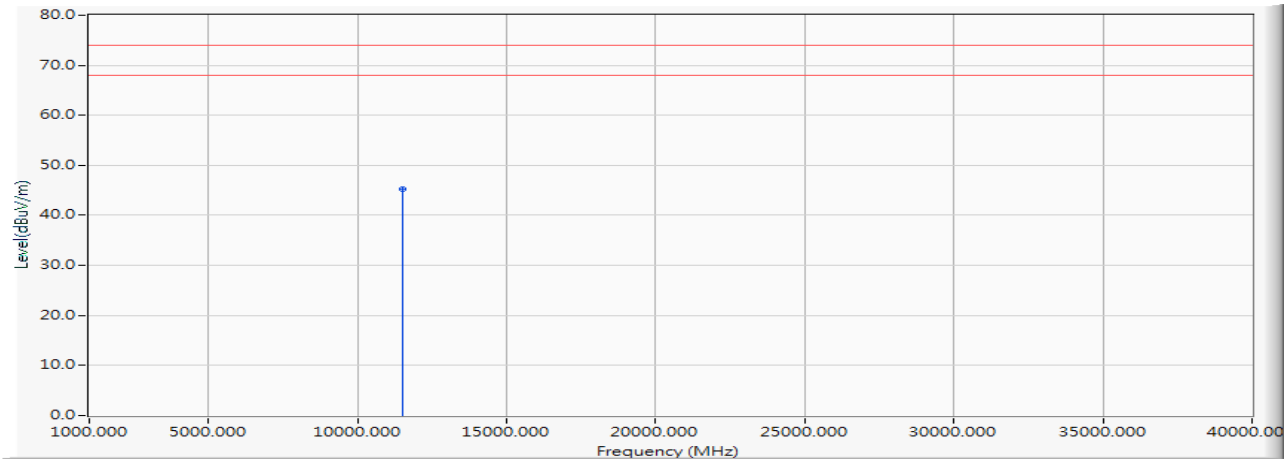

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11490.000 | 16.670 | 28.952 | 45.623 | -28.377 | 74.000 | PEAK |

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**



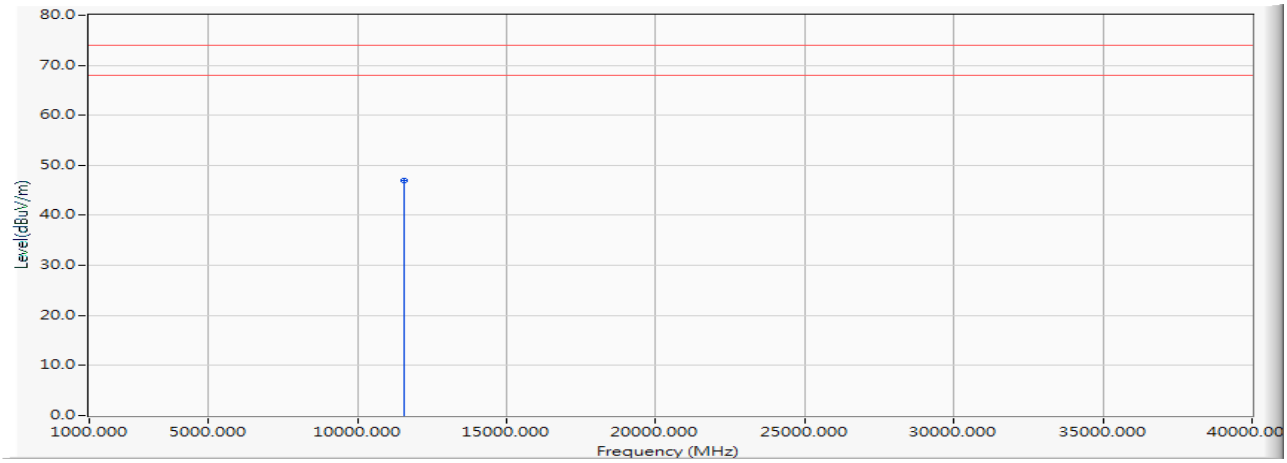

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11490.000 | 16.670 | 28.550 | 45.221 | -28.779 | 74.000 | PEAK |

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**



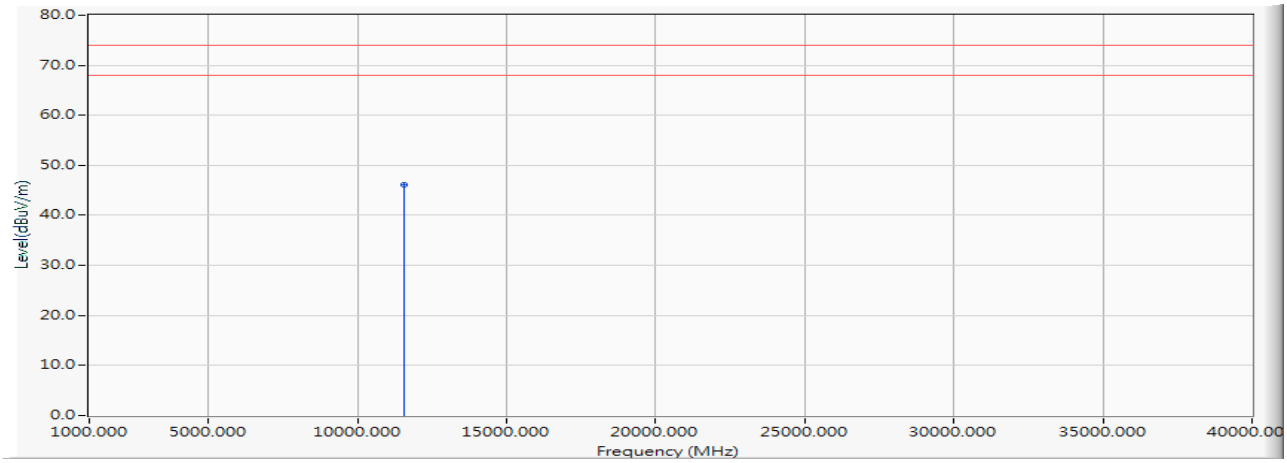

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11570.000 | 16.618 | 30.420 | 47.038 | -26.962 | 74.000 | PEAK |

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**



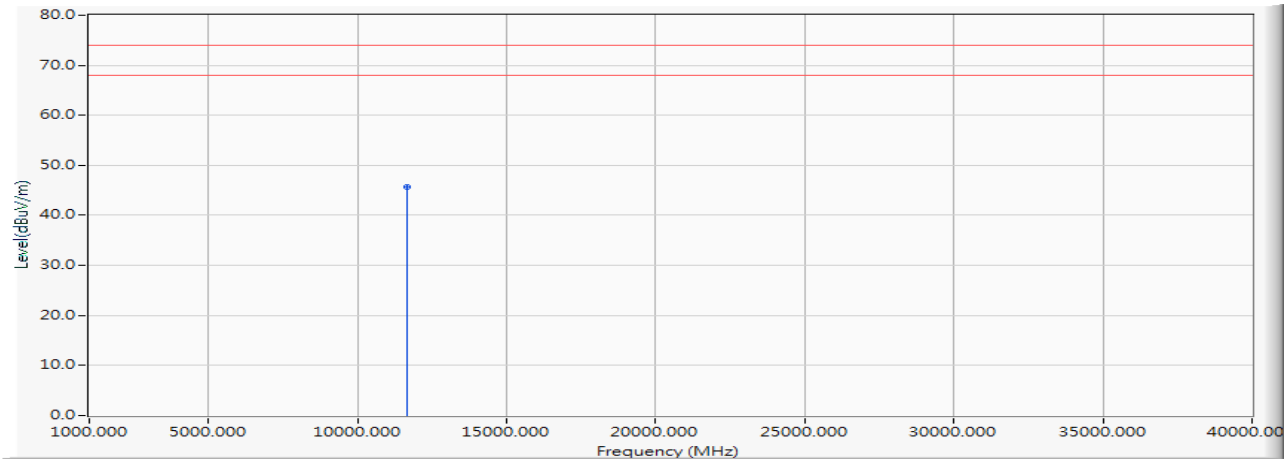

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11570.000 | 16.618 | 29.548 | 46.166 | -27.834 | 74.000 | PEAK |

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**



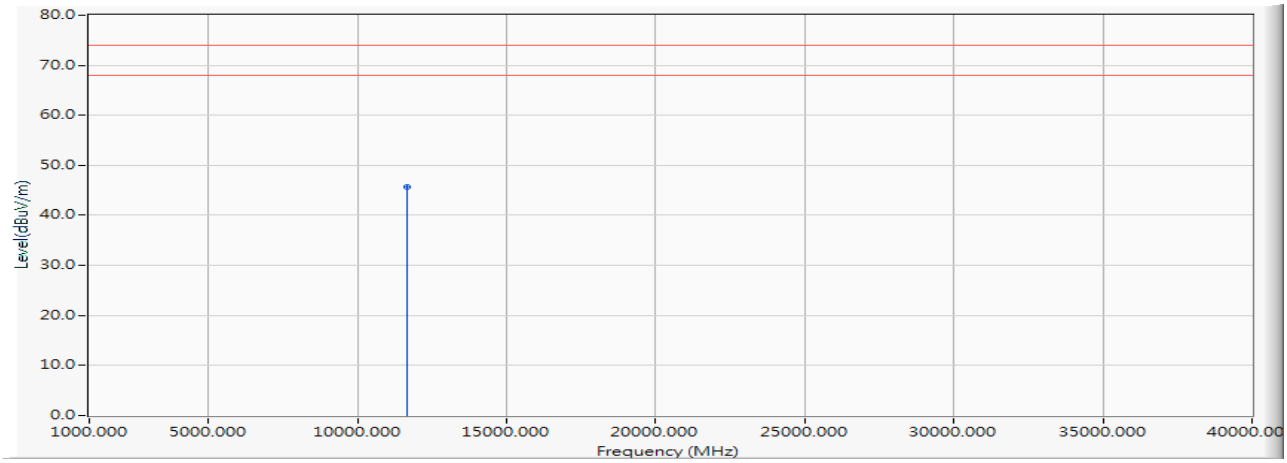

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11650.000 | 16.763 | 28.964 | 45.728 | -28.272 | 74.000 | PEAK |

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**



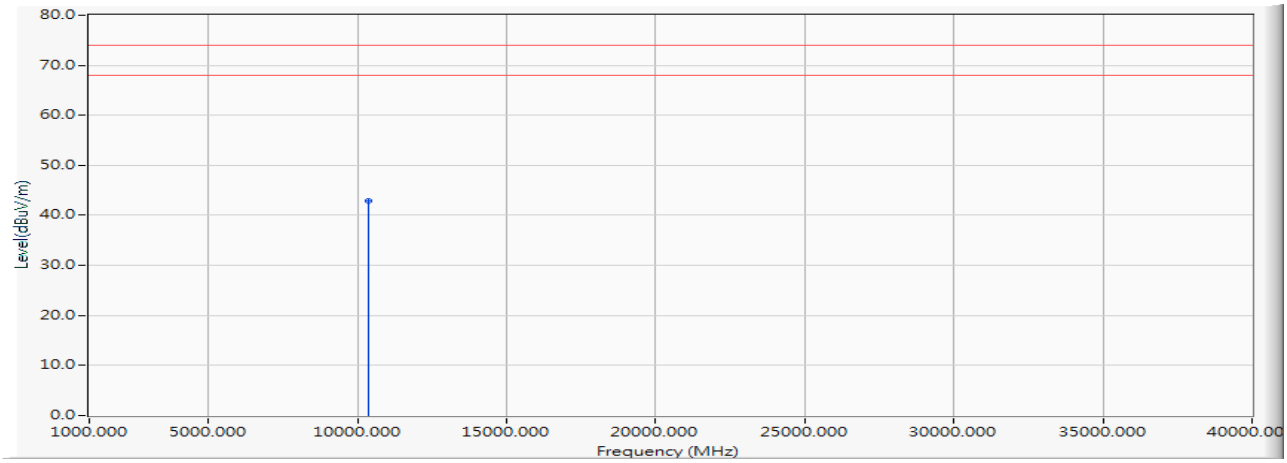

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11650.000 | 16.763 | 28.951 | 45.715 | -28.285 | 74.000 | PEAK |

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**



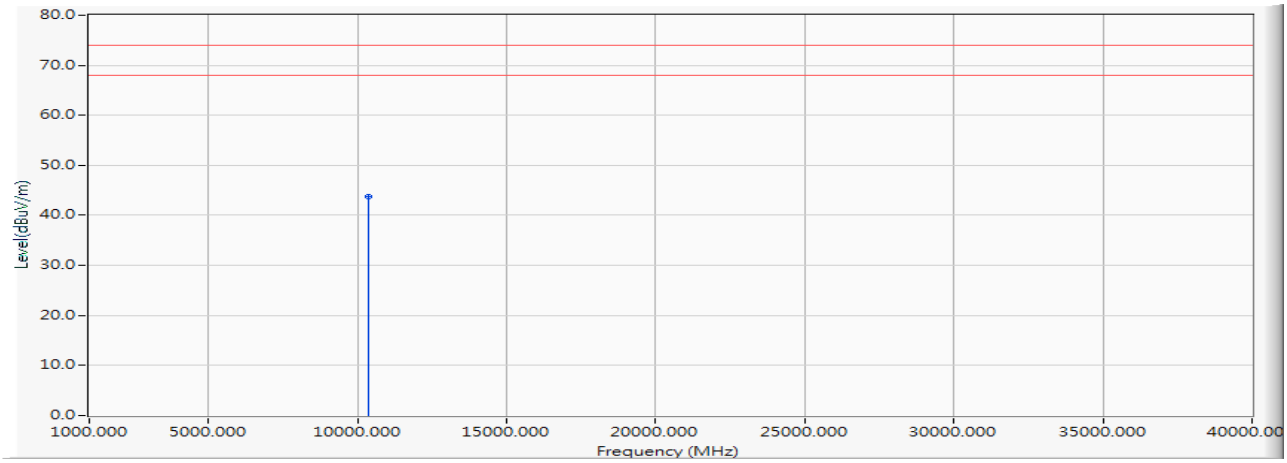

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10360.000 | 15.135 | 27.811 | 42.946 | -31.054 | 74.000 | PEAK |

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**



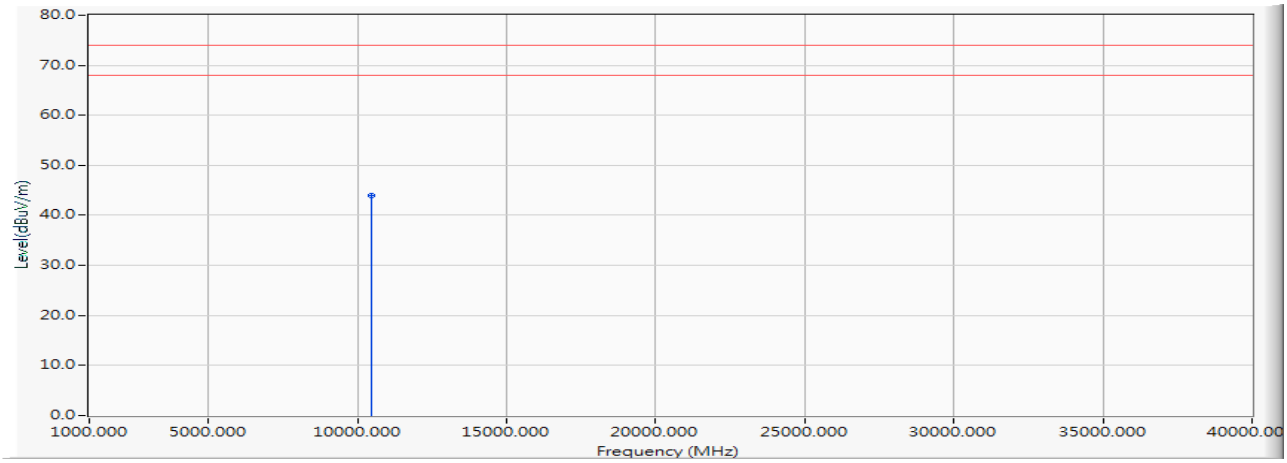

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10360.000 | 15.135 | 28.705 | 43.840 | -30.160 | 74.000 | PEAK |

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**



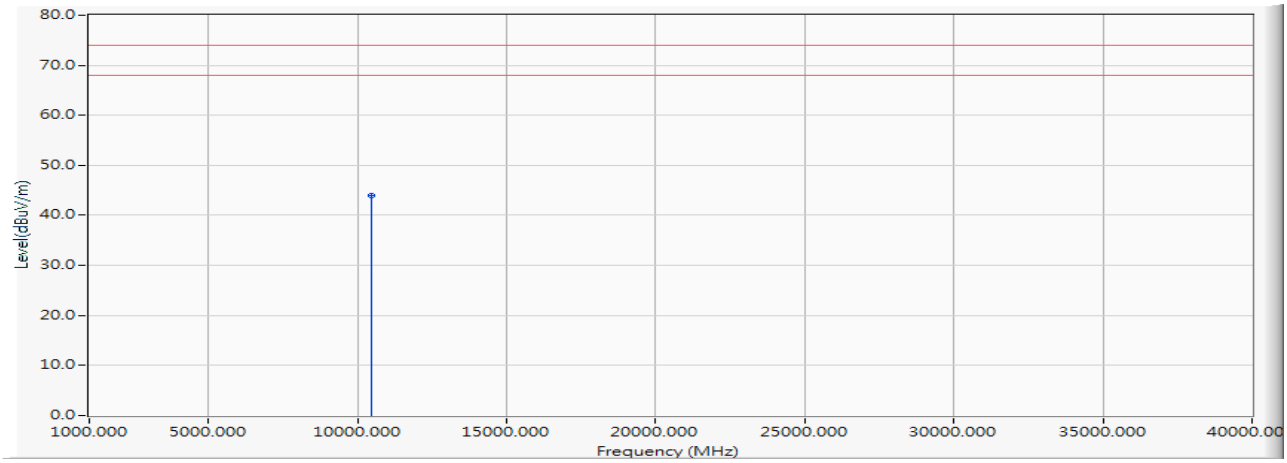

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10440.000 | 15.197 | 28.845 | 44.042 | -29.958 | 74.000 | PEAK |

