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	Feb. 22, 2018
Issued Date	Sep. 07, 2018
Report No.	1820212R-RFUSP08V00
Report Version	V1.0

Testing Laboratory
3023

Test Report

Issued Date: Sep. 07, 2018
Report No.: 1820212R-RFUSP08V00

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 12~48V
EUT Test Voltage	DC 12V
Trade Name	MOXA
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2016 ANSI C63.4: 2014, ANSI C63.10: 2013 789033 D02 General UNII Test Procedures New Rules v02
Test Result	Complied

Documented By : Anita Chou

(Senior Engineering Adm. Specialist / Anita Chou)

Tested By : Paul Jiang

(Engineer / Paul Jiang)

Approved By :

(Director / Vincent Lin)

TABLE OF CONTENTS

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: 5180-5320MHz, 5500-5700MHz, 5745-5825MHz 802.11n-40MHz: 5190-5310, 5510-5670MHz, 5755-5795MHz
Number of Channels	802.11a/n-20MHz: 24; 802.11n-40MHz: 11
Data Rate	802.11a: 6 - 54Mbps 802.11n: up to 300Mbps
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna Type	Omni-directional Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
LAN Cable	Shielded, 2m
Test Platform	Brand Name :MOXA,M/N: AWK-4131A-XXXXX (x=0-9,A-Z, blank or dash for marketing purpose and no impact safety related critical components and constructions)

Antenna List:

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	KINSUN	ANT-WDB-ANM-0502	Dipole Antenna	1.41dBi for 5GHz
2	MOXA	ANT-WDB-ANM-0306	Omni-directional	6.0 dBi for 5 GHz
3	MOXA	MAT-WDB-CA-RM-2-0205	Omni-directional	5.0 dBi for 5 GHz
4	MOXA	MAT-WDB-DA-RM-2-0203-1m	Omni-directional	3.0 dBi for 5 GHz
5	MOXA	ANT-WDB-ARM-0202	Omni-directional	1.8 dBi for 5 GHz
6	MOXA	ANT-WDB-ARM-02	Omni-directional	2.0 dBi for 5 GHz
7	MOXA	ANT-WDB-ANM-0502	Omni-directional	2.0 dBi for 5 GHz
8	MOXA	ANT-WDB-ANF-0407	Omni-directional	7.0 dBi for 5 GHz
9	MOXA	ANT-WDB-ANM-0407	Omni-directional	7.0 dBi for 5 GHz
10	MOXA	ANT-WDB-ANF-0609	Omni-directional	9.0 dBi for 5 GHz
11	MOXA	ANT-WDB-ANM-0609	Omni-directional	9.0 dBi for 5 GHz
12	MOXA	ANT-WSB5-ANF-12	Omni-directional	12 dBi for 5 GHz

Note: Addition eleven new antenna, antenna type Omni-directional, esach antenna has been evaluated and only the worst case (higher gain antenna) is presented in the report. (Antenna Gain: 5GHz: 12 dBi).

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 52:	5260 MHz	Channel 56:	5280 MHz	Channel 60:	5300 MHz	Channel 64:	5320 MHz
Channel 100:	5500 MHz	Channel 104:	5520 MHz	Channel 108:	5540 MHz	Channel 112:	5560 MHz
Channel 116:	5580 MHz	Channel 120:	5600 MHz	Channel 124:	5620 MHz	Channel 128:	5640 MHz
Channel 132:	5660 MHz	Channel 136:	5680 MHz	Channel 140:	5700 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 54:	5270 MHz	Channel 62:	5310 MHz
Channel 102:	5510 MHz	Channel 110:	5550 MHz	Channel 118:	5590 MHz	Channel 126:	5630 MHz
Channel 134:	5670 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 10/27/2015. The major change filed under this application is:
   Change #1: Addition eleven Omni-directional antenna, antenna type is different with the original application.
   Change #2: Reduce the Output Power through firmware filing to demonstrate compliance .

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

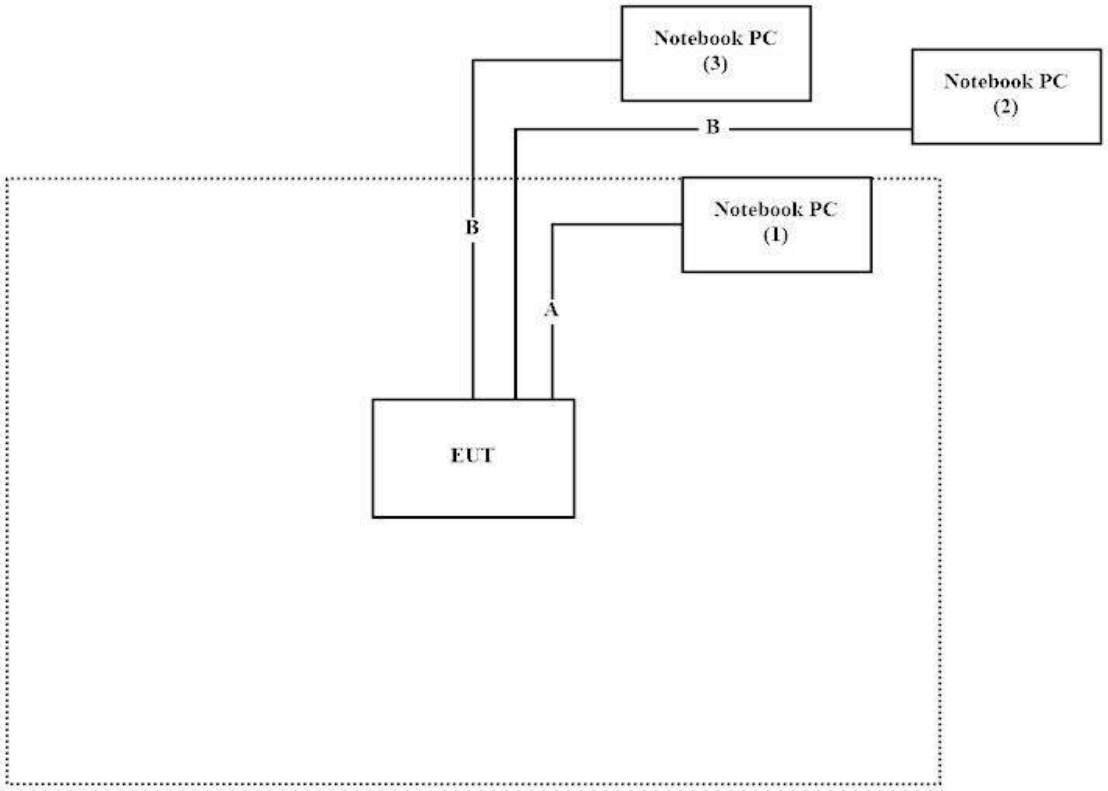
1.3. Tested System Datails

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
2	Notebook PC	DELL	Latitude E5440	FS9TK32	Non-Shielded, 0.8m
3	Notebook PC	DELL	Latitude E5440	74BTK32	Non-Shielded, 0.8m

Signal Cable Type		Signal cable Description
A	LAN Cable	Shielded, 2m
B	LAN Cable	Non-shielded, 3m, two PCS.

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	2018/2/12	2019/2/11
X	Spectrum Analyzer	Agilent	N9010A	MY48030495	2017/10/13	2018/10/12
X	Peak Power Analyzer	Keysight	8990B	MY51000410	2018/7/19	2019/7/18
X	Wideband Power Sensor	Keysight	N1923A	MY56080003	2018/7/6	2019/7/5
X	Wideband Power Sensor	Keysight	N1923A	MY56080004	2018/7/6	2019/7/5
X	EMI Test Receiver	R&S	ESCS 30	100369	2017/11/7	2018/11/6
X	LISN	R&S	ESH3-Z5	836679/017	2018/2/9	2019/2/8
X	LISN	R&S	ENV216	100097	2018/2/9	2019/2/8
X	Coaxial Cable	DEKRA	RG 400	LC018-RG	2018/6/22	2019/6/21

For Radiated measurements /Site3/CB8

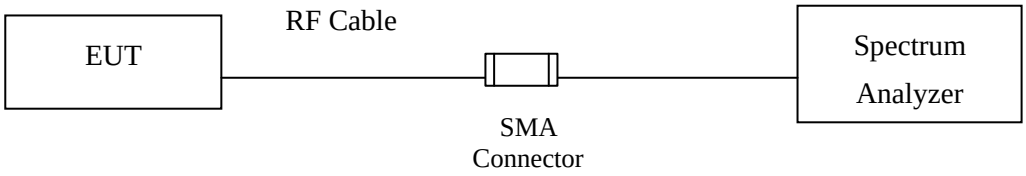
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Spectrum Analyzer	R&S	FSP40	100170	2018/3/12	2019/3/11
X	Loop Antenna	Teseq	HLA6121	37133	2017/10/13	2018/10/12
X	Bilog Antenna	Schaffner Chase	CBL6112B	2707	2018/6/25	2019/6/24
X	Coaxial Cable	DEKRA	RG 214	LC003-RG	2018/6/15	2019/6/14
X	Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330010	2018/7/19	2019/7/18
X	Horn Antenna	ETS-Lindgren	3117	00135205	2018/5/3	2019/5/2
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2018/4/10	2019/4/9
X	Coaxial Cable	QuieTek	SF-106	LC035/37/41-SF LC038-SF, LC037-SF	2018/6/21	2019/6/20
X	Amplifier + Cable	EMCI	EMC184045SE	980370	2018/3/21	2019/3/20
X	Horn Antenna	Com-Power	AH-840	101043	2018/1/9	2019/1/8
X	Filter	MicroTRON	BRM50701	019	2017/11/21	2018/11/20
X	Filter	Microwave Circuits	N0257881	36681	2018/1/22	2019/1/21

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.

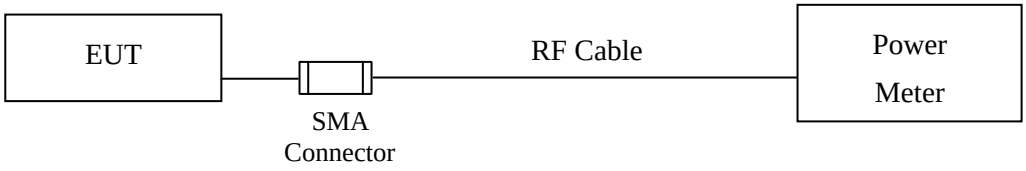
2. Maximun conducted output power

2.1. Test Setup

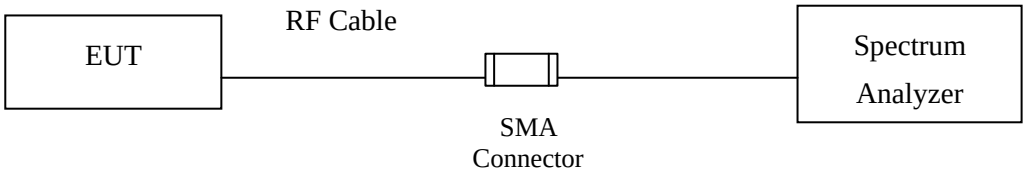
99%Occupied Bandwidth



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,

(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.

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 : 2018/09/07
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	17.59	--	--	--	--	--	--	--	<24dBm
44	5220	17.83	17.74	17.67	17.58	17.51	17.43	17.37	17.29	<24dBm
48	5240	17.85	--	--	--	--	--	--	--	<24dBm
52	5260	17.48	--	--	--	--	--	--	--	<18dBm
60	5300	17.13	17.06	17.02	16.96	16.91	16.87	16.82	16.75	<18dBm
64	5320	17.11	--	--	--	--	--	--	--	<18dBm
100	5500	16.21	--	--	--	--	--	--	--	<18dBm
116	5580	17.52	17.43	17.36	17.27	17.21	17.16	17.1	17.04	<18dBm
140	5700	15.08	--	--	--	--	--	--	--	<18dBm
149	5745	15.86	--	--	--	--	--	--	--	<24dBm
157	5785	15.85	15.76	17.69	17.57	17.5	17.42	17.36	17.24	<24dBm
165	5825	17.22	--	--	--	--	--	--	--	<24dBm

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.

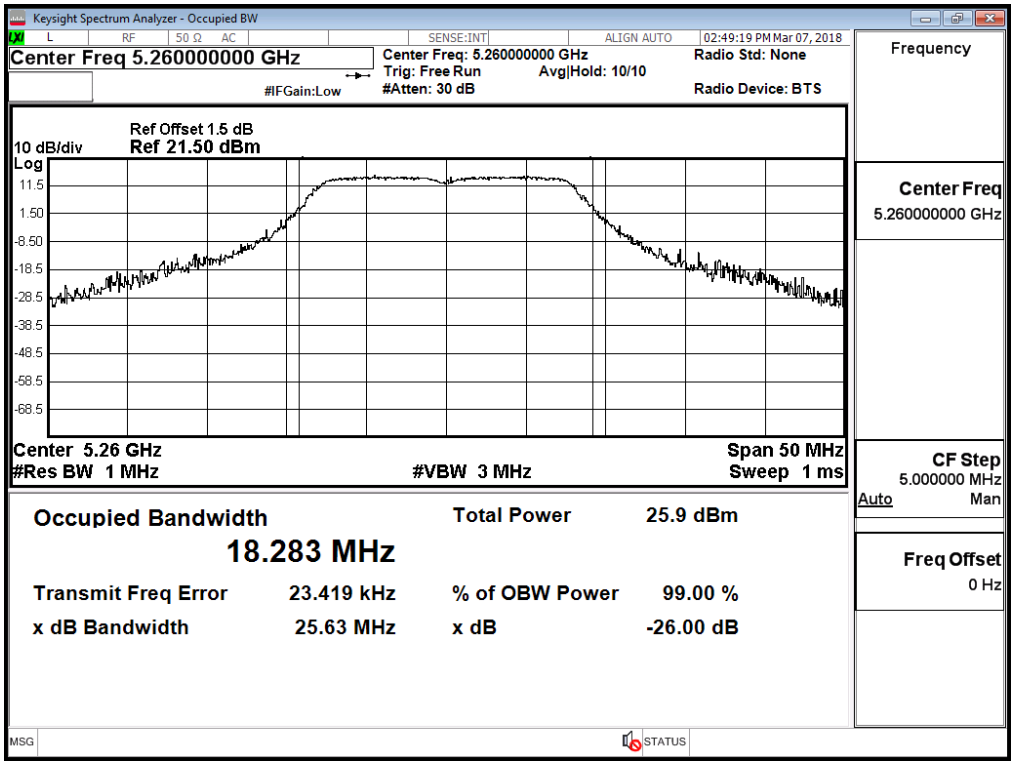
Maximum conducted output power Measurement:

Channel No	Frequency Range (MHz)	99% Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
36	5180	--	17.59	24	--	Pass
44	5220	--	17.83	24	--	Pass
48	5240	--	17.85	24	--	Pass
52	5260	18.283	17.48	18	17.62	Pass
60	5300	18.272	17.13	18	17.62	Pass
64	5320	18.214	17.11	18	17.60	Pass
100	5500	18.320	16.21	18	17.63	Pass
116	5580	18.586	17.52	18	17.69	Pass
140	5700	18.233	15.08	18	17.61	Pass
149	5745	--	15.86	24	--	Pass
157	5785	--	17.69	24	--	Pass
165	5825	--	17.22	24	--	Pass

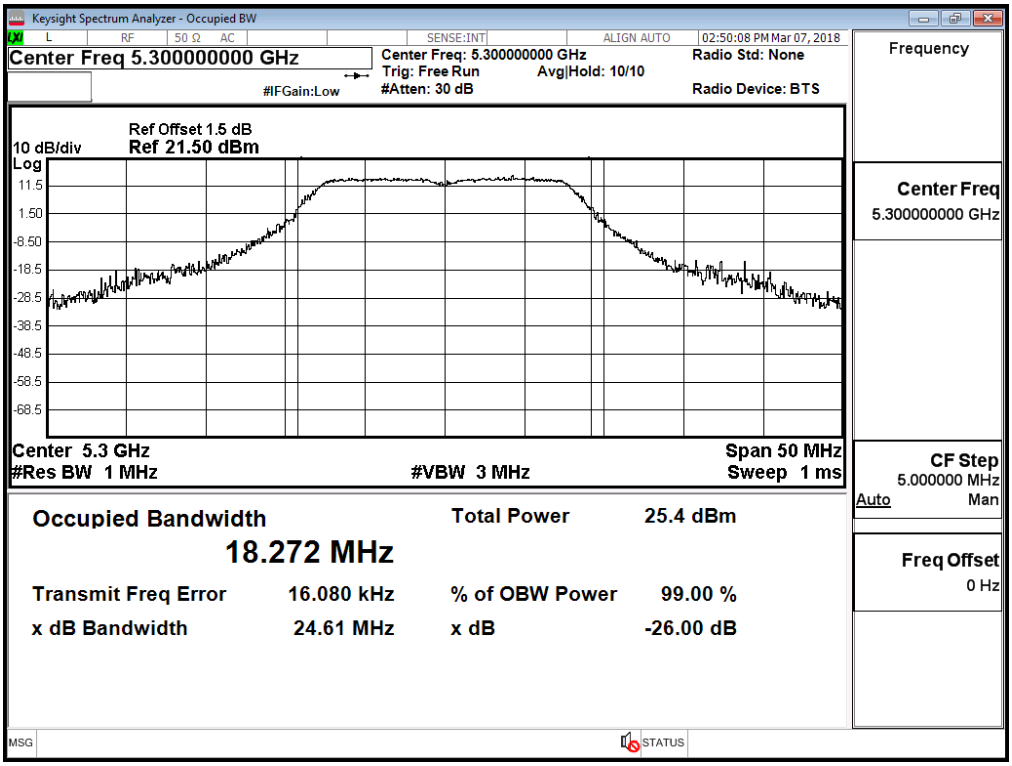
Note: Power Output Value =Reading value on average power meter + cable loss

99% Occupied Bandwidth:

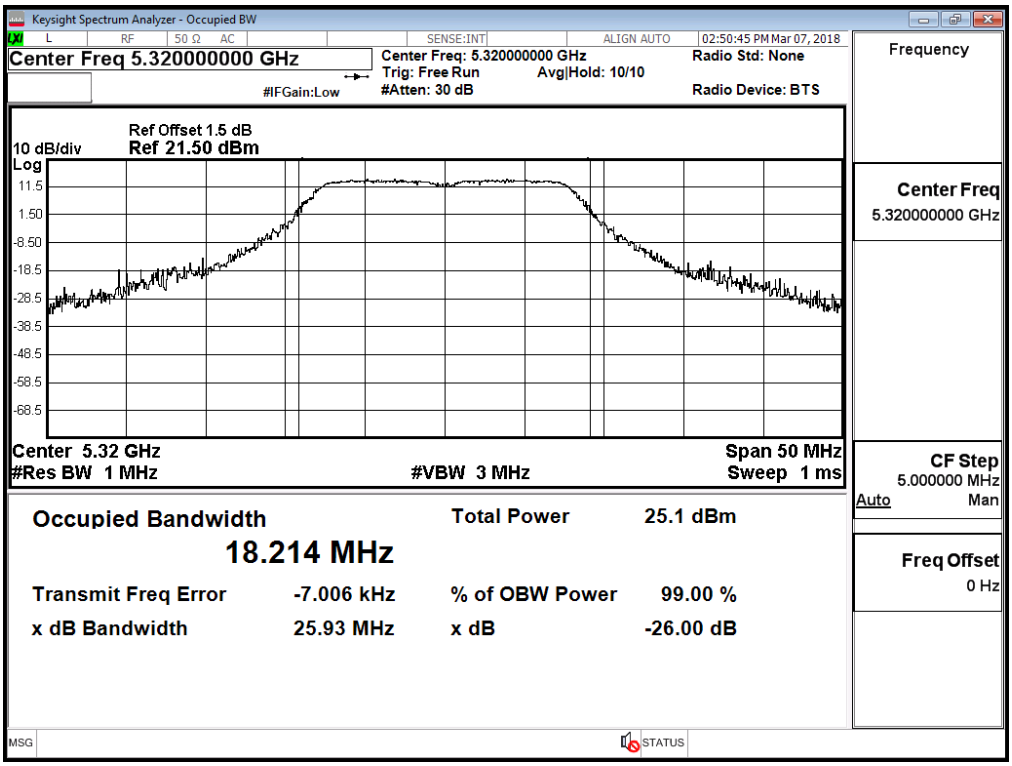
Channel 52:



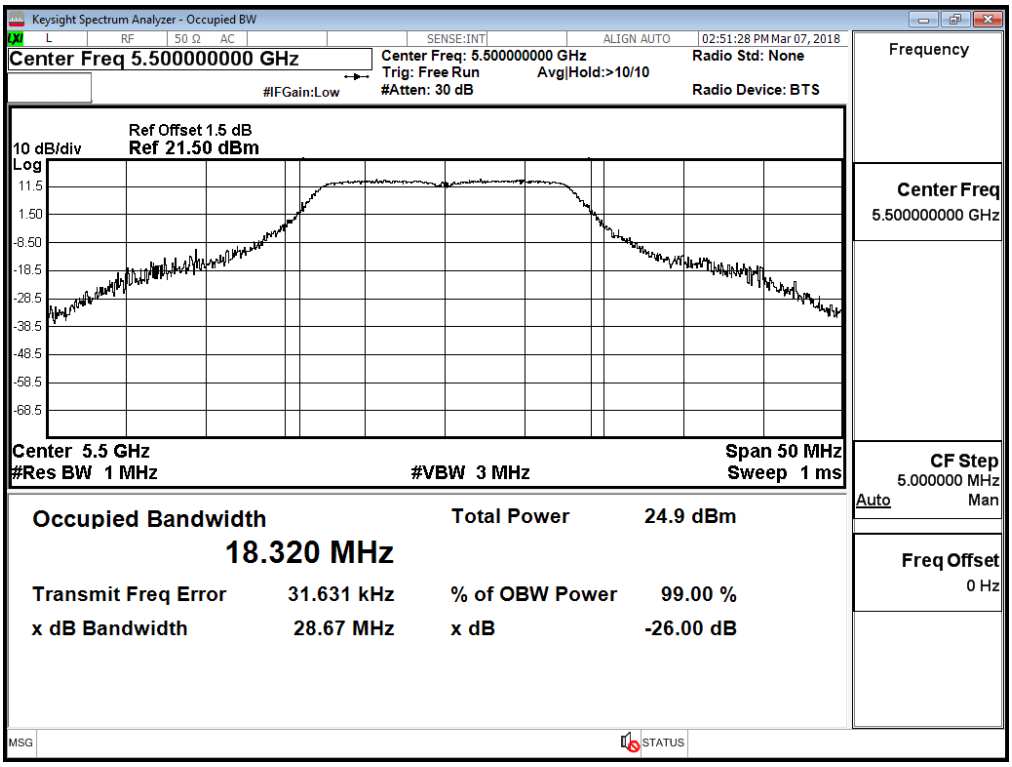
Channel 60:



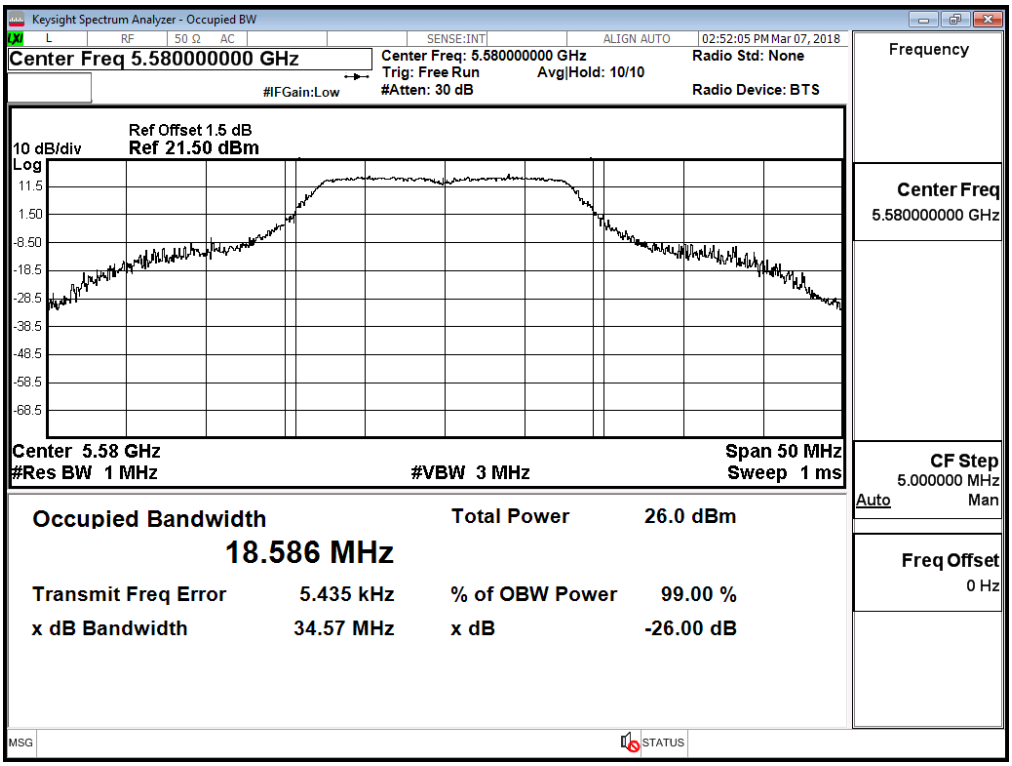
Channel 64:



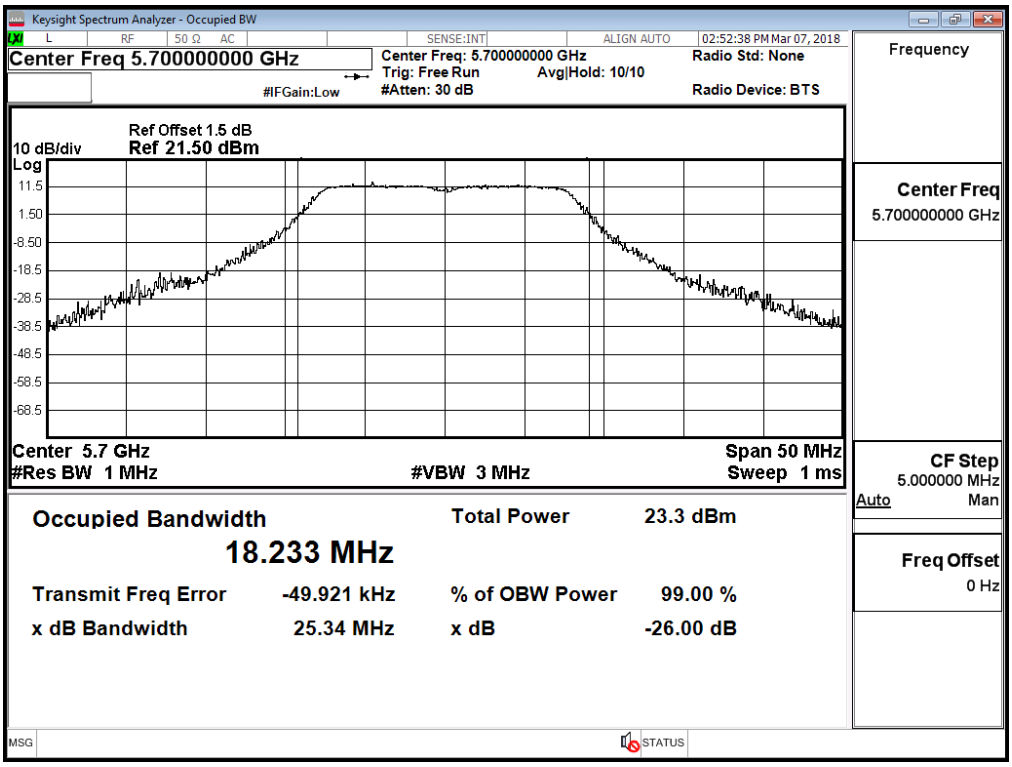
Channel 100:



Channel 120:



Channel 140:



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Date : 2018/09/07
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	14.5	--	--	--	--	--	--	--	<24dBm
44	5220	14.34	14.27	14.21	14.13	14.09	14.02	13.95	13.91	<24dBm
48	5240	15.47	--	--	--	--	--	--	--	<24dBm
52	5260	13.42	--	--	--	--	--	--	--	<18dBm
60	5300	13.92	13.85	13.78	13.73	13.67	13.63	13.56	13.49	<18dBm
64	5320	13.34	--	--	--	--	--	--	--	<18dBm
100	5500	13.18	--	--	--	--	--	--	--	<18dBm
116	5580	13.78	13.74	13.7	13.66	13.62	13.58	13.54	13.5	<18dBm
140	5700	14.02	--	--	--	--	--	--	--	<18dBm
149	5745	16.83	--	--	--	--	--	--	--	<24dBm
157	5785	18.6	18.51	18.43	18.39	18.3	18.24	18.18	18.1	<24dBm
165	5825	18.52	--	--	--	--	--	--	--	<24dBm

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.

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	14.73	--	--	--	--	--	--	--	<24dBm
44	5220	15.3	15.2	15.14	15.06	14.94	14.88	14.76	14.71	<24dBm
48	5240	14.32	--	--	--	--	--	--	--	<24dBm
52	5260	14.63	--	--	--	--	--	--	--	<18dBm
60	5300	14.96	14.91	14.85	14.79	14.71	14.63	14.57	14.52	<18dBm
64	5320	14.69	--	--	--	--	--	--	--	<18dBm
100	5500	15.09	--	--	--	--	--	--	--	<18dBm
116	5580	15.35	15.31	15.27	15.23	15.19	15.15	15.11	15.07	<18dBm
140	5700	15.21	--	--	--	--	--	--	--	<18dBm
149	5745	17.27	--	--	--	--	--	--	--	<24dBm
157	5785	18.58	18.43	18.31	18.24	18.18	18.09	17.95	17.82	<24dBm
165	5825	18.9	--	--	--	--	--	--	--	<24dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

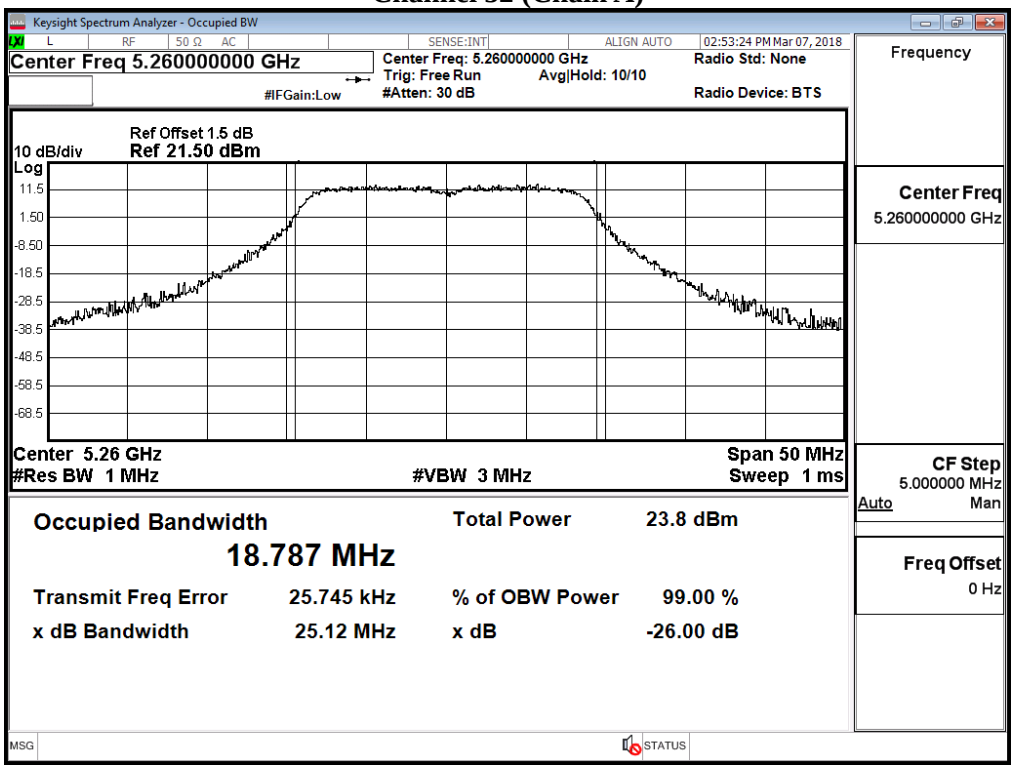
Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
36	5180	--	14.50	14.73	17.63	24	--
44	5220	--	14.34	15.30	17.86	24	--
48	5240	--	15.47	14.32	17.94	24	--
52	5260	18.739	13.42	14.63	17.08	18	17.73
60	5300	18.780	13.92	14.96	17.48	18	17.74
64	5320	18.753	13.34	14.69	17.08	18	17.73
100	5500	18.790	13.18	15.09	17.25	18	17.74
116	5580	18.731	13.78	15.35	17.65	18	17.73
140	5700	18.752	14.02	15.21	17.67	18	17.73
149	5745	--	16.83	17.27	20.07	24	--
157	5785	--	18.60	18.58	21.60	24	--
165	5825	--	18.52	18.90	21.72	24	--

Note:

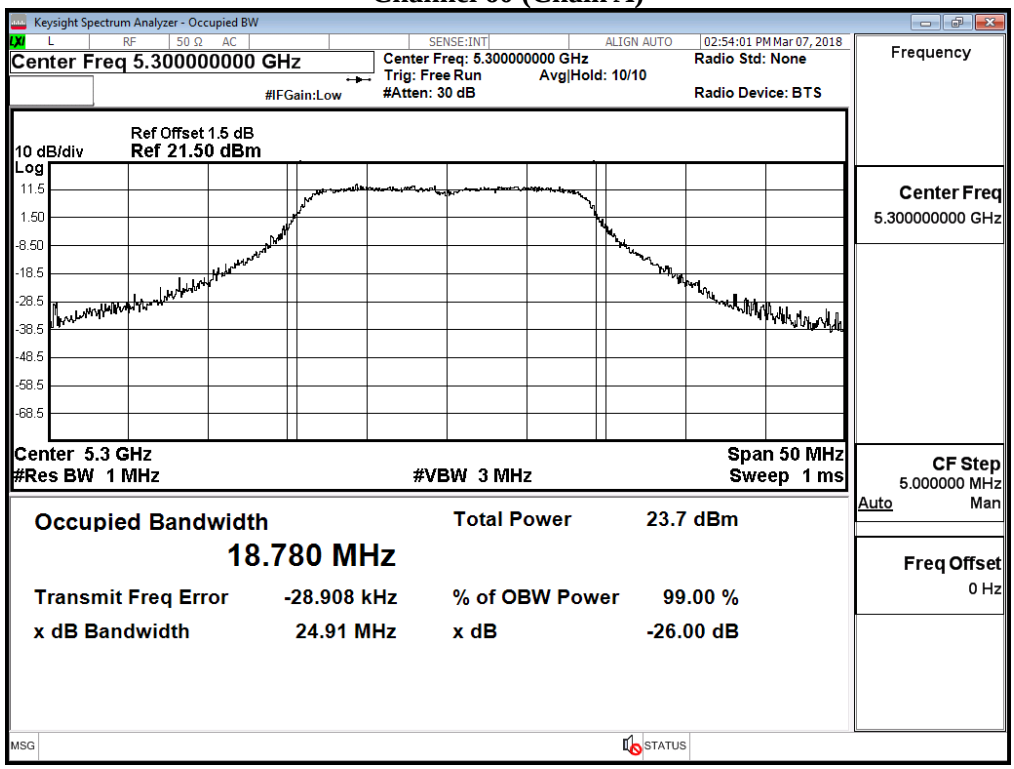
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
3. 26 dB Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.
4. The maximum conducted output power shall be reduced by the amount in dB that the directional gain the antenna exceeds 6 dBi.

99% Occupied Bandwidth:

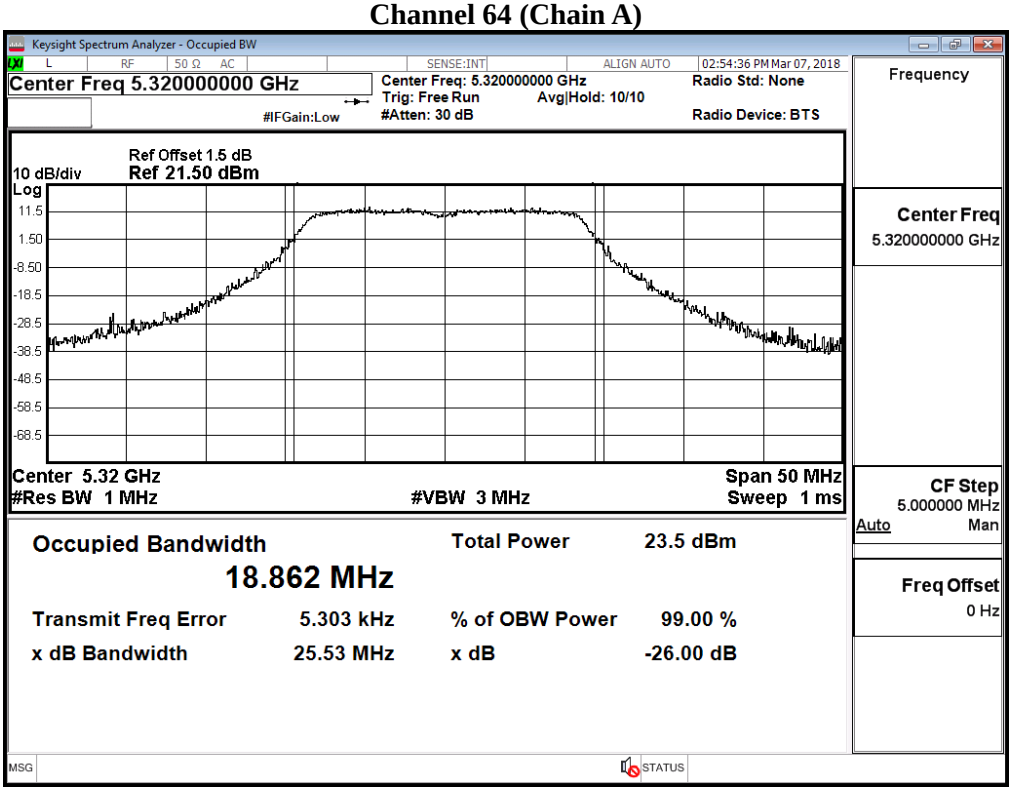
Channel 52 (Chain A)



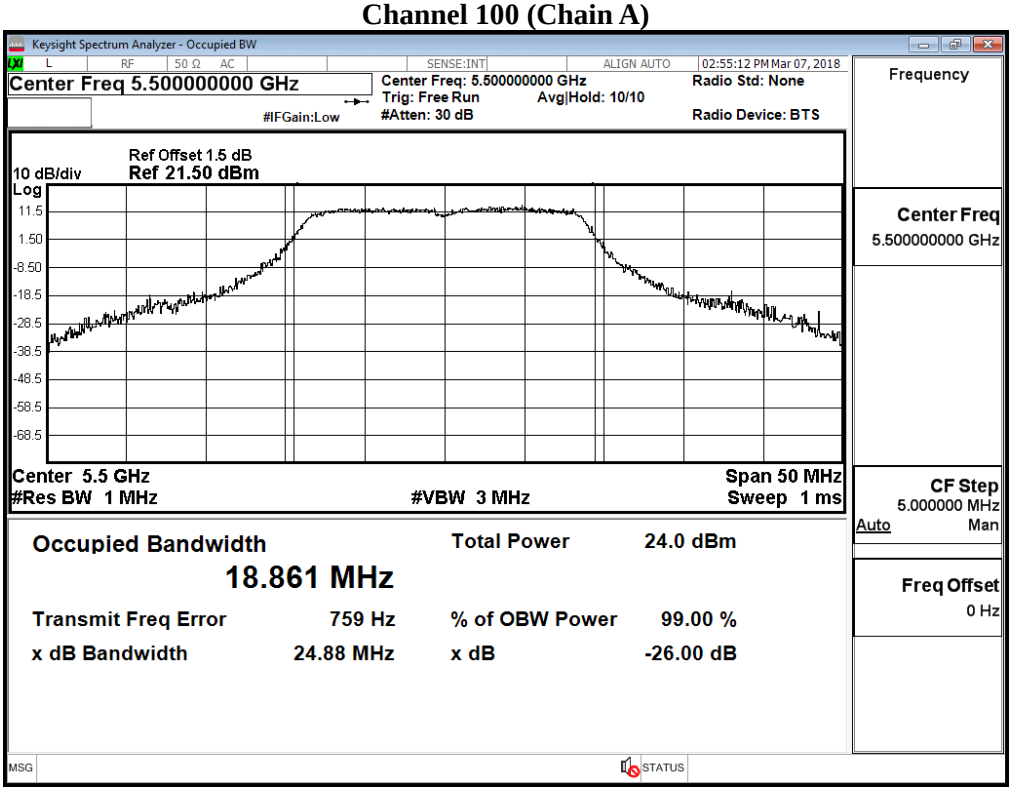
Channel 60 (Chain A)



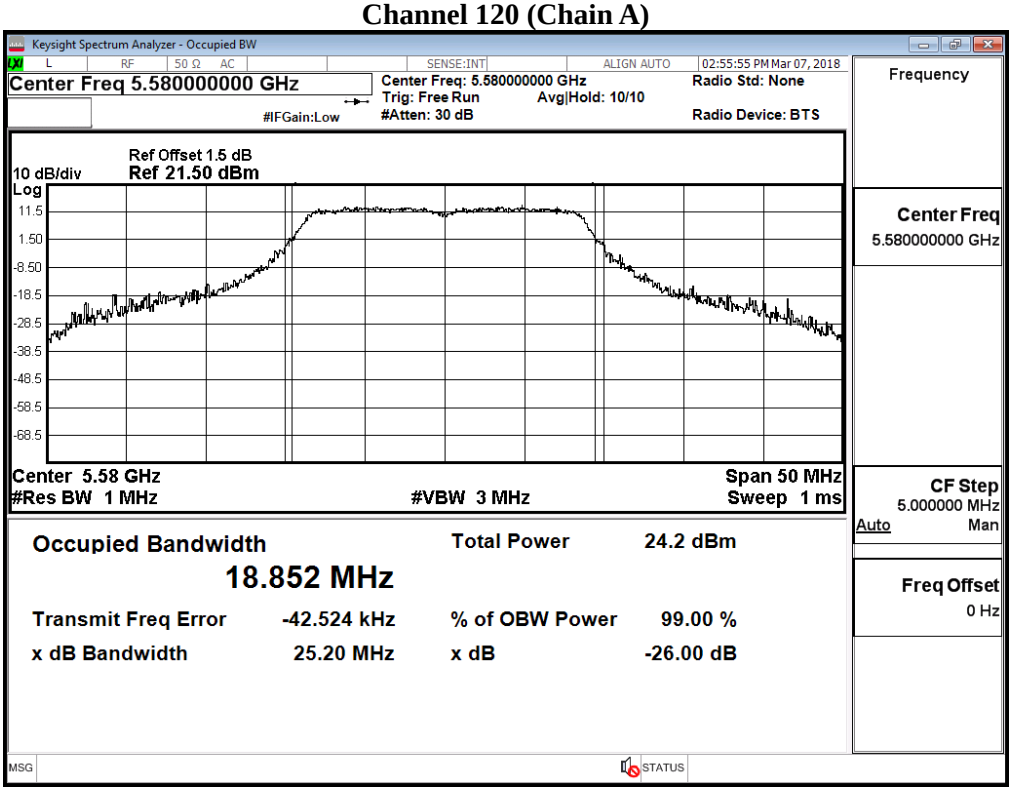
Channel 64 (Chain A)



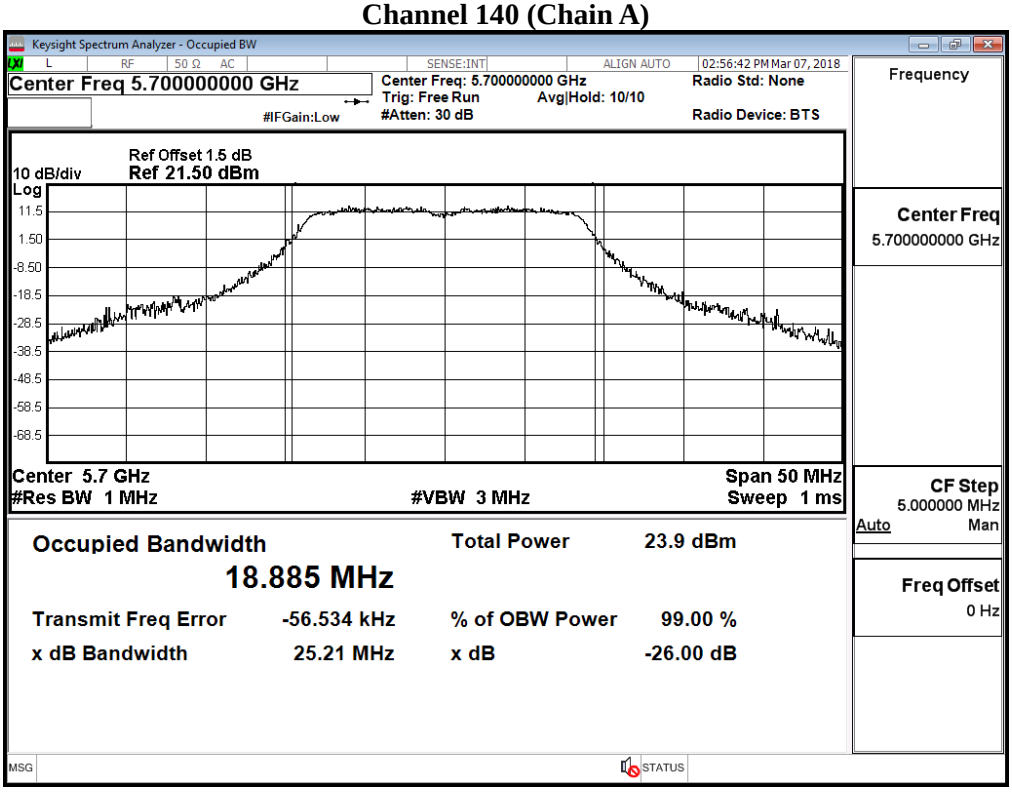
Channel 100 (Chain A)



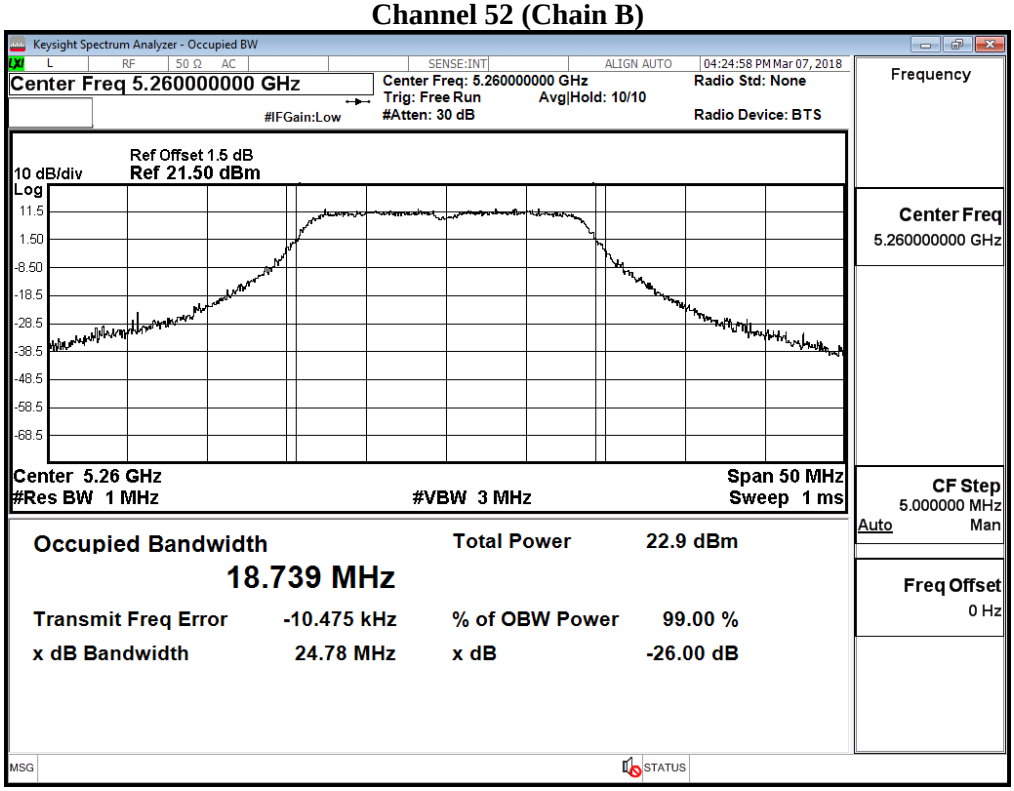
Channel 120 (Chain A)



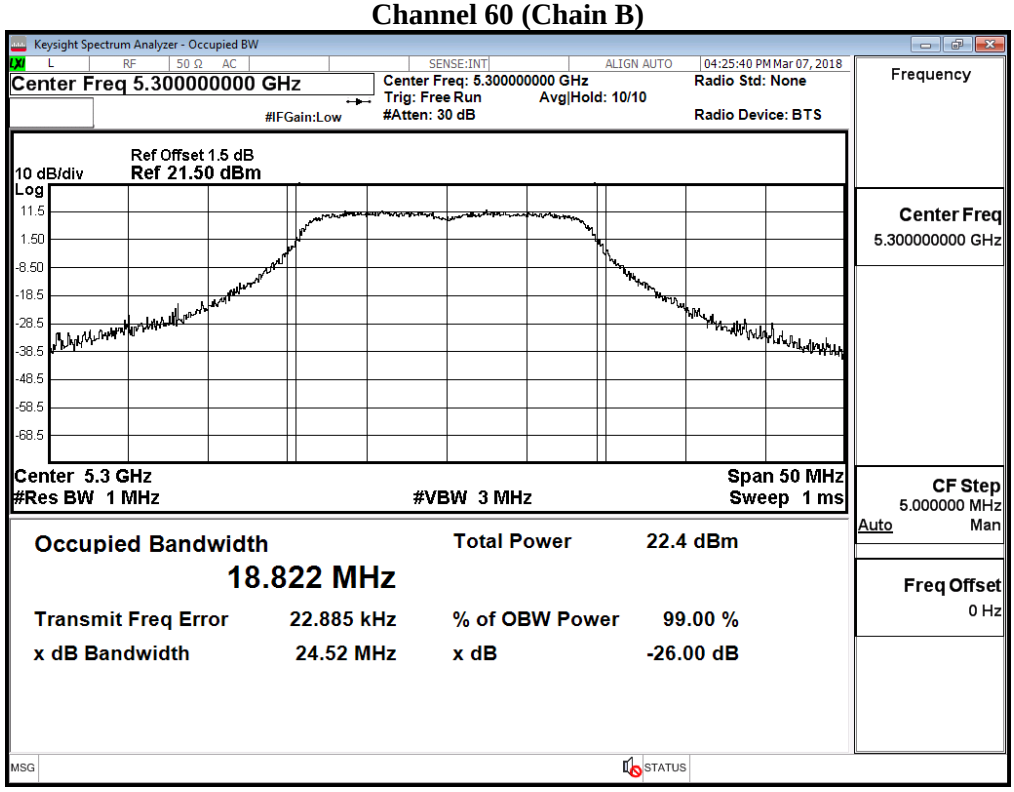
Channel 140 (Chain A)



