FCC RADIO TEST REPORT
FCC 47 CFR PART 15 SUBPART E

Test Standard	**FCC Part 15.407**
FCC ID	**2AKZA-PICOIMX7**
Brand name	**TechNexion**
Product name	**WiFi+Bluetooth 4.0(HS) System on Module**
Model No.	**PICO-IMX7**
Test Result	**Pass**

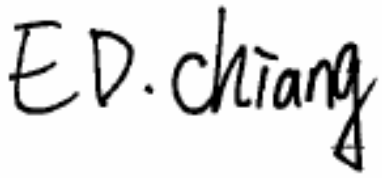
The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

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.(Tainan Laboratory)

Approved by:

Jeter Wu
Assistant Manager

Tested by:



Ed Chiang
Engineer

Revision History

Rev.	Issue Date	Revisions	Revised By
00	September 20, 2017	Initial Issue	Vicki Huang
01	October 16, 2017	Modify UNII-3 Frequency Range in P.5, 10	Vicki Huang
02	October 23, 2017	1. Added Radiation bandedge and spurious emission remark in P.41 2. Modify UNII-1 Limit in P.25, 27 3. Modify UNII-1 FCC Limit in P.29, 31 4. Modify duty cycle data in P.41	Vicki Huang
03	October 25, 2017	1. Modify UNII-3 IEEE 802.11a Frequency Range in P.4, 5, 10	Vicki Huang

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1.1 GENERAL INFORMATION

1.2 EUT INFORMATION

Applicant	TechNexion Ltd. 16f-5, No.736, Zhongzheng Road, Zhonghe Dist., New Taipei City, 23511 Taiwan ROC
Equipment	WiFi+Bluetooth 4.0(HS) System on Module
Model Name	PICO-IMX7
Model Discrepancy	N/A
Received Date	August 25, 2017
Date of Test	August 31 ~ September 19, 2017
Power Supply	Power form AC Adapter via cable

Output Power(W)

Band	Mode	Frequency Range (MHz)	Output Power (W)	EIRP Output Power (w)
U-NII-1	IEEE 802.11a	5180 ~ 5240	0.0286	0.0906
	IEEE 802.11n HT 20 MHz	5180 ~ 5240	0.0276	0.0873
	IEEE 802.11n HT 40 MHz	5190 ~ 5230	0.0011	0.0034
	IEEE 802.11ac VHT 80 MHz	5210	0.0011	0.0034
U-NII-3	IEEE 802.11a	5745 ~ 5825	0.0385	-
	IEEE 802.11n HT 20 MHz	5745 ~ 5825	0.0264	-
	IEEE 802.11n HT 40 MHz	5755 ~ 5795	0.0279	-
	IEEE 802.11ac VHT 80 MHz	5775	0.0233	-

Remark:

1. For Canada the EUT Frequency Range 5600~5650MHz will be disabled.

1.3 EUT CHANNEL INFORMATION

<table>
<tr><td>Frequency Range</td><td>
<table>
<tr><td colspan="2">UNII-1</td></tr>
<tr><td>IEEE 802.11a</td><td>5180 ~ 5240 MHz</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5180 ~ 5240 MHz</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5190 ~ 5230 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5180 ~ 5240 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5190 ~ 5230 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5210 MHz</td></tr>
<tr><td colspan="2">UNII-3</td></tr>
<tr><td>IEEE 802.11a</td><td>5745 ~ 5825 MHz</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5745 ~ 5825 MHz</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5755 ~ 5795 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 20 MHz</td><td>5745 ~ 5825 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 40 MHz</td><td>5755 ~ 5795 MHz</td></tr>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5775 MHz</td></tr>
</table>
</td></tr>
<tr><td>Modulation Type</td><td>1. IEEE 802.11a mode: OFDM
2. IEEE 802.11n HT 20 MHz mode: OFDM
3. IEEE 802.11n HT 40 MHz mode: OFDM
4. IEEE 802.11ac VHT 20 MHz mode: OFDM
5. IEEE 802.11ac VHT 40 MHz mode: OFDM
5. IEEE 802.11ac VHT 80 MHz mode: OFDM</td></tr>
</table>

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

1.4 ANTENNA INFORMATION

Antenna Type	☐ PIFA ☐ PCB ☒ Dipole ☐ Coils
Antenna Gain	Gain: 4dBi

1.5 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.

1.6 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at *No.8,Jiucengling, Xinhua Dist., Tainan City 712, Taiwan (R.O.C.)*

Test site	Test Engineer	Remark
AC Conduction Room	Eric Lee	
Radiation	Ed Chiang	
RF Conducted	Eric Lee	

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

1.7 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
BNC Coaxial Cable	CCS	BNC50	11	01/13/2017	01/12/2018
EMI Test Receiver	R&S	ESCS 30	100348	12/12/2016	12/11/2017
LISN	SCHWARZBECK	NNLK8130	8130124	11/08/2016	11/07/2017
LISN	FCC	FCC-LISN-50-32-2	08009	05/08/2017	05/07/2018
Pulse Limiter	R&S	ESH3-Z2	100116	01/13/2017	01/12/2018
BNC Coaxial Cable	CCS	BNC50	11	01/13/2017	01/12/2018

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Active Loop Antenna	ETS-LINDREN	6502	8905-2356	07/20/2017	07/19/2019
Amplifier	HP	8447F	2443A01671	01/18/2017	01/17/2018
Bi-Log Antenna	Sunol	JB1	A070506-2	07/22/2017	07/21/2018
Cable	HUBER+SUHNER	SUCOFLEX 104PEA	SN25737 /4PEA	01/18/2017	01/17/2018
Double Ridged Guide Horn Antenna	ETS-LINDGREN	3116	00078900	03/20/2017	03/19/2019
EMI Test Receiver	R&S	ESCS 30	100294	12/02/2016	12/01/2017
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY54430216	05/09/2017	05/08/2018
Horn Antenna	Com-Power	AH-118	071032	02/09/2017	02/08/2018
Pre-Amplifier	EMCI	EMC012645	980098	01/17/2017	01/16/2018

AC Conducted Emissions Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
BNC Coaxial Cable	CCS	BNC50	11	01/13/2017	01/12/2018
EMI Test Receiver	R&S	ESCS 30	100348	12/12/2016	12/11/2017
Four BALACED PAIR ISN	FCC	F-071115-1057-1-09	111130	11/16/2016	11/15/2017
LISN	SCHWARZBECK	NNLK8130	8130124	11/08/2016	11/07/2017
LISN	FCC	FCC-LISN-50-32-2	08009	05/08/2017	05/07/2018
Pulse Limiter	R&S	ESH3-Z2	100116	01/13/2017	01/12/2018

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

1.8 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**
	N/A				

1.9 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 662911 D01 v02r01, KDB 789033 D02 v01r03, KDB 644545 D03 v01.

2. TEST SUMMERY

FCC Standard Sec.	IC Standard Sec.	Chapter	Test Item	Result
15.203	-	1.2	Antenna Requirement	Pass
15.207	RSS-Gen(8.8)	4.1	AC Conducted Emission	Pass
15.403(i)	-	4.2	26dB Bandwidth	Pass
15.403(i)	RSS-247(6.2.4)	4.2	6dB Bandwidth	Pass
15.403(i)	RSS-Gen(6.6)	4.2	Occupied Bandwidth (99%)	Pass
15.407(a)	RSS-247(6.2.1)(1) RSS-247(6.2.2)(1) RSS-247(6.2.3)(1) RSS-247(6.2.4)(1)	4.3	Output Power Measurement	Pass
15.407(a)	RSS-247(6.2.1)(1) RSS-247(6.2.2)(1) RSS-247(6.2.3)(1) RSS-247(6.2.4)(1)	4.4	Power Spectral Density	Pass
15.407(b)	RSS-247(6.2.1)(2) RSS-247(6.2.2)(2) RSS-247(6.2.3)(2) RSS-247(6.2.4)(2)	4.5	Radiation Band Edge	Pass
15.407(b)	RSS-247(6.2.1)(2) RSS-247(6.2.2)(2) RSS-247(6.2.3)(2) RSS-247(6.2.4)(2)	4.5	Radiation Spurious Emission	Pass
15.407(g)	RSS-Gen(6.11)	4.6	Frequency Stability	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 HT 20 MHz mode: MCS0
3. IEEE 802.11n HT 40 MHz mode: MCS0
4. IEEE 802.11ac VHT 20 MHz mode: MCS0
5. IEEE 802.11ac VHT 40 MHz mode: MCS0
5. IEEE 802.11ac VHT 80 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="6">U-NII-1</td><td>IEEE 802.11a</td><td>5180 ~ 5240</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5180 ~ 5240</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11n HT 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>IEEE 802.11ac VHT 80 MHz</td><td>5210</td><td>1 Channels</td></tr>
<tr><td rowspan="6">U-NII-3</td><td>IEEE 802.11a</td><td>5745 ~ 5825</td><td>5 Channels</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5745 ~ 5825</td><td>5 Channels</td></tr>
<tr><td>IEEE 802.11n HT 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>
<tr><td>IEEE 802.11ac VHT 80 MHz</td><td>5775</td><td>1 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 HT20 and HT40, and have same power setting. Therefore, the highest power(IEEE 802.11n HT20 and HT40) were test conducted and radiated measurement and recorded in this report.

3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conducted Emission	
Test Condition	AC Power line conducted emission for line and neutral
Voltage/Hz	120V/60Hz
Test Mode	Mode 1:EUT power by AC adapter via power cable.
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Radiated Emission Measurement Above 1G	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Voltage/Hz	120V/60Hz
Test Mode	Mode 1:EUT power by AC adapter via power cable.
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

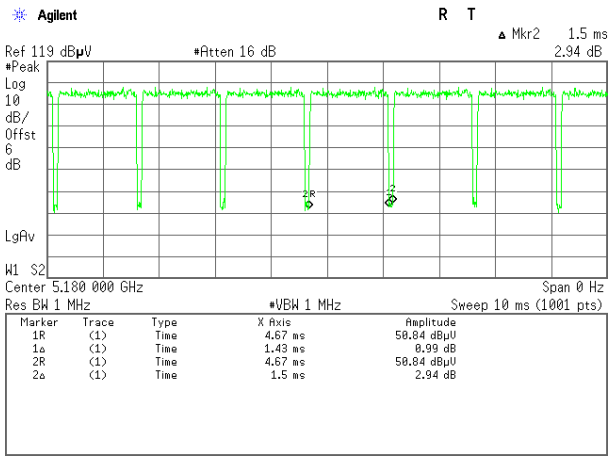
Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Voltage/Hz	120V/60Hz
Test Mode	Mode 1:EUT power by AC adapter via power cable.
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

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(X-Plane and Horizontal) were recorded in this report
3. For below 1G, AC power line conducted emission and radiation emission were performed the EUT transmit at the highest output power channel as worse case.

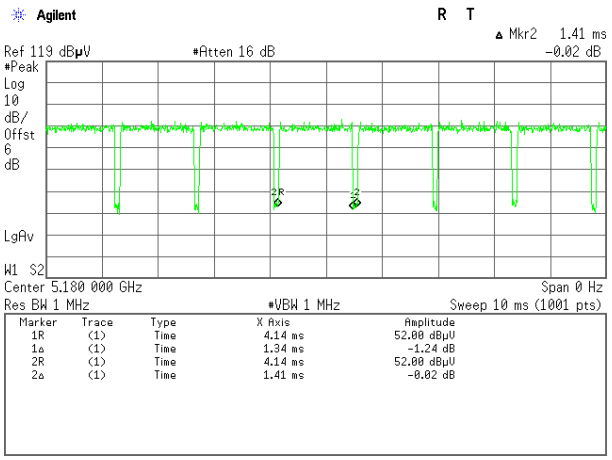
3.3 EUT DUTY CYCLE

Duty Cycle				
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)	Duty Factor(dB)
802.11a	1.4300	1.5000	95.33%	0.21
802.11n HT20	1.3400	1.4100	95.04%	0.22
802.11n HT40	0.6900	0.7500	92.00%	0.36
802.11ac VHT80	0.3500	0.4300	81.40%	0.89

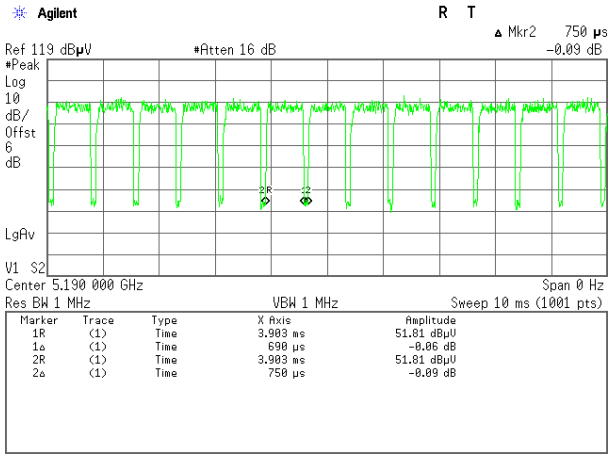
802.11a



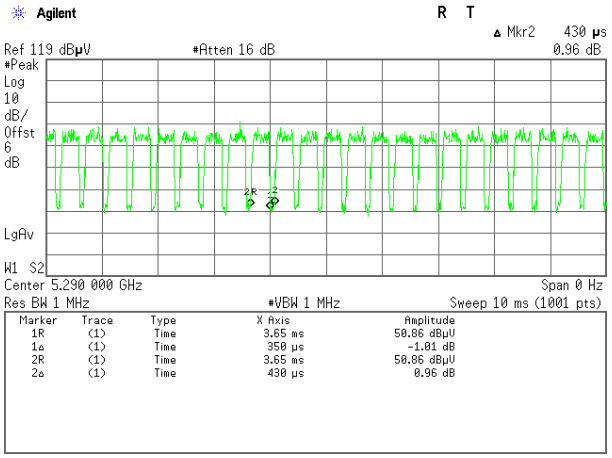
802.11n HT20



802.11n HT40



802.11ac VHT80



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

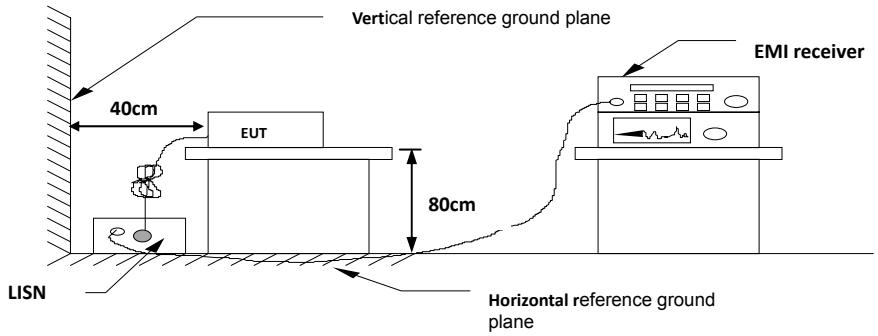
* Decreases with the logarithm of the frequency.

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

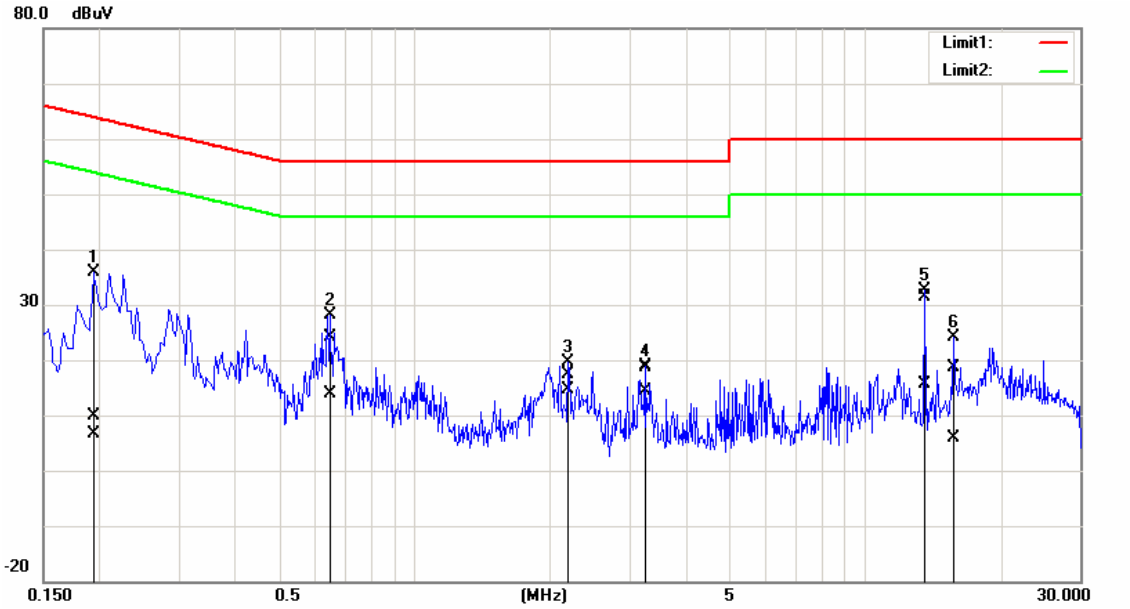


4.1.4 Test Result

Pass.

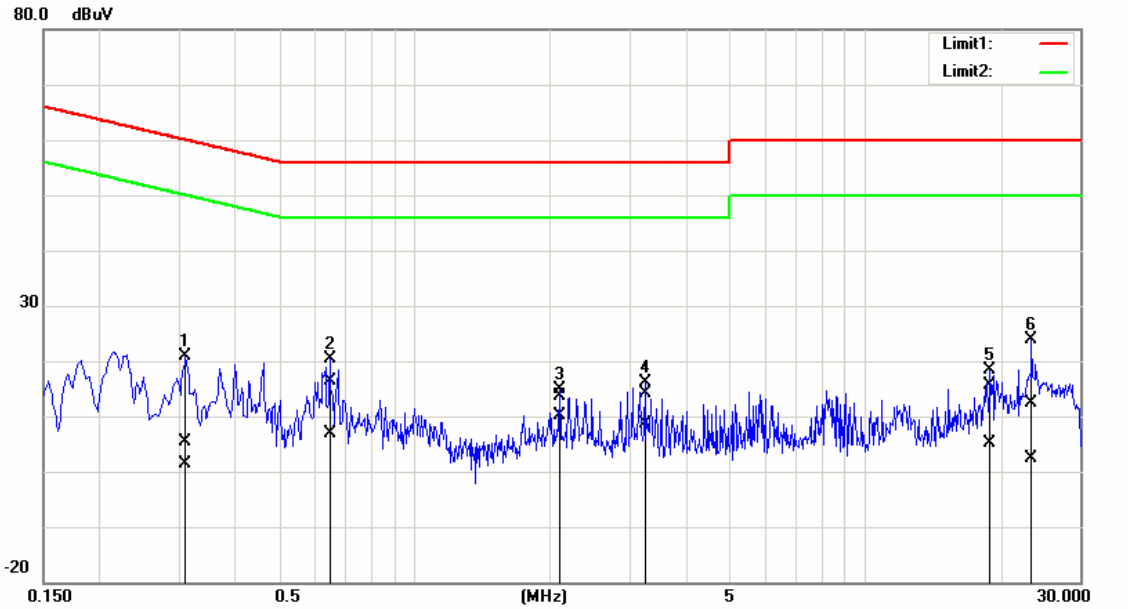
Test Data

Test Mode	Mode 1	Temp/Hum	24(℃)/ 50%RH
Test Voltage	120Vac / 60Hz	Test Date	September 19, 2017
Phase	Line	Test Engineer	Eric Lee



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1940	9.81	6.46	0.05	9.86	6.51	63.86	53.86	-54.00	-47.35	Pass
0.6500	24.08	13.92	0.06	24.14	13.98	56.00	46.00	-31.86	-32.02	Pass
2.1980	17.26	14.44	0.09	17.35	14.53	56.00	46.00	-38.65	-31.47	Pass
3.2540	18.51	14.18	0.12	18.63	14.30	56.00	46.00	-37.37	-31.70	Pass
13.5620	31.33	15.49	0.12	31.45	15.61	60.00	50.00	-28.55	-34.39	Pass
15.7940	18.33	5.55	0.25	18.58	5.80	60.00	50.00	-41.42	-44.20	Pass

Test Mode	Mode 1	Temp/Hum	24(℃)/ 50%RH
Test Voltage	120Vac / 60Hz	Test Date	September 19, 2017
Phase	Neutral	Test Engineer	Eric Lee



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.3100	5.36	1.25	0.13	5.49	1.38	59.97	49.97	-54.48	-48.59	Pass
0.6500	16.32	6.78	0.14	16.46	6.92	56.00	46.00	-39.54	-39.08	Pass
2.1060	13.52	9.98	0.17	13.69	10.15	56.00	46.00	-42.31	-35.85	Pass
3.2580	14.03	8.36	0.20	14.23	8.56	56.00	46.00	-41.77	-37.44	Pass
18.9420	15.19	4.72	0.47	15.66	5.19	60.00	50.00	-44.34	-44.81	Pass
23.4980	11.91	1.95	0.55	12.46	2.50	60.00	50.00	-47.54	-47.50	Pass

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 v01r03 Section C, D, and ANSI 63.10:2013 clause 6.9.2,

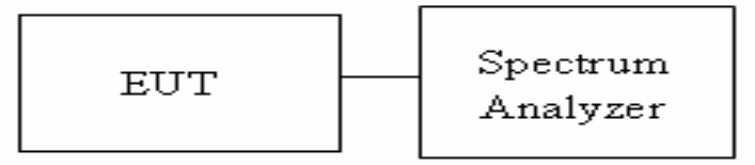
1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. UNII-1, UNII-2a and UNII-2c,

   (1) BW=20MHz : SA set RBW = 300kHz, VBW = 1MHz and Detector = Peak, to measurement 26 dB Bandwidth and 99% Bandwidth

   (2) BW=40MHz : SA set RBW = 1MHz, VBW = 3MHz and Detector = Peak, to measurement 26 dB Bandwidth and 99% Bandwidth

   (3) BW=80MHz : SA set RBW = 1MHz, VBW = 3MHz and Detector = Peak, to measurement 26 dB Bandwidth and 99% Bandwidth
4. UNII-3, SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth and 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup

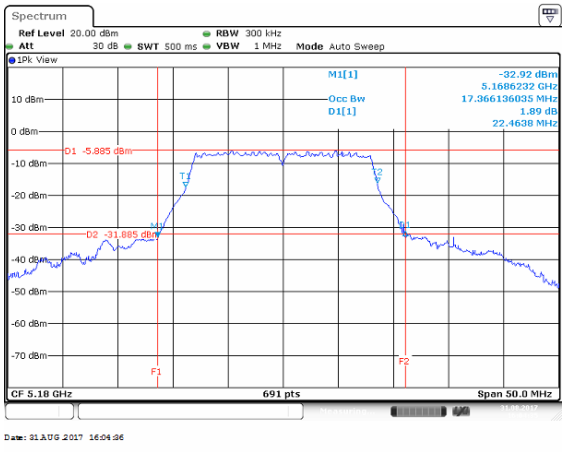
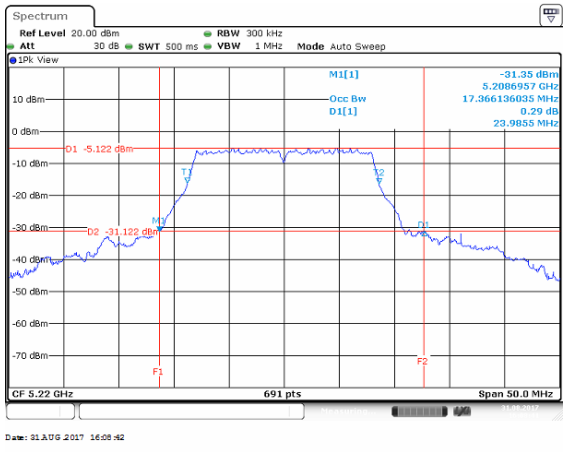


4.2.4 Test Result

UNII-1					
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	17.3661	-	22.4638	-
Mid	5220	17.3661	-	23.9855	-
High	5240	17.3661	-	23.6232	-
Test mode: IEEE 802.11n HT20 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	18.1620	-	22.3913	-
Mid	5220	18.1620	-	22.4638	-
High	5240	18.1620	-	22.4638	-
Test mode: IEEE 802.11n HT40 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	37.2793	-	45.101	-
High	5230	37.2793	-	45.101	-
Test mode: IEEE 802.11ac VHT80 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 26dB BW (MHz)**	**Chain 1 26dB BW (MHz)**
Mid	5210	76.1794	--	84.406	--

UNII-3					
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	16.6425	--	16.3768	--
Mid	5785	16.5701	--	16.3768	--
High	5825	16.6425	--	16.3768	--
Test mode: IEEE 802.11n HT20 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	17.7134	--	17.6522	--
Mid	5785	17.7134	--	17.6522	--
High	5825	17.7134	--	17.6522	--
Test mode: IEEE 802.11n HT40 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	36.0057	--	35.478	--
High	5795	36.0057	--	35.362	--
Test mode: IEEE 802.11ac VHT80 mode					
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**
Mid	5775	75.7163	--	76.058	--

