RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART E

INDUSTRY CANADA RSS-247

Test Standard	**FCC Part 15.407 and RSS-247 Issue 2**
Brand name	**InnoComm Mobile**
Applicant	**InnoComm Mobile Technology Corp.**
Product name	**Wireless Console**
Model No.	**Hercules**
Test Result	**Pass**

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

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

Approved by:

Sam Chuang
Manager

Reviewed by:

Jerry Chuang
Engineer

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 30, 2018	Initial Issue	ALL	May Lin
01	September 5, 2018	1. Add the ISED standards	P.9	May Lin

Table of contents

1. GENERAL INFORMATION

1.1 EUT INFORMATION

<table>
<tr><td>Applicant</td><td>InnoComm Mobile Technology Corp.
FCC: 3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu , Taiwan , 30078
IC: 3F, No. 6, Hsin Ann Rd., Hsinchu ,30078,Taiwan</td></tr>
<tr><td>Manufacturer</td><td>InnoComm Mobile Technology Corp.
FCC: 3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu , Taiwan , 30078
IC: 3F, No. 6, Hsin Ann Rd., Hsinchu ,30078,Taiwan</td></tr>
<tr><td>Equipment</td><td>Wireless Console</td></tr>
<tr><td>Model Name</td><td>Hercules</td></tr>
<tr><td>Model Discrepancy</td><td>N/A</td></tr>
<tr><td>Received Date</td><td>June 14, 2018</td></tr>
<tr><td>Date of Test</td><td>July 18 ~ August 16, 2018</td></tr>
<tr><td>Power Supply</td><td>1. Power by power supply (DC 15V)
2. Power by host system via USB</td></tr>
<tr><td>HW Version</td><td>v1.0</td></tr>
<tr><td>FW Version</td><td>v1.0</td></tr>
<tr><td>Output Power(W)</td><td>
<table>
<tr><th>Band</th><th>Mode</th><th>Frequency Range (MHz)</th><th>Output Power (W)</th><th>EIRP Output Power (W)</th></tr>
<tr><td rowspan="3">U-NII-1</td><td>IEEE 802.11a</td><td>5180 ~ 5240</td><td>0.0107</td><td>0.0313</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5180 ~ 5240</td><td>0.0086</td><td>0.0250</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5190 ~ 5230</td><td>0.0080</td><td>0.0235</td></tr>
<tr><td rowspan="3">U-NII-3</td><td>IEEE 802.11a</td><td>5745 ~ 5825</td><td>0.0323</td><td>0.0944</td></tr>
<tr><td>IEEE 802.11n HT 20 MHz</td><td>5745 ~ 5825</td><td>0.0331</td><td>0.0968</td></tr>
<tr><td>IEEE 802.11n HT 40 MHz</td><td>5755 ~ 5795</td><td>0.0324</td><td>0.0946</td></tr>
</table>
</td></tr>
</table>

1.2 EUT CHANNEL INFORMATION

Frequency Range	**UNII-1** IEEE 802.11a: 5180 ~ 5240 MHz IEEE 802.11n HT 20 MHz: 5180 ~ 5240 MHz IEEE 802.11n HT 40 MHz: 5190 ~ 5230 MHz **UNII-3** IEEE 802.11a: 5745 ~ 5825 MHz IEEE 802.11n HT 20 MHz: 5745 ~ 5825 MHz IEEE 802.11n HT 40 MHz: 5755 ~ 5795 MHz
Modulation Type	1. IEEE 802.11a mode: OFDM 2. IEEE 802.11n HT 20 MHz mode: OFDM 3. IEEE 802.11n HT 40 MHz mode: OFDM

Remark:
Refer as ANSI 63.10:2013 clause 5.6.1 Table 4 and RSS-GEN Table 1 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	**Number of frequencies**	**Location in frequency range of operation**
☐ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☒ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Type	☐ PIFA ☐ PCB ☒ Dipole ☐ Coils
Antenna Gain	Gain: 4.66 dBi

1.4 MEASUREMENT UNCERTAINTY

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

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

1.5 FACILITIES AND TEST LOCATION

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

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

Test site	Test Engineer	Remark
AC Conduction Room	Dally Hong	-
Radiation	Jerry Chuang	-
RF Conducted	Jerry Chuang	-

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

1.6 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	06/29/2018	06/28/2019
Power Meter	Anritsu	ML2495A	1149001	02/06/2018	02/05/2019
Power Sensor	Anritsu	MA2491A	30982	02/07/2018	02/06/2019
Signal Analyzer	R&S	FSV 40	101073	10/02/2017	10/01/2018

AC Conducted Emissions Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
LISN	R&S	ENV216	101054	02/06/2018	02/05/2019
LISN	SCHWARZBECK	NSLK 8127	8127-541	02/09/2018	02/08/2019
EMI Test Receiver	R&S	ESCI	101203	11/02/2017	11/01/2018
CABLE	EMCI	CFD300-NL	CERF	07/03/2018	07/02/2019

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

3M 966 Chamber Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Bilog Antenna	Sunol Sciences	JB3	A030105	07/13/2018	07/12/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	06/29/2018	06/28/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	06/29/2018	06/28/2019
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	02/08/2018	02/07/2019
High Pass Filters	MICRO TRONICS	HPM13195	003	05/14/2018	05/13/2019
Horn Antenna	ETS LINDGREN	3116	00026370	01/04/2018	01/03/2019
Horn Antenna	SCHWARZBECK	BBHA 9120D	779	03/14/2018	03/13/2019
Loop Ant	COM-POWER	AL-130	121051	03/21/2018	03/20/2019
Pre-Amplifier	EMEC	EM330	060609	06/29/2018	06/28/2019
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	06/21/2018	06/20/2019
Pre-Amplifier	HP	8449B	3008A00965	06/29/2018	06/28/2019
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/31/2018	05/30/2019
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R

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

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

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

Support Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
1	DC Power Source	GWINSTEK	SPS-3610	N/A	N/A
2	NB(H)	Acer	Aspire 4320 series	R33142	QDS-BRCM1018
3	NB	Lenovo	TP00056A	R33B65	PD97260HU

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.407, KDB 789033 D02, RSS-247 Issue 2 and RSS-GEN Issue 5.

2. TEST SUMMERY

FCC Standard Sec.	IC Standard Sec.	Chapter	Test Item	Result
15.203	-	1.3	Antenna Requirement	Pass
15.207	RSS-Gen(8.8)	4.1	AC Conducted Emission	Pass
15.403(i)	-	4.2	26dB Bandwidth	Pass
15.407(e)	RSS Gen (6.7)	4.2	6dB Bandwidth	Pass
15.403(i)	RSS Gen (6.7)	4.2	Occupied Bandwidth (99%)	Pass
15.407(a)	RSS-247(6.2.1.1) RSS-247(6.2.4.1)	4.3	Output Power Measurement	Pass
15.407(a)	RSS-247(6.2.1.1) RSS-247(6.2.4.1)	4.4	Power Spectral Density	Pass
15.407(b)	RSS-247(6.2.1.2) RSS-247(6.2.4.2)	4.5	Radiation Band Edge	Pass
15.407(b)	RSS-247(6.2.1.2) RSS-247(6.2.4.2)	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</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="3">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 rowspan="3">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>
</table>
</td></tr>
</table>

3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conducted Emission	
Test Condition	**AC Power line conducted emission for line and neutral**
Test Mode	**Mode 1: EUT power by power supply (DC 15V) Mode 2: EUT power by host system via USB**
Worst Mode	**☐ Mode 1 ☒ Mode 2 ☐ Mode 3 ☐ Mode 4**

Radiated Emission Measurement Above 1G	
Test Condition	**Band edge, Emission for Unwanted and Fundamental**
Test Mode	**Mode 1: EUT power by power supply (DC 15V) Mode 2: EUT power by host system via USB**
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**

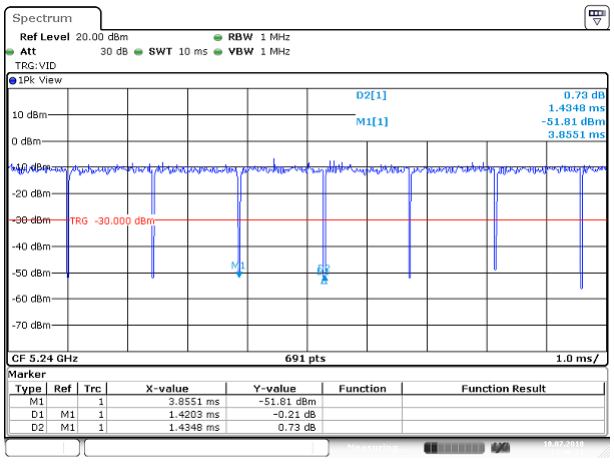
Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Test Mode	**Mode 1: EUT power by power supply (DC 15V) Mode 2: EUT power by host system via USB**
Worst Mode	**☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4**

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

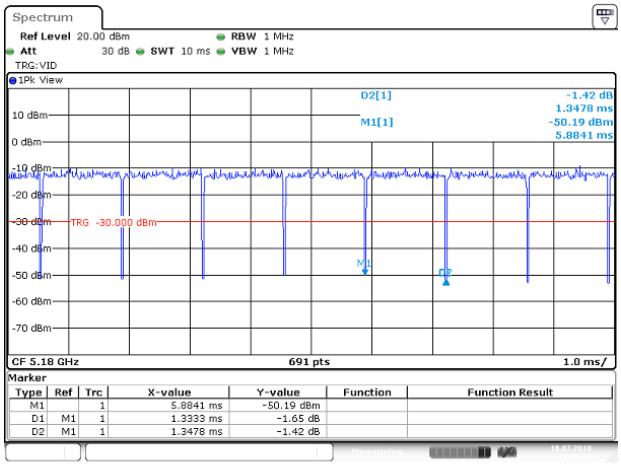
3.3 EUT DUTY CYCLE

Duty Cycle				
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)	Duty Factor(dB)
802.11a	1.4203	1.4348	98.99%	0.04
802.11n HT20	1.3333	1.3478	98.92%	0.05
802.11n HT40	0.6812	0.6957	97.92%	0.09

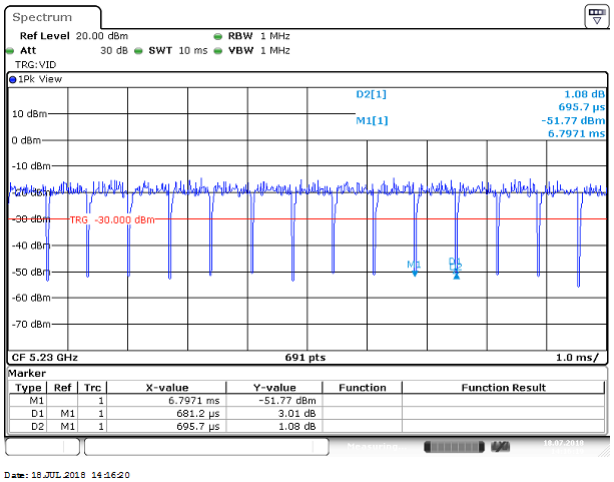
802.11a



802.11n HT20



802.11n HT40



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

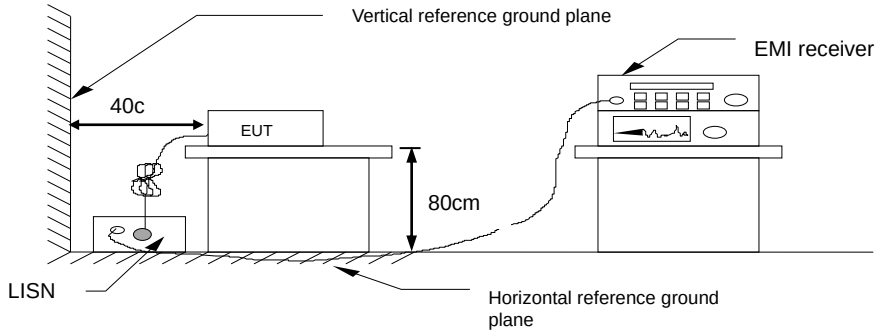
* Decreases with the logarithm of the frequency.

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

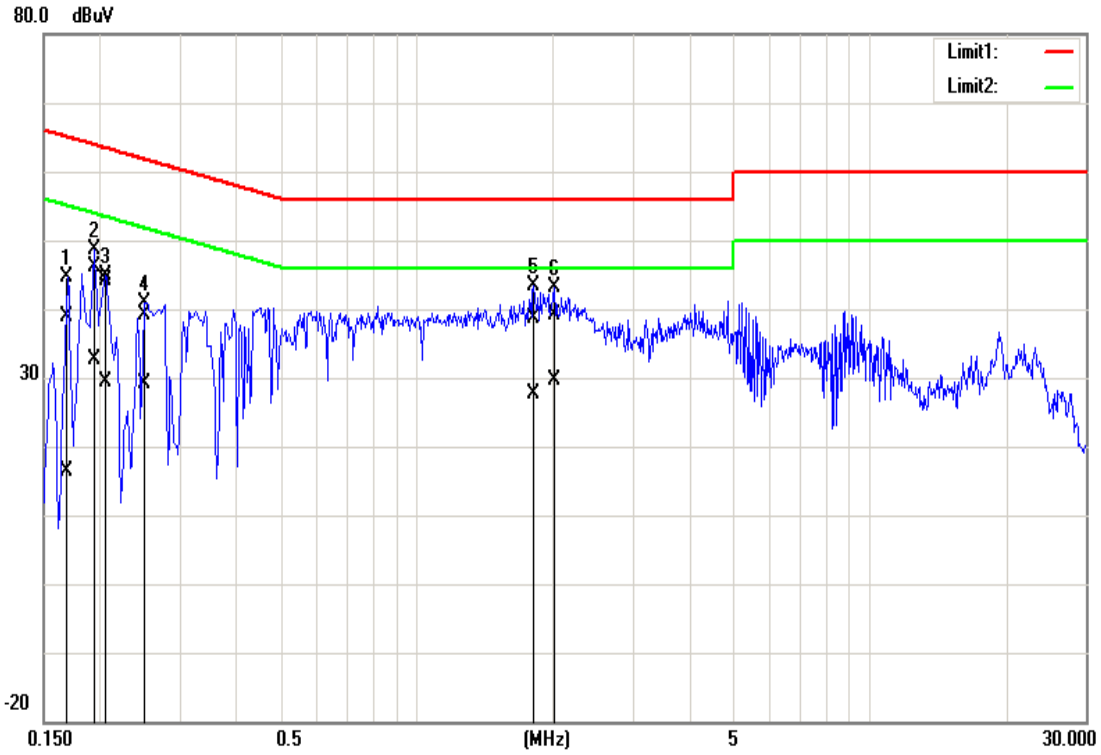


4.1.4 Test Result

Pass.

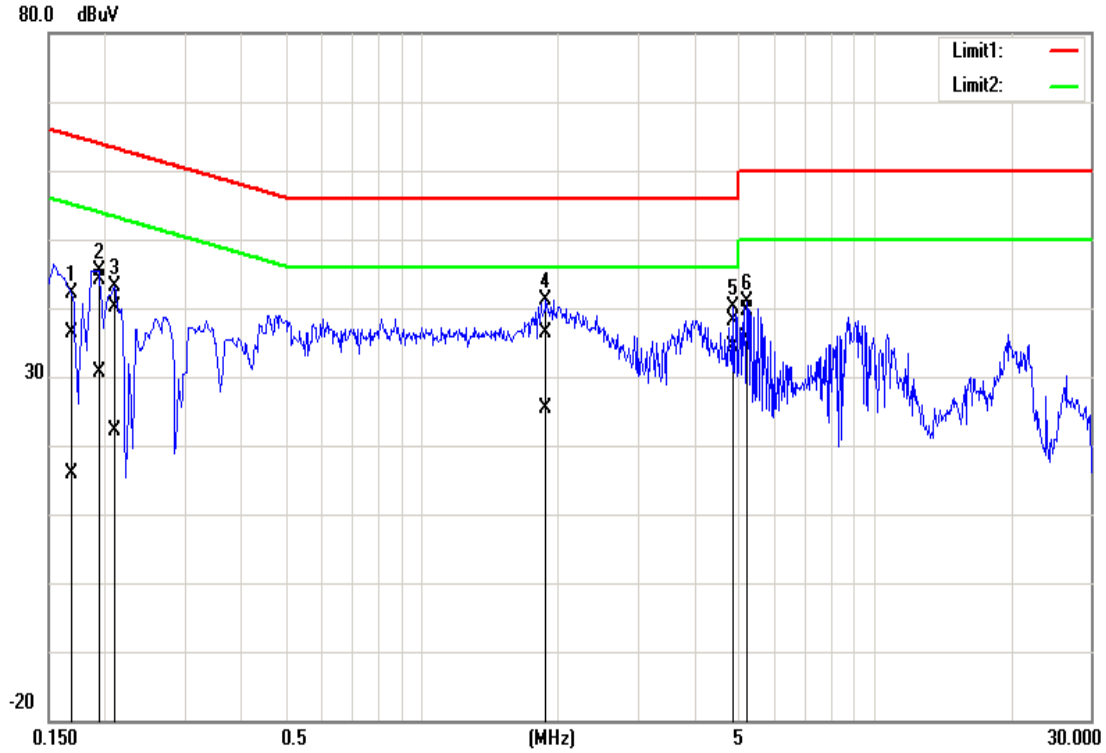
Test Data

Test Mode:	Mode 2	Temp/Hum	24(℃)/ 50%RH
Phase:	Line	Test Date	July 23, 2018
		Test Engineer	Dally Hong



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
0.1700	38.86	16.21	0.11	38.97	16.32	64.96	54.96	-25.99	-38.64	Pass
0.1940	45.91	32.52	0.11	46.02	32.63	63.86	53.86	-17.84	-21.23	Pass
0.2060	43.95	29.39	0.11	44.06	29.50	63.37	53.37	-19.31	-23.87	Pass
0.2500	38.97	29.05	0.11	39.08	29.16	61.76	51.76	-22.68	-22.60	Pass
1.8180	38.55	27.47	0.15	38.70	27.62	56.00	46.00	-17.30	-18.38	Pass
2.0220	39.05	29.47	0.15	39.20	29.62	56.00	46.00	-16.80	-16.38	Pass

Test Mode:	Mode 2	Temp/Hum	24(℃)/ 50%RH
Phase:	Neutral	Test Date	July 23, 2018
		Test Engineer	Dally Hong



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBu)	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
0.1700	36.18	15.74	0.14	36.32	15.88	64.96	54.96	-28.64	-39.08	Pass
0.1940	44.01	30.41	0.13	44.14	30.54	63.86	53.86	-19.72	-23.32	Pass
0.2100	40.11	21.88	0.13	40.24	22.01	63.21	53.21	-22.97	-31.20	Pass
1.8820	36.10	25.27	0.16	36.26	25.43	56.00	46.00	-19.74	-20.57	Pass
4.8580	37.80	34.26	0.21	38.01	34.47	56.00	46.00	-17.99	-11.53	Pass
5.2420	39.35	35.53	0.22	39.57	35.75	60.00	50.00	-20.43	-14.25	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

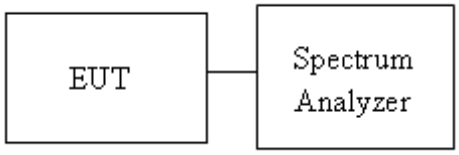
Test method Refer as KDB 789033 D02 Section C, D, and ANSI 63.10:2013 clause 6.9.2,

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

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

4.2.3 Test Setup



4.2.4 Test Result

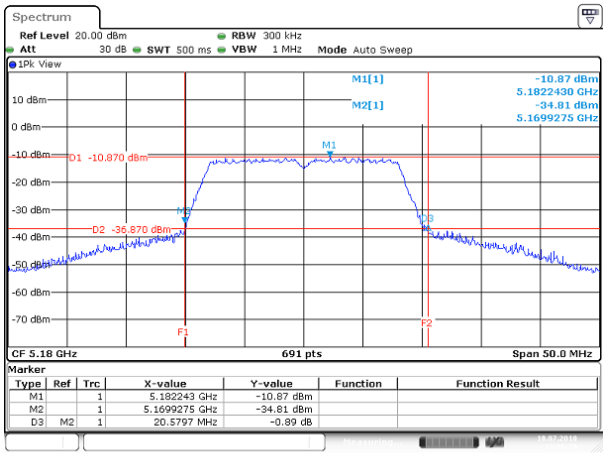
UNII-1 5150-5250 MHz			
Test mode: IEEE 802.11a mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5180	16.7872	20.5797
Mid	5220	16.7872	20.1449
High	5240	16.7872	20.2899
Test mode: IEEE 802.11n HT20 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5180	17.8002	20.2899
Mid	5220	17.8002	20.2174
High	5240	17.8002	20.3623
Test mode: IEEE 802.11n HT40 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**26dB BW (MHz)**
Low	5190	36.4688	41.159
High	5230	36.3531	41.159

UNII-3 5725-5825MHz			
Test mode: IEEE 802.11a mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**
Low	5745	17.0767	15.6957
Mid	5785	17.2937	15.8261
High	5825	18.3791	15.3043
Test mode: IEEE 802.11n HT20 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**
Low	5745	18.0173	17.0435
Mid	5785	18.0173	16.2609
High	5825	19.6816	16.0
Test mode: IEEE 802.11n HT40 mode			
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**
Low	5755	36.8162	35.246
High	5795	36.5846	35.362

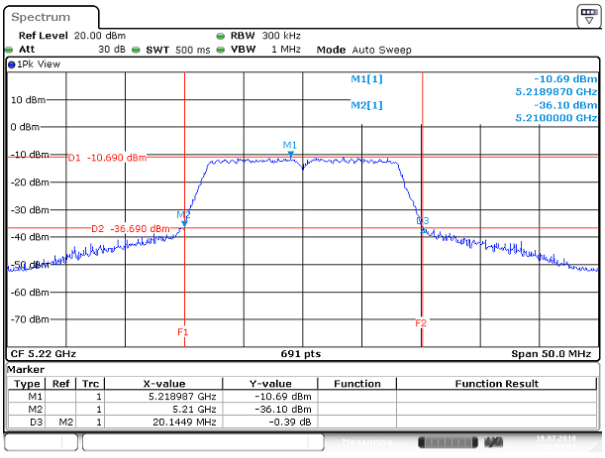
Test Data (26dB)

UNII-1 IEEE 802.11a mode

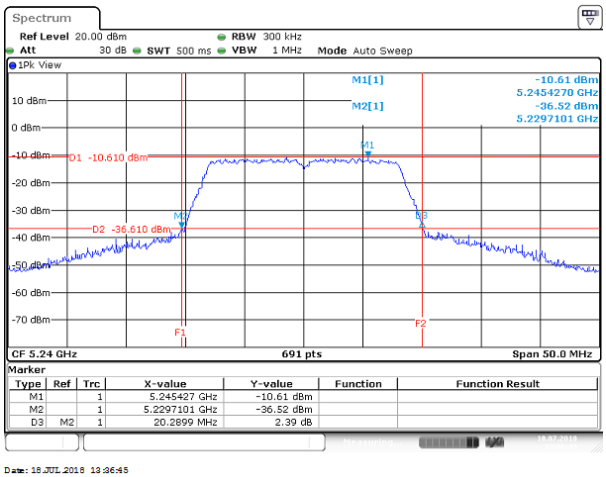
Low CH



Mid CH

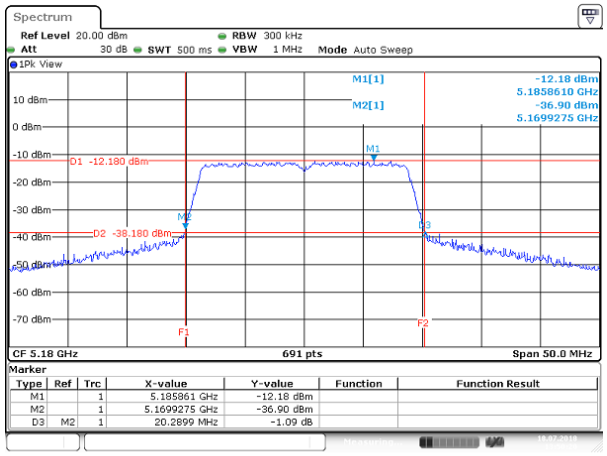


High CH

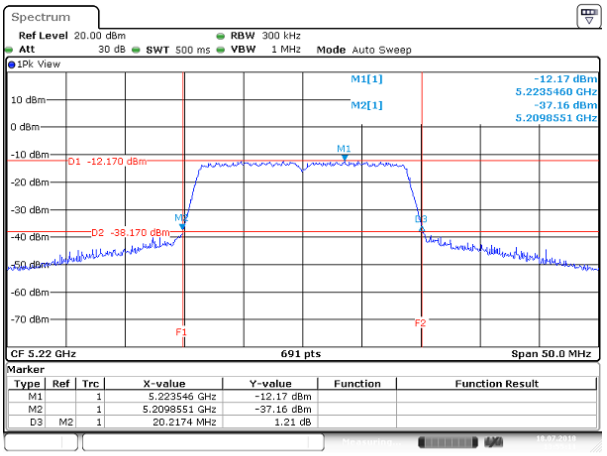


UNII-1 IEEE 802.11n HT20 mode

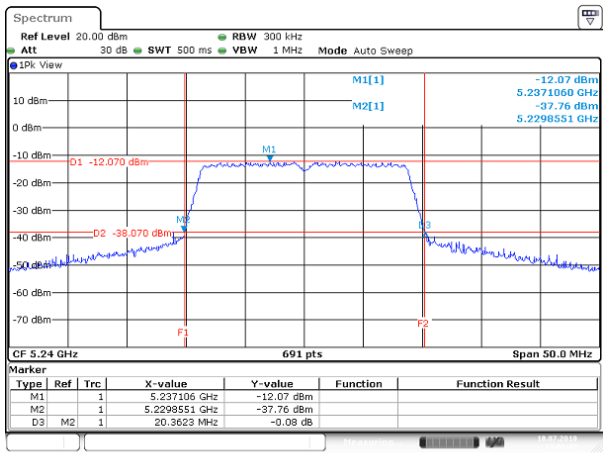
Low CH

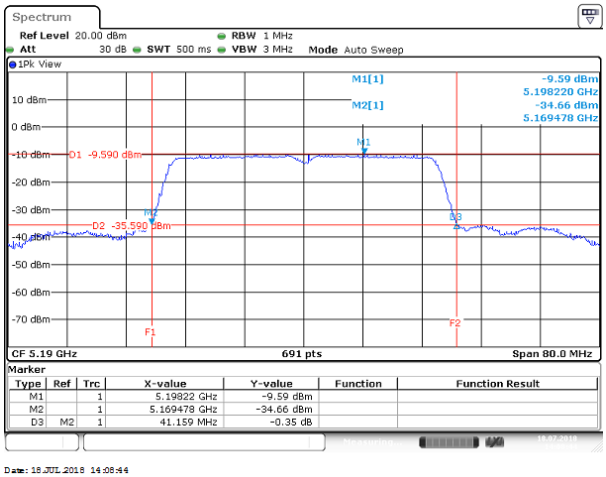
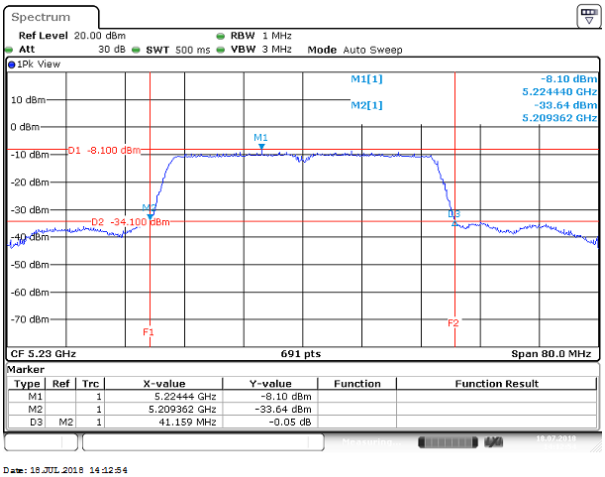


Mid CH

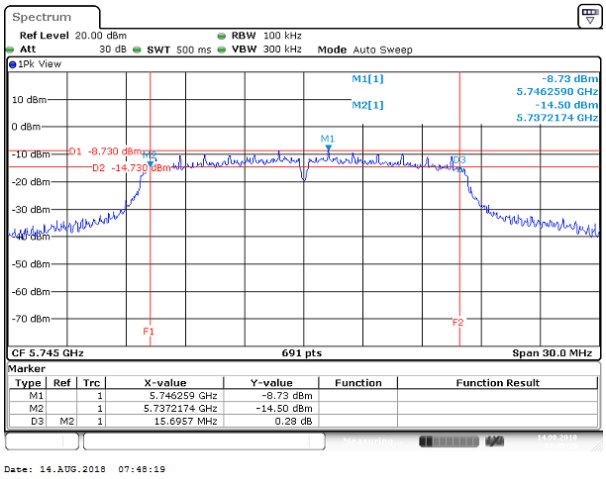
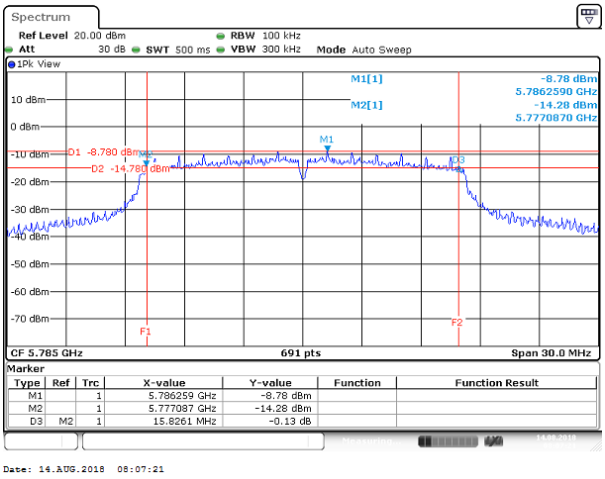
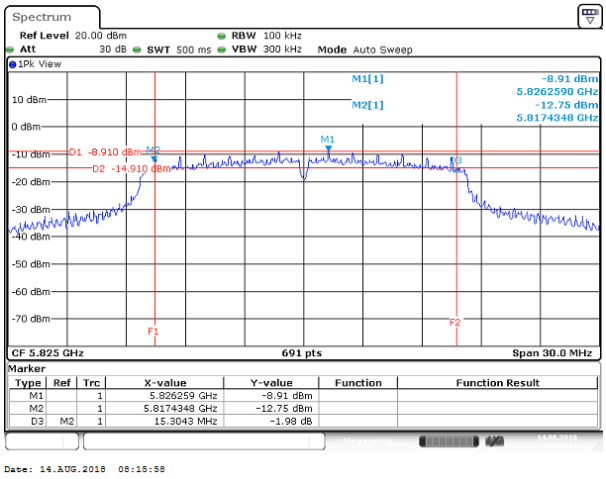


