SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Telephone: +86 (0) 21 6191 5666

Fax: +86 (0) 21 6191 5678

ee.shanghai@sgs.com

1 Cover Page

RF TEST REPORT

Application No.:	SHEM1803002344CR
Applicant:	Qualcomm Atheros, Inc.
FCC ID:	PPD-QCNFA435
IC:	4104A-QCNFA435
Equipment Under Test (EUT): **NOTE:** The following sample(s) was/were submitted and identified by the client as	
Product Name:	Notebook Computer
Model No.(EUT):	Lenovo ideapad 330S-15IKB GTX1050; 81GC
Standards:	FCC PART 15 Subpart E Canada RSS-247 Issue 2 Canada RSS-Gen Issue 4
Date of Receipt:	March 8, 2018
Date of Test:	March 19, 2018~ March 21, 2018
Date of Issue:	March 23, 2018
Test Result:	**Refer to test Summary***

*In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Parlam Zhan
E&E Section Manager

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00	/	2018-3-23	/	Original

Authorized for issue by:				
Engineer		 **Vincent Zhu /Project Engineer**		2018-3-23 **Date**
Reviewer		 **Eddy Zong /Reviewer**		2018-3-23 **Date**

3 Test Summary

Test Item	Test Requirement	Test method	Result
Maximum Conducted output power	15.407 a(1)&(3) Canada RSS-247 Issue 2 Canada RSS-Gen Issue 4	KDB 789033 D02 v02r01 KDB 662911 D01 v02r01	PASS
Radiated Spurious emissions and Band-edge	15.209 & 15.407 Canada RSS-247 Issue 2 Canada RSS-Gen Issue 4		PASS

4 Contents

5 General Information

5.1 Client Information

Applicant:	Qualcomm Atheros, Inc.
Address of Applicant:	1700 Technology Drive, San Jose, CA 95110
Manufacturer:	Qualcomm Atheros, Inc.
Address of Manufacturer:	1700 Technology Drive, San Jose, CA 95110
Factory:	N/A
Address of Factory:	N/A

5.2 General Description of E.U.T.

Product Description:	802.11 a/b/g/n/ac+ Bluetooth 1T/1R
Brand Name:	Lenovo
Power Adapter Power Rating:	Brand Name: Lenovo Model : ADLX90NDC3A Input: 100-240V~1.5A 50-60Hz Output: 20V ⎓4.5A
Test Voltage:	AC 120V,60Hz

5.3 Technical Specifications

<table>
<tr><td>Operation Frequency:</td><td colspan="3">802.11a/n(HT20): U-NII 1:5180-5240MHz,
U-NII 2A:5260-5320MHz,
U-NII-2C:5500-5720MHz,
U-NII-3:5745-5825MHz
802.11n(HT40): U-NII 1:5190-5230MHz,
U-NII 2A:5270-5310MHz,
U-NII 2C:5500-5720MHz,
U-NII 3:5755-5795MHz
802.11ac(VHT80): U-NII 1:5210 MHz,
U-NII 2A:5290 MHz,
U-NII 2C:5530-5690MHz,
U-NII 3:5775 MHz</td></tr>
<tr><td>Modulation Technique:</td><td colspan="3">OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)
Remark: 256QAM for 802.11 ac only</td></tr>
<tr><td>Data Rate:</td><td colspan="3">802.11a: 6/9/12/18/24/36/48/54Mbps
802.11n(HT20)/n(HT40): MCS0-7 up to 300Mbps
802.11ac(VHT80): MCS0-7 up to 866.3Mbps</td></tr>
<tr><td>Antenna Type</td><td colspan="3">PIFA</td></tr>
<tr><td rowspan="4">Antenna Gain</td><td rowspan="2">Brand</td><td colspan="2">Gain(dBi)</td></tr>
<tr><td colspan="2">5G</td></tr>
<tr><td>TX1</td><td>TX2</td></tr>
<tr><td>South Star</td><td>3.36</td><td>3.33</td></tr>
<tr><td>INPAQ</td><td>2.56</td><td>1.38</td></tr>
<tr><td>Number of Channel:</td><td colspan="3">802.11 a/n(HT20): 25 Channel: 36,40,44,48,52,56,60,64,100,104, 108,112,116,120,124,128,132,136,140,144,149, 153, 157,161,165
802.11 n(HT40): 12 Channel: 38,46,54,62,102,110,118,126, 134, 142, 151,159
802.11 ac(VHT80): 6 Channel 42,58,106,122,138,155</td></tr>
</table>

a. Operation Frequency of Each Channel:

Channel NO.	Freq (MHz)	Channel NO.	Freq (MHz)	Channel NO.	Freq (MHz)	Channel NO.	Freq (MHz)	Channel NO.	Freq (MHz)	Channel NO.	Freq (MHz)
36	5180	52	5260	100	5500	116	5580	132	5660	149	5745
38	**5190**	**54**	**5270**	**102**	**5510**	**118**	**5590**	**134**	**5670**	**151**	**5755**
40	5200	56	5280	104	5520	120	5600	136	5680	153	5765
42	**5210**	**58**	**5290**	**106**	**5530**	**122**	**5610**	**138**	**5690**	**155**	**5775**
44	5220	60	5300	108	5540	124	5620	140	5700	157	5785
46	**5230**	**62**	**5310**	**110**	**5550**	**126**	**5630**	**142**	**5710**	**159**	**5795**
48	5240	64	5320	112	5560	128	5640	144	5720	161	5805
										165	5825

Note: The above Frequency and Channel in boldface were 40MHz bandwidth; in boldface and Italic were 80MHz bandwidth.

5.4 Test Mode

Test Mode	Description of Test Mode
Engineering mode	Using test software to control EUT working in continuous transmitting, and select channel and modulation type.

5.5 Test Channel

Preliminary tests were performed in all tests in different data rata and antenna configurations at lowest channel, the data rates of worse case as below were chosen for final test.

Band	802.11a			802.11 n(HT20)		
	Channel	Freq	Rate	Channel	Freq	Rate
U-NII 1	36	5180	6Mbps	36	5180	MCS0
	44	5200	6Mbps	44	5200	MCS0
	48	5240	6Mbps	48	5240	MCS0
U-NII 2A	52	5260	6Mbps	52	5260	MCS0
	56	5280	6Mbps	56	5280	MCS0
	64	5320	6Mbps	64	5320	MCS0
U-NII 2C	100	5500	6Mbps	100	5500	MCS0
	120	5600	6Mbps	120	5600	MCS0
	140	5700	6Mbps	140	5700	MCS0
	144	5720	6Mbps	144	5720	MCS0
U-NII 3	149	5745	6Mbps	149	5745	MCS0
	157	5785	6Mbps	157	5785	MCS0
	165	5825	6Mbps	165	5825	MCS0

Band	802.11n(HT40)			802.11ac(VHT80)		
	Channel	Freq	Rate	Channel	Freq	Rate
U-NII 1	38	5190	MCS0	42	5210	MCS0
	-	-	-	-	-	-
	46	5230	MCS0			
U-NII 2A	54	5270	MCS0	58	5290	MCS0
	-	-	-	-	-	-
	62	5310	MCS0	-	-	-
U-NII 2C	102	5510	MCS0	106	5530	MCS0
	118	5590	MCS0	-	-	-
	134	5670	MCS0	122	5610	MCS0
	142	5710	MCS0	138	5690	MCS0
U-NII 3	151	5755	MCS0	155	5775	MCS0
	-	-	-	-	-	-
	159	5795	MCS0	-	-	-

Remark:1. Preliminary tests were performed in all tests in different data rata and antenna configurations at lowest channel, the data rates of worse case as above were chosen for final test.

5.6 Description of Support Units

The EUT has been tested with support equipments as below.

Description	Manufacturer	Model No.	Supplied By
-	-	-	-

Software name	Manufacturer	Version	Supplied By
QRCT-CONN30160	Qualcomm	-	Client

5.7 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

5.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. 17025:2005 General Requirements for the Competence of Testing and Calibration L (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration L for the competence in the field of testing.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the Nat Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC –Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• Industry Canada (IC) – IC Assigned Code: 8617A

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Sha Ltd. has been registered by Certification and Engineering Bureau of Industry Canad equipment testing with Registration No.: 8617A-1.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Services (Shanghai) Co., Ltd. has been registered in accordance with the Reg Voluntary Control Measures with Registration No.: R-3868,C-4336,T-12221,G-10830 re

5.9 Measurement Uncertainty

No.	Parameter	Measurement Uncertainty
1	Radio Frequency	< ±1 x 10^{-5}
2	Total RF power, conducted	< ±1.5 dB
3	RF power density, conducted	< ±3 dB
4	Spurious emissions, conducted	< ±3 dB
5	All emissions, radiated	< ±6 dB (30MHz – 1GHz) < ±6 dB (above 1GHz)
6	Temperature	< ±1°C
7	Humidity	< ±5 %
8	DC and low frequency voltages	< ±3 %

6 Equipments Used during Test

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Conducted Emission at AC Power Line					
EMI test receiver	R&S	ESR7	SHEM162-1	2017-12-20	2018-12-19
LISN	Schwarzbeck	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
LISN	EMCO	3816/2	SHEM019-1	2017-12-20	2018-12-19
Pulse limiter	R&S	ESH3-Z2	SHEM029-1	2017-12-20	2018-12-19
CE test Cable	/	CE01	/	2017-12-26	2018-12-25
Conducted Test					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2017-12-20	2018-12-19
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2017-09-26	2018-09-25
Power meter	R&S	NRP	SHEM057-1	2017-12-26	2018-12-25
Power Sensor	R&S	NRP-Z22	SHEM136-1	2017-07-22	2018-07-21
Power Sensor	R&S	NRP-Z91	SHEM057-2	2017-12-26	2018-12-25
Signal Generator	R&S	SMR40	SHEM058-1	2017-07-03	2018-07-02
Signal Generator	Agilent	N5182A	SHEM182-1	2017-09-26	2018-09-25
Communication Tester	R&S	CMW500	SHEM183-1	2017-10-22	2018-10-21
Switcher	Tonscend	JS0806	SHEM184-1	2017-09-26	2018-09-25
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2017-09-26	2018-09-25
AC Power Stabilizer	WOCEN	6100	SHEM045-1	2017-12-26	2018-12-25
DC Power Supply	QJE	QJ30003SII	SHEM046-1	2017-12-26	2018-12-25
Conducted test cable	/	RF 01,RF 02	/	2017-12-26	2018-12-25
Radiated Test					
EMI test receiver	R&S	ESU40	SHEM051-1	2017-12-20	2018-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2017-12-20	2018-12-19
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2017-04-10	2020-04-09
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Antenna (25MHz-3GHz)	Schwarzbeck	HL562	SHEM010-1	2017-02-28	2020-02-27
Horn Antenna (1-8GHz)	Schwarzbeck	HF906	SHEM009-1	2016-10-24	2020-10-23
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2017-12-03	2020-12-02
Pre-amplifier (9KHz-2GHz)	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2017-08-22	2018-08-21
Pre-amplifier (1-26.5GHz)	CLAVIIO	BDLNA-0118-352810	SHEM050-2	2017-08-22	2018-08-21
High-amplifier(14-40GHz)	Schwarzbeck	10001	SHEM049-2	2017-12-20	2018-12-19
Band filter	LORCH	9BRX-875/X150-SR	SHEM156-1	/	/
Band filter	LORCH	13BRX-1950/X500-SR	SHEM083-2	/	/
Band filter	LORCH	5BRX-2400/X200-SR	SHEM155-1	/	/
Band filter	LORCH	5BRX-5500/X1000-SR	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G-100SS	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700-3SS	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2018-07-21
RE test Cable	/	RE01, RE02, RE06	/	2017-12-26	2018-12-25

7 Test Results

7.1 E.U.T. Test Conditions

Requirements: 15.31(e) For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

Operating Environment:

Temperature:	20.0 -25.0 °C
Humidity:	35-75 % RH
Atmospheric Pressure:	99.2 -102.0 kPa

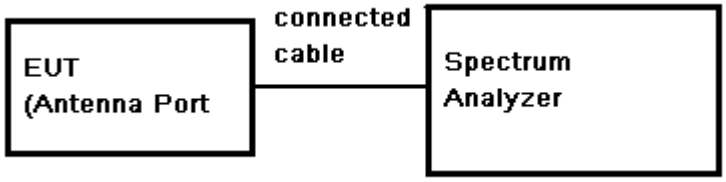
Test frequencies: According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and. if required. reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz or less	1	Middle
1 to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top. 1 near middle and 1 near bottom

Pursuant to Part 15.31(c) For swept frequency equipment, measurements shall be made with the frequency sweep stopped at those frequencies chosen for the measurements to be reported

7.2 Maximum Conducted output power

Test Setup:



Test Procedure:

1. The testing follows ANSI63.10-2013 clause 12.3.3.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter, Adjust the measurement in dBm by adding [10 log (1 / D)], where D is the duty cycle {e.g.,[10 log (1 / 0.25)], if the duty cycle is 25%}. and record the results in the test report.

Band	Duty Cycle(%)	Duty factor
IEEE 802.11 a	96	0.18
IEEE 802.11n HT20	95	0.22
IEEE 802.11n HT40	91	0.41
IEEE 802.11ac80	82	0.86

Test Limit:

Frequency Band	EUT Category	Limit
U-NII-1	☐ Outdoor Access Point	1W(30dBm) The maximum e.i.r.p≤125 mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon.
	☐ Fixed Point-to-point Access Point	1W(30dBm)
	☐ Indoor Access Point	
	☒ Mobile and Portable client device	250mW (24dBm)
U-NII-2a	-	Lesser of 250mW (24dBm) or 11dBm + 10log B*
U-NII-2c		
U-NII-3		1W (30dBm)
Note: *Where B is the 26dB emission bandwidth in MHz.		

Test Result: Pass

Test Data:

WLAN 5G

U-NII-1 Chain0

Mode	Channel	Frequency (MHZ)	Chain0Target power(dBm)	Turn-up tolerance (dBm)	Maximum Turn-up power (dBm)	Average Power (dBm)
802.11 a	36	5180	11.5	±2	13.5	13.36
	40	5200	11.5	±2	13.5	13.27
	44	5220	11.5	±2	13.5	13.40
	48	5240	11.5	±2	13.5	13.45
802.11 n 20MHz	36	5180	11	±2	13	12.79
	40	5200	11	±2	13	13.00
	44	5220	11	±2	13	12.94
	48	5240	11	±2	13	12.80
802.11 n 40MHz	38	5190	9.5	±2	11.5	11.39
	46	5230	11	±2	13	12.99
802.11 ac80	42	5210	10.5	±2	12.5	12.47

U-NII-1 Chain1

Mode	Channel	Frequency (MHZ)	Chain1Target power(dBm)	Turn-up tolerance (dBm)	Maximum Turn-up power (dBm)	Average Power (dBm)
802.11 a	36	5180	11.5	±2	13.5	13.42
	40	5200	11.5	±2	13.5	13.44
	44	5220	11.5	±2	13.5	13.37
	48	5240	11.5	±2	13.5	13.43
802.11 n 20MHz	36	5180	11	±2	13	12.97
	40	5200	11	±2	13	12.91
	44	5220	11	±2	13	12.76
	48	5240	10.5	±2	12.5	12.36
802.11 n 40MHz	38	5190	9.5	±2	11.5	11.26
	46	5230	11	±2	13	12.82
802.11 ac80	42	5210	10.5	±2	12.5	12.43

U-NII-2A Chain0

Mode	Channel	Frequency (MHZ)	Chain0Target power(dBm)	Turn-up tolerance (dBm)	Maximum Turn-up power (dBm)	Average Power (dBm)
802.11 a	52	5260	11.5	±2	13.5	13.42
	56	5280	11.5	±2	13.5	13.29
	64	5320	11.5	±2	13.5	13.44
802.11 n 20MHz	52	5260	11	±2	13	12.99
	56	5280	11	±2	13	12.83
	64	5320	11	±2	13	12.93
802.11 n 40MHz	54	5270	11	±2	13	12.88
	62	5310	10.5	±2	12.5	12.46
802.11 ac80	58	5290	9.5	±2	11.5	11.50

U-NII-2A Chain1

Mode	Channel	Frequency (MHZ)	Chain1Target power(dBm)	Turn-up tolerance (dBm)	Maximum Turn-up power (dBm)	Average Power (dBm)
802.11 a	52	5260	11.5	±2	13.5	13.49
	56	5280	11.5	±2	13.5	13.23
	64	5320	11.5	±2	13.5	13.48
802.11 n 20MHz	52	5260	11	±2	13	12.72
	56	5280	11	±2	13	12.92
	64	5320	11	±2	13	12.97
802.11 n 40MHz	54	5270	11	±2	13	12.73
	62	5310	10.5	±2	12.5	12.39
802.11 ac80	58	5290	9.5	±2	11.5	11.33

U-NII-2C Chain0

Mode	Channel	Frequency (MHZ)	Chain0Target power(dBm)	Turn up tolerance (dBm)	Maximum Turn up power (dBm)	Average Power (dBm)
802.11 a	100	5500	11.5	±2	13.5	13.45
	112	5560	11.5	±2	13.5	13.48
	116	5580	11.5	±2	13.5	13.46
	128	5640	11.5	±2	13.5	13.50
	144	5720	11.5	±2	13.5	13.45
802.11 n 20MHz	100	5500	11	±2	13	12.96
	112	5560	11	±2	13	12.97
	116	5580	11	±2	13	12.93
	128	5640	11	±2	13	12.96
	144	5720	11	±2	13	12.98
802.11 n 40MHz	102	5510	11	±2	13	12.88
	110	5550	11	±2	13	12.86
	118	5590	11	±2	13	12.90
	126	5630	11	±2	13	12.97
	134	5670	11	±2	13	12.87
	142	5710	11	±2	13	12.86
802.11 ac80	106	5530	9.5	±2	11.5	11.49
	122	5610	11	±2	13	12.83
	138	5690	11	±2	13	12.87

U-NII-2C Chain1

Mode	Channel	Frequency (MHZ)	Chain1Target power(dBm)	Turn up tolerance (dBm)	Maximum Turn up power (dBm)	Average Power (dBm)
802.11 a	100	5500	11.5	±2	13.5	13.39
	112	5560	11.5	±2	13.5	13.31
	116	5580	11.5	±2	13.5	13.24
	128	5640	11.5	±2	13.5	13.48
	144	5720	11.5	±2	13.5	13.50
802.11 n 20MHz	100	5500	11	±2	13	12.91
	112	5560	11	±2	13	13.00
	116	5580	11	±2	13	12.99
	128	5640	11	±2	13	12.93
	144	5720	11	±2	13	12.74
802.11 n 40MHz	102	5510	11	±2	13	12.93
	110	5550	11	±2	13	13.00
	118	5590	11	±2	13	12.97
	126	5630	11	±2	13	12.99
	134	5670	11	±2	13	12.98
	142	5710	11	±2	13	12.95
802.11 ac80	106	5530	9.5	±2	11.5	11.40
	122	5610	11	±2	13	12.93
	138	5690	11	±2	13	12.96

U-NII-3 Chain0

Mode	Channel	Frequency	Chain0Target power(dBm)	Turn up tolerance (dBm)	Maximum Turn up power (dBm)	Average power (dBm)
802.11 a	149	5745	12	±2	14	13.99
	157	5785	12	±2	14	13.88
	165	5825	12	±2	14	13.96
802.11 n 20MHz	149	5745	11.5	±2	13.5	13.49
	157	5785	11.5	±2	13.5	13.36
	165	5825	11.5	±2	13.5	13.48
802.11 n 40MHz	151	5755	11.5	±2	13.5	13.50
	159	5795	11.5	±2	13.5	13.47
802.11 ac80	155	5775	11.5	±2	13.5	13.49

U-NII-3 Chain1

Mode	Channel	Frequency	Chain1Target power(dBm)	Turn up tolerance (dBm)	Maximum Turn up power (dBm)	Average power (dBm)
802.11 a	149	5745	12	±2	14	13.95
	157	5785	12	±2	14	13.84
	165	5825	12	±2	14	13.90
802.11 n 20MHz	149	5745	11.5	±2	13.5	13.35
	157	5785	11.5	±2	13.5	13.47
	165	5825	11.5	±2	13.5	13.46
802.11 n 40MHz	151	5755	11.5	±2	13.5	13.48
	159	5795	11.5	±2	13.5	13.43
802.11 ac80	155	5775	11.5	±2	13.5	13.50

Note: Duty factor has been offseted with cableloss.

7.3 Radiated Spurious Emissions and Band-edge

Test site/setup: Measurement Distance: 3m

Test instrumentation set-up:

Frequency Range(MHz)	Detector	RBW	VBW
0.009-0.090	Peak	10kHz	30kHz
0.009-0.090	Average	10kHz	30kHz
0.090-0.110	Quasi-peak	10kHz	30kHz
0.110-0.490MHz	Peak	10kHz	30kHz
0.110-0.490	Average	10kHz	30kHz
0.490 -30	Quasi-peak	10kHz	30kHz
30-1000	Peak	100kHz	300kHz
	Quasi-peak		
Above 1000	Peak	RBW=1MHz	VBW≥RBW
	Average		See Remark

Sweep=Auto

Remark:

Above 1GHz:

AVERAGE: RBW=1MHz / Sweep=AUTO

VBW=10Hz,when duty cycle is no less than 98 percent.

VBW≧1/T, when duty cycle is less than 98 percent, where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximun power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
IEEE 802.11 a	96	2.088	0.48	0.5kHz
IEEE 802.11n HT20	95	1.948	0.51	1 kHz
IEEE 802.11n HT40	91	0.965	1.04	2kHz
IEEE 802.11ac VHT80	82	0.467	2.14	3kHz

15.209 Limit:

Frequency(MHz)	Limit (dBuV/m)
0.009-0.490	128.5 ~ 93.8
0.490-1.705	73.8 ~63.0
1.705-30	69.5
30-88	40.0
88-216	43.5
216-960	46.0
960-1000	54.0
Above 1000	54.0

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

15.407 Limit:

Operation Frequency (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength (dBμV/m)
5150-5250	-27	68.3
5250-5350		
5470-5725		
5725-5850	-27*1	68.3*1
	-17*2	78.3*2

Note: The following formula is used to convert the EIRP to field strength $E=\frac{1000000\sqrt{30P}}{3}$ uV/m, where P is the EIRP (Watts).

Remark: *1 Without 10MHz of band edge; *2 Within 10MHz of band edge

Test Setup:

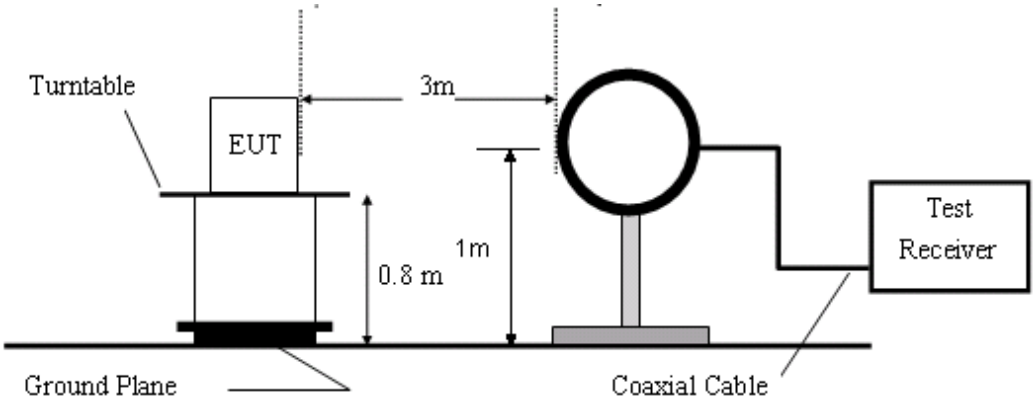


Figure1. Below 30MHz radiated emissions test configuration

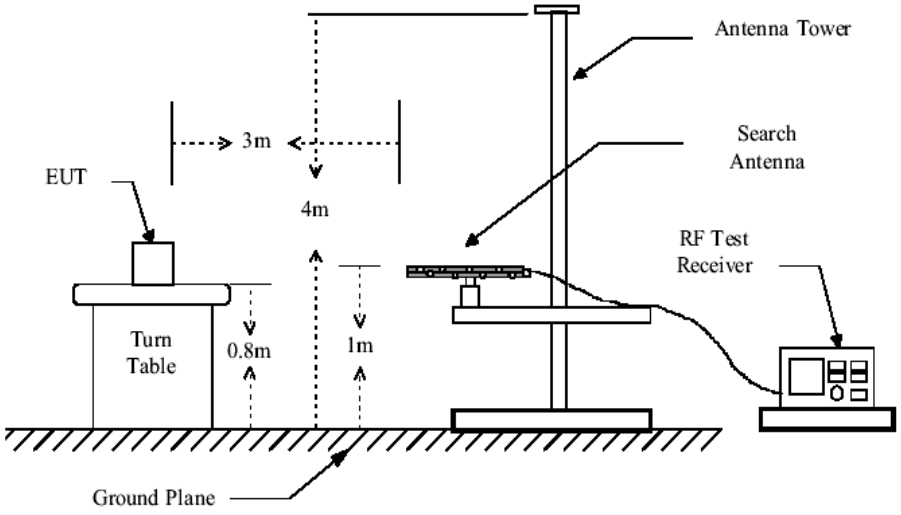


Figure2. 30MHz to 1GHz radiated emissions test configuration

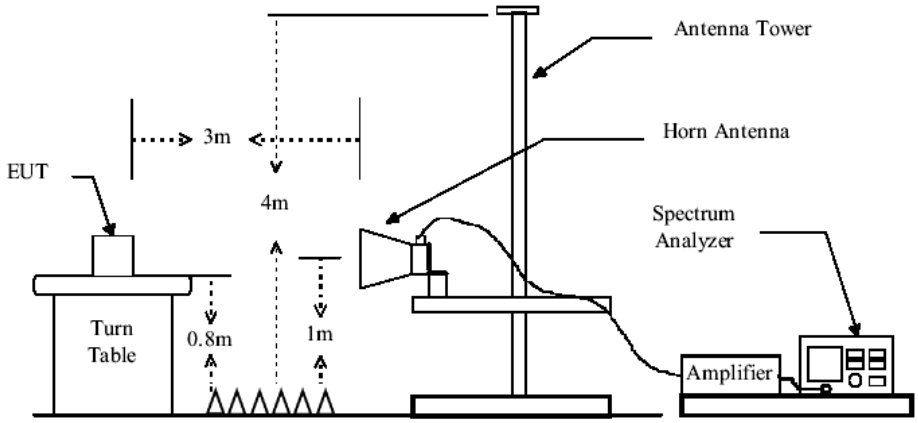


Figure3. Above 1GHz radiated emissions test configuration

Test Procedure: 1) The procedure used was ANSI Standard C63.10. When an emission was

found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

2) Low noise amplifier was used below 1GHz, High pass Filter and amplifier was used above 3GHz. We did not use any amplifier or filter between 1G and 3GHz.

3) Test were performed for their spatial orthogonal(X, Y, Z), the worst test data (X orthogonal) was submitted.

   a) For this intentional radiator operates below 25 GHz. the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the third harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 5rd harmonic.

   b) As shown in Section, for frequencies above 1000MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

4) Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst emissions. Since the emissions produced from MIMO operation were found to be more than 20 dB below the limit, the MIMO emissions are not report.

5) Pretest under all modes during 30MHz to 1GHz; choose the worst case mode (Middle channel of 802.11a on band 1) record on the report.

6) No spurious emissions were detected within 20dB of limit below 30MHz.

Test Result: Pass

7.3.1 Radiated Spurious Emissions

30MHz-1GHz:

Item	Freq.	Read Level	Correct	Result	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)		
1	340.4000	17.08	18.26	35.34	46.00	-10.66	peak	Horizontal
2	359.8000	15.64	19.31	34.95	46.00	-11.05	peak	Horizontal
3	455.8300	15.24	21.01	36.25	46.00	-9.75	peak	Horizontal
4	647.8900	8.79	25.04	33.83	46.00	-12.17	peak	Horizontal
5	840.9200	6.93	26.18	33.11	46.00	-12.89	peak	Horizontal
6	937.9200	8.82	26.59	35.41	46.00	-10.59	peak	Horizontal
1	494.6300	12.93	21.70	34.63	46.00	-11.37	peak	Vertical
2	537.3100	10.72	21.90	32.62	46.00	-13.38	peak	Vertical
3	568.3500	9.51	22.94	32.45	46.00	-13.55	peak	Vertical
4	600.3600	7.68	24.67	32.35	46.00	-13.65	peak	Vertical
5	647.8900	7.76	25.04	32.80	46.00	-13.20	peak	Vertical
6	958.2900	6.66	26.86	33.52	46.00	-12.48	peak	Vertical

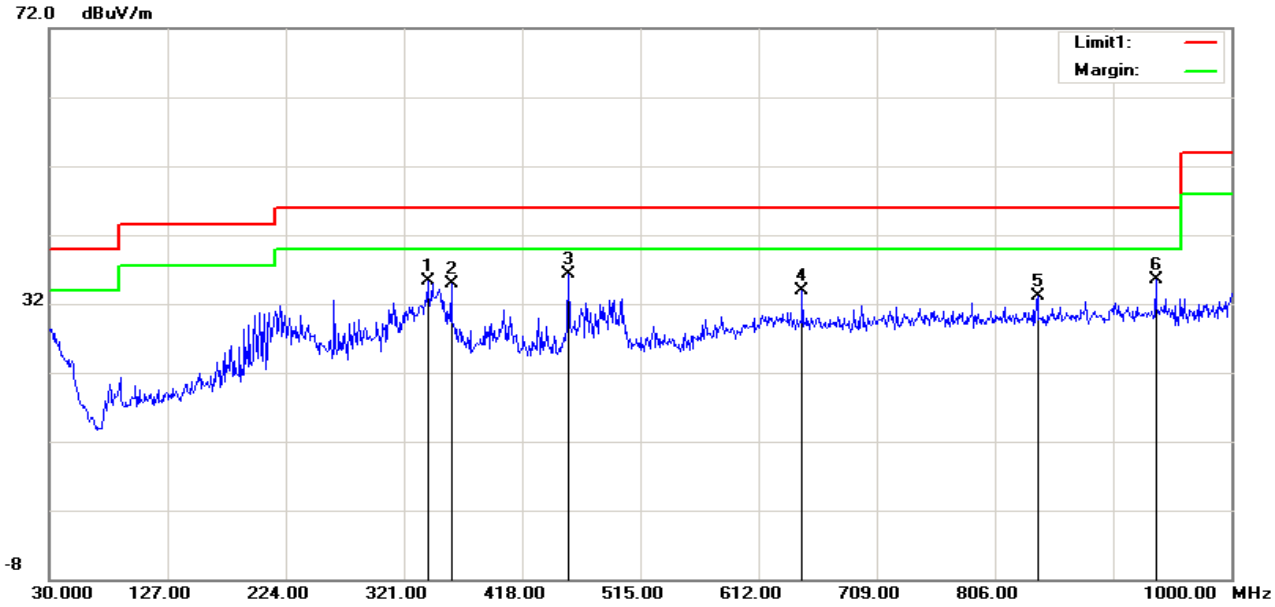
Remark:

1. *Measuring frequencies from 30 MHz to the 1GHz (No emission found between lowest internal used/generated frequency to 30 MHz).*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *Over Limit (dB) = Result (dBuV/m) –Limit Line (dBuV/m).*

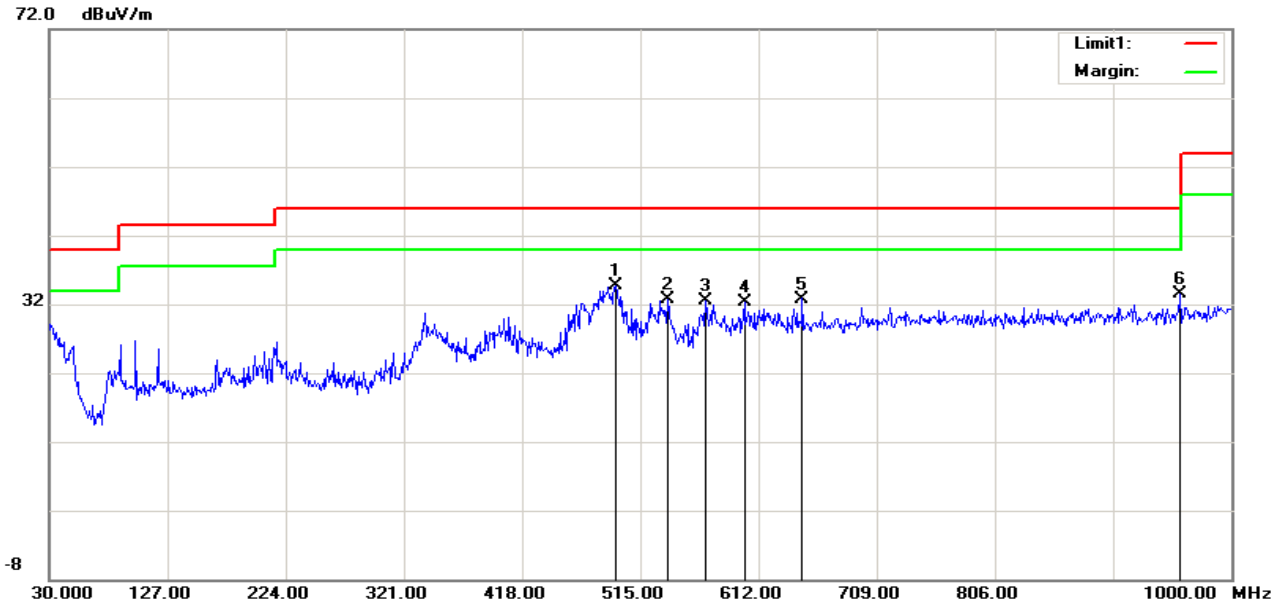
Note: Below 30MHz and above 18GHz. The measured value have enough margin over 20dB than the limit, therefore they are not reported.

Test plot as below:

Horizontal:



Vertical:

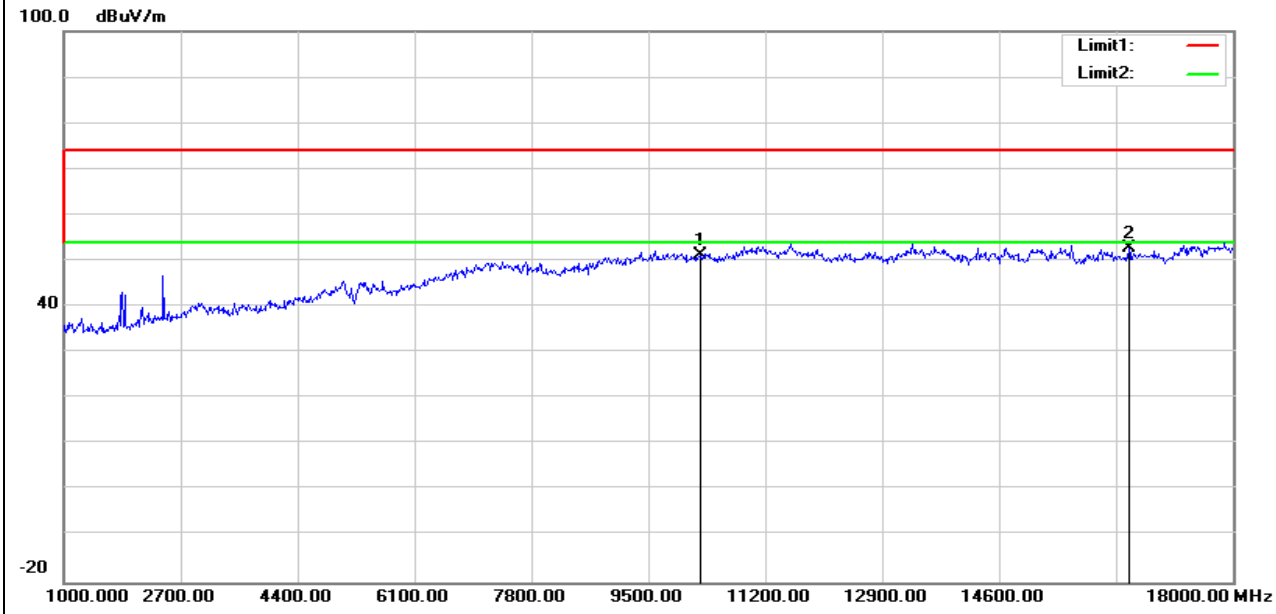


Above 1GHz

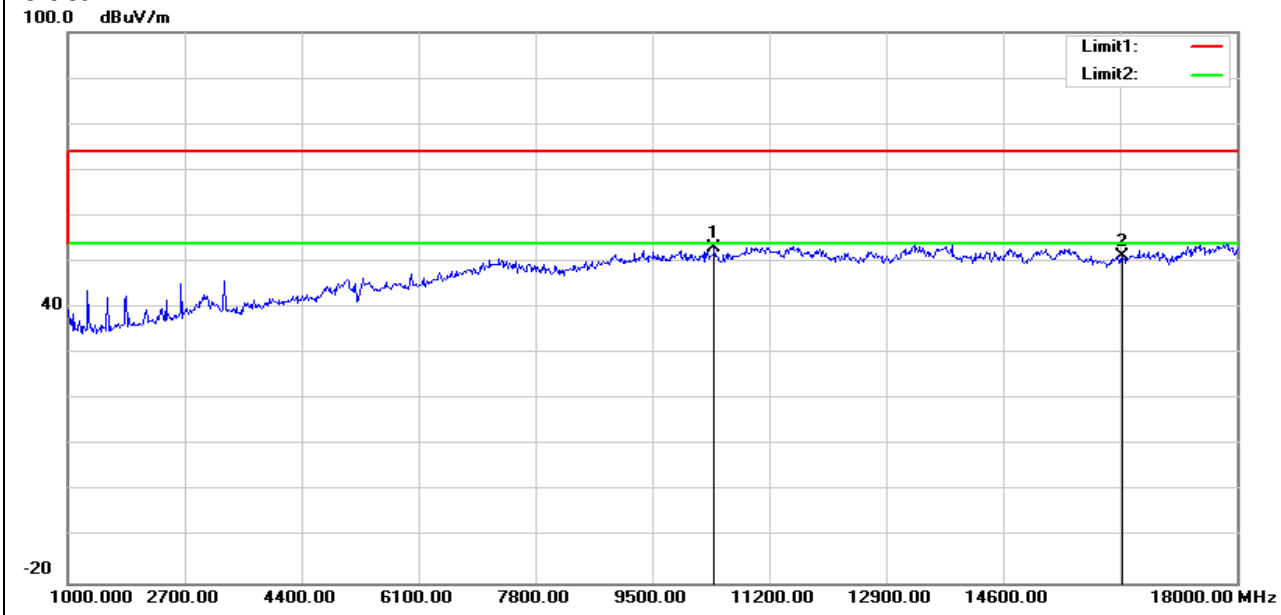
802.11a **Channel: 36**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10265.000	44.43	6.72	51.15	74.00	-22.85	peak	Horizontal
2	16487.000	44.09	8.72	52.81	74.00	-21.19	peak	Horizontal
3	10401.000	46.26	6.78	53.04	74.00	-20.96	peak	Vertical
4	16334.000	42.99	8.34	51.33	74.00	-22.67	peak	Vertical

Horizontal:



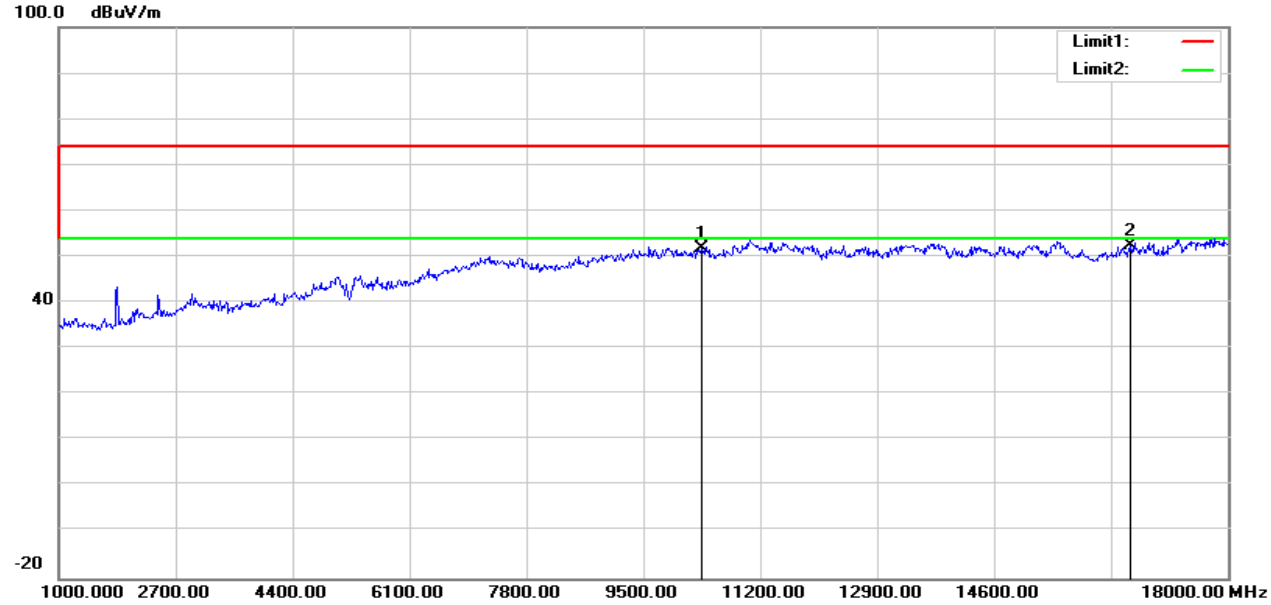
Vertical:



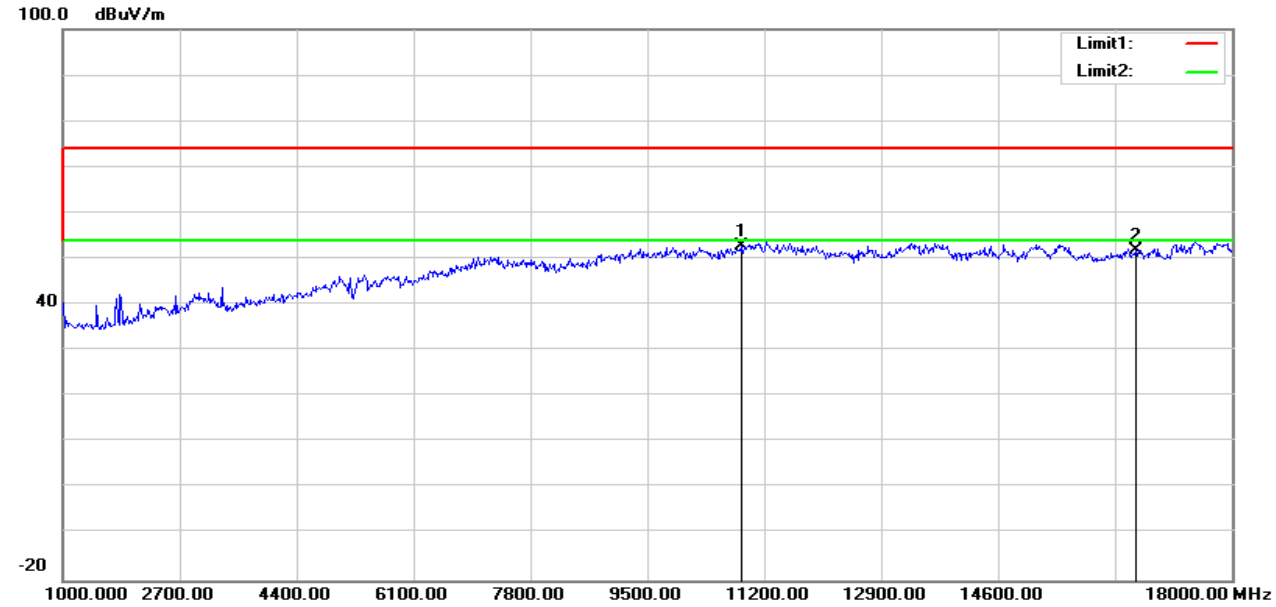
802.11a **Channel: 40**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10350.000	45.04	6.76	51.80	74.00	-22.20	peak	Horizontal
2	16589.000	43.57	8.84	52.41	74.00	-21.59	peak	Horizontal
3	10860.000	43.60	9.01	52.61	74.00	-21.39	peak	Vertical
4	16606.000	43.11	8.86	51.97	74.00	-22.03	peak	Vertical

Horizontal:



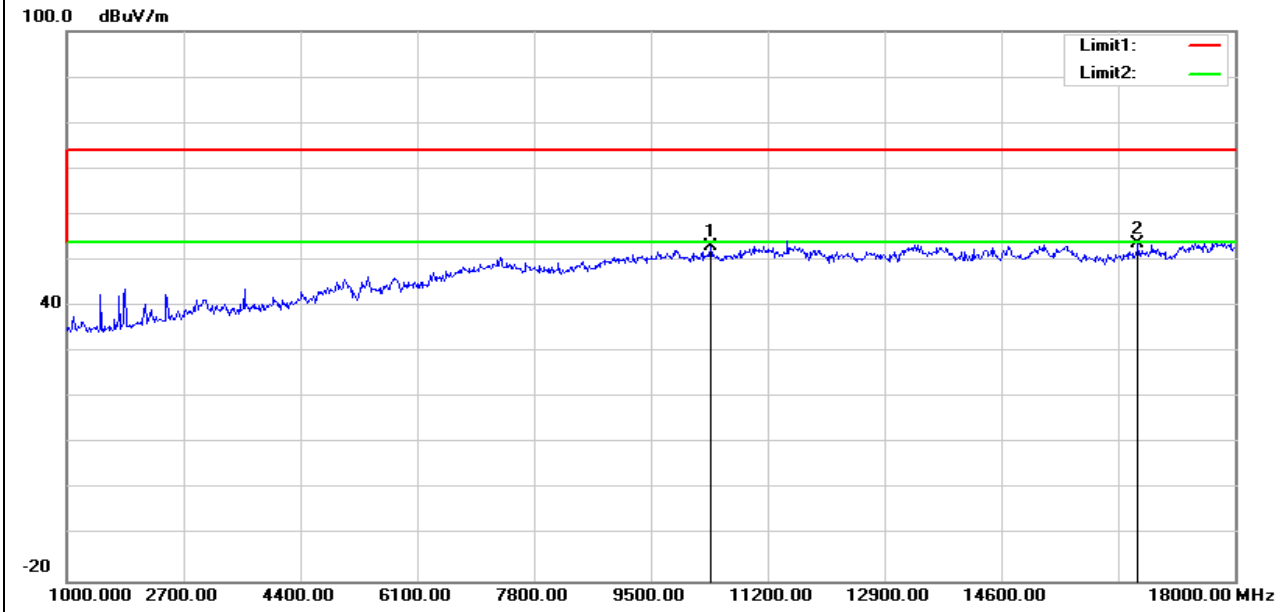
Vertical:



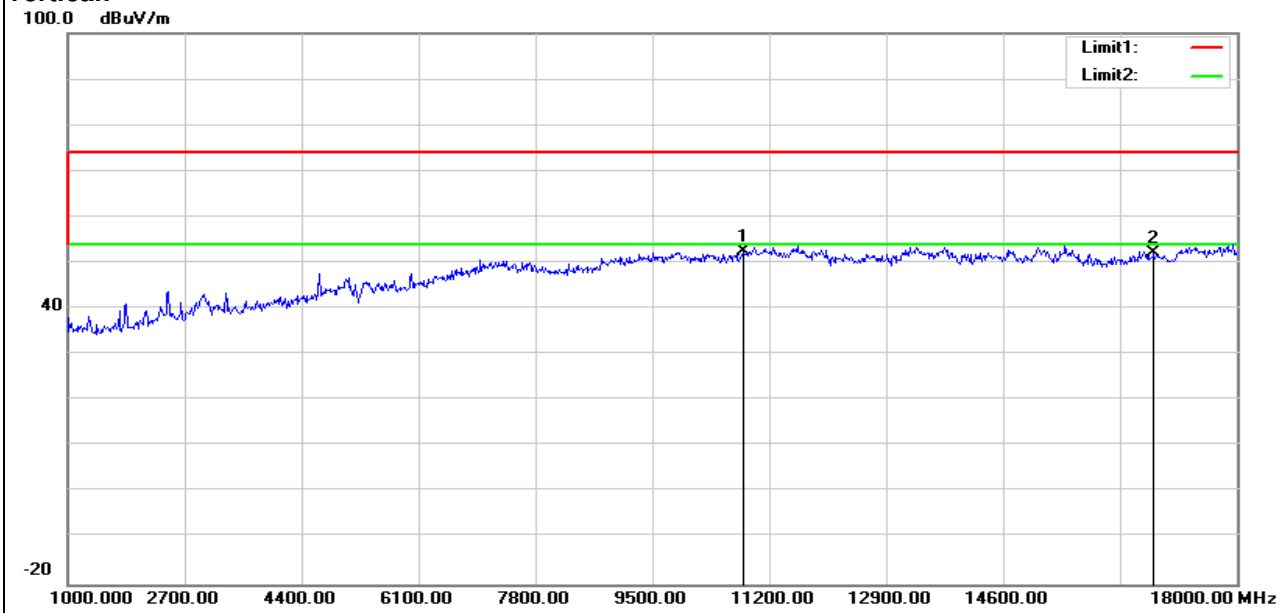
802.11a **Channel: 48**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10367.000	46.24	6.76	53.00	74.00	-21.00	peak	Horizontal
2	16589.000	44.75	8.84	53.59	74.00	-20.41	peak	Horizontal
3	10826.000	43.59	8.80	52.39	74.00	-21.61	peak	Vertical
4	16793.000	42.96	9.05	52.01	74.00	-21.99	peak	Vertical

Horizontal:



Vertical:

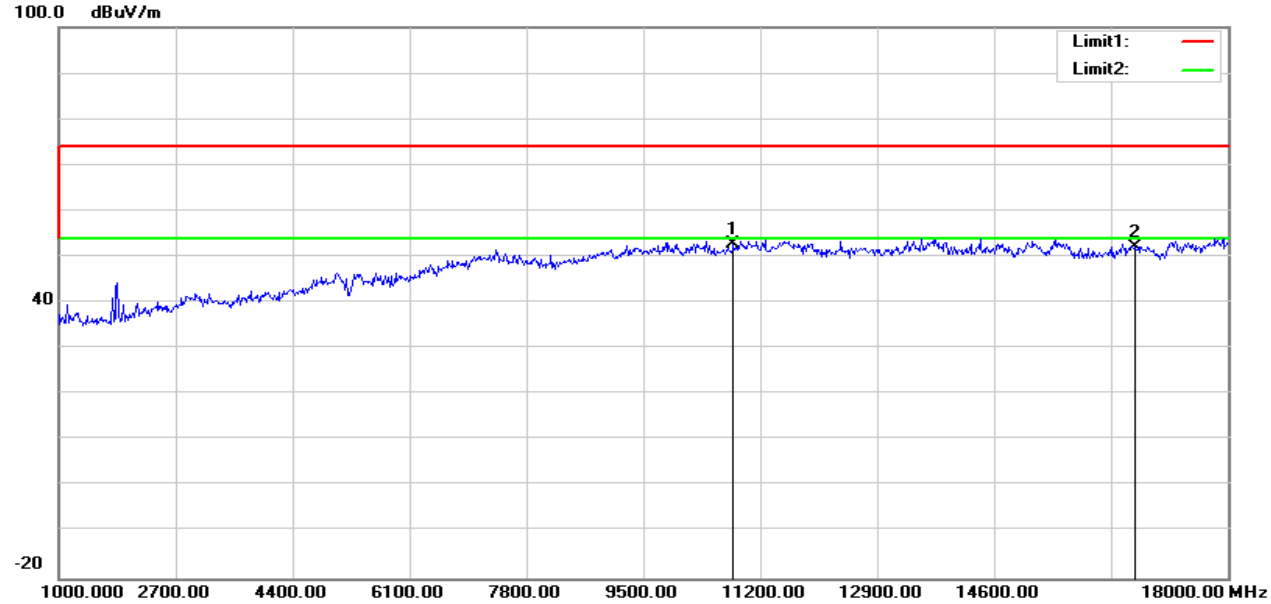


802.11a **Channel: 52**

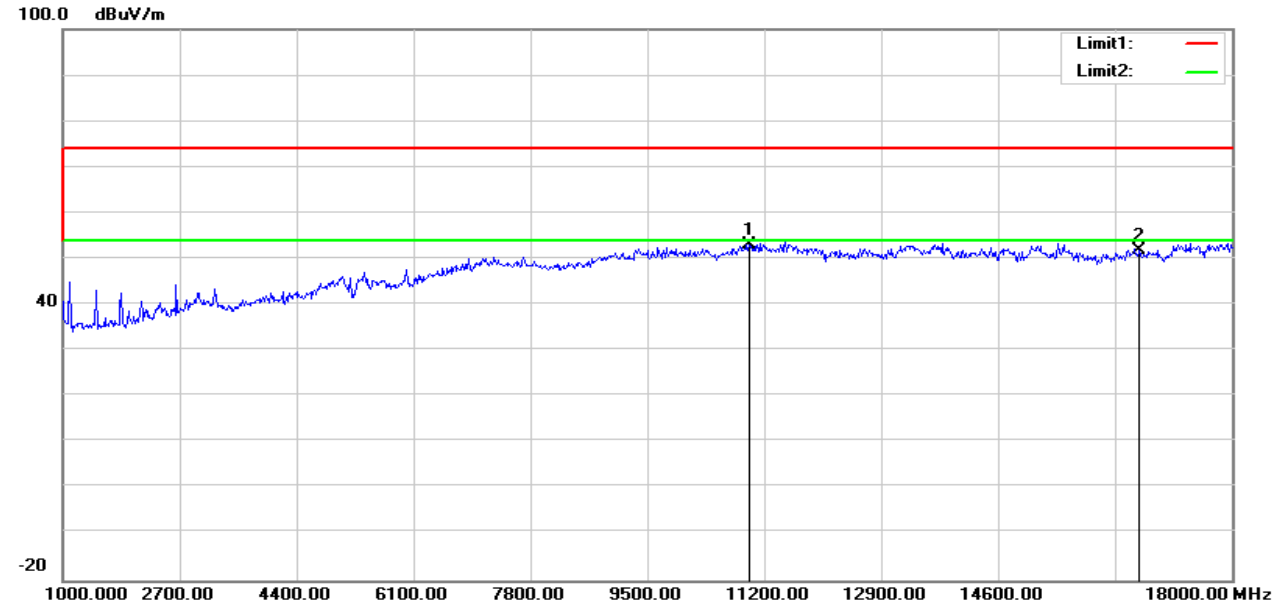
Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization

1	10809.000	43.92	8.70	52.62	74.00	-21.38	peak	Horizontal
2	16657.000	43.38	8.91	52.29	74.00	-21.71	peak	Horizontal
3	10979.000	43.31	9.73	53.04	74.00	-20.96	peak	Vertical
4	16657.000	42.99	8.91	51.90	74.00	-22.10	peak	Vertical

Horizontal:



Vertical:

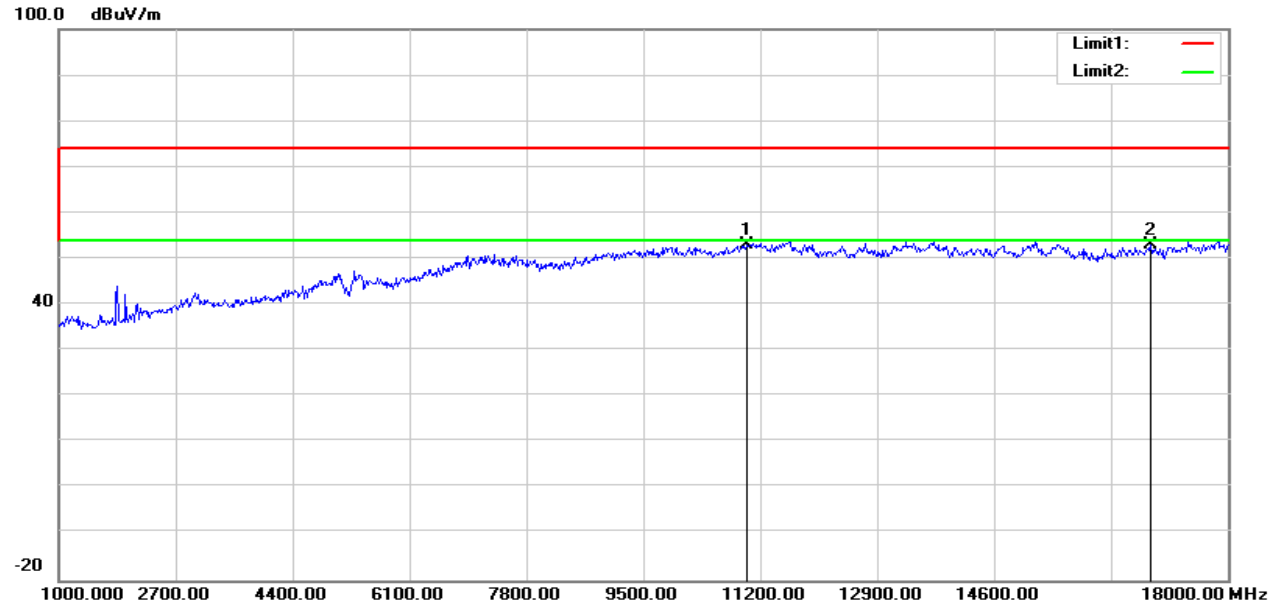


802.11a **Channel: 56**

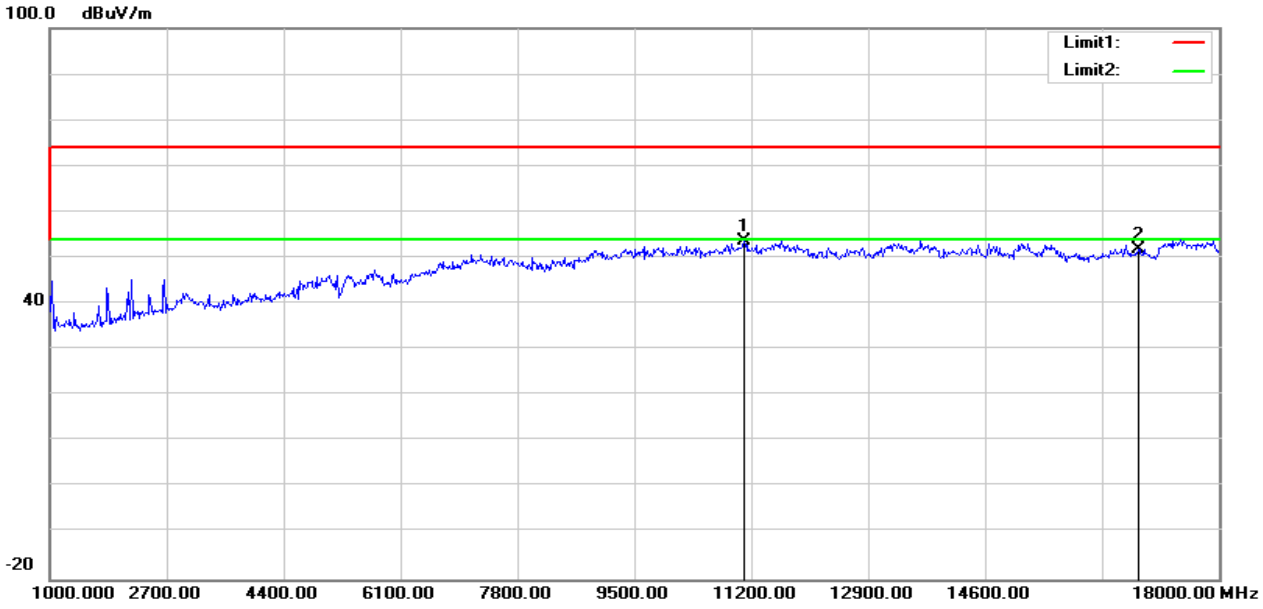
Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11013.000	43.08	9.84	52.92	74.00	-21.08	peak	Horizontal

2	16878.000	43.90	9.14	53.04	74.00	-20.96	peak	Horizontal
3	11098.000	43.99	9.70	53.69	74.00	-20.31	peak	Vertical
4	16827.000	42.63	9.08	51.71	74.00	-22.29	peak	Vertical

Horizontal:



Vertical:

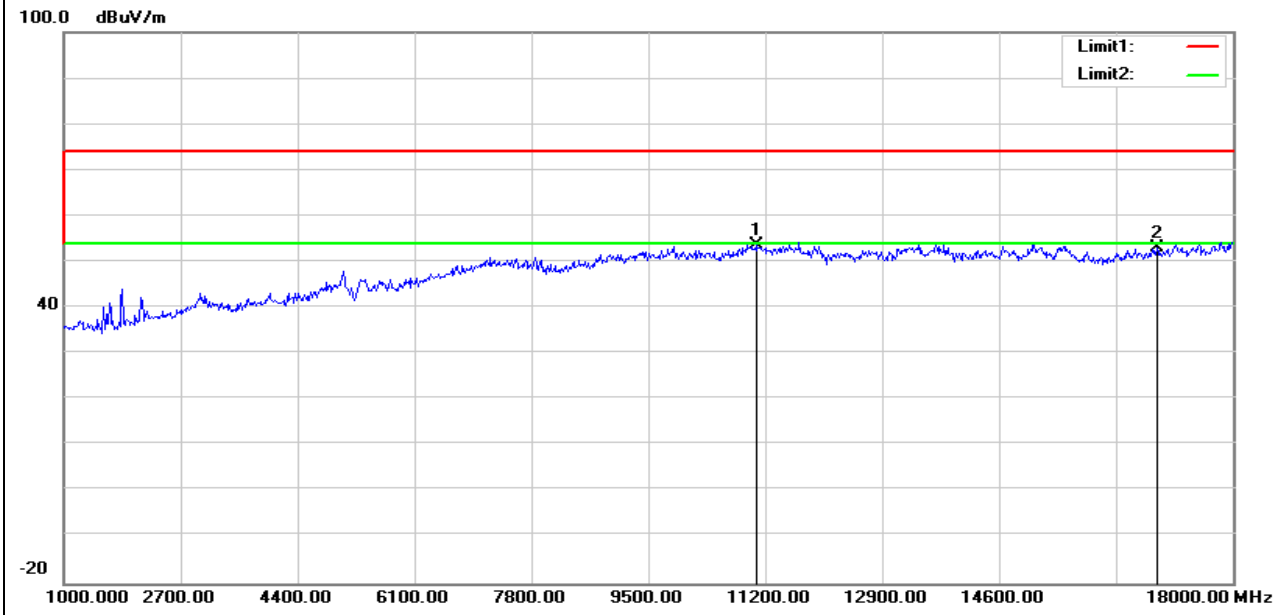


802.11a **Channel: 64**

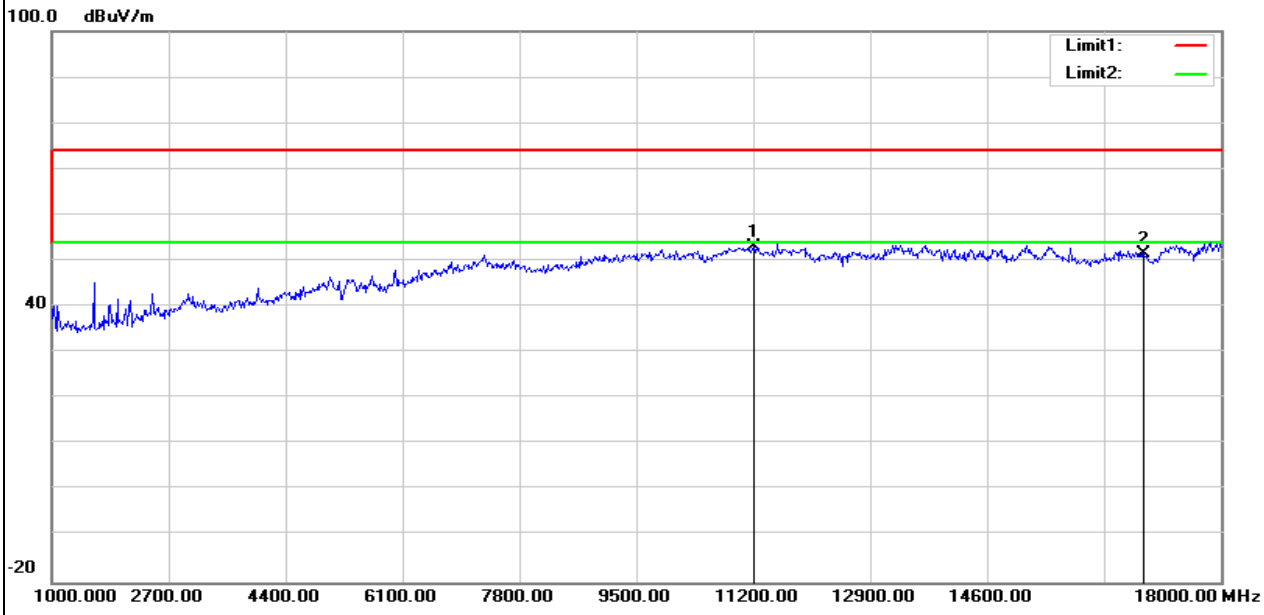
Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11081.000	43.89	9.73	53.62	74.00	-20.38	peak	Horizontal
2	16895.000	43.95	9.15	53.10	74.00	-20.90	peak	Horizontal

3	11200.000	43.65	9.53	53.18	74.00	-20.82	peak	Vertical
4	16878.000	42.33	9.14	51.47	74.00	-22.53	peak	Vertical

Horizontal:



Vertical:

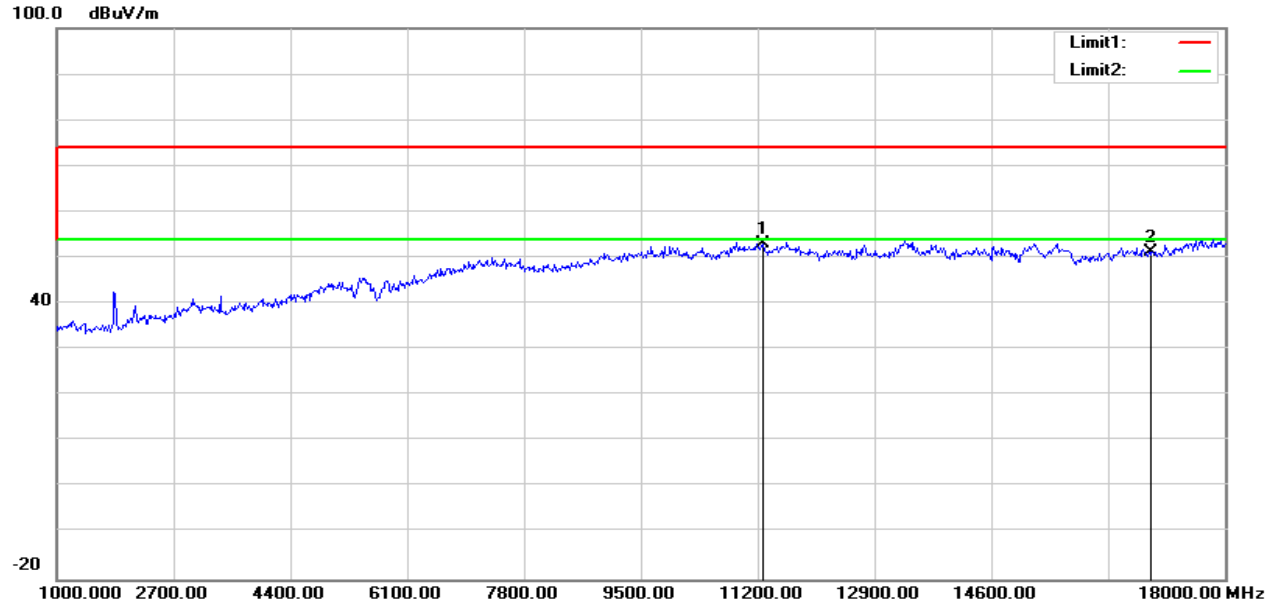


802.11a **Channel: 100**

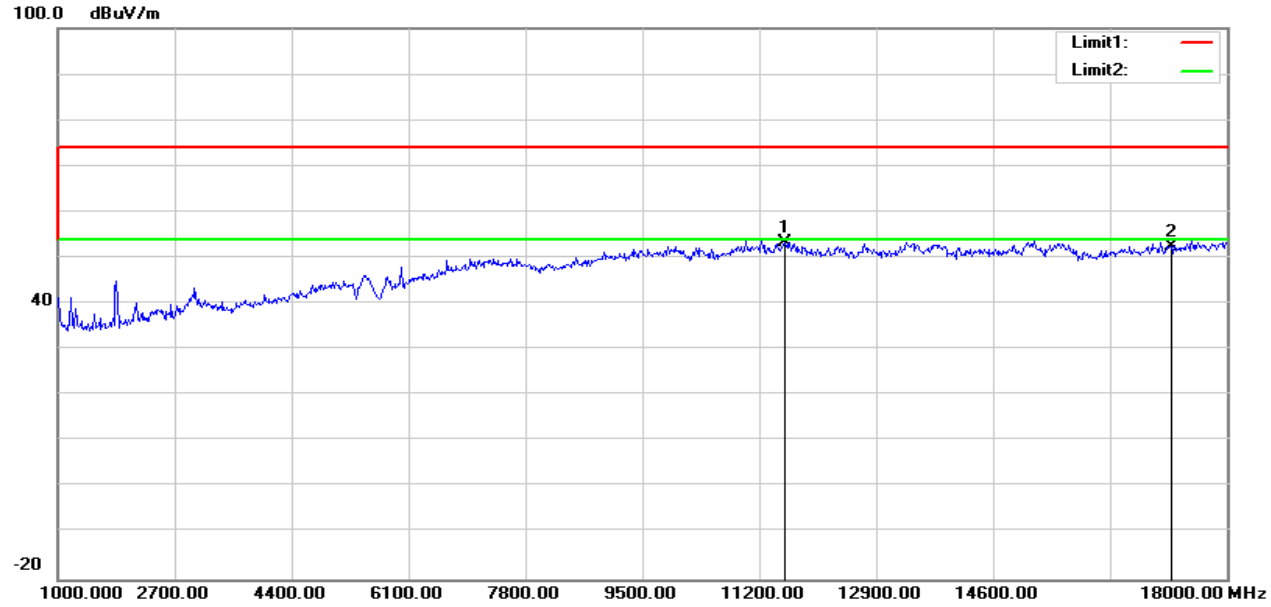
Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11285.000	43.55	9.39	52.94	74.00	-21.06	peak	Horizontal
2	16912.000	42.20	9.17	51.37	74.00	-22.63	peak	Horizontal
3	11574.000	44.36	9.08	53.44	74.00	-20.56	peak	Vertical

4	17184.000	42.33	10.17	52.50	74.00	-21.50	peak	Vertical

Horizontal:



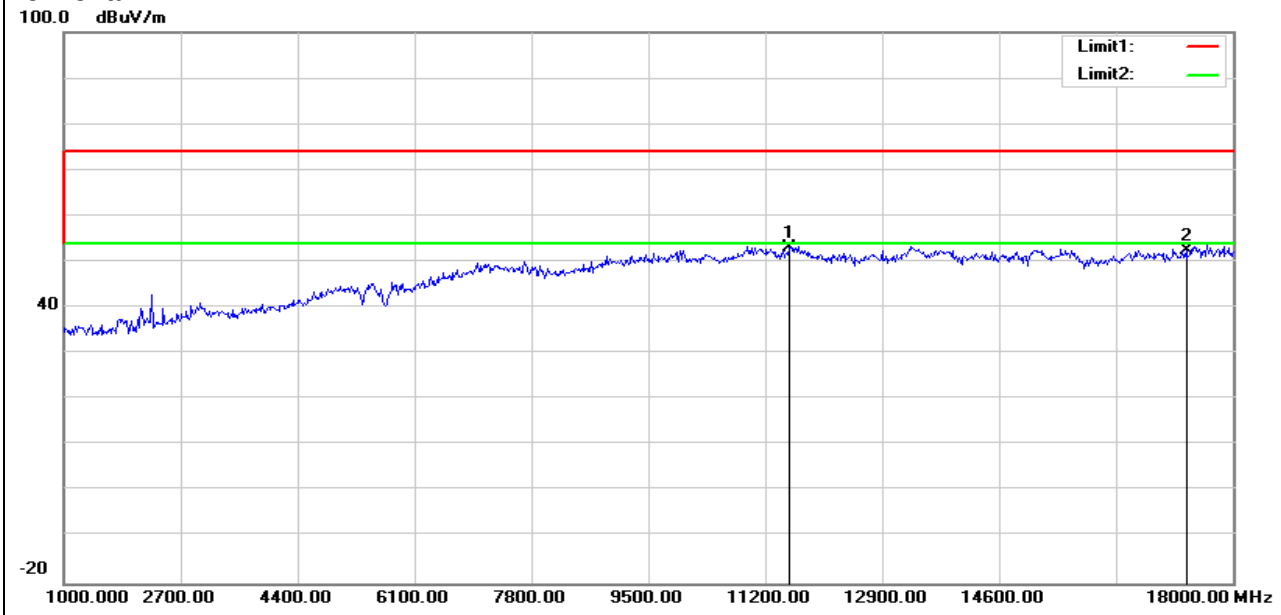
Vertical:



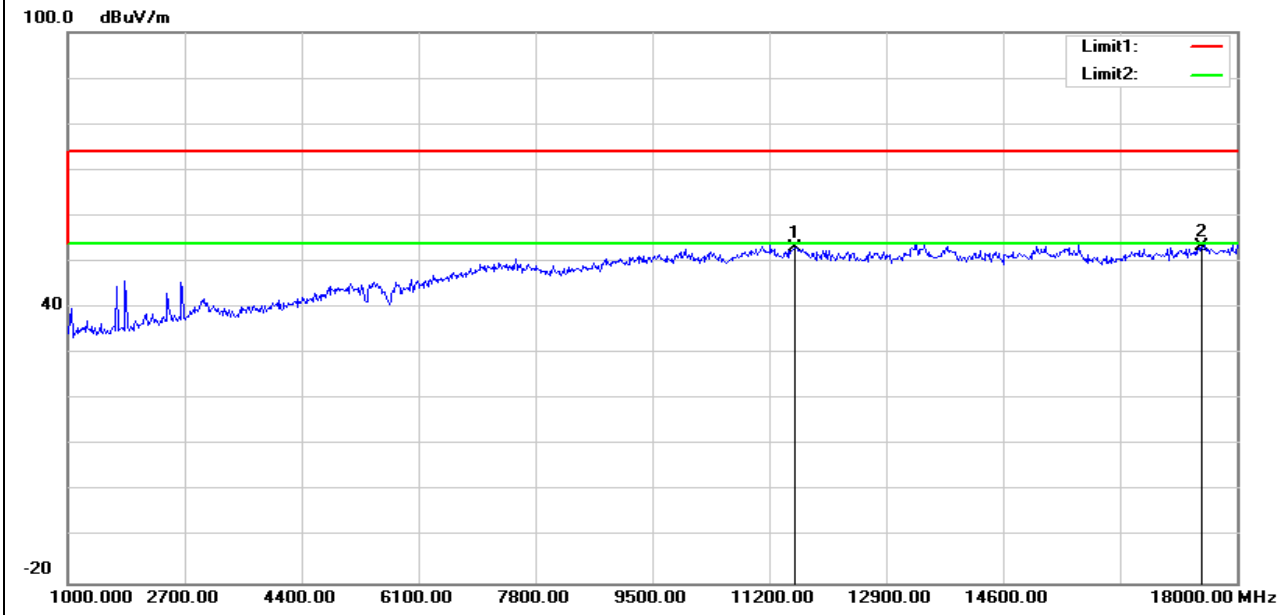
802.11a **Channel: 120**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11540.000	44.07	9.06	53.13	74.00	-20.87	peak	Horizontal
2	17320.000	41.49	10.83	52.32	74.00	-21.68	peak	Horizontal
3	11574.000	44.08	9.08	53.16	74.00	-20.84	peak	Vertical
4	17490.000	41.55	11.67	53.22	74.00	-20.78	peak	Vertical

Horizontal:

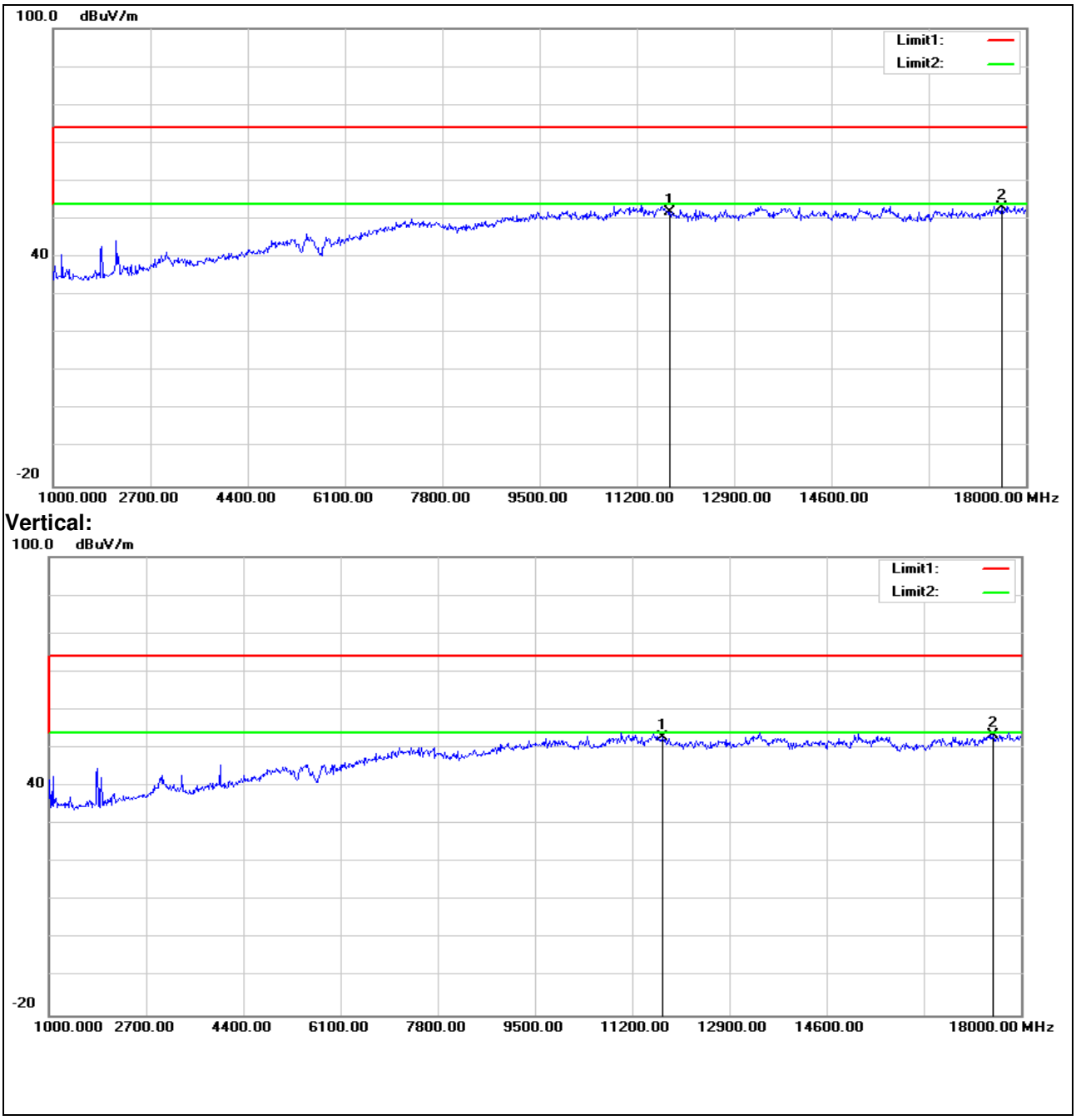


Vertical:



802.11a **Channel: 144**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11778.000	42.73	9.22	51.95	74.00	-22.05	peak	Horizontal
2	17575.000	41.31	11.71	53.02	74.00	-20.98	peak	Horizontal
3	11727.000	43.43	9.19	52.62	74.00	-21.38	peak	Vertical
4	17507.000	41.58	11.72	53.30	74.00	-20.70	peak	Vertical
Horizontal:								

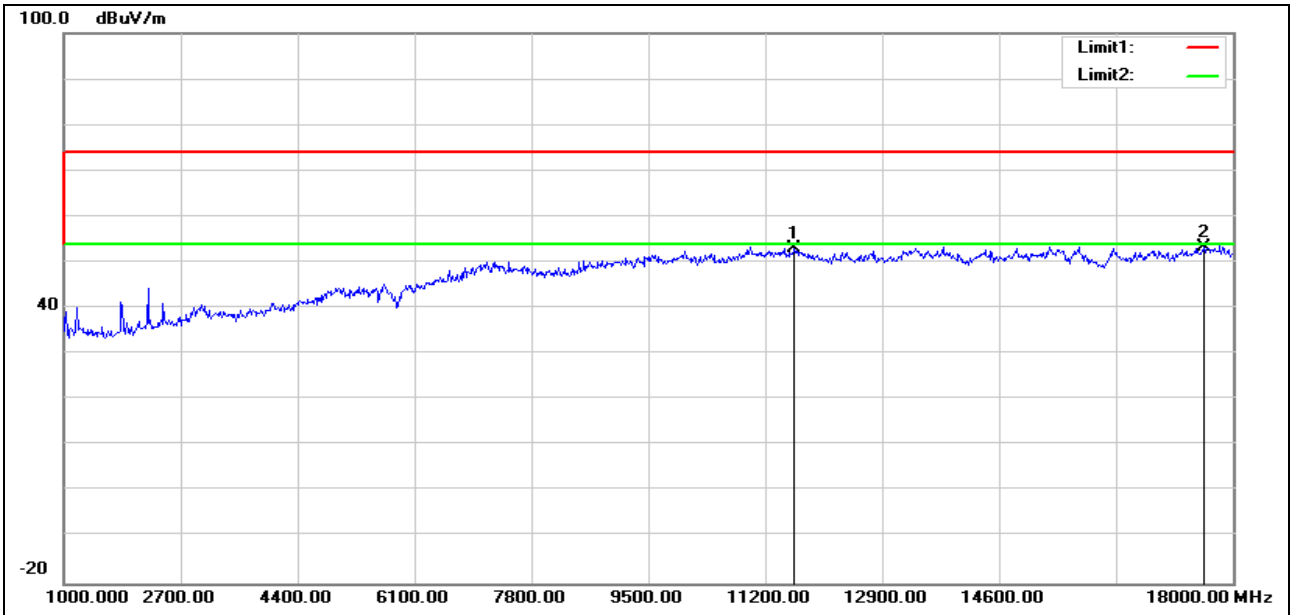


Vertical:

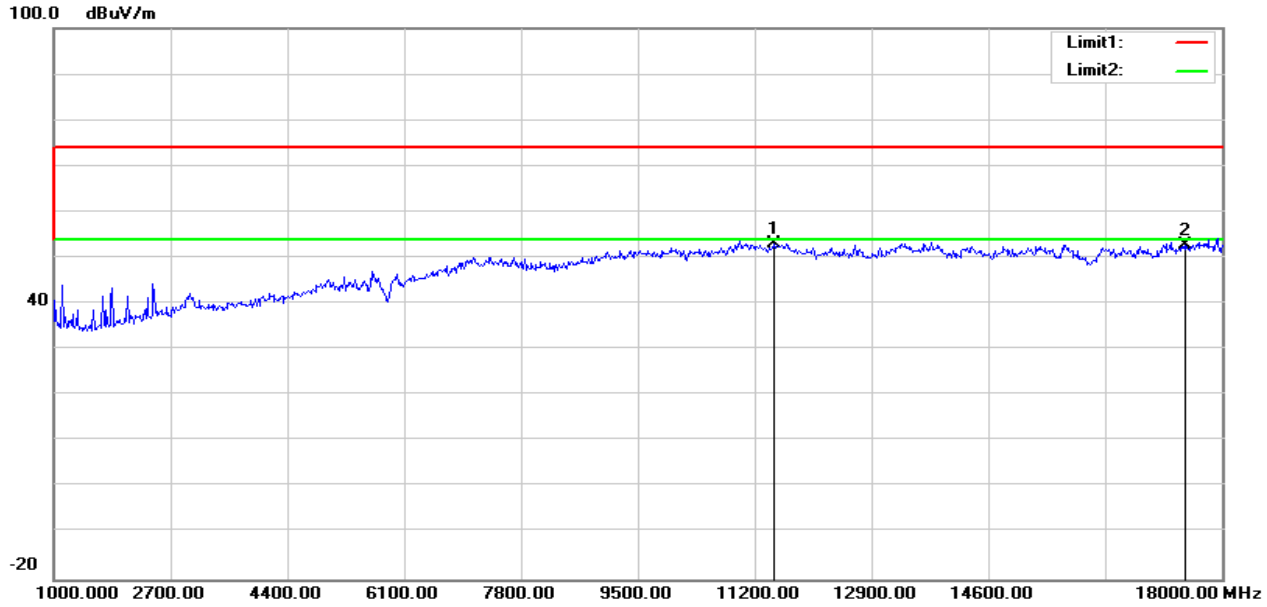
802.11a **Channel: 149**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11625.000	44.07	9.12	53.19	74.00	-20.81	peak	Horizontal
2	17575.000	41.65	11.71	53.36	74.00	-20.64	peak	Horizontal
3	11472.000	43.93	9.08	53.01	74.00	-20.99	peak	Vertical
4	17456.000	41.16	11.50	52.66	74.00	-21.34	peak	Vertical

Horizontal:

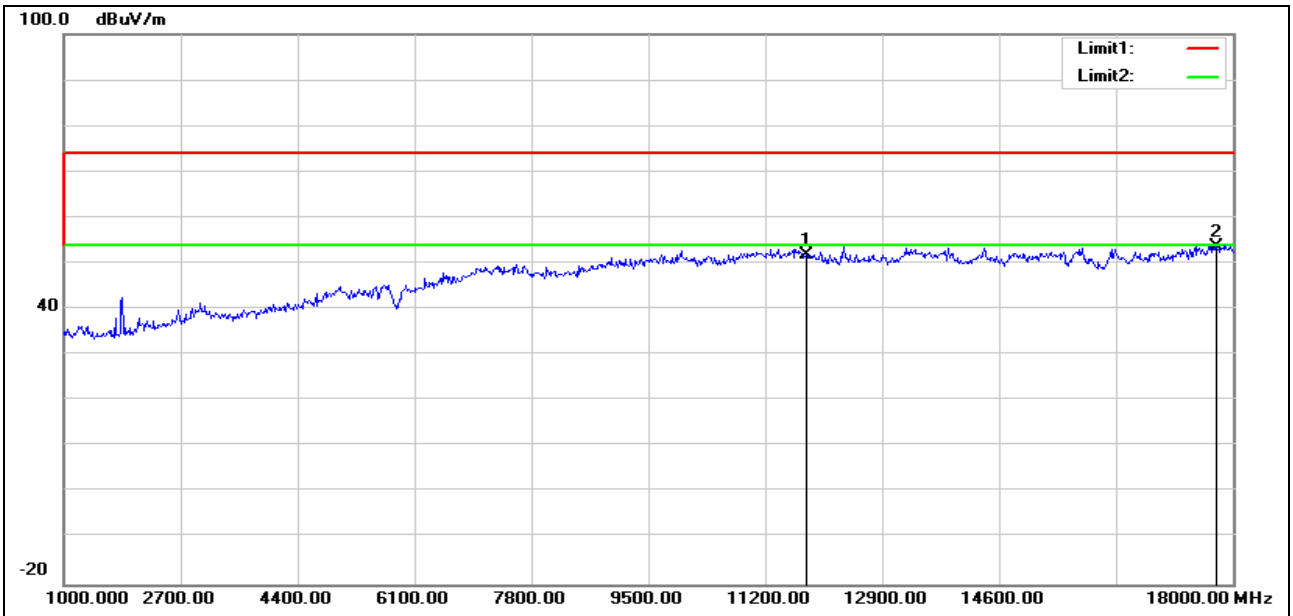


Vertical:

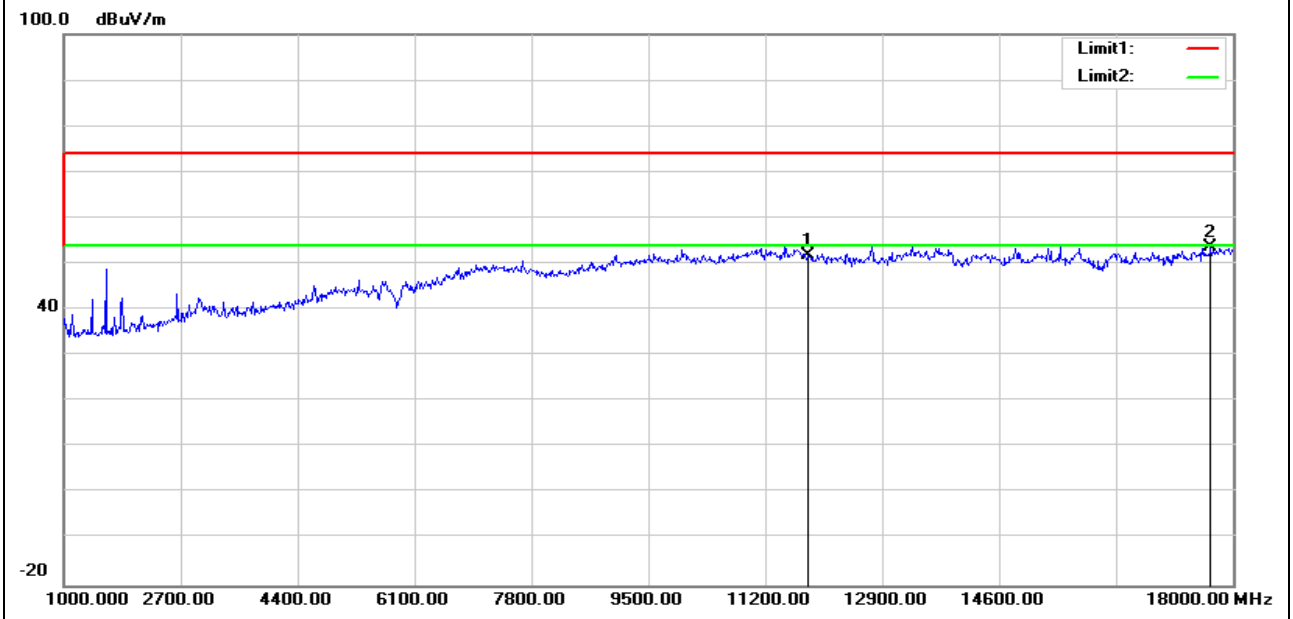


802.11a **Channel: 157**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11795.000	42.70	9.24	51.94	74.00	-22.06	peak	Horizontal
2	17762.000	41.92	11.69	53.61	74.00	-20.39	peak	Horizontal
3	11812.000	42.49	9.25	51.74	74.00	-22.26	peak	Vertical
4	17677.000	41.95	11.70	53.65	74.00	-20.35	peak	Vertical
Horizontal:								



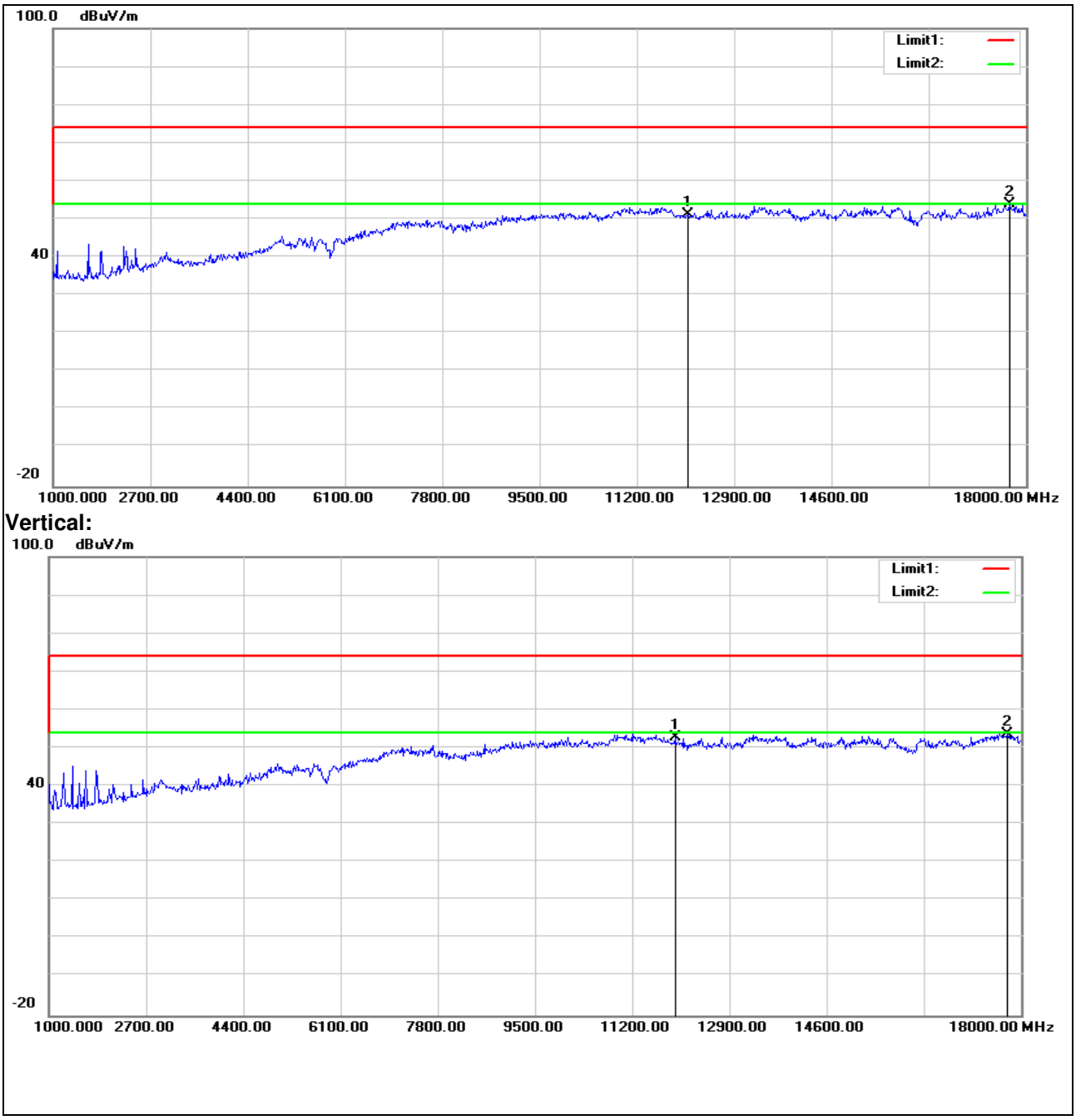
Vertical:



802.11a **Channel: 165**

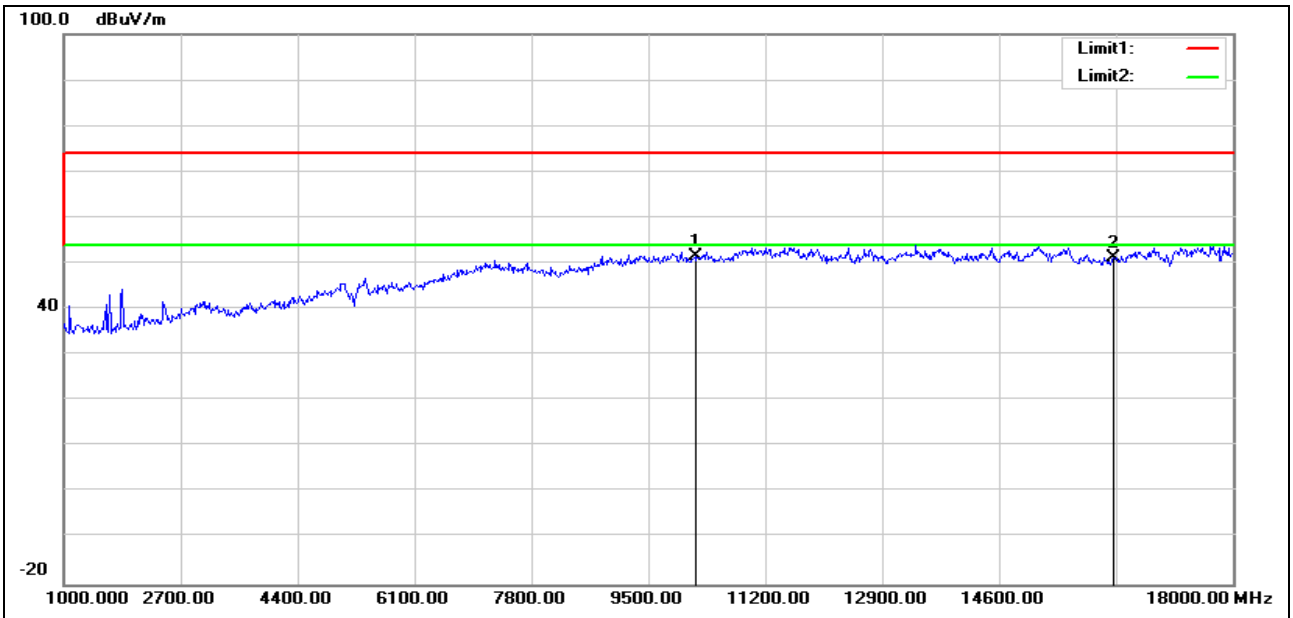
Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	12101.000	41.81	9.35	51.16	74.00	-22.84	peak	Horizontal
2	17711.000	42.15	11.70	53.85	74.00	-20.15	peak	Horizontal
3	11948.000	43.28	9.34	52.62	74.00	-21.38	peak	Vertical
4	17762.000	41.82	11.69	53.51	74.00	-20.49	peak	Vertical

Horizontal:

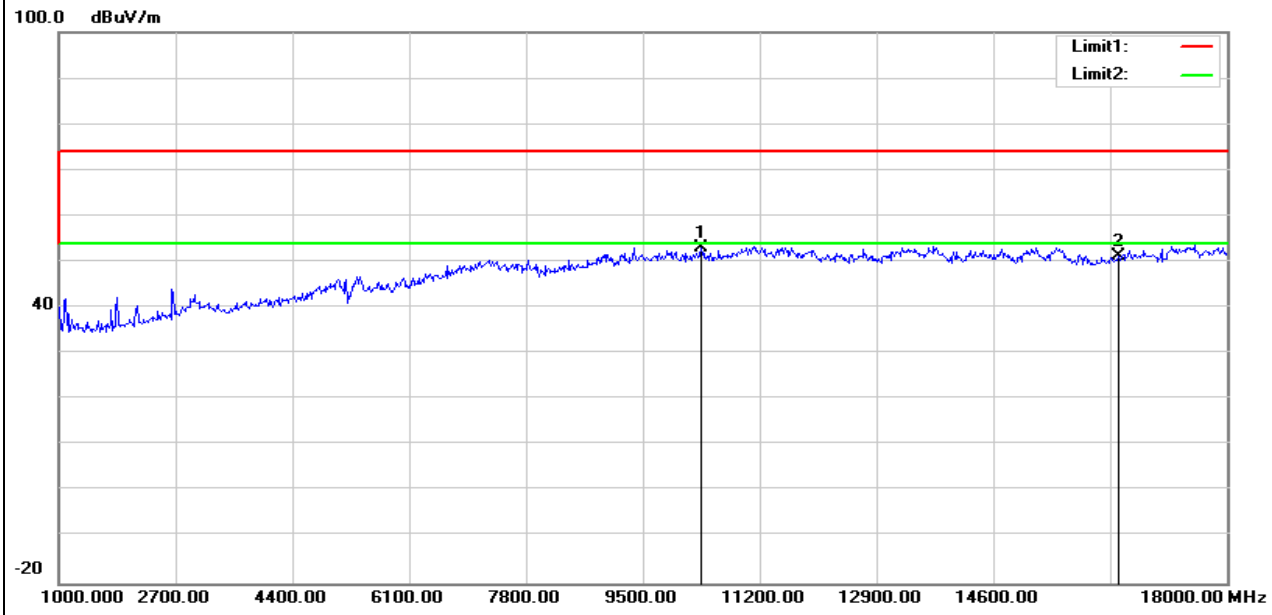


802.11 n(HT20) **Channel: 36**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10180.000	44.96	6.69	51.65	74.00	-22.35	peak	Horizontal
2	16266.000	43.15	8.17	51.32	74.00	-22.68	peak	Horizontal
3	10350.000	46.20	6.76	52.96	74.00	-21.04	peak	Vertical
4	16419.000	42.65	8.55	51.20	74.00	-22.80	peak	Vertical
Horizontal:								



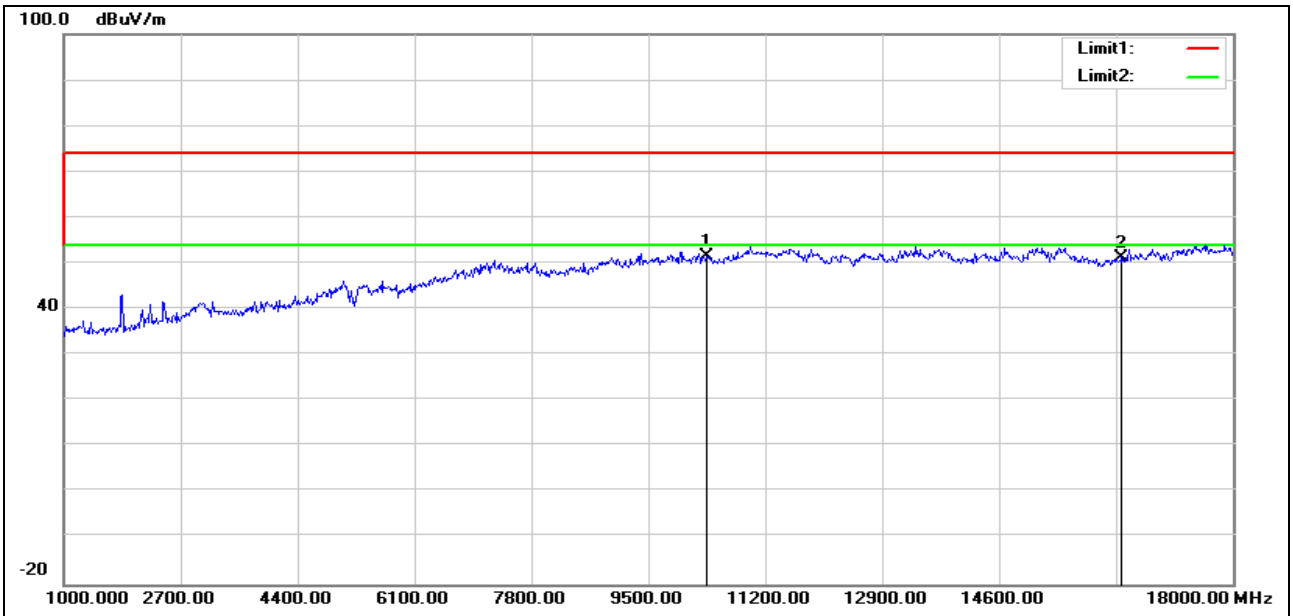
Vertical:



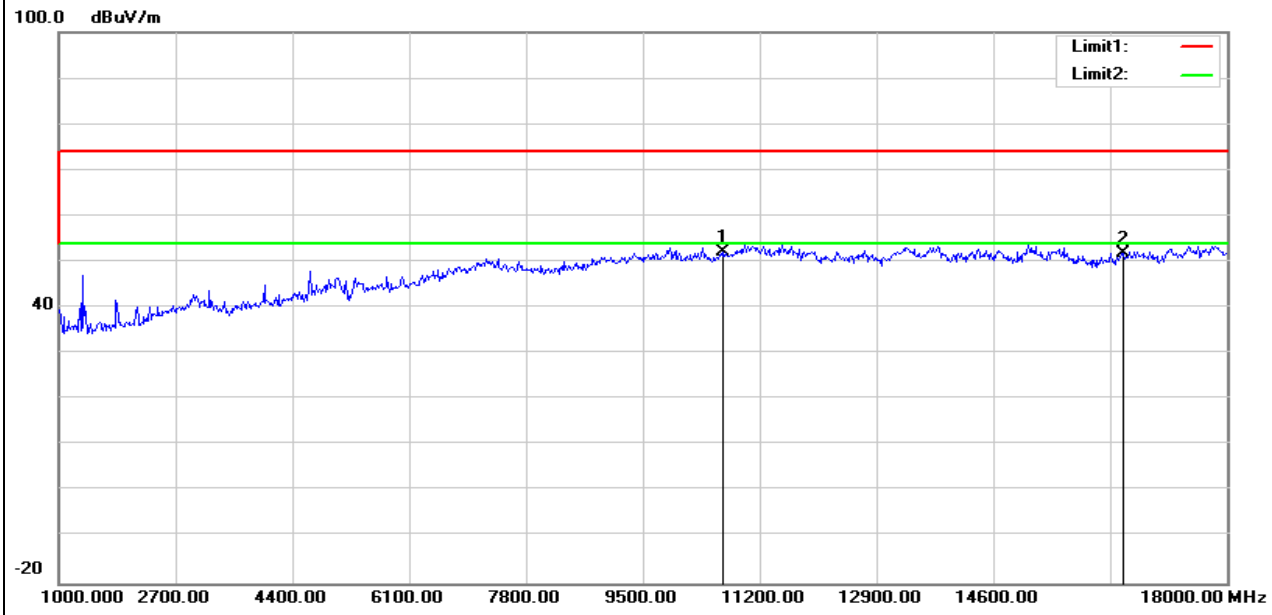
802.11 n(HT20) **Channel: 40**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10350.000	44.72	6.76	51.48	74.00	-22.52	peak	Horizontal
2	16385.000	42.93	8.47	51.40	74.00	-22.60	peak	Horizontal
3	10673.000	44.14	7.87	52.01	74.00	-21.99	peak	Vertical
4	16487.000	43.12	8.72	51.84	74.00	-22.16	peak	Vertical

Horizontal:



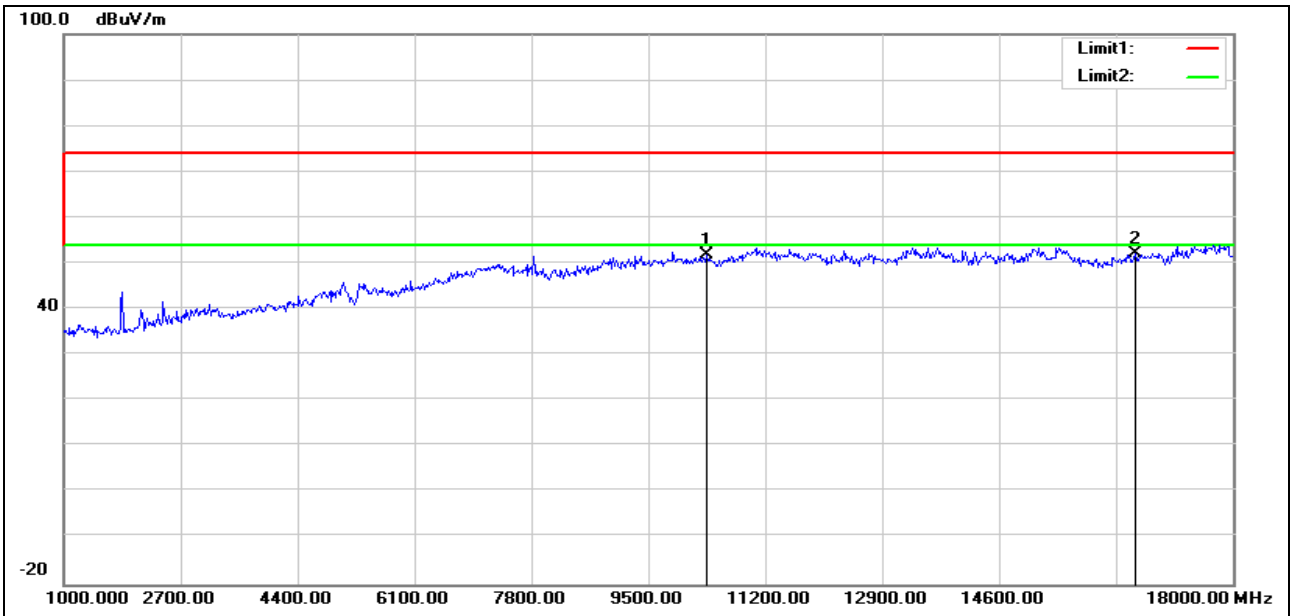
Vertical:



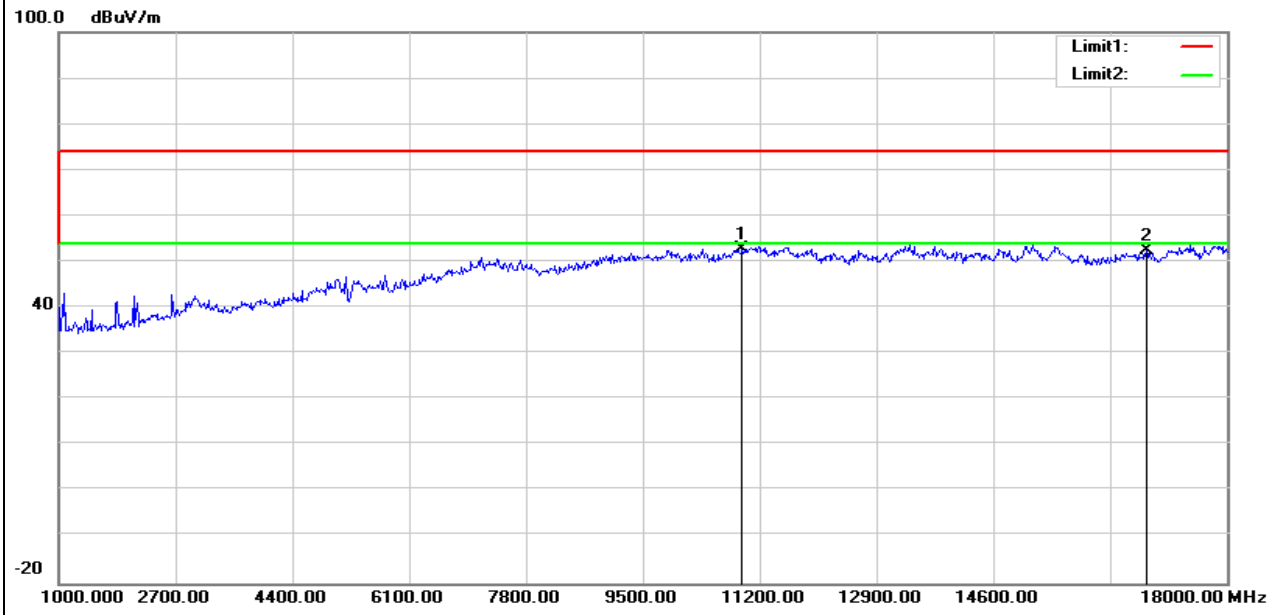
802.11 n(HT20) **Channel: 48**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10350.000	44.97	6.76	51.73	74.00	-22.27	peak	Horizontal
2	16589.000	43.22	8.84	52.06	74.00	-21.94	peak	Horizontal
3	10945.000	43.21	9.53	52.74	74.00	-21.26	peak	Vertical
4	16827.000	43.24	9.08	52.32	74.00	-21.68	peak	Vertical

Horizontal:



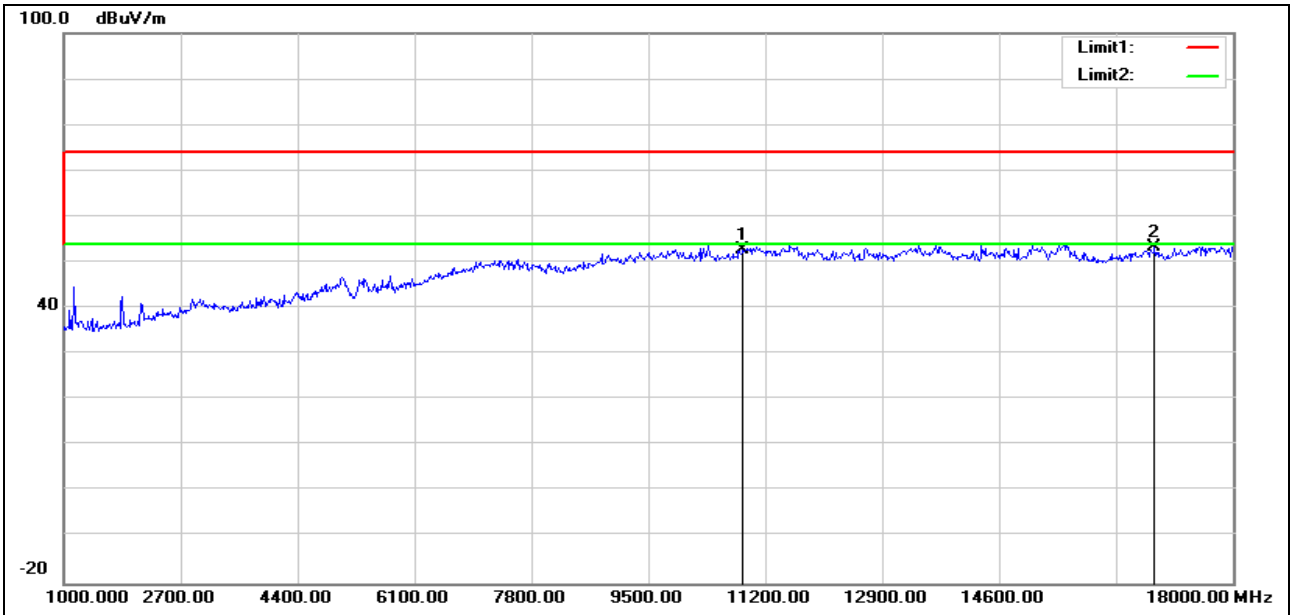
Vertical:



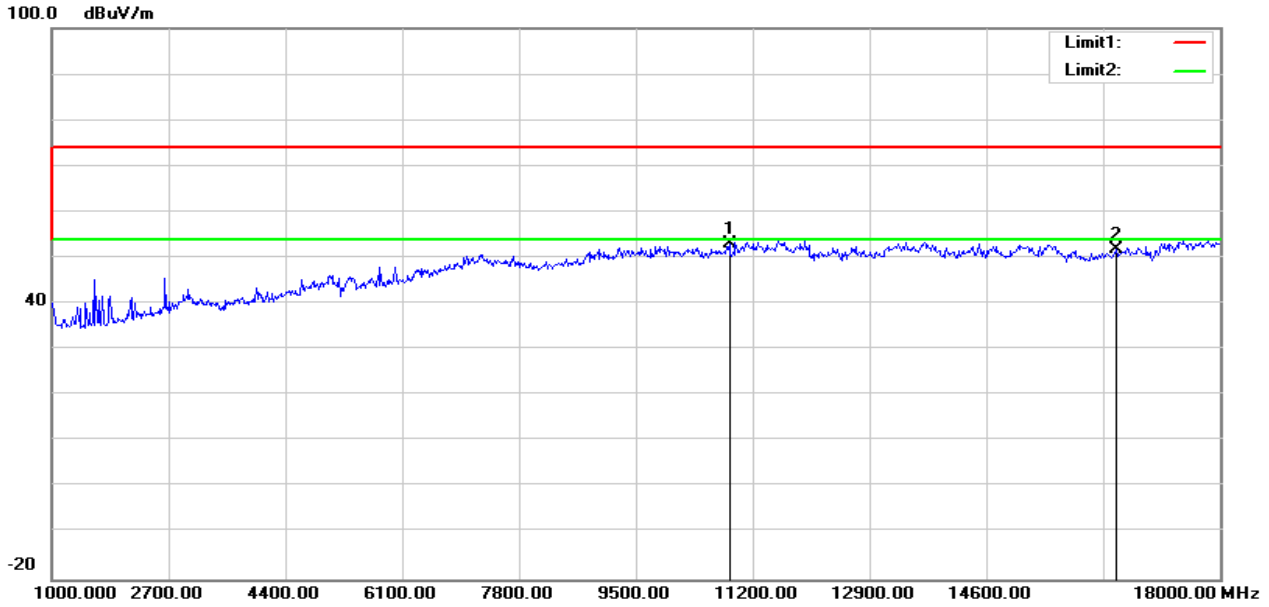
802.11 n(HT20) **Channel: 52**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10877.000	43.69	9.11	52.80	74.00	-21.20	peak	Horizontal
2	16861.000	44.23	9.12	53.35	74.00	-20.65	peak	Horizontal
3	10860.000	44.14	9.01	53.15	74.00	-20.85	peak	Vertical
4	16487.000	43.23	8.72	51.95	74.00	-22.05	peak	Vertical

Horizontal:

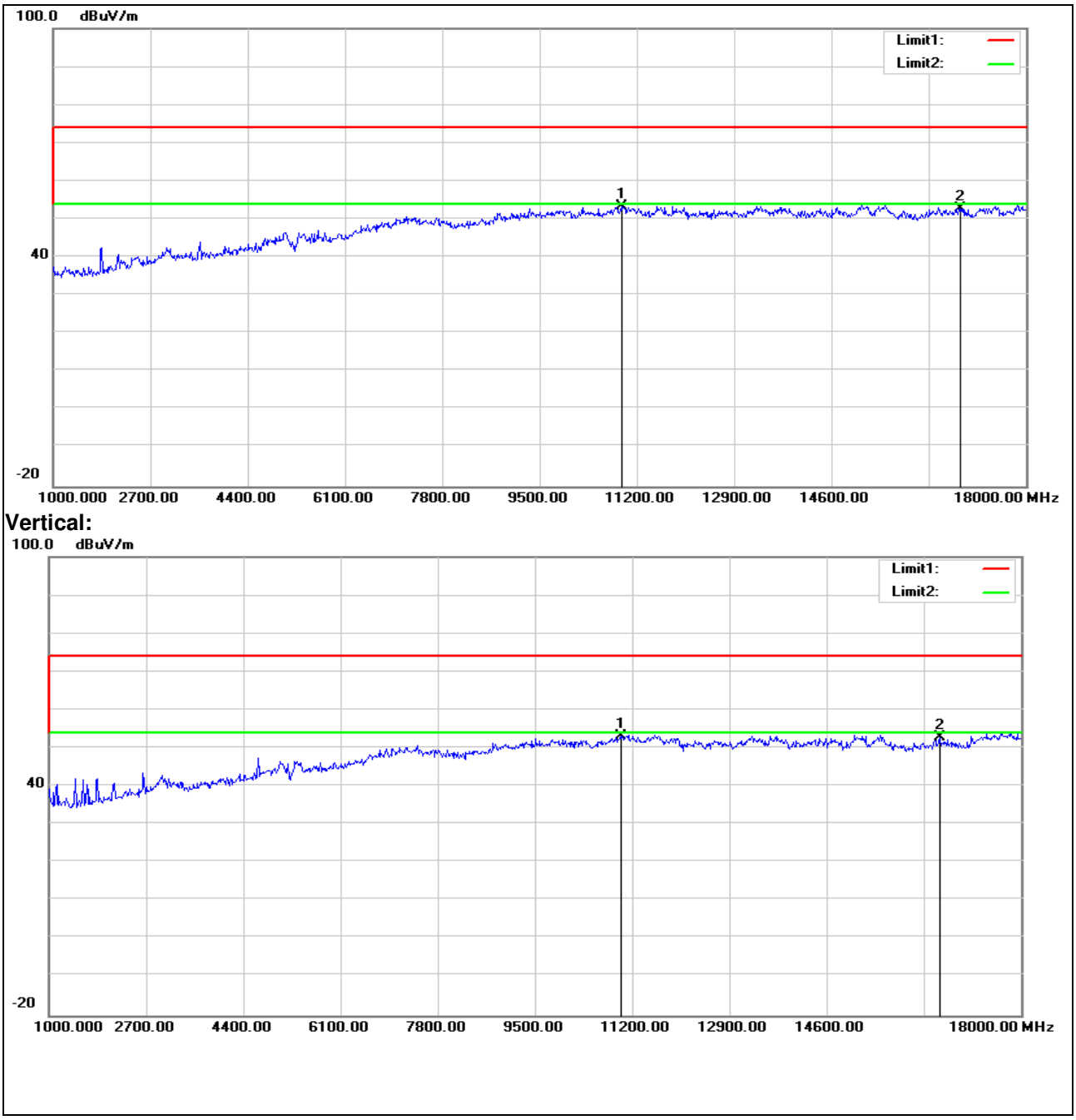


Vertical:



802.11 n(HT20) **Channel: 56**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10928.000	43.82	9.42	53.24	74.00	-20.76	peak	Horizontal
2	16861.000	43.62	9.12	52.74	74.00	-21.26	peak	Horizontal
3	10996.000	43.19	9.84	53.03	74.00	-20.97	peak	Vertical
4	16572.000	44.06	8.82	52.88	74.00	-21.12	peak	Vertical
Horizontal:								

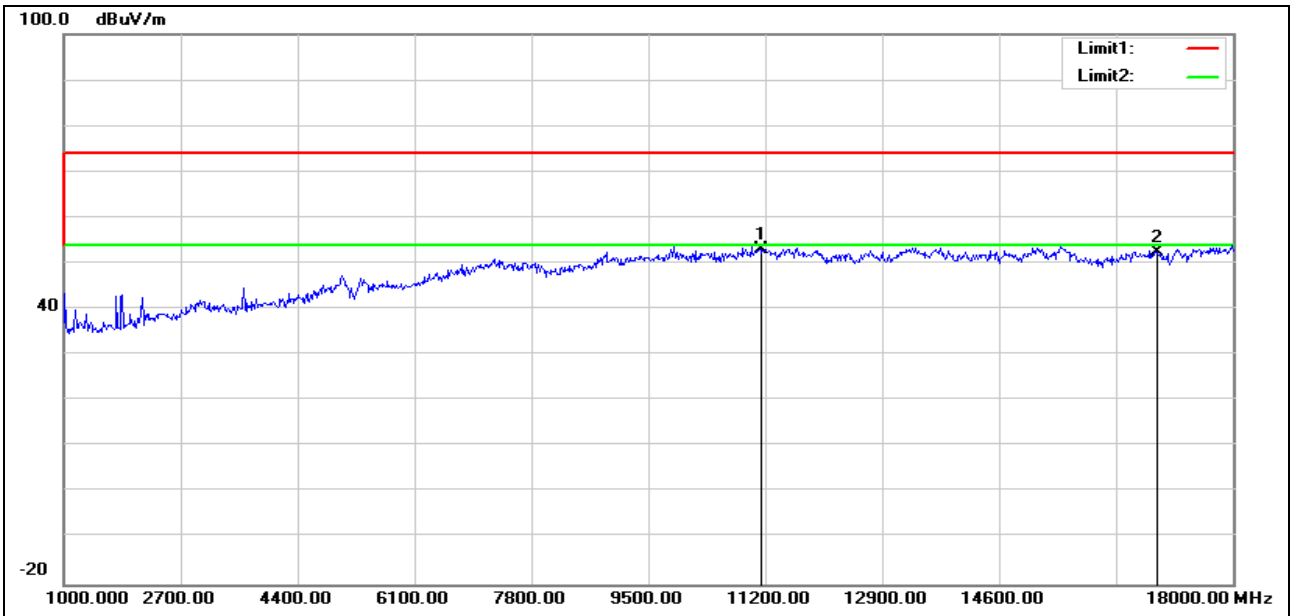


Vertical:

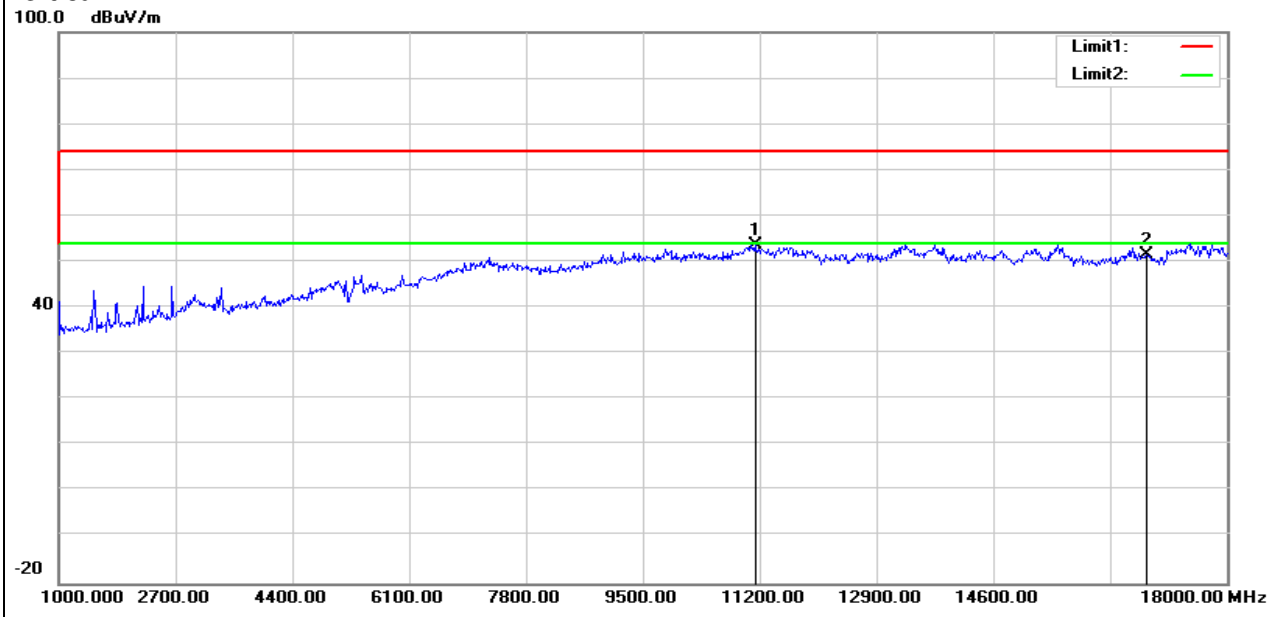
802.11 n(HT20) **Channel: 64**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11132.000	43.49	9.64	53.13	74.00	-20.87	peak	Horizontal
2	16895.000	43.26	9.15	52.41	74.00	-21.59	peak	Horizontal
3	11132.000	43.91	9.64	53.55	74.00	-20.45	peak	Vertical
4	16827.000	42.47	9.08	51.55	74.00	-22.45	peak	Vertical

Horizontal:



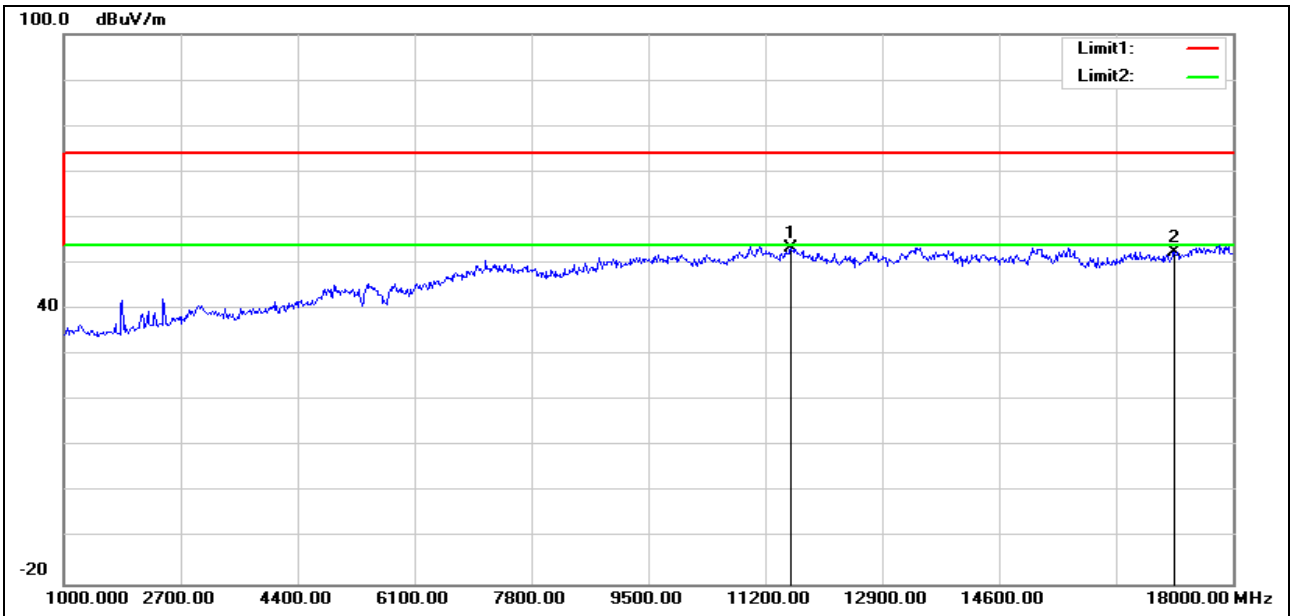
Vertical:



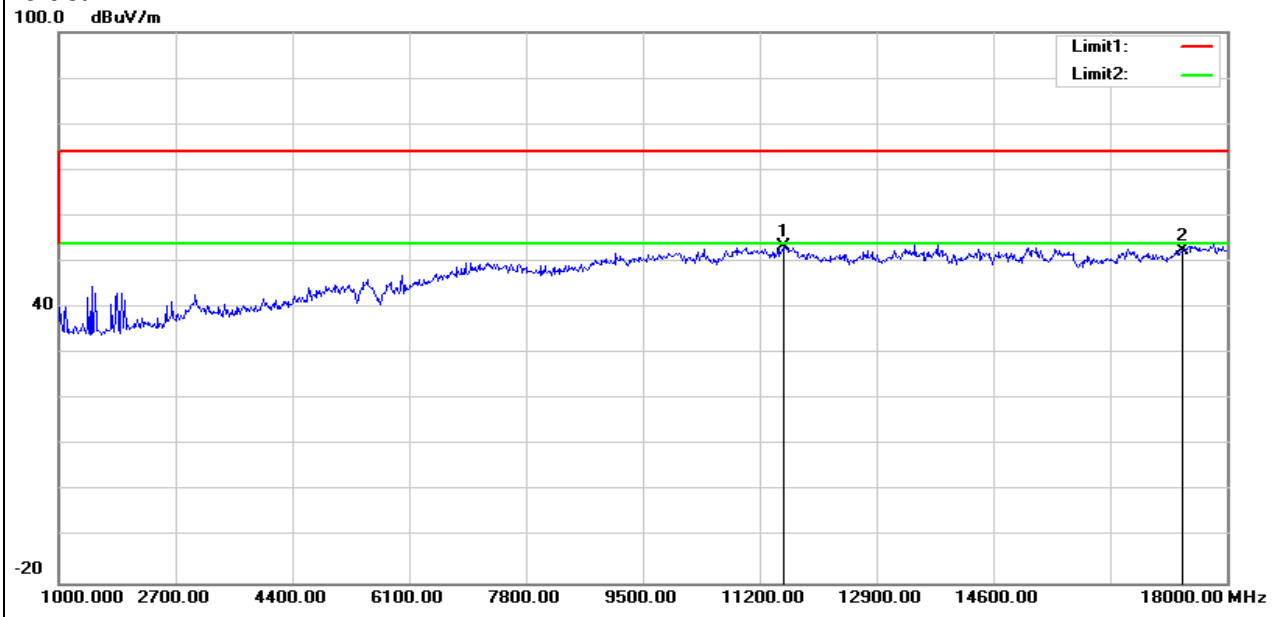
802.11 n(HT20) **Channel: 100**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11574.000	44.14	9.08	53.22	74.00	-20.78	peak	Horizontal
2	17150.000	42.49	10.00	52.49	74.00	-21.51	peak	Horizontal
3	11557.000	44.32	9.07	53.39	74.00	-20.61	peak	Vertical
4	17354.000	41.50	11.00	52.50	74.00	-21.50	peak	Vertical

Horizontal:



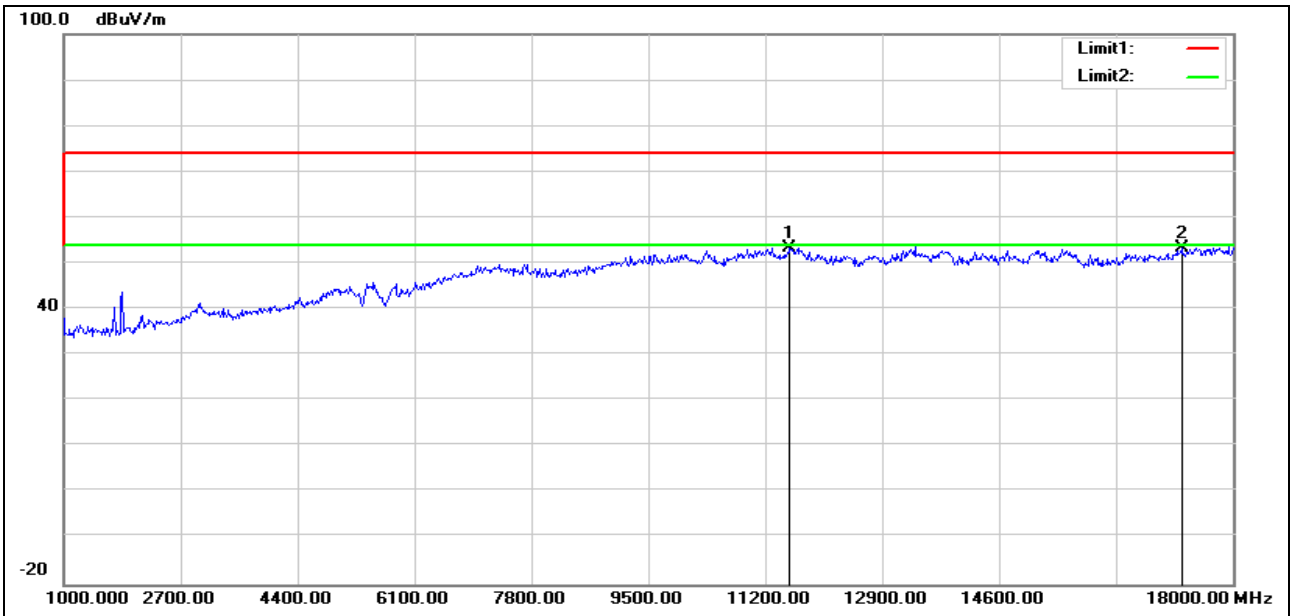
Vertical:



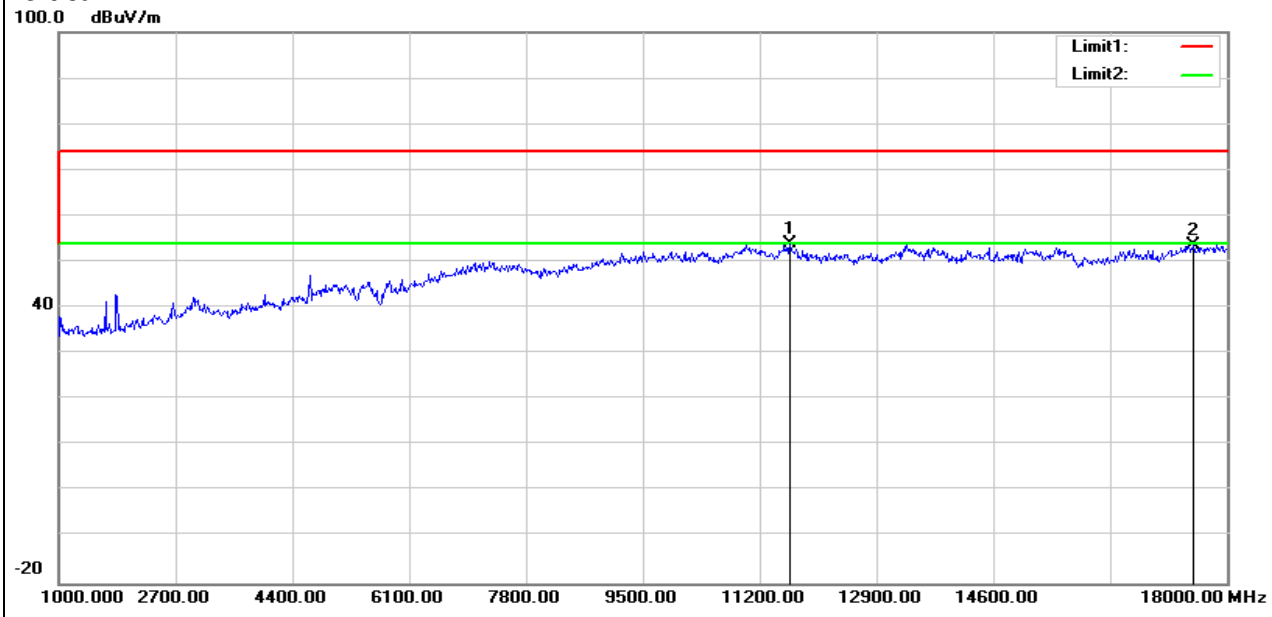
802.11 n(HT20) **Channel: 120**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11557.000	44.18	9.07	53.25	74.00	-20.75	peak	Horizontal
2	17252.000	42.71	10.50	53.21	74.00	-20.79	peak	Horizontal
3	11642.000	44.72	9.13	53.85	74.00	-20.15	peak	Vertical
4	17507.000	41.80	11.72	53.52	74.00	-20.48	peak	Vertical

Horizontal:



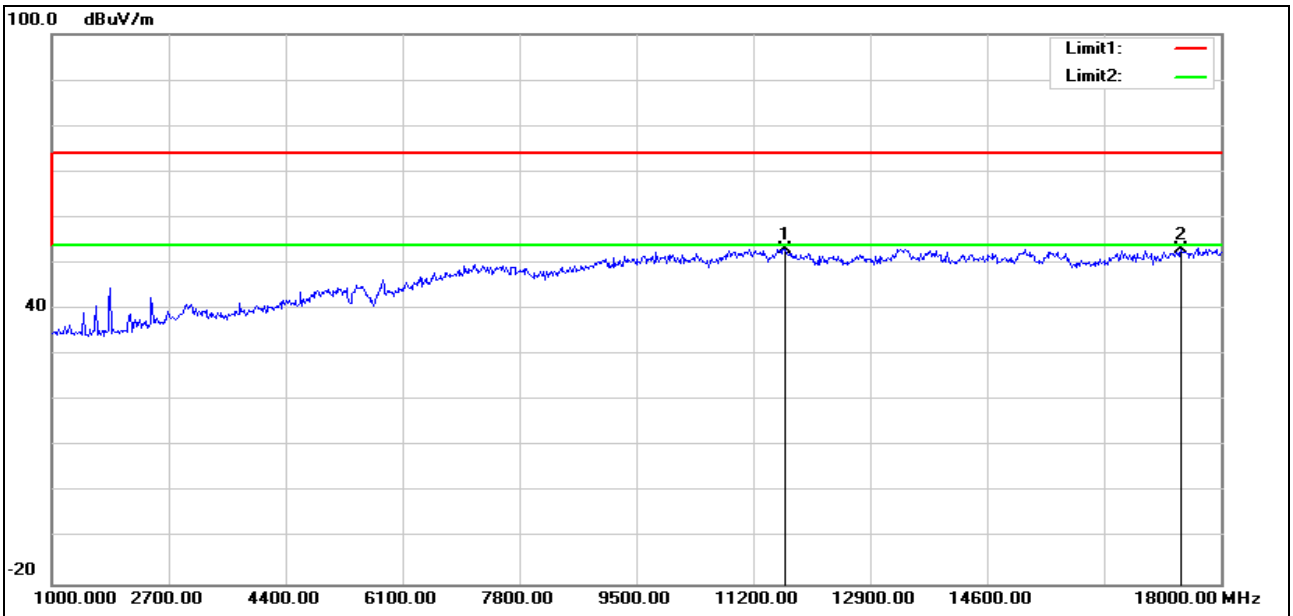
Vertical:



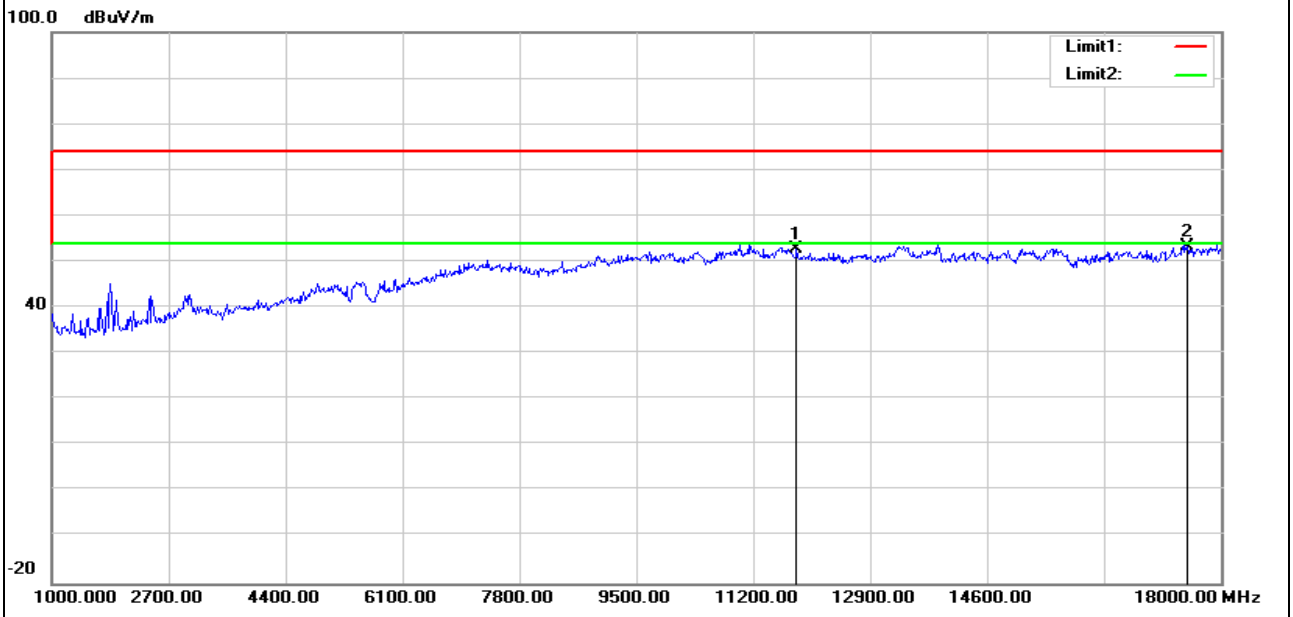
802.11 n(HT20) **Channel: 144**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11659.000	44.05	9.14	53.19	74.00	-20.81	peak	Horizontal
2	17422.000	41.75	11.34	53.09	74.00	-20.91	peak	Horizontal
3	11829.000	43.59	9.26	52.85	74.00	-21.15	peak	Vertical
4	17507.000	41.50	11.72	53.22	74.00	-20.78	peak	Vertical

Horizontal:



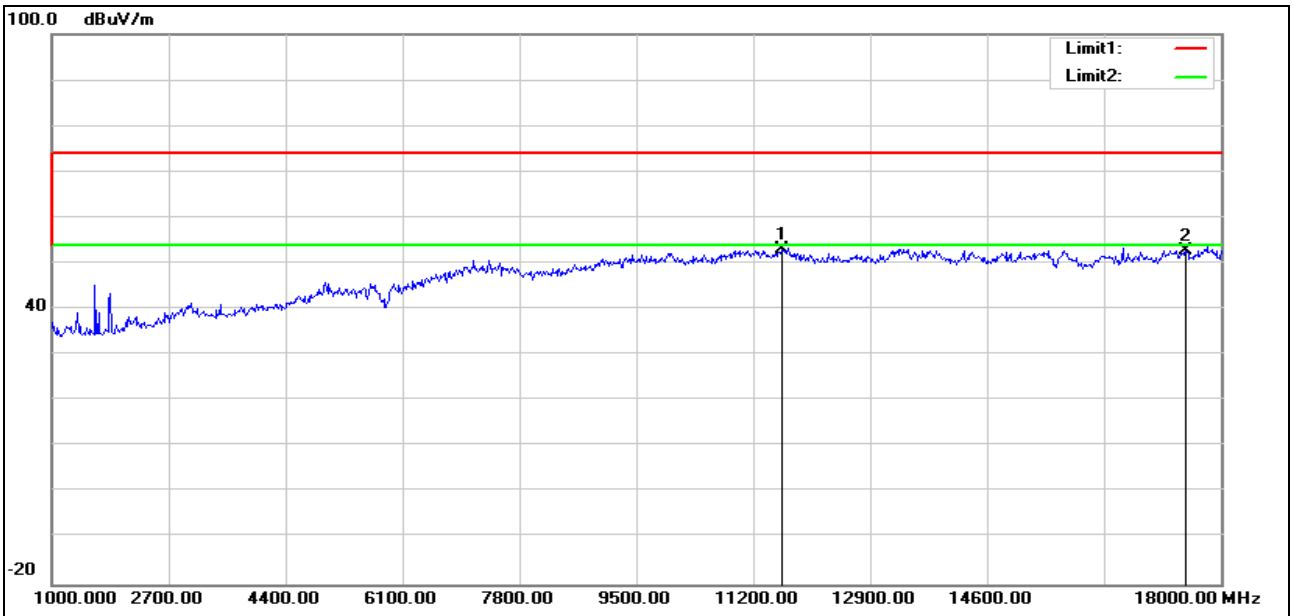
Vertical:



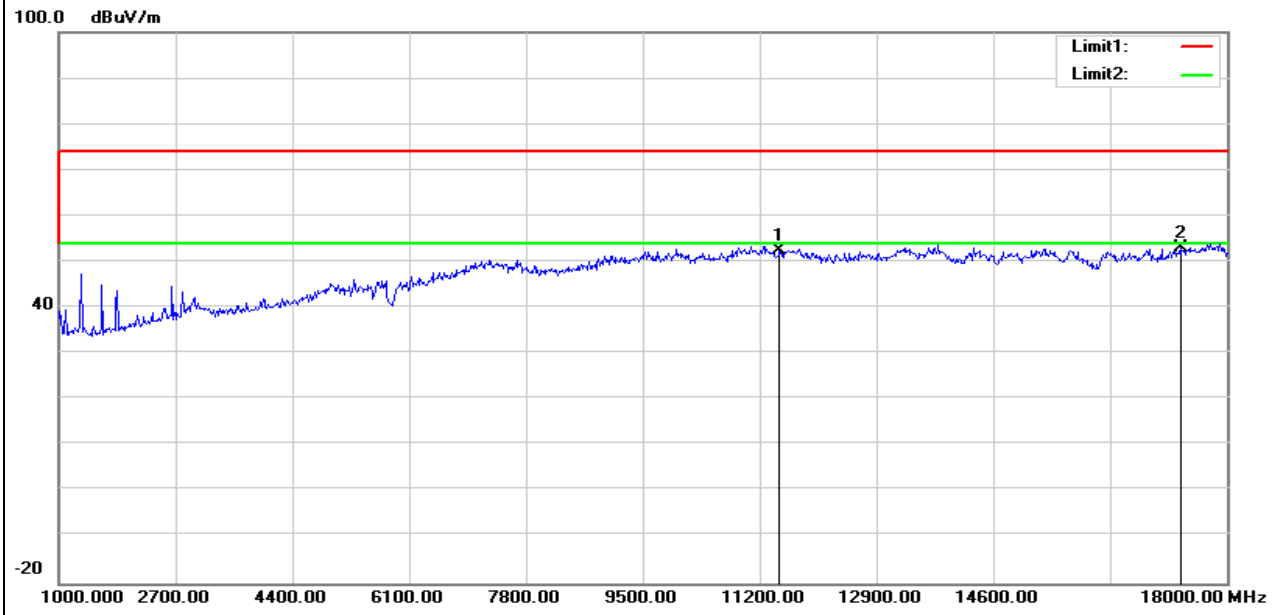
802.11 n(HT20) **Channel: 149**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11625.000	43.85	9.12	52.97	74.00	-21.03	peak	Horizontal
2	17490.000	41.13	11.67	52.80	74.00	-21.20	peak	Horizontal
3	11489.000	43.29	9.05	52.34	74.00	-21.66	peak	Vertical
4	17320.000	42.30	10.83	53.13	74.00	-20.87	peak	Vertical

Horizontal:

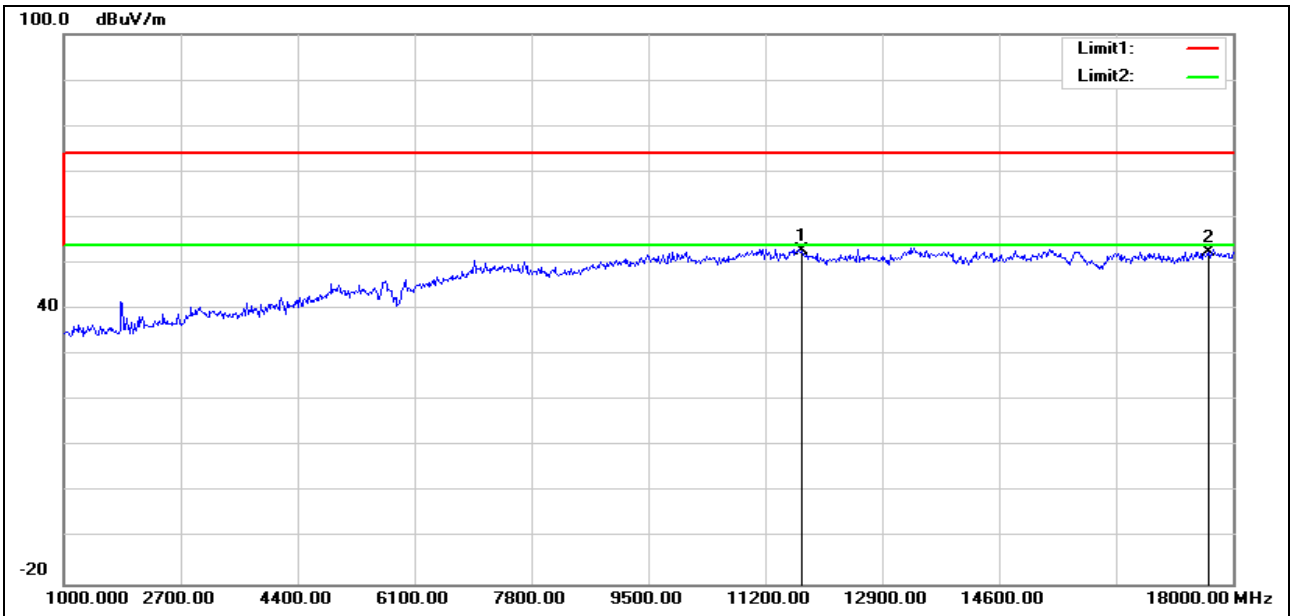


Vertical:

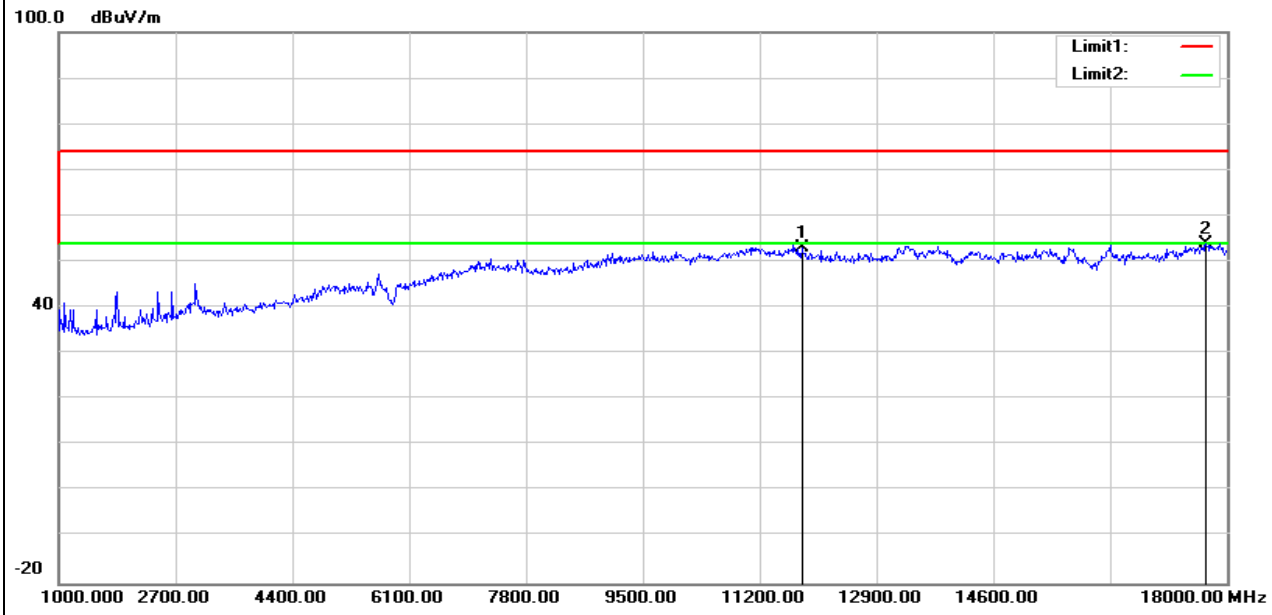


802.11 n(HT20) **Channel: 157**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11727.000	43.56	9.19	52.75	74.00	-21.25	peak	Horizontal
2	17643.000	40.71	11.71	52.42	74.00	-21.58	peak	Horizontal
3	11812.000	43.66	9.25	52.91	74.00	-21.09	peak	Vertical
4	17694.000	42.18	11.70	53.88	74.00	-20.12	peak	Vertical
Horizontal:								



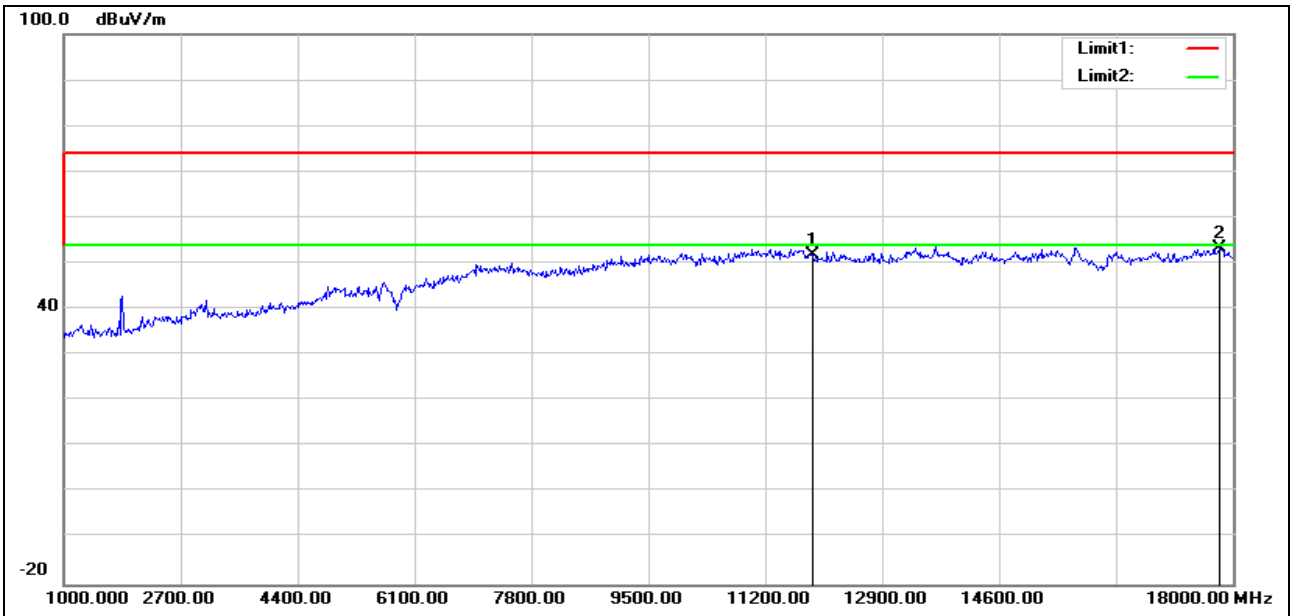
Vertical:



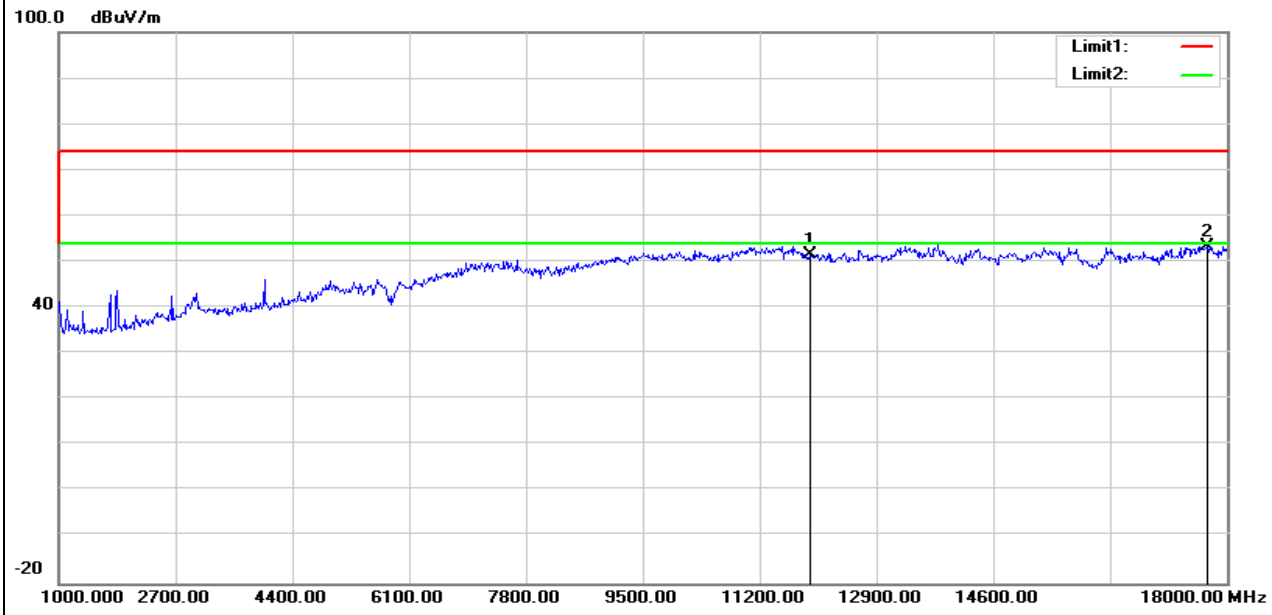
802.11 n(HT20) **Channel: 165**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11880.000	42.69	9.30	51.99	74.00	-22.01	peak	Horizontal
2	17796.000	41.75	11.69	53.44	74.00	-20.56	peak	Horizontal
3	11931.000	42.33	9.33	51.66	74.00	-22.34	peak	Vertical
4	17711.000	41.76	11.70	53.46	74.00	-20.54	peak	Vertical

Horizontal:



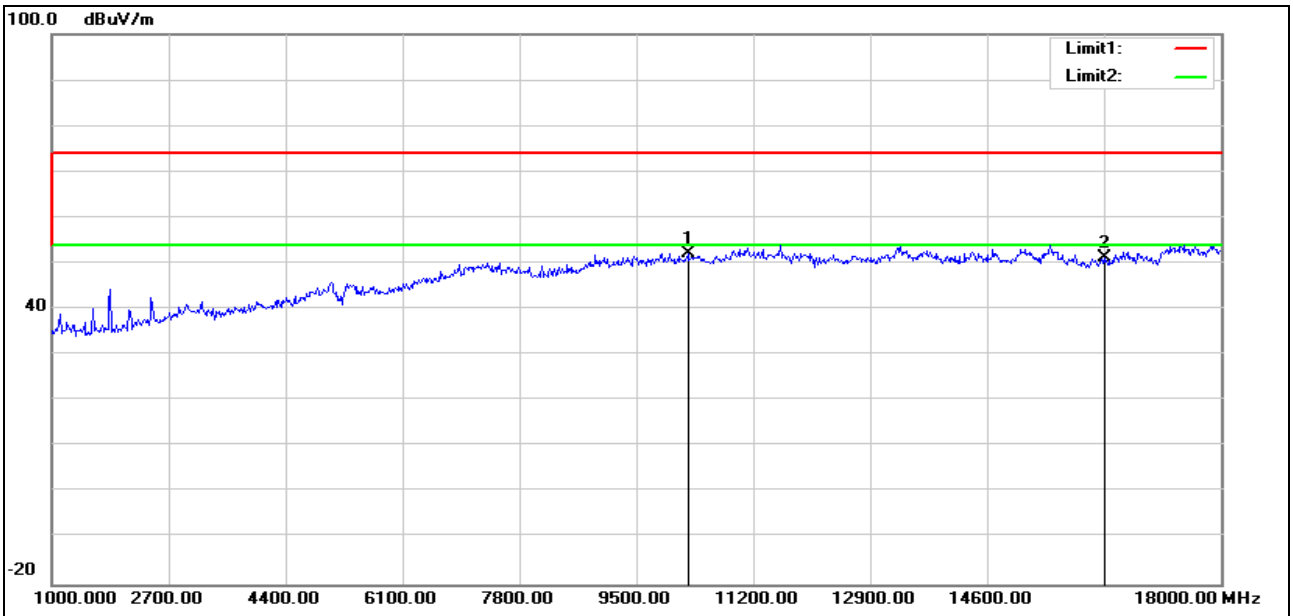
Vertical:



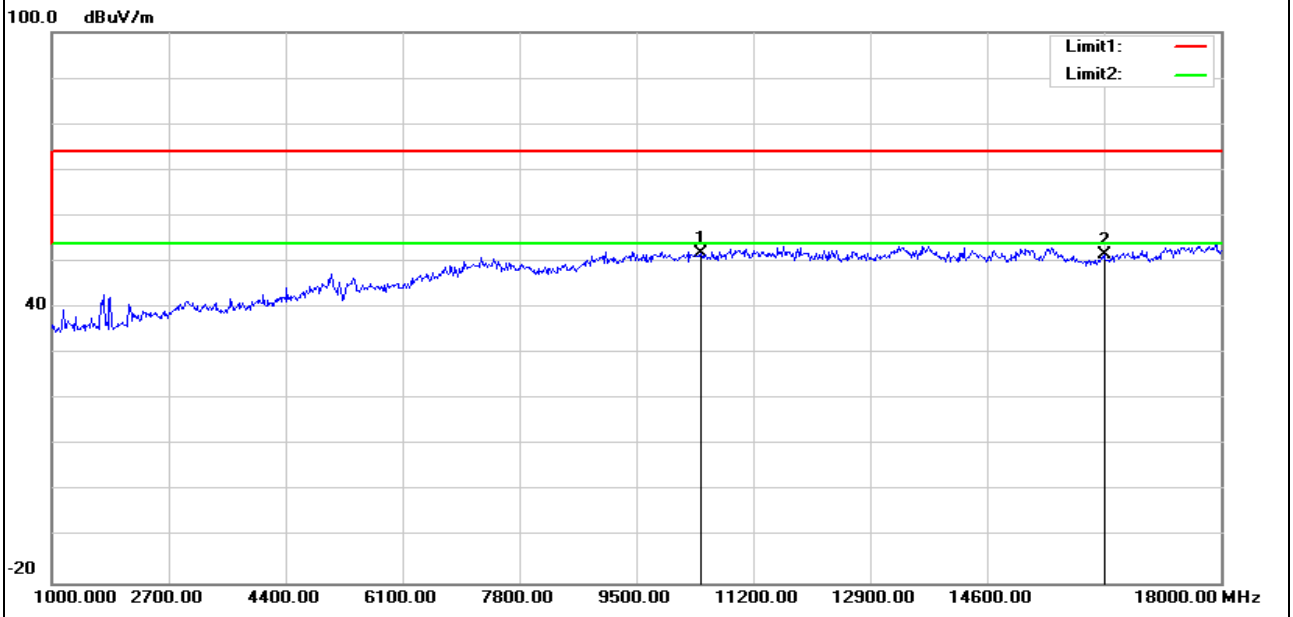
802.11 n(HT40) **Channel: 38**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10248.000	45.34	6.71	52.05	74.00	-21.95	peak	Horizontal
2	16300.000	43.08	8.26	51.34	74.00	-22.66	peak	Horizontal
3	10435.000	44.93	6.79	51.72	74.00	-22.28	peak	Vertical
4	16300.000	43.25	8.26	51.51	74.00	-22.49	peak	Vertical

Horizontal:

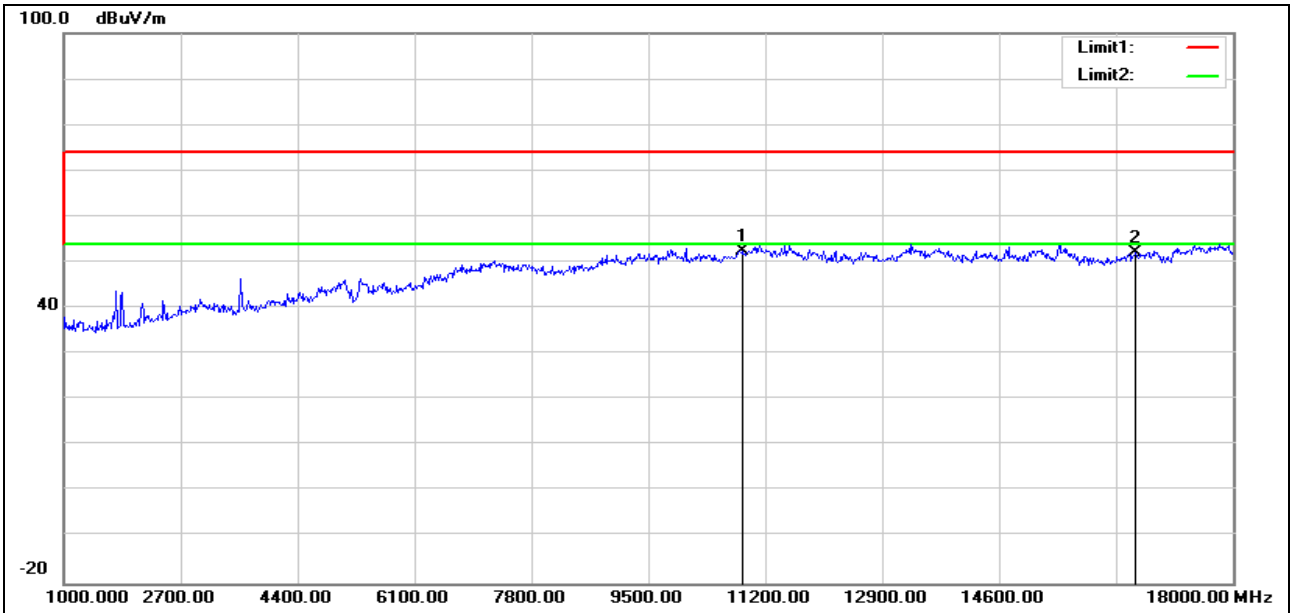


Vertical:

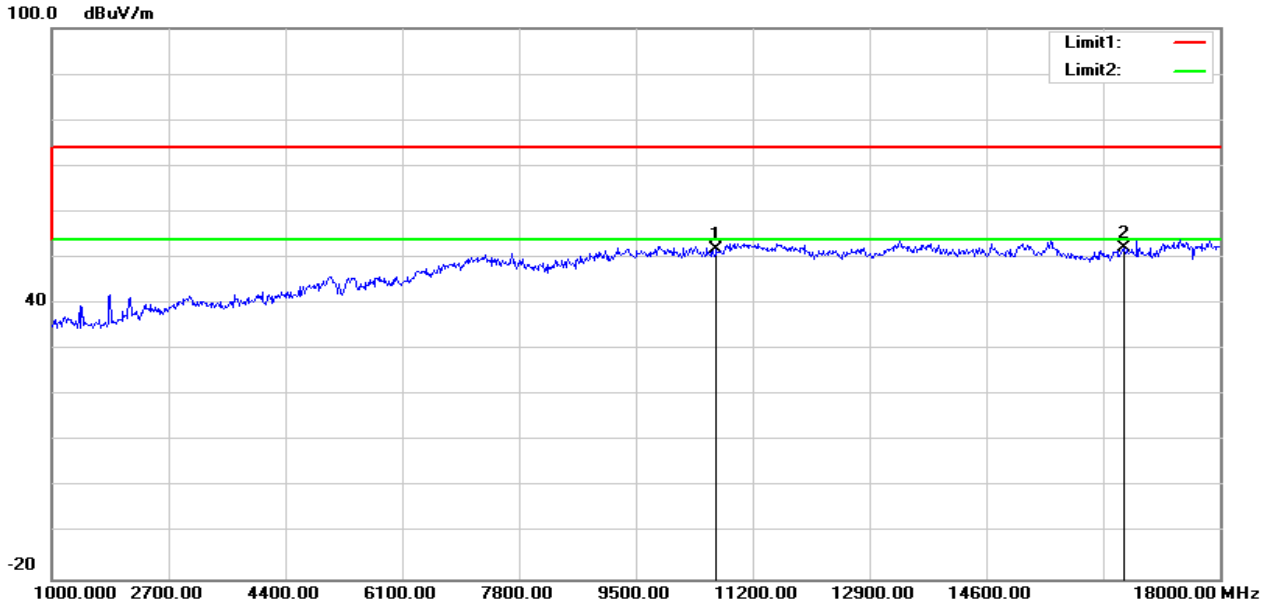


802.11 n(HT40) **Channel: 46**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10877.000	43.44	9.11	52.55	74.00	-21.45	peak	Horizontal
2	16589.000	43.44	8.84	52.28	74.00	-21.72	peak	Horizontal
3	10673.000	43.89	7.87	51.76	74.00	-22.24	peak	Vertical
4	16606.000	43.35	8.86	52.21	74.00	-21.79	peak	Vertical
Horizontal:								

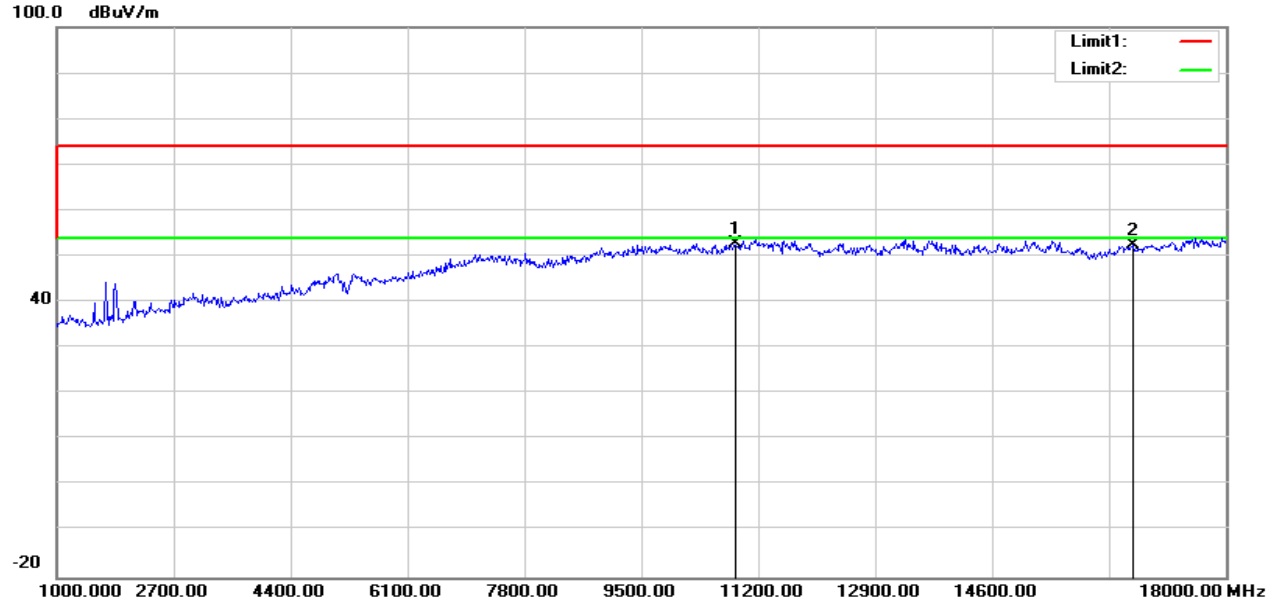


Vertical:

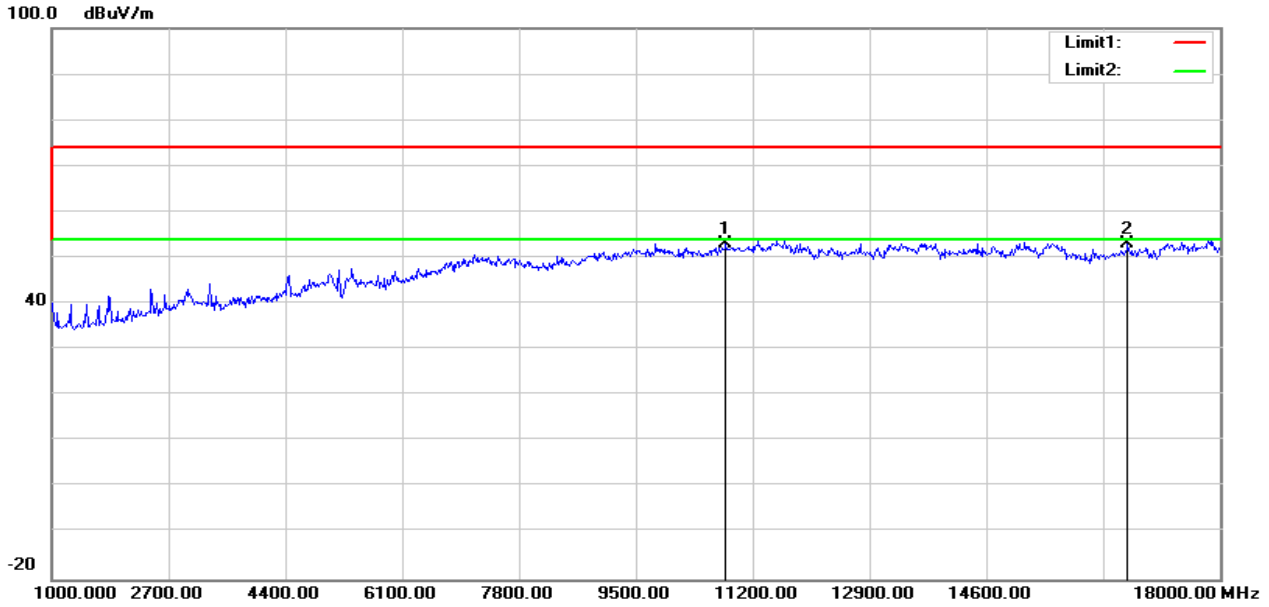


802.11 n(HT40) **Channel: 54**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10877.000	43.49	9.11	52.60	74.00	-21.40	peak	Horizontal
2	16640.000	43.48	8.89	52.37	74.00	-21.63	peak	Horizontal
3	10809.000	44.35	8.70	53.05	74.00	-20.95	peak	Vertical
4	16657.000	44.18	8.91	53.09	74.00	-20.91	peak	Vertical
Horizontal:								



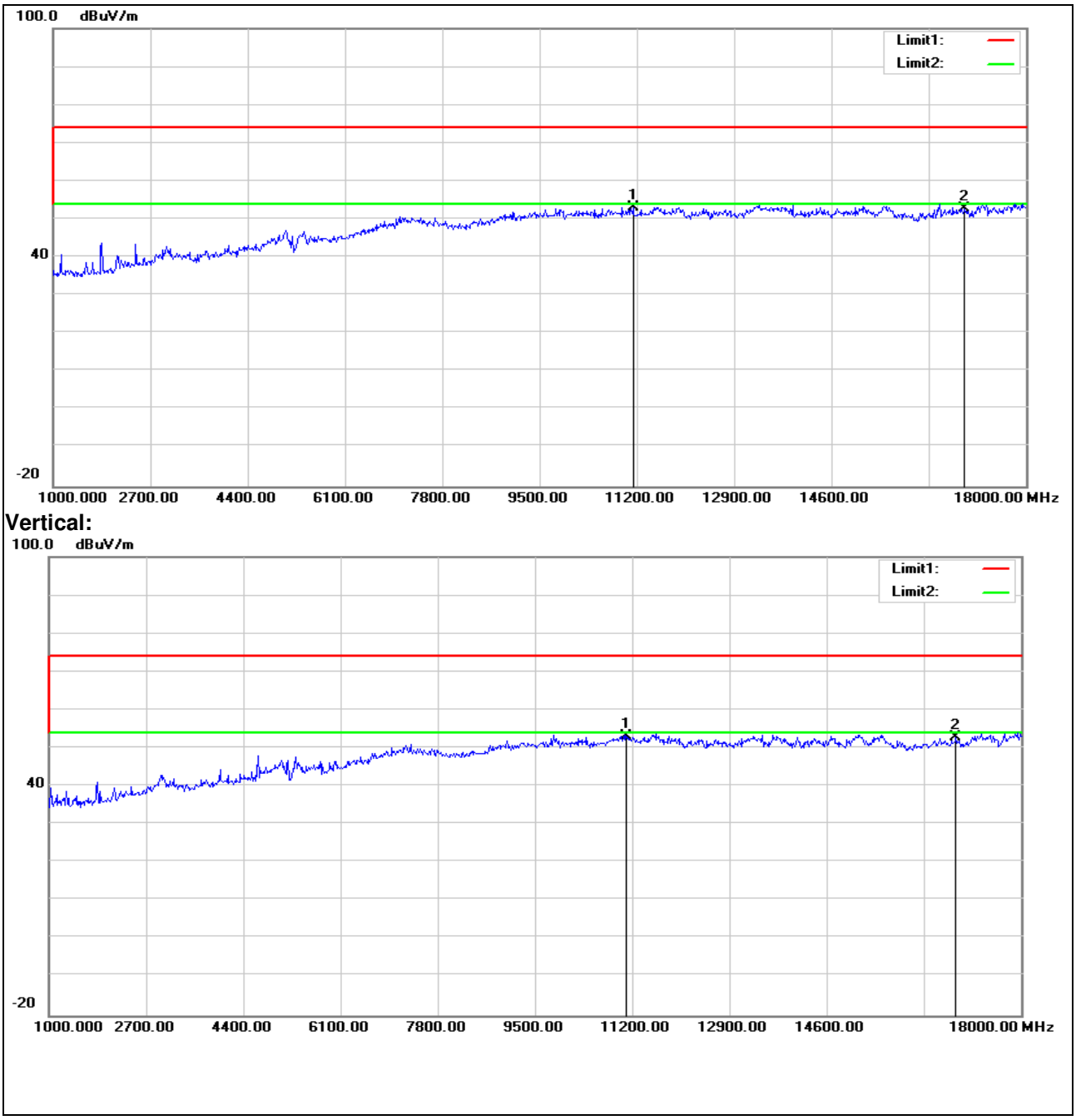
Vertical:



802.11 n(HT40) **Channel: 62**

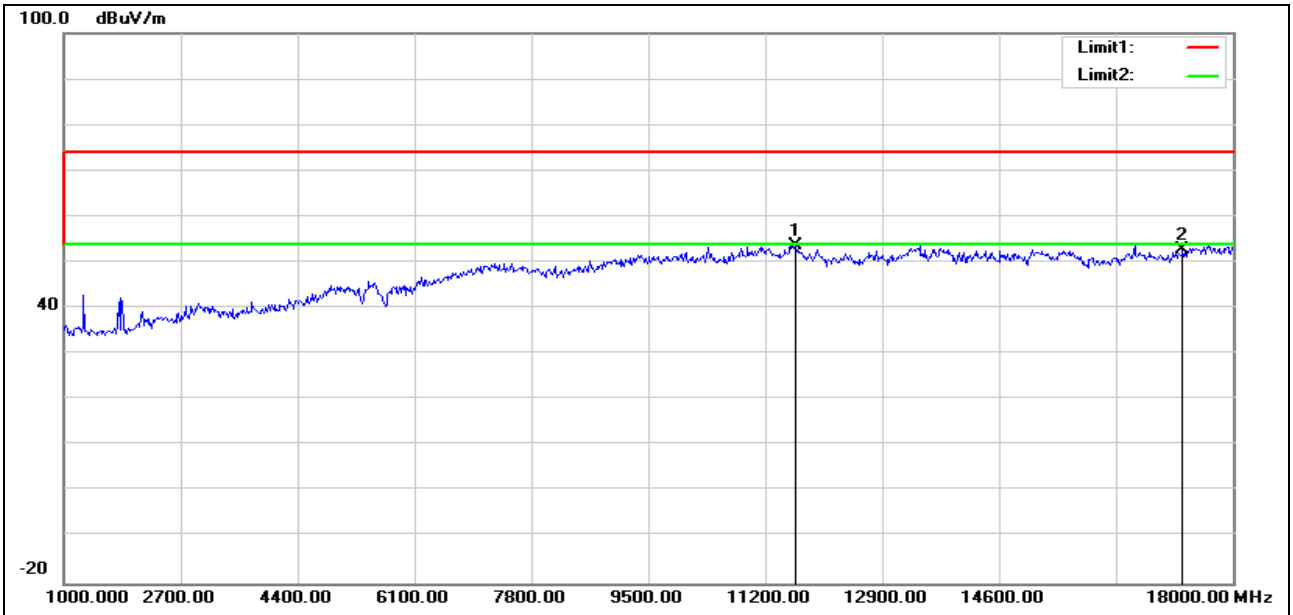
Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11132.000	43.33	9.64	52.97	74.00	-21.03	peak	Horizontal
2	16929.000	43.51	9.19	52.70	74.00	-21.30	peak	Horizontal
3	11098.000	43.36	9.70	53.06	74.00	-20.94	peak	Vertical
4	16861.000	43.61	9.12	52.73	74.00	-21.27	peak	Vertical

Horizontal:

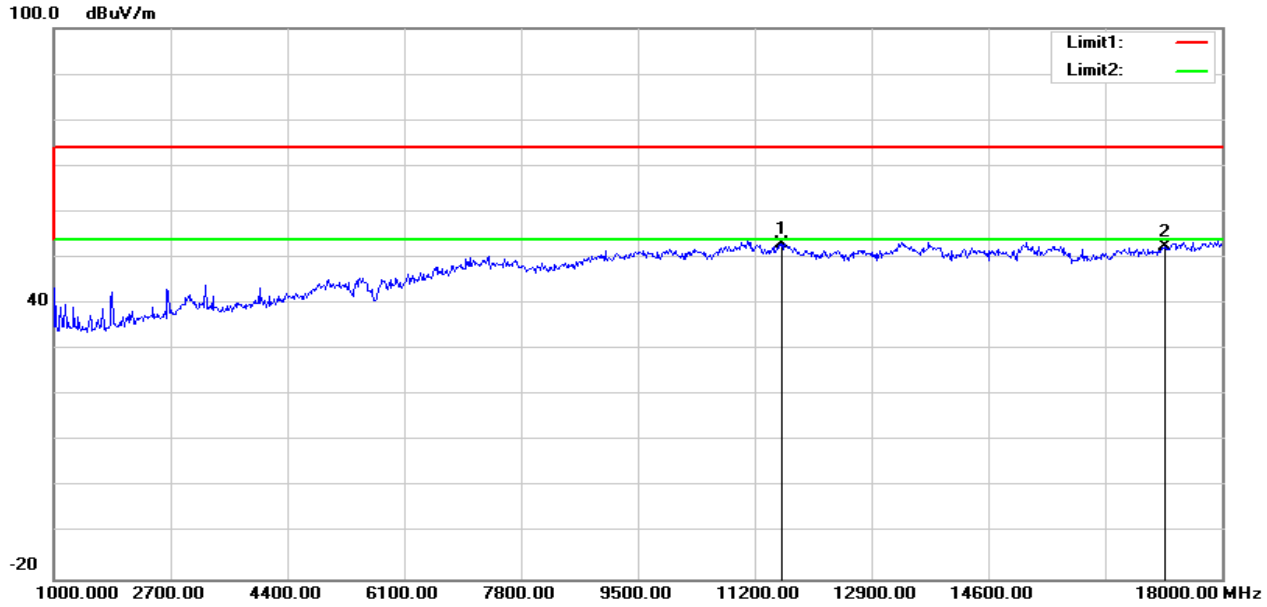


802.11 n(HT40) **Channel: 102**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11642.000	44.54	9.13	53.67	74.00	-20.33	peak	Horizontal
2	17269.000	42.11	10.58	52.69	74.00	-21.31	peak	Horizontal
3	11591.000	44.03	9.09	53.12	74.00	-20.88	peak	Vertical
4	17167.000	42.25	10.08	52.33	74.00	-21.67	peak	Vertical
Horizontal:								



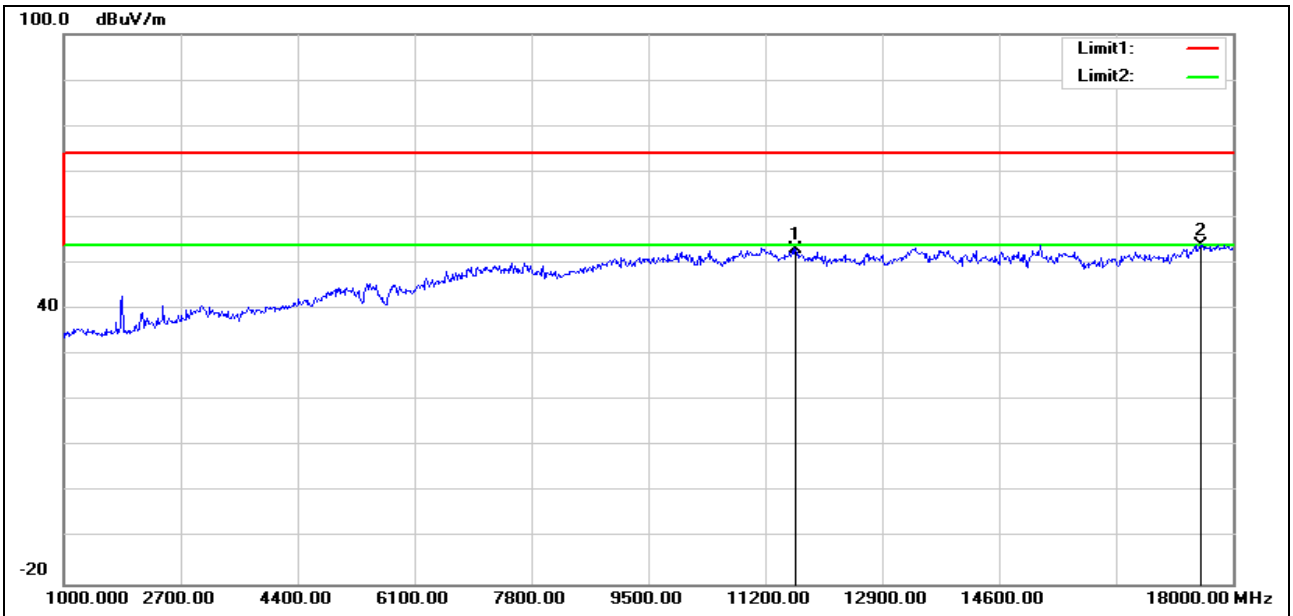
Vertical:



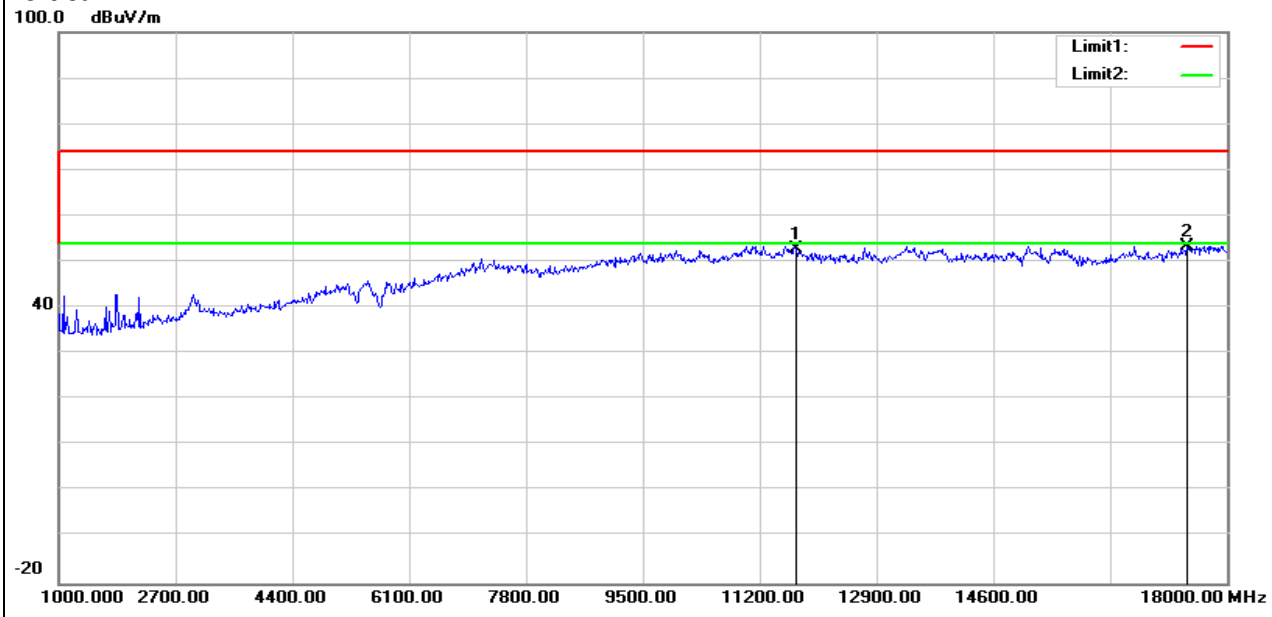
802.11 n(HT40) **Channel: 142**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11642.000	44.06	9.13	53.19	74.00	-20.81	peak	Horizontal
2	17524.000	42.23	11.72	53.95	74.00	-20.05	peak	Horizontal
3	11727.000	43.41	9.19	52.60	74.00	-21.40	peak	Vertical
4	17422.000	41.98	11.34	53.32	74.00	-20.68	peak	Vertical

Horizontal:



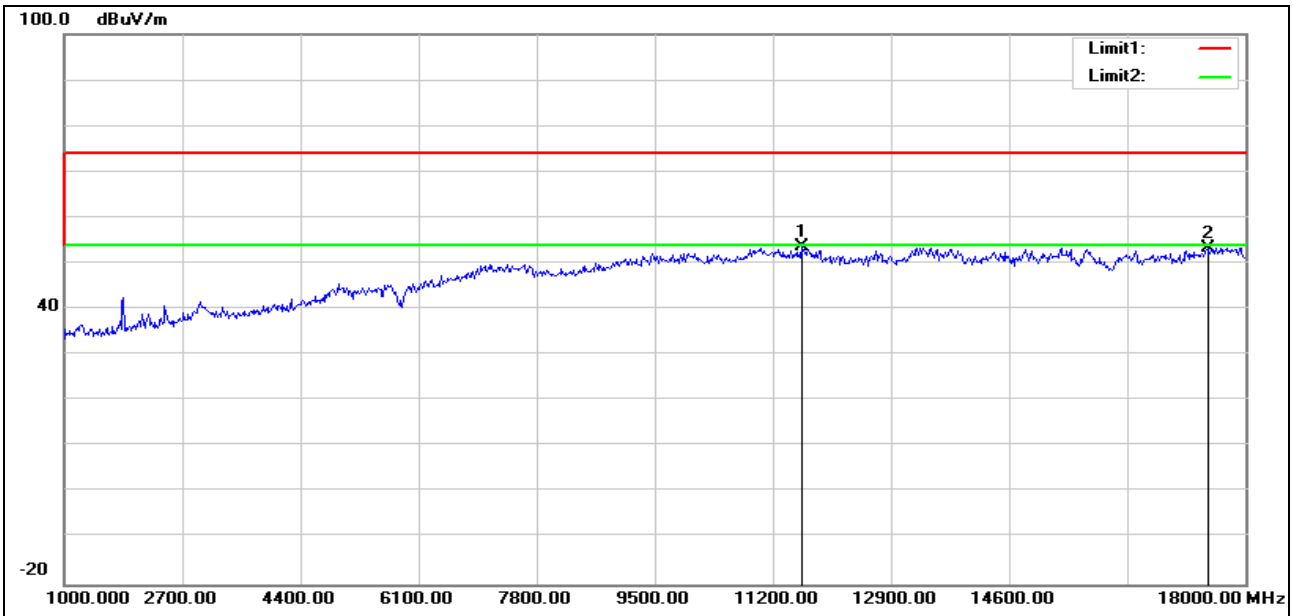
Vertical:



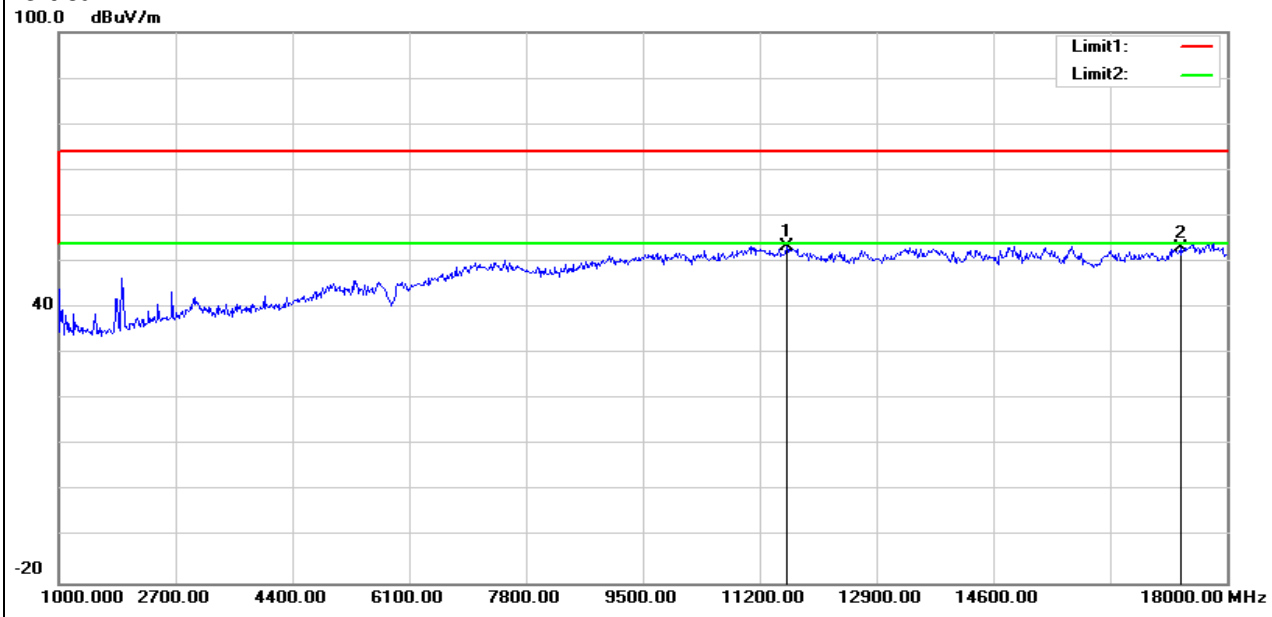
802.11 n(HT40) **Channel: 151**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11608.000	44.52	9.11	53.63	74.00	-20.37	peak	Horizontal
2	17456.000	41.96	11.50	53.46	74.00	-20.54	peak	Horizontal
3	11591.000	44.11	9.09	53.20	74.00	-20.80	peak	Vertical
4	17320.000	42.18	10.83	53.01	74.00	-20.99	peak	Vertical

Horizontal:



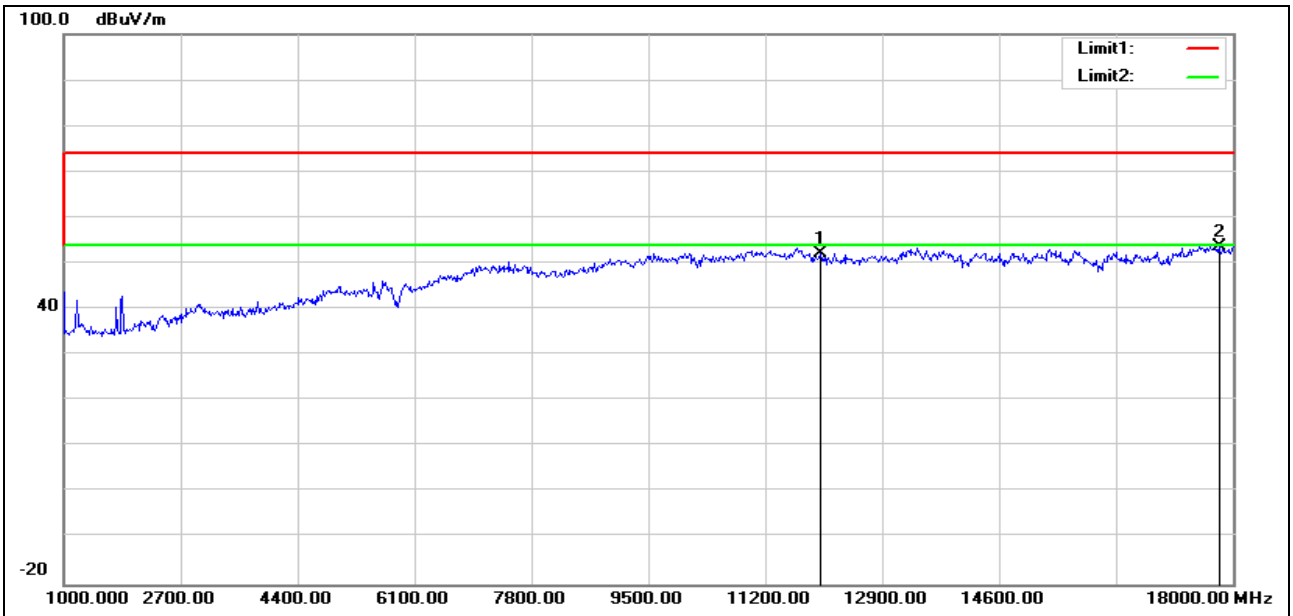
Vertical:



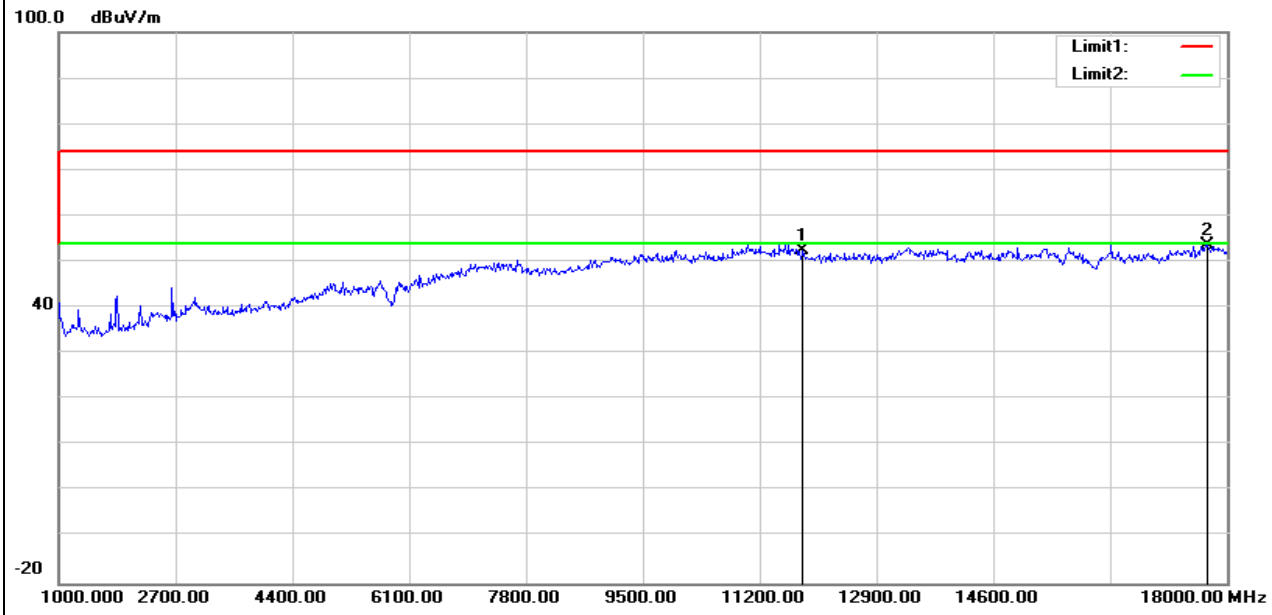
802.11 n(HT40) **Channel: 159**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11999.000	42.67	9.38	52.05	74.00	-21.95	peak	Horizontal
2	17796.000	42.07	11.69	53.76	74.00	-20.24	peak	Horizontal
3	11829.000	43.29	9.26	52.55	74.00	-21.45	peak	Vertical
4	17711.000	42.10	11.70	53.80	74.00	-20.20	peak	Vertical

Horizontal:



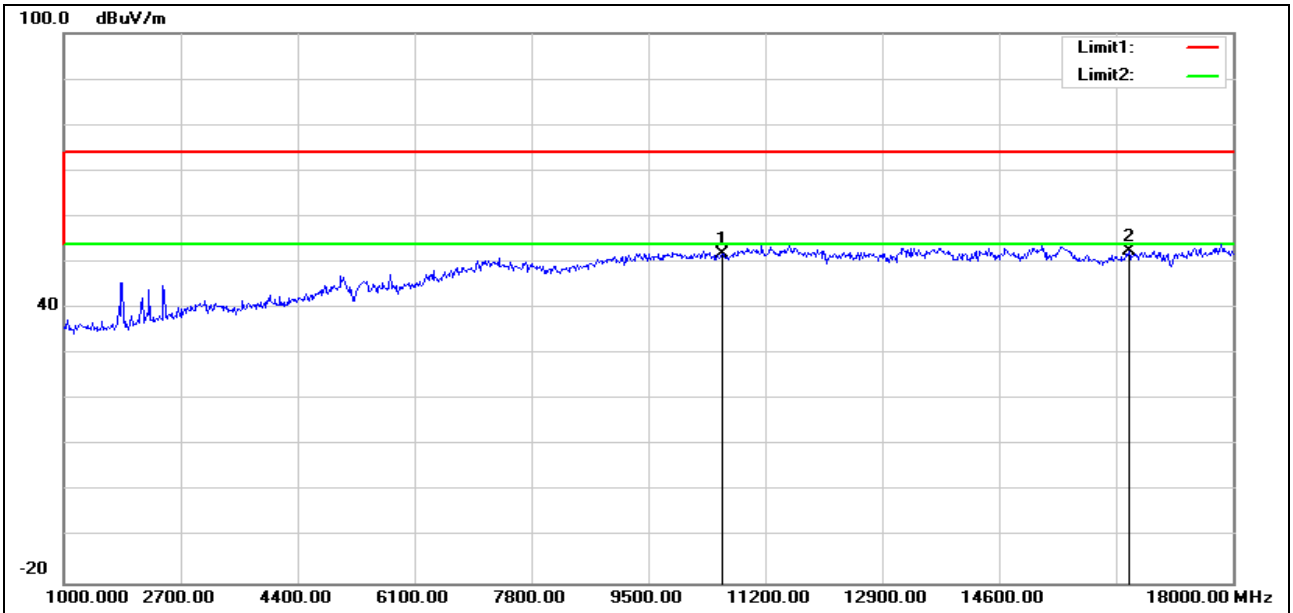
Vertical:



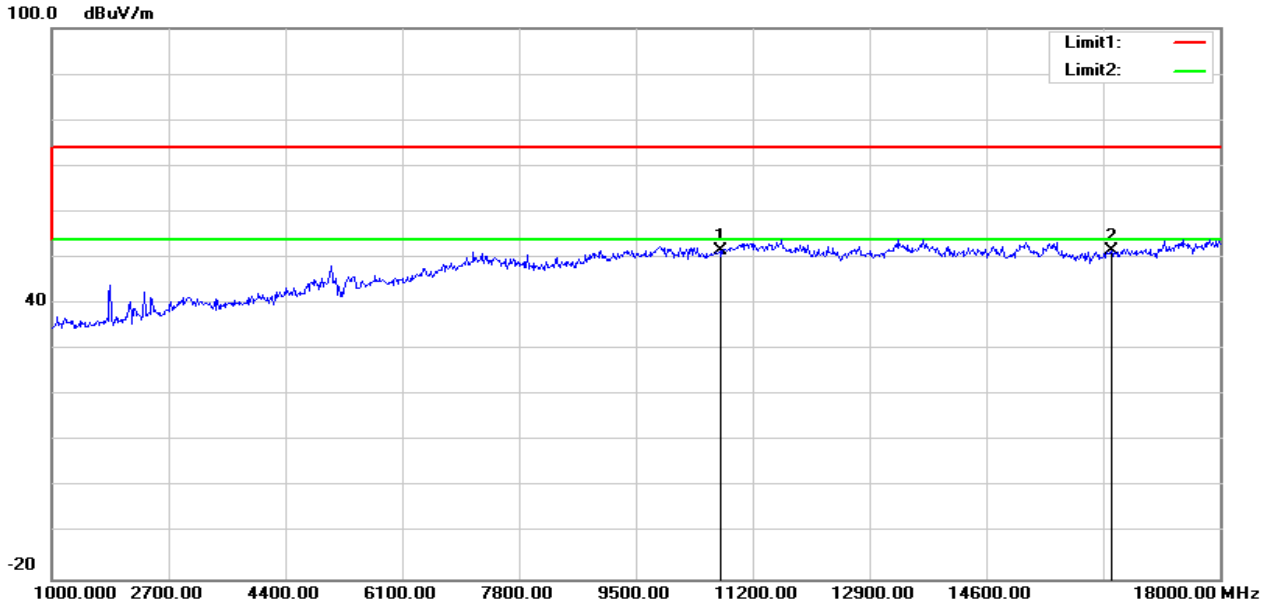
802.11 ac(VHT80) **Channel:42**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10571.000	44.62	7.25	51.87	74.00	-22.13	peak	Horizontal
2	16487.000	43.74	8.72	52.46	74.00	-21.54	peak	Horizontal
3	10724.000	43.38	8.18	51.56	74.00	-22.44	peak	Vertical
4	16419.000	42.97	8.55	51.52	74.00	-22.48	peak	Vertical

Horizontal:



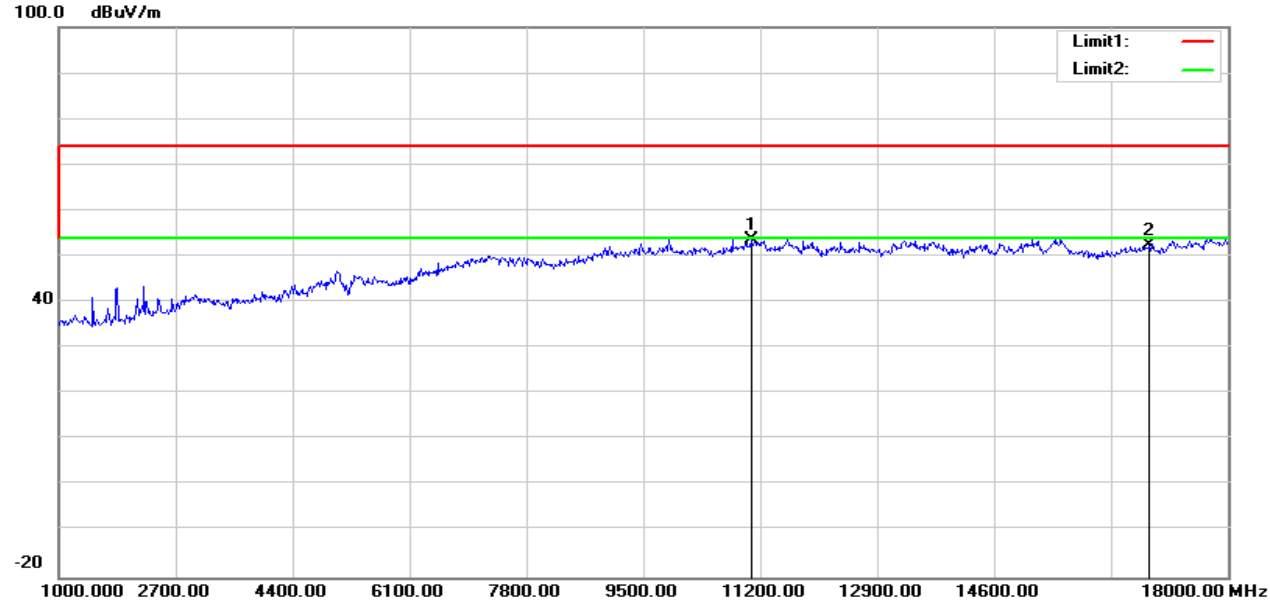
Vertical:



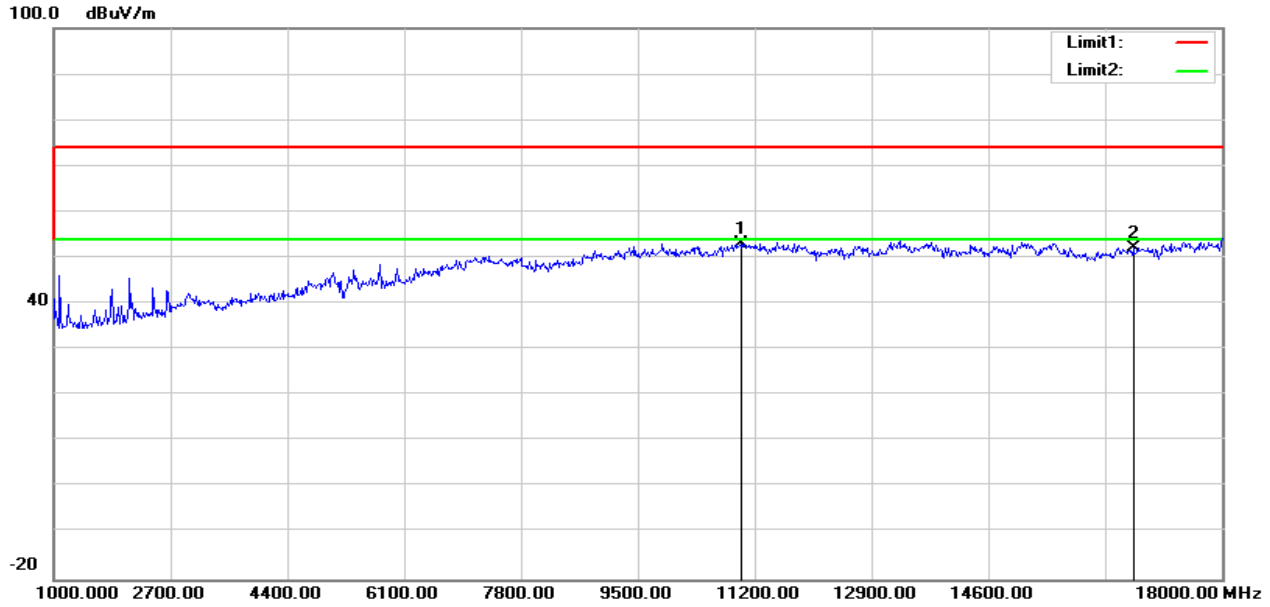
802.11 ac(VHT80) **Channel: 58**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11064.000	43.78	9.75	53.53	74.00	-20.47	peak	Horizontal
2	16861.000	43.33	9.12	52.45	74.00	-21.55	peak	Horizontal
3	10996.000	43.29	9.84	53.13	74.00	-20.87	peak	Vertical
4	16708.000	43.20	8.96	52.16	74.00	-21.84	peak	Vertical

Horizontal:



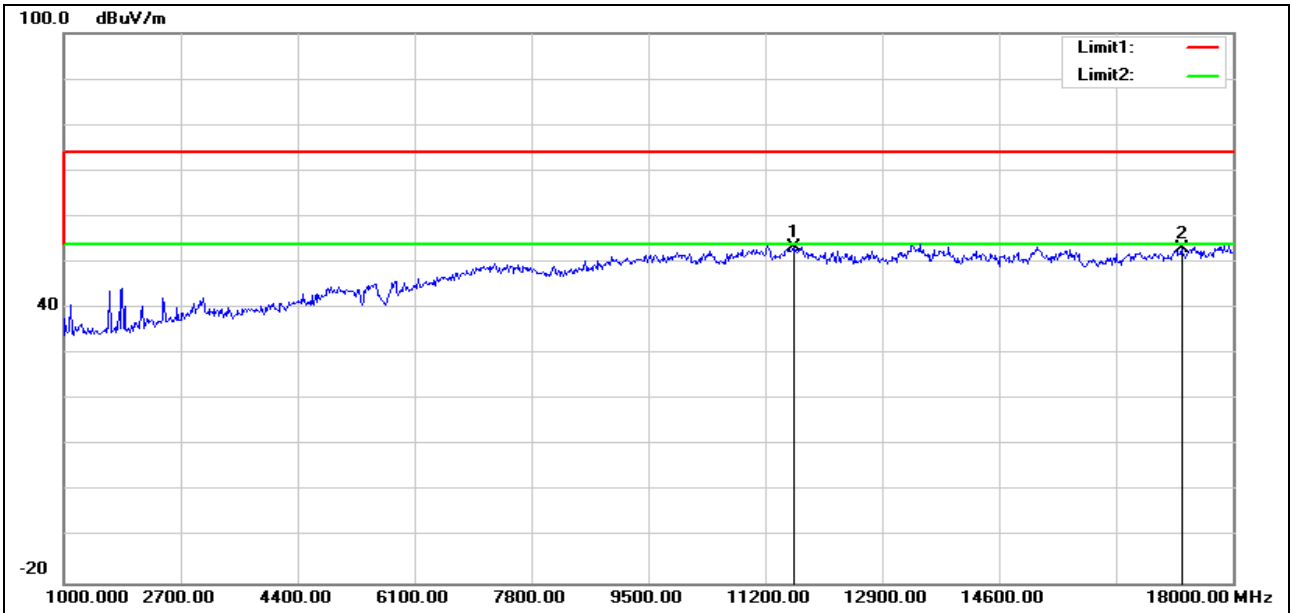
Vertical:



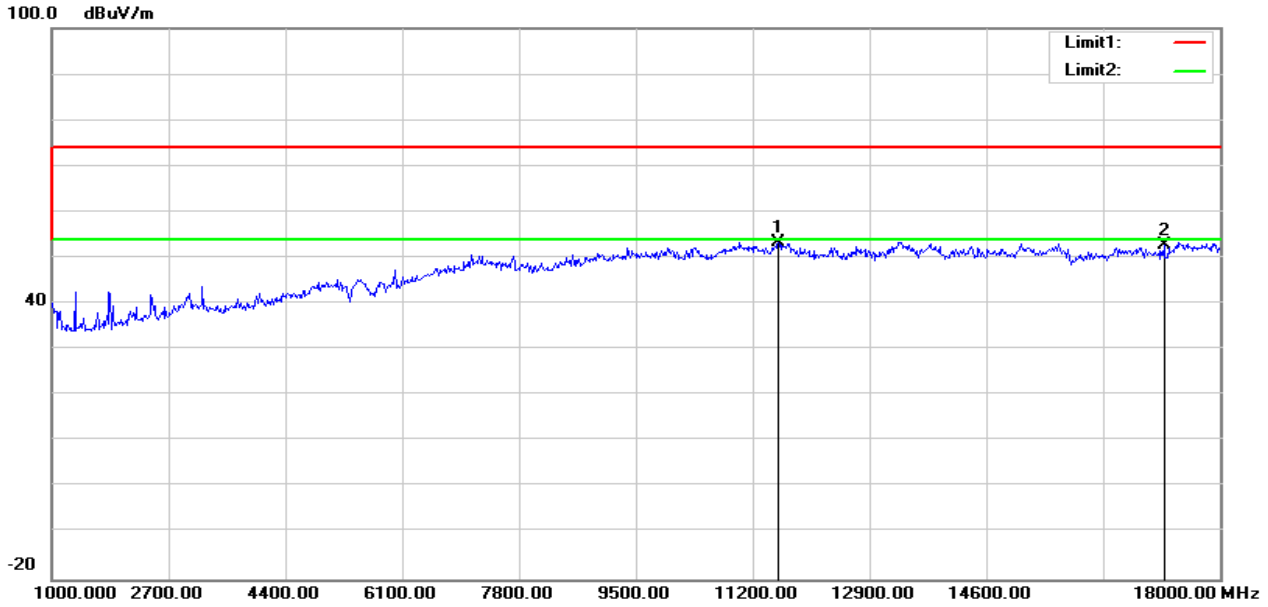
802.11 ac(VHT80) **Channel: 106**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11608.000	44.37	9.11	53.48	74.00	-20.52	peak	Horizontal
2	17252.000	42.45	10.50	52.95	74.00	-21.05	peak	Horizontal
3	11574.000	44.19	9.08	53.27	74.00	-20.73	peak	Vertical
4	17184.000	42.69	10.17	52.86	74.00	-21.14	peak	Vertical

Horizontal:



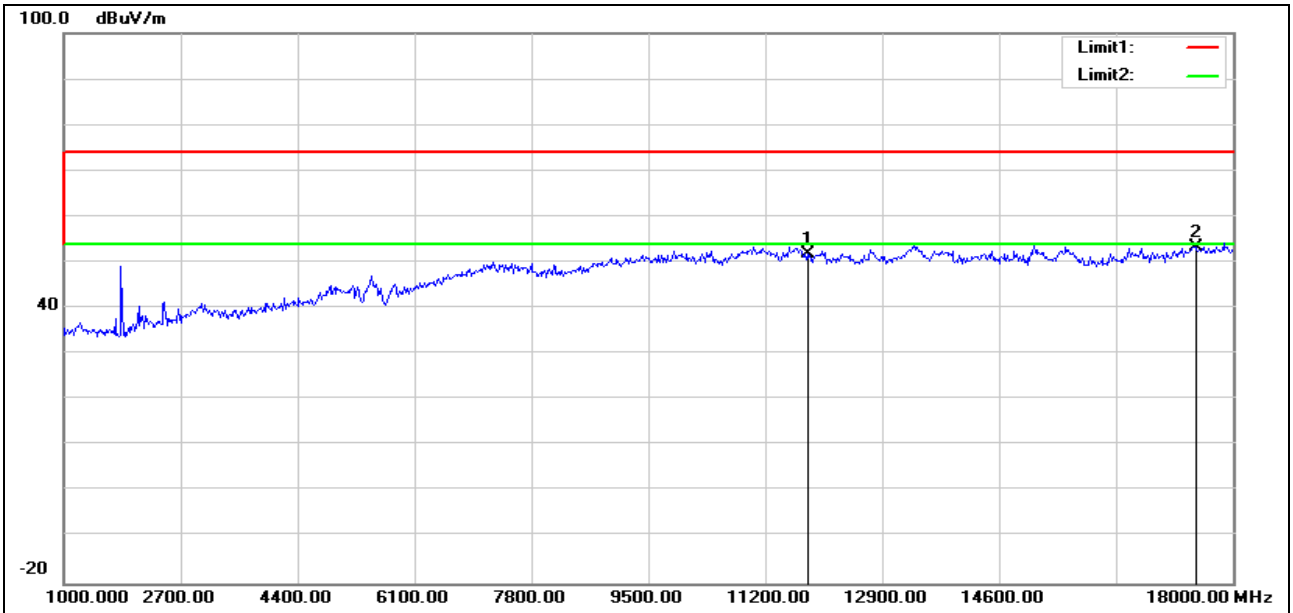
Vertical:



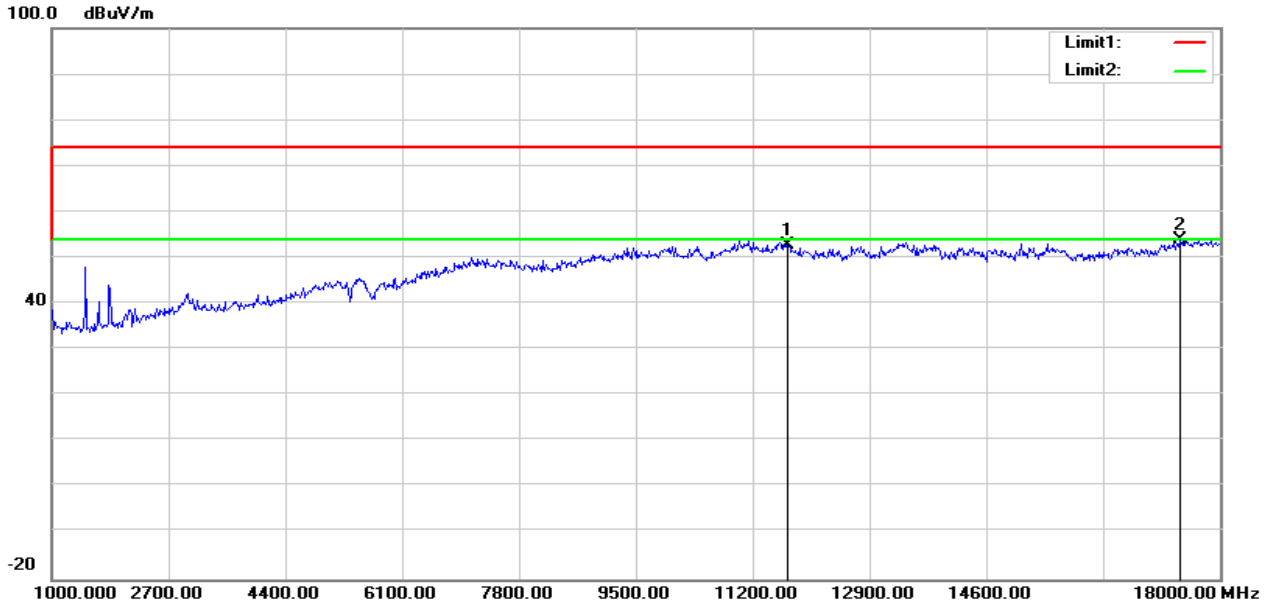
802.11 ac(VHT80) **Channel: 122**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11812.000	42.52	9.25	51.77	74.00	-22.23	peak	Horizontal
2	17456.000	41.89	11.50	53.39	74.00	-20.61	peak	Horizontal
3	11710.000	43.56	9.18	52.74	74.00	-21.26	peak	Vertical
4	17422.000	42.75	11.34	54.09	74.00	-19.91	peak	Vertical

Horizontal:



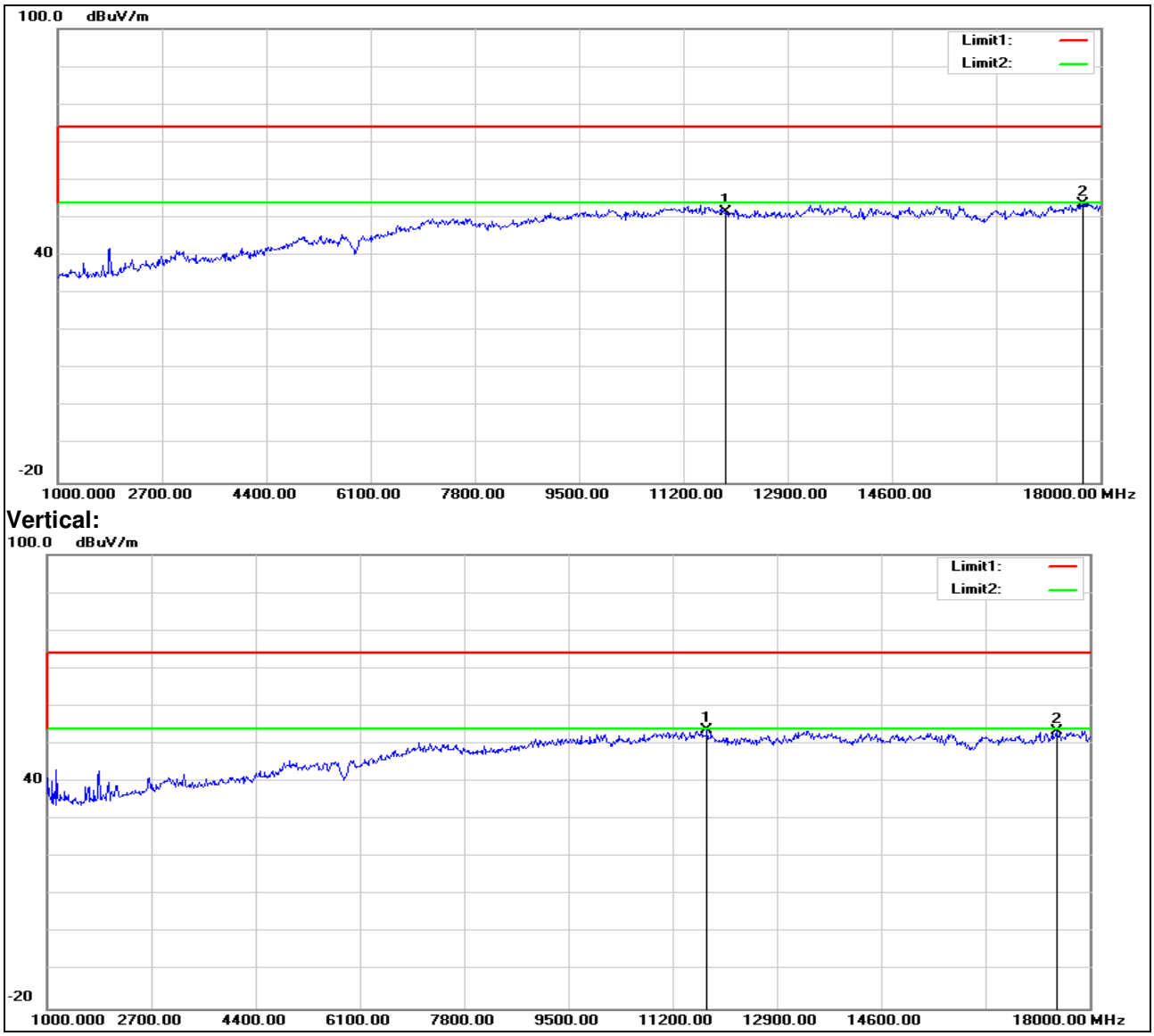
Vertical:



802.11 ac(VHT80) **Channel: 155**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	11880.000	42.38	9.30	51.68	74.00	-22.32	peak	Horizontal
2	17711.000	41.86	11.70	53.56	74.00	-20.44	peak	Horizontal
3	11761.000	44.34	9.21	53.55	74.00	-20.45	peak	Vertical
4	17456.000	41.73	11.50	53.23	74.00	-20.77	peak	Vertical

Horizontal:



Remark: 1. Test Level =Receiver Reading + Antenna Factor + Cable Loss –Preamplifier Factor.

2. No any other emissions level which are attenuated less than 20dB below the limit. According to 15.31(o), the amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part. Hence there no other emissions have been reported.

3. If the Peak value below the AV Limit, the AV test doesn't perform for this submission.

7.3.2 Radiated Band-edge

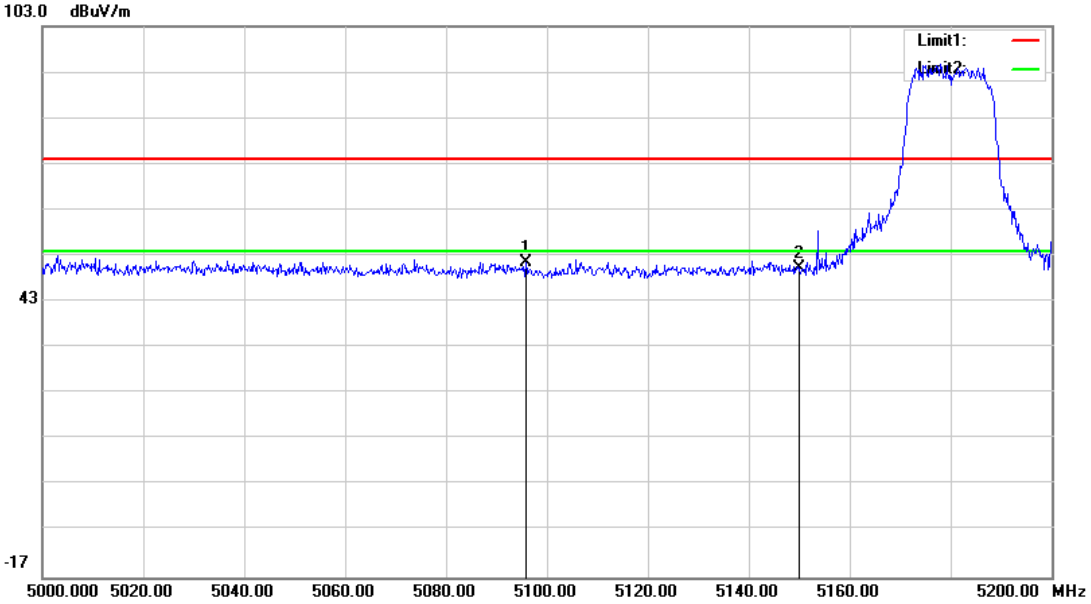
Test Result:

Test Mode: 802.11a **Channel: 36**

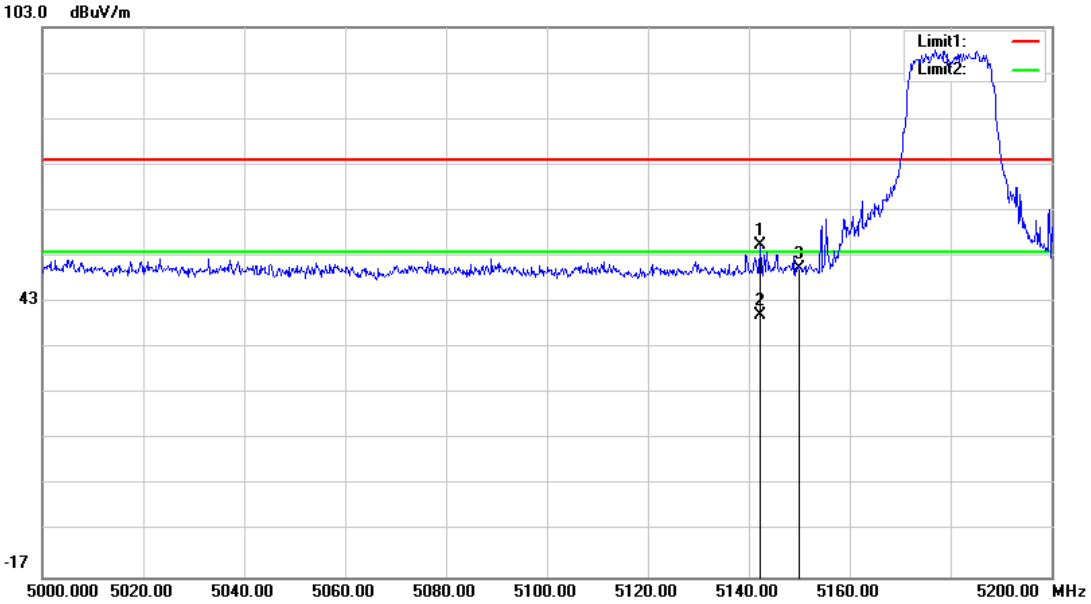
MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5095.800	51.14	0.48	51.62	74.00	-22.38	peak	Horizontal
2	5150.000	49.71	0.49	50.20	74.00	-23.80	peak	Horizontal

1	5142.200	54.93	0.49	55.42	74.00	-18.58	peak	Vertical
2	5142.200	39.72	0.49	40.21	54.00	-13.79	AVG	Vertical
3	5150.000	49.94	0.49	50.43	74.00	-23.57	peak	Vertical

Horizontal



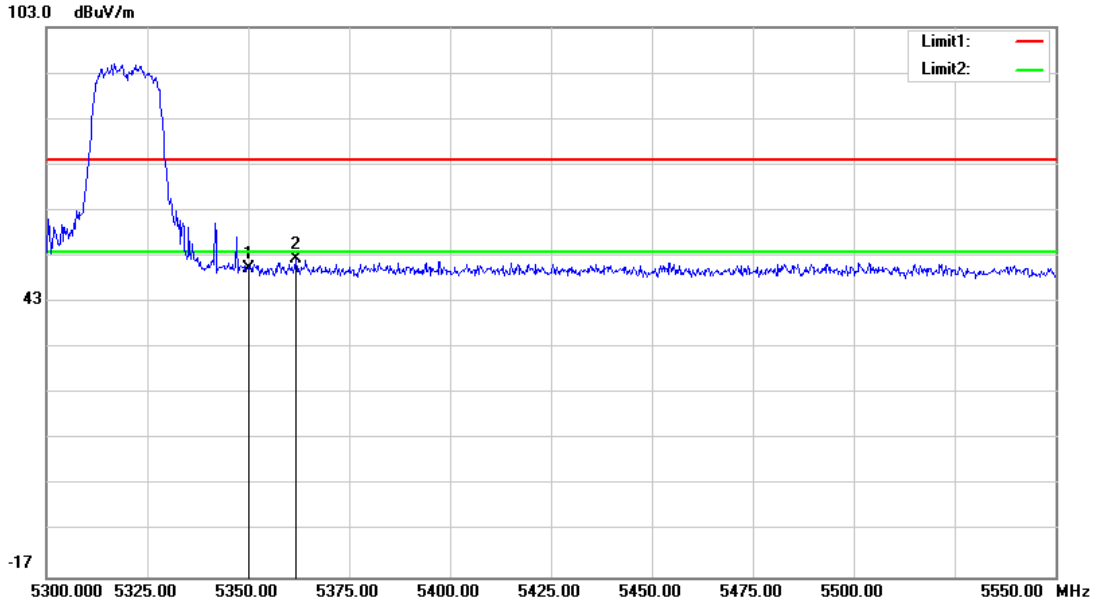
Vertical



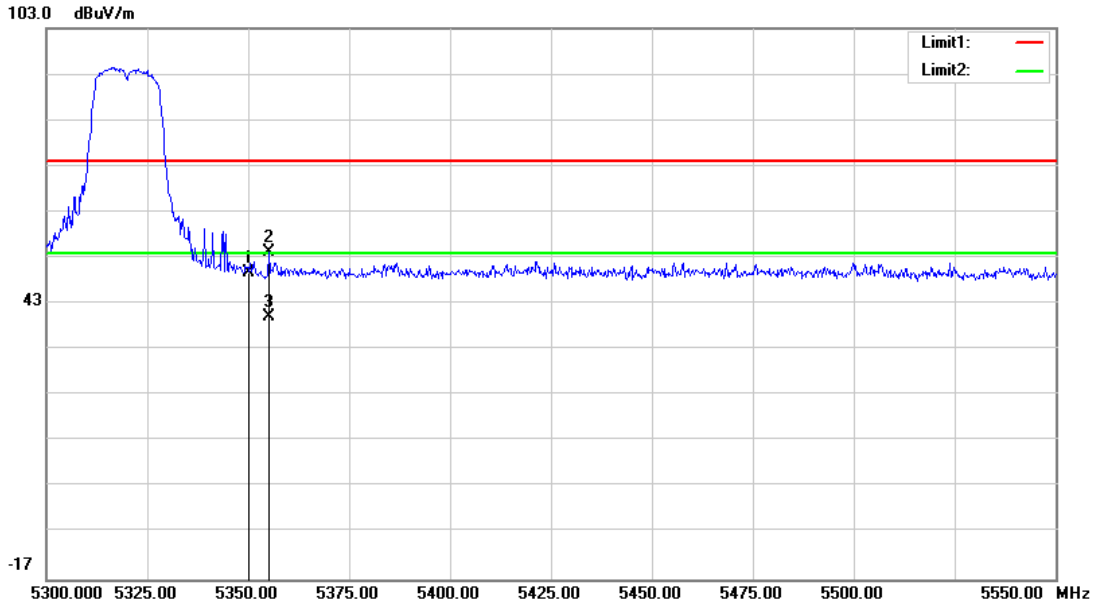
Test Mode: 802.11a **Channel: 64**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5350.000	49.91	0.52	50.43	74.00	-23.57	peak	Horizontal
2	5361.750	51.98	0.52	52.50	74.00	-21.50	peak	Horizontal
1	5350.000	49.29	0.52	49.81	74.00	-24.19	peak	Vertical
2	5355.250	53.59	0.52	54.11	74.00	-19.89	peak	Vertical
3	5355.250	39.54	0.52	40.06	54.00	-13.94	AVG	Vertical

Horizontal



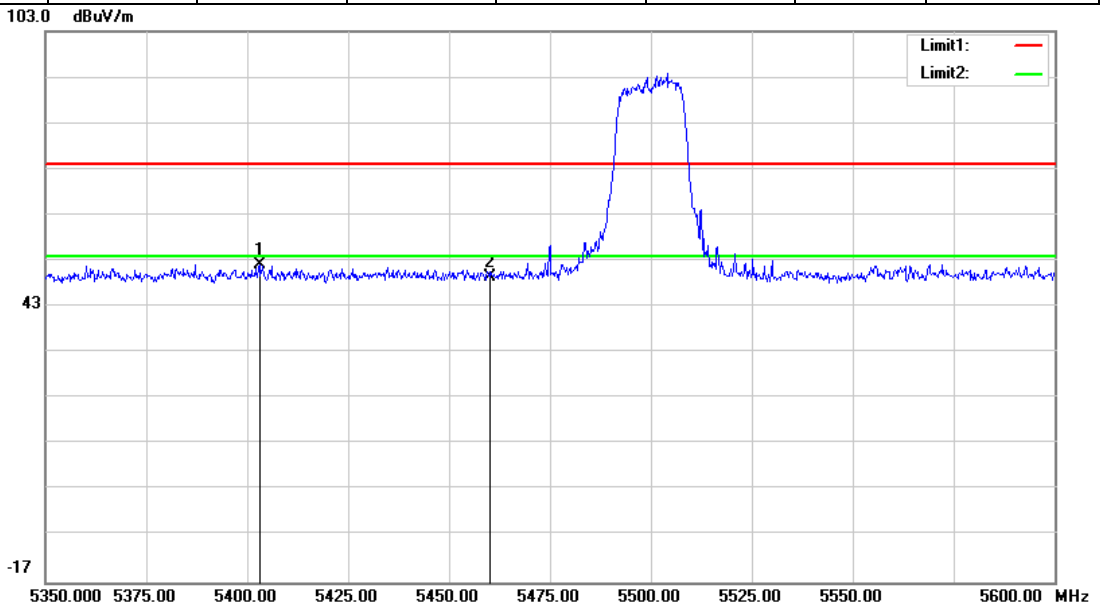
Vertical



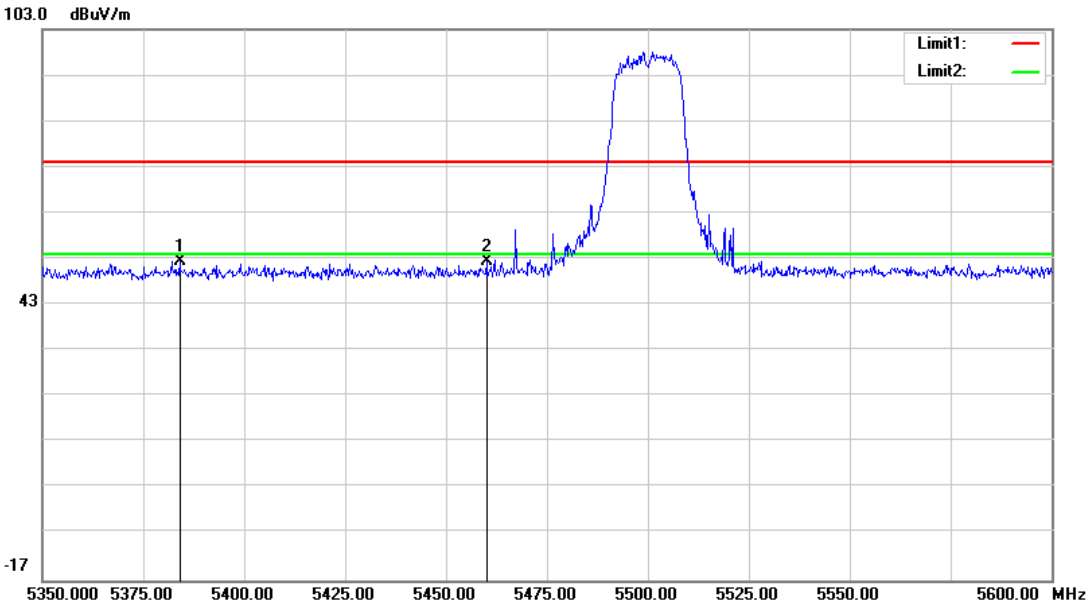
Test Mode: 802.11a **Channel: 100**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5403.000	51.66	0.53	52.19	74.00	-21.81	peak	Horizontal
2	5460.000	48.90	0.53	49.43	74.00	-24.57	peak	Horizontal
1	5384.000	51.89	0.52	52.41	74.00	-21.59	peak	Vertical
2	5460.000	51.78	0.53	52.31	74.00	-21.69	peak	Vertical

