



FCC ID: YAI-TONAL  
Report No.: T180614D03-RP3

ISED: 20480-TONAL

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Rev.: 01

# 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 Module
Model No.	Hercules
Test Result	Pass

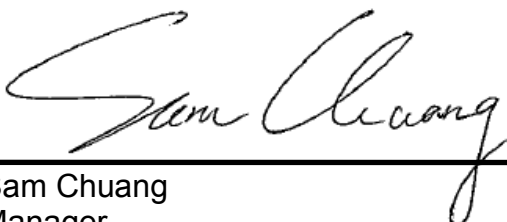
The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

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:

Reviewed by:

  
Sam Chuang  
Manager

  
Jerry Chuang  
Engineer

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.  
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部分複製。

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## **Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 18, 2018	Initial Issue	ALL	May Lin
01	September 25, 2018	1. Update KDB 937606 to KDB 414788.	P.47	May Lin



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## 1. GENERAL INFORMATION

### 1.1 EUT INFORMATION

Applicant	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																																			
Manufacturer	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																																			
Equipment	Wireless Console Module																																			
Model Name	Hercules																																			
Model Discrepancy	N/A																																			
Received Date	June 14, 2018																																			
Date of Test	July 18 ~ September 13, 2018																																			
Power Supply	1. Power by power supply (DC 15V) 2. Power by host system via USB																																			
HW Version	v1.0																																			
FW Version	v1.0																																			
Output Power(W)	<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</td><td>5180 ~ 5240</td><td>0.0086</td><td>0.0250</td></tr><tr><td>IEEE 802.11n HT 40</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</td><td>5745 ~ 5825</td><td>0.0331</td><td>0.0968</td></tr><tr><td>IEEE 802.11n HT 40</td><td>5755 ~ 5795</td><td>0.0324</td><td>0.0946</td></tr></table>					Band	Mode	Frequency Range (MHz)	Output Power (W)	EIRP Output Power (W)	U-NII-1	IEEE 802.11a	5180 ~ 5240	0.0107	0.0313	IEEE 802.11n HT 20	5180 ~ 5240	0.0086	0.0250	IEEE 802.11n HT 40	5190 ~ 5230	0.0080	0.0235	U-NII-3	IEEE 802.11a	5745 ~ 5825	0.0323	0.0944	IEEE 802.11n HT 20	5745 ~ 5825	0.0331	0.0968	IEEE 802.11n HT 40	5755 ~ 5795	0.0324	0.0946
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		IEEE 802.11n HT 40	5755 ~ 5795	0.0324	0.0946																															

## 1.2 EUT CHANNEL INFORMATION

Frequency Range	<b>UNII-1</b>	
	IEEE 802.11a	5180 ~ 5240 MHz
	IEEE 802.11n HT 20	5180 ~ 5240 MHz
	IEEE 802.11n HT 40	5190 ~ 5230 MHz
	<b>UNII-3</b>	
	IEEE 802.11a	5745 ~ 5825 MHz
	IEEE 802.11n HT 20	5745 ~ 5825 MHz
	IEEE 802.11n HT 40	5755 ~ 5795 MHz
Modulation Type	1. IEEE 802.11a mode: OFDM 2. IEEE 802.11n HT 20 mode: OFDM 3. IEEE 802.11n HT 40 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
<input type="checkbox"/> 1 MHz or less	1	Middle
<input type="checkbox"/> 1 MHz to 10 MHz	2	1 near top and 1 near bottom
<input checked="" type="checkbox"/> More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom



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### 1.3 ANTENNA INFORMATION

Antenna Type	<input type="checkbox"/> PIFA <input type="checkbox"/> PCB <input checked="" type="checkbox"/> Dipole <input type="checkbox"/> 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.



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## 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					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration 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					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration 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

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
Double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	08/20/2018	08/19/2019
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
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.





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## 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	N/A	QDS-BRCM1018
3	NB	Lenovo	TP00056A	N/A	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.



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## 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

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### 3. DESCRIPTION OF TEST MODES

#### 3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	1. IEEE 802.11a mode: 6Mbps 2. IEEE 802.11n HT 20 mode: MCS0 3. IEEE 802.11n HT 40 mode: MCS0																										
Operating Frequency Range & Number of Channels	<table border="1"> <thead> <tr> <th></th><th>Mode</th><th>Frequency Range (MHz)</th><th>Number of Channels</th></tr> </thead> <tbody> <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</td><td>5180 ~ 5240</td><td>4 Channels</td></tr> <tr> <td>IEEE 802.11n HT 40</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</td><td>5745 ~ 5825</td><td>5 Channels</td></tr> <tr> <td>IEEE 802.11n HT 40</td><td>5755 ~ 5795</td><td>2 Channels</td></tr> </tbody> </table>				Mode	Frequency Range (MHz)	Number of Channels	U-NII-1	IEEE 802.11a	5180 ~ 5240	4 Channels	IEEE 802.11n HT 20	5180 ~ 5240	4 Channels	IEEE 802.11n HT 40	5190 ~ 5230	2 Channels	U-NII-3	IEEE 802.11a	5745 ~ 5825	5 Channels	IEEE 802.11n HT 20	5745 ~ 5825	5 Channels	IEEE 802.11n HT 40	5755 ~ 5795	2 Channels
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	IEEE 802.11n HT 20	5745 ~ 5825	5 Channels																								
	IEEE 802.11n HT 40	5755 ~ 5795	2 Channels																								

### 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	<input type="checkbox"/> Mode 1 <input checked="" type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> 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	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4
Worst Position	<input type="checkbox"/> Placed in fixed position. <input type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input checked="" type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane)
Worst Polarity	<input type="checkbox"/> Horizontal <input checked="" type="checkbox"/> 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	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

#### Remark:

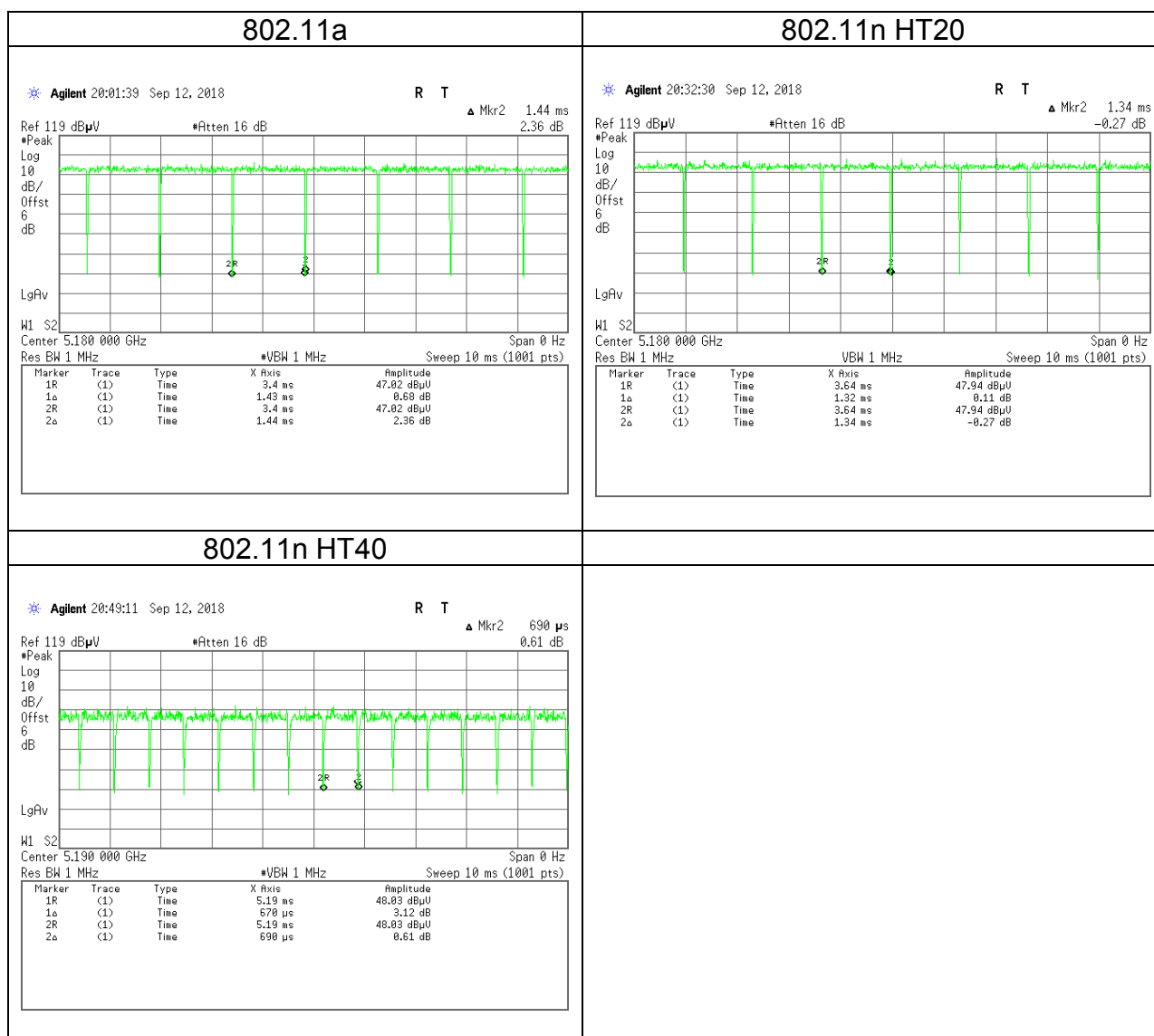
1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis, X, Y, Z and two polarity, Horizontal and Vertical for radiated measurement. The worst case (Z-Plane and Vertical) were recorded in this report
3. AC power line conducted emission and for below 1G radiation emission were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



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### 3.3 EUT DUTY CYCLE

Duty Cycle			
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)
802.11a	1.4300	1.4400	99.31%
802.11n HT20	1.3200	1.3400	98.51%
802.11n HT40	0.6700	0.6900	97.10%



## 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

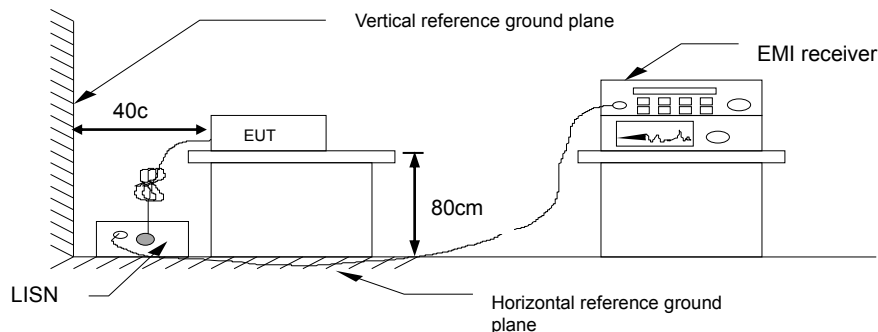
\* Decreases with the logarithm of the frequency.

#### 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

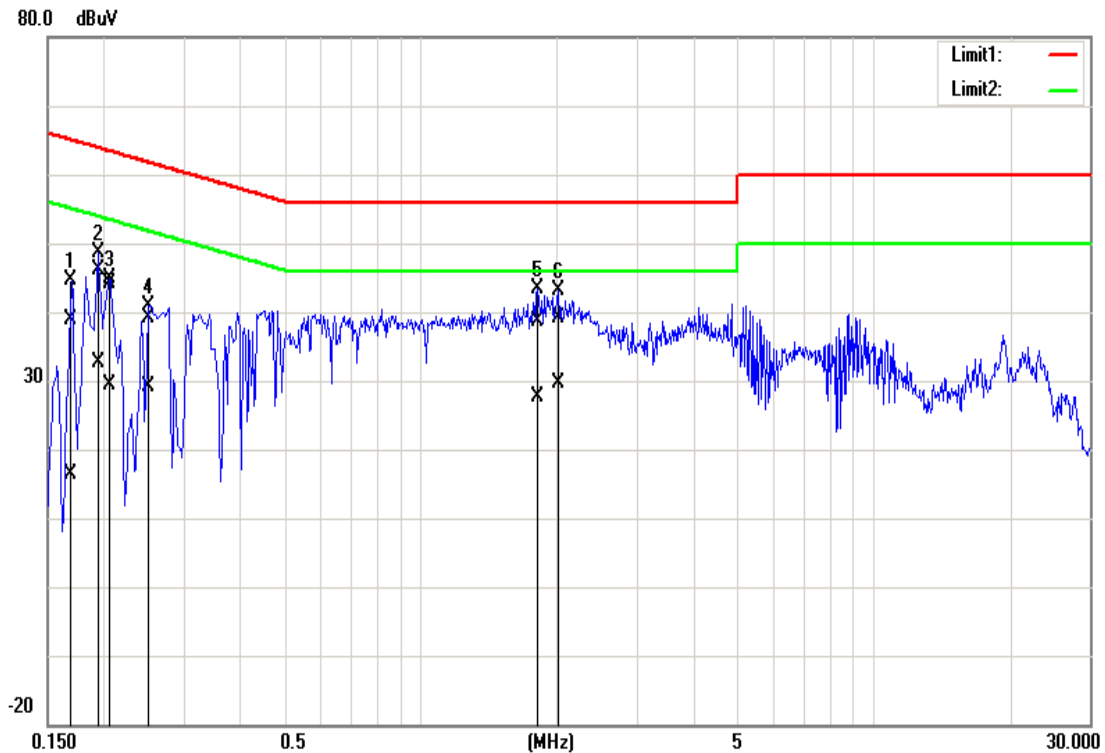


#### 4.1.4 Test Result

**Pass.**

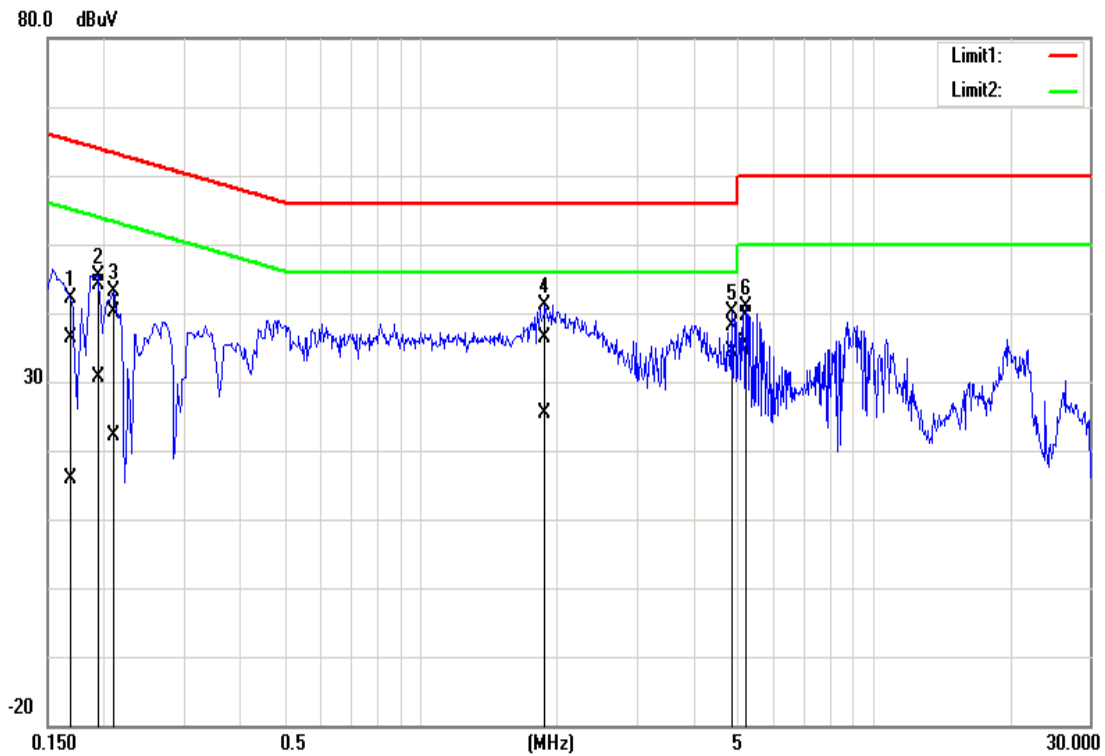
## Test Data

Test Mode:	Mode 2	Temp/Hum	24(°C)/ 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(°C)/ 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.

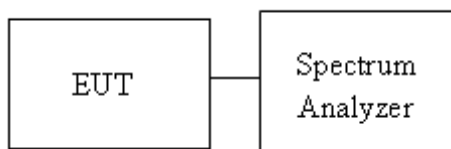
**Occupied Bandwidth(99%)** : For reporting purposes only.