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**



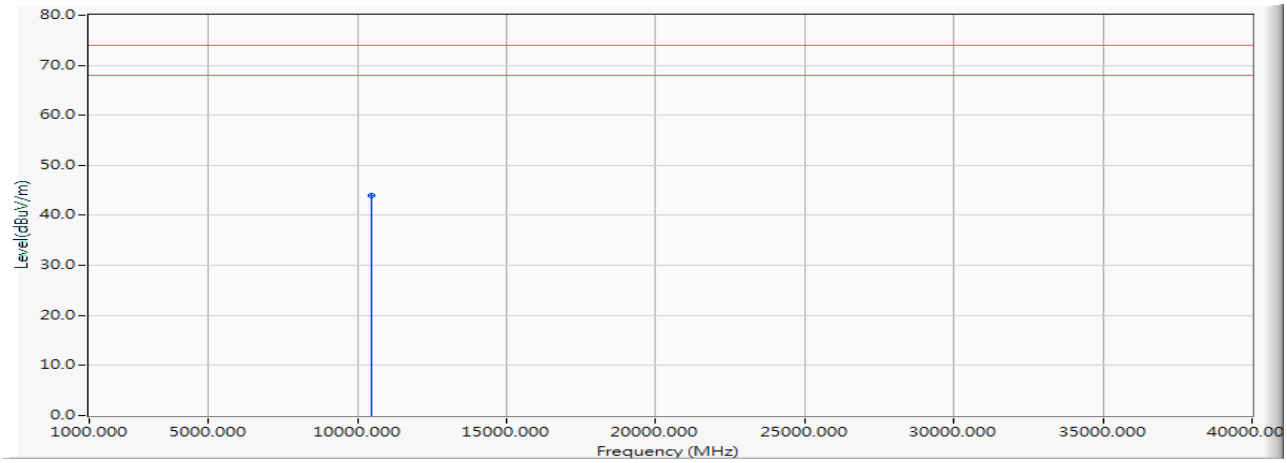

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10440.000 | 15.197 | 28.688 | 43.885 | -30.115 | 74.000 | PEAK |

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**



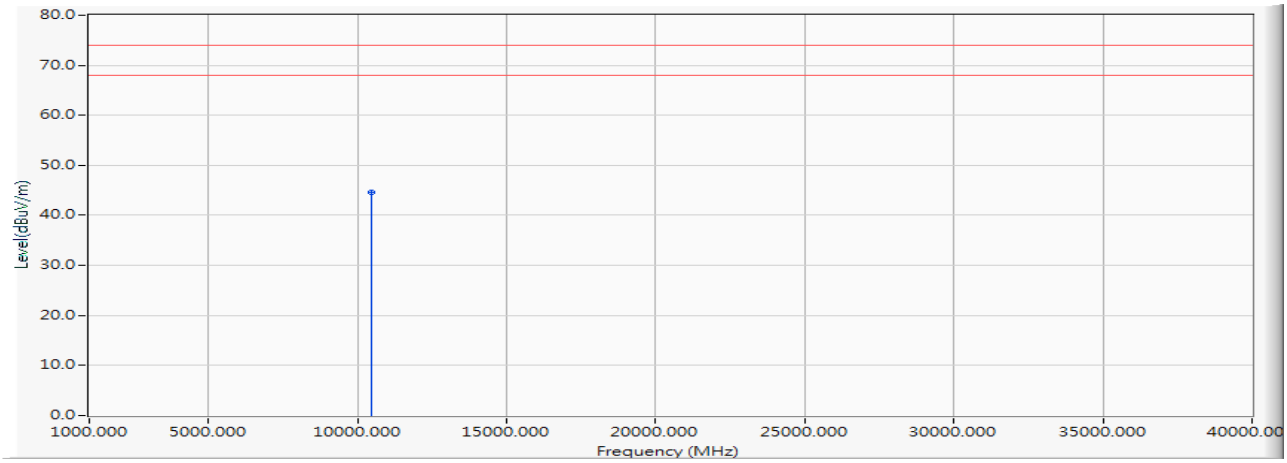

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10480.000 | 15.173 | 28.901 | 44.074 | -29.926 | 74.000 | PEAK |

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**



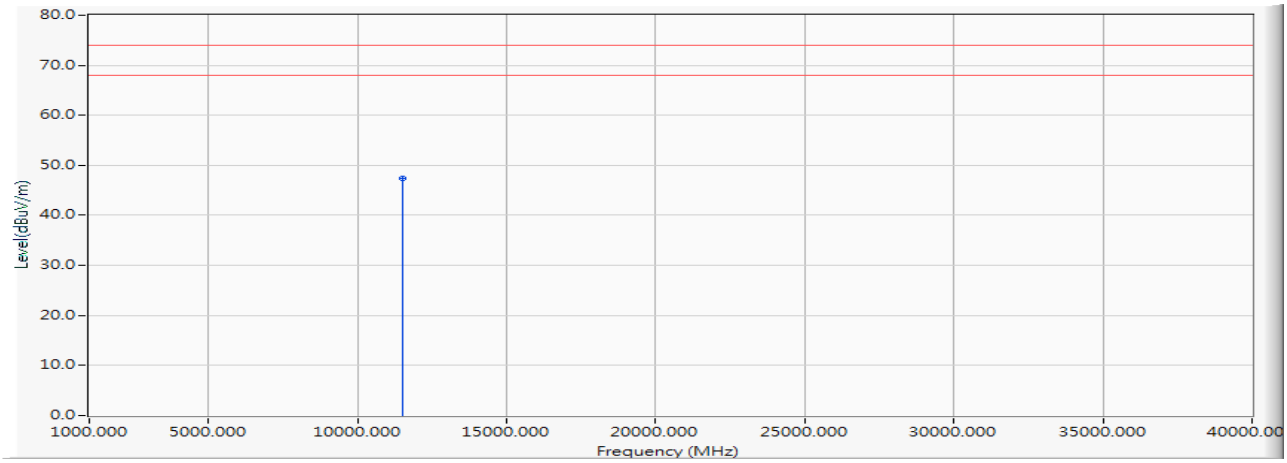

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10480.000 | 15.173 | 29.347 | 44.520 | -29.480 | 74.000 | PEAK |

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**



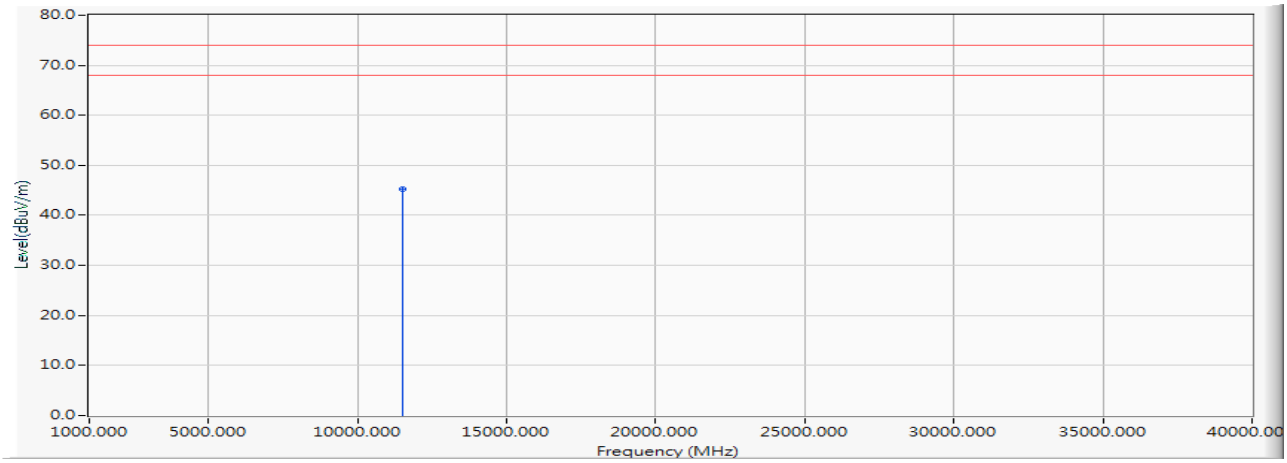

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11490.000 | 16.670 | 30.792 | 47.463 | -26.537 | 74.000 | PEAK |

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**



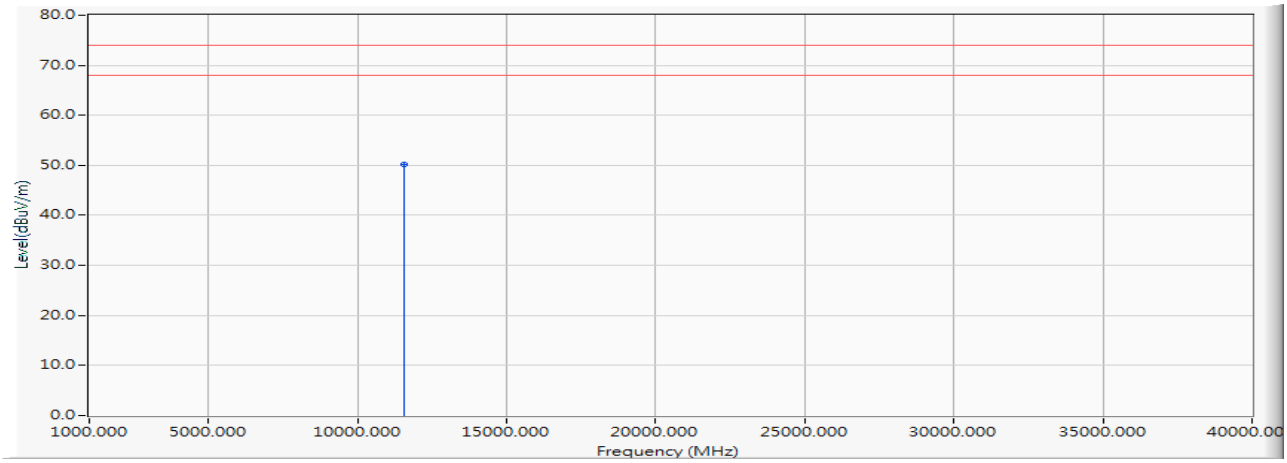

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11490.000 | 16.670 | 28.540 | 45.211 | -28.789 | 74.000 | PEAK |

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**



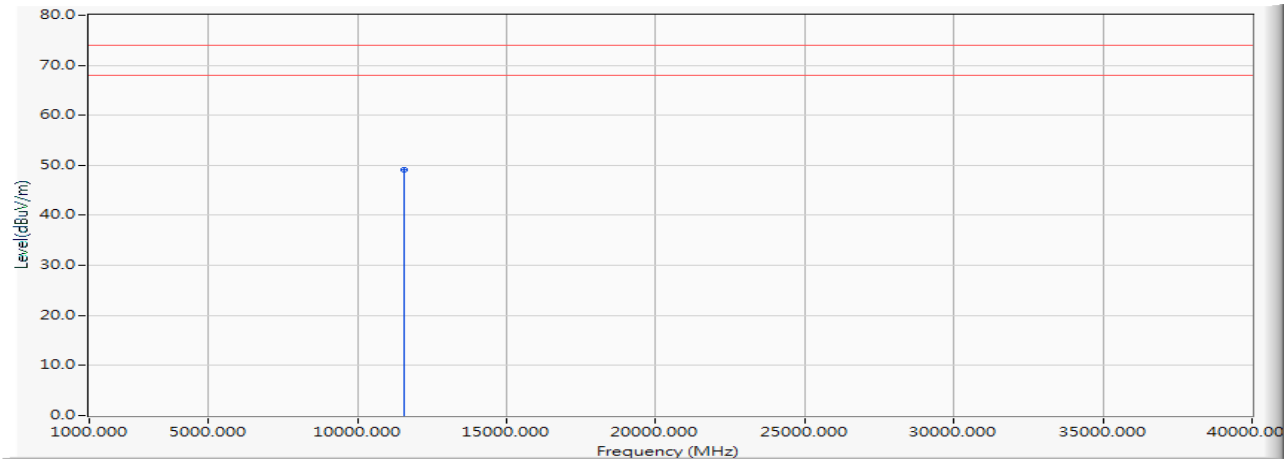

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11570.000 | 16.618 | 33.670 | 50.288 | -23.712 | 74.000 | PEAK |

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**



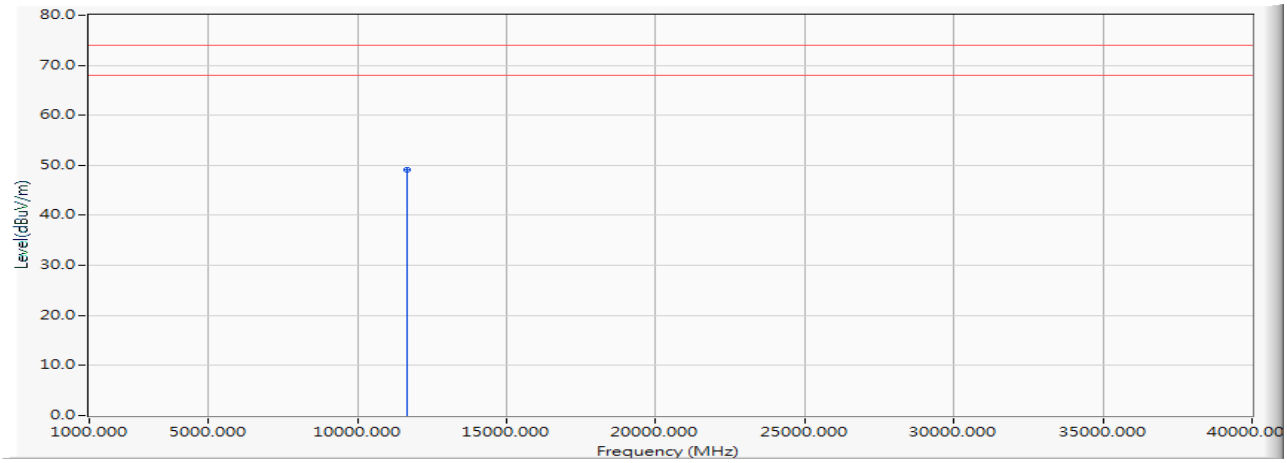

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11570.000 | 16.618 | 32.418 | 49.036 | -24.964 | 74.000 | PEAK |

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**



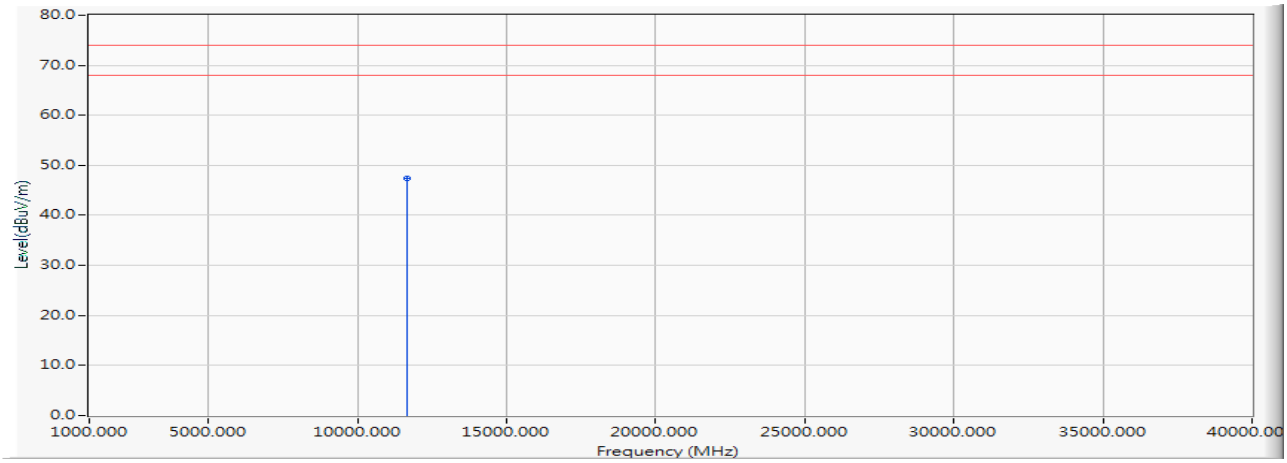

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11650.000 | 16.763 | 32.344 | 49.108 | -24.892 | 74.000 | PEAK |

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**



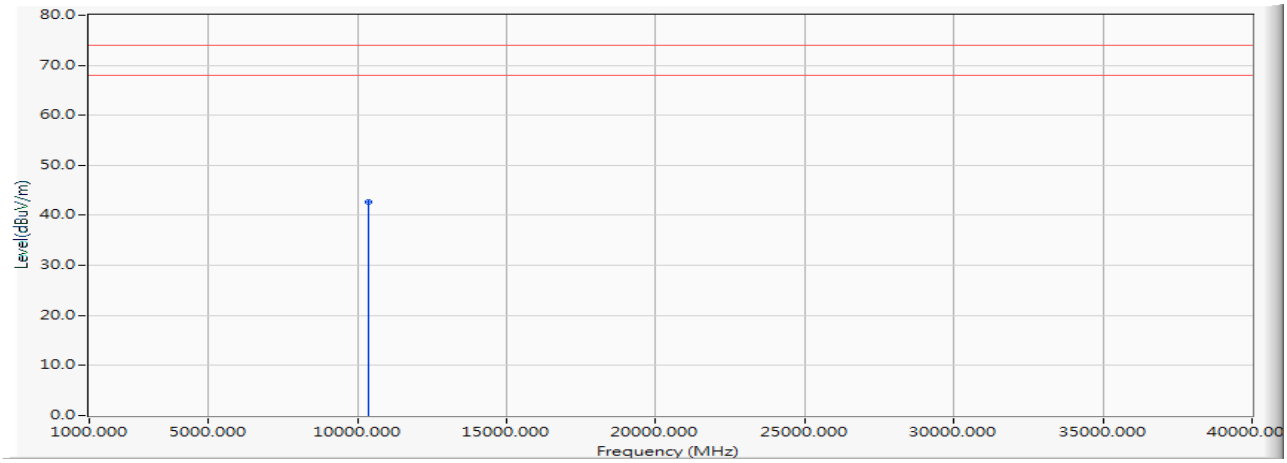

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11650.000 | 16.763 | 30.661 | 47.425 | -26.575 | 74.000 | PEAK |