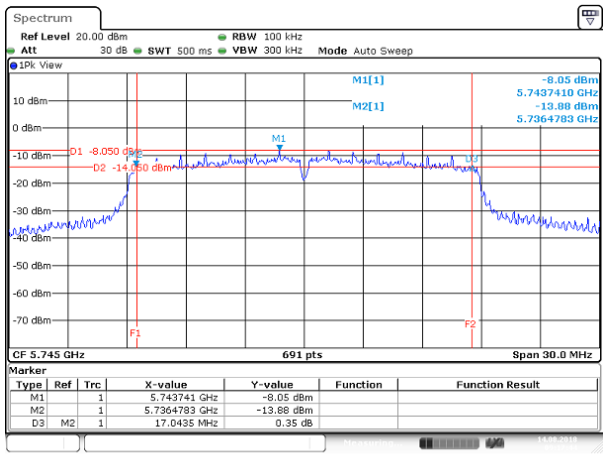
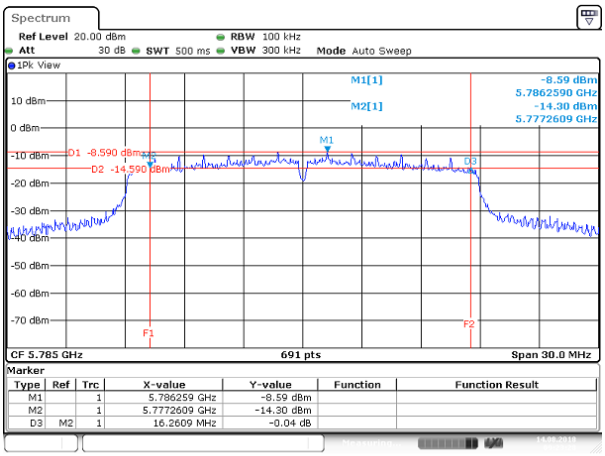
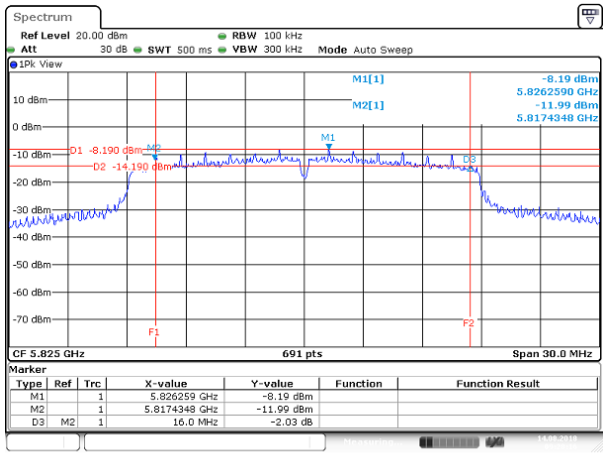
High CH

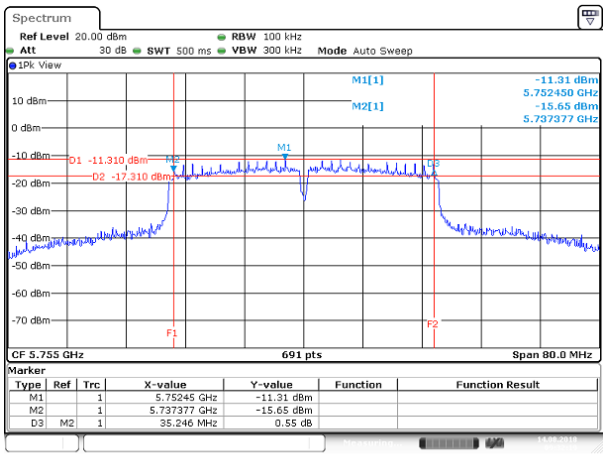
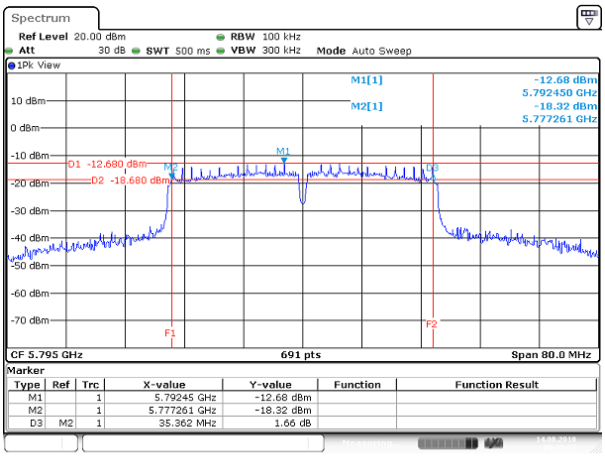


UNII-1 IEEE 802.11n HT40 mode	
Low CH	**High CH**
	

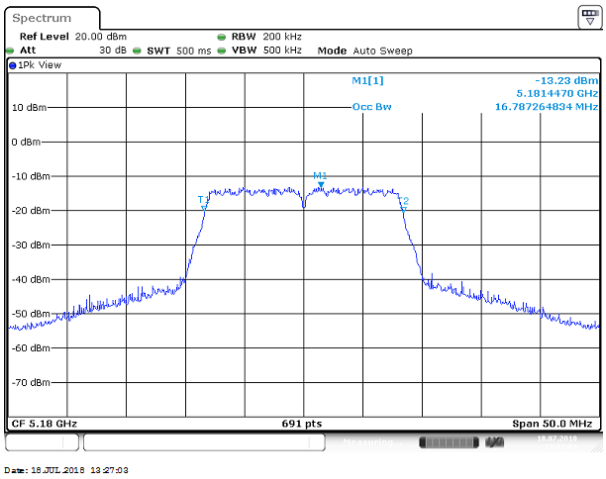
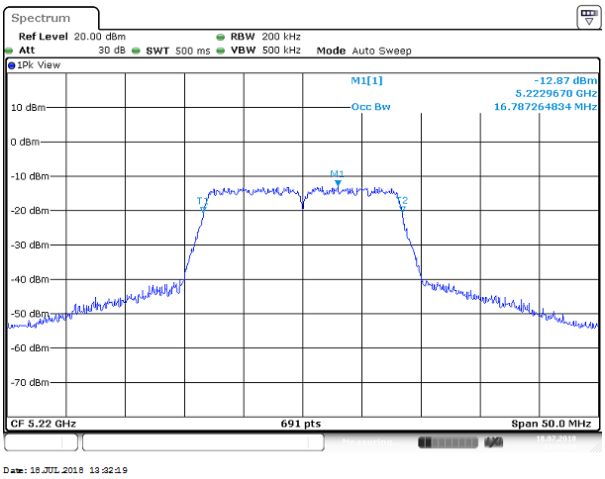
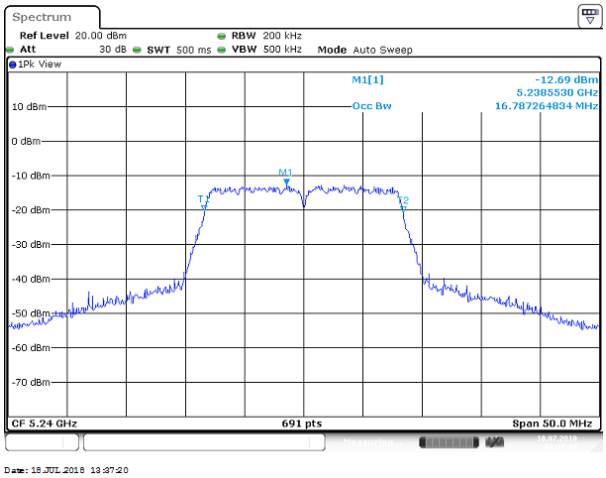
Test Data (6dB)

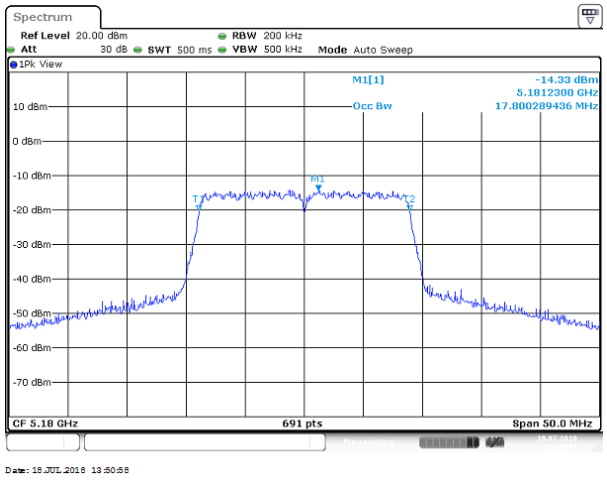
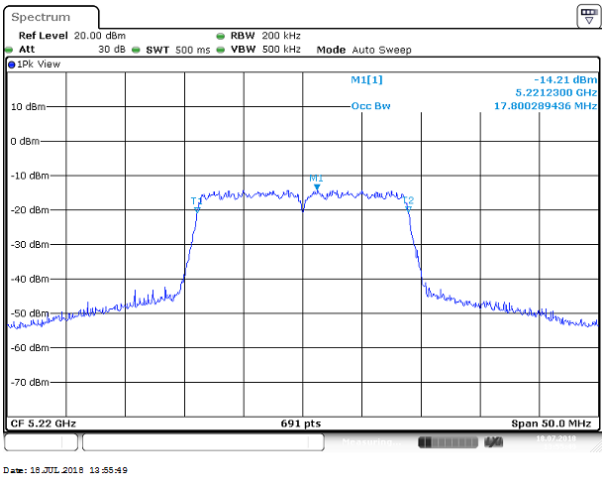
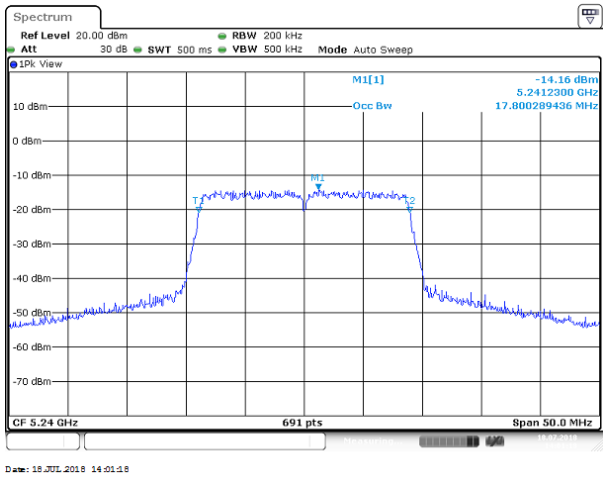
UNII-3 IEEE 802.11a mode	
Low CH	**Mid CH**
	
High CH	
	

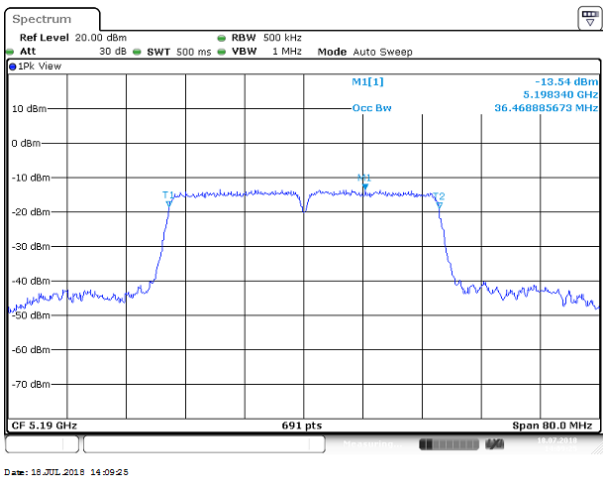
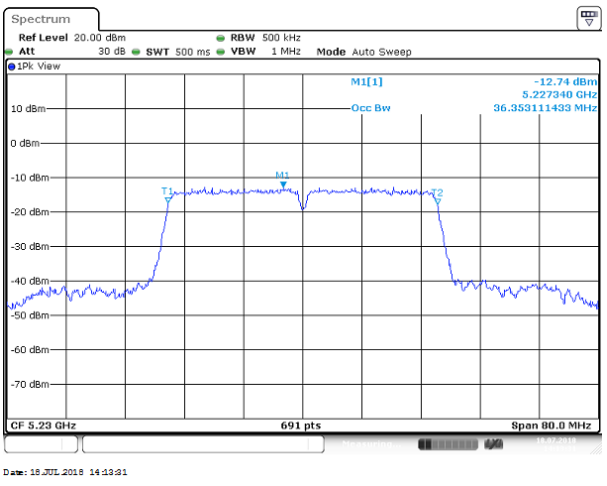
UNII-3 IEEE 802.11n HT20 mode	
Low CH	**Mid CH**
	
High CH	
	

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

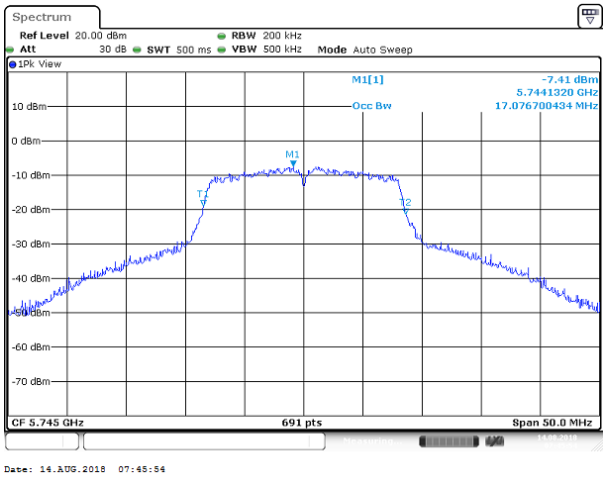
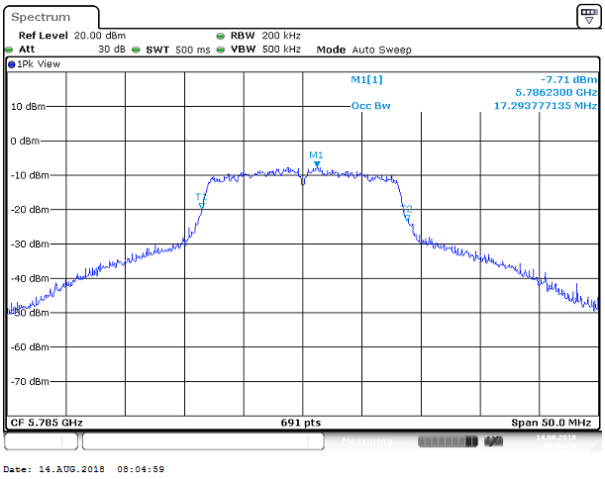
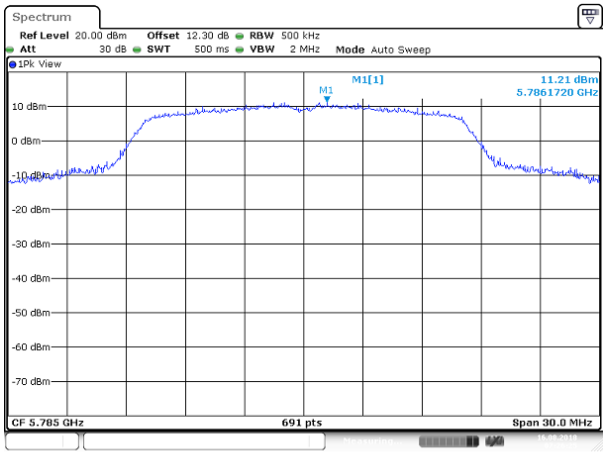
Test Data (99%OBW)

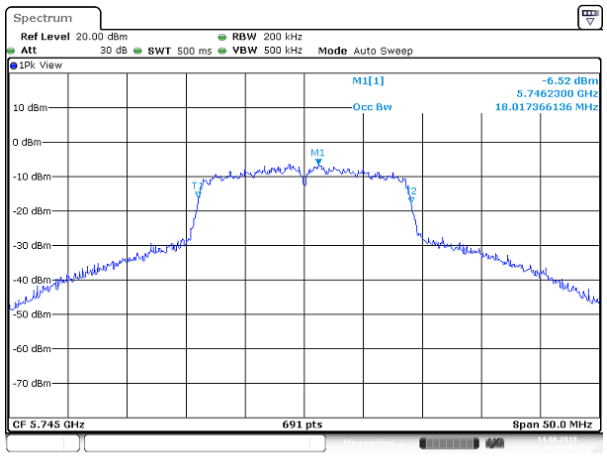
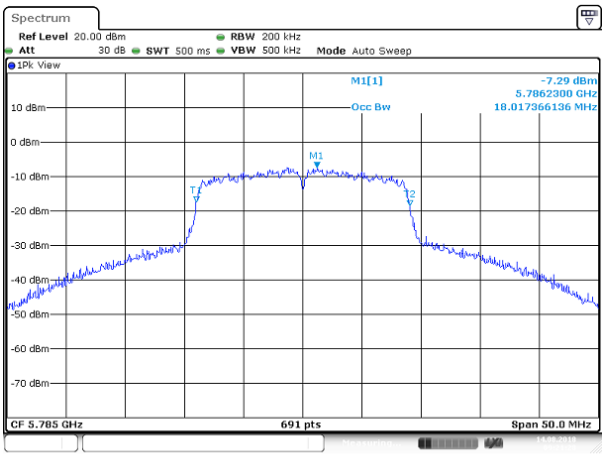
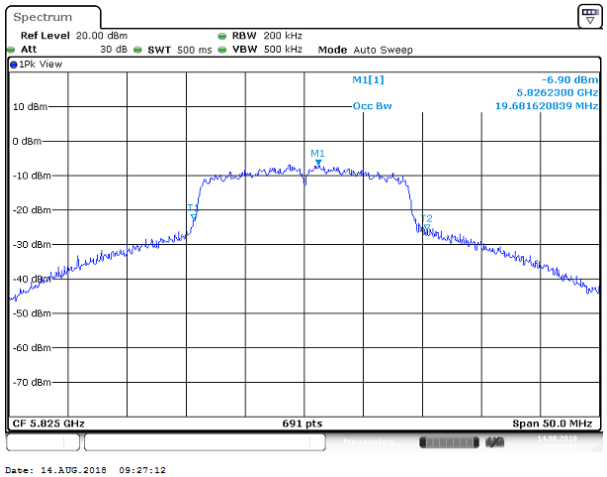
UNII-1 IEEE 802.11a mode	
Low CH	**Mid CH**
	
High CH	
	

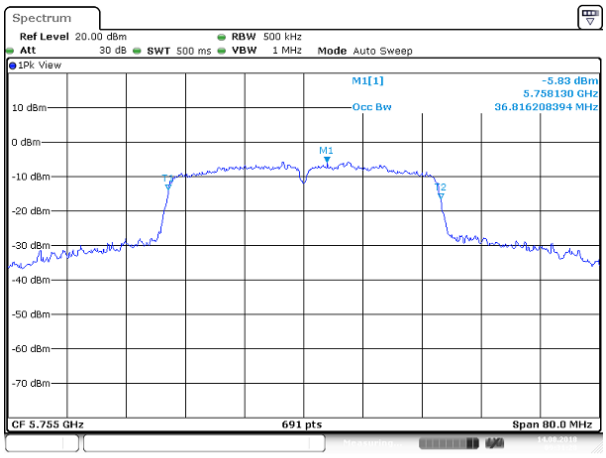
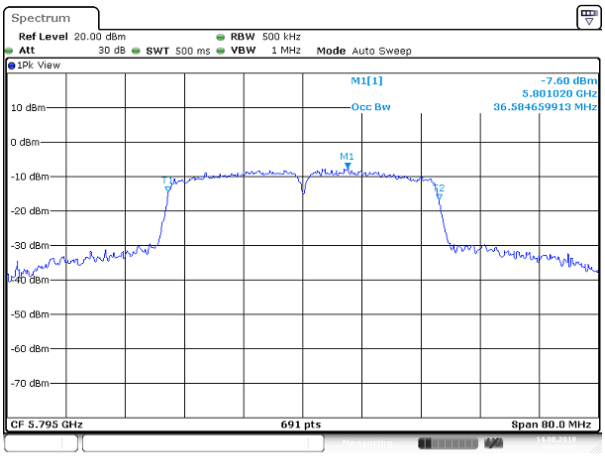
UNII-1 IEEE 802.11n HT20 mode	
Low CH	**Mid CH**
	
High CH	
	

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

Test Data (99%OBW)

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

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

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

4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(3) and RSS-247 section 6.2.1.1 and section 6.2.4.1

UNII-1:

FCC

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW(24 dBm), whichever power is less. B is the 99% emission bandwidth in megahertz ,provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

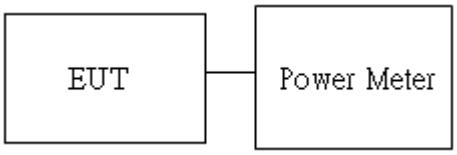
UNII-1 Limit	☒ Antenna not exceed 6 dBi：24dBm (EIRP : 23dBm) ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

4.3.2 Test Procedure

Test method Refer as KDB 789033 D02, 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)**	**EIRP AV Power (dBm)**	**AV Power (W)**	**EIRP AV Power (W)**	**DG (dBi)**	**Limit (dBm)**	**EIRP Limit (dBm)**
IEEE 802.11a Data rate: 6Mbps	36	5180	13	9.12	13.78	0.0082	0.0239	4.66	24	23
	44	5220	13	10.02	14.68	0.0100	0.0294			
	48	5240	13	10.30	14.96	0.0107	0.0313			
IEEE 802.11n HT20 Data rate: MCS0	36	5180	12	8.62	13.28	0.0073	0.0213			
	44	5220	13	9.04	13.70	0.0080	0.0234			
	48	5240	13	9.32	13.98	0.0086	0.0250			
IEEE 802.11n HT40 Data rate: MCS0	38	5190	11.5	8.17	12.83	0.0066	0.0192			
	46	5230	12	9.05	13.71	0.0080	0.0235			

UNII-3									
Config	**CH**	**Freq. (MHz)**	**Power Set**	**AV Power (dBm)**	**EIRP AV Power (dBm)**	**AV Power (W)**	**EIRP AV Power (W)**	**DG (dBi)**	**Limit (dBm)**
IEEE 802.11a Data rate: 6Mbps	149	5745	18	15.05	19.71	0.0320	0.0935	4.66	30
	157	5785	18	14.82	19.48	0.0303	0.0887		
	165	5825	19	15.09	19.75	0.0323	0.0944		
IEEE 802.11n HT20 Data rate: MCS0	149	5745	18	15.07	19.73	0.0321	0.0940		
	157	5785	18	14.87	19.53	0.0307	0.0897		
	165	5825	19	15.20	19.86	0.0331	0.0968		
IEEE 802.11n HT40 Data rate: MCS0	151	5775	18	15.10	19.76	0.0324	0.0946		
	159	5795	18	14.02	18.68	0.0252	0.0738		

4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(3), RSS-247 section 6.2.1.1 and section 6.2.4.1

UNII-1 :

FCC: The maximum power spectral density shall not exceed 11 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-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.

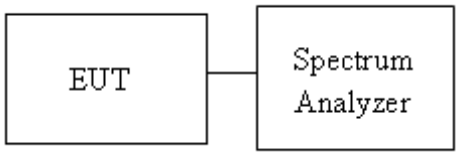
UNII-1 Limit	☒ Antenna not exceed 6 dBi：11 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 11 – (DG – 6)]
UNII-3 Limit	☒ Antenna not exceed 6 dBi：30 dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

4.4.2 Test Procedure

Test method Refer as KDB 789033 D02, 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, SA set RBW = 1MHz, VBW = 3MHz and Detector = RMS, to measurement Power Density.
4. The path loss and Duty Factor were compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup

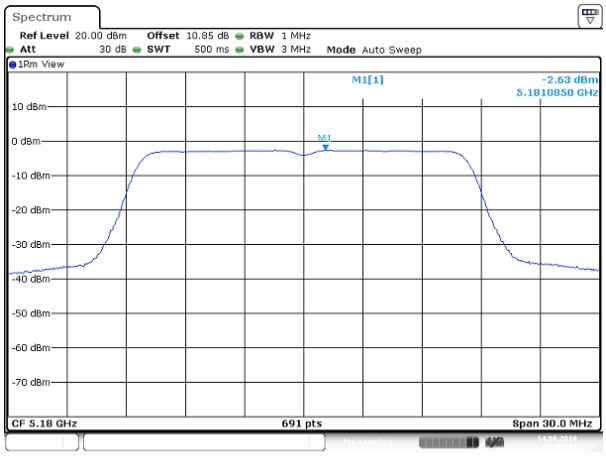
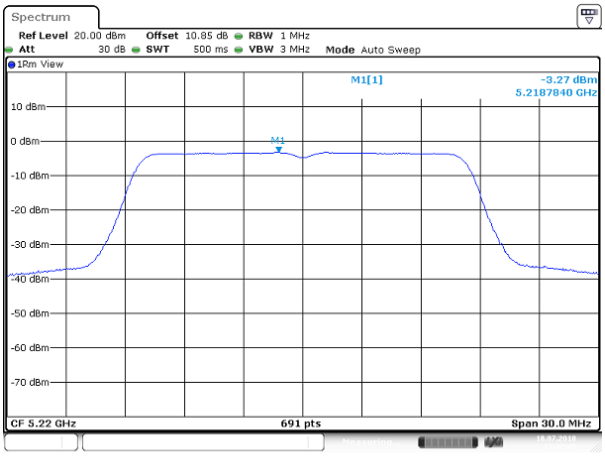
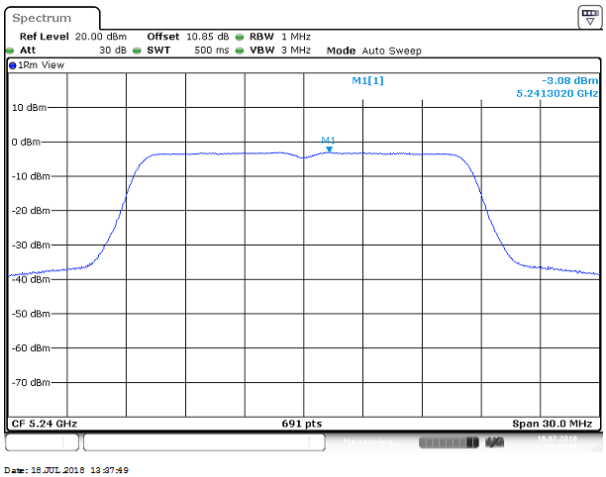


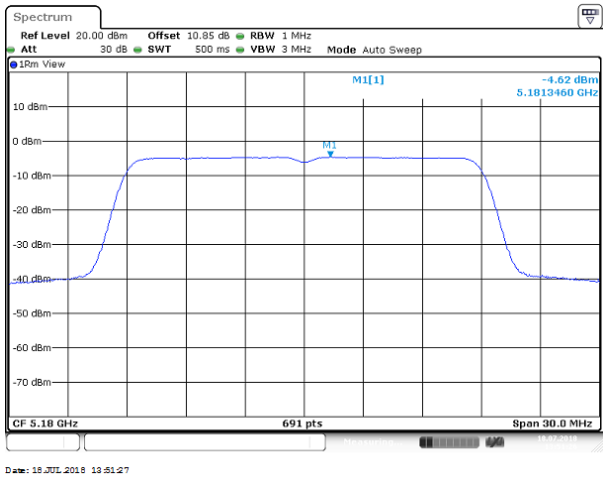
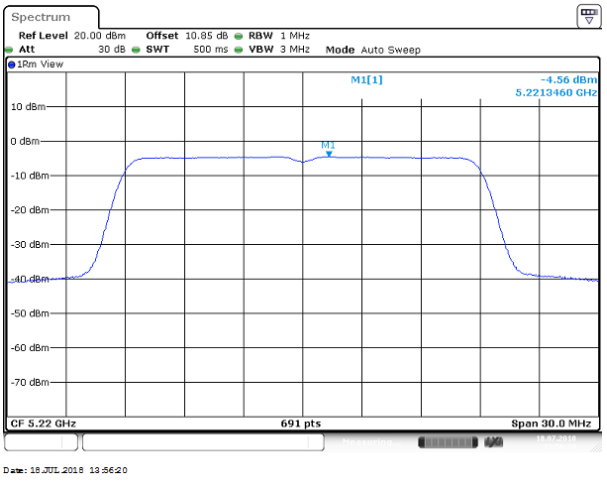
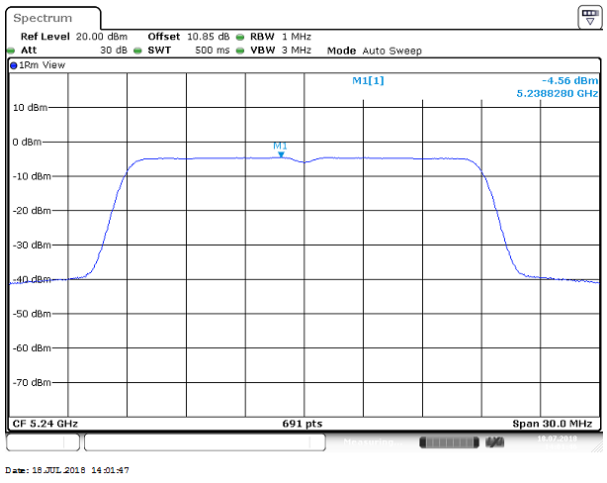
4.4.4 Test Result

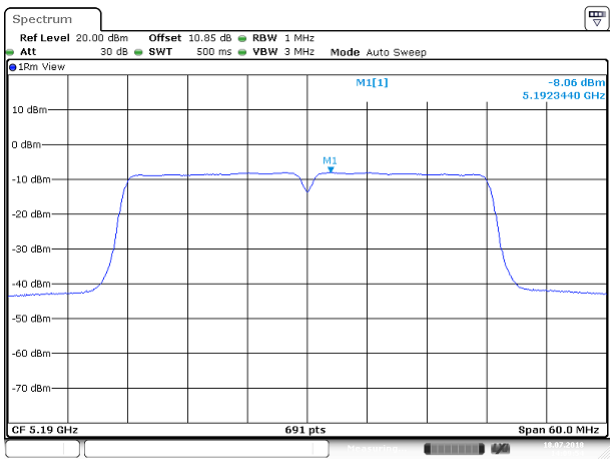
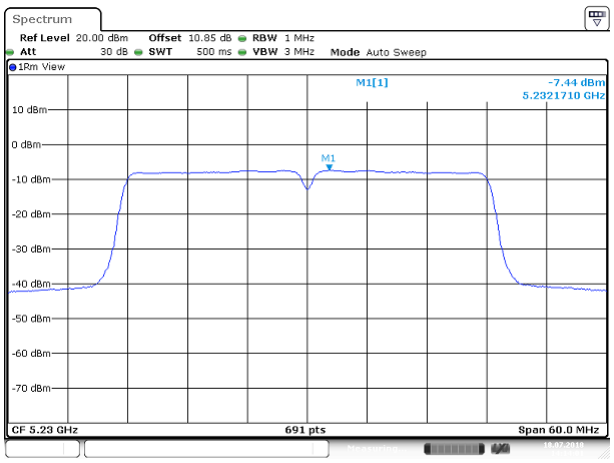
UNII-1 5150-5250 MHz				
Test mode: IEEE 802.11a mode				
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**	**IC Limit (dBm)**
Low	5180	-2.63	11	10
Mid	5220	-3.27		
High	5240	-3.08		
Test mode: IEEE 802.11n HT20 mode				
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**	**IC Limit (dBm)**
Low	5180	-4.62	11	10
Mid	5220	-4.56		
High	5240	-4.56		
Test mode: IEEE 802.11n HT40 mode				
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**	**IC Limit (dBm)**
Low	5190	-8.06	11	10
High	5230	-7.44		