### 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



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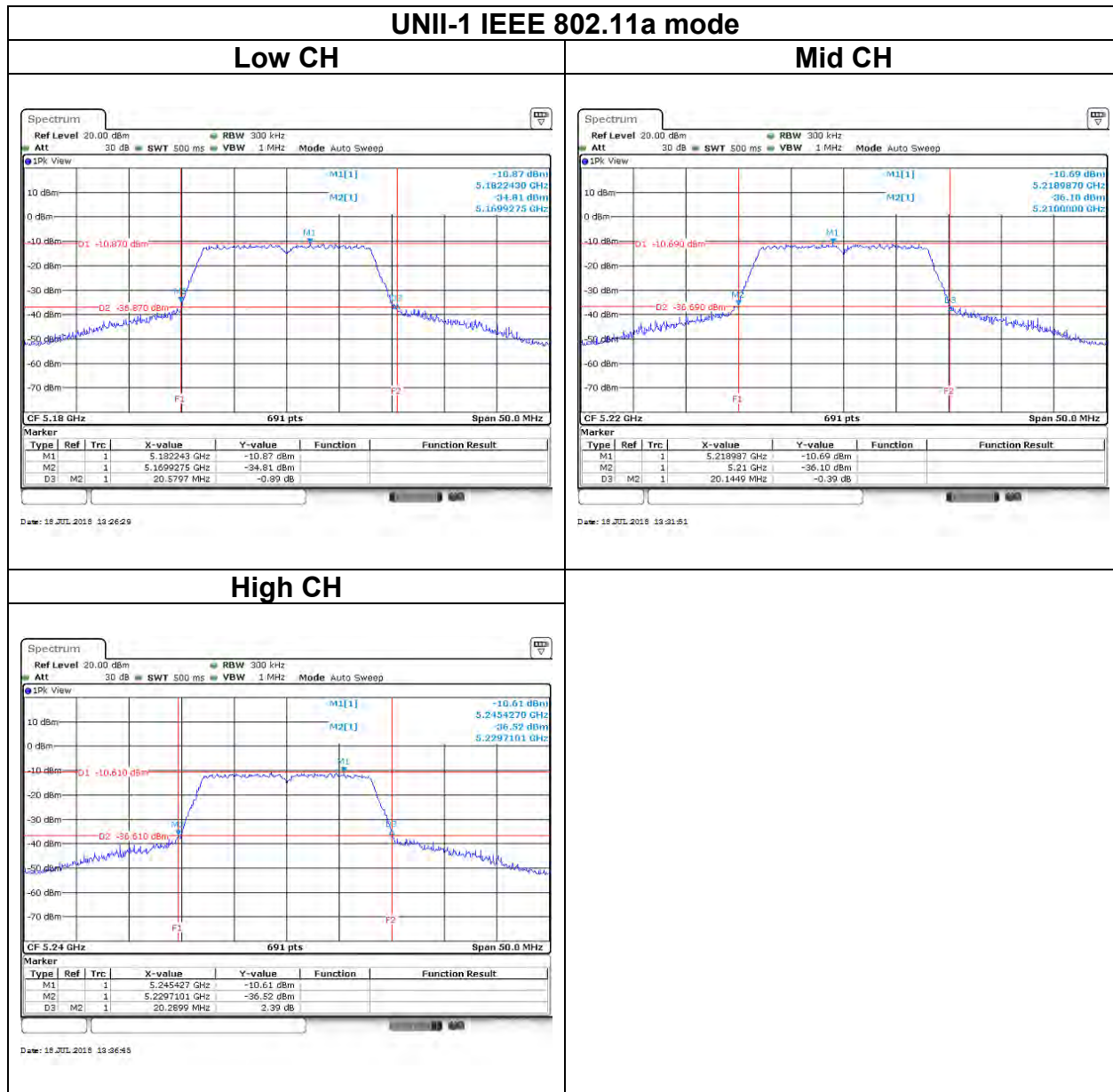
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UNII-3 5725-5825MHz			
Test mode: IEEE 802.11a mode			
Channel	Frequency (MHz)	OBW (99%) (MHz)	6dB BW (MHz)
Low	5745	17.0767	15.6957
Mid	5785	17.2937	15.8261
High	5825	18.3791	15.3043
Test mode: IEEE 802.11n HT20 mode			
Channel	Frequency (MHz)	OBW (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



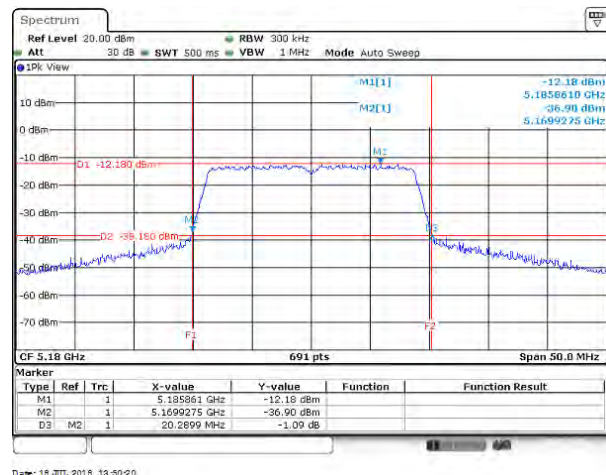
Report No.: T180614D03-RP3

## Test Data (26dB BANDWIDTH)

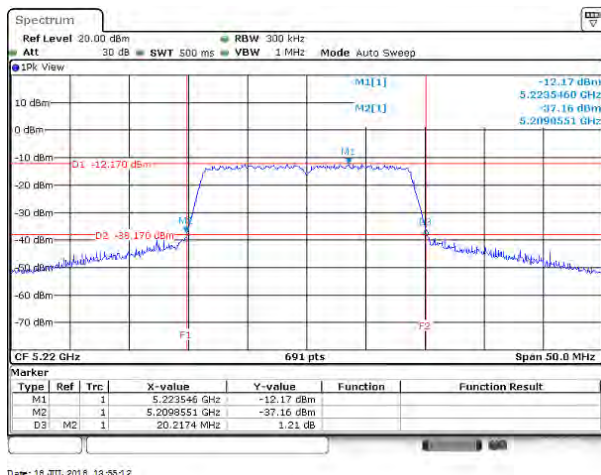


## UNII-1 IEEE 802.11n HT20 mode

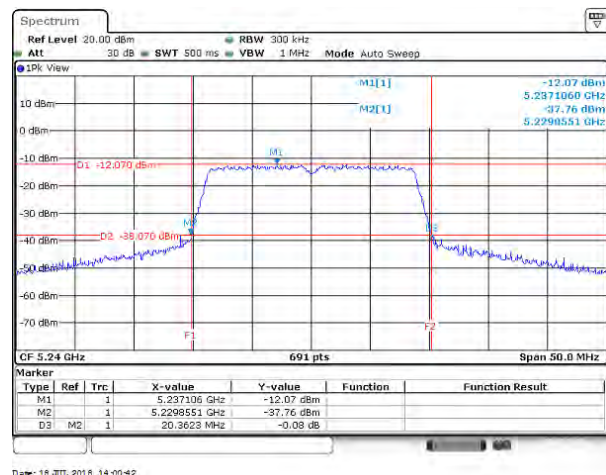
### Low CH



### Mid CH



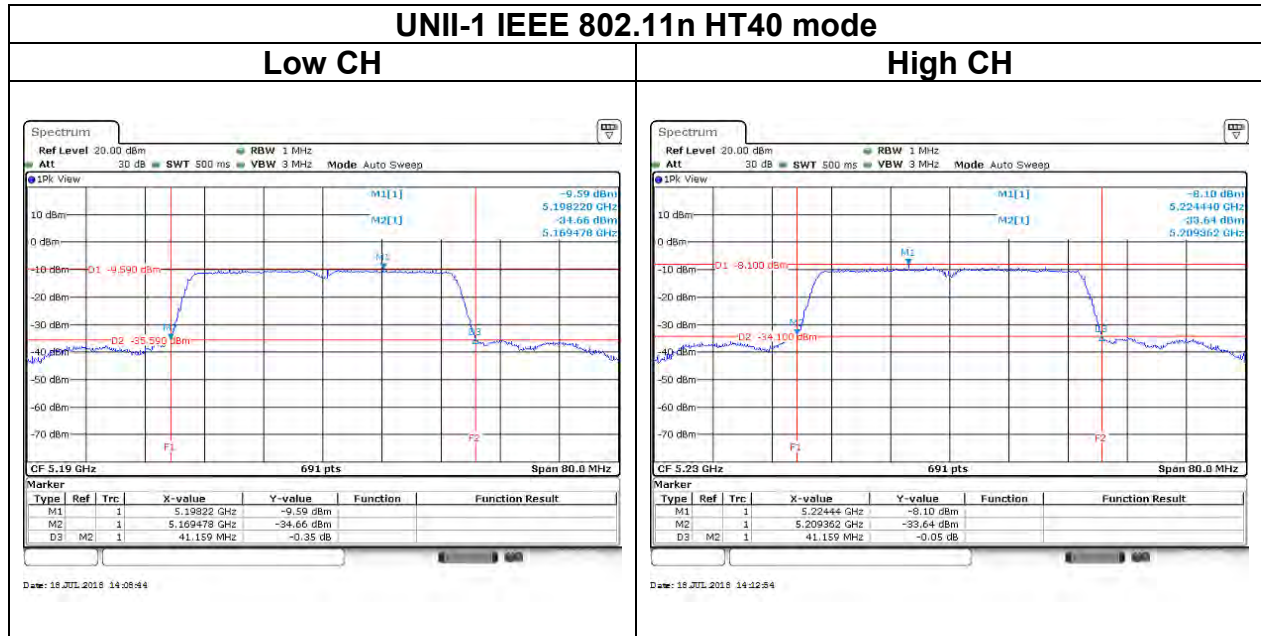
### High CH





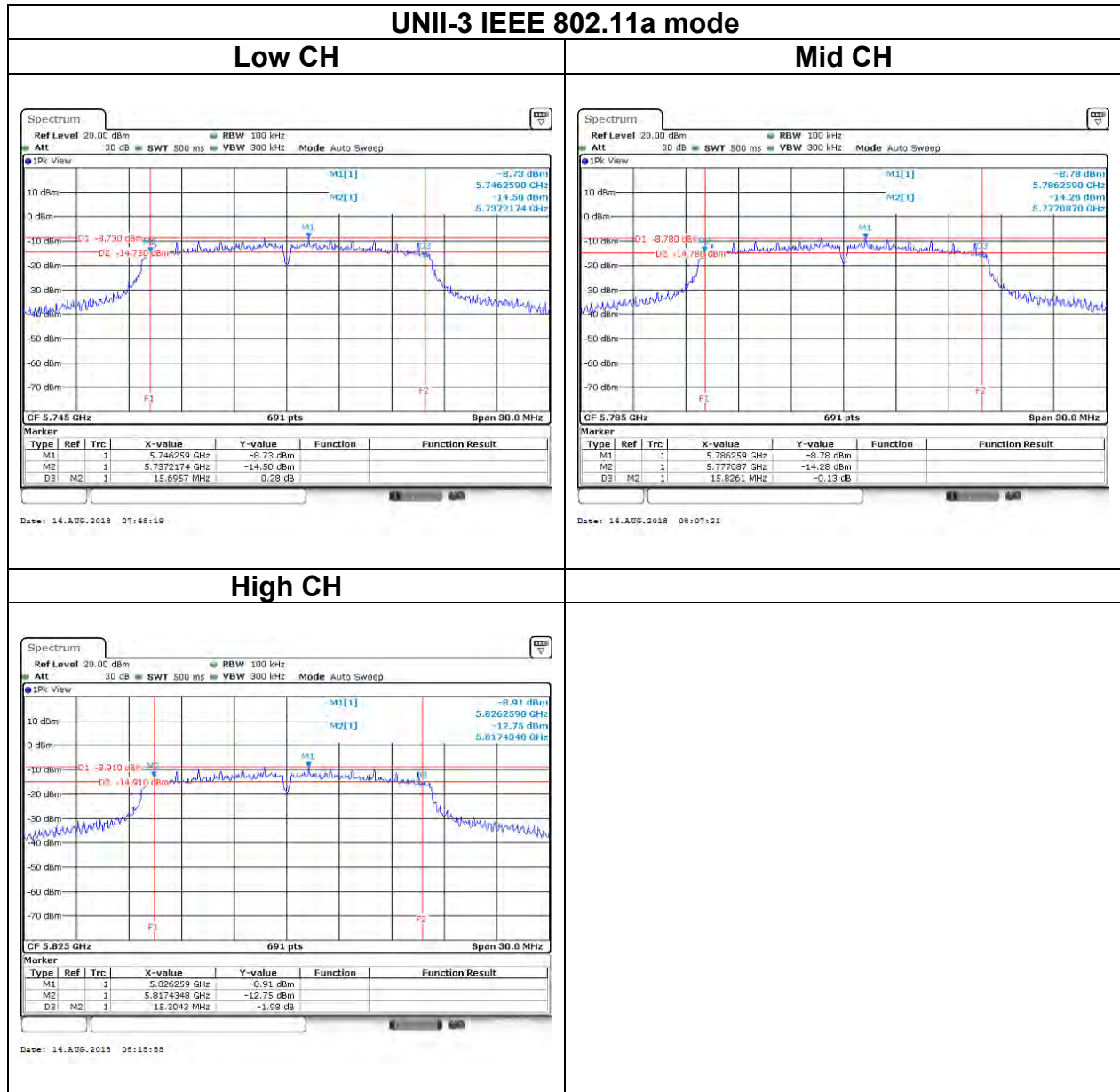
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## Test Data (6dB BANDWIDTH)



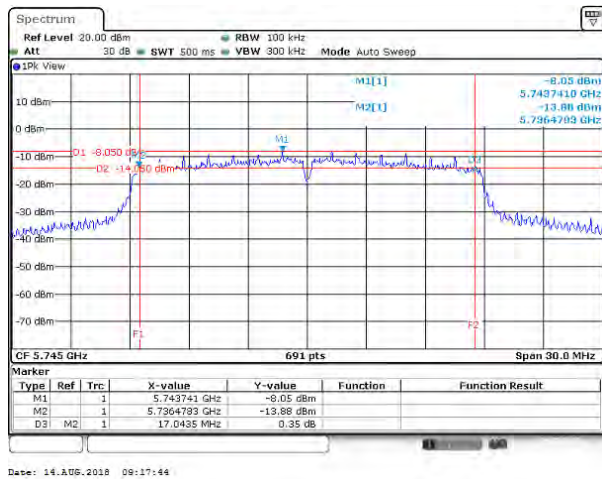


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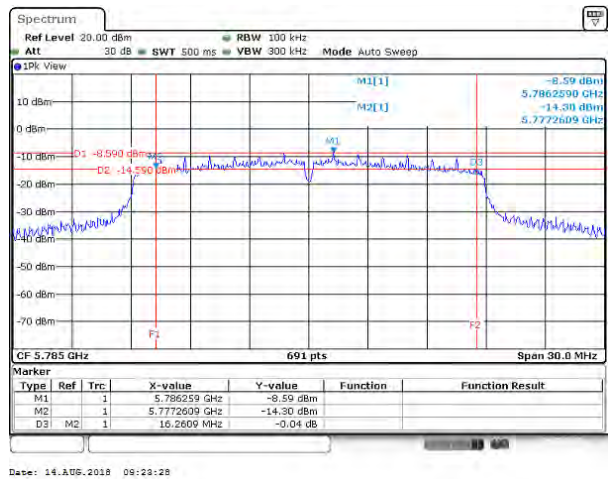
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### UNII-3 IEEE 802.11n HT20 mode