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**



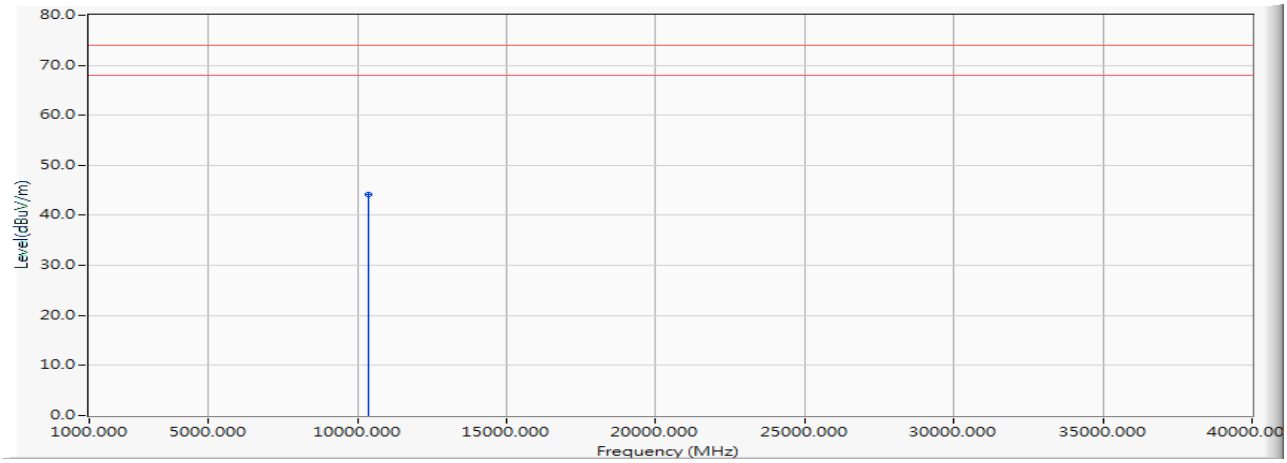

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10380.000 | 15.325 | 27.322 | 42.647 | -31.353 | 74.000 | PEAK |

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**



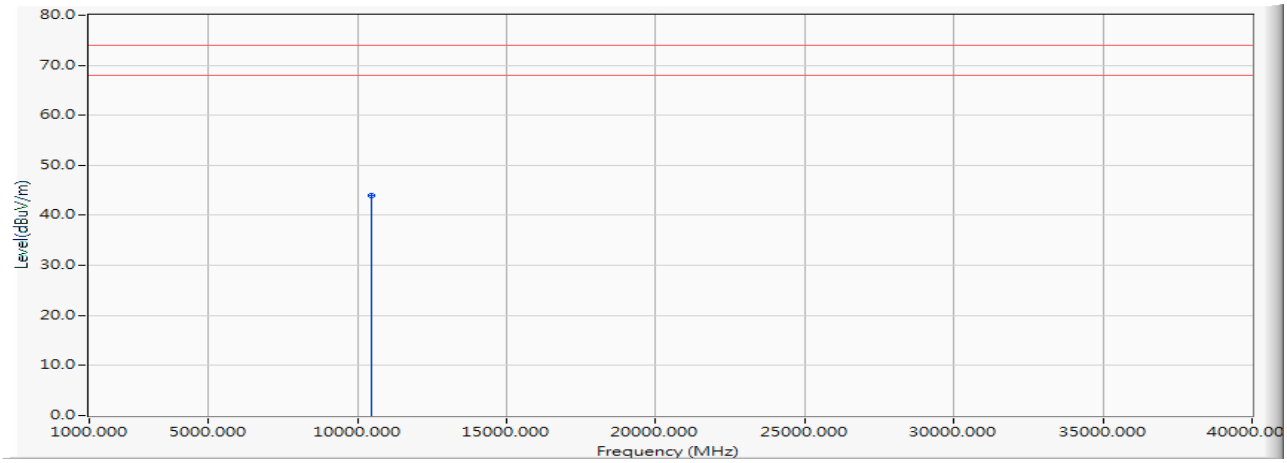

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10380.000 | 15.325 | 28.840 | 44.165 | -29.835 | 74.000 | PEAK |

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**



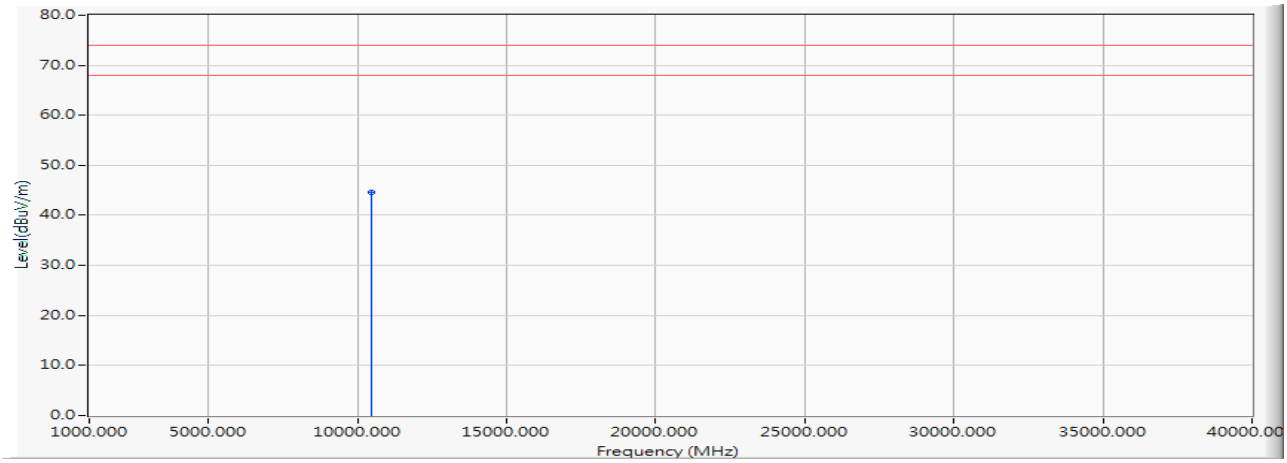

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10460.000 | 15.253 | 28.720 | 43.973 | -30.027 | 74.000 | PEAK |

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**



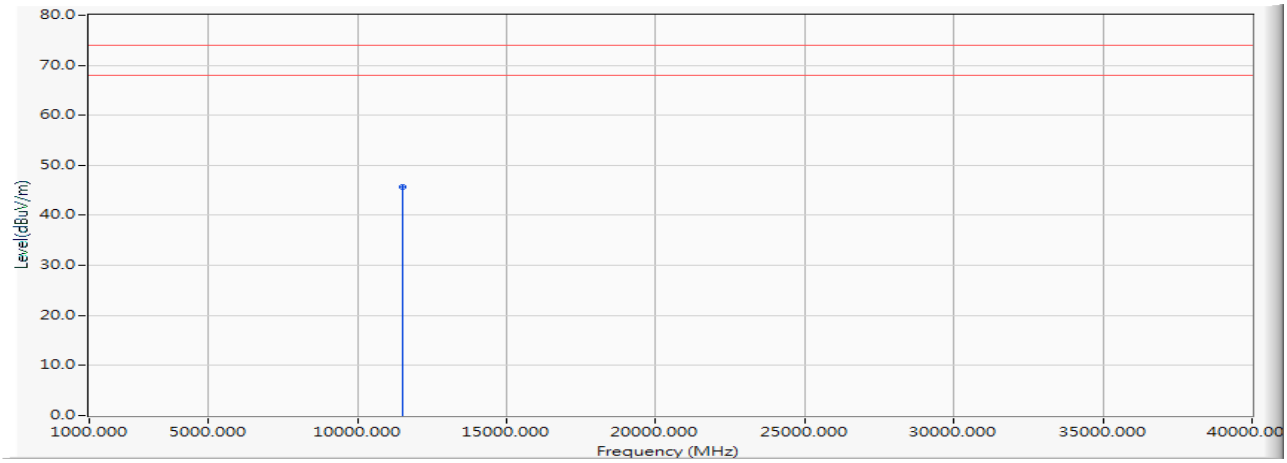

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 10460.000 | 15.253 | 29.415 | 44.668 | -29.332 | 74.000 | PEAK |

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**



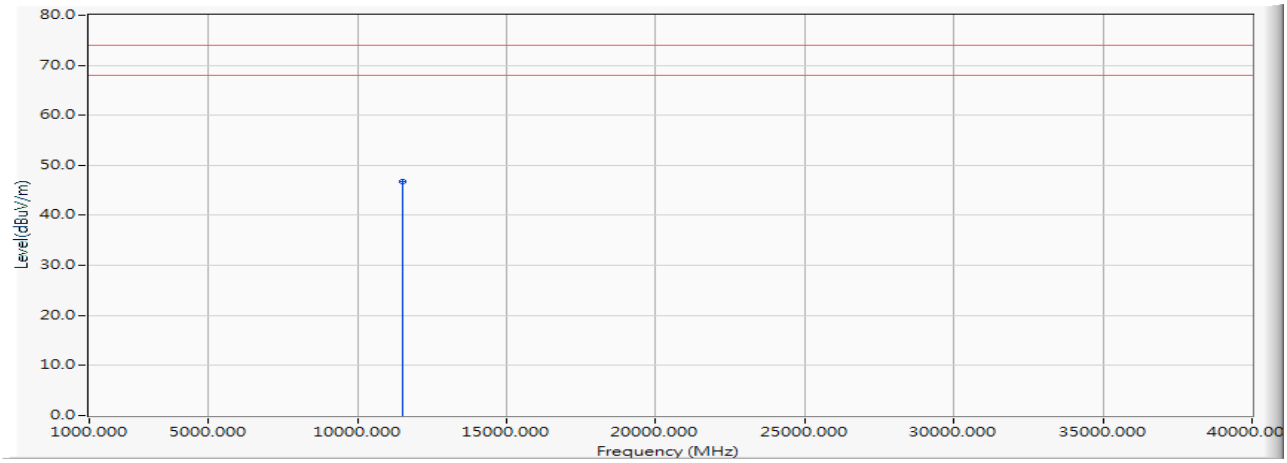

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11510.000 | 16.649 | 29.051 | 45.699 | -28.301 | 74.000 | PEAK |

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**



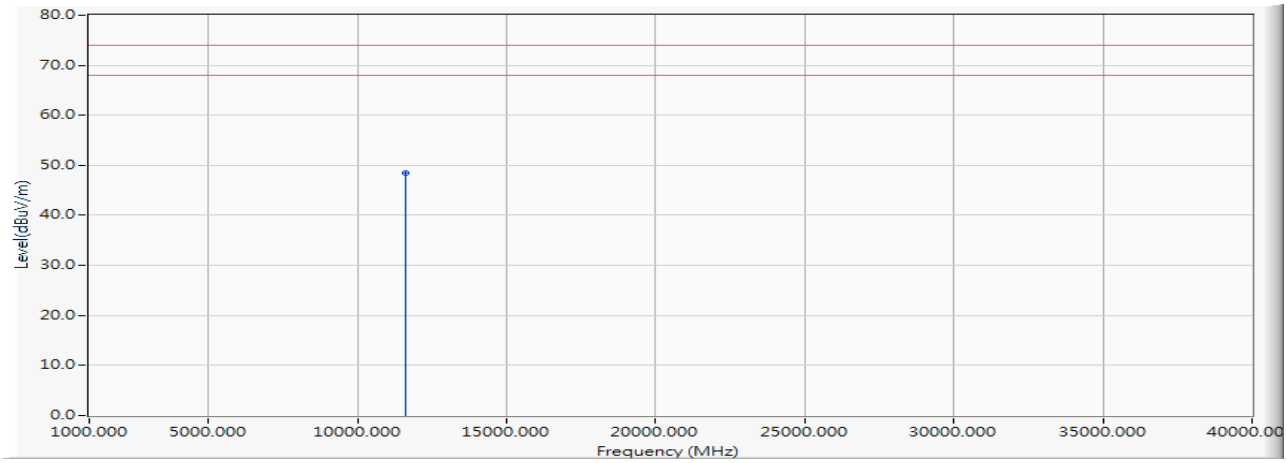

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11510.000 | 16.649 | 30.148 | 46.796 | -27.204 | 74.000 | PEAK |

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**



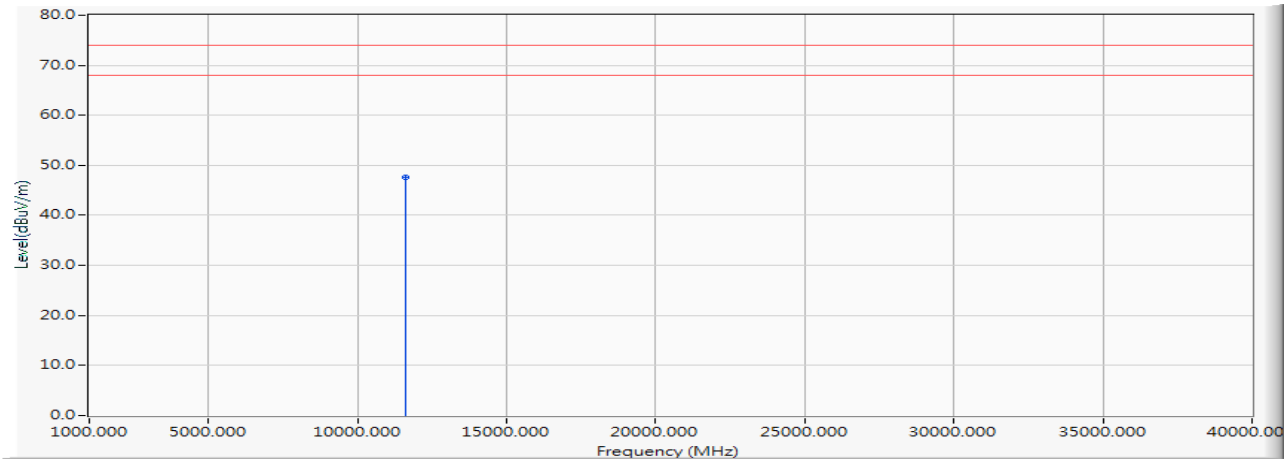

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11590.000 | 16.702 | 31.847 | 48.549 | -25.451 | 74.000 | PEAK |

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**



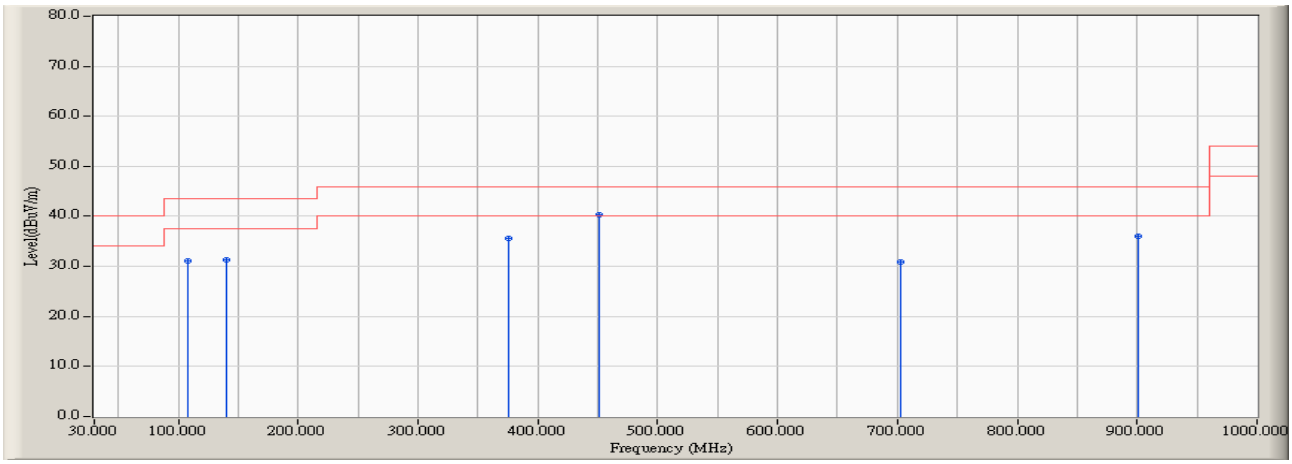

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 11590.000 | 16.702 | 30.863 | 47.565 | -26.435 | 74.000 | PEAK |

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**



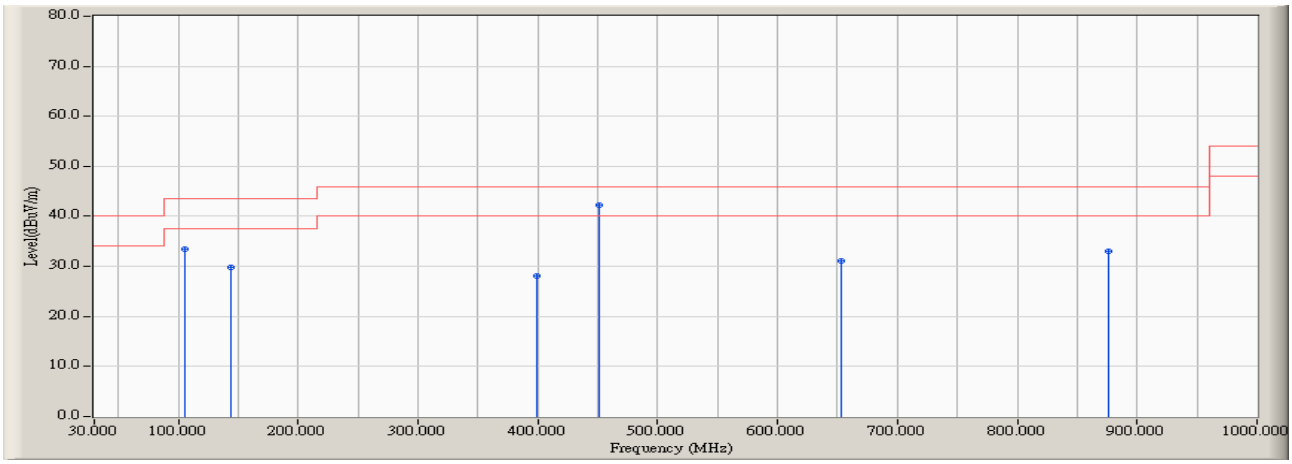

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 107.600 | 19.035 | 12.015 | 31.050 | -12.450 | 43.500 | QUASIPEAK |
| 2 | | 140.580 | 19.151 | 12.179 | 31.330 | -12.170 | 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**



