RADIO TEST REPORT
FCC 47 CFR PART 15 SUBPART E

Test Standard	**FCC Part 15.407**
Product name	**Computer**
Brand Name	**ADVANTECH**
Model No.	**TREK-530**
Test Result	**Pass**

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.
The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc.(Wugu Laboratory)

Approved by:

Sam Chuang
Manager

Tested by:

Jerry Chuang
Engineer

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 19, 2018	Initial Issue	ALL	Allison Chen
01	July 31, 2018	1. Revised antenna information in section 1.3. 2. Revised test summary in section 2.	P.6, 9	Allison Chen

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

<table>
<tr><td>Applicant</td><td>Advantech Co.Ltd.
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.</td></tr>
<tr><td>Manufacturer</td><td>Advantech Co.Ltd.
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.</td></tr>
<tr><td>Equipment</td><td>Computer</td></tr>
<tr><td>Model No.</td><td>TREK-530</td></tr>
<tr><td>Model Discrepancy</td><td>N/A</td></tr>
<tr><td>Received Date</td><td>ADVANTECH</td></tr>
<tr><td>Date of Test</td><td>December 8 ~ January 9, 2018</td></tr>
<tr><td>Power Operation</td><td>Powered from DC supply: DC 12V</td></tr>
<tr><td>Output Power(W)</td><td>
<table>
<tr><th>Band</th><th>Mode</th><th>Frequency Range (MHz)</th><th>Output Power (W)</th></tr>
<tr><td rowspan="3">U-NII-1</td><td>IEEE 802.11a</td><td>5180 ~ 5240</td><td>0.0695</td></tr>
<tr><td>IEEE 802.11n 20 MHz</td><td>5180 ~ 5240</td><td>0.0714</td></tr>
<tr><td>IEEE 802.11n 40 MHz</td><td>5190 ~ 5230</td><td>0.0841</td></tr>
<tr><td rowspan="3">U-NII-2a</td><td>IEEE 802.11a</td><td>5260 ~ 5320</td><td>0.0649</td></tr>
<tr><td>IEEE 802.11n 20 MHz</td><td>5260 ~ 5320</td><td>0.0664</td></tr>
<tr><td>IEEE 802.11n 40 MHz</td><td>5270 ~ 5310</td><td>0.0807</td></tr>
<tr><td rowspan="6">U-NII-2c</td><td>IEEE 802.11a</td><td>5500 ~ 5700</td><td>0.0245</td></tr>
<tr><td>IEEE 802.11n 20 MHz</td><td>5500 ~ 5700</td><td>0.0392</td></tr>
<tr><td>IEEE 802.11n 40 MHz</td><td>5510 ~ 5670</td><td>0.0342</td></tr>
<tr><td>IEEE 802.11a</td><td>5745 ~ 5825</td><td>0.0239</td></tr>
<tr><td>IEEE 802.11n 20 MHz</td><td>5745 ~ 5825</td><td>0.0236</td></tr>
<tr><td>IEEE 802.11n 40 MHz</td><td>5755 ~ 5795</td><td>0.0286</td></tr>
</table>
</td></tr>
</table>

1.2 EUT CHANNEL INFORMATION

Frequency Range	**UNII-1**	
	IEEE 802.11a	5180 ~ 5240 MHz
	IEEE 802.11n 20 MHz	5180 ~ 5240 MHz
	IEEE 802.11n 40 MHz	5190 ~ 5230 MHz
	IEEE 802.11ac VHT 20 MHz	5180 ~ 5240 MHz
	IEEE 802.11ac VHT 40 MHz	5190 ~ 5230 MHz
	UNII-2a	
	IEEE 802.11a	5260 ~ 5320 MHz
	IEEE 802.11n 20 MHz	5260 ~ 5320 MHz
	IEEE 802.11n 40 MHz	5270 ~ 5310 MHz
	IEEE 802.11ac VHT 20 MHz	5260 ~ 5320 MHz
	IEEE 802.11ac VHT 40 MHz	5270 ~ 5310 MHz
	UNII-2c	
	IEEE 802.11a	5500 ~ 5700 MHz
	IEEE 802.11n 20 MHz	5500 ~ 5700 MHz
	IEEE 802.11n 40 MHz	5510 ~ 5670 MHz
	IEEE 802.11ac VHT 20 MHz	5500 ~ 5700 MHz
	IEEE 802.11ac VHT 40 MHz	5510 ~ 5670 MHz
	UNII-3	
	IEEE 802.11a	5745 ~ 5825 MHz
	IEEE 802.11n 20 MHz	5745 ~ 5825 MHz
	IEEE 802.11n 40 MHz	5755 ~ 5795 MHz
	IEEE 802.11ac VHT 20 MHz	5745 ~ 5825 MHz
	IEEE 802.11ac VHT 40 MHz	5755 ~ 5795 MHz
Modulation Type	1. IEEE 802.11a mode: OFDM 2. IEEE 802.11n 20 MHz mode: OFDM 3. IEEE 802.11n 40 MHz mode: OFDM 4. IEEE 802.11ac VHT 20 MHz mode: OFDM 5. IEEE 802.11ac VHT 40 MHz mode: OFDM	

Remark:
Refer as ANSI 63.10:2013 clause 5.6.1 Table 4 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	**Number of frequencies**	**Location in frequency range of operation**
☐ 1 MHz or less	1	Middle
☐ 1 MHz 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

1.3 ANTENNA INFORMATION

Antenna Type	☐ PIFA ☐ PCB ☒ Dipole ☐ Coils
Antenna Gain	Gain: -2.51dBi

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 30 to 1000 MHz	+/- 3.97
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 1 to 18GHz	+/- 3.58
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 18 to 26 GHz	+/- 3.59
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 26 to 40 GHz	+/- 3.81
Conducted Emission (Mains Terminals), 9kHz to 30MHz	+/- 2.48

Remark:
1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	Eric Lee	-
Radiation	Jerry Chuang	-
RF Conducted	Jerry Chuang	-

Remark: *The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.*

1.6 INSTRUMENT CALIBRATION

Wugu 966 Chamber A					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Bilog Antenna	Sunol Sciences	JB3	A030105	06/20/2017	06/19/2018
Pre-Amplifier	EMEC	EM330	60609	06/07/2017	06/06/2018
Spectrum Analyzer	Agilent	E4446A	US42510252	11/27/2017	11/26/2018
Loop Ant	COM-POWER	AL-130	121051	03/02/2017	03/01/2018
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Pre-Amplifier	HP	8449B	3008A00965	06/27/2017	06/26/2018
Filter	N/A	2400-2500	N/A	N/A	N/A
Filter	N/A	580-6000	N/A	N/A	N/A
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	07/31/2017	07/30/2018
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	07/31/2017	07/30/2018
Horn Antenna	EMCO	3117	55165	02/20/2017	02/19/2018

RF Conducted Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Power Meter	Anritsu	ML2495A	1033009	04/11/2017	04/10/2018
Power Sensor	Anritsu	MA2411B	917072	07/03/2017	07/02/2018
Spectrum Analyzer	R&S	FSV 40	101073	10/02/2017	10/01/2018
Thermostatic/Hrgrosatic Chamber	GWINSTEK	GTC-288MH-CC	TH160402	05/23/2017	05/22/2018
Directional Coupler	Agilent	87301D	MY44350252	07/25/2017	07/24/2018
SUCOFLEX Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	07/31/2017	07/30/2018
Divider	Solvang Technology	2-18GHz 4Way	STI08-0015	07/26/2017	07/25/2018

Remark: *Each piece of equipment is scheduled for calibration once a year.*

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
	N/A				

Support Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
1	NB	ASUS	M5200AE	N/A	PD9WM3B2100
2	DC Power Source	GWINSTEK	SPS-3610	N/A	N/A

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.407, KDB 789033 D02 v02r01, KDB 905462 D02 v02.

2. TEST SUMMERY

FCC Standard Sec.	Chapter	Test Item	Result
15.203	1.3	Antenna Requirement	Pass
15.207	4.1	AC Conducted Emission	N/A
15.403(i)	4.2	26dB Bandwidth	Pass
15.407(e)	4.2	6dB Bandwidth	Pass
15.403(i)	4.2	Occupied Bandwidth (99%)	Pass
15.407(a)	4.3	Output Power Measurement	Pass
15.407(a)	4.4	Power Spectral Density	Pass
15.407(b)	4.5	Radiation Band Edge	Pass
15.407(b)	4.5	Radiation Spurious Emission	Pass
15.407(g)	4.6	Frequency Stability	Pass
15.407(h)	4.7	Dynamic Frequency Selection	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

<table>
<tr><td>Operation mode</td><td>1. IEEE 802.11a mode: 6Mbps
2. IEEE 802.11n 20 MHz mode: MCS0
3. IEEE 802.11n 40 MHz mode: MCS0</td></tr>
<tr><td>Operating Frequency Range &
Number of Channels</td><td>
<table>
<tr><th></th><th>Mode</th><th>Frequency Range (MHz)</th><th>Number of Channels</th></tr>
<tr><td rowspan="5">U-NII-1</td><td>IEEE 802.11a</td><td>5180 ~ 5240</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11n 20 MHz</td><td>5180 ~ 5240</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11n 40 MHz</td><td>5190 ~ 5230</td><td>2 Channels</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5180 ~ 5240</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5190 ~ 5230</td><td>2 Channels</td></tr>
<tr><td rowspan="5">U-NII-2a</td><td>IEEE 802.11a</td><td>5260 ~ 5320</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11n 20 MHz</td><td>5260 ~ 5320</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11n 40 MHz</td><td>5270 ~ 5310</td><td>2 Channels</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5260 ~ 5320</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5270 ~ 5310</td><td>2 Channels</td></tr>
<tr><td rowspan="5">U-NII-2c</td><td>IEEE 802.11a</td><td>5500 ~ 5700</td><td>11 Channels</td></tr>
<tr><td>IEEE 802.11n 20 MHz</td><td>5500 ~ 5700</td><td>11 Channels</td></tr>
<tr><td>IEEE 802.11n 40 MHz</td><td>5510 ~ 5670</td><td>5 Channels</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5500 ~ 5700</td><td>11 Channels</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5510 ~ 5670</td><td>5 Channels</td></tr>
<tr><td rowspan="5">U-NII-3</td><td>IEEE 802.11a</td><td>5745 ~ 5825</td><td>5 Channels</td></tr>
<tr><td>IEEE 802.11n 20 MHz</td><td>5745 ~ 5825</td><td>5 Channels</td></tr>
<tr><td>IEEE 802.11n 40 MHz</td><td>5755 ~ 5795</td><td>2 Channels</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5745 ~ 5825</td><td>5 Channels</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5755 ~ 5795</td><td>2 Channels</td></tr>
</table>
</td></tr>
</table>

Remark:
1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.
2. Covered modes are test reduction modes. The output powers on the covered modes are equal to or less than the mode referenced and use the same module
3.The mode IEEE 802.11ac VHT20 and VHT40 are only different in control messages with IEEE 802.11n 20 MHz and HT40, and have same power setting. Therefore, the highest power(IEEE 802.11n 20 MHz and HT40) were test conducted and radiated measurement and recorded in this report.

3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G	
Test Condition	**Band edge, Emission for Unwanted and Fundamental**
DC Voltage	**12V**
Test Mode	**Mode 1:EUT power by Power Supply.**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**
Worst Position	☐ **Placed in fixed position.** ☐ **Placed in fixed position at X-Plane (E2-Plane)** ☒ **Placed in fixed position at Y-Plane (E1-Plane)** ☐ **Placed in fixed position at Z-Plane (H-Plane)**
Worst Polarity	☒ **Horizontal** ☐ **Vertical**

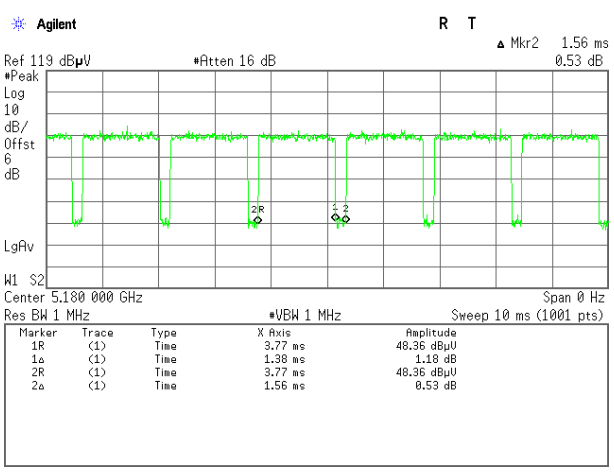
Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
DC Voltage	**12V**
Test Mode	**Mode 1:EUT power by Power Supply.**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**

Remark:
1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis, X, Y, Z and two polarity, Horizontal and Vertical for radiated measurement. The worst case (Y-Plane and Horizontal) were recorded in this report
3. For below 1G, Radiation emission were performed the EUT transmit at the highest output power channel as worse case.

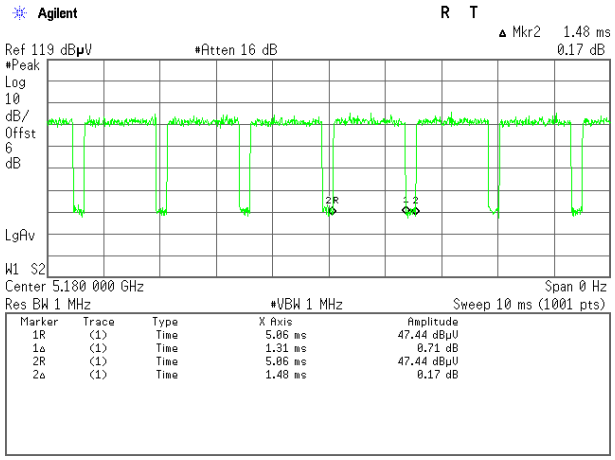
3.3 EUT DUTY CYCLE

Duty Cycle				
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)	Duty Factor(dB)
802.11a	1.3800	1.5600	88.46%	0.53
802.11n 20	1.3100	1.4800	88.51%	0.53
802.11n 40	0.7400	0.9000	82.22%	0.85

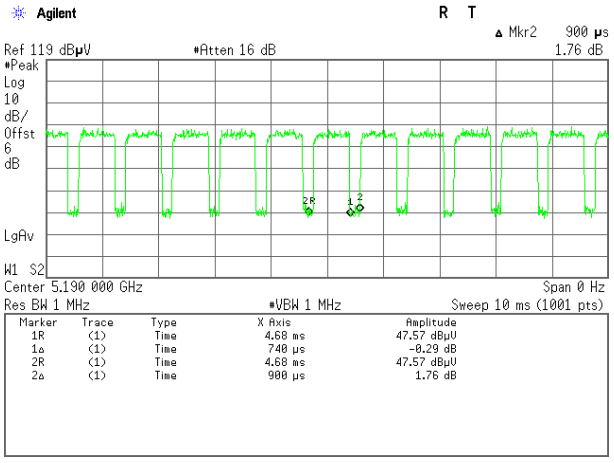
802.11a



802.11n 20 MHz



802.11n 40 MHz



4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a) and RSS-GEN section 8.8,

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

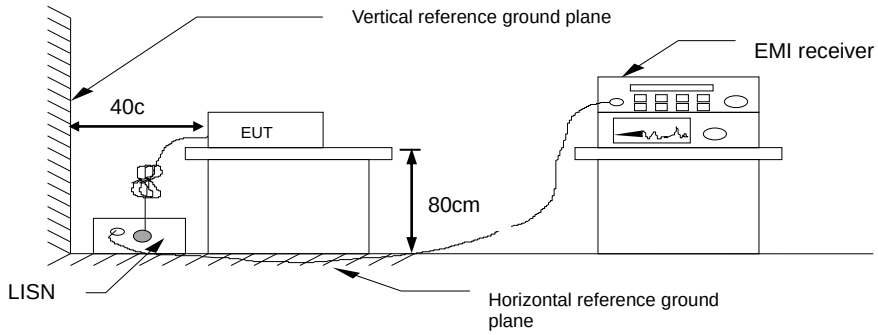
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

4.1.3 Test Setup



4.1.4 Test Result

Not applicable, because EUT not connect to AC Main Source direct.

4.2 26DB BANDWIDTH, 6DB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)

4.2.1 Test Limit

26 dB Bandwidth ：For reporting purposes only.

6 dB Bandwidth ：Least 500kHz.

Occupied Bandwidth(99%) ： For reporting purposes only.

4.2.2 Test Procedure

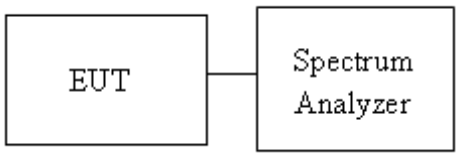
Test method Refer as KDB 789033 D02 v02r01 Section C, D, and ANSI 63.10:2013 clause 6.9.2,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. UNII-1, UNII-2a and UNII-2c,

   (1) BW=20MHz : SA set RBW = 300kHz, VBW = 1MHz and Detector = Peak, to measurement 26 dB Bandwidth

   (2) BW=40MHz : SA set RBW = 1MHz, VBW = 3MHz and Detector = Peak, to measurement 26 dB Bandwidth
4. UNII-3, SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth
5. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth
6. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup



4.2.4 Test Result

UNII-1 5150-5250 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5180	17.0767	-	29.2029	-
Mid	5220	17.0043	-	27.2464	-
High	5240	17.0043	-	25.0725	-
Test mode: IEEE 802.11n 20 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5180	18.0173	-	25.5797	-
Mid	5220	18.0173	-	26.8841	-
High	5240	17.9450	-	24.2754	-
Test mode: IEEE 802.11n 40 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5190	36.5846	-	48.812	-
High	5230	36.4688	-	45.797	-

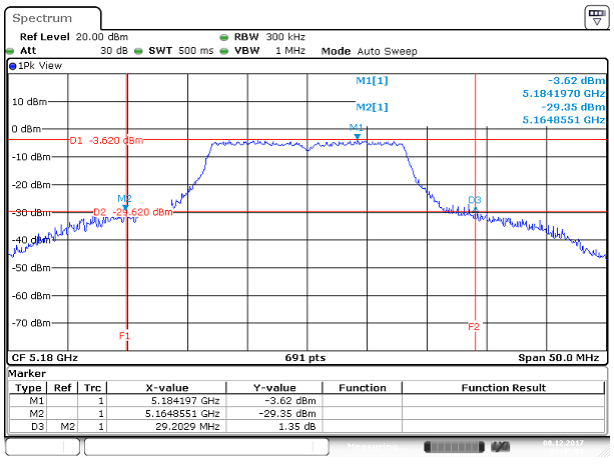
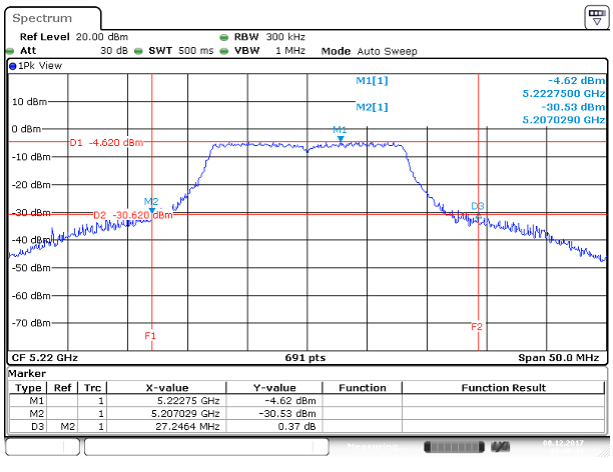
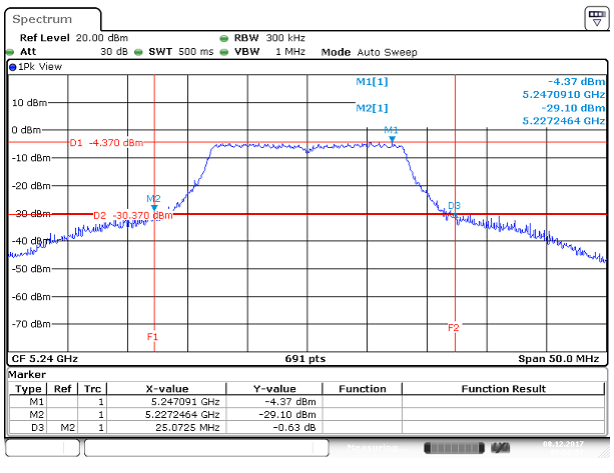
UNII-2a 5250-5350 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5260	16.9319	-	25.7246	-
Mid	5280	17.0043	-	25.4348	-
High	5320	17.0043	-	25.9420	-
Test mode: IEEE 802.11n 20 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5260	18.0173	-	26.3043	-
Mid	5280	17.0043	-	26.2319	-
High	5320	16.9319	-	25.5072	-
Test mode: IEEE 802.11n 40 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5270	36.3531	-	48.812	-
High	5310	36.3531	-	45.681	-