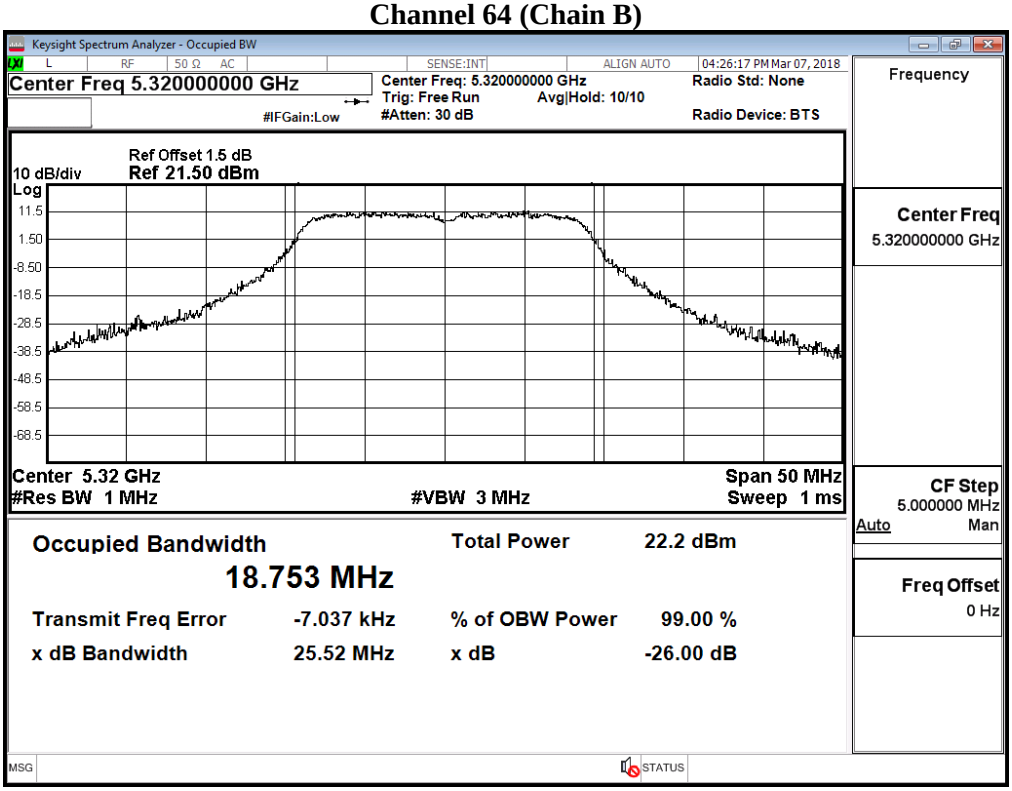
Channel 52 (Chain B)



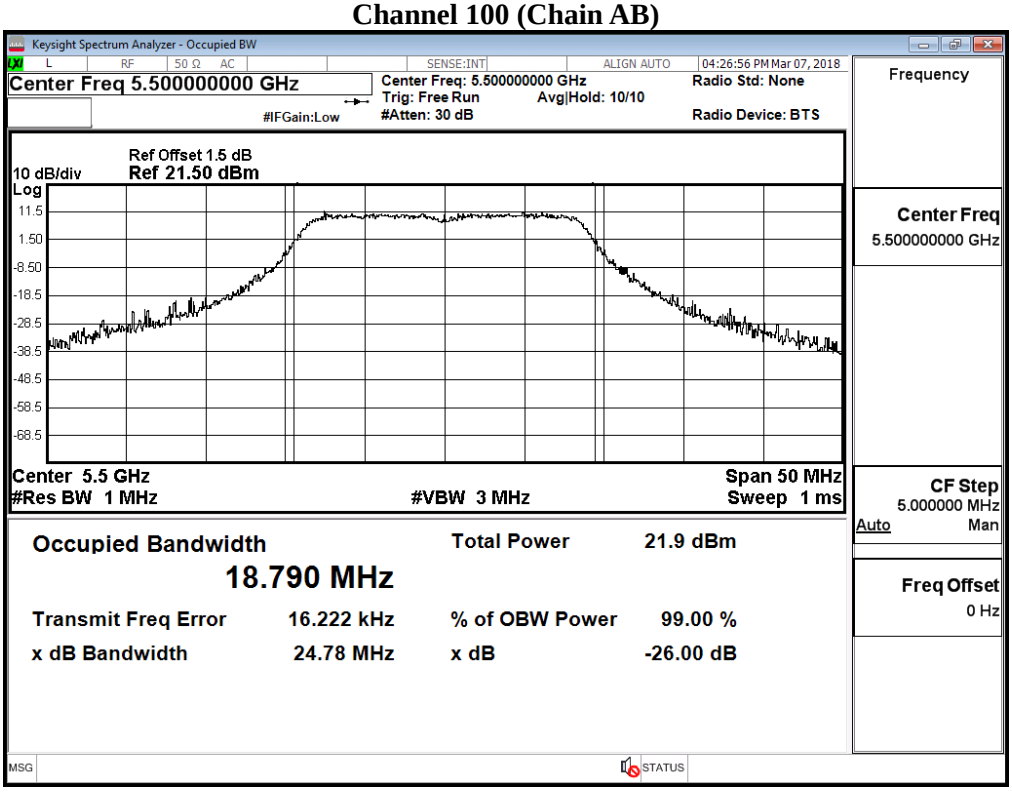
Channel 60 (Chain B)



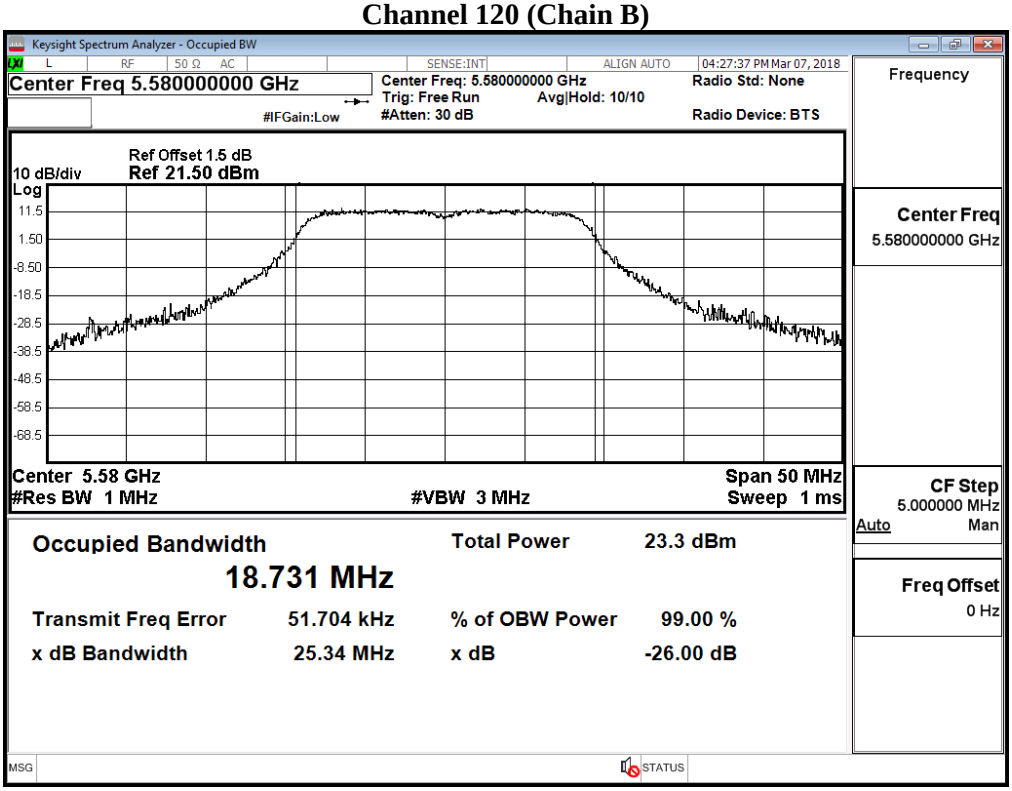
Channel 64 (Chain B)



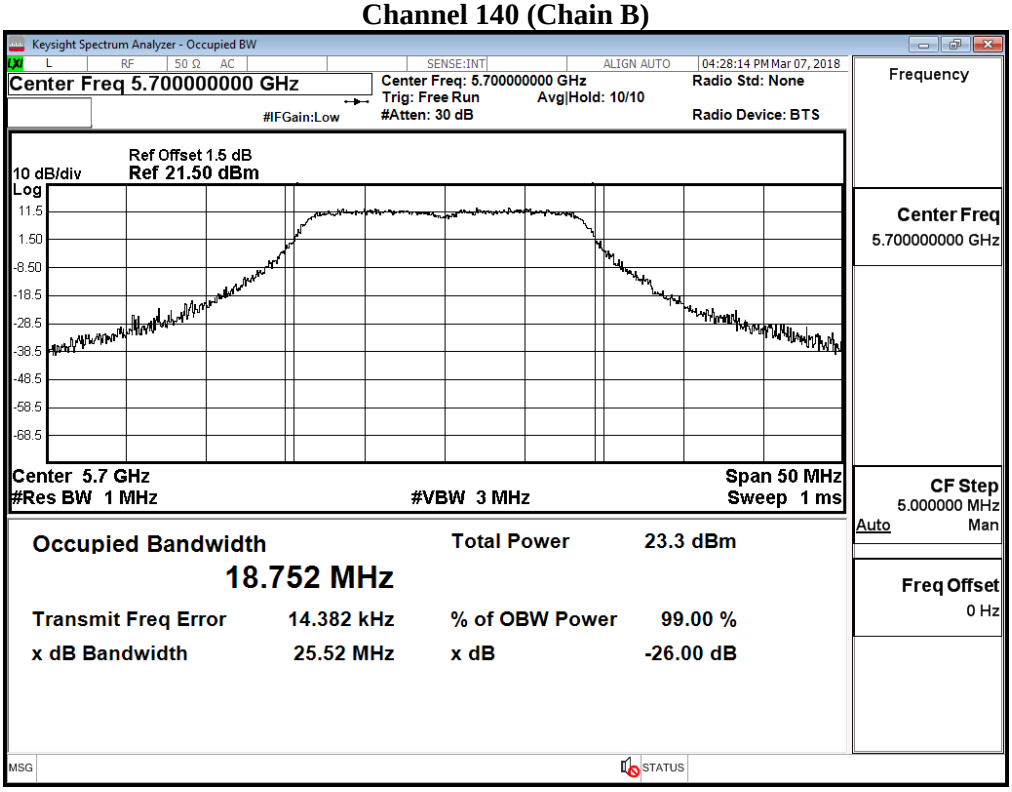
Channel 100 (Chain AB)



Channel 120 (Chain B)



Channel 140 (Chain B)



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Date : 2018/09/07
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	13.01	--	--	--	--	--	--	--	<24dBm
46	5230	14.51	14.43	14.37	14.31	14.25	14.18	14.12	14.04	<24dBm
54	5270	14.13	--	--	--	--	--	--	--	<18dBm
62	5310	12.28	12.15	12.09	11.98	11.84	11.76	11.59	11.42	<18dBm
102	5510	10.26	--	--	--	--	--	--	--	<18dBm
110	5550	13.37	13.27	13.18	13.06	12.94	12.85	12.72	12.6	<18dBm
134	5670	14.42	--	--	--	--	--	--	--	<18dBm
151	5755	13.65	--	--	--	--	--	--	--	<24dBm
159	5795	18.94	18.8	18.71	18.59	18.4	18.29	18.15	18.06	<24dBm

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	13.94	--	--	--	--	--	--	--	<24dBm
46	5230	15.09	15.01	14.93	14.86	14.81	14.72	14.65	14.61	<24dBm
54	5270	14.76	--	--	--	--	--	--	--	<18dBm
62	5310	13.96	13.85	13.72	13.69	13.55	13.48	13.39	13.25	<18dBm
102	5510	13.45	--	--	--	--	--	--	--	<18dBm
110	5550	15.34	15.22	15.14	15.06	14.92	14.81	14.73	14.59	<18dBm
134	5670	15.2	--	--	--	--	--	--	--	<18dBm
151	5755	14.31	--	--	--	--	--	--	--	<24dBm
159	5795	19.19	19.05	18.92	18.79	18.61	18.52	18.44	18.29	<24dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

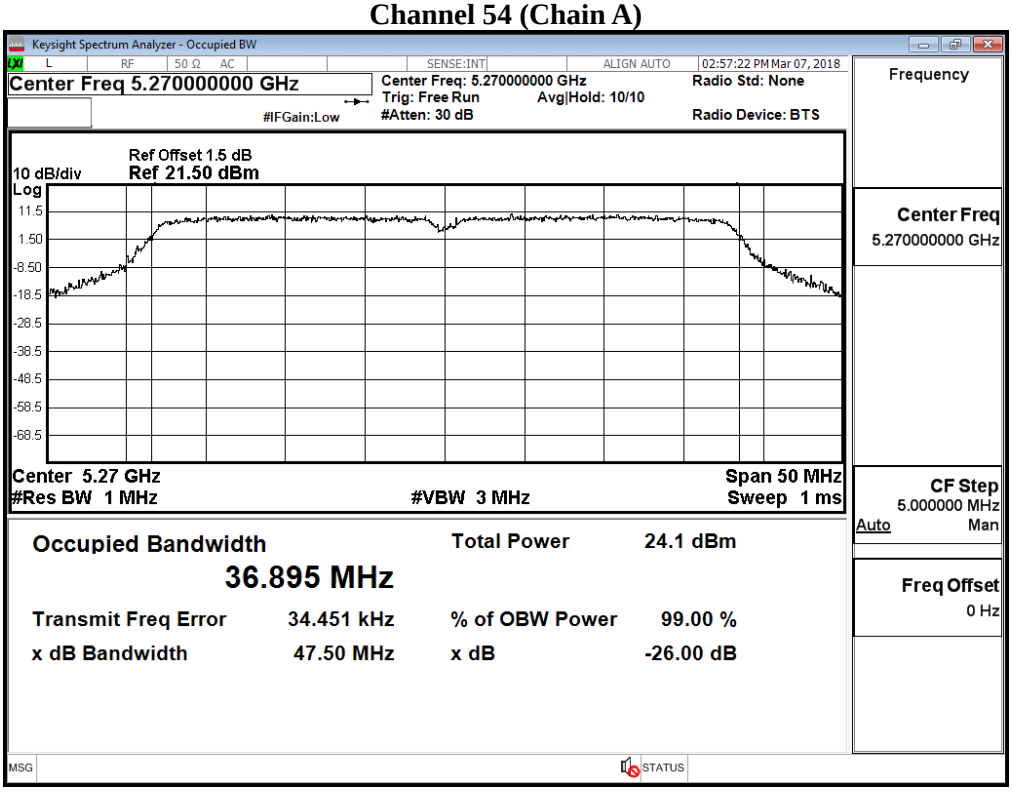
Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
38	5190	--	13.01	13.94	16.51	24	--
46	5230	--	14.51	15.09	17.82	24	--
54	5270	36.871	14.13	14.76	17.47	18	20.67
62	5310	36.860	12.28	13.96	16.21	18	20.67
102	5510	36.910	10.26	13.45	15.15	18	20.67
110	5550	36.958	13.37	15.34	17.48	18	20.68
134	5670	36.922	14.42	15.20	17.84	18	20.67
151	5755	--	13.65	14.31	17.00	24	--
159	5795	--	18.94	19.19	22.08	24	--

Note:

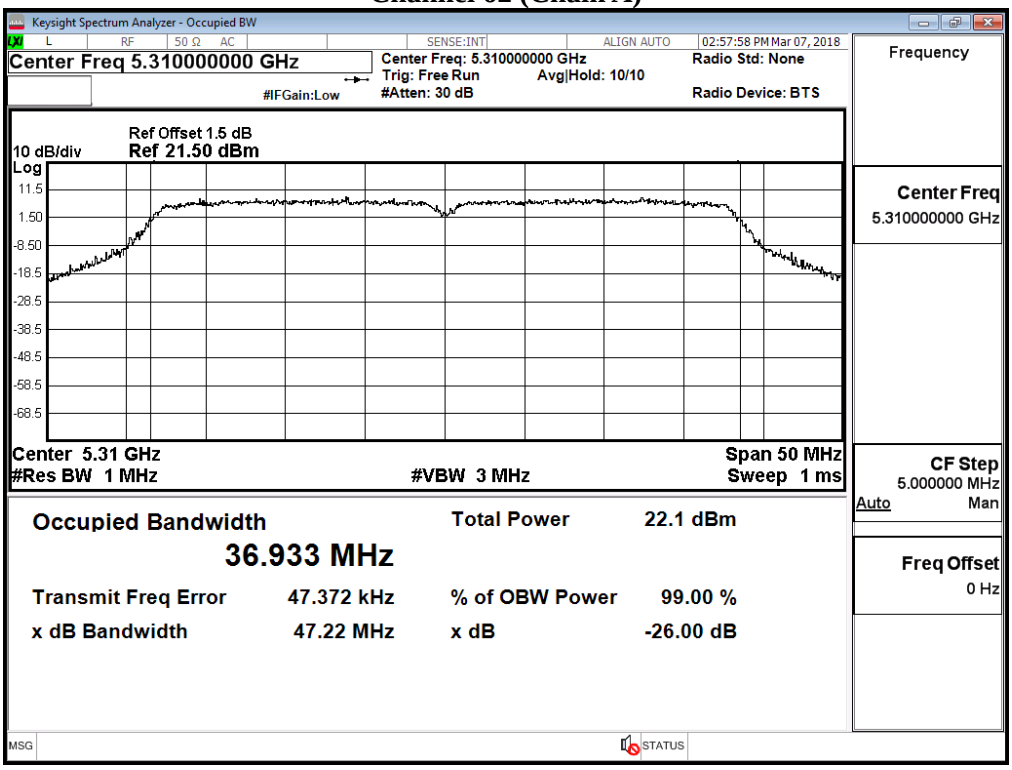
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
3. 26 dB Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.
4. The maximum conducted output power shall be reduced by the amount in dB that the directional gain the antenna exceeds 6 dBi.

99% Occupied Bandwidth:

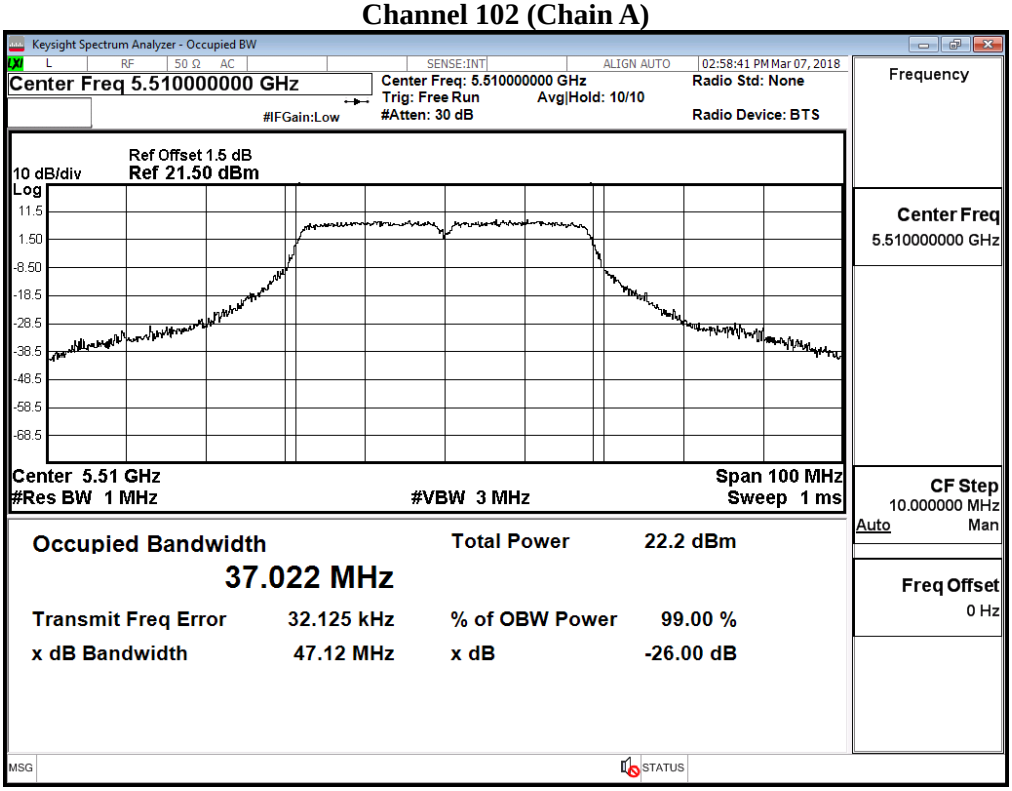
Channel 54 (Chain A)



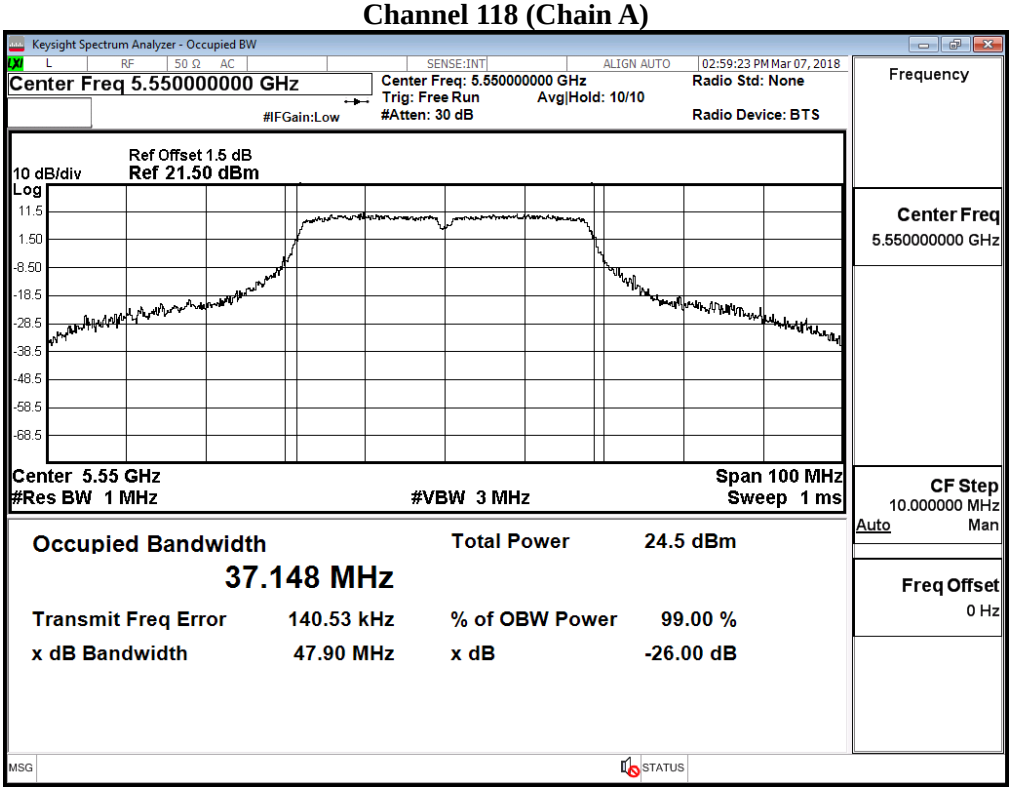
Channel 62 (Chain A)



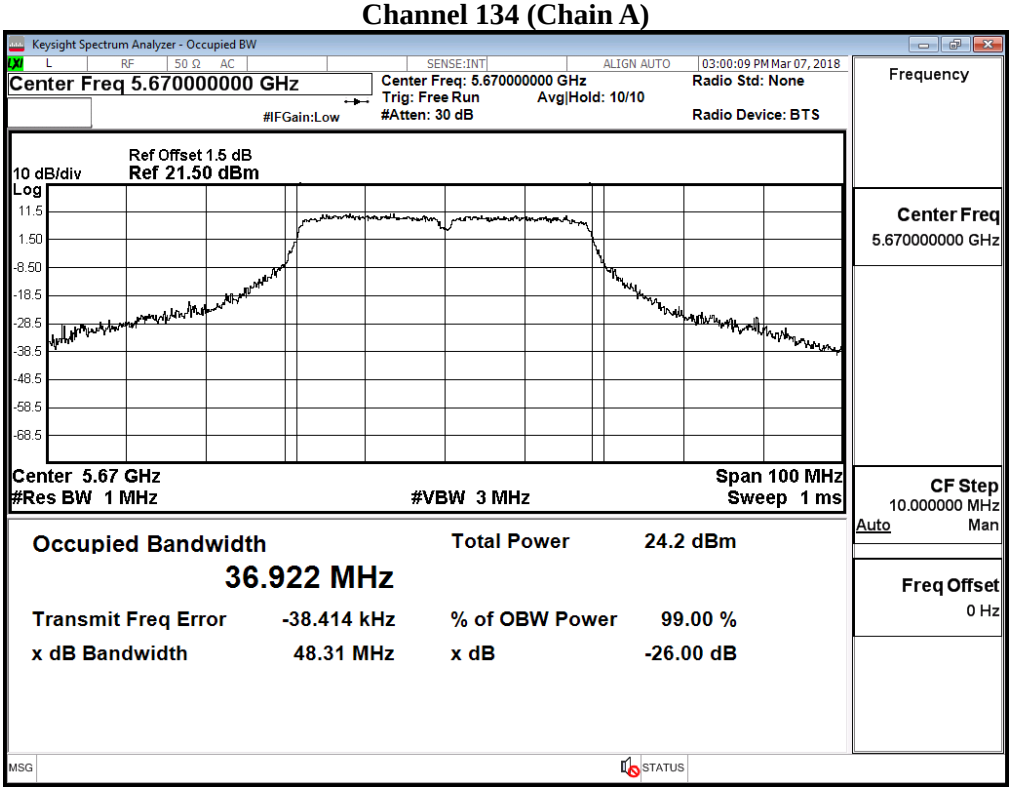
Channel 102 (Chain A)



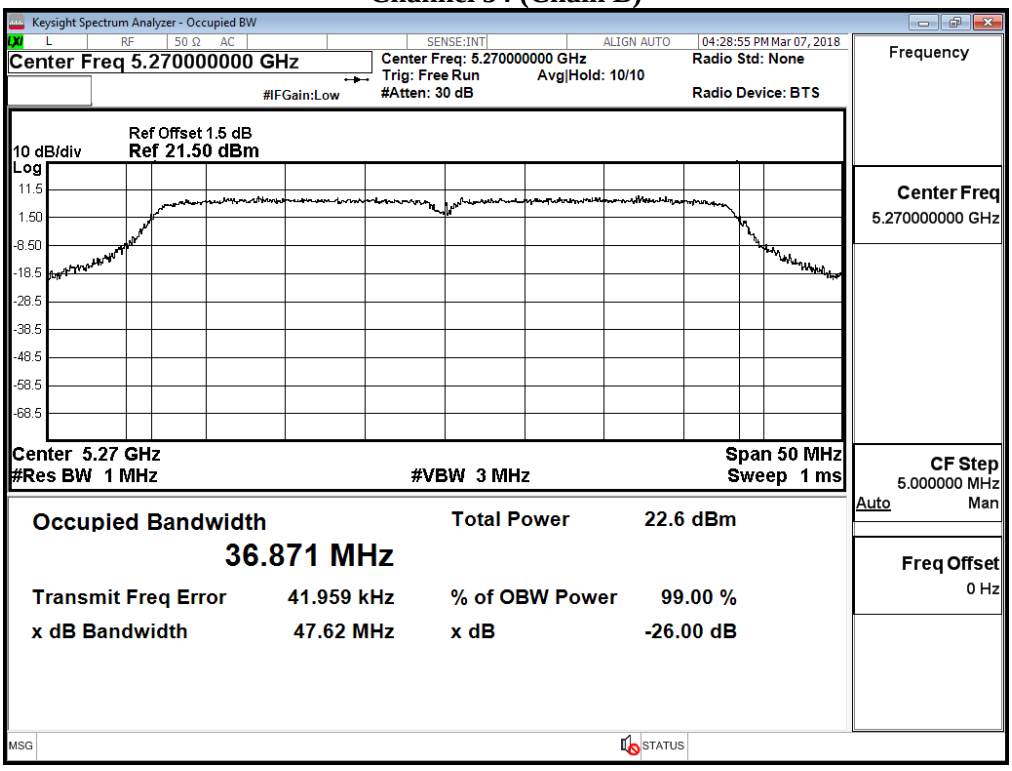
Channel 118 (Chain A)



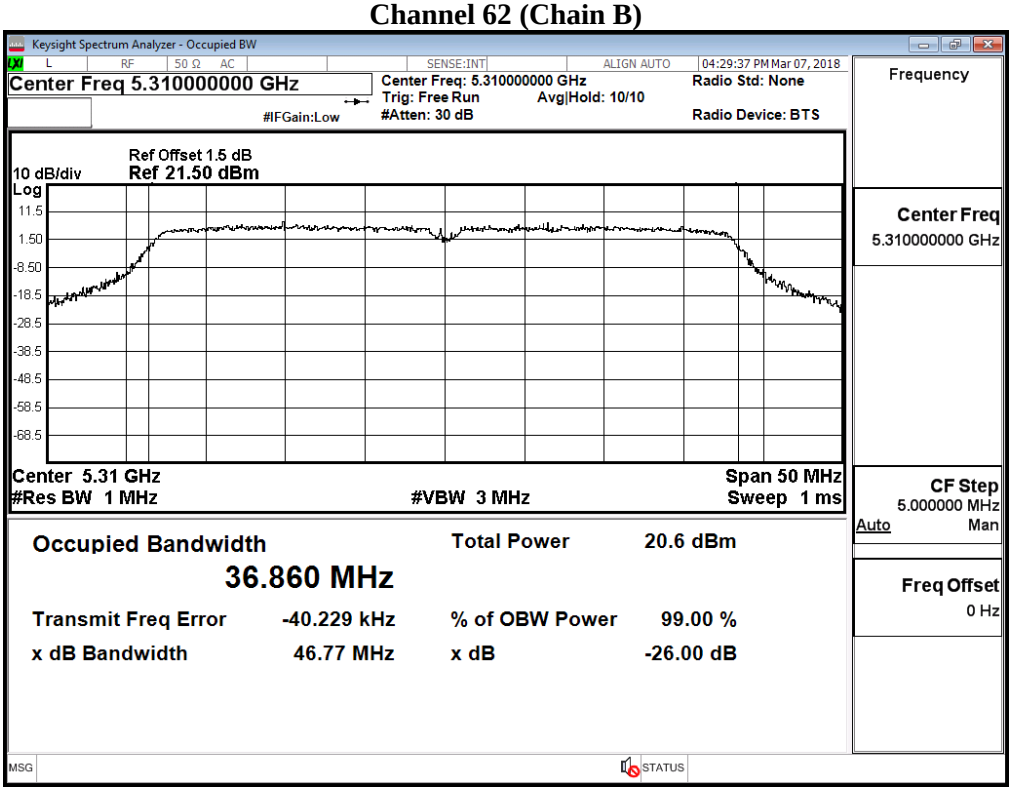
Channel 134 (Chain A)



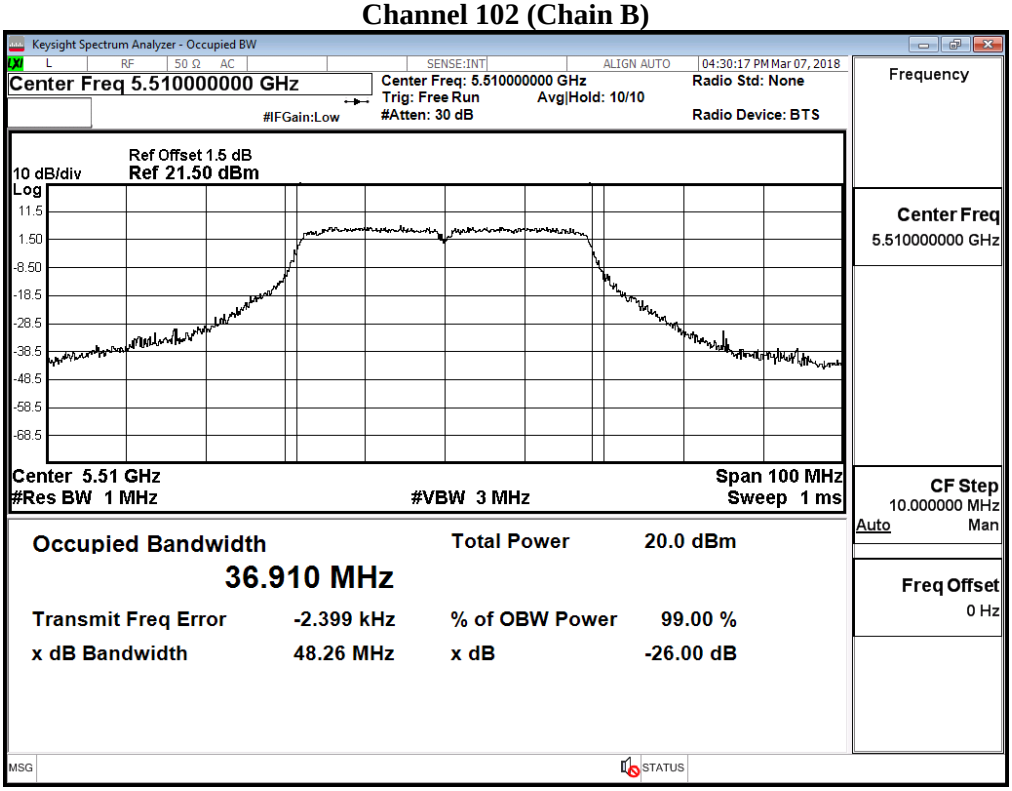
Channel 54 (Chain B)



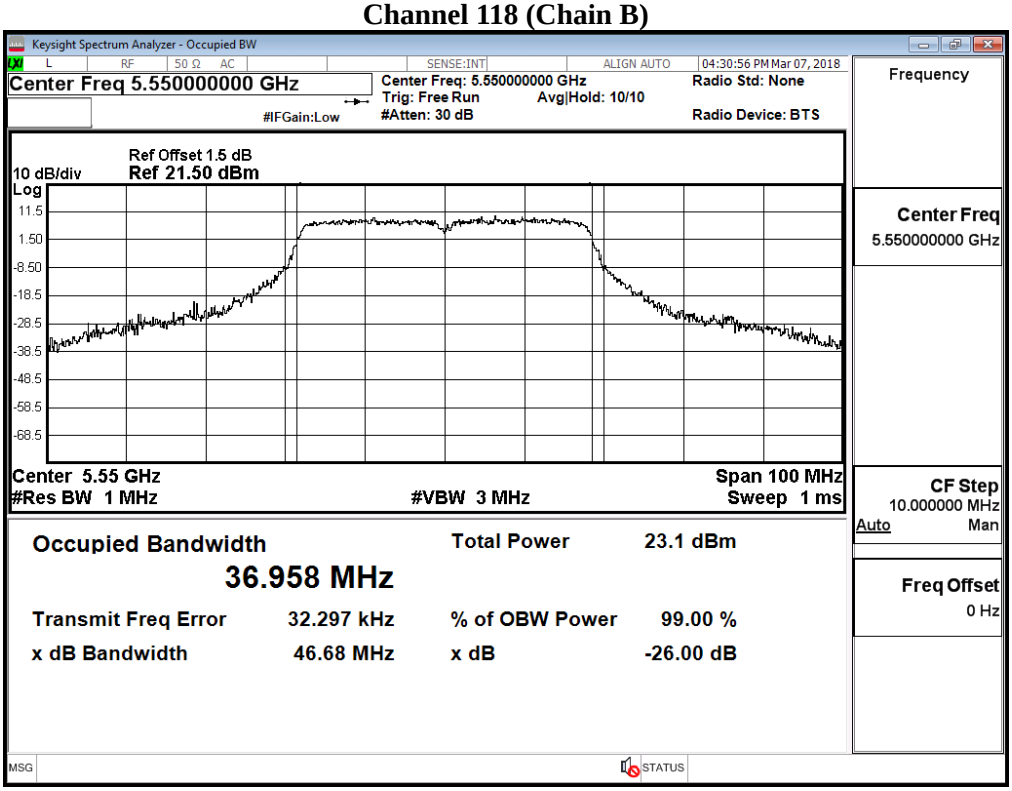
Channel 62 (Chain B)



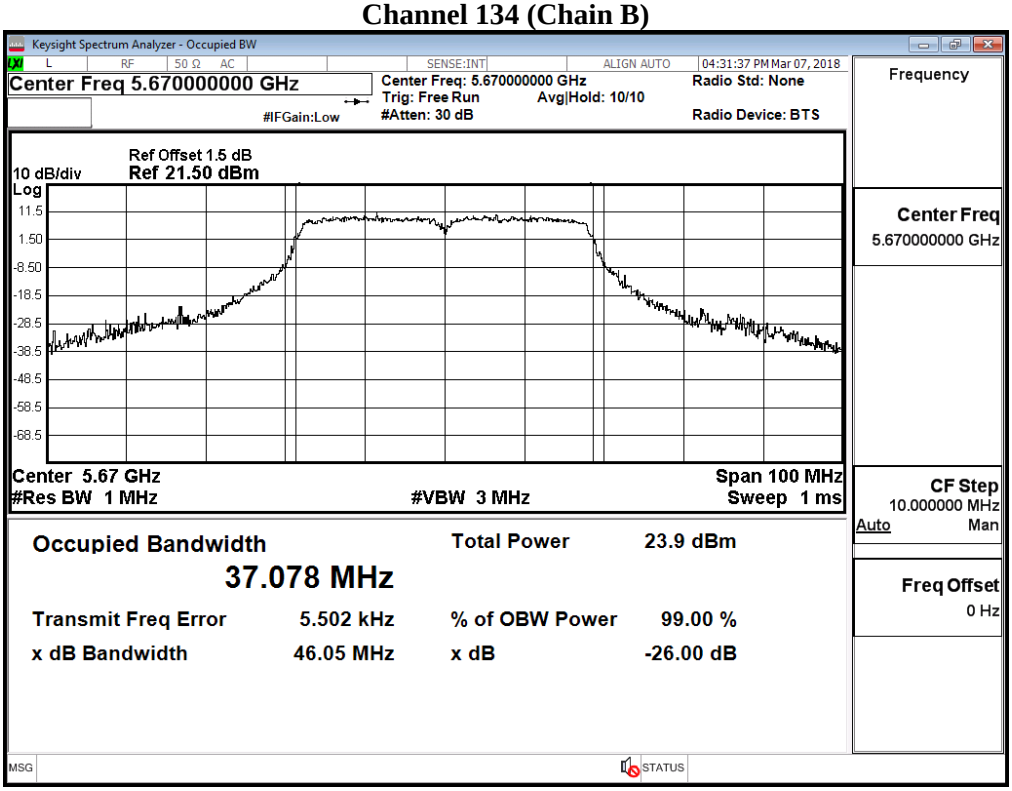
Channel 102 (Chain B)



Channel 118 (Chain B)

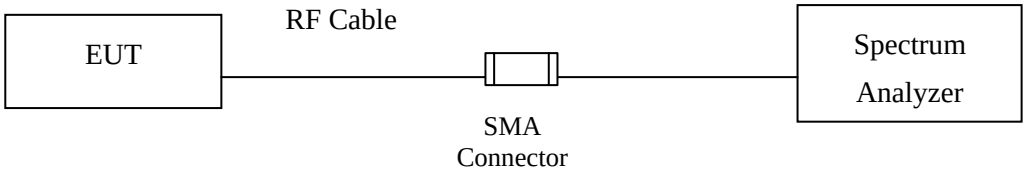


Channel 134 (Chain B)



3. Peak Power Spectral Density

3.1. Test Setup



3.2. Limits

(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 power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.+

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

3.3. Test Procedure

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.

The Peak Power Spectral Density using KDB 789033 section F) procedure, Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer.

SA-1 method is selected to run the test.

For the band 5.725-5.85 GHz, Scale the observed power level to an equivalent value in 500 kHz by adjusting (increase) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (500 kHz/100 kHz) = 6.98 dB.

3.4. Uncertainty

± 1.62 dB

3.5. Test Result of Peak Power Spectral Density

Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

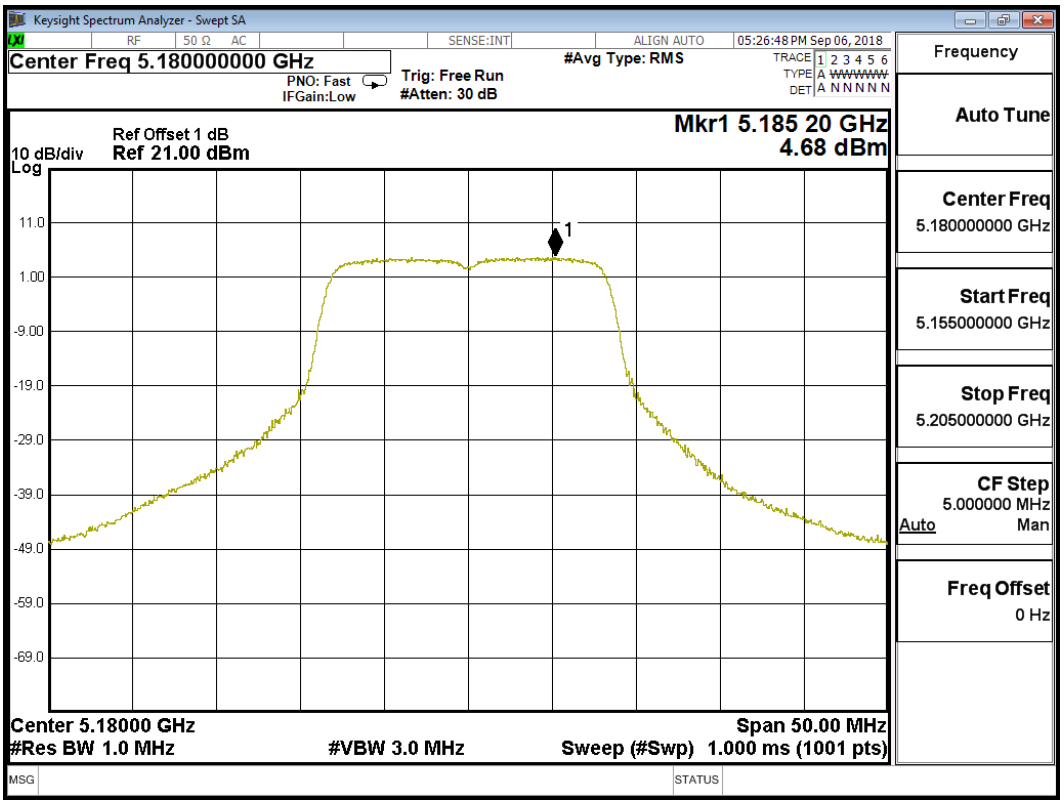
Channel Number	Frequency (MHz)	Data Rata (Mbps)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	6	4.680	11	Pass
44	5220	6	5.080	11	Pass
48	5240	6	5.210	11	Pass
52	5260	6	4.540	5	Pass
60	5300	6	4.920	5	Pass
64	5320	6	4.690	5	Pass
100	5500	6	3.940	5	Pass
116	5580	6	4.710	5	Pass
140	5700	6	3.730	5	Pass

Channel Number	Frequency (MHz)	Data Rata (Mbps)	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm)	Required Limit (dBm)	Result
149	5745	6	-5.820	6.980	4.170	<24	Pass
157	5785	6	-7.560	6.980	2.430	<24	Pass
165	5825	6	-5.310	6.980	4.680	<24	Pass

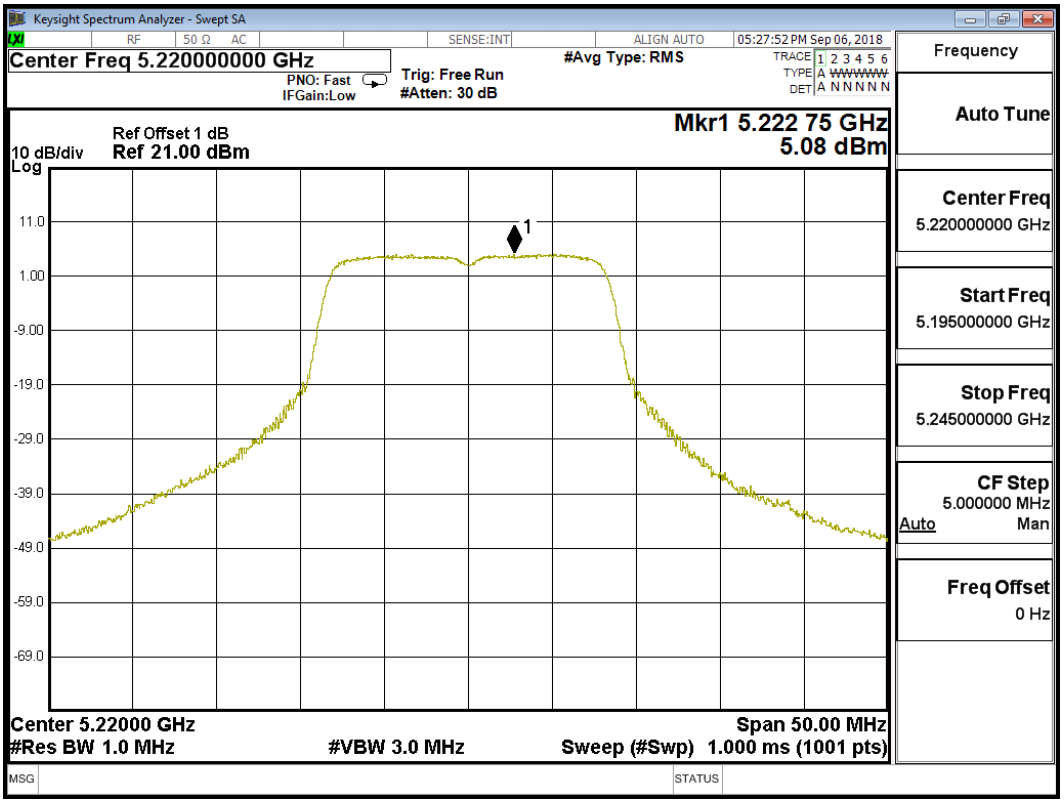
Note : The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

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

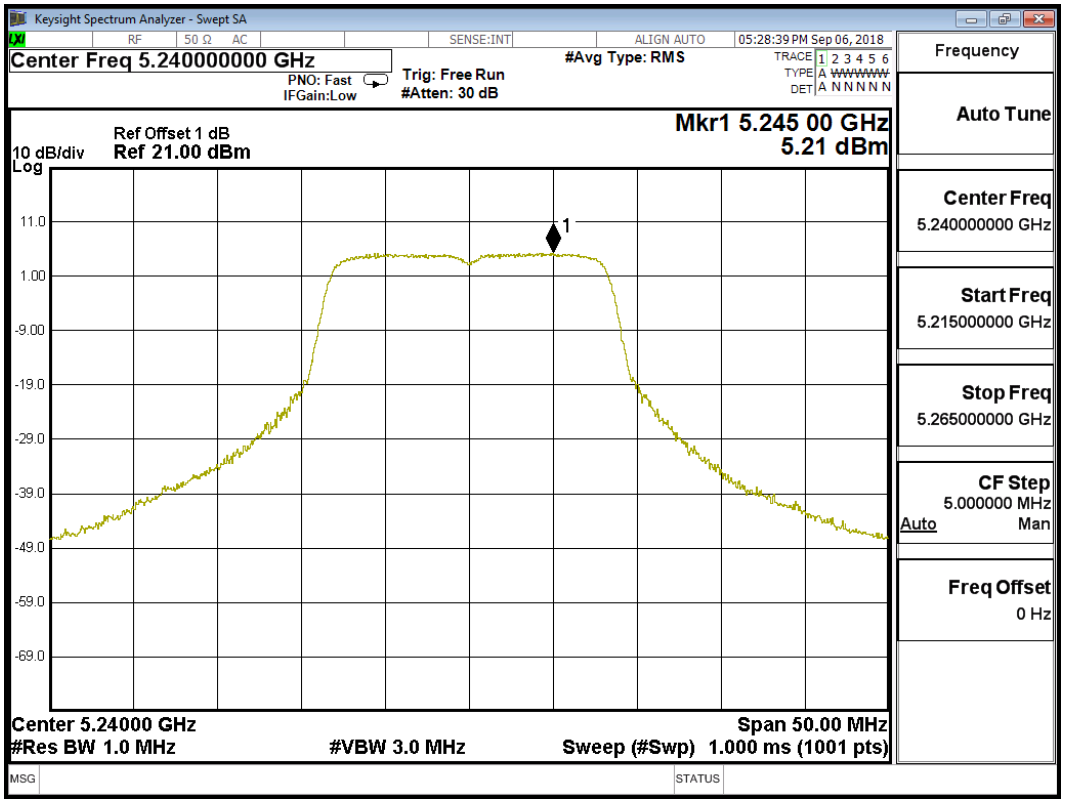
Channel 36:



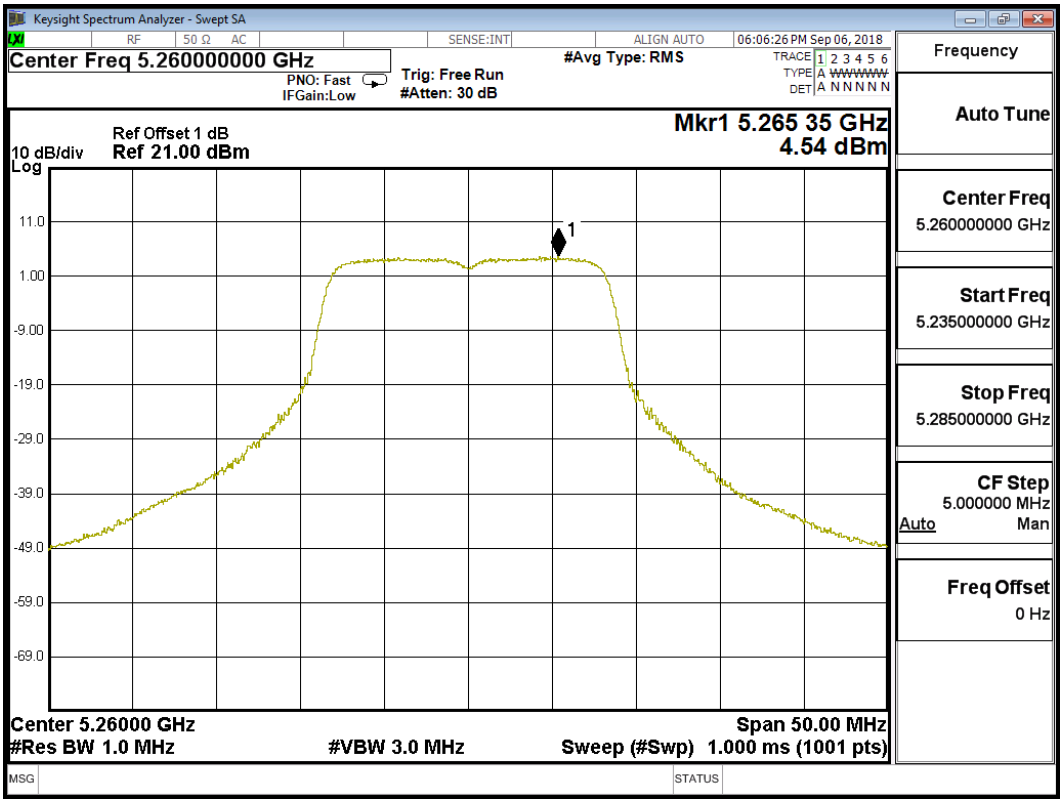
Channel 44:



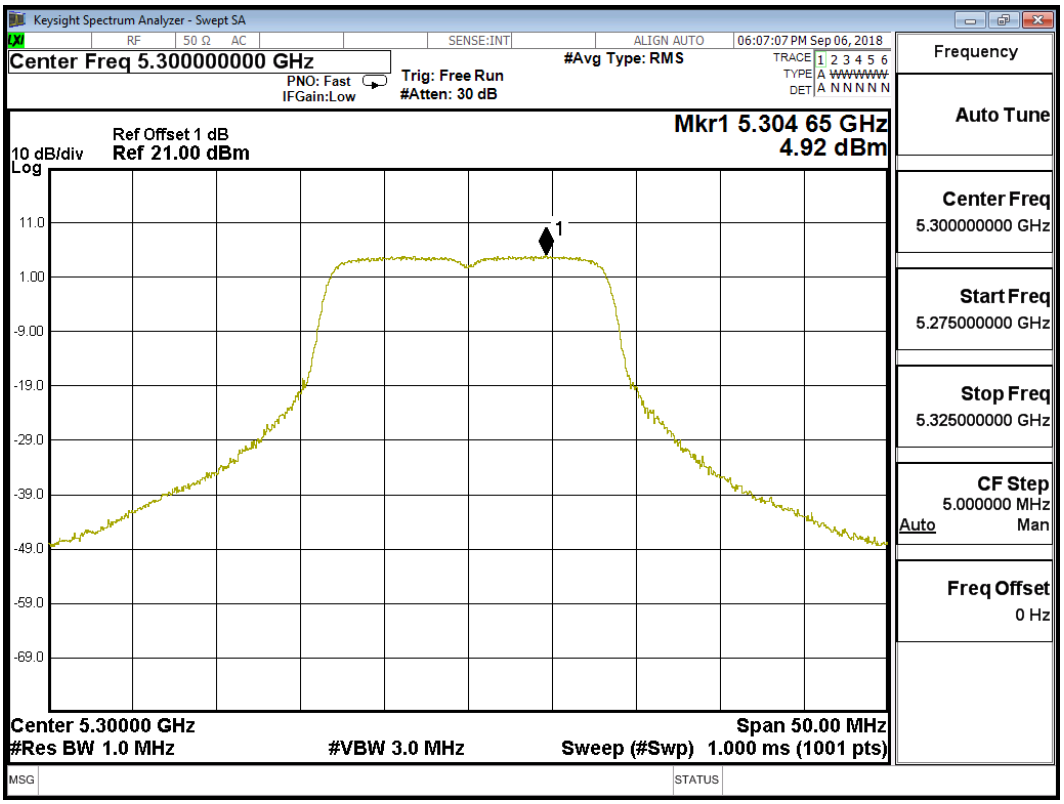
Channel 48:



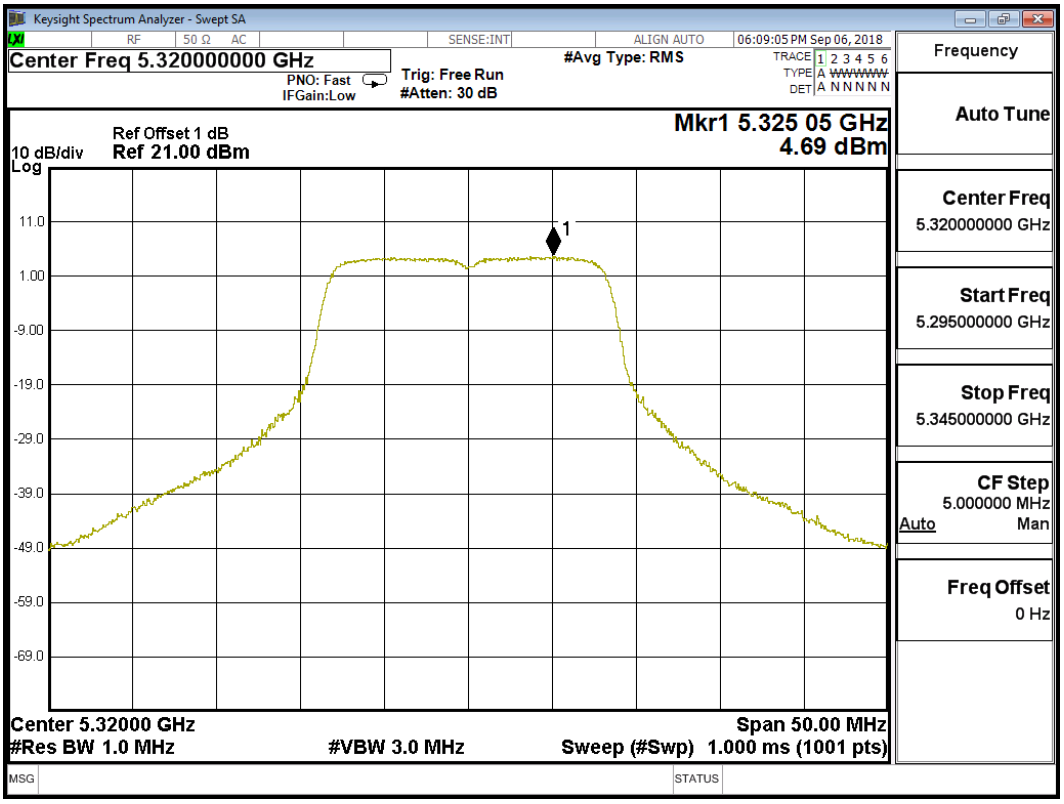
Channel 52:



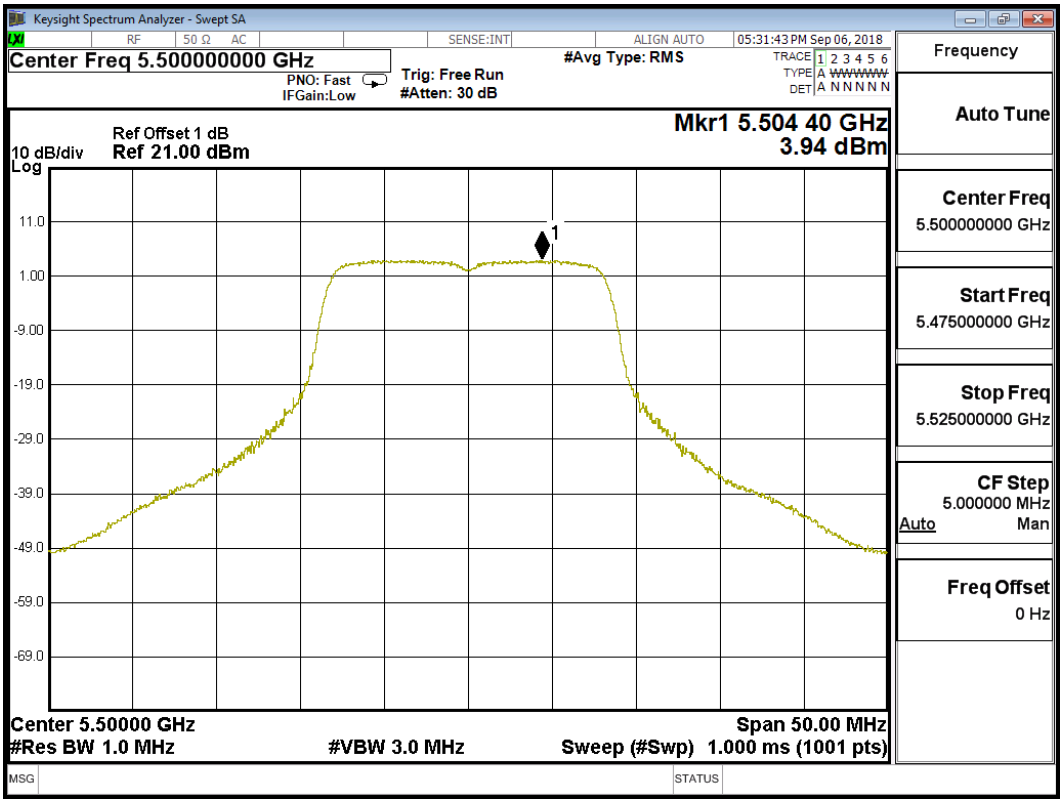
Channel 60:



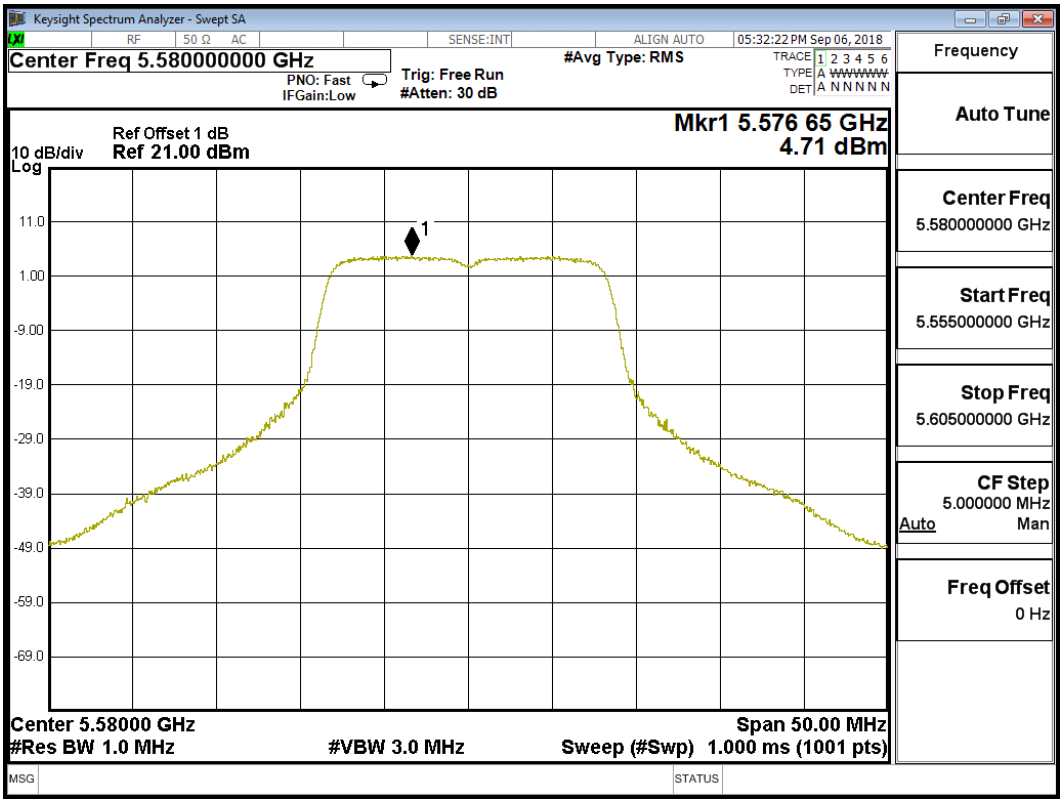
Channel 64:



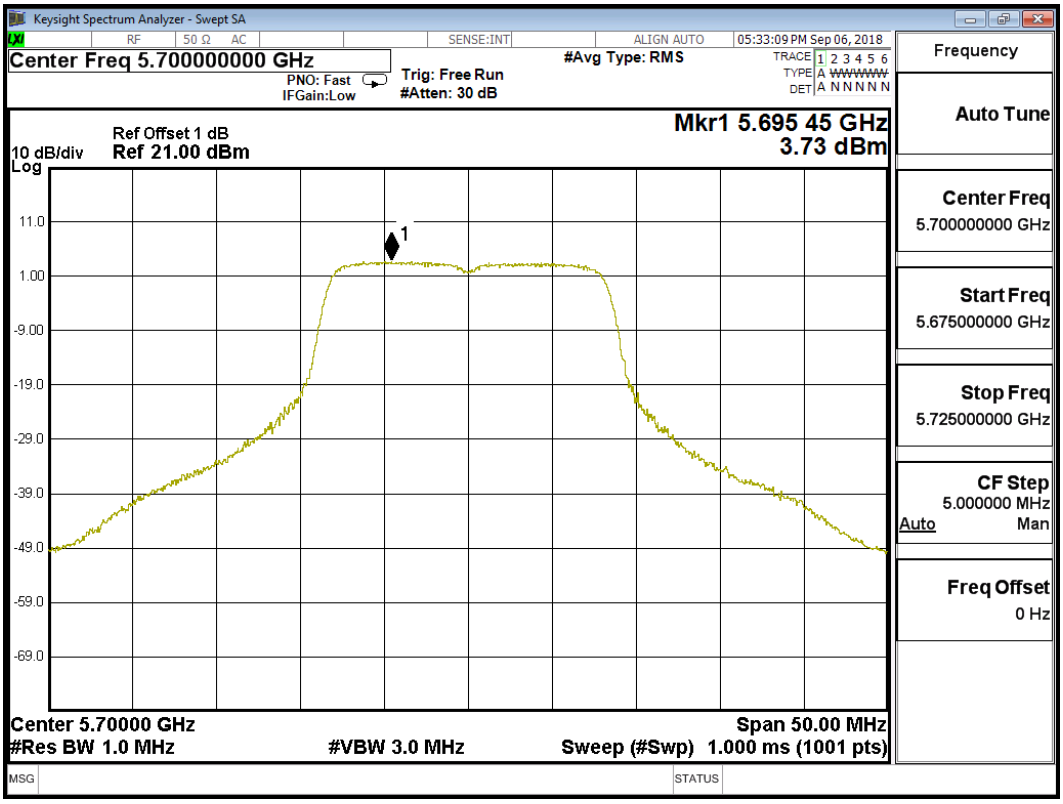
Channel 100:



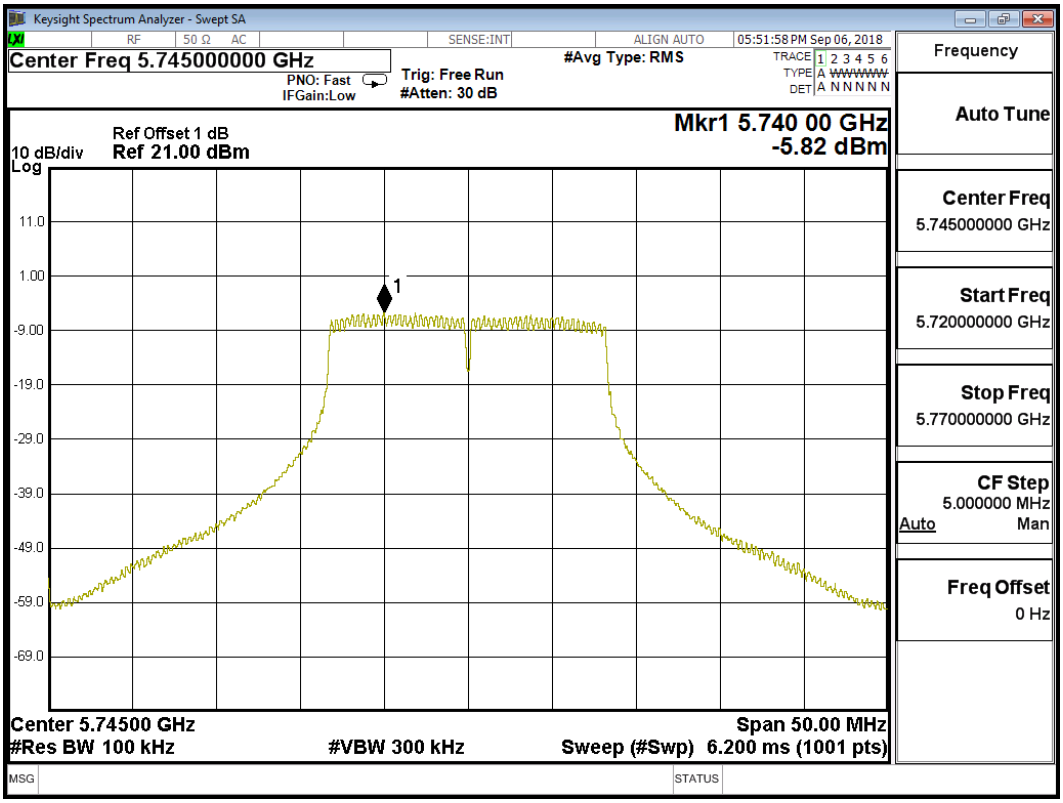
Channel 116:



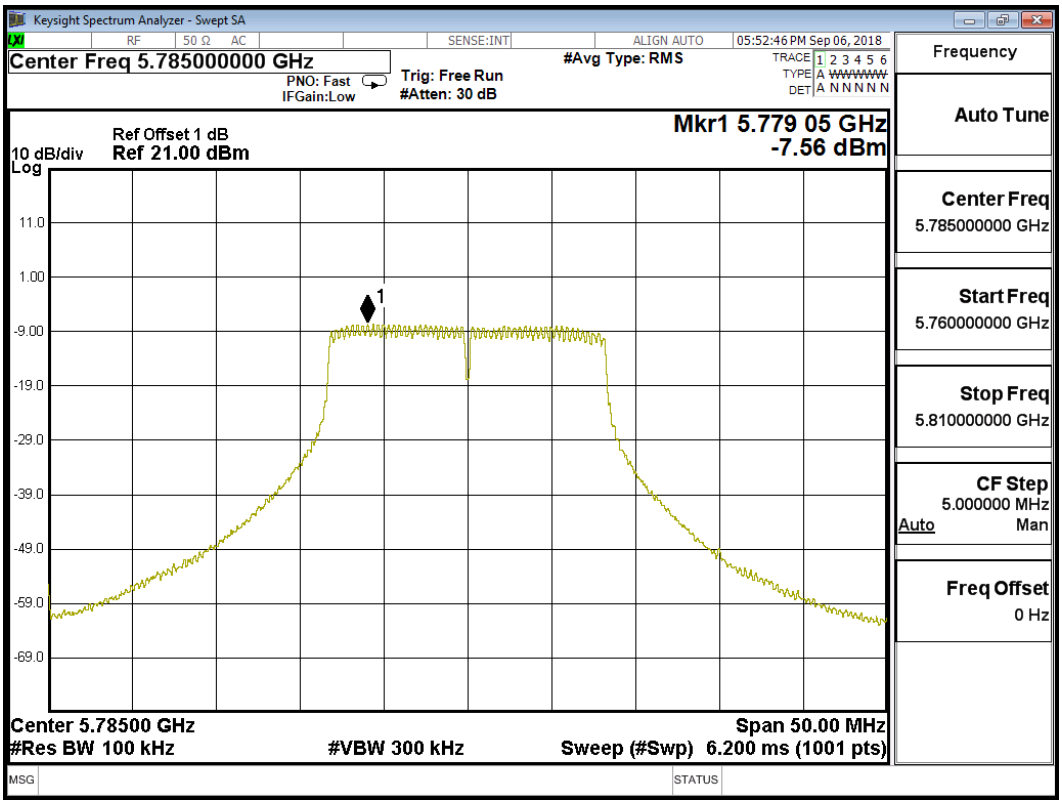
Channel 140:



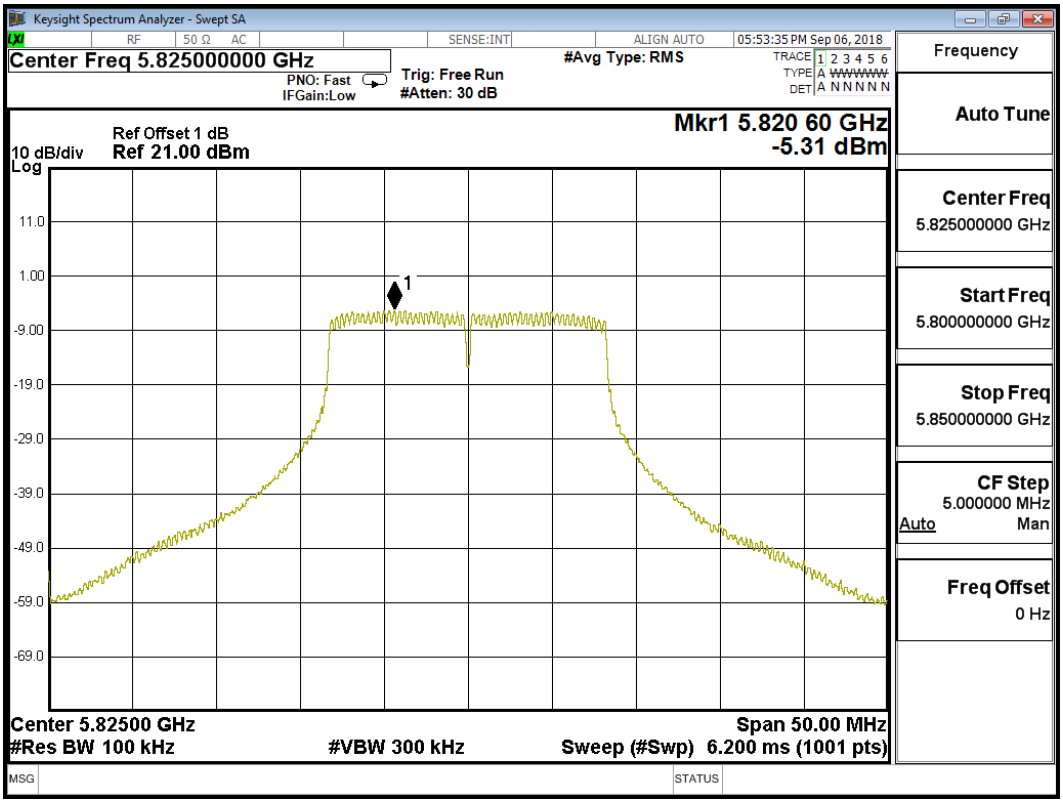
Channel 149



Channel 157



Channel 165



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)

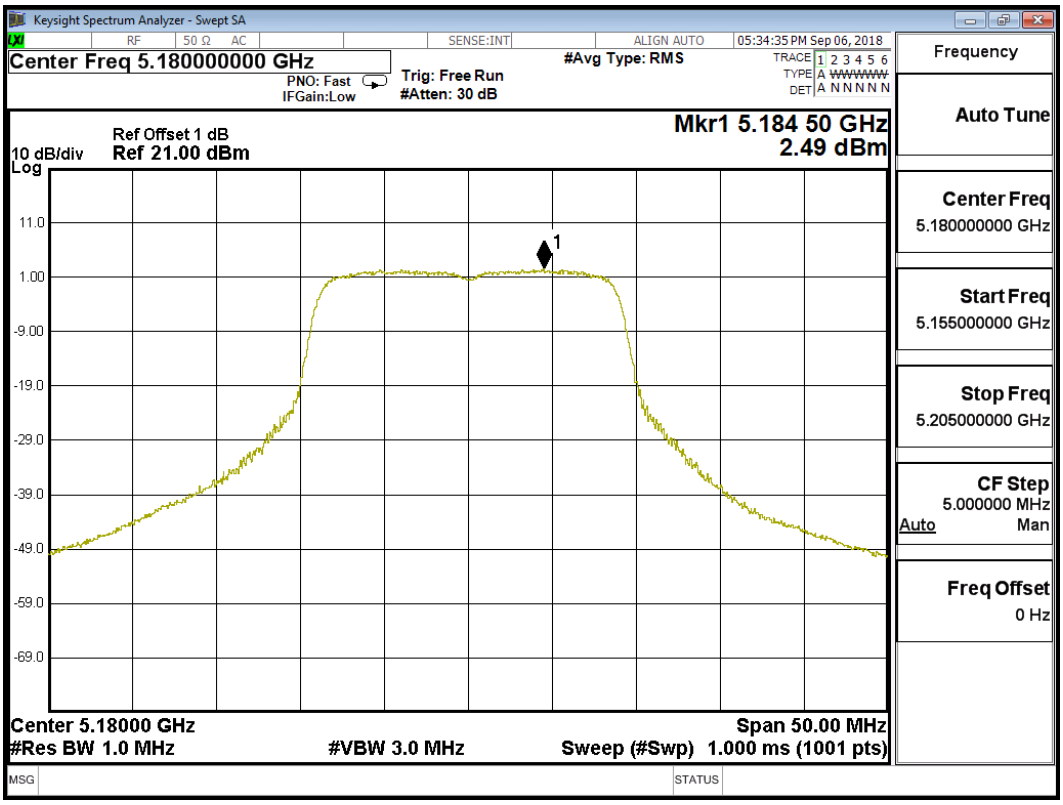
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	1.120	4.130	11	Pass
		B	2.490	5.500	11	Pass
44	5220	A	2.200	5.210	11	Pass
		B	2.950	5.960	11	Pass
48	5240	A	2.330	5.340	11	Pass
		B	3.440	6.450	11	Pass
52	5260	A	0.790	3.800	5	Pass
		B	1.830	4.840	5	Pass
60	5300	A	1.500	4.510	5	Pass
		B	1.930	4.940	5	Pass
64	5320	A	0.910	3.920	5	Pass
		B	1.810	4.820	5	Pass
100	5500	A	1.660	4.670	5	Pass
		B	1.770	4.780	5	Pass
116	5580	A	1.710	4.720	5	Pass
		B	1.980	4.990	5	Pass
140	5700	A	0.800	3.810	5	Pass
		B	1.920	4.930	5	Pass

Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm)[1]	Required Limit (dBm)	Result
149	5745	A	-4.100	6.980	5.890	<24	Pass
		B	-3.660	6.980	6.330	<24	Pass
157	5785	A	-4.070	6.980	5.920	<24	Pass
		B	-3.750	6.980	6.240	<24	Pass
165	5825	A	-4.270	6.980	5.720	<24	Pass
		B	-3.700	6.980	6.290	<24	Pass

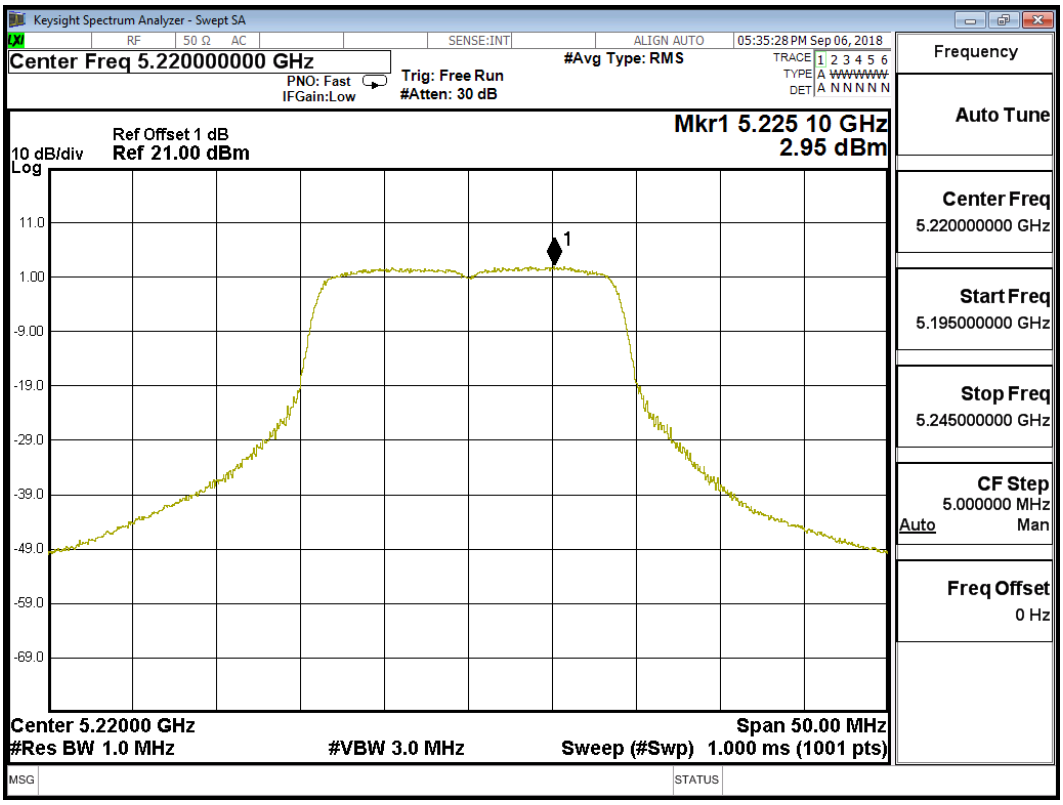
Note : The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