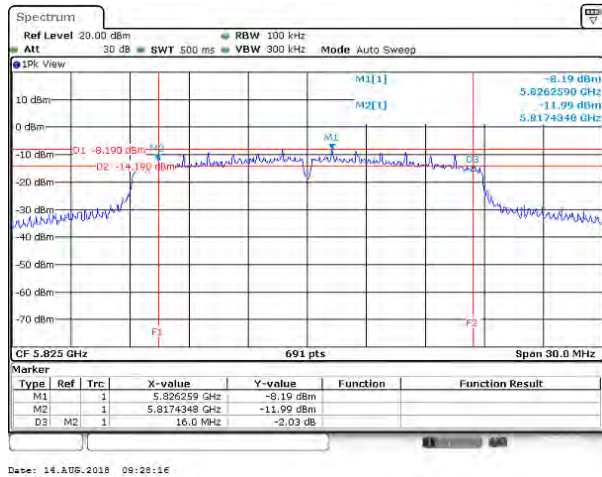
#### Low CH



#### Mid CH



#### High CH

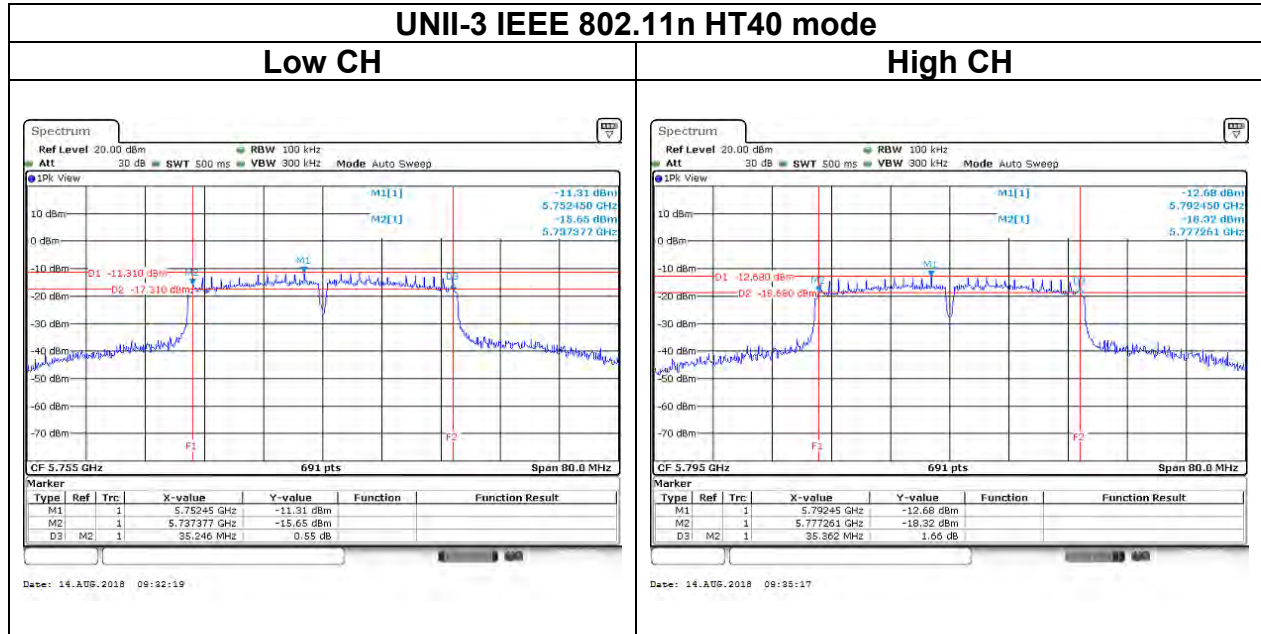




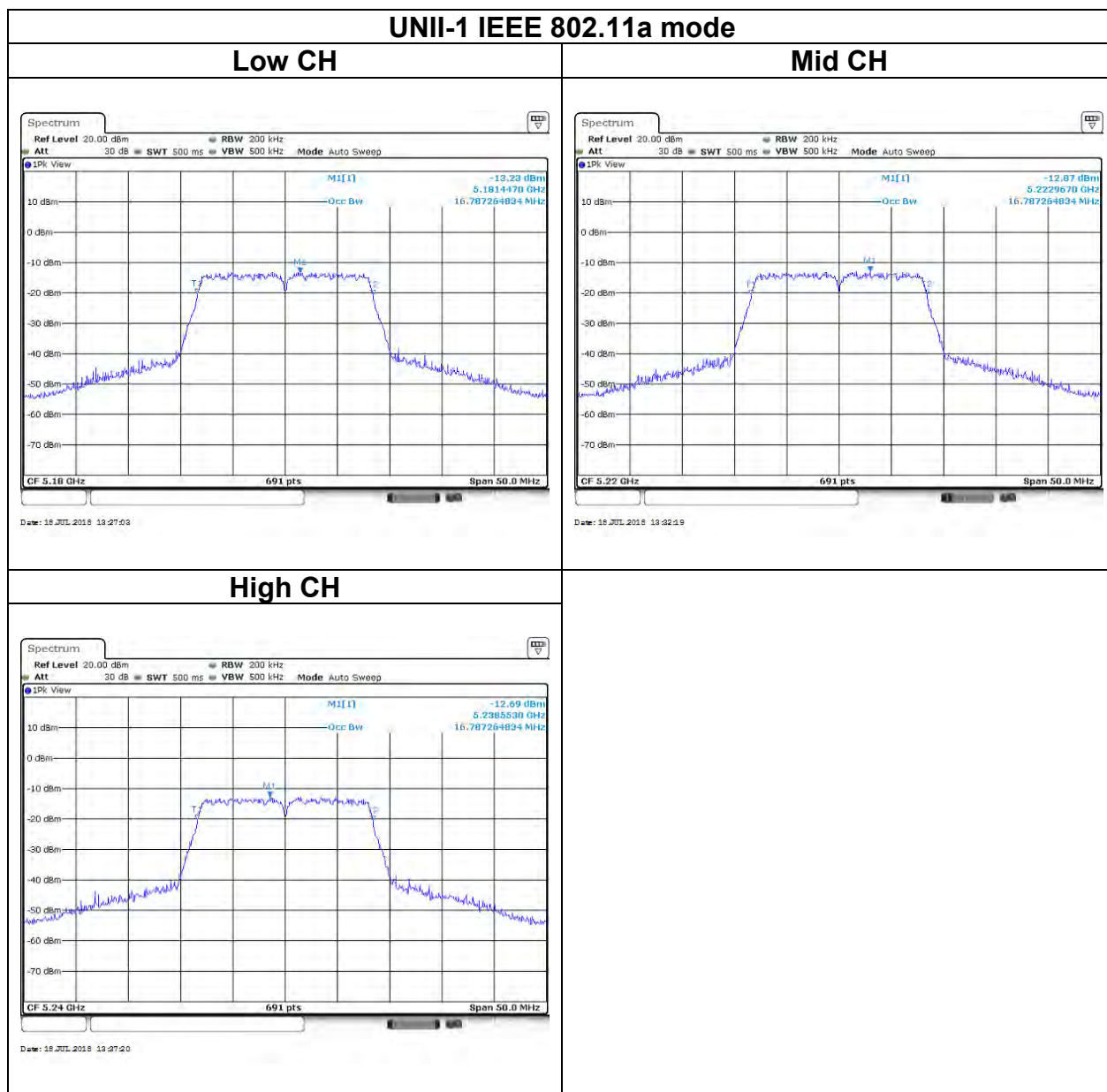


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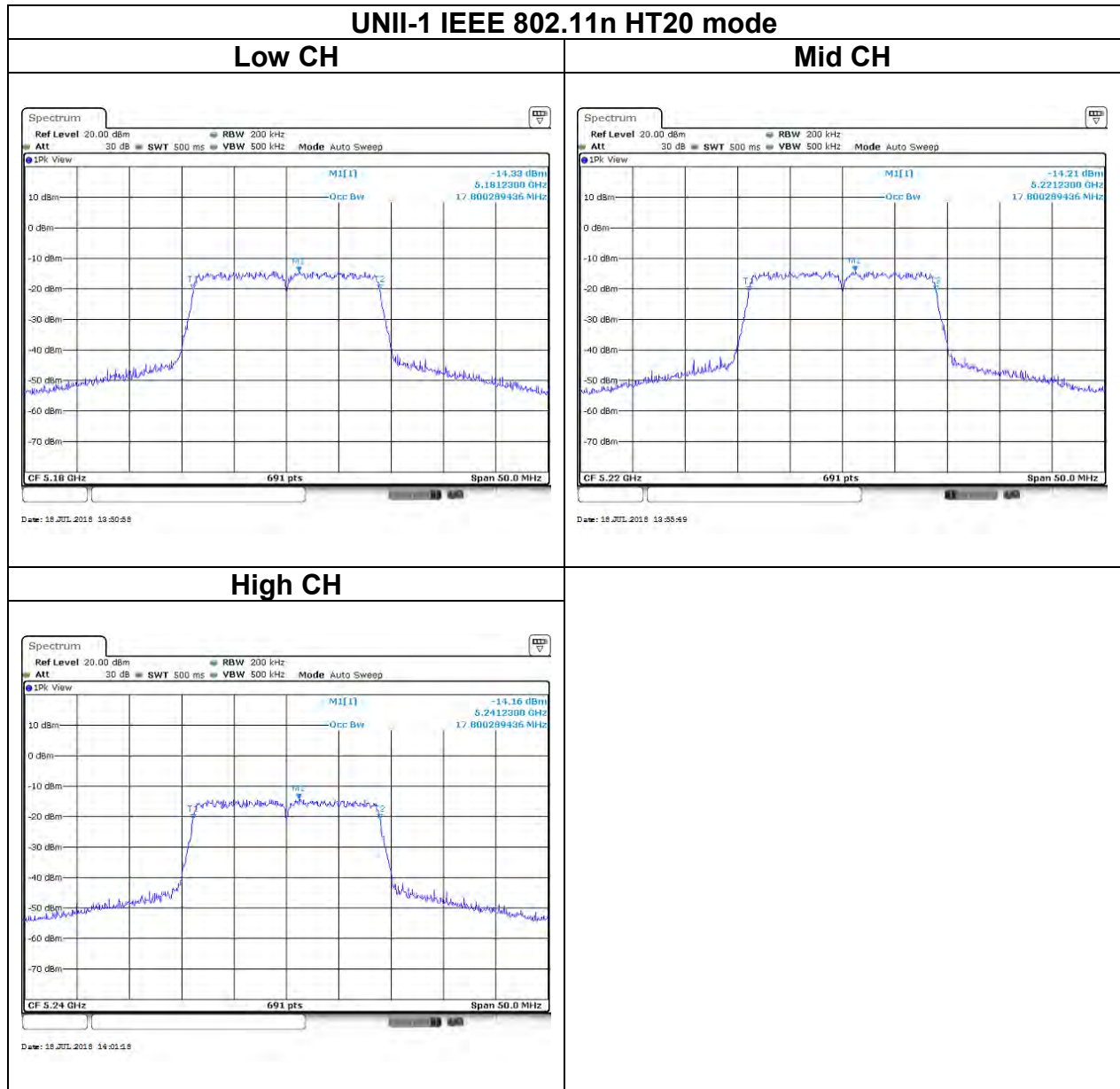
## Test Data (BANDWIDTH 99%)





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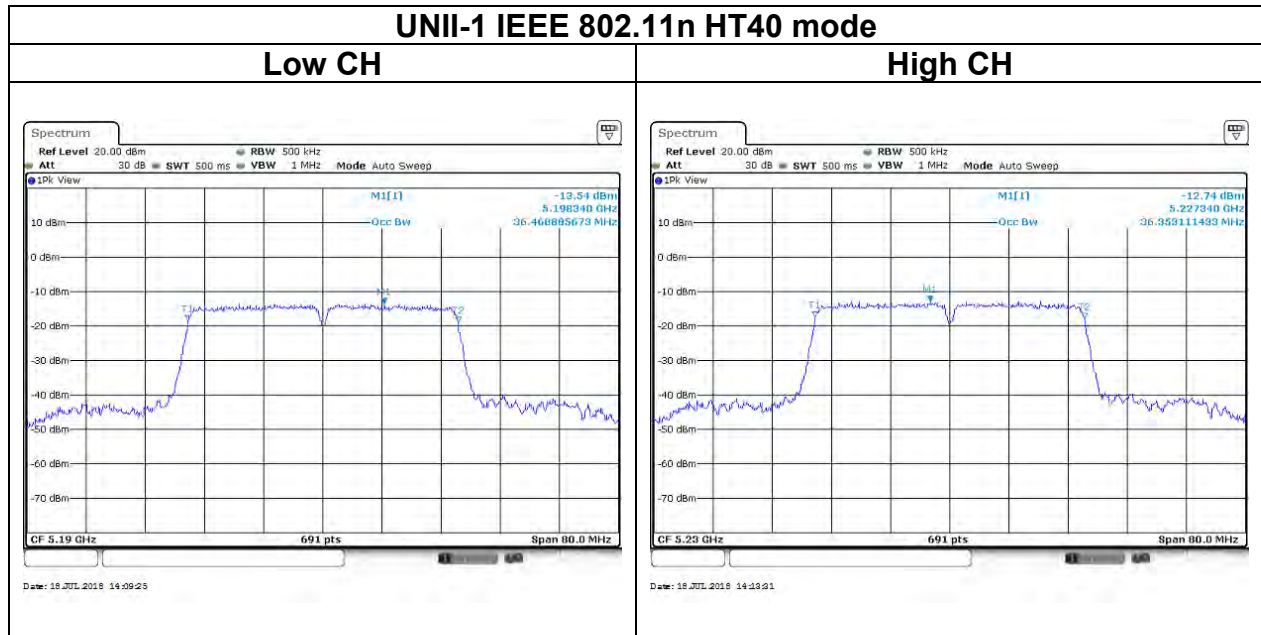
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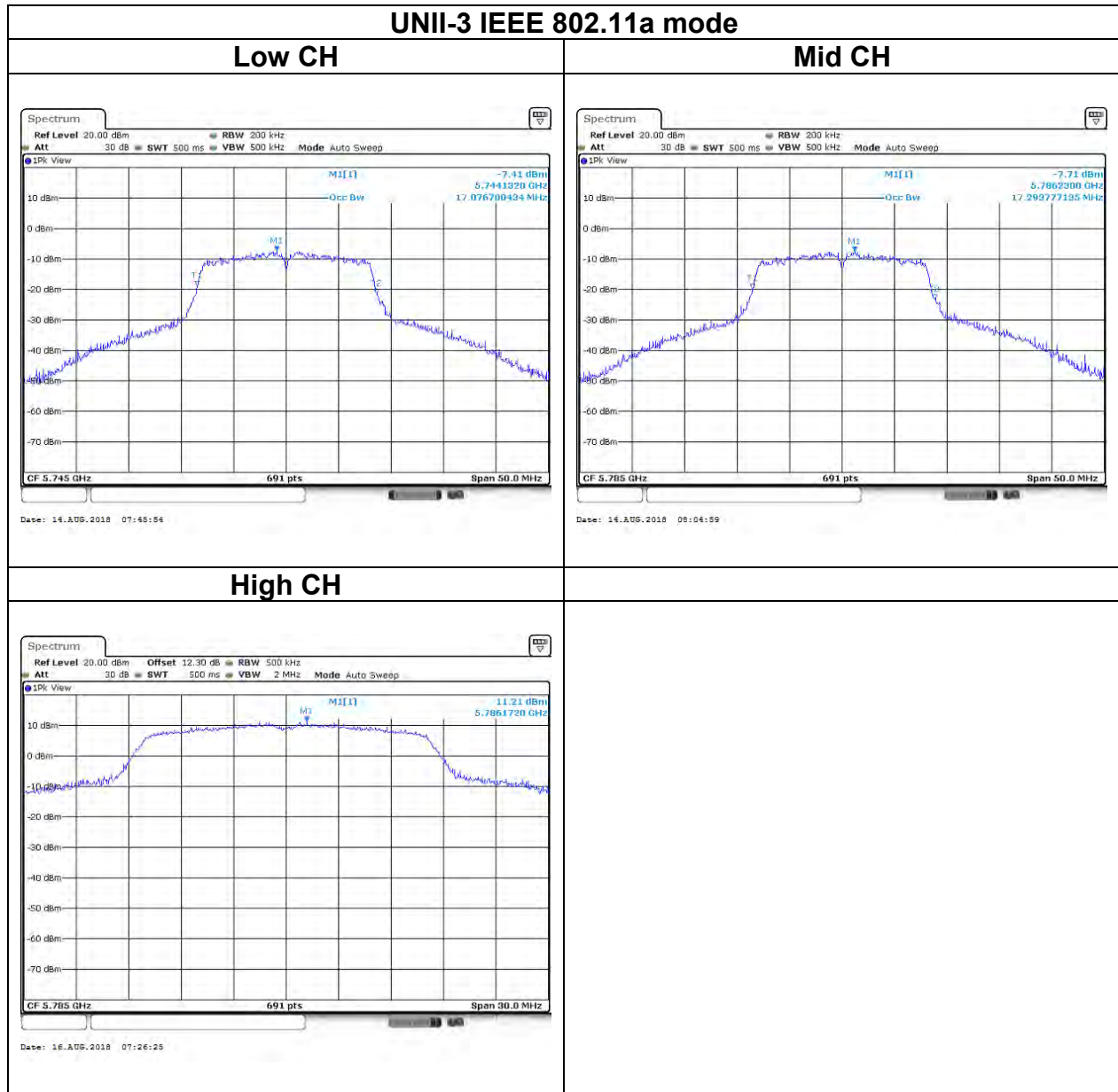