Test Data

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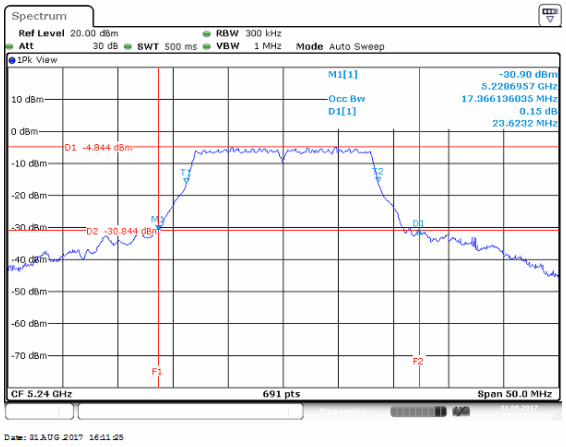
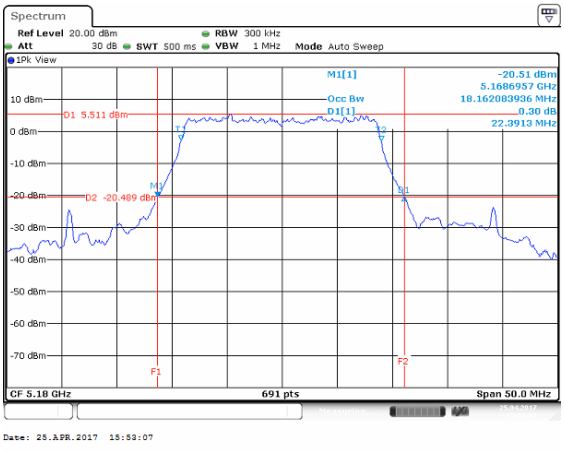
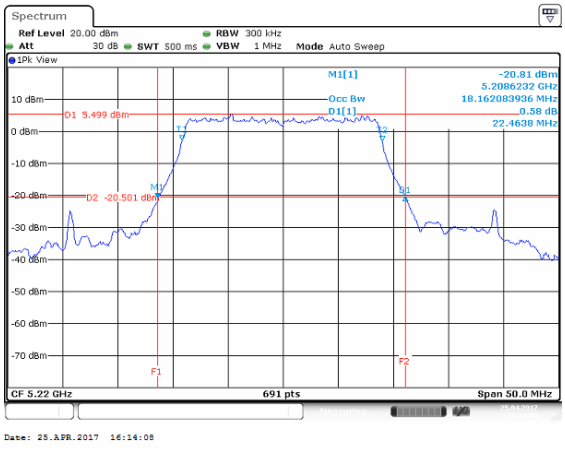
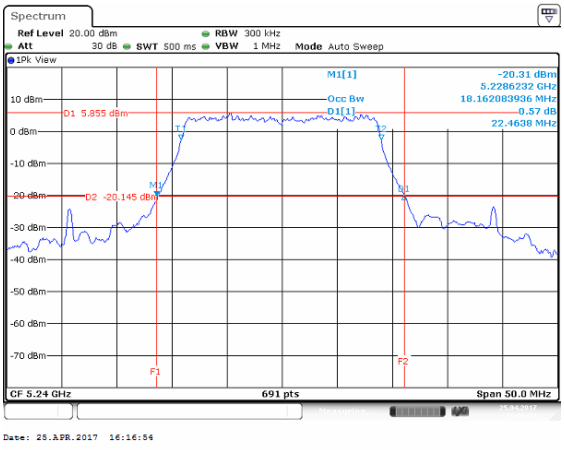
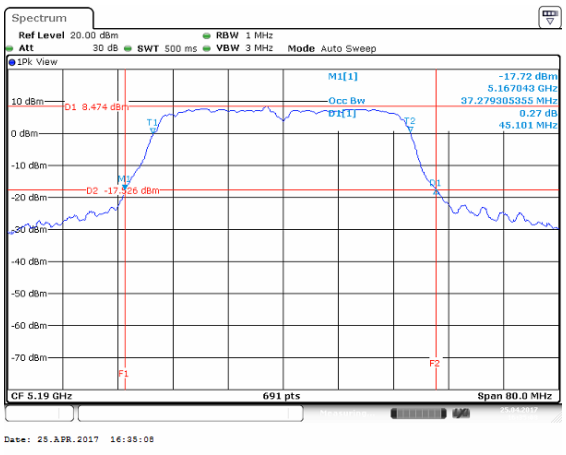
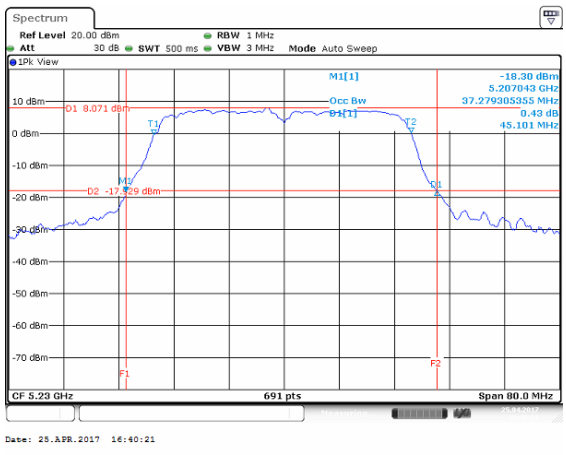
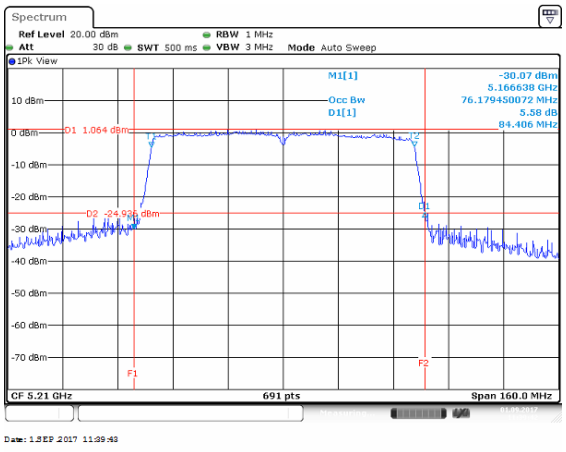
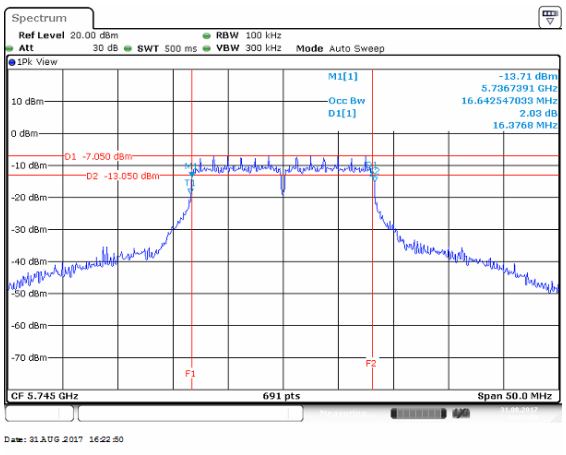
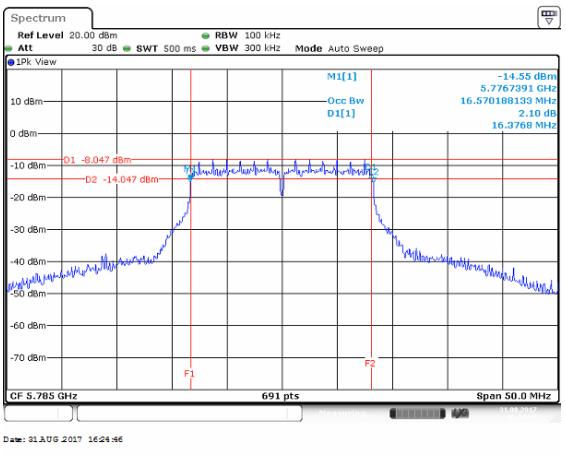
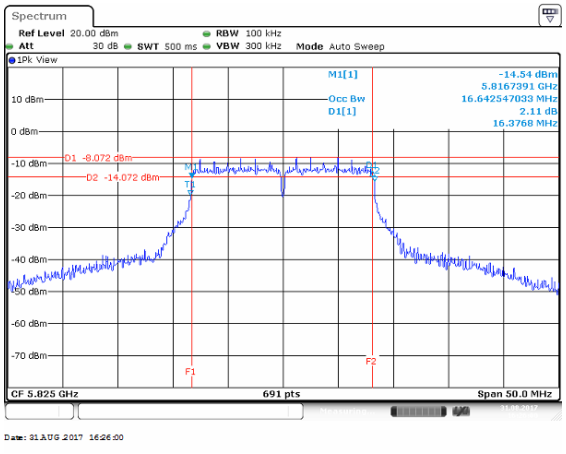
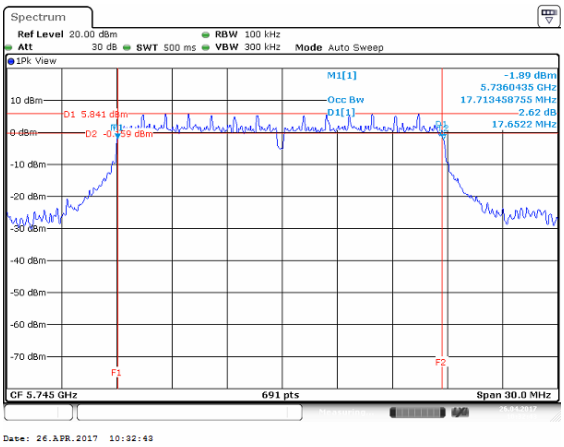
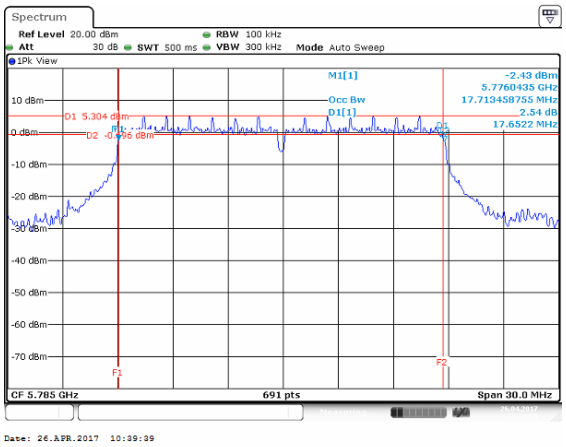
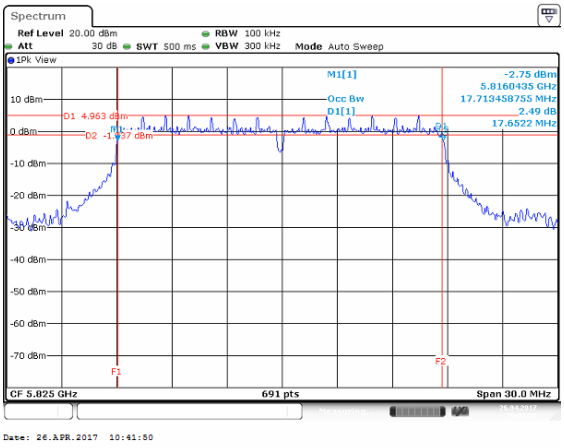
	

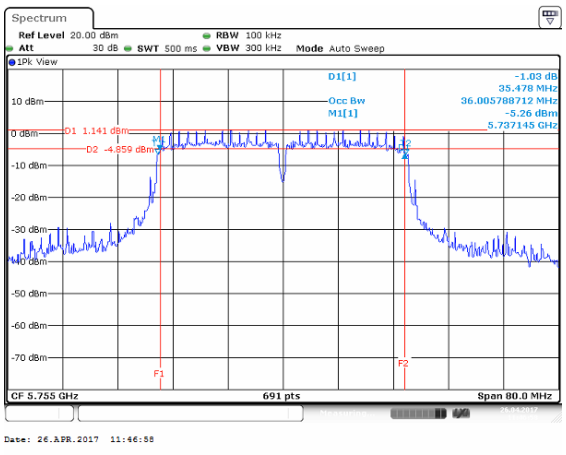
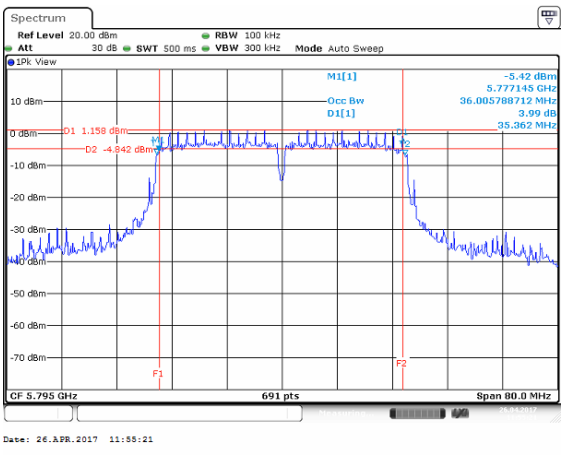
UNII-1 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

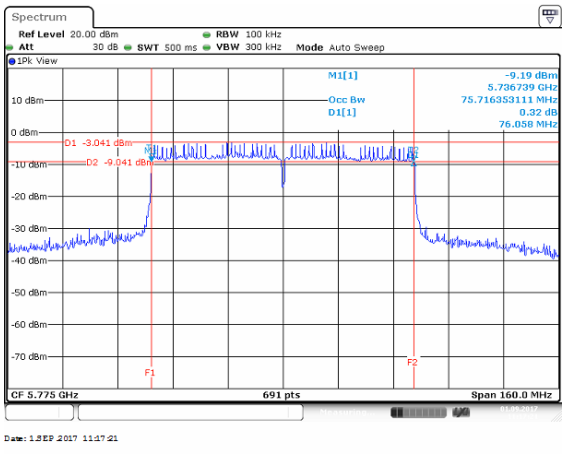
UNII-1 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

UNII-1 IEEE 802.11ac VHT80 mode- chain 0
Mid CH


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

UNII-3 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

UNII-3 IEEE 802.11ac VHT80 mode- chain 0	
Mid 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) and RSS-247 section 6.2.1(1), section 6.2.2(1), section 6.2.3(1) and section 6.2.4(1)

UNII-1 :

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, 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.

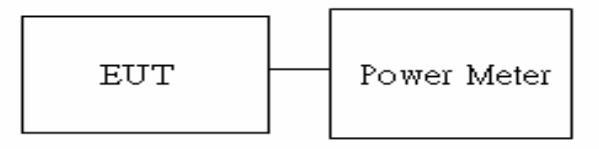
UNII-1 Limit	☒ Antenna not exceed 6 dBi：30dBm (EIRP : 23dBm) ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]

4.3.2 Test Procedure

Test method Refer as KDB 789033 D02 v01r03, 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)	EIRP AV Total Power (dBm)	AV Total Power (W)	EIRP AV Total Power (W)	DG (dBi)	Limit (dBm)	EIRP Limit (dBm)
			chain0	chain1	chain0	chain1							
IEEE 802.11a	36	5180	32.00	-	14.57	-	14.57	18.57	0.0286	0.0719	4	30	23
	44	5220	32.00	-	14.41	-	14.41	18.41	0.0276	0.0693			
	48	5240	32.00	-	14.01	-	14.01	18.01	0.0252	0.0632			
IEEE 802.11n HT20	36	5180	32.00	-	14.21	-	14.21	18.21	0.0264	0.0662			
	44	5220	32.00	-	14.41	-	14.41	18.41	0.0276	0.0693			
	48	5240	32.00	-	14.01	-	14.01	18.01	0.0252	0.0632			
IEEE 802.11n HT40	38	5190	11.00	-	10.51	-	10.51	14.51	0.0112	0.0282			
	46	5230	32.00	-	13.86	-	13.86	17.86	0.0243	0.0611			
IEEE 802.11ac VHT80	42	5210	10.00	-	8.47	-	8.47	12.47	0.0070	0.0177			

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	149	5745	32	-	15.85	-	15.85	0.0385	4	30
	157	5785	32	-	15.11	-	15.11	0.0324		
	165	5825	32	-	15.13	-	15.13	0.0326		
IEEE 802.11n HT20	149	5745	32	-	14.21	-	14.21	0.0264		
	157	5785	32	-	13.64	-	13.64	0.0231		
	165	5825	32	-	13.61	-	13.61	0.0230		
IEEE 802.11n HT40	151	5755	32	-	14.46	-	14.46	0.0279		
	159	5795	32	-	13.97	-	13.97	0.0249		
IEEE 802.11ac VHT80	155	5775	32	-	13.68	-	13.68	0.0233		

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) and RSS-247 section 6.2.1(1), section 6.2.2(1), section 6.2.3(1) and section 6.2.4(1)

UNII-1 :

FCC: The maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

IC: The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz 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 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.i.

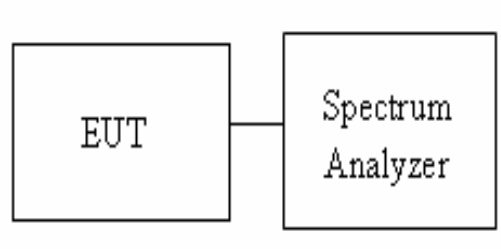
UNII-1 Limit	☒ Antenna not exceed 6 dBi：17 dBm (EIRP : 10 dBm) ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi：30 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

4.4.2 Test Procedure

Test method Refer as KDB 789033 D02 v01r03, 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

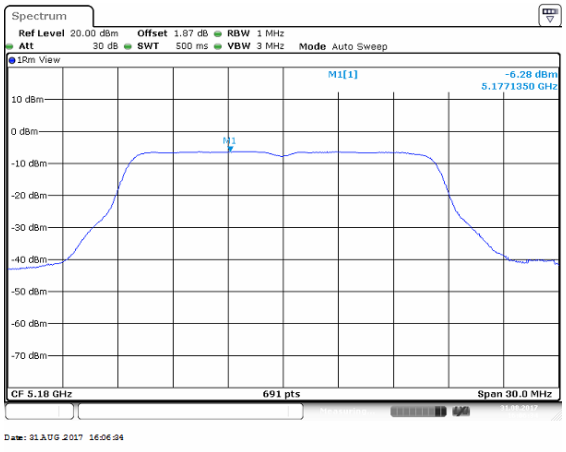
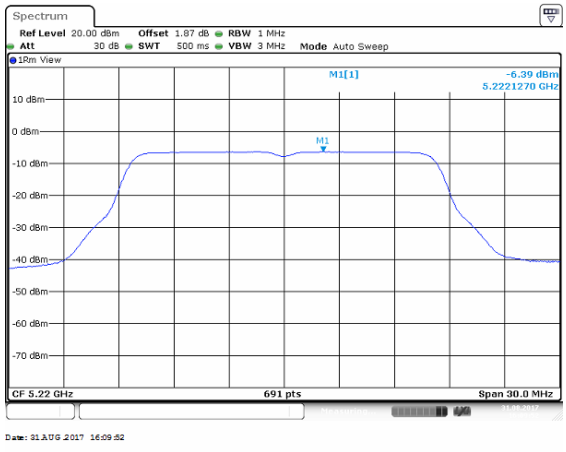
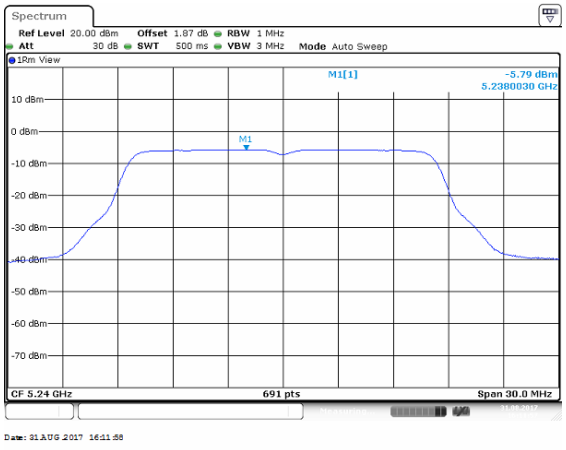


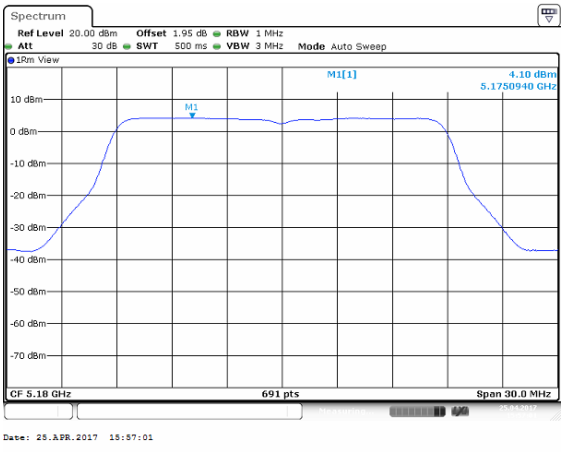
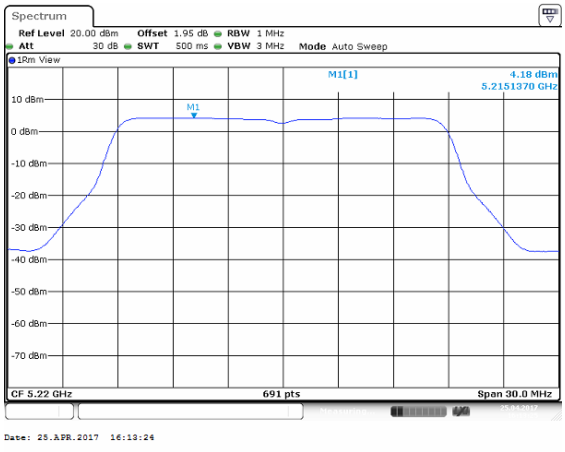
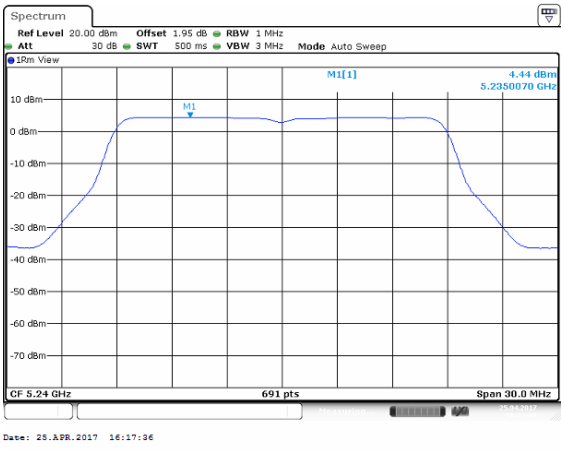
4.4.4 Test Result

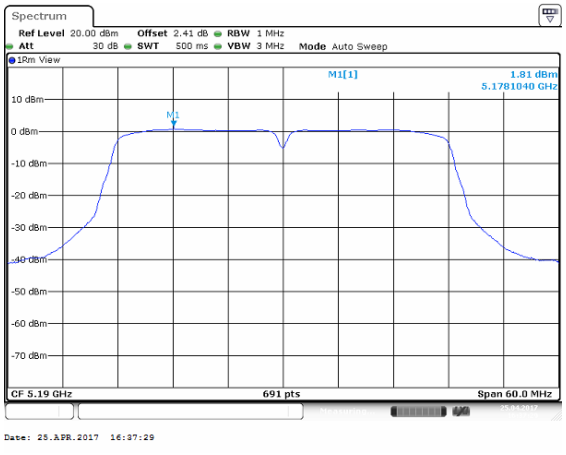
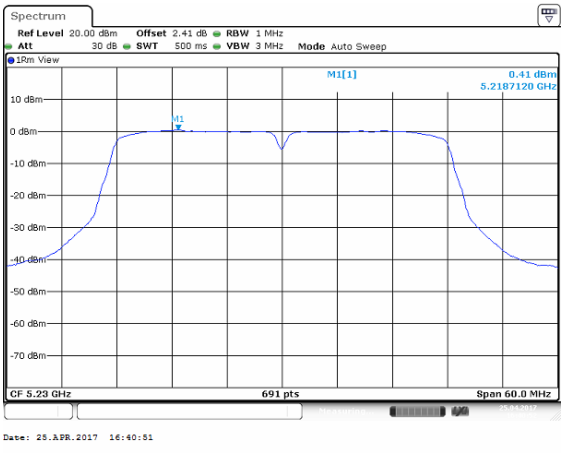
UNII-1				
Test mode: IEEE 802.11a mode				
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**	**EIRP Limit (dBm)**
Low	5180	-6.28	17	10
Mid	5220	-6.39		
High	5240	-5.79		
Test mode: IEEE 802.11n HT20 mode				
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**	**EIRP Limit (dBm)**
Low	5180	4.10	17	10
Mid	5220	4.18		
High	5240	4.44		
Test mode: IEEE 802.11n HT40 mode				
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**	**EIRP Limit (dBm)**
Low	5190	1.81	17	10
High	5230	0.41		
Test mode: IEEE 802.11ac VHT80 mode				
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**	**EIRP Limit (dBm)**
Mid	5210	-7.11	17	10

UNII-3			
Test mode: IEEE 802.11a mode			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	5745	-0.88	30
Mid	5785	-1.42	
High	5825	-1.46	
Test mode: IEEE 802.11n HT20 mode			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	5745	12.84	30
Mid	5785	12.23	
High	5825	11.82	
Test mode: IEEE 802.11n HT40 mode			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	5755	8.82	30
High	5795	8.46	
Test mode: IEEE 802.11ac VHT80 mode			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Mid	5775	-5.43	30

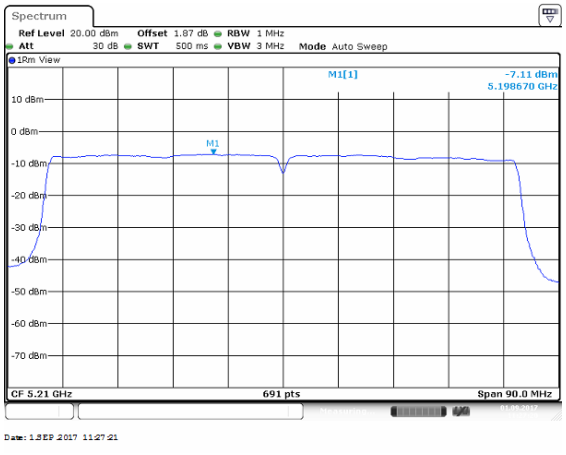
Test Data

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

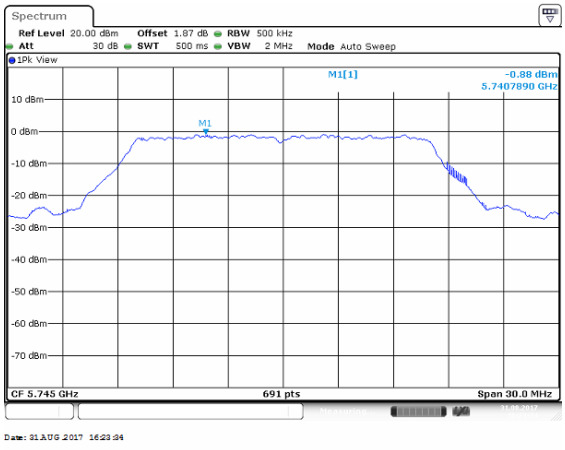
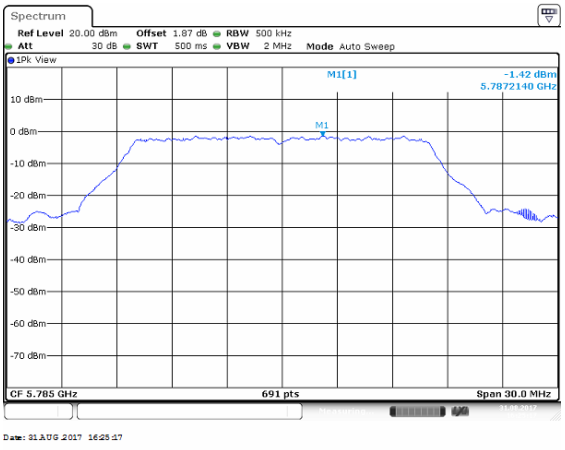
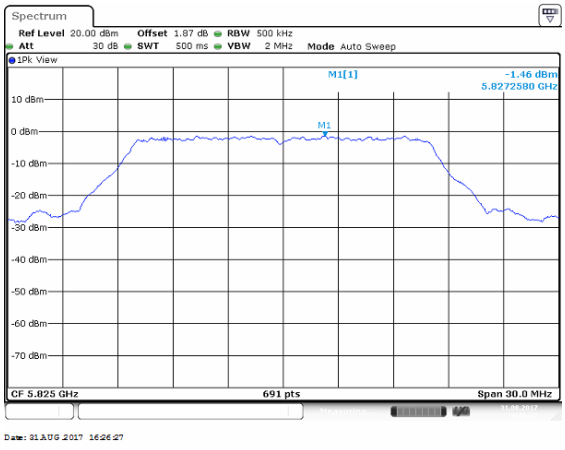
UNII-1 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

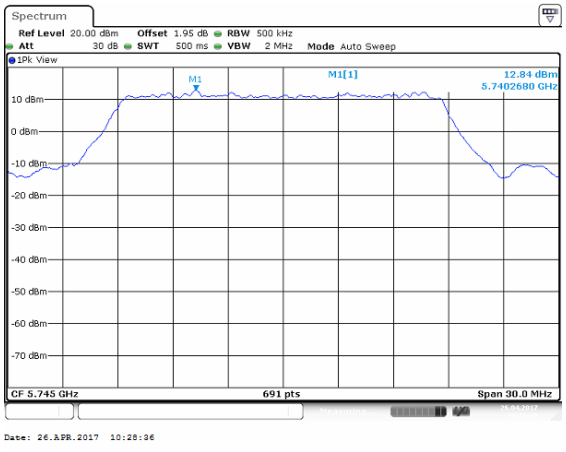
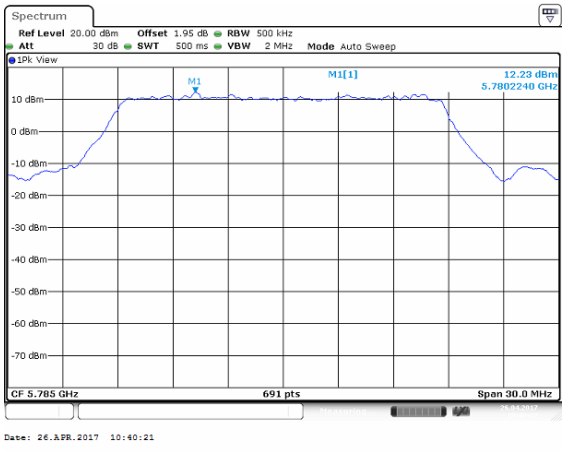
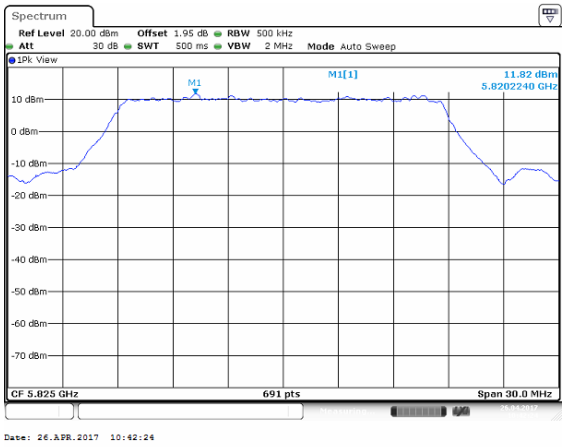
UNII-1 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

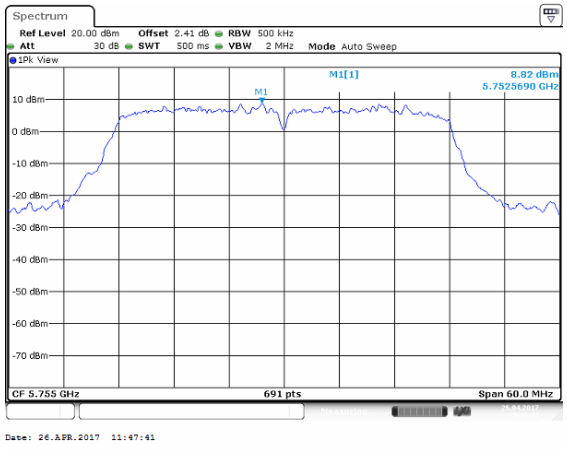
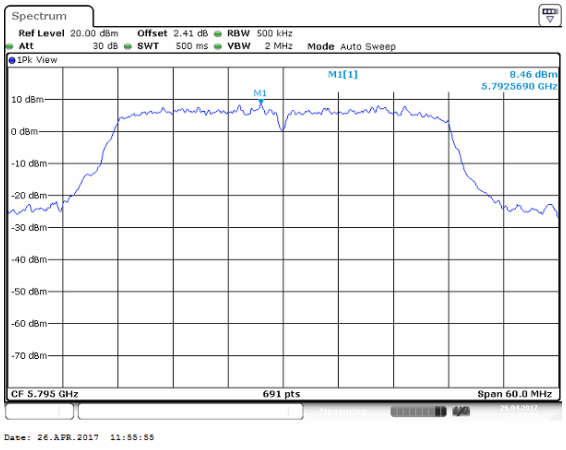
UNII-1 IEEE 802.11ac VHT80 mode- chain 0
Mid CH

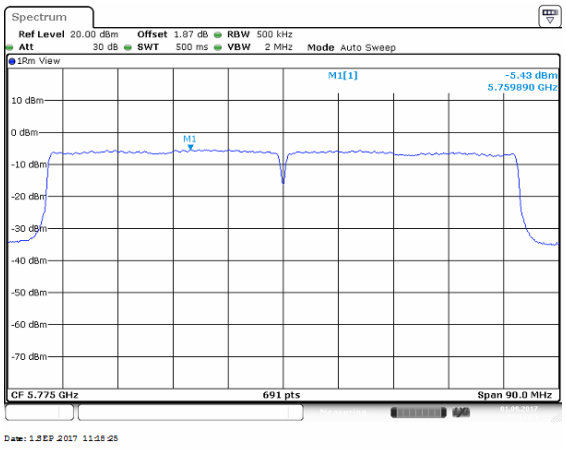


Test Data

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

UNII-3 IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

UNII-3 IEEE 802.11n HT40 mode- chain 0	
Low CH	**High CH**
	

UNII-3 IEEE 802.11ac VHT80 mode- chain 0	
Mid 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)

IC according to RSS-247 section 6.2.1(2), section 6.2.2(2), section 6.2.3(2) and section 6.2.4(2)

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:

For the band 5725-5850 MHz, emissions at frequencies from the band edges to 10 MHz above or below the band edges shall not exceed -17 dBm/MHz e.i.r.p.
For emissions at frequencies more than 10 MHz above or below the band edges, the emissions power shall not exceed -27 dBm/MHz

4.5.2 Test Procedure

Test method Refer as KDB 789033 D02 v01r03, 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 30MHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

Remark:

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 937606.