UNII-3 5725-5825 MHz			
Test mode: IEEE 802.11a mode			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	5745	11.38	30
Mid	5785	11.21	
High	5825	8.97	
Test mode: IEEE 802.11n HT20 mode			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	5745	11.31	30
Mid	5785	10.85	
High	5825	9.50	
Test mode: IEEE 802.11n HT40 mode			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	5755	7.95	30
High	5795	4.64	

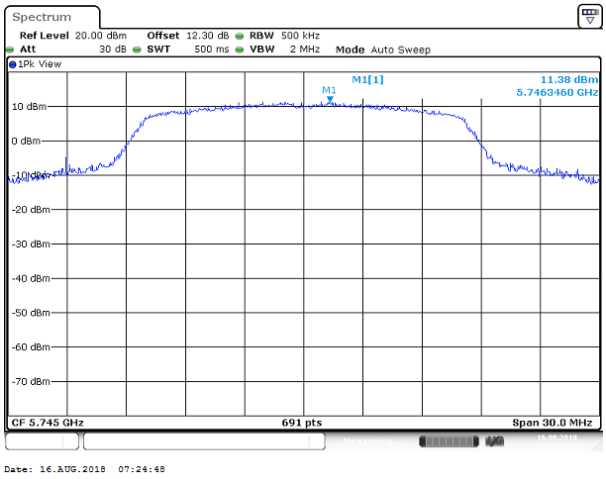
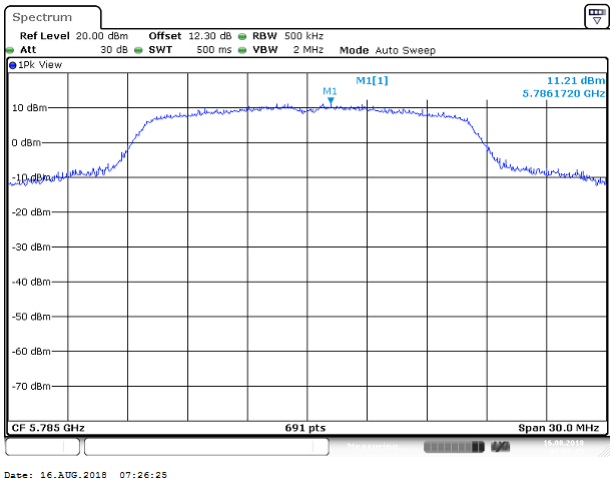
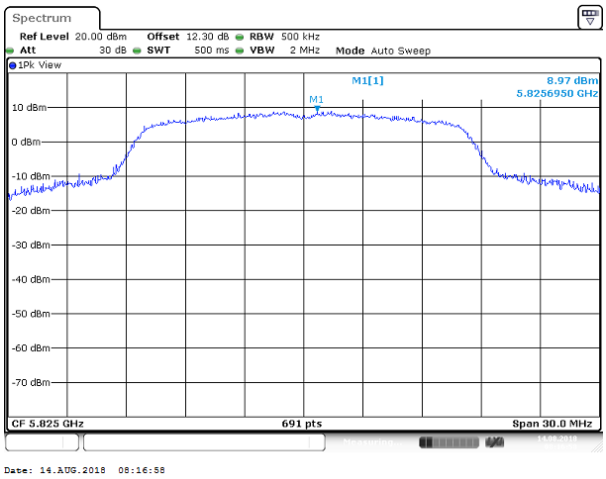
Test Data

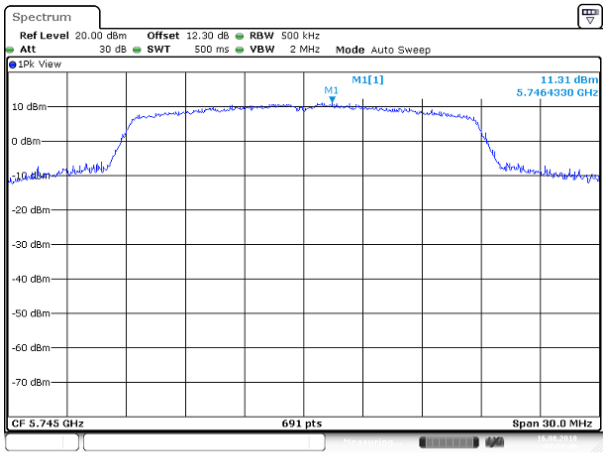
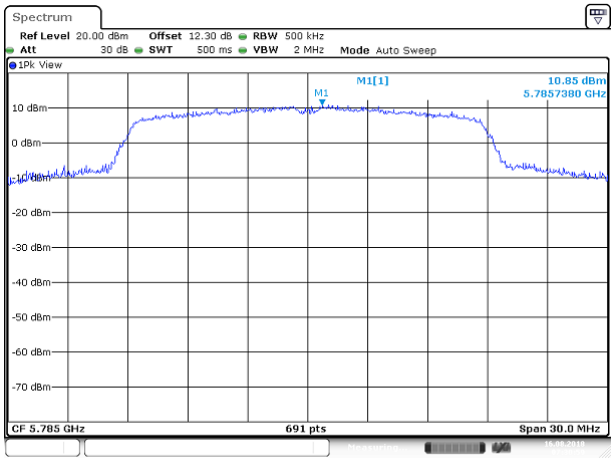
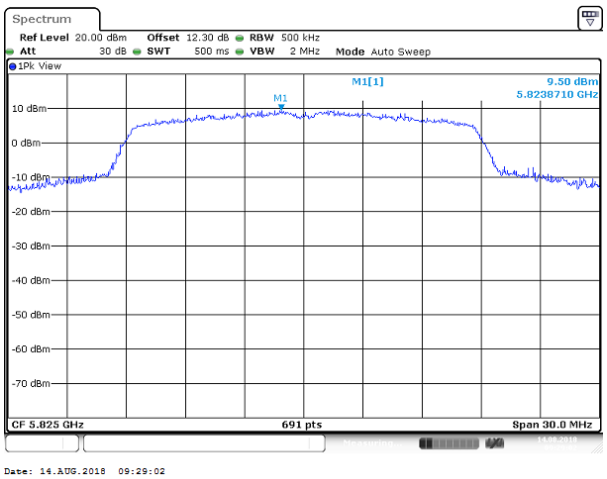
UNII-1 IEEE 802.11a mode	
Low CH	**Mid CH**
	
High CH	
	

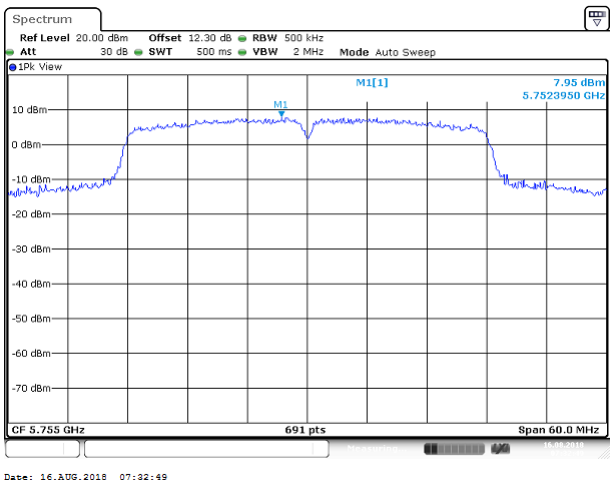
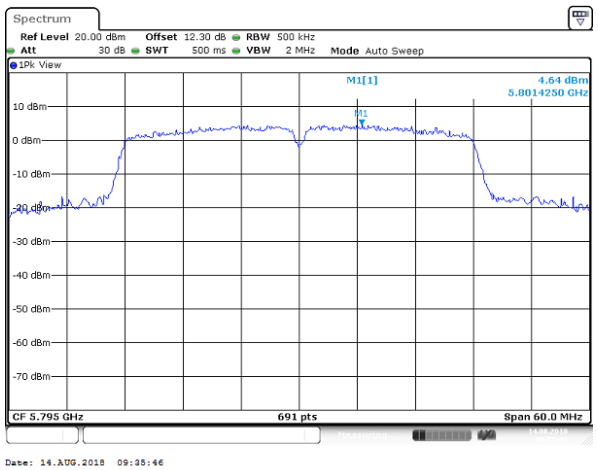
UNII-1 IEEE 802.11n HT20 mode-	
Low CH	**Mid CH**
	
High CH	
	

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

Test Data

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

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

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

4.5 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

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

IC according to RSS-247 section 6.2.1.2 and section 6.2.4.2

Below 30 MHz

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

Above 30 MHz

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

UNII-1 :

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

UNII-3:

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

4.5.2 Test Procedure

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

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10, and the EUT set in a continuous mode.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.
3. Span shall wide enough to full capture the emission measured. The SA from 9kHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

Remark:

1. 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.
2. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

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.

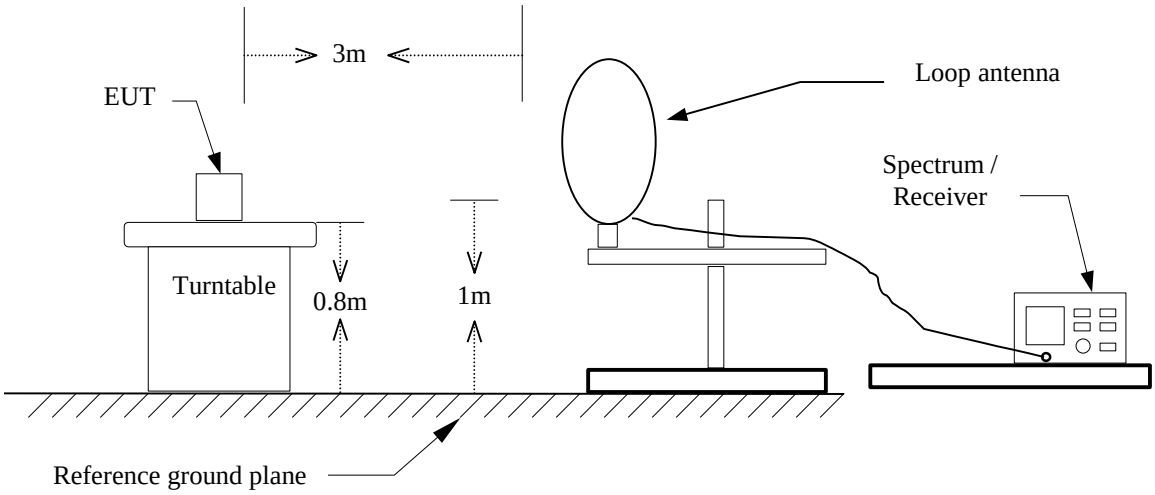
(2.2) For Average measurement：RBW = 1MHz, VBW

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

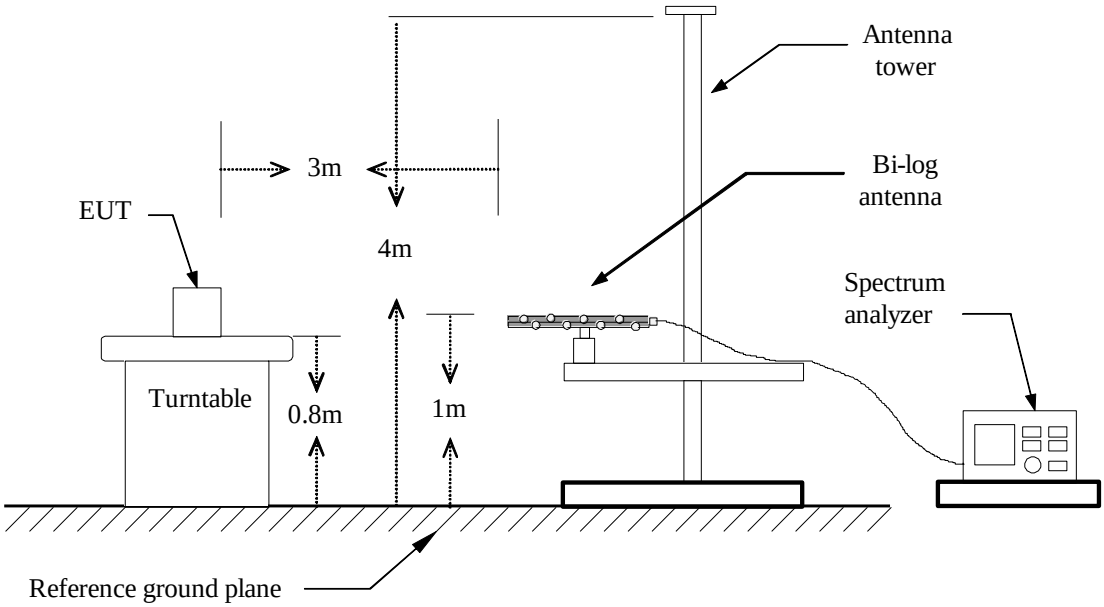
Configuration	Duty Cycle (%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	98.99%	1.4203	-	10Hz
802.11n HT20	98.92%	1.3333	-	10Hz
802.11n HT40	97.92%	0.6812	1.468	1.5kHz

4.5.3 Test Setup

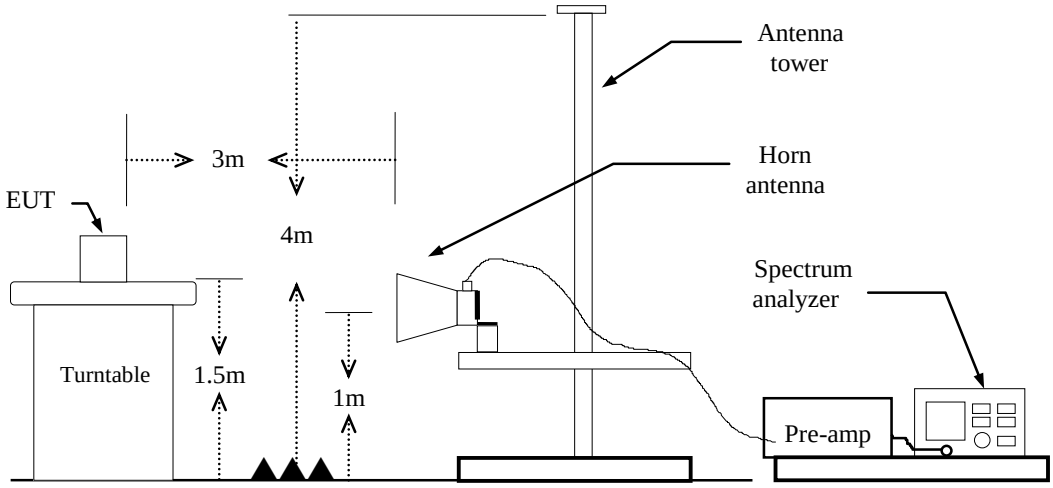
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1 GHz

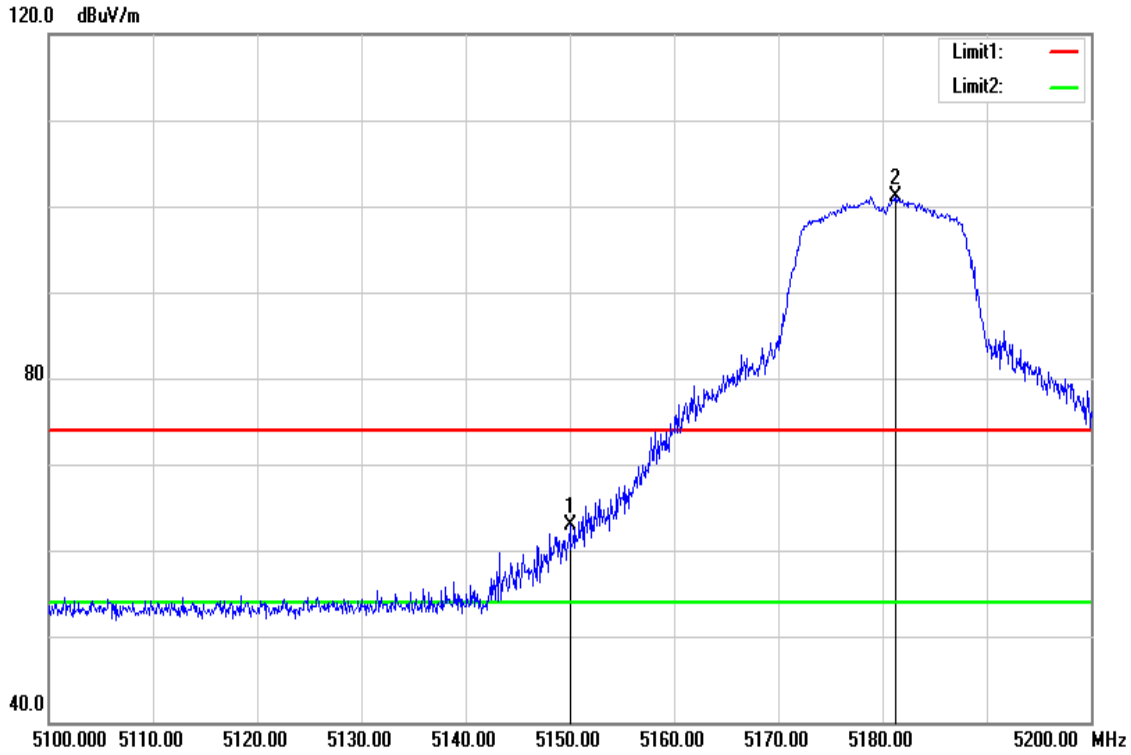


4.5.4 Test Result

Test Data

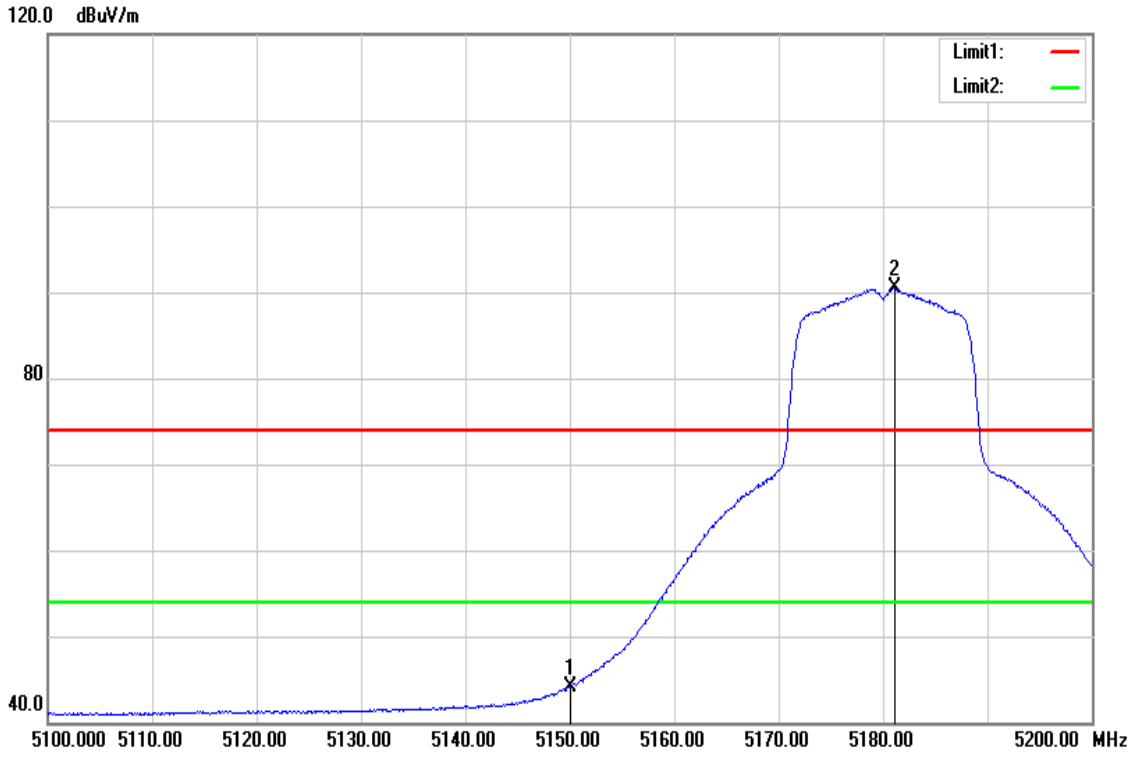
Band Edge Test Data for UNII-1

Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



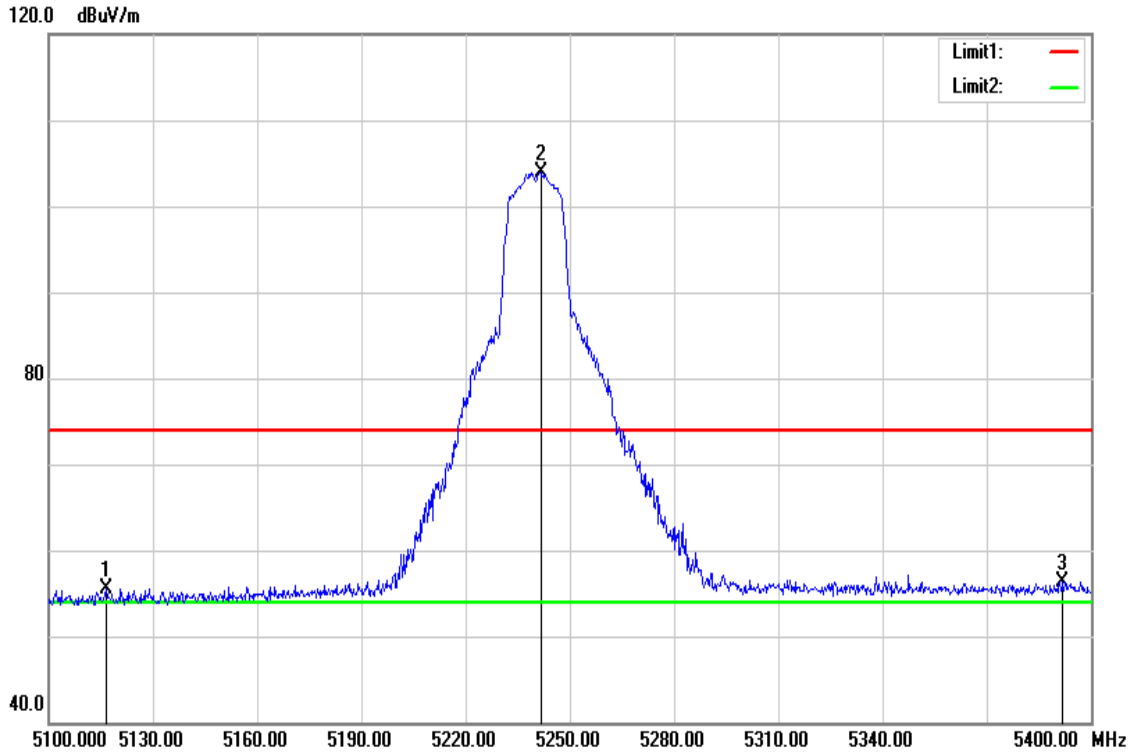
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	57.82	5.06	62.88	74.00	-11.12	peak
5181.200	96.04	5.14	101.18	-	-	peak

Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



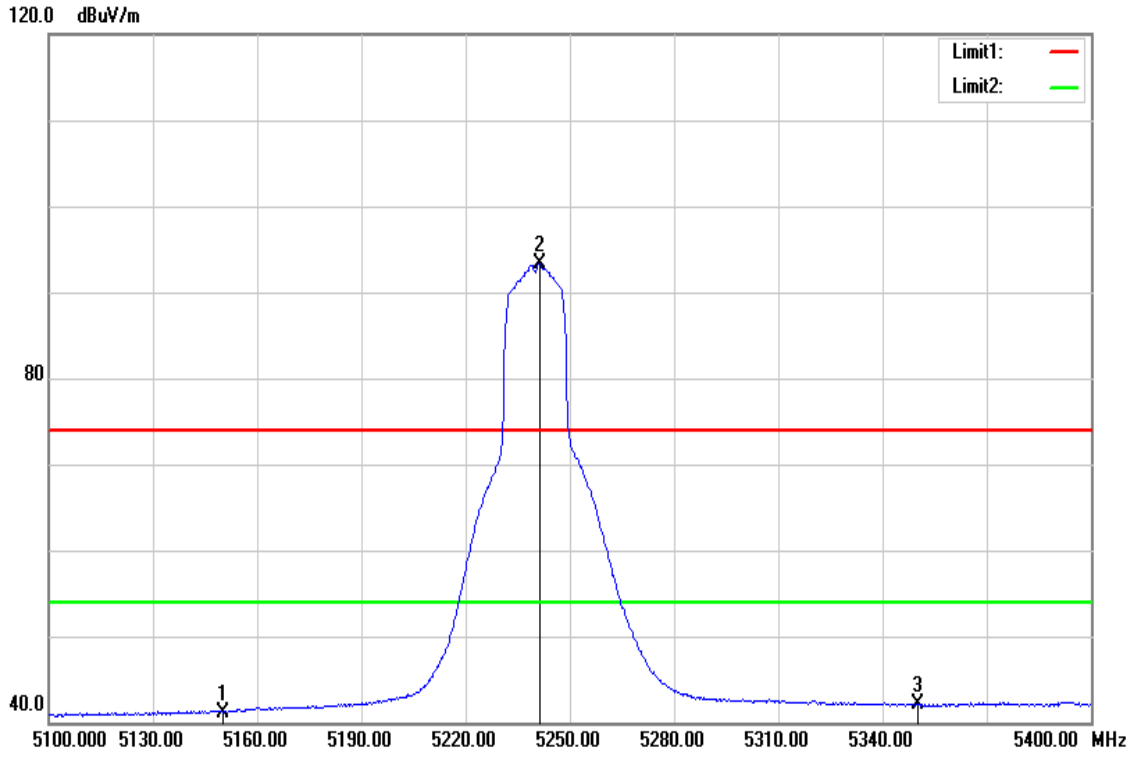
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	38.97	5.06	44.03	54.00	-9.97	AVG
5181.100	85.43	5.14	90.57	-	-	AVG

Test Mode	IEEE 802.11a / 5240MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



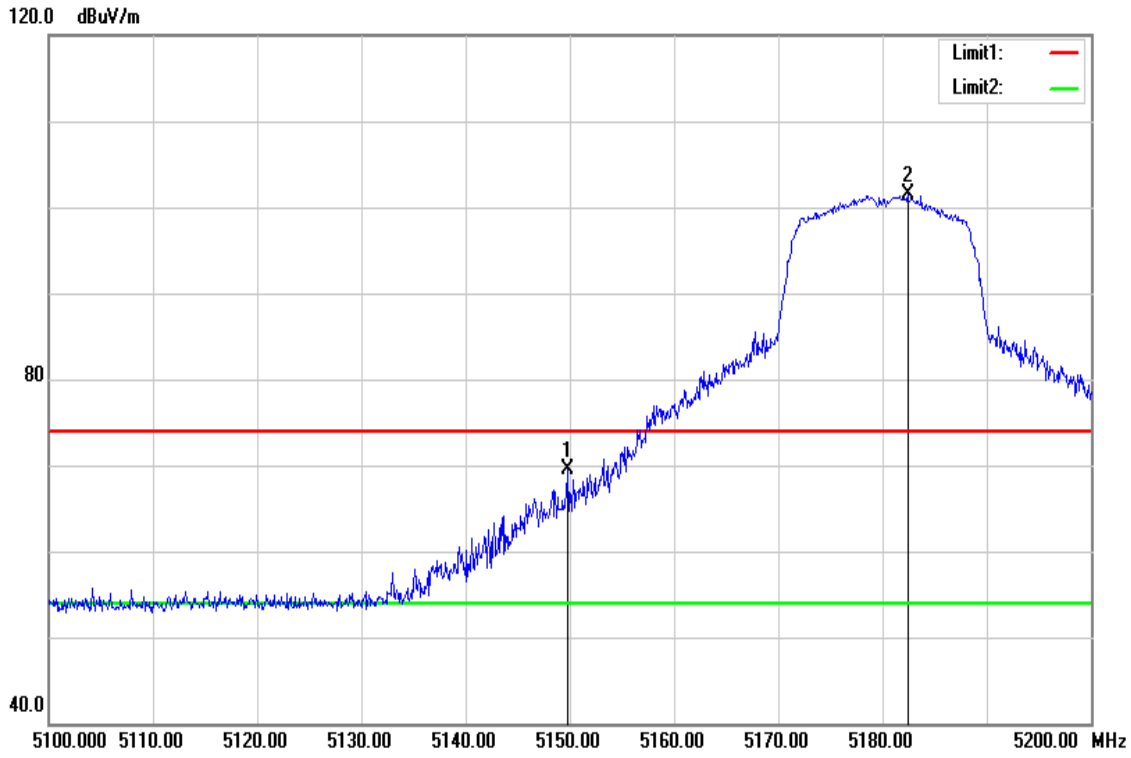
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5116.500	50.53	4.98	55.51	74.00	-18.49	peak
5241.600	98.55	5.28	103.83	-	-	peak
5391.600	50.74	5.65	56.39	74.00	-17.61	peak

Test Mode	IEEE 802.11a / 5240MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



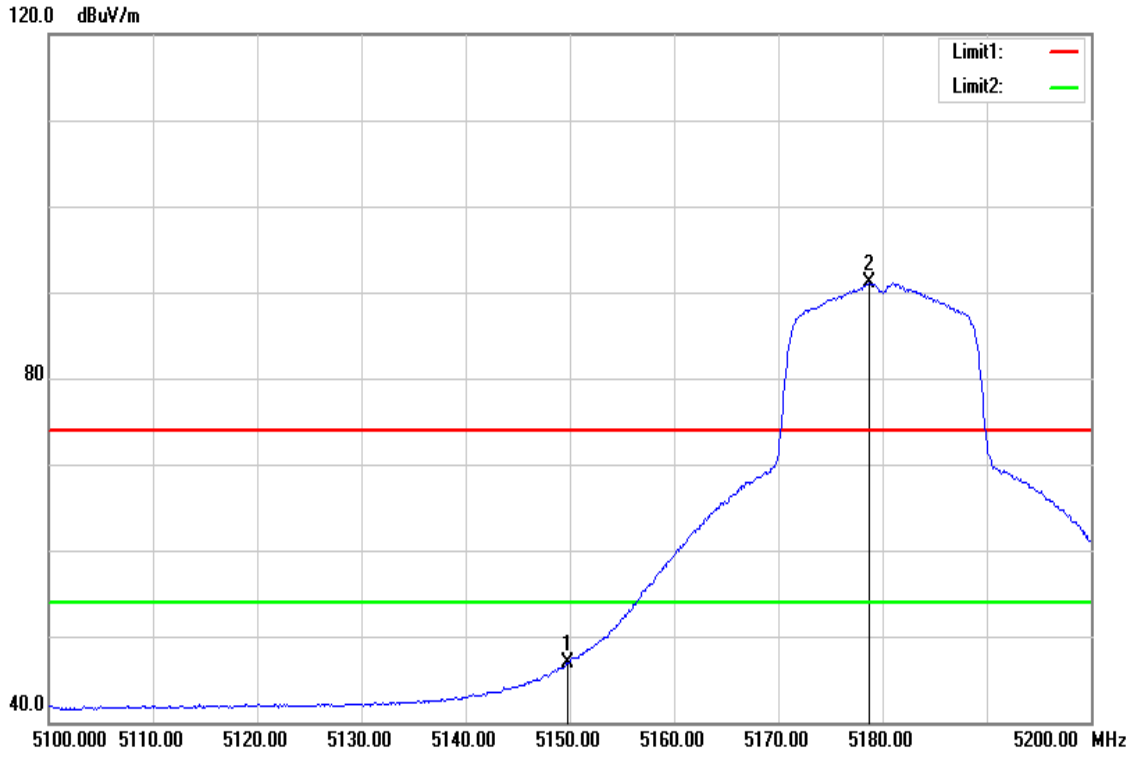
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	36.13	5.06	41.19	54.00	-12.81	AVG
5241.300	88.04	5.28	93.32	-	-	AVG
5350.000	36.47	5.56	42.03	54.00	-11.97	AVG