UNII-2c 5475-5725 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5500	16.9319	-	23.1884	-
Mid	5580	16.9319	-	25.4348	-
High	5700	17.0767	-	27.0290	-
Test mode: IEEE 802.11n 20 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5500	17.9450	-	23.0435	-
Mid	5580	18.0173	-	25.6522	-
High	5700	18.0173	-	23.6957	-
Test mode: IEEE 802.11n 40 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Low	5510	36.5846	-	45.913	-
Mid	5500	36.4688	-	49.391	-
High	5670	36.3531	-	47.536	-

UNII-3 5725-5825MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**
Low	5745	18.5962	-	16.3478	-
Mid	5785	19.4645	-	16.3478	-
High	5825	18.2344	-	16.3478	-
Test mode: IEEE 802.11n 20 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**
Low	5745	18.3791	-	17.5652	-
Mid	5785	18.5962	-	17.5652	-
High	5825	18.9580	-	17.5652	-
Test mode: IEEE 802.11n 40 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**
Low	5755	37.9739	-	35.13	-
High	5795	40.0578	-	35.362	-

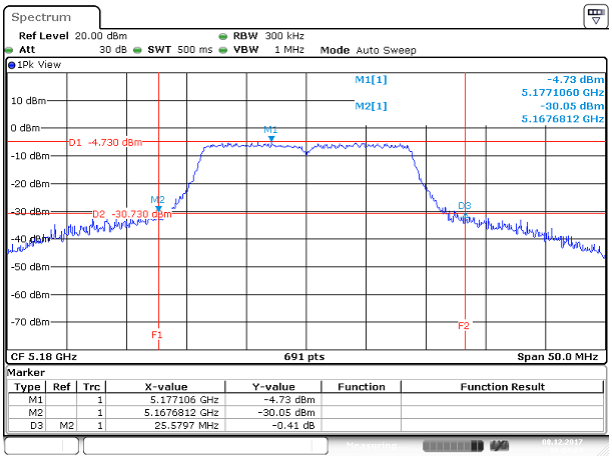
Test Data

26dB

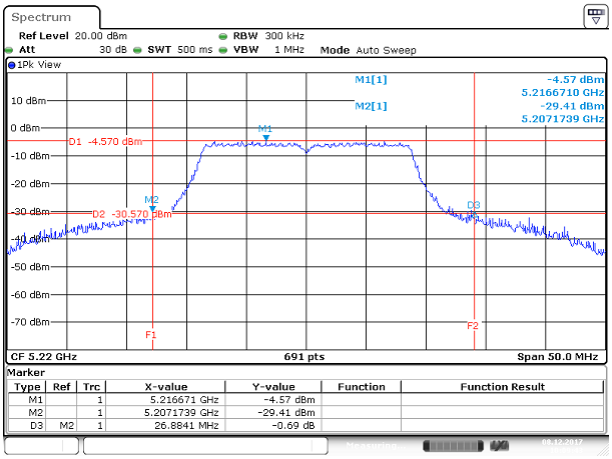
UNII-1 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-1 IEEE 802.11n 20 MHz mode- chain 0

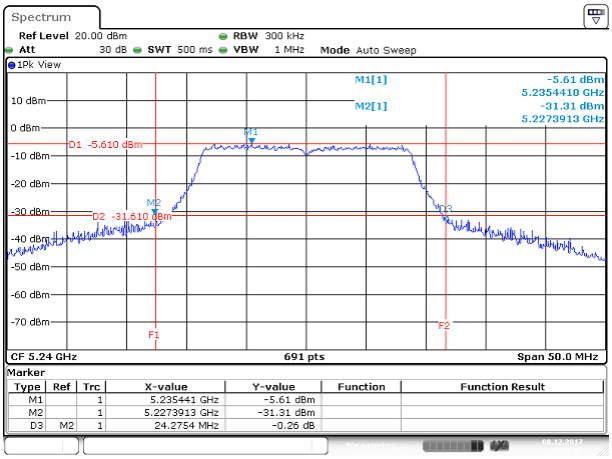
Low CH

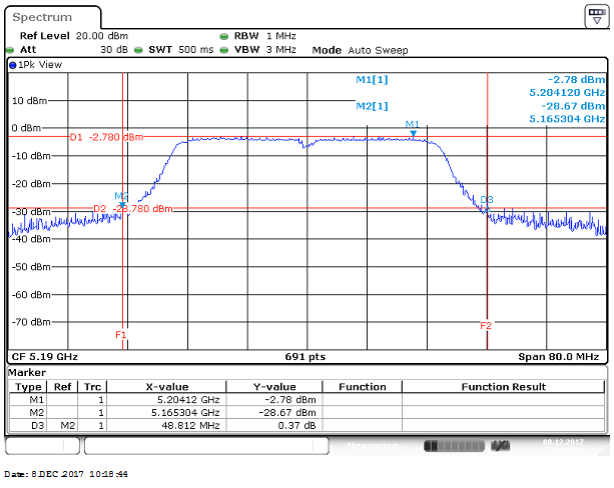
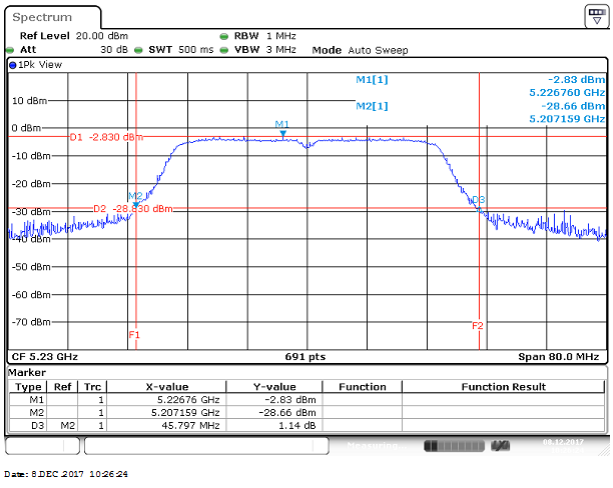


Mid CH



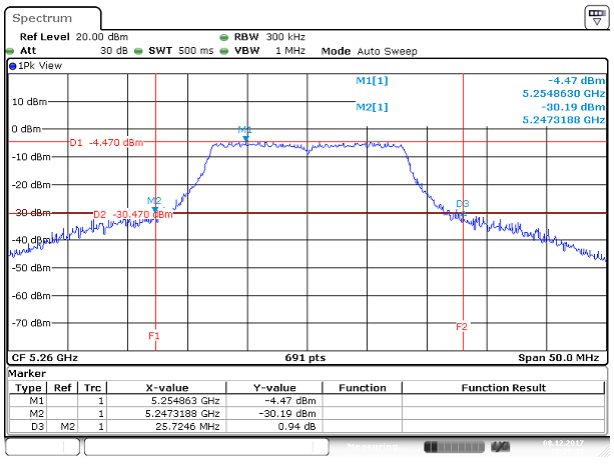
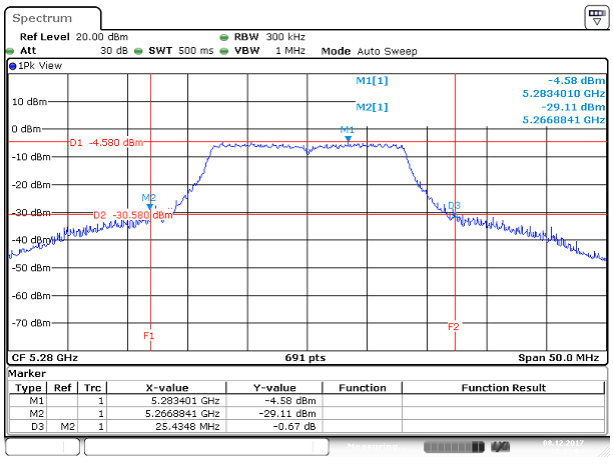
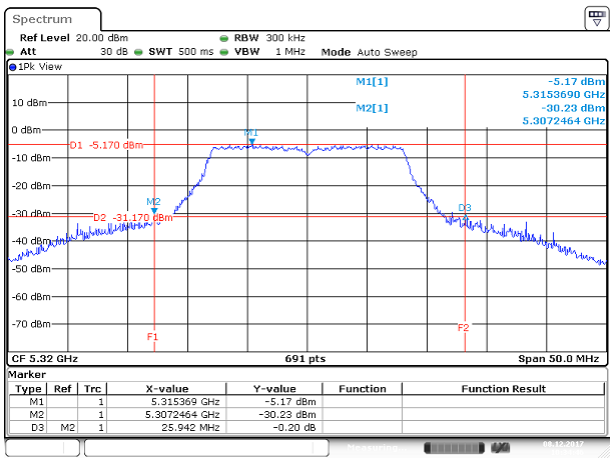
High CH



UNII-1 IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**High CH**
	

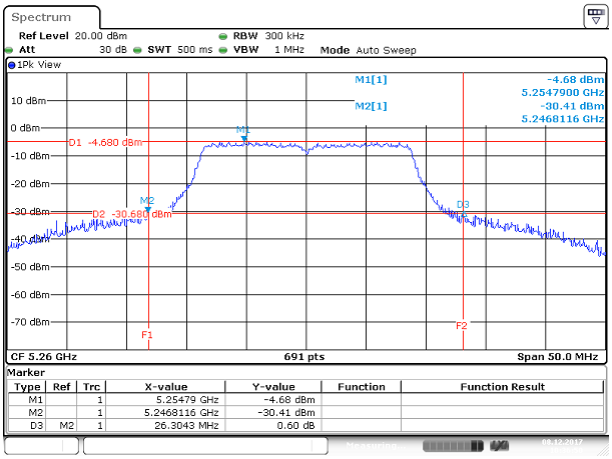
Test Data

26dB

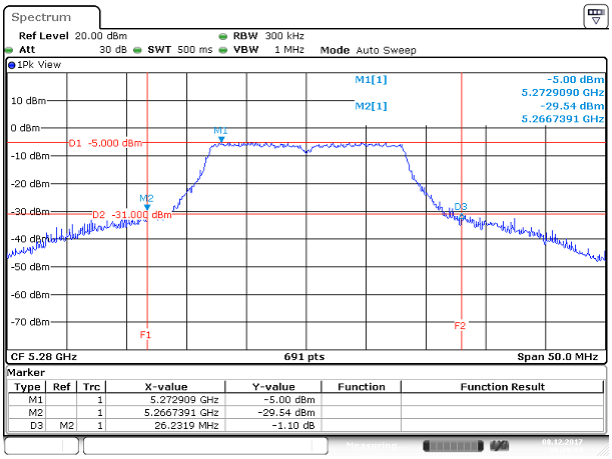
UNII-2a IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-2a IEEE 802.11n 20 MHz mode- chain 0

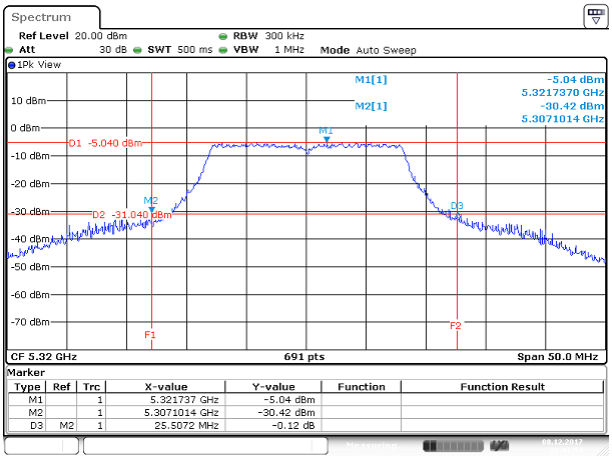
Low CH

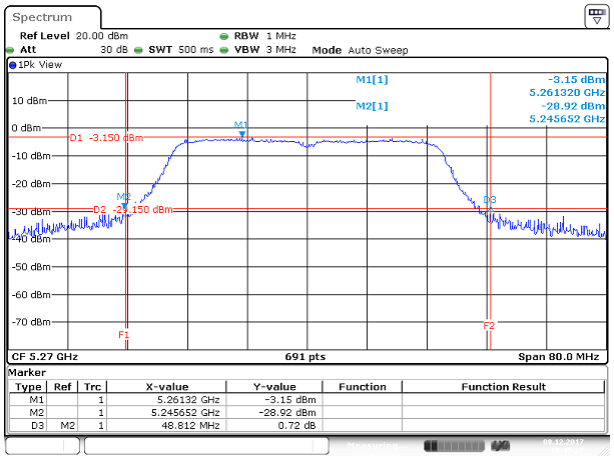
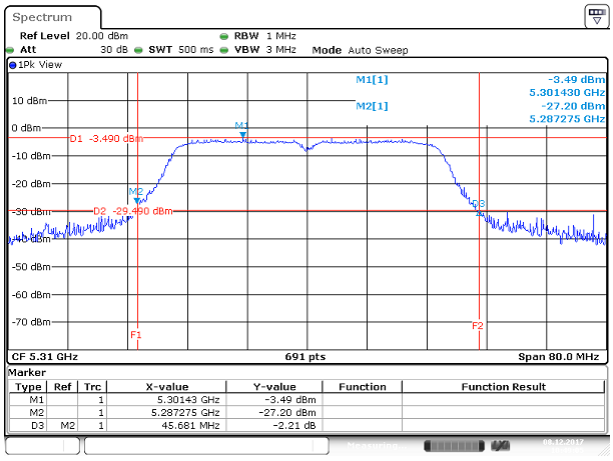


Mid CH



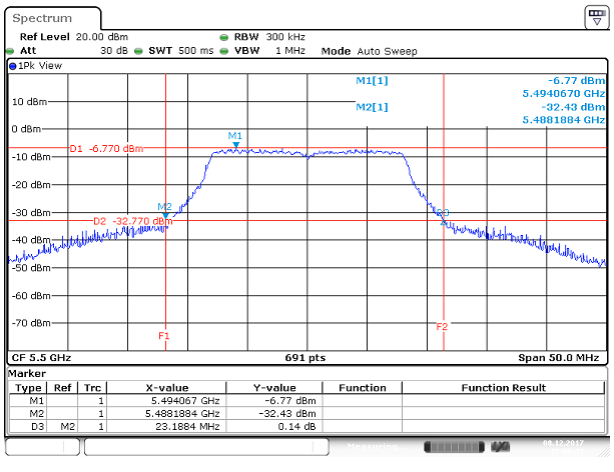
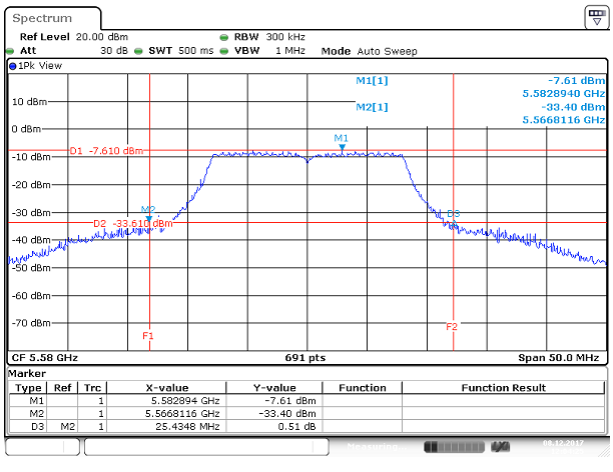
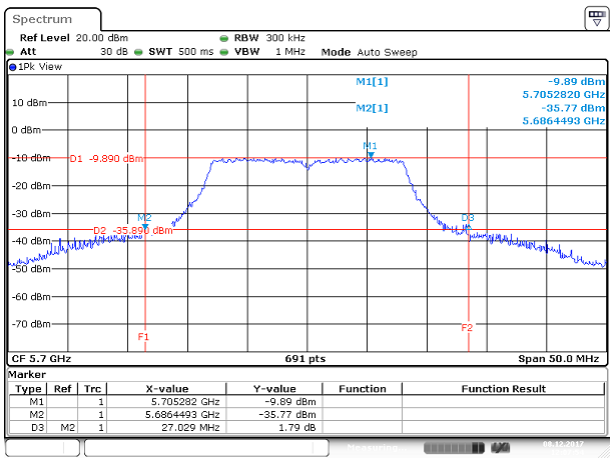
High CH



UNII-2a IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**High CH**
	

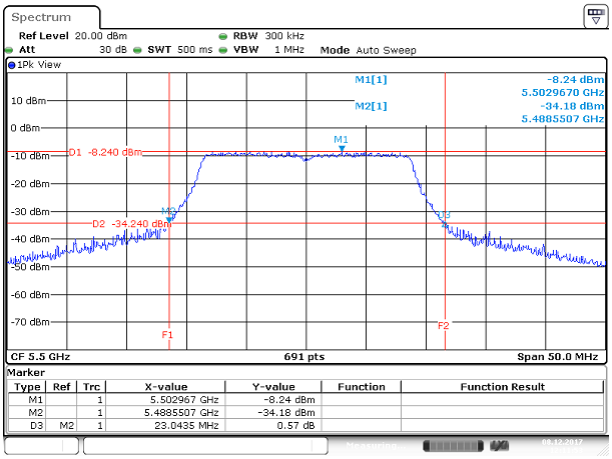
Test Data

26dB

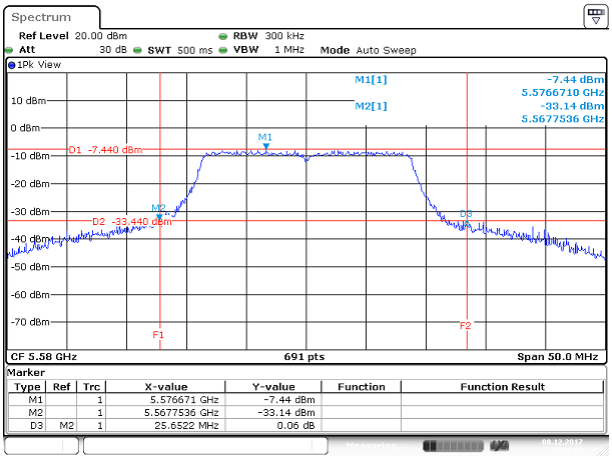
UNII-2c IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-2c IEEE 802.11n 20 MHz mode- chain 0

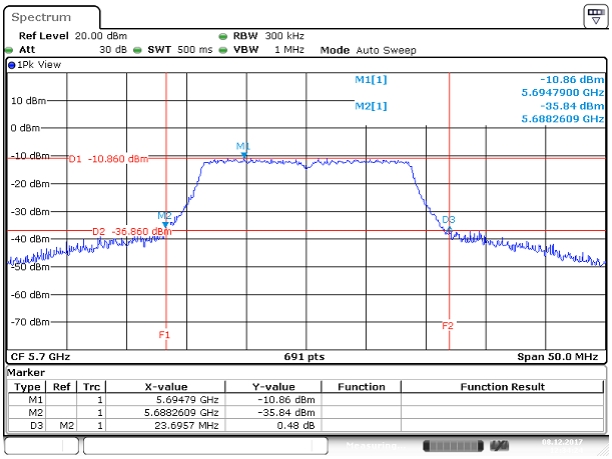
Low CH



Mid CH

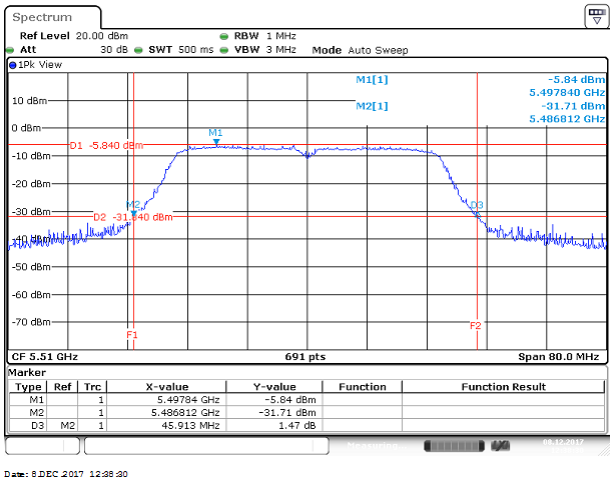


High CH



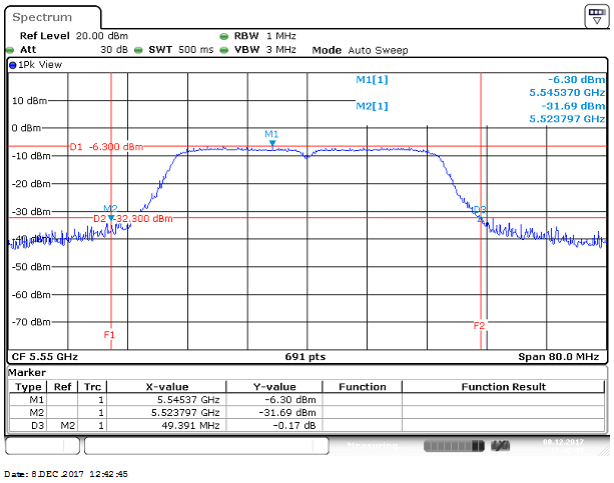
UNII-2c IEEE 802.11n 40 MHz mode- chain 0