4. 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.

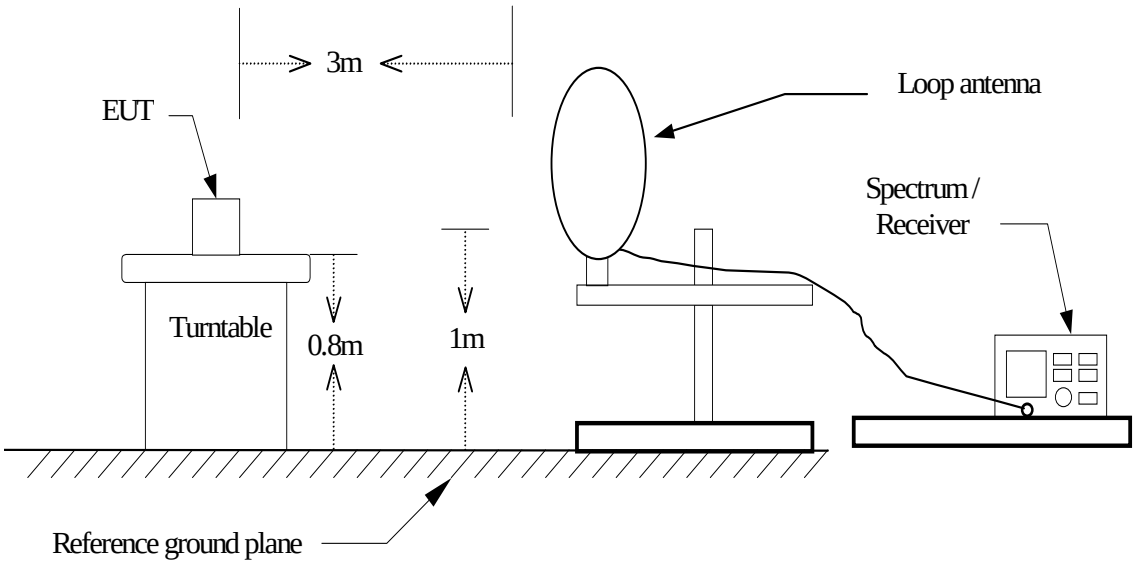
(2.2) For Average measurement：RBW = 1MHz, VBW

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

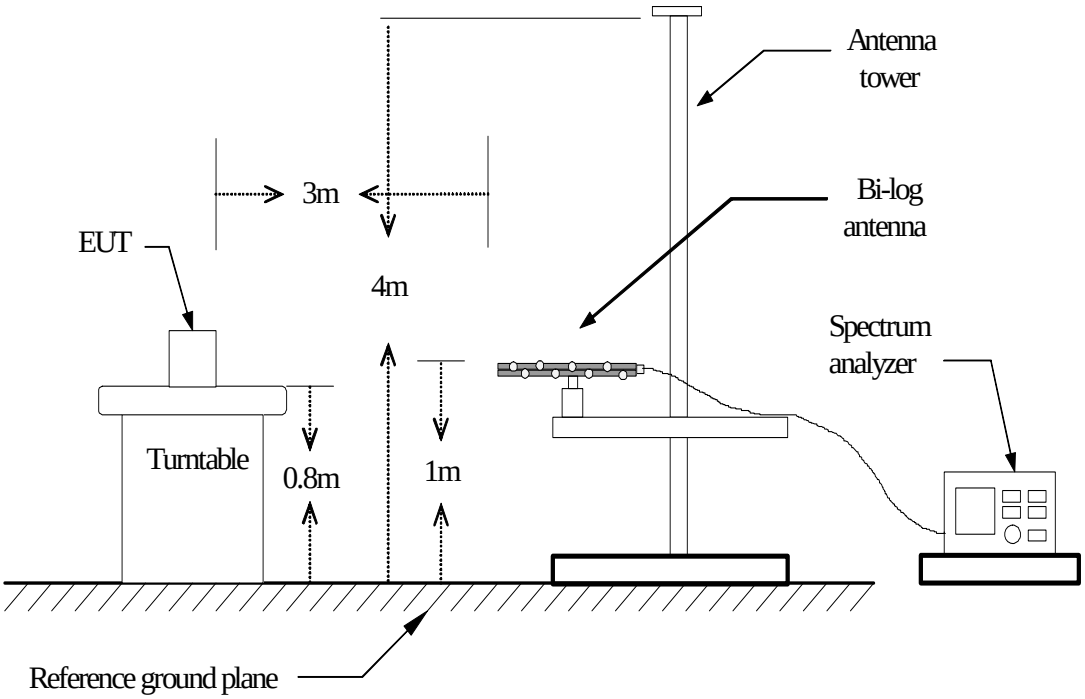
Configuration	Duty Cycle (%)	VBW
802.11a	95%	750Hz
802.11n HT20	95%	750Hz
802.11n HT40	92%	1.5KHz
802.11ac VHT80	81%	3KHz

4.5.3 Test Setup

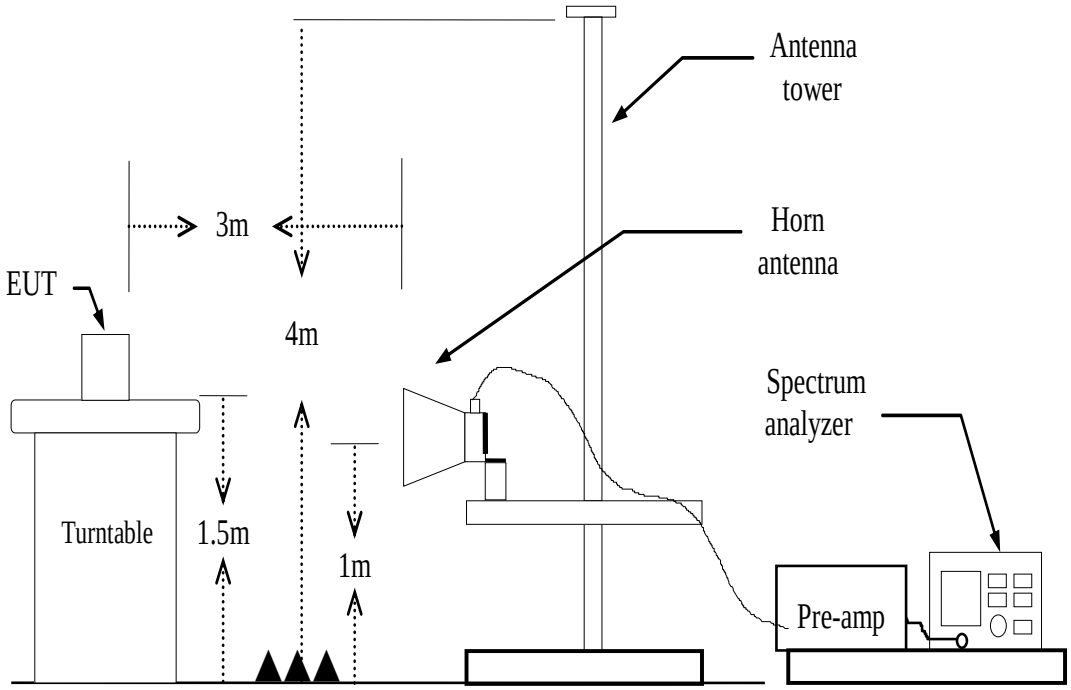
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1 GHz

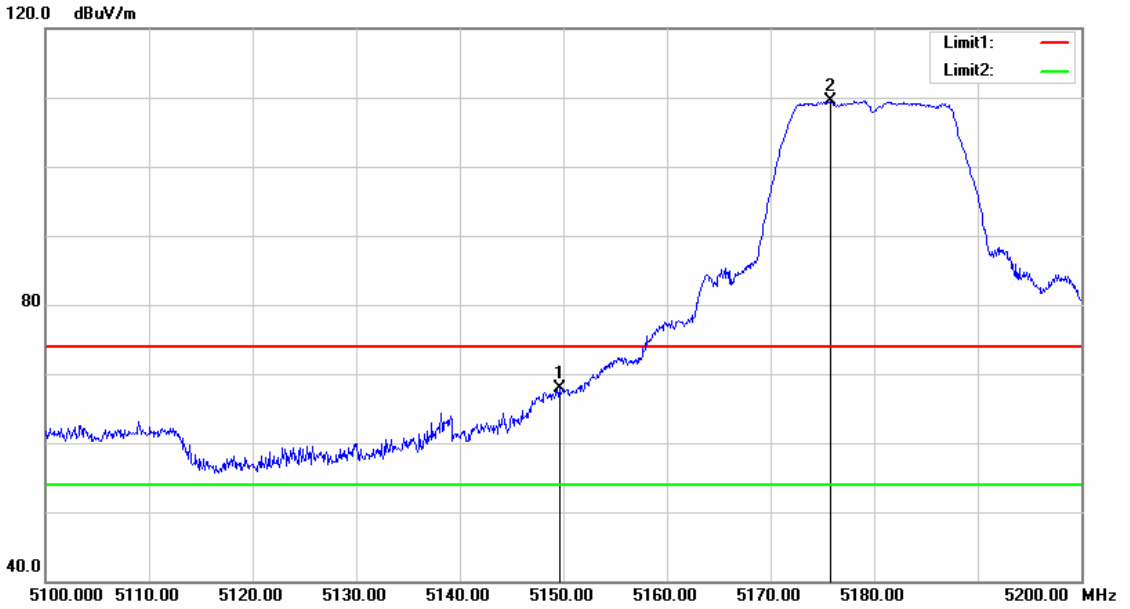


4.5.4 Test Result

Test Data

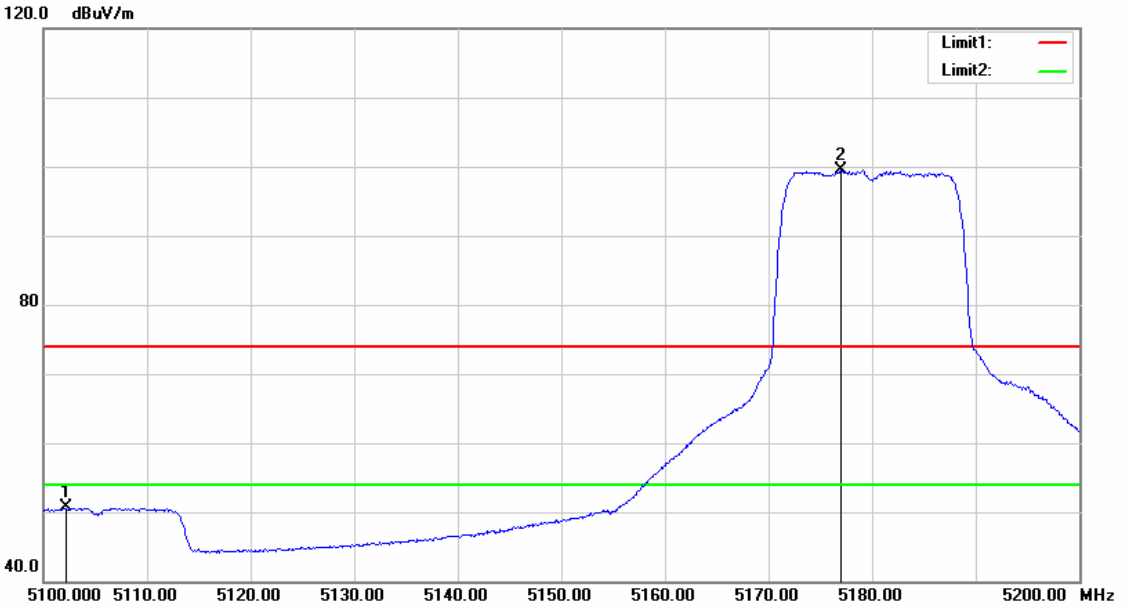
Band Edge Test Data for UNII-1

Test Mode	IEEE 802.11a Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 18, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



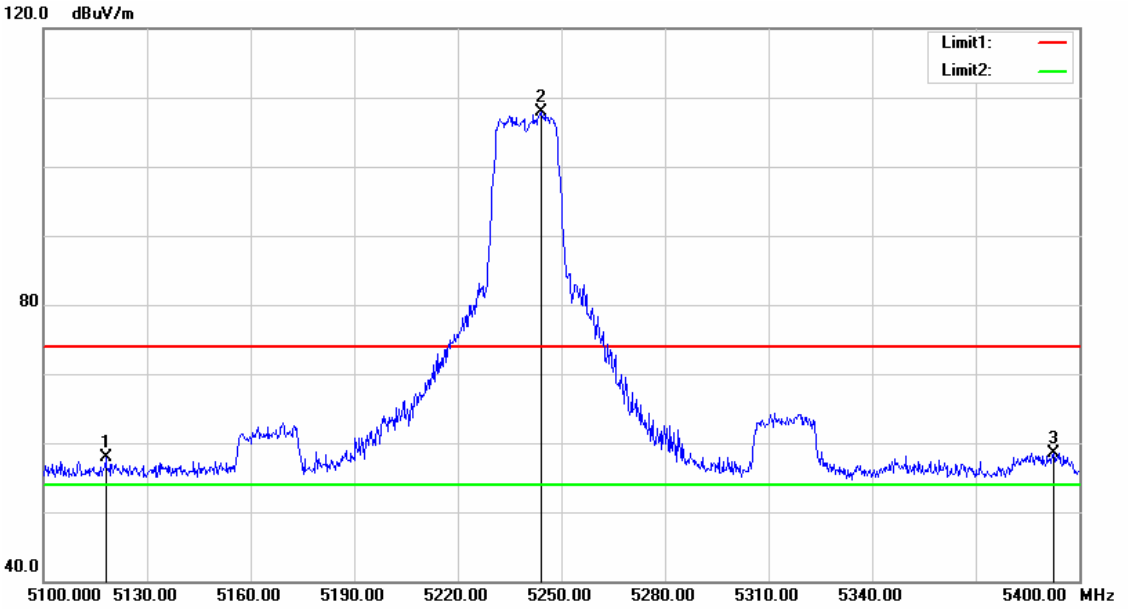
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.600	60.29	7.57	67.86	74.00	-6.14	peak
5175.800	101.94	7.62	109.56	--	--	peak

Test Mode	IEEE 802.11a Low CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 18, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



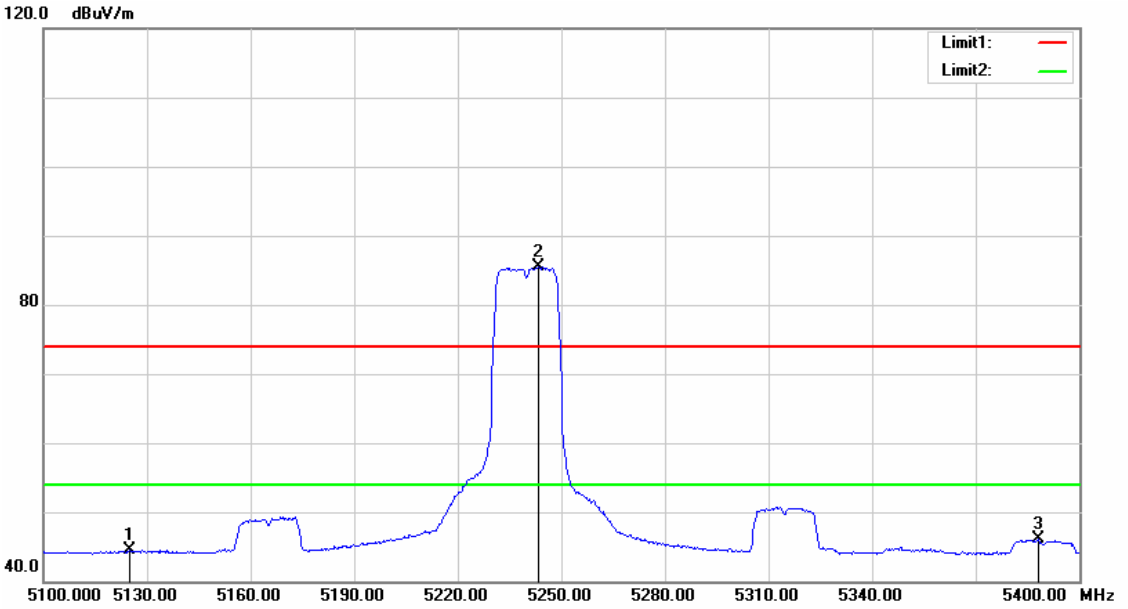
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5102.200	43.13	7.47	50.60	54.00	-3.40	AVG
5177.000	91.80	7.62	99.42	--	--	AVG

Test Mode	IEEE 802.11a High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 18, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



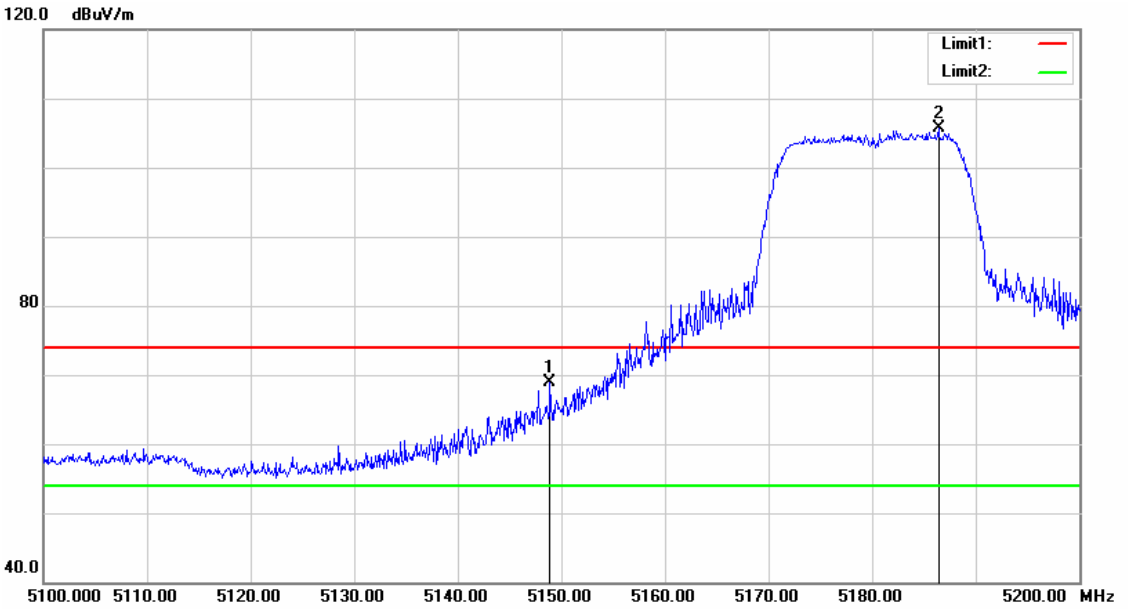
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5118.000	50.42	7.51	57.93	74.00	-16.07	peak
5244.000	100.22	7.74	107.96	--	--	peak
5392.500	50.56	8.01	58.57	74.00	-15.43	peak

Test Mode	IEEE 802.11a High CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 18, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



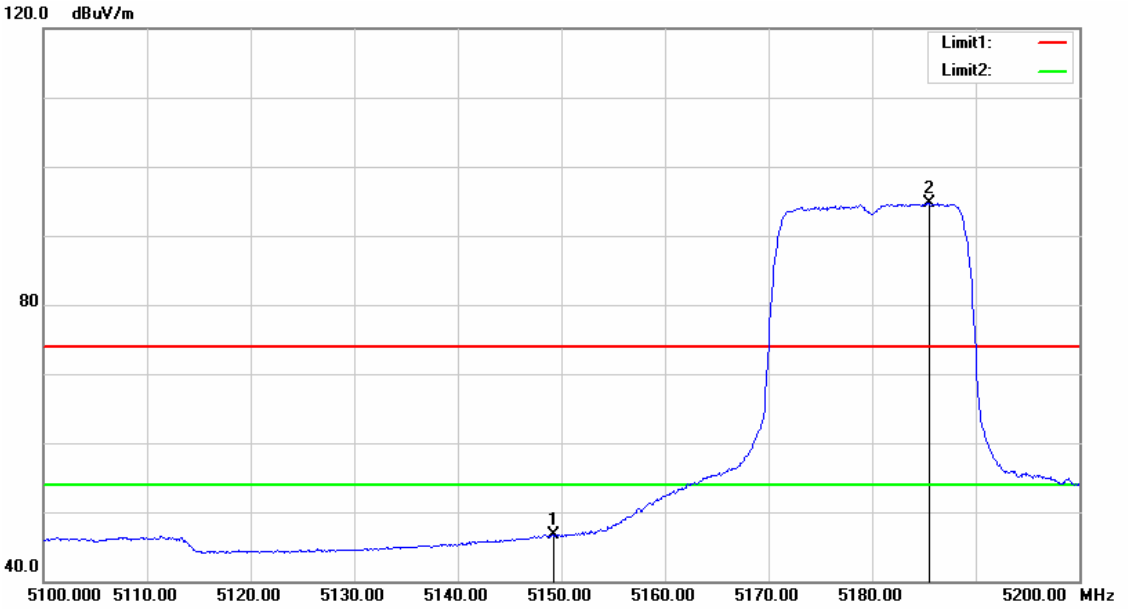
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5124.900	36.97	7.51	44.48	54.00	-9.52	peak
5243.400	77.70	7.74	85.44	--	--	AVG
5388.300	38.07	8.00	46.07	54.00	-7.93	peak

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



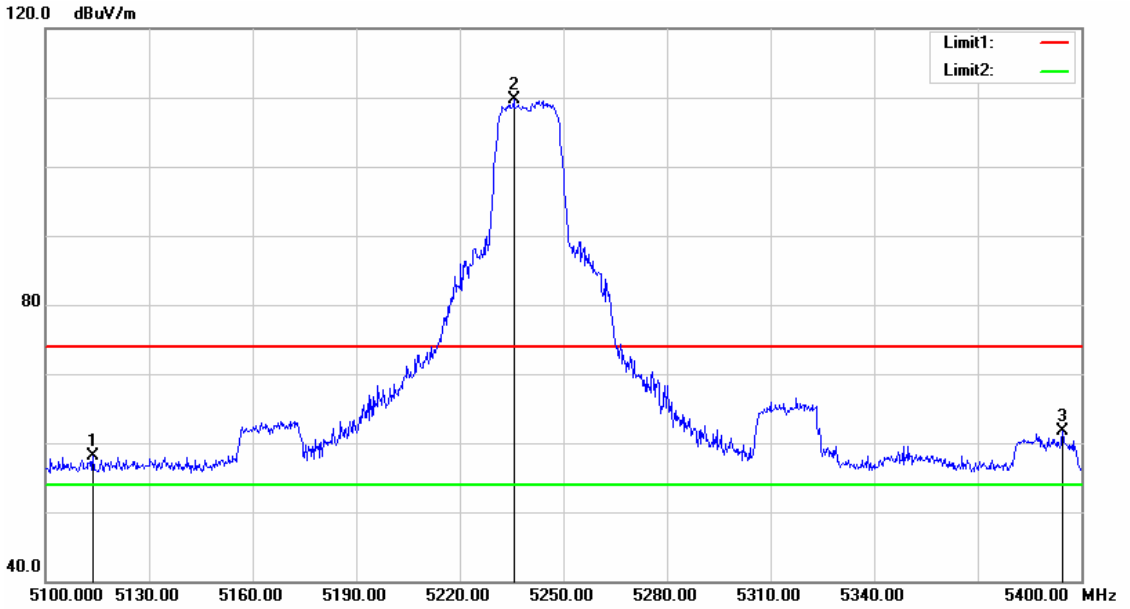
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5148.900	61.34	7.57	68.91	74.00	-5.09	peak
5186.400	98.06	7.63	105.69	--	--	peak

Test Mode	IEEE 802.11n HT20 Low CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



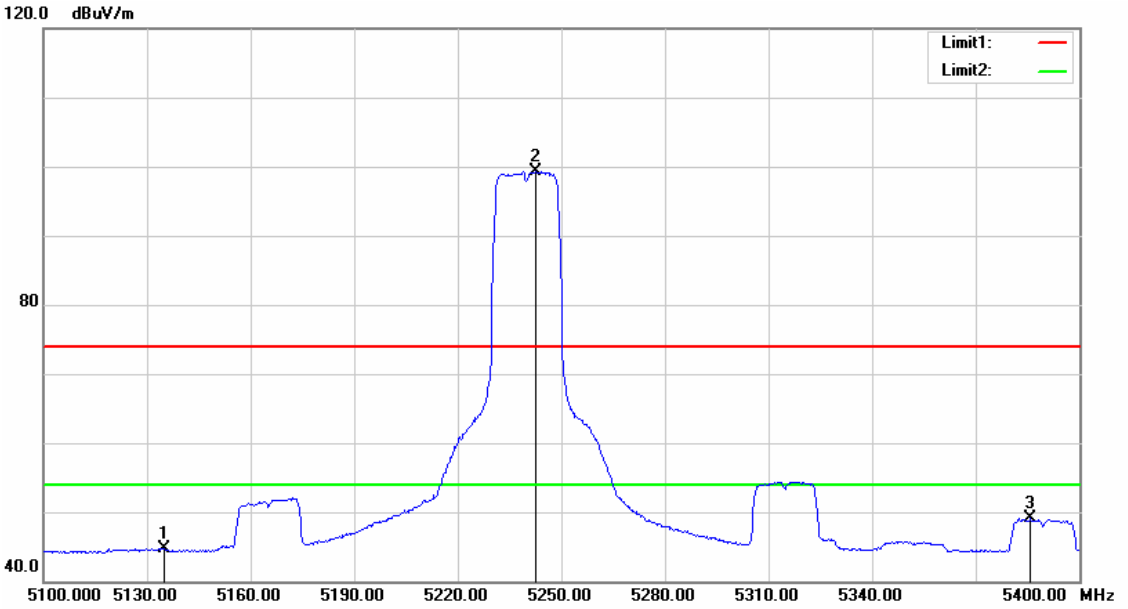
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.200	39.21	7.57	46.78	54.00	-7.22	AVG
5185.500	87.10	7.63	94.73	--	--	AVG