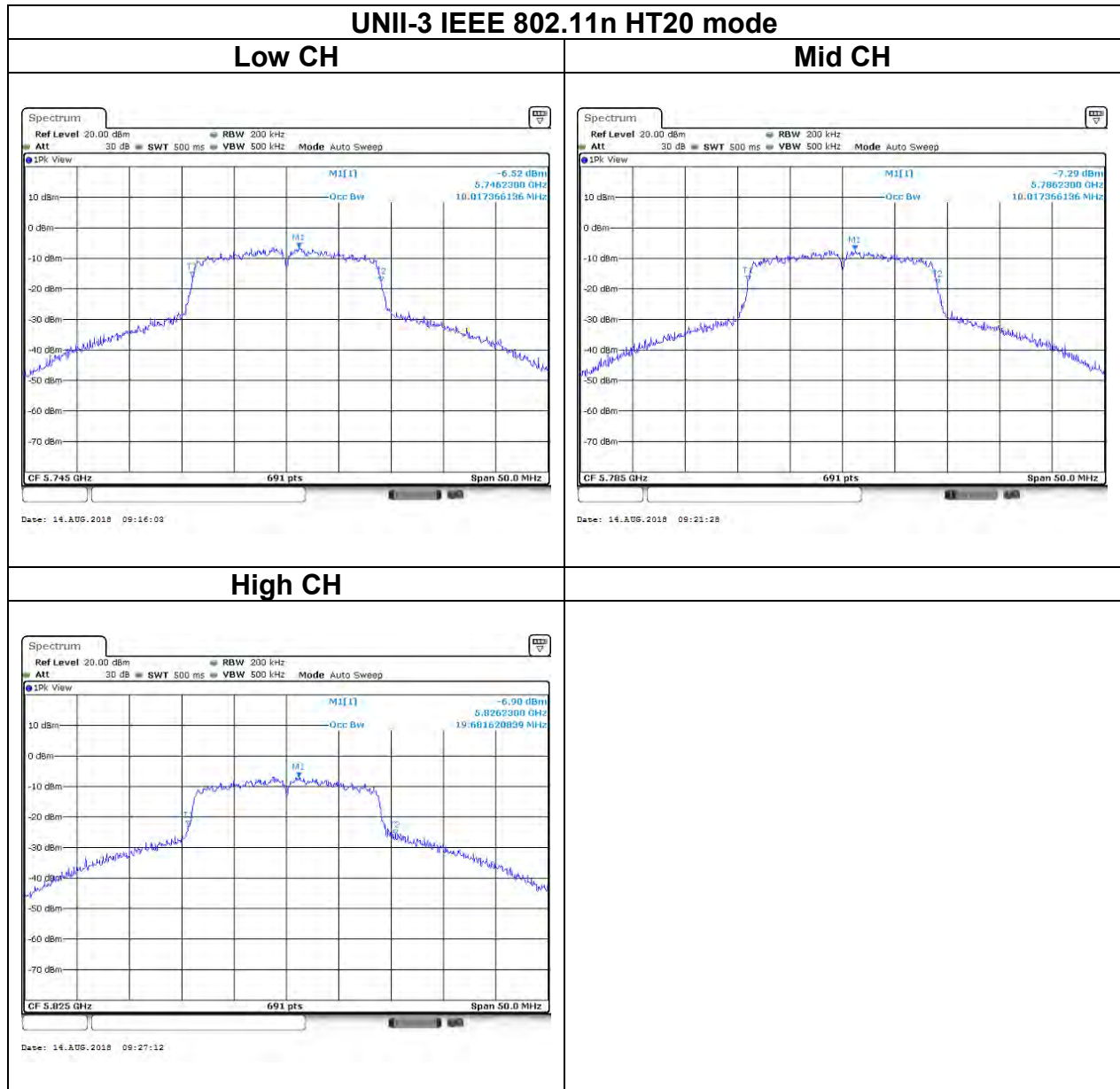
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## Test Data (BANDWIDTH 99%)



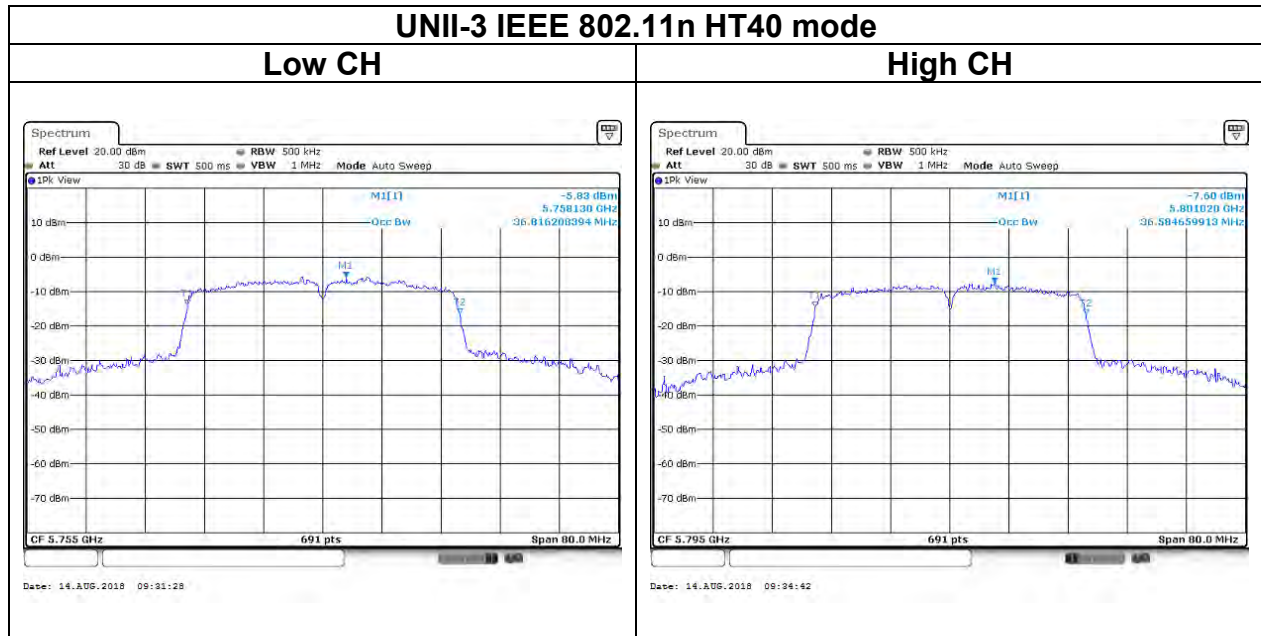






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## 4.3 OUTPUT POWER MEASUREMENT

### 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  $1.76 + 10 \log_{10} B$ , 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  $10 + 10 \log_{10} B$ , 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	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 24dBm (EIRP : 23dBm) <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 24 – (DG – 6)]
UNII-3 Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 30dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)]

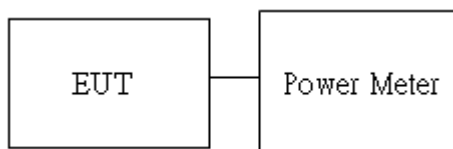


### 4.3.2 Test Procedure

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			



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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.

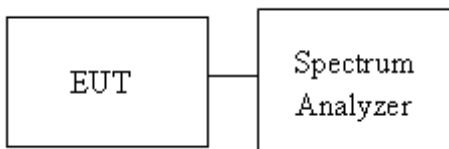
UNII-1 Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 11 dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 11 – (DG – 6)]
UNII-3 Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 30 dBm <input type="checkbox"/> Antenna with DG greater 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



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#### 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		



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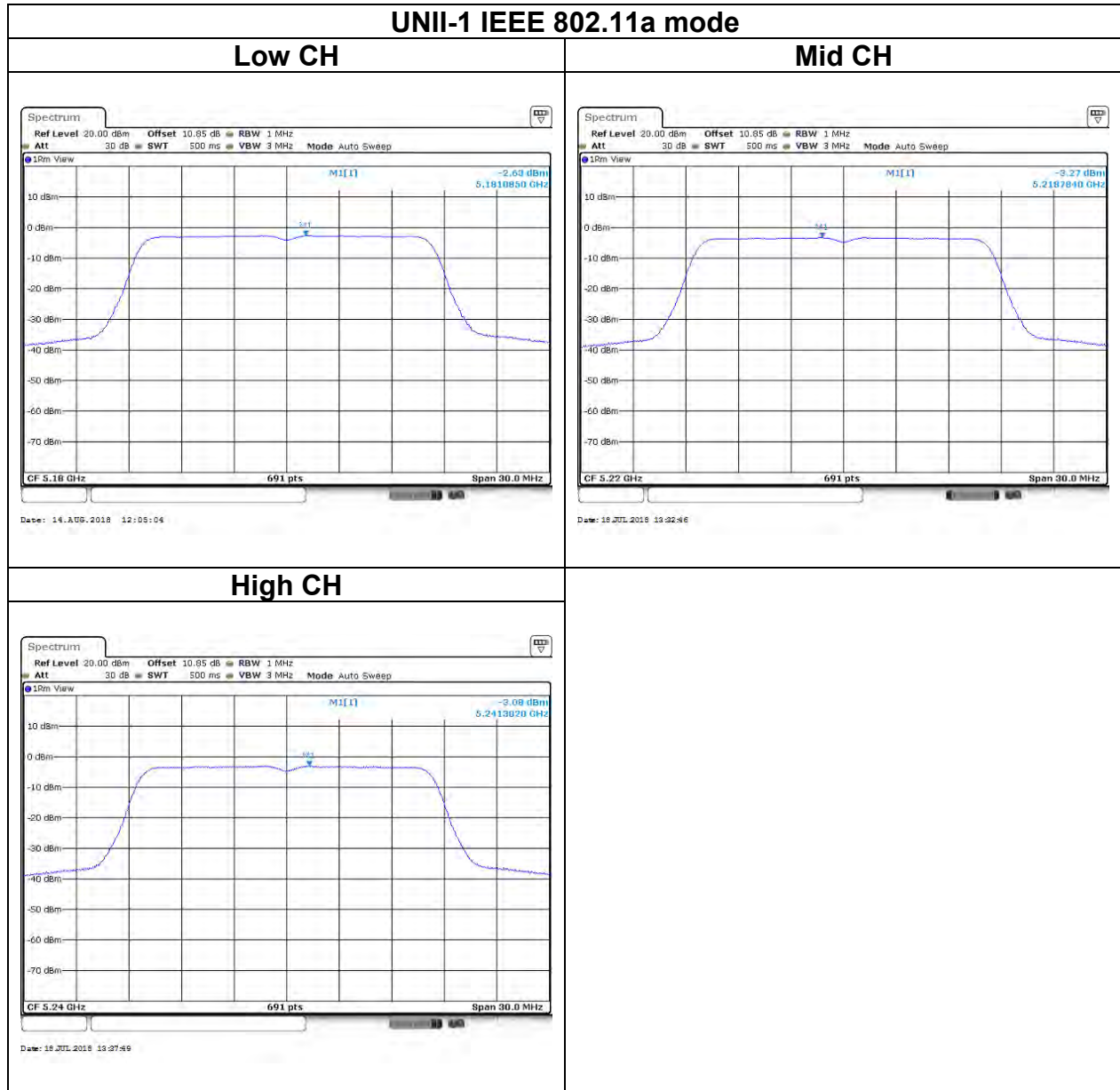
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UNII-3 5725-5825 MHz			
Test mode: IEEE 802.11a mode			
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)
Low	5745	11.38	30
Mid	5785	11.21	
High	5825	8.97	
Test mode: IEEE 802.11n HT20 mode			
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)
Low	5745	11.31	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	



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## Test Data







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### UNII-1 IEEE 802.11n HT20 mode-

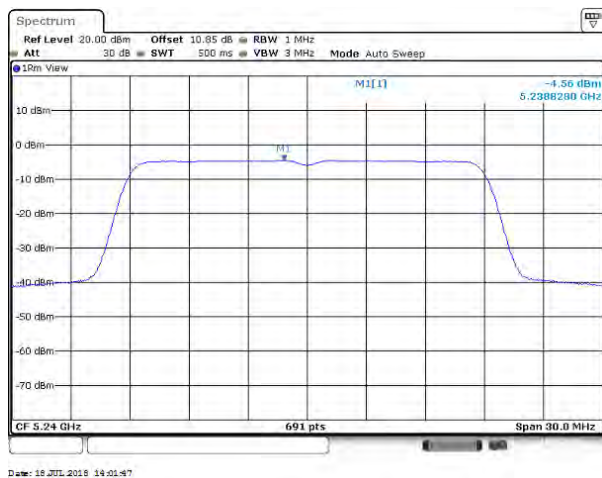
#### Low CH



#### Mid CH



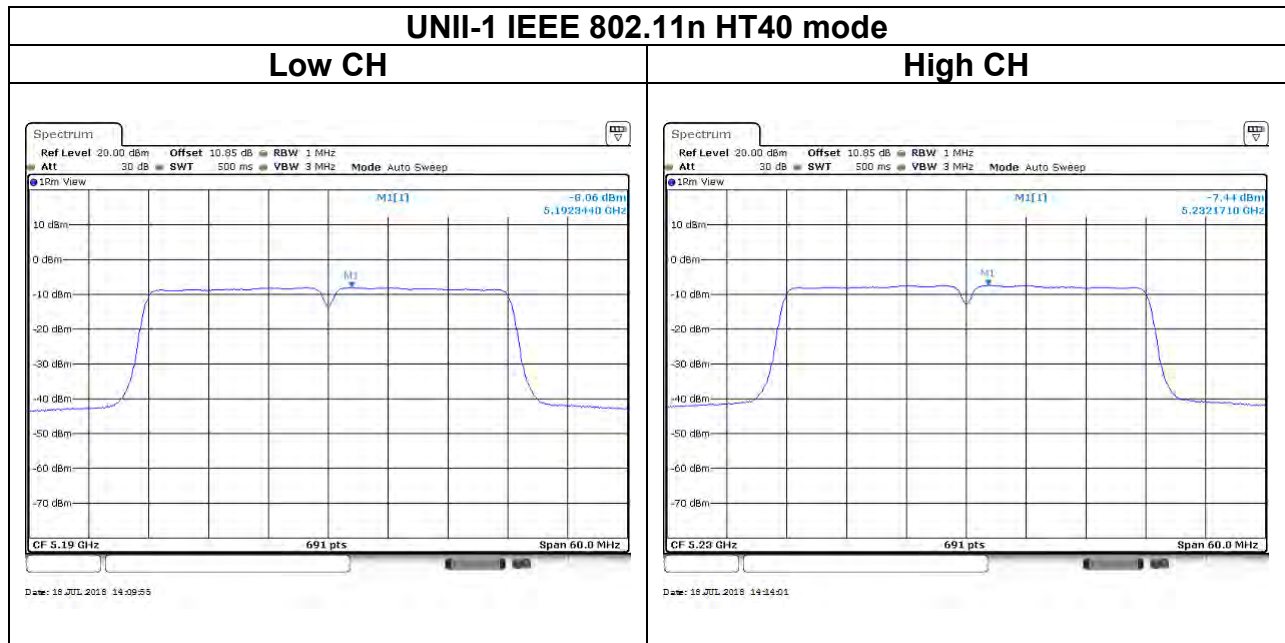
#### High CH





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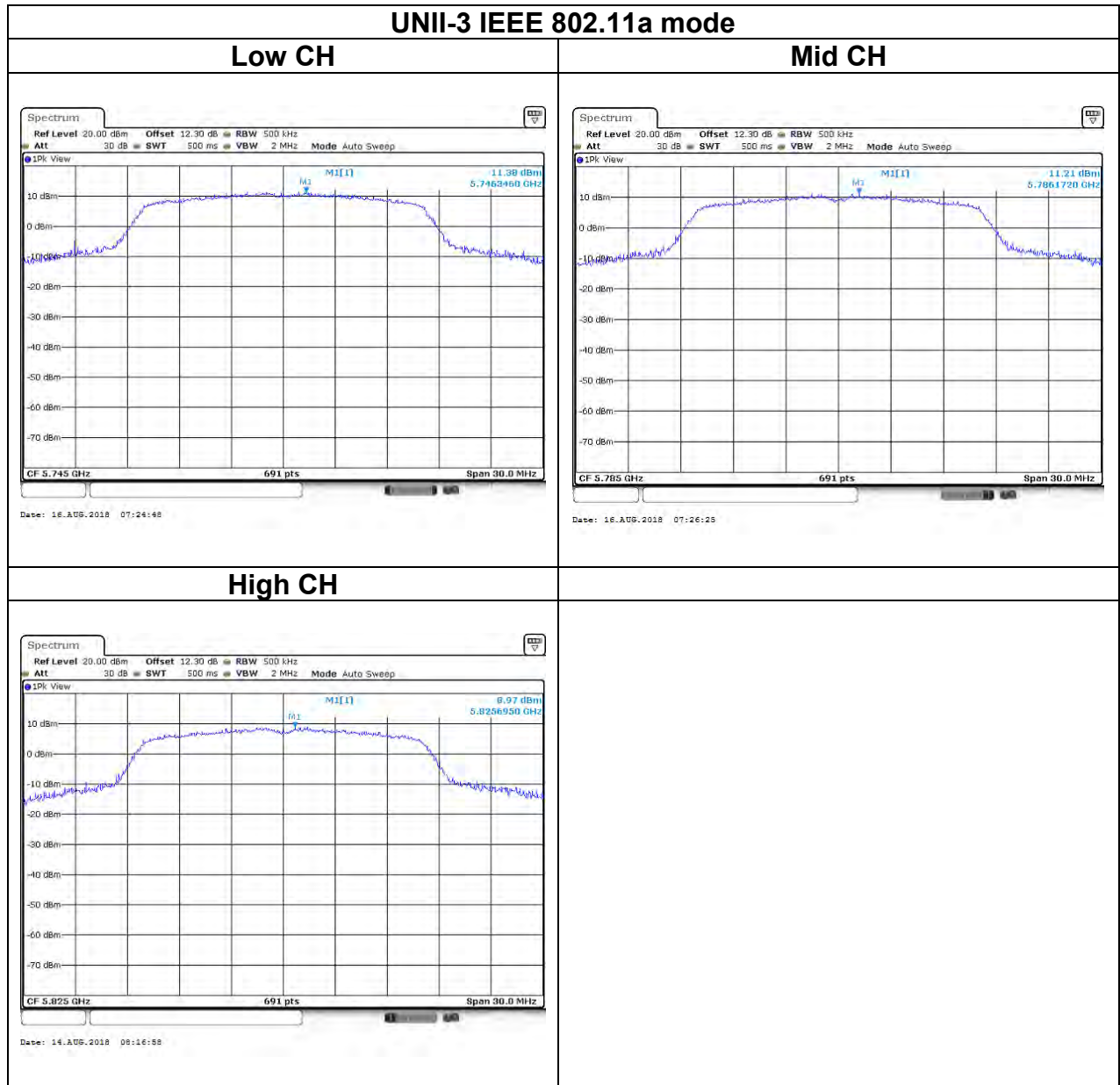