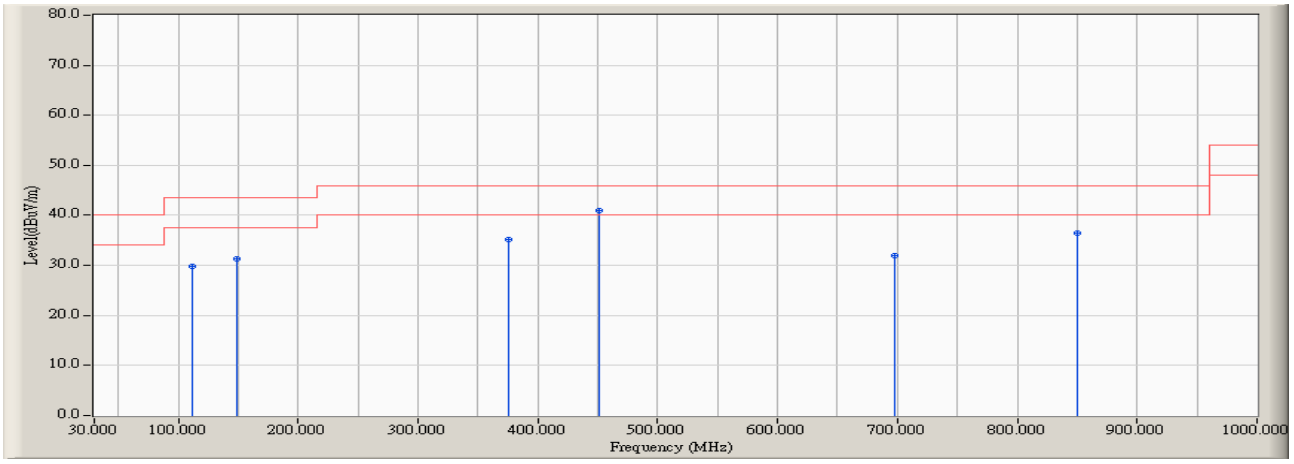

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 105.660 | 18.773 | 14.584 | 33.357 | -10.143 | 43.500 | QUASIPEAK |
| 2 | | 144.460 | 18.856 | 10.895 | 29.751 | -13.749 | 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**



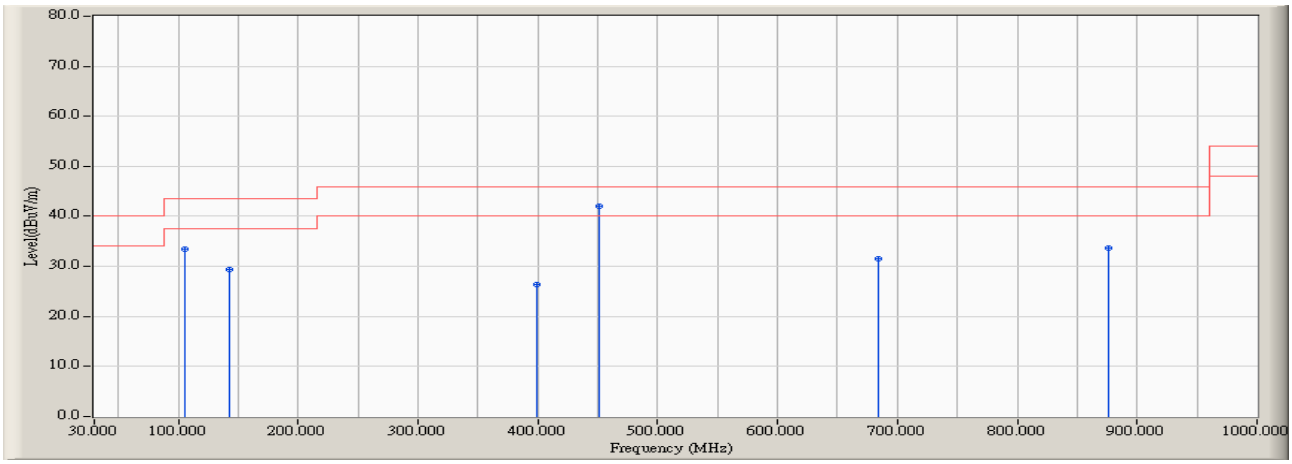

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 111.480 | 19.429 | 10.462 | 29.891 | -13.609 | 43.500 | QUASIPEAK |
| 2 | | 148.340 | 18.561 | 12.815 | 31.376 | -12.124 | 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**



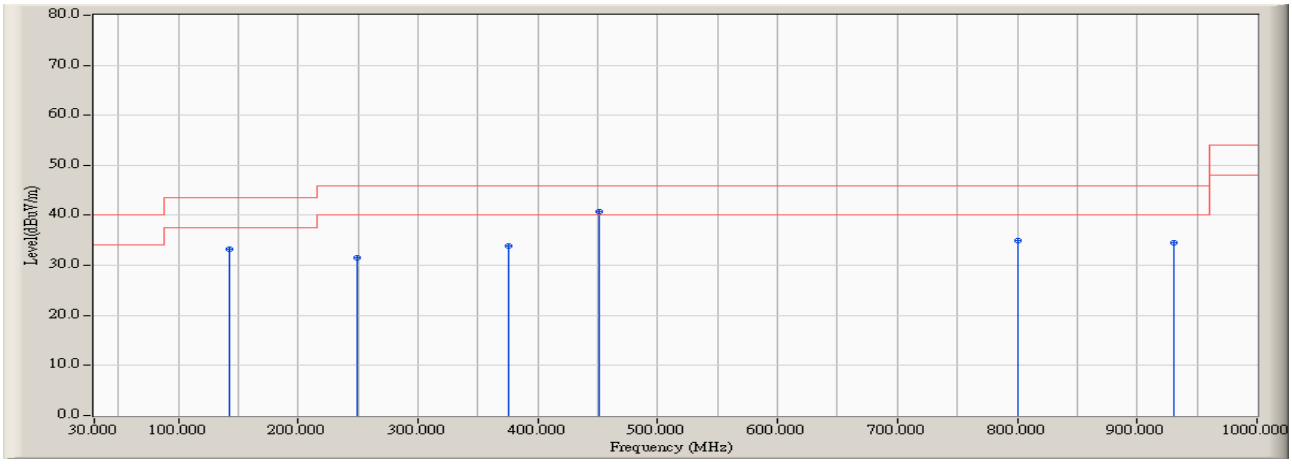

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 105.660 | 18.773 | 14.593 | 33.366 | -10.134 | 43.500 | QUASIPEAK |
| 2 | | 142.520 | 19.008 | 10.318 | 29.326 | -14.174 | 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**



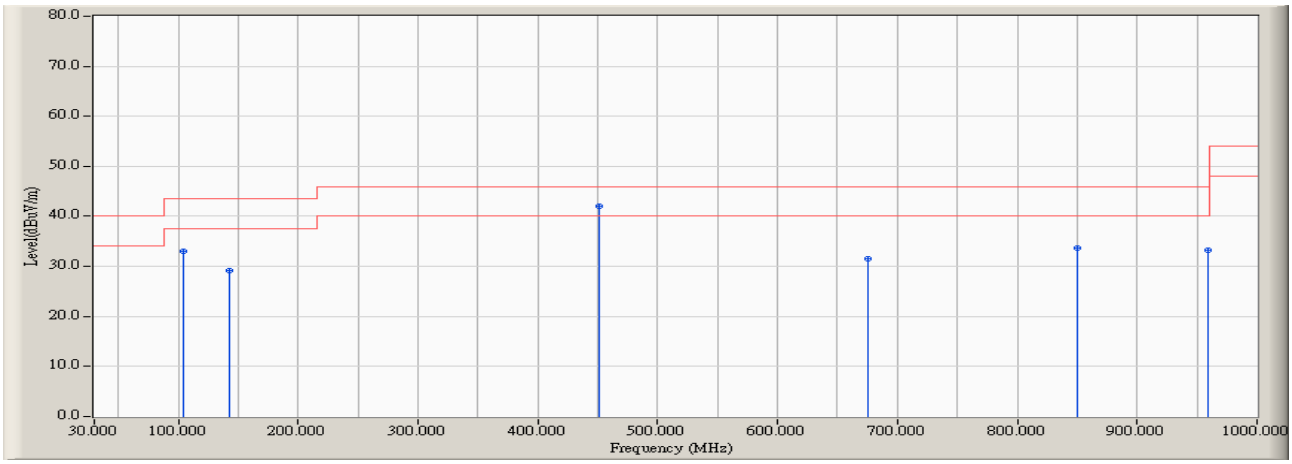

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 142.520 | 19.008 | 14.177 | 33.185 | -10.315 | 43.500 | QUASIPEAK |
| 2 | | 249.220 | 20.618 | 10.903 | 31.521 | -14.479 | 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**



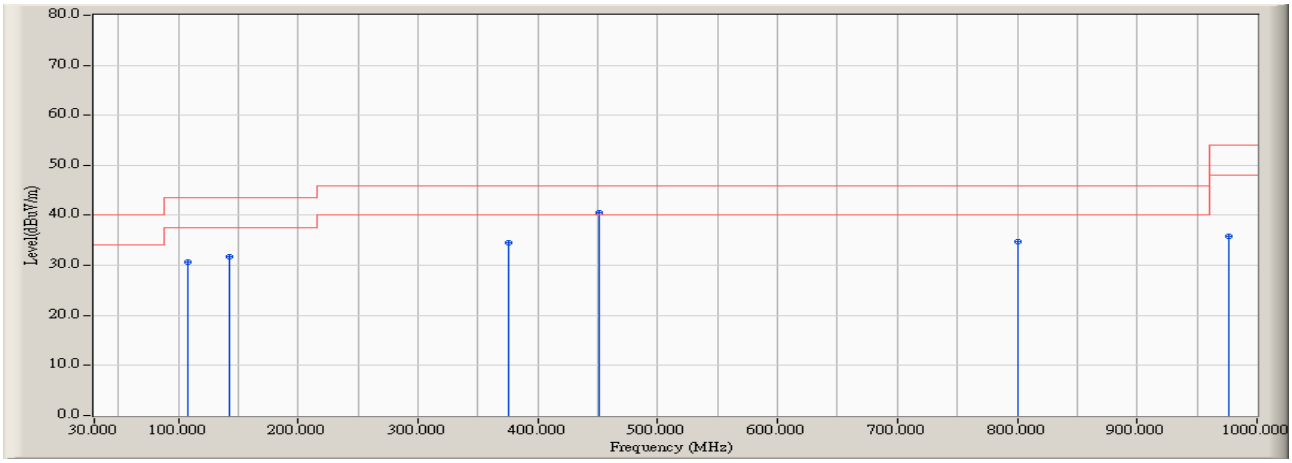

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 103.720 | 18.501 | 14.584 | 33.085 | -10.415 | 43.500 | QUASIPEAK |
| 2 | | 142.520 | 19.008 | 10.099 | 29.107 | -14.393 | 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**



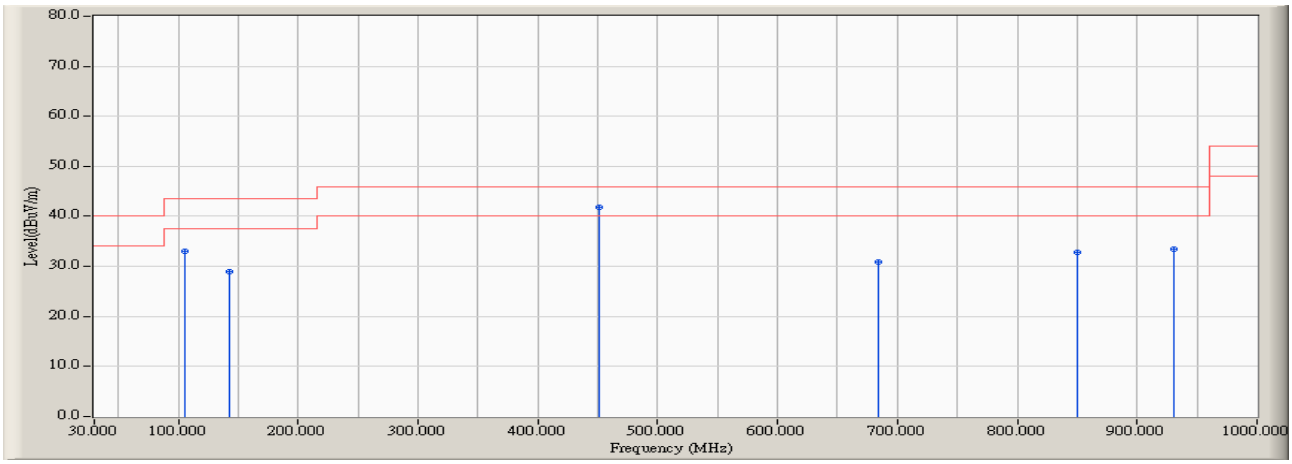

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 107.600 | 19.035 | 11.627 | 30.662 | -12.838 | 43.500 | QUASIPEAK |
| 2 | | 142.520 | 19.008 | 12.650 | 31.658 | -11.842 | 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**



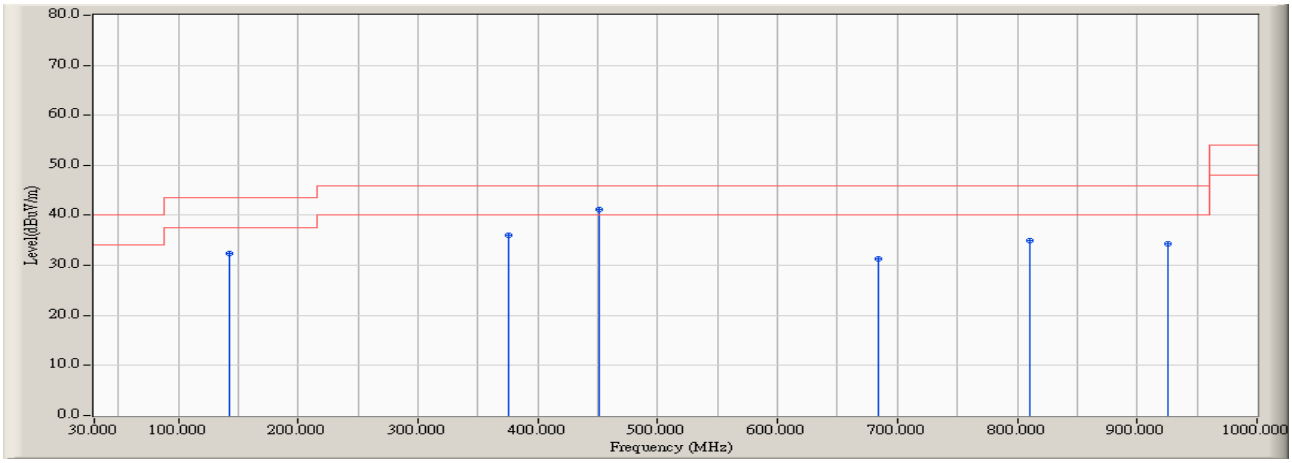

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 105.660 | 18.773 | 14.320 | 33.093 | -10.407 | 43.500 | QUASIPEAK |
| 2 | | 142.520 | 19.008 | 9.903 | 28.911 | -14.589 | 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**



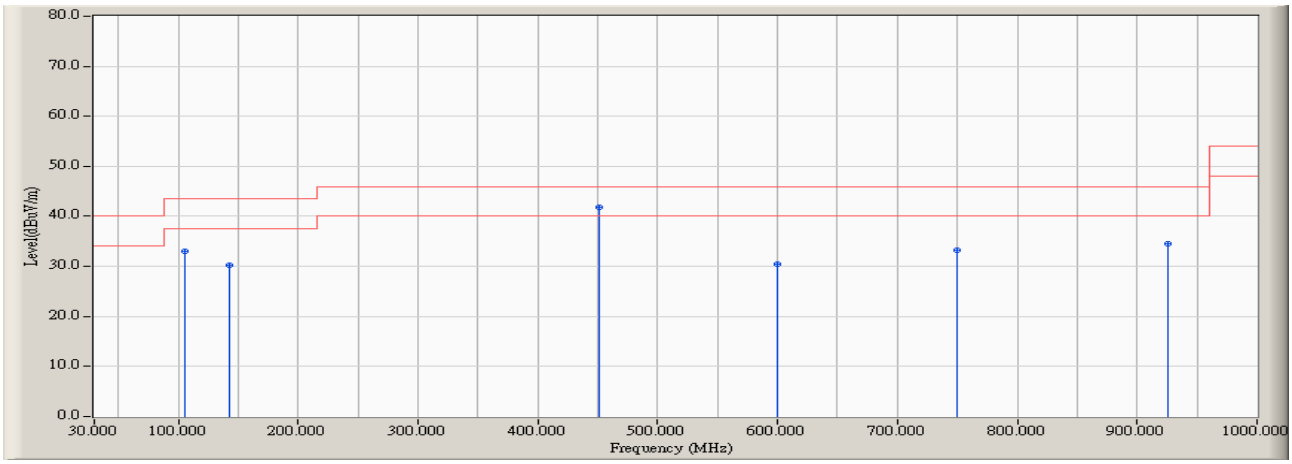

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 142.520 | 19.008 | 13.274 | 32.282 | -11.218 | 43.500 | QUASIPEAK |
| 2 | | 375.320 | 24.046 | 11.979 | 36.025 | -9.975 | 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**



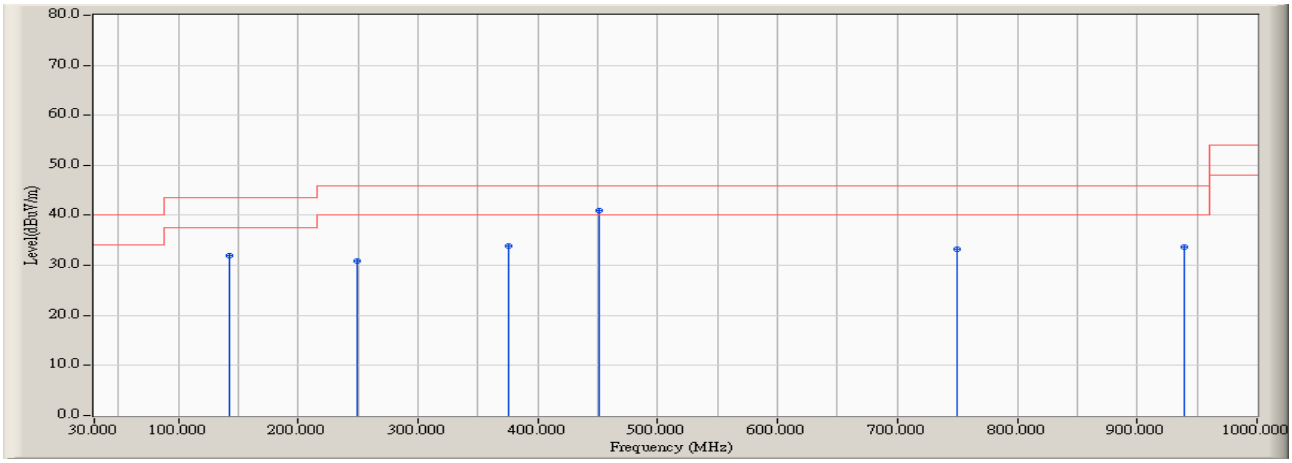

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 105.660 | 18.773 | 14.202 | 32.975 | -10.525 | 43.500 | QUASIPEAK |
| 2 | | 142.520 | 19.008 | 11.136 | 30.144 | -13.356 | 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**