Horizontal



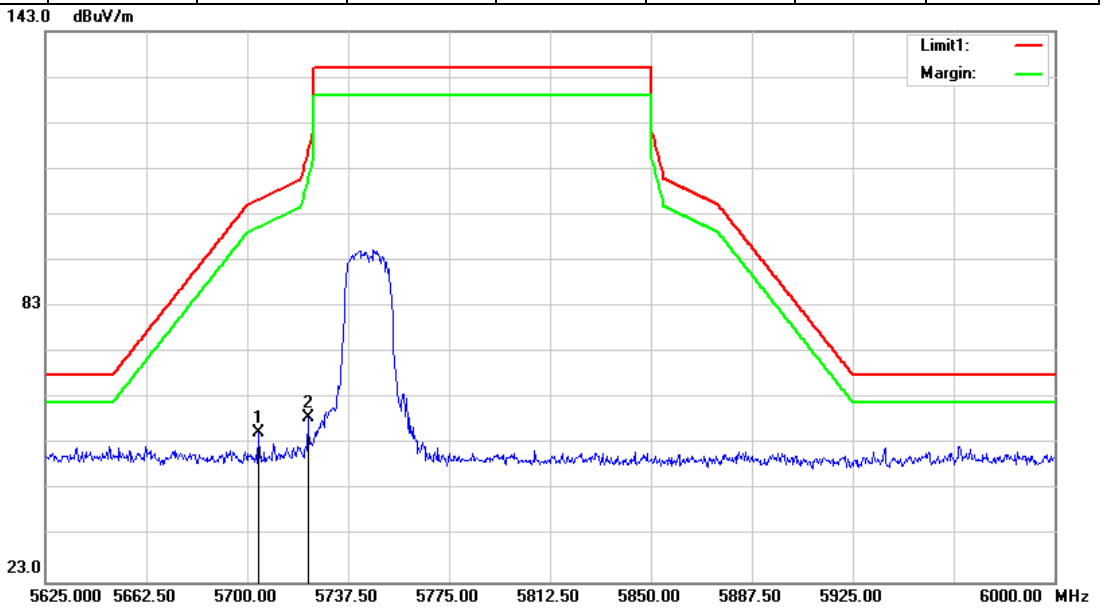
Vertical



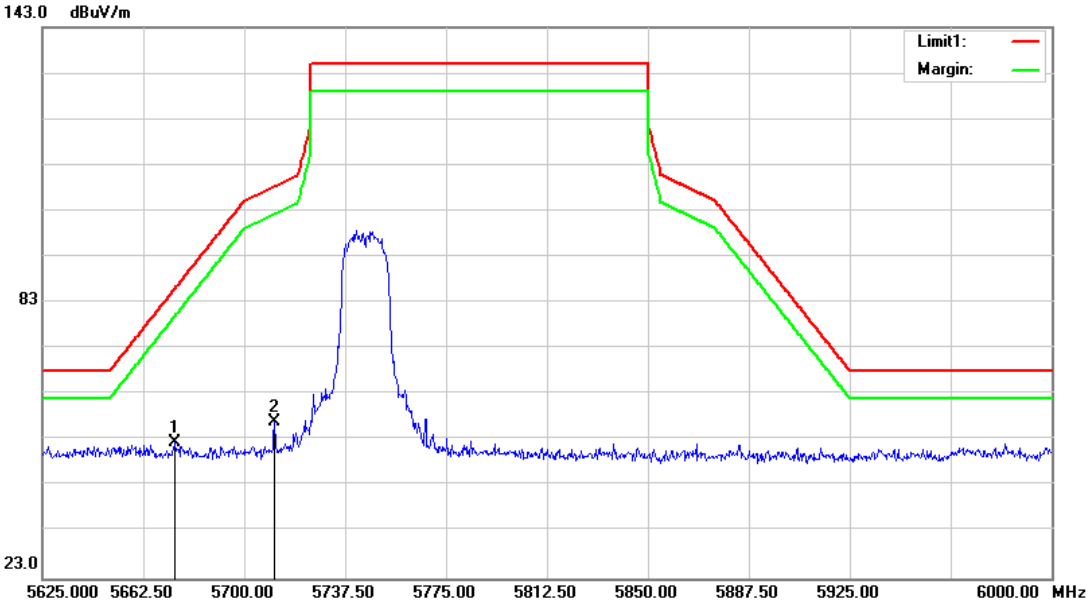
Test Mode: 802.11a **Channel: 149**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5704.125	54.72	0.73	55.45	106.36	-50.91	peak	Horizontal
2	5722.500	57.96	0.75	58.71	116.50	-57.79	peak	Horizontal
1	5674.125	51.80	0.70	52.50	86.05	-33.55	peak	Vertical
2	5711.250	56.30	0.74	57.04	108.35	-51.31	peak	Vertical

Horizontal



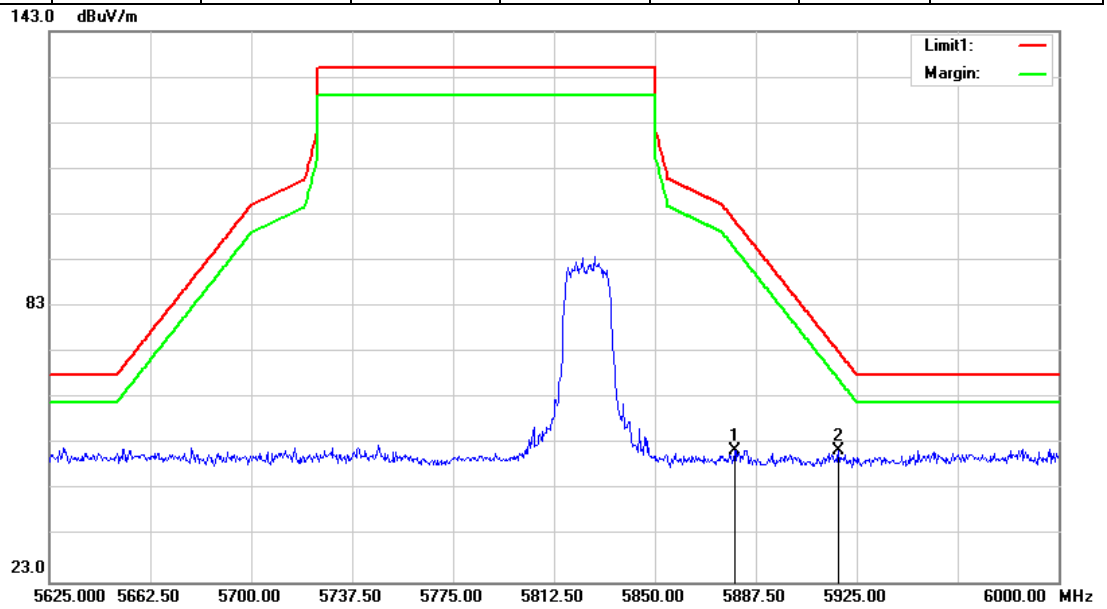
Vertical



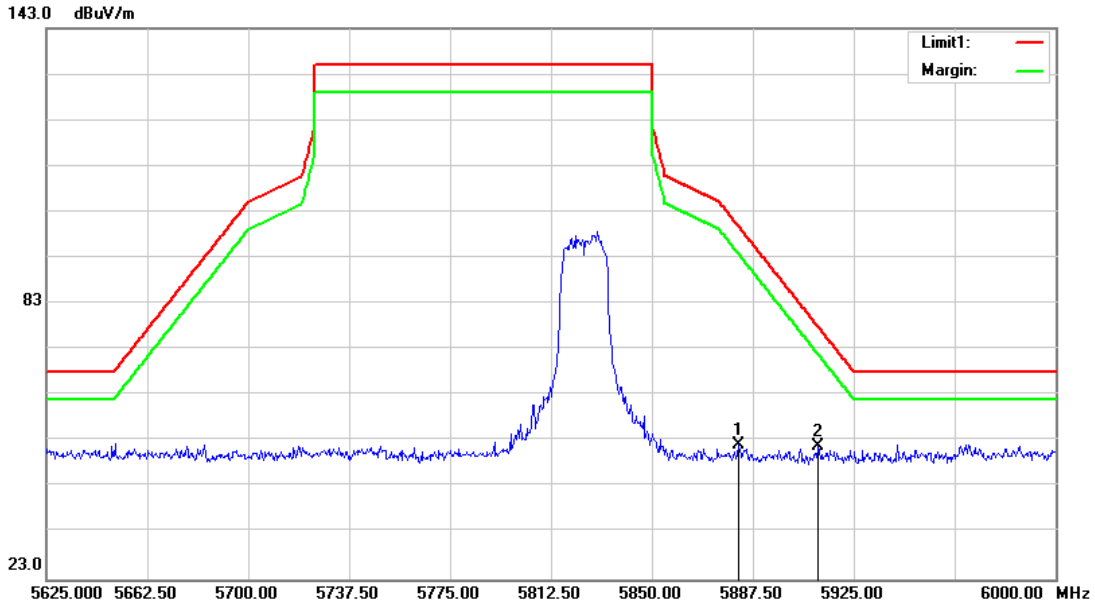
Test Mode: 802.11a **Channel: 165**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5879.625	50.76	0.90	51.66	101.78	-50.12	peak	Horizontal
2	5918.250	50.81	0.93	51.74	73.20	-21.46	peak	Horizontal
1	5882.250	51.24	0.90	52.14	99.84	-47.70	peak	Vertical
2	5911.875	50.87	0.93	51.80	77.91	-26.11	peak	Vertical

Horizontal



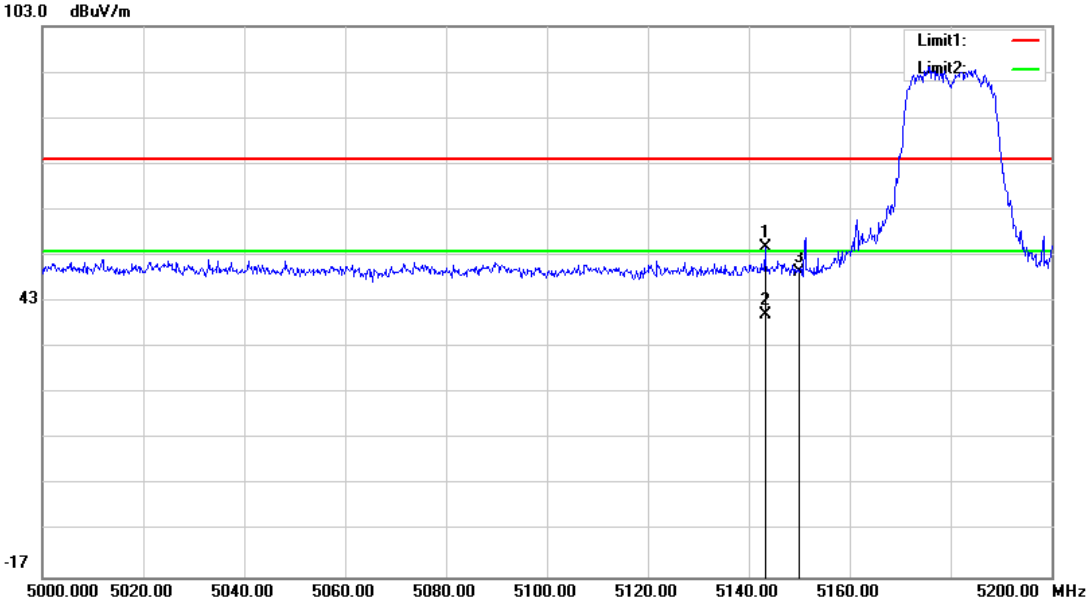
Vertical



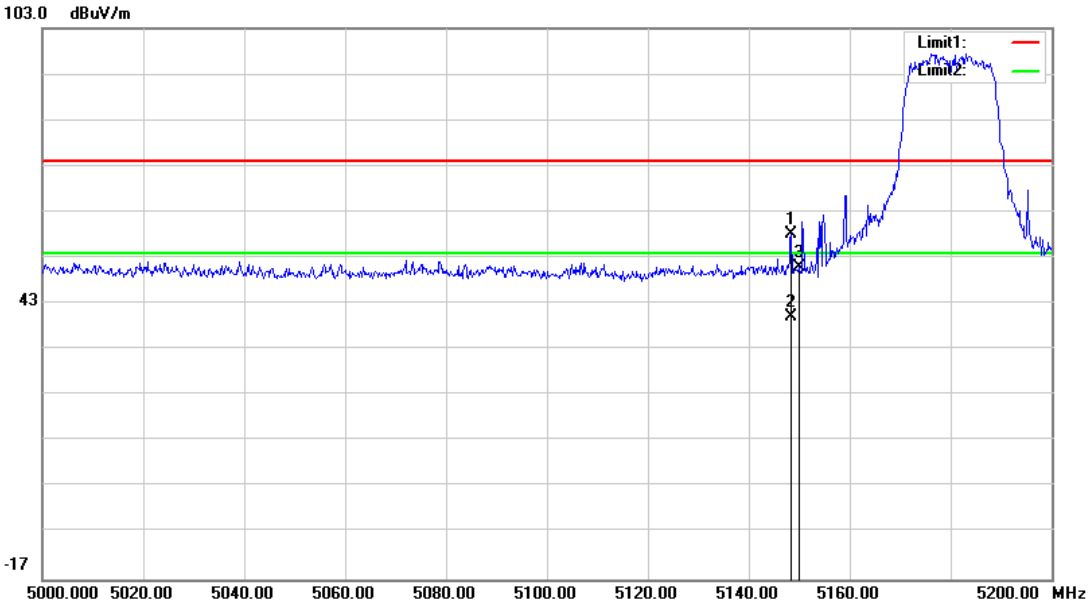
Test Mode: 802.11 n(HT20) **Channel: 36**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5143.200	54.36	0.49	54.85	74.00	-19.15	peak	Horizontal
2	5143.200	39.61	0.49	40.10	54.00	-13.90	AVG	Horizontal
3	5150.000	48.86	0.49	49.35	74.00	-24.65	peak	Horizontal
1	5148.400	57.53	0.49	58.02	74.00	-15.98	peak	Vertical
2	5148.400	39.67	0.49	40.16	54.00	-13.84	AVG	Vertical
3	5150.000	50.30	0.49	50.79	74.00	-23.21	peak	Vertical

Horizontal



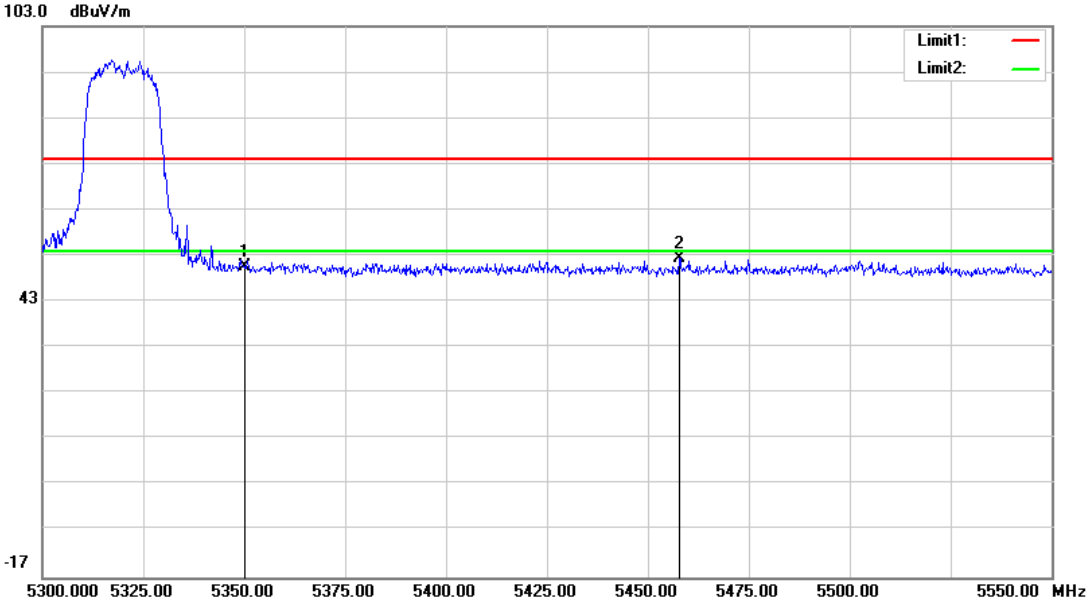
Vertical



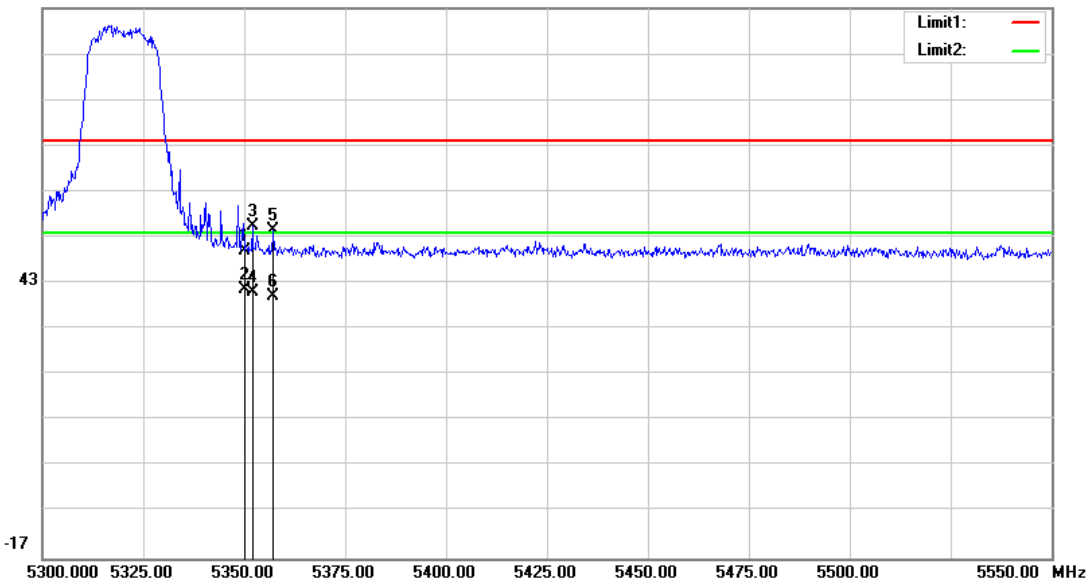
Test Mode: 802.11 n(HT20) **Channel: 64**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5350.000	50.01	0.52	50.53	74.00	-23.47	peak	Horizontal
2	5457.750	51.94	0.53	52.47	74.00	-21.53	peak	Horizontal
1	5350.000	49.66	0.52	50.18	74.00	-23.82	peak	Vertical
2	5350.000	40.99	0.52	41.51	54.00	-12.49	AVG	Vertical
3	5352.000	54.88	0.52	55.40	74.00	-18.60	peak	Vertical
4	5352.000	40.51	0.52	41.03	54.00	-12.97	AVG	Vertical
5	5357.250	53.89	0.52	54.41	74.00	-19.59	peak	Vertical
6	5357.250	39.68	0.52	40.20	54.00	-13.80	AVG	Vertical

Horizontal



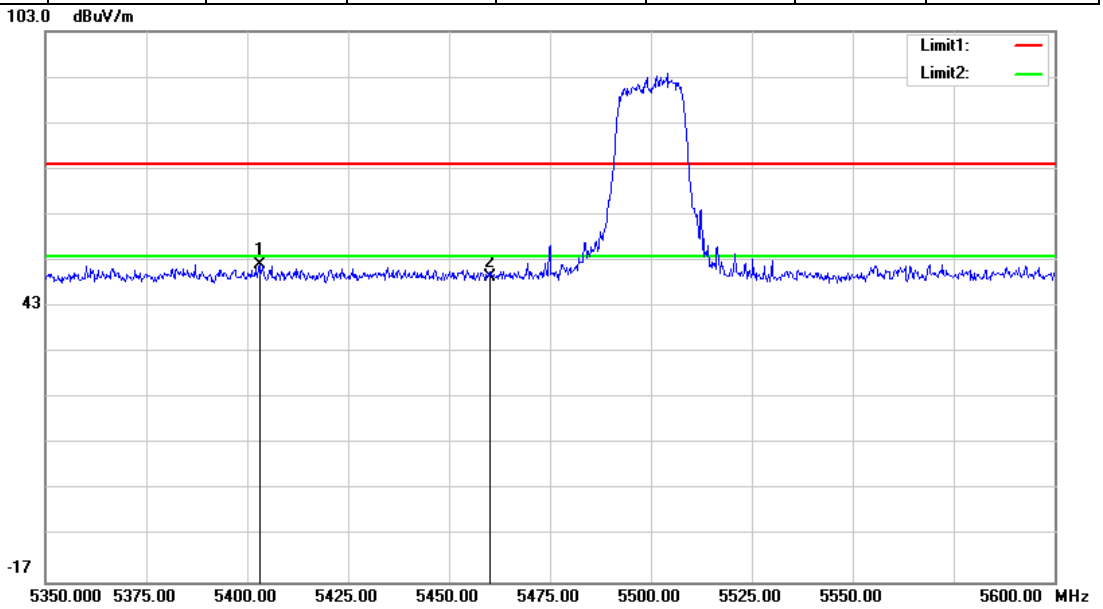
Vertical



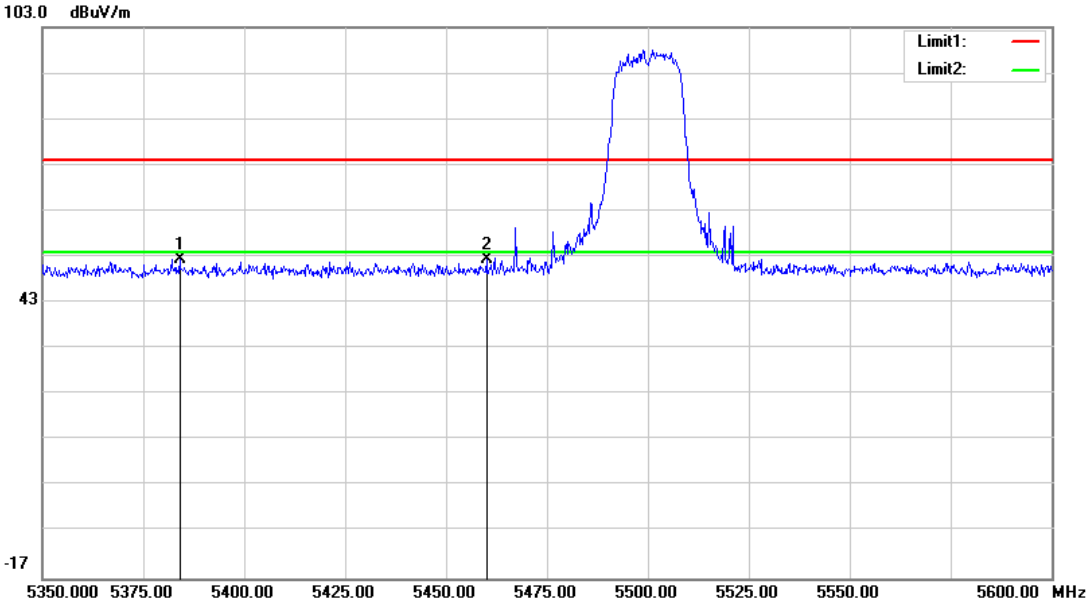
Test Mode: 802.11 n(HT20) **Channel: 100**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5403.000	51.66	0.53	52.19	74.00	-21.81	peak	Horizontal
2	5460.000	48.90	0.53	49.43	74.00	-24.57	peak	Horizontal
1	5384.000	51.89	0.52	52.41	74.00	-21.59	peak	Vertical
2	5460.000	51.78	0.53	52.31	74.00	-21.69	peak	Vertical

Horizontal



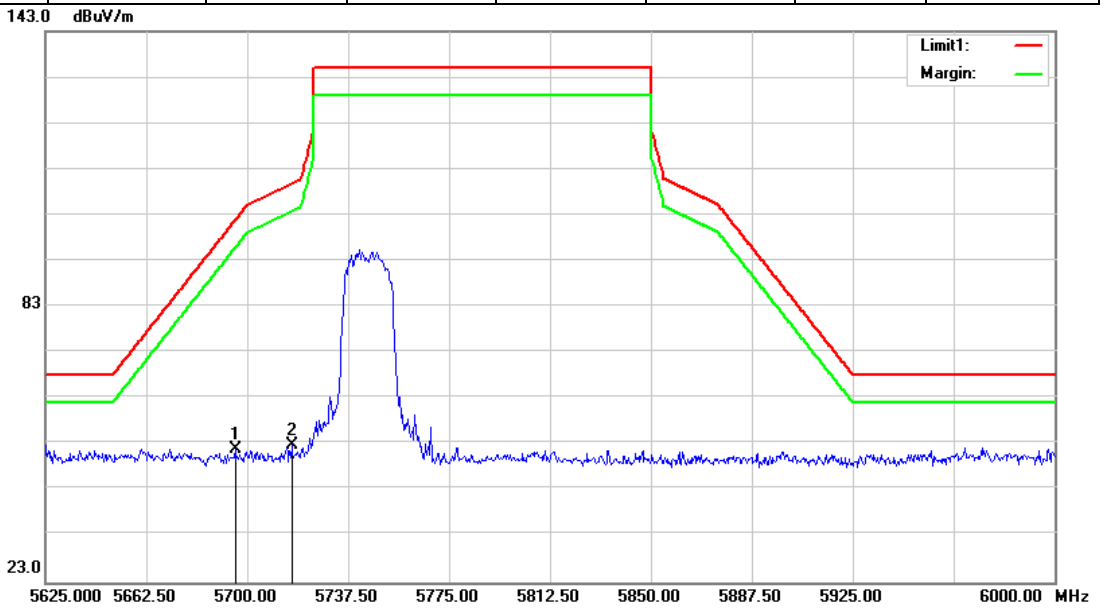
Vertical



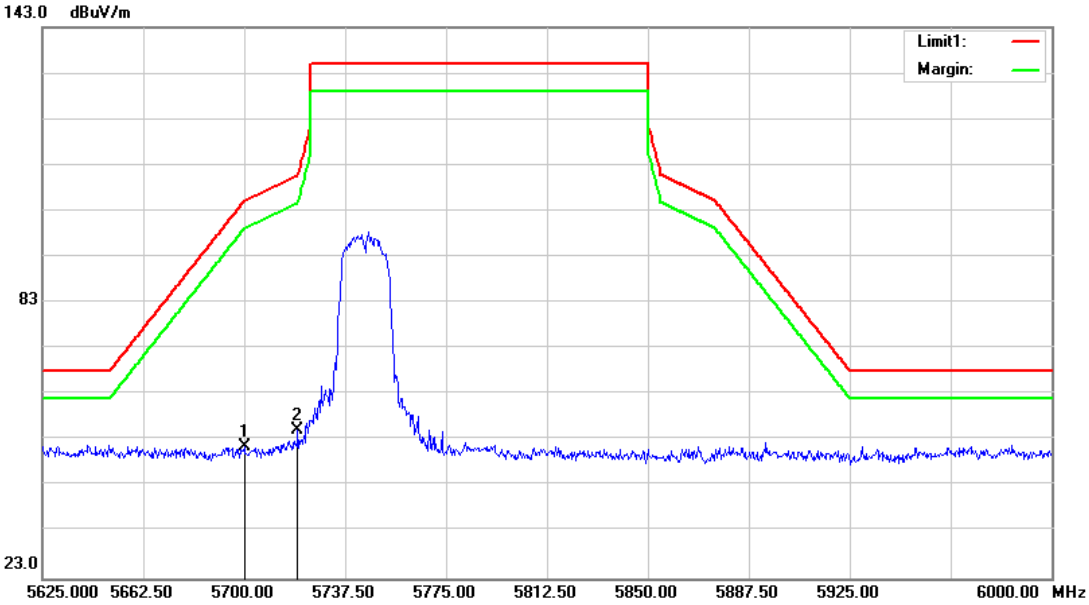
Test Mode: 802.11 n(HT20) **Channel: 149**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5695.500	51.29	0.72	52.01	101.87	-49.86	peak	Horizontal
2	5716.500	52.24	0.74	52.98	109.82	-56.84	peak	Horizontal
1	5700.000	51.00	0.73	51.73	105.20	-53.47	peak	Vertical
2	5719.875	54.53	0.75	55.28	110.77	-55.49	peak	Vertical

Horizontal



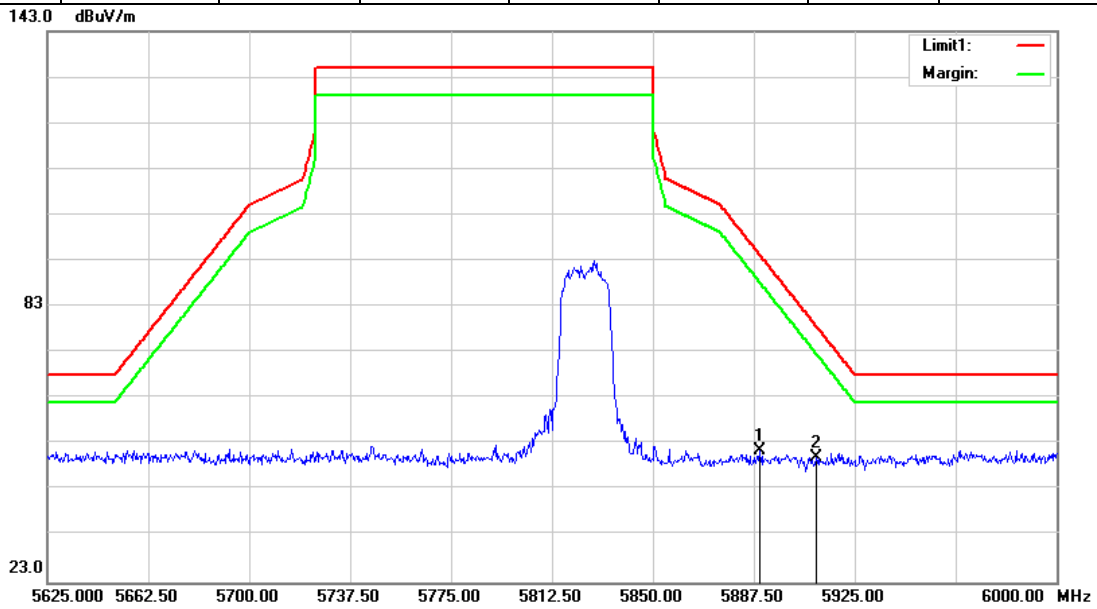
Vertical



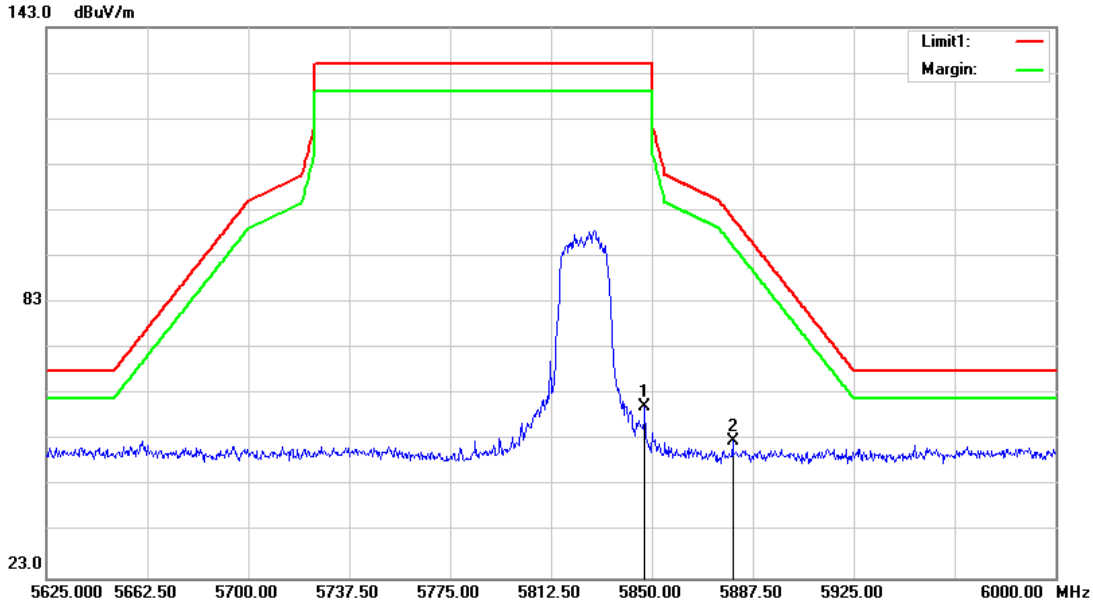
Test Mode: 802.11 n(HT20) **Channel: 165**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5889.750	50.65	0.91	51.56	94.28	-42.72	peak	Horizontal
2	5910.750	49.23	0.93	50.16	78.75	-28.59	peak	Horizontal
1	5847.375	59.39	0.87	60.26	135.00	-74.74	peak	Vertical
2	5880.000	51.83	0.90	52.73	101.50	-48.77	peak	Vertical

Horizontal



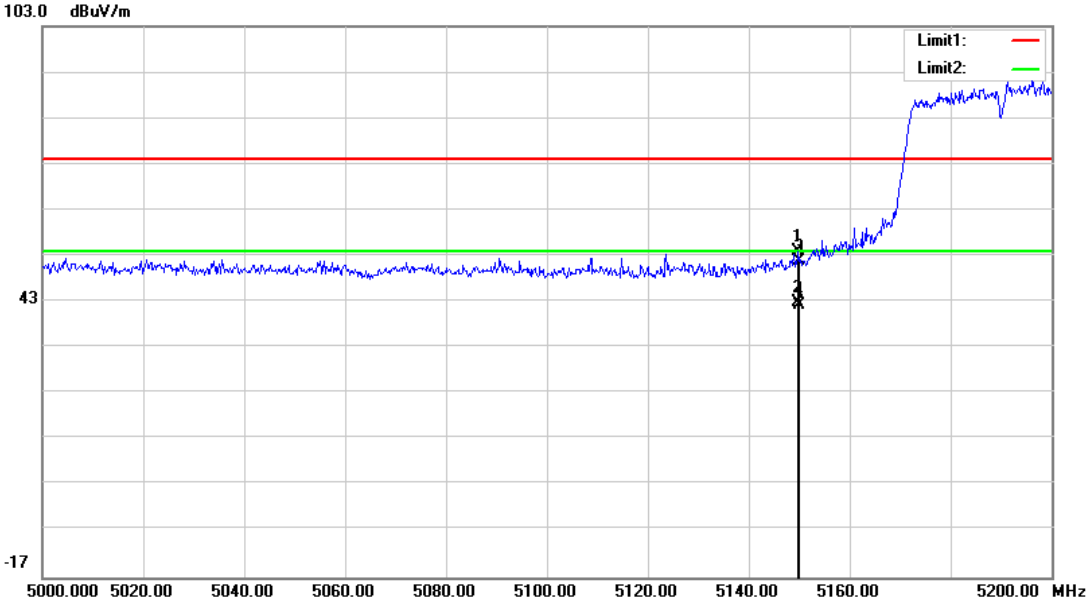
Vertical



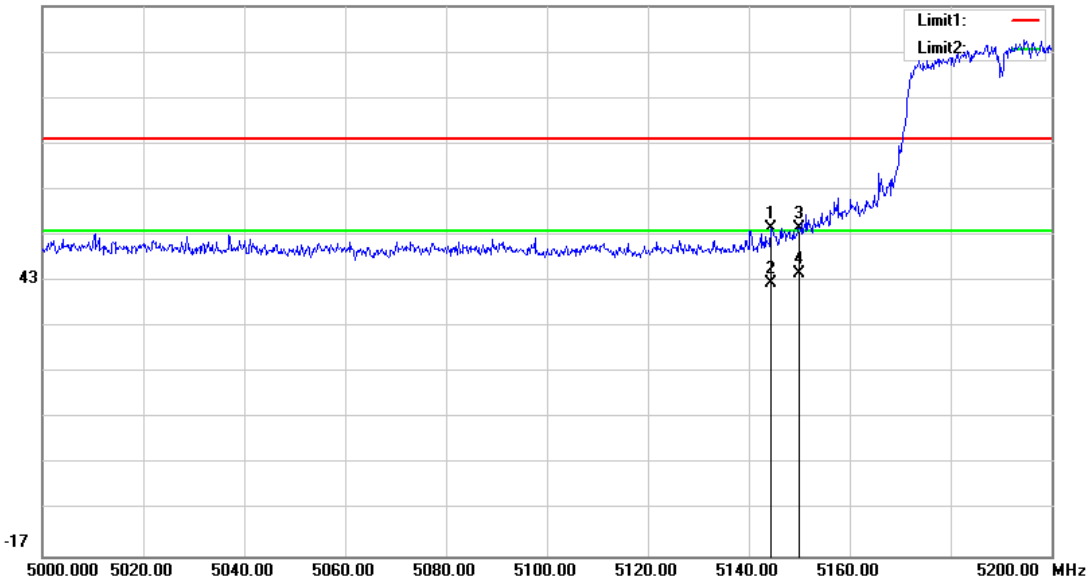
Test Mode: 802.11 n(HT40) **Channel: 38**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5149.800	53.31	0.49	53.80	74.00	-20.20	peak	Horizontal
2	5149.800	42.37	0.49	42.86	54.00	-11.14	AVG	Horizontal
3	5150.000	51.33	0.49	51.82	74.00	-22.18	peak	Horizontal
4	5150.000	41.73	0.49	42.22	54.00	-11.78	AVG	Horizontal
1	5144.400	54.13	0.49	54.62	74.00	-19.38	peak	Vertical
2	5144.400	42.13	0.49	42.62	54.00	-11.38	AVG	Vertical
3	5150.000	54.13	0.49	54.62	74.00	-19.38	peak	Vertical
4	5150.000	44.13	0.49	44.62	54.00	-9.38	AVG	Vertical