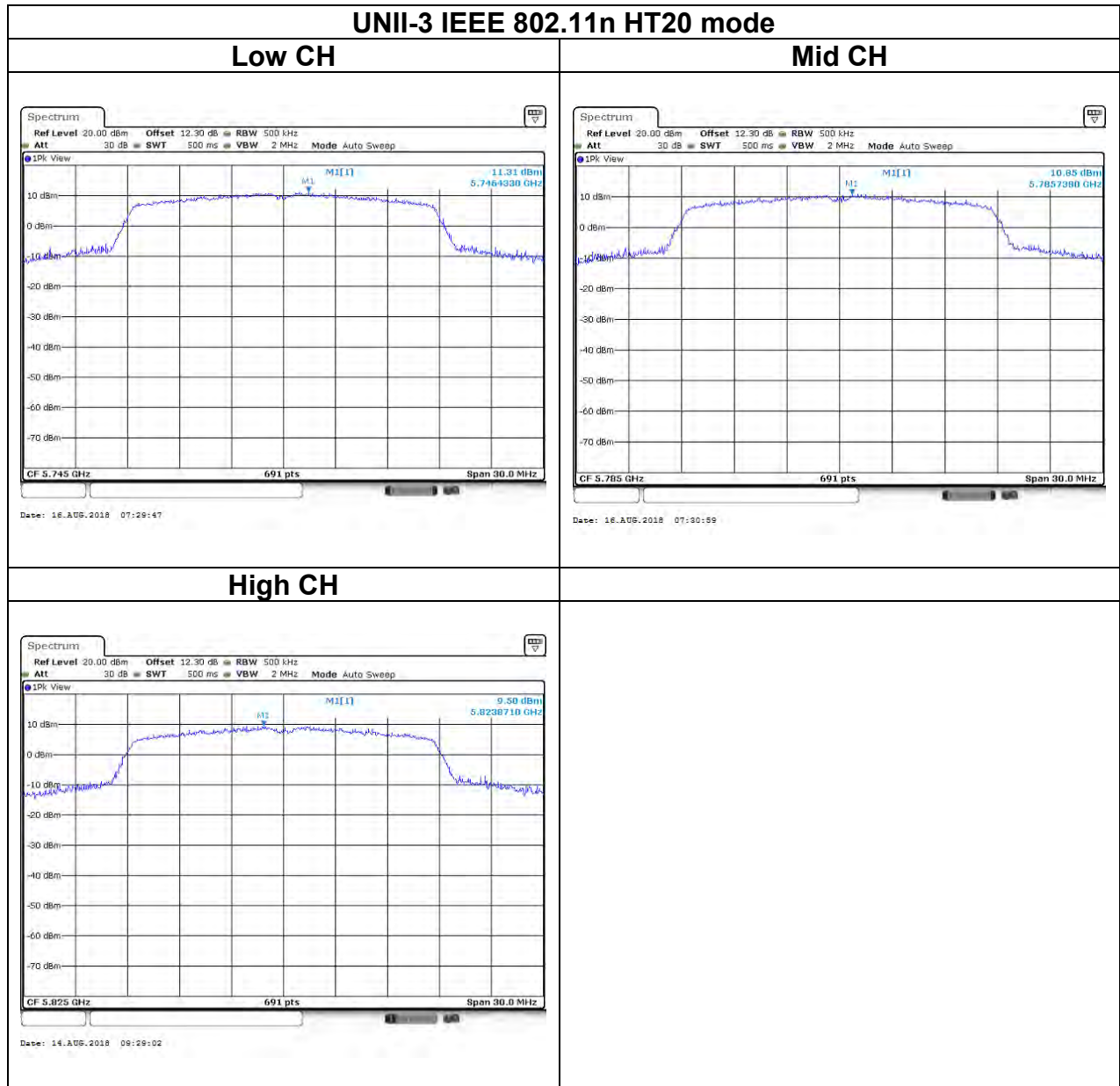


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## Test Data

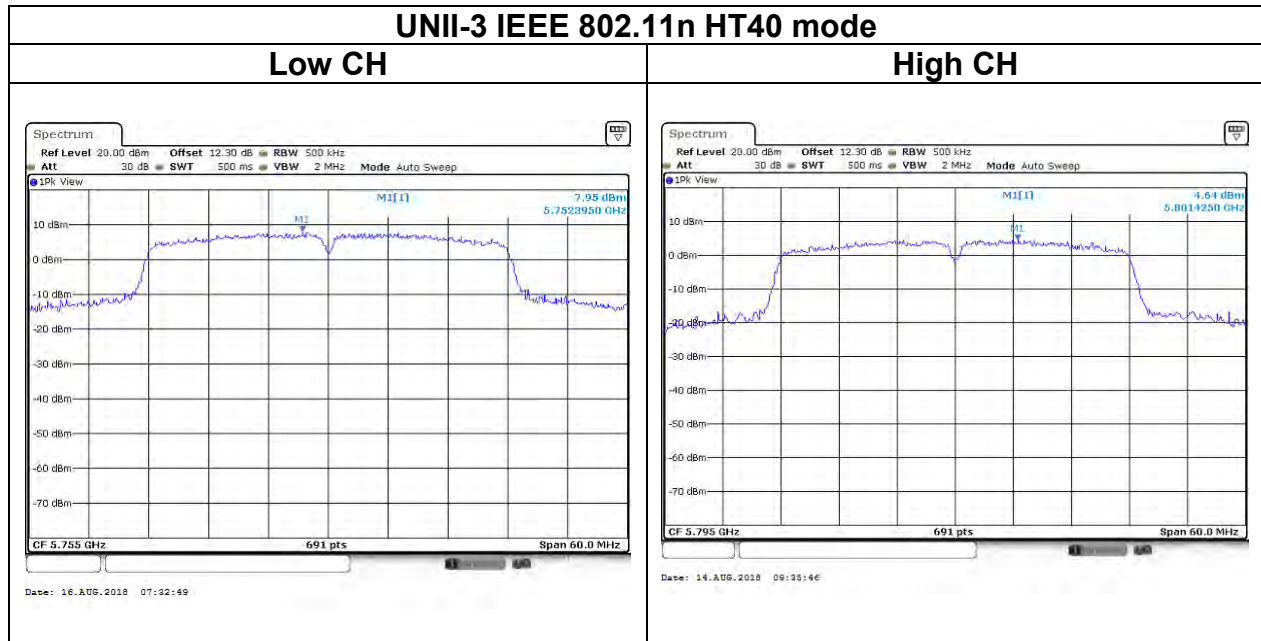






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## 4.5 RADIATION Bandedge and Spurious Emission

### 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 414788.
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  $\geq 3 \times$  RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

(2) Above 1G :

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

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

·If Duty Cycle  $\geq 98\%$ , VBW=10Hz.

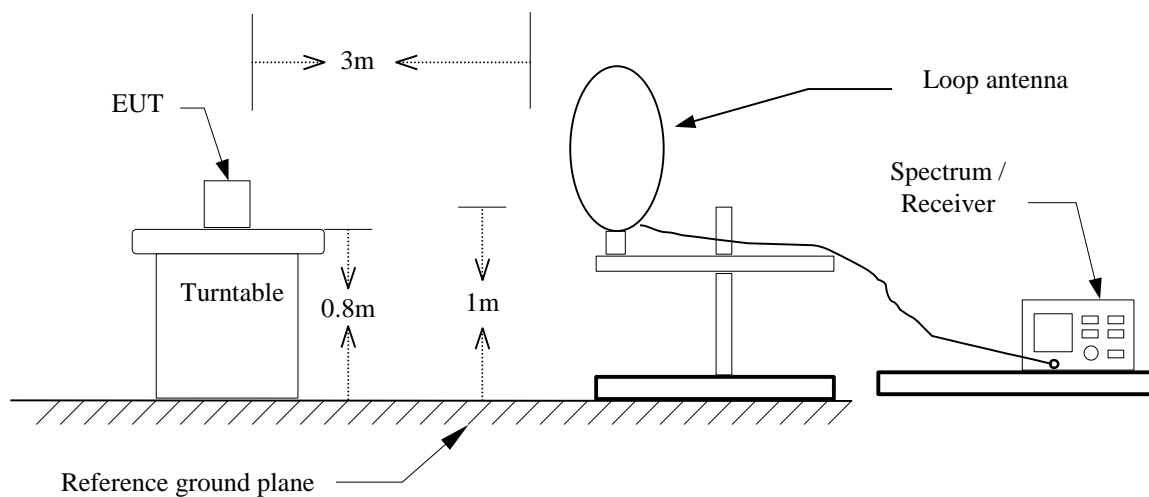
·If Duty Cycle  $< 98\%$ , VBW=1/T.

Configuration	Duty Cycle (%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	99.31%	1.4300	-	10Hz
802.11n HT20	98.51%	1.3200	-	10Hz
802.11n HT40	97.10%	0.6700	1.493	1.5KHz