Low CH



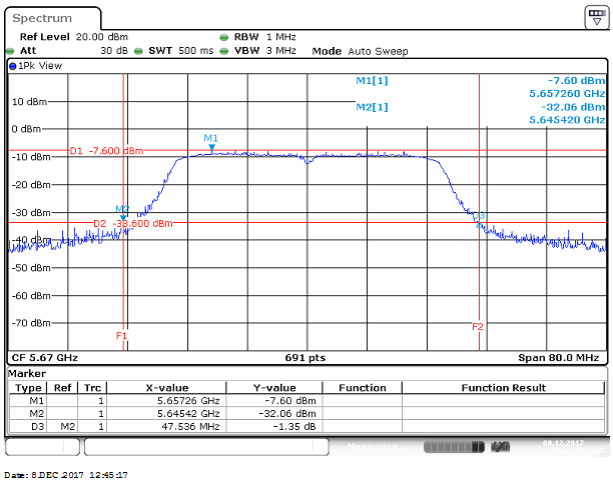
Date: 8.DEC.2017 12:38:30

Mid CH



Date: 8.DEC.2017 12:42:45

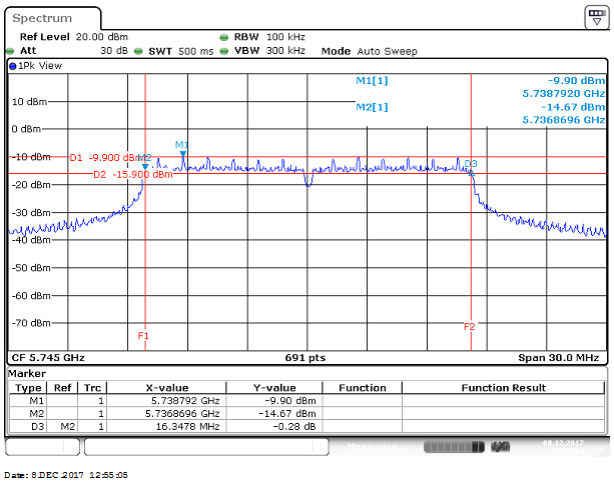
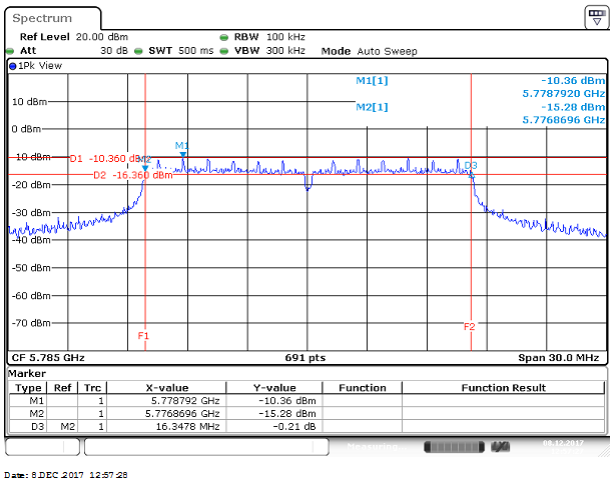
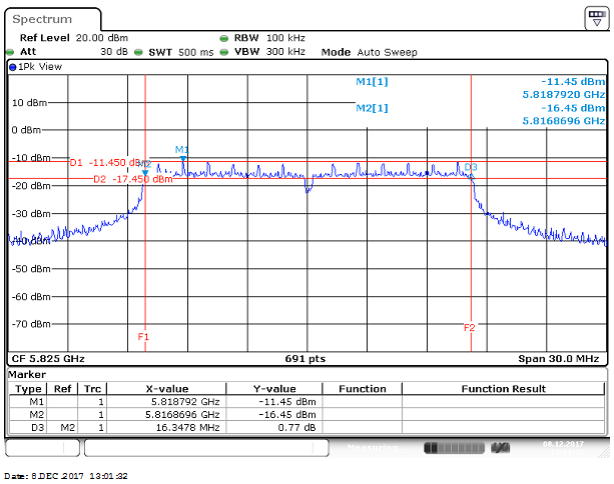
High CH



Date: 8.DEC.2017 12:45:17

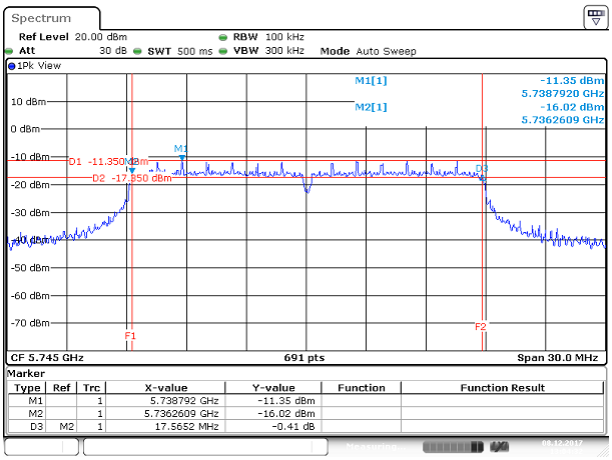
Test Data

6dB

UNII-3 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

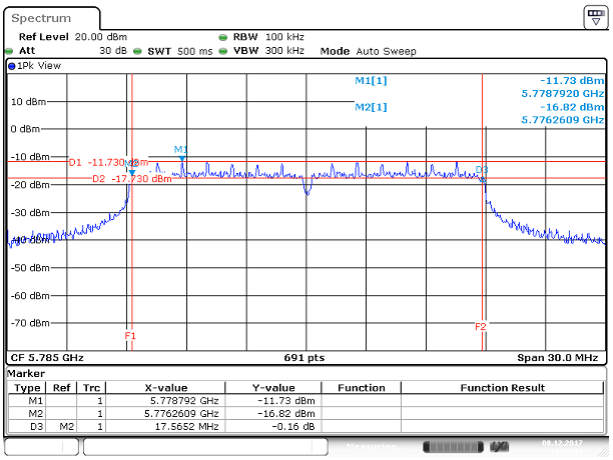
UNII-3 IEEE 802.11n 20 MHz mode- chain 0

Low CH



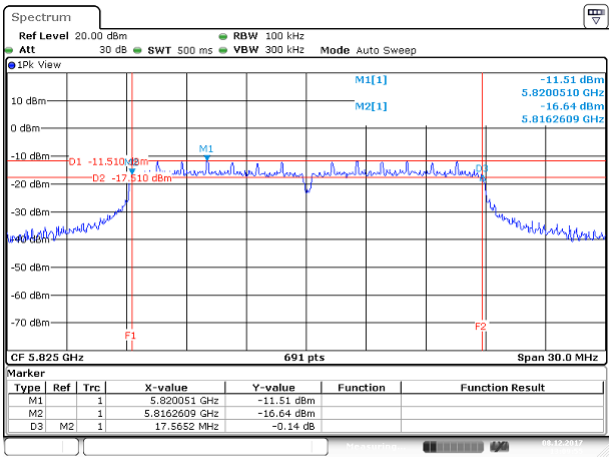
Date: 8.DEC.2017 13:04:32

Mid CH

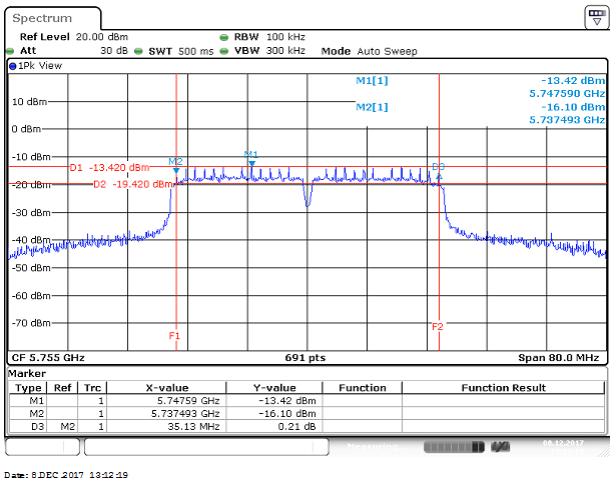
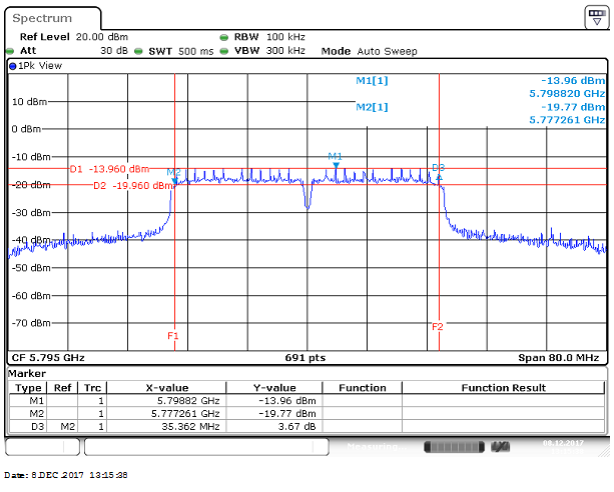


Date: 8.DEC.2017 13:06:41

High CH

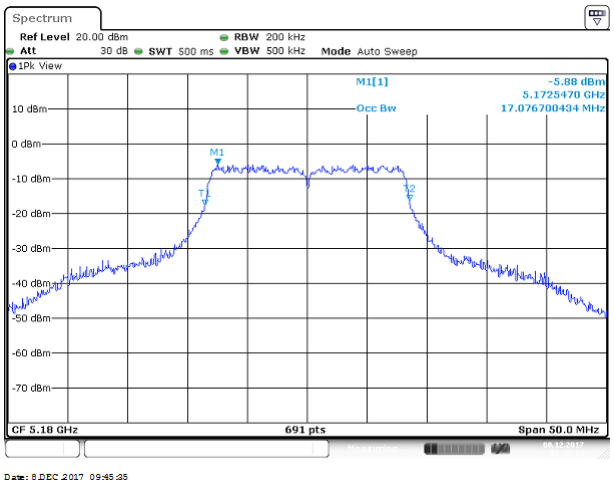
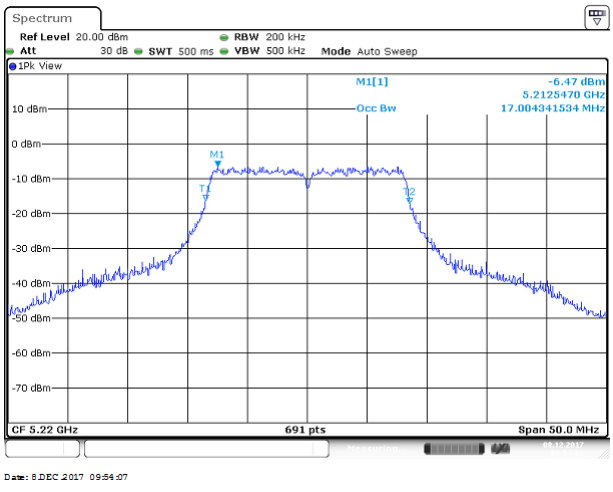
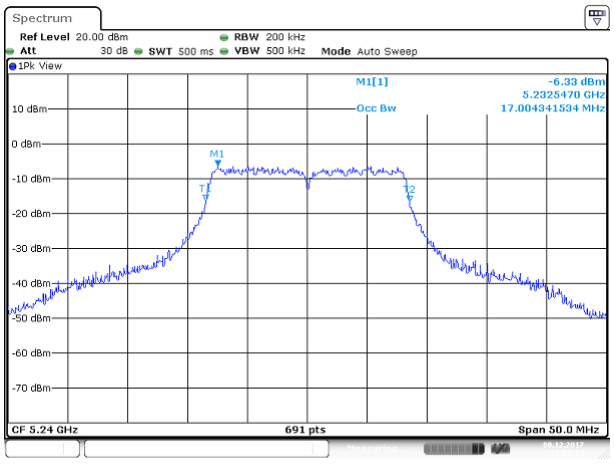


Date: 8.DEC.2017 13:09:55

UNII-3 IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**High CH**
	

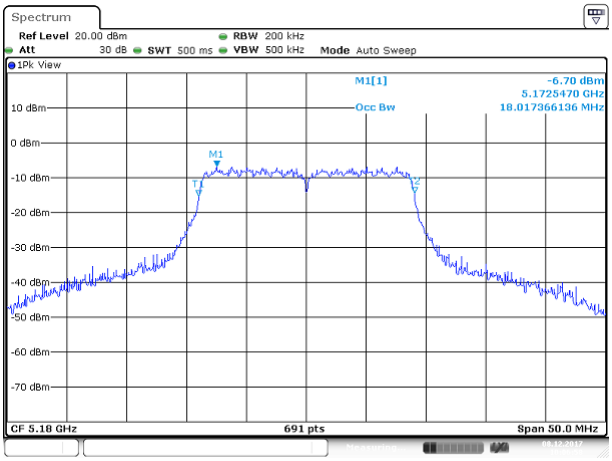
Test Data

99%OBW

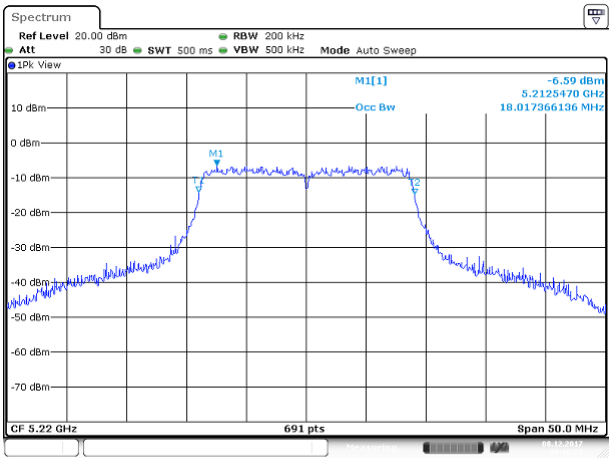
UNII-1 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-1 IEEE 802.11n 20 MHz mode- chain 0

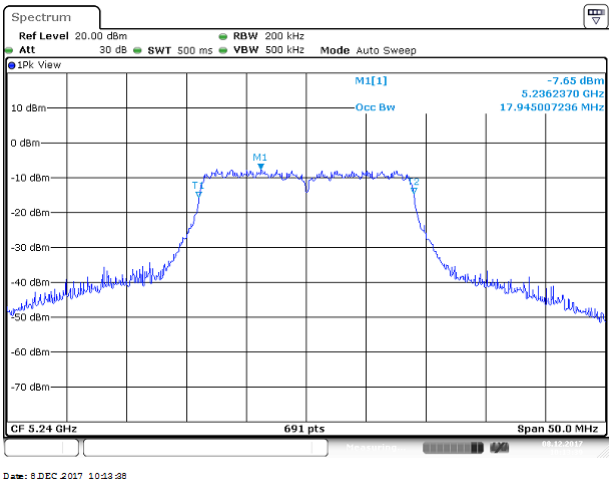
Low CH

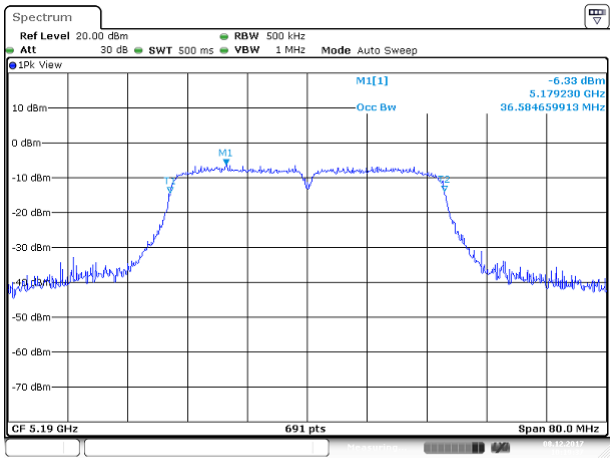
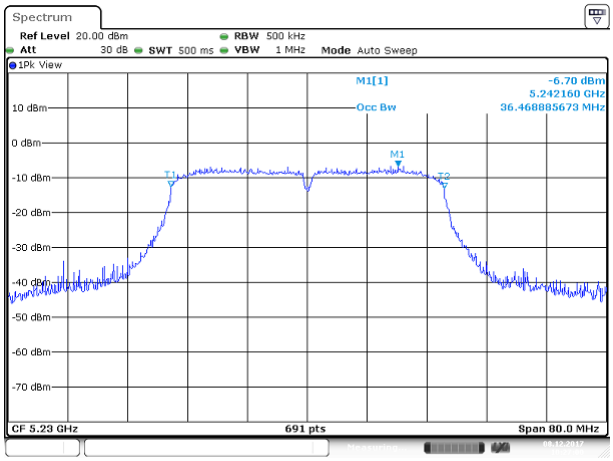


Mid CH



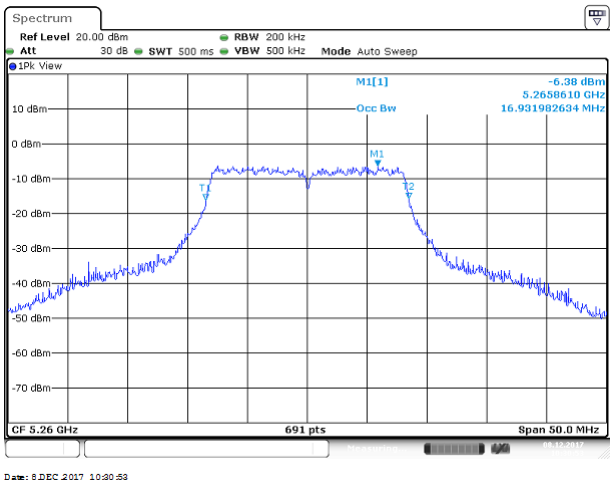
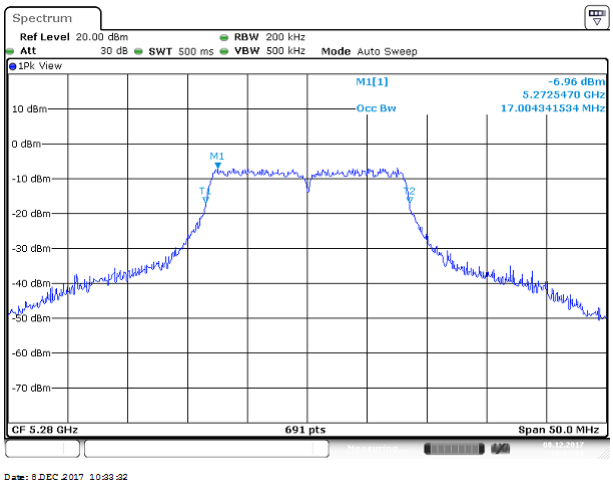
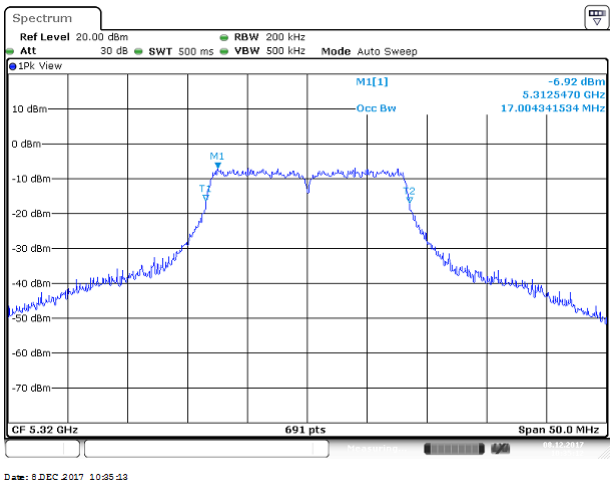
High CH