Test Mode	IEEE 802.11n HT20 / 5180MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



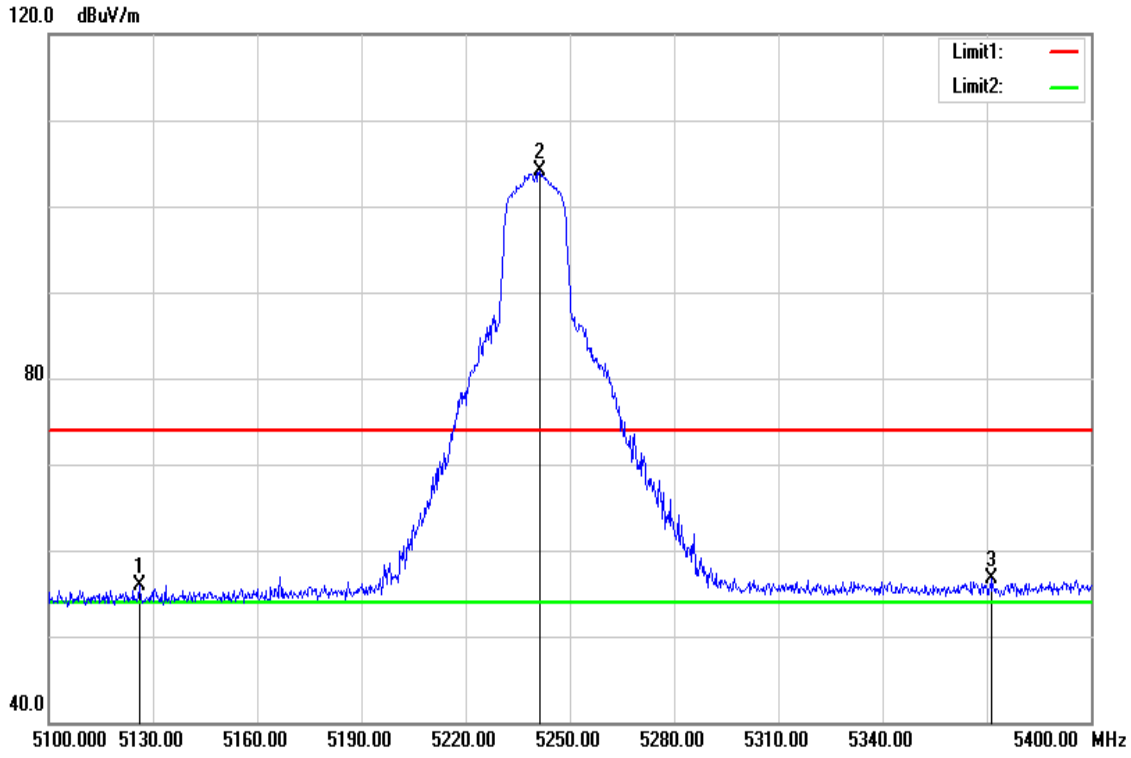
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.800	64.36	5.06	69.42	74.00	-4.58	peak
5182.400	96.44	5.14	101.58	-	-	peak

Test Mode	IEEE 802.11n HT20 / 5180MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



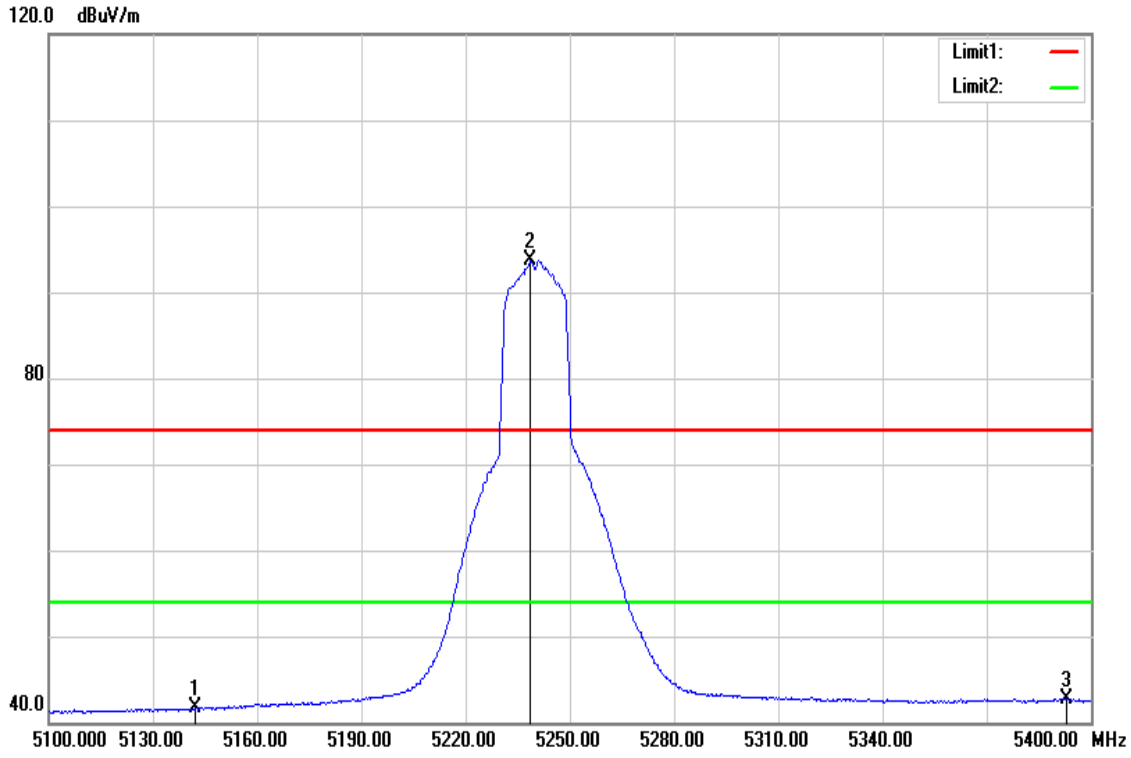
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.800	41.92	5.06	46.98	54.00	-7.02	AVG
5178.700	85.94	5.14	91.08	-	-	AVG

Test Mode	IEEE 802.11n HT20 / 5240MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



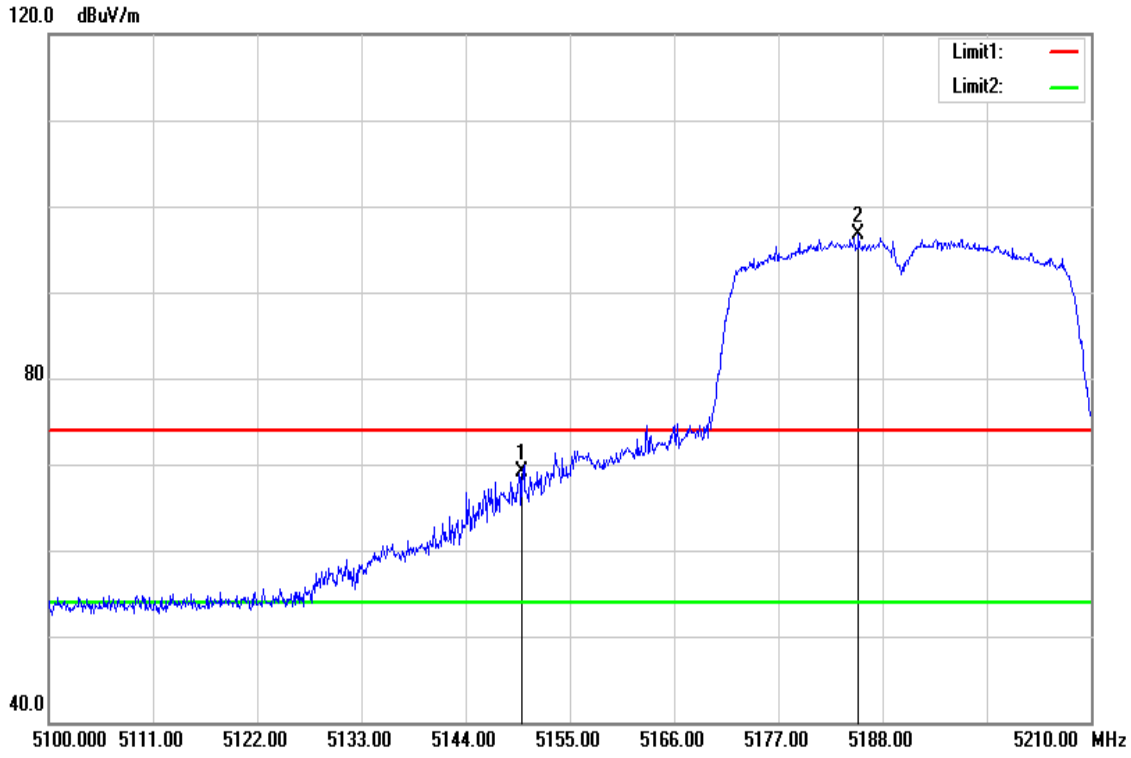
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5126.100	50.90	5.01	55.91	74.00	-18.09	peak
5241.300	98.86	5.28	104.14	-	-	peak
5371.500	51.16	5.61	56.77	74.00	-17.23	peak

Test Mode	IEEE 802.11n HT20 / 5240MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



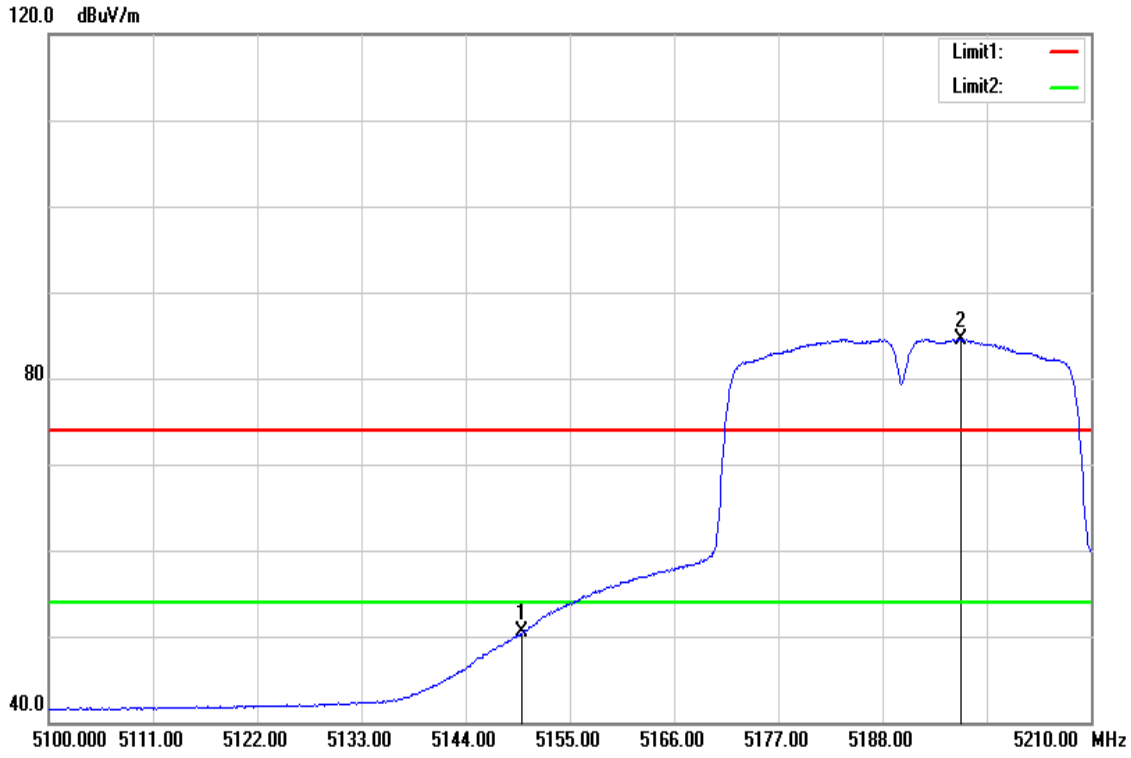
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5142.300	36.69	5.05	41.74	54.00	-12.26	AVG
5238.600	88.35	5.28	93.63	-	-	AVG
5392.800	37.07	5.67	42.74	54.00	-11.26	AVG

Test Mode	IEEE 802.11n HT40 / 5190MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



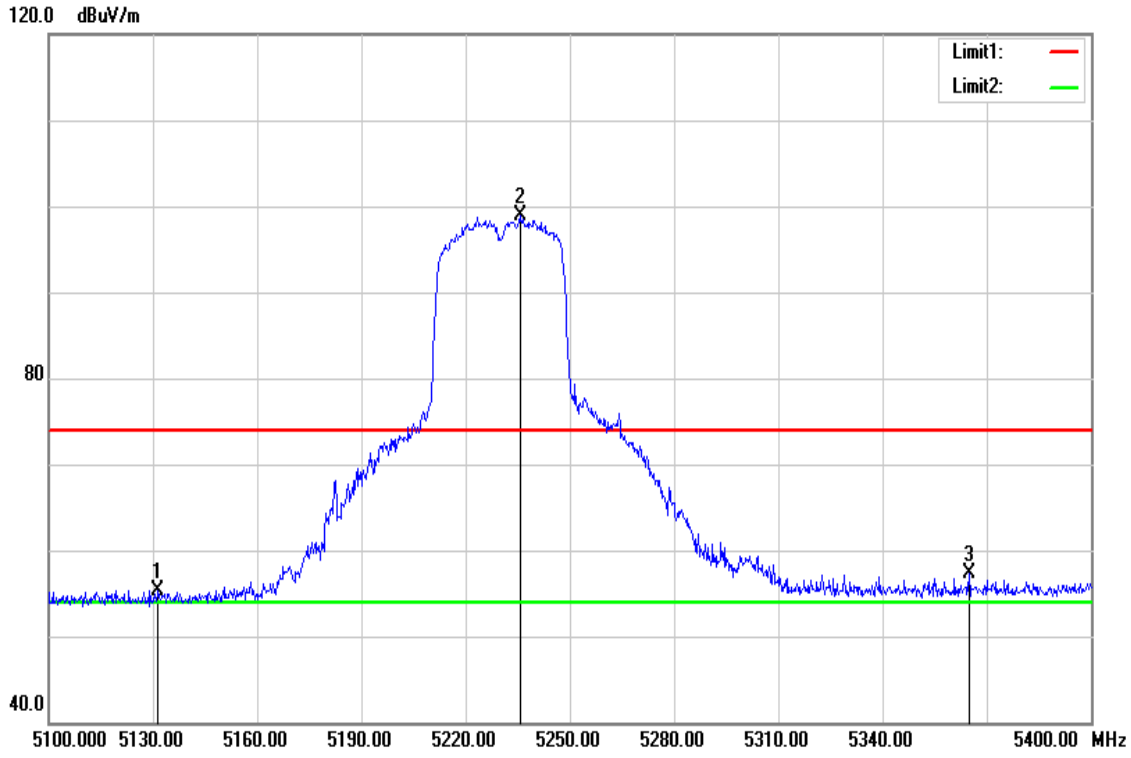
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	63.97	5.06	69.03	74.00	-4.97	peak
5185.470	91.60	5.15	96.75	-	-	peak

Test Mode	IEEE 802.11n HT40 / 5190MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



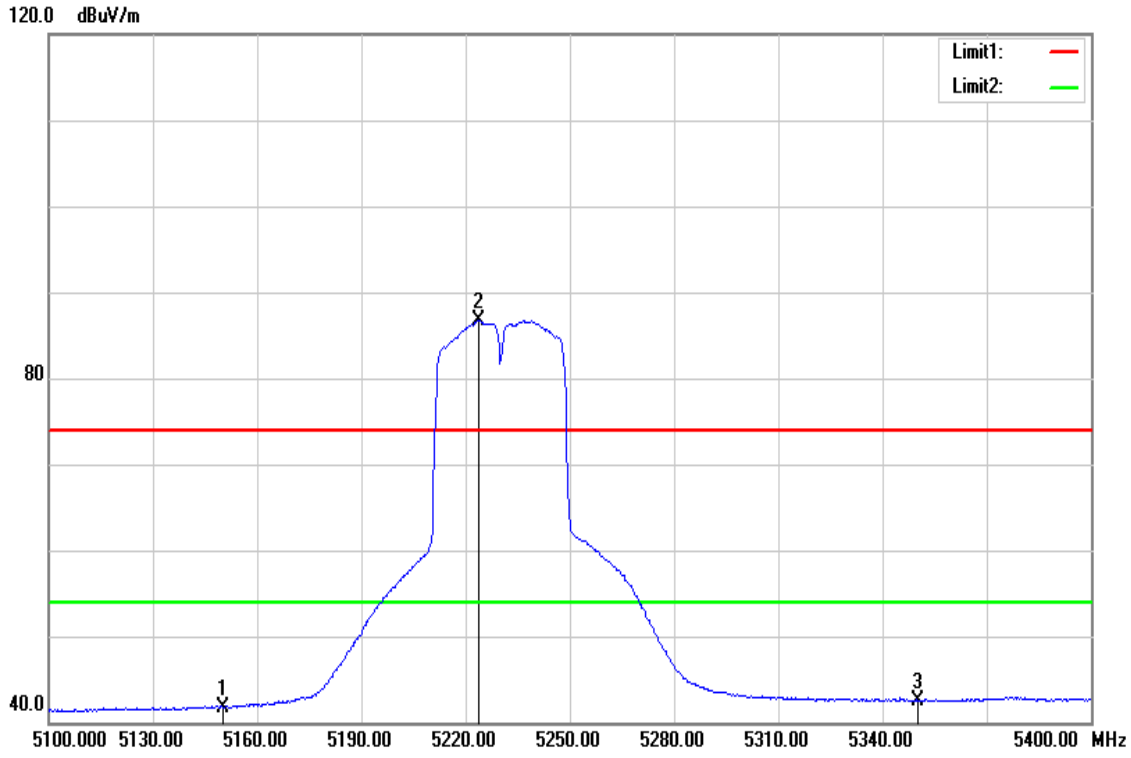
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	45.45	5.06	50.51	54.00	-3.49	AVG
5196.250	79.38	5.18	84.56	-	-	AVG

Test Mode	IEEE 802.11n HT40 / 5230MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5131.500	50.35	5.02	55.37	74.00	-18.63	peak
5235.600	93.57	5.28	98.85	-	-	peak
5364.900	51.77	5.59	57.36	74.00	-16.64	peak

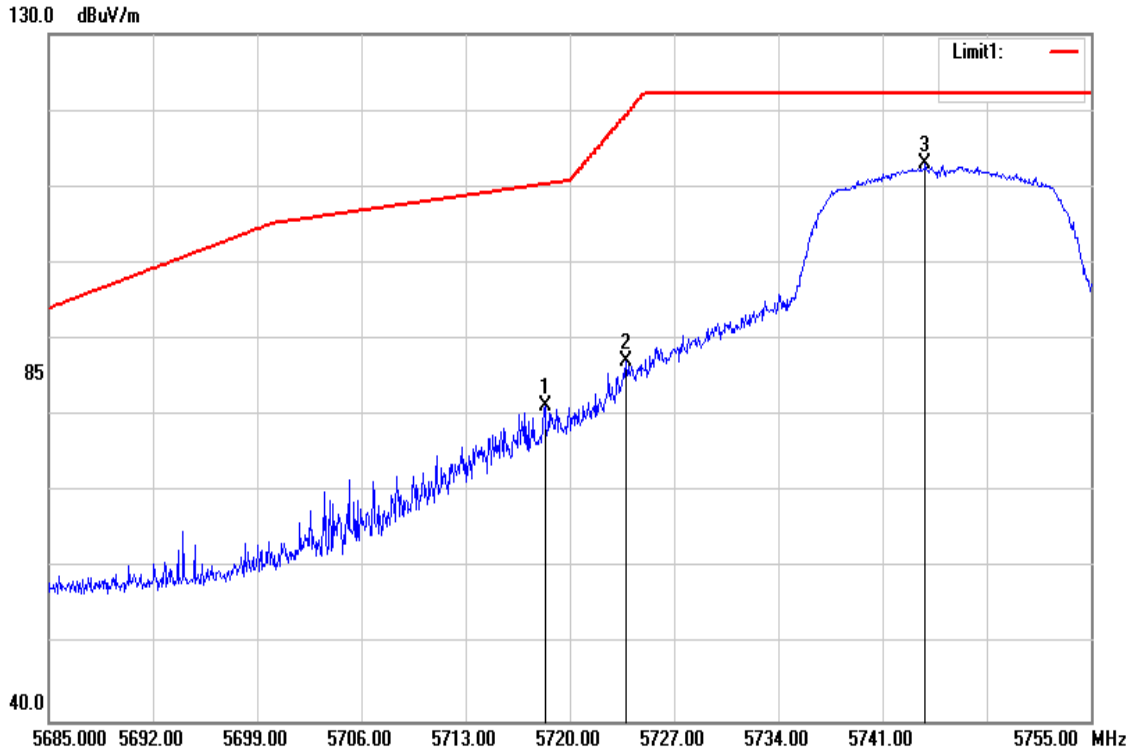
Test Mode	IEEE 802.11n HT40 / 5230MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	July 21, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	36.71	5.06	41.77	54.00	-12.23	AVG
5223.600	81.45	5.24	86.69	-	-	AVG
5350.000	36.94	5.56	42.50	54.00	-11.50	AVG

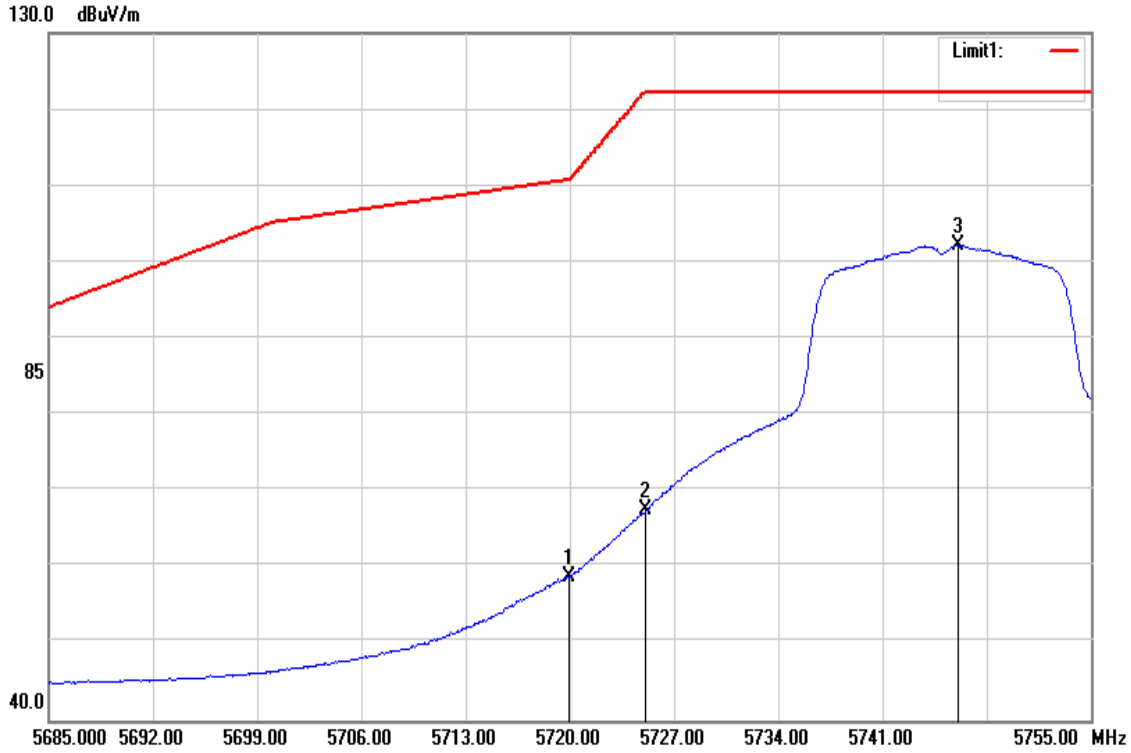
Band Edge Test Data for UNII-3

Test Mode	IEEE 802.11a / 5745 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



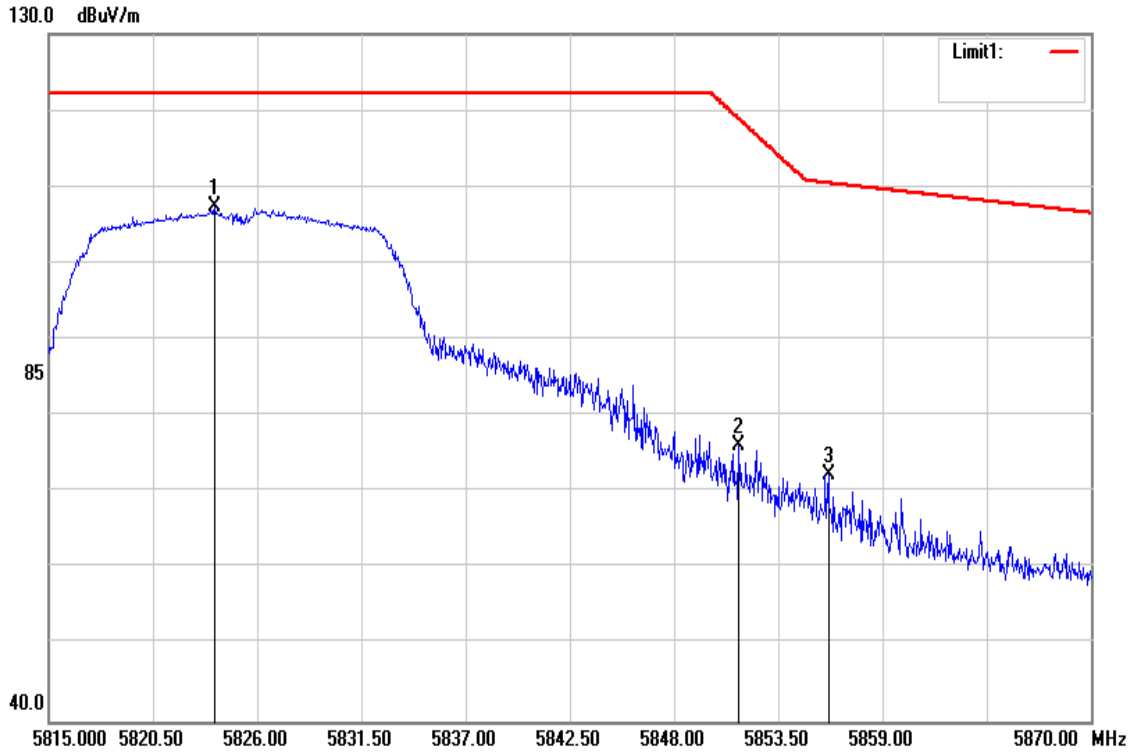
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5718.320	74.67	6.61	81.28	110.33	-29.05	peak
5723.780	80.42	6.61	87.03	119.42	-32.39	peak
5743.870	106.29	6.68	112.97	-	-	peak

Test Mode	IEEE 802.11a / 5745 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



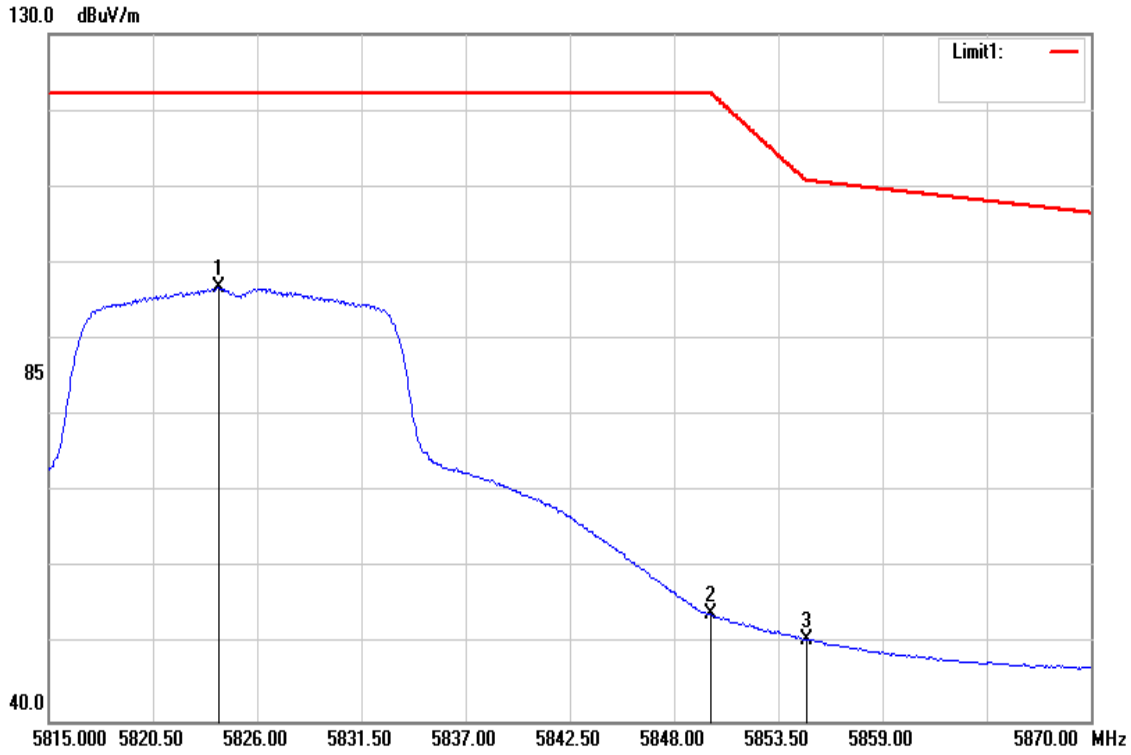
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.930	52.27	6.61	58.88	110.78	-51.90	AVG
5725.110	60.83	6.62	67.45	122.20	-54.75	AVG
5746.040	95.50	6.67	102.17	-	-	AVG

Test Mode	IEEE 802.11a / 5825 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



