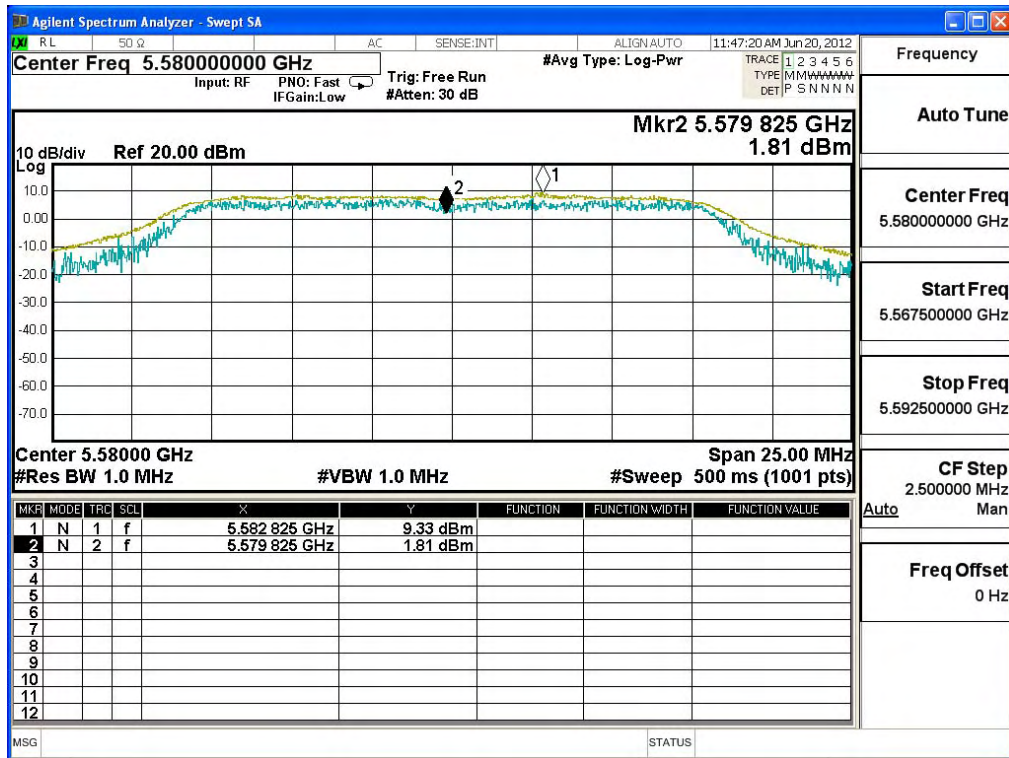
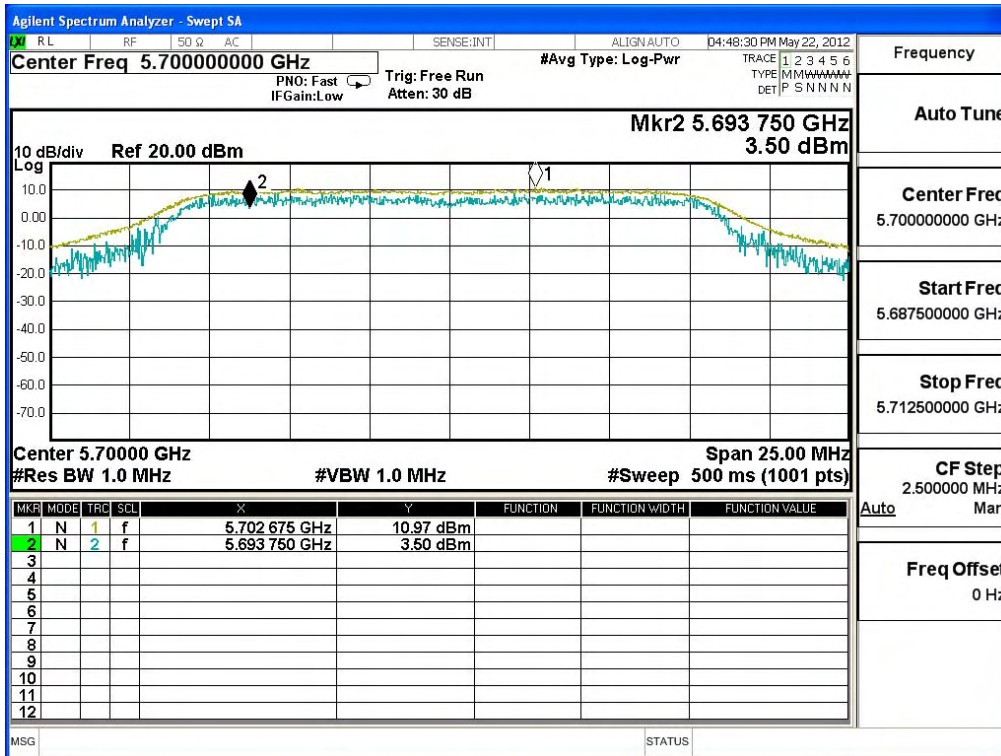


**Channel 116:**



Frequency	
Auto Tune	
Center Freq	5.580000000 GHz
Start Freq	5.567500000 GHz
Stop Freq	5.592500000 GHz
CF Step	2.500000 MHz
Auto	Man
Freq Offset	0 Hz

**Channel 140:**

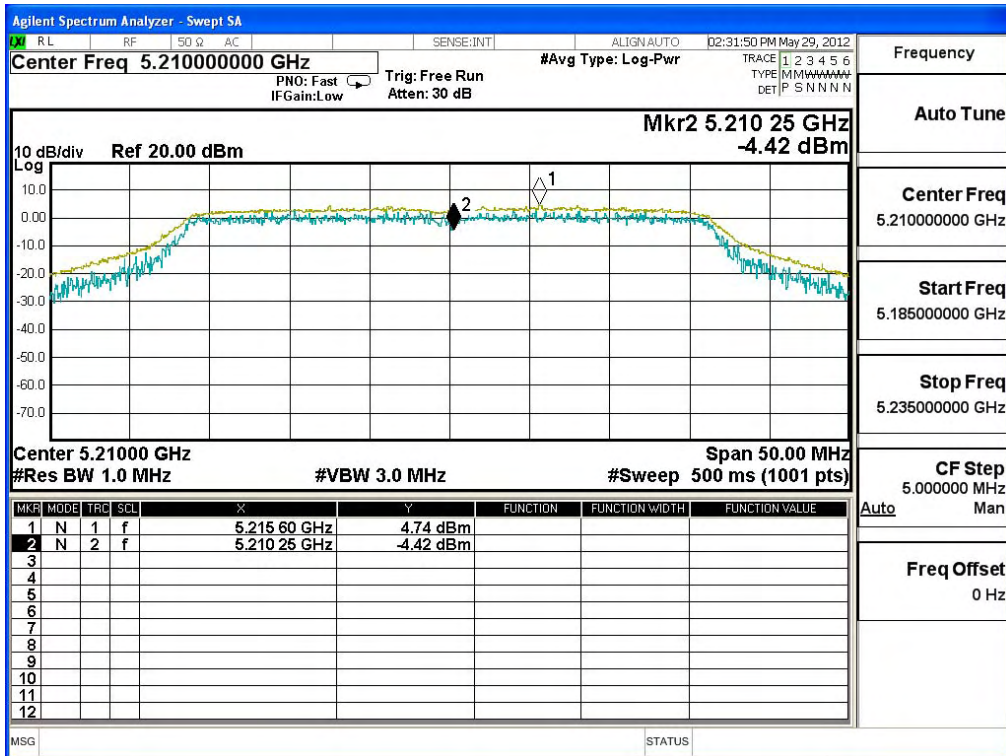


Frequency	
Auto Tune	
Center Freq	5.700000000 GHz
Start Freq	5.687500000 GHz
Stop Freq	5.712500000 GHz
CF Step	2.500000 MHz
Auto	Man
Freq Offset	0 Hz