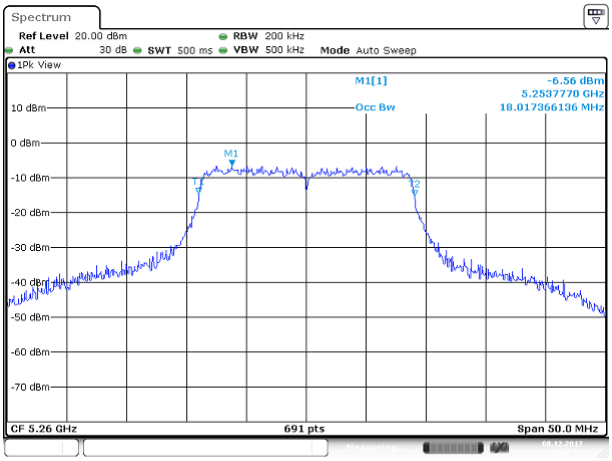
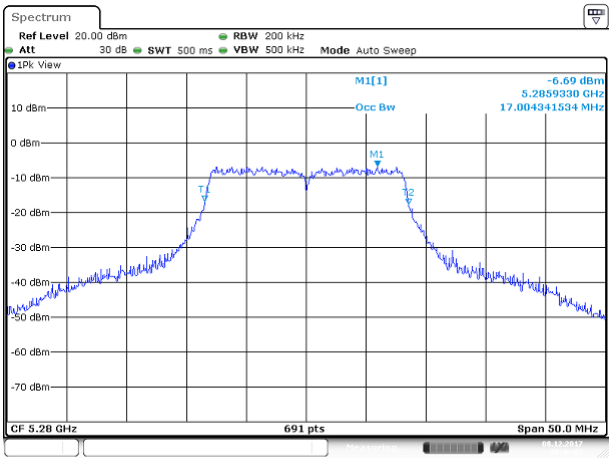
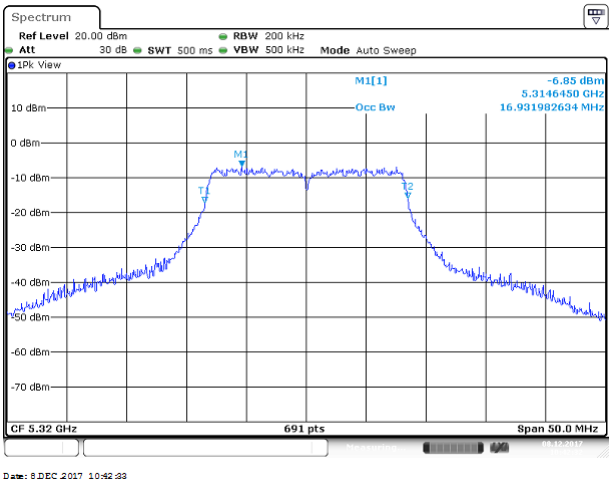


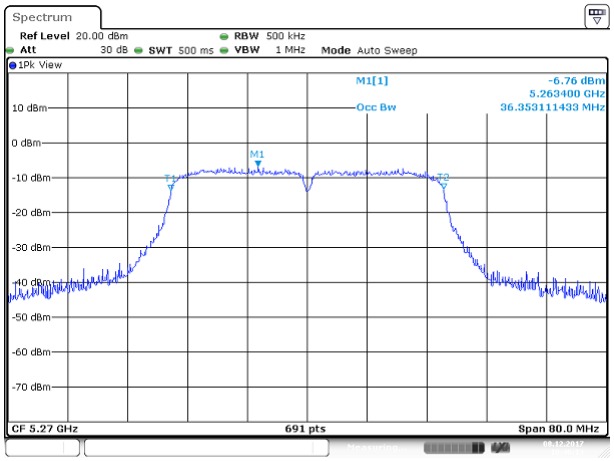
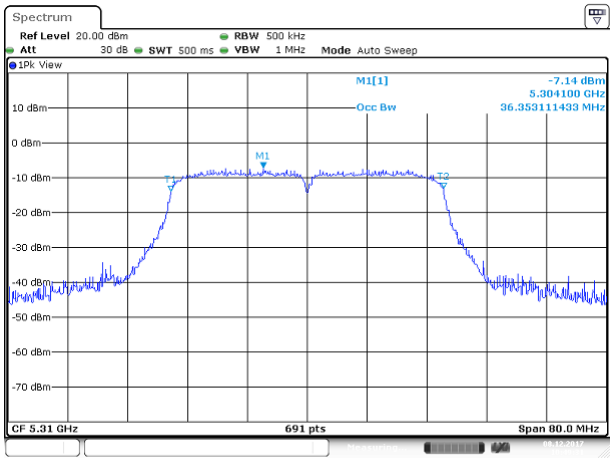
UNII-1 IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**High CH**
	

Test Data

99%OBW

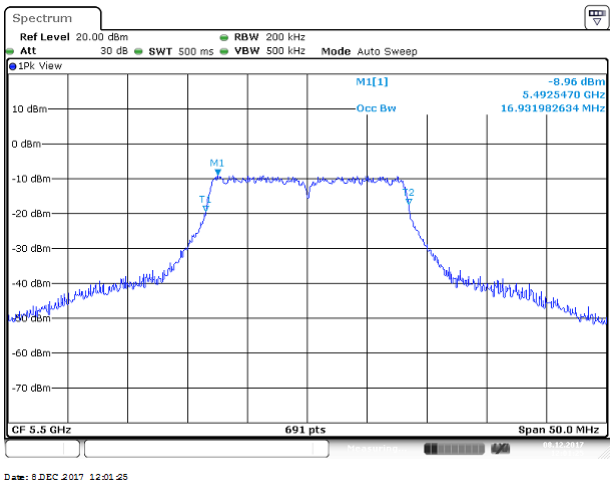
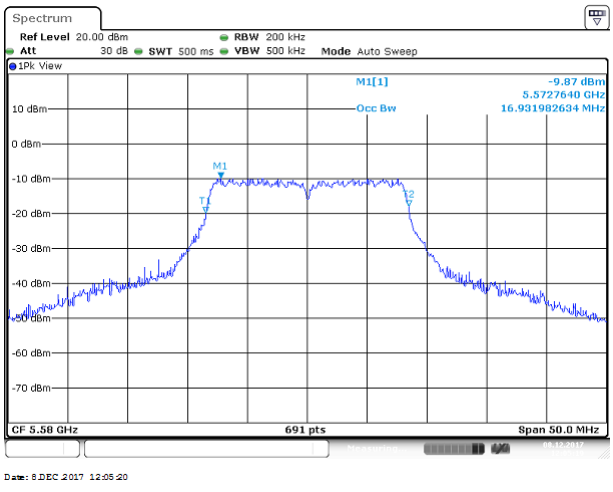
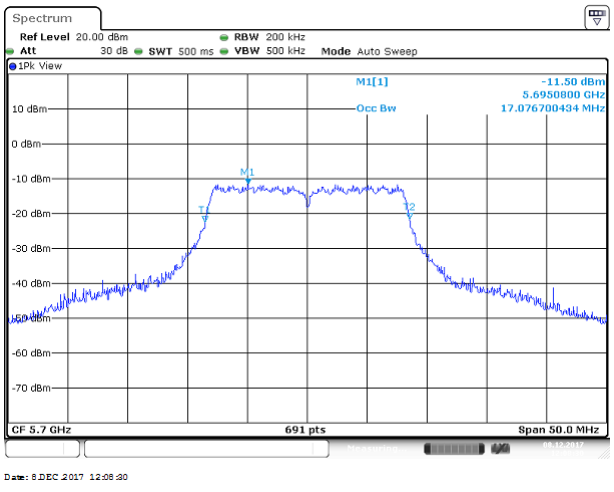
UNII-2a IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

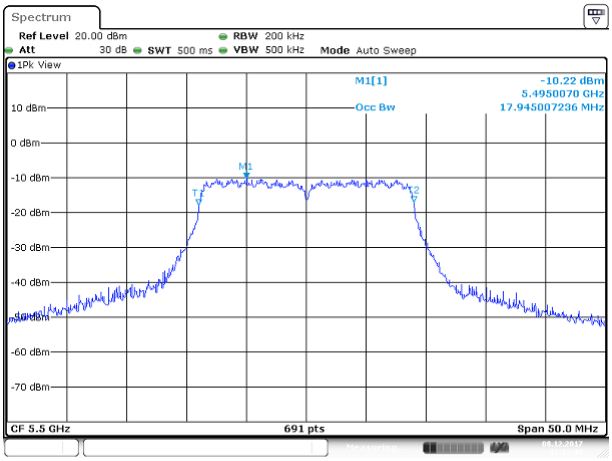
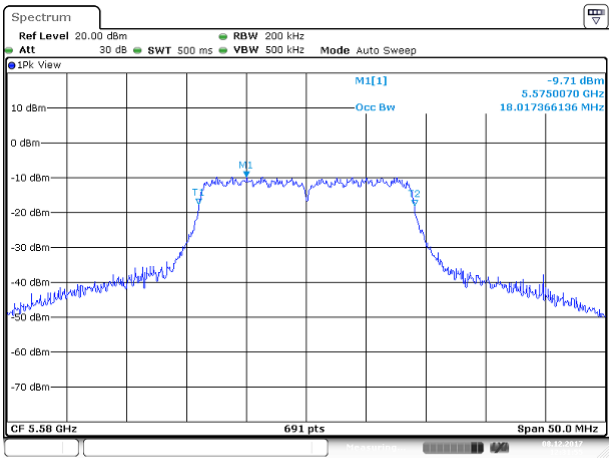
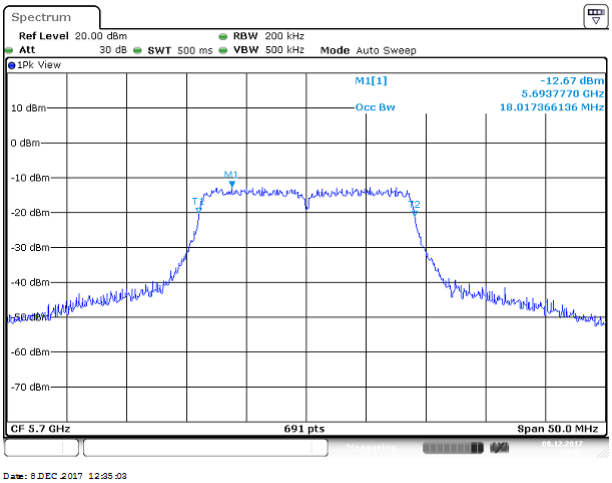
UNII-2a IEEE 802.11n 20 MHz mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

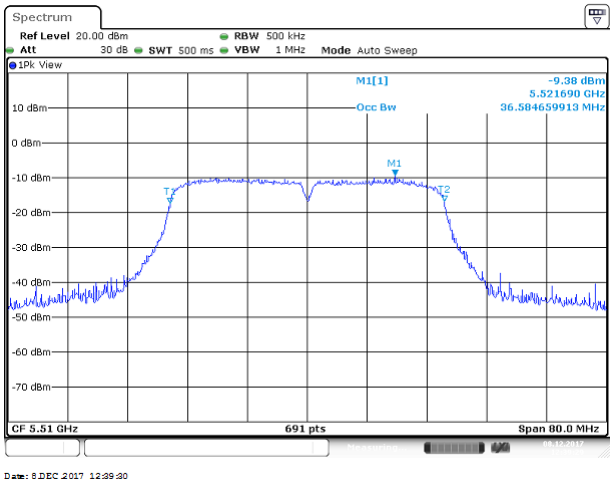
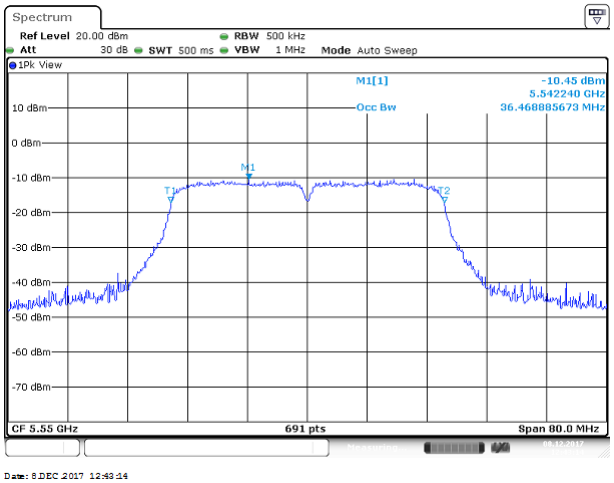
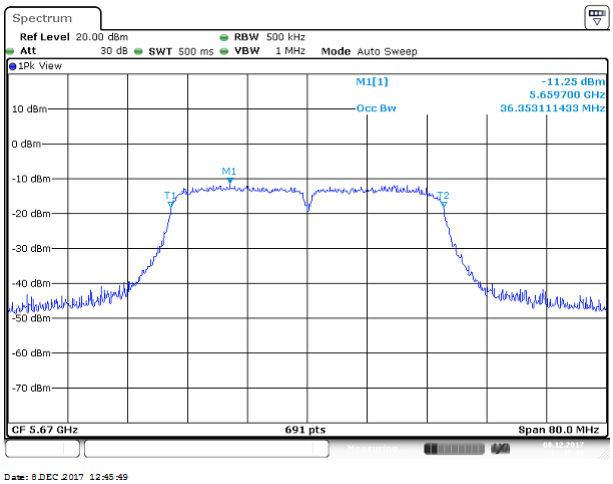
UNII-2a IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**High CH**
	

Test Data

99%OBW

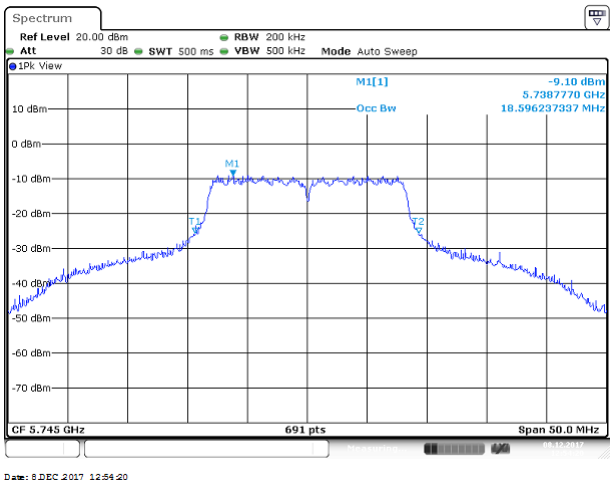
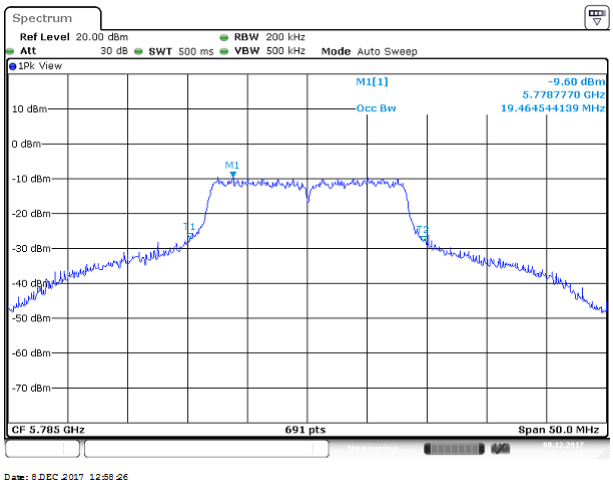
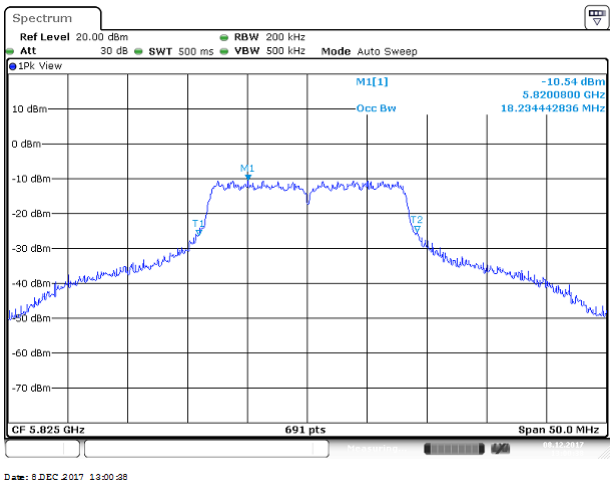
UNII-2c IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

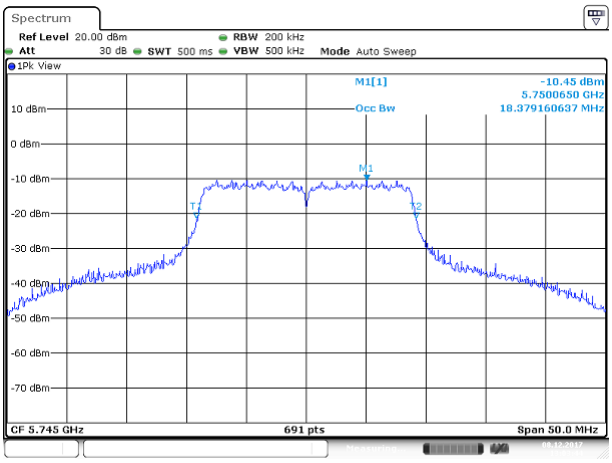
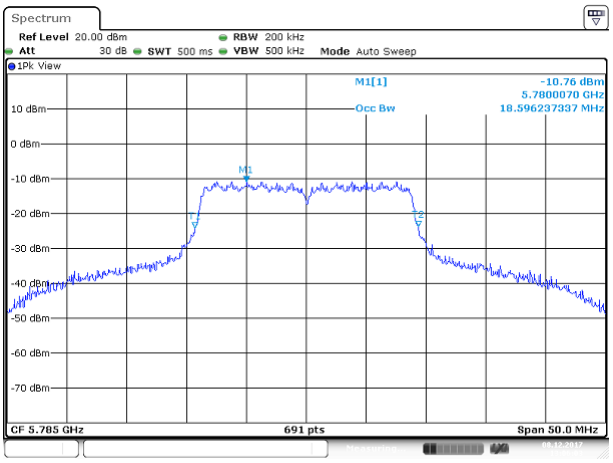
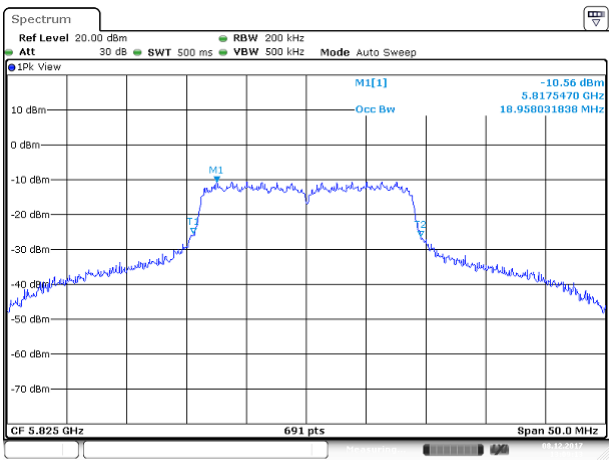
UNII-2c IEEE 802.11n 20 MHz mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

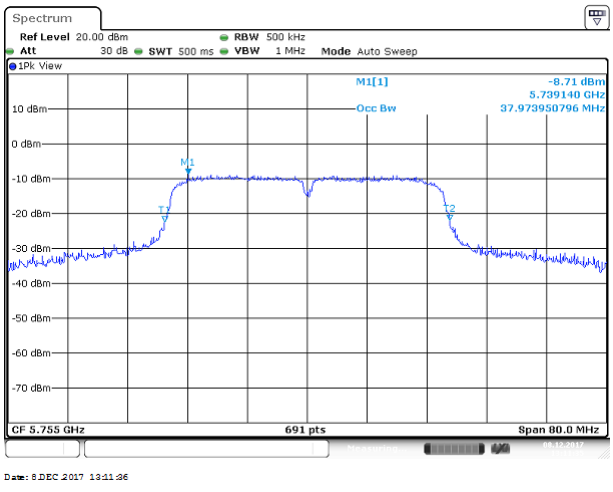
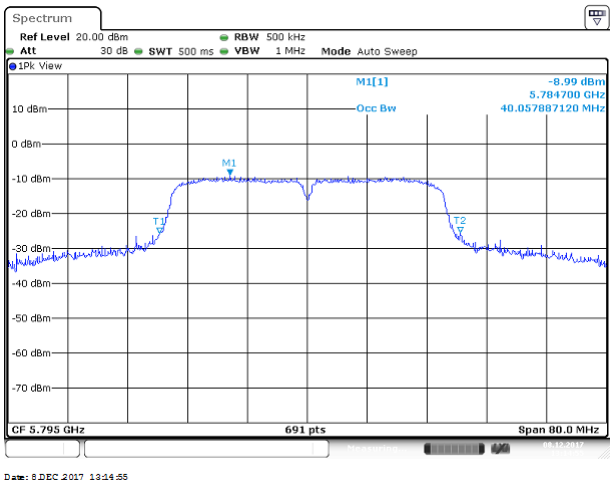
UNII-2c IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

Test Data

99%OBW

UNII-3 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n 20 MHz mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**High CH**
	

4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(2) and 15.407(a)(3),

UNII-1 :

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW(24 dBm) and The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz ,provided the maximum antenna gain does not exceed 6 dBi. In addition, 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, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-2a and 2c:

the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. and The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 Log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, 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, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

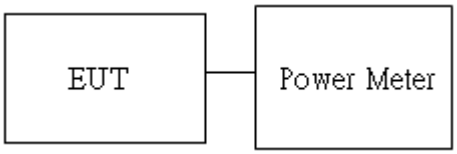
UNII-1 Limit	☒ Antenna not exceed 6 dBi：24dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]
UNII-2a/2c Limit	☒ Antenna not exceed 6 dBi：24dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

4.3.2 Test Procedure

Test method Refer as KDB 789033 D02 v02r01, Section E.3.b.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Average output power. in the test report.