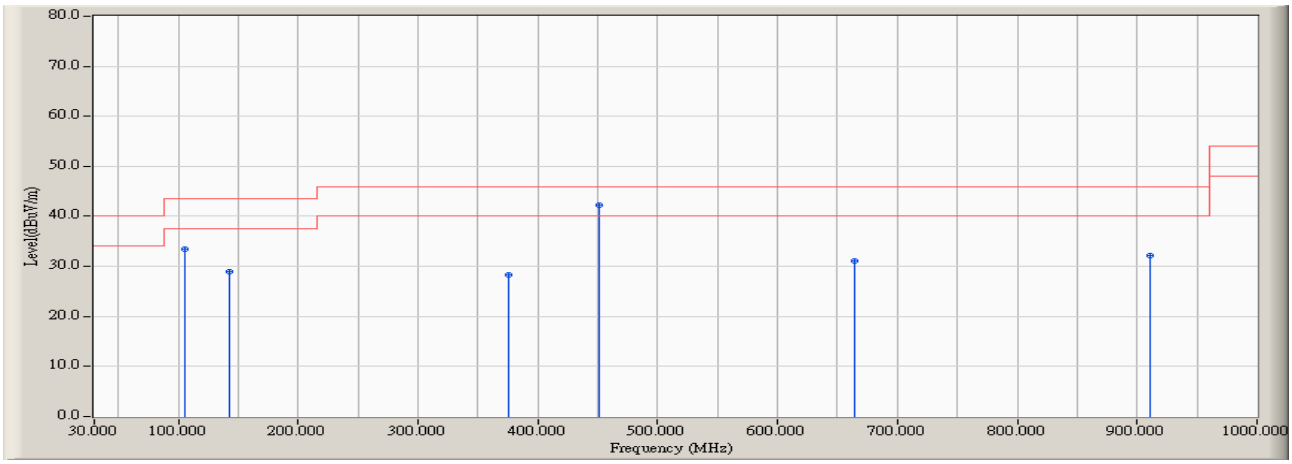

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 142.520 | 19.008 | 12.846 | 31.854 | -11.646 | 43.500 | QUASIPEAK |
| 2 | | 249.220 | 20.618 | 10.346 | 30.964 | -15.036 | 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 |

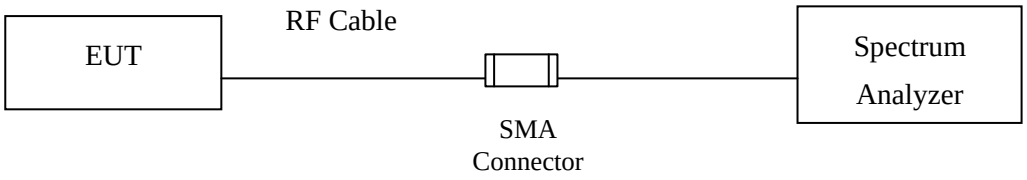
Note:

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.

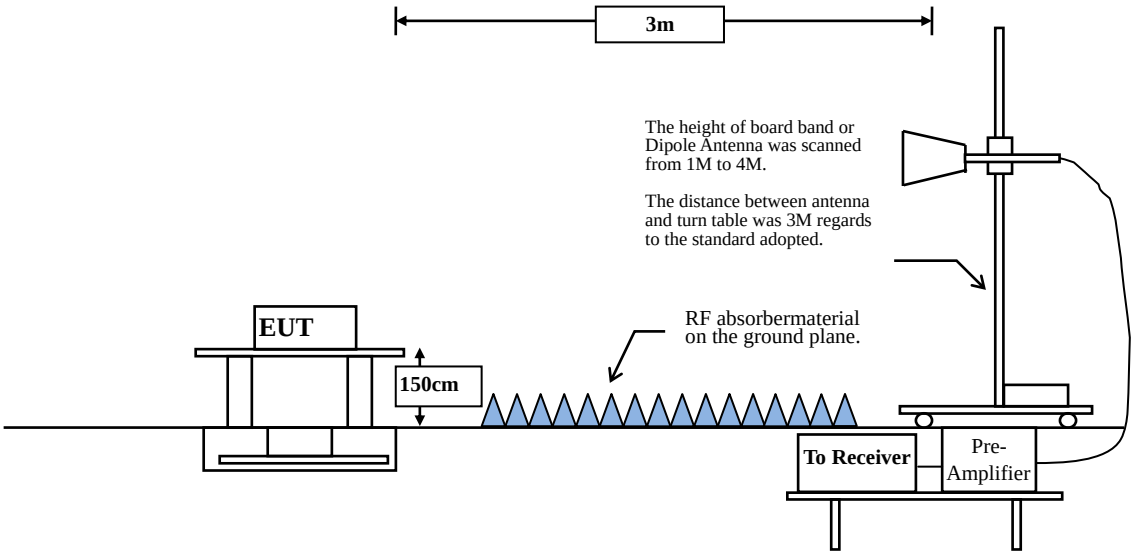
# 4. Band Edge

## 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

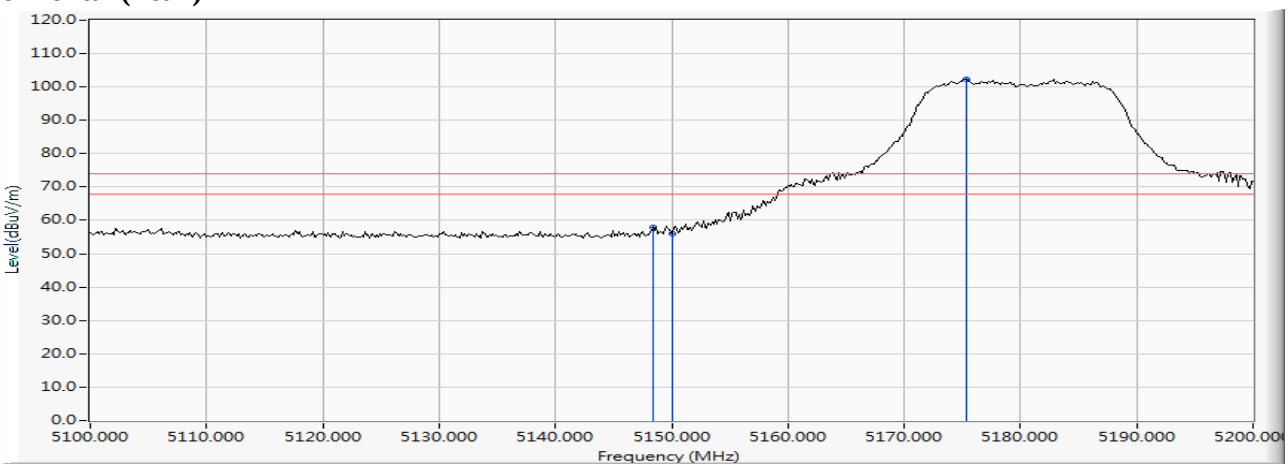
±4.08 dB below 1GHz

±4.22 dB above 1GHz

## 4.5. Test Result of Band Edge

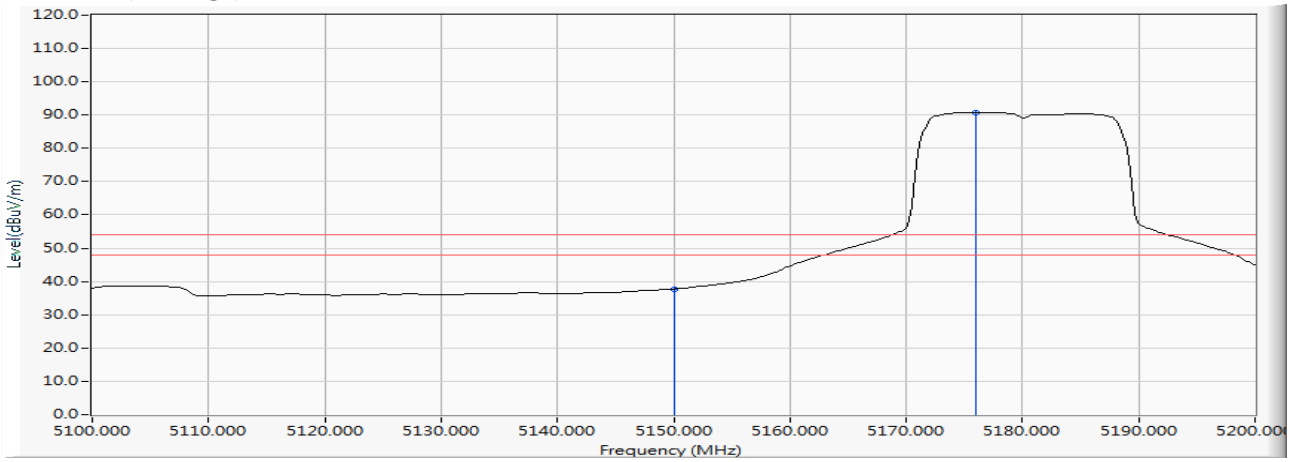
| | | |
|---|---|---|
| Product | : | MOXA IEEE 802.11 a/b/g/n |
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Date | : | 2019/04/24 |
| Test Mode | : | Mode 1: Transmit (802.11a-6Mbps)-Channel 36 (5180MHz) |

**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)**

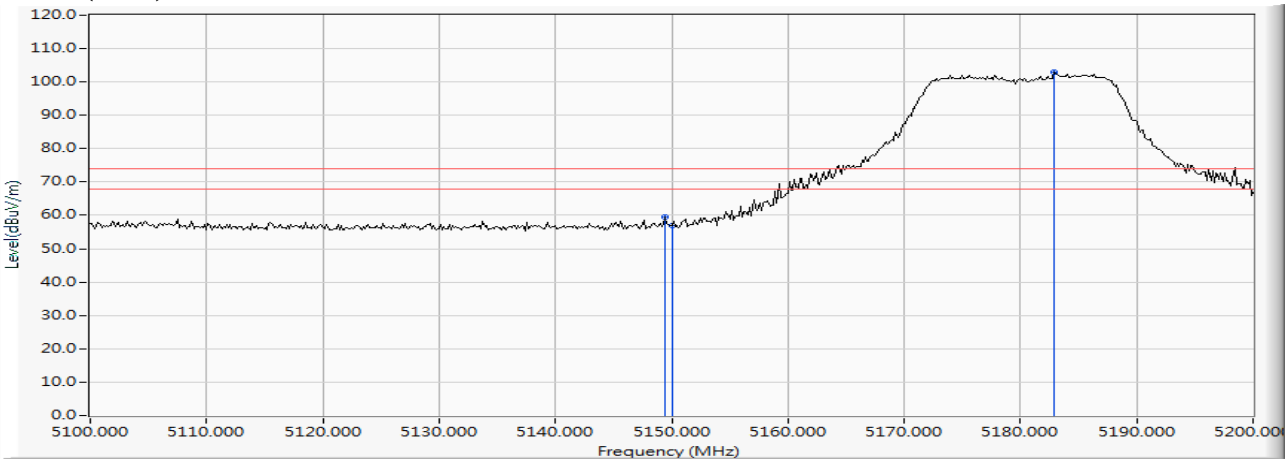



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 5150.000 | 10.470 | 27.289 | 37.760 | -16.240 | 54.000 | AVERAGE |
| 2 | * | 5175.942 | 10.404 | 80.383 | 90.787 |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

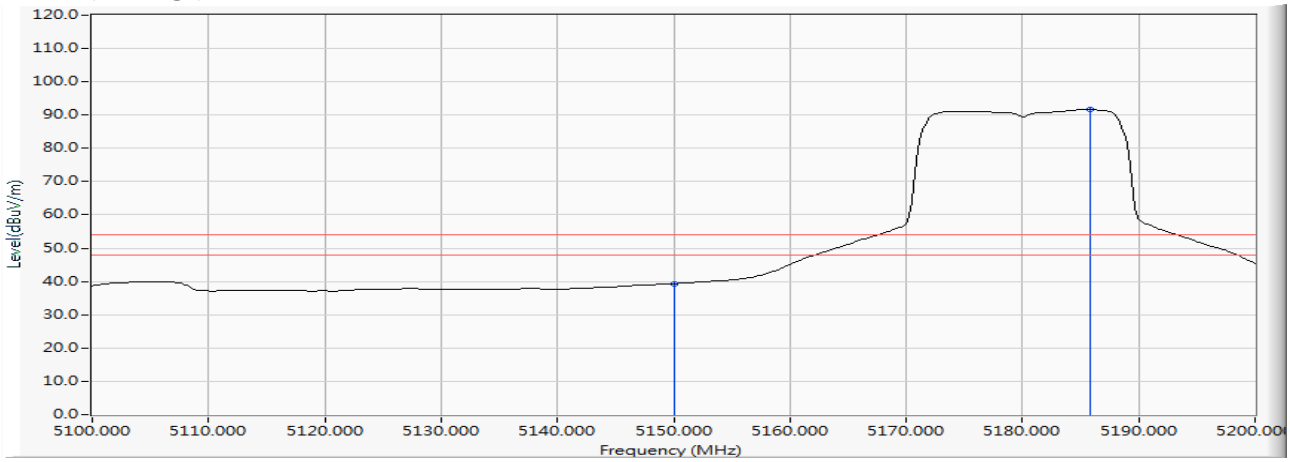
Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2019/04/24
Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 36 (5180MHz)

**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 |

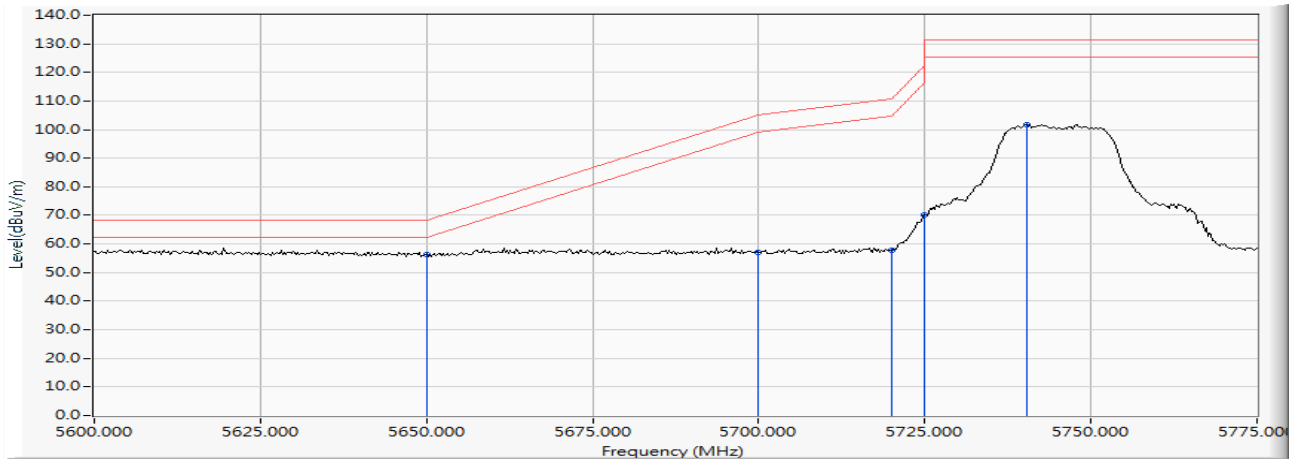
Note:

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:**

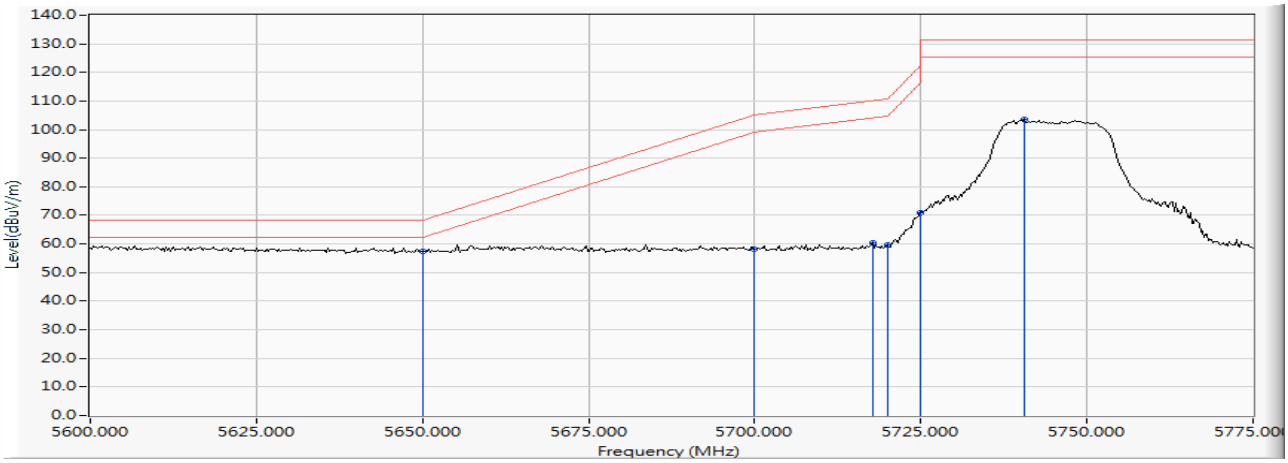



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 5650.000 | 11.554 | 44.894 | 56.449 | -11.771 | 68.220 | PEAK |
| 2 | | 5700.000 | 11.647 | 45.411 | 57.058 | -48.142 | 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:**