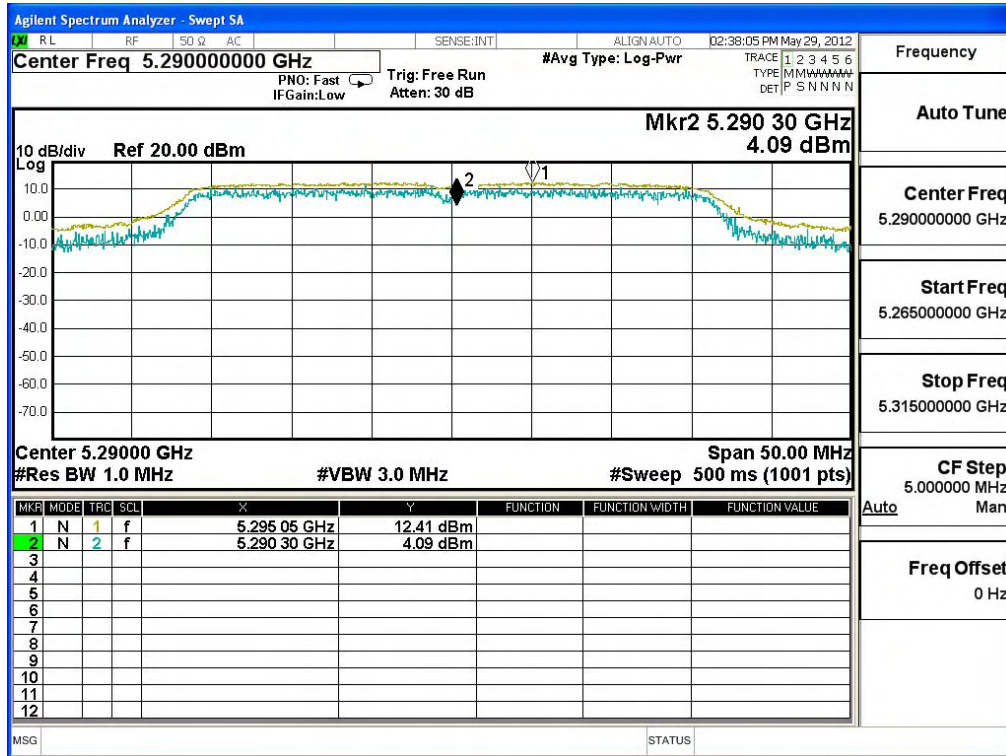
Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Peak Excursion  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter Turbo Mode (5GHz Band)

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
42	5210	9.160	<13	Pass
58	5290	8.320	<13	Pass

**Channel 42:**



**Channel 58:**



Frequency
Auto Tune
Center Freq 5.290000000 GHz
Start Freq 5.265000000 GHz
Stop Freq 5.315000000 GHz
CF Step 5.000000 MHz
Auto Man
Freq Offset 0 Hz

## 6. Radiated Emission

### 6.1. Test Equipment

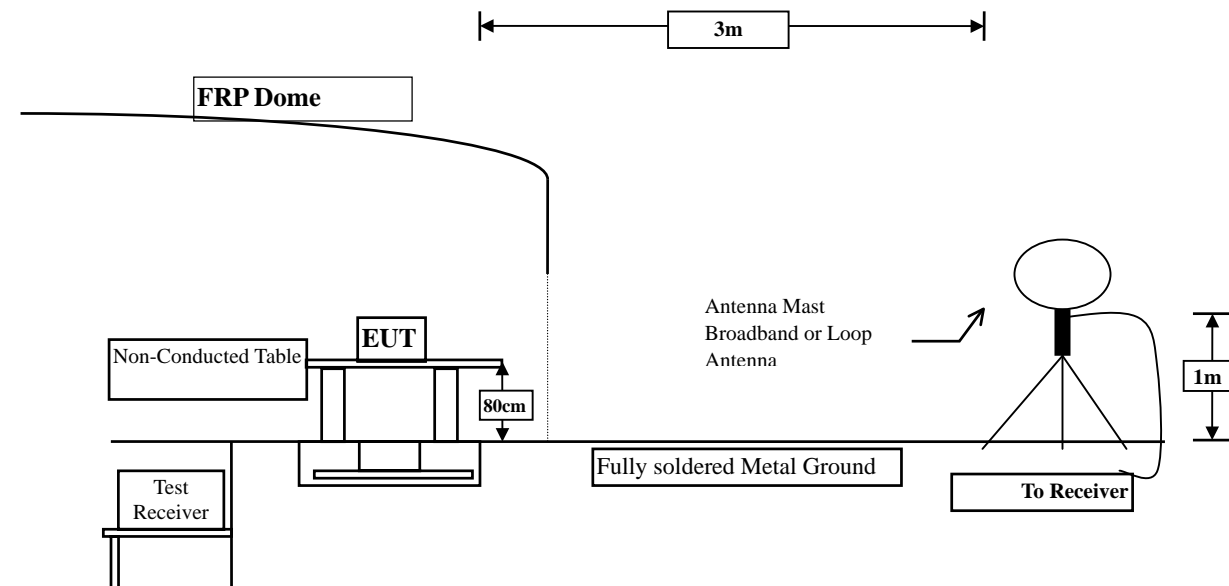
The following test equipments are used during the radiated emission test:

Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2011
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2012
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2011
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2012
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2012
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

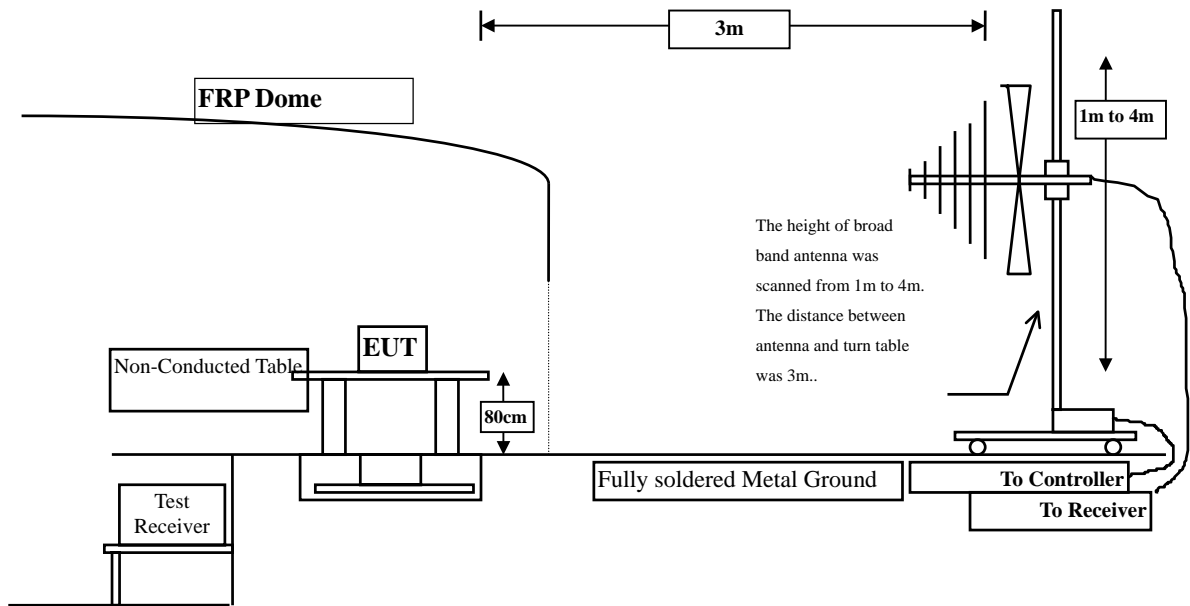
- Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.  
 2. The test instruments marked with "X" are used to measure the final test results.