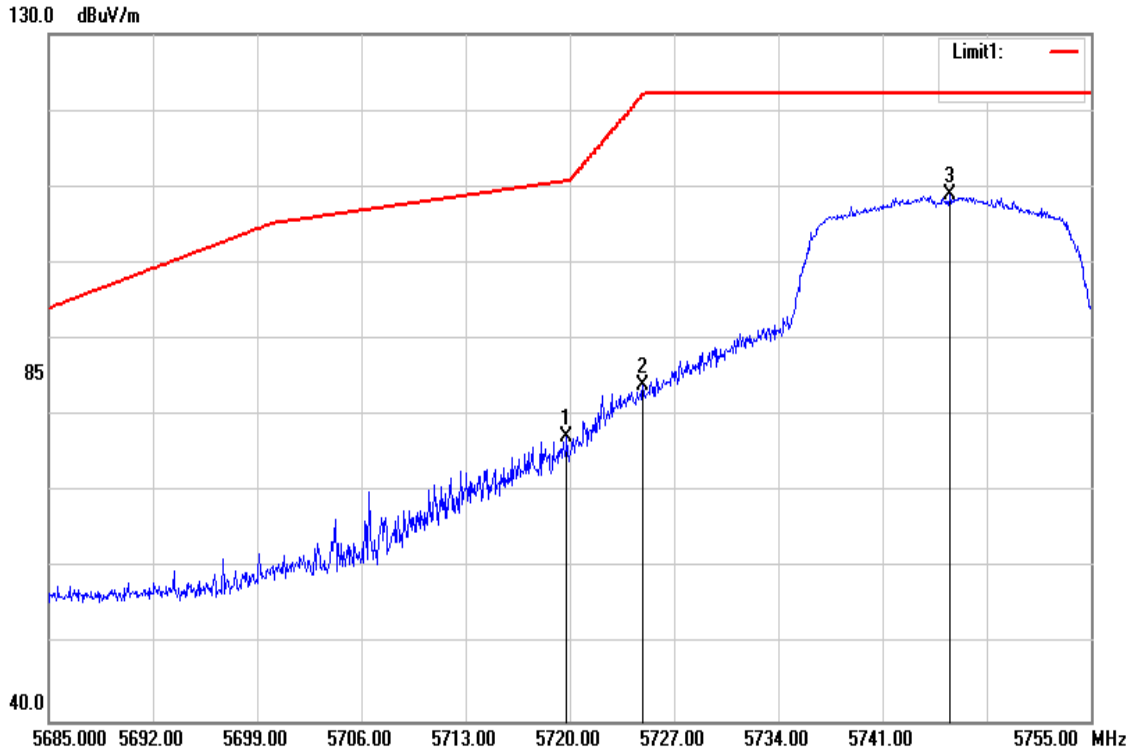
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5823.745	100.48	6.89	107.37	-	-	peak
5851.410	69.08	6.95	76.03	118.99	-42.96	peak
5856.140	65.37	6.97	72.34	110.48	-38.14	peak

Test Mode	IEEE 802.11a / 5825 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



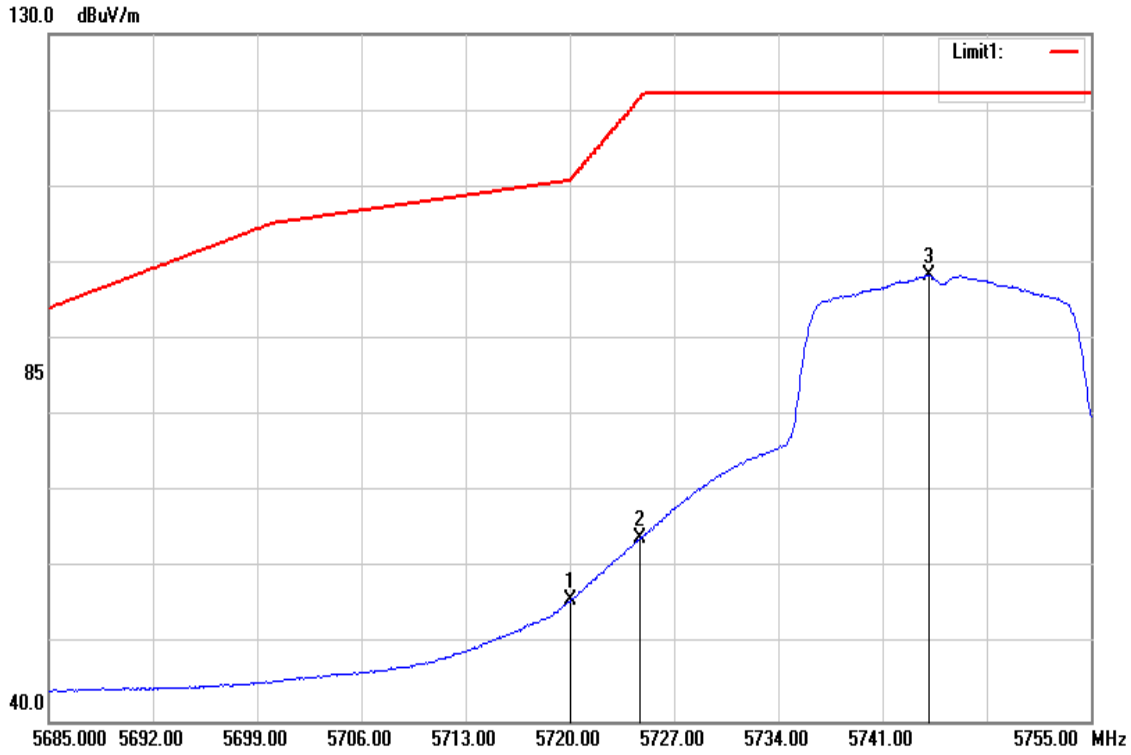
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5823.965	89.91	6.89	96.80	-	-	AVG
5849.925	47.03	6.96	53.99	122.20	-68.21	AVG
5854.985	43.83	6.97	50.80	110.83	-60.03	AVG

Test Mode	IEEE 802.11n HT20 / 5745 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



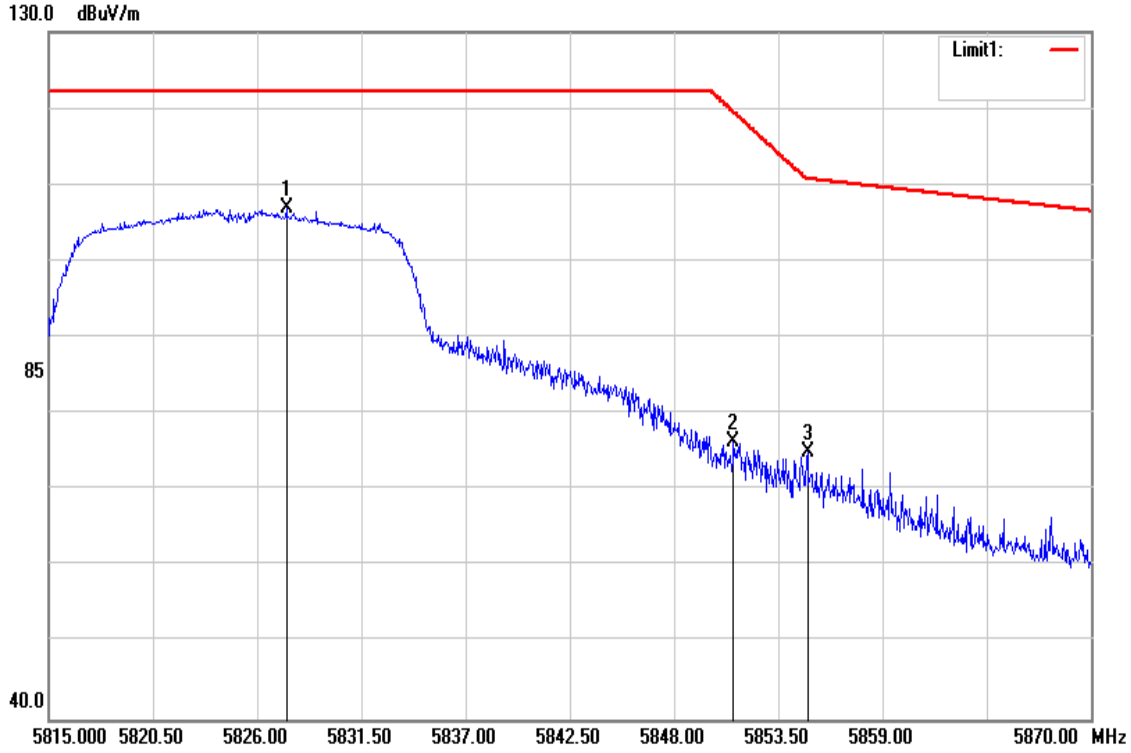
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.790	70.59	6.61	77.20	110.74	-33.54	peak
5724.900	77.47	6.62	84.09	121.97	-37.88	peak
5745.550	102.21	6.67	108.88	-	-	peak

Test Mode	IEEE 802.11n HT20 / 5745 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



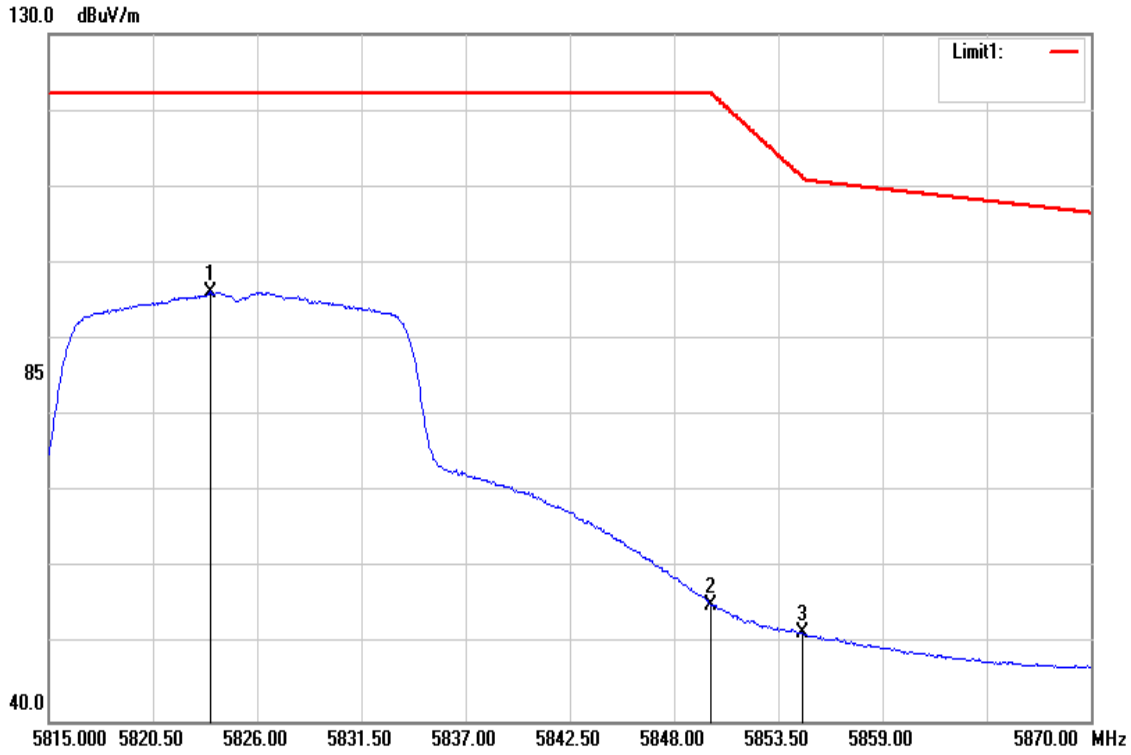
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5720.070	49.25	6.61	55.86	110.96	-55.10	AVG
5724.690	57.30	6.62	63.92	121.49	-57.57	AVG
5744.080	91.77	6.67	98.44	-	-	AVG

Test Mode	IEEE 802.11n HT20 / 5825 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



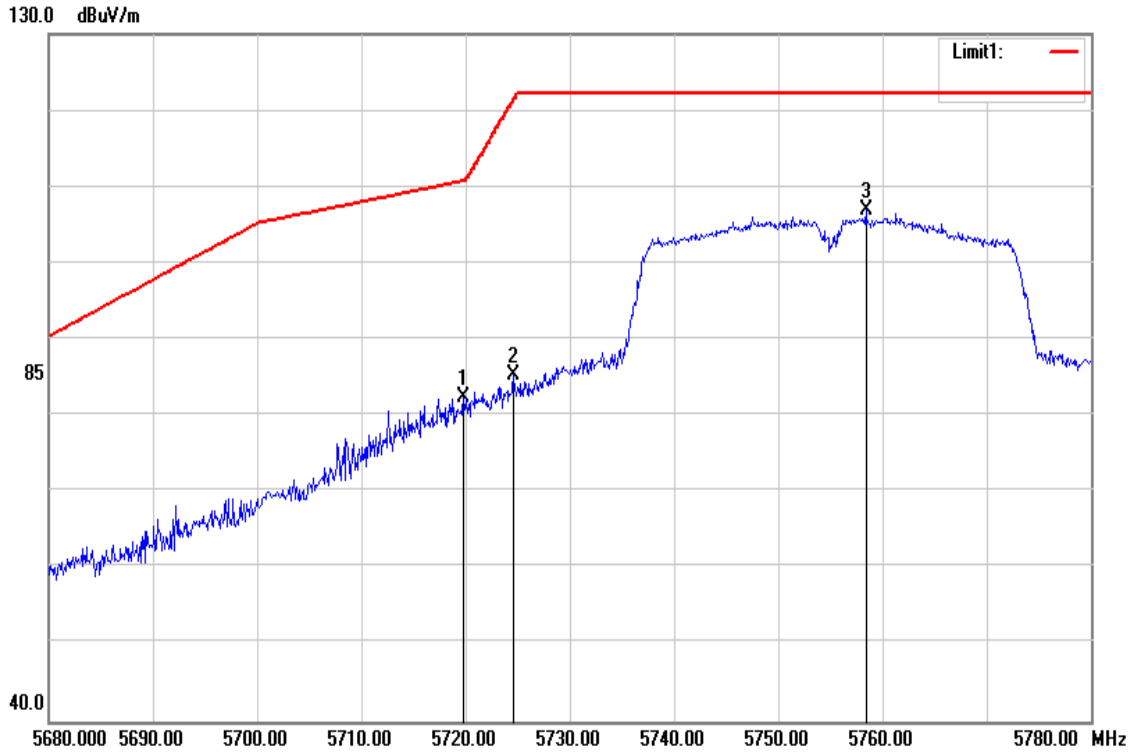
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5827.540	100.11	6.89	107.00	-	-	peak
5851.135	69.31	6.96	76.27	119.61	-43.34	peak
5855.040	68.11	6.97	75.08	110.79	-35.71	peak

Test Mode	IEEE 802.11n HT20 / 5825 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



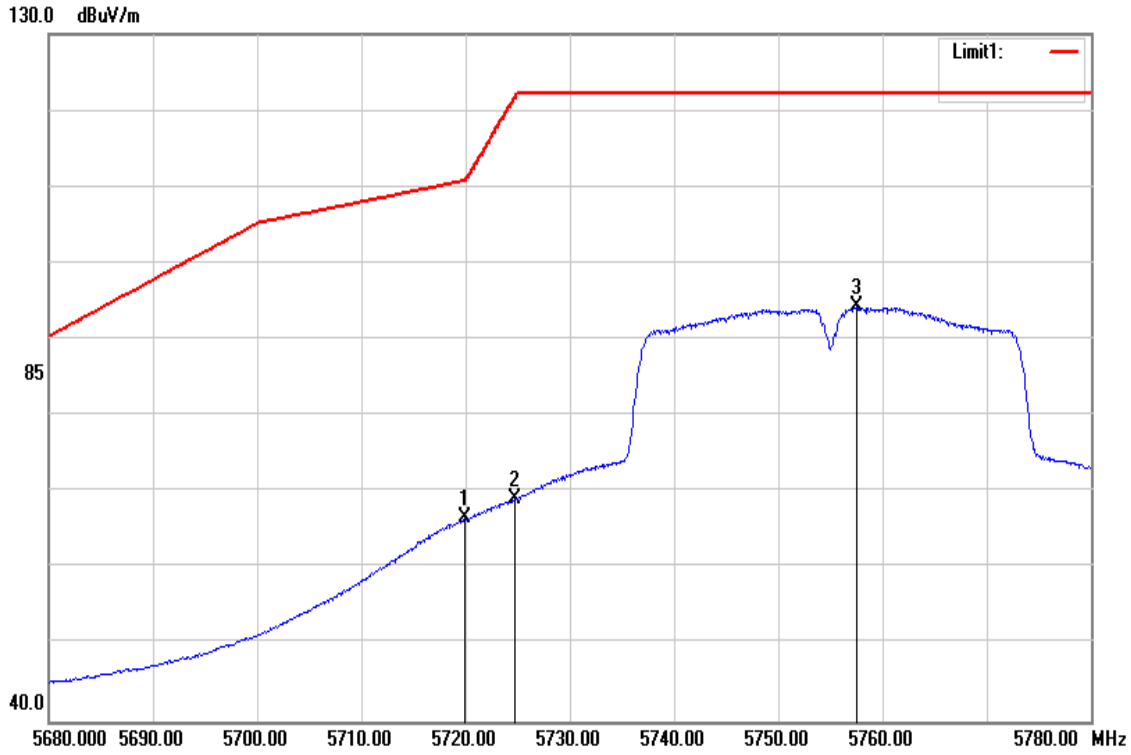
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5823.525	89.36	6.89	96.25	-	-	AVG
5849.925	48.33	6.96	55.29	122.20	-66.91	AVG
5854.765	44.53	6.97	51.50	111.34	-59.84	AVG

Test Mode	IEEE 802.11n HT40/ 5755 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



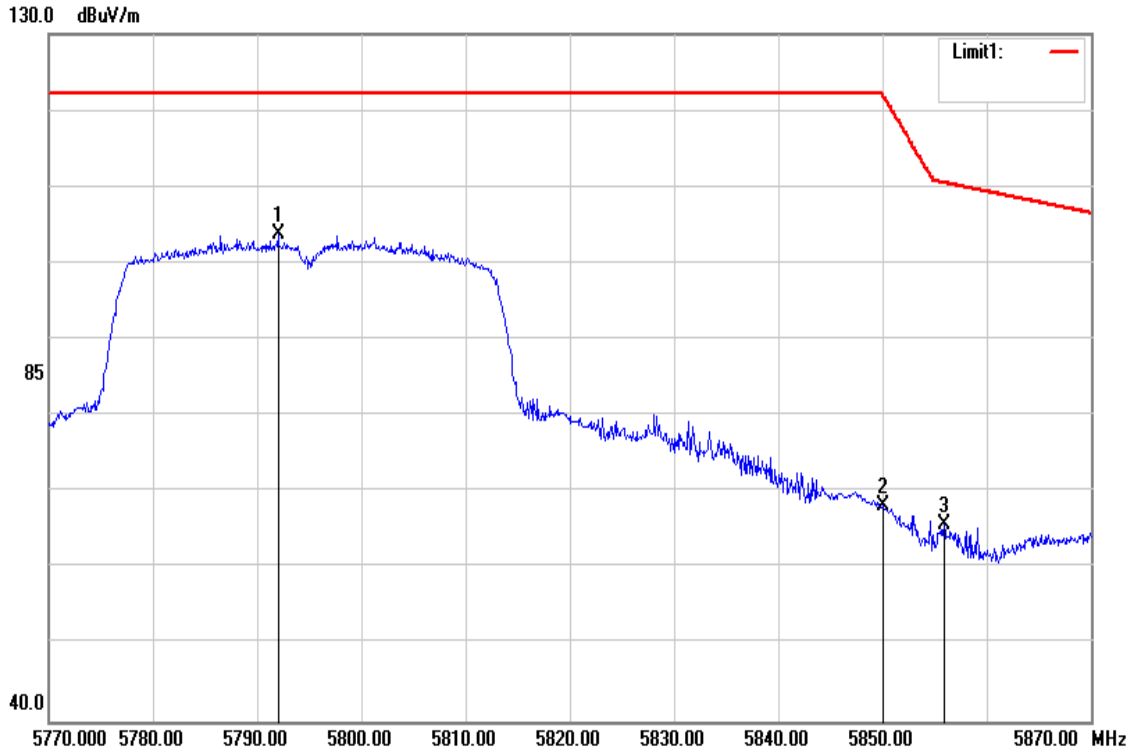
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.800	75.81	6.61	82.42	110.74	-28.32	peak
5724.600	78.82	6.62	85.44	121.29	-35.85	peak
5758.400	100.27	6.71	106.98	-	-	peak

Test Mode	IEEE 802.11n HT40/ 5755 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



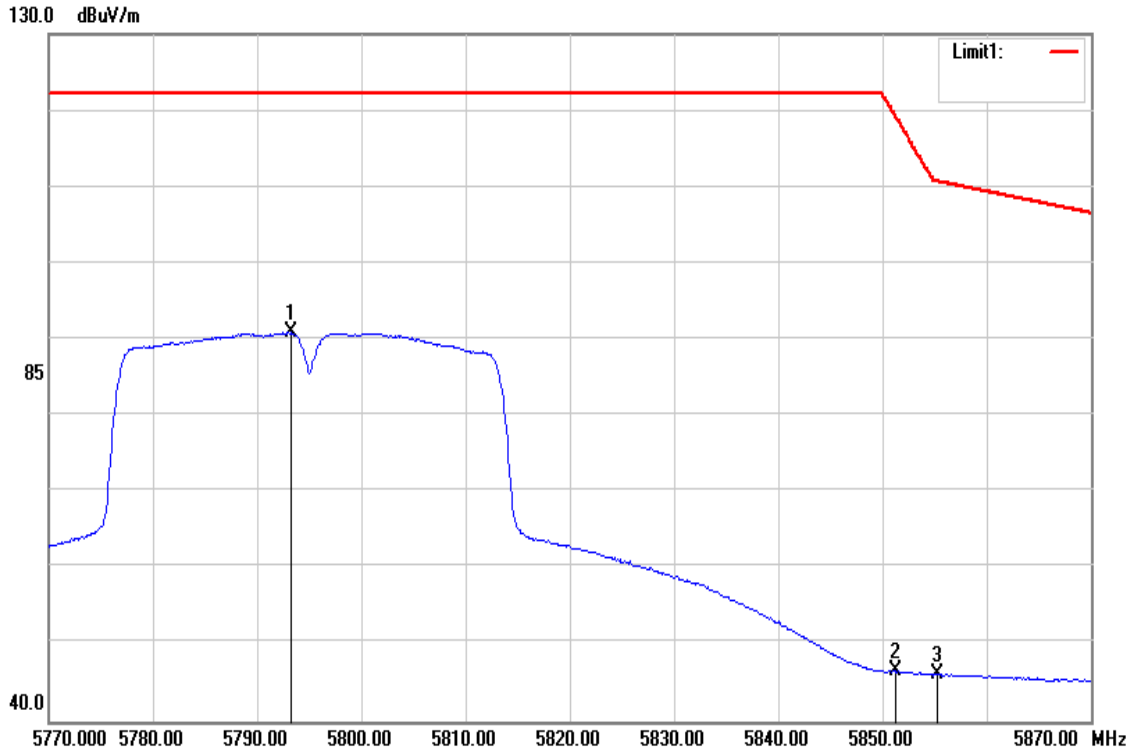
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.900	59.97	6.61	66.58	110.77	-44.19	AVG
5724.700	62.46	6.62	69.08	121.52	-52.44	AVG
5757.500	87.58	6.70	94.28	-	-	AVG

Test Mode	IEEE 802.11n HT40/ 5795 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5792.000	96.94	6.79	103.73	-	-	peak
5850.100	61.28	6.96	68.24	121.97	-53.73	peak
5855.900	58.87	6.97	65.84	110.55	-44.71	peak

Test Mode	IEEE 802.11n HT40/ 5795 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		

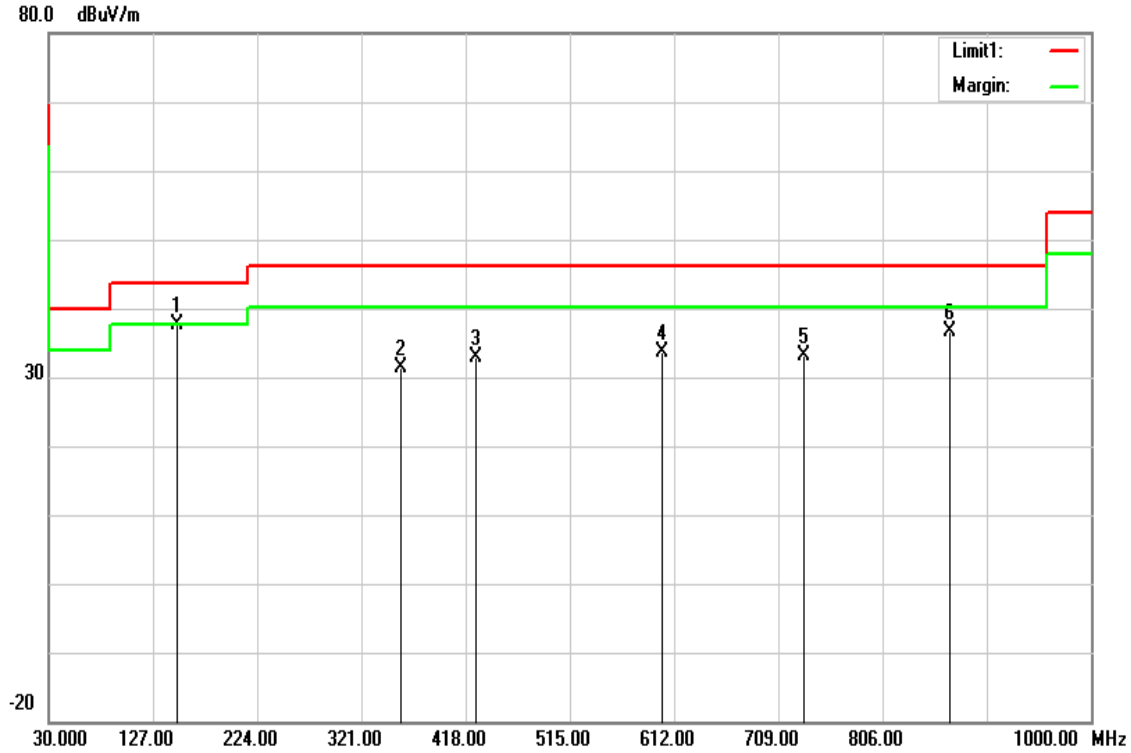


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5793.200	84.14	6.80	90.94	-	-	AVG
5851.200	39.70	6.95	46.65	119.46	-72.81	AVG
5855.300	39.23	6.97	46.20	110.72	-64.52	AVG

Report No.: T180614D03-RP3

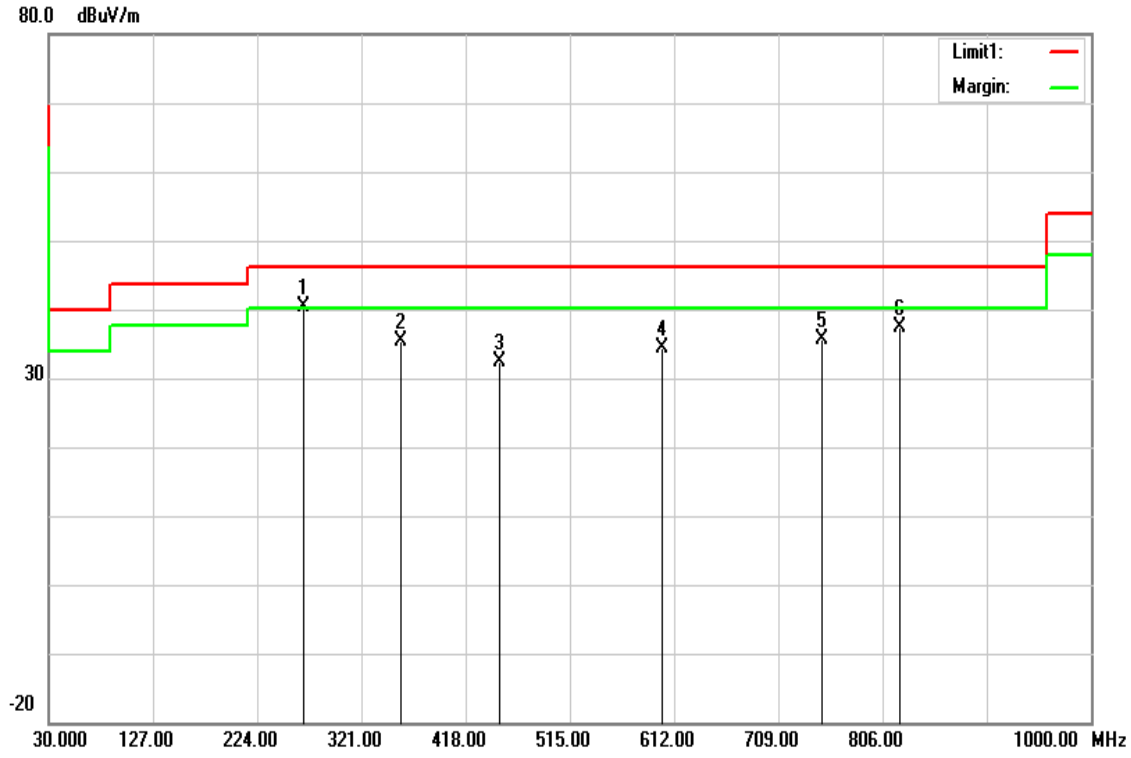
Below 1G Test Data

Test Mode	IEEE 802.11n HT40/ 5230 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	30MHz-1GHz	Test Date	July 21, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Quasi-peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
149.3100	47.55	-9.84	37.71	43.52	-5.81	peak
357.8600	37.93	-6.55	31.38	46.02	-14.64	peak
427.7000	37.41	-4.41	33.00	46.02	-13.02	peak
600.3600	34.71	-1.12	33.59	46.02	-12.43	peak
733.2500	31.58	1.47	33.05	46.02	-12.97	peak
868.0800	32.91	3.76	36.67	46.02	-9.35	peak