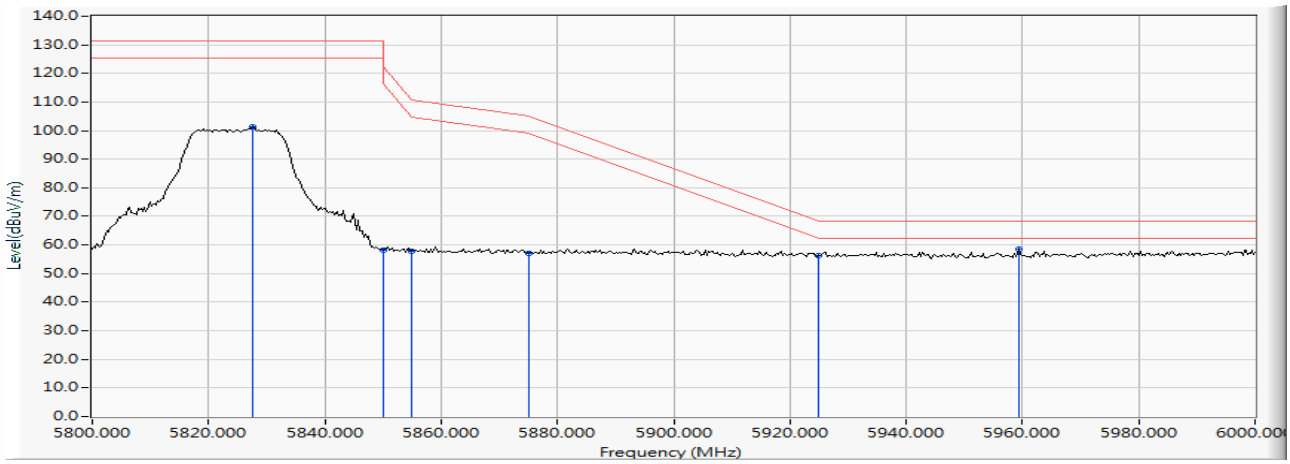



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 5650.000 | 13.029 | 44.515 | 57.544 | -10.676 | 68.220 | PEAK |
| 2 | | 5700.000 | 13.003 | 45.229 | 58.232 | -46.968 | 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)**

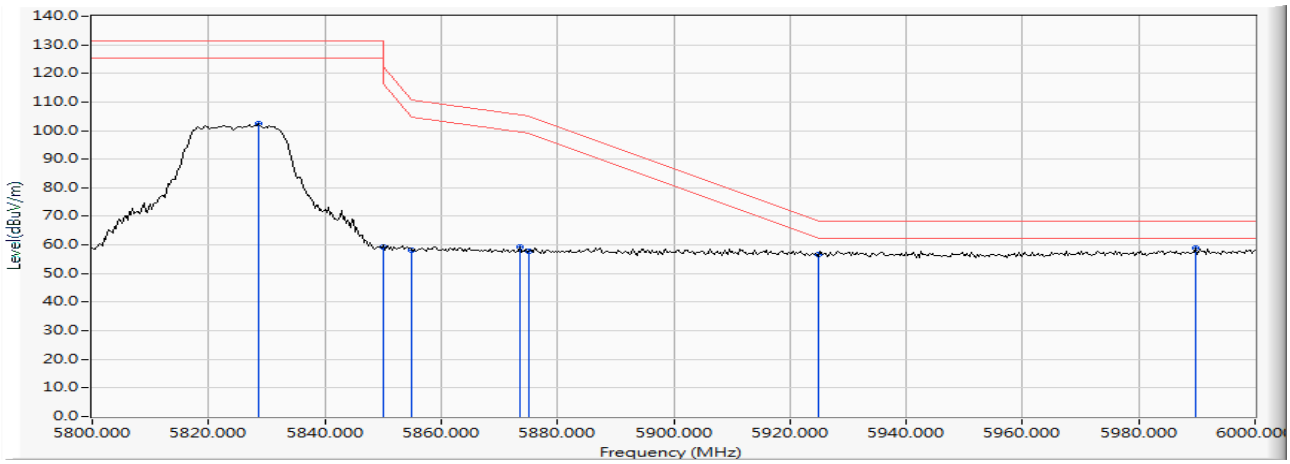
**RF Radiated Measurement:**




| | | 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) |

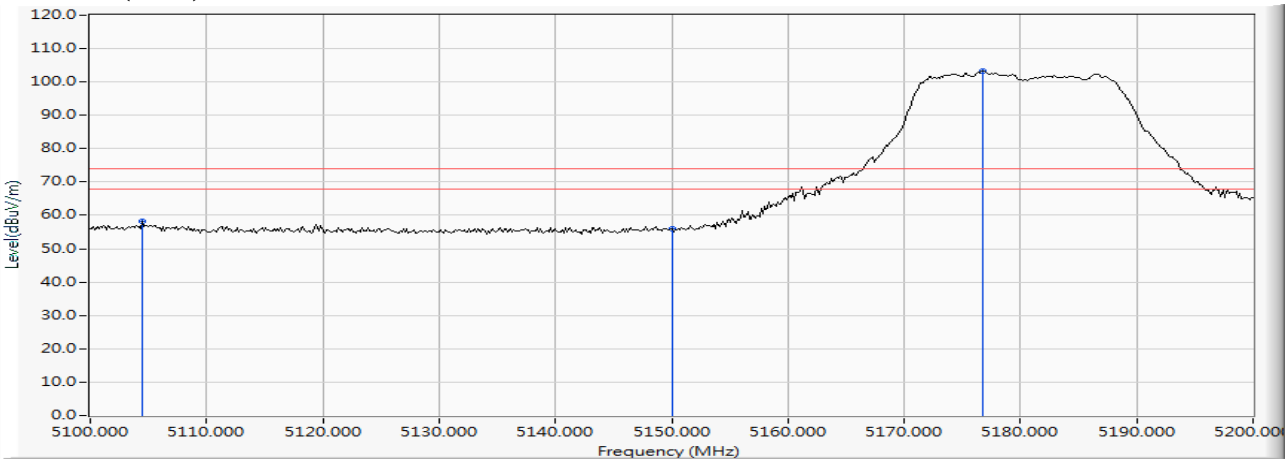
**Vertical (Peak)**
**RF Radiated Measurement:**




| | | 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 |

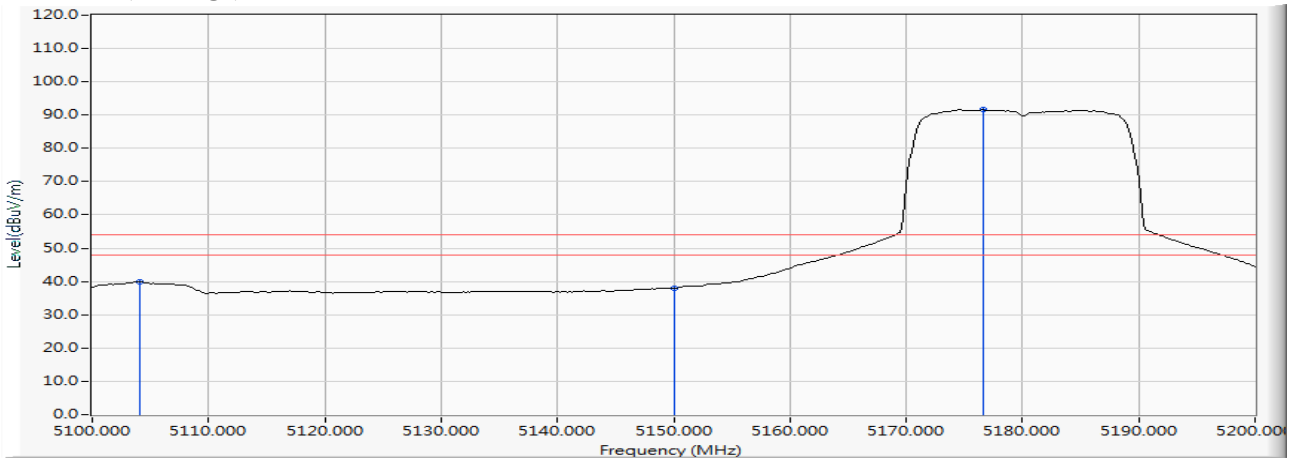
Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2019/04/24
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 36 (5180MHz)

**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)**



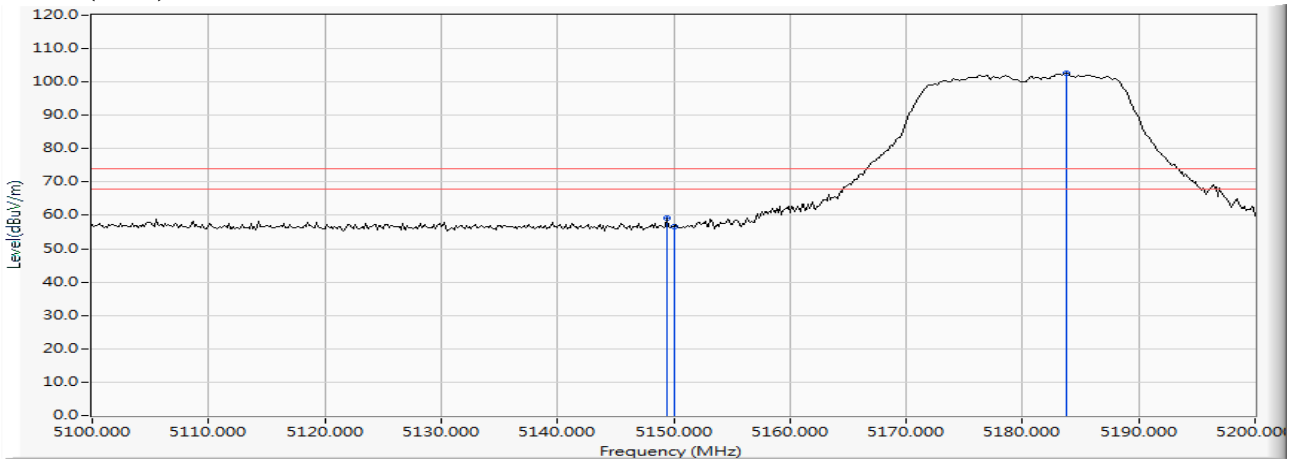

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 5104.058 | 10.564 | 29.414 | 39.978 | -14.022 | 54.000 | AVERAGE |
| 2 | | 5150.000 | 10.470 | 27.431 | 37.902 | -16.098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

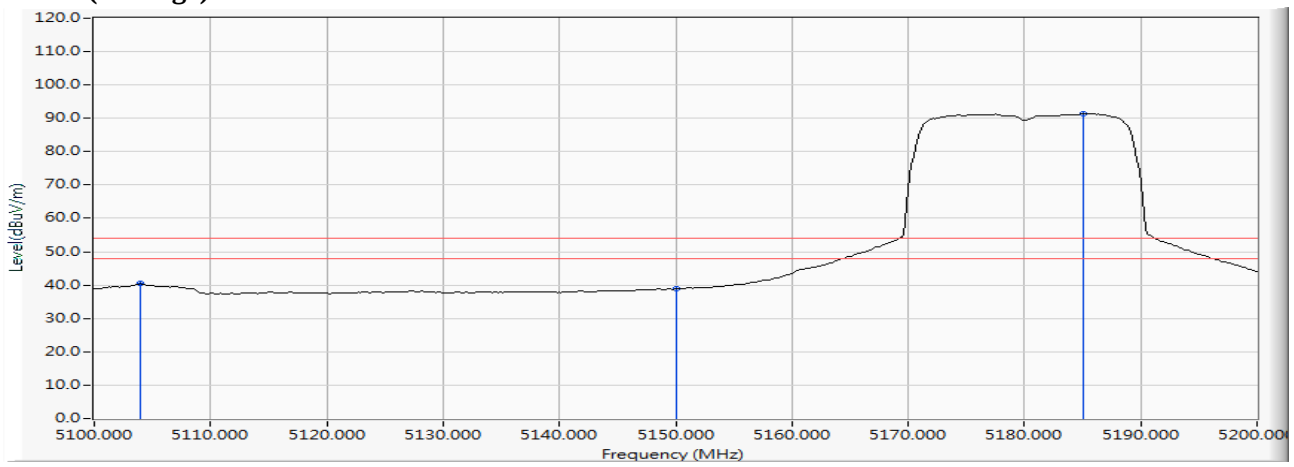
| | | |
|---|---|---|
| Product | : | MOXA IEEE 802.11 a/b/g/n |
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Date | : | 2019/04/24 |
| Test Mode | : | Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 36 (5180MHz) |

**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 |

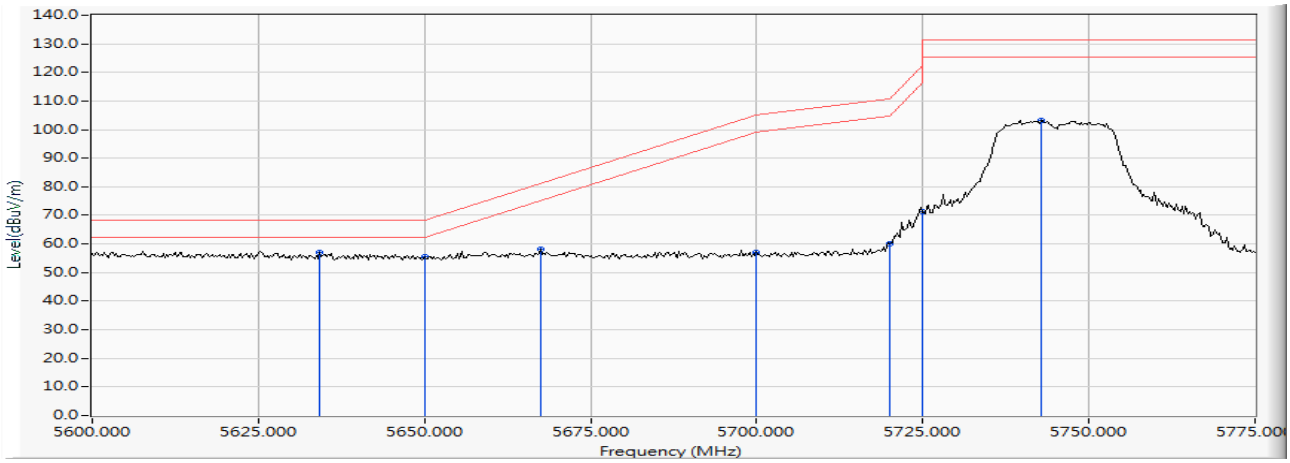
Note:

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)**

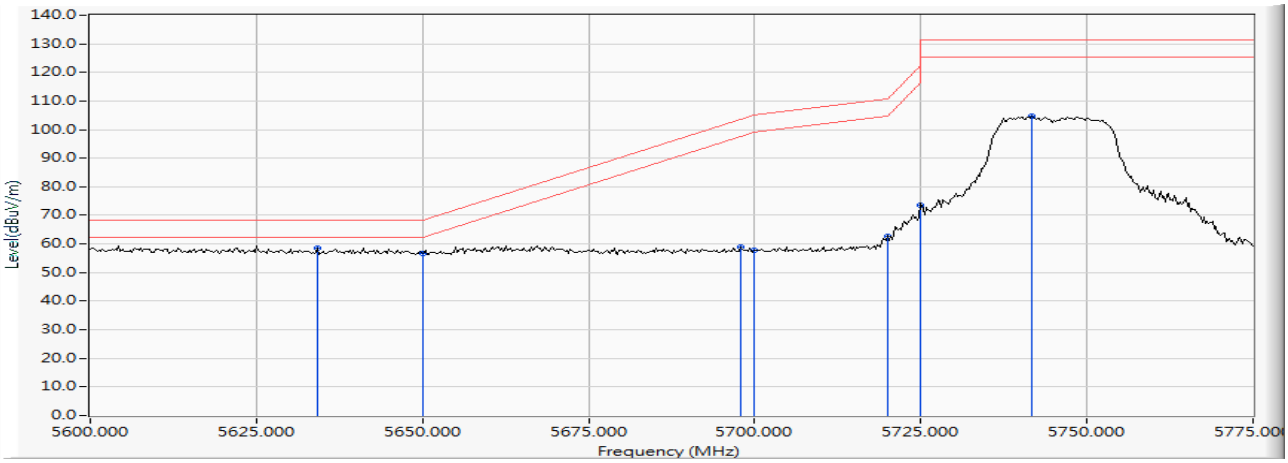
**RF Radiated Measurement:**




| | | 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:**

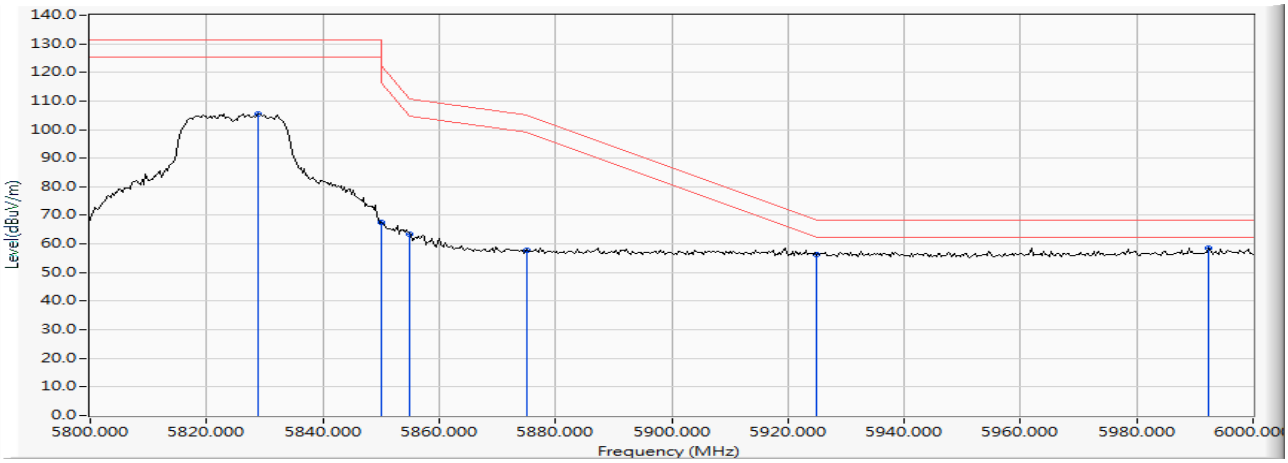



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 5634.239 | 13.033 | 45.671 | 58.704 | -9.516 | 68.220 | PEAK |
| 2 | | 5650.000 | 13.029 | 43.583 | 56.612 | -11.608 | 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:**