### 6.2. Test Setup

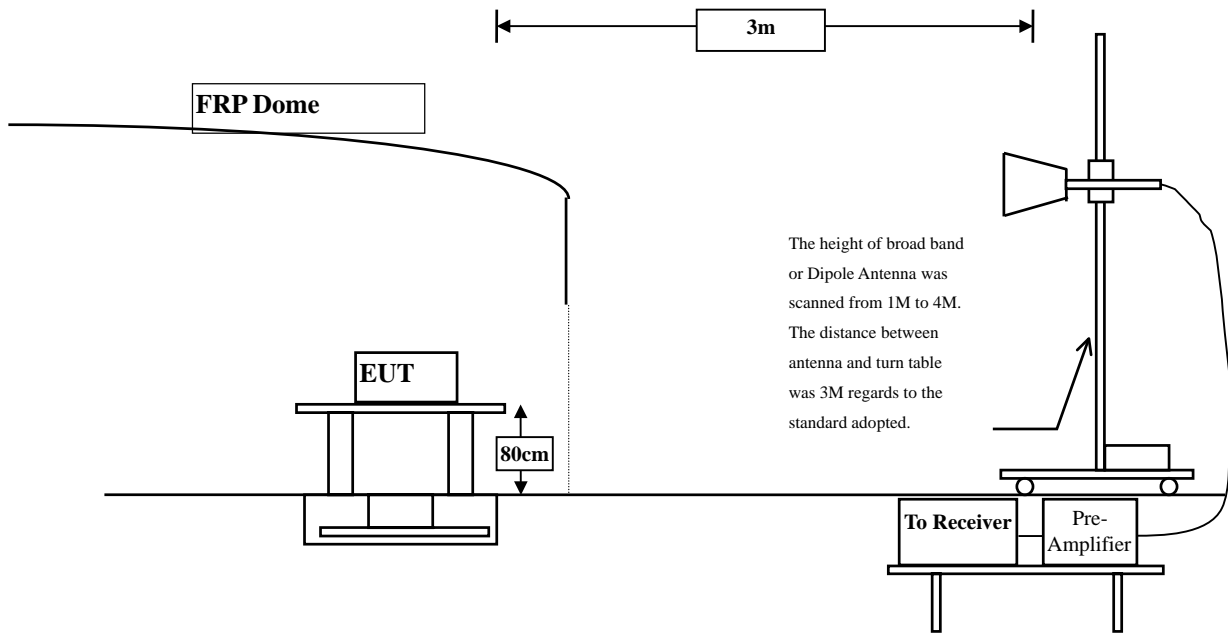
Radiated Emission Below 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



**6.3. 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.

<b>FCC Part 15 Subpart C Paragraph 15.209(a) Limits</b>		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

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

**6.4. Test Procedure**

The EUT was setup according to ANSI C63.4, 2003 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 requirements.

The EUT is placed on a turn table which is 0.8 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 from 1 meter to 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 C63.4:2003 on radiated measurement.

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

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

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

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

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.  
The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

### **6.5. Uncertainty**

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

## 6.6. Test Result of Radiated Emission

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5180MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10360.000	8.932	38.490	47.422	-21.178	68.600
15540.000	--	--	--	--	68.600
20720.000	--	--	--	--	68.600
25900.000	--	--	--	--	68.600
31080.000	--	--	--	--	68.600
36260.000	--	--	--	--	68.600

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5180MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
10360.000	10.436	38.960	49.395	-19.205	68.600
15540.000	--	--	--	--	68.600
20720.000	--	--	--	--	68.600
25900.000	--	--	--	--	68.600
31080.000	--	--	--	--	68.600
36260.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10440.000	7.725	38.380	46.105	-22.495	68.600
15600.000	--	--	--	--	68.600
20800.000	--	--	--	--	68.600
26000.000	--	--	--	--	68.600
31200.000	--	--	--	--	68.600
36400.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
10440.000	9.505	38.480	47.985	-20.615	68.600
15600.000	--	--	--	--	68.600
20800.000	--	--	--	--	68.600
26000.000	--	--	--	--	68.600
31200.000	--	--	--	--	68.600
36400.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5240MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10480.000	8.464	38.400	46.863	-21.737	68.600
15720.000	--	--	--	--	68.600
20960.000	--	--	--	--	68.600
26200.000	--	--	--	--	68.600
31440000	--	--	--	--	68.600
36680.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5240MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
10480.000	10.399	38.460	48.859	-19.741	68.600
15720.000	--	--	--	--	68.600
20960.000	--	--	--	--	68.600
26200.000	--	--	--	--	68.600
31440000	--	--	--	--	68.600
36680.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5260MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10520.000	9.021	53.880	62.901	-5.699	68.600
15780.000	--	--	--	--	68.600
21040.000	--	--	--	--	68.600
26300.000	--	--	--	--	68.600
31560.000	--	--	--	--	68.600
36820.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5260MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
10520.000	10.931	54.260	65.191	-3.409	68.600
15780.000	--	--	--	--	68.600
21040.000	--	--	--	--	68.600
26300.000	--	--	--	--	68.600
31560.000	--	--	--	--	68.600
36820.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5300MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10600.000	9.868	44.864	54.732	-19.268	74.000 **
15900.000	--	--	--	--	68.600
21200.000	--	--	--	--	68.600
26500.000	--	--	--	--	68.600
31800.000	--	--	--	--	68.600
37100.000	--	--	--	--	68.600
<b>Average Detector:</b>					
10600.000	9.868	26.484	36.352	-17.648	54.000 **

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV



Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5300MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
10600.000	11.403	53.694	65.097	-8.903	74.000 **
15900.000	--	--	--	--	68.600
21200.000	--	--	--	--	68.600
26500.000	--	--	--	--	68.600
31800.000	--	--	--	--	68.600
37100.000	--	--	--	--	68.600
<b>Average Detector:</b>					
10600.000	11.403	38.844	50.247	-3.753	54.000 **

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5320MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10640.000	9.844	47.468	57.312	-16.688	74.000 **
15960.000	--	--	--	--	68.600
21280.000	--	--	--	--	68.600
26600.000	--	--	--	--	68.600
31920.000	--	--	--	--	68.600
37240.000	--	--	--	--	68.600
<b>Average Detector:</b>					
10640.000	9.844	31.488	41.332	-12.668	54.000 **

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5320MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
10640.000	11.517	47.718	59.235	-14.765	74.000 **
15960.000	--	--	--	--	68.600
21280.000	--	--	--	--	68.600
26600.000	--	--	--	--	68.600
31920.000	--	--	--	--	68.600
37240.000	--	--	--	--	68.600
<b>Average Detector:</b>					
10640.000	11.517	32.658	44.175	-9.825	54.000 **

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5500MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11000.000	10.392	55.950	66.342	-7.658	74.000 **
16500.000	--	--	--	--	68.600
22000.000	--	--	--	--	68.600
27500.000	--	--	--	--	68.600
33000.000	--	--	--	--	68.600
38500.000	--	--	--	--	68.600
<b>Average Detector:</b>					
11000.000	10.392	40.650	51.042	-2.958	54.000 **

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5500MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
11000.000	12.514	56.480	68.994	-5.006	74.000 **
16500.000	--	--	--	--	68.600
22000.000	--	--	--	--	68.600
27500.000	--	--	--	--	68.600
33000.000	--	--	--	--	68.600
38500.000	--	--	--	--	68.600
<b>Average Detector:</b>					
11000.000	12.514	40.650	53.164	-0.836	54.000 **

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5580MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11160.000	10.201	53.270	63.471	-10.529	74.000**
16740.000	--	--	--	--	68.600
22320.000	--	--	--	--	68.600
27900.000	--	--	--	--	68.600
33480.000	--	--	--	--	68.600
39060.000	--	--	--	--	68.600
<b>Average Detector:</b>					
11160.000	10.201	37.260	47.461	-6.539	54.000**

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5580MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
11160.000	12.445	56.720	69.165	-4.835	74.000 **
16740.000	--	--	--	--	68.600
22320.000	--	--	--	--	68.600
27900.000	--	--	--	--	68.600
33480.000	--	--	--	--	68.600
39060.000	--	--	--	--	68.600
<b>Average Detector:</b>					
11160.000	12.445	40.030	52.475	-1.525	54.000 **