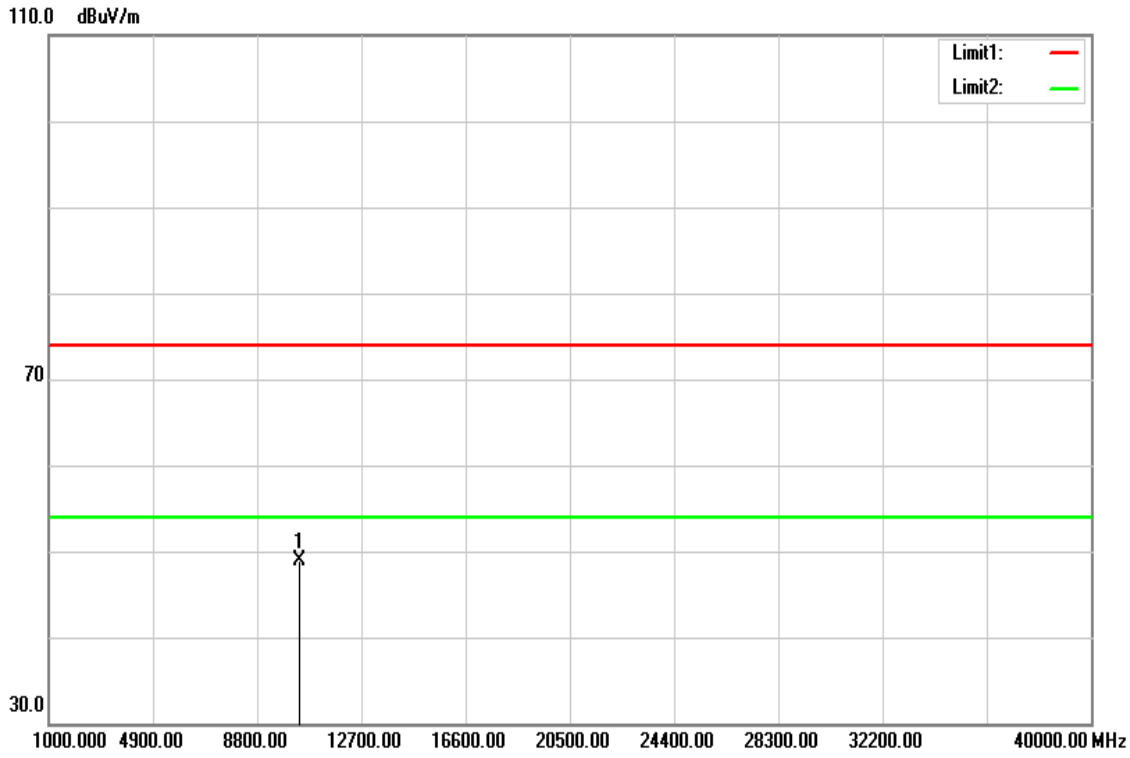
Test Mode	IEEE 802.11n HT40/ 5230 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	30MHz-1GHz	Test Date	July 21, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Quasi-peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
266.6800	49.40	-9.07	40.33	46.02	-5.69	QP
357.8600	41.95	-6.55	35.40	46.02	-10.62	peak
449.0400	36.06	-3.72	32.34	46.02	-13.68	peak
600.3600	35.49	-1.12	34.37	46.02	-11.65	peak
749.7400	34.01	1.71	35.72	46.02	-10.30	peak
822.4900	34.39	3.00	37.39	46.02	-8.63	peak

Above 1G Test Data for UNII-1

Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

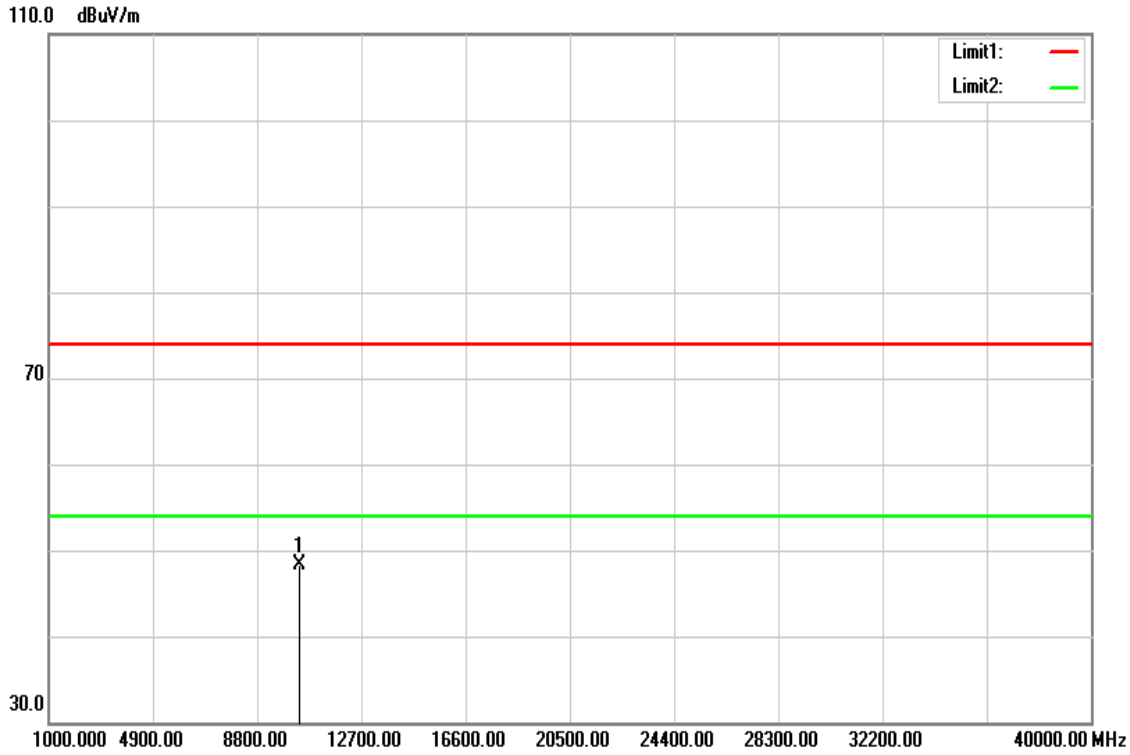


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	34.46	14.45	48.91	74.00	-25.09	peak
N/A						

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 / 5180MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

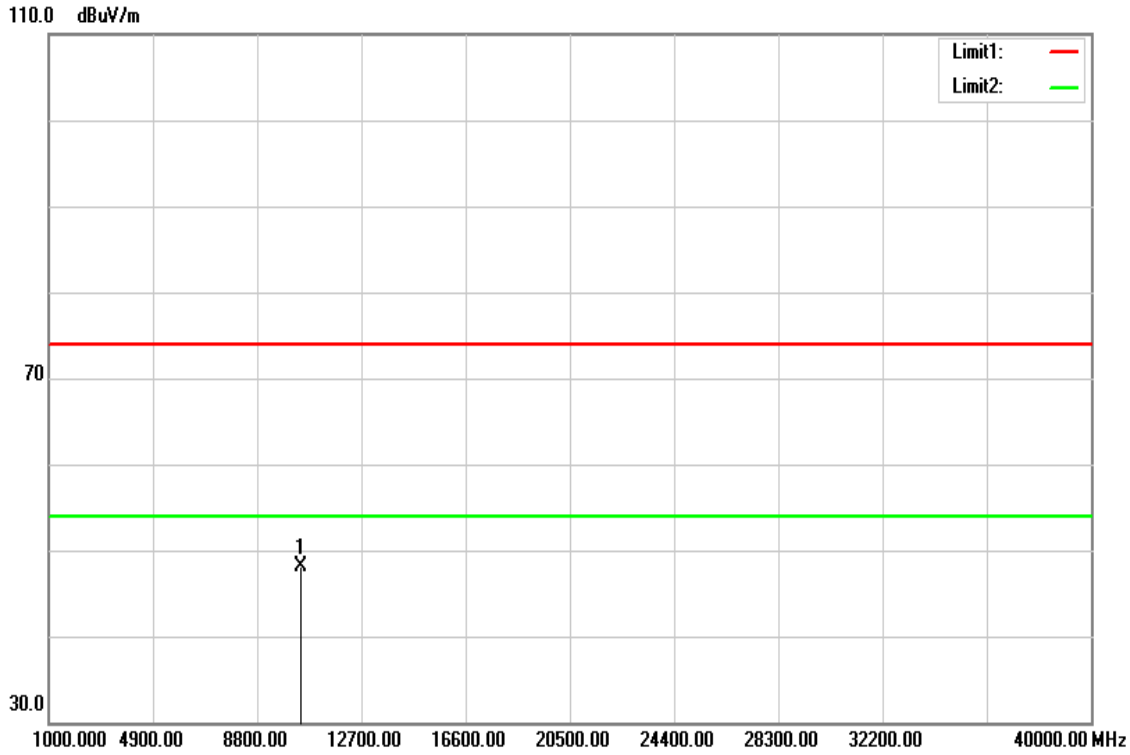


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	33.95	14.45	48.40	74.00	-25.60	peak

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 / 5220 MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Horizontal	Test Date	July 23, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

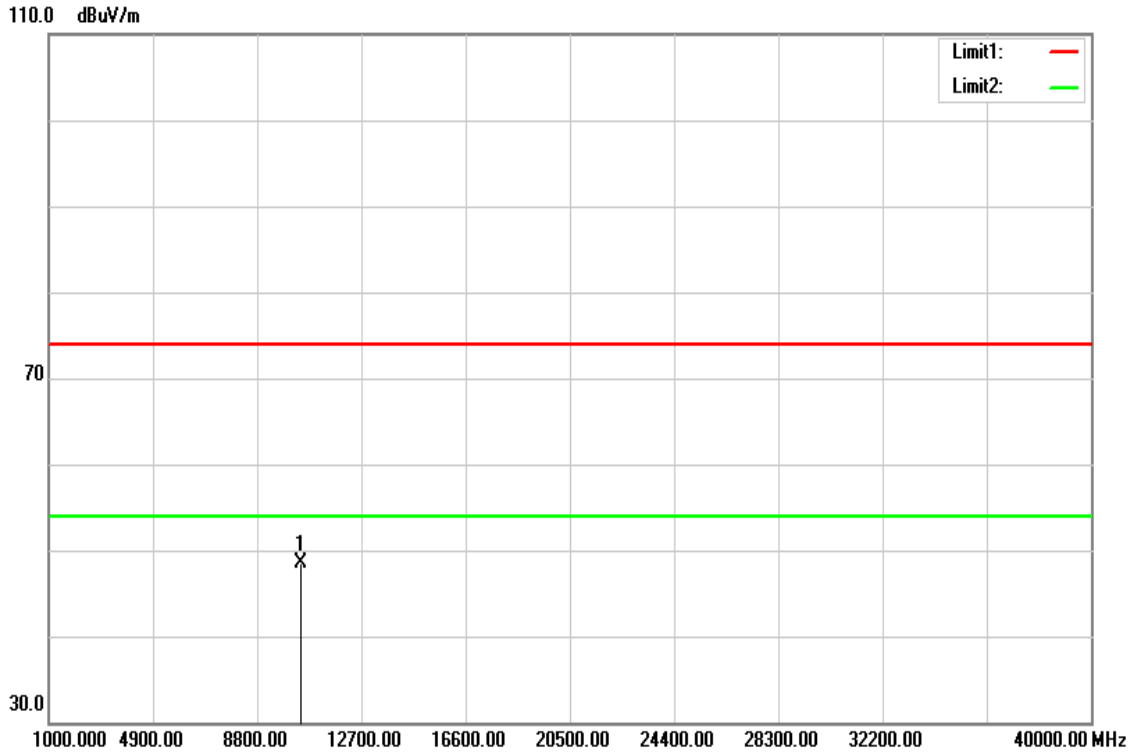


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	33.30	14.71	48.01	74.00	-25.99	peak
N/A						

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 / 5220 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

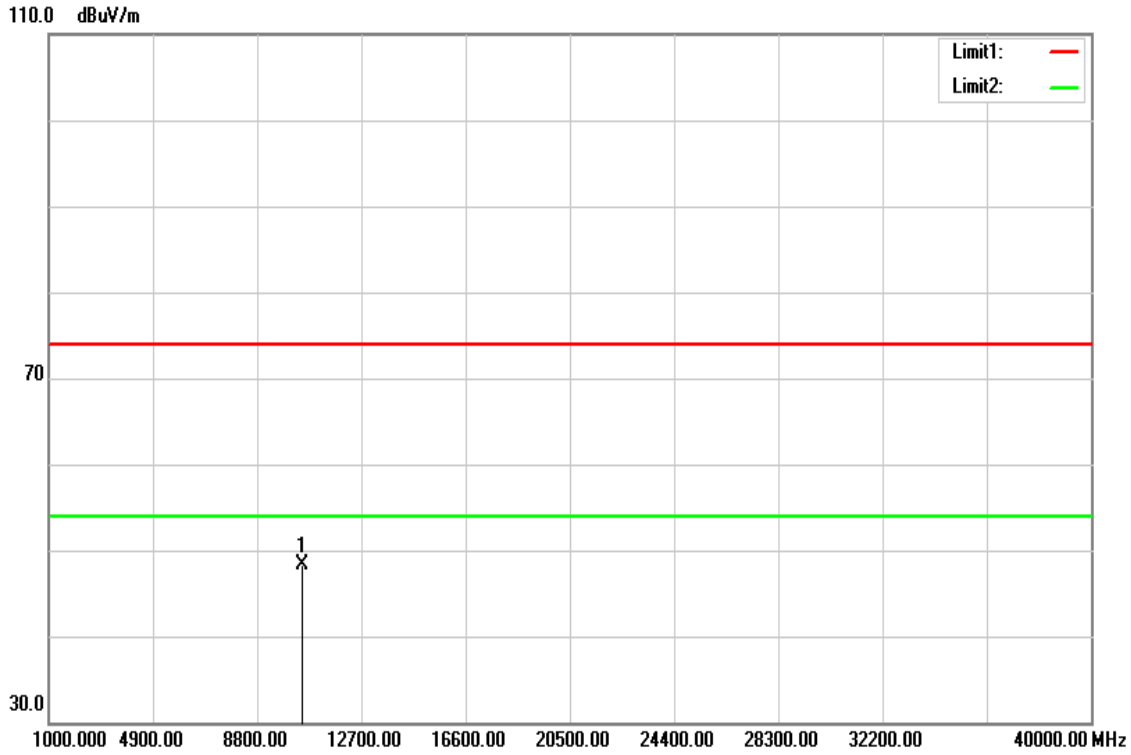


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	33.76	14.71	48.47	74.00	-25.53	peak
N/A						

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 / 5240MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

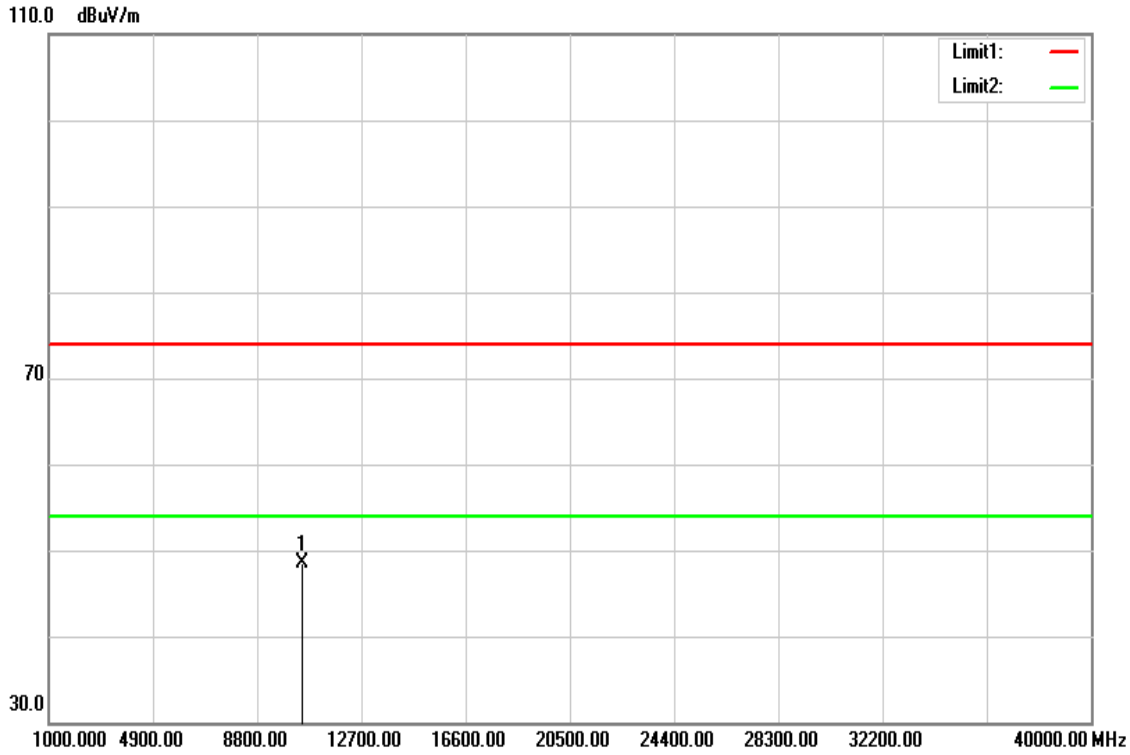


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	33.44	14.84	48.28	74.00	-25.72	peak
N/A						

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 / 5240MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

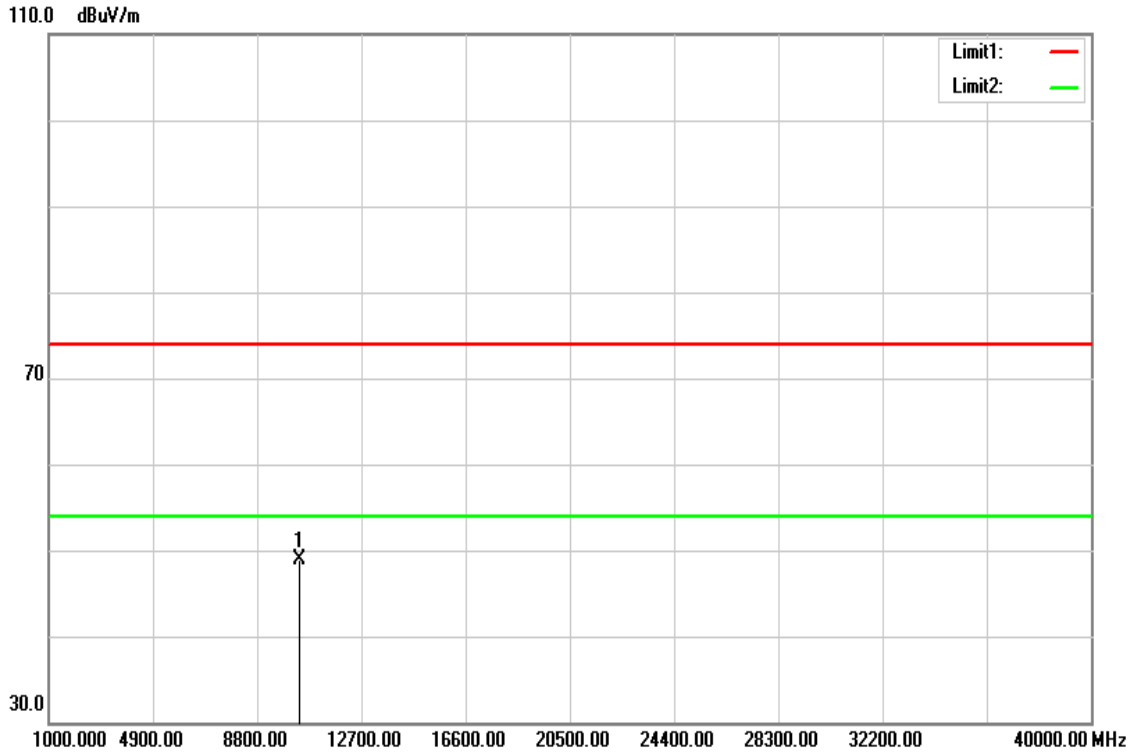


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	33.67	14.84	48.51	74.00	-25.49	peak
N/A						

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 / 5180MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

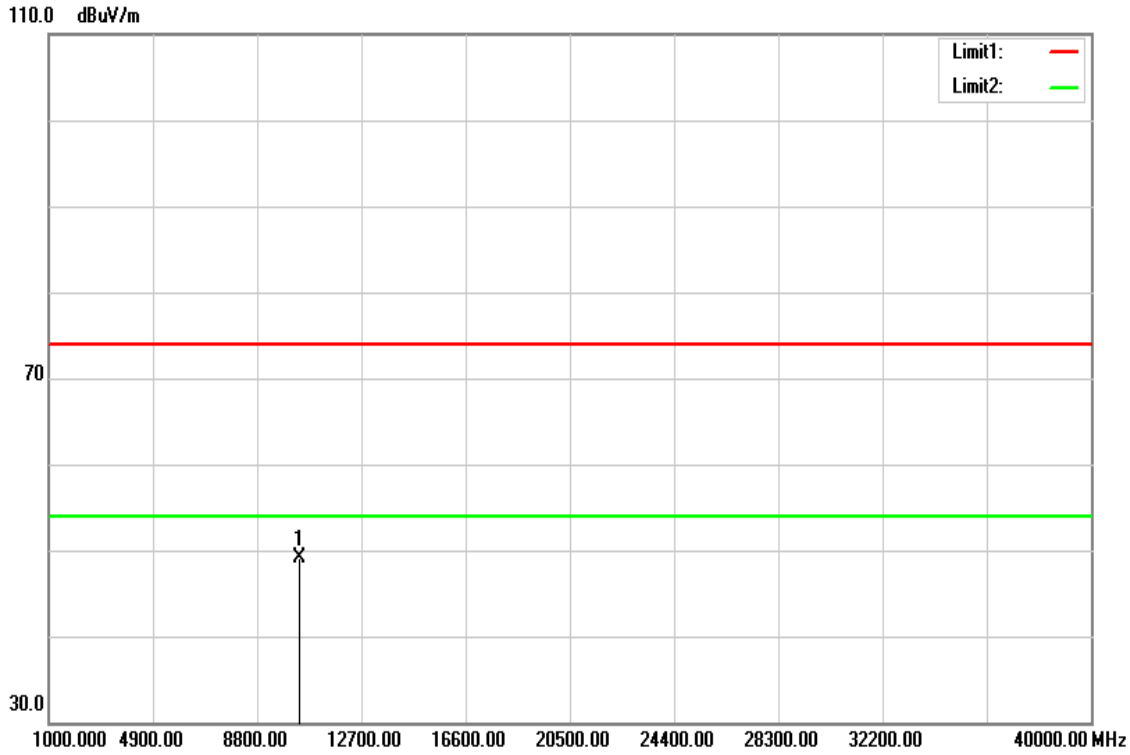


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	34.53	14.45	48.98	74.00	-25.02	peak
N/A						

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/ 5180MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

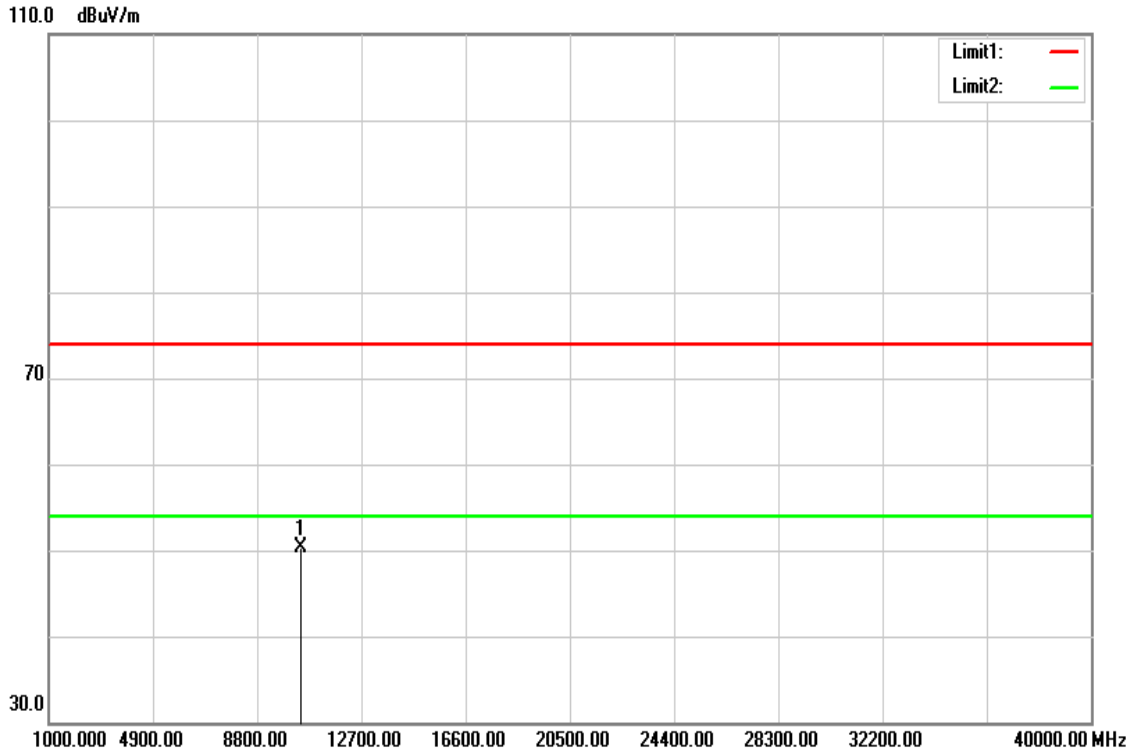


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	34.66	14.45	49.11	74.00	-24.89	peak
N/A						

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 / 5220MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

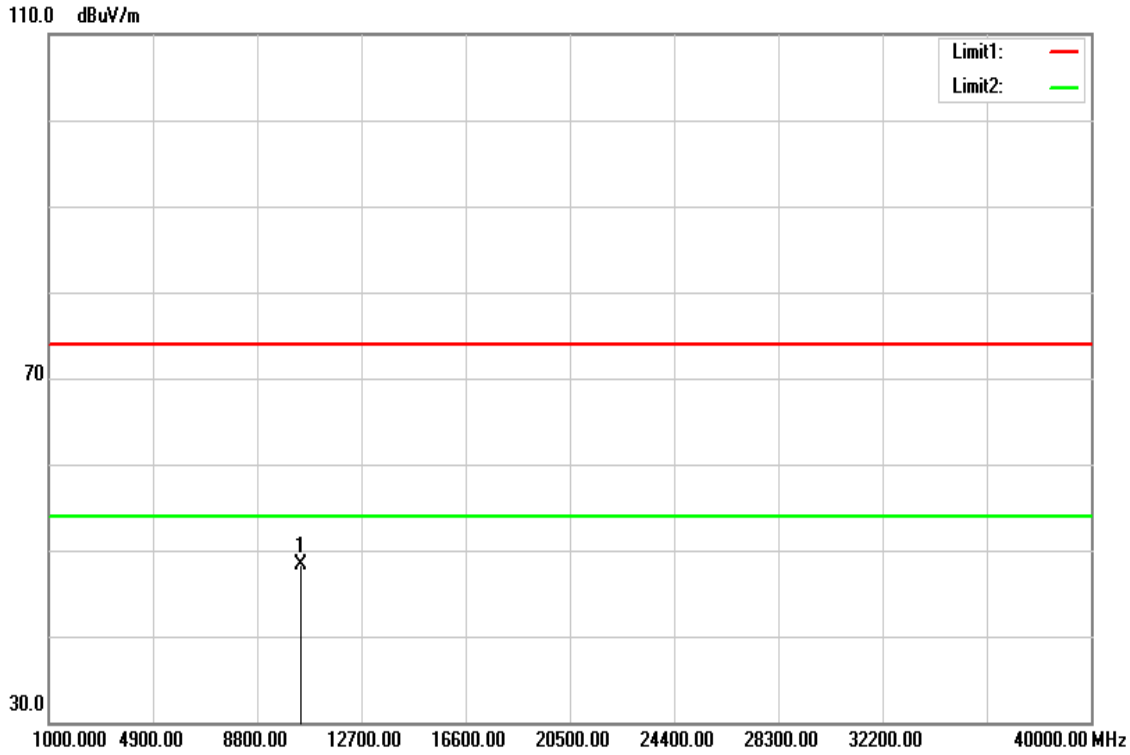


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	35.63	14.71	50.34	74.00	-23.66	peak
N/A						

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 802.11n HT20 / 5220MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

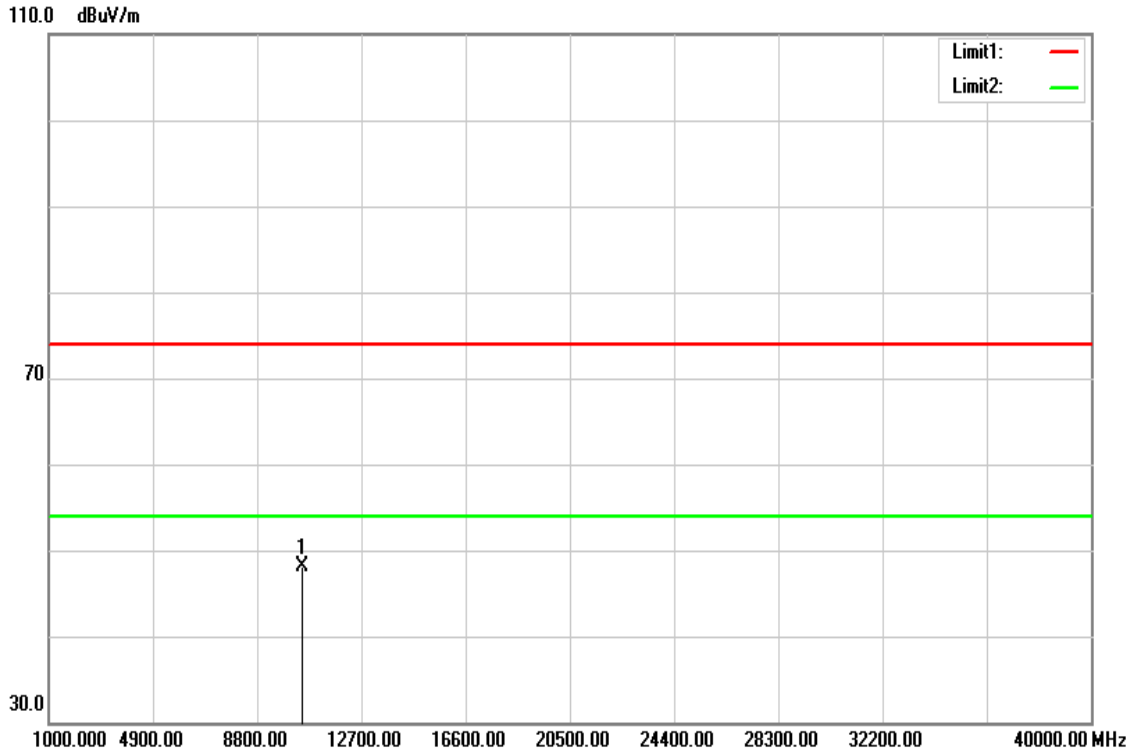


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	33.57	14.71	48.28	74.00	-25.72	peak
N/A						

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 802.11n HT20 / 5240MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