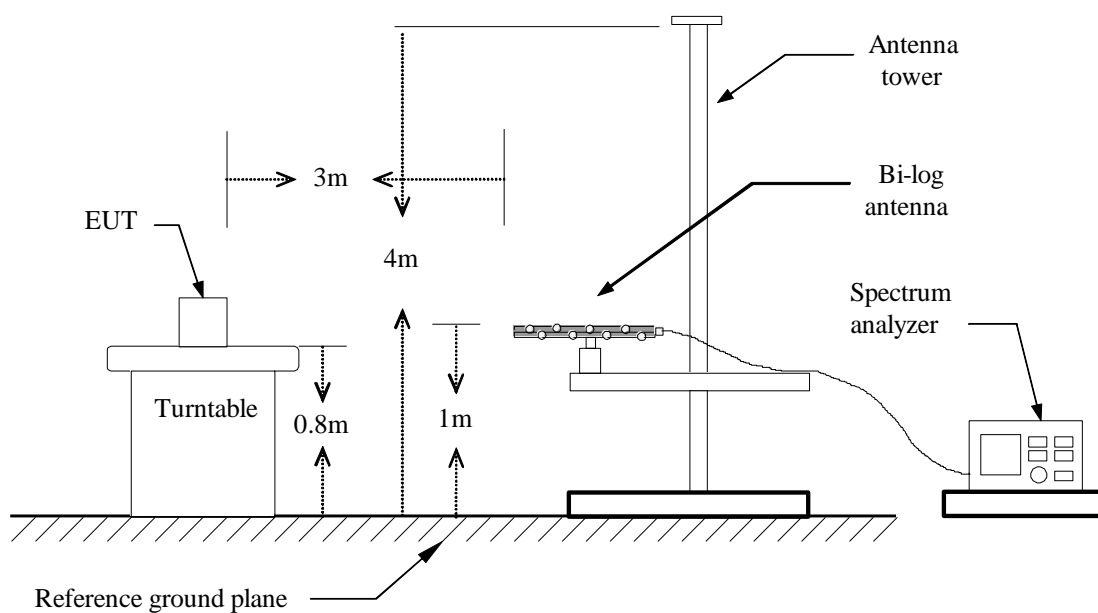


## 4.5.3 Test Setup

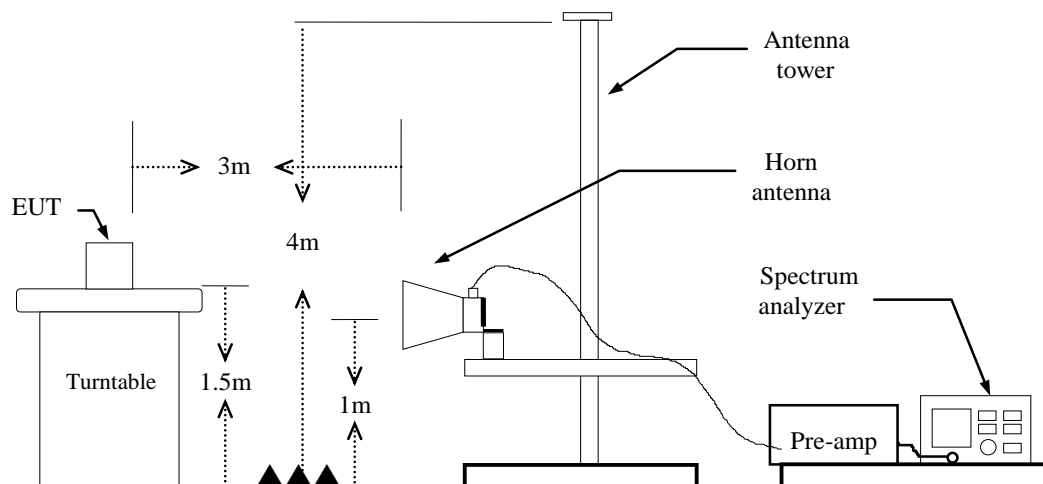
### 9kHz ~ 30MHz



### 30MHz ~ 1GHz



## Above 1 GHz

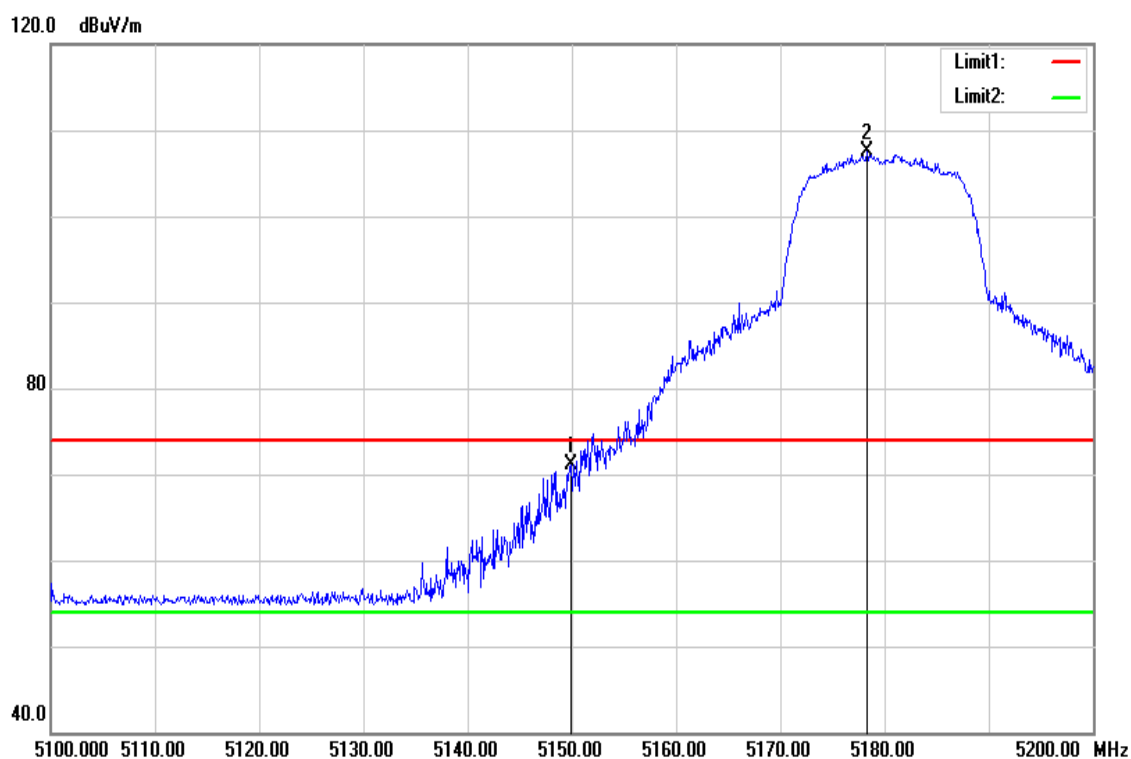


#### 4.5.4 Test Result

##### Test Data

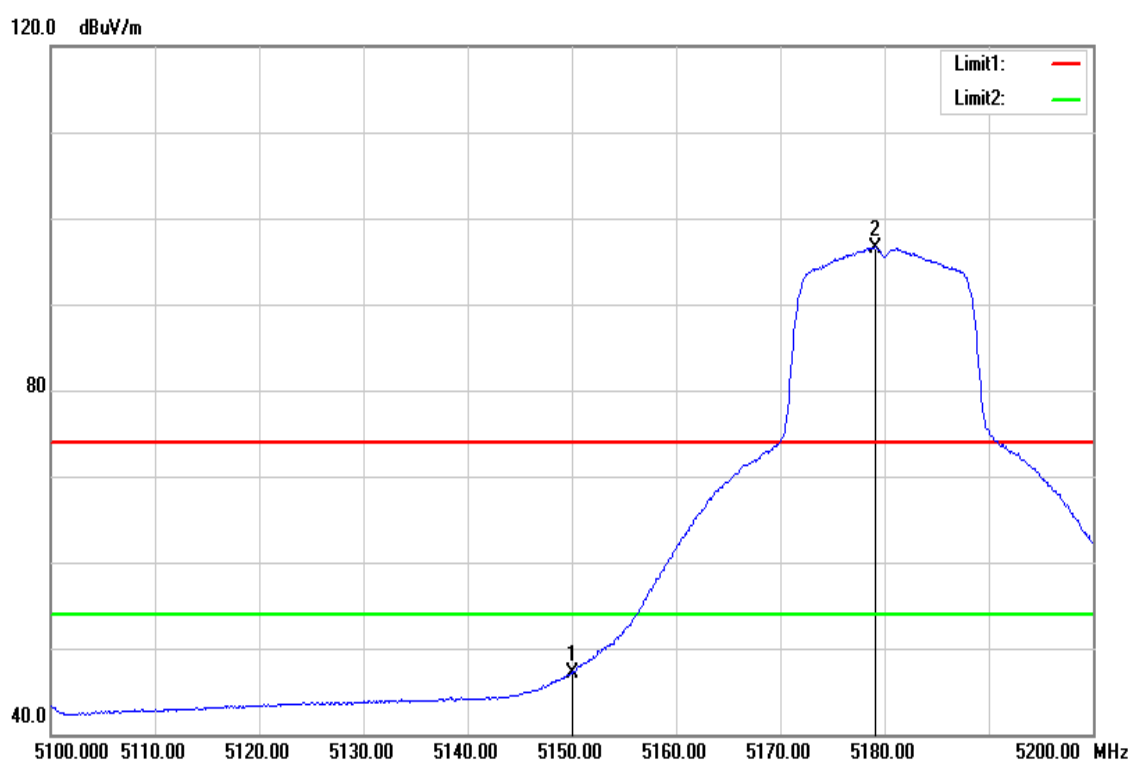
##### Band Edge Test Data for UNII-1

Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



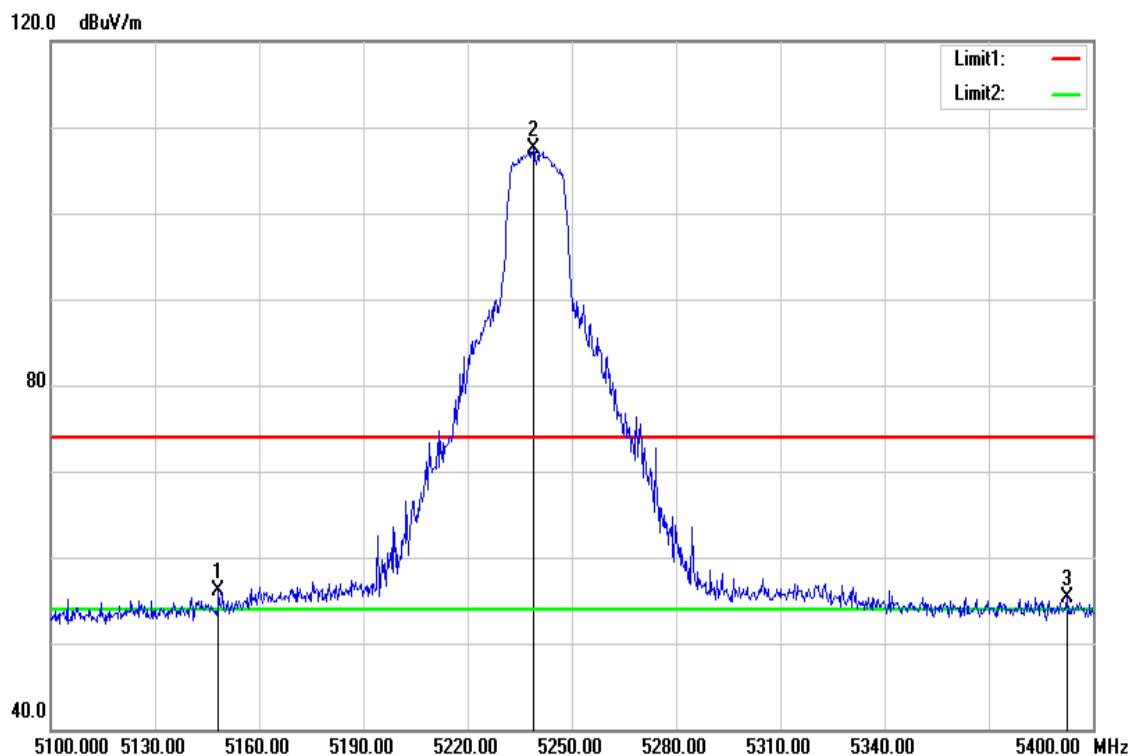
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.900	66.11	5.00	71.11	74.00	-2.89	peak
5178.300	102.36	5.12	107.48	-	-	peak

Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 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	42.16	5.00	47.16	54.00	-6.84	AVG
5179.100	91.48	5.12	96.60	-	-	AVG

Test Mode	IEEE 802.11a / 5240MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



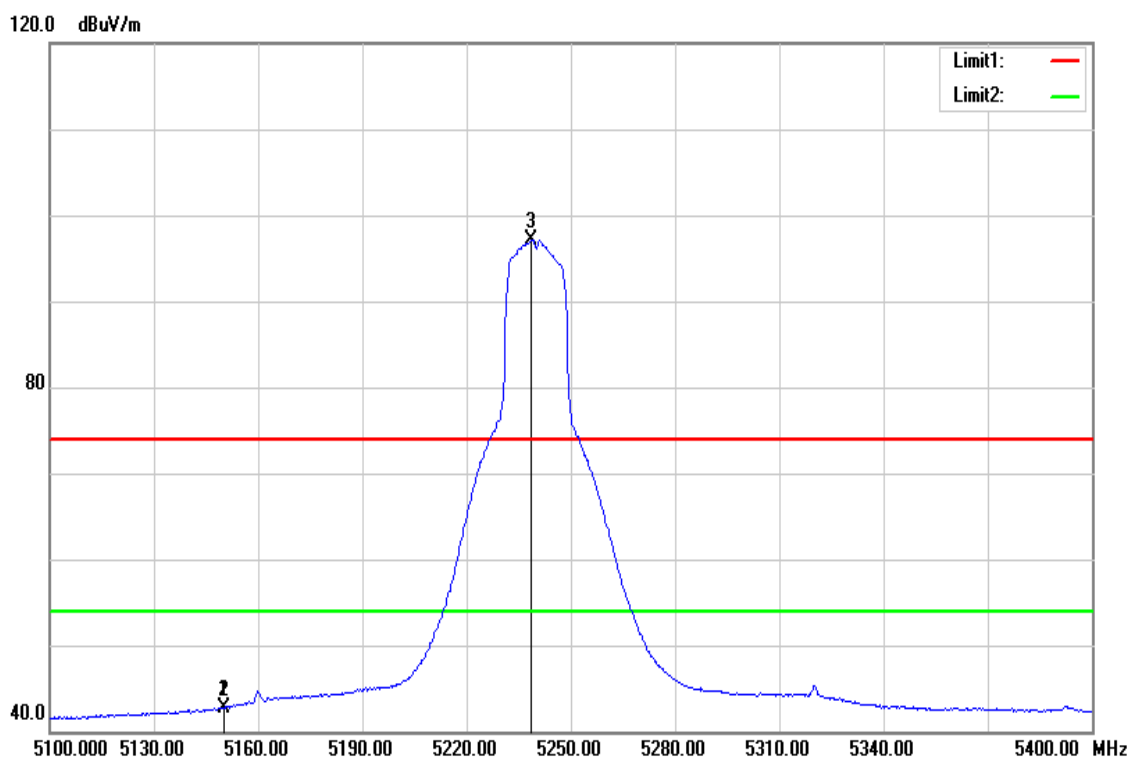
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5148.300	51.06	5.00	56.06	74.00	-17.94	peak
5238.900	102.28	5.24	107.52	-	-	peak
5392.500	50.00	5.40	55.40	74.00	-18.60	peak



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Test Mode	IEEE 802.11a / 5240MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



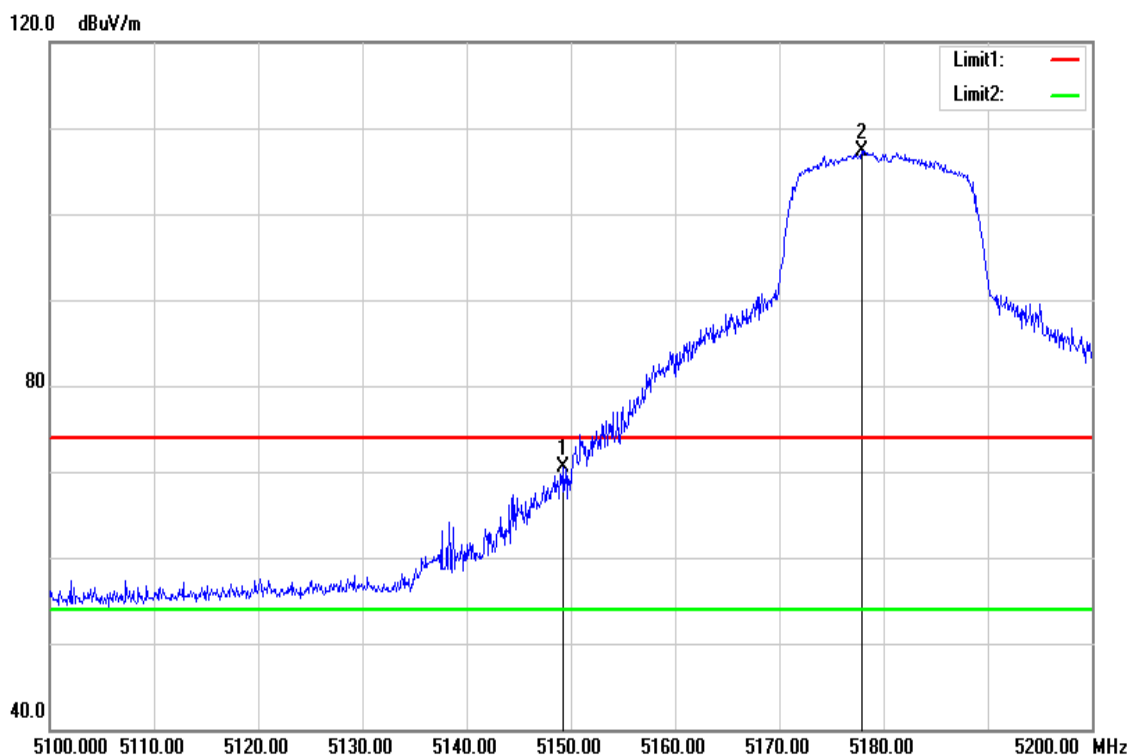
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	37.78	5.00	42.78	54.00	-11.22	AVG
5150.100	37.77	5.01	42.78	54.00	-11.22	AVG
5238.600	91.94	5.24	97.18	-	-	AVG



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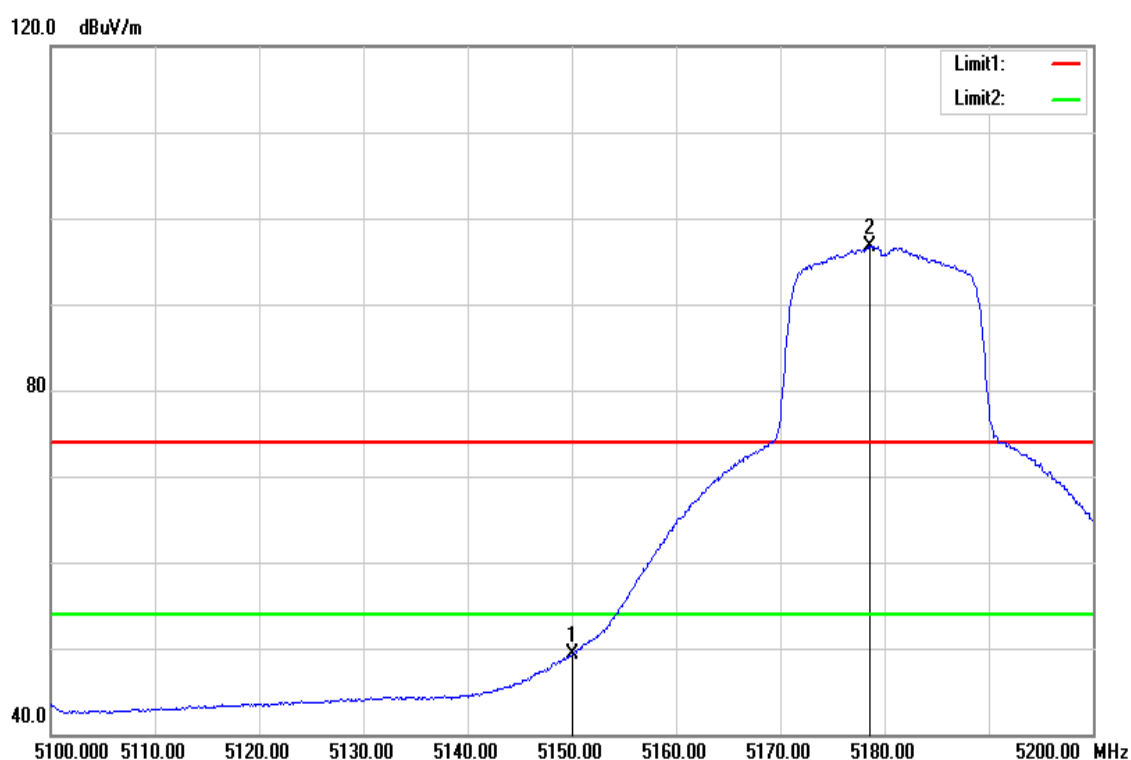
Test Mode	IEEE 802.11n HT20 / 5180MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.300	65.49	5.00	70.49	74.00	-3.51	peak
5177.900	102.27	5.12	107.39	-	-	peak

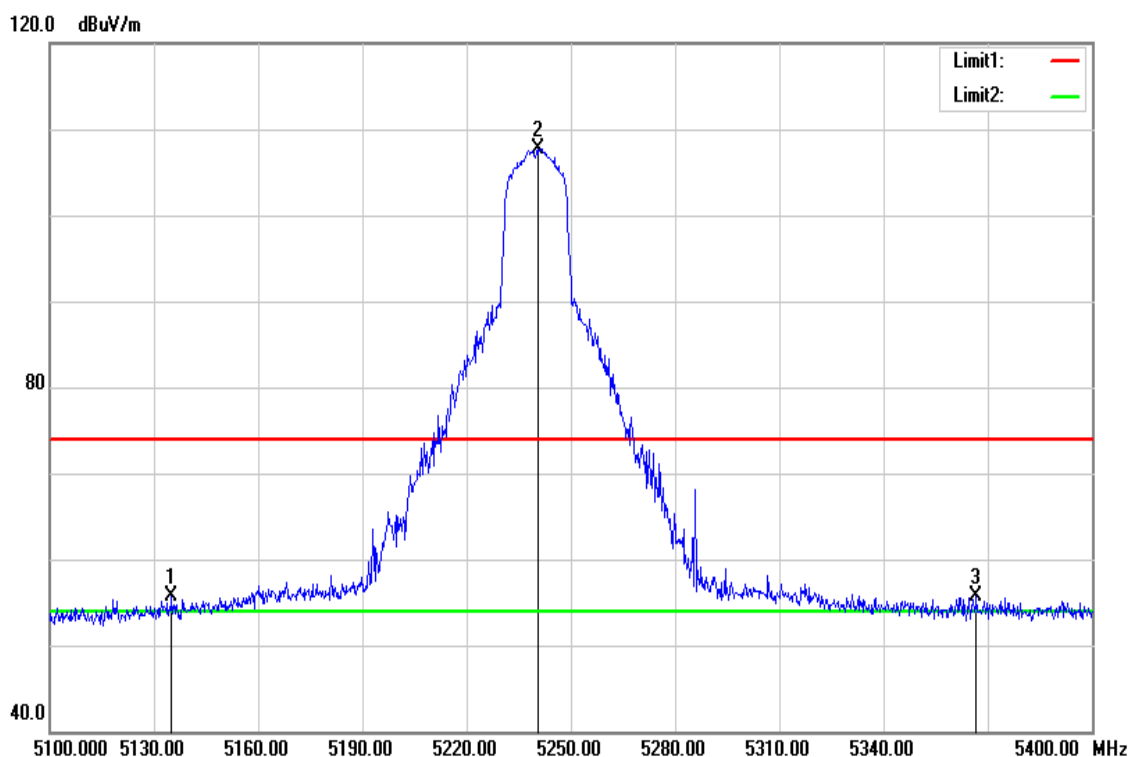


Test Mode	IEEE 802.11n HT20 / 5180MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