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5700MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11400.000	11.372	50.360	61.732	-12.268	74.000 **
17100.000	--	--	--	--	68.600
22800.000	--	--	--	--	68.600
28500.000	--	--	--	--	68.600
34200.000	--	--	--	--	68.600
39900.000	--	--	--	--	68.600
<b>Average Detector:</b>					
11400.000	11.372	36.720	48.092	-5.908	54.000 **

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV



Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5700MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
11400.000	12.922	52.800	65.722	-8.278	74.000 **
17100.000	--	--	--	--	68.600
22800.000	--	--	--	--	68.600
28500.000	--	--	--	--	68.600
34200.000	--	--	--	--	68.600
39900.000	--	--	--	--	68.600
<b>Average Detector:</b>					
11400.000	12.922	38.910	51.832	-2.168	54.000 **

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. “ \*\* ”, means restricted bands, limit= 74dBuV/54dBuV

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter Turbo Mode (5GHz Band)(5210MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10420.000	7.711	39.310	47.022	-21.578	68.600
15630.000	--	--	--	--	68.600
20840.000	--	--	--	--	68.600
26050.000	--	--	--	--	68.600
31260.000	--	--	--	--	68.600
36470.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter Turbo Mode (5GHz Band)(5210MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
10420.000	9.415	38.910	48.325	-20.275	68.600
15630.000	--	--	--	--	68.600
20840.000	--	--	--	--	68.600
26050.000	--	--	--	--	68.600
31260.000	--	--	--	--	68.600
36470.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter Turbo Mode (5GHz Band)(5290MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10580.000	9.823	44.640	54.464	-14.136	68.600
15870.000	--	--	--	--	68.600
21160.000	--	--	--	--	68.600
26450.000	--	--	--	--	68.600
31740.000	--	--	--	--	68.600
37030.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter Turbo Mode (5GHz Band)(5290MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Vertical</b>					
<b>Peak Detector:</b>					
10580.000	11.426	52.170	63.596	-5.004	68.600
15870.000	--	--	--	--	68.600
21160.000	--	--	--	--	68.600
26450.000	--	--	--	--	68.600
31740.000	--	--	--	--	68.600
37030.000	--	--	--	--	68.600

Note:

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

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
165.800	-11.079	53.778	42.699	-0.801	43.500
365.620	-1.329	40.616	39.287	-6.713	46.000
464.560	0.526	37.415	37.941	-8.059	46.000
699.300	2.875	39.166	42.041	-3.959	46.000
800.180	5.141	33.163	38.304	-7.696	46.000
930.160	7.187	30.145	37.332	-8.668	46.000
<b>Vertical</b>					
<b>Peak Detector</b>					
165.800	-7.719	49.958	42.239	-1.261	43.500
336.520	-4.630	46.055	41.425	-4.575	46.000
666.320	-1.809	36.481	34.673	-11.327	46.000
796.300	2.831	29.491	32.322	-13.678	46.000
930.160	6.477	29.099	35.576	-10.424	46.000
963.140	7.604	30.350	37.954	-16.046	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of 9kHz~30MHz are very lower than the limit and not show in test report.

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5300MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
165.800	-11.079	53.753	42.674	-0.826	43.500
365.620	-1.329	40.892	39.563	-6.437	46.000
474.260	0.024	39.116	39.139	-6.861	46.000
796.300	5.161	33.324	38.485	-7.515	46.000
864.200	5.671	32.091	37.762	-8.238	46.000
930.160	7.187	29.619	36.806	-9.194	46.000
<b>Vertical</b>					
<b>Peak Detector</b>					
165.800	-7.719	50.308	42.589	-0.911	43.500
365.620	-2.179	41.984	39.805	-6.195	46.000
749.740	2.510	25.993	28.503	-17.497	46.000
840.920	2.961	30.339	33.300	-12.700	46.000
930.160	6.477	28.795	35.272	-10.728	46.000
967.020	8.071	29.530	37.601	-16.399	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of 9kHz~30MHz are very lower than the limit and not show in test report.

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) (5580MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
165.800	-11.079	53.711	42.632	-0.868	43.500
365.620	-1.329	40.384	39.055	-6.945	46.000
697.360	3.171	36.412	39.583	-6.417	46.000
767.200	4.235	31.340	35.575	-10.425	46.000
864.200	5.671	31.221	36.892	-9.108	46.000
930.160	7.187	28.752	35.939	-10.061	46.000
<b>Vertical</b>					
<b>Peak Detector</b>					
165.800	-7.719	50.158	42.439	-1.061	43.500
365.620	-2.179	41.419	39.240	-6.760	46.000
796.300	2.831	30.215	33.046	-12.954	46.000
840.920	2.961	29.399	32.360	-13.640	46.000
930.160	6.477	29.350	35.827	-10.173	46.000
967.020	8.071	29.163	37.234	-16.766	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of 9kHz~30MHz are very lower than the limit and not show in test report.



Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter Turbo Mode (5GHz Band)(5210MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
165.800	-11.079	53.787	42.708	-0.792	43.500
365.620	-1.329	41.234	39.905	-6.095	46.000
464.560	0.526	40.330	40.856	-5.144	46.000
763.320	4.301	33.660	37.962	-8.038	46.000
864.200	5.671	32.898	38.569	-7.431	46.000
949.560	6.695	30.678	37.373	-8.627	46.000
<b>Vertical</b>					
<b>Peak Detector</b>					
165.800	-7.719	50.161	42.442	-1.058	43.500
365.620	-2.179	42.068	39.889	-6.111	46.000
464.560	-4.714	39.008	34.294	-11.706	46.000
763.320	2.311	31.476	33.788	-12.212	46.000
840.920	2.961	29.943	32.904	-13.096	46.000
961.200	7.260	30.768	38.028	-15.972	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of 9kHz~30MHz are very lower than the limit and not show in test report.

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter Turbo Mode (5GHz Band)(5290MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
165.800	-11.079	53.756	42.677	-0.823	43.500
340.400	-3.859	45.921	42.062	-3.938	46.000
433.520	-1.972	40.965	38.993	-7.007	46.000
786.600	4.712	33.149	37.861	-8.139	46.000
864.200	5.671	31.775	37.446	-8.554	46.000
961.200	6.450	30.768	37.218	-16.782	54.000
<b>Vertical</b>					
<b>Peak Detector</b>					
165.800	-7.719	50.146	42.427	-1.073	43.500
299.660	-6.855	45.954	39.099	-6.901	46.000
338.460	-4.265	45.317	41.052	-4.948	46.000
600.360	-2.833	43.072	40.239	-5.761	46.000
930.160	6.477	29.243	35.720	-10.280	46.000
961.200	7.260	30.297	37.557	-16.443	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, 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. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of 9kHz~30MHz are very lower than the limit and not show in test report.