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



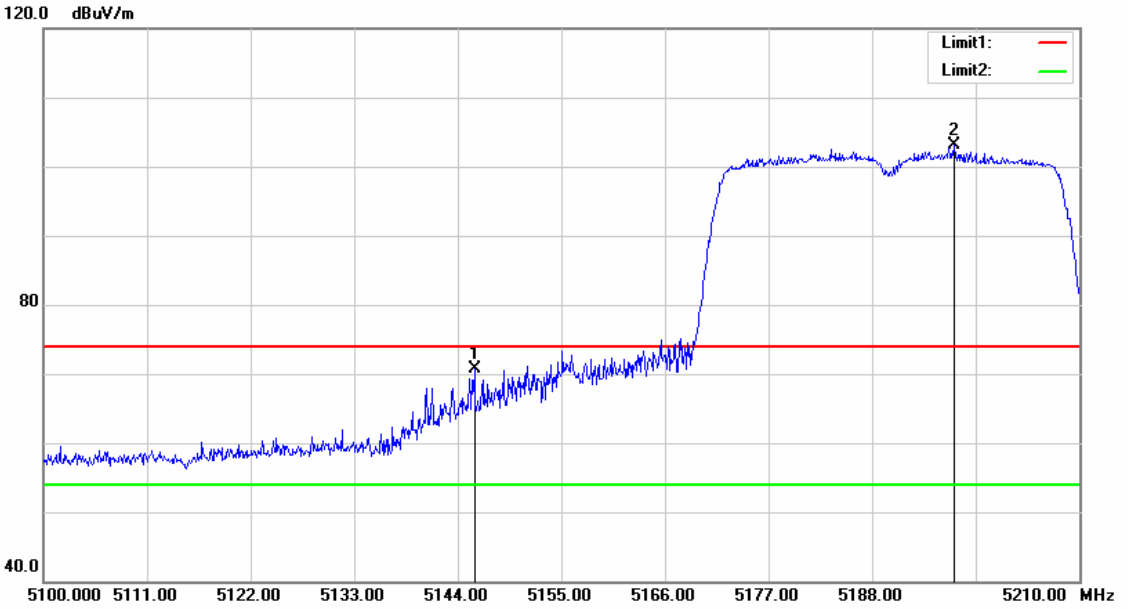
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5113.800	50.58	7.50	58.08	74.00	-15.92	peak
5235.600	101.88	7.73	109.61	--	--	peak
5394.600	53.76	8.01	61.77	74.00	-12.23	peak

Test Mode	IEEE 802.11n HT20 High CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



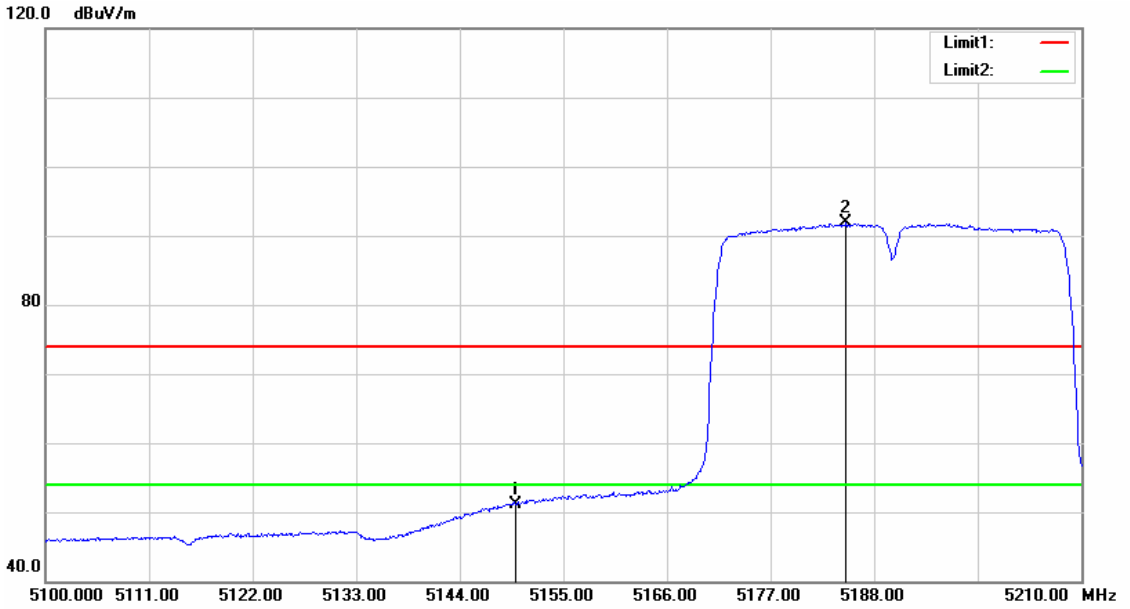
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5134.800	37.18	7.53	44.71	54.00	-9.29	AVG
5242.500	91.52	7.74	99.26	--	--	AVG
5385.900	41.07	8.00	49.07	54.00	-4.93	AVG

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



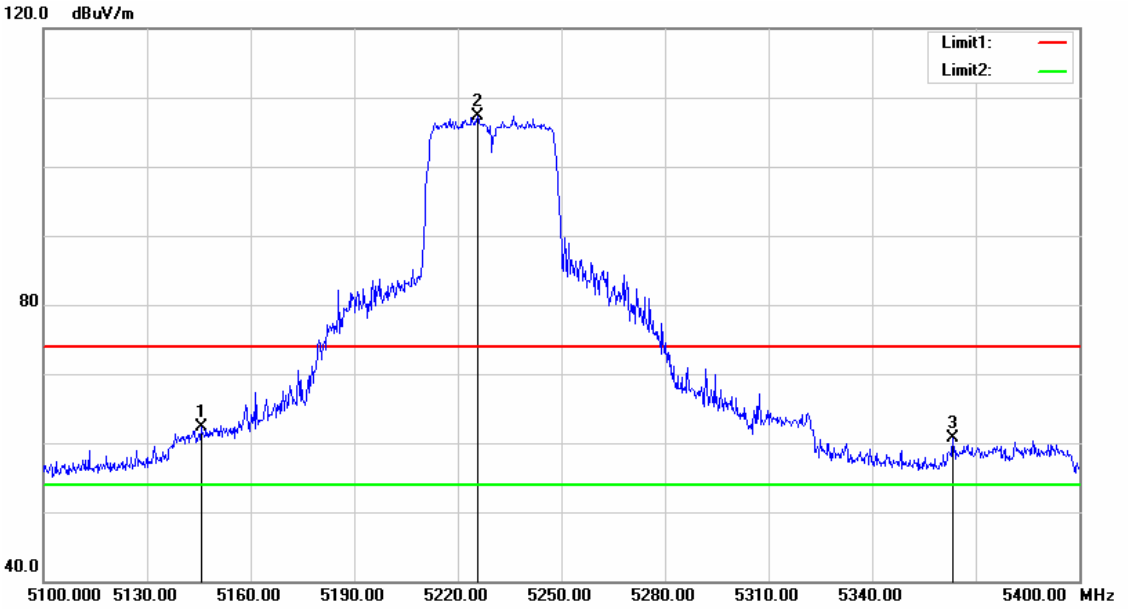
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5145.760	63.15	7.56	70.71	74.00	-3.29	peak
5196.690	95.44	7.66	103.10	--	--	peak

Test Mode	IEEE 802.11n HT40 Low CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



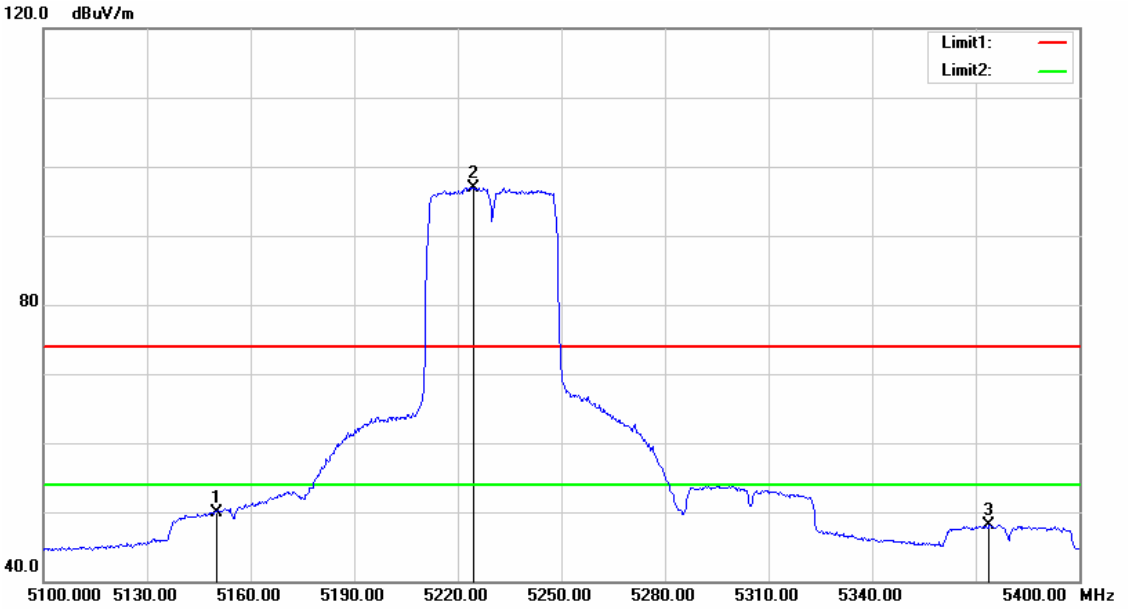
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	43.52	7.57	51.09	54.00	-2.91	AVG
5185.030	84.23	7.63	91.86	--	--	AVG

Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



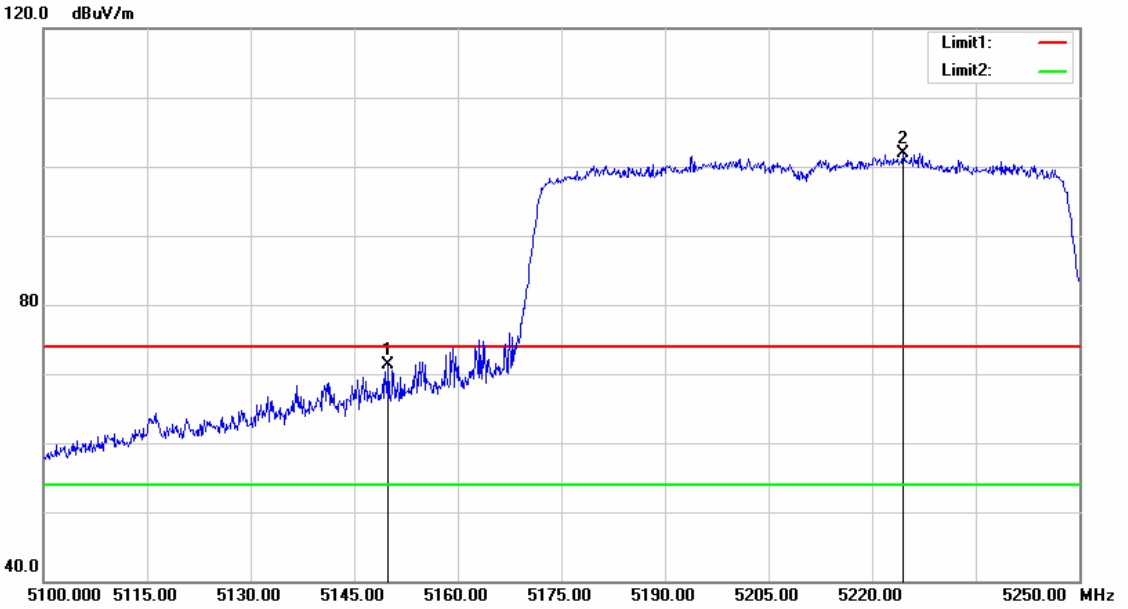
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5145.600	54.70	7.56	62.26	74.00	-11.74	peak
5225.700	99.61	7.71	107.32	--	--	peak
5363.400	52.77	7.96	60.73	74.00	-13.27	peak

Test Mode	IEEE 802.11n HT40 High CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



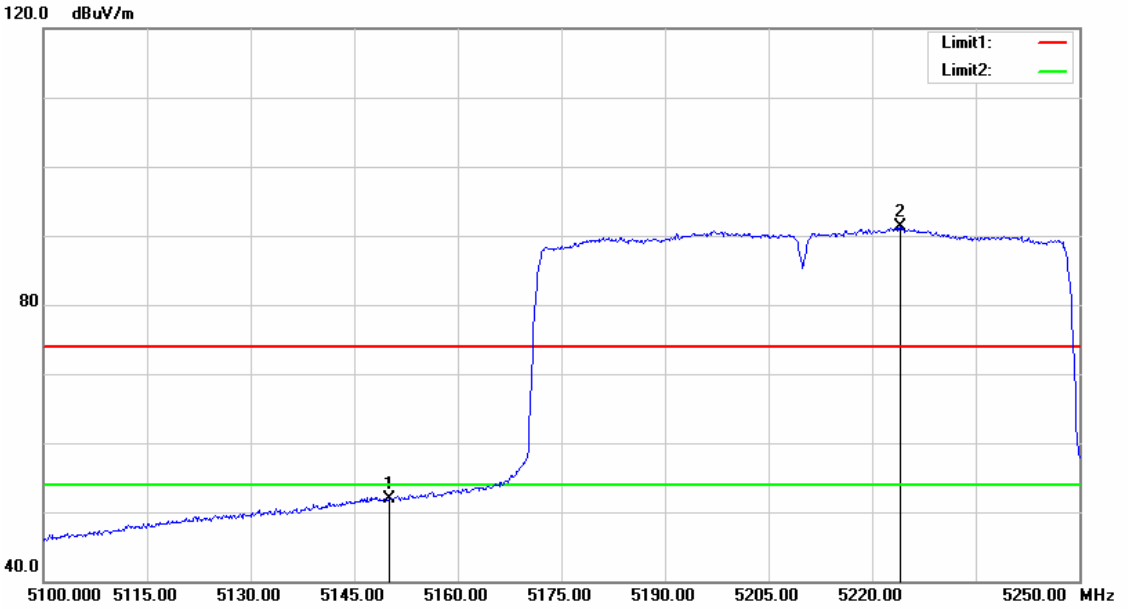
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	42.43	7.57	50.00	54.00	-4.00	AVG
5224.500	89.31	7.69	97.00	--	--	AVG
5373.900	40.12	7.97	48.09	54.00	-5.91	AVG

Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.950	63.69	7.57	71.26	74.00	-2.74	peak
5224.500	94.14	7.69	101.83	--	--	peak

Test Mode	IEEE 802.11ac VHT80 Mid CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz

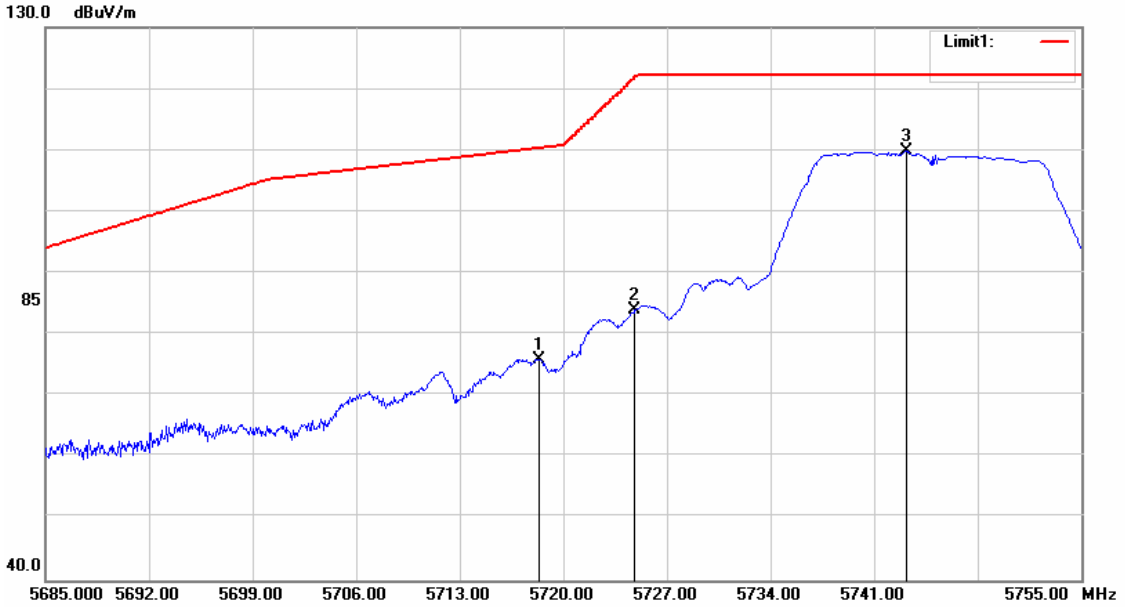


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	44.35	7.57	51.92	54.00	-2.08	AVG
5224.050	83.53	7.69	91.22	--	--	AVG

Test Data

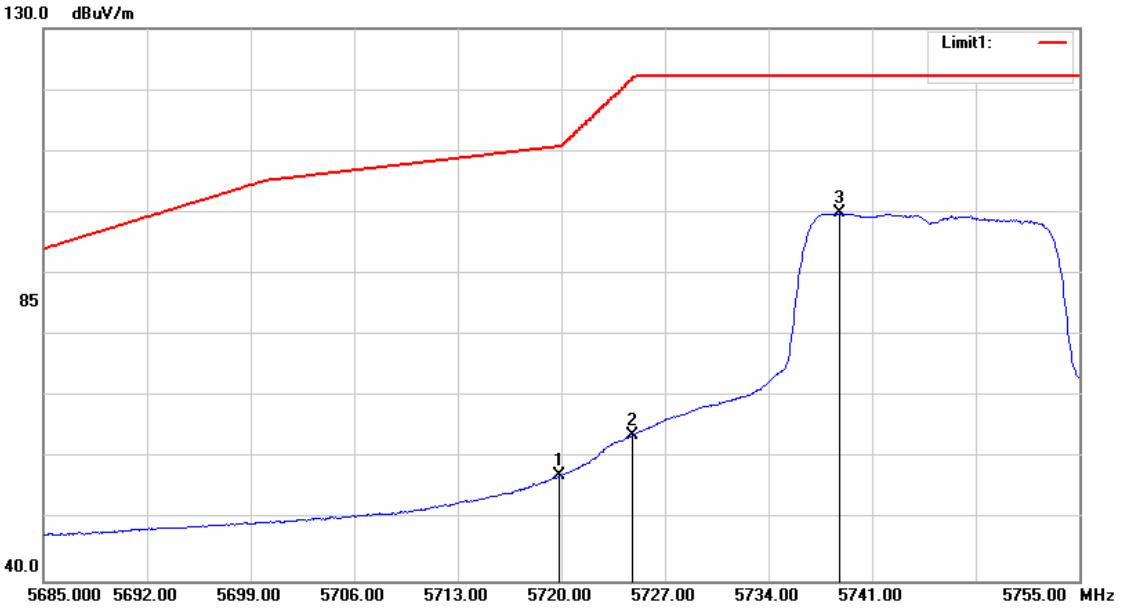
Band Edge Test Data for UNII-3

Test Mode	IEEE 802.11a Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



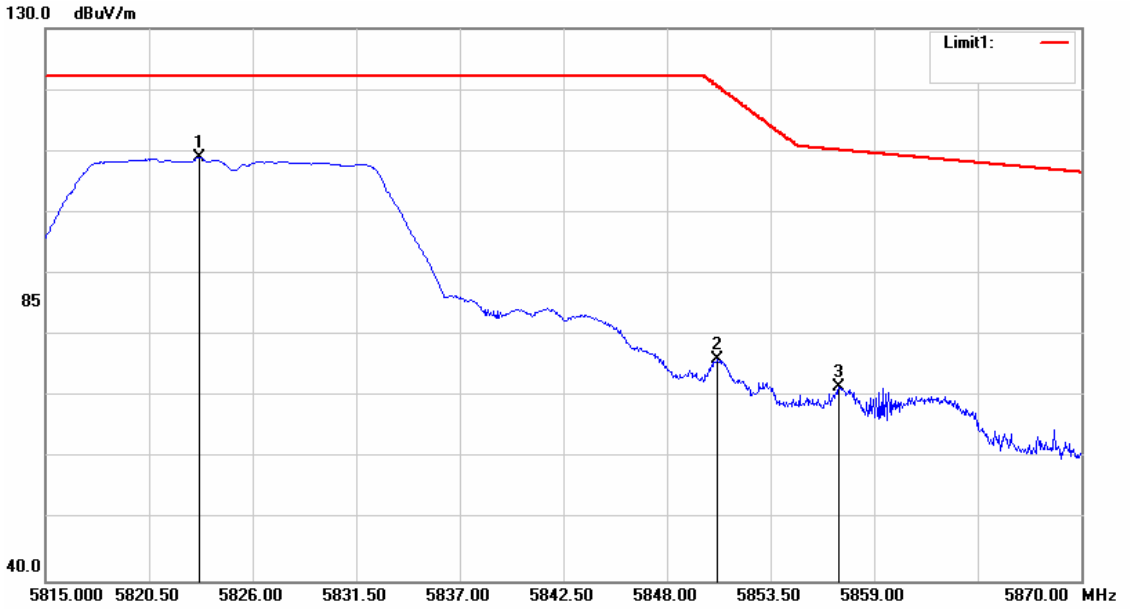
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5718.320	67.04	8.96	76.00	110.33	-34.33	peak
5724.830	74.93	8.98	83.91	121.81	-37.90	peak
5743.170	100.79	9.04	109.83	--	--	peak

Test Mode	IEEE 802.11a Low CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



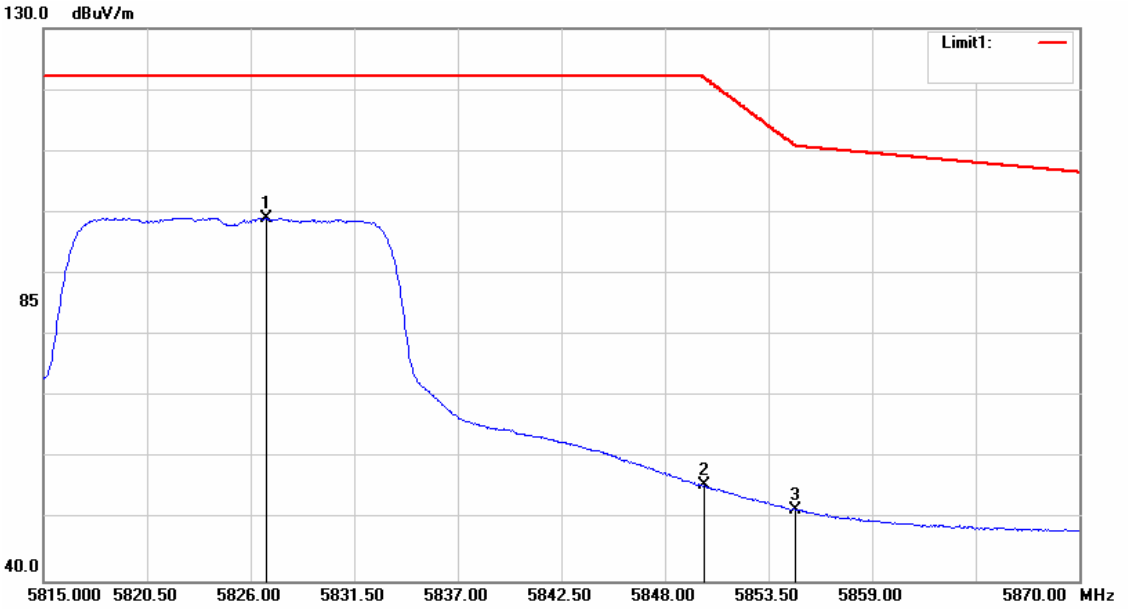
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.860	48.22	8.96	57.18	110.76	-53.58	AVG
5724.830	54.75	8.98	63.73	121.81	-58.08	AVG
5738.830	90.84	9.03	99.87	--	--	AVG

Test Mode	IEEE 802.11a High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



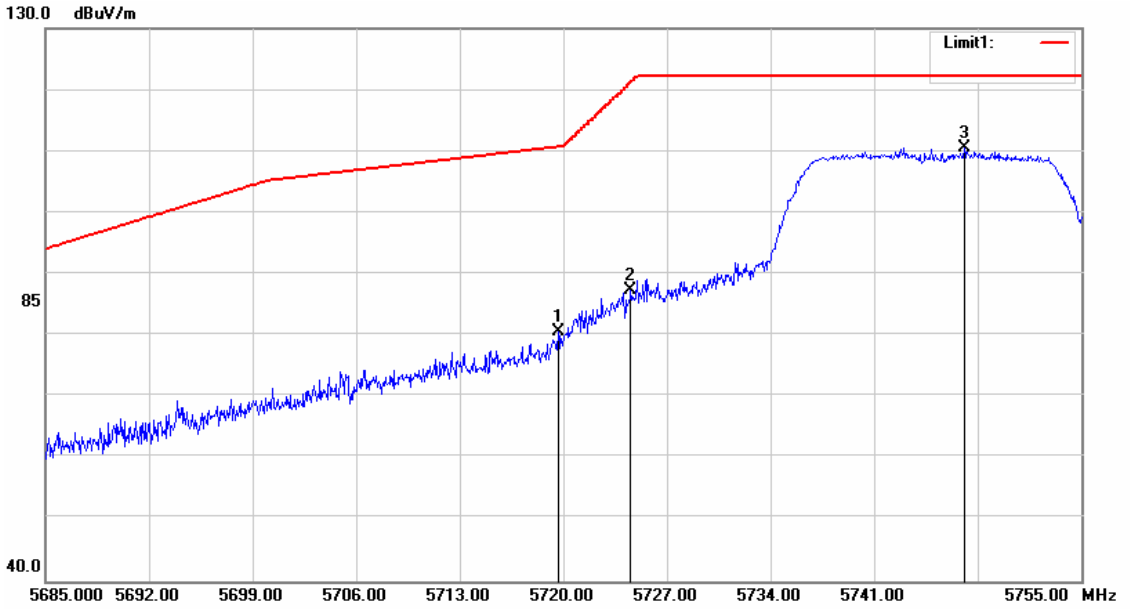
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5823.140	99.66	9.32	108.98	--	--	peak
5850.695	66.65	9.41	76.06	120.62	-44.56	peak
5857.130	62.19	9.43	71.62	110.20	-38.58	peak

Test Mode	IEEE 802.11a High CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



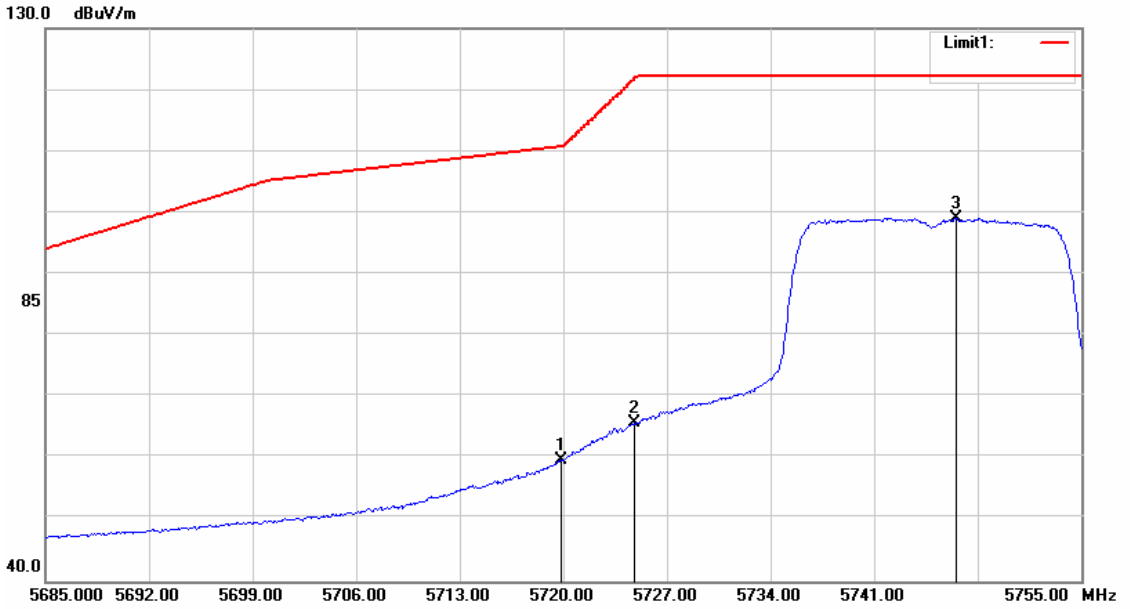
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5826.825	89.85	9.32	99.17	--	--	peak
5850.090	46.16	9.41	55.57	121.99	-66.42	peak
5854.930	42.19	9.43	51.62	110.96	-59.34	peak