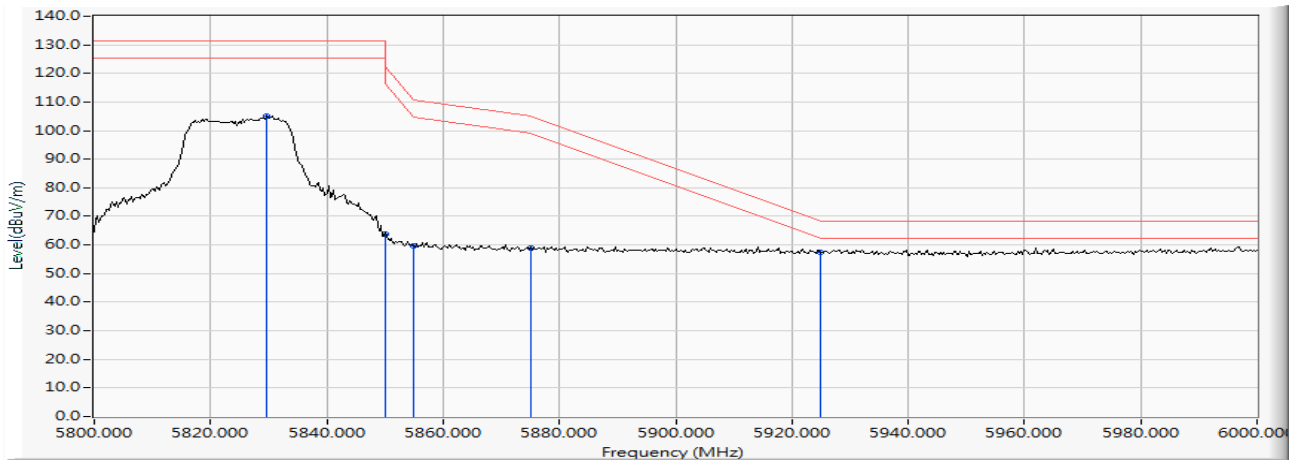



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 5828.986 | 11.555 | 94.027 | 105.582 | -- | -- | PEAK |
| 2 | | 5850.000 | 11.701 | 55.825 | 67.526 | -54.674 | 122.200 | 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)**

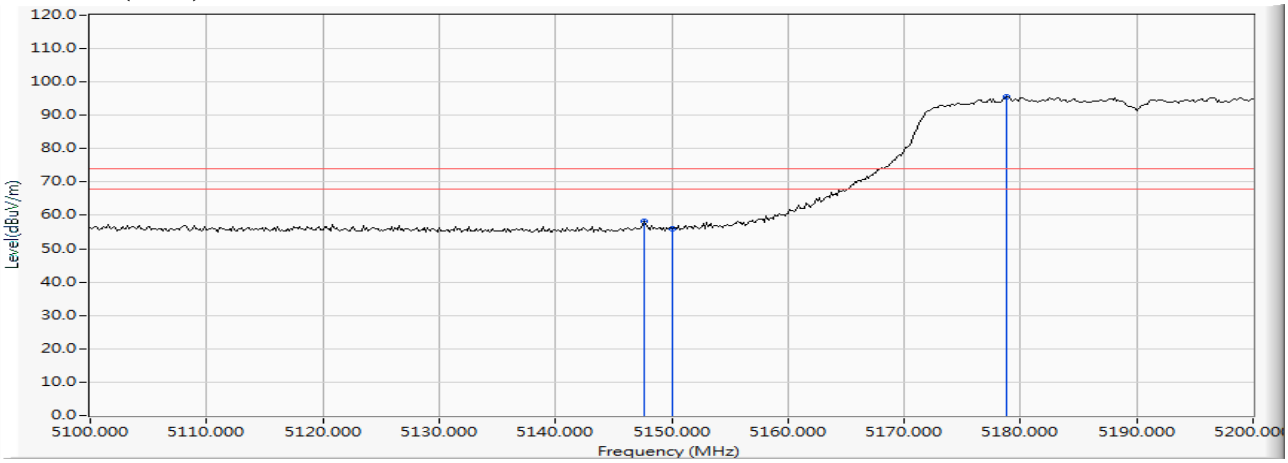
**RF Radiated Measurement:**




| | | 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 |

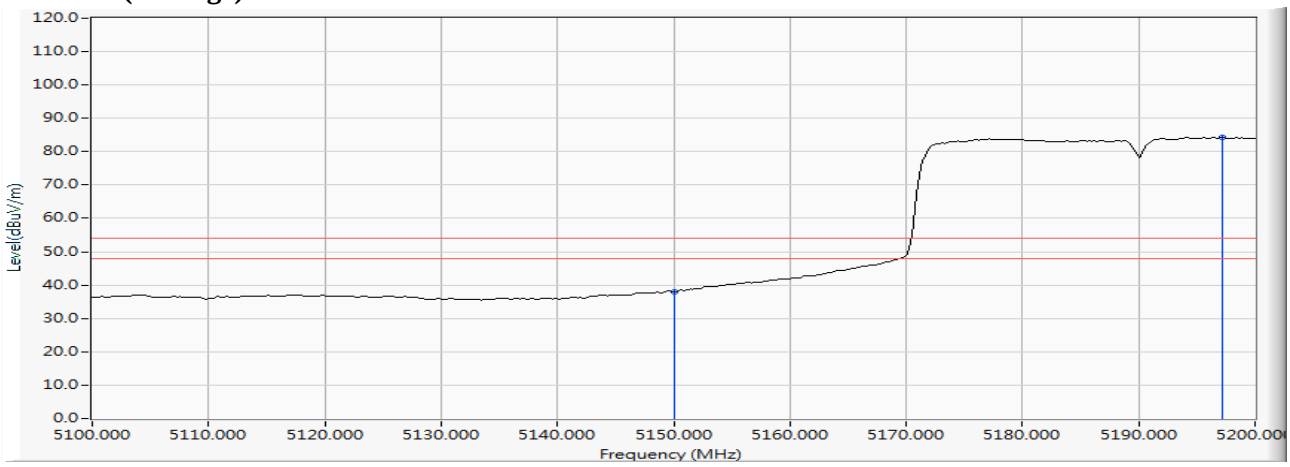
Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/02/28
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 38 (5190MHz)

**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)**



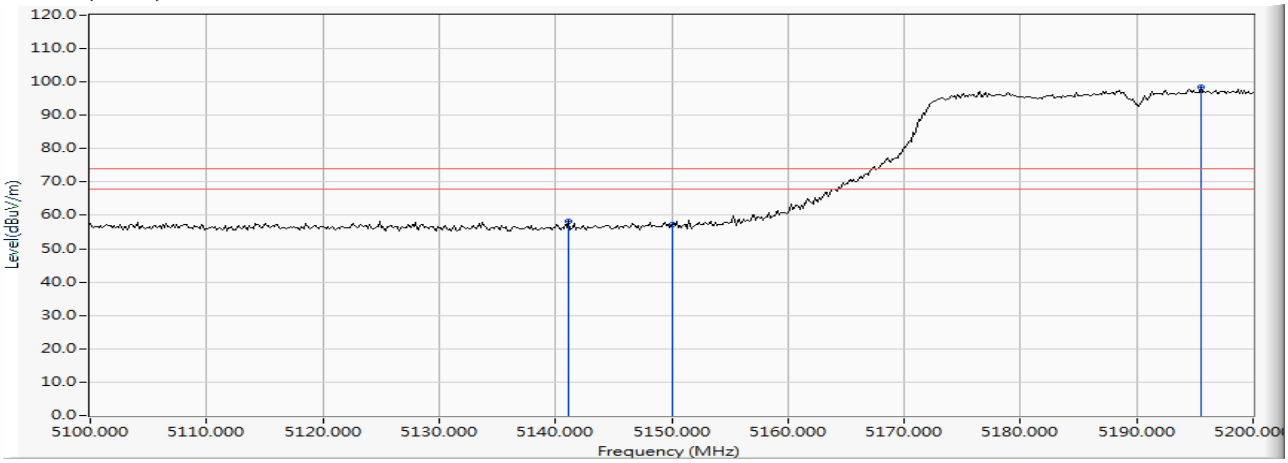

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 5150.000 | 10.470 | 27.517 | 37.988 | -16.012 | 54.000 | AVERAGE |
| 2 | * | 5197.246 | 10.342 | 73.879 | 84.220 |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

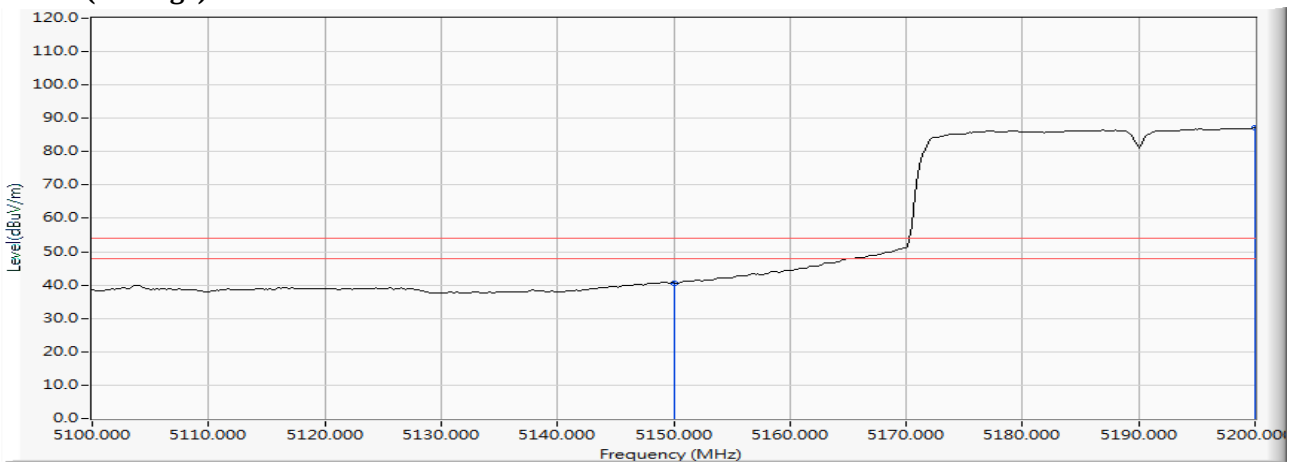
| | | |
|---|---|---|
| Product | : | MOXA IEEE 802.11 a/b/g/n |
| Test Item | : | Band Edge Data |
| Test Site | : | No.3 OATS |
| Test Date | : | 2018/02/28 |
| Test Mode | : | Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 38 (5190MHz) |

**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 |

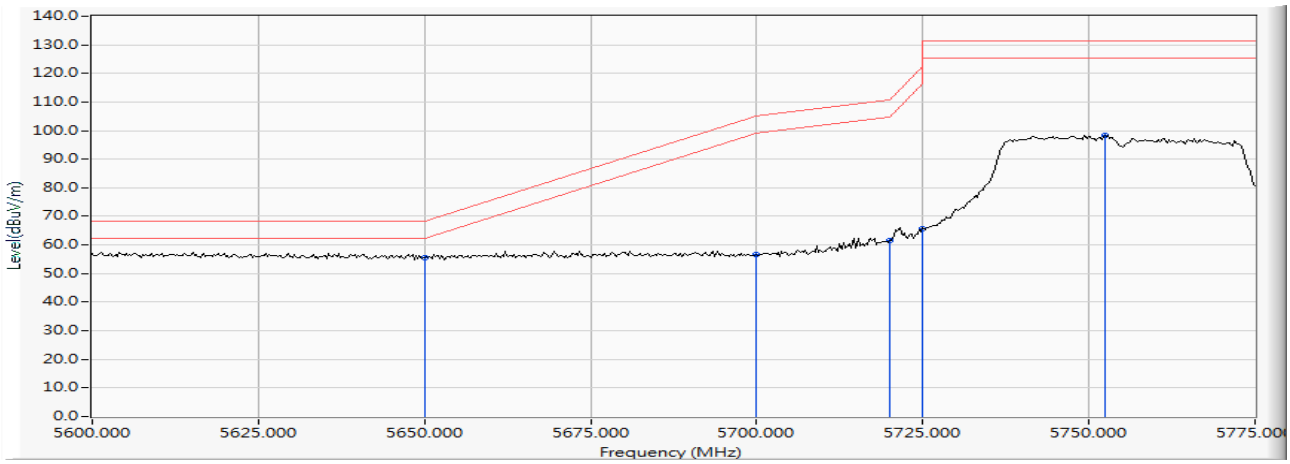
Note:

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:**

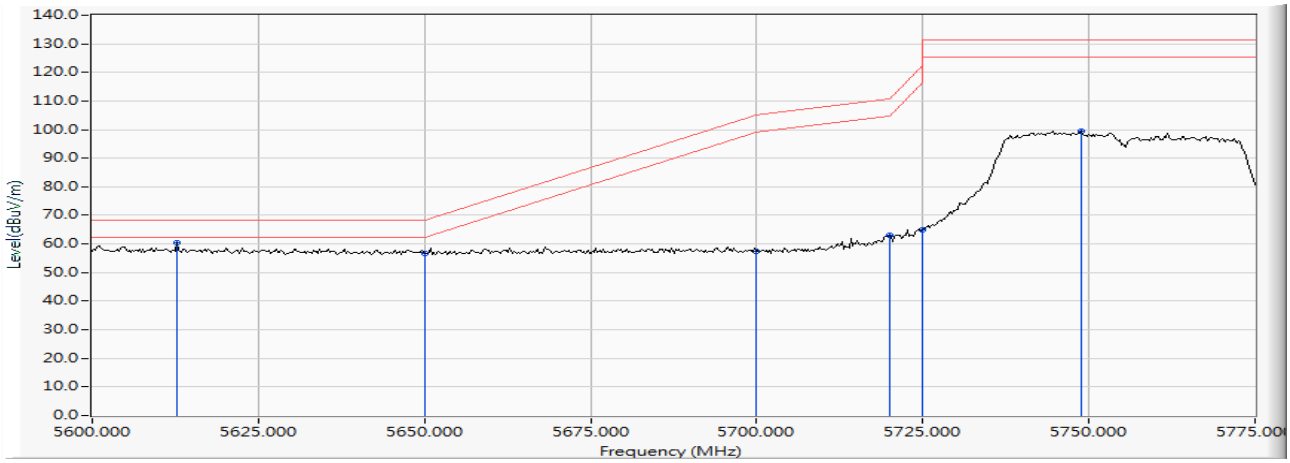



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 5650.000 | 11.554 | 43.897 | 55.452 | -12.768 | 68.220 | PEAK |
| 2 | | 5700.000 | 11.647 | 44.884 | 56.531 | -48.669 | 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:**

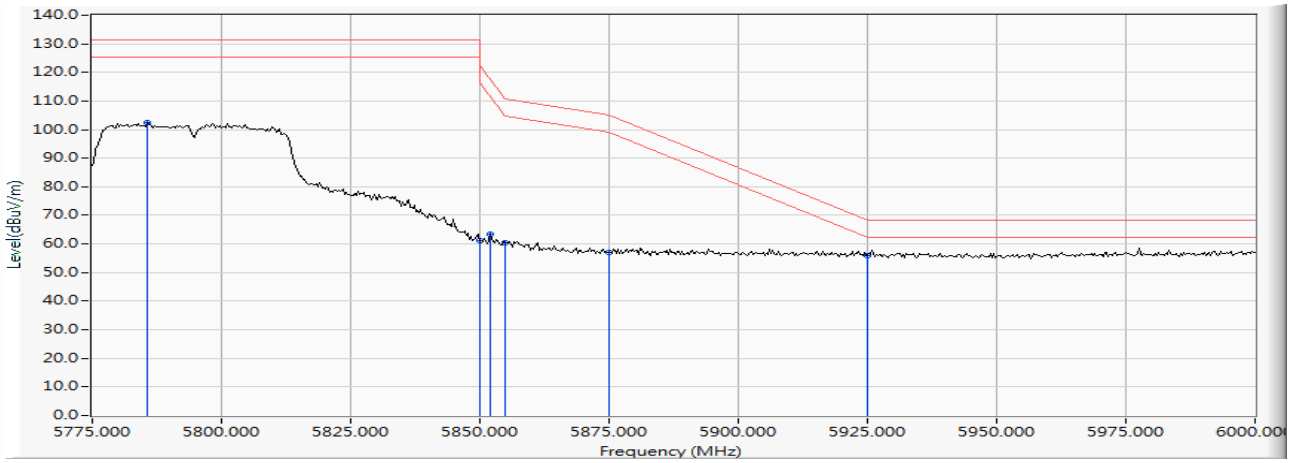



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 5612.681 | 13.038 | 47.237 | 60.275 | -7.945 | 68.220 | PEAK |
| 2 | | 5650.000 | 13.029 | 43.630 | 56.659 | -11.561 | 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:**

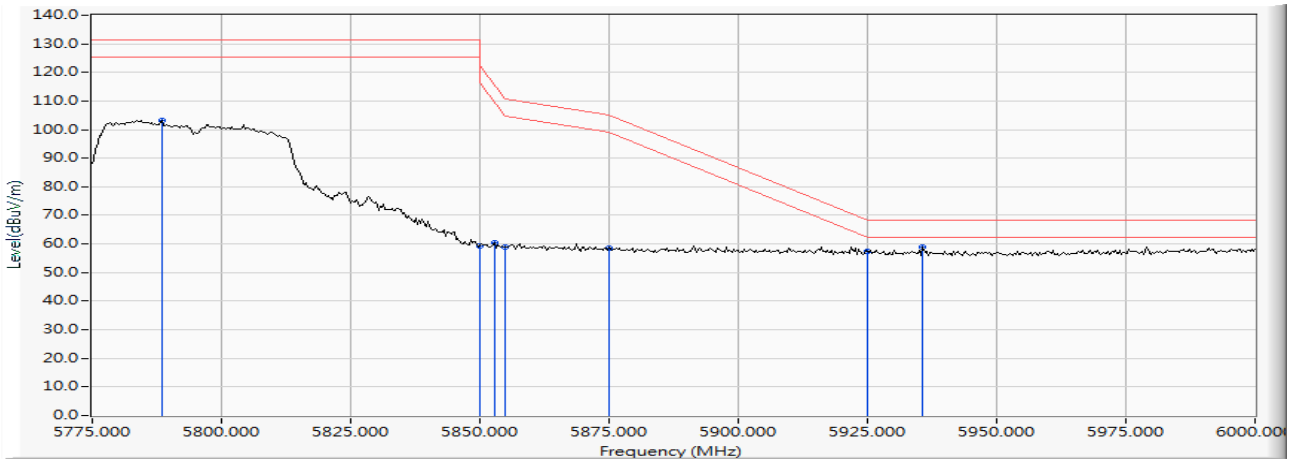



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 5785.761 | 11.399 | 90.892 | 102.291 | -- | -- | PEAK |
| 2 | | 5850.000 | 11.701 | 49.666 | 61.367 | -60.833 | 122.200 | 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)**