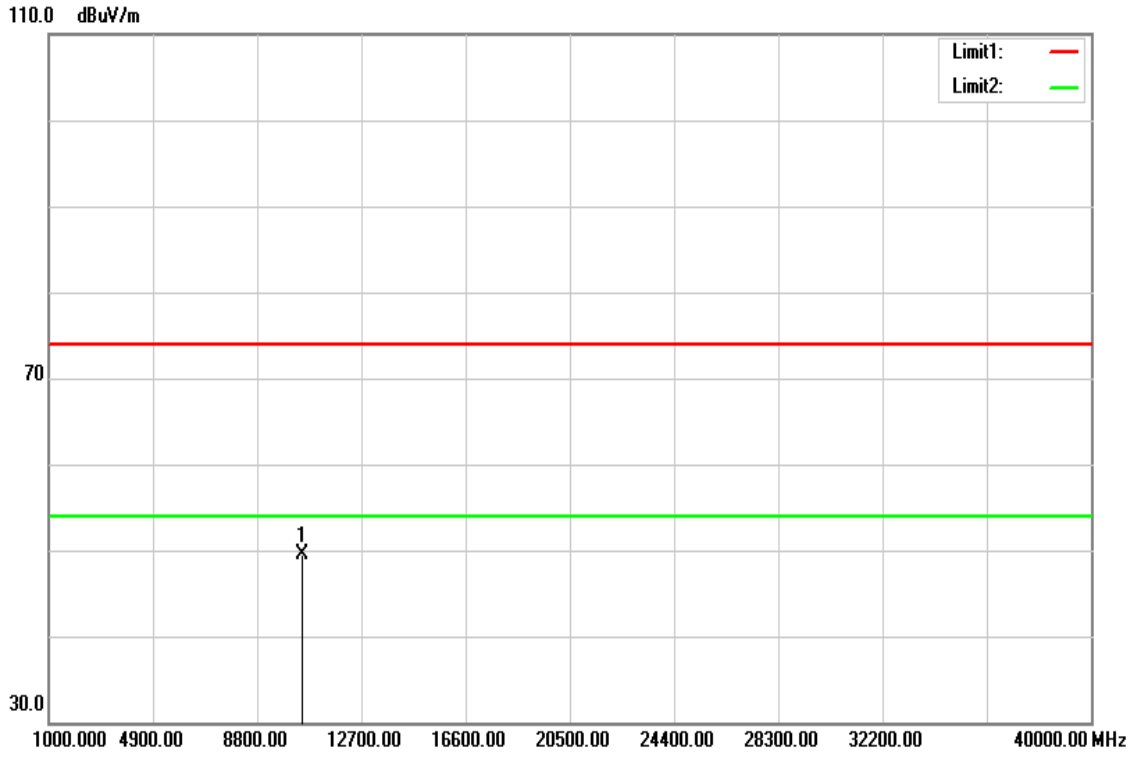


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	33.32	14.84	48.16	74.00	-25.84	peak
N/A						

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 / 5240MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

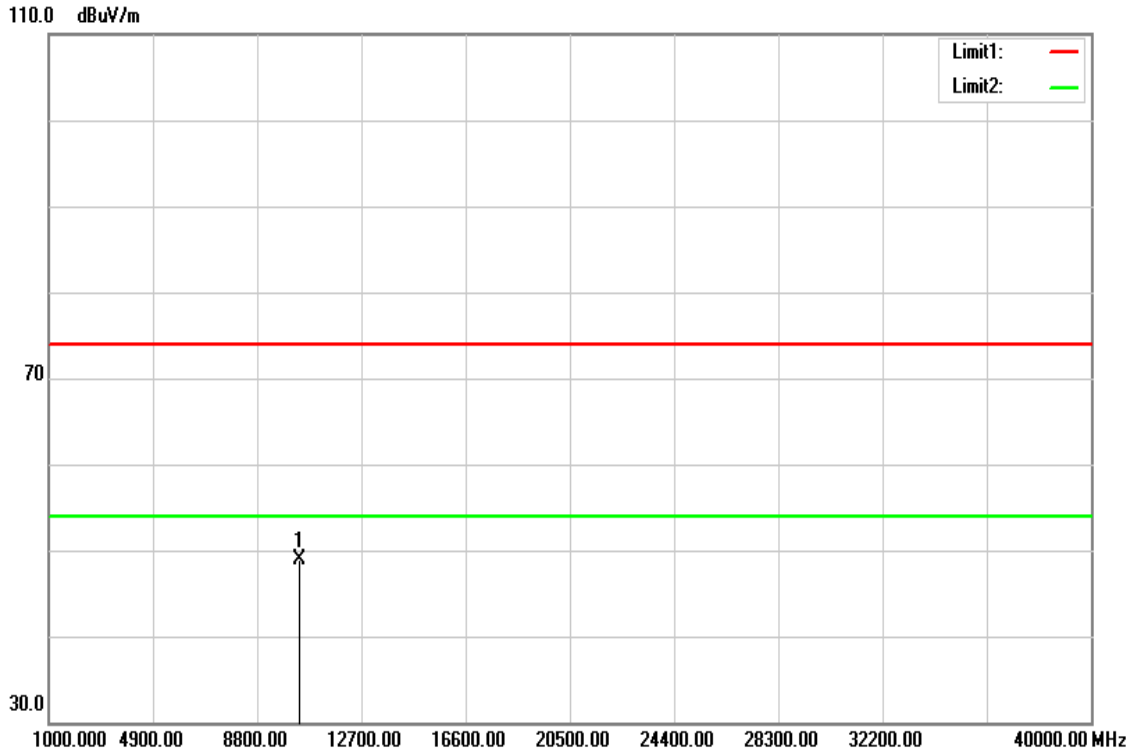


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	34.58	14.84	49.42	74.00	-24.58	peak
N/A						

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 / 5190MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

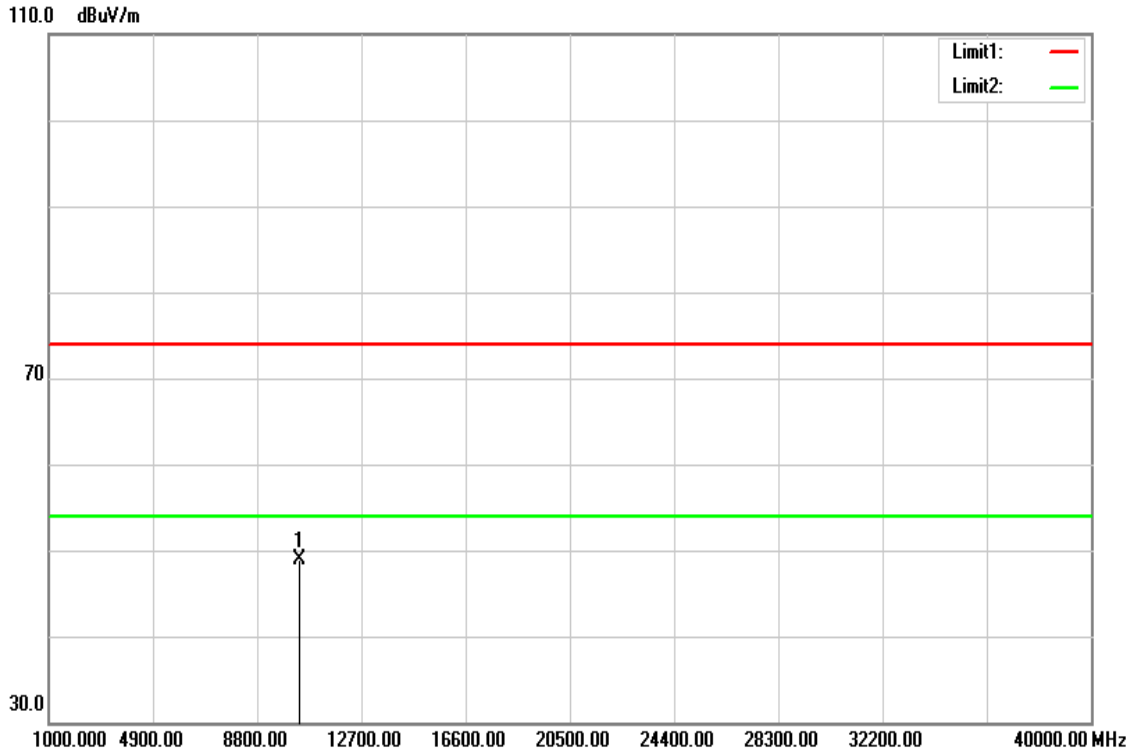


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10380.000	34.48	14.50	48.98	74.00	-25.02	peak
N/A						

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 / 5190MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

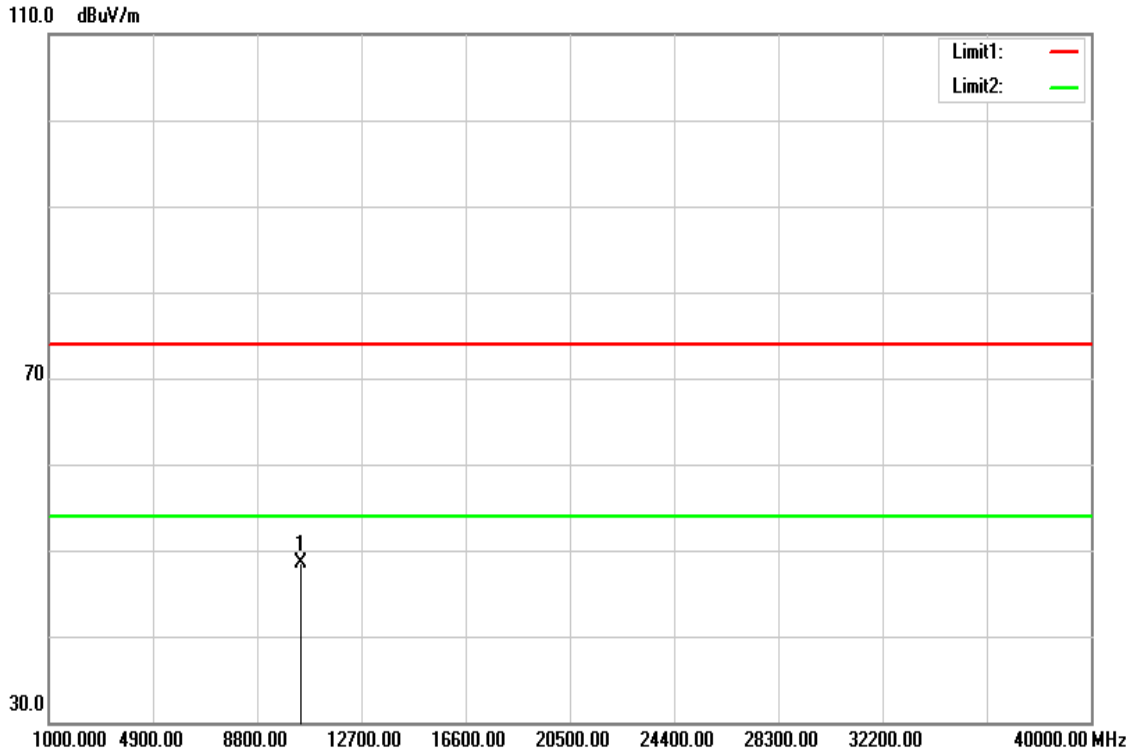


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10380.000	34.36	14.50	48.86	74.00	-25.14	peak
N/A						

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 802.11n HT40 / 5230MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

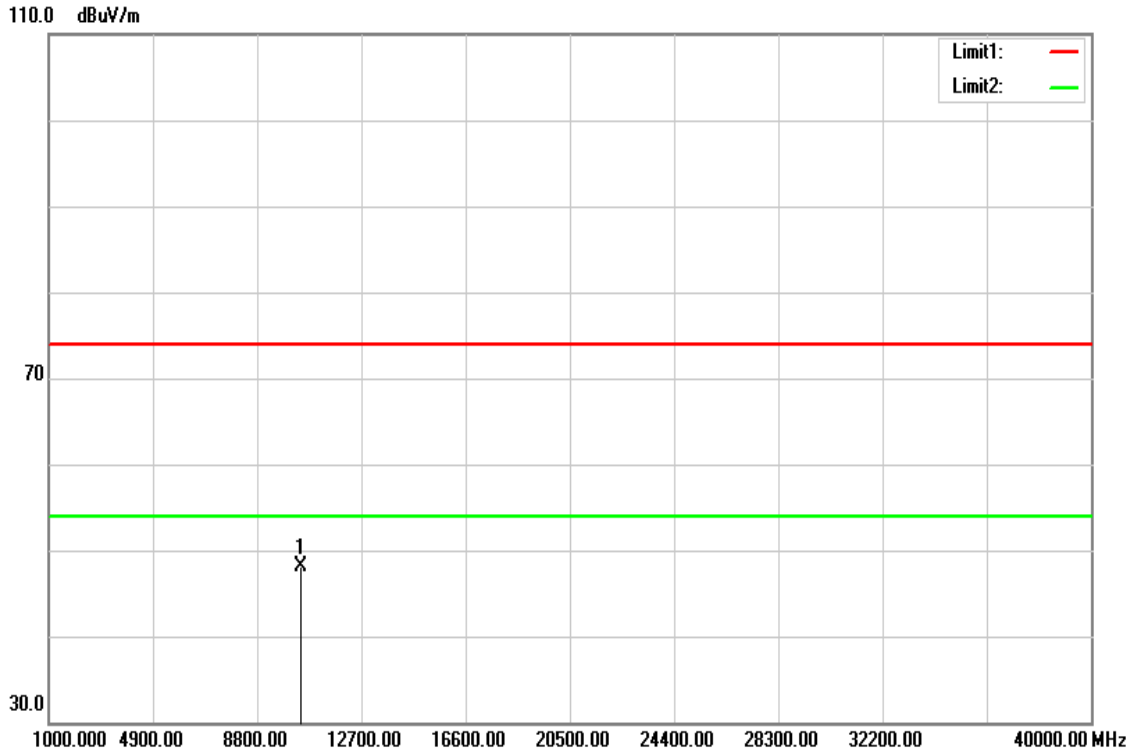


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.000	33.63	14.79	48.42	74.00	-25.58	peak
N/A						

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 / 5230MHZ	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	July 23, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		



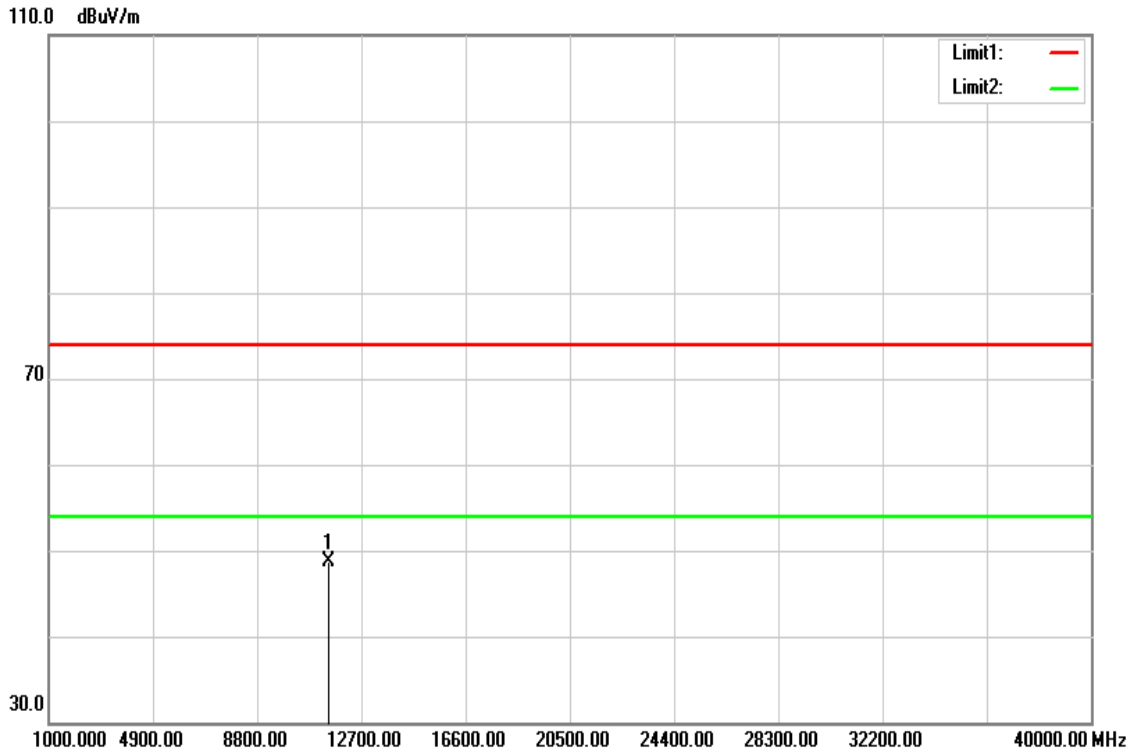
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.000	33.36	14.79	48.15	74.00	-25.85	peak
N/A						

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*

Above 1G Test Data for UNII-3

Test Mode	IEEE 802.11a / 5745 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

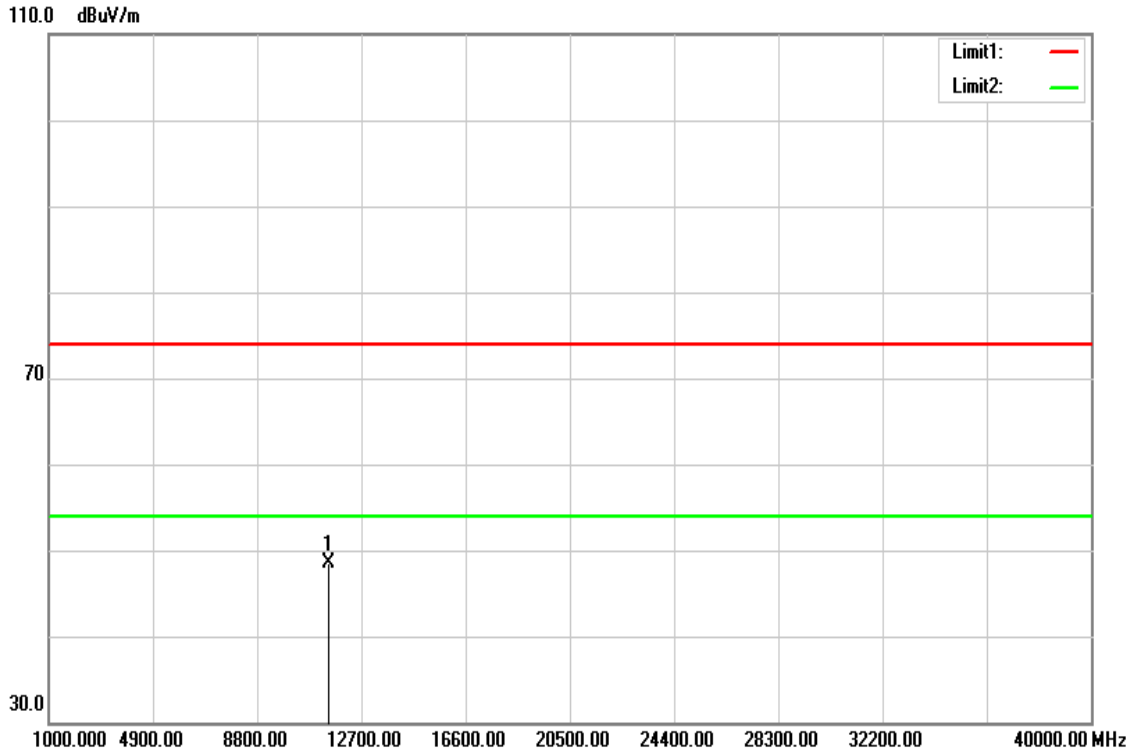


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	33.06	15.58	48.64	74.00	-25.36	peak
N/A						

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 / 5745 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

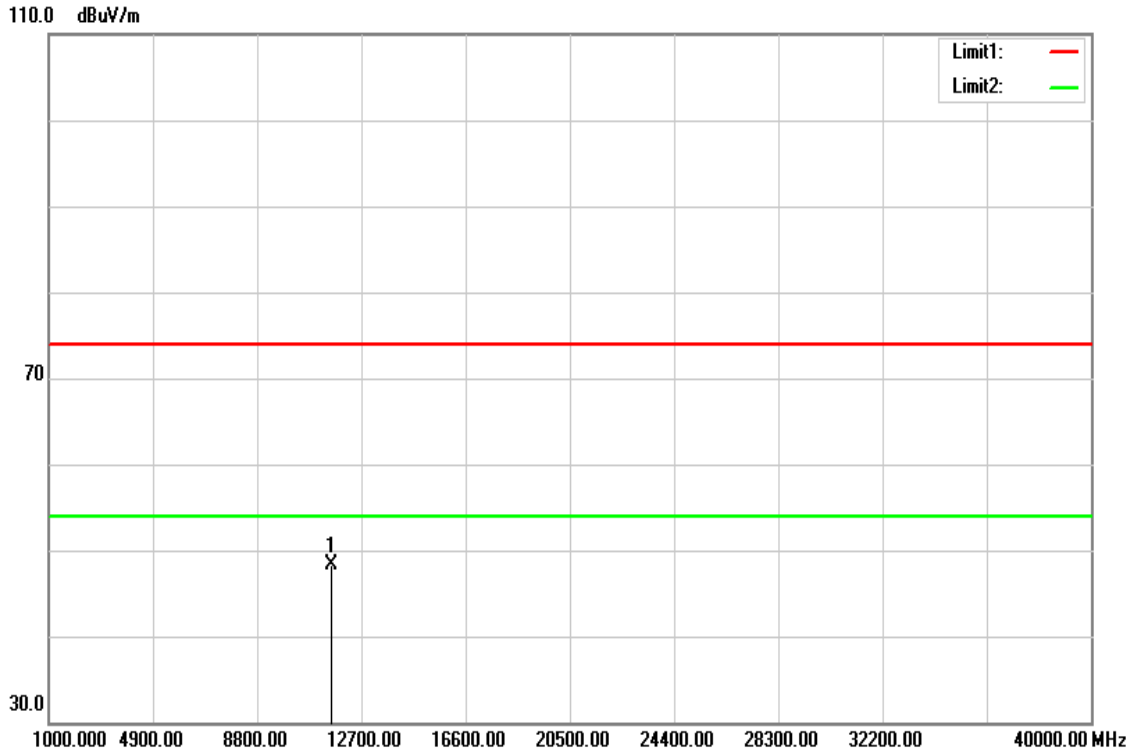


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	32.98	15.58	48.56	74.00	-25.44	peak
N/A						

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 / 5785 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

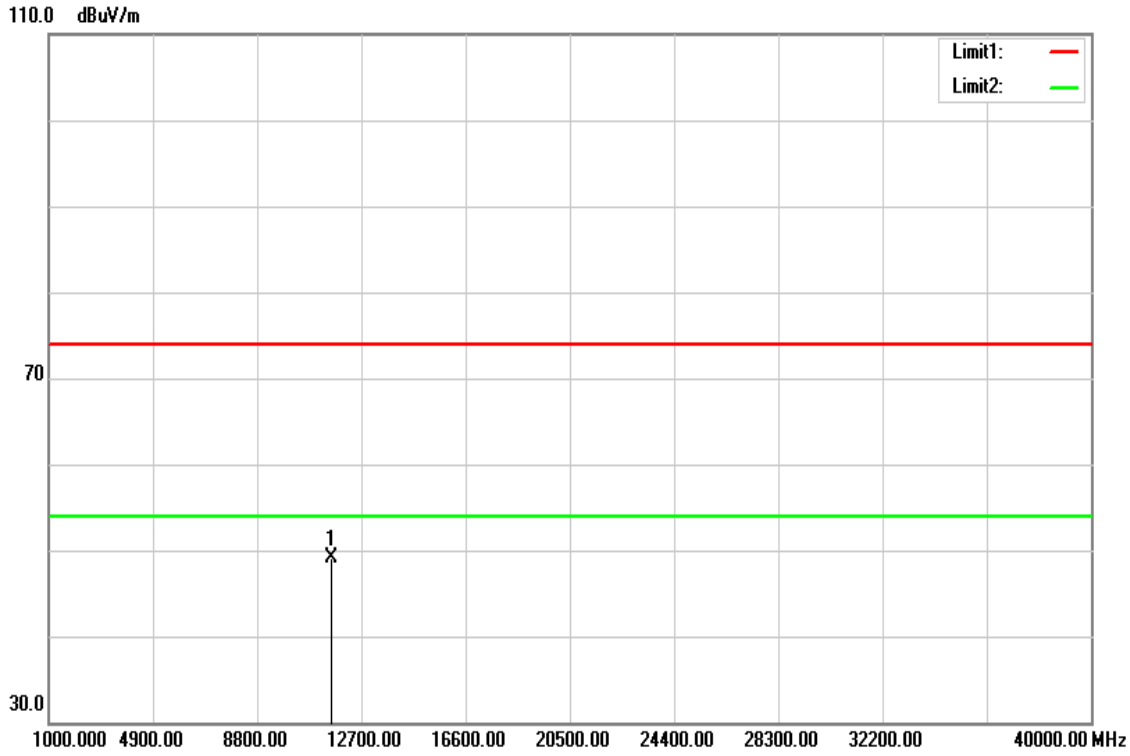


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	32.80	15.54	48.34	74.00	-25.66	peak
N/A						

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 / 5785 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

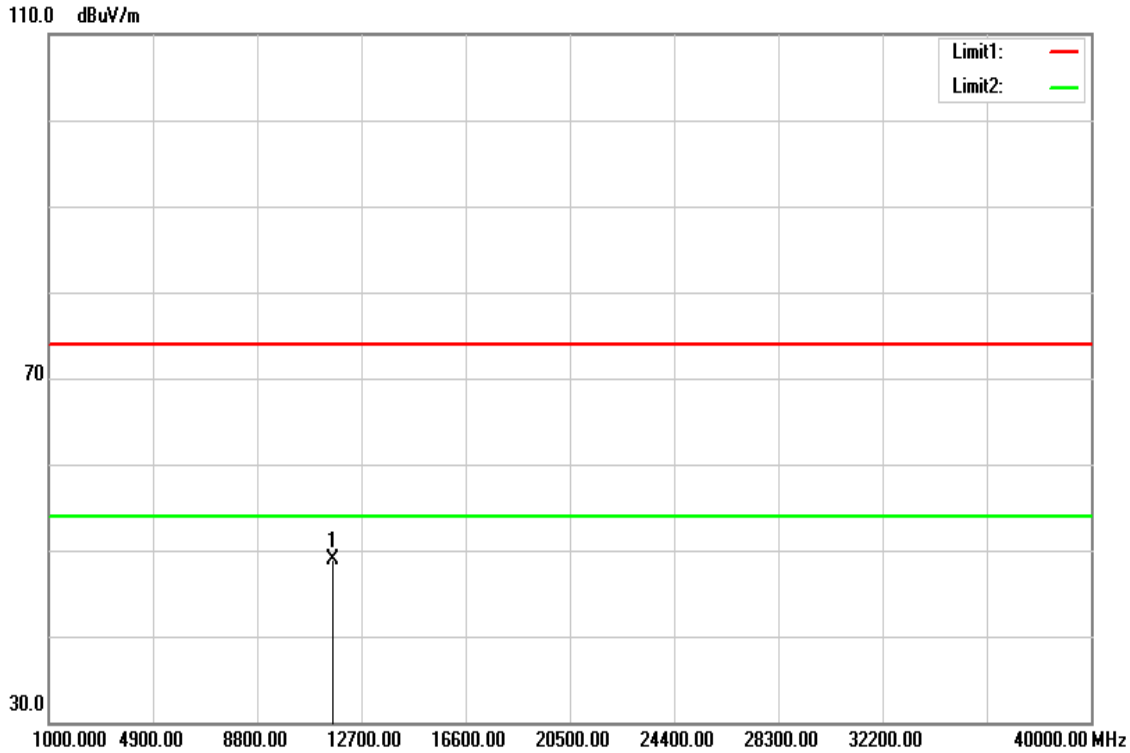


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	33.55	15.54	49.09	74.00	-24.91	peak
N/A						

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 / 5825 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

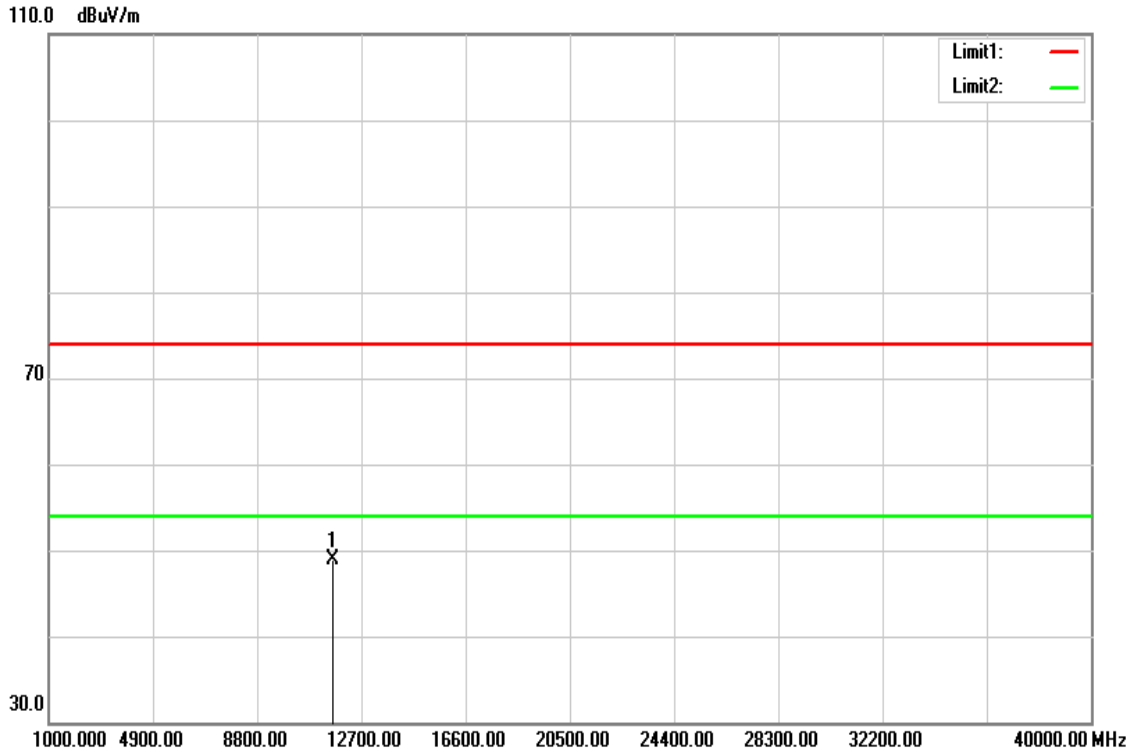


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	33.47	15.51	48.98	74.00	-25.02	peak
N/A						

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 / 5825 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

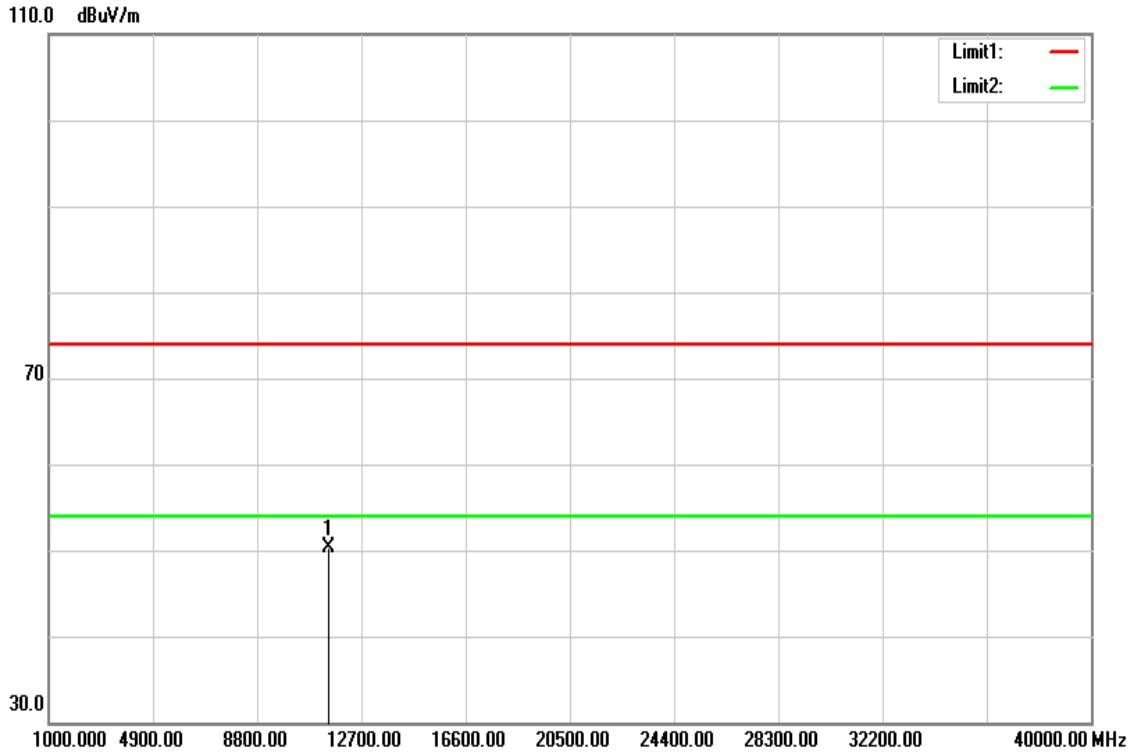


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	33.34	15.51	48.85	74.00	-25.15	peak
N/A						