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

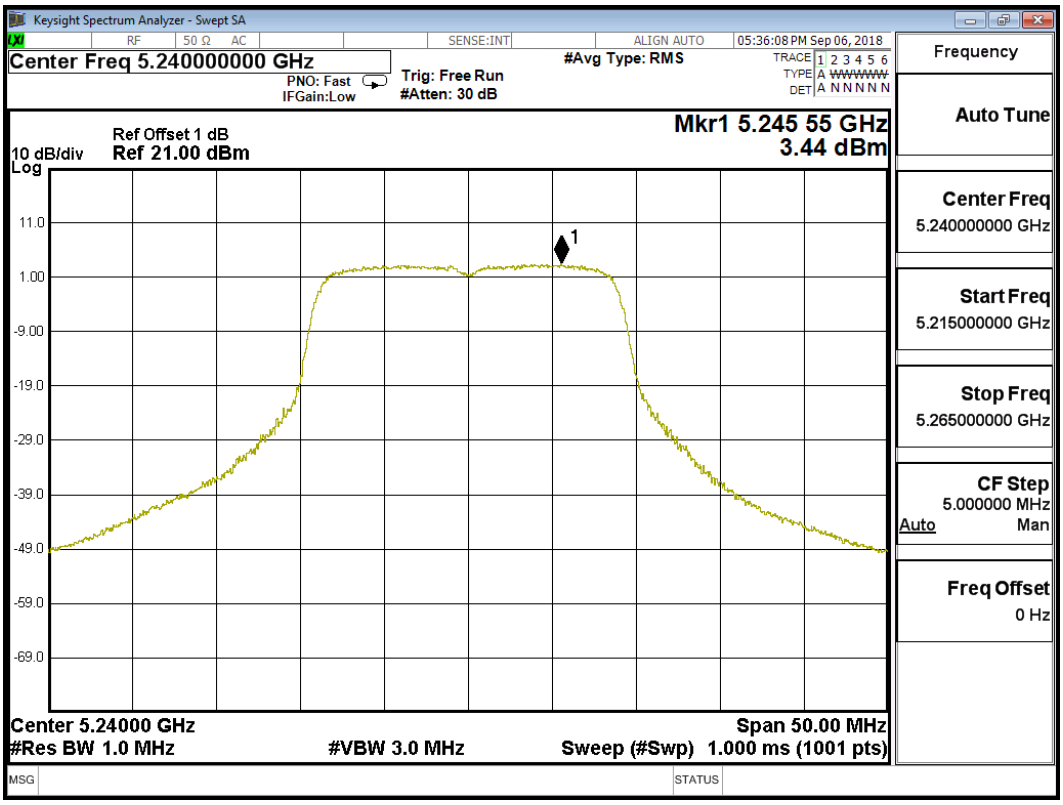
Channel 36 – Chain A



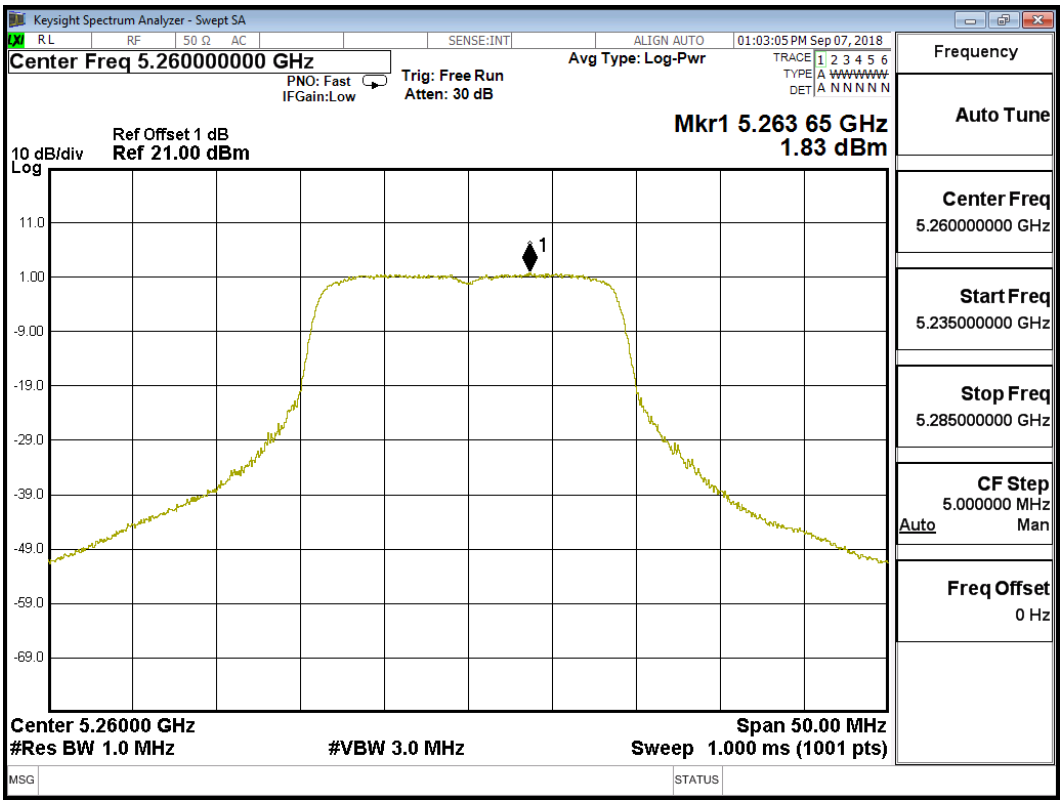
Channel 44 – Chain A



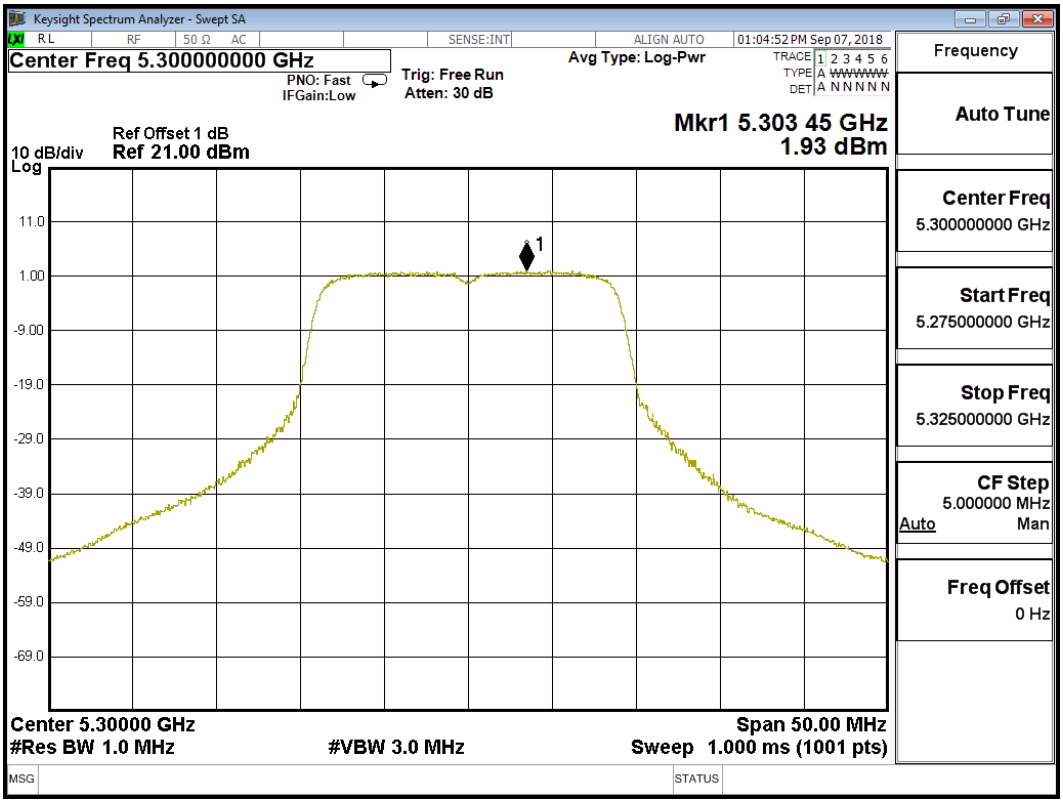
Channel 48 – Chain A



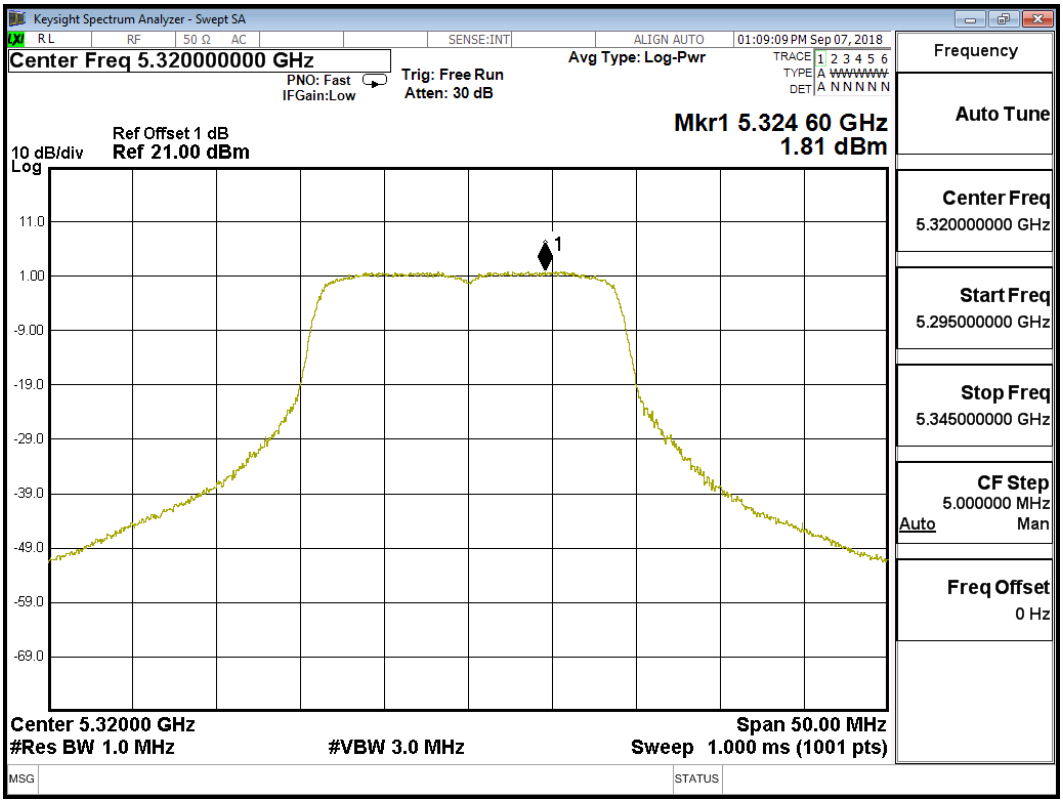
Channel 52 – Chain A



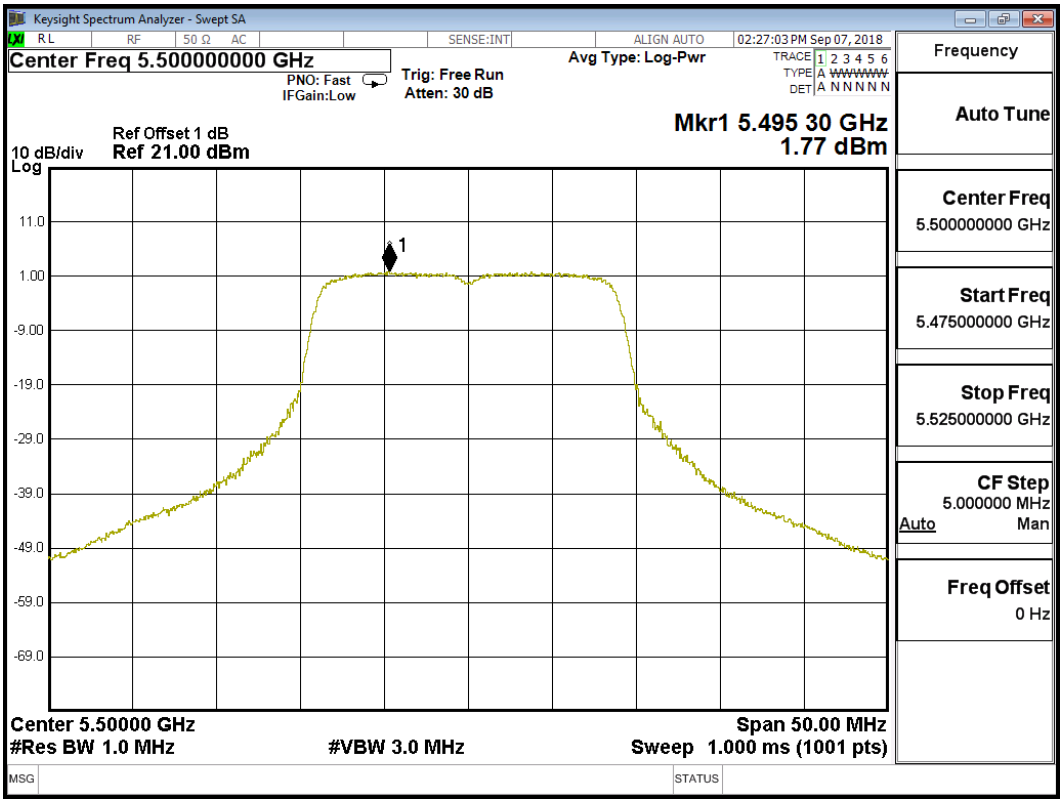
Channel 60 – Chain A



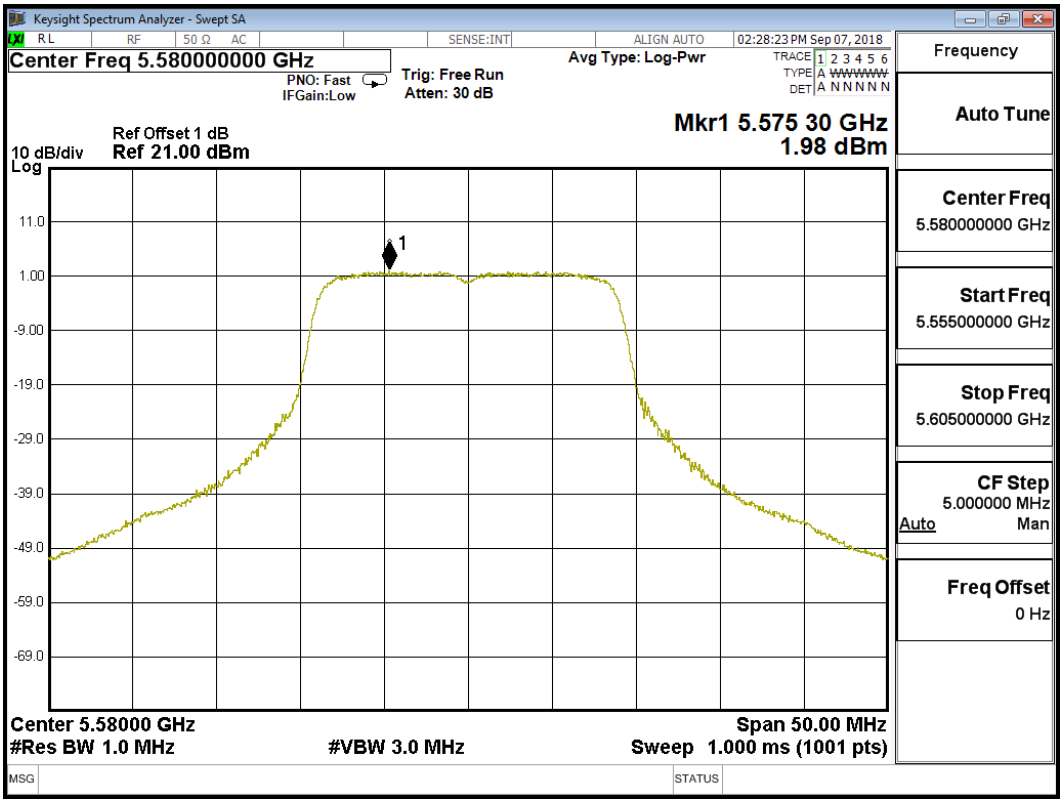
Channel 64 – Chain A



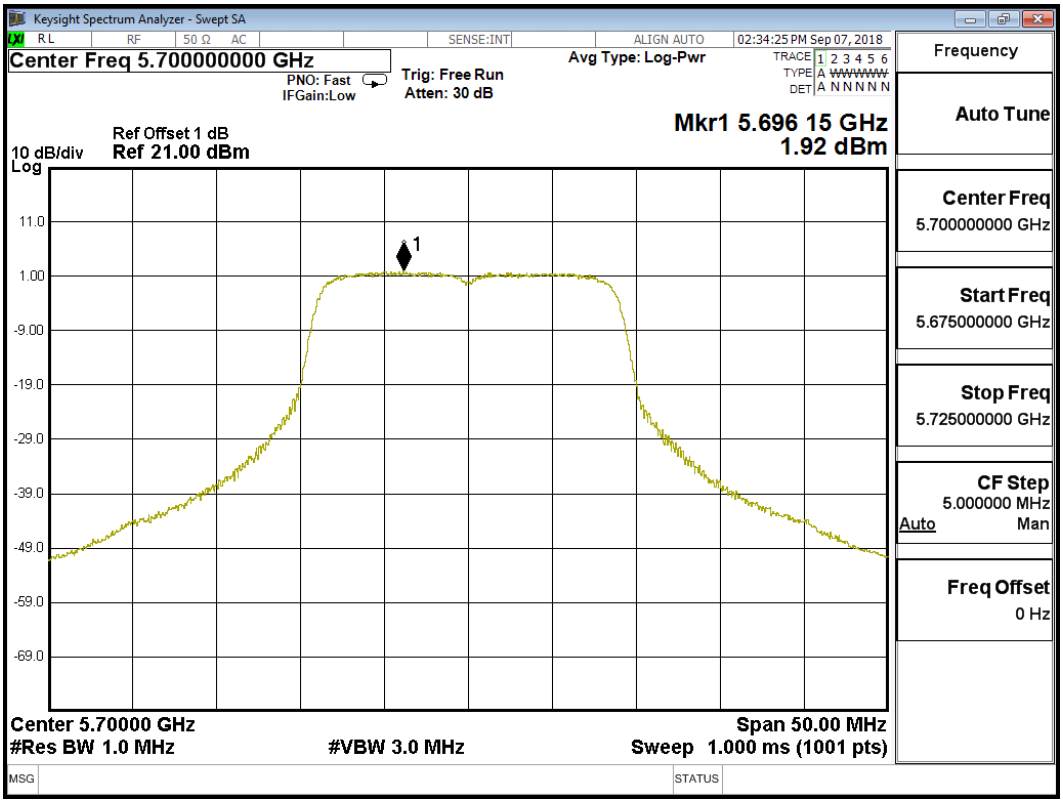
Channel 100 – Chain A



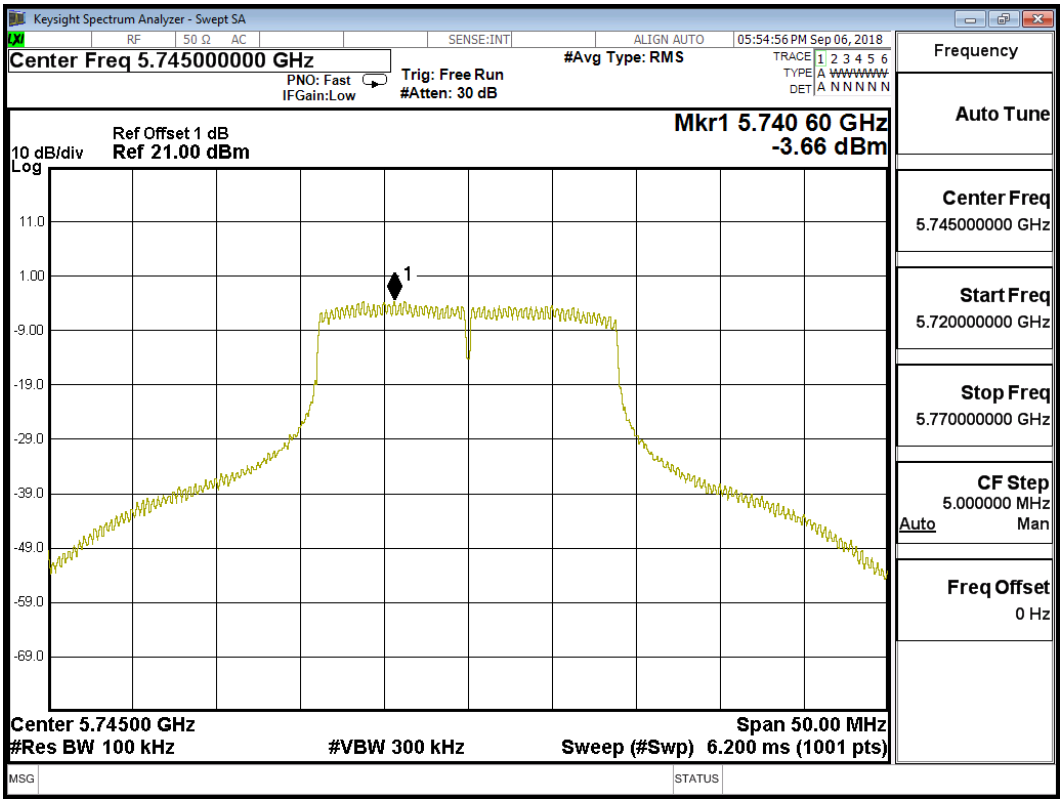
Channel 116 – Chain A



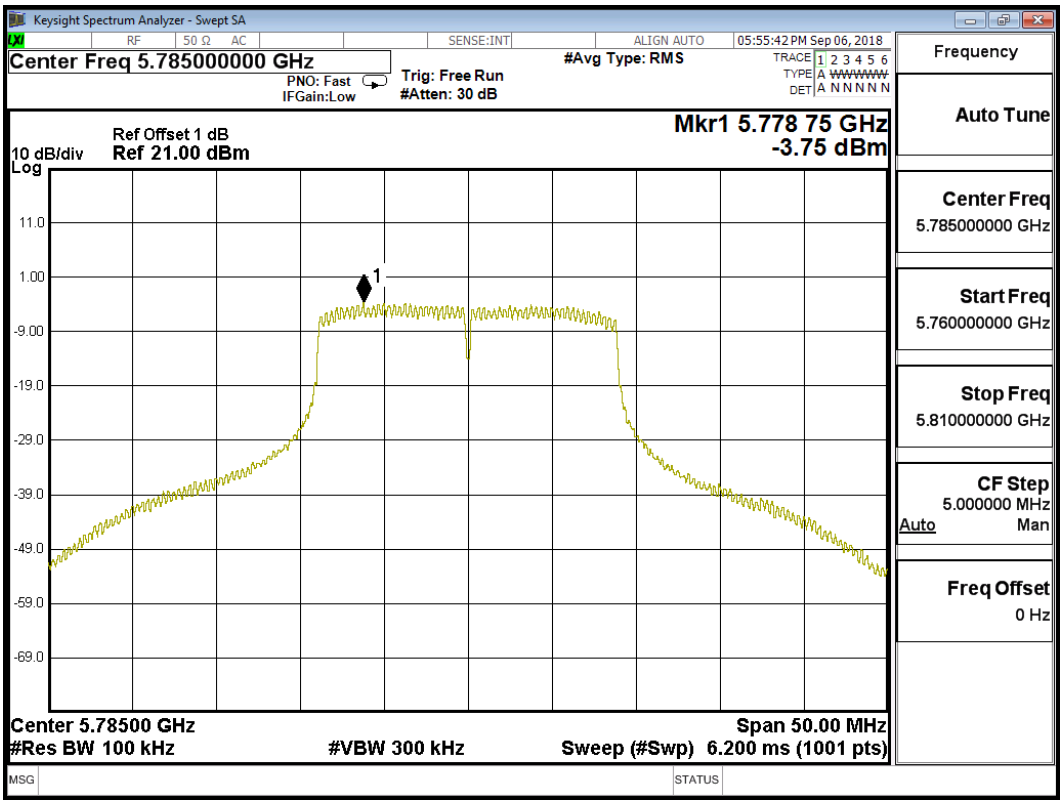
Channel 140 – Chain A



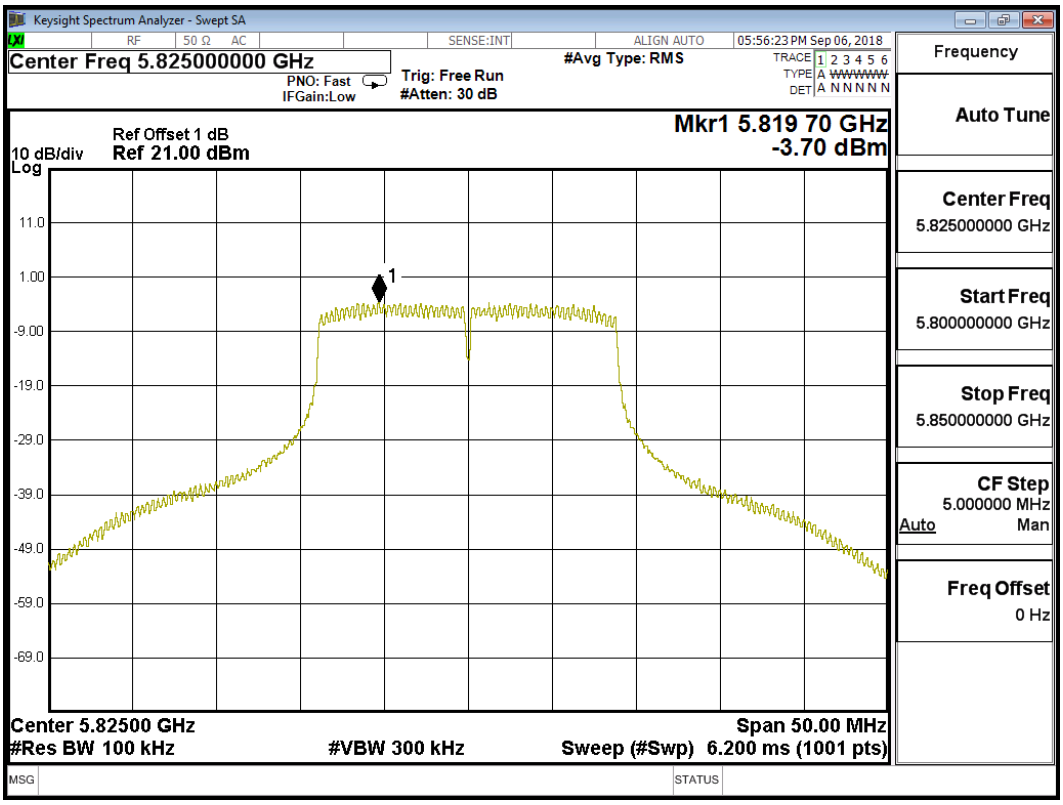
.Channel 149 – Chain A



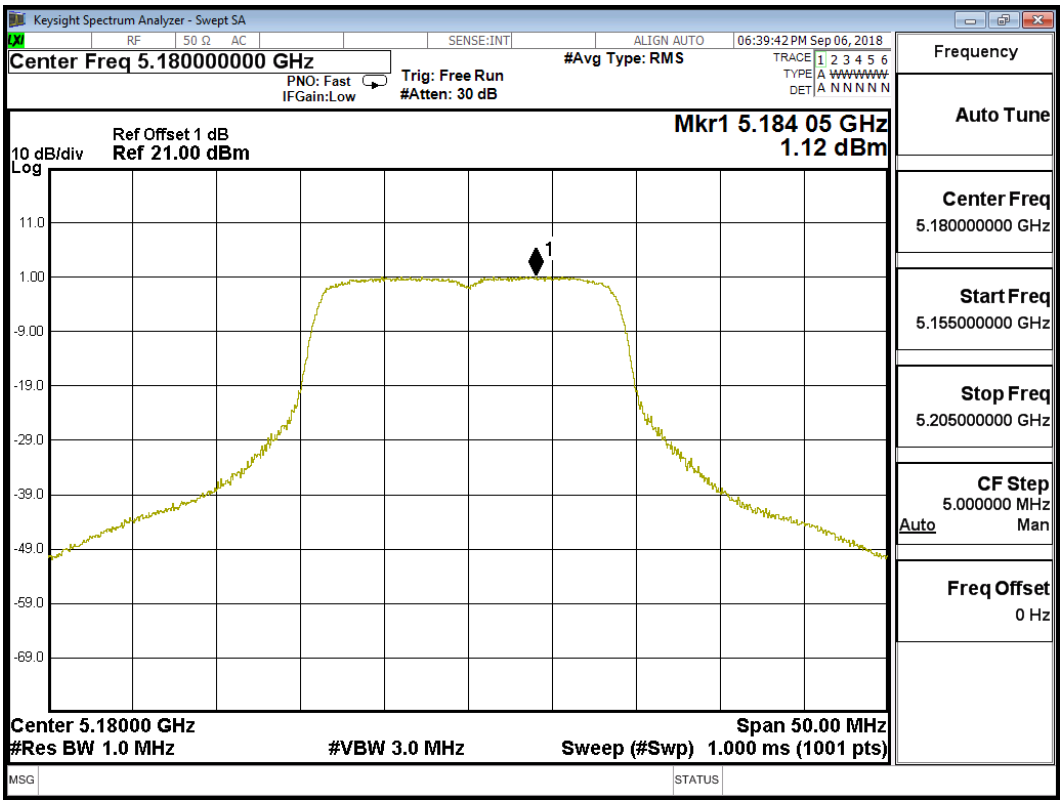
Channel 157 – Chain A



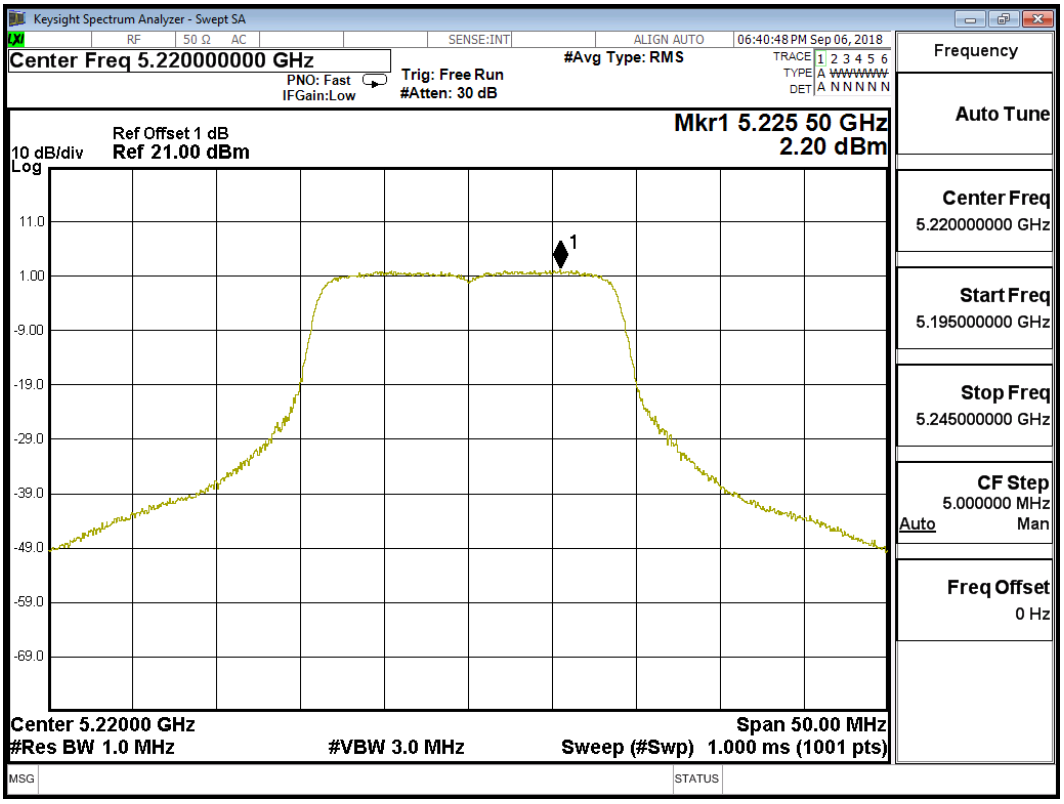
Channel 165 – Chain A



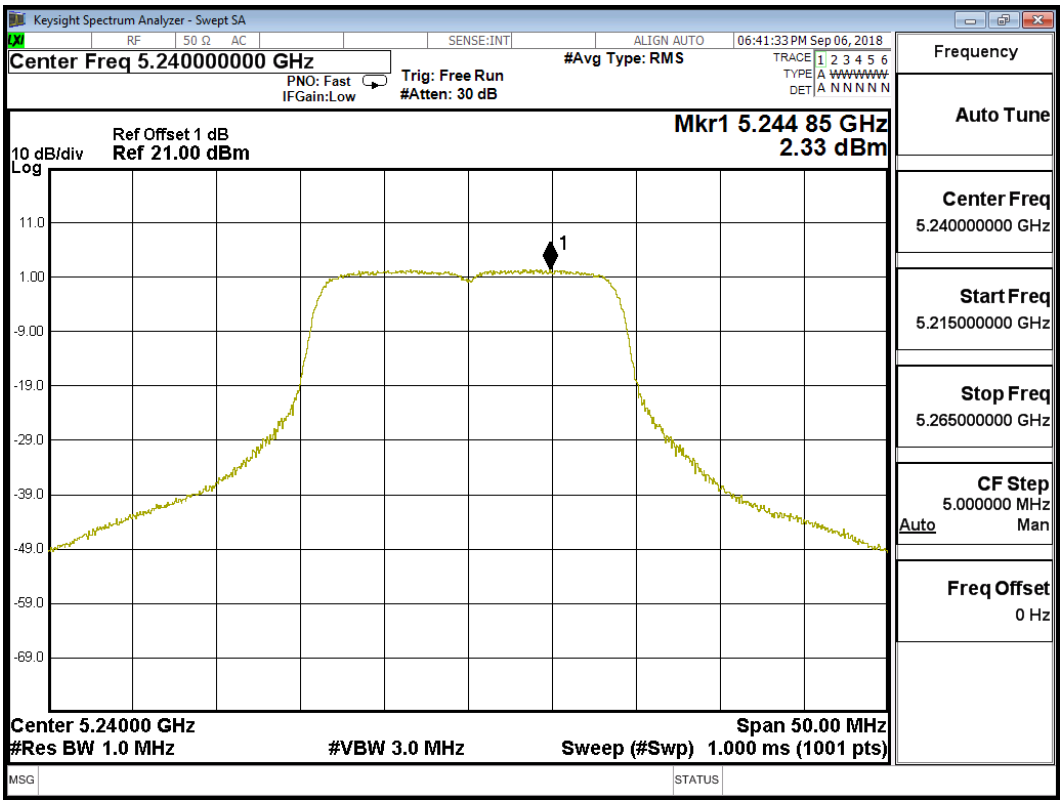
Channel 36 – Chain B



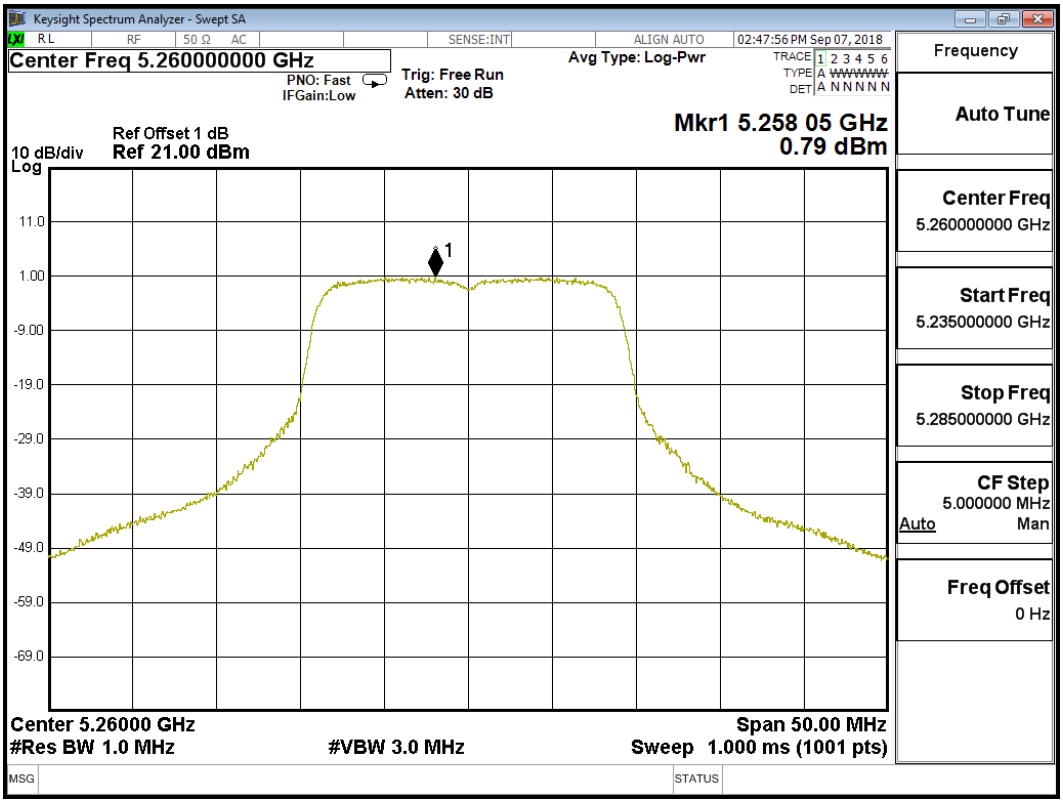
Channel 44 – Chain B



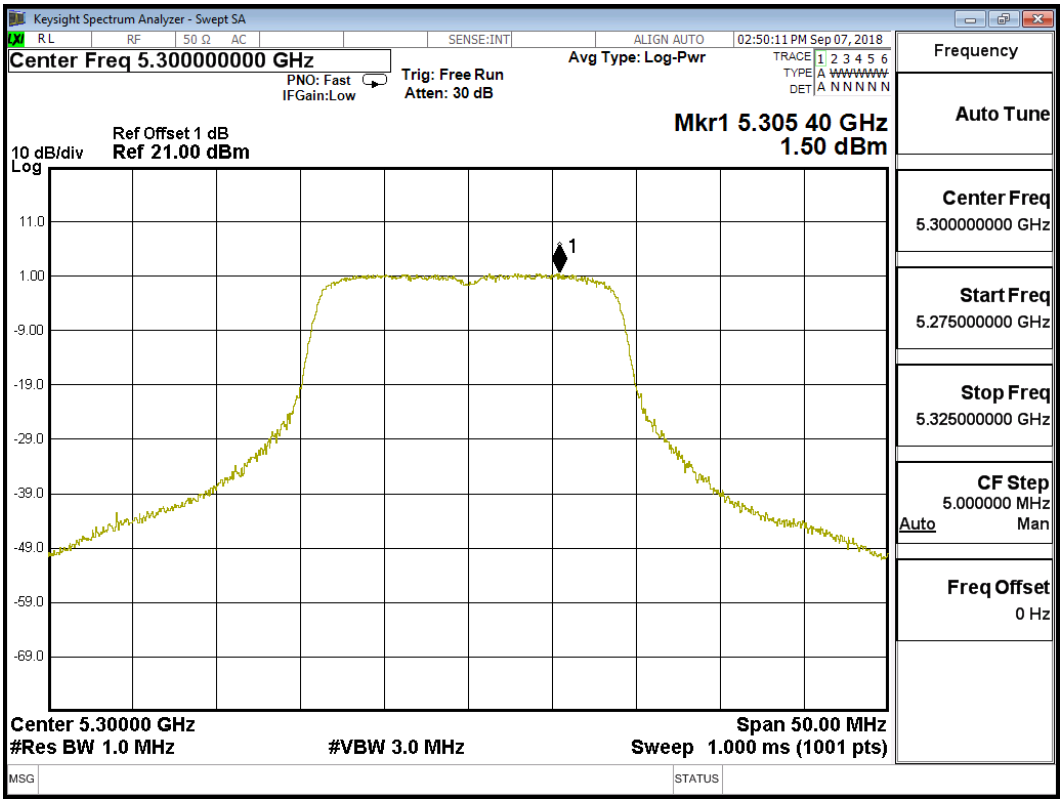
Channel 48 – Chain B



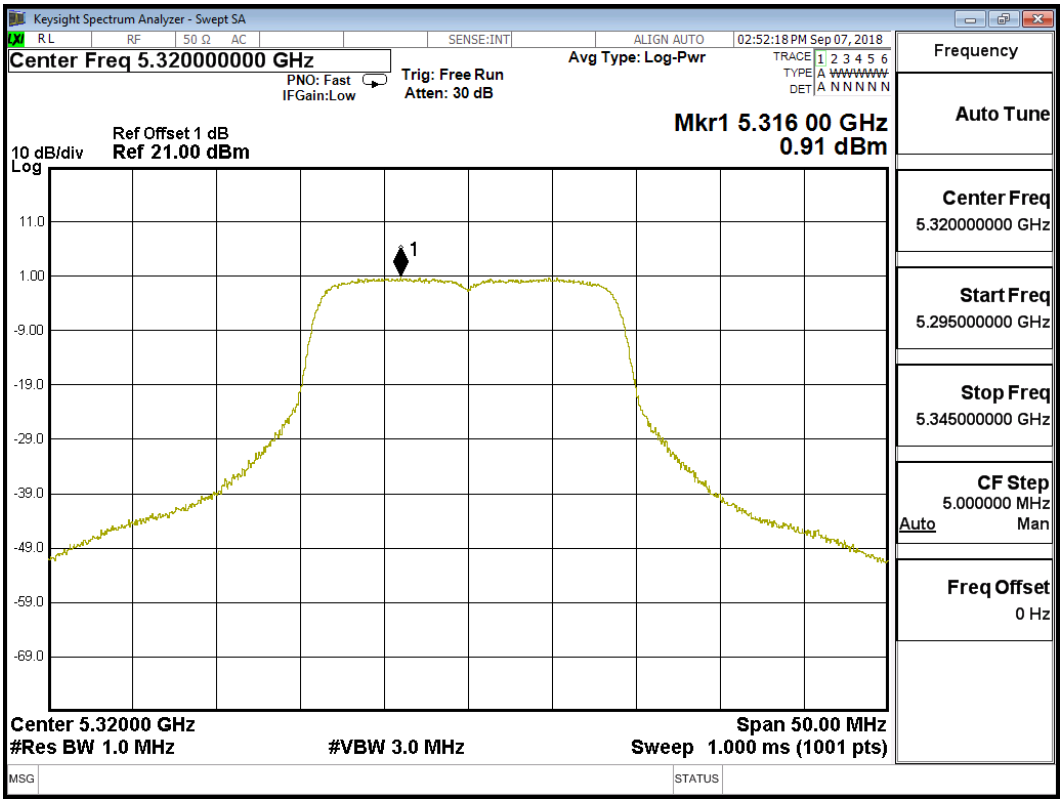
Channel 52 – Chain B



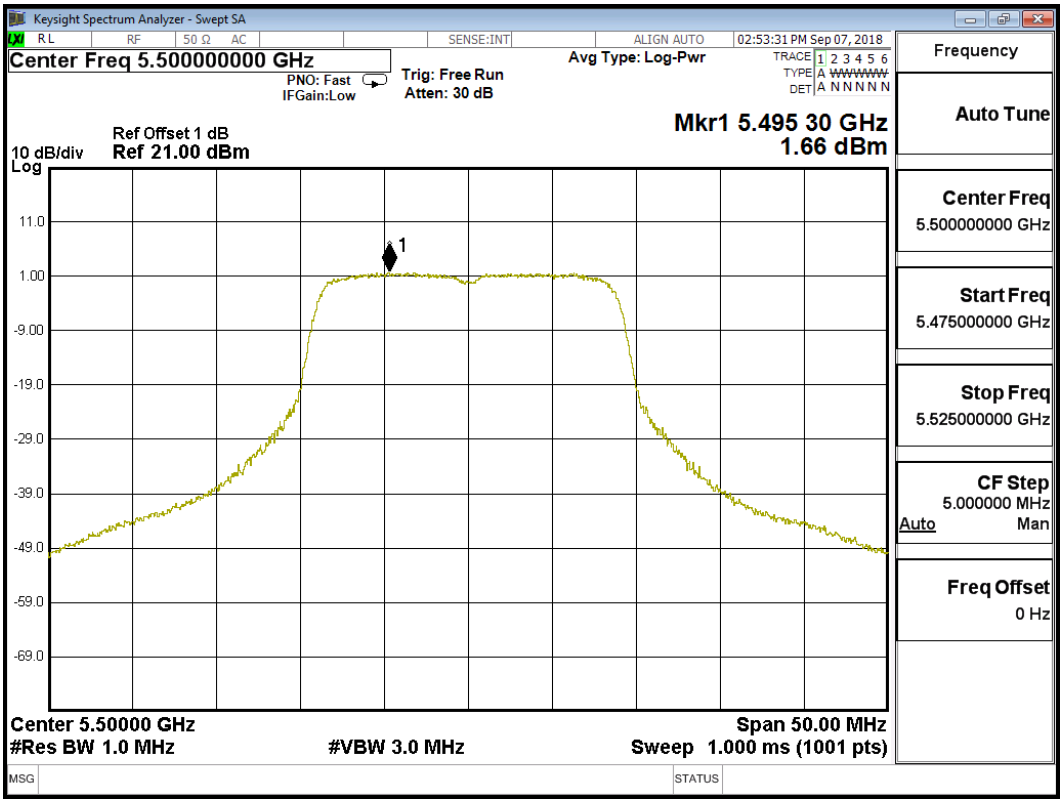
Channel 60 – Chain B



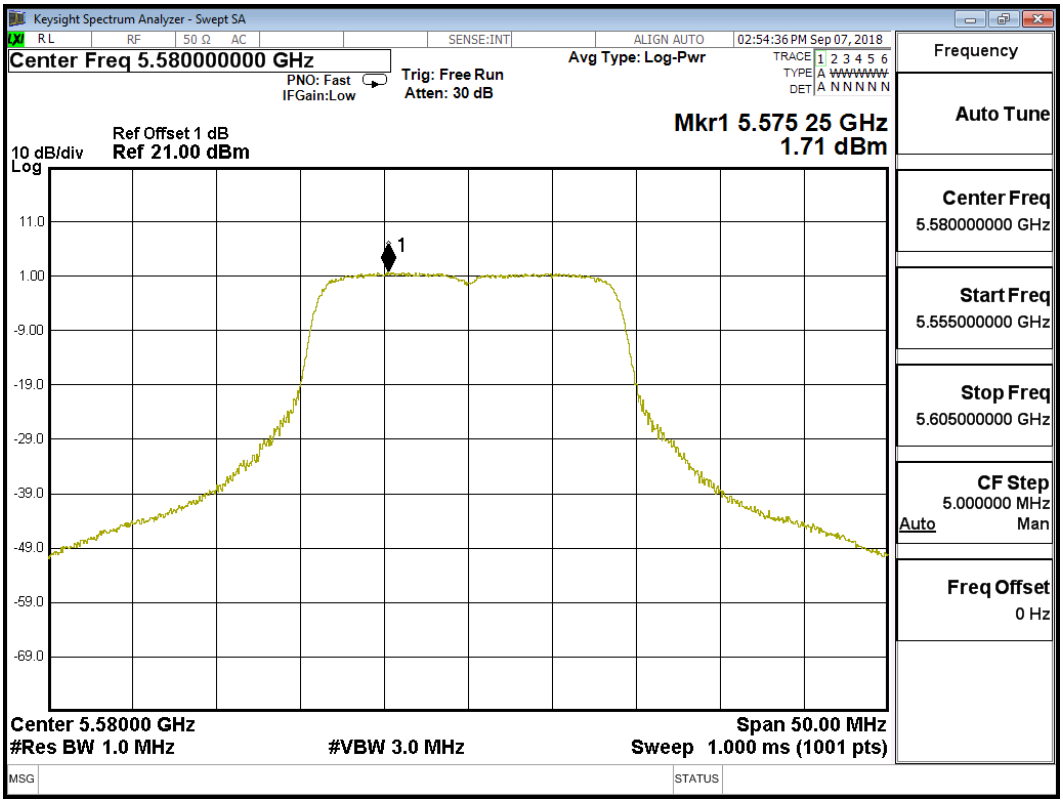
Channel 64 – Chain B



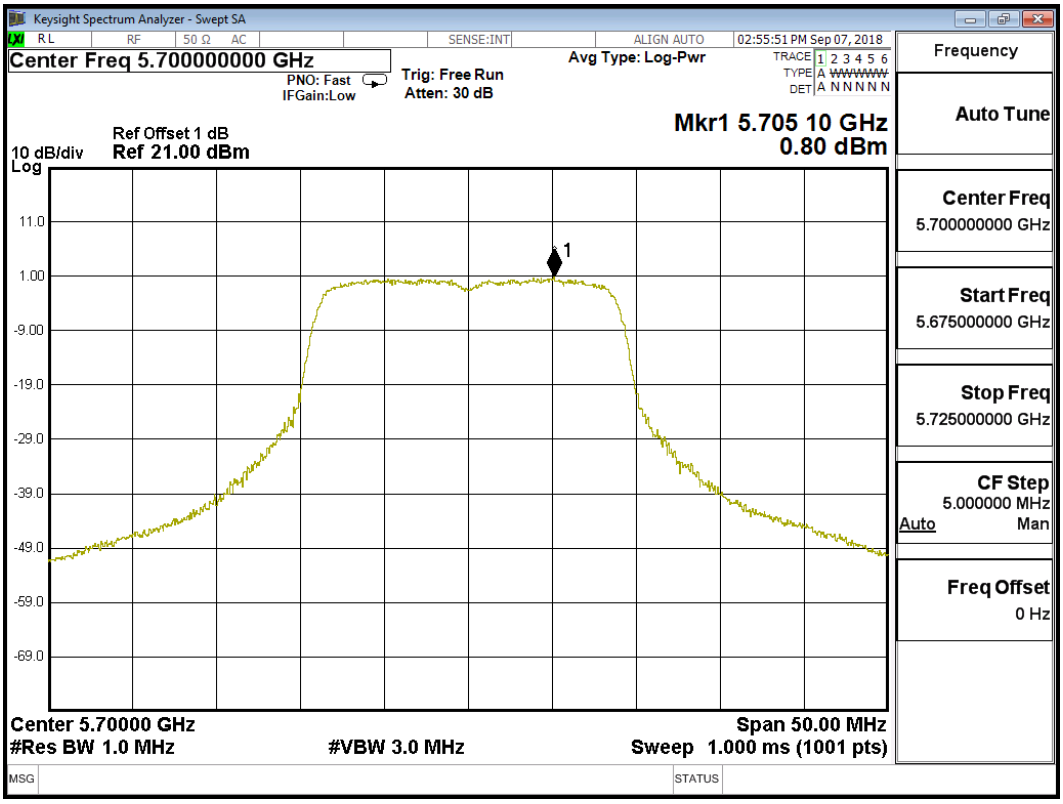
Channel 100 – Chain B



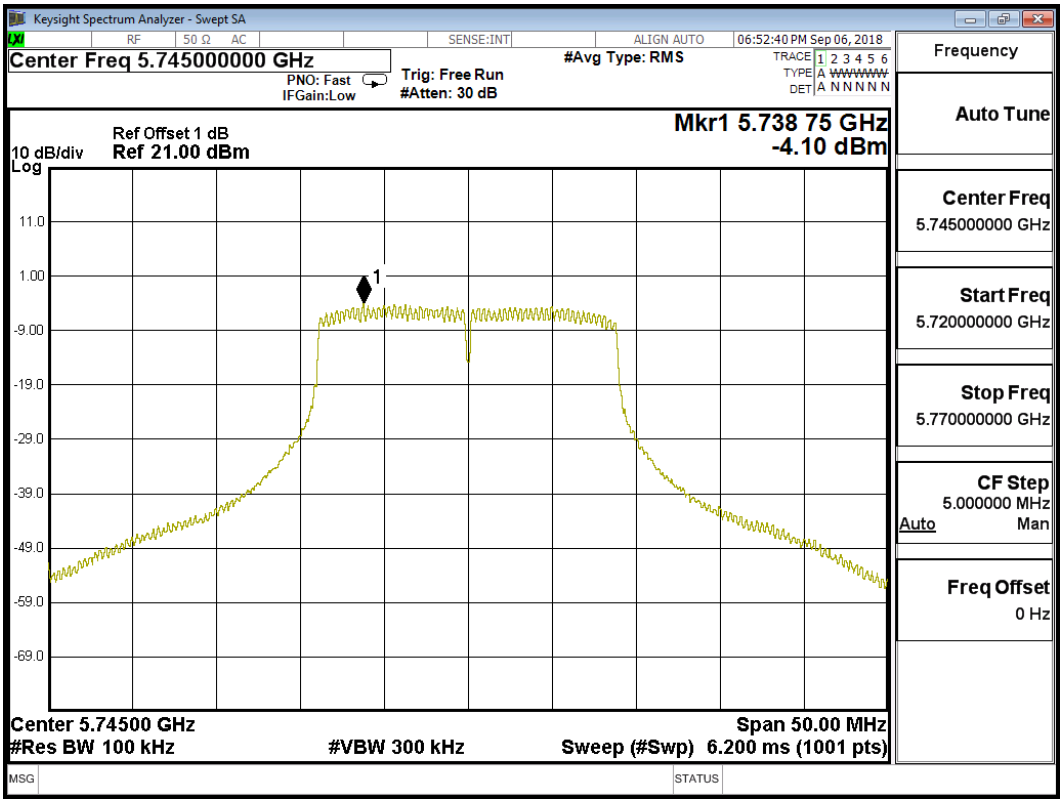
Channel 116 – Chain B



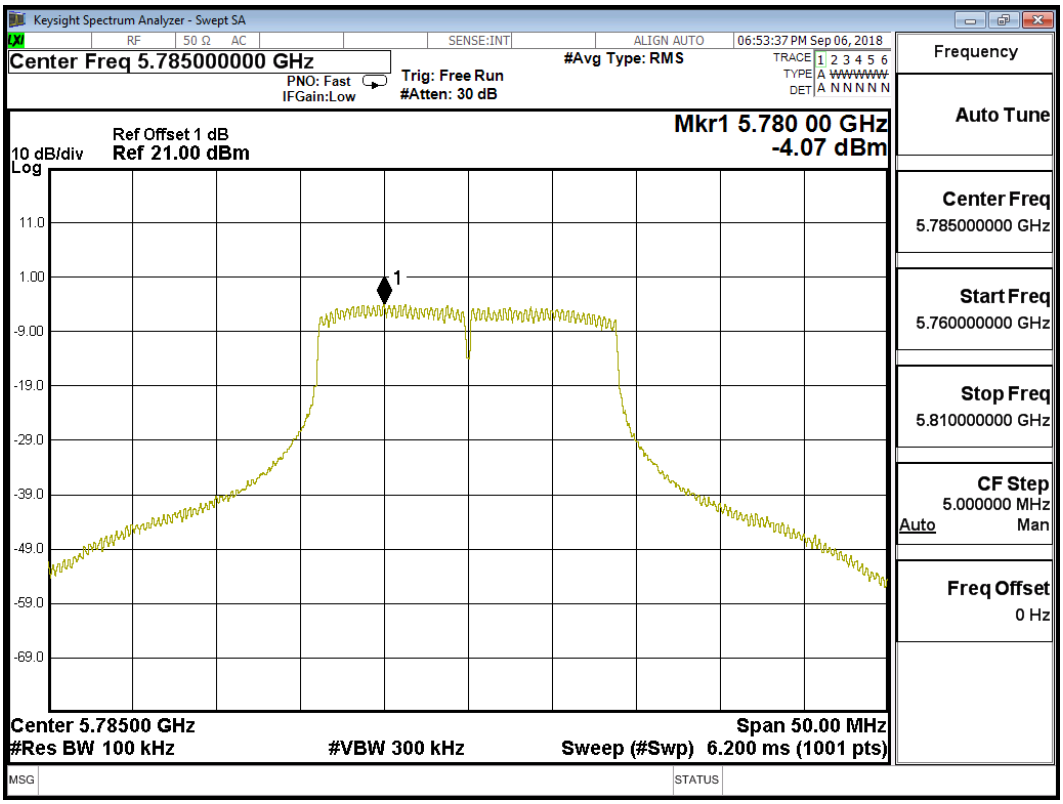
Channel 140 – Chain B



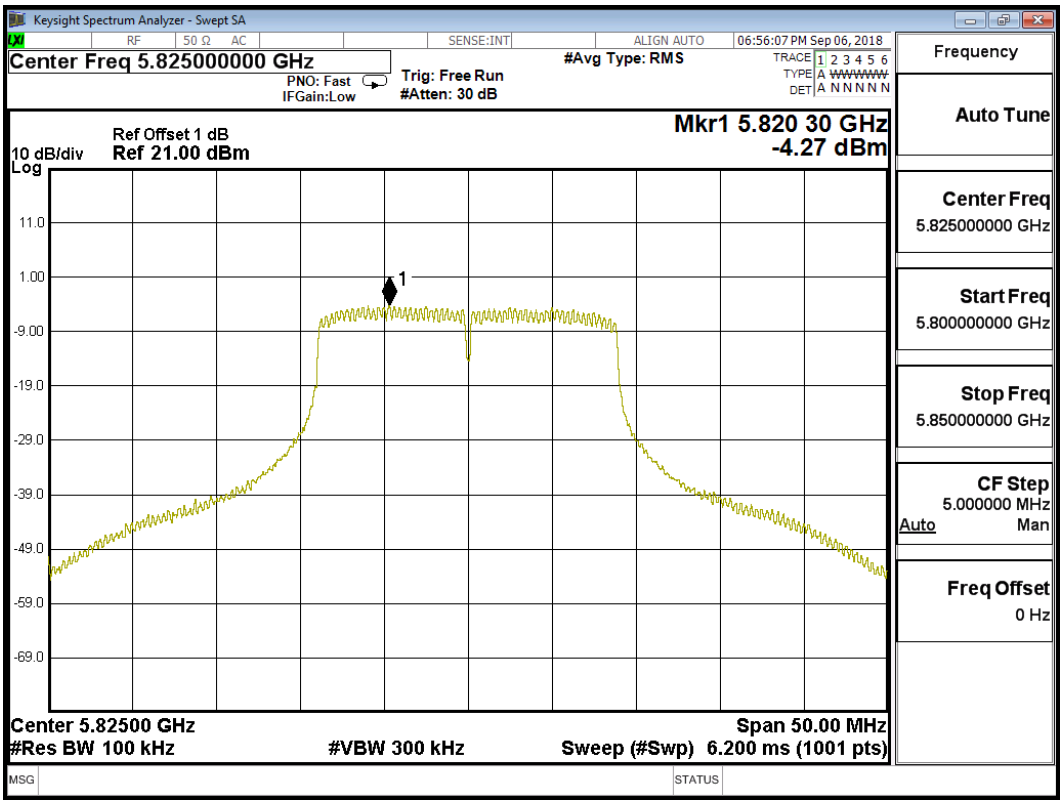
Channel 149 – Chain B



Channel 157 – Chain B



Channel 165 – Chain B



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)

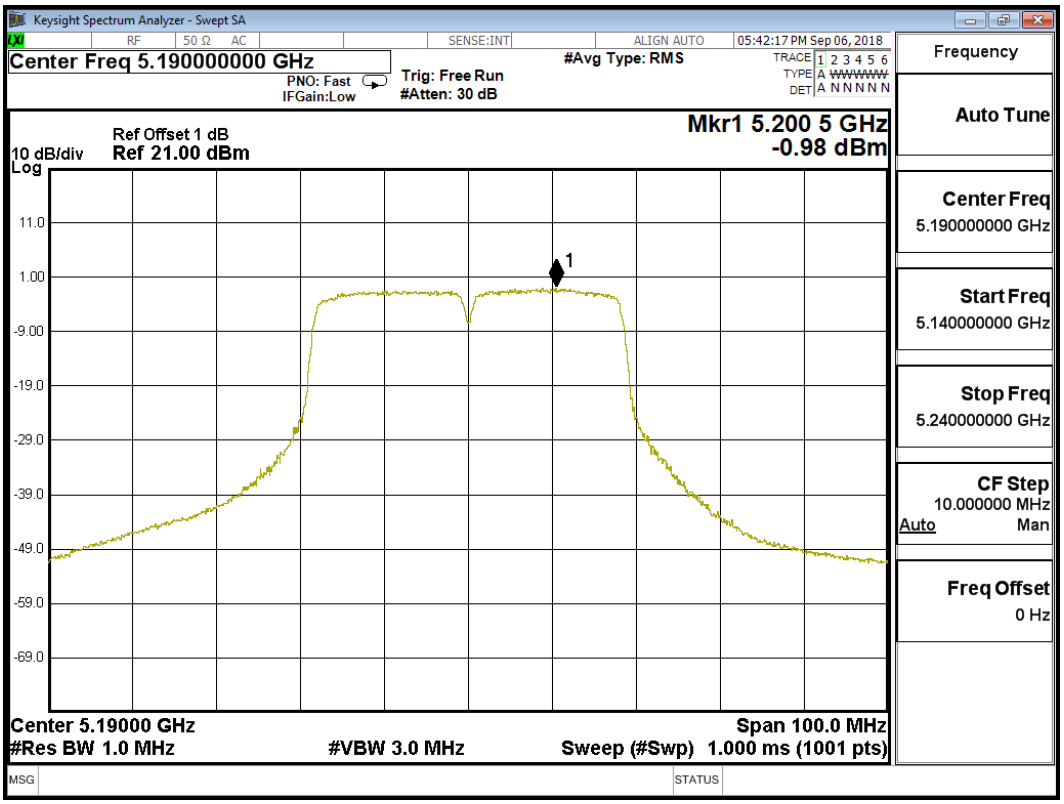
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
38	5190	A	-2.190	0.820	11	Pass
		B	-0.980	2.030	11	Pass
46	5230	A	-0.900	2.110	11	Pass
		B	-0.090	2.920	11	Pass
54	5270	A	-1.370	1.640	5	Pass
		B	0.160	3.170	5	Pass
62	5310	A	-2.430	0.580	5	Pass
		B	-1.310	1.700	5	Pass
102	5510	A	-2.660	0.350	5	Pass
		B	-1.960	1.050	5	Pass
110	5550	A	-0.150	2.860	5	Pass
		B	0.000	3.010	5	Pass
134	5670	A	-0.120	2.890	5	Pass
		B	0.420	3.430	5	Pass

Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Total PPSD $(dBm)_1$	Required Limit (dBm)	Result
151	5755	A	-10.320	6.980	-0.330	<24	Pass
		B	-10.320	6.980	-0.330	<24	Pass
159	5795	A	-6.380	6.980	3.610	<24	Pass
		B	-6.810	6.980	3.180	<24	Pass

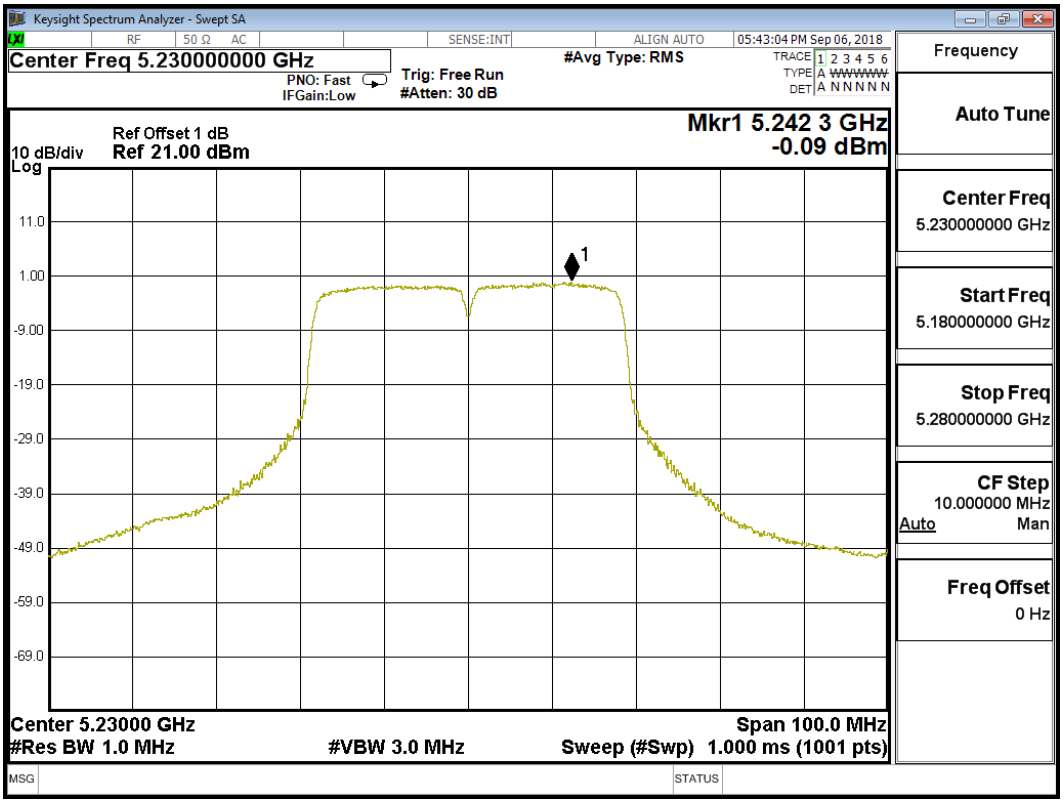
Note :The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