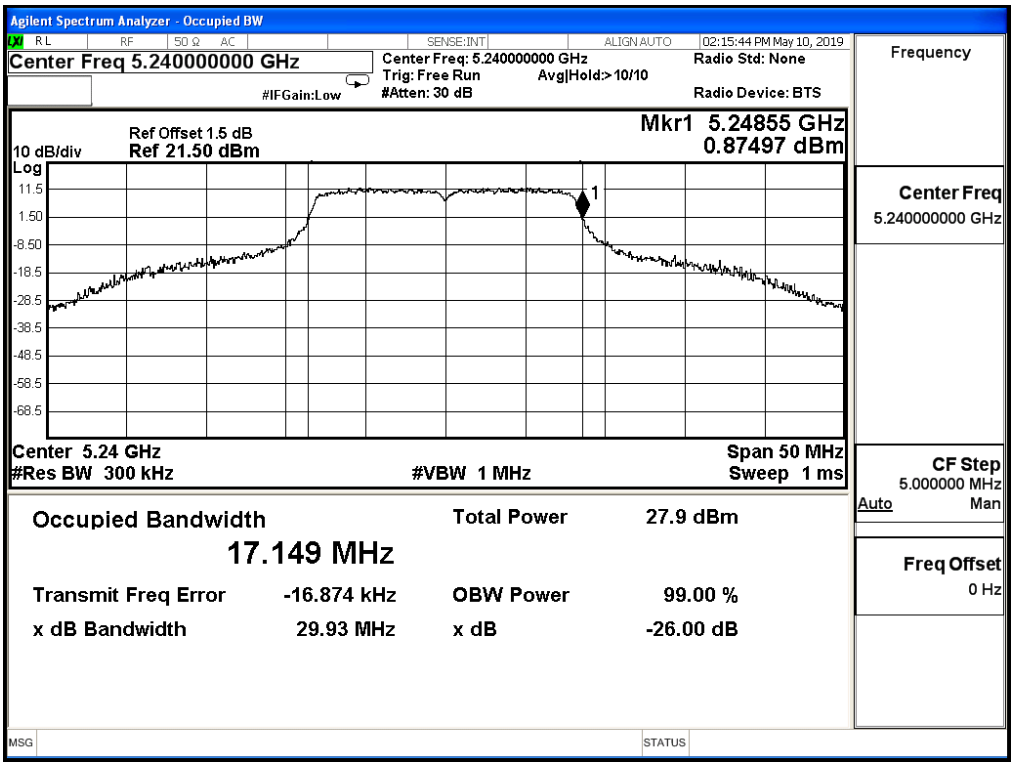
**RF Radiated Measurement:**




| | | 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)

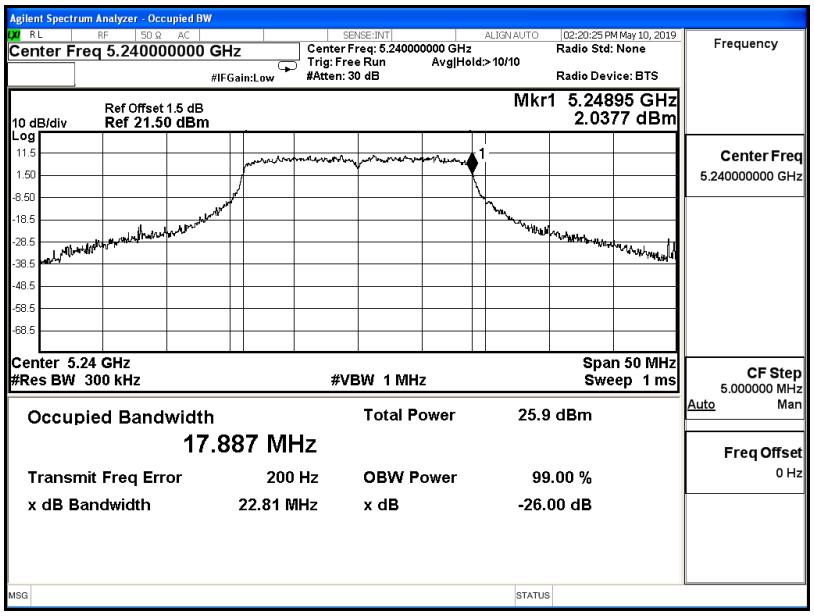
**Chain A**

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

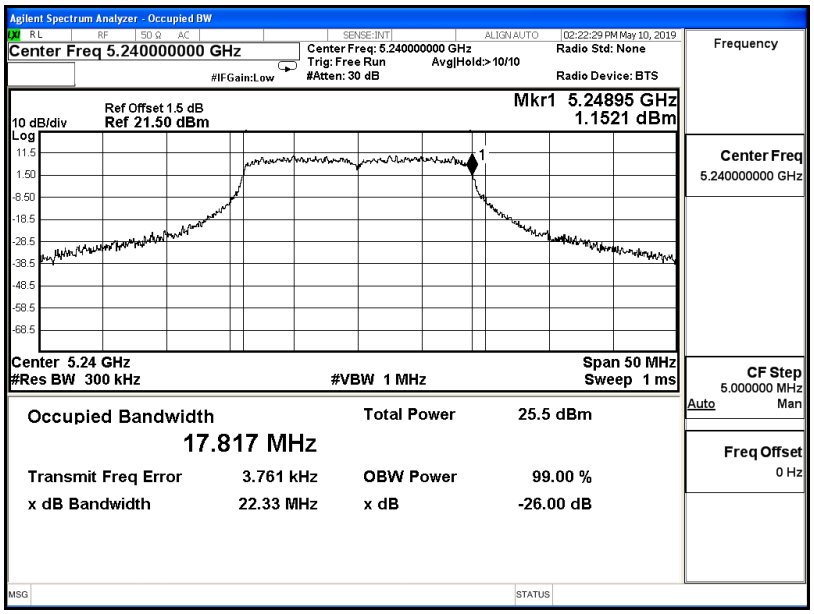
**Chain B**

| 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)

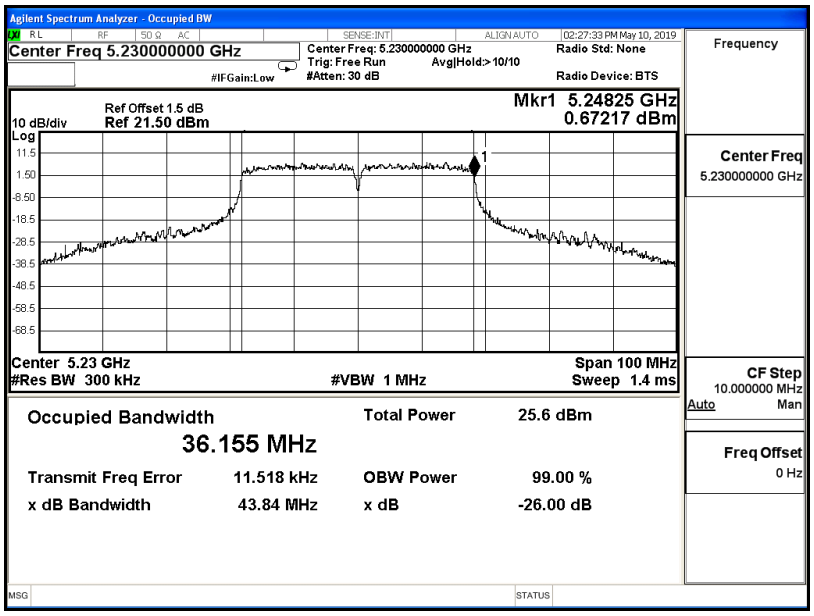
**Chain A**

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

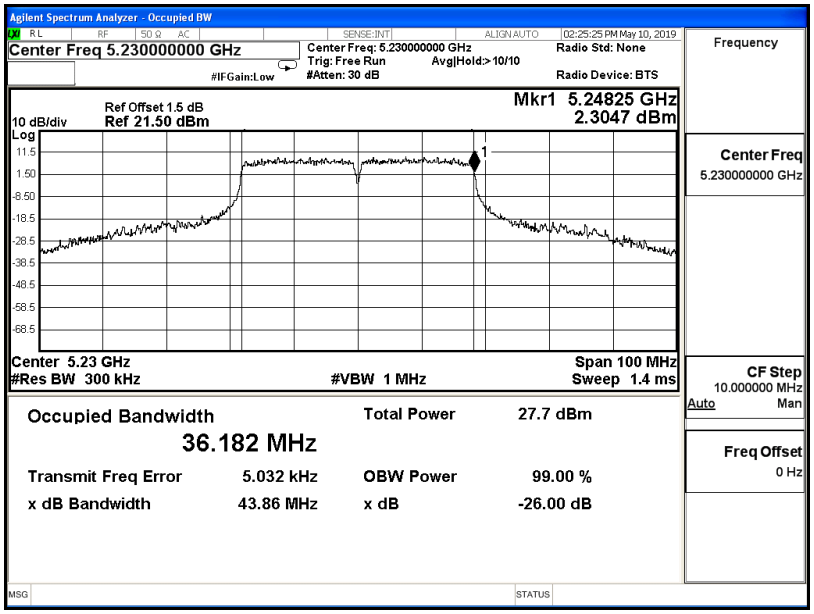
**Chain B**

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

## Chain A

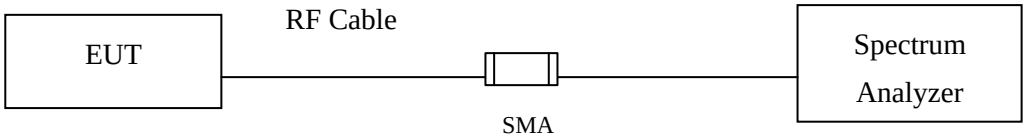



## Chain B



# 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

± 2.31msec

## 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:

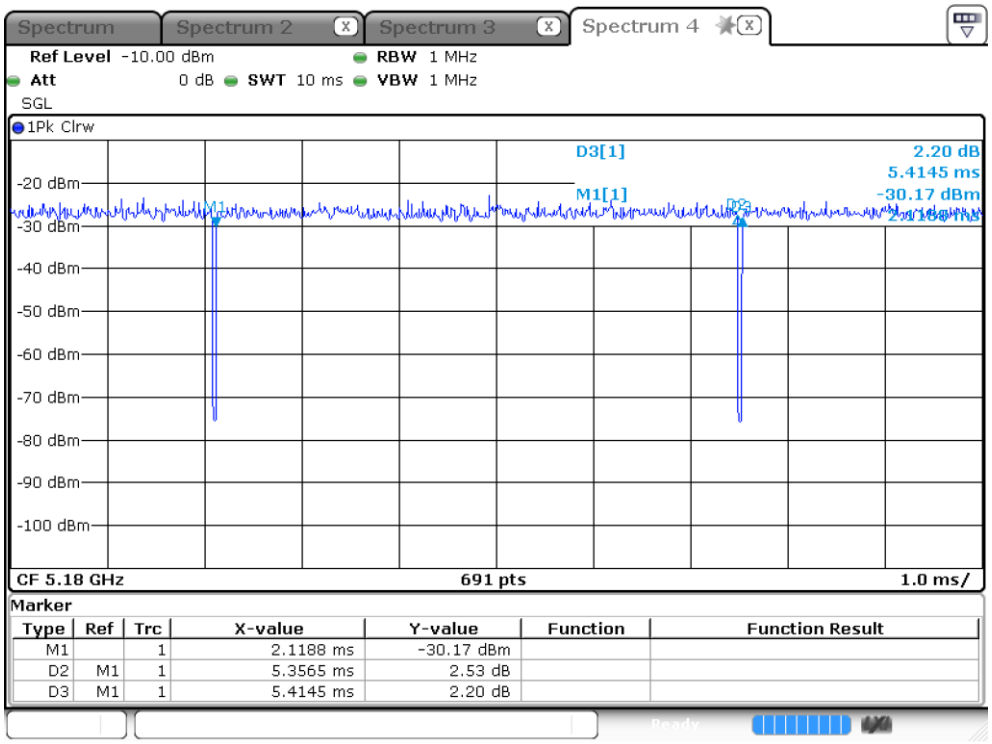
Duty Cycle = Ton / (Ton + Toff)

Duty Factor = 10 Log (1/Duty Cycle)

Results:

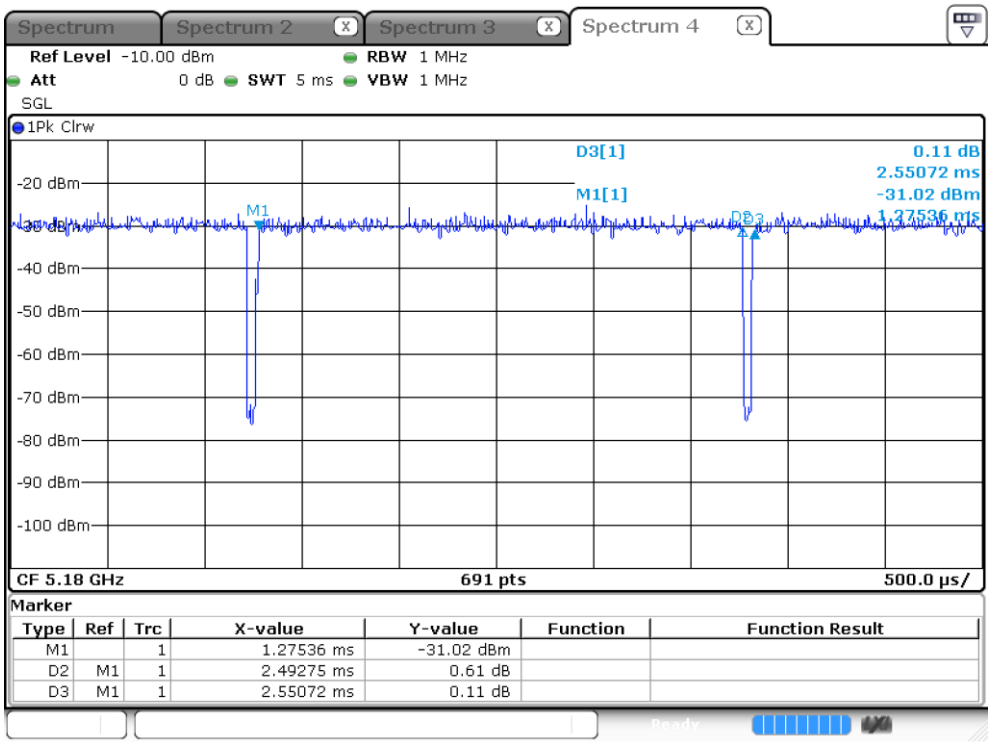
| 5GHz band | Ton (ms) | Ton + Toff (ms) | Duty Cycle (%) | Duty Factor (dB) |
|---|---|---|---|---|
| 802.11 a | 5.3565 | 5.4145 | 98.93 | 0.05 |
| 802.11 n20 | 2.4928 | 2.5507 | 97.73 | 0.10 |
| 802.11 n40 | 1.1913 | 1.2609 | 94.48 | 0.25 |

802.11a



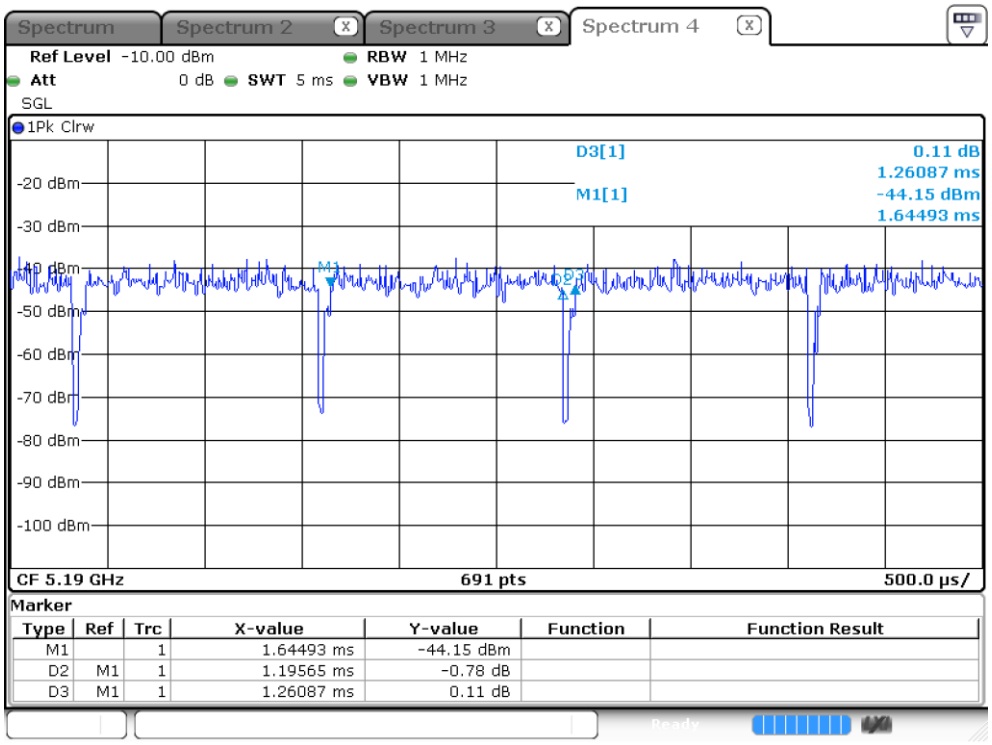

Date: 6.JAN.2007 22:12:03

802.11n20




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

802.11n40




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

## 6. EMI Reduction Method During Compliance Testing

No modification was made during testing.