4.3.3 Test Setup



4.3.4 Test Result

Conducted output power：

UNII-1										
Config	CH	Freq. (MHz)	Power Set		AV Power(dBm)		AV Total Power (dBm)	AV Total Power (W)	DG (dBi)	Limit (dBm)
			chain0	chain1	chain0	chain1				
IEEE 802.11a Data rate: 6Mbps	36	5180	25	-	18.42	-	18.42	0.0695	-2.5	24
	44	5220	25	-	18.09	-	18.09	0.0644		
	48	5240	25	-	18.36	-	18.36	0.0685		
IEEE 802.11n HT20 Data rate: MCS0	36	5180	25	-	18.54	-	18.54	0.0714		
	44	5220	25	-	18.09	-	18.09	0.0644		
	48	5240	25	-	18.36	-	18.36	0.0685		
IEEE 802.11n HT40 Data rate: MCS0	38	5190	18	-	16.98	-	16.98	0.0499		
	46	5230	25	-	19.25	-	19.25	0.0841		

UNII-2a										
Config	CH	Freq. (MHz)	Power Set		AV Power(dBm)		AV Total Power (dBm)	AV Total Power (W)	DG (dBi)	Limit (dBm)
			chain0	chain1	chain0	chain1				
IEEE 802.11a Data rate: 6Mbps	52	5260	25	-	18.12	-	18.12	0.0649	-2.5	24
	56	5280	25	-	17.81	-	17.81	0.0604		
	64	5320	25	-	17.78	-	17.78	0.0600		
IEEE 802.11n 20 MHz Data rate: MCS0	52	5260	25	-	18.22	-	18.22	0.0664		
	56	5280	25	-	17.87	-	17.87	0.0612		
	64	5320	25	-	17.90	-	17.90	0.0617		
IEEE 802.11n 40 MHz Data rate: MCS0	54	5270	25	-	19.07	-	19.07	0.0807		
	62	5310	25	-	16.24	-	16.24	0.0421		

UNII-2c										
Config	CH	Freq. (MHz)	Power Set		AV Power(dBm)		AV Total Power (dBm)	AV Total Power (W)	DG (dBi)	Limit (dBm)
			chain0	chain1	chain0	chain1				
IEEE 802.11a Data rate: 6Mbps	100	5500	25	-	15.82	-	15.82	0.0382	-2.5	24
	116	5580	25	-	15.03	-	15.03	0.0318		
	140	5700	25	-	13.89	-	13.89	0.0245		
IEEE 802.11n 20 MHz Data rate: MCS0	100	5500	25	-	15.94	-	15.94	0.0392		
	116	5580	25	-	15.01	-	15.01	0.0317		
	140	5700	25	-	14.09	-	14.09	0.0256		
IEEE 802.11n 40 MHz Data rate: MCS0	102	5510	25	-	14.95	-	14.95	0.0312		
	110	5550	25	-	15.35	-	15.35	0.0342		
	134	5670	25	-	15.25	-	15.25	0.0335		

UNII-3										
Config	CH	Freq. (MHz)	Power Set		AV Power(dBm)		AV Total Power (dBm)	AV Total Power (W)	DG (dBi)	Limit (dBm)
			chain0	chain1	chain0	chain1				
IEEE 802.11a Data rate: 6Mbps	149	5745	25	-	13.78	-	13.78	0.0239	-2.5	30
	157	5785	25	-	13.39	-	13.39	0.0218		
	165	5825	25	-	13.07	-	13.07	0.0203		
IEEE 802.11n 20 MHz Data rate: MCS0	149	5745	25	-	13.74	-	13.74	0.0236		
	157	5785	25	-	13.37	-	13.37	0.0217		
	165	5825	25	-	13.17	-	13.17	0.0207		
IEEE 802.11n 40 MHz Data rate:	151	5755	25	-	14.57	-	14.57	0.0286		
	159	5795	25	-	13.84	-	13.84	0.0242		

4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(2) and 15.407(a)(3),

UNII-1 :

FCC: The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

UNII-2a and 2c:

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, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, 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, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

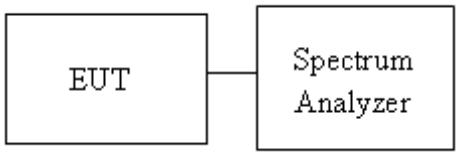
UNII-1 Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-2a Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-2c Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi：30 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

4.4.2 Test Procedure

Test method Refer as KDB 789033 D02 v02r01, Section F

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. UNII-1, UNII-2a and UNII-2c, SA set RBW = 1MHz, VBW = 3MHz and Detector = RMS, to measurement Power Density.
4. UNII-3, SA set RBW = 500kHz, VBW = 2MHz and Detector = RMS, to measurement Power Density
5. The path loss and Duty Factor were compensated to the results for each measurement by SA.
6. Mark the maximum level.
7. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup



4.4.4 Test Result

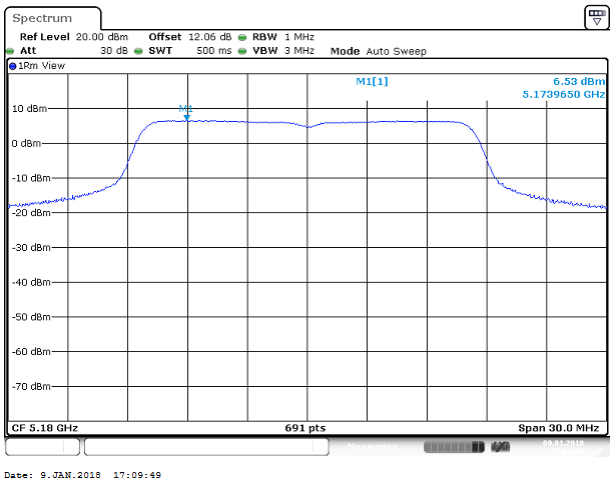
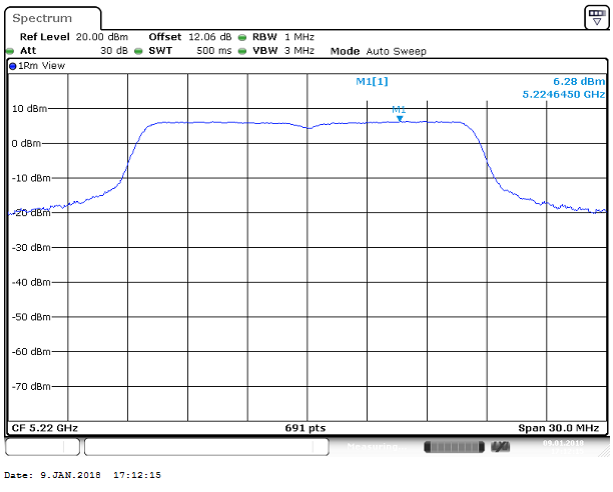
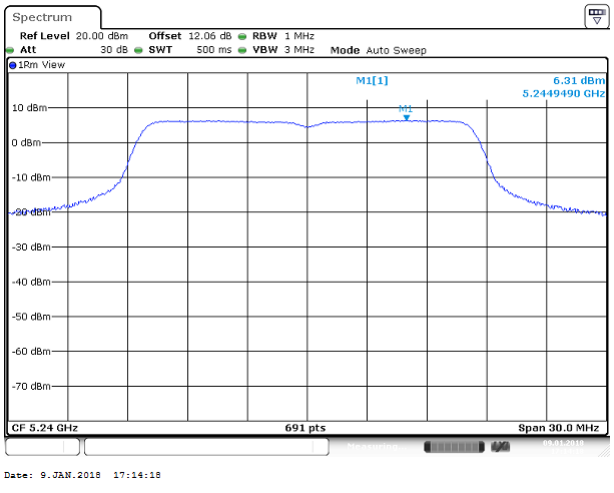
UNII-1 5150-5250 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5180	6.53	-	6.53	11
Mid	5220	6.28	-	6.28	
High	5240	6.31	-	6.31	
Test mode: IEEE 802.11n 20 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5180	6.50	-	6.50	11
Mid	5220	6.25	-	6.25	
High	5240	6.48	-	6.48	
Test mode: IEEE 802.11n 40 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5190	1.76	-	1.76	11
High	5230	3.80	-	3.80	

UNII-2a 5250-5350 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5260	6.27	-	6.27	11
Mid	5280	6.16	-	6.16	
High	5320	6.07	-	6.07	
Test mode: IEEE 802.11n 20 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5260	6.30	-	6.30	11
Mid	5280	6.18	-	6.18	
High	5320	6.18	-	6.18	
Test mode: IEEE 802.11n 40 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5270	3.90	-	3.90	11
High	5310	0.77	-	0.77	

UNII-2c 5470-5725 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5500	4.01	-	4.01	11
Mid	5580	3.20	-	3.20	
High	5700	2.39	-	2.39	
Test mode: IEEE 802.11n 20 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5500	3.95	-	3.95	11
Mid	5580	3.07	-	3.07	
High	5700	2.46	-	2.46	
Test mode: IEEE 802.11n 40 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5510	-0.28	-	-0.28	11
Mid	5550	0.70		0.70	
High	5670	-0.17	-	-0.17	

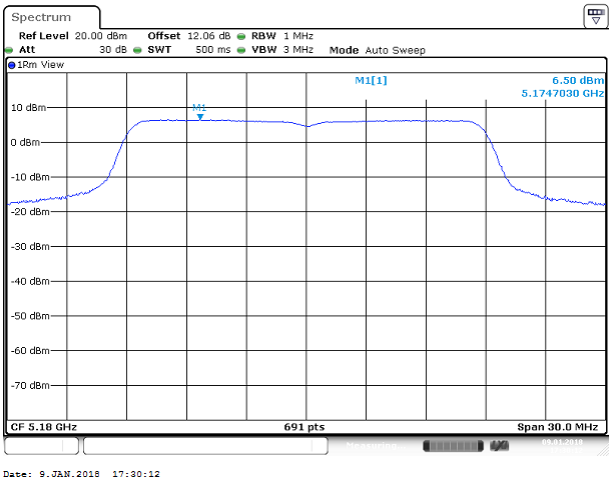
UNII-3 5725-5825 MHz					
Test mode: IEEE 802.11a mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5745	8.07	-	8.07	11
Mid	5785	7.65	-	7.65	
High	5825	7.23	-	7.23	
Test mode: IEEE 802.11n 20 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5745	7.89	-	7.89	11
Mid	5785	7.88	-	7.88	
High	5825	6.95	-	6.95	
Test mode: IEEE 802.11n 40 MHz mode					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	5755	5.82	-	5.82	11
High	5795	5.28	-	5.28	

Test Data

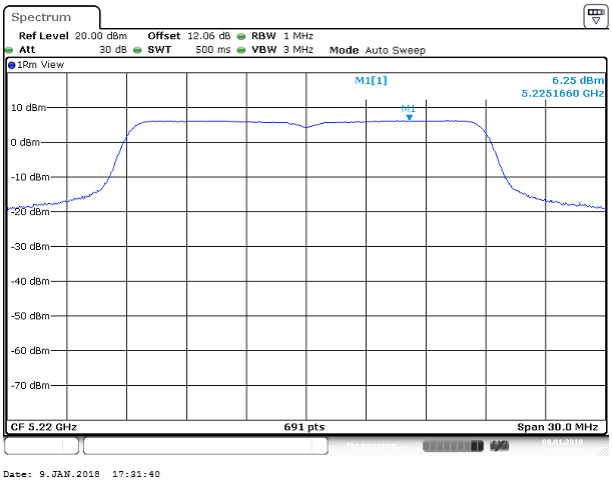
UNII-1 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-1 IEEE 802.11n 20 MHz mode- chain 0

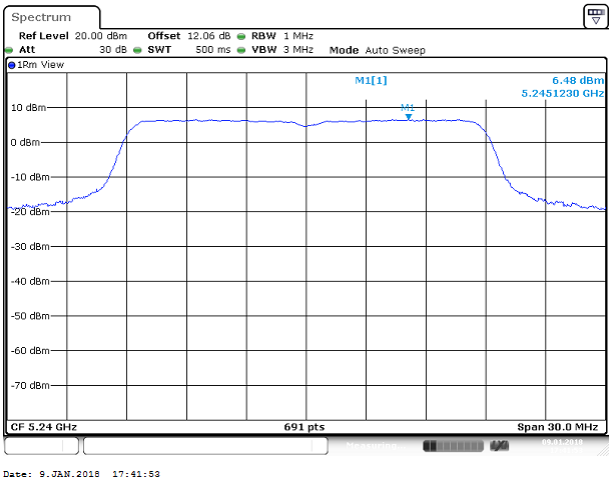
Low CH

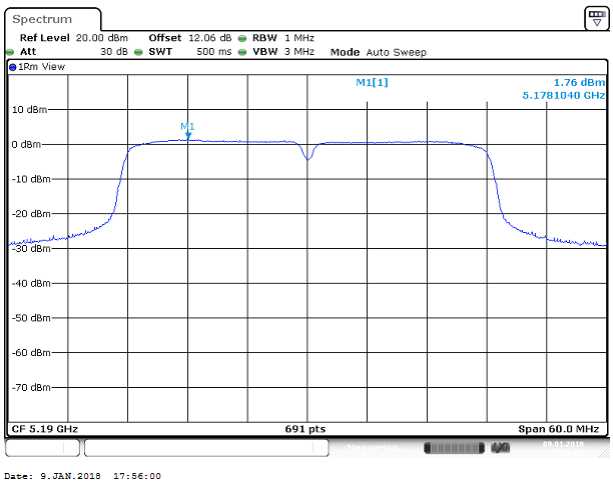
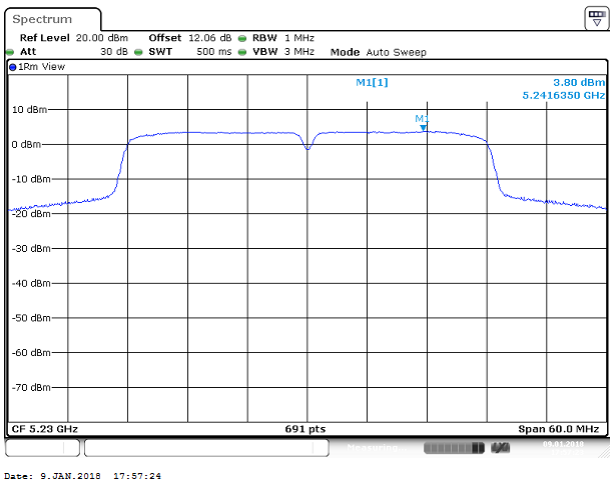


Mid CH

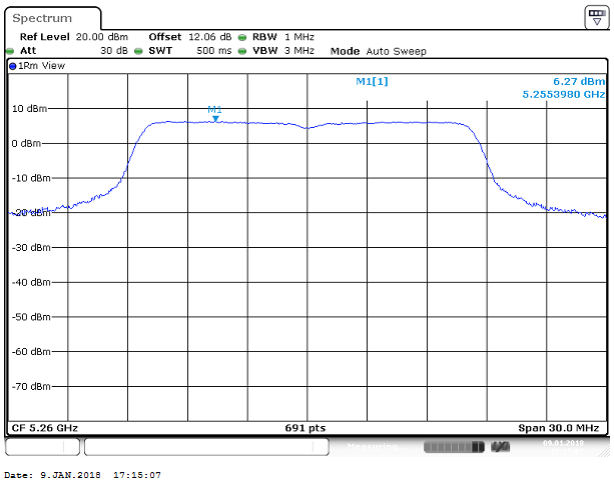
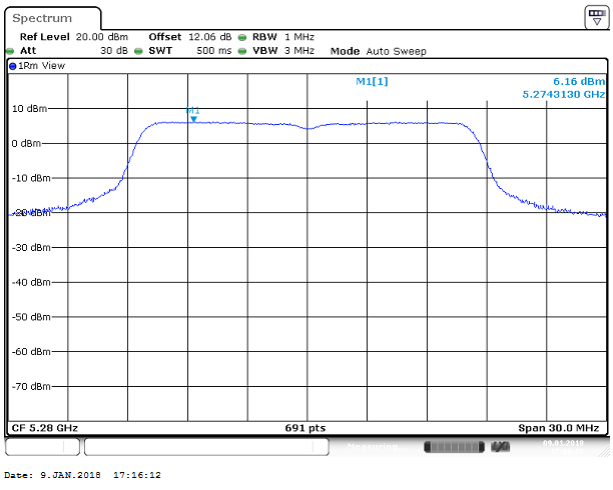
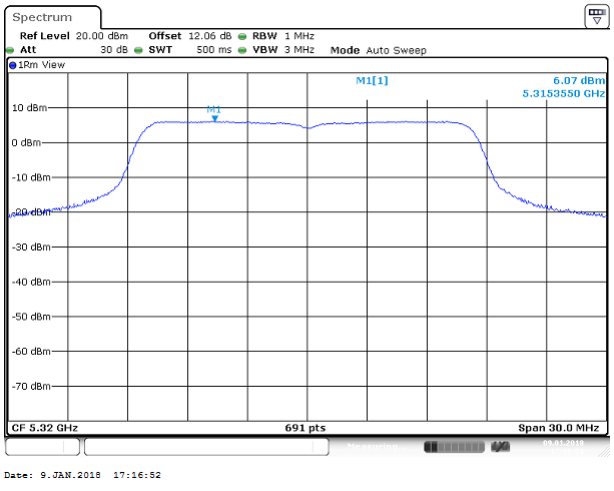


High CH



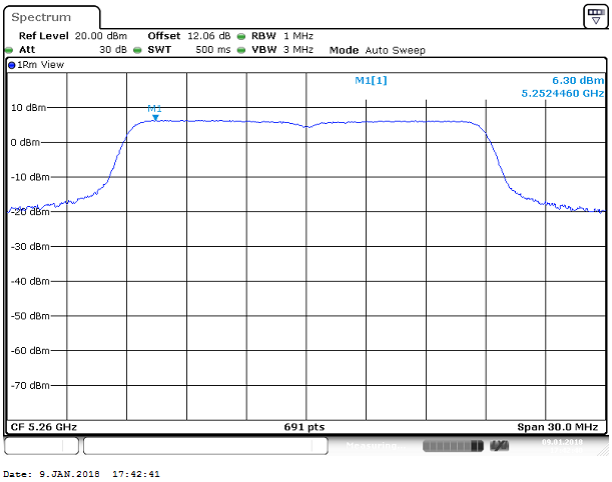
UNII-1 IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**High CH**
	

Test Data

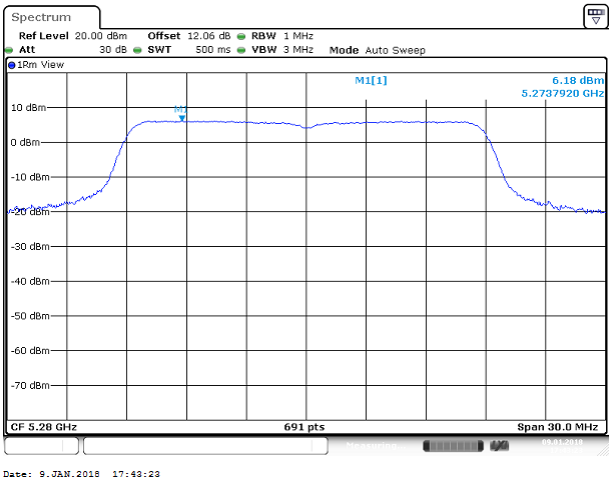
UNII-2a IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-2a IEEE 802.11n 20 MHz mode- chain 0