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

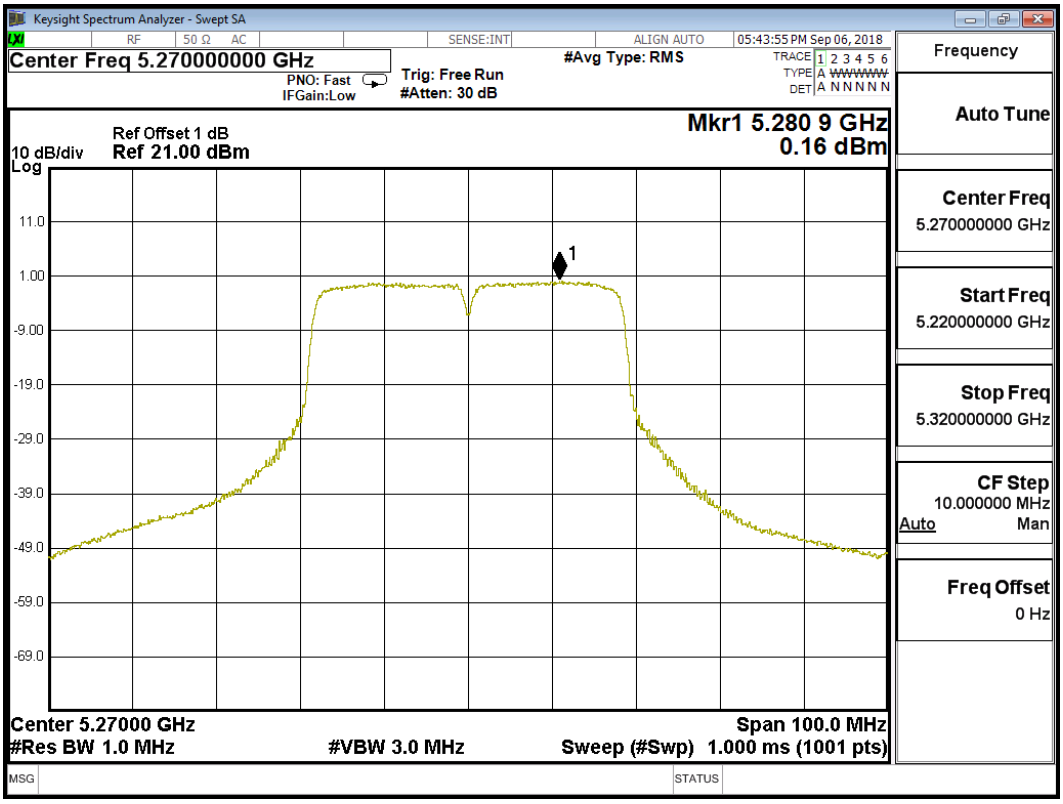
Channel 38 – Chain A



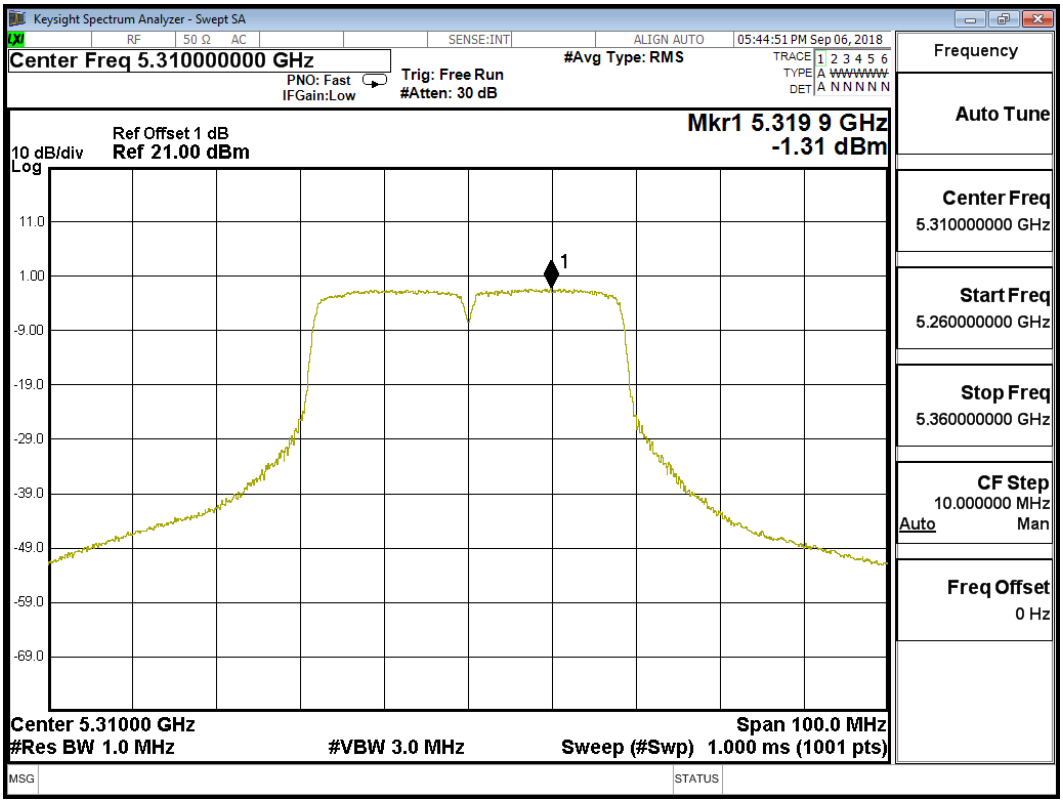
Channel 46 – Chain A



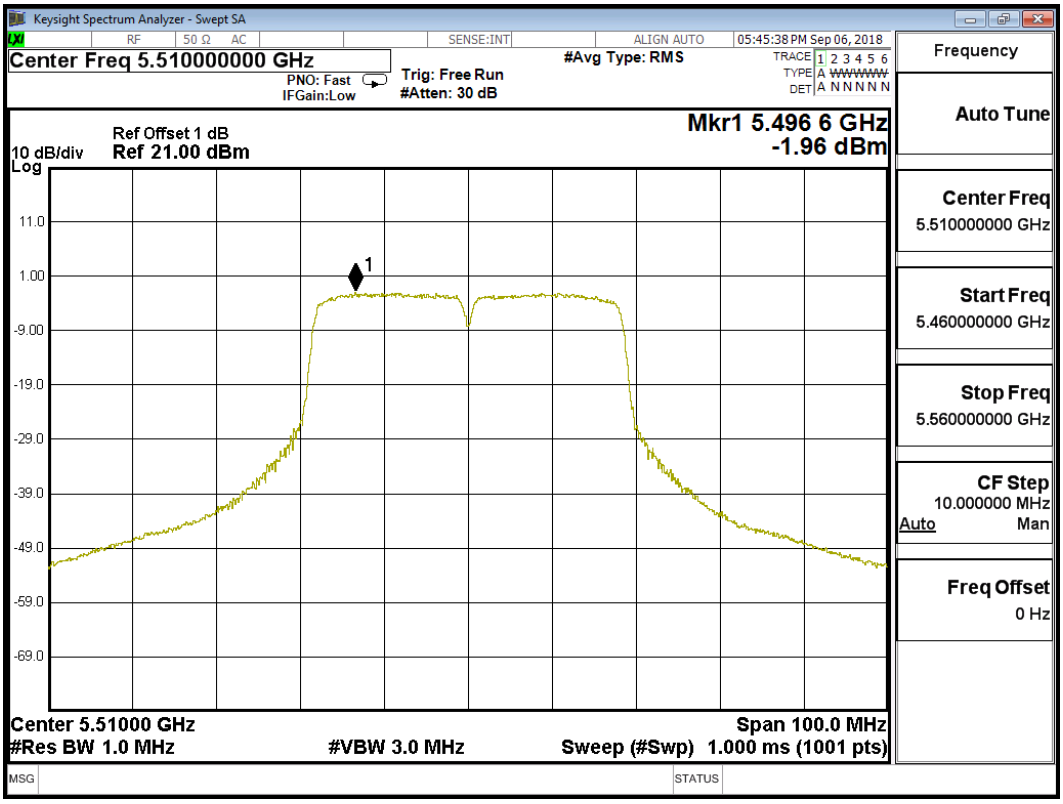
Channel 54 – Chain A



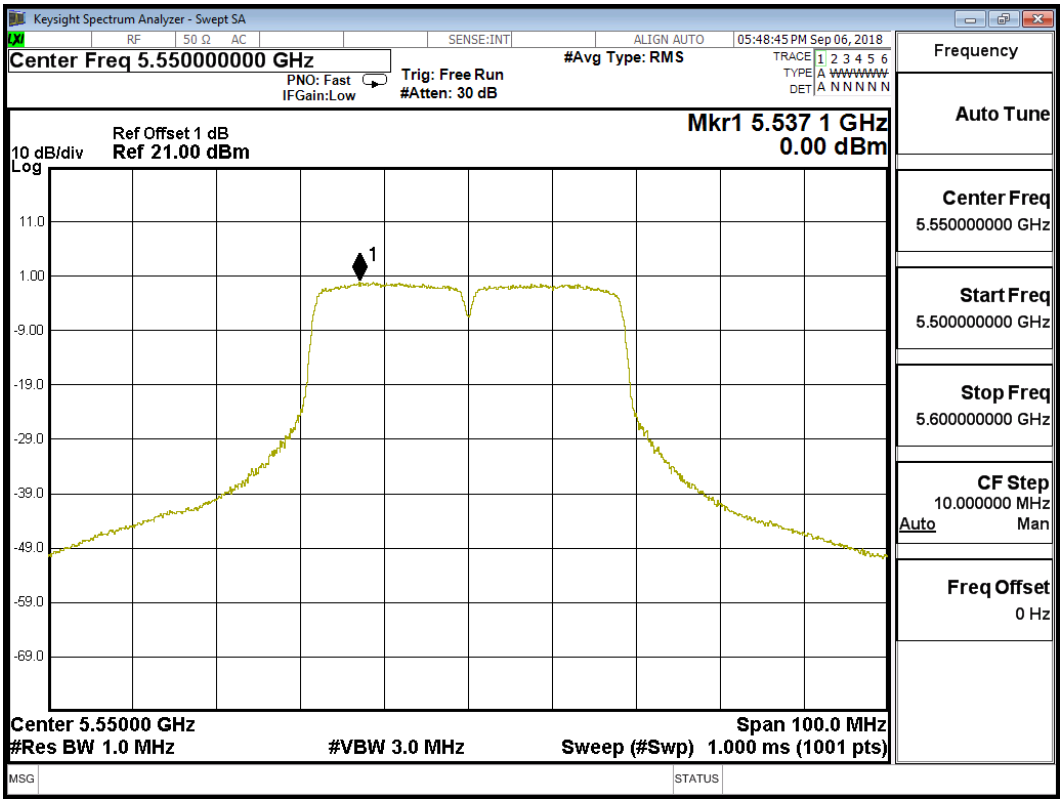
Channel 62 – Chain A



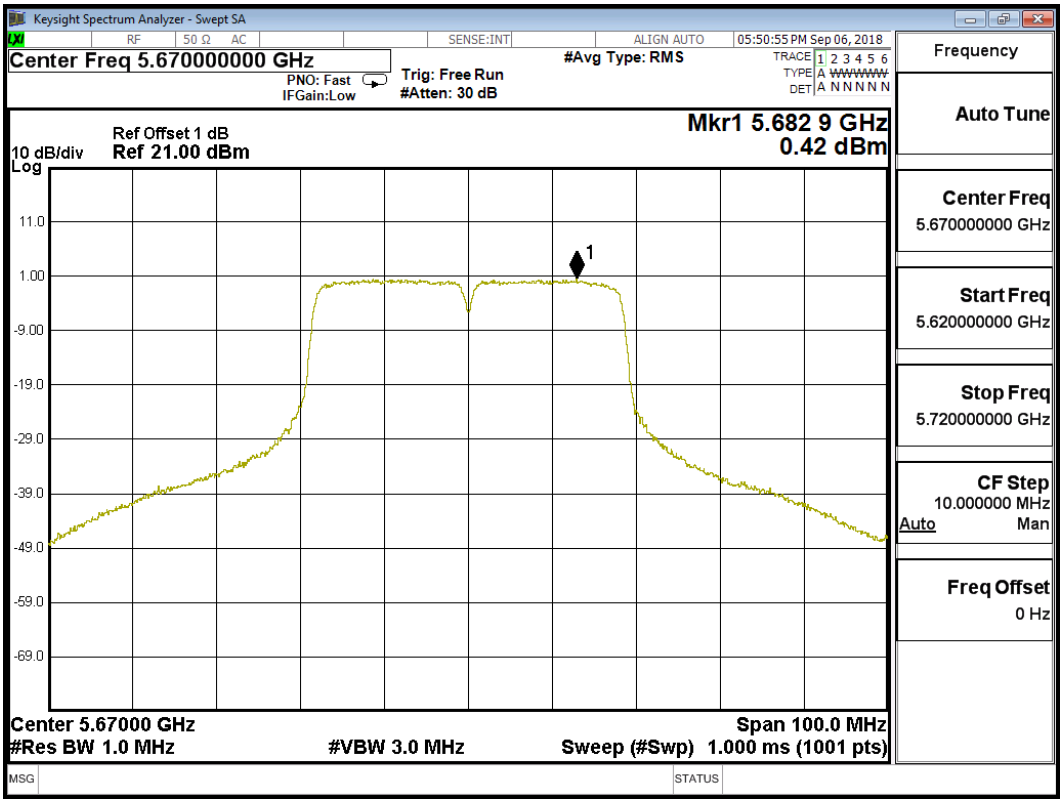
Channel 102 – Chain A



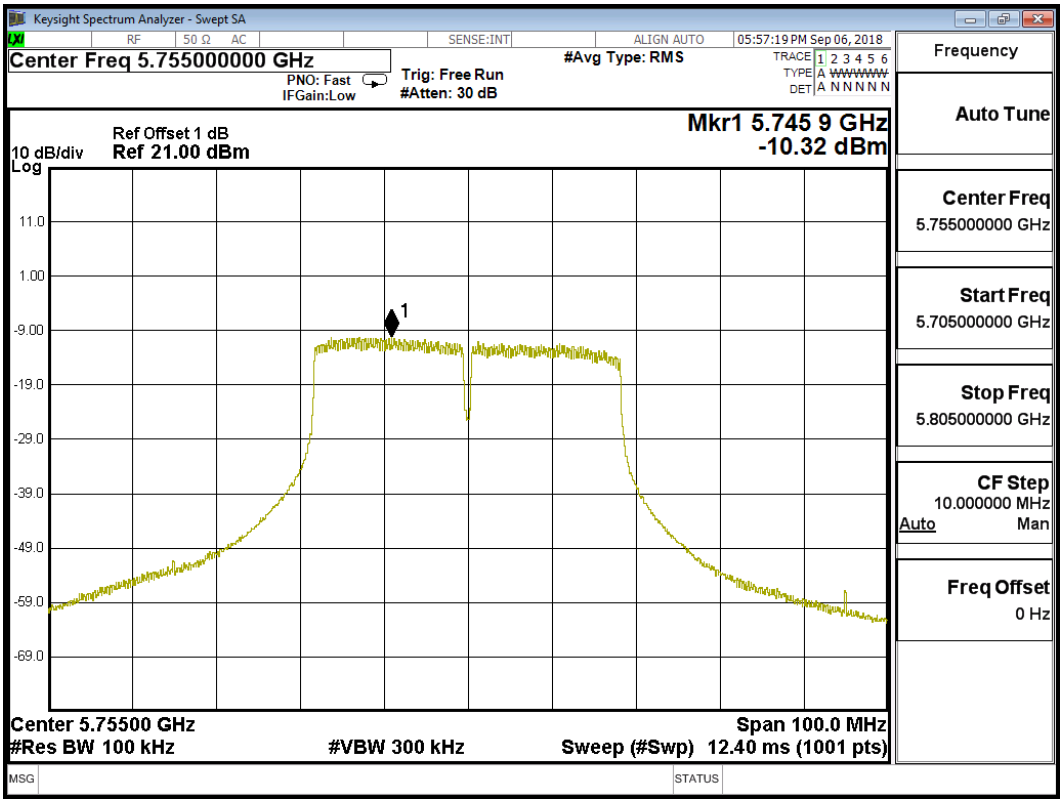
Channel 110 – Chain A



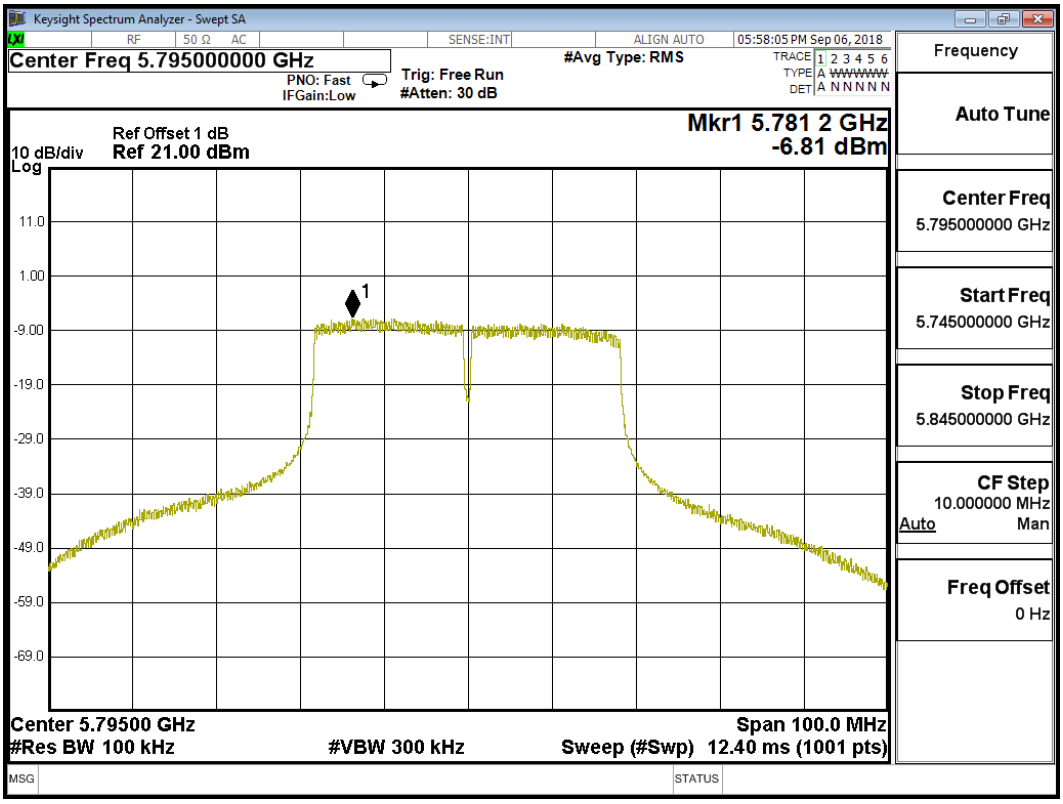
Channel 134 – Chain A



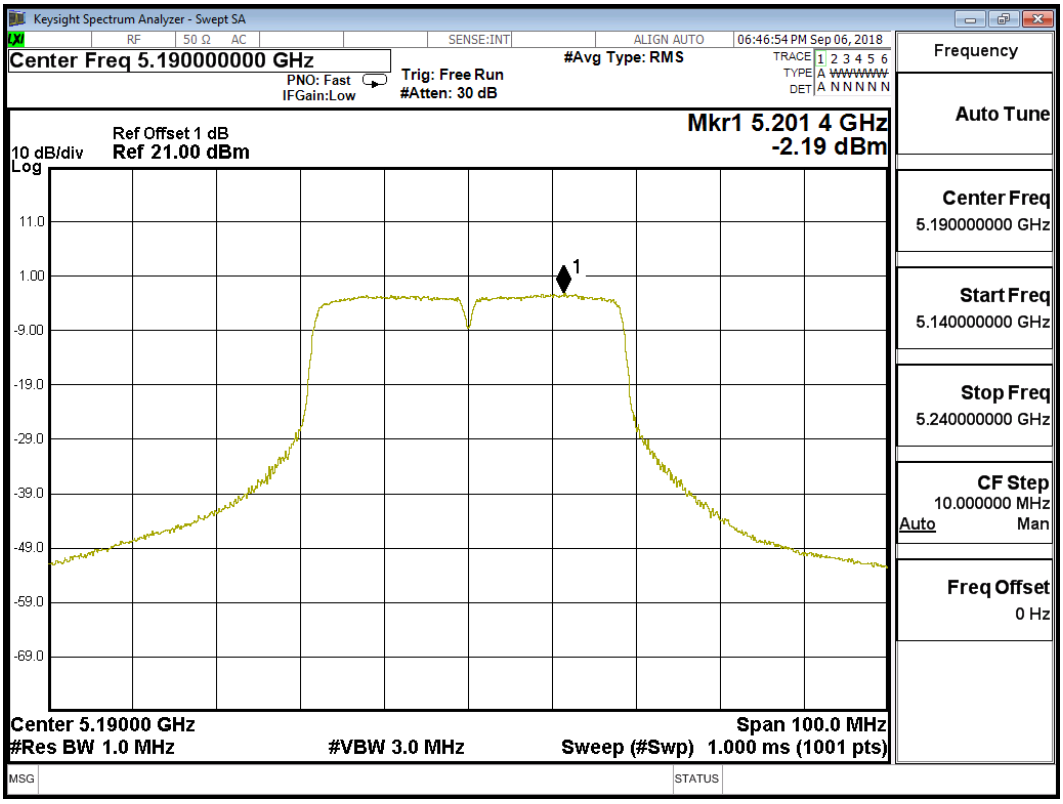
Channel 151 – Chain A



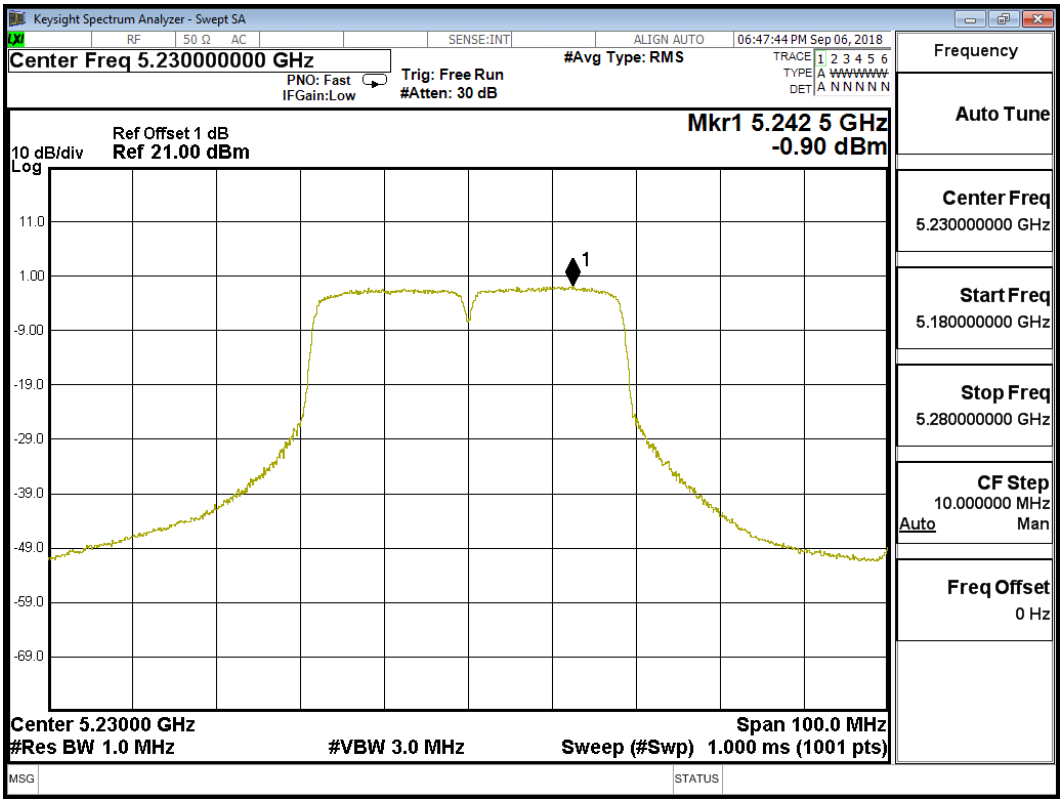
Channel 159 – Chain A



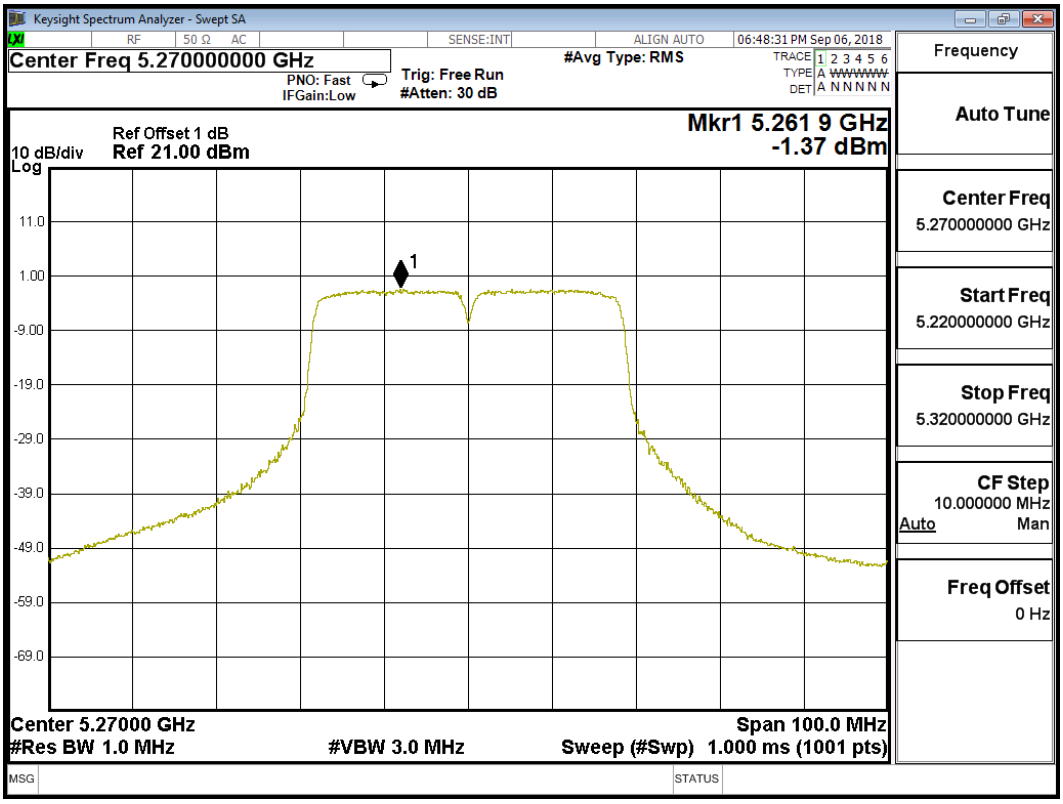
Channel 38 – Chain B



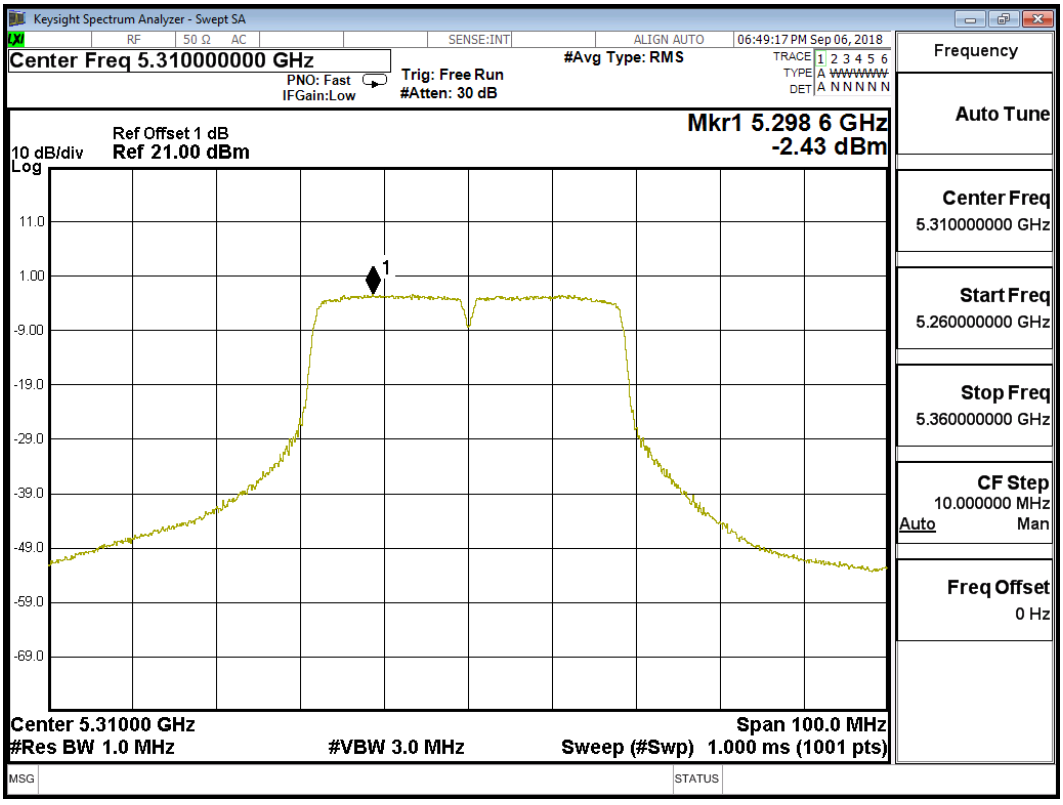
Channel 46 – Chain B



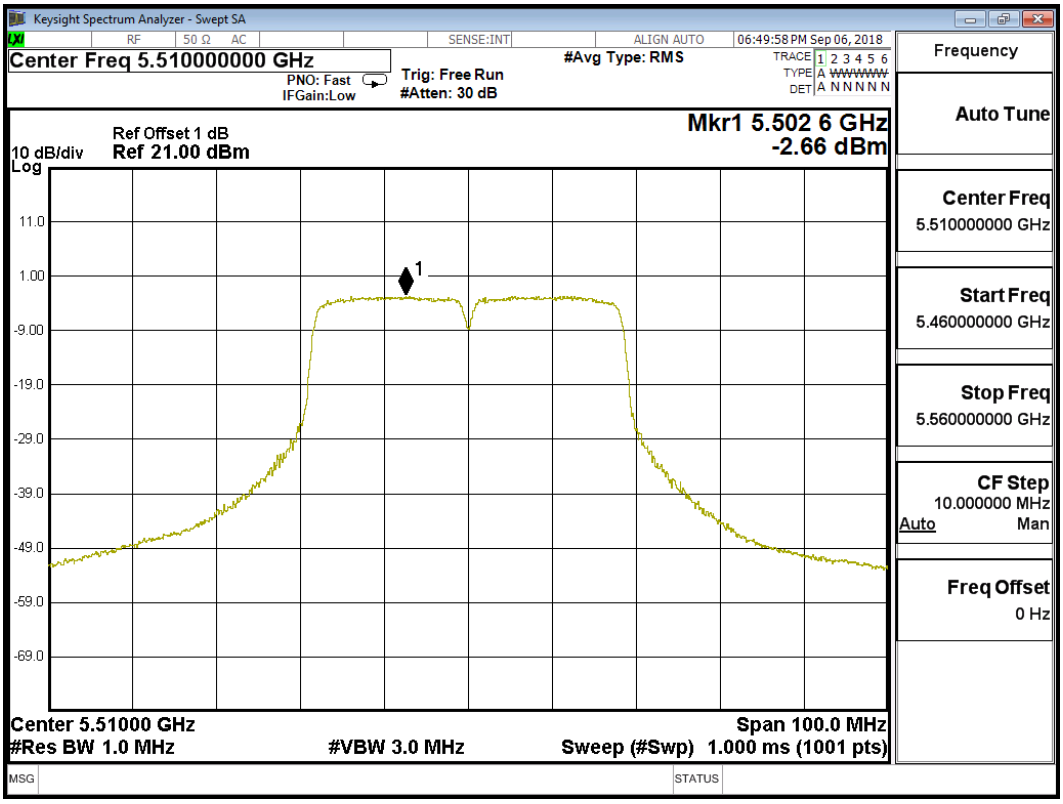
Channel 54 – Chain B



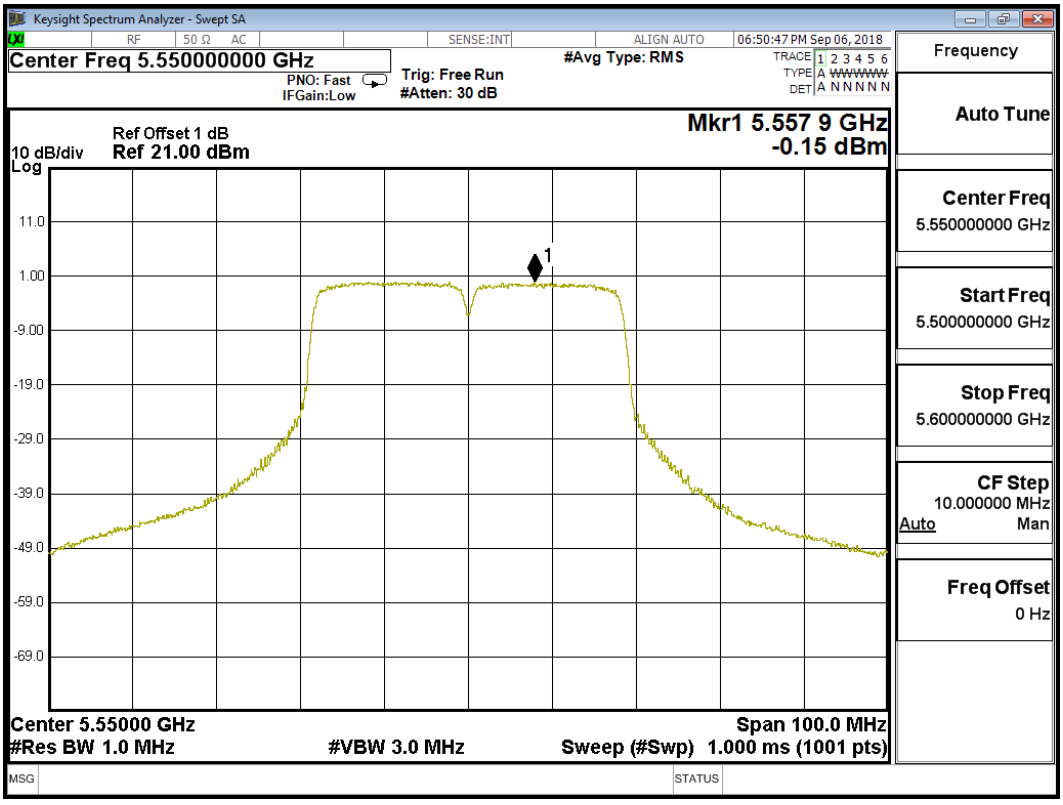
Channel 62 – Chain B



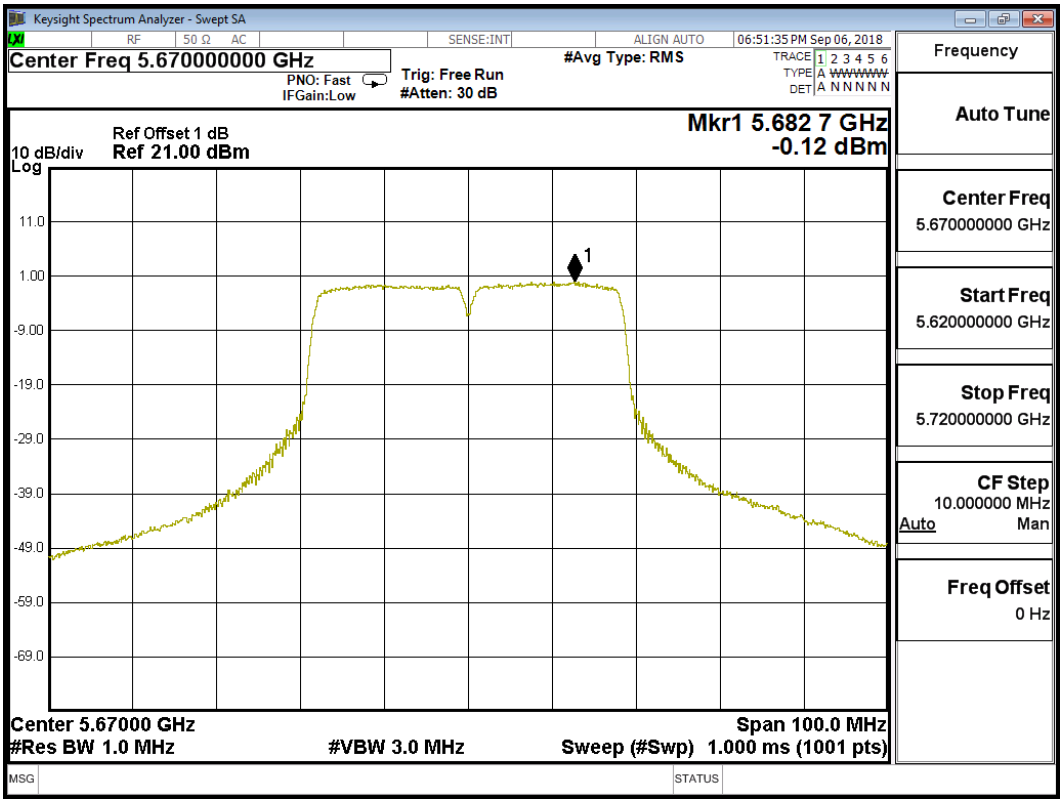
Channel 102 – Chain B



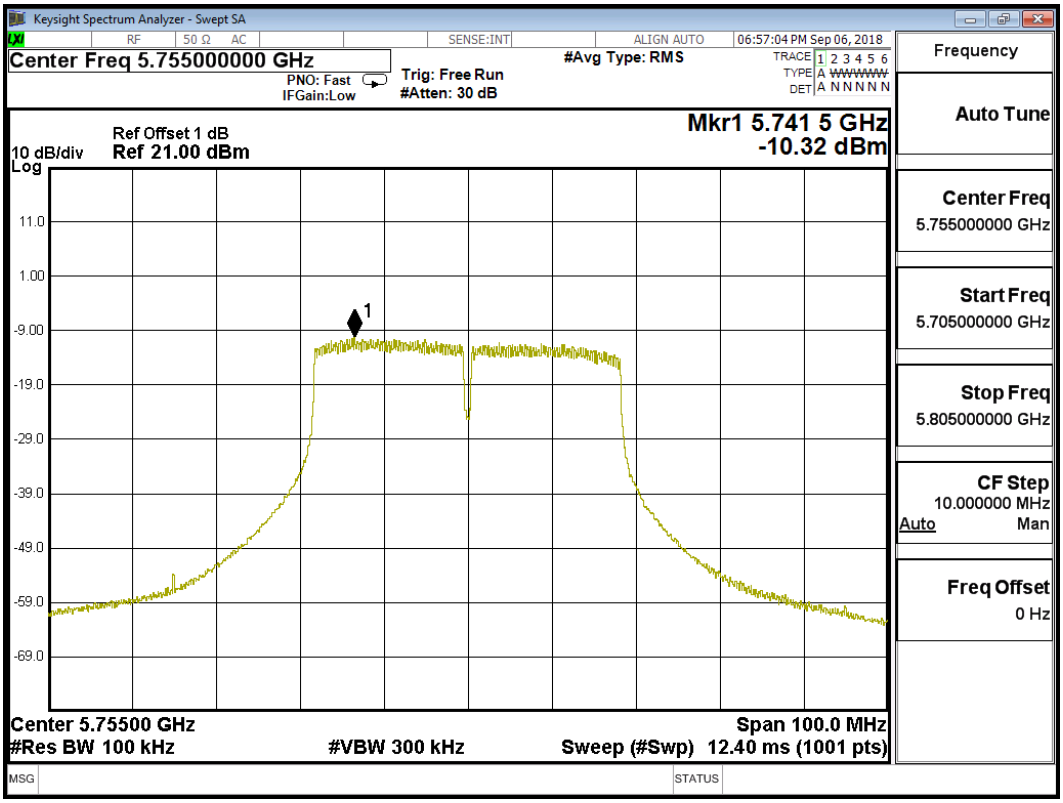
Channel 110 – Chain B



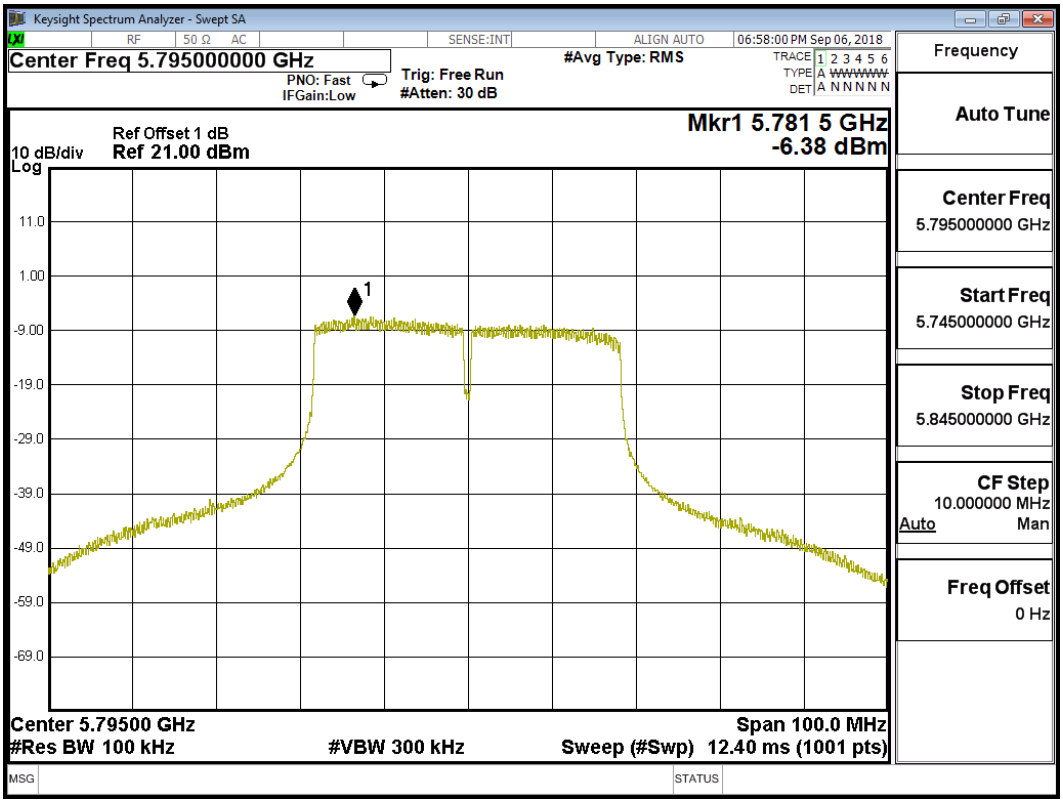
Channel 134 – Chain B



Channel 151 – Chain B



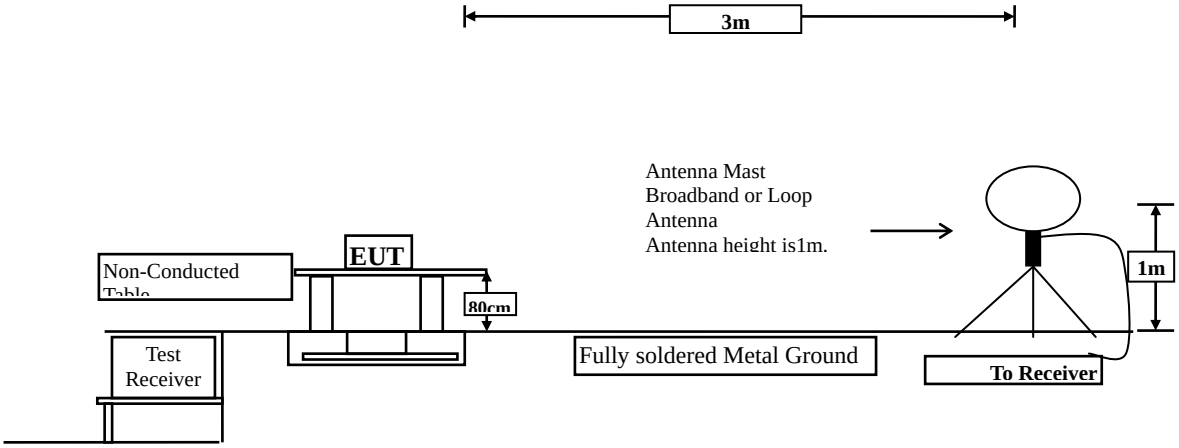
Channel 159 – Chain B



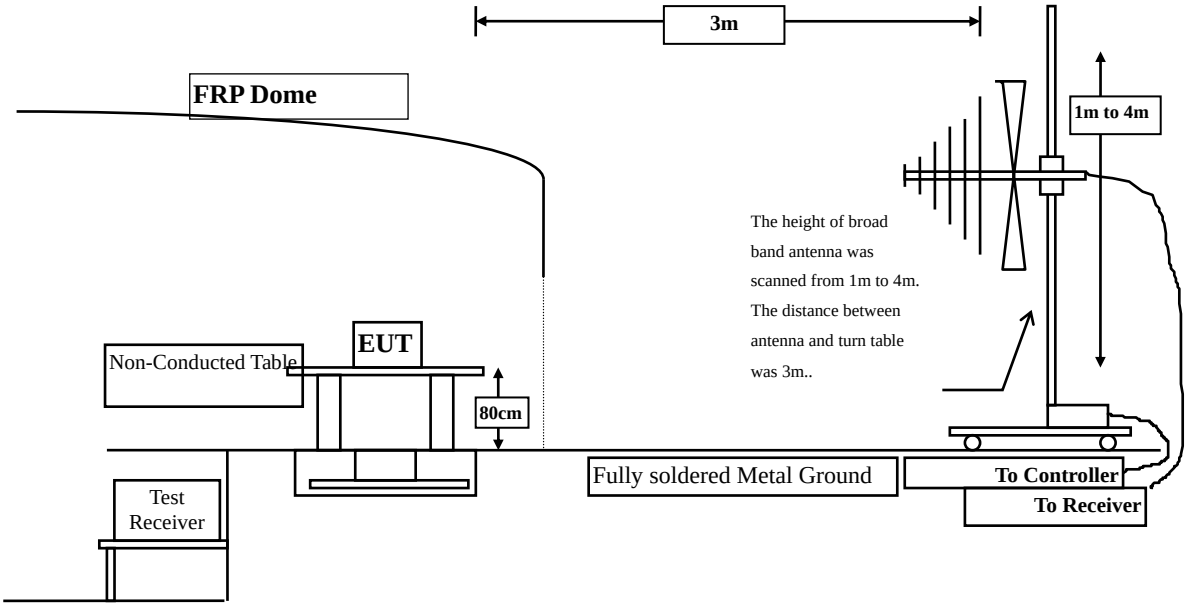
4. Radiated Emission

4.1. Test Setup

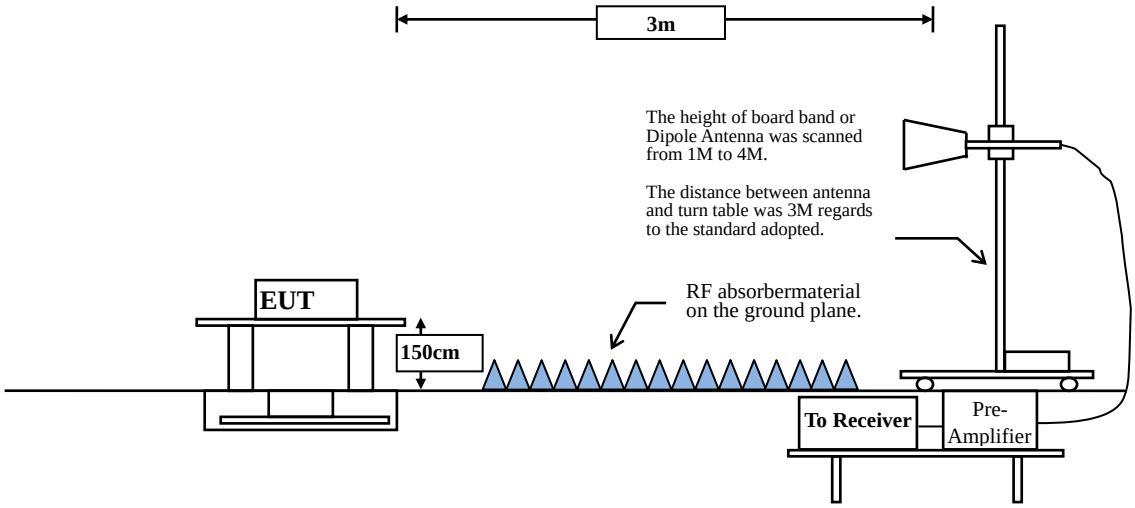
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. 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)

4.3. 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.

4.4. Uncertainty

±4.08 dB below 1GHz

±4.22 dB above 1GHz

4.5. 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 : 2018/03/10
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	10.540	38.768	49.308	-24.692	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10360.000	12.044	39.064	51.107	-22.893	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11a-6Mbps)(5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	9.649	40.863	50.511	-23.489	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10440.000	11.429	40.914	52.342	-21.658	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11a-6Mbps)(5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	10.166	39.965	50.130	-23.870	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10480.000	12.101	41.023	53.124	-20.876	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11a-6Mbps)(5260MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10520.000	11.021	38.684	49.705	-24.295	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10520.000	12.931	39.805	52.736	-21.264	74.000
Average Detector:					
--	--	--	--	--	54.000

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 : 2018/03/10
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10600.000	44.618	38.016	49.884	-24.116	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10600.000	13.403	39.274	52.677	-21.323	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11a-6Mbps)(5320MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10640.000	11.844	38.375	50.219	-23.781	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10640.000	13.517	39.176	52.693	-21.307	74.000
Average Detector:					
--	--	--	--	--	54.000

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 : 2018/03/10
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5500MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
11000.000	12.392	38.216	50.608	-23.392	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11000.000	14.514	39.016	53.530	-20.470	74.000
Average Detector:					
--	--	--	--	--	54.000

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 : 2018/03/10
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
11160.000	12.201	38.134	50.335	-23.665	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11160.000	14.445	39.083	53.528	-20.472	74.000
Average Detector:					
--	--	--	--	--	54.000

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 : 2018/03/10
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5700MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
11400.000	13.372	38.814	52.186	-21.814	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11400.000	14.922	41.059	55.981	-18.019	74.000
Average Detector:					
11400.000	14.922	26.380	41.302	-12.698	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11a-6Mbps)(5745MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11490.000	14.326	38.914	53.239	-20.761	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11490.000	15.842	42.755	58.596	-15.404	74.000
Average Detector:					
11490.000	15.842	26.903	42.744	-11.256	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11a-6Mbps)(5785MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11570.000	14.849	37.229	52.078	-21.922	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11570.000	16.215	39.360	55.574	-18.426	74.000
Average Detector:					
11570.000	16.215	25.190	41.404	-12.596	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11a-6Mbps)(5825MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11650.000	13.179	37.532	50.711	-23.289	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11650.000	14.634	41.423	56.057	-17.943	74.000
Average Detector:					
11650.000	14.634	26.591	41.225	-12.775	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	10.540	36.916	47.456	-26.544	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10360.000	12.044	38.287	50.330	-23.670	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	9.649	38.340	47.988	-26.012	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10440.000	11.429	40.570	51.998	-22.002	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	10.166	38.361	48.527	-25.473	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10480.000	12.101	39.573	51.674	-22.326	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5260MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10520.000	11.021	38.160	49.181	-24.819	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10520.000	12.931	39.517	52.448	-21.552	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10600.000	11.868	37.512	49.380	-24.620	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10600.000	13.403	38.672	52.075	-21.925	74.000
Average Detector:					
--	--	--	--	--	54.000

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 : 2018/03/10
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5320MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10640.000	13.517	37.342	50.859	-3.141	54.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10640.000	13.517	38.893	52.410	-21.590	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5500MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
11000.000	12.392	37.493	49.885	-24.115	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11000.000	14.514	38.491	53.005	-20.995	74.000
Average Detector:					
--	--	--	--	--	54.000

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 : 2018/03/10
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
11160.000	12.201	37.914	50.115	-23.885	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11160.000	14.445	39.172	53.617	-20.383	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5700MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
11400.000	13.372	39.814	53.186	-20.814	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11400.000	14.922	42.763	57.685	-16.315	74.000
Average Detector:					
11400.000	14.922	27.455	42.377	-11.623	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5745MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11490.000	14.326	40.372	54.697	-19.303	74.000
Average Detector:					
11490.000	14.326	25.031	39.356	-14.644	54.000
Vertical					
Peak Detector:					
11490.000	15.842	43.292	59.133	-14.867	74.000
Average Detector:					
11490.000	15.842	27.418	43.259	-10.741	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5785MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11570.000	14.849	40.391	55.240	-18.760	74.000
Average Detector:					
11570.000	14.849	25.472	40.321	-13.679	54.000
Vertical					
Peak Detector:					
11570.000	16.215	42.813	59.027	-14.973	74.000
Average Detector:					
11570.000	16.215	27.172	43.386	-10.614	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5825MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11650.000	13.179	41.372	54.551	-19.449	74.000
Average Detector:					
11650.000	13.179	25.517	38.696	-15.304	54.000
Vertical					
Peak Detector:					
11650.000	14.634	44.381	59.015	-14.985	74.000
Average Detector:					
11650.000	14.634	27.392	42.026	-11.974	54.000

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 : 2018/03/10
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10380.000	10.164	36.891	47.055	-26.945	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10380.000	11.729	37.268	48.998	-25.002	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-40BW 30Mbps)(5230MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10460.000	9.786	38.591	48.377	-25.623	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10460.000	11.644	40.572	52.216	-21.784	74.000
Average Detector:					
--	--	--	--	--	54.000

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 : 2018/03/10
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5270MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10540.000	11.479	37.061	48.540	-25.460	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10540.000	13.289	38.348	51.637	-22.363	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-40BW 30Mbps)(5310MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10620.000	11.862	36.912	48.774	-25.226	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
10620.000	13.449	38.061	51.510	-22.490	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-40BW 30Mbps)(5510MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
11020.000	12.632	37.681	50.313	-23.687	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11020.000	14.778	38.884	53.662	-20.338	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-40BW 30Mbps)(5550MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
11100.000	12.305	37.256	49.561	-24.439	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11100.000	14.559	39.207	53.766	-20.234	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-40BW 30Mbps)(5670MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
11340.000	12.852	38.730	51.581	-22.419	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11340.000	14.594	41.413	56.007	-17.993	74.000
Average Detector:					
11340.000	14.594	26.791	41.385	-12.615	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-40BW 30Mbps)(5755MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11510.000	14.402	36.752	51.154	-22.846	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11510.000	15.894	37.821	53.715	-20.285	74.000
Average Detector:					
--	--	--	--	--	54.000

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	:	2018/03/10
Test Mode	:	Mode 1: Transmit (802.11n-40BW 30Mbps)(5795MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11590.000	15.138	37.324	52.462	-21.538	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
11590.000	16.461	39.518	55.979	-18.021	74.000
Average Detector:					
11590.000	16.461	24.061	40.522	-13.478	54.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
144.460	-16.956	58.427	41.471	-2.029	43.500
375.320	-8.437	53.410	44.973	-1.027	46.000
499.480	-7.470	45.536	38.066	-7.934	46.000
625.580	-8.246	53.250	45.004	-0.996	46.000
875.840	-4.310	48.214	43.904	-2.096	46.000
1000.000	-0.430	34.410	33.980	-20.020	54.000
Vertical					
Peak Detector					
125.060	-12.967	55.418	42.451	-1.049	43.500
250.040	-14.198	49.910	35.712	-10.288	46.000
375.320	-8.967	51.551	42.584	-3.416	46.000
499.480	-9.660	48.116	38.456	-7.544	46.000
625.580	-9.366	53.299	43.933	-2.067	46.000
875.840	-9.610	53.213	43.603	-2.397	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
154.160	-17.251	56.112	38.861	-4.639	43.500
249.220	-15.447	50.478	35.031	-10.969	46.000
375.320	-8.437	53.359	44.922	-1.078	46.000
499.480	-7.470	47.384	39.914	-6.086	46.000
625.580	-8.246	53.230	44.984	-1.016	46.000
875.840	-4.310	49.203	44.893	-1.107	46.000
Vertical					
Peak Detector					
125.060	-12.967	54.952	41.985	-1.515	43.500
249.220	-14.327	46.405	32.078	-13.922	46.000
375.320	-8.967	51.465	42.498	-3.502	46.000
499.480	-9.660	49.480	39.820	-6.180	46.000
625.580	-9.366	52.278	42.912	-3.088	46.000
875.840	-9.610	52.629	43.019	-2.981	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
154.160	-17.251	58.162	40.911	-2.589	43.500
249.220	-15.447	49.916	34.469	-11.531	46.000
375.320	-8.437	53.270	44.833	-1.167	46.000
499.480	-7.470	45.566	38.096	-7.904	46.000
625.580	-8.246	53.079	44.833	-1.167	46.000
875.840	-4.310	48.956	44.646	-1.354	46.000
Vertical					
Peak Detector					
125.060	-12.967	55.360	42.393	-1.107	43.500
249.220	-14.327	51.009	36.682	-9.318	46.000
375.320	-8.967	50.869	41.902	-4.098	46.000
499.480	-9.660	48.009	38.349	-7.651	46.000
625.580	-9.366	52.727	43.361	-2.639	46.000
875.840	-9.610	52.768	43.158	-2.842	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(5785MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
144.460	-16.956	55.809	38.853	-4.647	43.500
249.220	-15.447	50.322	34.875	-11.125	46.000
375.320	-8.437	53.348	44.911	-1.089	46.000
499.480	-7.470	45.432	37.962	-8.038	46.000
625.580	-8.246	53.020	44.774	-1.226	46.000
875.840	-4.310	49.064	44.754	-1.246	46.000
Vertical					
Peak Detector					
125.060	-12.967	55.260	42.293	-1.207	43.500
249.220	-14.327	48.424	34.097	-11.903	46.000
375.320	-8.967	51.055	42.088	-3.912	46.000
499.480	-9.660	48.053	38.393	-7.607	46.000
625.580	-9.366	52.778	43.412	-2.588	46.000
875.840	-9.610	52.777	43.167	-2.833	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
154.160	-17.251	58.623	41.372	-2.128	43.500
249.220	-15.447	48.635	33.188	-12.812	46.000
375.320	-8.437	53.100	44.663	-1.337	46.000
499.480	-7.470	46.536	39.066	-6.934	46.000
625.580	-8.246	52.765	44.519	-1.481	46.000
875.840	-4.310	48.427	44.117	-1.883	46.000
Vertical					
Peak Detector					
125.060	-12.967	54.807	41.840	-1.660	43.500
249.220	-14.327	47.046	32.719	-13.281	46.000
375.320	-8.967	50.900	41.933	-4.067	46.000
499.480	-9.660	50.152	40.492	-5.508	46.000
625.580	-9.366	52.824	43.458	-2.542	46.000
875.840	-9.610	52.803	43.193	-2.807	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5300MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
154.160	-17.251	57.466	40.215	-3.285	43.500
249.220	-15.447	49.257	33.810	-12.190	46.000
375.320	-8.437	53.261	44.824	-1.176	46.000
499.480	-7.470	45.877	38.407	-7.593	46.000
625.580	-8.246	53.092	44.846	-1.154	46.000
875.840	-4.310	48.672	44.362	-1.638	46.000
Vertical					
Peak Detector					
125.060	-12.967	54.795	41.828	-1.672	43.500
249.220	-14.327	47.584	33.257	-12.743	46.000
375.320	-8.967	51.087	42.120	-3.880	46.000
499.480	-9.660	47.854	38.194	-7.806	46.000
625.580	-9.366	52.646	43.280	-2.720	46.000
875.840	-9.610	53.240	43.630	-2.370	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5580MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
154.160	-17.251	57.831	40.580	-2.920	43.500
249.220	-15.447	49.902	34.455	-11.545	46.000
375.320	-8.437	52.806	44.369	-1.631	46.000
499.480	-7.470	46.189	38.719	-7.281	46.000
625.580	-8.246	53.021	44.775	-1.225	46.000
875.840	-4.310	48.077	43.767	-2.233	46.000
Vertical					
Peak Detector					
125.060	-12.967	54.954	41.987	-1.513	43.500
249.220	-14.327	46.620	32.293	-13.707	46.000
375.320	-8.967	50.903	41.936	-4.064	46.000
499.480	-9.660	50.249	40.589	-5.411	46.000
625.580	-9.366	53.113	43.747	-2.253	46.000
875.840	-9.610	53.170	43.560	-2.440	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps)(5785MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
154.160	-17.251	57.165	39.914	-3.586	43.500
249.220	-15.447	48.988	33.541	-12.459	46.000
375.320	-8.437	52.801	44.364	-1.636	46.000
499.480	-7.470	46.482	39.012	-6.988	46.000
625.580	-8.246	52.934	44.688	-1.312	46.000
875.840	-4.310	48.227	43.917	-2.083	46.000
Vertical					
Peak Detector					
125.060	-12.967	55.012	42.045	-1.455	43.500
249.220	-14.327	47.592	33.265	-12.735	46.000
375.320	-8.967	51.183	42.216	-3.784	46.000
499.480	-9.660	47.864	38.204	-7.796	46.000
625.580	-9.366	52.674	43.308	-2.692	46.000
875.840	-9.610	52.568	42.958	-3.042	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5230MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
144.460	-16.956	58.213	41.257	-2.243	43.500
250.190	-15.365	50.604	35.239	-10.761	46.000
375.320	-8.437	53.193	44.756	-1.244	46.000
500.450	-7.429	45.332	37.903	-8.097	46.000
625.580	-8.246	53.208	44.962	-1.038	46.000
875.840	-4.310	49.043	44.733	-1.267	46.000
Vertical					
Peak Detector					
125.060	-12.967	55.289	42.322	-1.178	43.500
250.190	-14.175	50.638	36.463	-9.537	46.000
375.320	-8.967	51.192	42.225	-3.775	46.000
500.450	-9.579	48.065	38.486	-7.514	46.000
625.580	-9.366	53.322	43.956	-2.044	46.000
875.840	-9.610	53.221	43.611	-2.389	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5310MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
144.460	-16.956	58.412	41.456	-2.044	43.500
266.680	-14.754	50.034	35.280	-10.720	46.000
375.320	-8.437	53.128	44.691	-1.309	46.000
625.580	-8.246	52.922	44.676	-1.324	46.000
875.840	-4.310	48.372	44.062	-1.938	46.000
1000.000	-0.430	33.448	33.018	-20.982	54.000
Vertical					
Peak Detector					
125.060	-12.967	55.062	42.095	-1.405	43.500
375.320	-8.967	50.964	41.997	-4.003	46.000
500.450	-9.579	47.864	38.285	-7.715	46.000
625.580	-9.366	52.601	43.235	-2.765	46.000
750.710	-7.724	46.958	39.234	-6.766	46.000
875.840	-9.610	53.158	43.548	-2.452	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5550MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
155.130	-17.386	58.810	41.424	-2.076	43.500
266.680	-14.754	48.052	33.298	-12.702	46.000
375.320	-8.437	53.245	44.808	-1.192	46.000
500.450	-7.429	44.199	36.770	-9.230	46.000
625.580	-8.246	52.979	44.733	-1.267	46.000
875.840	-4.310	48.659	44.349	-1.651	46.000
Vertical					
Peak Detector					
125.060	-12.967	54.800	41.833	-1.667	43.500
250.190	-14.175	54.677	40.502	-5.498	46.000
375.320	-8.967	51.428	42.461	-3.539	46.000
500.450	-9.579	47.659	38.080	-7.920	46.000
625.580	-9.366	52.825	43.459	-2.541	46.000
875.840	-9.610	52.684	43.074	-2.926	46.000

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 : 2018/08/21
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps)(5755MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
155.130	-17.386	59.254	41.868	-1.632	43.500
250.190	-15.365	49.912	34.547	-11.453	46.000
375.320	-8.437	53.165	44.728	-1.272	46.000
625.580	-8.246	53.006	44.760	-1.240	46.000
750.710	-5.794	41.480	35.686	-10.314	46.000
875.840	-4.310	48.838	44.528	-1.472	46.000
Vertical					
Peak Detector					
125.060	-12.967	55.274	42.307	-1.193	43.500
250.190	-14.175	51.503	37.328	-8.672	46.000
375.320	-8.967	50.989	42.022	-3.978	46.000
625.580	-9.366	52.716	43.350	-2.650	46.000
750.710	-7.724	41.763	34.039	-11.961	46.000
875.840	-9.610	52.743	43.133	-2.867	46.000

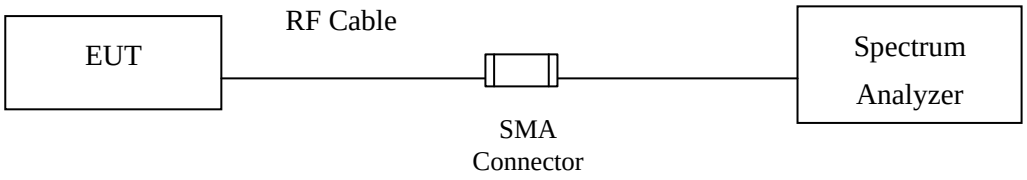
Note:

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.