## 7. Band Edge

### 7.1. Test Equipment

#### RF Conducted Measurement

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

#### RF Radiated Measurement:

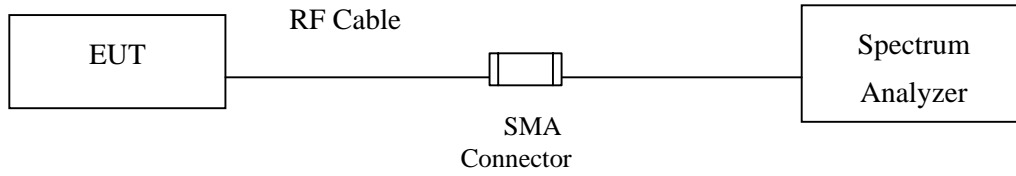
The following test equipments are used during the band edge tests:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	X Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2012
	X Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2011
	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2012
	X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	X Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2012
	X Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X Coaxial Switch	Anritsu	MP59B/6200265729	N/A

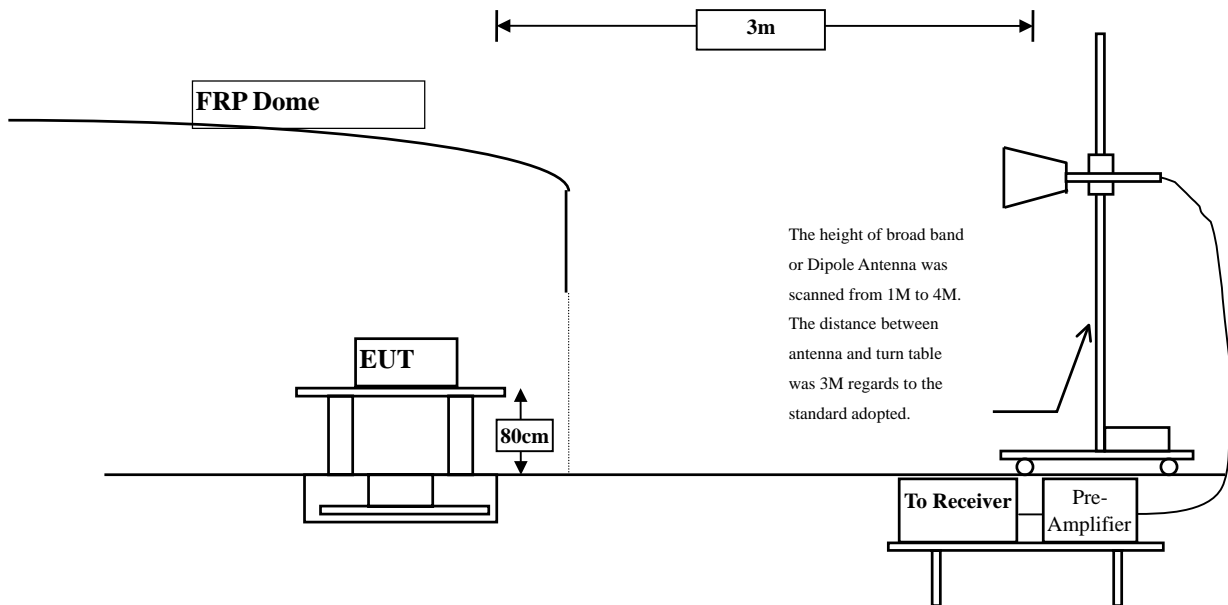
- Note:
1. All instruments are calibrated every one year.
  2. The test instruments marked by "X" are used to measure the final test results.

## 7.2. Test Setup

### RF Conducted Measurement



### RF Radiated Measurement:



### 7.3. 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:

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

- Remarks :
1. RF Voltage (dBuV) = 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.

### 7.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 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 3 meters. 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 C63.4:2003 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 C63.4, 2003; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

### 7.5. Uncertainty

- ± 3.8 dB below 1GHz
- ± 3.9 dB above 1GHz

## 7.6. Test Result of Band Edge

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)-Channel 36

### Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dBuV]	Correction Factor [dB/m]	Emission Level [dBuV/m]	Detector
Horizontal	5180	37.073	55.18	92.254	Peak
Horizontal	5180	37.073	44.39	81.464	Average
Vertical	5180	37.073	69.7	106.774	Peak
Vertical	5180	37.073	58.5	95.574	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=30Hz

### Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	$\Delta$ (dB)	Band Edge Field Strength (dBuV/m)	Requiment Limit (dBuV/m)	Detector
Horizontal	5120	92.254	50.81	41.444	74.000	Peak
Horizontal	5120	81.464	49.43	32.034	54.000	Average
Vertical	5120	106.774	50.81	55.964	74.000	Peak
Vertical	5120	95.574	49.43	46.144	54.000	Average

Note:

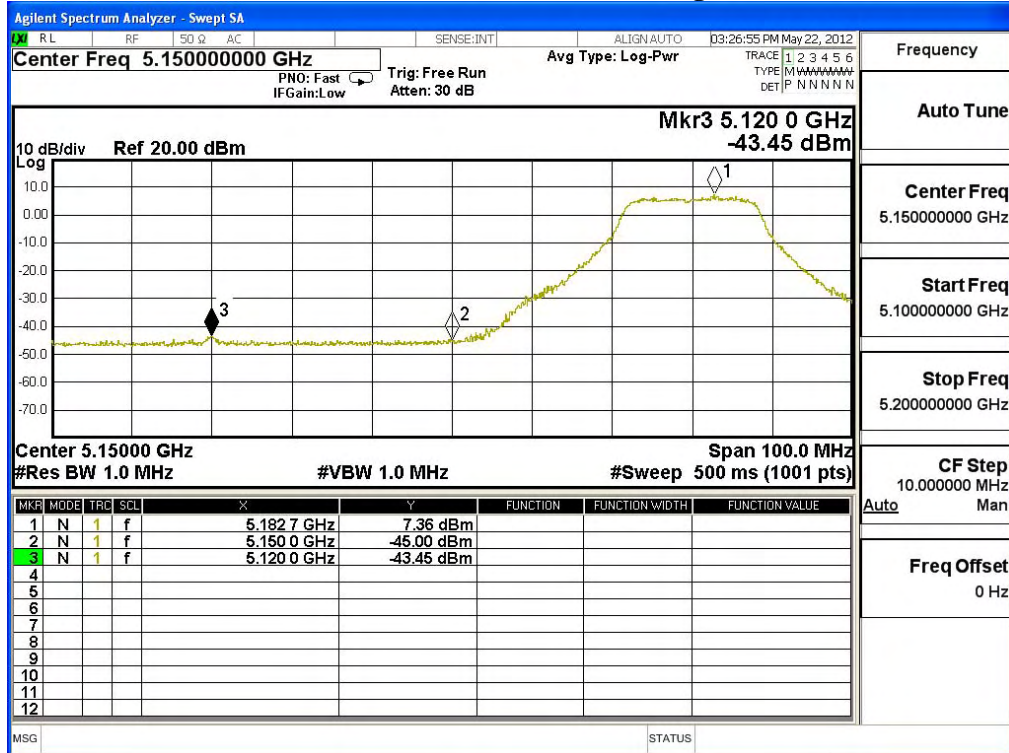
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F -  $\Delta$

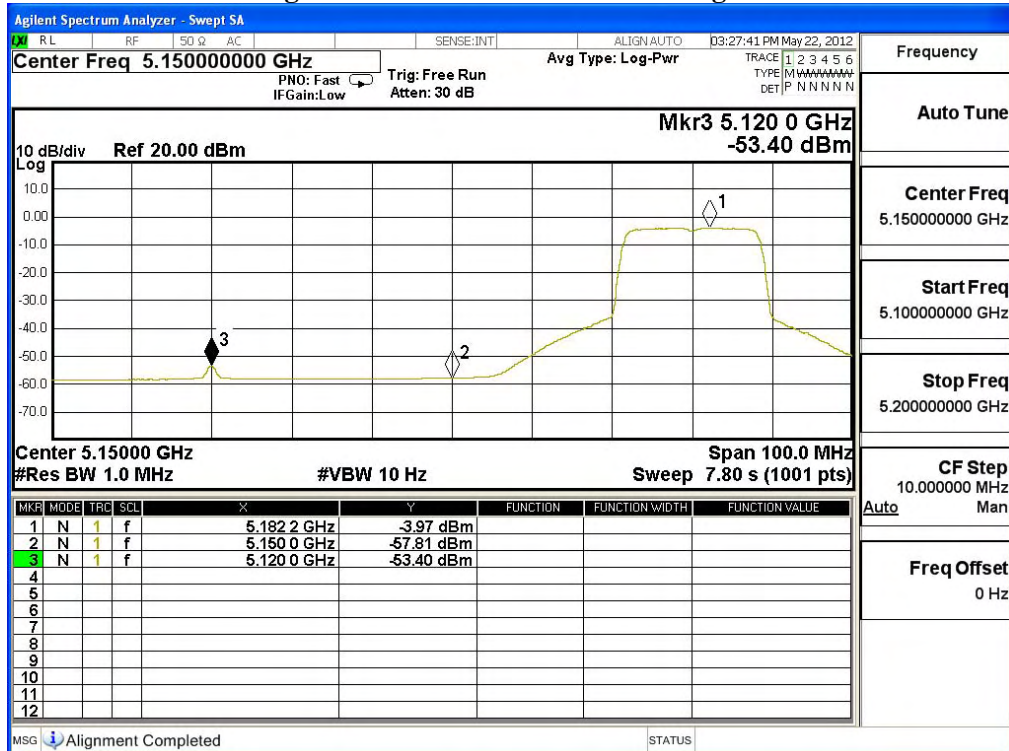
F = Fundamental field Strength (Peak or Average)