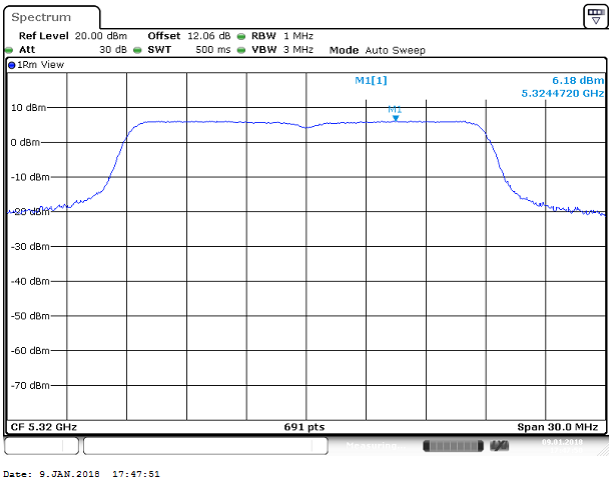
Low CH

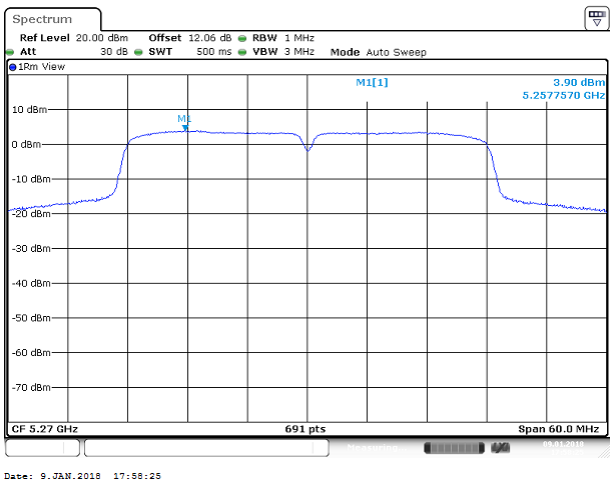
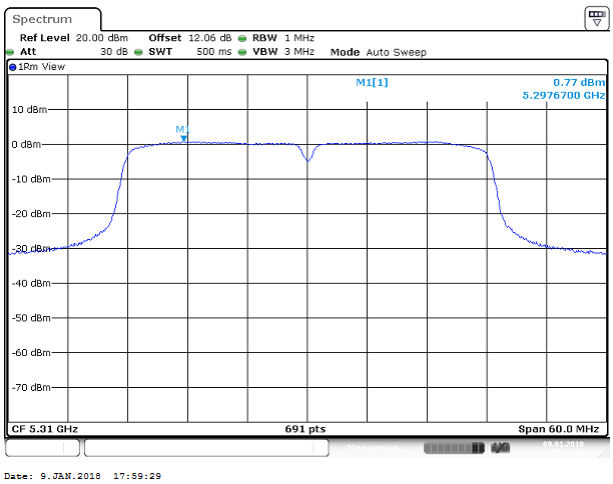


Mid CH

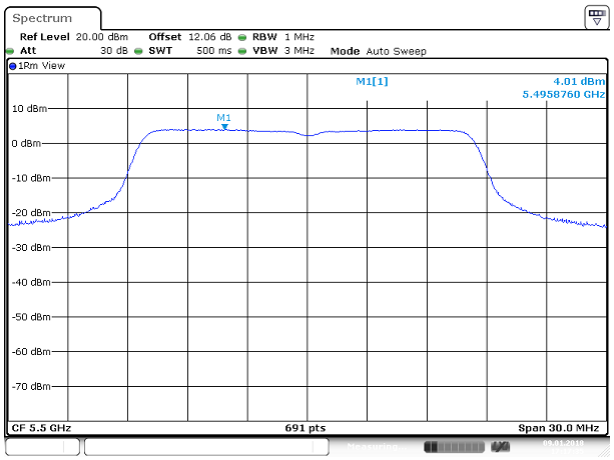
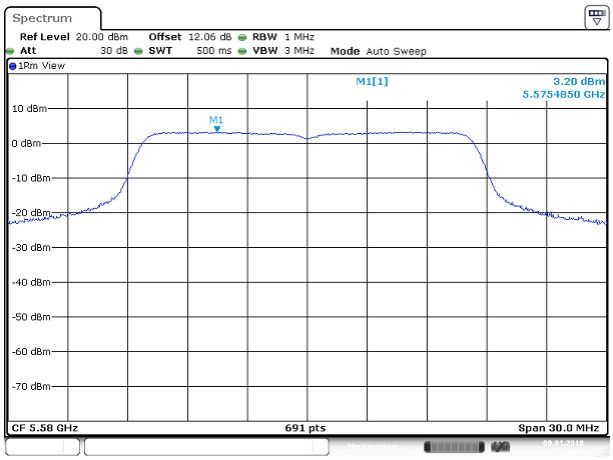
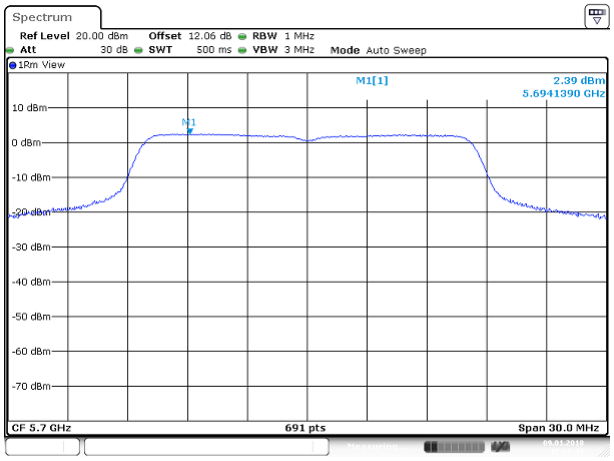


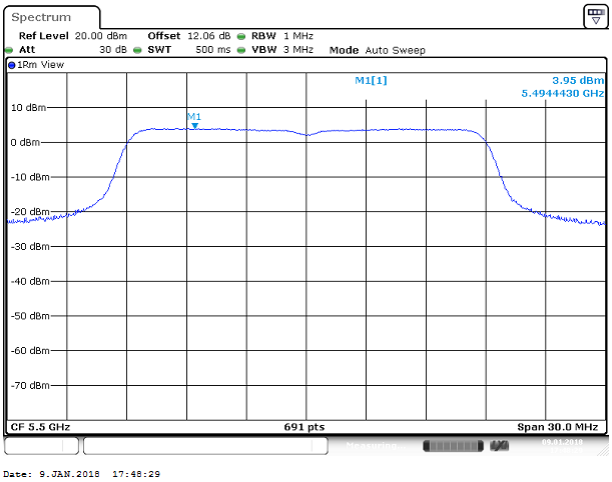
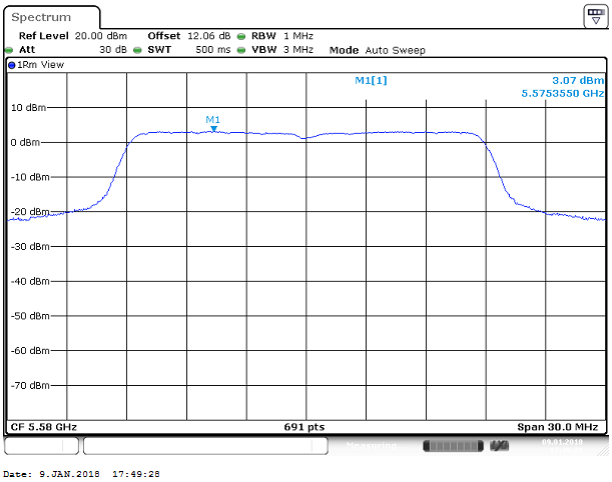
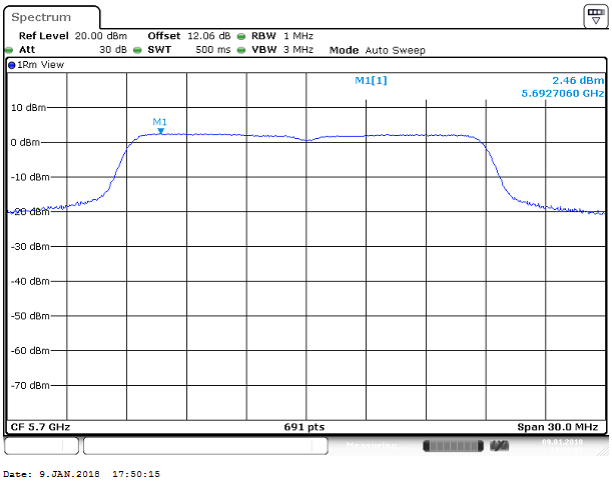
High CH



UNII-2a IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**High CH**
	

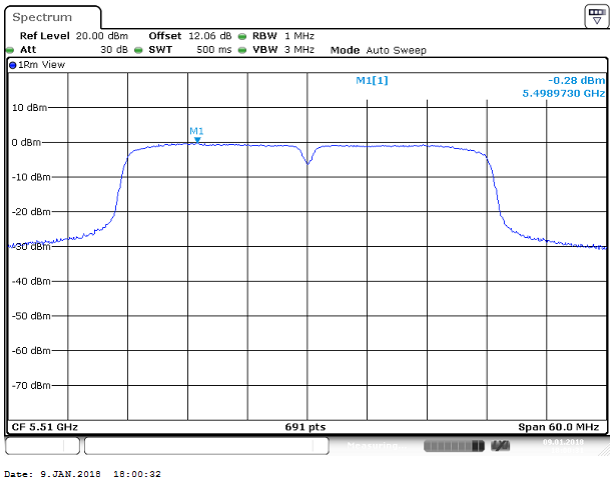
Test Data

UNII-2c IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

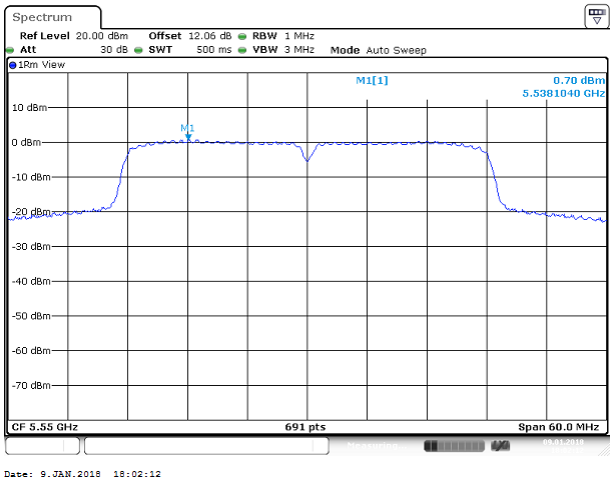
UNII-2c IEEE 802.11n 20 MHz mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-2c IEEE 802.11n 40 MHz mode- chain 0

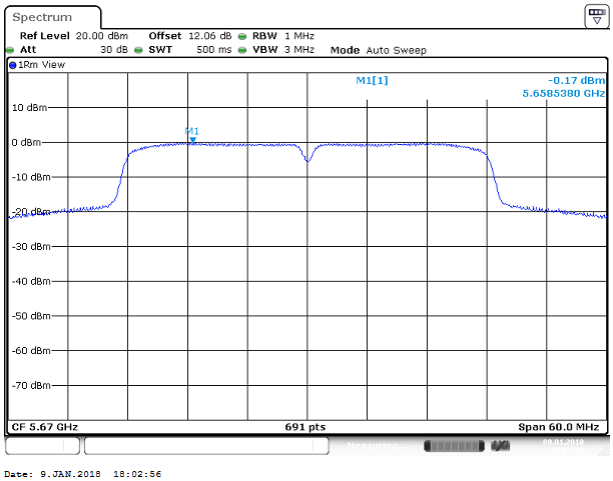
Low CH



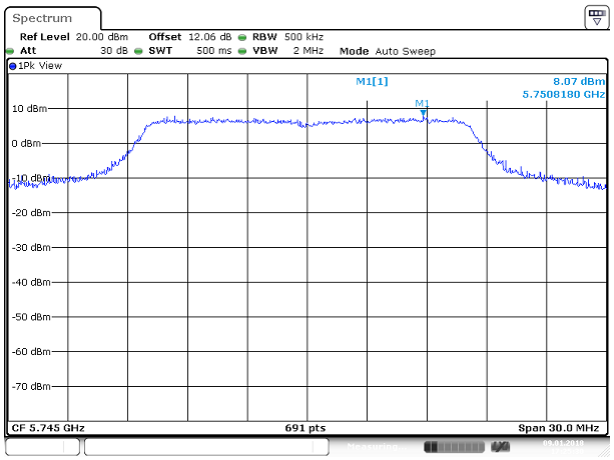
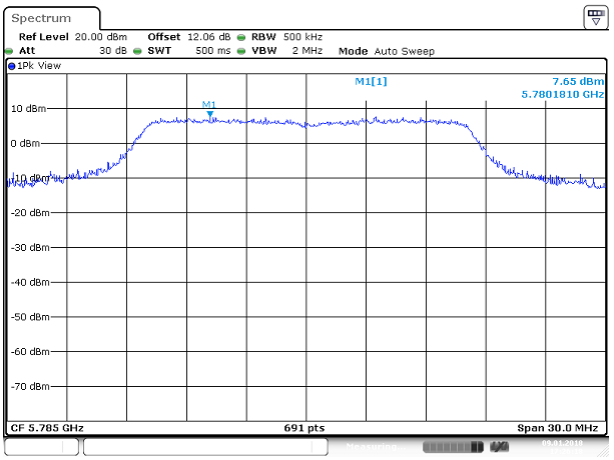
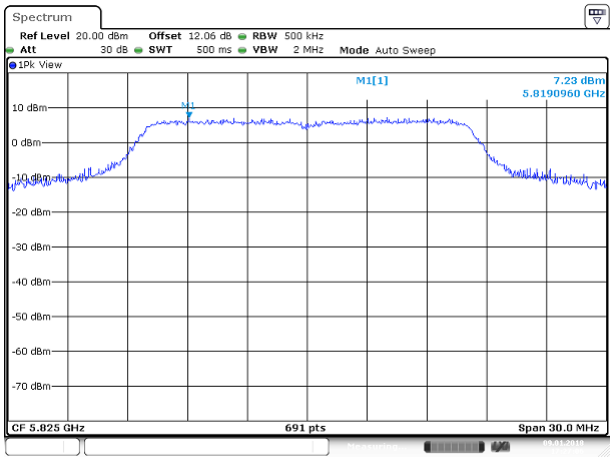
Mid CH



High CH

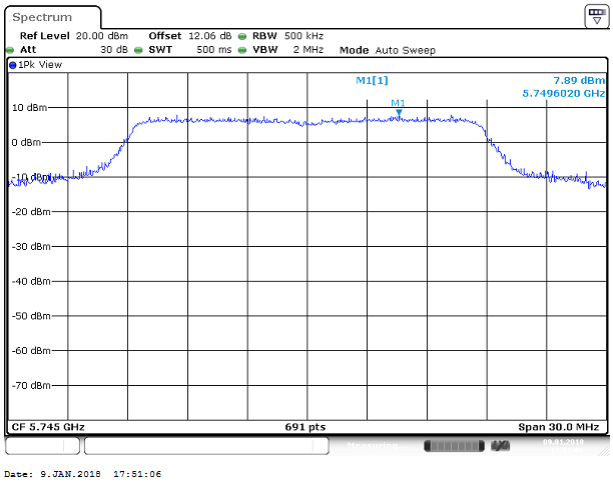


Test Data

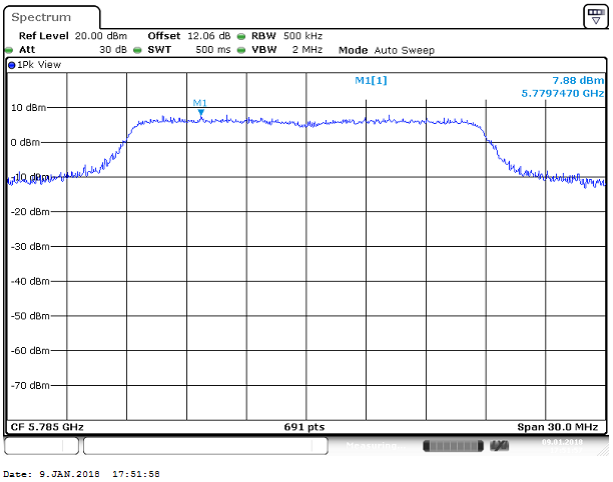
UNII-3 IEEE 802.11a mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n 20 MHz mode- chain 0

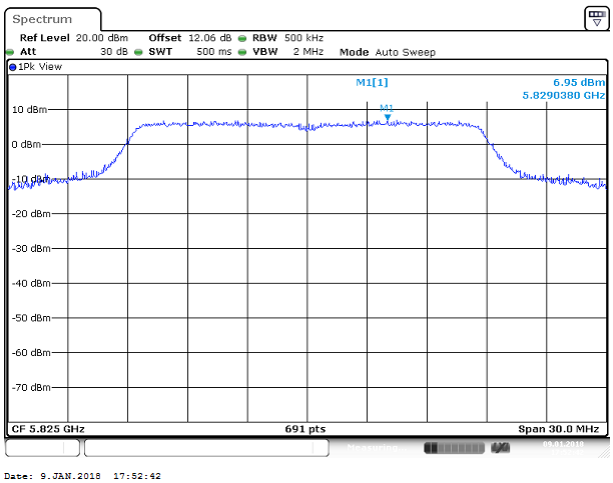
Low CH

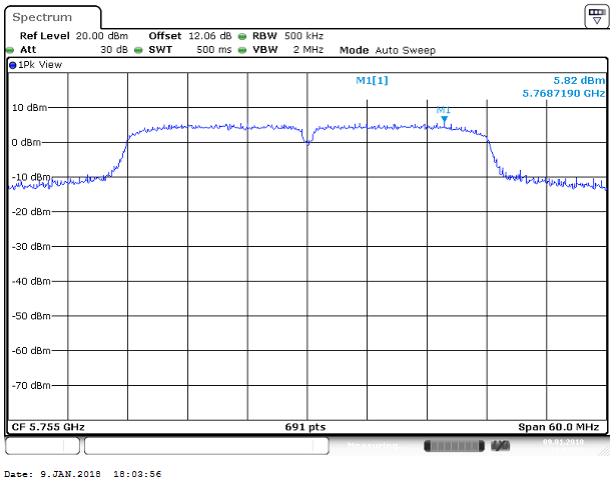
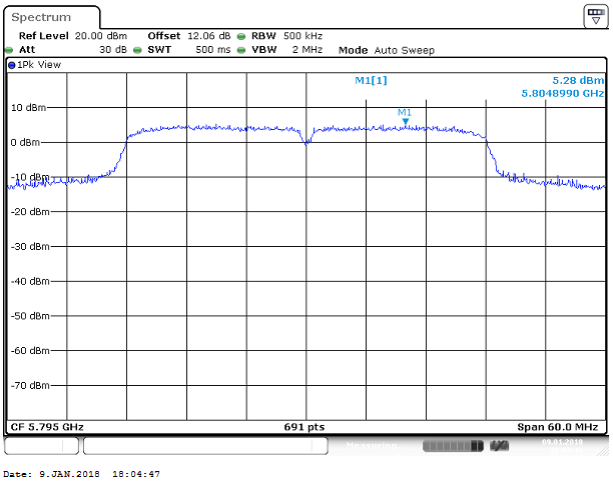


Mid CH



High CH



UNII-3 IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**High CH**
	

4.5 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

FCC according to §15.407, §15.209 and §15.205,

Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

Above 30 MHz

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

UNII-1 :

For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, any unwanted emissions that fall into the band 5250-5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz. Otherwise, the transmission is considered as intentional and the devices shall implement dynamic frequency selection (DFS) and transmitter power control (TPC) as per the requirements for the band 5250-5350 MHz

UNII-2a and 2c :

For devices with operating frequencies in the band 5250-5350 MHz but having a channel bandwidth that overlaps the band 5150-5250 MHz, the devices' unwanted emission shall not exceed -27 dBm/MHz e.i.r.p. outside the band 5150-5350 MHz and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device shall be labelled "for indoor use only." Emissions outside the band 5470-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p.

UNII-3:

All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

4.5.2 Test Procedure

Test method Refer as KDB 789033 D02 v02r01, Section G.3, G.4, G.5, and G.6,.

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10, and the EUT set in a continuous mode.

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.