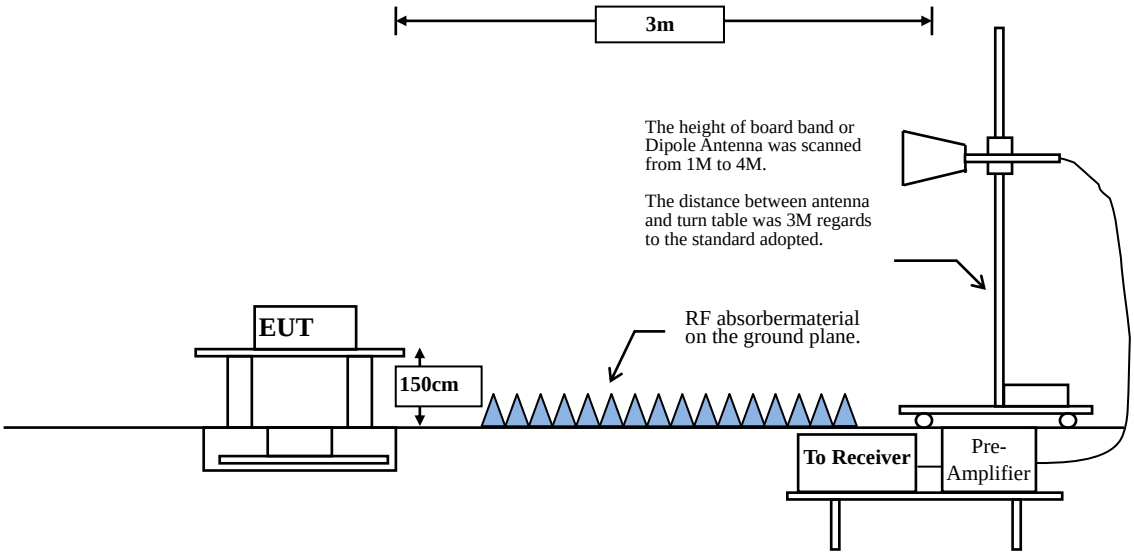
5. Band Edge

5.1. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



5.2. 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.

5.3. 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.

5.4. Uncertainty

±4.08 dB below 1GHz

±4.22 dB above 1GHz

5.5. 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 : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 36 (5180MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5129.565	10.521	45.481	56.002	74.00	54.00	Pass
36 (Peak)	5150.000	10.470	43.729	54.200	74.00	54.00	Pass
36 (Peak)	5182.899	10.386	84.312	94.698	--	--	--
36 (Average)	5150.000	10.470	24.217	34.688	74.00	54.00	Pass
36 (Average)	5176.812	10.402	72.700	83.102	--	--	--

Figure Channel 36: Horizontal (Peak)

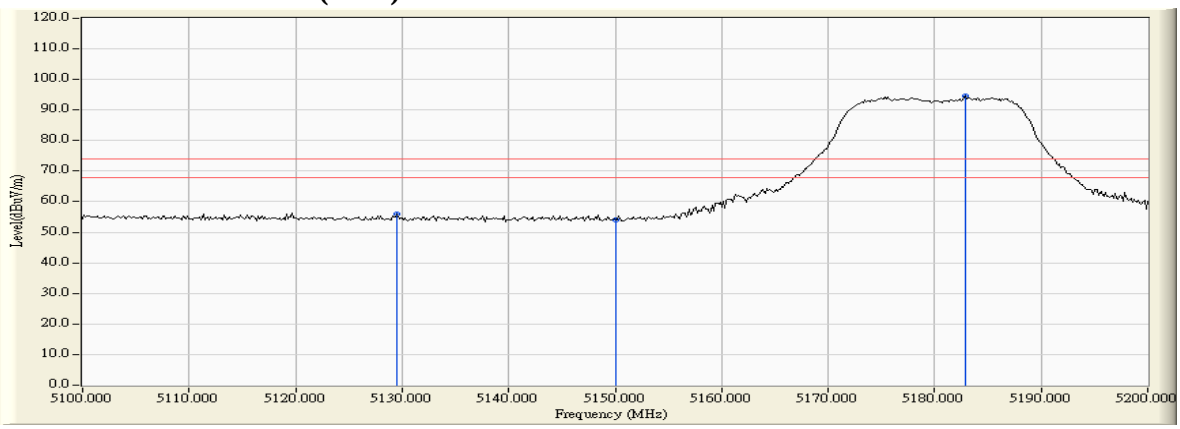
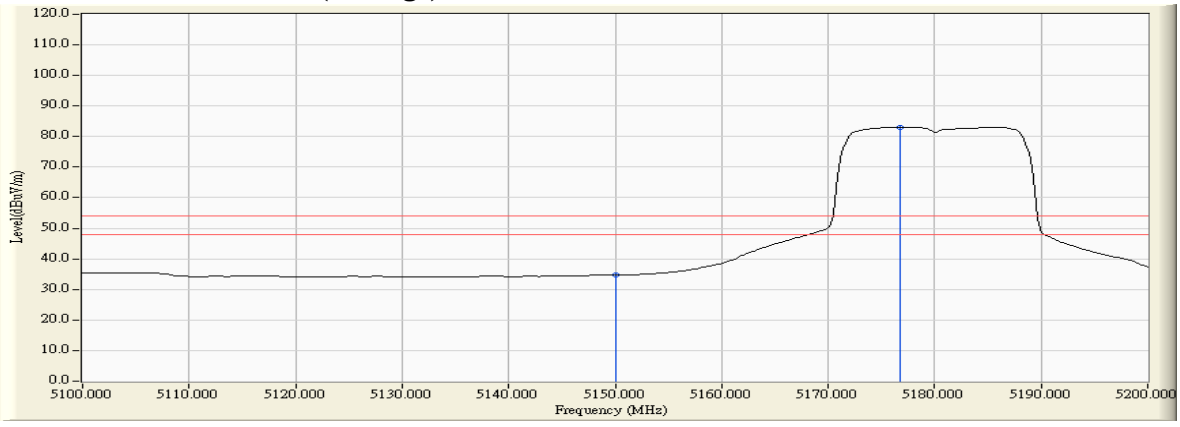


Figure Channel 36: Horizontal (Average)



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 : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 36 (5180MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5150.000	12.390	60.481	72.871	74.00	54.00	Pass
36 (Peak)	5182.609	12.510	104.762	117.273	--	--	--
36 (Average)	5104.638	12.231	41.232	53.463	74.00	54.00	Pass
36 (Average)	5150.000	12.390	38.811	51.201	74.00	54.00	Pass
36 (Average)	5185.507	12.522	93.290	105.812	--	--	--

Figure Channel 36: Vertical (Peak)

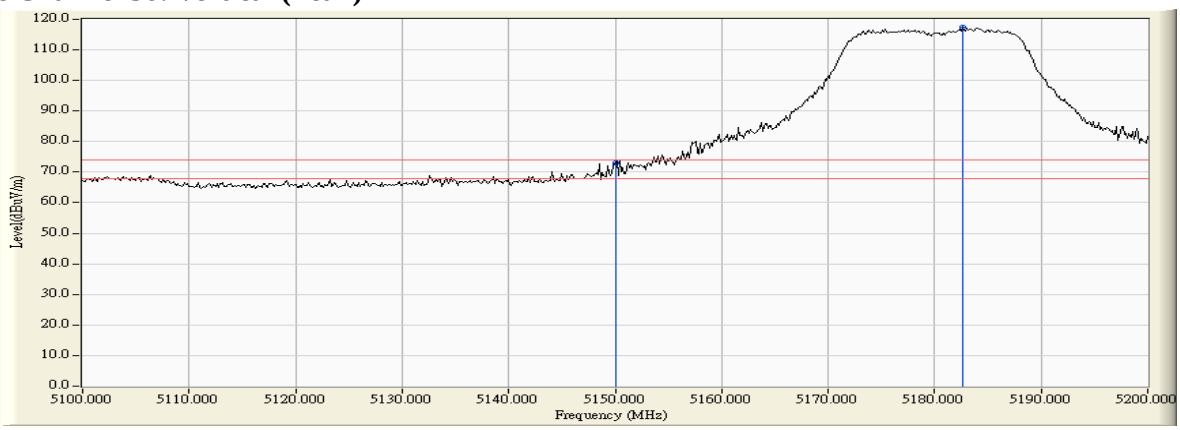
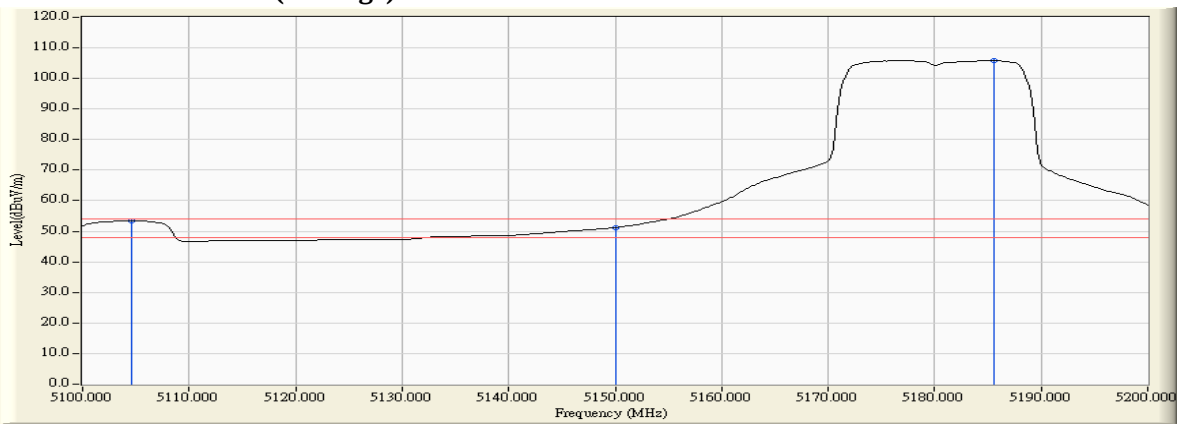


Figure Channel 36:Vertical (Average)



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	:	2018/03/06
Test Mode	:	Mode 1: Transmit (802.11a-6Mbps) -Channel 64 (5320MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
64 (Peak)	5322.899	11.094	87.696	98.789	--	--	--
64 (Peak)	5350.000	11.024	45.519	56.543	74.00	54.00	Pass
64 (Peak)	5352.899	11.017	45.799	56.816	74.00	54.00	Pass
64 (Average)	5324.058	11.090	75.704	86.794	--	--	--
64 (Average)	5350.000	11.024	25.644	36.668	74.00	54.00	Pass

Figure Channel 64: Horizontal (Peak)

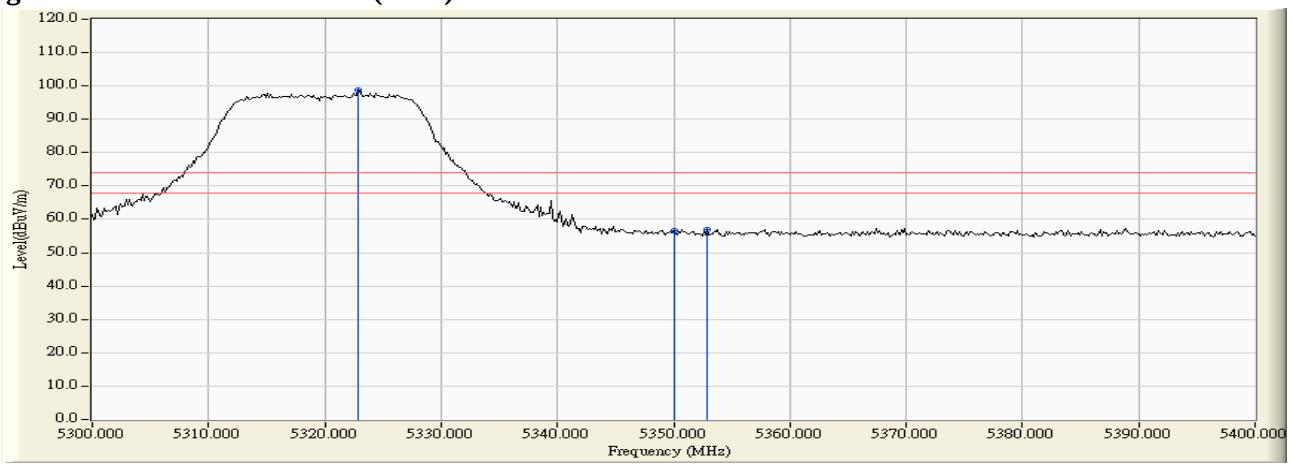
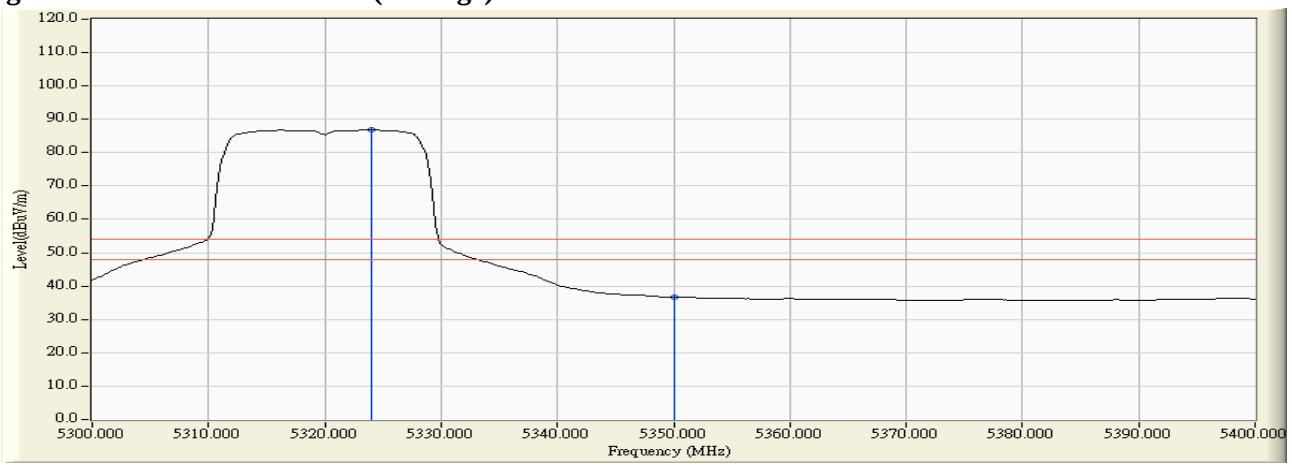


Figure Channel 64: Horizontal (Average)



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 : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 64 (5320MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
64 (Peak)	5323.043	13.016	105.010	118.026	--	--	--
64 (Peak)	5350.000	12.999	58.379	71.378	74.00	54.00	Pass
64 (Peak)	5350.725	13.000	60.565	73.564	74.00	54.00	Pass
64 (Average)	5316.522	13.020	93.633	106.653	--	--	--
64 (Average)	5350.000	12.999	39.230	52.229	74.00	54.00	Pass

Figure Channel 64: Vertical (Peak)

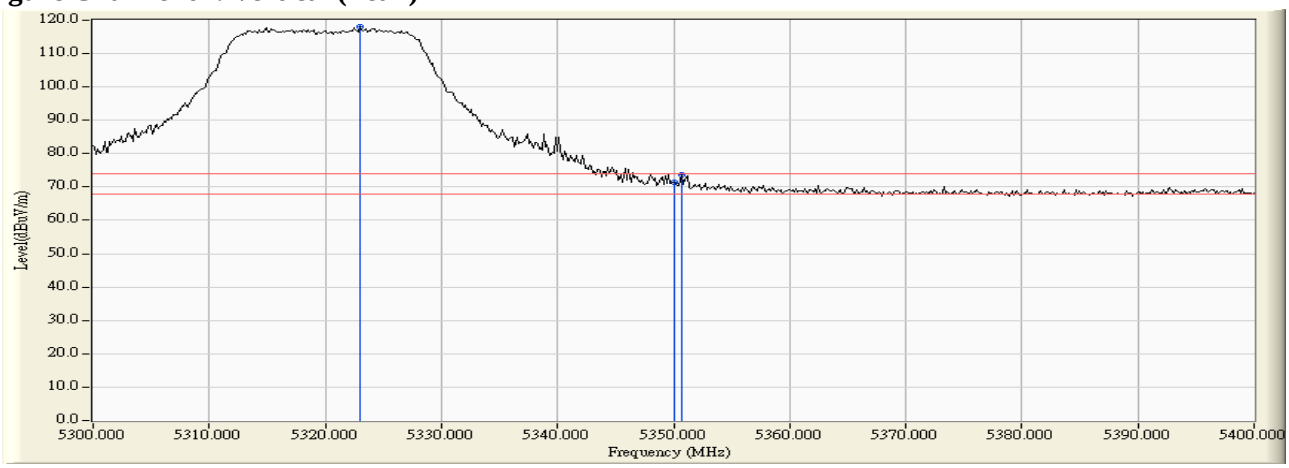
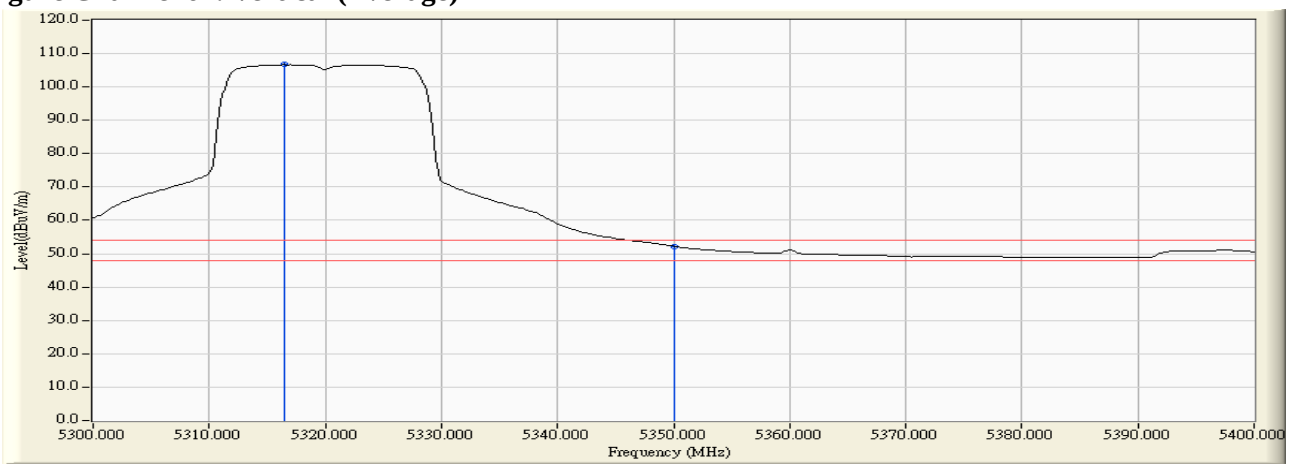


Figure Channel 64: Vertical (Average)



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 : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 100 (5500MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
100 (Peak)	5430.000	11.300	45.277	56.577	74.00	54.00	Pass
100 (Peak)	5460.000	11.703	41.361	53.064	74.00	54.00	Pass
100 (Peak)	5503.623	12.194	83.684	95.878	--	--	--
100 (Average)	5448.551	11.549	34.731	46.280	74.00	54.00	Pass
100 (Average)	5460.000	11.703	33.640	45.343	74.00	54.00	Pass
100 (Average)	5504.058	12.197	73.637	85.834	--	--	--

Figure Channel 100: Horizontal (Peak)

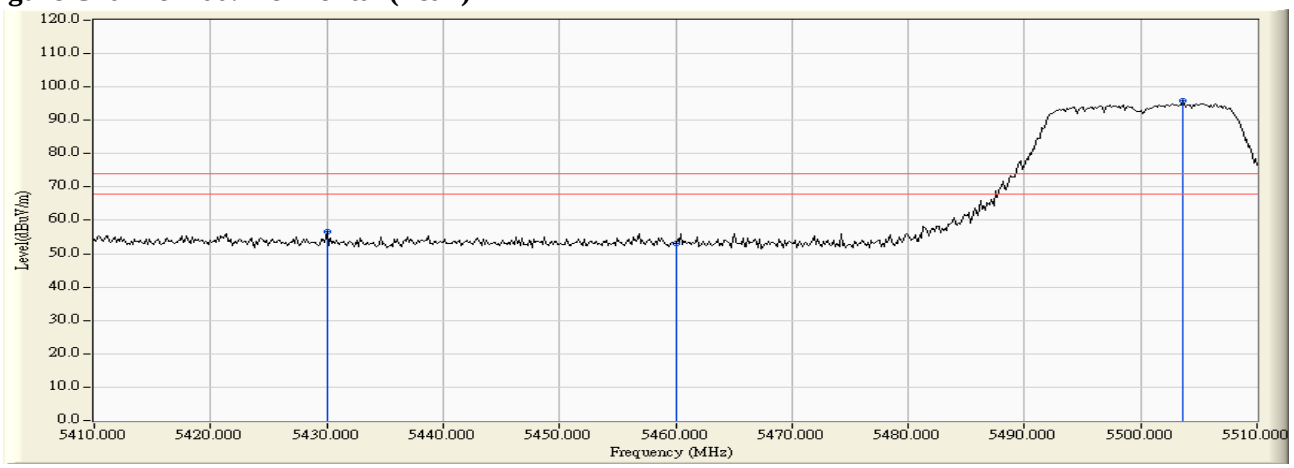
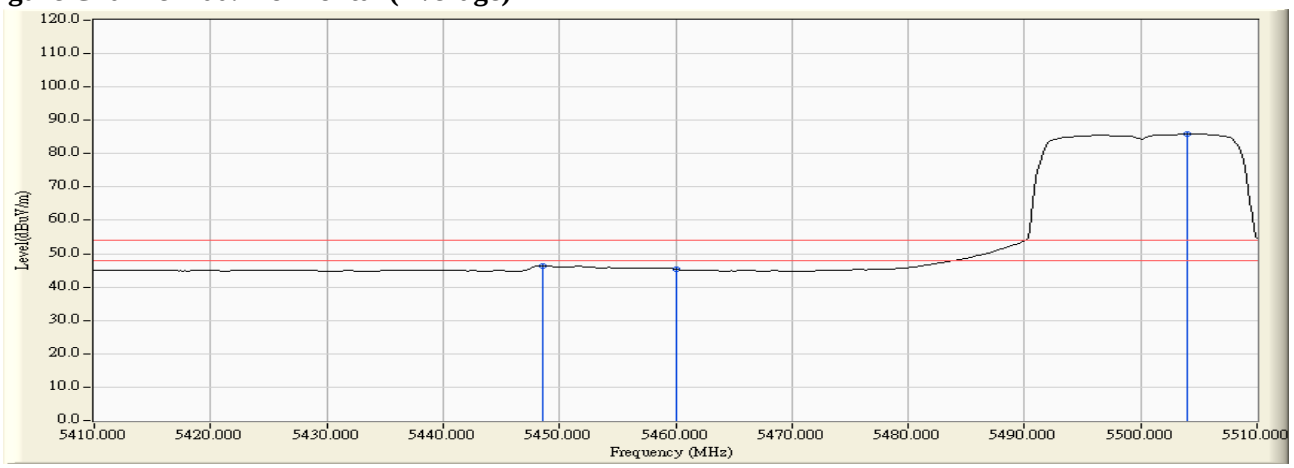


Figure Channel 100: Horizontal (Average)



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 : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 100 (5500MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
100 (Peak)	5417.246	13.087	51.698	64.786	74.00	54.00	Pass
100 (Peak)	5460.000	13.390	47.467	60.857	74.00	54.00	Pass
100 (Peak)	5503.043	13.639	102.144	115.783	--	--	--
100 (Average)	5415.942	13.078	39.388	52.467	74.00	54.00	Pass
100 (Average)	5460.000	13.390	35.976	49.366	74.00	54.00	Pass
100 (Average)	5504.493	13.642	91.154	104.797	--	--	--

Figure Channel 100: Vertical (Peak)

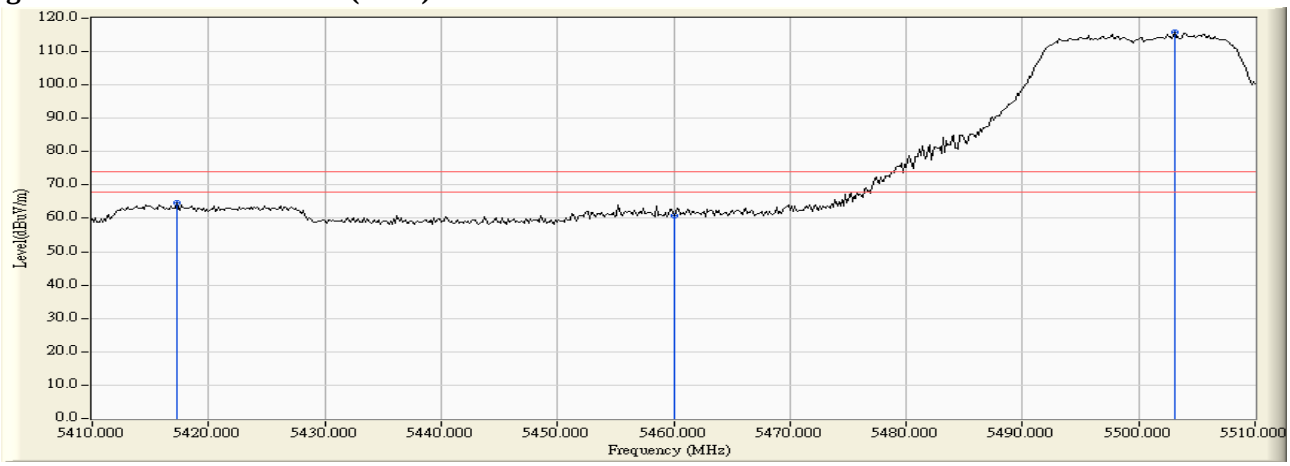
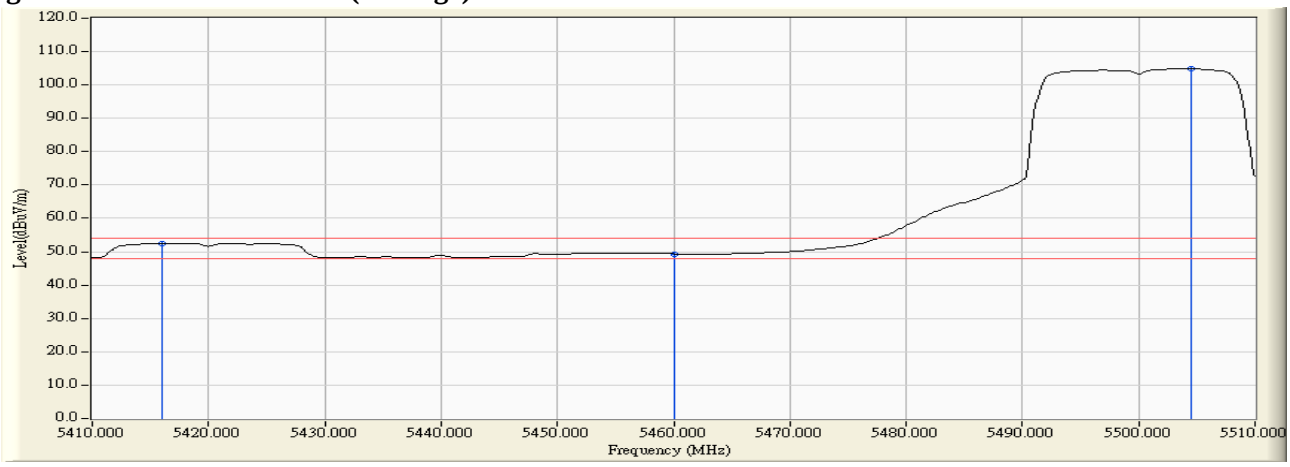


Figure Channel 100: Vertical (Average)



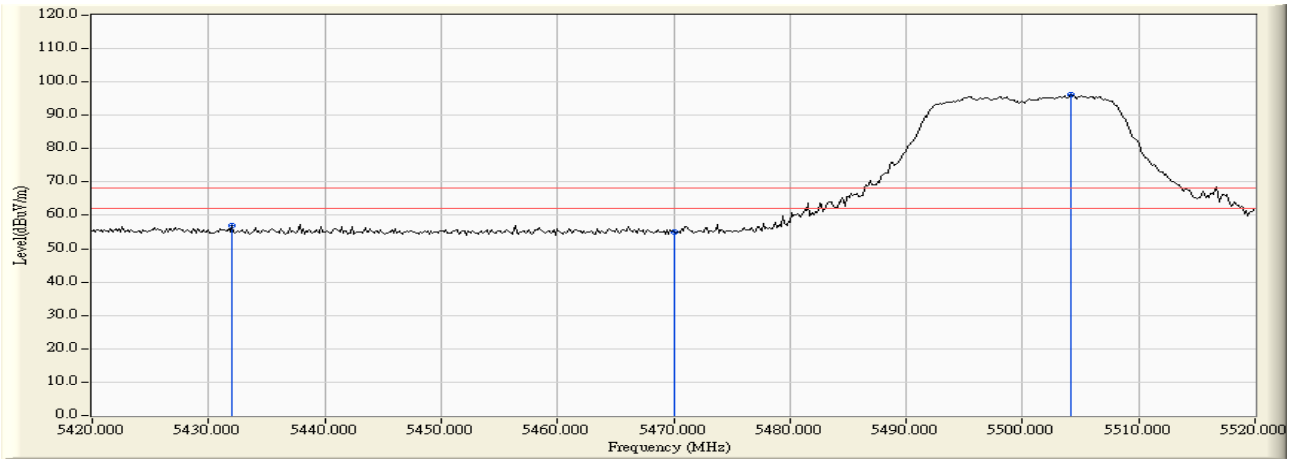
Note:

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.

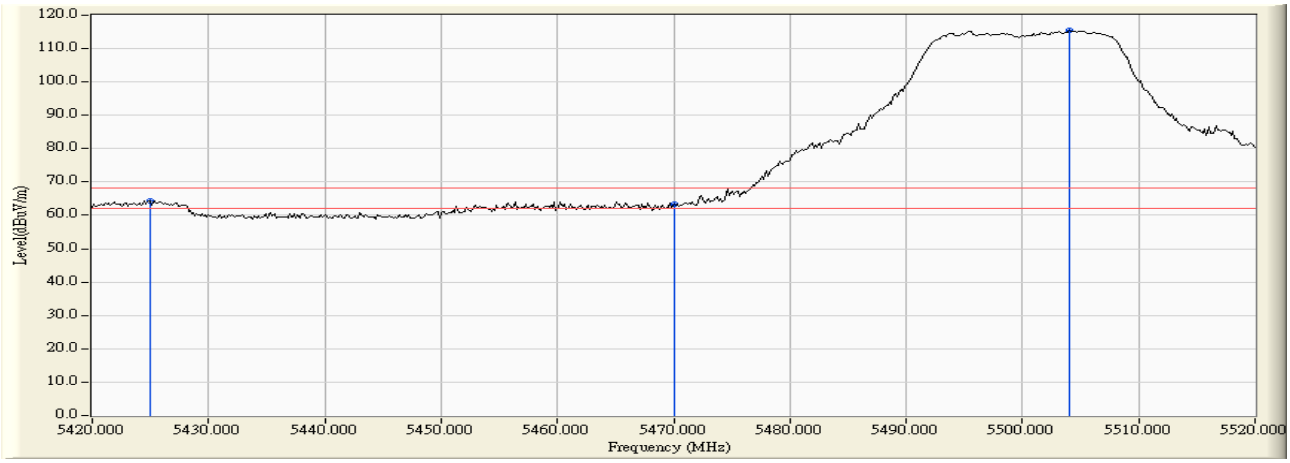
Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 100 (5500MHz)

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV /m)	Margin (dB)	Limit (dBµV /m)	Result
Horizontal	5432.029	11.328	45.662	56.989	-11.231	68.220	Pass
Horizontal	5470.000	11.838	43.194	55.032	-13.188	68.220	Pass
Horizontal	5504.203	12.198	83.846	96.044	--	--	--



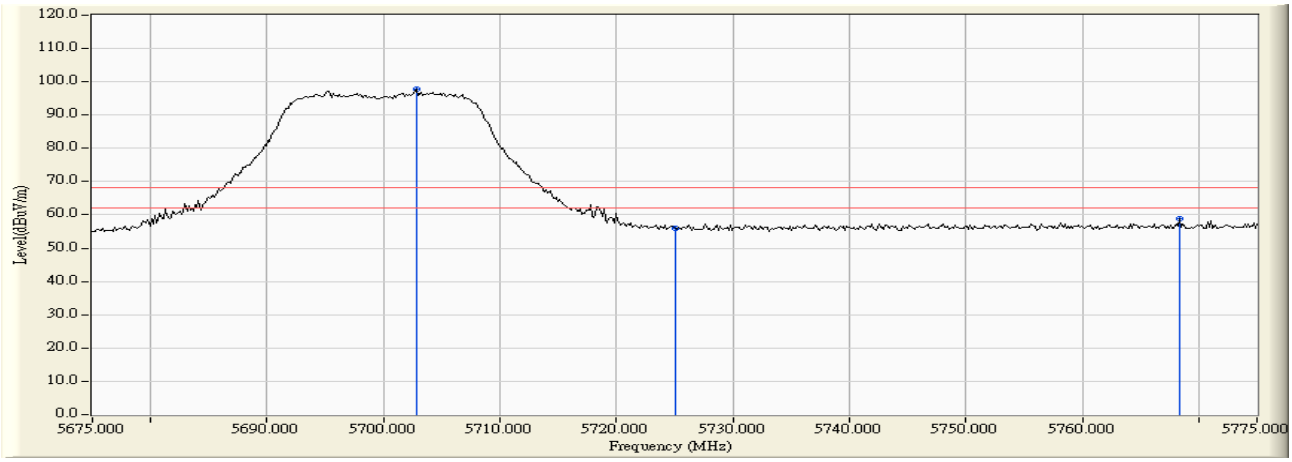
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV /m)	Margin (dB)	Limit (dBµV /m)	Result
Vertical	5424.928	13.142	51.169	64.311	-3.909	68.220	Pass
Vertical	5470.000	13.462	50.069	63.531	-4.689	68.220	Pass
Vertical	5504.058	13.641	101.820	115.462	--	--	--



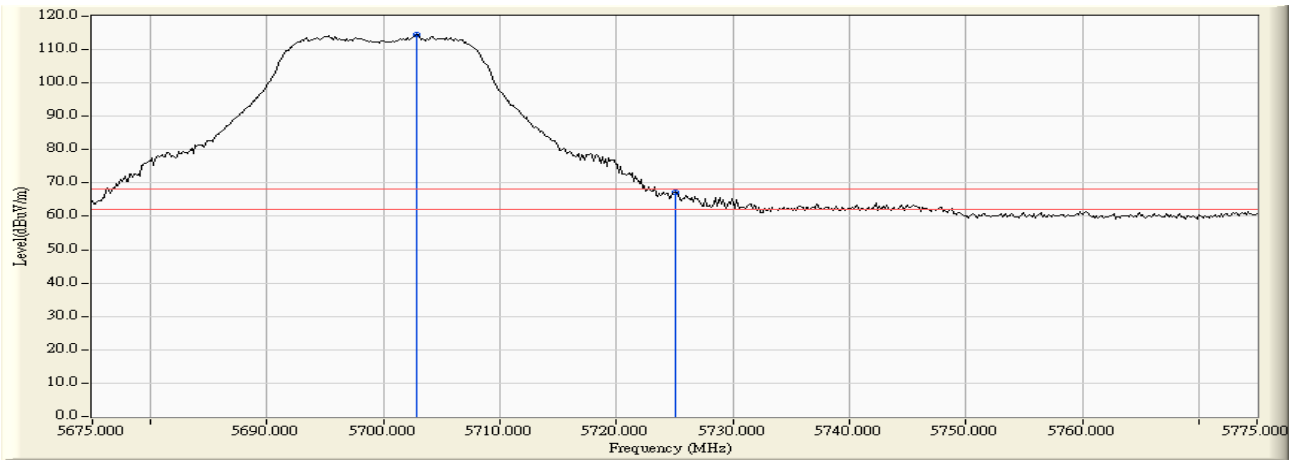
Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 140 (5700MHz)

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5702.826	11.645	86.014	97.660	--	--	--
Horizontal	5725.000	11.592	44.344	55.936	-12.284	68.220	Pass
Horizontal	5768.333	11.455	47.401	58.856	-9.364	68.220	Pass



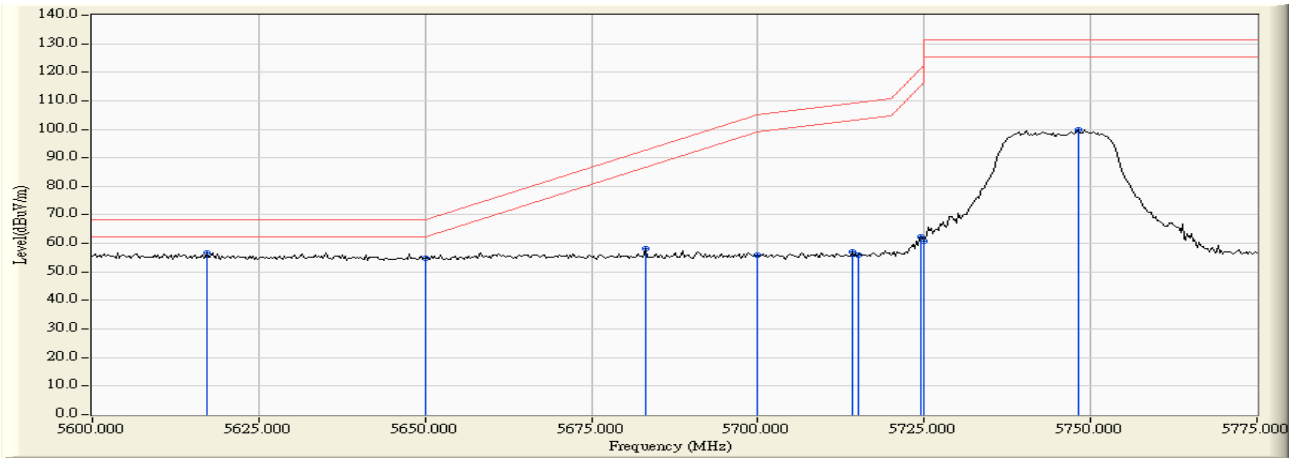
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5702.826	12.997	101.428	114.426	--	--	--
Vertical	5725.000	12.930	54.388	67.318	-0.902	68.220	Pass



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 149 (5745MHz)

RF Radiated Measurement:

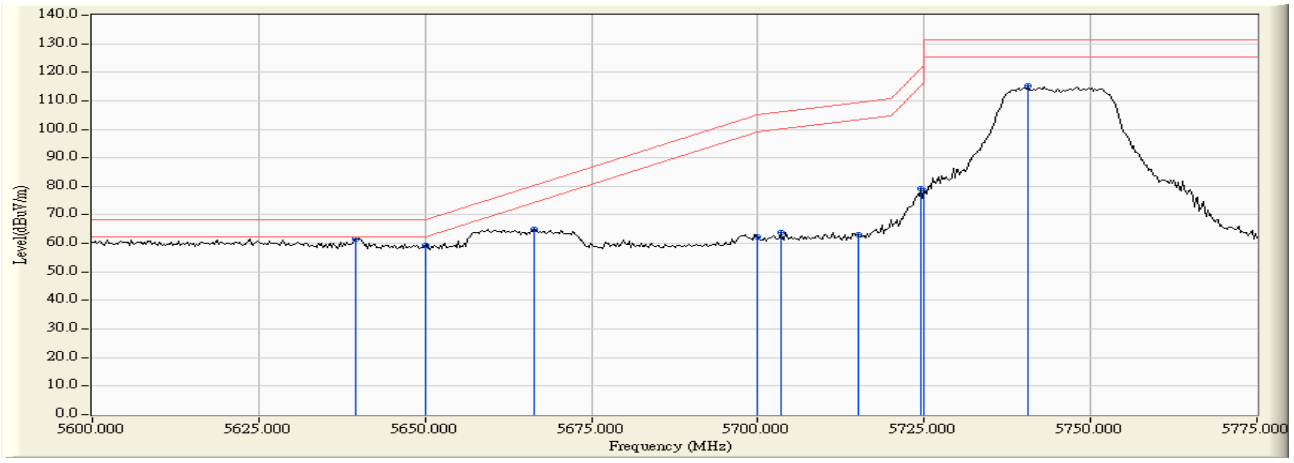
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5617.246	11.477	45.035	56.512	-11.708	68.220	Pass
Horizontal	5650.000	11.554	43.216	54.771	-13.449	68.220	Pass
Horizontal	5683.188	11.632	46.478	58.110	-34.656	92.766	Pass
Horizontal	5700.000	11.647	44.219	55.866	-49.334	105.200	Pass
Horizontal	5714.130	11.625	45.611	57.236	-51.920	109.156	Pass
Horizontal	5715.000	11.623	44.296	55.918	-53.482	109.400	Pass
Horizontal	5724.529	11.594	50.547	62.140	-58.986	121.126	Pass
Horizontal	5725.000	11.592	49.323	60.915	-61.285	122.200	Pass
Horizontal	5748.116	11.519	88.448	99.966	--	--	--



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 149 (5745MHz)

RF Radiated Measurement:

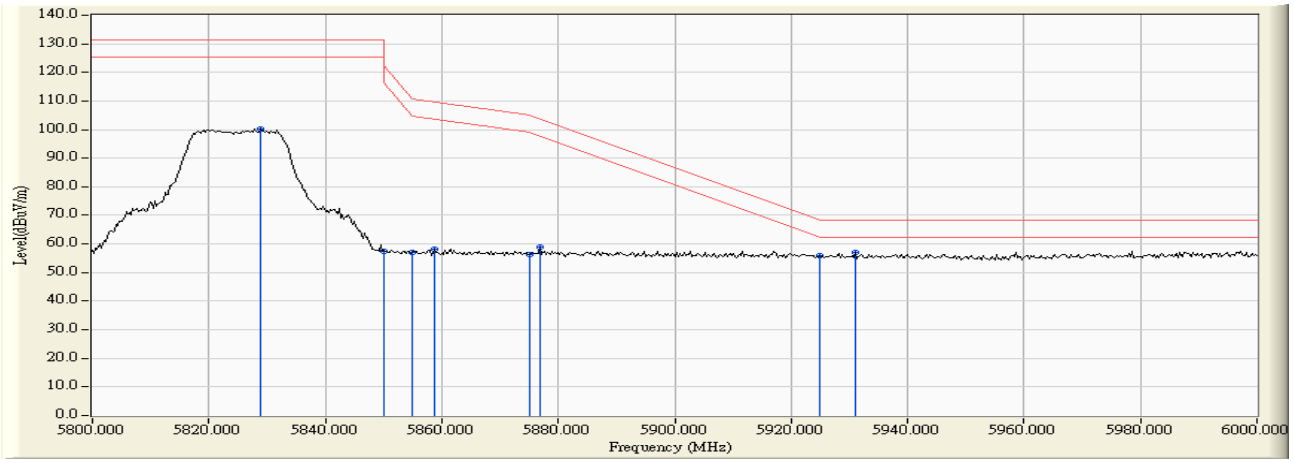
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5639.565	13.032	48.569	61.600	-6.620	68.220	Pass
Vertical	5650.000	13.029	46.433	59.462	-8.758	68.220	Pass
Vertical	5666.449	13.026	52.029	65.055	-15.331	80.386	Pass
Vertical	5700.000	13.003	49.163	62.166	-43.034	105.200	Pass
Vertical	5703.478	12.997	50.856	63.852	-42.322	106.174	Pass
Vertical	5715.000	12.965	50.142	63.106	-46.294	109.400	Pass
Vertical	5724.529	12.932	66.317	79.249	-41.877	121.126	Pass
Vertical	5725.000	12.930	65.373	78.303	-43.897	122.200	Pass
Vertical	5740.507	12.876	102.370	115.247	--	--	--



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps) -Channel 165 (5825MHz)

RF Radiated Measurement:

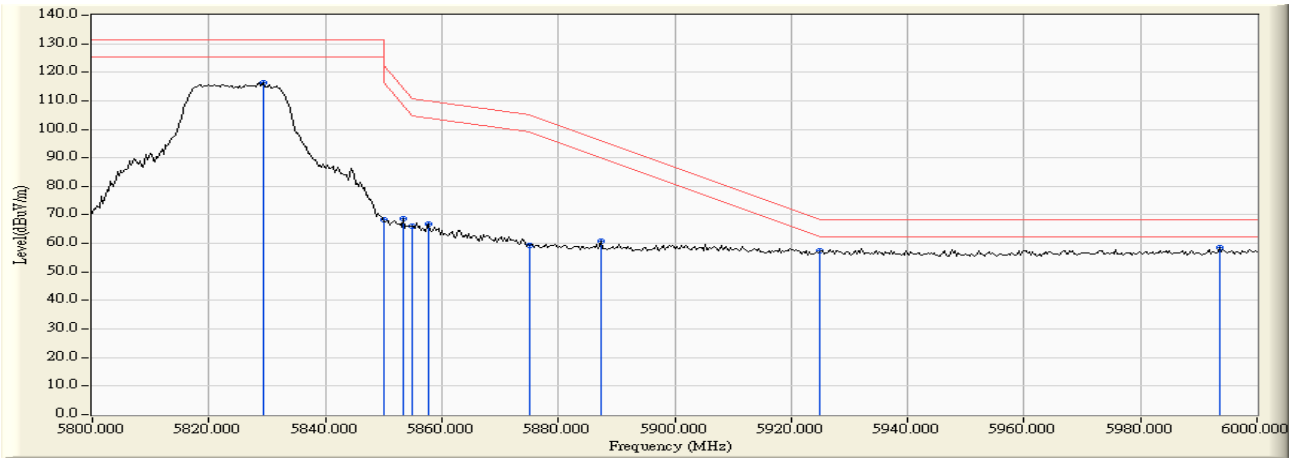
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5828.986	11.555	88.477	100.032	--	--	--
Horizontal	5850.000	11.701	45.897	57.598	-64.602	122.200	Pass
Horizontal	5855.000	11.735	45.446	57.181	-53.619	110.800	Pass
Horizontal	5858.841	11.762	46.303	58.065	-51.660	109.725	Pass
Horizontal	5875.000	11.873	44.479	56.352	-48.848	105.200	Pass
Horizontal	5876.812	11.886	46.950	58.836	-45.023	103.859	Pass
Horizontal	5925.000	12.068	43.786	55.855	-12.345	68.200	Pass
Horizontal	5931.014	12.073	45.117	57.191	-11.009	68.200	Pass