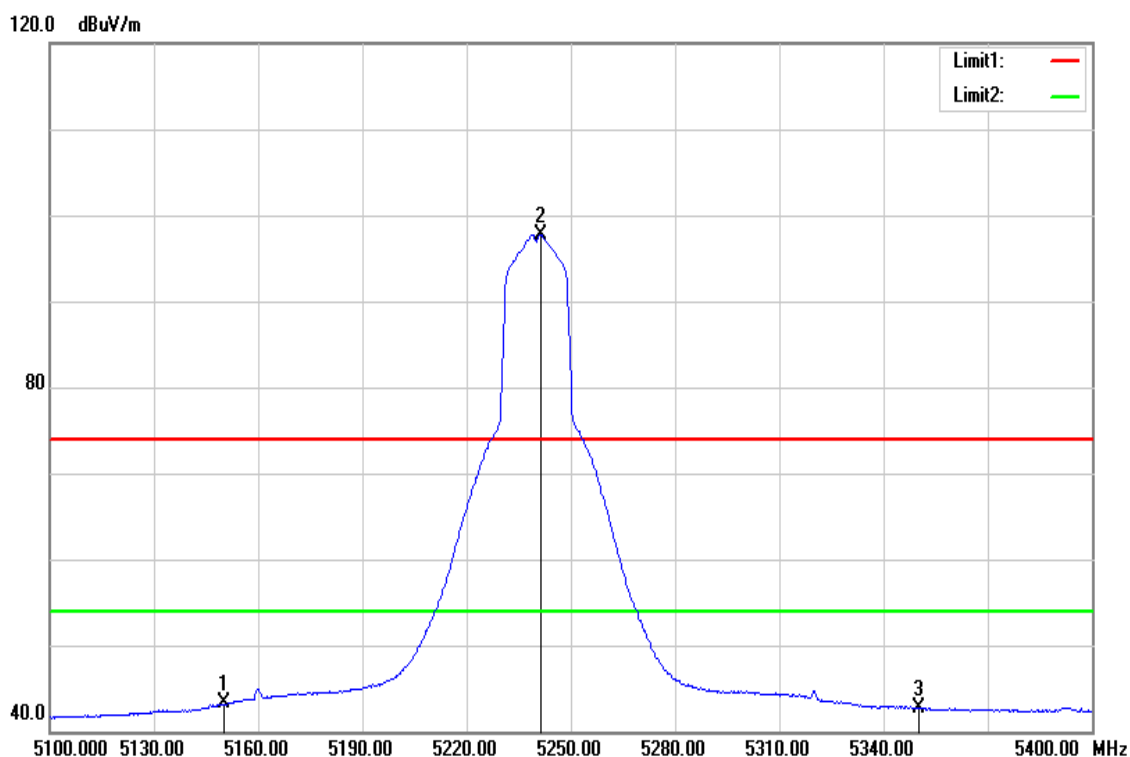
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	44.28	5.00	49.28	54.00	-4.72	AVG
5178.600	91.59	5.12	96.71	-	-	AVG

Test Mode	IEEE 802.11n HT20 / 5240MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 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
5135.100	50.78	4.94	55.72	74.00	-18.28	peak
5240.400	102.55	5.24	107.79	-	-	peak
5366.700	50.27	5.37	55.64	74.00	-18.36	peak

Test Mode	IEEE 802.11n HT20 / 5240MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



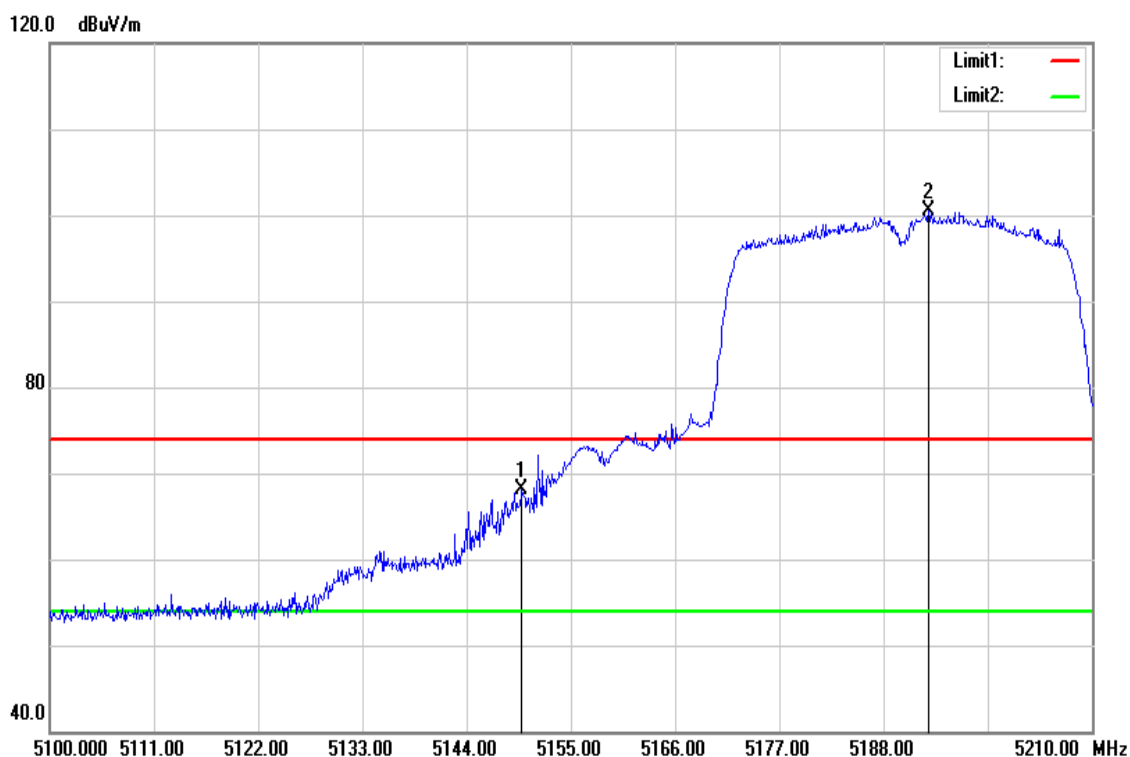
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	38.20	5.00	43.20	54.00	-10.80	AVG
5241.300	92.48	5.25	97.73	-	-	AVG
5350.000	37.36	5.35	42.71	54.00	-11.29	AVG



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Test Mode	IEEE 802.11n HT40 / 5190MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



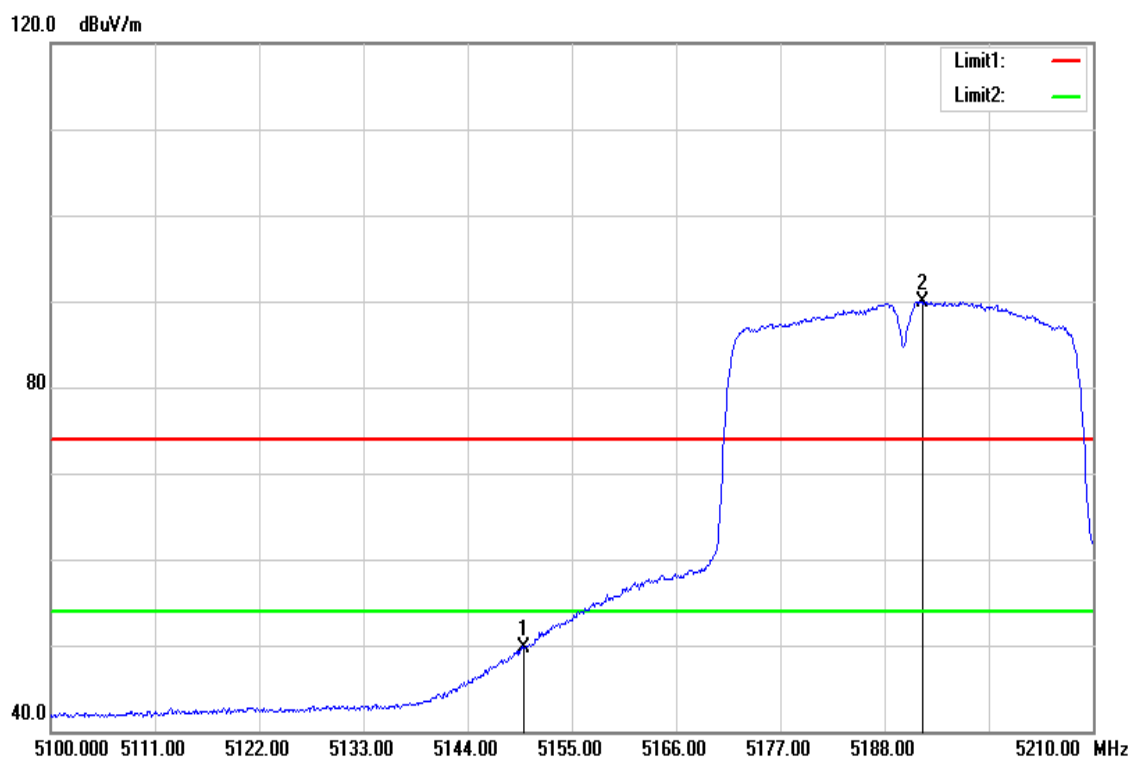
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5149.830	63.02	5.00	68.02	74.00	-5.98	peak
5192.730	95.38	5.18	100.56	-	-	peak



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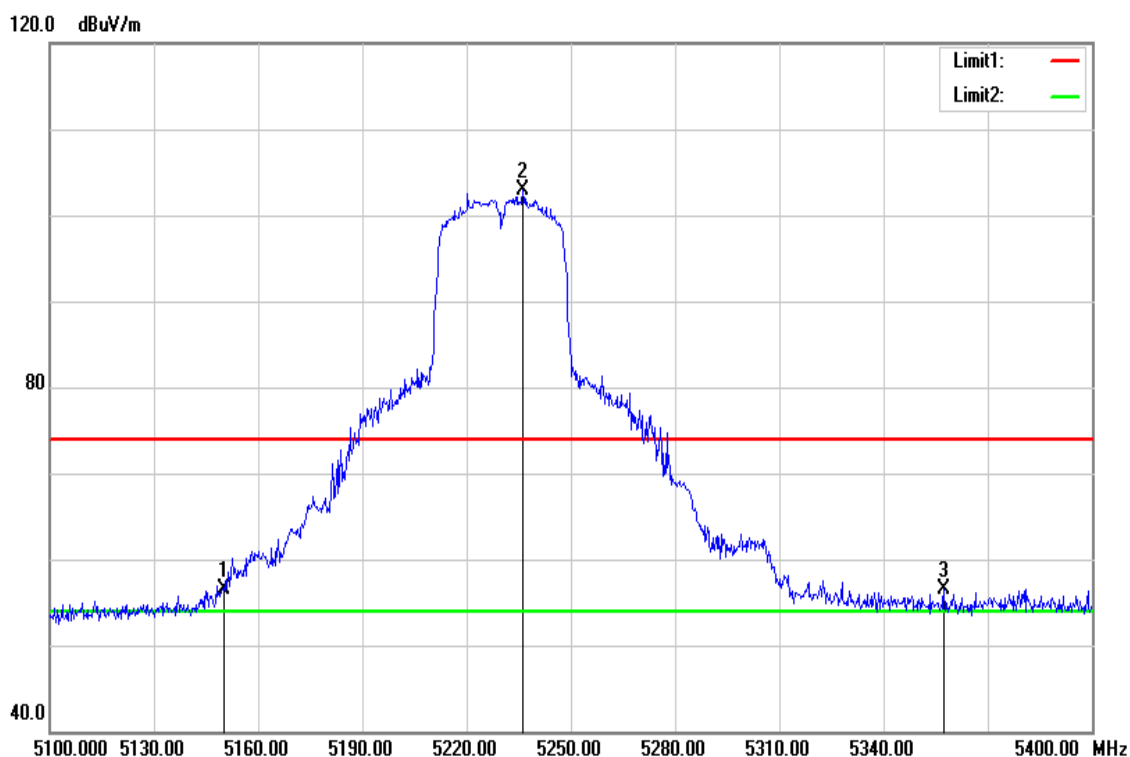
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Rev.: 01

Test Mode	IEEE 802.11n HT40 / 5190MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



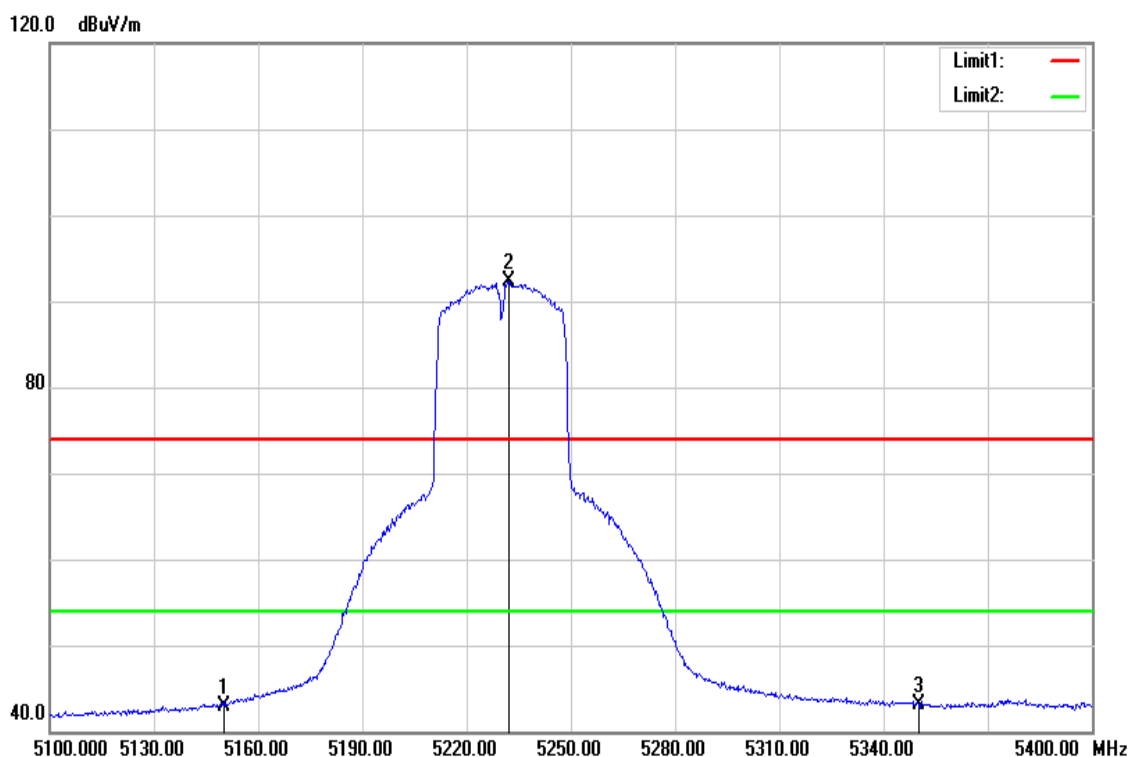
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	44.61	5.00	49.61	54.00	-4.39	AVG
5191.960	84.79	5.17	89.96	-	-	AVG

Test Mode	IEEE 802.11n HT40 / 5230MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 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	51.60	5.00	56.60	74.00	-17.40	peak
5236.200	97.66	5.24	102.90	-	-	peak
5357.400	51.22	5.36	56.58	74.00	-17.42	peak

Test Mode	IEEE 802.11n HT40 / 5230MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		