3. Span shall wide enough to full capture the emission measured. The SA from 9kHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

4. No emission found between lowest internal used/generated frequency to 30MHz (9KHz~30MHz)

5. The SA setting following：

(1) Below 1G：RBW = 100kHz, VBW ≥ 3*RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

(2) Above 1G：

(2.1) For Peak measurement：RBW = 1MHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

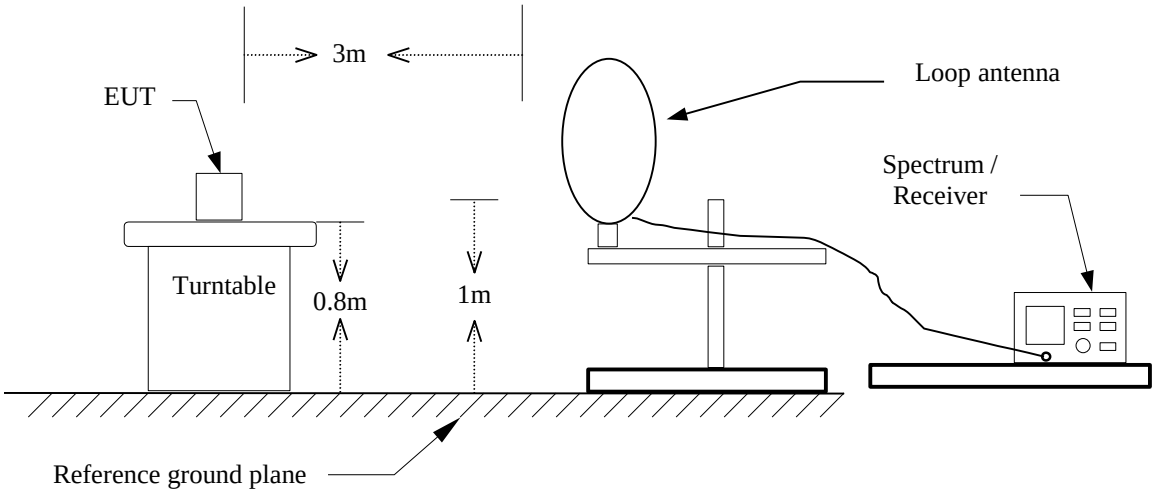
(2.2) For Average measurement：RBW = 1MHz, VBW

- If Duty Cycle ≥ 98%, VBW=10Hz.
- If Duty Cycle < 98%, VBW=1/T.

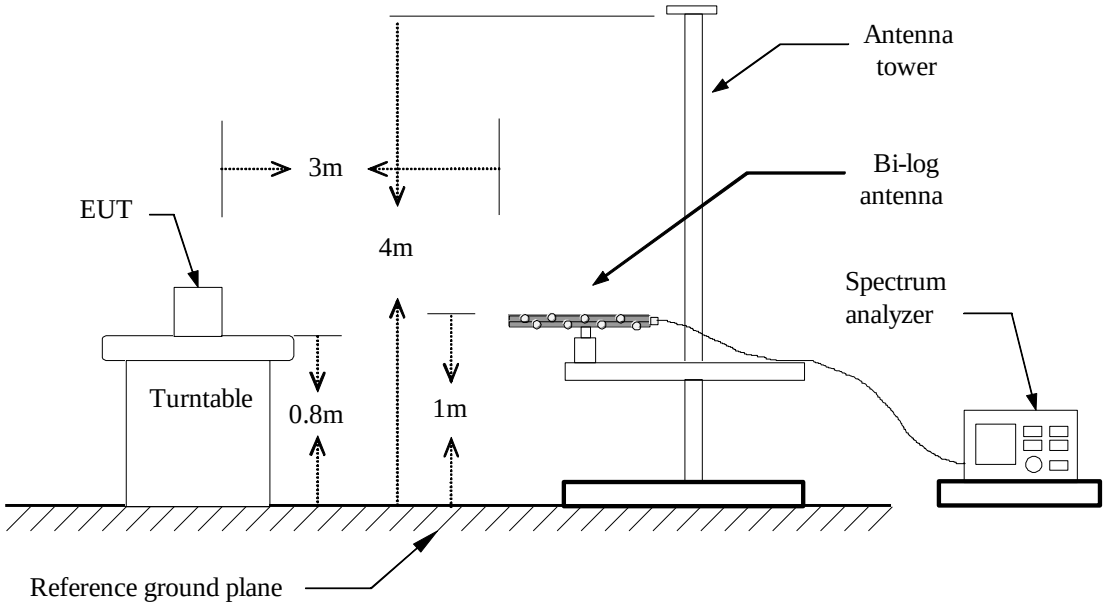
Configuration	Duty Cycle (%)	T(ms)	1/T (Hz)	VBW Setting
802.11a	88%	1.3800	724.638	750Hz
802.11n 20MHz	89%	1.3100	763.359	780Hz
802.11n 40MHz	82%	0.7400	1351.351	1.5KHz

4.5.3 Test Setup

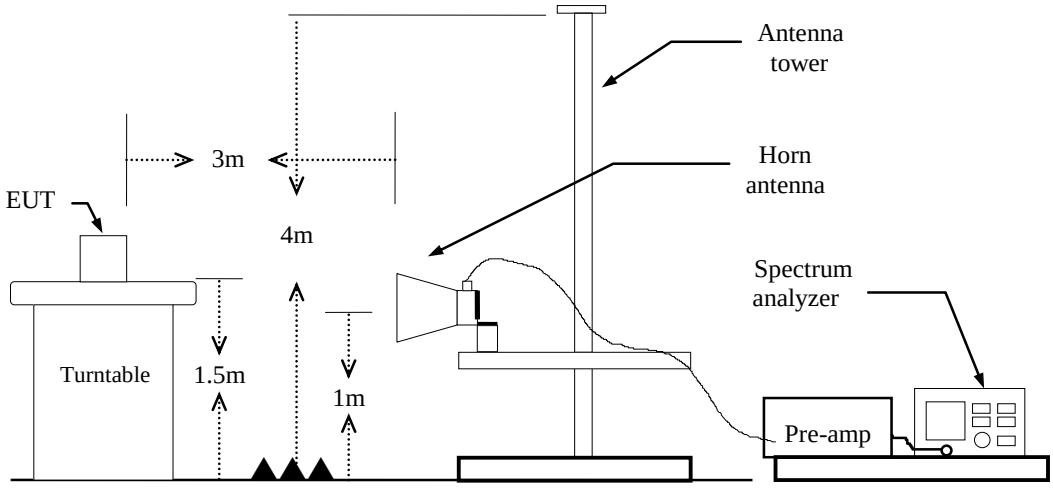
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1 GHz

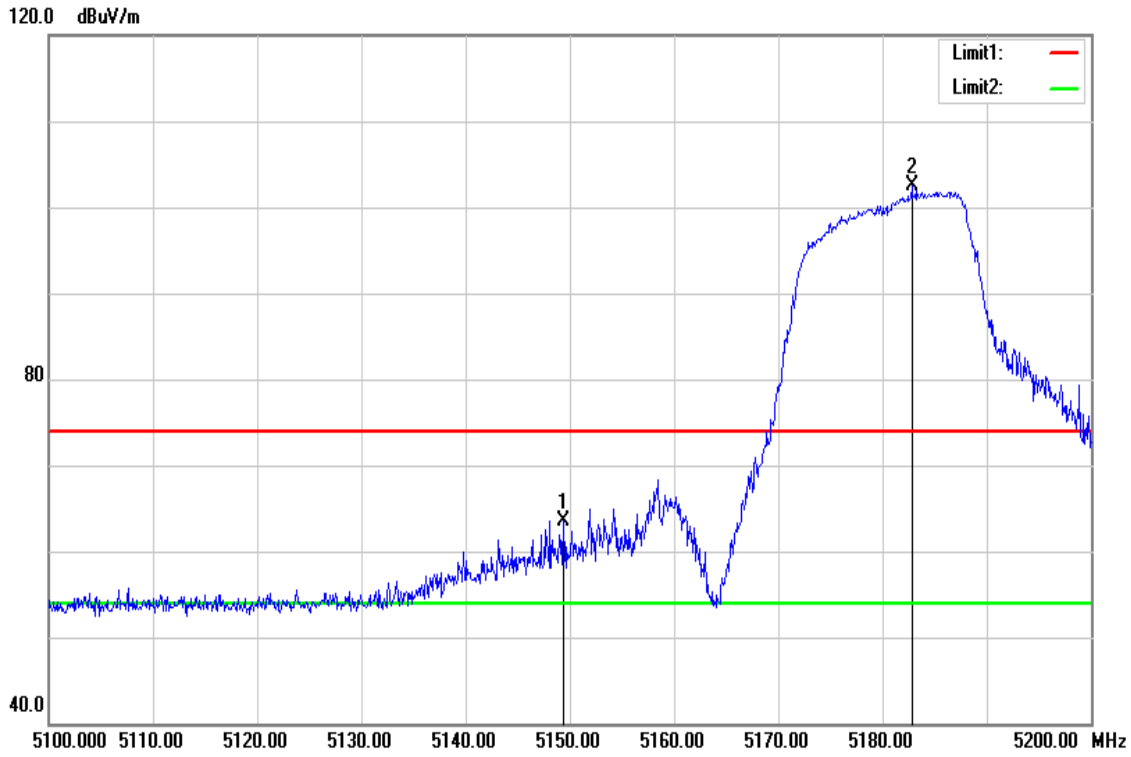


4.5.4 Test Result

Test Data

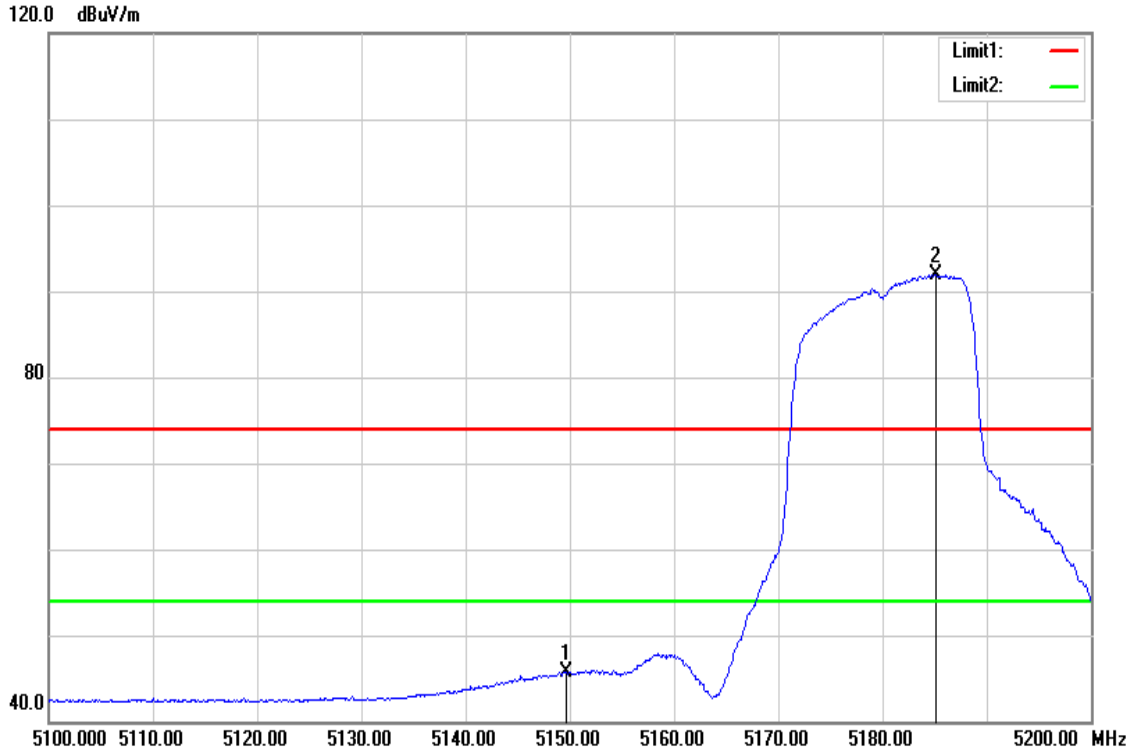
Band Edge Test Data for UNII-1

Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	DC 12V



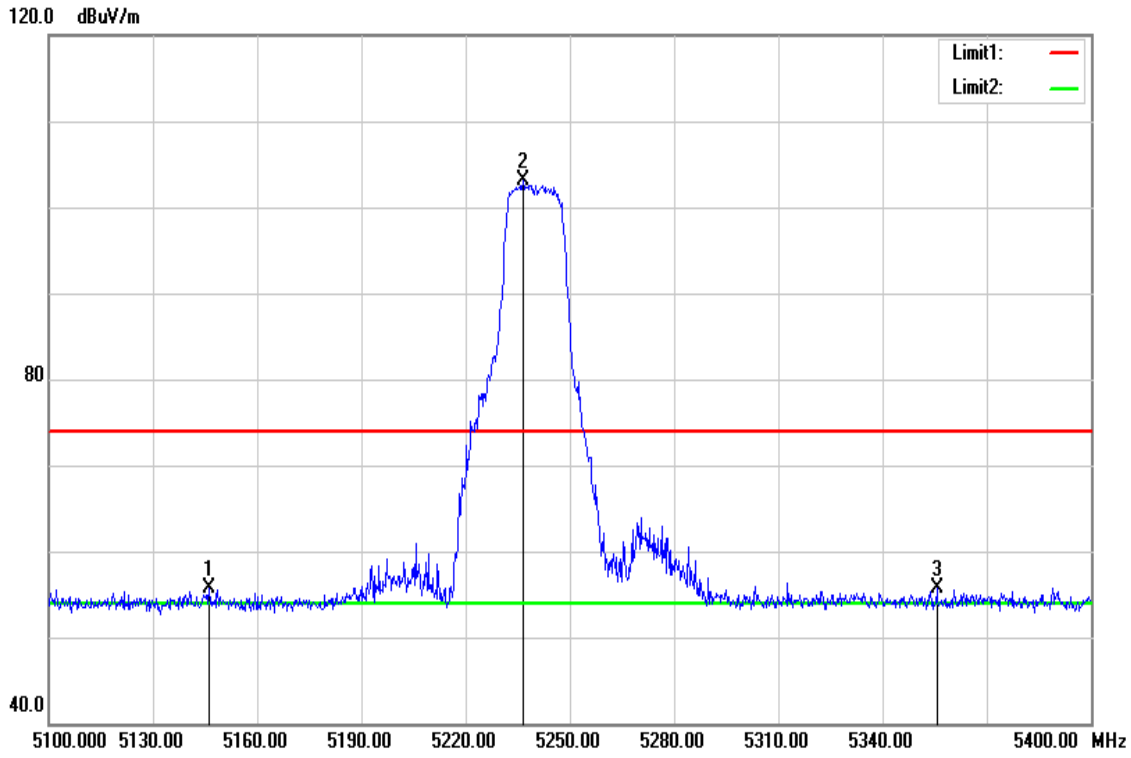
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.400	58.51	5.06	63.57	74.00	-10.43	peak
5182.800	97.30	5.14	102.44	-	-	peak

Test Mode	IEEE 802.11a / 5180MHZ	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	DC 12V



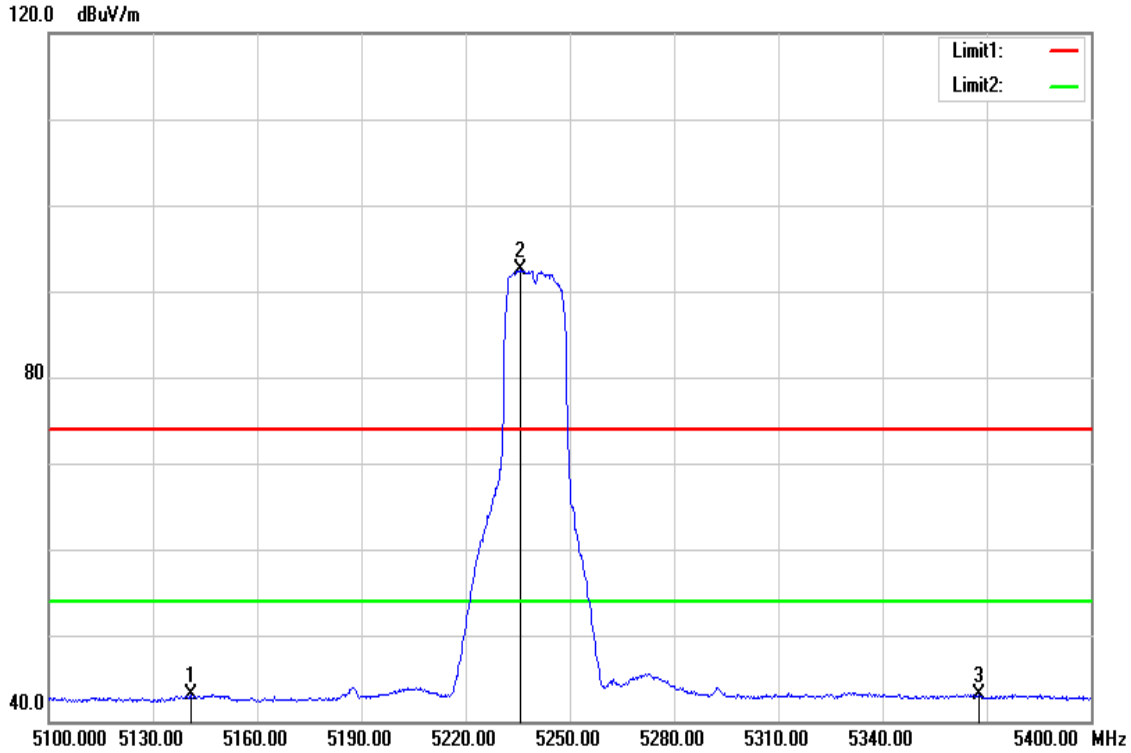
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.700	40.74	5.06	45.80	54.00	-8.20	AVG
5185.100	86.78	5.15	91.93	-	-	AVG

Test Mode	IEEE 802.11a / 5240MHZ	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	DC 12V



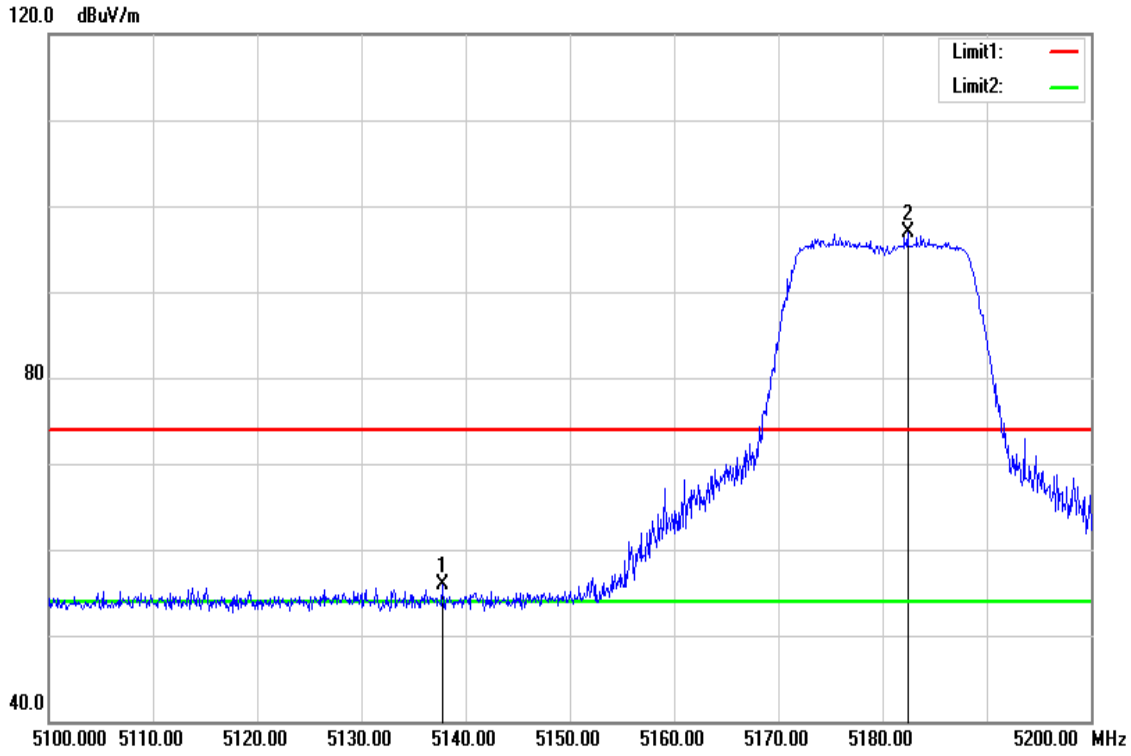
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5146.200	50.71	5.06	55.77	74.00	-18.23	peak
5236.500	97.80	5.28	103.08	-	-	peak
5355.600	50.18	5.57	55.75	74.00	-18.25	peak

Test Mode	IEEE 802.11a / 5240MHZ	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	DC 12V