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



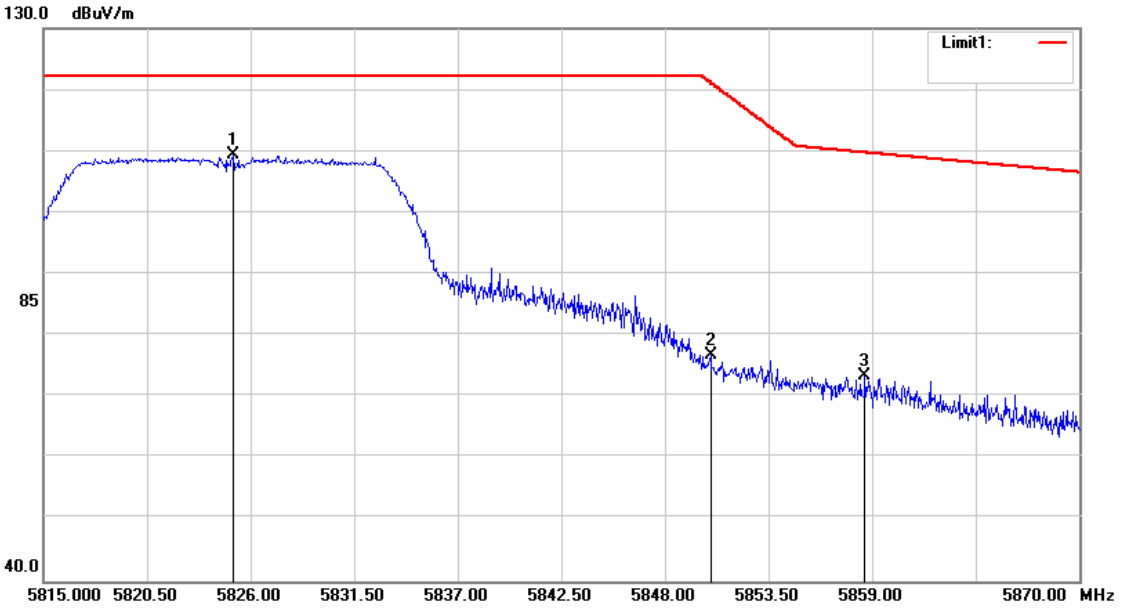
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.650	71.67	8.96	80.63	110.70	-30.07	peak
5724.550	78.37	8.98	87.35	121.17	-33.82	peak
5747.090	101.54	9.05	110.59	--	--	peak

Test Mode	IEEE 802.11n HT20 Low CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



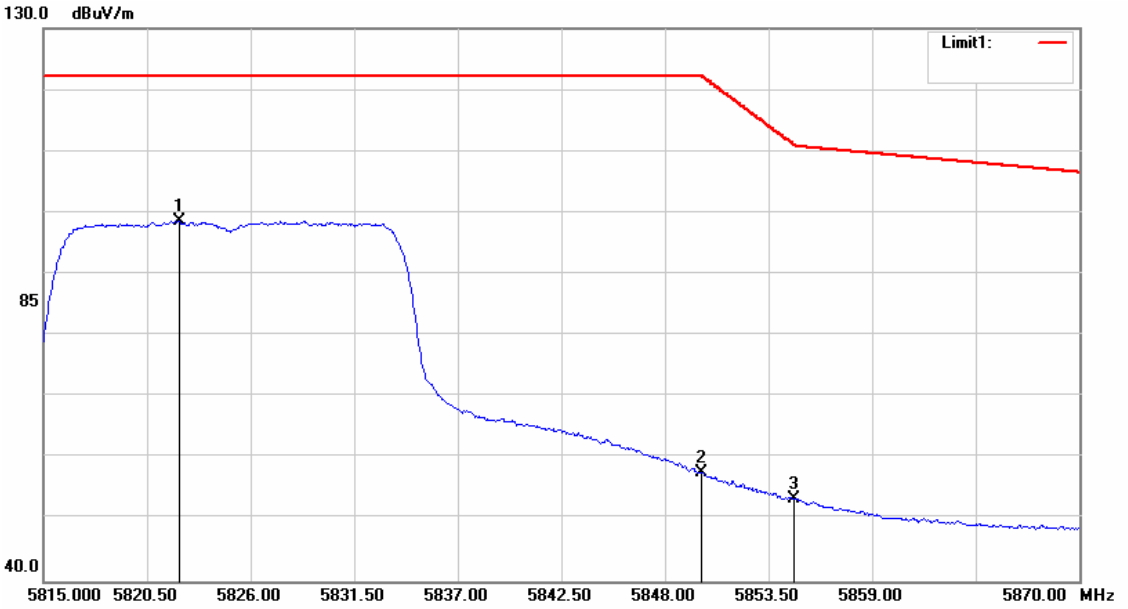
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.860	50.74	8.96	59.70	110.76	-51.06	AVG
5724.760	56.71	8.98	65.69	121.65	-55.96	AVG
5746.530	90.08	9.05	99.13	--	--	AVG

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



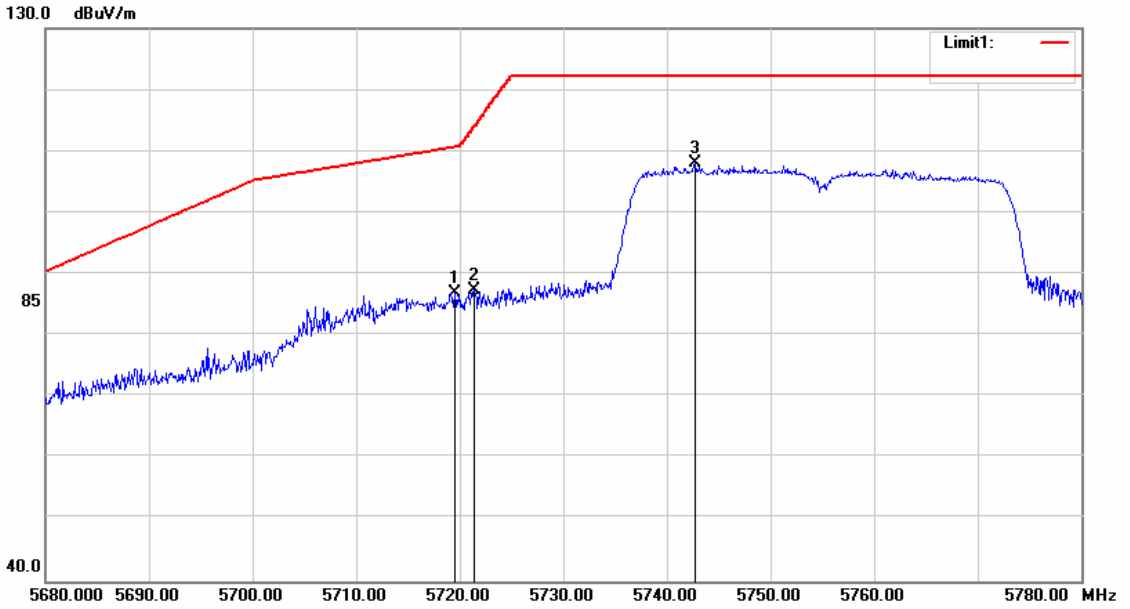
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5825.065	100.02	9.32	109.34	--	--	peak
5850.420	67.28	9.41	76.69	121.24	-44.55	peak
5858.615	63.87	9.44	73.31	109.79	-36.48	peak

Test Mode	IEEE 802.11n HT20 High CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



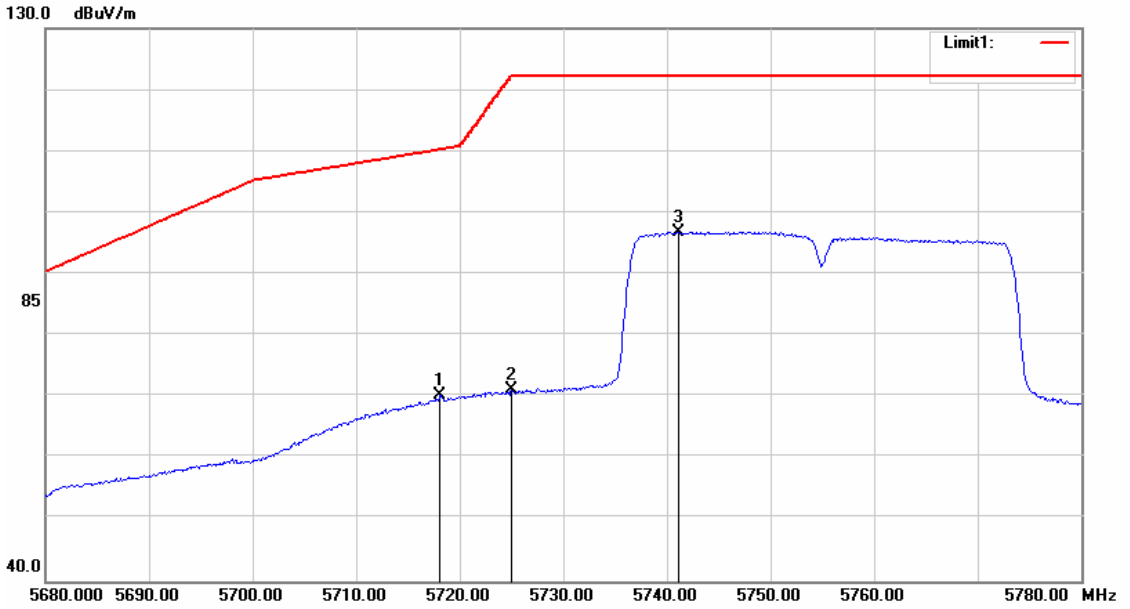
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5822.205	89.29	9.31	98.60	--	--	AVG
5849.925	48.31	9.41	57.72	122.20	-64.48	AVG
5854.875	44.02	9.43	53.45	111.08	-57.63	AVG

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



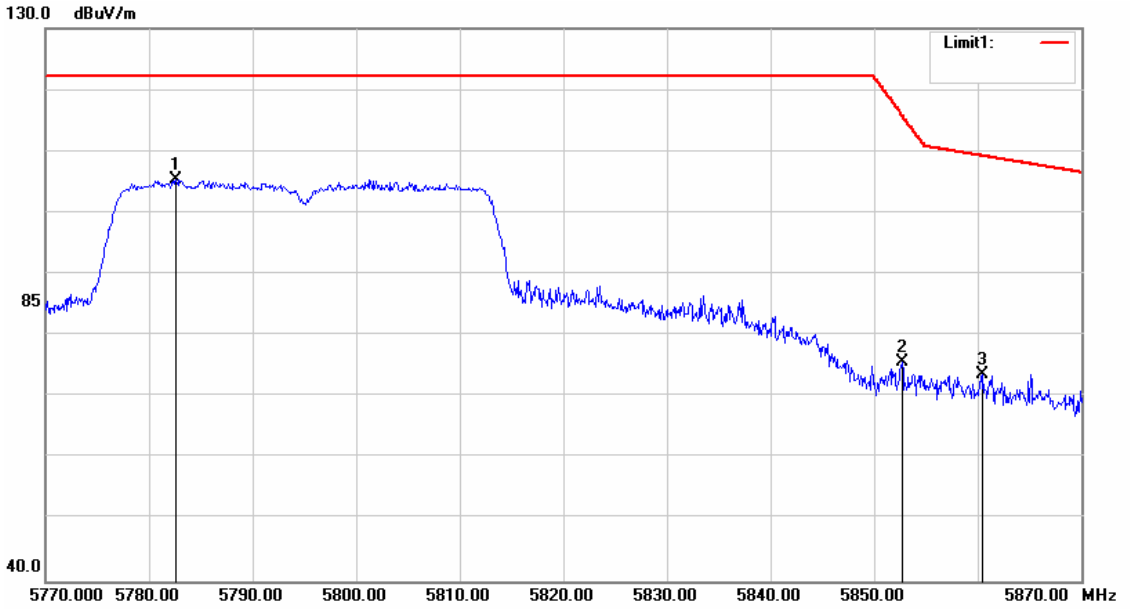
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.500	78.04	8.96	87.00	110.66	-23.66	peak
5721.400	78.39	8.97	87.36	113.99	-26.63	peak
5742.700	99.04	9.04	108.08	--	--	peak

Test Mode	IEEE 802.11n HT40 Low CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



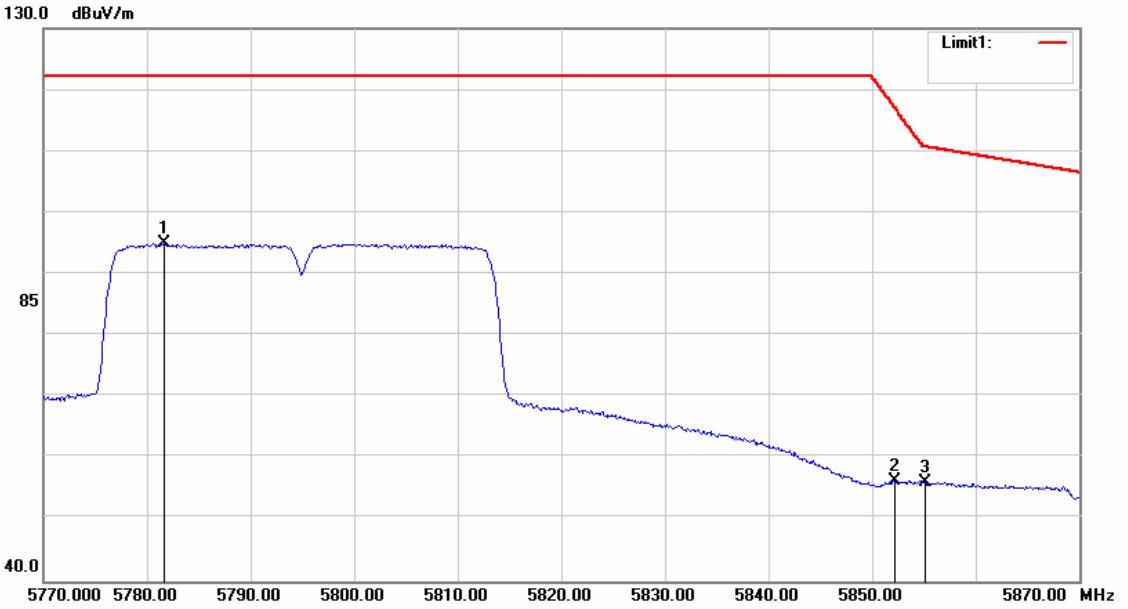
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5718.100	61.23	8.96	70.19	110.27	-40.08	AVG
5725.000	62.08	8.98	71.06	122.20	-51.14	AVG
5741.100	87.89	9.03	96.92	--	--	AVG

Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



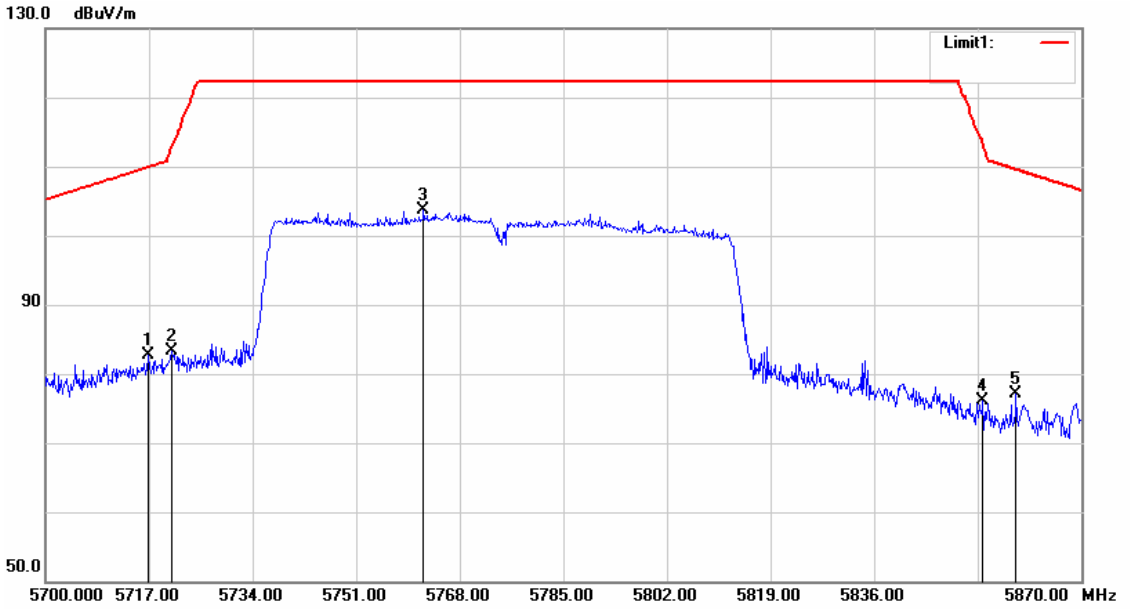
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5782.600	96.23	9.18	105.41	--	--	peak
5852.700	66.29	9.42	75.71	116.04	-40.33	peak
5860.500	64.23	9.44	73.67	109.26	-35.59	peak

Test Mode	IEEE 802.11n HT40 High CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



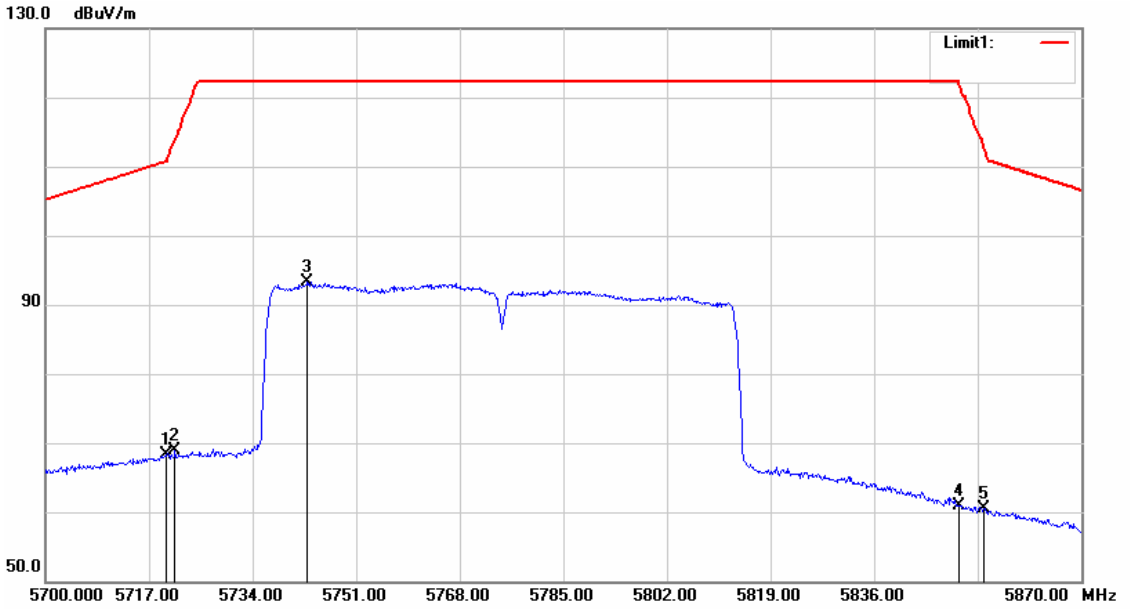
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5781.600	85.82	9.17	94.99	--	--	AVG
5852.200	46.91	9.41	56.32	117.18	-60.86	AVG
5855.100	46.67	9.43	56.10	110.77	-54.67	AVG

Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5716.830	73.77	8.95	82.72	109.91	-27.19	peak
5720.740	74.32	8.96	83.28	112.49	-29.21	peak
5762.050	94.64	9.10	103.74	--	--	peak
5853.850	66.73	9.42	76.15	113.42	-37.27	peak
5859.290	67.66	9.44	77.10	109.60	-32.50	peak

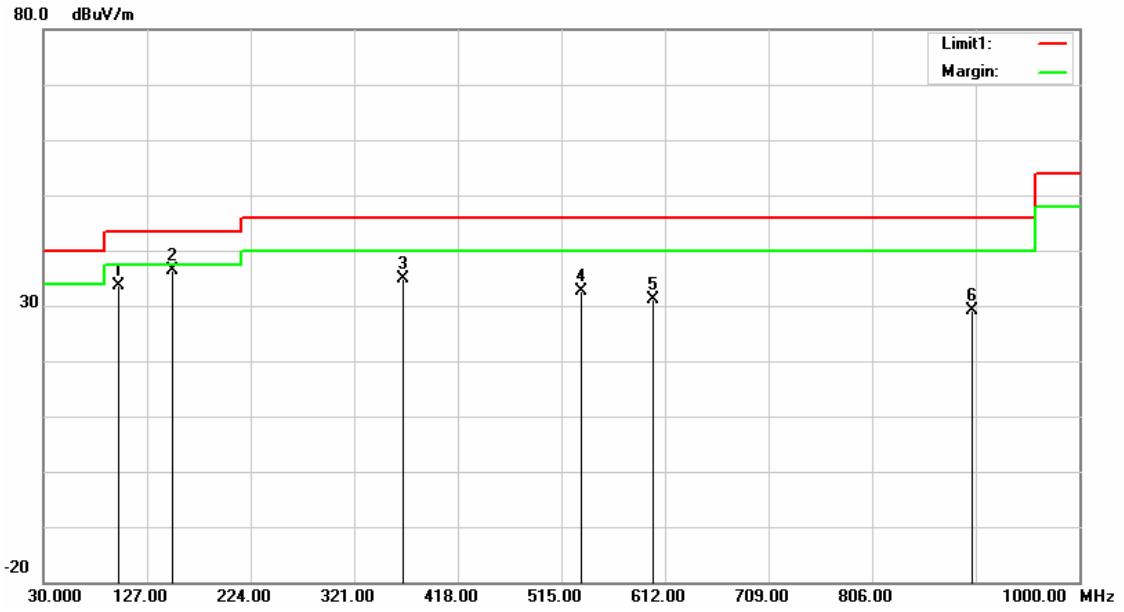
Test Mode	IEEE 802.11ac VHT80 Mid CH	Temperature	24(℃)/ 33%RH
Test Item	Band Edge	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.720	59.31	8.96	68.27	110.72	-42.45	AVG
5721.250	60.00	8.97	68.97	113.65	-44.68	AVG
5743.010	84.34	9.04	93.38	--	--	AVG
5849.940	51.58	9.41	60.99	122.20	-61.21	AVG
5854.020	51.09	9.42	60.51	113.03	-52.52	AVG

Below 1G Test Data

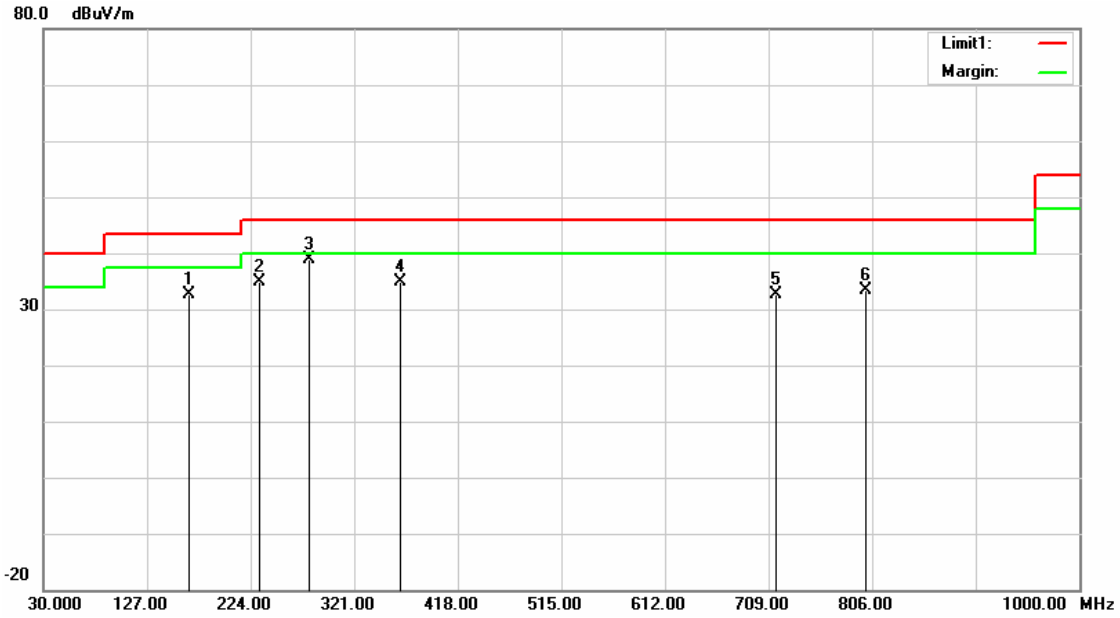
Test Mode	Mode 1	Temp/Hum	24(℃)/ 33%RH
Test Item	30MHz-1GHz	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Qusi-peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
99.8400	52.16	-18.61	33.55	43.50	-9.95	peak
150.2800	52.09	-15.75	36.34	43.50	-7.16	peak
366.5900	47.25	-12.45	34.80	46.00	-11.20	peak
533.4300	40.56	-7.86	32.70	46.00	-13.30	peak
600.3600	38.12	-6.92	31.20	46.00	-14.80	peak
899.1200	31.06	-2.02	29.04	46.00	-16.96	peak

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

Test Mode	Mode 1	Temp/Hum	24(℃)/ 33%RH
Test Item	30MHz-1GHz	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Qusi-peak	Test Voltage	120Vac / 60Hz

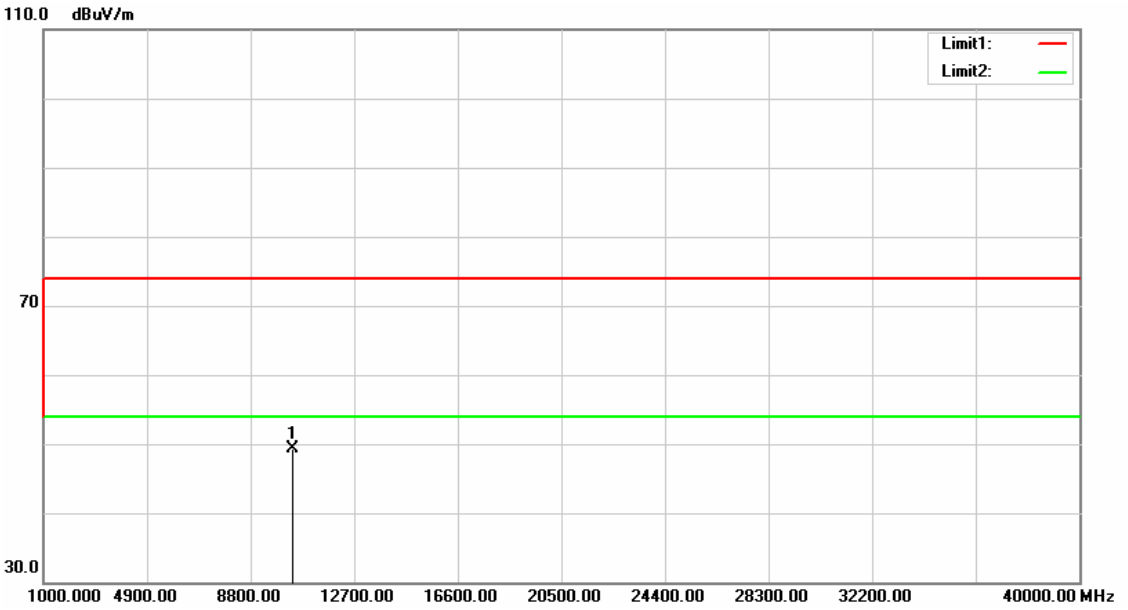


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB	Remark
165.8000	49.01	-16.31	32.70	43.50	-10.80	peak
232.7300	51.53	-16.57	34.96	46.00	-11.04	peak
278.3200	53.17	-14.37	38.80	46.00	-7.20	peak
364.6500	47.43	-12.52	34.91	46.00	-11.09	peak
715.7900	37.22	-4.70	32.52	46.00	-13.48	peak
800.1800	36.83	-3.38	33.45	46.00	-12.55	peak