Horizontal



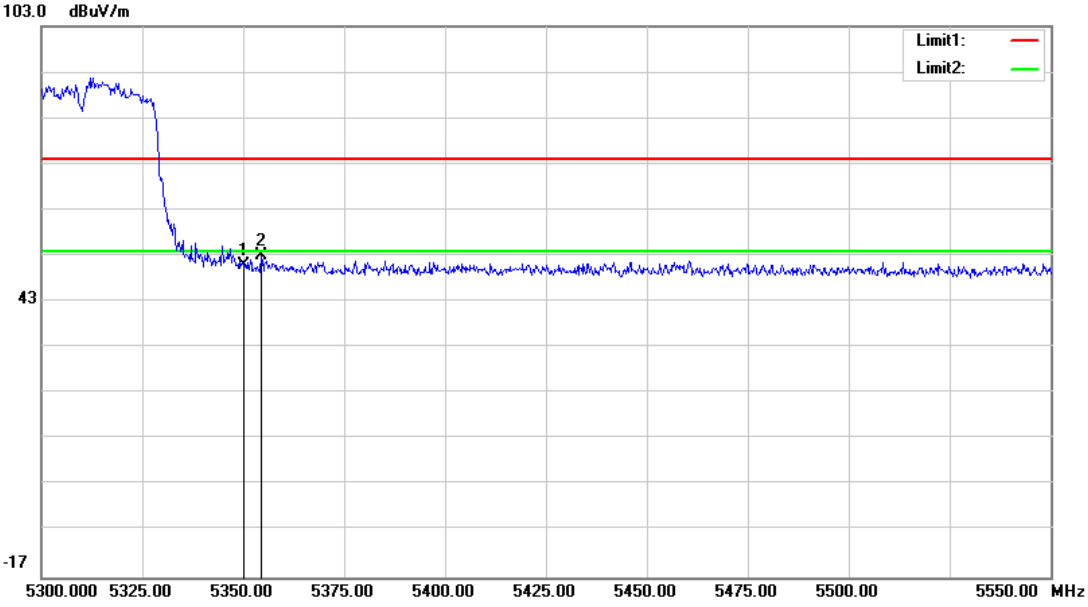
Vertical



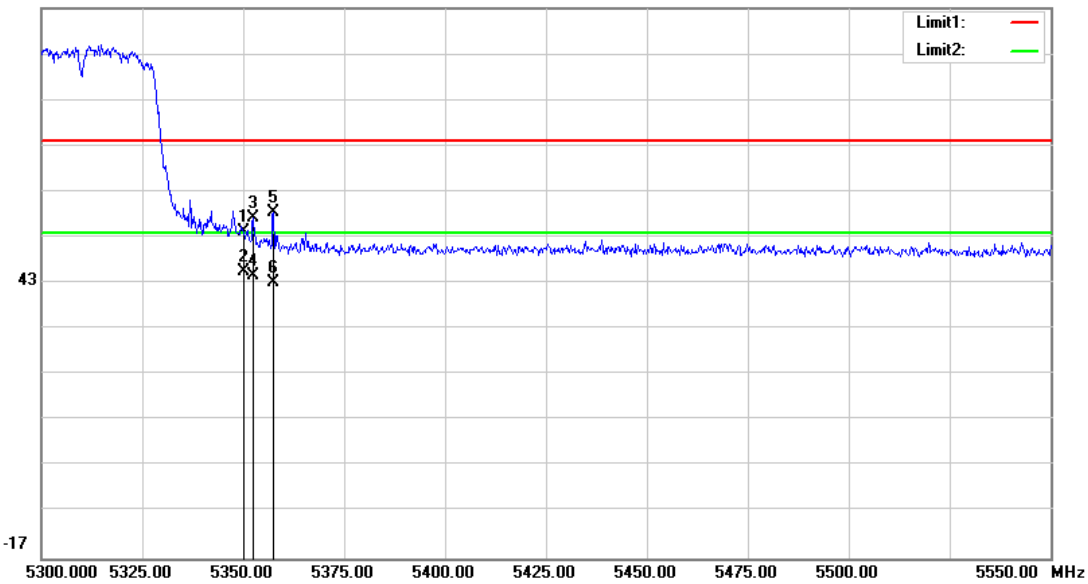
Test Mode: 802.11 n(HT40) **Channel: 62**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5350.000	50.50	0.52	51.02	74.00	-22.98	peak	Horizontal
2	5354.500	52.44	0.52	52.96	74.00	-21.04	peak	Horizontal
1	5350.000	53.78	0.52	54.30	74.00	-19.70	peak	Vertical
2	5350.000	44.88	0.52	45.40	54.00	-8.60	AVG	Vertical
3	5352.500	56.79	0.52	57.31	74.00	-16.69	peak	Vertical
4	5352.500	44.03	0.52	44.55	54.00	-9.45	AVG	Vertical
5	5357.500	57.90	0.52	58.42	74.00	-15.58	peak	Vertical
6	5357.500	42.54	0.52	43.06	54.00	-10.94	AVG	Vertical

Horizontal



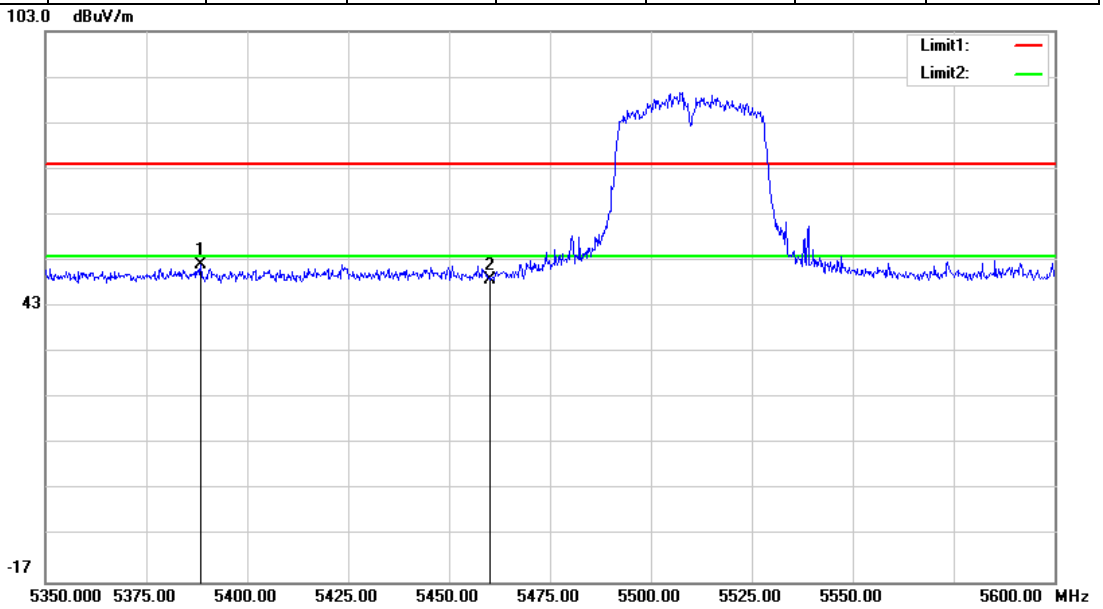
Vertical



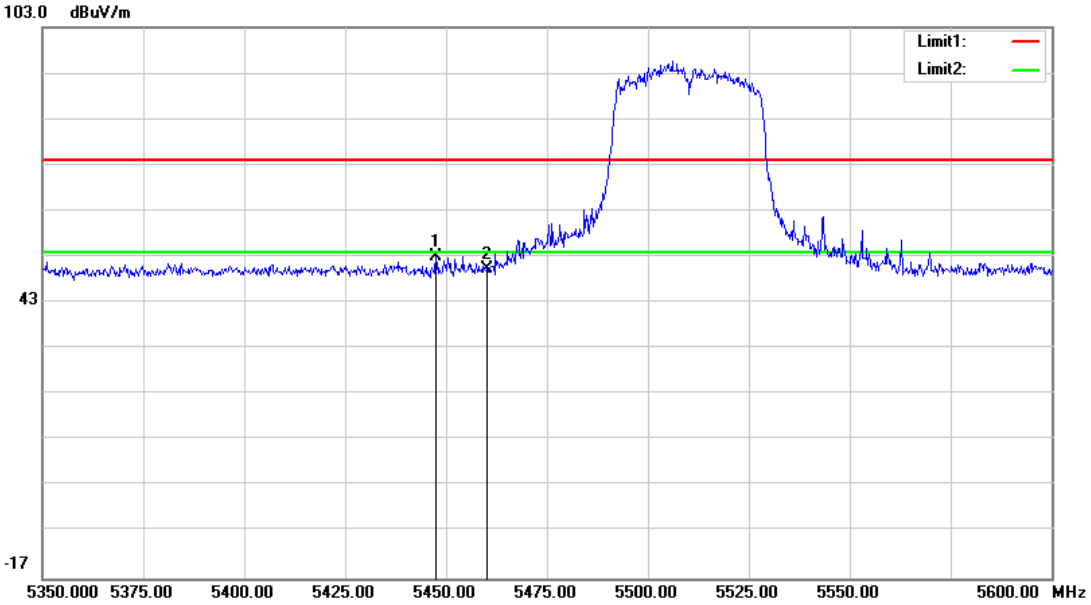
Test Mode: 802.11 n(HT40) **Channel: 102**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5388.500	51.68	0.52	52.20	74.00	-21.80	peak	Horizontal
2	5460.000	48.26	0.53	48.79	74.00	-25.21	peak	Horizontal
1	5447.500	52.57	0.53	53.10	74.00	-20.90	peak	Vertical
2	5460.000	49.72	0.53	50.25	74.00	-23.75	peak	Vertical

Horizontal



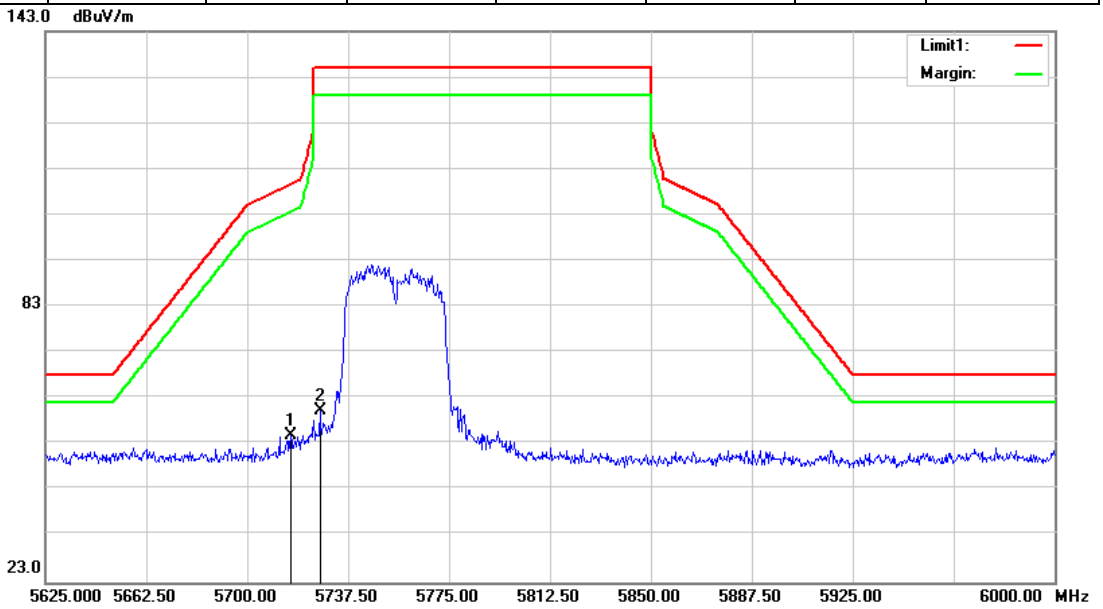
Vertical



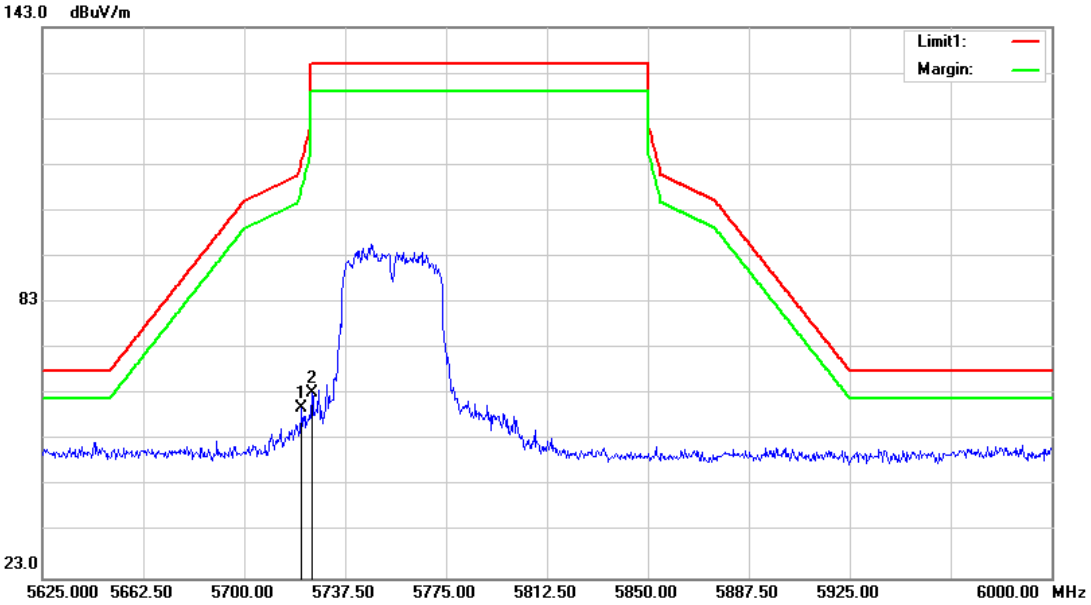
Test Mode: 802.11 n(HT40) **Channel: 151**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5716.125	54.21	0.74	54.95	109.72	-54.77	peak	Horizontal
2	5727.000	59.50	0.75	60.25	135.00	-74.75	peak	Horizontal
1	5721.375	59.30	0.75	60.05	113.94	-53.89	peak	Vertical
2	5725.125	62.68	0.75	63.43	135.00	-71.57	peak	Vertical

Horizontal



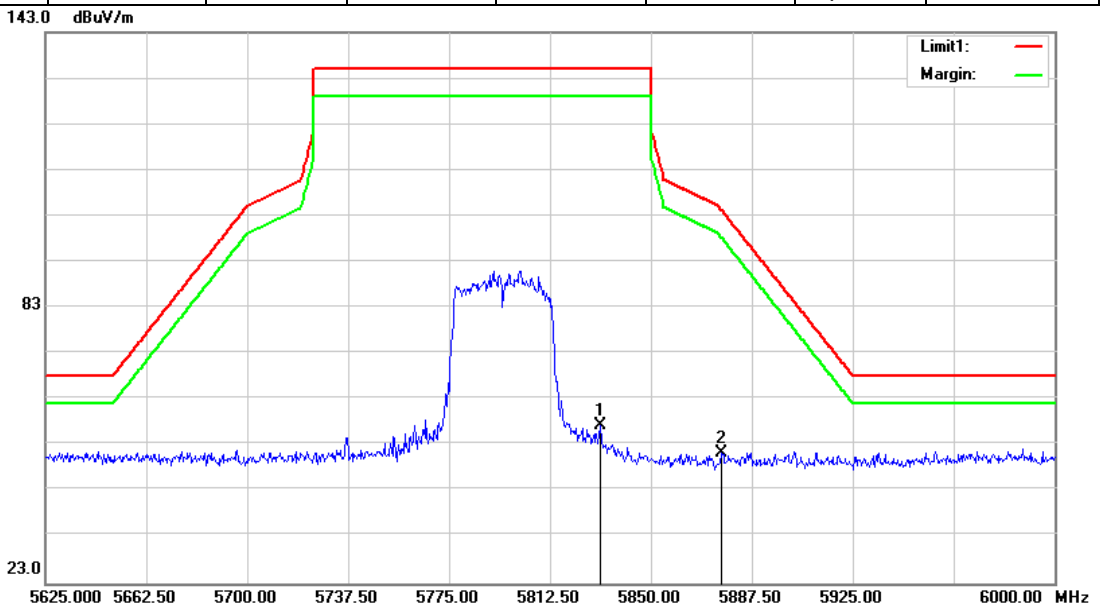
Vertical



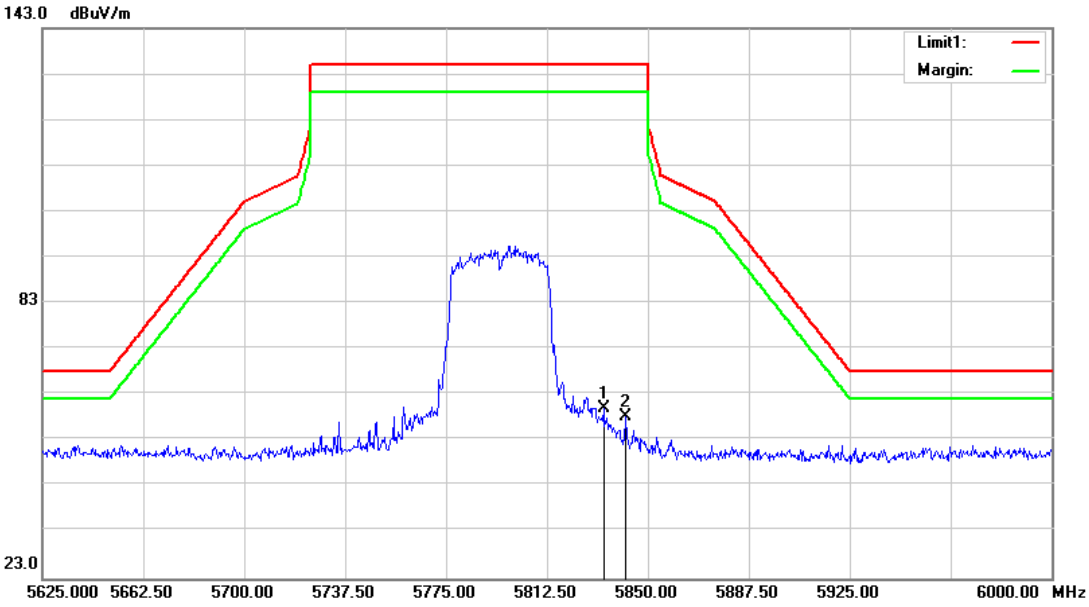
Test Mode: 802.11 n(HT40) **Channel: 159**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5831.250	56.63	0.85	57.48	135.00	-77.52	peak	Horizontal
2	5876.250	50.54	0.89	51.43	104.28	-52.85	peak	Horizontal
1	5833.500	59.24	0.85	60.09	135.00	-74.91	peak	Vertical
2	5841.750	57.33	0.86	58.19	135.00	-76.81	peak	Vertical

Horizontal



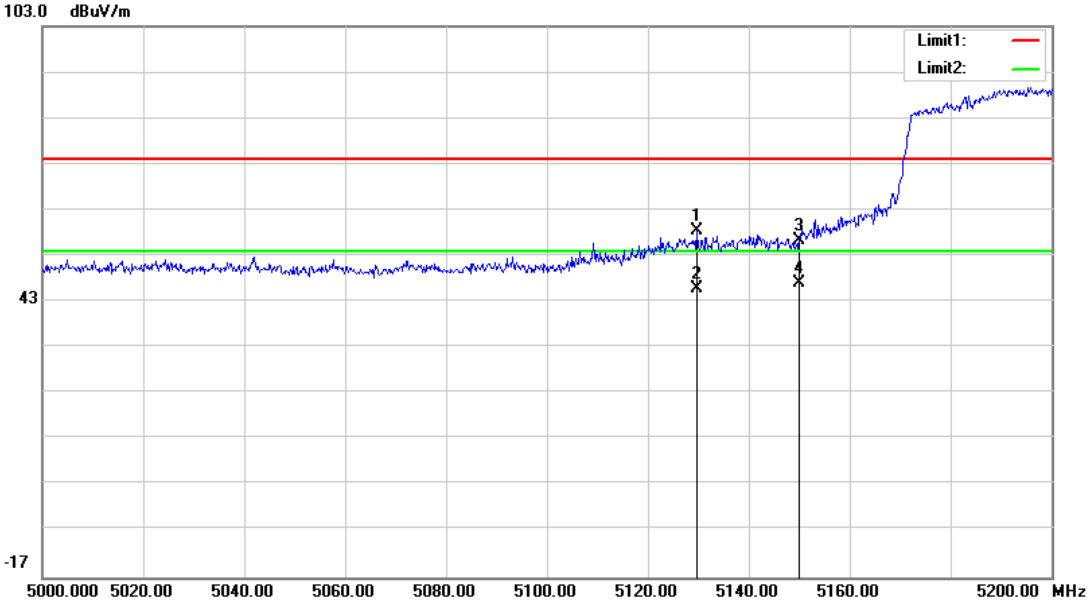
Vertical



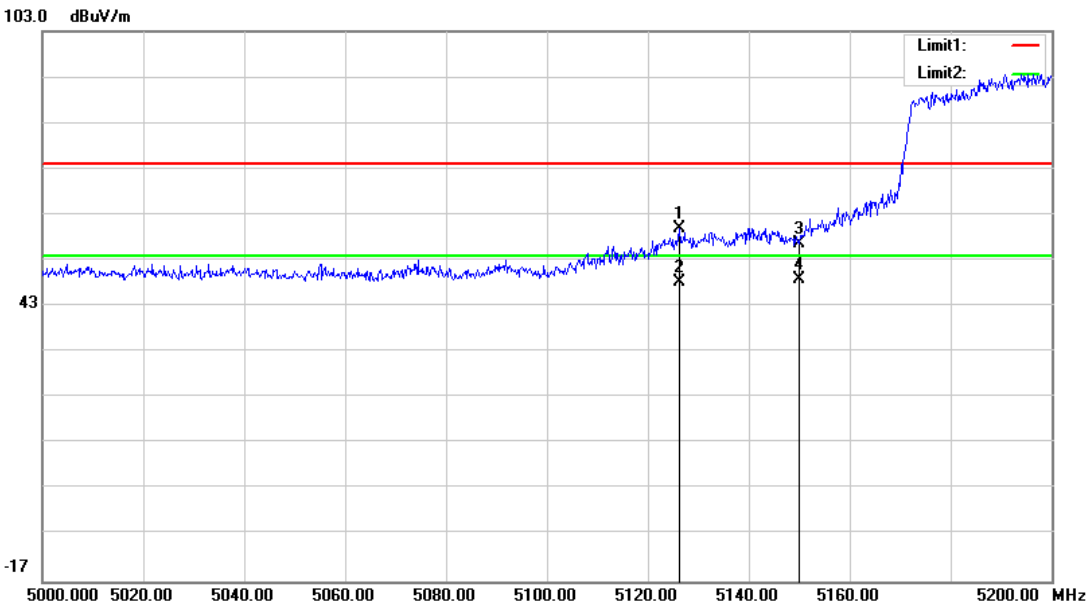
Test Mode: ac(VHT80) **Channel: 42**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5129.600	57.86	0.49	58.35	74.00	-15.65	peak	Horizontal
2	5129.600	45.35	0.49	45.84	54.00	-8.16	AVG	Horizontal
3	5150.000	55.71	0.49	56.20	74.00	-17.80	peak	Horizontal
4	5150.000	46.61	0.49	47.10	54.00	-6.90	AVG	Horizontal
1	5126.200	59.56	0.49	60.05	74.00	-13.95	peak	Vertical
2	5126.200	47.72	0.49	48.21	54.00	-5.79	AVG	Vertical
3	5150.000	56.14	0.49	56.63	74.00	-17.37	peak	Vertical
4	5150.000	48.24	0.49	48.73	54.00	-5.27	AVG	Vertical

Horizontal



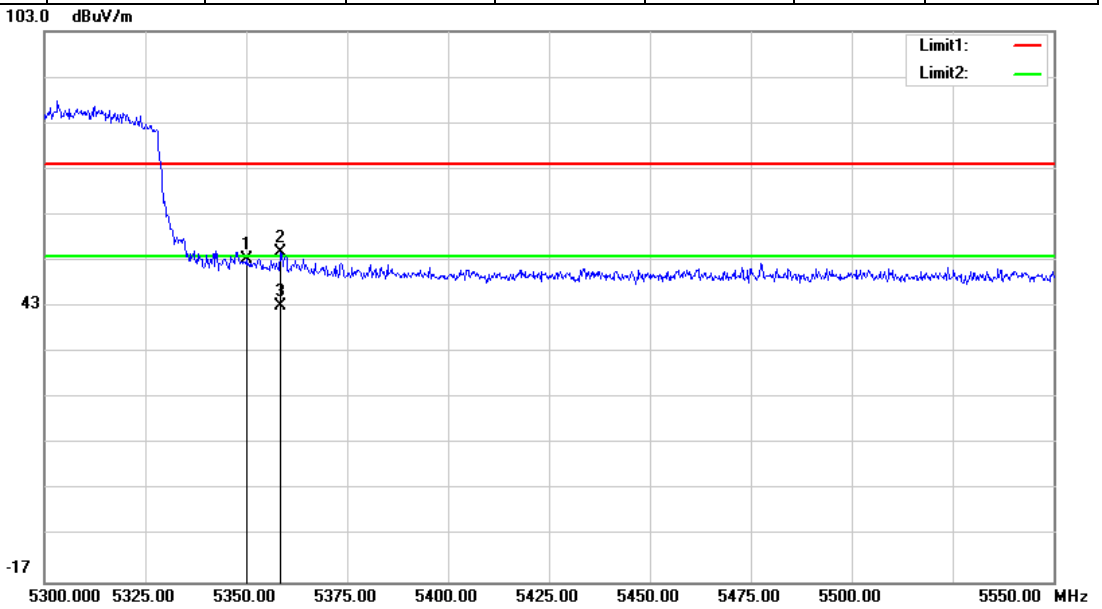
Vertical



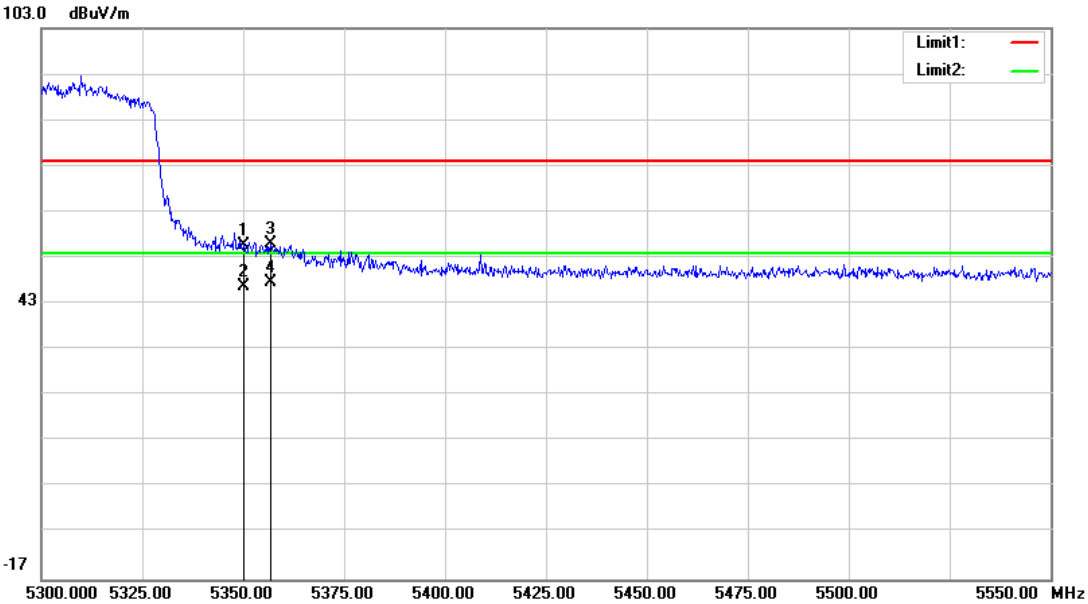
Test Mode: ac(VHT80) **Channel: 58**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5350.000	52.70	0.52	53.22	74.00	-20.78	peak	Horizontal
2	5358.500	54.31	0.52	54.83	74.00	-19.17	peak	Horizontal
3	5358.500	42.67	0.52	43.19	54.00	-10.81	AVG	Horizontal
1	5350.000	55.25	0.52	55.77	74.00	-18.23	peak	Vertical
2	5350.000	46.27	0.52	46.79	54.00	-7.21	AVG	Vertical
3	5356.750	55.42	0.52	55.94	74.00	-18.06	peak	Vertical
4	5356.750	47.07	0.52	47.59	54.00	-6.41	AVG	Vertical

Horizontal



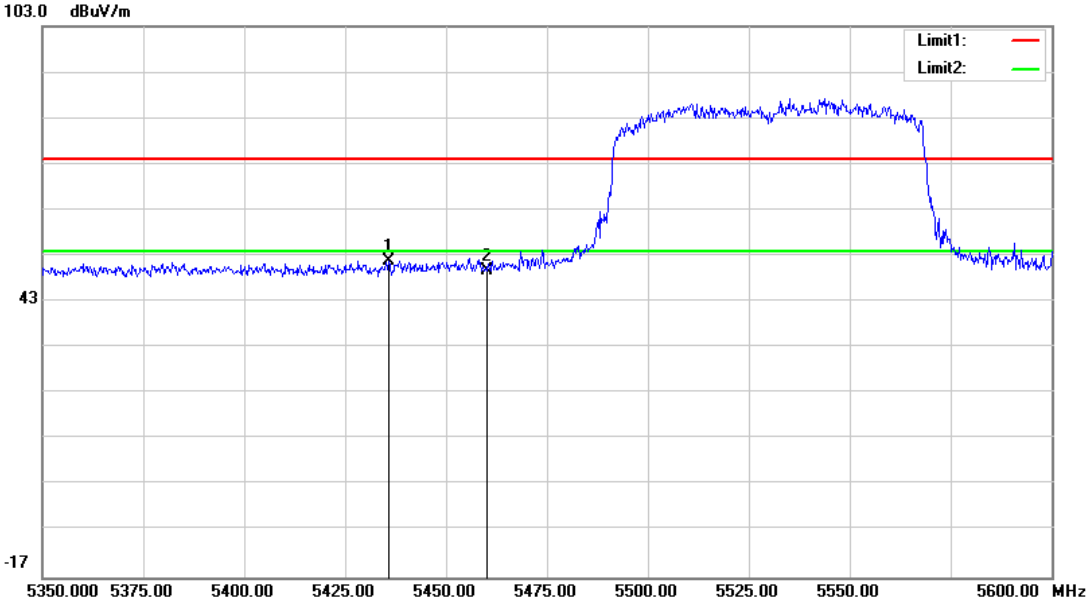
Vertical



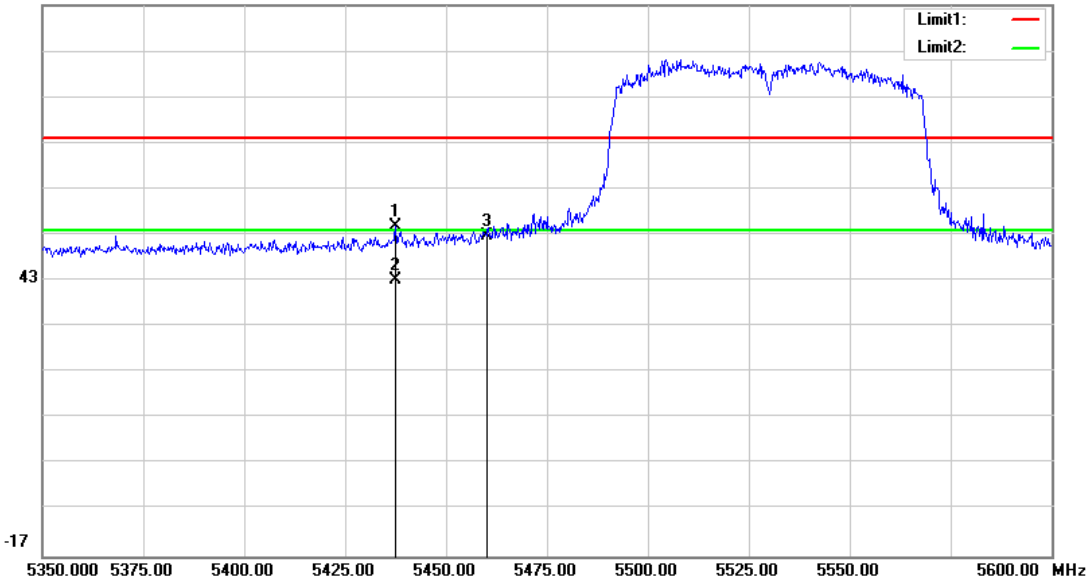
Test Mode: ac(VHT80) **Channel: 106**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5435.750	51.22	0.53	51.75	74.00	-22.25	peak	Horizontal
2	5460.000	49.22	0.53	49.75	74.00	-24.25	peak	Horizontal
1	5437.500	54.39	0.53	54.92	74.00	-19.08	peak	Vertical
2	5437.500	42.55	0.53	43.08	54.00	-10.92	AVG	Vertical
3	5460.000	52.07	0.53	52.60	74.00	-21.40	peak	Vertical

Horizontal



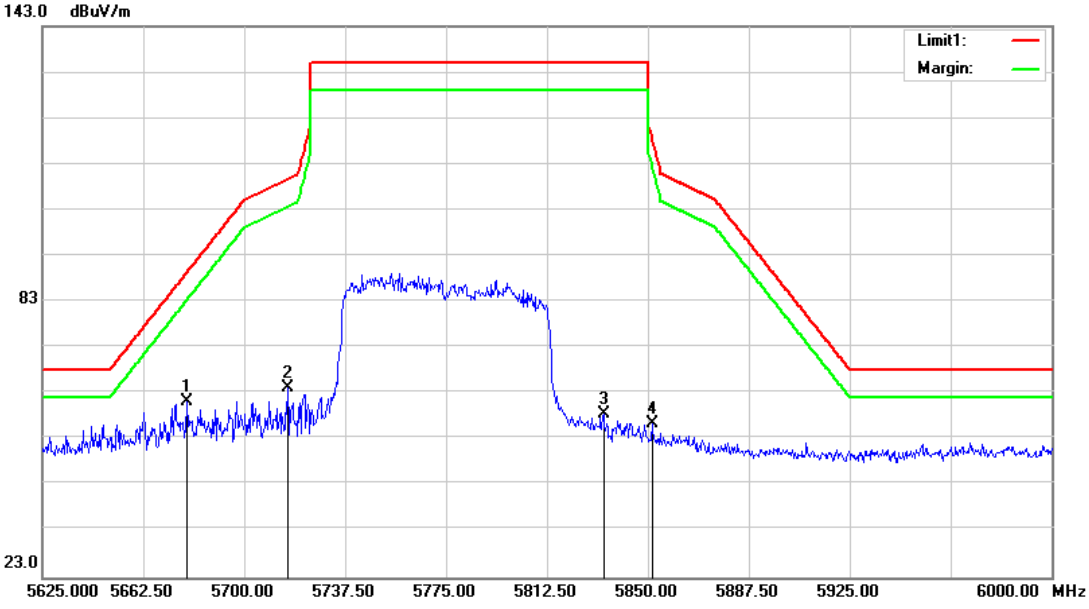
Vertical



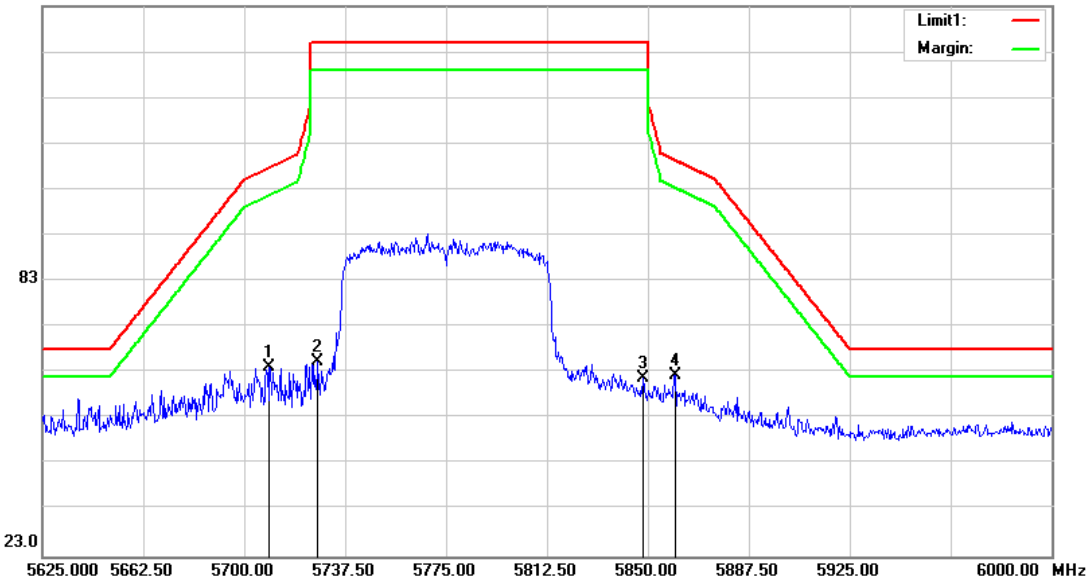
Test Mode: ac(VHT80) **Channel: 155**

MK.	Frequency (MHz)	Reading (dBuV/m)	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5678.625	60.54	0.71	61.25	89.38	-28.13	peak	Horizontal
2	5716.125	63.48	0.74	64.22	109.72	-45.50	peak	Horizontal
3	5833.500	57.66	0.85	58.51	135.00	-76.49	peak	Horizontal
4	5851.500	55.47	0.87	56.34	118.78	-62.44	peak	Horizontal
1	5709.375	63.40	0.74	64.14	107.83	-43.69	peak	Vertical
2	5727.375	64.55	0.75	65.30	135.00	-69.70	peak	Vertical
3	5848.125	60.83	0.87	61.70	135.00	-73.30	peak	Vertical
4	5860.125	61.64	0.88	62.52	109.36	-46.84	peak	Vertical

Horizontal



Vertical



Remark: 1). Test Level = Receiver Reading + Antenna Factor + Cable Loss- Preamplifier Factor

2). If the Peak value below the AV Limit, the AV test doesn't perform for this submission.

All frequencies within the "Restricted bands" have been evaluated to compliance. Except as shown in paragraph of this section, only spurious emissions are permitted in any of the frequency bands listed below:

a. FCC Part 15, Subpart C Section 15.205 Restricted bands of operation.

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.5 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

b. RSS-Gen section 7.2.2 Restricted bands of operation

MHz	MHz	GHz
0.090-0.110	240-285	9.0-9.2
2.1735-2.1905	322-335.4	9.3-9.5
3.020-3.026	399.9-410	10.6-12.7
4.125-4.128	608-614	13.25-13.4
4.17725-4.17775	960-1427	14.47-14.5
4.20725-4.20775	1435-1626.5	15.35-16.2
5.677-5.683	1645.5-1646.5	17.7-21.4
6.215-6.218	1660-1710	22.01-23.12
6.26775-6.26825	1718.8-1722.2	23.6-24.0
6.31175-6.31225	2200-2300	31.2-31.8
8.291-8.294	2310-2390	36.43-36.5
8.362-8.366	2655-2900	Above 38.6
8.37625-8.38675	3260-3267	
8.41425-8.41475	3332-3339	
12.29-12.293	3345.8-3358	
12.51975-12.52025	3500-4400	
12.57675-12.57725	4500-5150	
13.36-13.41	5350-5460	
16.42-16.423	7250-7750	
16.69475-16.69525	8025-8500	
16.80425-16.80475		
25.5-25.67		
37.5-38.25		
73-74.6		
74.8-75.2		
108-138		
156.52475-156.52525		
156.7-156.9		

--End of the Report--