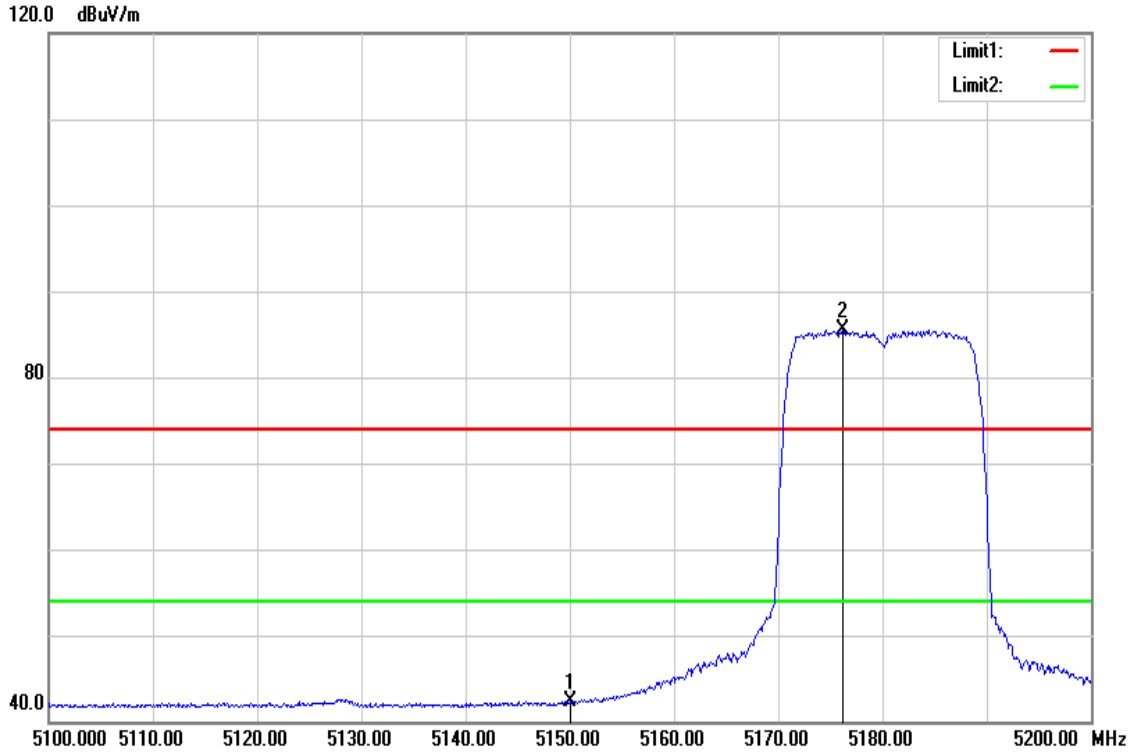
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5140.800	38.03	5.03	43.06	54.00	-10.94	AVG
5235.600	87.18	5.28	92.46	-	-	AVG
5367.600	37.50	5.60	43.10	54.00	-10.90	AVG

Test Mode	IEEE 802.11n 20 MHz / 5180MHZ	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	DC 12V



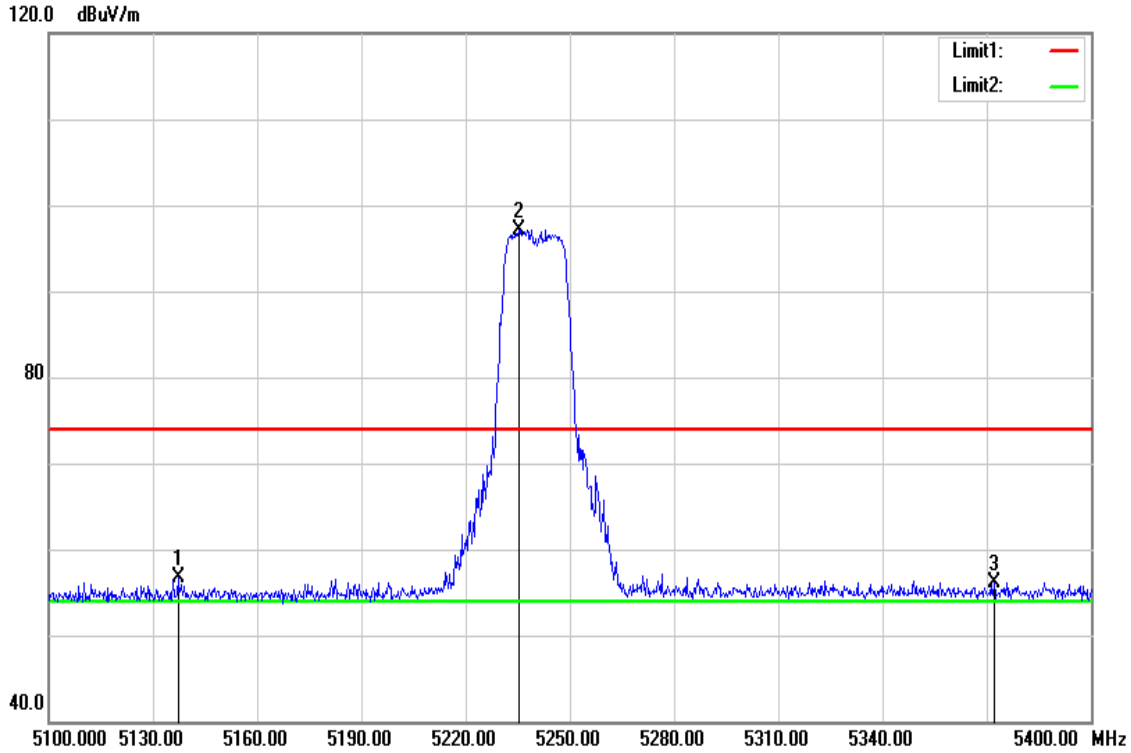
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5137.800	50.90	5.03	55.93	74.00	-18.07	peak
5182.400	91.83	5.14	96.97	-	-	peak

Test Mode	IEEE 802.11n 20 MHz / 5180MHZ	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	DC 12V



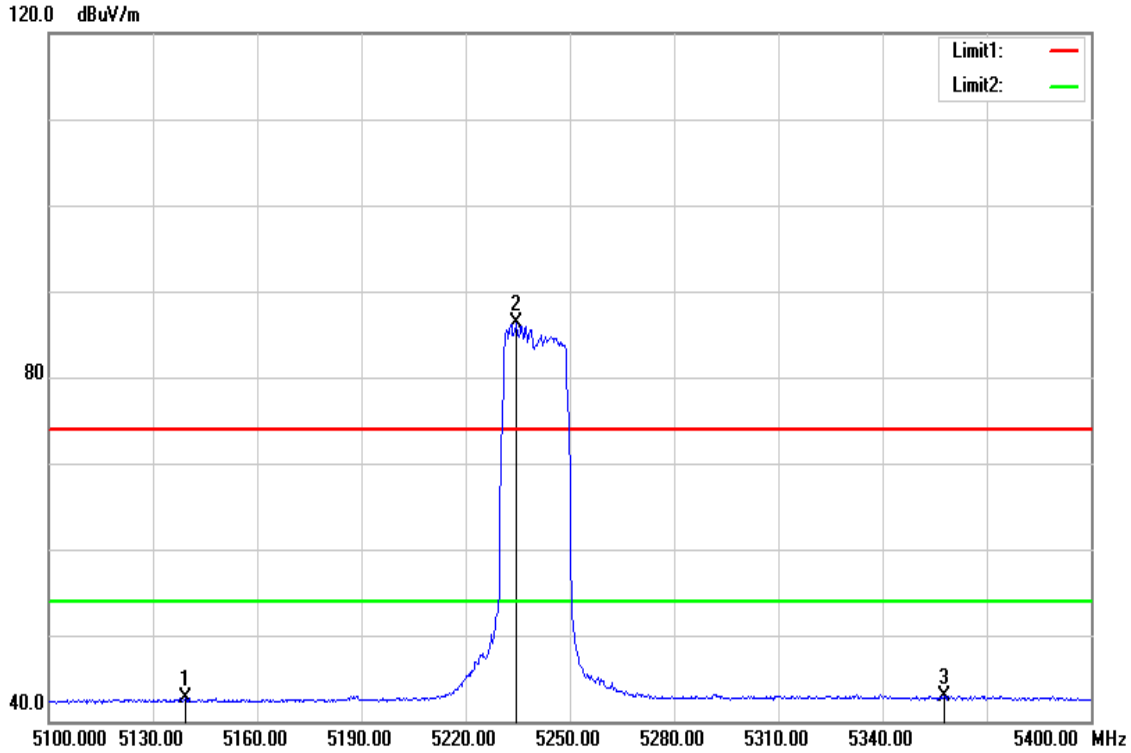
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	37.19	5.06	42.25	54.00	-11.75	AVG
5176.200	80.41	5.14	85.55	-	-	AVG

Test Mode	IEEE 802.11n 20 MHz / 5240MHZ	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	DC 12V



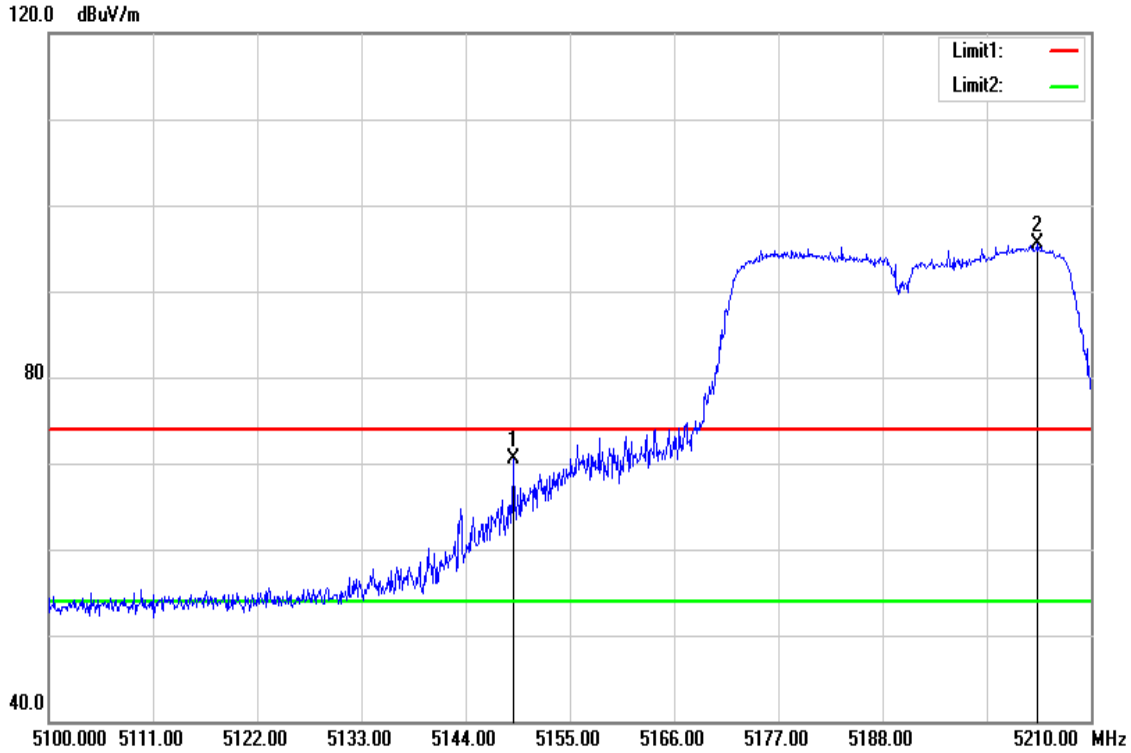
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5137.200	51.59	5.03	56.62	74.00	-17.38	peak
5235.300	91.90	5.28	97.18	-	-	peak
5372.100	50.57	5.61	56.18	74.00	-17.82	peak

Test Mode	IEEE 802.11n 20 MHz / 5240MHZ	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	DC 12V



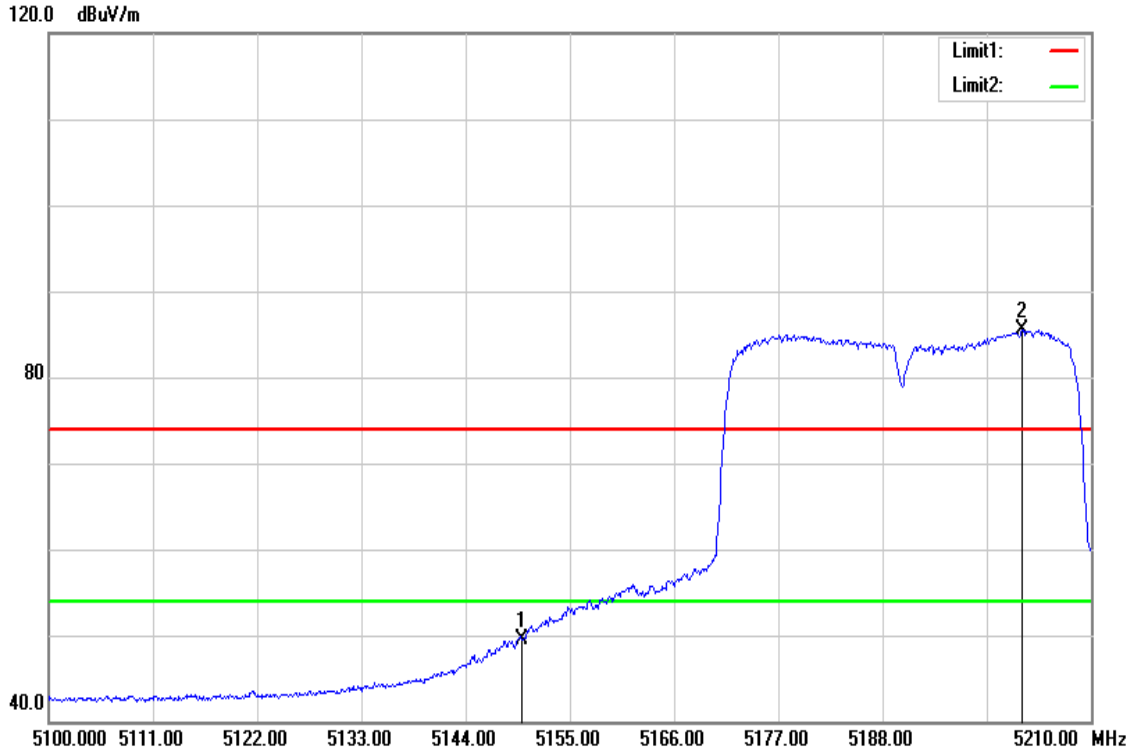
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5139.300	37.64	5.03	42.67	54.00	-11.33	AVG
5234.700	81.00	5.27	86.27	-	-	AVG
5357.700	37.41	5.57	42.98	54.00	-11.02	AVG

Test Mode	IEEE 802.11n 40 MHz / 5190MHZ	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	DC 12V



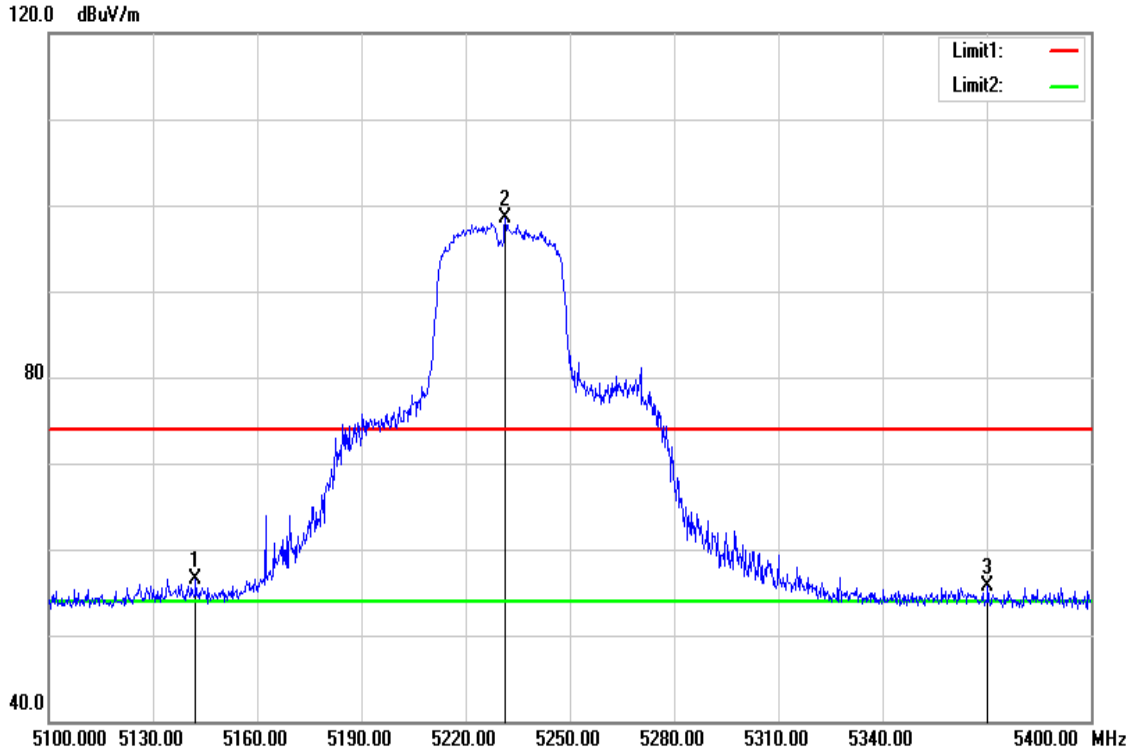
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.060	65.38	5.06	70.44	74.00	-3.56	peak
5204.280	90.35	5.19	95.54	-	-	peak

Test Mode	IEEE 802.11n 40 MHz / 5190MHZ	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	DC 12V



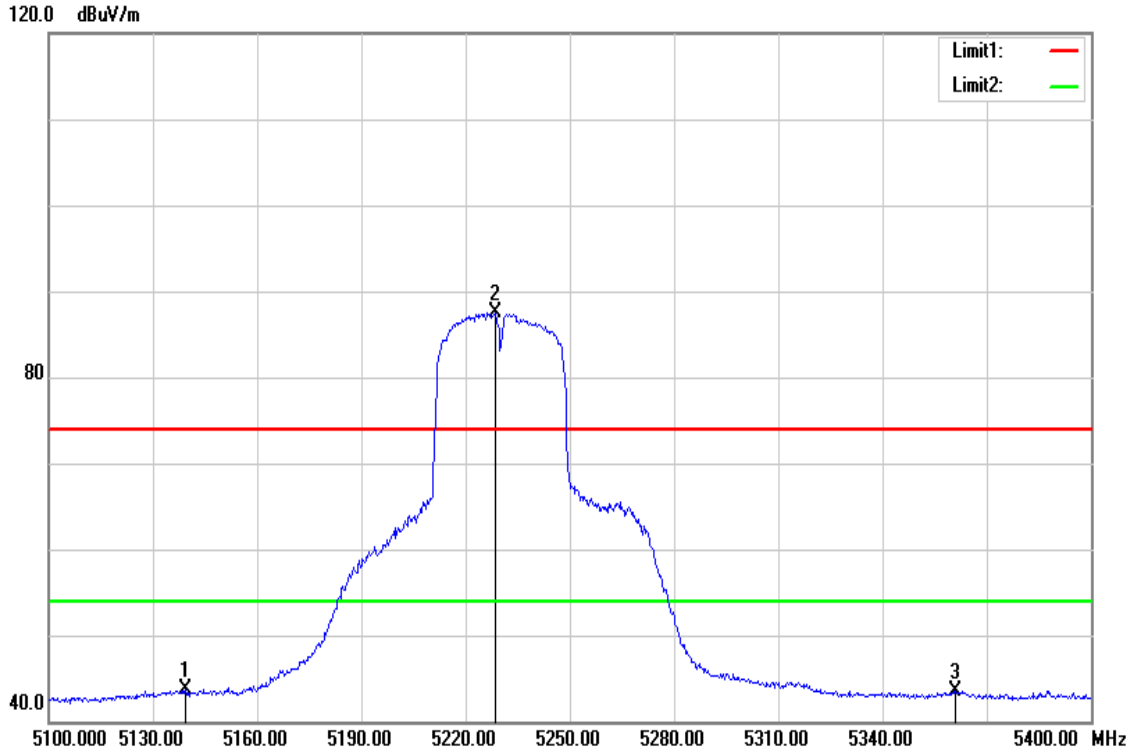
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	44.52	5.06	49.58	54.00	-4.42	AVG
5202.740	80.29	5.19	85.48	-	-	AVG

Test Mode	IEEE 802.11n 40 MHz / 5230MHZ	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	DC 12V



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5142.300	51.47	5.05	56.52	74.00	-17.48	peak
5231.400	93.20	5.26	98.46	-	-	peak
5370.300	50.15	5.61	55.76	74.00	-18.24	peak

Test Mode	IEEE 802.11n 40 MHz / 5230MHZ	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	December 21, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	DC 12V



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5139.300	38.57	5.03	43.60	54.00	-10.40	AVG
5228.700	82.27	5.26	87.53	-	-	AVG
5361.000	37.90	5.59	43.49	54.00	-10.51	AVG