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11a-6Mbps) - Channel 165 (5825MHz)

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5829.275	12.731	103.677	116.407	--	--	--
Vertical	5850.000	12.774	55.477	68.251	-53.949	122.200	Pass
Vertical	5853.333	12.780	55.851	68.632	-45.969	114.601	Pass
Vertical	5855.000	12.784	53.261	66.045	-44.755	110.800	Pass
Vertical	5857.681	12.789	53.860	66.650	-43.399	110.049	Pass
Vertical	5875.000	12.825	46.409	59.234	-45.966	105.200	Pass
Vertical	5887.246	12.853	47.808	60.660	-35.478	96.138	Pass
Vertical	5925.000	12.911	44.403	57.314	-10.886	68.200	Pass
Vertical	5993.623	13.002	45.394	58.396	-9.804	68.200	Pass



Product	:	MOXA IEEE 802.11 a/b/g/n
Test Item	:	Band Edge Data
Test Site	:	No.3 OATS
Test Date	:	2018/03/06
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 36 (5180MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5149.420	10.472	45.847	56.319	74.00	54.00	Pass
36 (Peak)	5150.000	10.470	44.709	55.180	74.00	54.00	Pass
36 (Peak)	5176.812	10.402	90.347	100.749	--	--	--
36 (Average)	5150.000	10.470	33.070	43.541	74.00	54.00	Pass
36 (Average)	5185.797	10.379	78.532	88.911	--	--	--

Figure Channel 36: Horizontal (Peak)

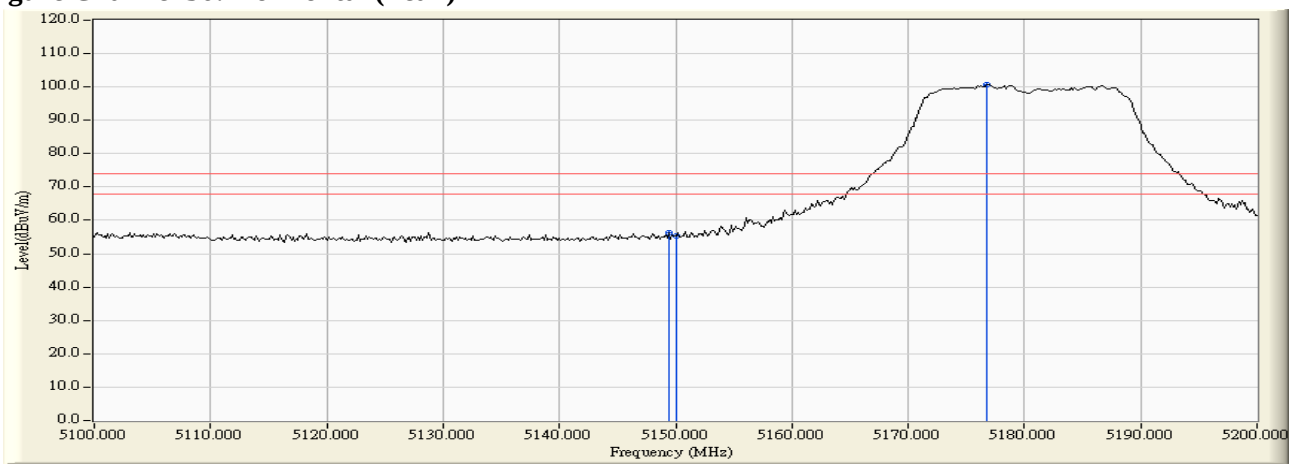
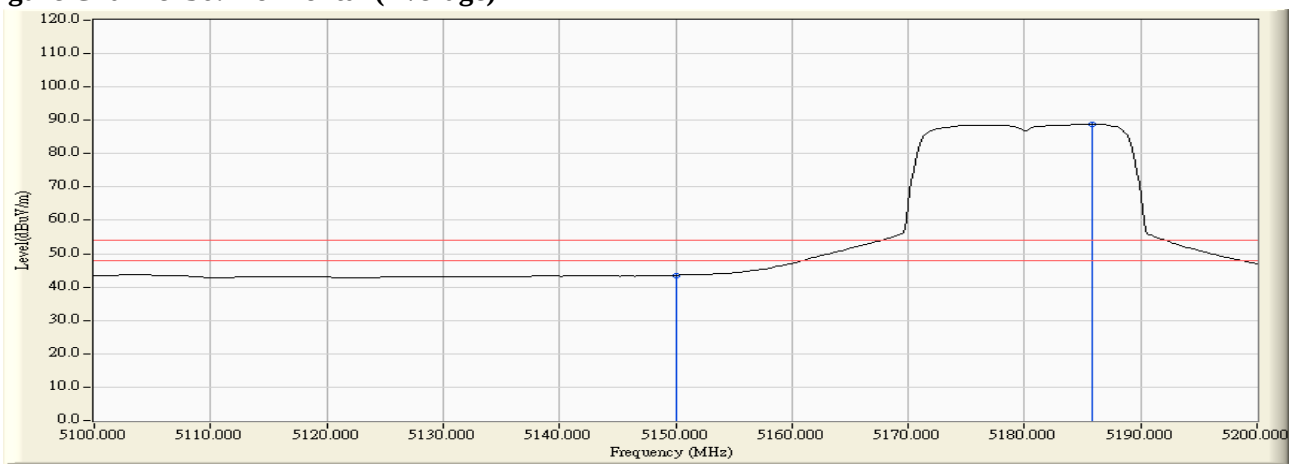


Figure Channel 36: Horizontal (Average)



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 : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 36 (5180MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5136.957	12.340	57.982	70.323	74.00	54.00	Pass
36 (Peak)	5150.000	12.390	56.537	68.927	74.00	54.00	Pass
36 (Peak)	5185.217	12.521	106.718	119.239	--	--	--
36 (Average)	5104.058	12.230	41.705	53.935	74.00	54.00	Pass
36 (Average)	5150.000	12.390	40.477	52.867	74.00	54.00	Pass
36 (Average)	5185.362	12.520	94.222	106.743	--	--	--

Figure Channel 36: Vertical (Peak)

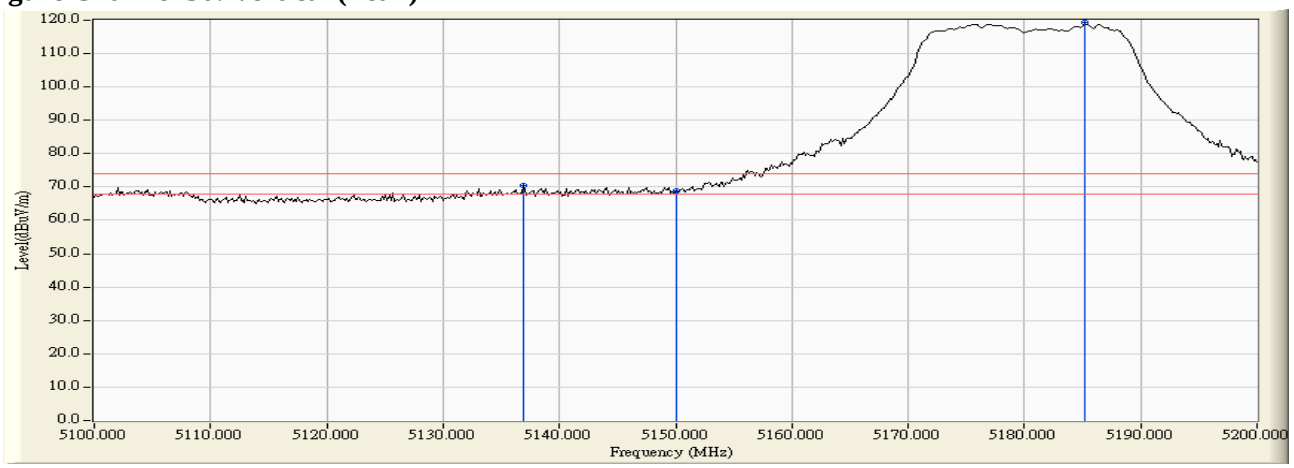
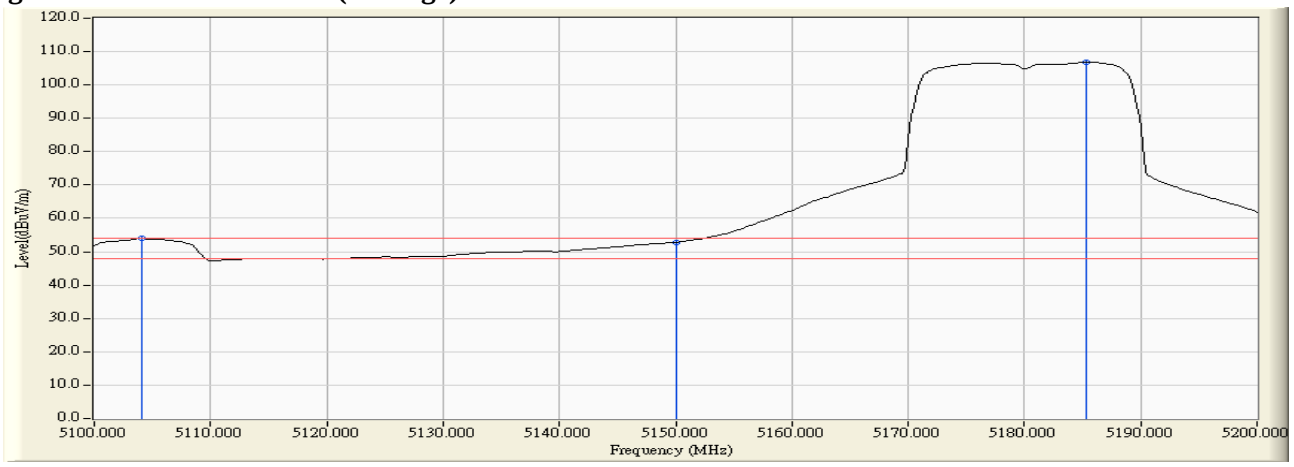


Figure Channel 36: Vertical (Average)



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 : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 64 (5320MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
64 (Peak)	5325.217	11.088	89.104	100.191	--	--	--
64 (Peak)	5350.000	11.024	44.717	55.741	74.00	54.00	Pass
64 (Peak)	5360.435	10.997	45.919	56.916	74.00	54.00	Pass
64 (Average)	5316.522	11.110	76.411	87.521	--	--	--
64 (Average)	5350.000	11.024	25.882	36.906	74.00	54.00	Pass
64 (Average)	5360.000	10.998	27.157	38.155	74.00	54.00	Pass

Figure Channel 64: Horizontal (Peak)

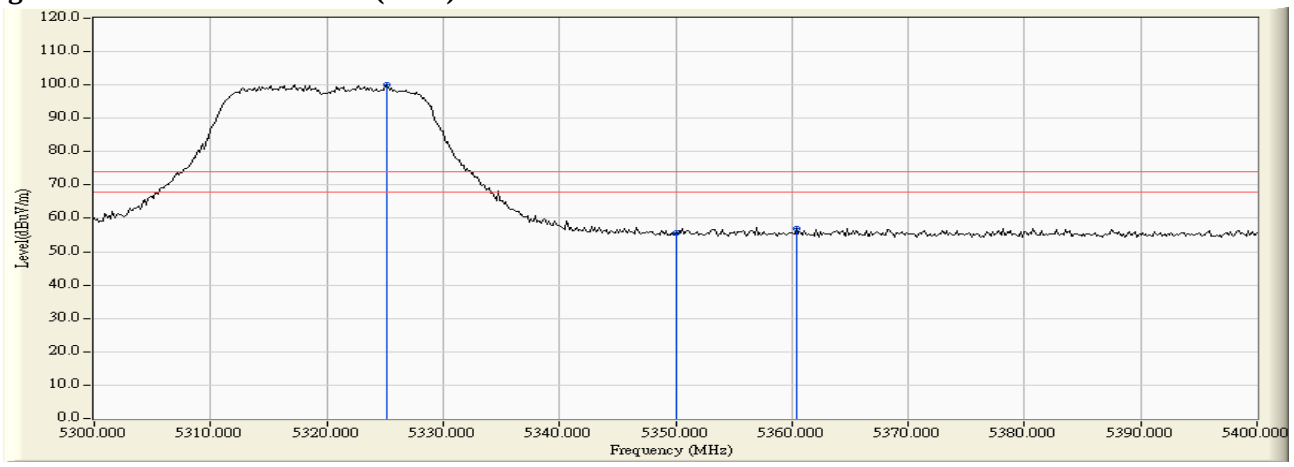
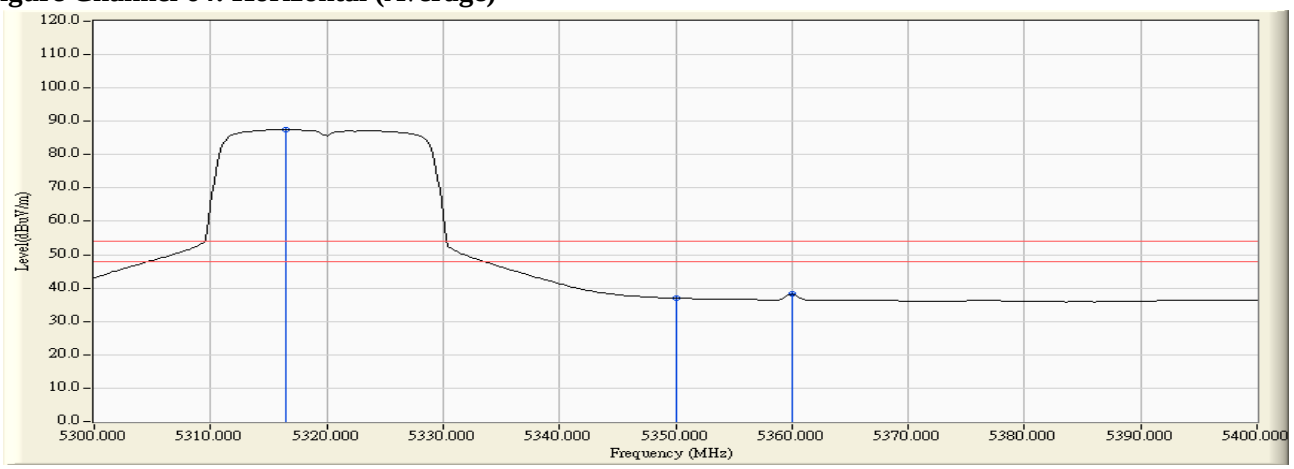


Figure Channel 64: Horizontal (Average)



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	:	2018/03/06
Test Mode	:	Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 64 (5320MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
64 (Peak)	5316.522	13.020	105.353	118.373	--	--	--
64 (Peak)	5350.000	12.999	56.097	69.096	74.00	54.00	Pass
64 (Peak)	5395.072	12.980	58.051	71.032	74.00	54.00	Pass
64 (Average)	5316.087	13.020	92.318	105.338	--	--	--
64 (Average)	5350.000	12.999	39.030	52.029	74.00	54.00	Pass

Figure Channel 64: Vertical (Peak)

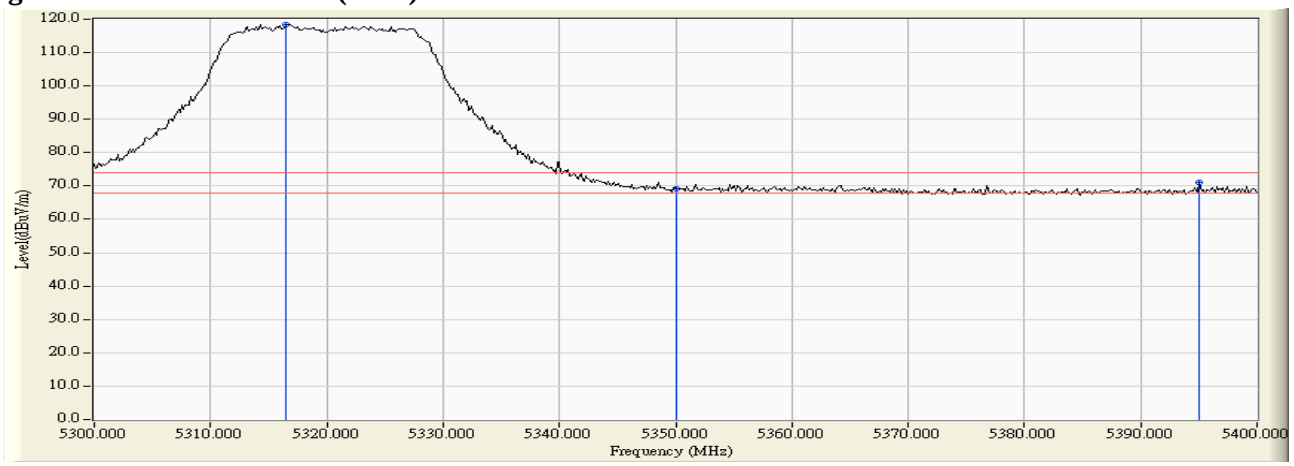
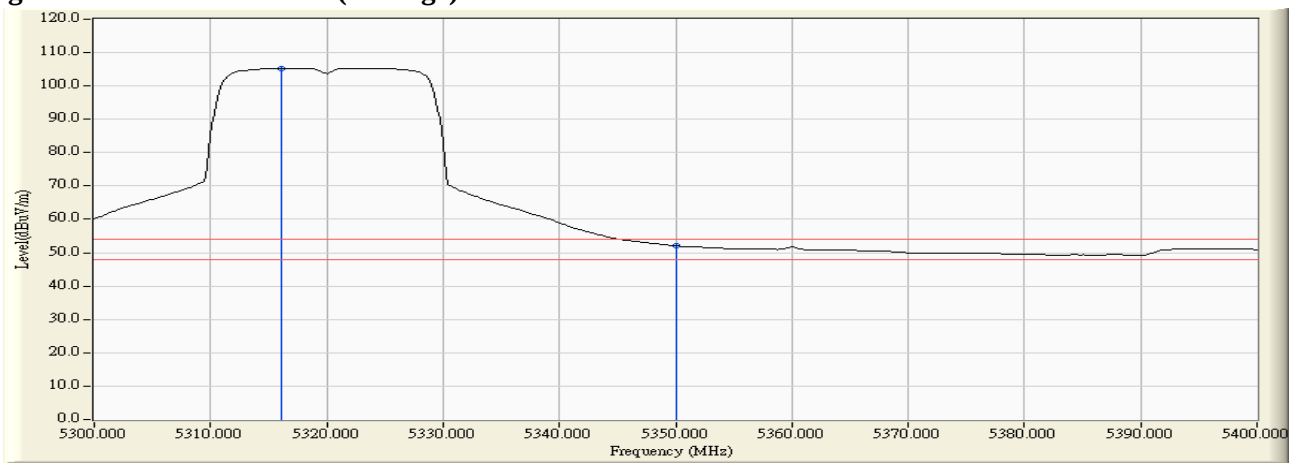


Figure Channel 64: Vertical (Average)



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-20BW 14.2Mbps) -Channel 100 (5500MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
100 (Peak)	5414.493	11.090	46.365	57.455	74.00	54.00	Pass
100 (Peak)	5460.000	11.703	43.123	54.826	74.00	54.00	Pass
100 (Peak)	5495.362	12.137	86.206	98.342	--	--	--
100 (Average)	5448.116	11.544	34.733	46.276	74.00	54.00	Pass
100 (Average)	5460.000	11.703	33.649	45.352	74.00	54.00	Pass
100 (Average)	5503.768	12.195	74.103	86.298	--	--	--

Figure Channel 100: Horizontal (Peak)

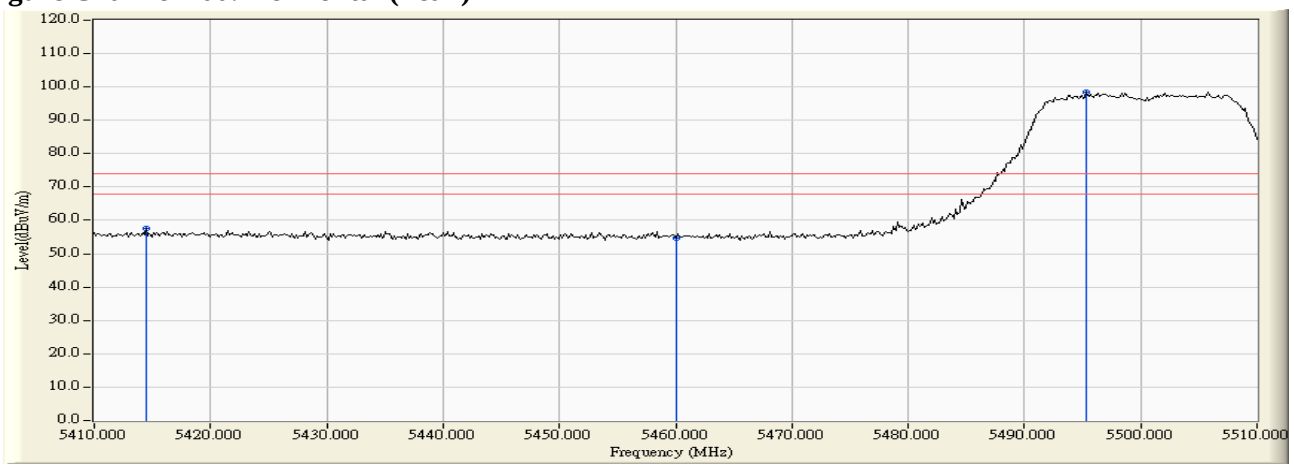
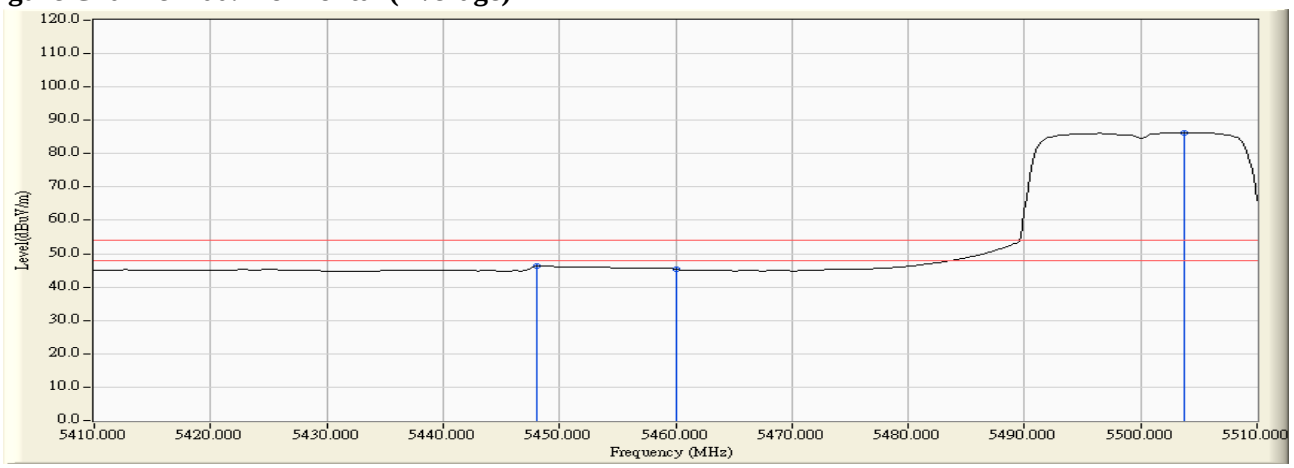


Figure Channel 100: Horizontal (Average)



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-20BW 14.2Mbps) -Channel 100 (5500MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
100 (Peak)	5420.725	13.112	57.813	70.925	74.00	54.00	Pass
100 (Peak)	5460.000	13.390	55.189	68.579	74.00	54.00	Pass
100 (Peak)	5505.072	13.645	104.085	117.729	--	--	--
100 (Average)	5415.072	13.072	40.882	53.954	74.00	54.00	Pass
100 (Average)	5460.000	13.390	36.648	50.038	74.00	54.00	Pass
100 (Average)	5504.783	13.644	90.421	104.065	--	--	--

Figure Channel 100: Vertical (Peak)

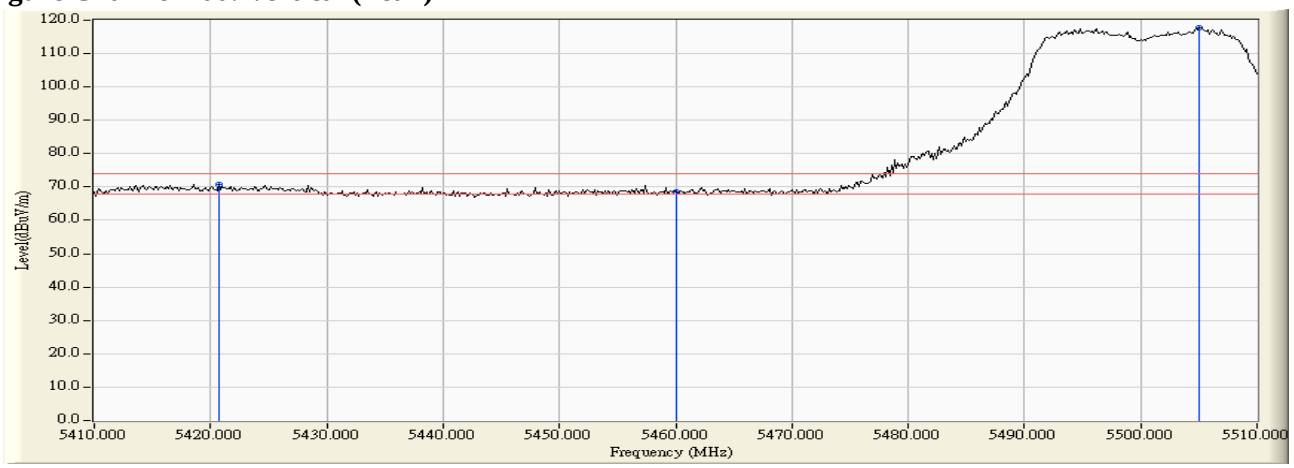
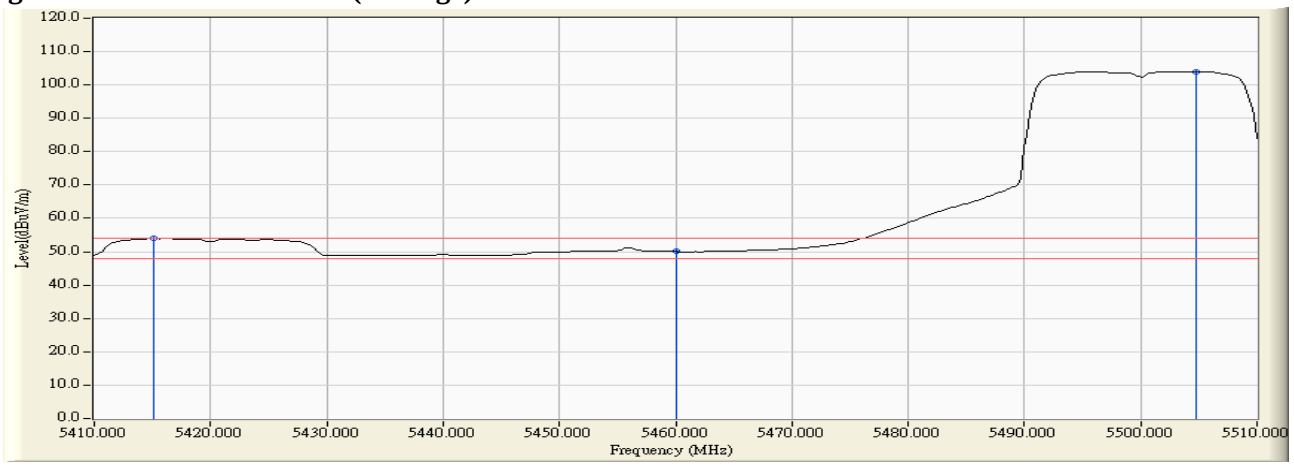


Figure Channel 100: Vertical (Average)



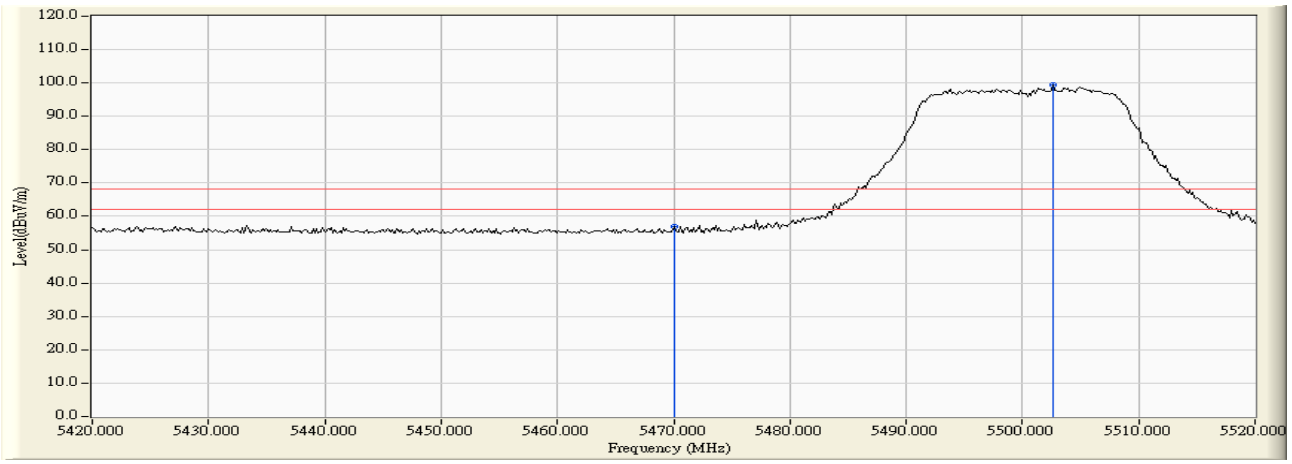
Note:

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.

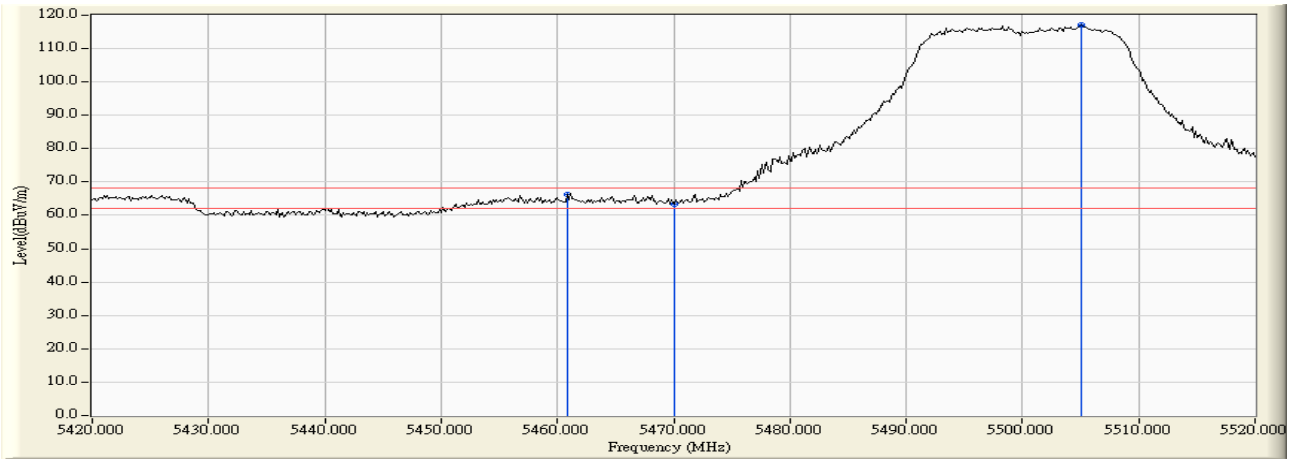
Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 100 (5500MHz)

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5470.000	11.838	45.090	56.928	-11.292	68.220	Pass
Horizontal	5502.609	12.187	87.105	99.292	--	--	--



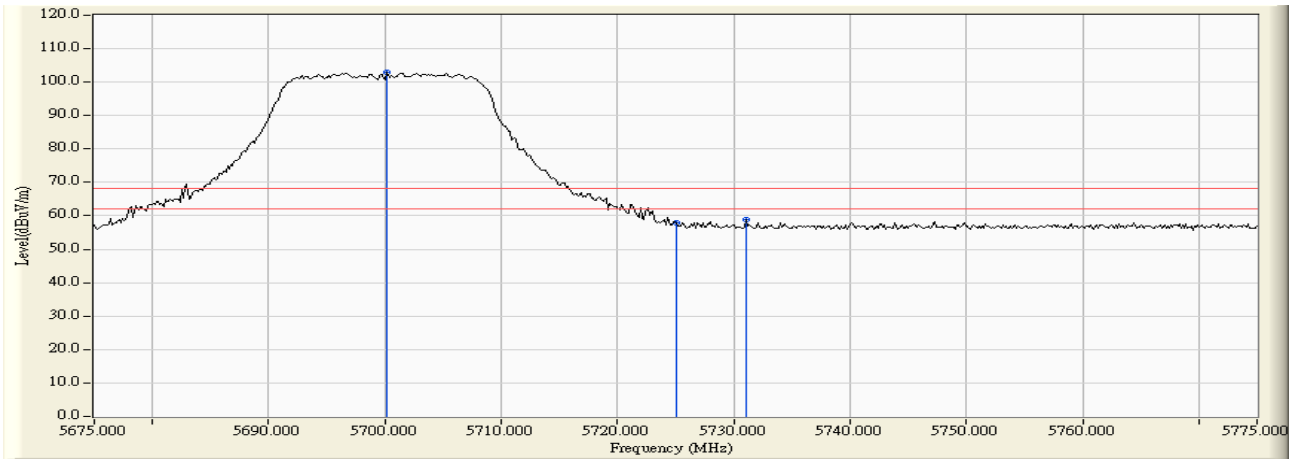
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5460.870	13.396	52.952	66.348	-1.872	68.220	Pass
Vertical	5470.000	13.462	49.765	63.227	-4.993	68.220	Pass
Vertical	5505.072	13.645	103.354	116.998	--	--	--



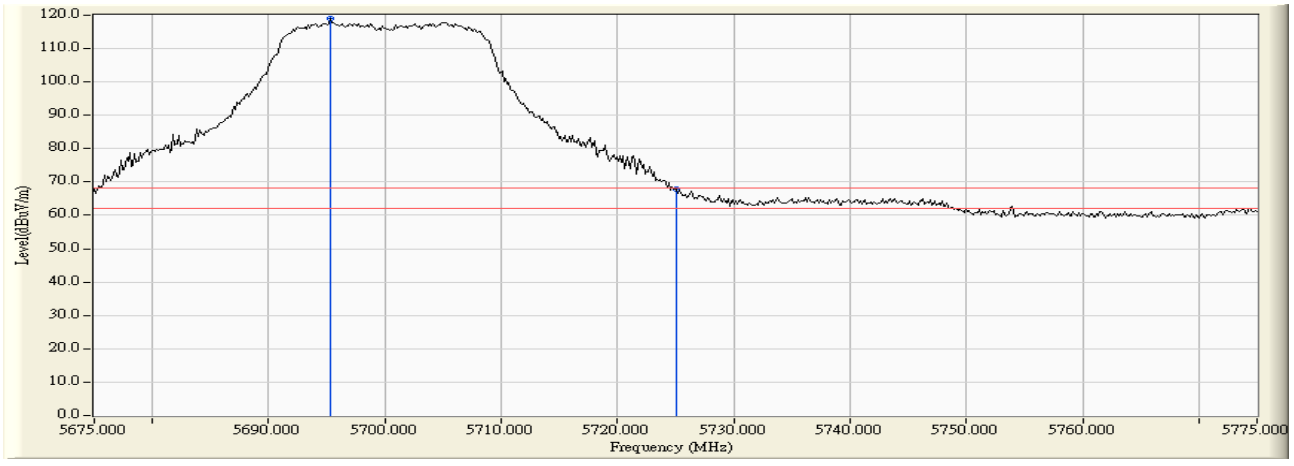
Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 140 (5700MHz)

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5700.217	11.647	91.313	102.960	--	--	--
Horizontal	5725.000	11.592	46.218	57.810	-10.410	68.220	Pass
Horizontal	5731.087	11.574	47.341	58.914	-9.306	68.220	Pass



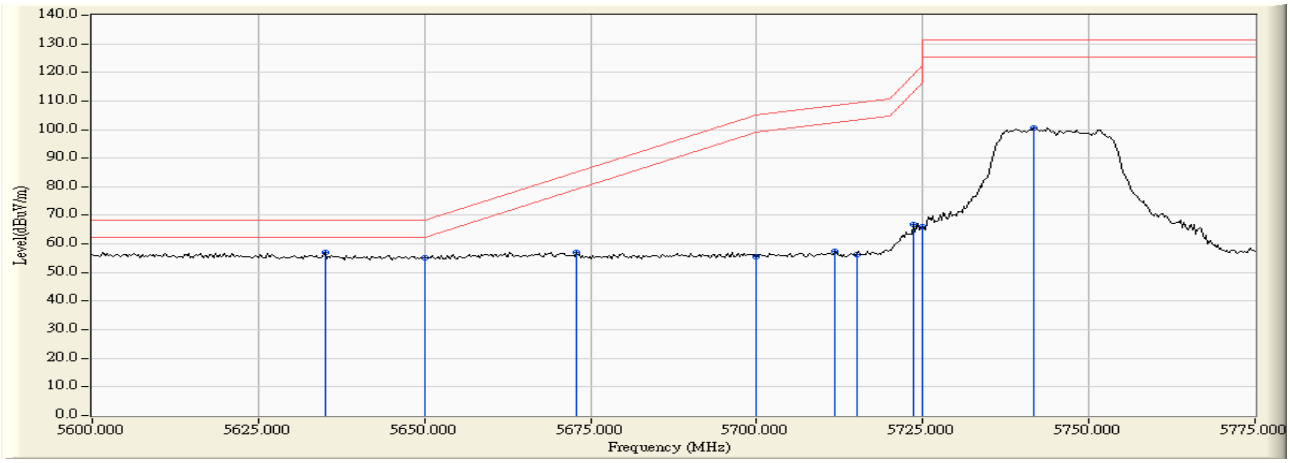
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5695.290	13.012	105.881	118.893	--	--	--
Vertical	5725.000	12.930	54.966	67.896	-0.324	68.220	Pass



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 149 (5745MHz)

RF Radiated Measurement:

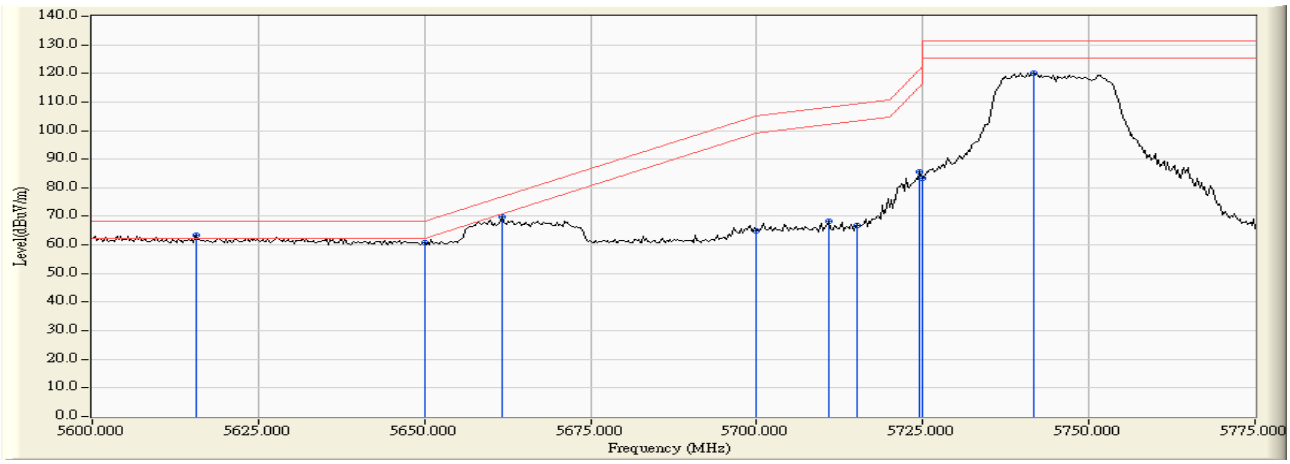
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5635.000	11.519	45.512	57.031	-11.189	68.220	Pass
Horizontal	5650.000	11.554	43.802	55.357	-12.863	68.220	Pass
Horizontal	5672.790	11.609	45.560	57.169	-27.906	85.075	Pass
Horizontal	5700.000	11.647	44.059	55.706	-49.494	105.200	Pass
Horizontal	5711.848	11.632	45.875	57.507	-51.010	108.517	Pass
Horizontal	5715.000	11.623	44.689	56.311	-53.089	109.400	Pass
Horizontal	5723.514	11.596	55.370	66.966	-51.846	118.812	Pass
Horizontal	5725.000	11.592	54.457	66.049	-56.151	122.200	Pass
Horizontal	5741.775	11.539	89.204	100.743	--	--	--



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 149 (5745MHz)

RF Radiated Measurement:

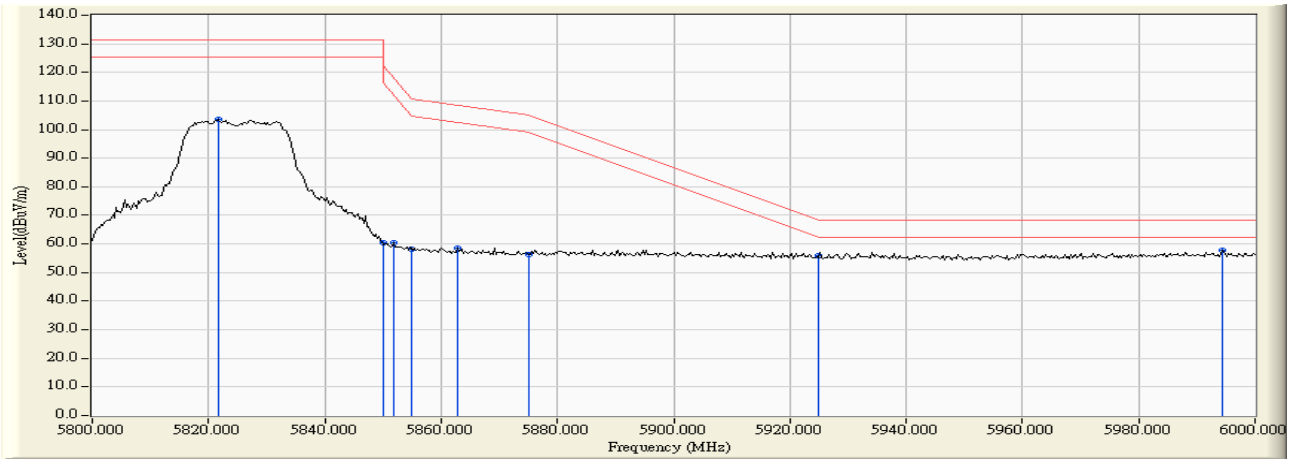
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5615.725	13.037	50.441	63.478	-4.742	68.220	Pass
Vertical	5650.000	13.029	47.747	60.776	-7.444	68.220	Pass
Vertical	5661.630	13.027	56.821	69.848	-6.974	76.822	Pass
Vertical	5700.000	13.003	52.027	65.030	-40.170	105.200	Pass
Vertical	5710.833	12.979	55.295	68.273	-39.960	108.233	Pass
Vertical	5715.000	12.965	53.936	66.900	-42.500	109.400	Pass
Vertical	5724.529	12.932	72.725	85.657	-35.469	121.126	Pass
Vertical	5725.000	12.930	70.562	83.492	-38.708	122.200	Pass
Vertical	5741.775	12.873	107.348	120.220	--	--	--



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 165 (5825MHz)

RF Radiated Measurement:

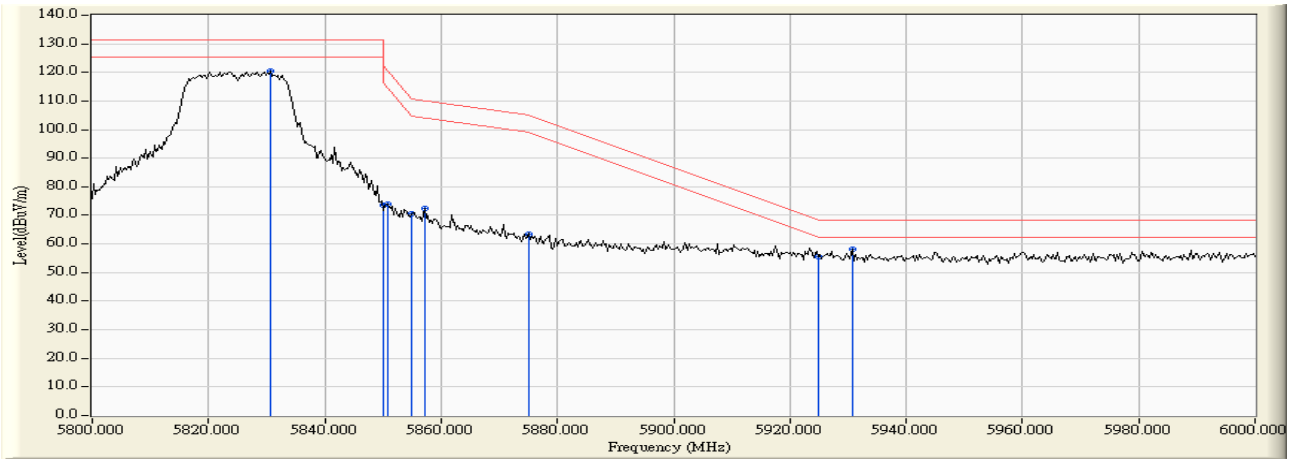
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5821.739	11.505	92.053	103.558	--	--	--
Horizontal	5850.000	11.701	48.541	60.242	-61.958	122.200	Pass
Horizontal	5851.884	11.715	48.671	60.385	-57.519	117.904	Pass
Horizontal	5855.000	11.735	46.365	58.100	-52.700	110.800	Pass
Horizontal	5862.899	11.789	46.906	58.695	-49.893	108.588	Pass
Horizontal	5875.000	11.873	44.446	56.319	-48.881	105.200	Pass
Horizontal	5925.000	12.068	43.738	55.807	-12.393	68.200	Pass
Horizontal	5994.493	12.126	45.757	57.884	-10.316	68.200	Pass



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-20BW 14.2Mbps) -Channel 165 (5825MHz)

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5830.725	12.733	107.812	120.545	--	--	--
Vertical	5850.000	12.774	60.678	73.452	-48.748	122.200	Pass
Vertical	5850.725	12.775	61.137	73.912	-46.635	120.547	Pass
Vertical	5855.000	12.784	57.893	70.677	-40.123	110.800	Pass
Vertical	5857.101	12.788	59.719	72.507	-37.705	110.212	Pass
Vertical	5875.000	12.825	50.485	63.310	-41.890	105.200	Pass
Vertical	5925.000	12.911	42.798	55.709	-12.491	68.200	Pass
Vertical	5930.725	12.919	45.167	58.086	-10.114	68.200	Pass



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)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
38 (Peak)	5139.565	10.497	44.599	55.095	74.00	54.00	Pass
38 (Peak)	5150.000	10.470	43.503	53.974	74.00	54.00	Pass
38 (Peak)	5196.522	10.344	78.372	88.716	--	--	--
38 (Average)	5150.000	10.470	25.260	35.731	74.00	54.00	Pass
38 (Average)	5198.551	10.337	65.442	75.779	--	--	--

Figure Channel 38: Horizontal (Peak)

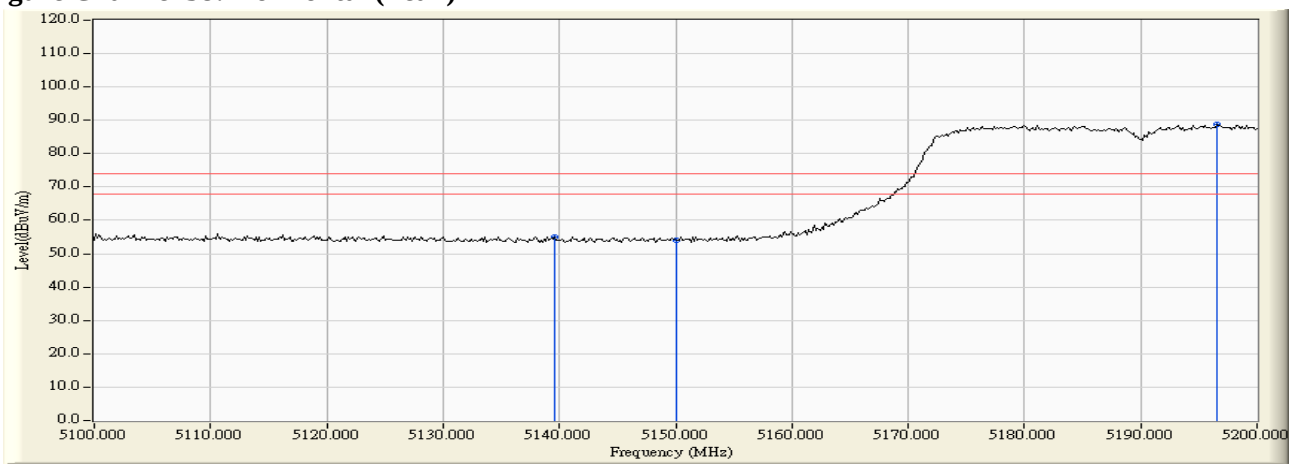
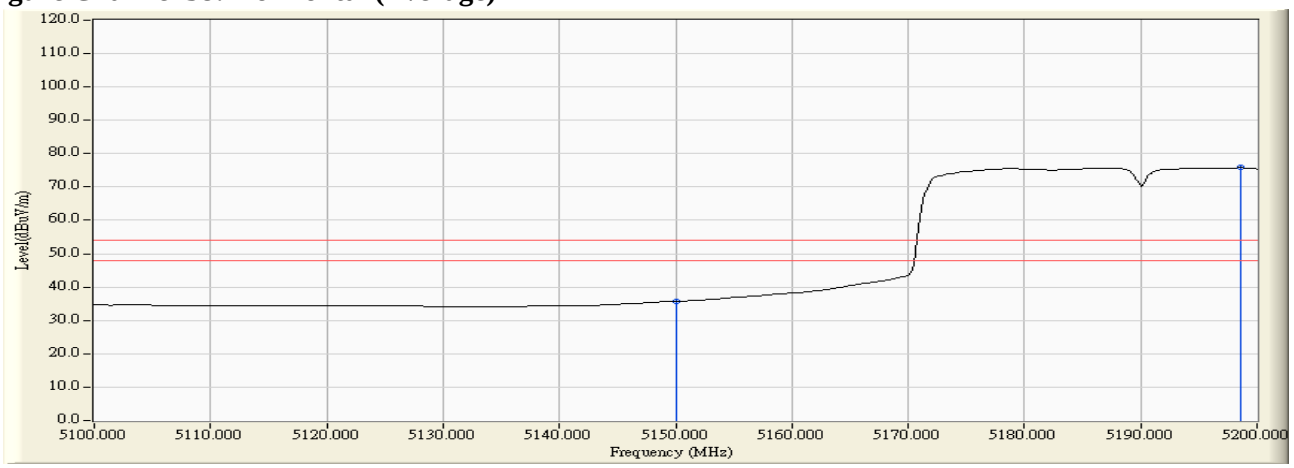