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

Above 1G Test Data for UNII-1

Test Mode	IEEE 802.11a Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 15, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

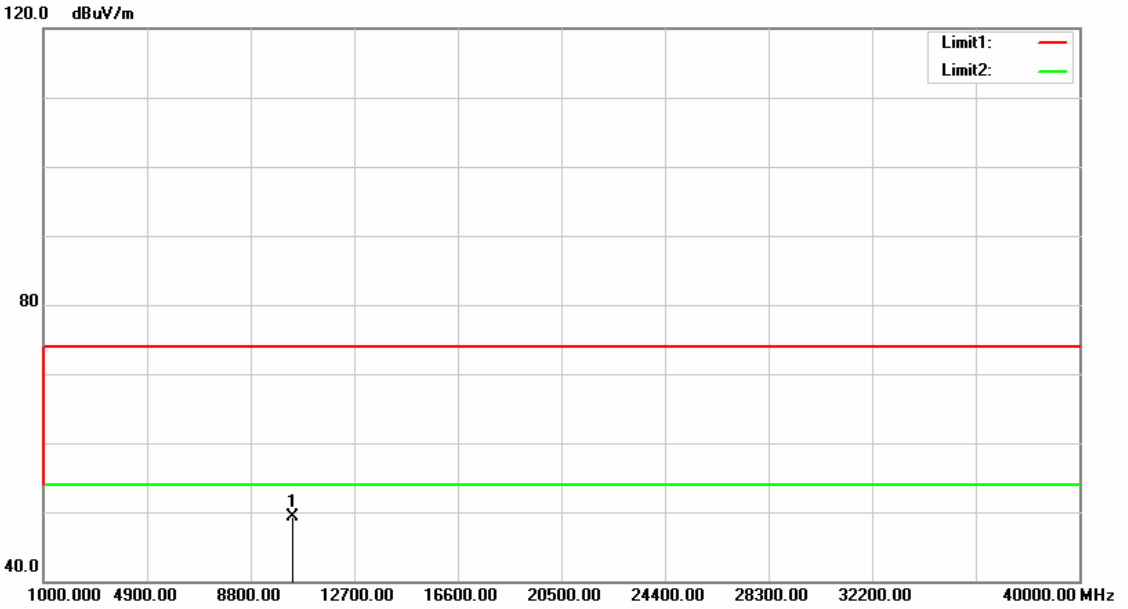


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	30.73	18.61	49.34	74.00	-24.66	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

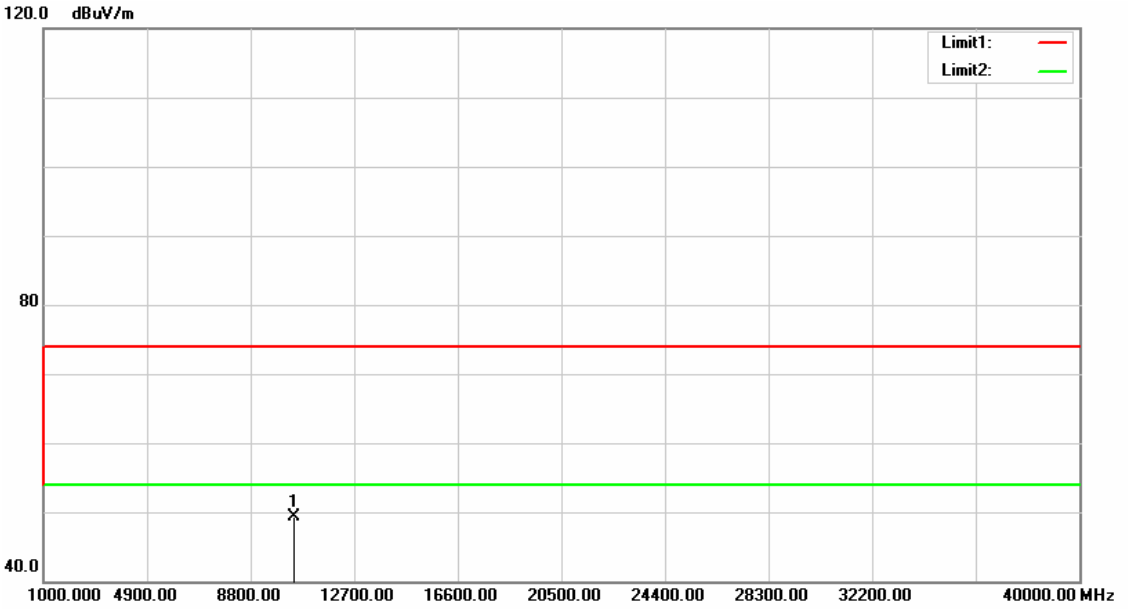


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	30.67	18.61	49.28	74.00	-24.72	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

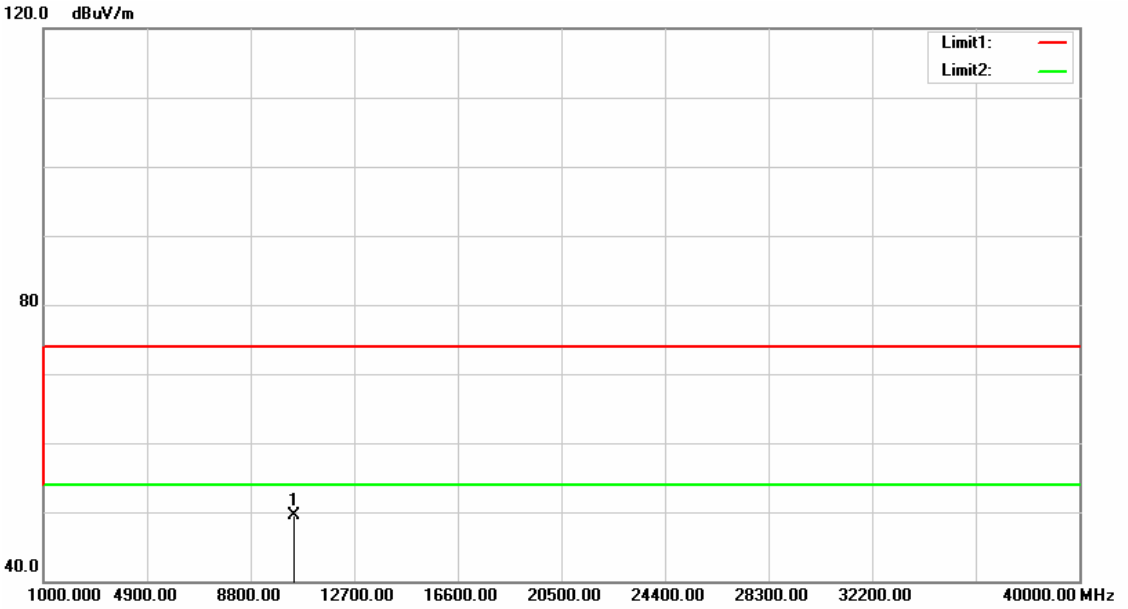


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	30.58	18.80	49.38	74.00	-24.62	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

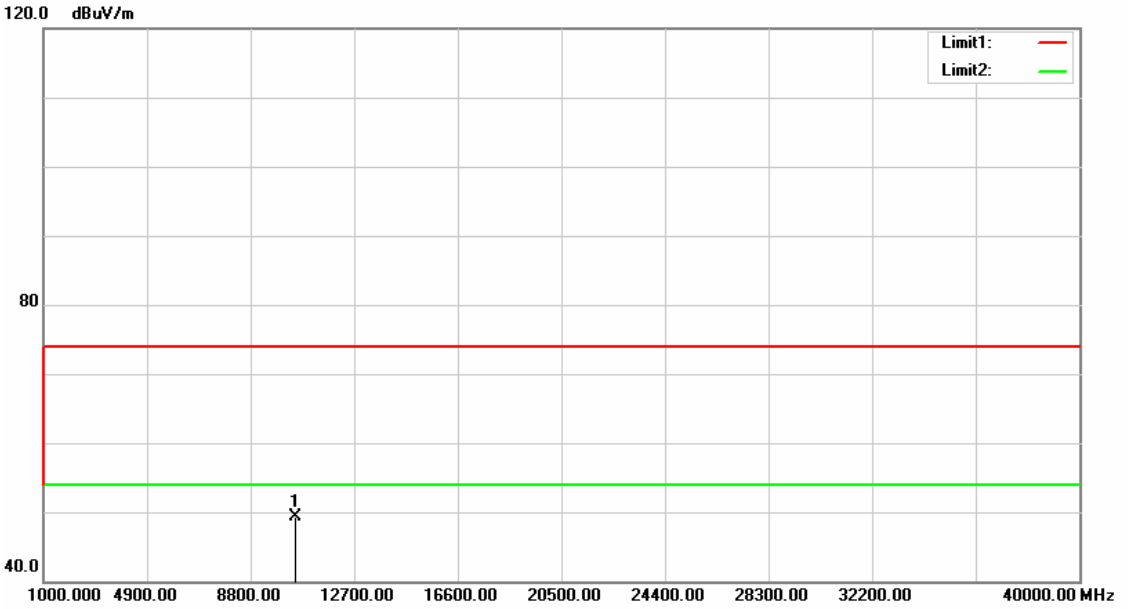


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	30.73	18.80	49.53	74.00	-24.47	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

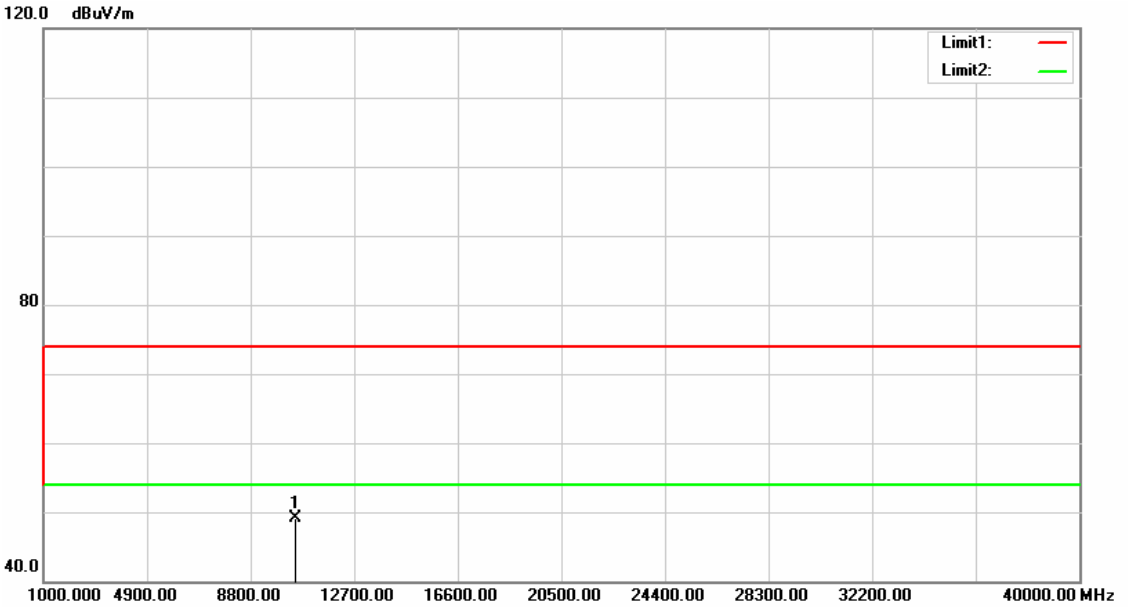


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	30.46	18.90	49.36	74.00	-24.64	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

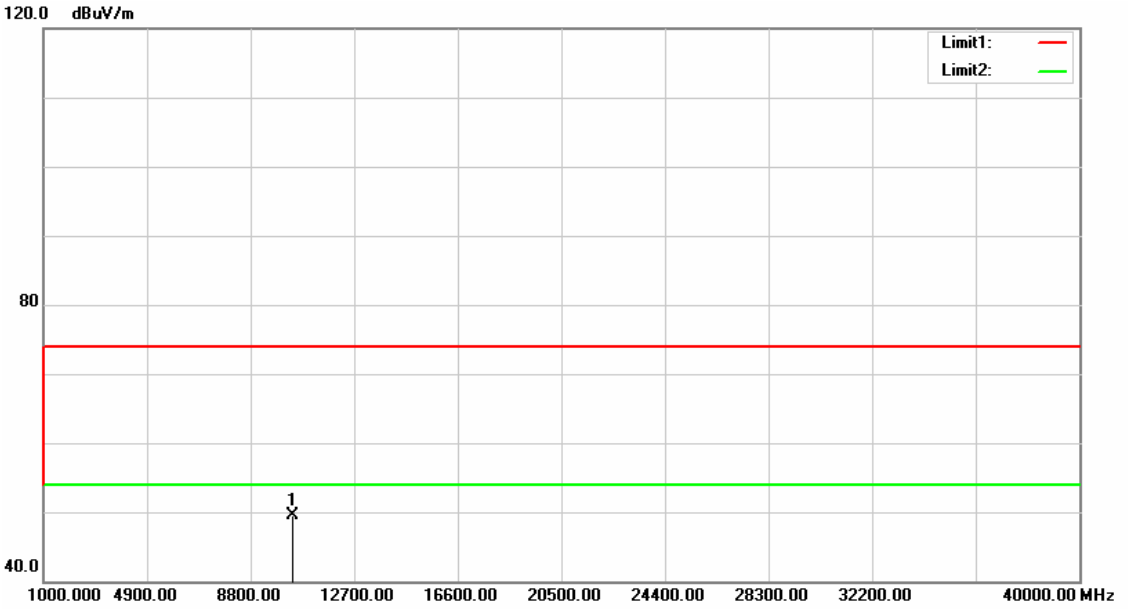


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	30.18	18.90	49.08	74.00	-24.92	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

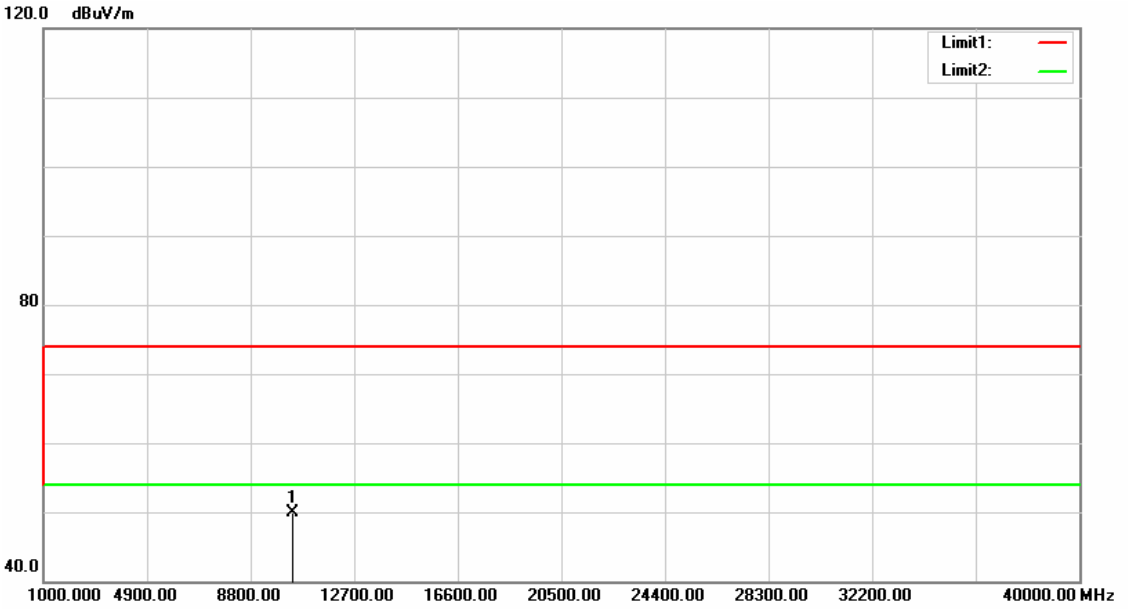


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	30.91	18.61	49.52	74.00	-24.48	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

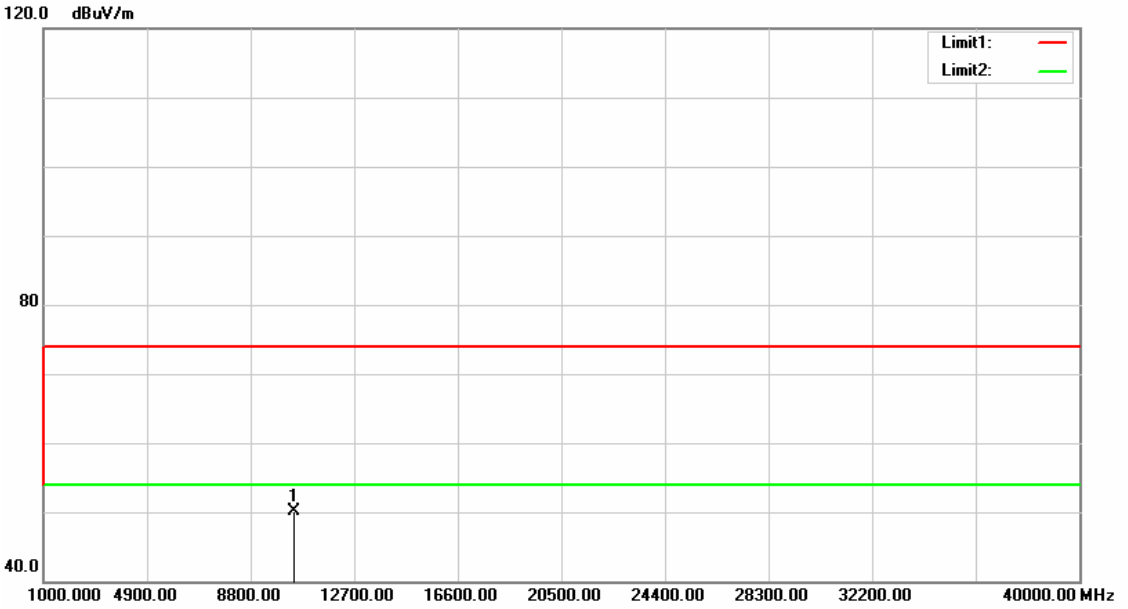


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	31.24	18.61	49.85	74.00	-24.15	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

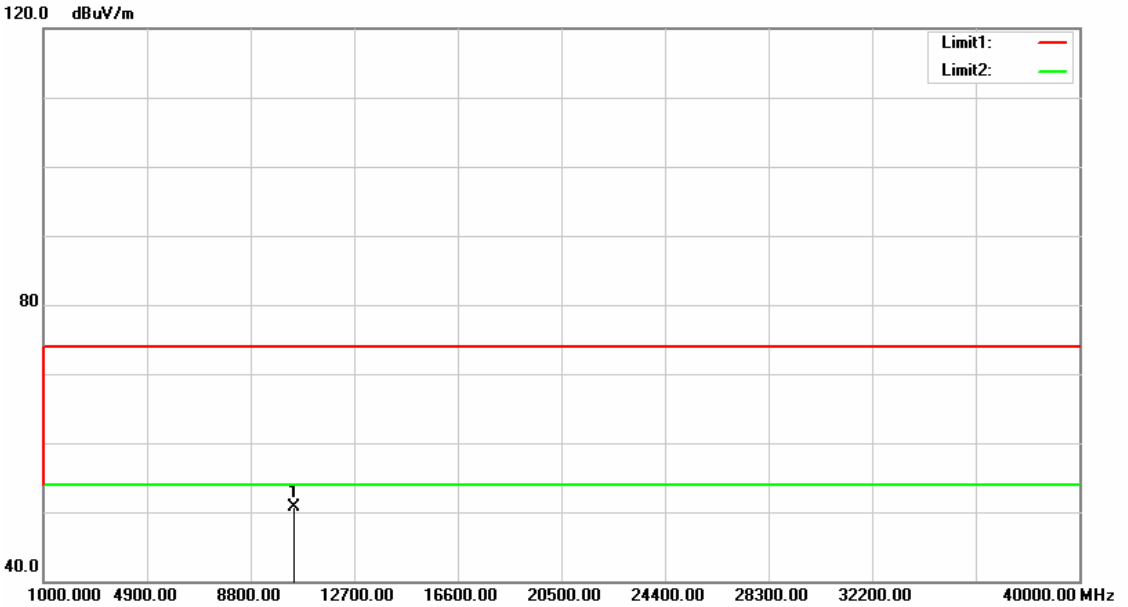


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	31.35	18.80	50.15	74.00	-23.85	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

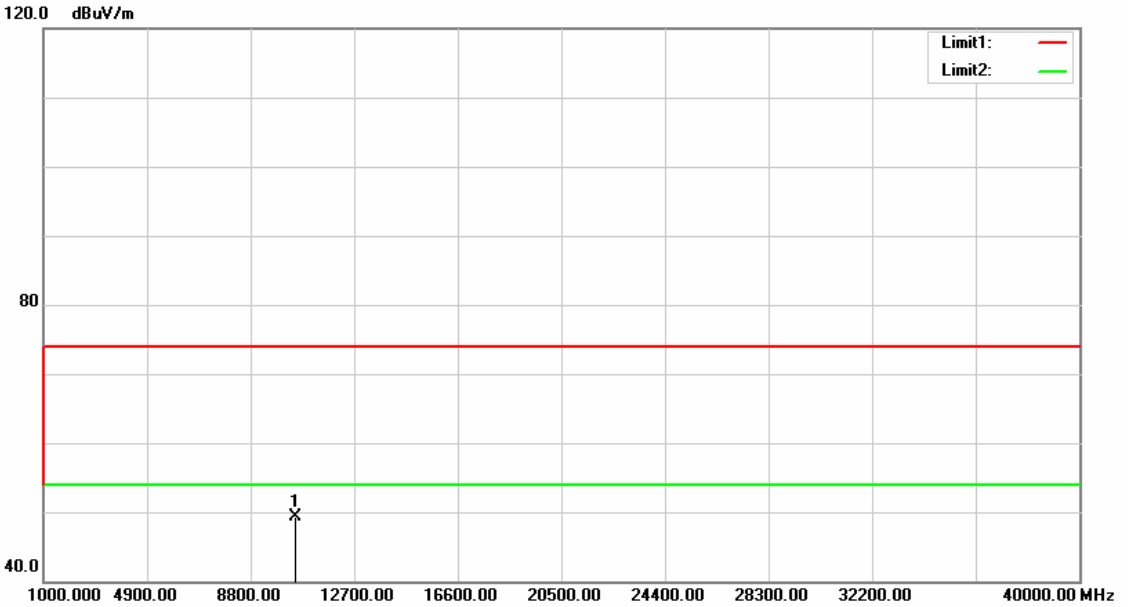


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	31.85	18.80	50.65	74.00	-23.35	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

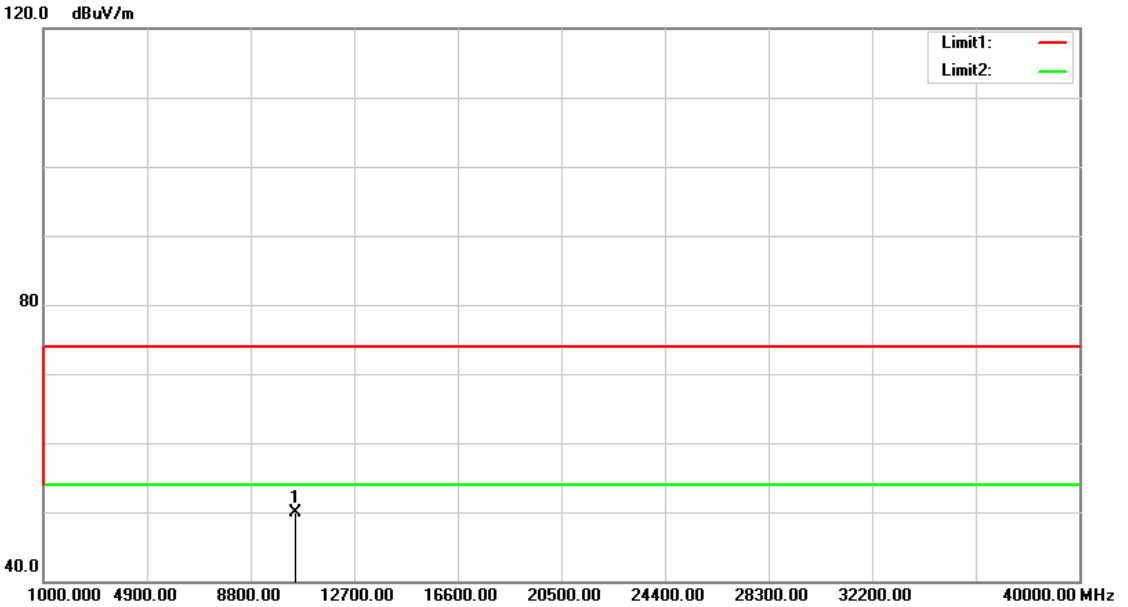


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	30.35	18.90	49.25	74.00	-24.75	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

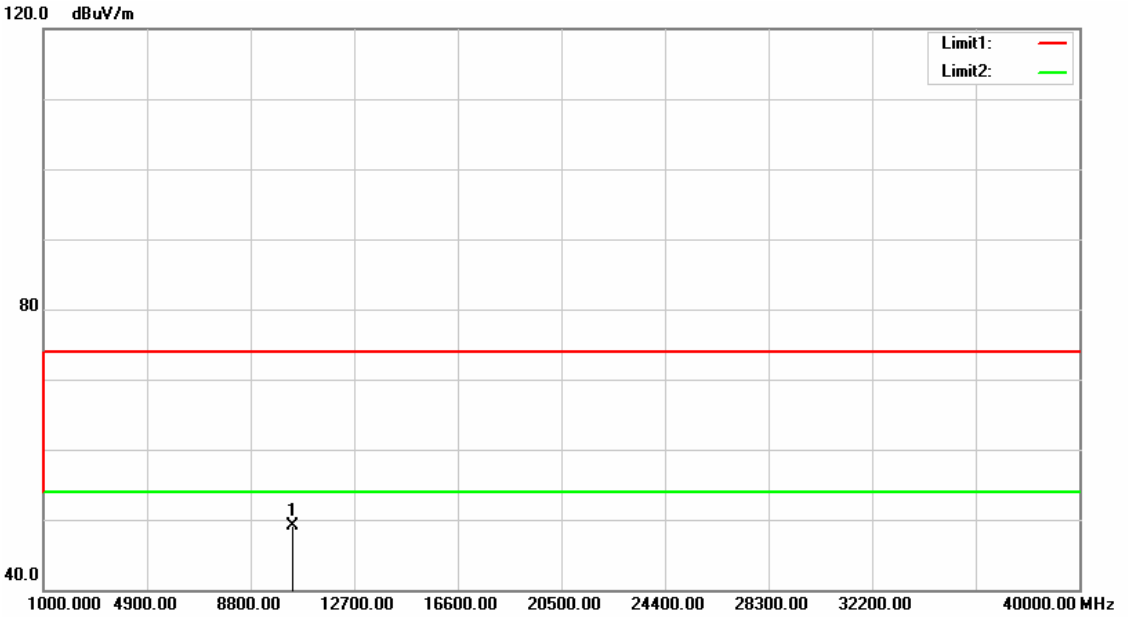


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	30.99	18.90	49.89	74.00	-24.11	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