$\Delta$  = Conducted Band Edge Delta (Peak or Average)

### Peak Detector of conducted Band Edge Delta



### Average Detector of conducted Band Edge Delta



Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) -Channel 64

### Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dB(uV)]	Correction Factor [dB/m]	Emission Level [dB(uV/m)]	Detector
Horizontal	5320	35.635	61.08	96.714	Peak
Horizontal	5320	35.635	49.26	84.894	Average
Vertical	5320	37.552	76.76	114.311	Peak
Vertical	5320	37.552	65.13	102.681	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=30Hz

### Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	$\Delta$ (dB)	Band Edge Field Strength (dBuV/m)	Requiment Limit (dBuV/m)	Detector
Horizontal	5350.6	96.714	43.762	52.952	74.000	Peak
Horizontal	5350	84.894	52.442	32.452	54.000	Average
Vertical	5350.6	114.311	43.762	70.549	74.000	Peak
Vertical	5350	102.681	52.442	50.239	54.000	Average

Note:

The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

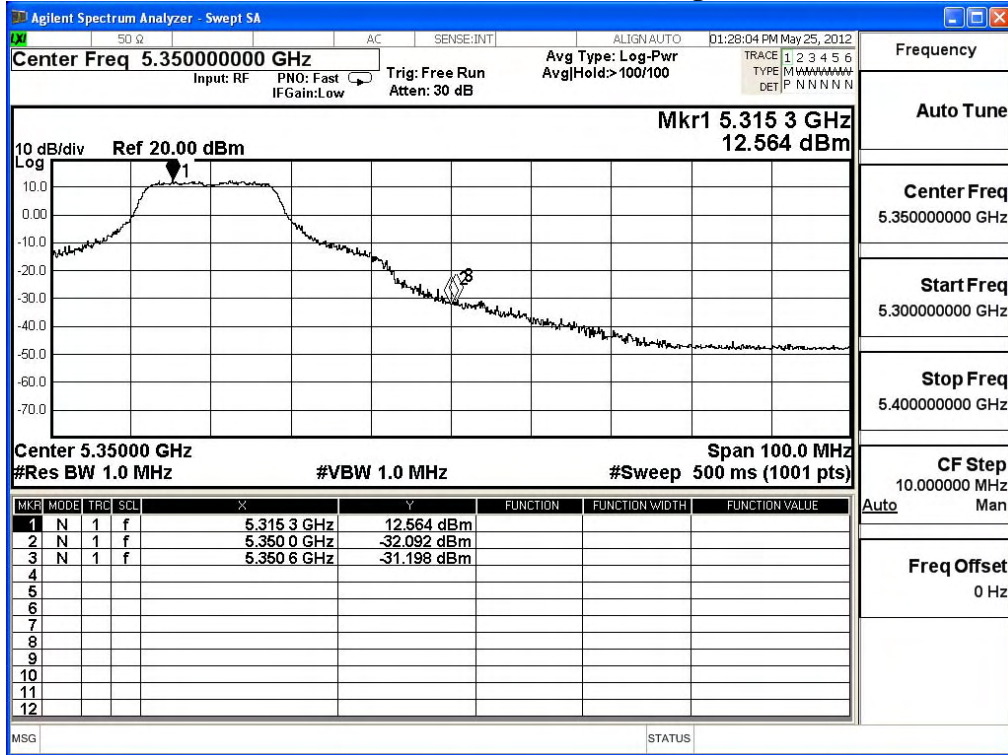
Band Edge field Strength = F -  $\Delta$

F = Fundamental field Strength (Peak or Average)

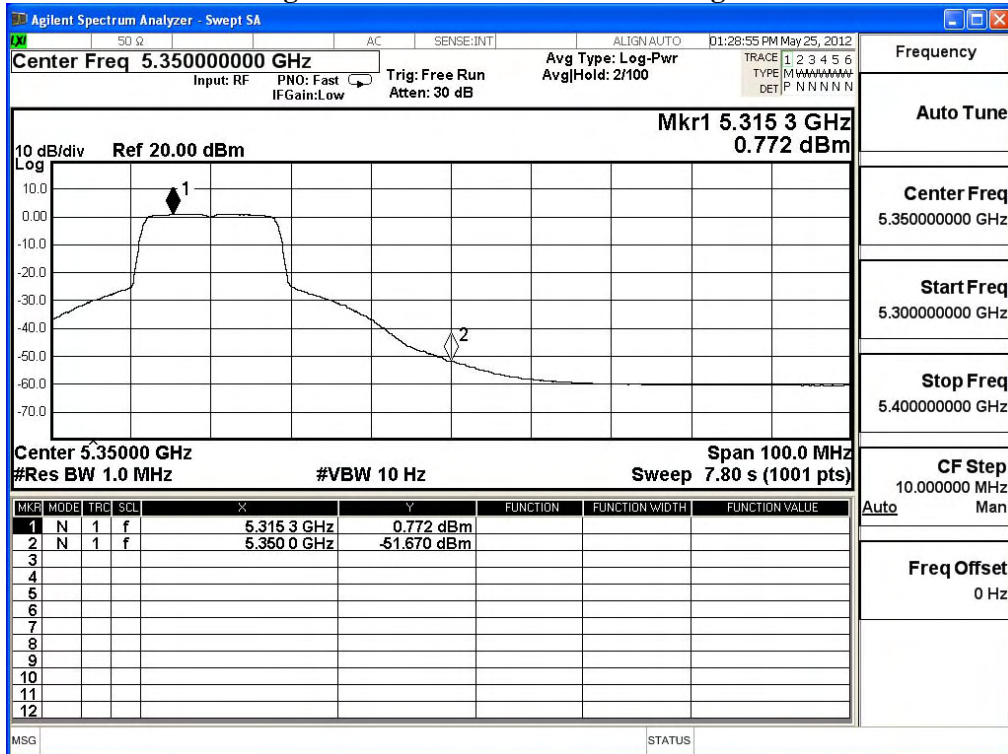
$\Delta$  = Conducted Band Edge Delta (Peak or Average)



### Peak Detector of conducted Band Edge Delta



### Average Detector of conducted Band Edge Delta



Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) -Channel 100

### Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dB(uV)]	Correction Factor [dB/m]	Emission Level [dB(uV/m)]	Detector
Horizontal	5500	36.684	54.52	91.204	Peak
Horizontal	5500	36.684	43.57	80.254	Average
Vertical	5500	38.145	69.99	108.135	Peak
Vertical	5500	38.145	59.18	97.325	Average

Note: 1: Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=30Hz

### Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	$\Delta$ (dB)	Band Edge Field Strength (dBuV/m)	Requiqment Limit (dBuV/m)	Detector
Horizontal	5460	91.204	47.82	43.384	74.000	Peak
Horizontal	5439.9	80.254	55.27	24.984	54.000	Average
Vertical	5460	108.135	47.82	60.315	74.000	Peak
Vertical	5439.9	97.325	55.27	42.055	54.000	Average

Note:

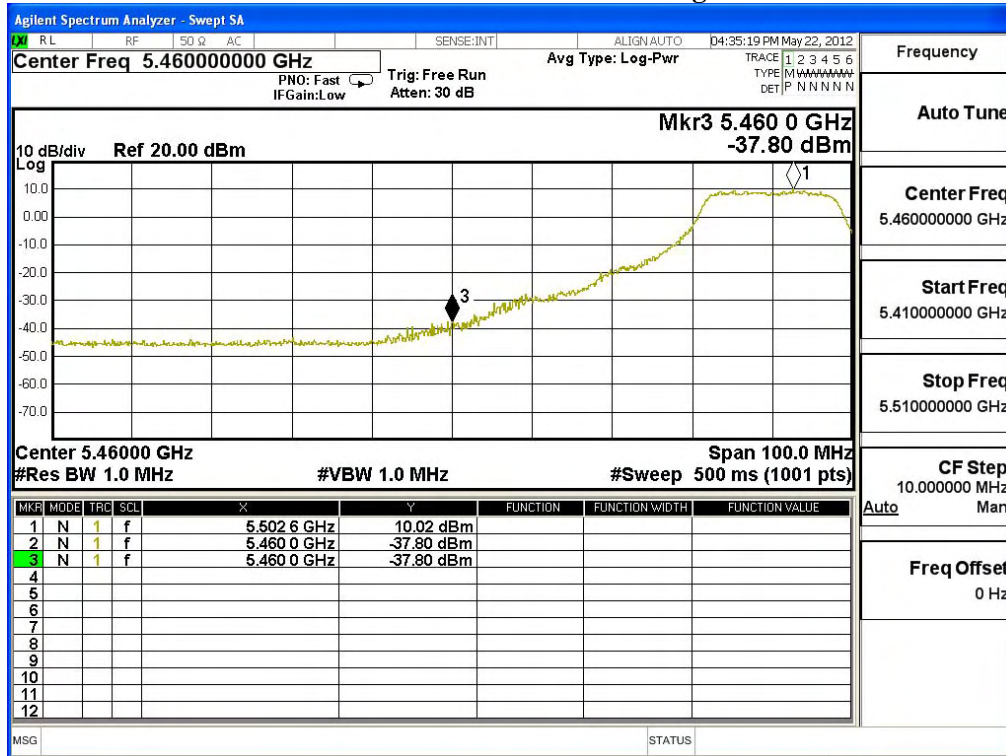
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F -  $\Delta$

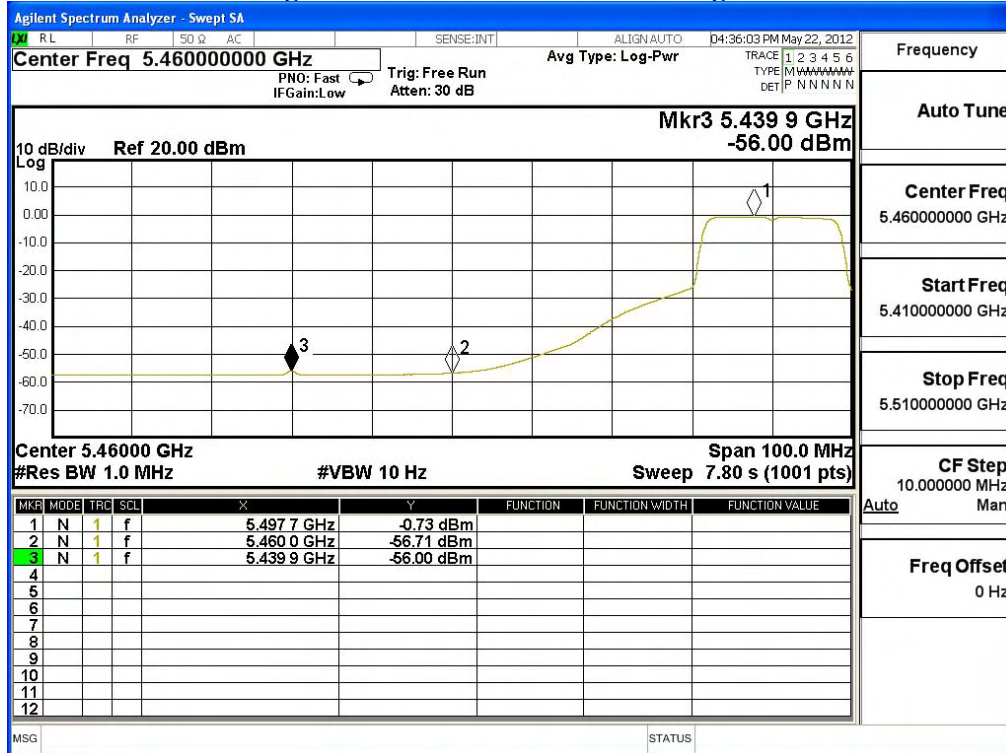
F = Fundamental field Strength (Peak or Average)

$\Delta$  = Conducted Band Edge Delta (Peak or Average)

### Peak Detector of conducted Band Edge Delta



### Average Detector of conducted Band Edge Delta



Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) -Channel 100

**RF Radiated Measurement:**

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5470.000	18.334	-77.220	-58.886	-31.886	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5470.000	19.335	-69.540	-50.205	-23.205	-27.000	Pass

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps) -Channel 140

**RF Radiated Measurement:**

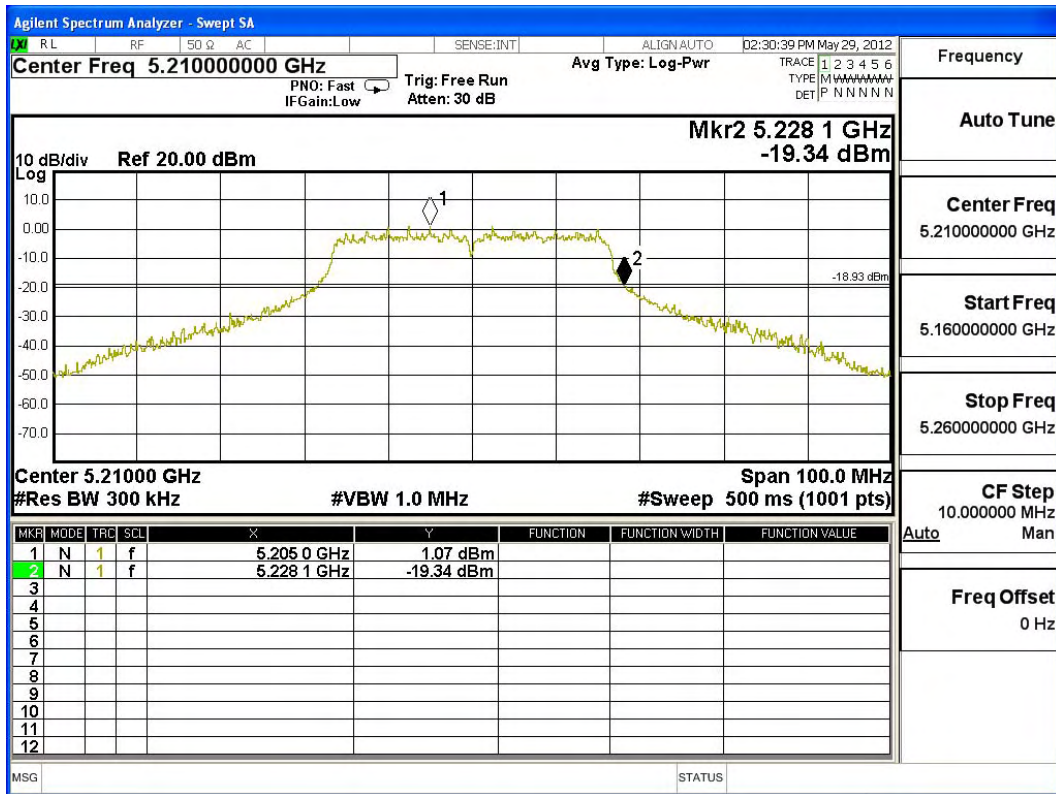
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5725.000	18.649	-62.070	-43.421	-16.421	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5725.000	19.514	-55.930	-36.416	-9.416	-27.000	Pass

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter Turbo Mode (5GHz Band)-Channel 42