Figure Channel 38: Horizontal (Average)



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)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
38 (Peak)	5148.551	12.385	58.662	71.047	74.00	54.00	Pass
38 (Peak)	5150.000	12.390	57.247	69.637	74.00	54.00	Pass
38 (Peak)	5193.188	12.546	99.415	111.961	--	--	--
38 (Average)	5150.000	12.390	41.003	53.393	74.00	54.00	Pass
38 (Average)	5197.536	12.558	86.263	98.821	--	--	--

Figure Channel 38: Vertical (Peak)

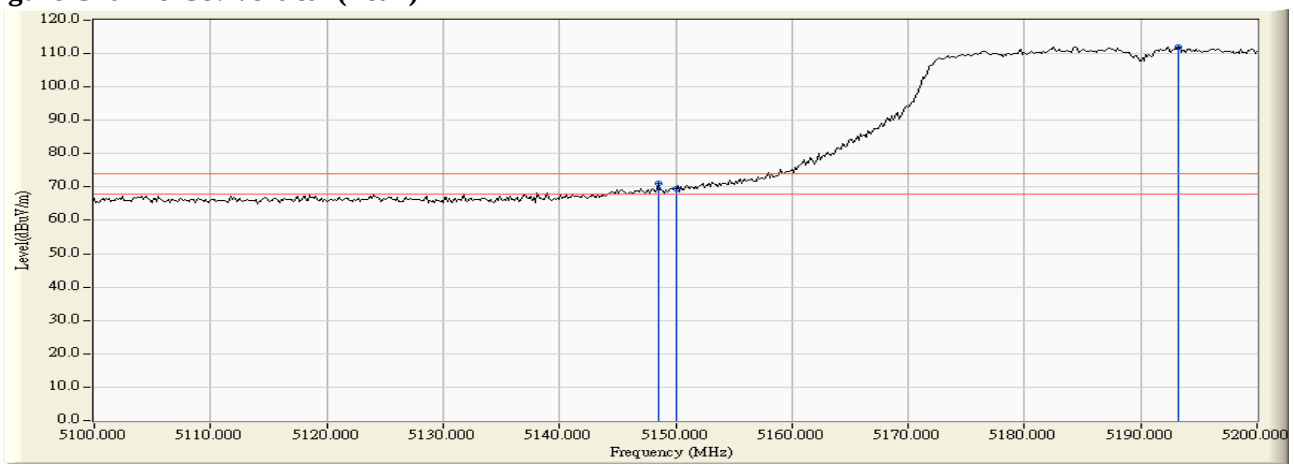
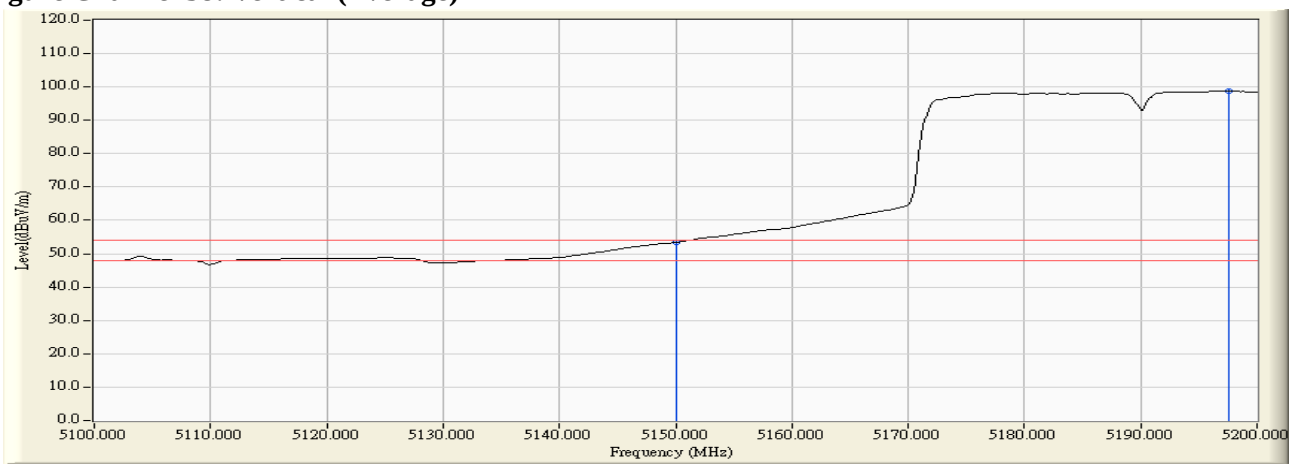


Figure Channel 38: Vertical (Average)



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	:	2018/03/06
Test Mode	:	Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 62 (5310MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
62 (Peak)	5320.000	11.101	84.955	96.056	--	--	--
62 (Peak)	5350.000	11.024	45.596	56.620			
62 (Peak)	5395.942	10.932	47.263	58.196	74.00	54.00	Pass
62 (Average)	5316.667	11.109	71.141	82.250	--	--	--
62 (Average)	5350.000	11.024	26.655	37.679	74.00	54.00	Pass
62 (Average)	5360.000	10.998	27.335	38.333			

Figure Channel 62: Horizontal (Peak)

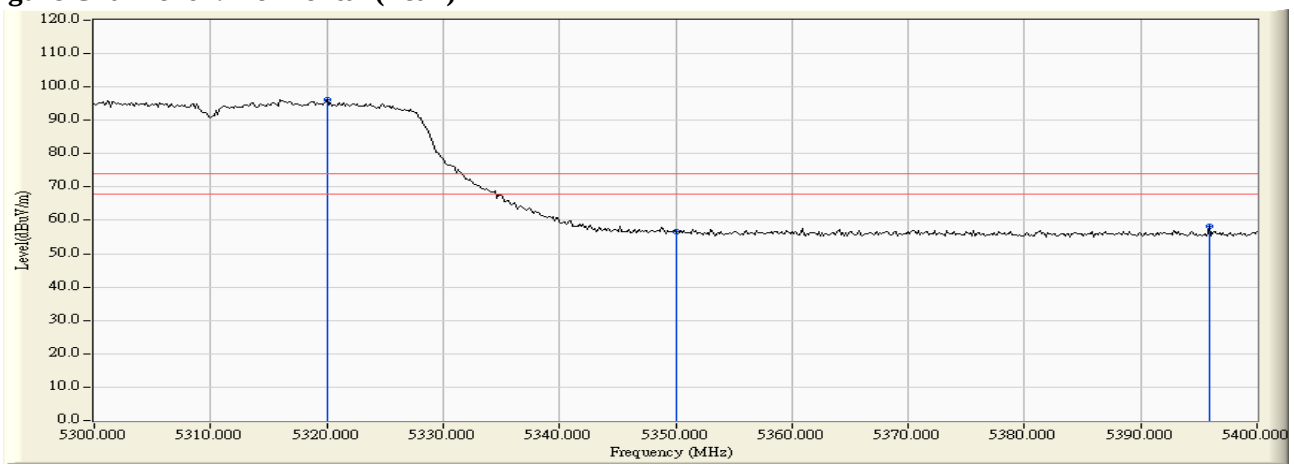
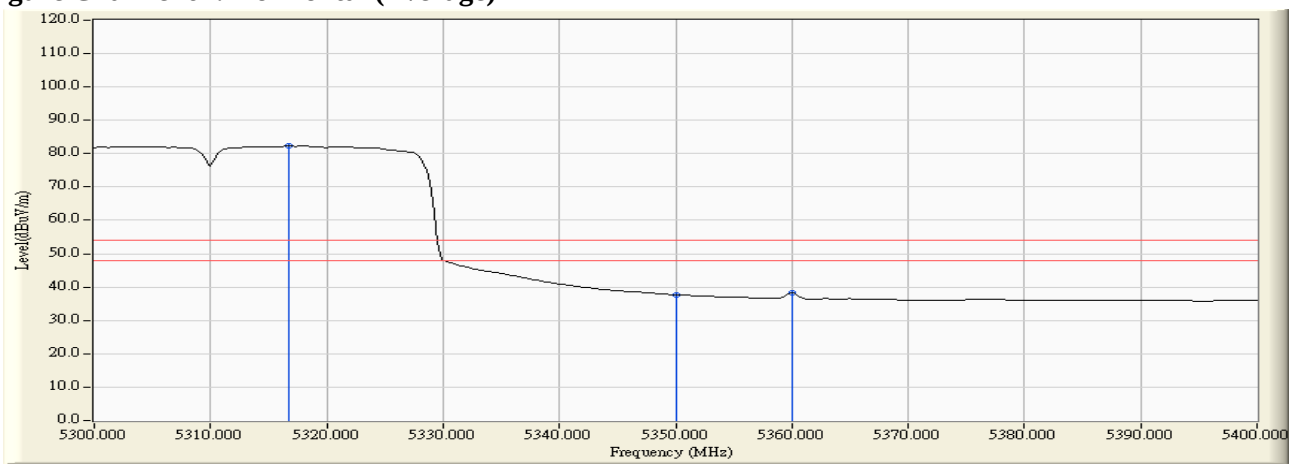


Figure Channel 62: Horizontal (Average)



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	:	2018/03/06
Test Mode	:	Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 62 (5310MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
62 (Peak)	5319.420	13.018	101.134	114.152	--	--	--
62 (Peak)	5350.000	12.999	57.035	70.034	74.00	54.00	Pass
62 (Peak)	5356.957	12.995	57.936	70.930	74.00	54.00	Pass
62 (Average)	5318.551	13.019	87.375	100.394	--	--	--
62 (Average)	5350.000	12.999	40.527	53.526	74.00	54.00	Pass

Figure Channel 62: Vertical (Peak)

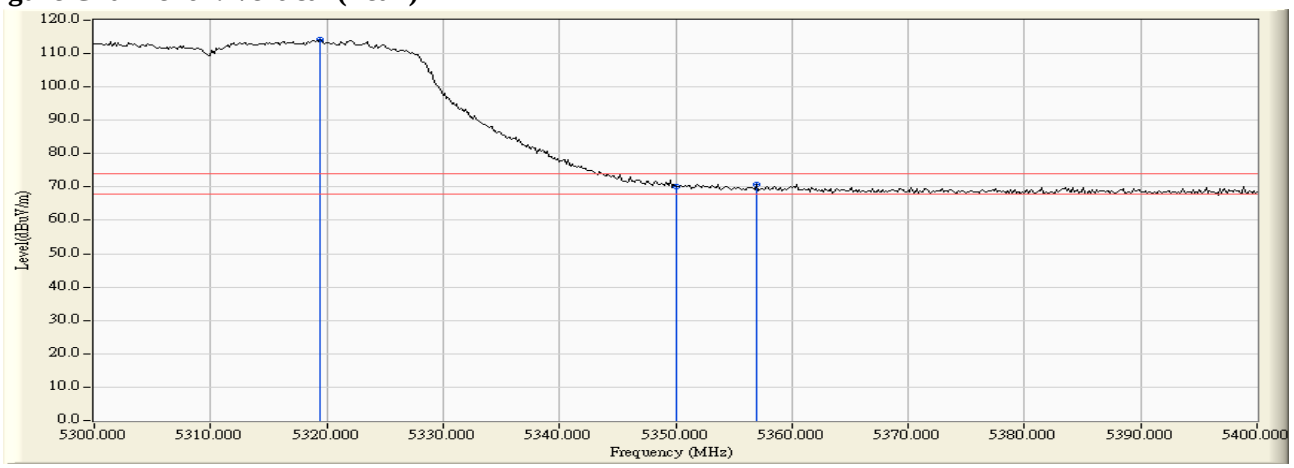
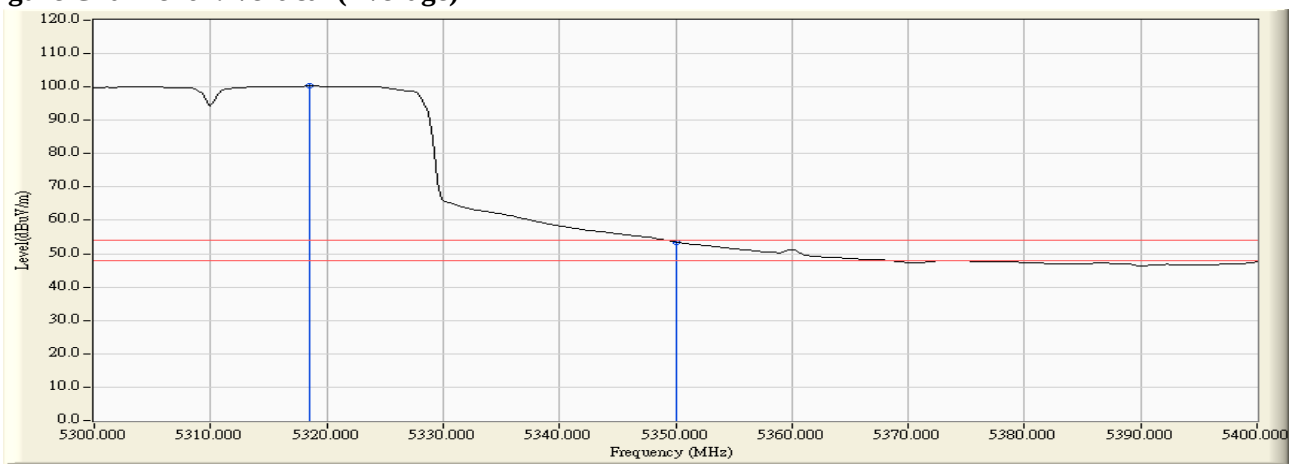


Figure Channel 62: Vertical (Average)



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 : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 102 (5510MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
102 (Peak)	5460.000	11.703	46.408	58.111	74.00	54.00	Pass
102 (Peak)	5505.652	12.198	82.060	94.258	--	--	--
102 (Average)	5448.406	11.547	34.756	46.303	74.00	54.00	Pass
102 (Average)	5460.000	11.703	33.749	45.452	74.00	54.00	Pass
102 (Average)	5501.739	12.181	69.248	81.429	--	--	--

Figure Channel 102: Horizontal (Peak)

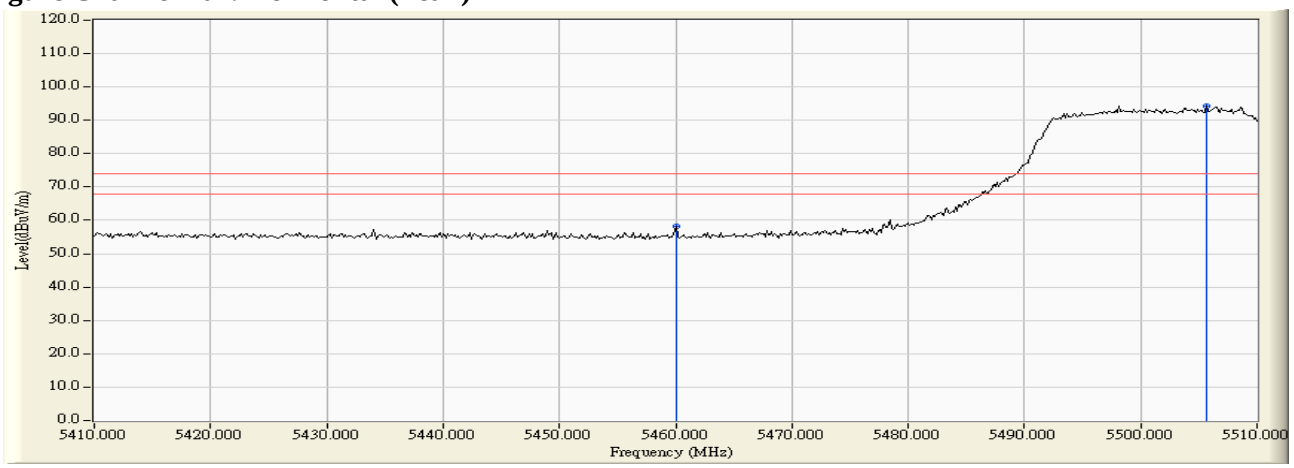
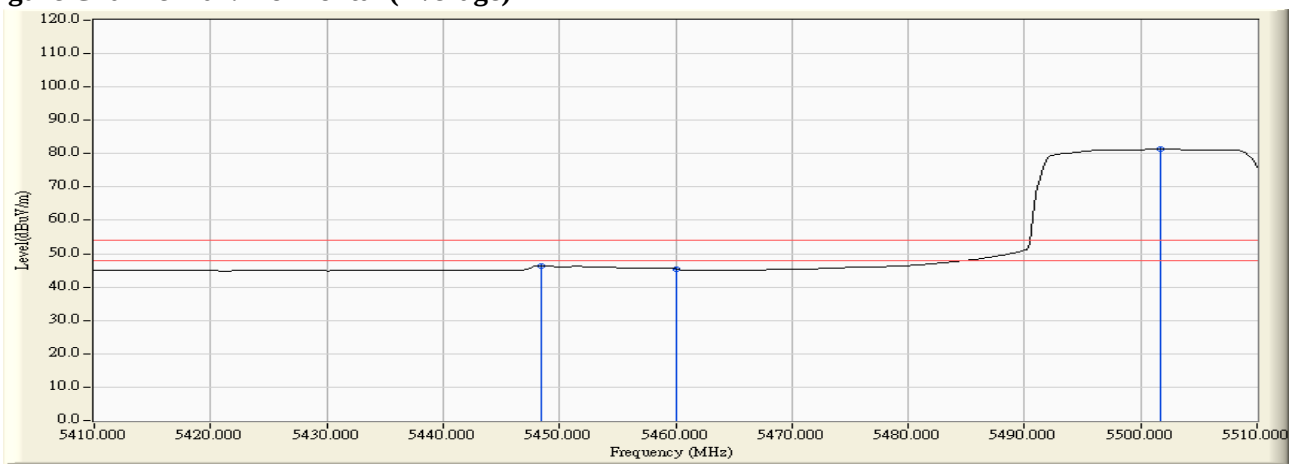


Figure Channel 102: Horizontal (Average)



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 : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 102 (5510MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Arerage Limit (dBμV/m)	Result
102 (Peak)	5460.000	13.390	52.238	65.628	74.00	54.00	Pass
102 (Peak)	5505.072	13.645	100.021	113.665	--	--	--
102 (Average)	5460.000	13.390	38.585	51.975	74.00	54.00	Pass
102 (Average)	5503.768	13.641	86.728	100.369	--	--	--

Figure Channel 102: Vertical (Peak)

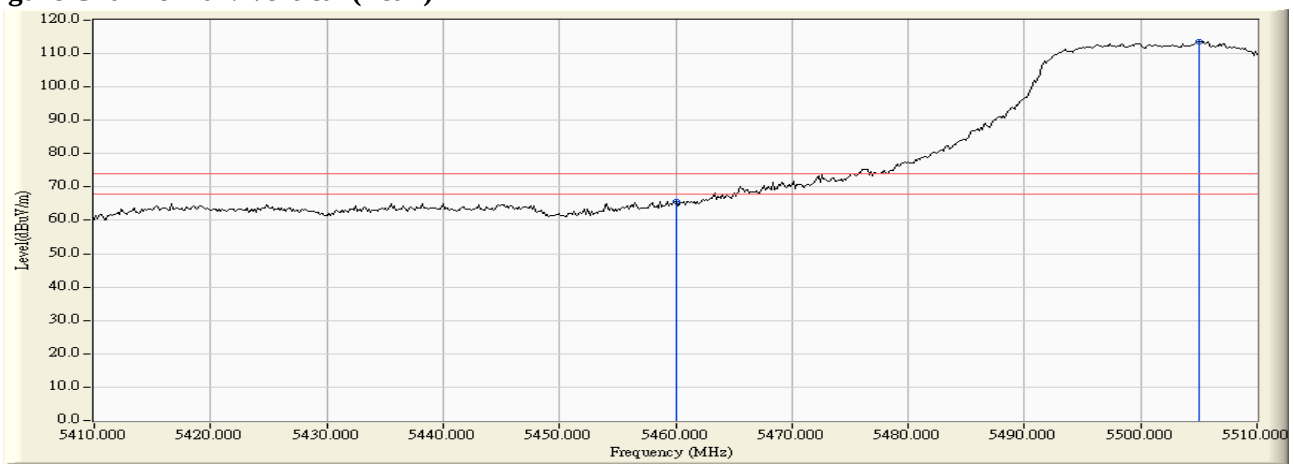
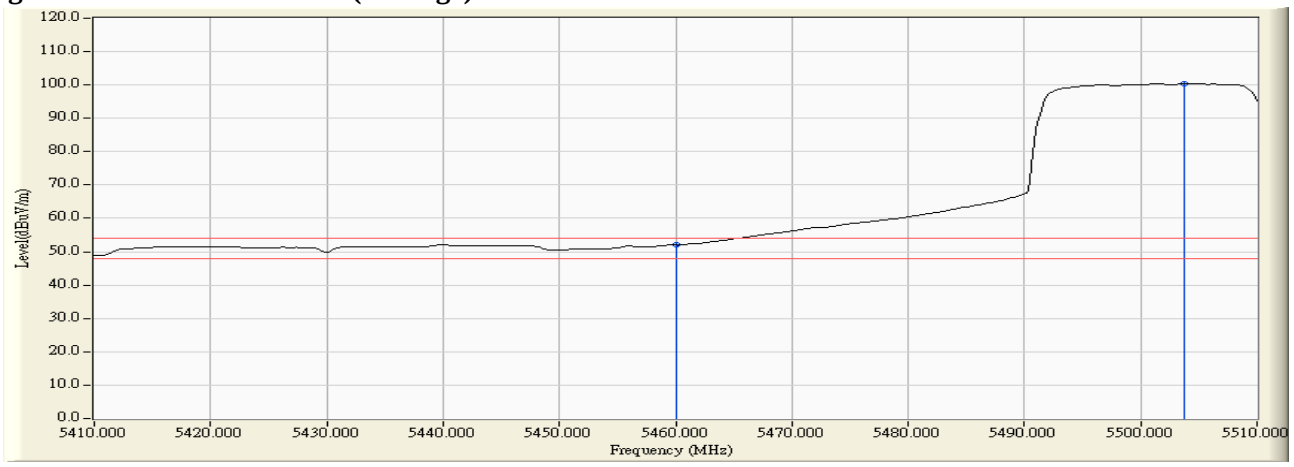


Figure Channel 102: Vertical (Average)



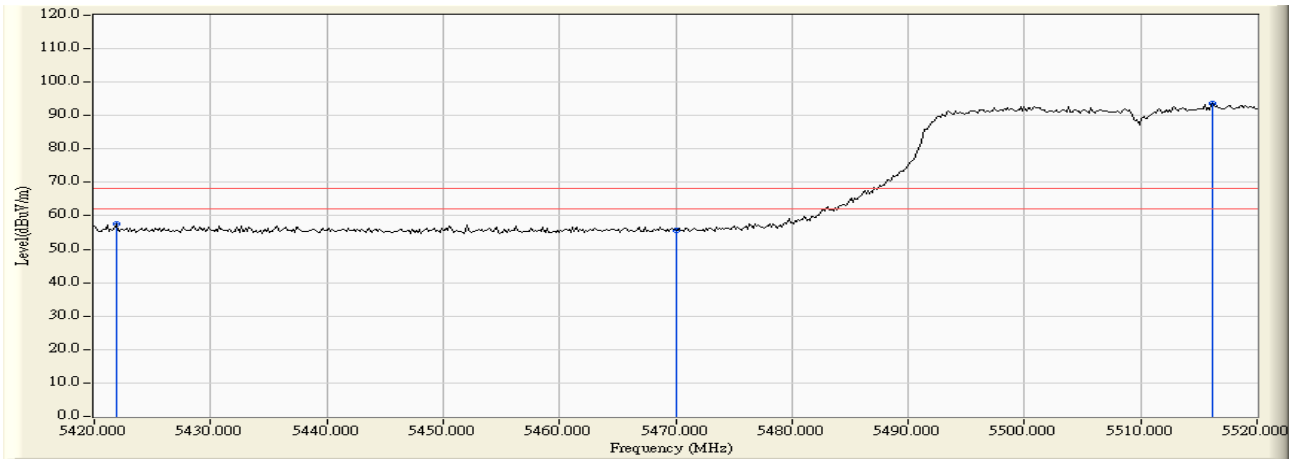
Note:

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.

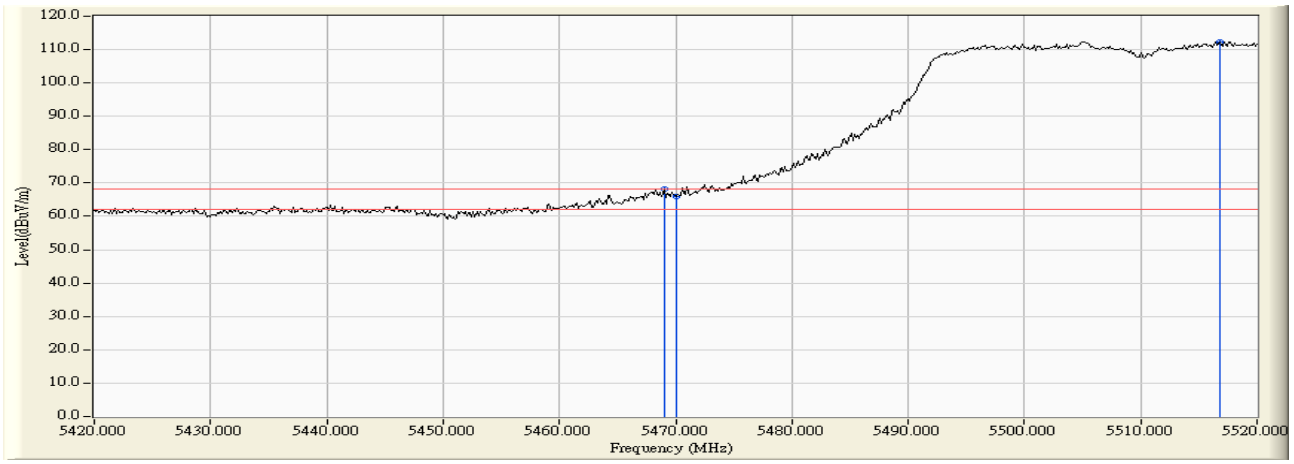
Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 102 (5510MHz)

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV /m)	Margin (dB)	Limit (dBµV /m)	Result
Horizontal	5421.884	11.190	46.313	57.503	-10.717	68.220	Pass
Horizontal	5470.000	11.838	43.876	55.714	-12.506	68.220	Pass
Horizontal	5516.232	12.113	81.458	93.571	--	--	--



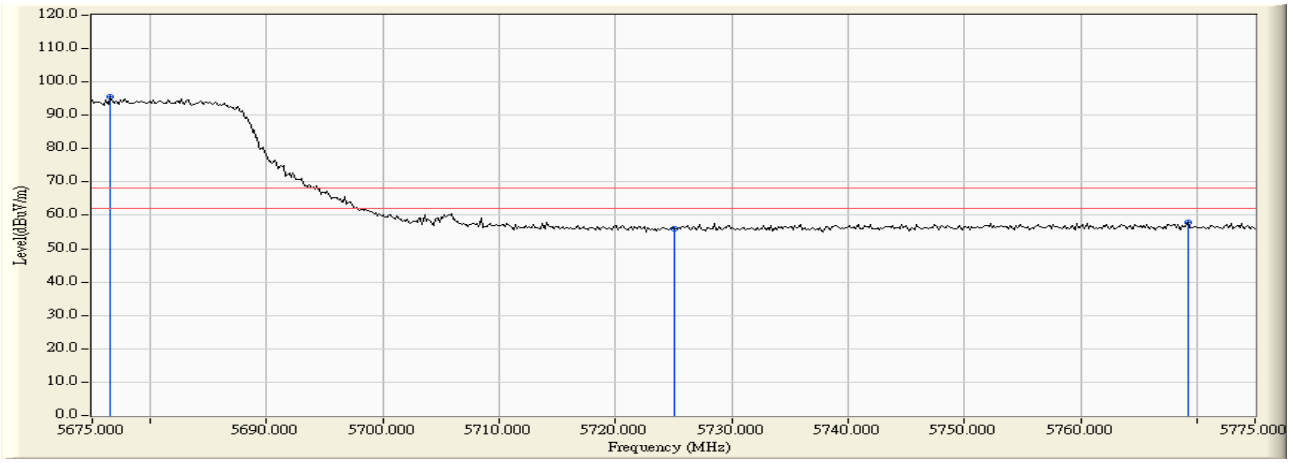
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV /m)	Margin (dB)	Limit (dBµV /m)	Result
Vertical	5468.986	13.454	54.732	68.187	-0.033	68.220	Pass
Vertical	5470.000	13.462	52.567	66.029	-2.191	68.220	Pass
Vertical	5516.812	13.569	98.828	112.397	--	--	--



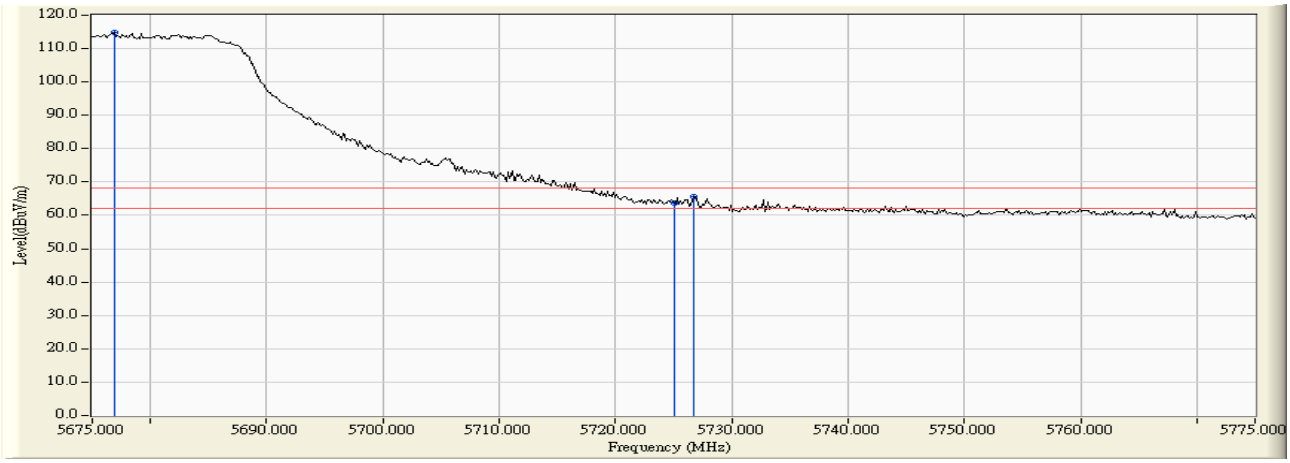
Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 134 (5670MHz)

RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5676.594	11.617	83.780	95.397	--	--	--
Horizontal	5725.000	11.592	44.361	55.953	-12.267	68.220	Pass
Horizontal	5769.203	11.453	46.379	57.831	-10.389	68.220	Pass



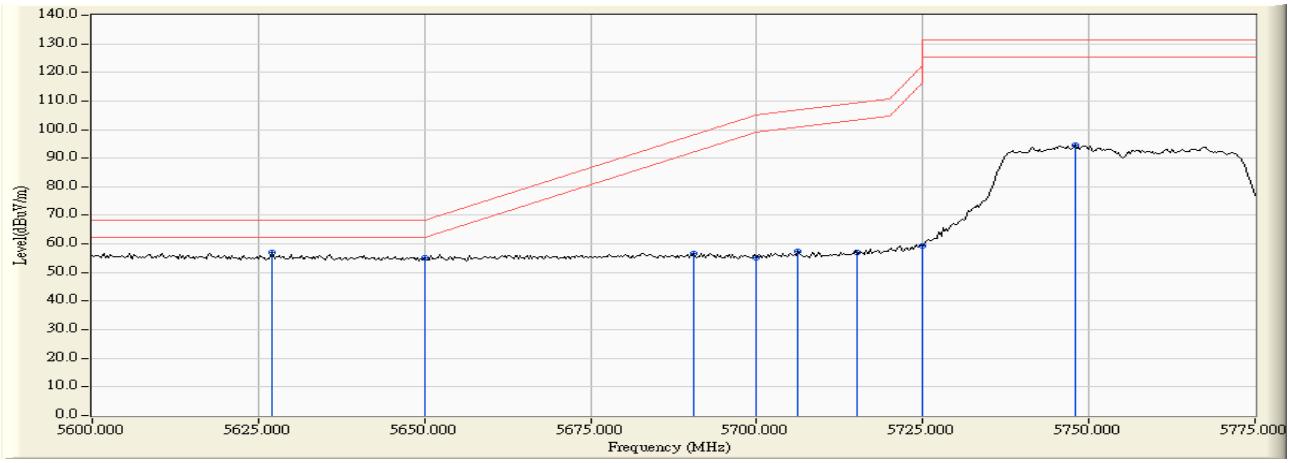
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5676.884	13.022	101.699	114.722	--	--	--
Vertical	5725.000	12.930	50.619	63.549	-4.671	68.220	Pass
Vertical	5726.739	12.925	52.828	65.752	-2.468	68.220	Pass



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 151 (5755MHz)

RF Radiated Measurement:

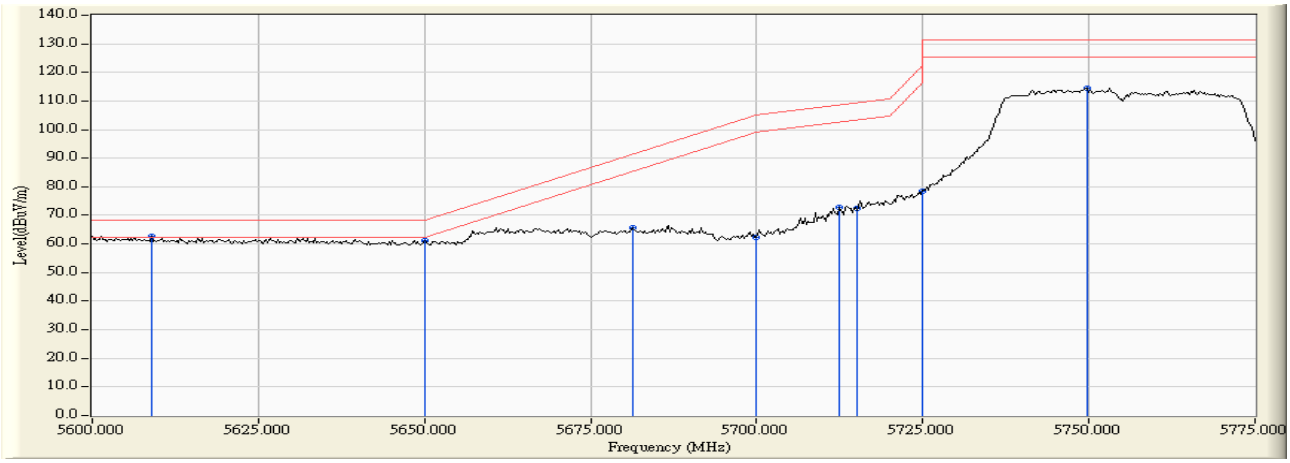
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Measure Level (dBµV /m)	Margin (dB)	Limit (dBµV /m)	Result
Horizontal	5627.138	11.500	45.394	56.894	-11.326	68.220	Pass
Horizontal	5650.000	11.554	43.527	55.082	-13.138	68.220	Pass
Horizontal	5690.543	11.649	45.003	56.652	-41.554	98.206	Pass
Horizontal	5700.000	11.647	43.699	55.346	-49.854	105.200	Pass
Horizontal	5706.268	11.643	45.912	57.555	-49.400	106.955	Pass
Horizontal	5715.000	11.623	45.504	57.126	-52.274	109.400	Pass
Horizontal	5725.000	11.592	47.880	59.472	-62.728	122.200	Pass
Horizontal	5747.862	11.519	83.002	94.521	--	--	--



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 151 (5755MHz)

RF Radiated Measurement:

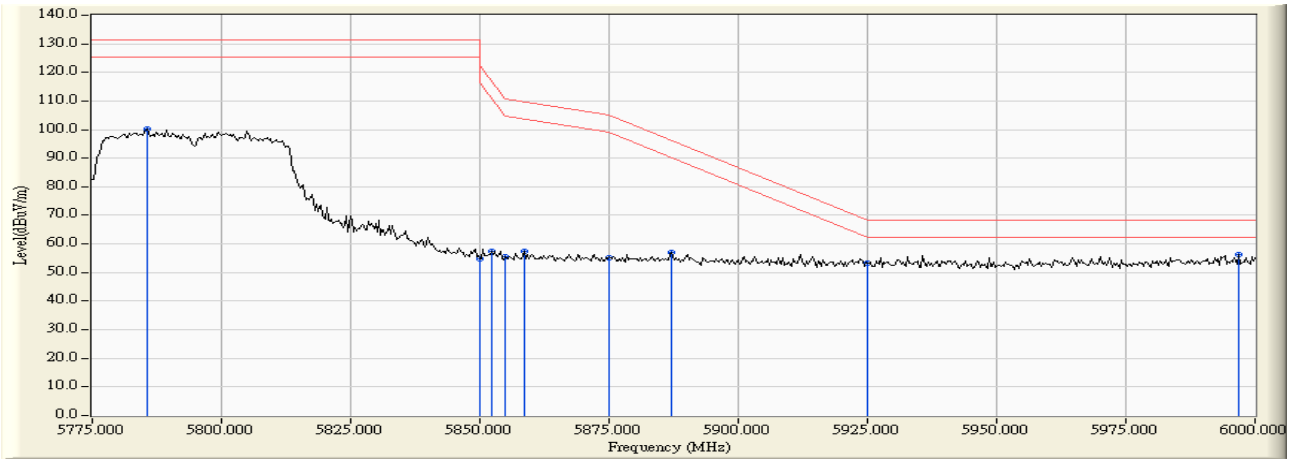
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5608.877	13.038	49.756	62.794	-5.426	68.220	Pass
Vertical	5650.000	13.029	48.043	61.072	-7.148	68.220	Pass
Vertical	5681.413	13.022	52.636	65.657	-25.796	91.453	Pass
Vertical	5700.000	13.003	49.461	62.464	-42.736	105.200	Pass
Vertical	5712.355	12.973	59.730	72.703	-35.956	108.659	Pass
Vertical	5715.000	12.965	59.436	72.400	-37.000	109.400	Pass
Vertical	5725.000	12.930	65.635	78.565	-43.635	122.200	Pass
Vertical	5749.638	12.844	101.690	114.534	--	--	--



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 159 (5795MHz)

RF Radiated Measurement:

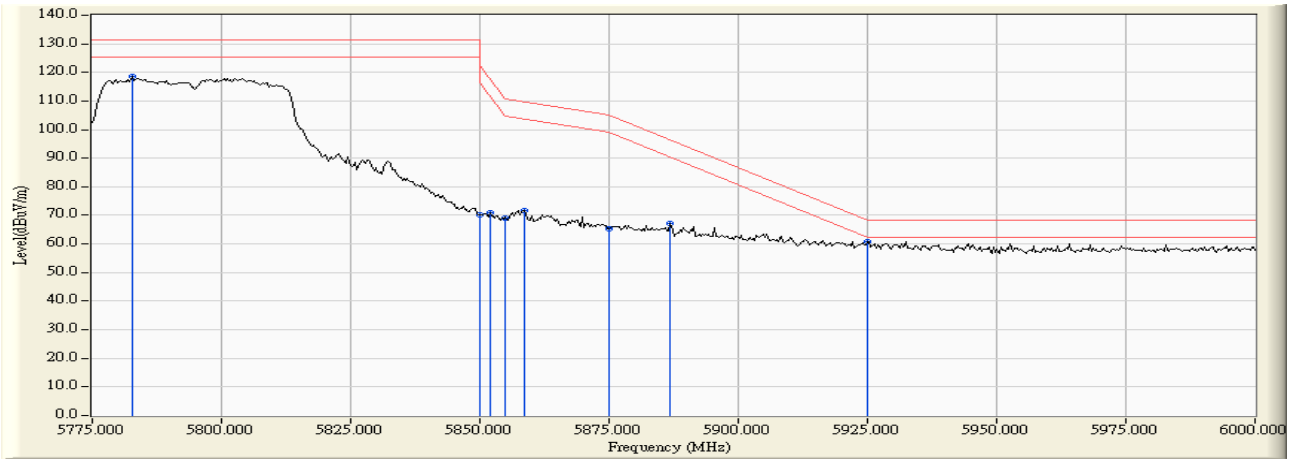
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Horizontal	5785.761	11.399	88.865	100.264	--	--	--
Horizontal	5850.000	11.701	43.242	54.943	-67.257	122.200	Pass
Horizontal	5852.283	11.717	45.841	57.557	-59.438	116.995	Pass
Horizontal	5855.000	11.735	43.826	55.561	-55.239	110.800	Pass
Horizontal	5858.478	11.759	45.520	57.279	-52.547	109.826	Pass
Horizontal	5875.000	11.873	43.328	55.201	-49.999	105.200	Pass
Horizontal	5887.174	11.960	45.058	57.017	-39.174	96.191	Pass
Horizontal	5925.000	12.068	41.184	53.253	-14.947	68.200	Pass
Horizontal	5996.739	12.129	43.984	56.113	-12.087	68.200	Pass



Product : MOXA IEEE 802.11 a/b/g/n
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Date : 2018/03/06
Test Mode : Mode 1: Transmit (802.11n-40BW 30Mbps) -Channel 159 (5795MHz)

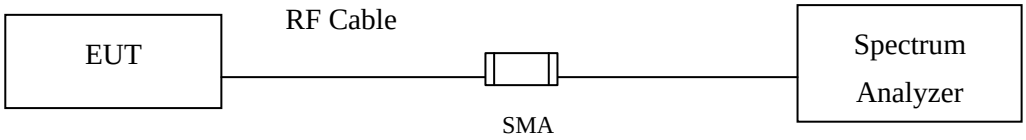
RF Radiated Measurement:

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Measure Level (dBμV /m)	Margin (dB)	Limit (dBμV /m)	Result
Vertical	5782.826	12.728	105.770	118.497	--	--	--
Vertical	5850.000	12.774	57.384	70.158	-52.042	122.200	Pass
Vertical	5851.957	12.778	58.207	70.985	-46.753	117.738	Pass
Vertical	5855.000	12.784	56.342	69.126	-41.674	110.800	Pass
Vertical	5858.478	12.791	58.737	71.528	-38.298	109.826	Pass
Vertical	5875.000	12.825	52.496	65.321	-39.879	105.200	Pass
Vertical	5886.848	12.851	54.183	67.034	-29.398	96.432	Pass
Vertical	5925.000	12.911	47.815	60.726	-7.474	68.200	Pass



6. Duty Cycle

6.1. Test Setup



6.2. 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.

6.3. Uncertainty

± 2.31msec

6.4. Test Result of Duty Cycle

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

Duty Cycle Formula:

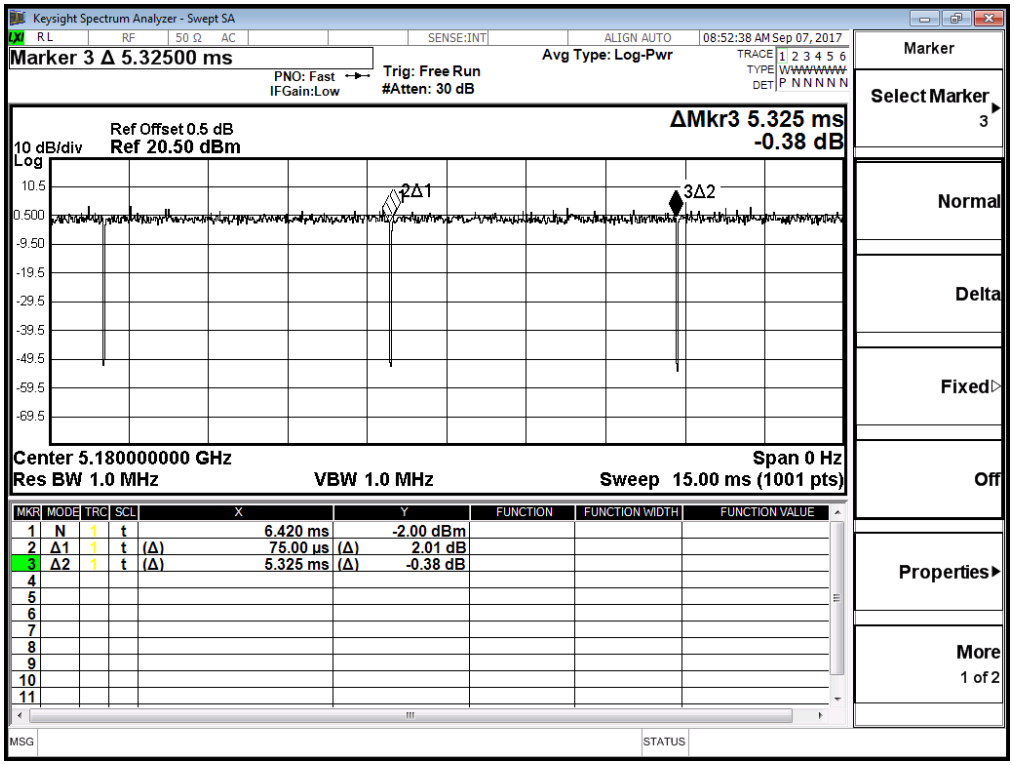
Duty Cycle = Ton / (Ton + Toff)

Duty Factor = 10 Log (1/Duty Cycle)

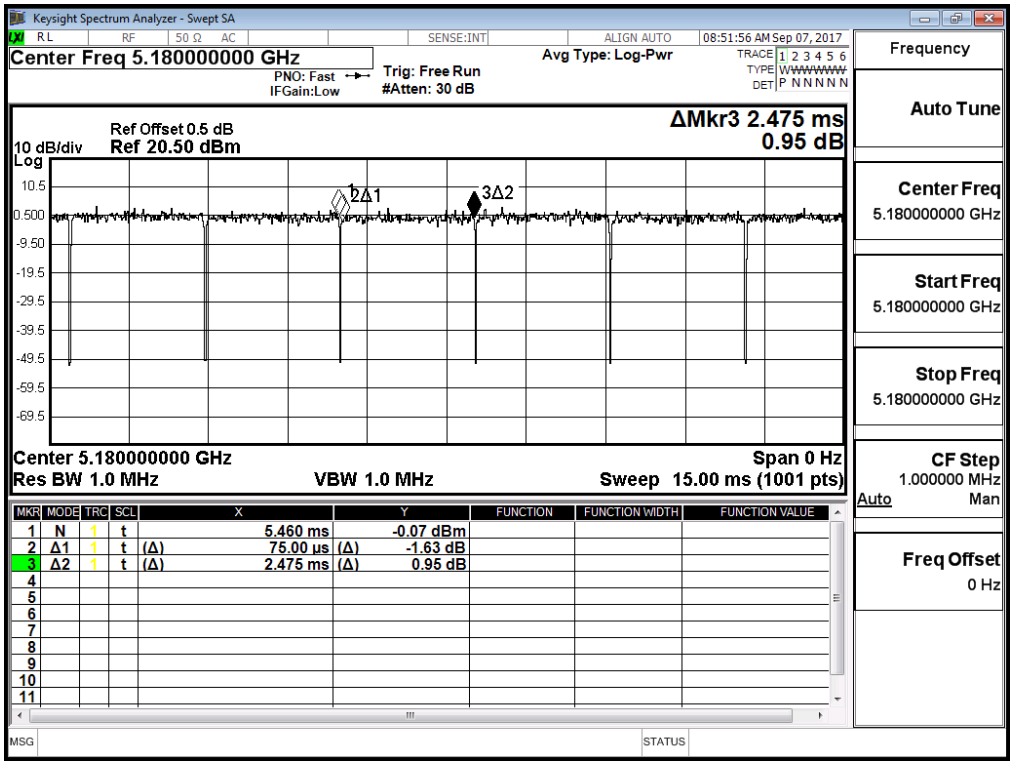
Results:

5GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11a	5.3250	5.4000	98.61	0.06
802.11n20	2.4750	2.5500	97.06	0.13
802.11n40	1.2000	1.2600	95.24	0.21

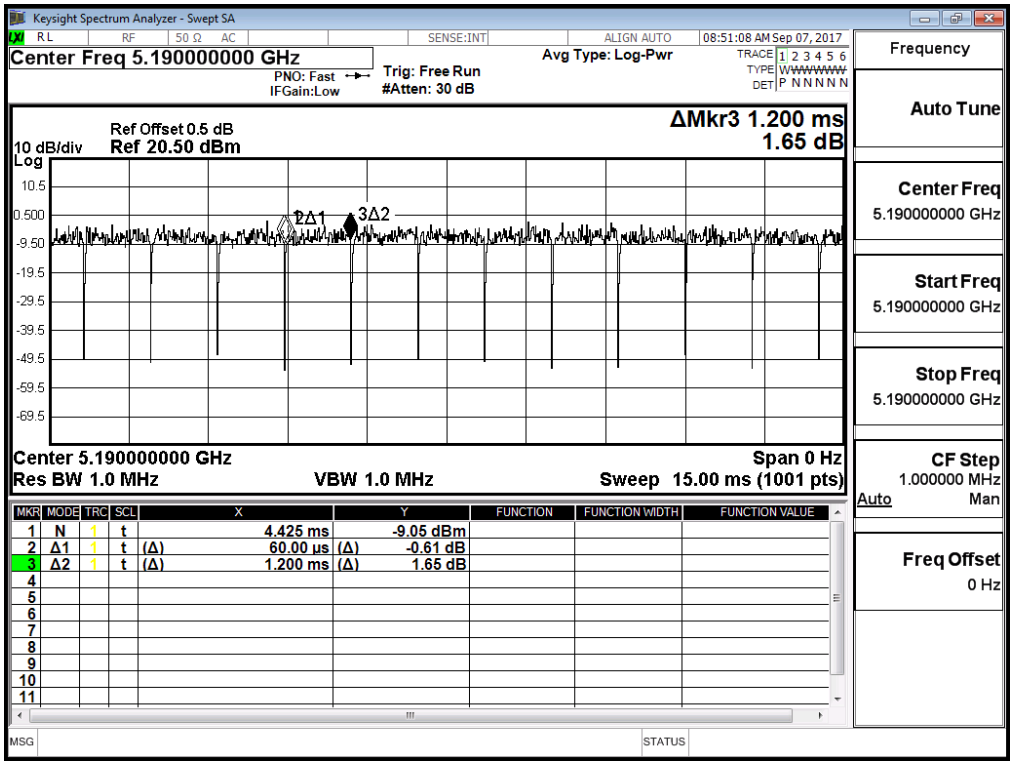
802.11a



802.11n20



802.11n40


Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
08:51:08 AM Sep 07, 2017
Center Freq 5.190000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE WWWWWW
DET P N N N N N
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.50 dBm
ΔMkr3 1.200 ms
1.65 dB
10.5
0.500
-9.50
-19.5
-29.5
-39.5
-49.5
-59.5
-69.5
2Δ1
3Δ2
Center 5.190000000 GHz
Res BW 1.0 MHz
VBW 1.0 MHz
Span 0 Hz
Sweep 15.00 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 t 4.425 ms -9.05 dBm
2 Δ1 1 t (Δ) 60.00 µs (Δ) -0.61 dB
3 Δ2 1 t (Δ) 1.200 ms (Δ) 1.65 dB
4
5
6
7
8
9
10
11
MSG
STATUS
Frequency
Auto Tune
Center Freq
5.190000000 GHz
Start Freq
5.190000000 GHz
Stop Freq
5.190000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

7. EMI Reduction Method During Compliance Testing

No modification was made during testing.