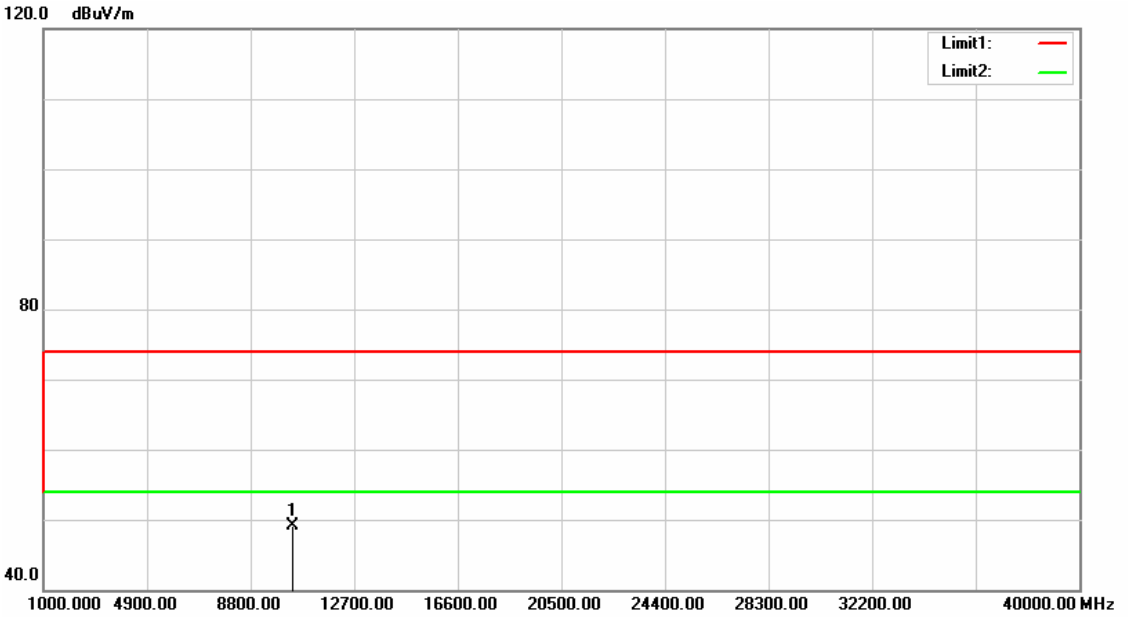


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10380.000	30.41	18.65	49.06	74.00	-24.94	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

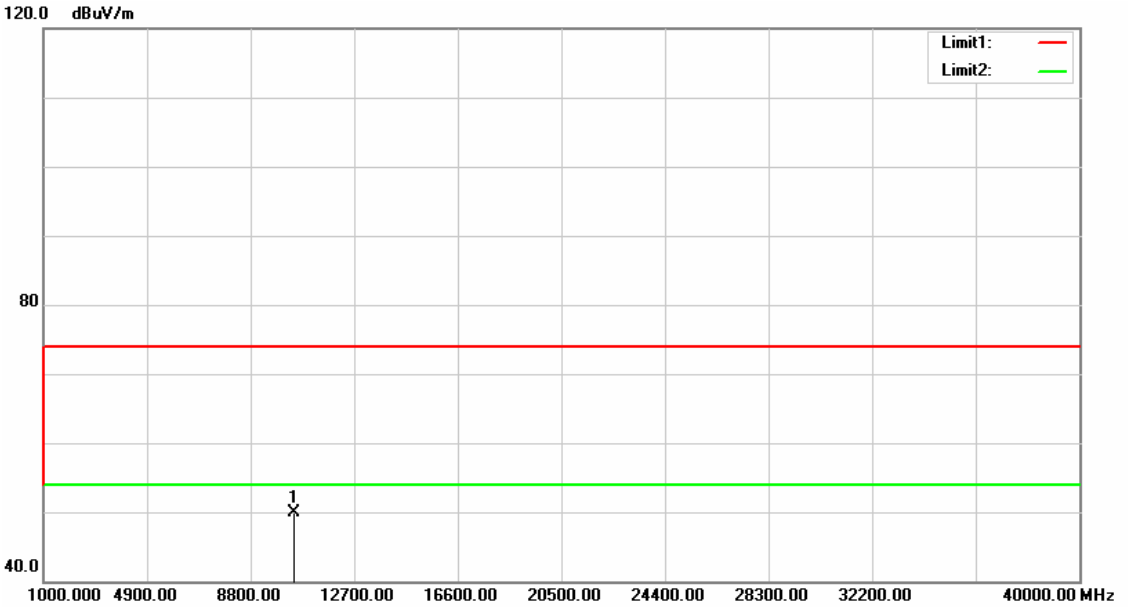


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10380.000	30.37	18.65	49.02	74.00	-24.98	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

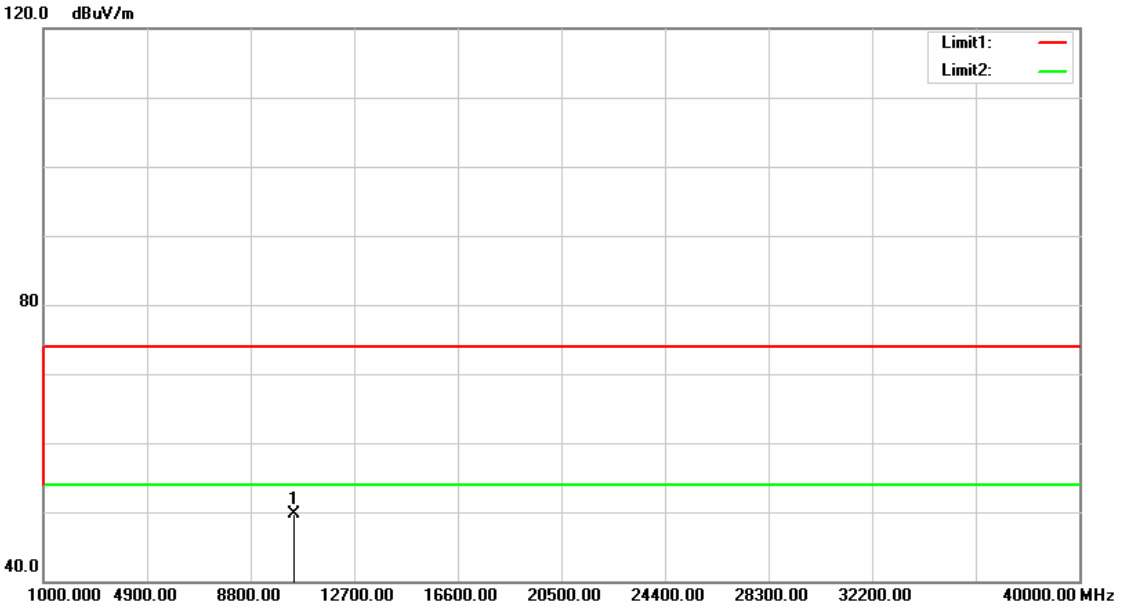


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.000	31.09	18.86	49.95	74.00	-24.05	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

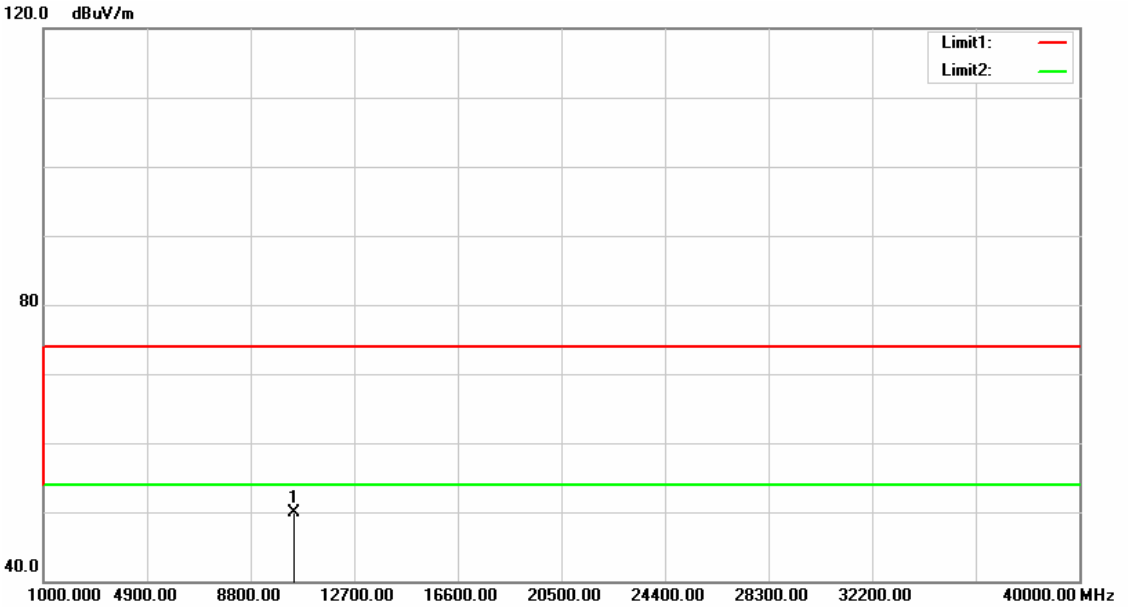


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.000	30.93	18.86	49.79	74.00	-24.21	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

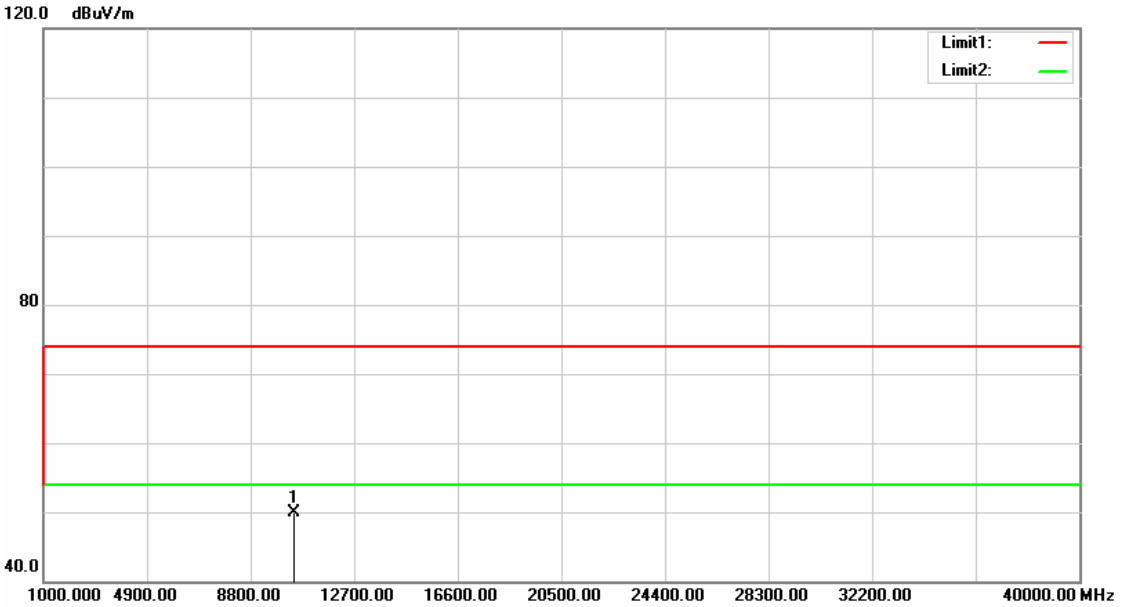


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10420.000	31.16	18.76	49.92	74.00	-24.08	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



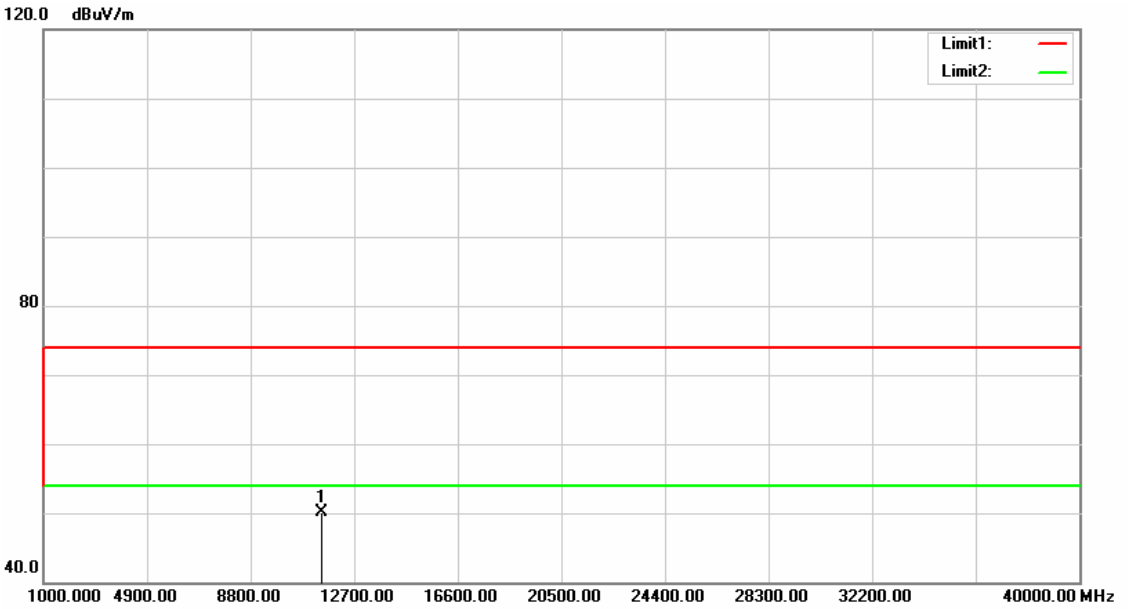
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10420.000	31.17	18.76	49.93	74.00	-24.07	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Above 1G Test Data for UNII-3

Test Mode	IEEE 802.11a Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

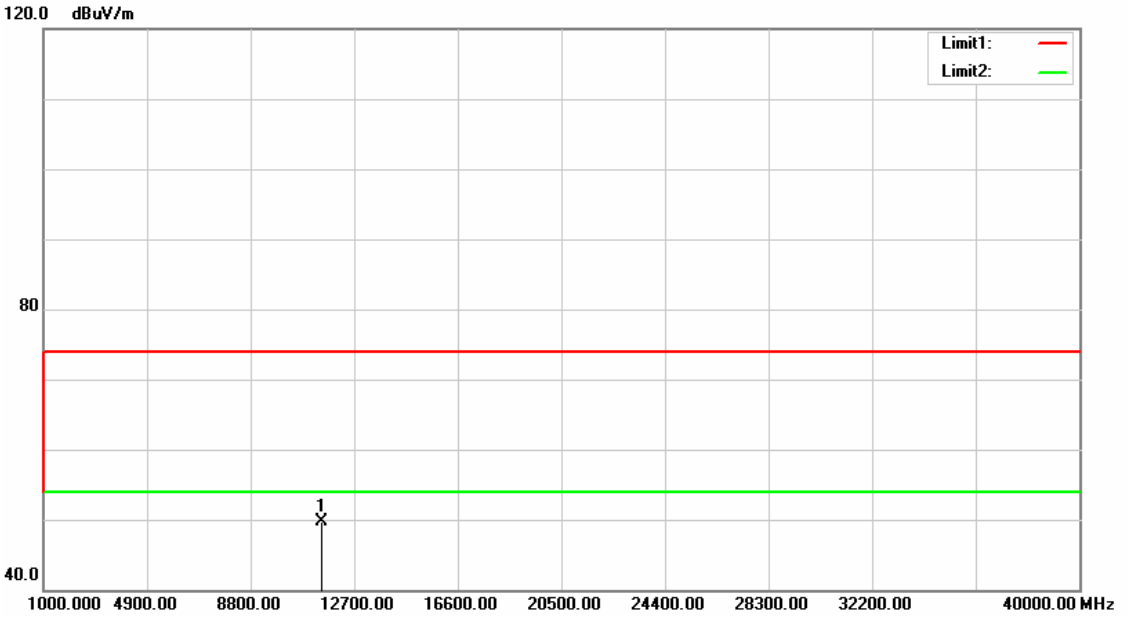


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	30.42	19.63	50.05	74.00	-23.95	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

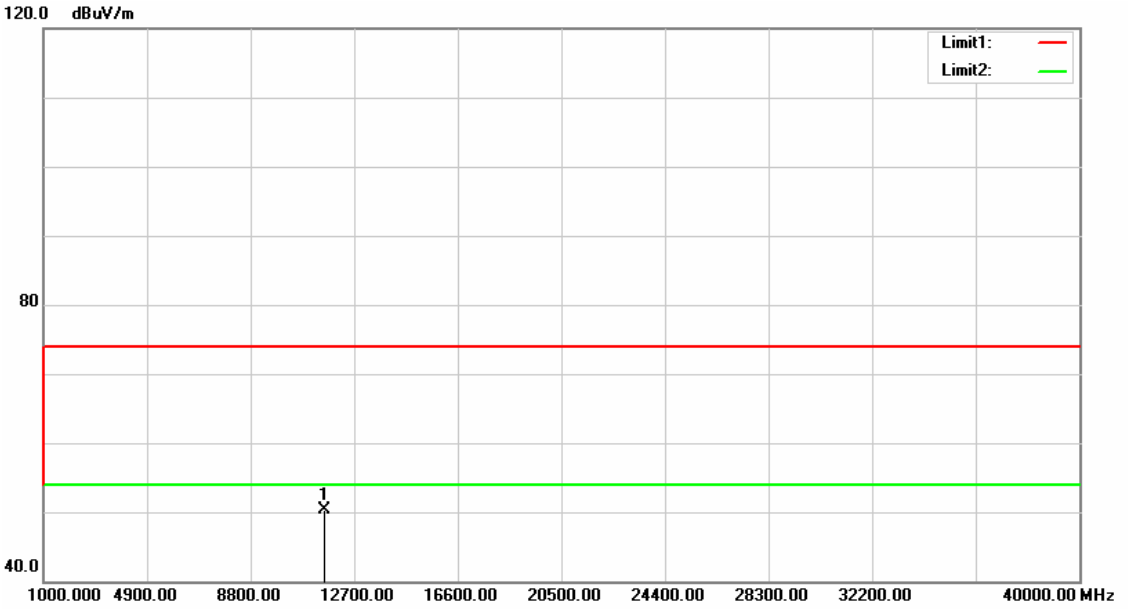


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	30.10	19.63	49.73	74.00	-24.27	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

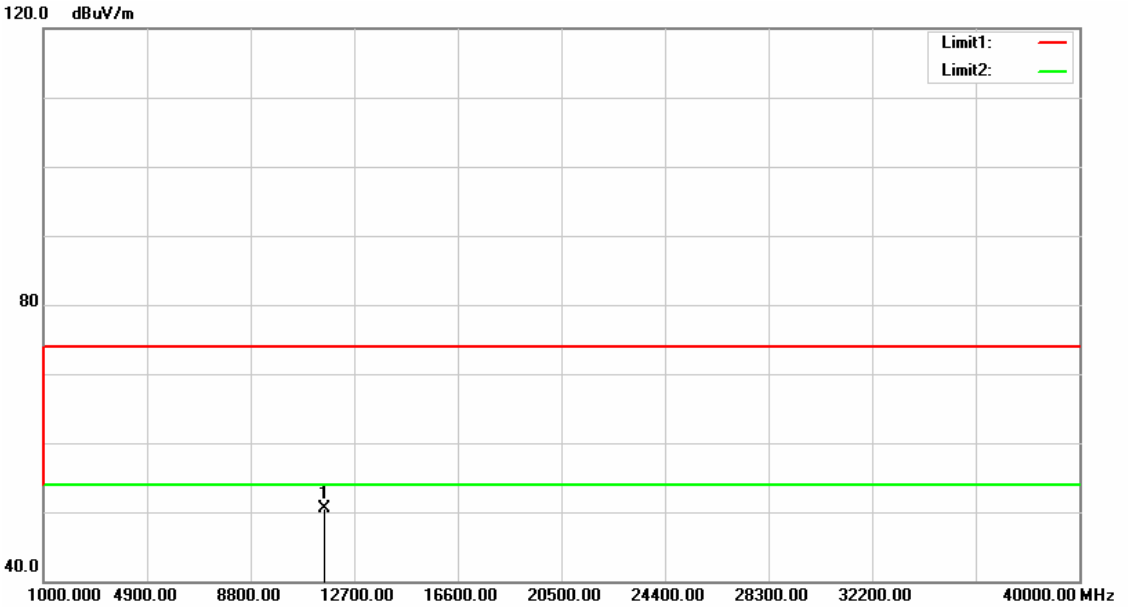


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	30.69	19.60	50.29	74.00	-23.71	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

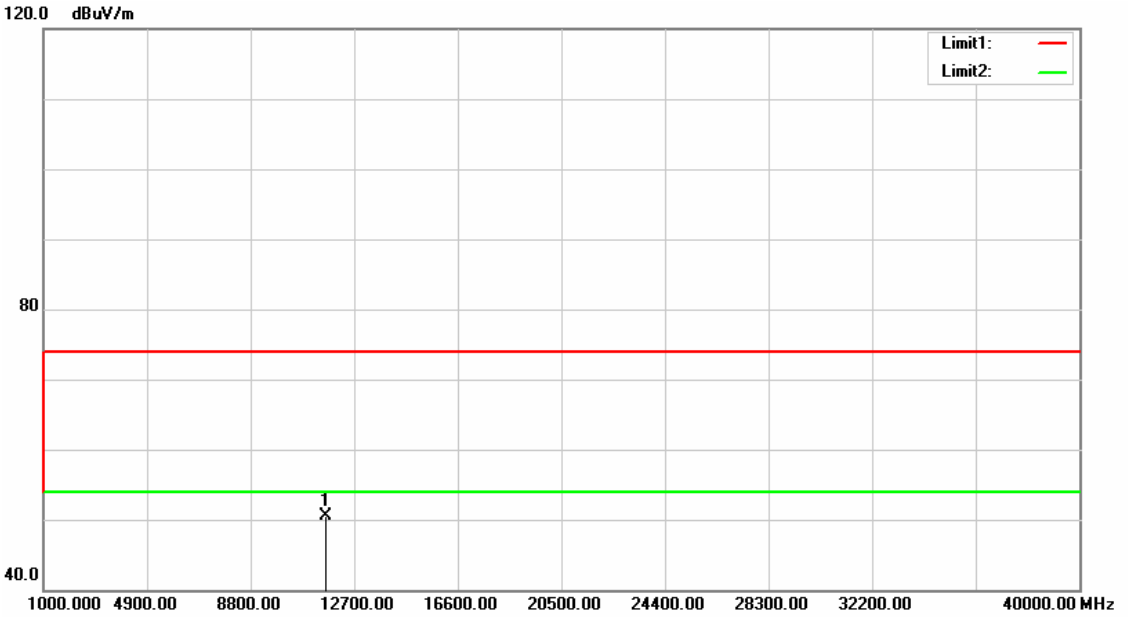


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	30.85	19.60	50.45	74.00	-23.55	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

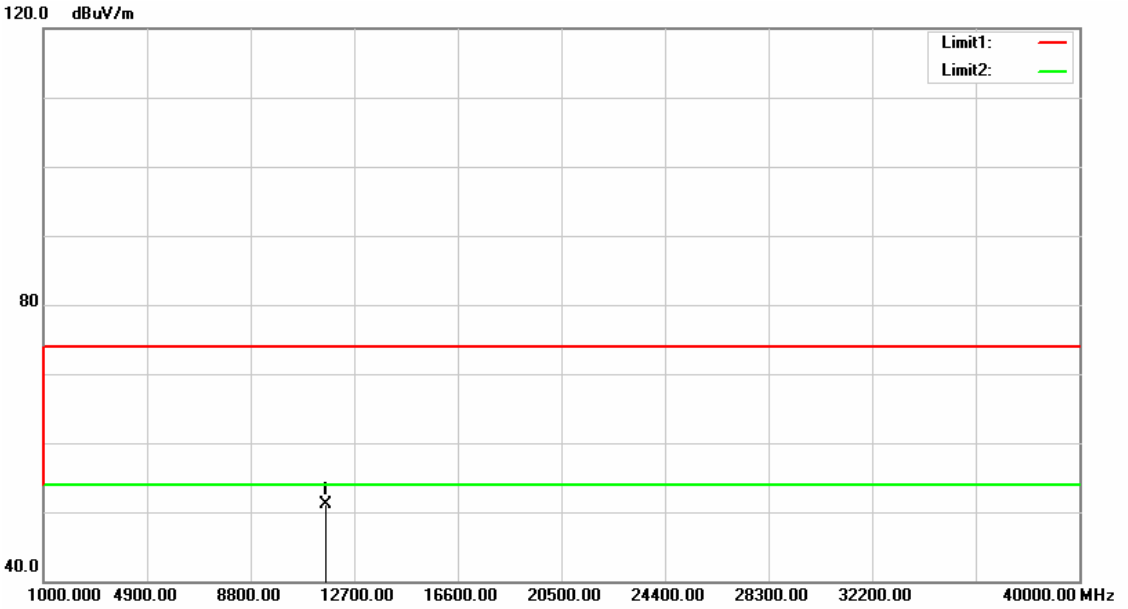


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	30.88	19.57	50.45	74.00	-23.55	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11a High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

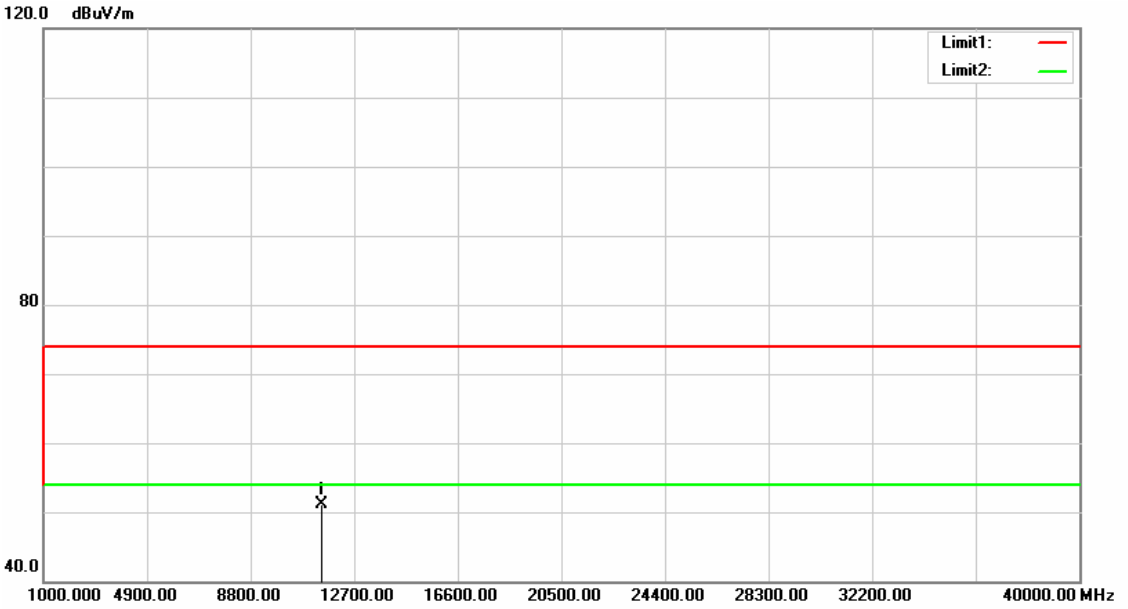


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	31.57	19.57	51.14	74.00	-22.86	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

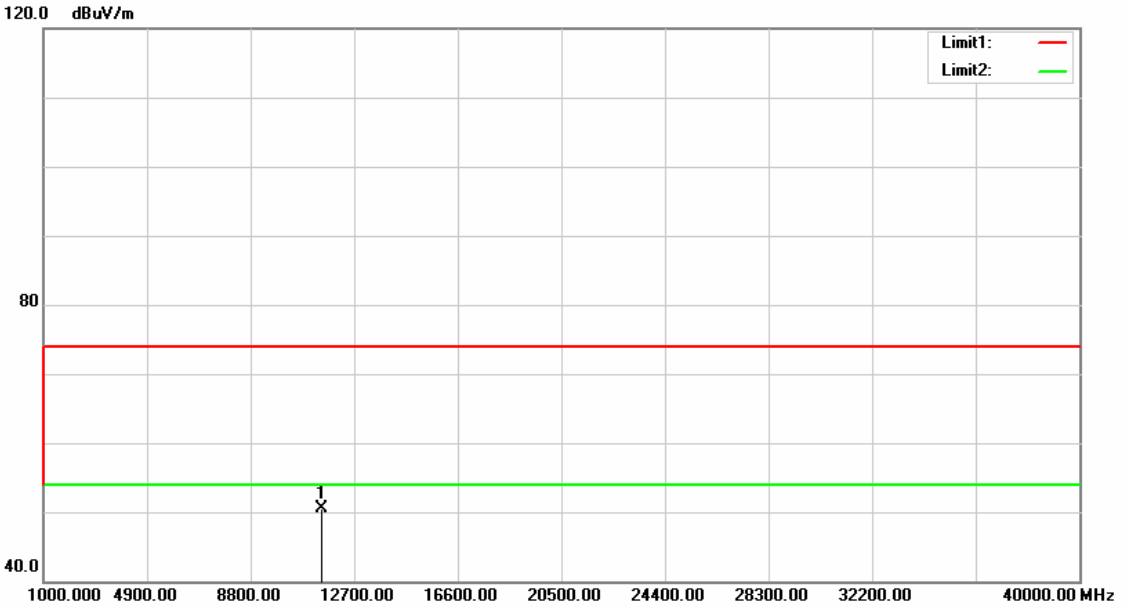


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	31.42	19.63	51.05	74.00	-22.95	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