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5210	5228.10	<5250	PASS

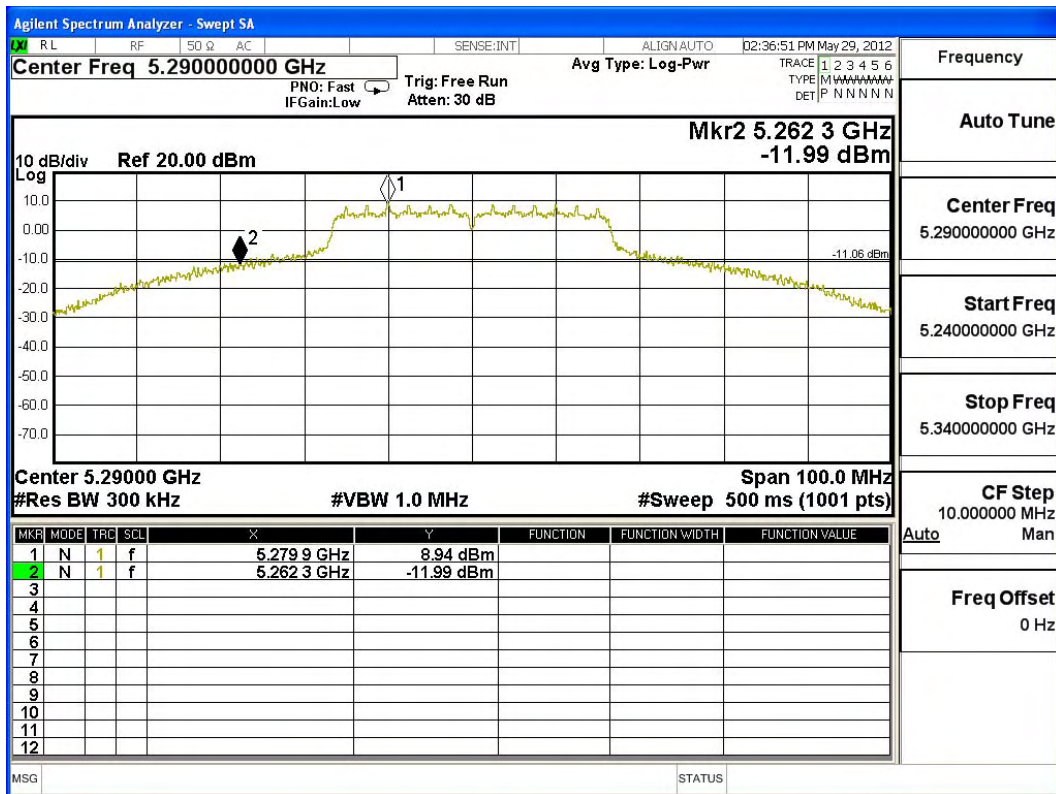
NOTE: Accordance with 15.215 requirement.



Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmitter Turbo Mode (5GHz Band)-Channel 58

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5290	5262.30	>5250	PASS

NOTE: Accordance with 15.215 requirement.



## 8. Frequency Stability

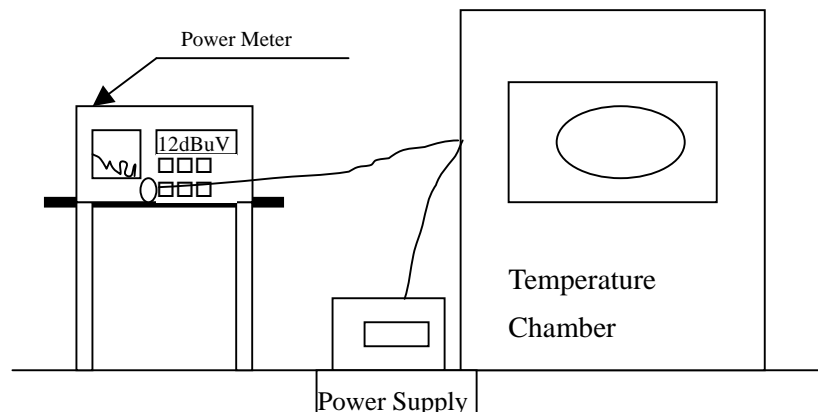
### 8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

### 8.2. Test Setup



### 8.3. Limits

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified

### 8.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

### 8.5. Uncertainty

± 150 Hz



## 8.6. Test Result of Frequency Stability

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Frequency Stability  
 Test Site : Temperature Chamber  
 Test Mode : Carrier Wave

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (20) °C	Vnom (120)V	36	5180.0000	5180.0054	-0.0054
		38	5220.0000	5220.0018	-0.0018
		48	5240.0000	5240.0096	-0.0096
		52	5260.0000	5260.0078	-0.0078
		60	5300.0000	5300.0043	-0.0043
		64	5320.0000	5320.0076	-0.0076
		100	5500.0000	5500.0065	-0.0065
		116	5580.0000	5580.0048	-0.0048
		140	5700.0000	5700.0084	-0.0084
Tmax (50) °C	Vmax (138)V	36	5180.0000	5180.0065	-0.0065
		38	5220.0000	5220.0028	-0.0028
		48	5240.0000	5240.0098	-0.0098
		52	5260.0000	5260.0084	-0.0084
		60	5300.0000	5300.0054	-0.0054
		64	5320.0000	5320.0081	-0.0081
		100	5500.0000	5500.0058	-0.0058
		116	5580.0000	5580.0039	-0.0039
		140	5700.0000	5700.0079	-0.0079
Tmax (50) °C	Vmin (102)V	36	5180.0000	5180.0042	-0.0042
		38	5220.0000	5220.0005	-0.0005
		48	5240.0000	5240.0075	-0.0075
		52	5260.0000	5260.0061	-0.0061
		60	5300.0000	5300.0031	-0.0031
		64	5320.0000	5320.0058	-0.0058
		100	5500.0000	5500.0035	-0.0035
		116	5580.0000	5580.0016	-0.0016
		140	5700.0000	5700.0056	-0.0056

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tmin (0) °C	Vmax (138)V	36	5180.0000	5180.0050	-0.0050
		38	5220.0000	5220.0013	-0.0013
		48	5240.0000	5240.0083	-0.0083
		52	5260.0000	5260.0069	-0.0069
		60	5300.0000	5300.0039	-0.0039
		64	5320.0000	5320.0066	-0.0066
		100	5500.0000	5500.0043	-0.0043
		116	5580.0000	5580.0024	-0.0024
		140	5700.0000	5700.0064	-0.0064
Tmin (0) °C	Vmin (102)V	36	5180.0000	5180.0046	-0.0046
		38	5220.0000	5220.0009	-0.0009
		48	5240.0000	5240.0079	-0.0079
		52	5260.0000	5260.0065	-0.0065
		60	5300.0000	5300.0035	-0.0035
		64	5320.0000	5320.0062	-0.0062
		100	5500.0000	5500.0039	-0.0039
		116	5580.0000	5580.0020	-0.0020
		140	5700.0000	5700.0060	-0.0060

Product : MOXA IEEE802.11 a/b/g mini PCI module  
 Test Item : Frequency Stability  
 Test Site : Temperature Chamber  
 Test Mode : Carrier Wave

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (20) °C	Vnom (120)V	44	5210.0000	5210.0083	-0.0083
		60	5290.0000	5290.0079	-0.0079
Tnom (50) °C	Vnom (138)V	44	5210.0000	5210.0079	-0.0079
		60	5290.0000	5290.0075	-0.0075
Tnom (50) °C	Vnom (138)V	44	5210.0000	5210.0094	-0.0094
		60	5290.0000	5290.0090	-0.0090
Tnom (0) °C	Vnom (138)V	44	5210.0000	5210.0071	-0.0071
		60	5290.0000	5290.0067	-0.0067
Tnom (0) °C	Vnom (102)V	44	5210.0000	5210.0086	-0.0086
		60	5290.0000	5290.0082	-0.0082

## 9. EMI Reduction Method During Compliance Testing

No modification was made during testing.