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 / 5745 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

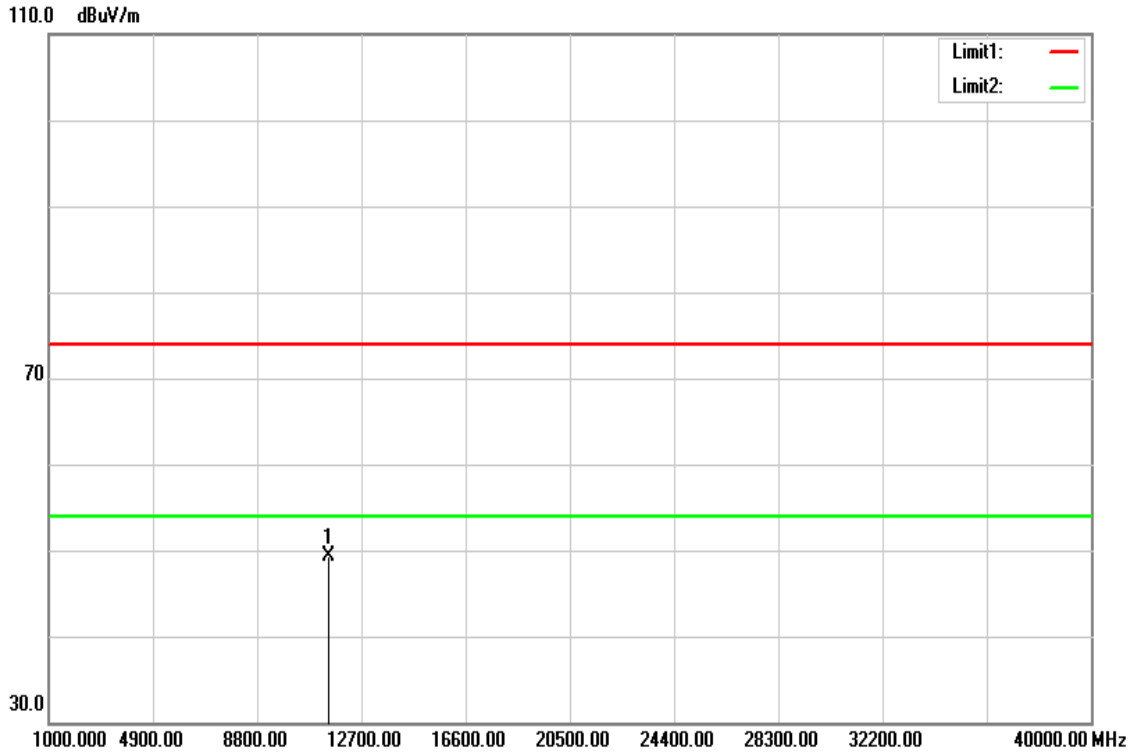


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	34.68	15.58	50.26	74.00	-23.74	peak
N/A						

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 / 5745 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

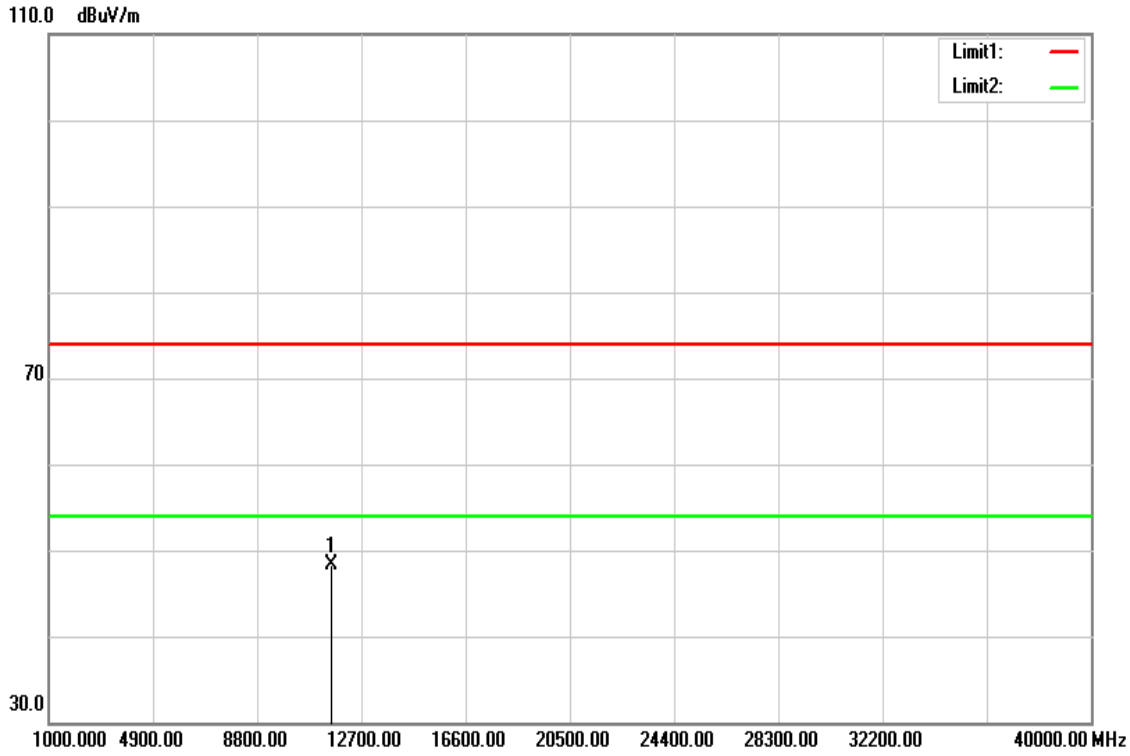


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	33.72	15.58	49.30	74.00	-24.70	peak
N/A						

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/ 5785 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

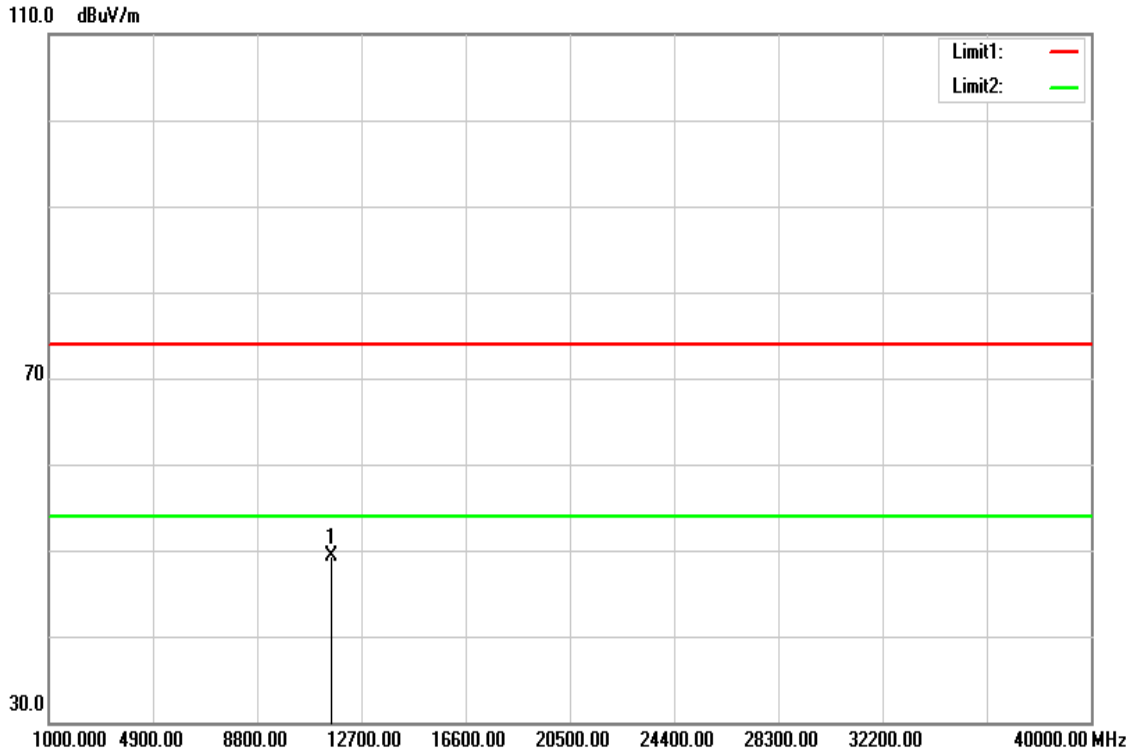


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	32.71	15.54	48.25	74.00	-25.75	peak
N/A						

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/ 5785 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

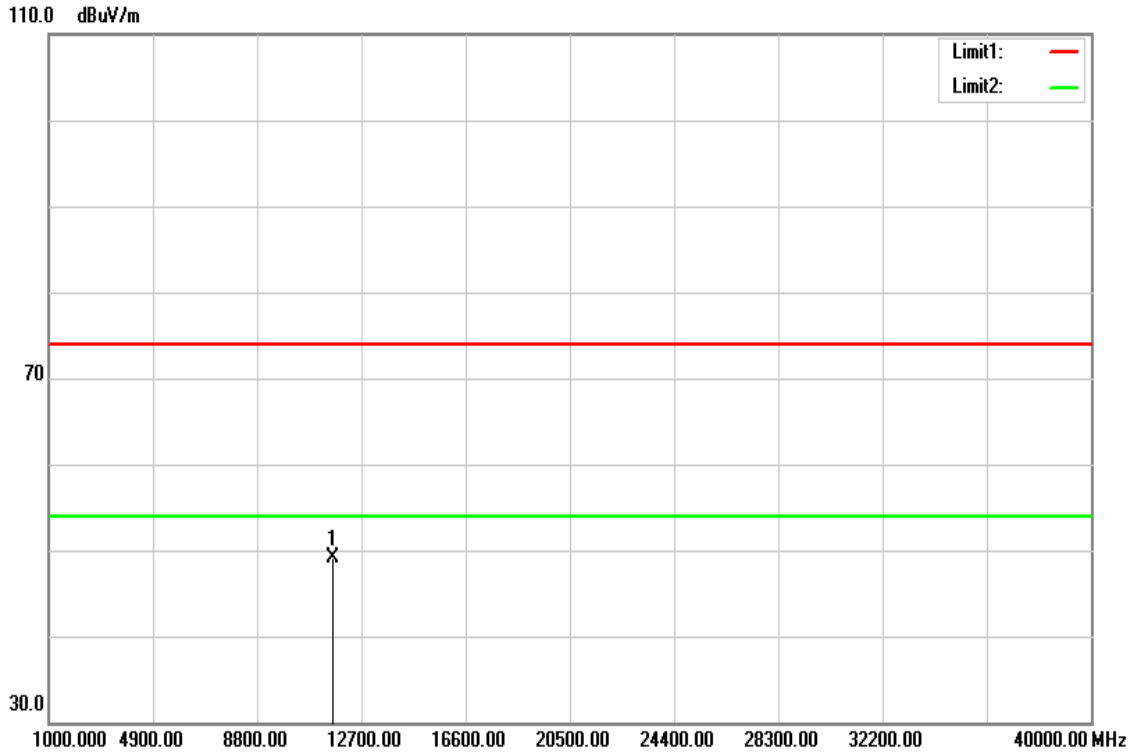


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	33.70	15.54	49.24	74.00	-24.76	peak
N/A						

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/ 5825 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

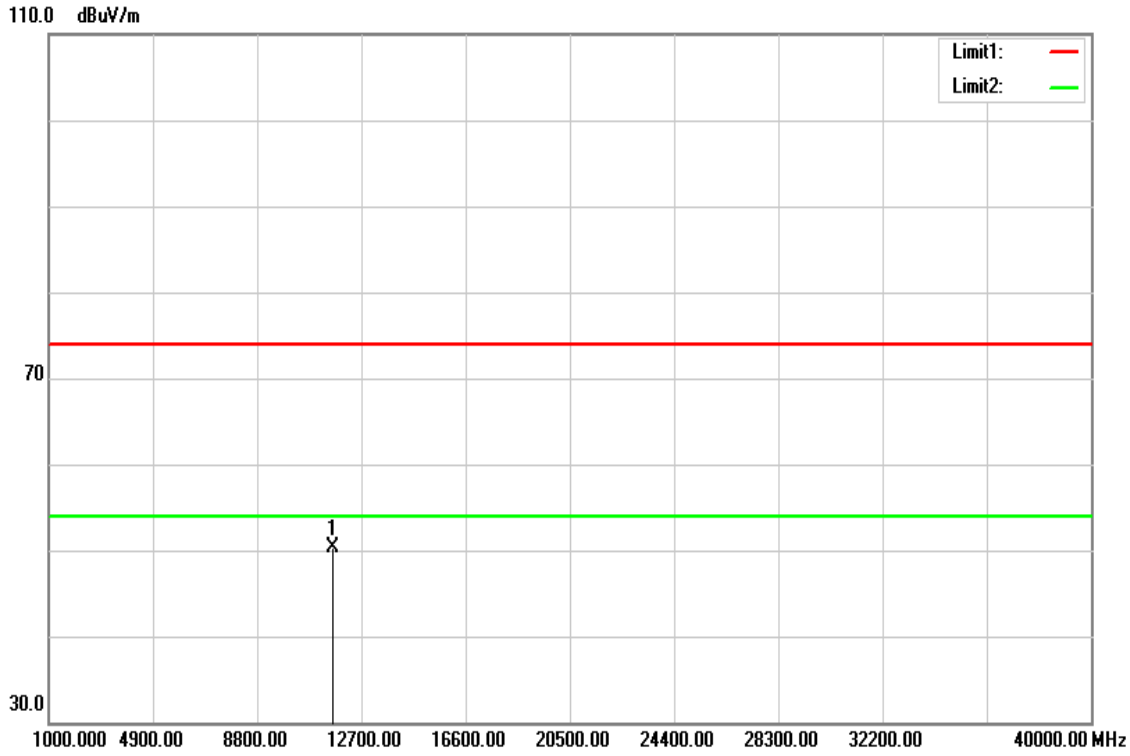


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	33.68	15.51	49.19	74.00	-24.81	peak
N/A						

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/ 5825 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

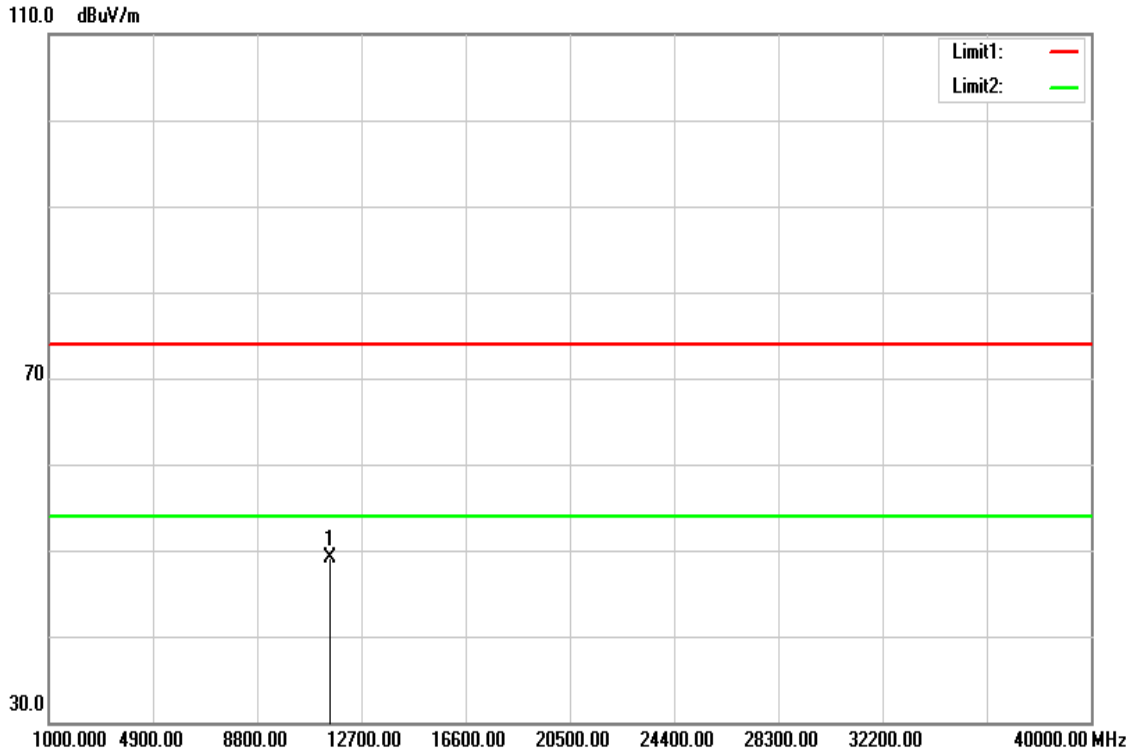


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	34.69	15.51	50.20	74.00	-23.80	peak
N/A						

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/ 5755 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

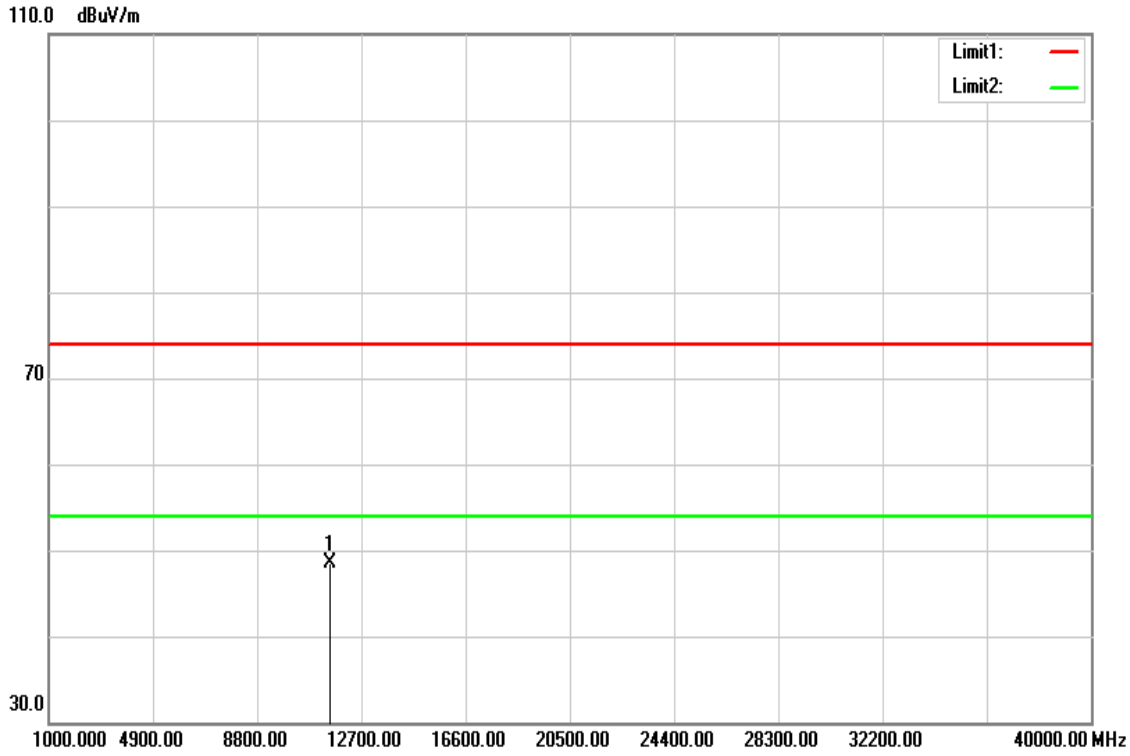


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.000	33.52	15.57	49.09	74.00	-24.91	peak
N/A						

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/ 5755 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

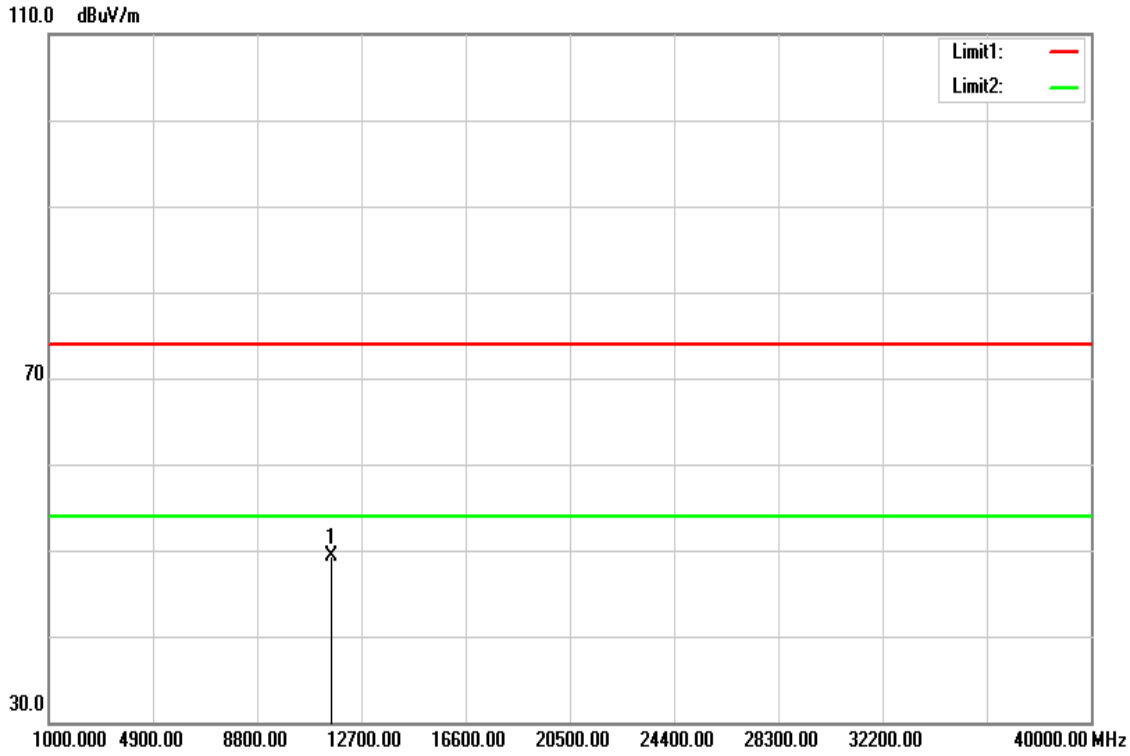


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.000	32.98	15.57	48.55	74.00	-25.45	peak
N/A						

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/ 5795 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

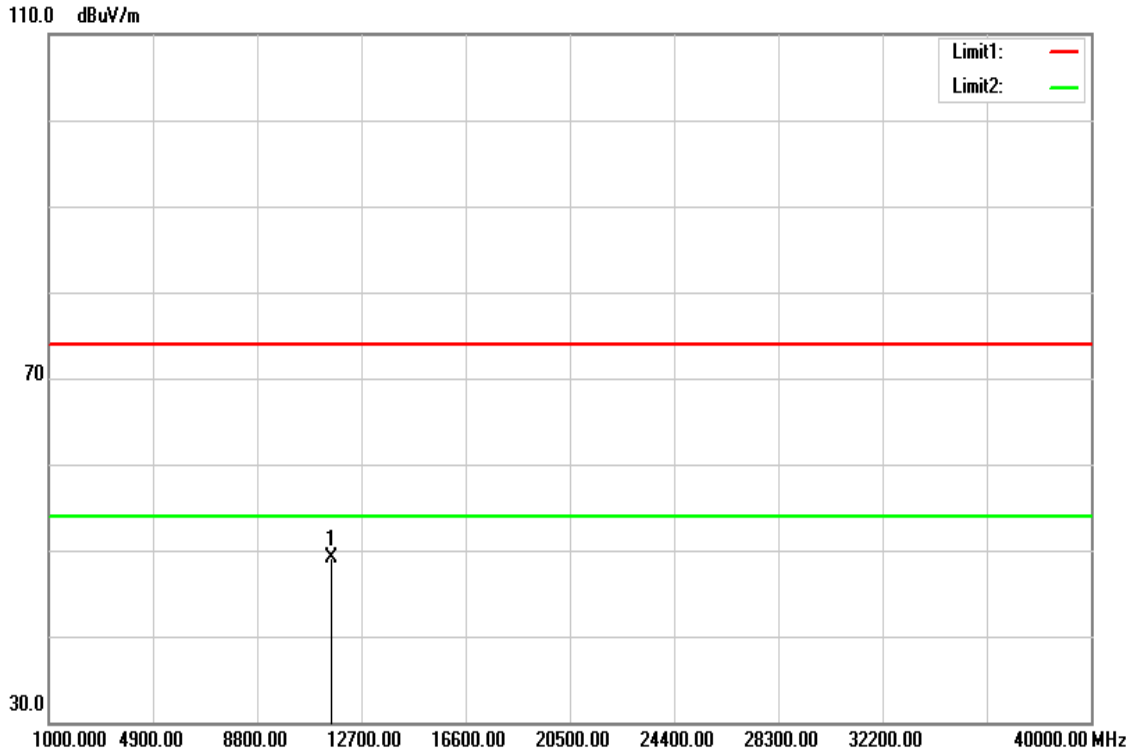


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11590.000	33.81	15.54	49.35	74.00	-24.65	peak
N/A						

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/ 5795 MHz	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	August 16, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11590.000	33.61	15.54	49.15	74.00	-24.85	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*

4.6 FREQUENCY STABILITY

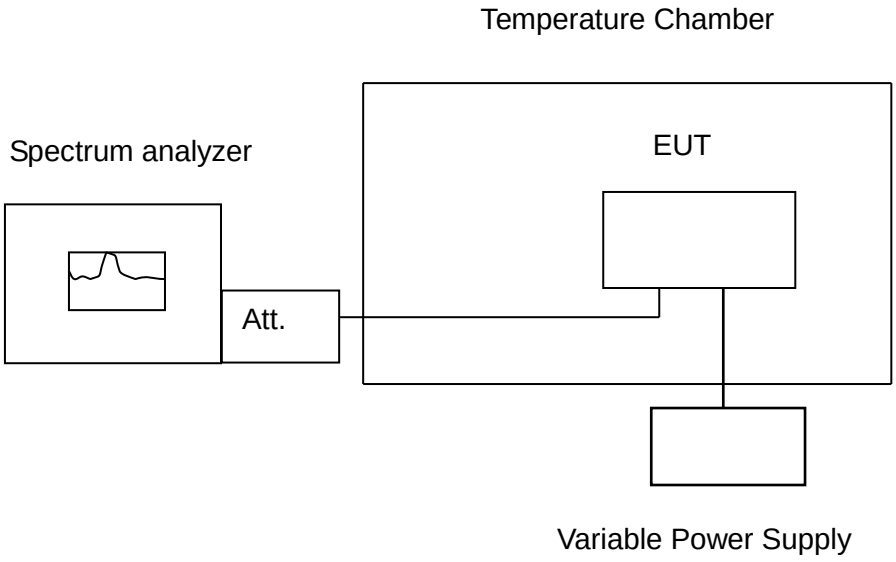
4.6.1 Test Limit

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. (ºC)	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	
55	15	5180.10320	5180.10240	5180.10120	5180.10090	19.9228	19.7683	19.5367	19.4788	Pass
50	15	5180.09510	5180.09514	5180.09423	5180.09231	18.3591	18.3658	18.1911	17.8205	Pass
40	15	5180.08123	5180.08412	5180.07641	5180.07964	15.6815	16.2394	14.7510	15.3745	Pass
30	15	5180.08531	5180.07561	5180.05644	5180.06513	16.4691	14.5965	10.8958	12.5734	Pass
20	15	5180.04564	5180.04312	5180.04645	5180.03156	8.8108	8.3243	8.9672	6.0927	Pass
10	15	5180.02199	5180.02564	5180.03457	5180.02000	4.2450	4.9506	6.6735	3.8610	Pass
0	15	5180.00156	5180.00321	5180.00441	5180.07910	0.3012	0.6197	0.8517	15.2703	Pass
-10	15	5179.98310	5179.97312	5179.95120	5179.94532	-3.2625	-5.1892	-9.4208	-10.5560	Pass
-20	15	5180.02199	5180.02564	5180.00441	5179.94532	4.2450	4.9506	0.8517	-10.5560	Pass
Temp. (ºC)	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	13.5	5180.085250	5180.08531	5180.05325	5180.06432	16.4575	16.4691	10.2799	12.4170	Pass
20	15	5180.085310	5180.07561	5180.05644	5180.06513	16.4691	14.5965	10.8958	12.5734	Pass
20	16.5	5180.084320	5180.06150	5180.06312	5180.07651	16.2780	11.8726	12.1853	14.7703	Pass

Temp. (ºC)	Voltage (V)	Measured Frequency	5500		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
55	15	5745.10549	5745.10189	5745.10695	5745.00071	18.3619	17.7354	18.6157	0.1238	Pass
50	15	5745.09784	5745.09841	5745.09212	5745.09078	17.0306	17.1297	16.0353	15.8016	Pass
40	15	5745.09784	5745.09078	5745.09212	5745.09078	17.0306	15.8016	16.0353	15.8016	Pass
30	15	5745.08412	5745.08048	5745.08774	5745.07022	14.6428	14.0085	15.2726	12.2222	Pass
20	15	5745.00043	5745.07319	5745.07154	5745.07945	0.0748	12.7391	12.4519	13.8296	Pass
10	15	5745.05153	5745.05123	5745.05979	5745.05059	8.9697	8.9175	10.4071	8.8057	Pass
0	15	5745.03486	5745.03741	5745.03312	5745.09784	6.0687	6.5117	5.7654	17.0306	Pass
-10	15	5745.00875	5745.00895	5745.00923	5745.00874	1.5228	1.5571	1.6069	1.5215	Pass
-20	15	5745.00040	5745.05123	5745.00071	5745.00084	0.0696	8.9175	0.1238	0.1464	Pass
Temp. (ºC)	Voltage (V)	Measured Frequency	5500		(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	13.5	5745.00875	5745.06915	5745.07849	5745.06811	1.5228	12.0362	13.6625	11.8555	Pass
20	15	5745.00043	5745.07319	5745.07154	5745.07945	0.0748	12.7391	12.4519	13.8296	Pass
20	16.5	5745.07278	5745.07849	5745.07278	5745.07212	12.6684	13.6625	12.6684	12.5541	Pass

--End of Report--