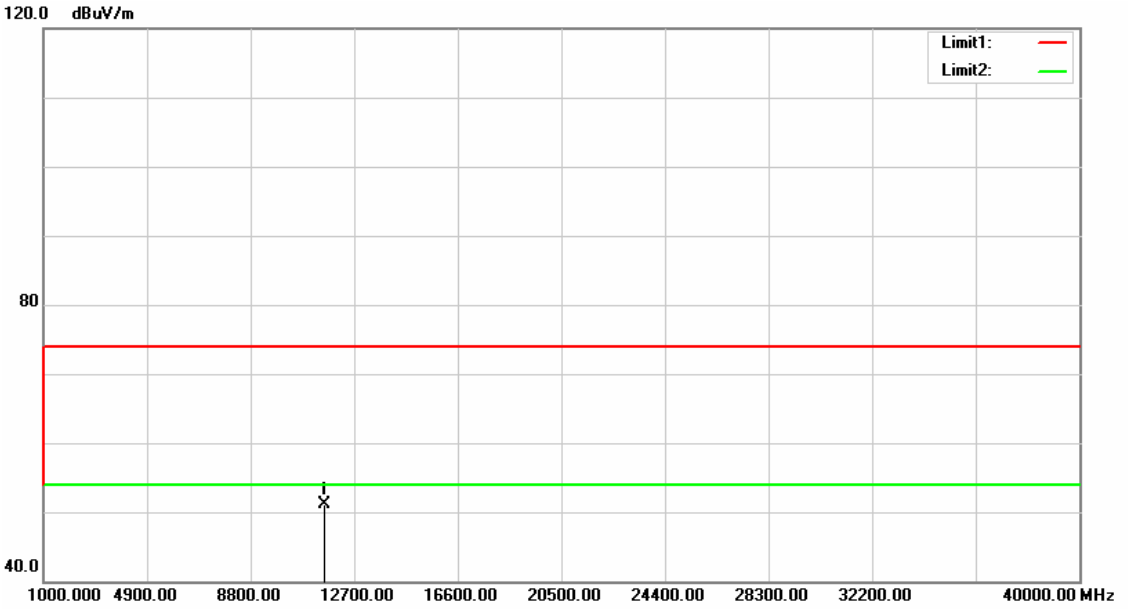


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	30.87	19.63	50.50	74.00	-23.50	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

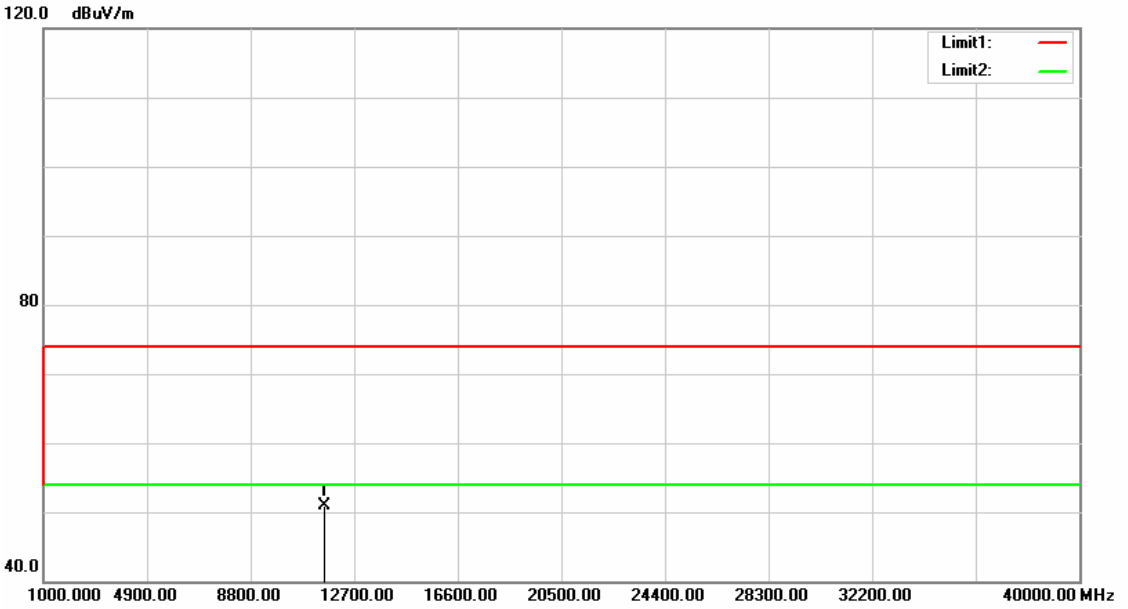


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	31.46	19.60	51.06	74.00	-22.94	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

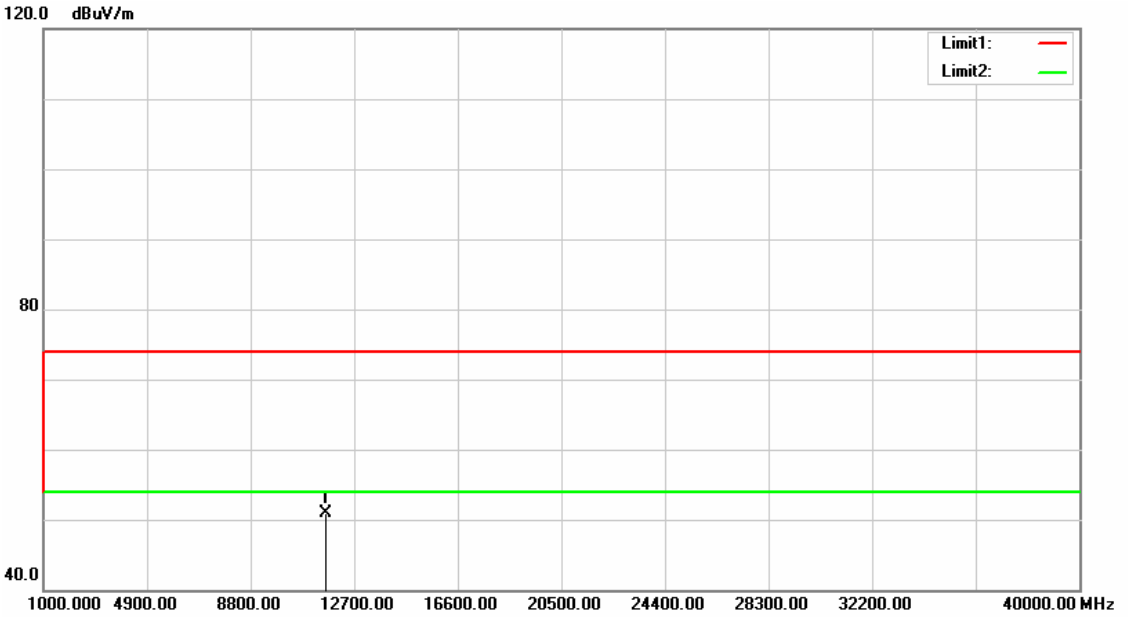


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	31.28	19.60	50.88	74.00	-23.12	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

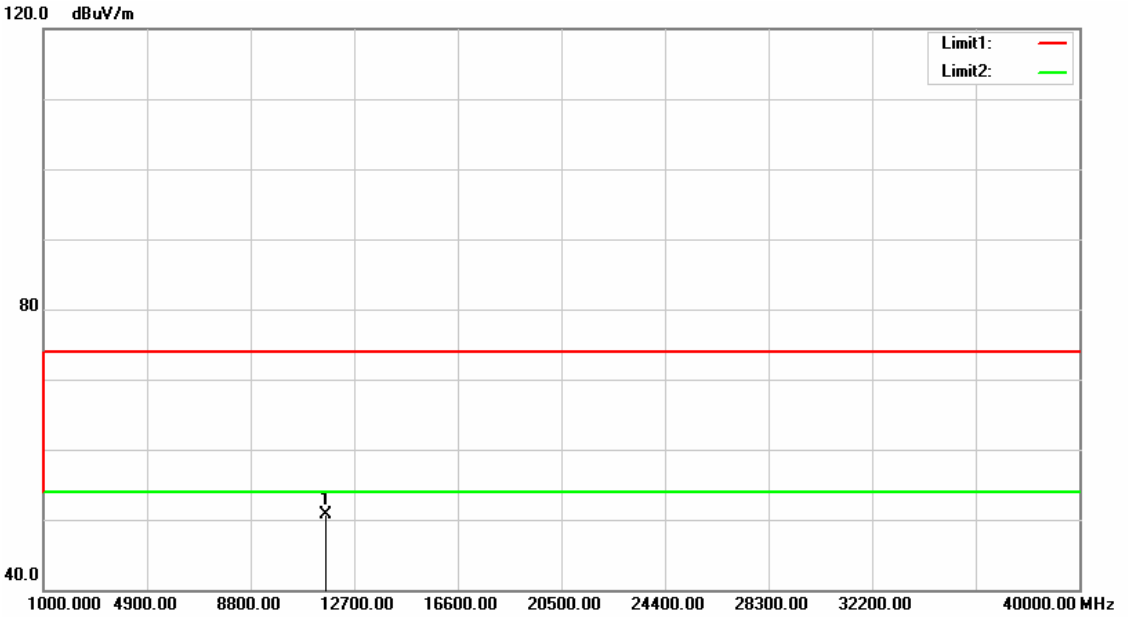


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	31.26	19.57	50.83	74.00	-23.17	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

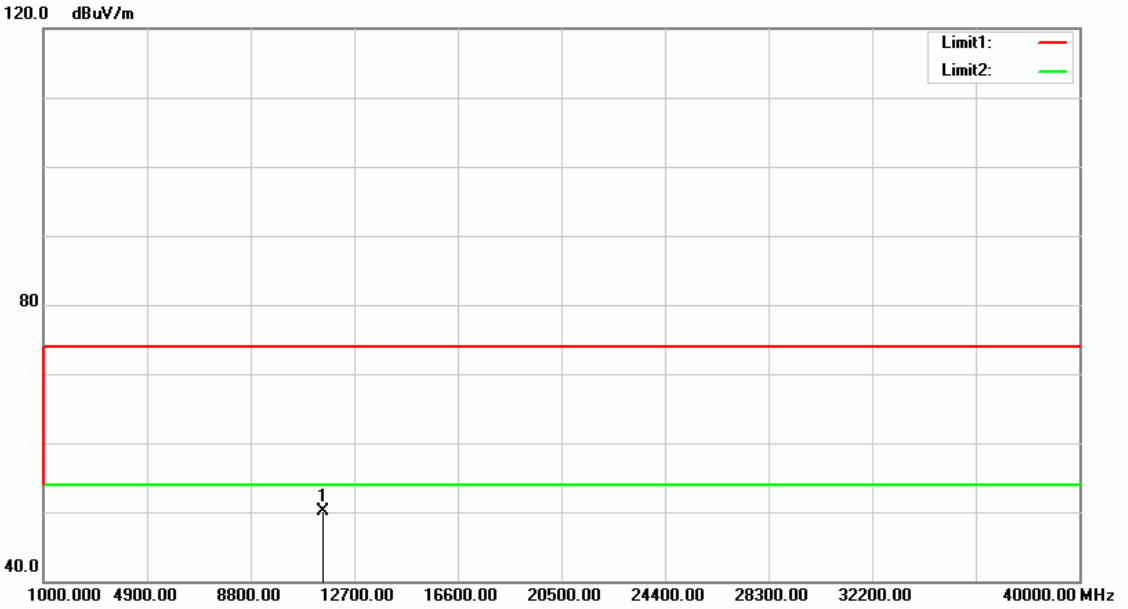


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	31.08	19.57	50.65	74.00	-23.35	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

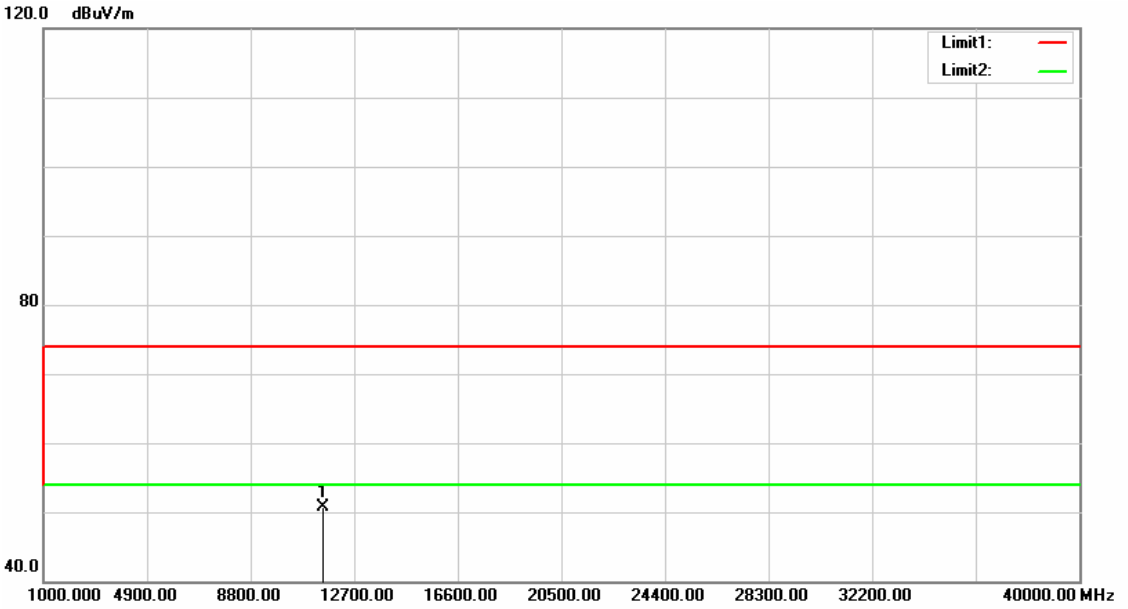


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.000	30.39	19.63	50.02	74.00	-23.98	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

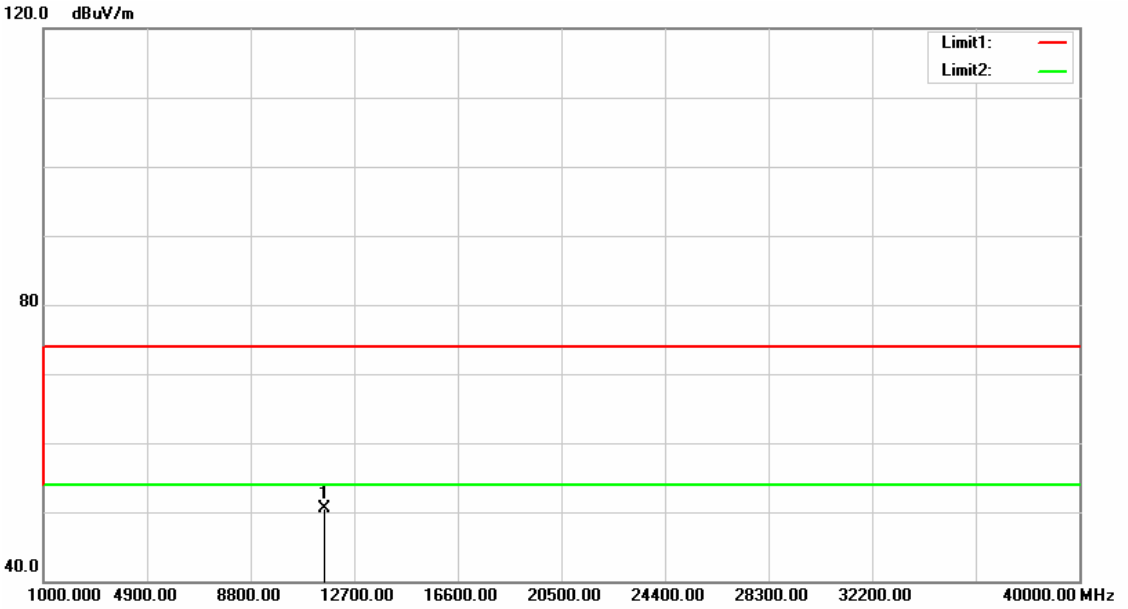


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.000	31.05	19.63	50.68	74.00	-23.32	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

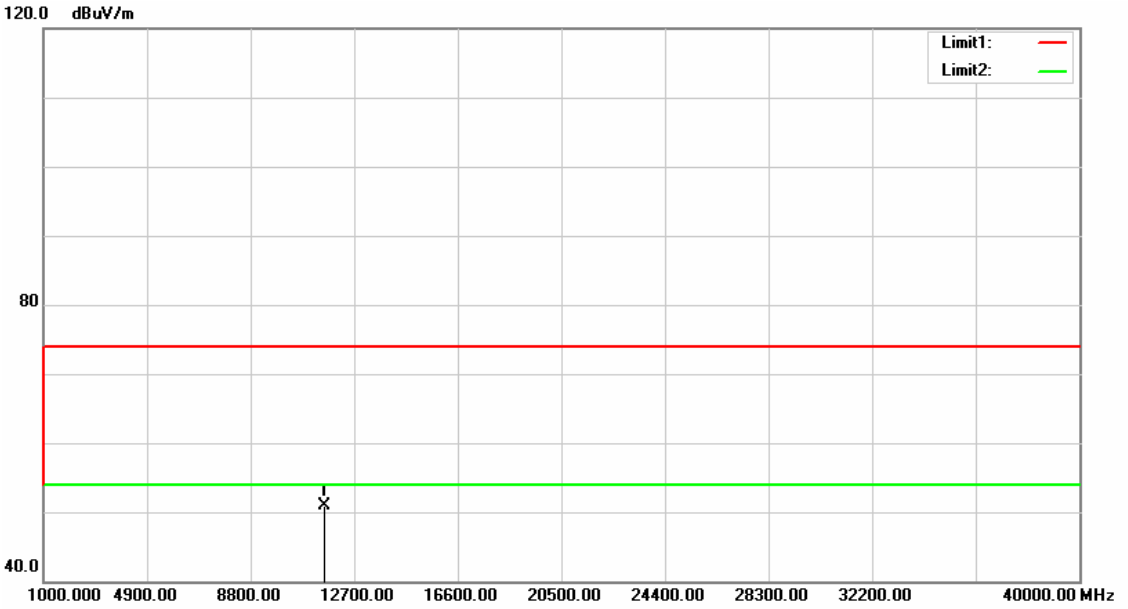


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11590.000	30.86	19.60	50.46	74.00	-23.54	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

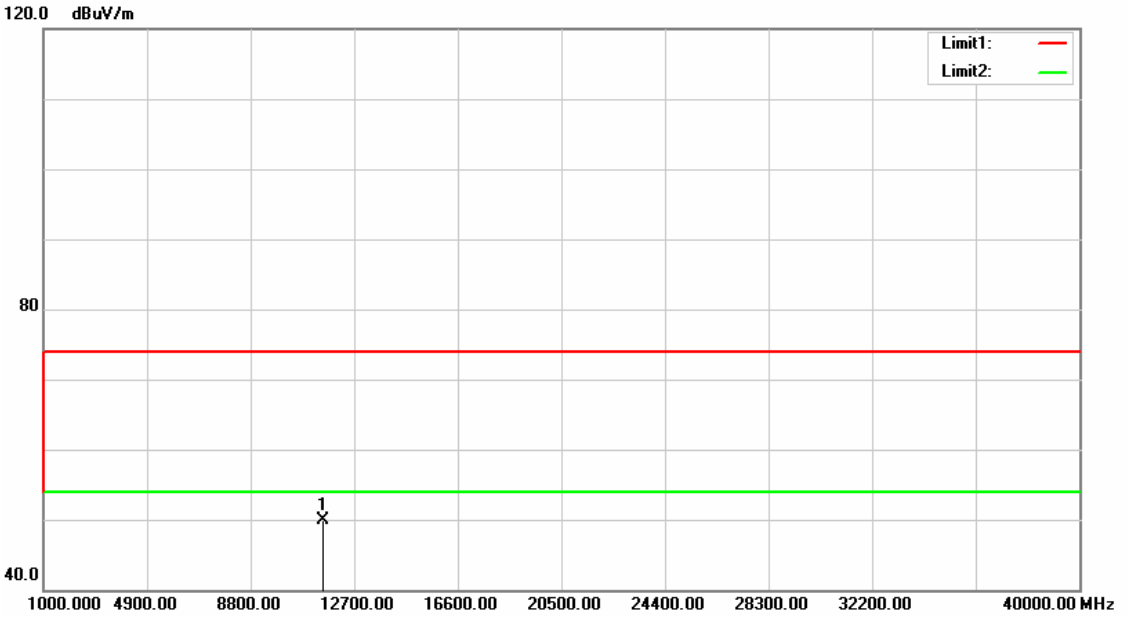


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11590.000	31.26	19.60	50.86	74.00	-23.14	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Vertical	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

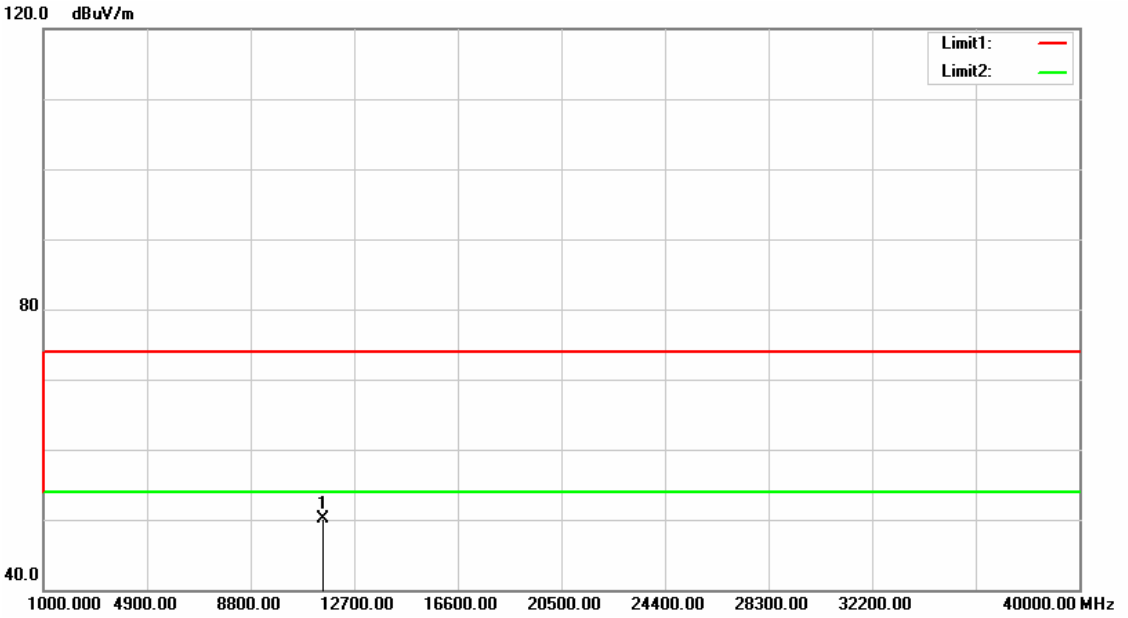


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11550.000	30.38	19.61	49.99	74.00	-24.01	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	24(℃)/ 33%RH
Test Item	Harmonic	Test Date	September 19, 2017
Polarize	Horizontal	Test Engineer	Ed.Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11550.000	30.49	19.61	50.10	74.00	-23.90	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

4.6 FREQUENCY STABILITY

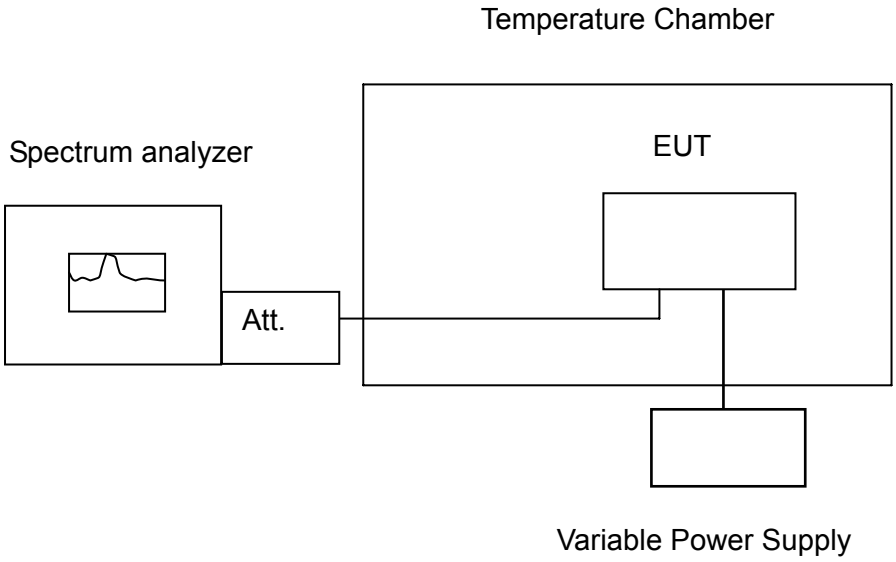
4.6.1 Test Limit

According to §15.407(g) manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the operational description.

4.6.2 Test Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

4.6.3 Test Setup



4.6.4 Test Result

Temp. (°C)	Voltage (V)	Measured Frequency	5180		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
50	230	5180.06230	5180.06213	5180.06289	5180.06328	12.0270	11.9942	12.1411	12.2162	Pass
40	230	5180.06895	5180.06285	5180.06459	5180.06358	13.3108	12.1332	12.4691	12.2741	Pass
30	230	5180.05243	5180.05213	5180.05263	5180.05132	10.1216	10.0637	10.1602	9.9073	Pass
20	230	5180.03258	5180.03295	5180.03321	5180.02861	6.2896	6.3610	6.4112	5.5232	Pass
10	230	5180.02151	5180.02136	5180.02154	5180.02146	4.1525	4.1236	4.1583	4.1429	Pass
0	230	5180.01523	5180.01514	5180.01510	5180.00325	2.9402	2.9228	2.9151	0.6274	Pass
-10	230	5179.99850	5179.95631	5179.96528	5179.95562	-0.2896	-8.4344	-6.7027	-8.5676	Pass
-20	230	5179.93561	5179.93655	5179.93452	5179.92485	-12.4305	-12.2490	-12.6409	-14.5077	Pass
Temp. (°C)	Voltage (V)	Measured Frequency	5180		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
20	207	5180.033596	5180.03359	5180.03348	5180.03343	6.4857	6.4851	6.4633	6.4537	Pass
20	230	5180.032580	5180.03295	5180.03321	5180.02861	6.2896	6.3610	6.4112	5.5232	Pass
20	253	5180.032460	5180.03246	5180.03240	5180.03235	6.2664	6.2660	6.2548	6.2452	Pass

Temp. (°C)	Voltage (V)	Measured Frequency	5745		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
50	230	5745.06540	5745.06524	5745.06142	5745.06142	11.3838	11.3560	10.6910	10.6910	Pass
40	230	5745.05954	5745.06321	5745.06321	5745.05954	10.3638	11.0026	11.0026	10.3638	Pass
30	230	5745.05854	5745.05854	5745.05421	5745.05421	10.1897	10.1897	9.4360	9.4360	Pass
20	230	5745.05310	5745.05310	5745.05324	5745.05324	9.2428	9.2428	9.2672	9.2672	Pass
10	230	5745.04402	5745.04402	5745.04310	5745.04402	7.6623	7.6623	7.5022	7.6623	Pass
0	230	5745.04310	5745.03841	5745.03841	5745.03541	7.5022	6.6858	6.6858	6.1636	Pass
-10	230	5745.02149	5745.03214	5745.03452	5745.03452	3.7406	5.5944	6.0087	6.0087	Pass
-20	230	5745.02149	5745.01971	5745.01971	5745.01971	3.7406	3.4308	3.4308	3.4308	Pass
Temp. (°C)	Voltage (V)	Measured Frequency	5745		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
20	207	5745.05270	5745.05310	5745.05324	5745.05310	9.1732	9.2428	9.2672	9.2428	Pass
20	230	5745.05310	5745.05310	5745.05324	5745.05324	9.2428	9.2428	9.2672	9.2672	Pass
20	253	5745.05147	5745.05147	5745.05310	5745.05270	8.9591	8.9591	9.2428	9.1732	Pass