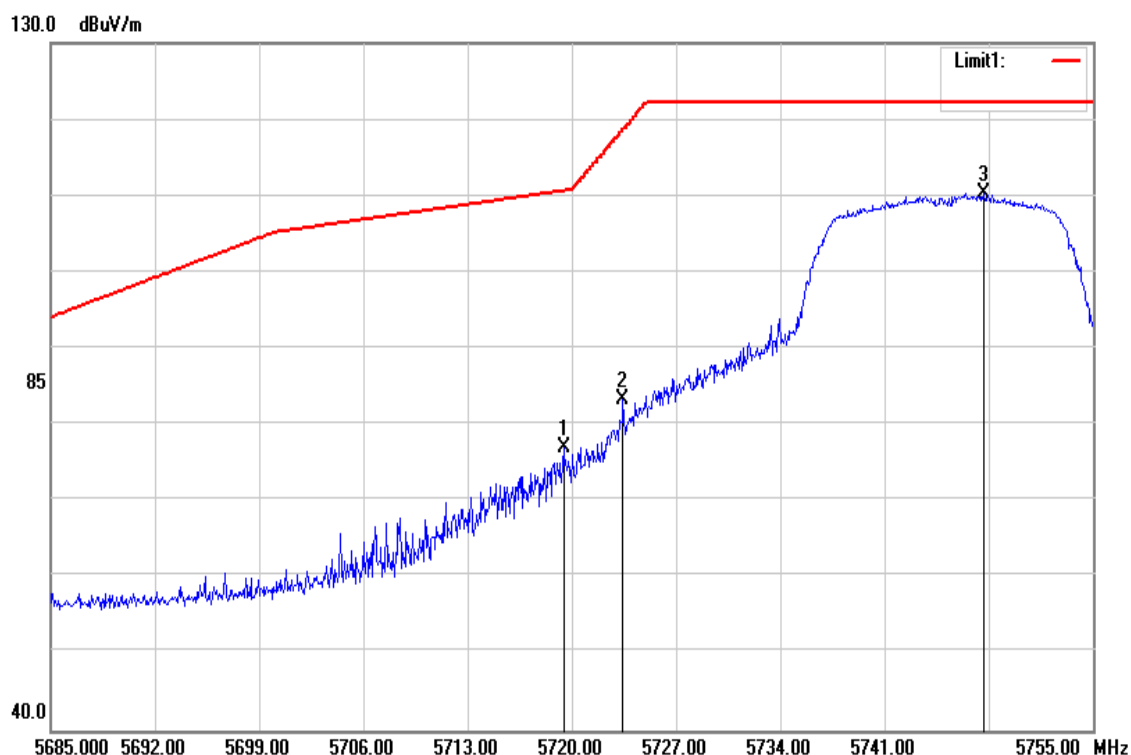


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.000	37.99	5.00	42.99	54.00	-11.01	AVG
5232.000	87.10	5.24	92.34	-	-	AVG
5350.000	37.69	5.36	43.05	54.00	-10.95	AVG



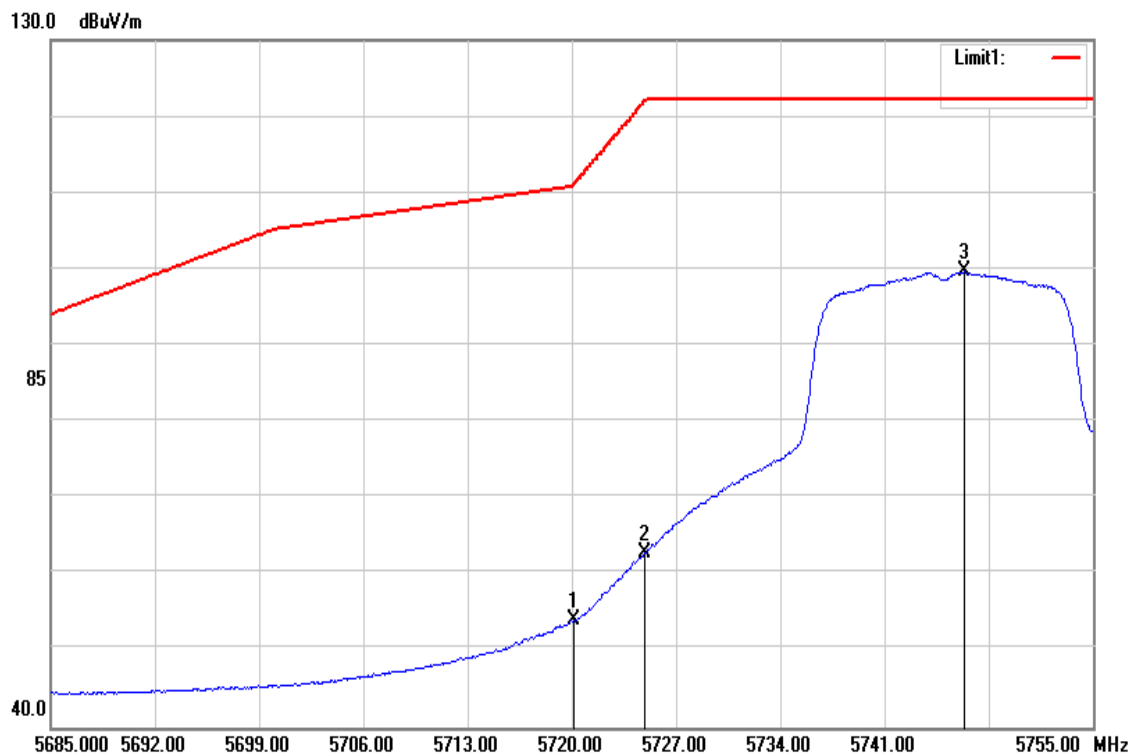
### Band Edge Test Data for UNII-3

Test Mode	IEEE 802.11a / 5745 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



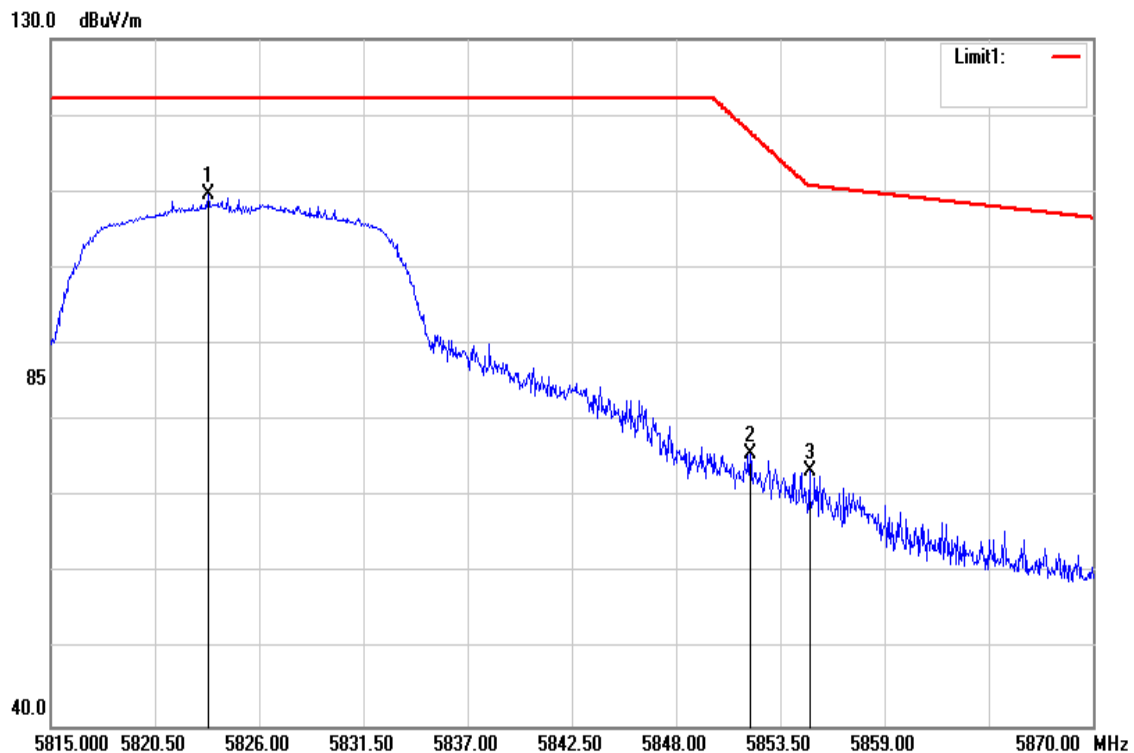
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.440	70.22	6.75	76.97	110.64	-33.67	peak
5723.430	76.47	6.75	83.22	118.62	-35.40	peak
5747.650	103.51	6.87	110.38	-	-	peak

Test Mode	IEEE 802.11a / 5745 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



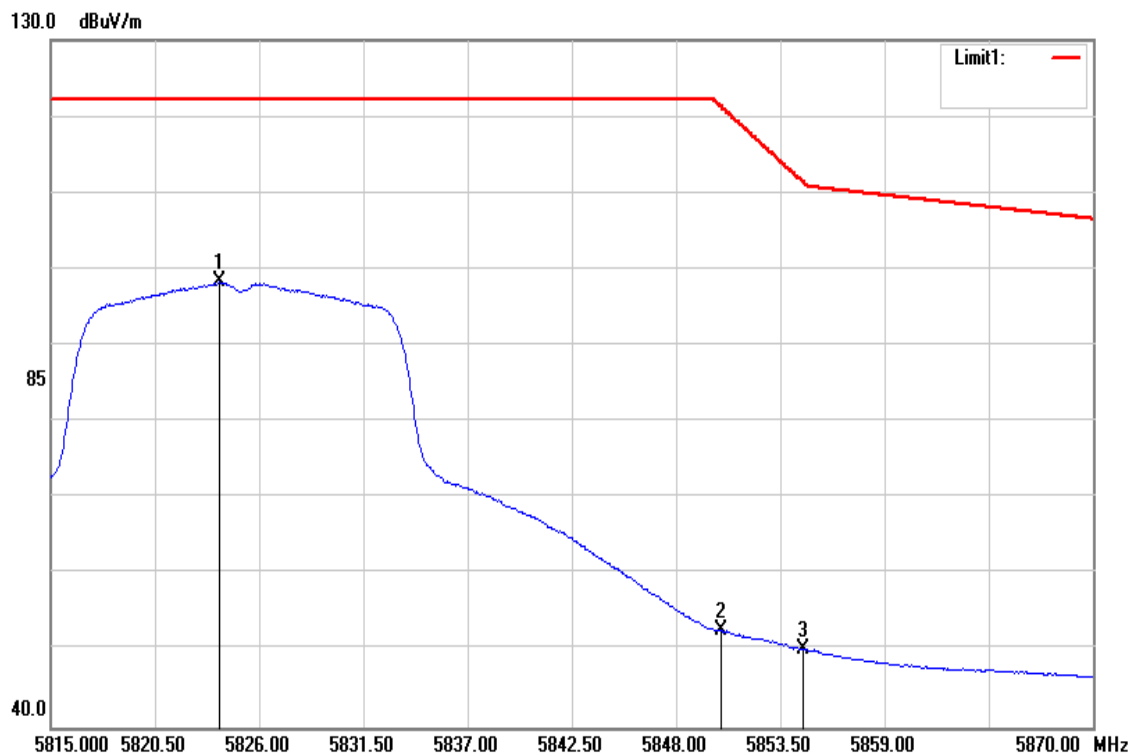
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5720.140	47.23	6.75	53.98	111.12	-57.14	AVG
5724.900	56.02	6.77	62.79	121.97	-59.18	AVG
5746.390	92.88	6.87	99.75	-	-	AVG

Test Mode	IEEE 802.11a / 5825 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



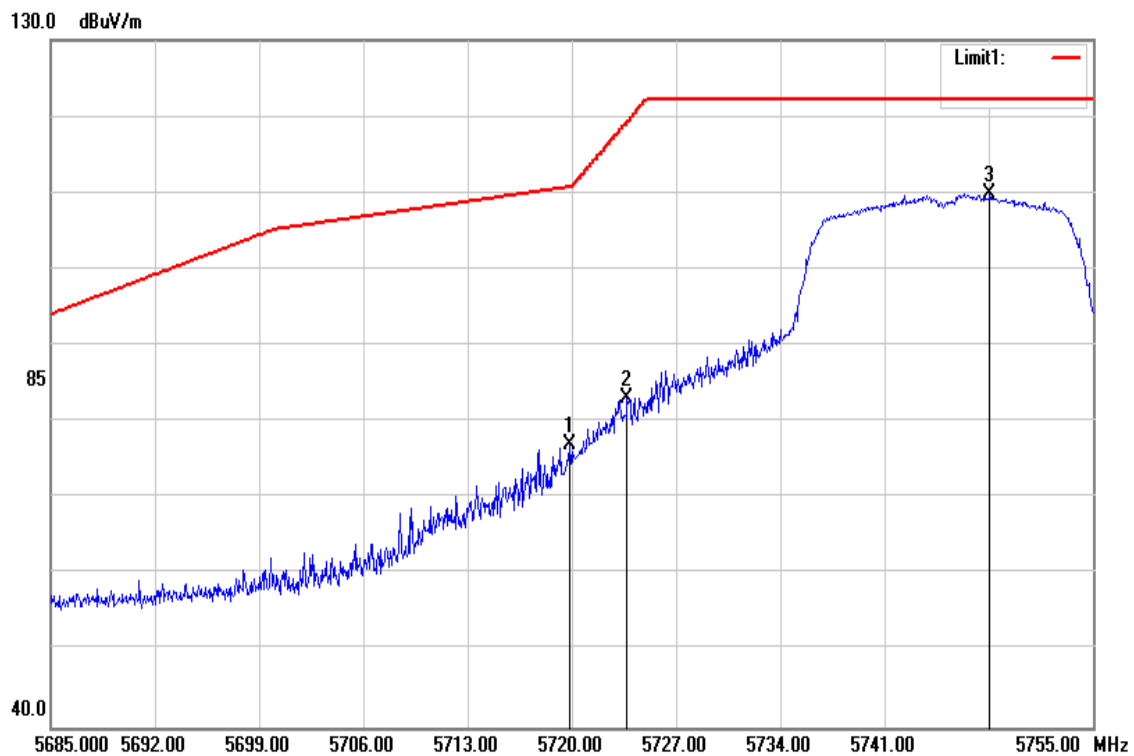
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5823.305	102.47	7.14	109.61	-	-	peak
5851.905	68.60	7.15	75.75	117.86	-42.11	peak
5855.040	66.30	7.16	73.46	110.79	-37.33	peak

Test Mode	IEEE 802.11a / 5825 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



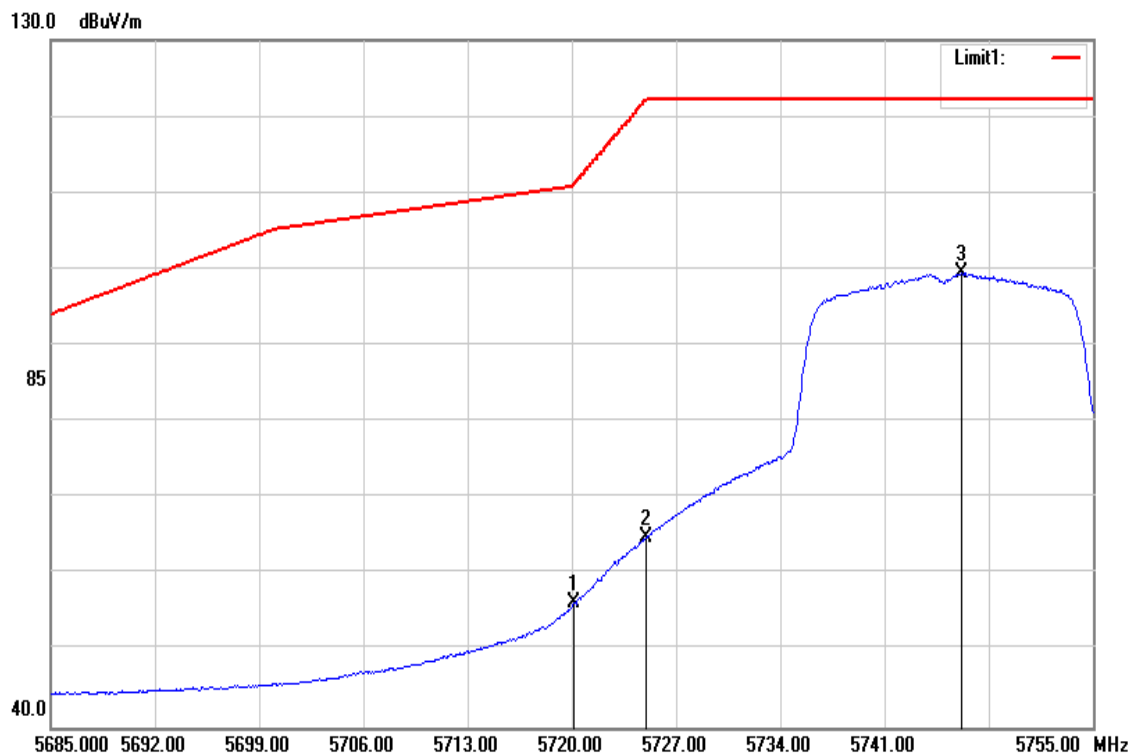
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5823.910	91.18	7.14	98.32	-	-	AVG
5850.365	45.61	7.16	52.77	121.37	-68.60	AVG
5854.710	43.09	7.16	50.25	111.46	-61.21	AVG

Test Mode	IEEE 802.11n HT20 / 5745 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



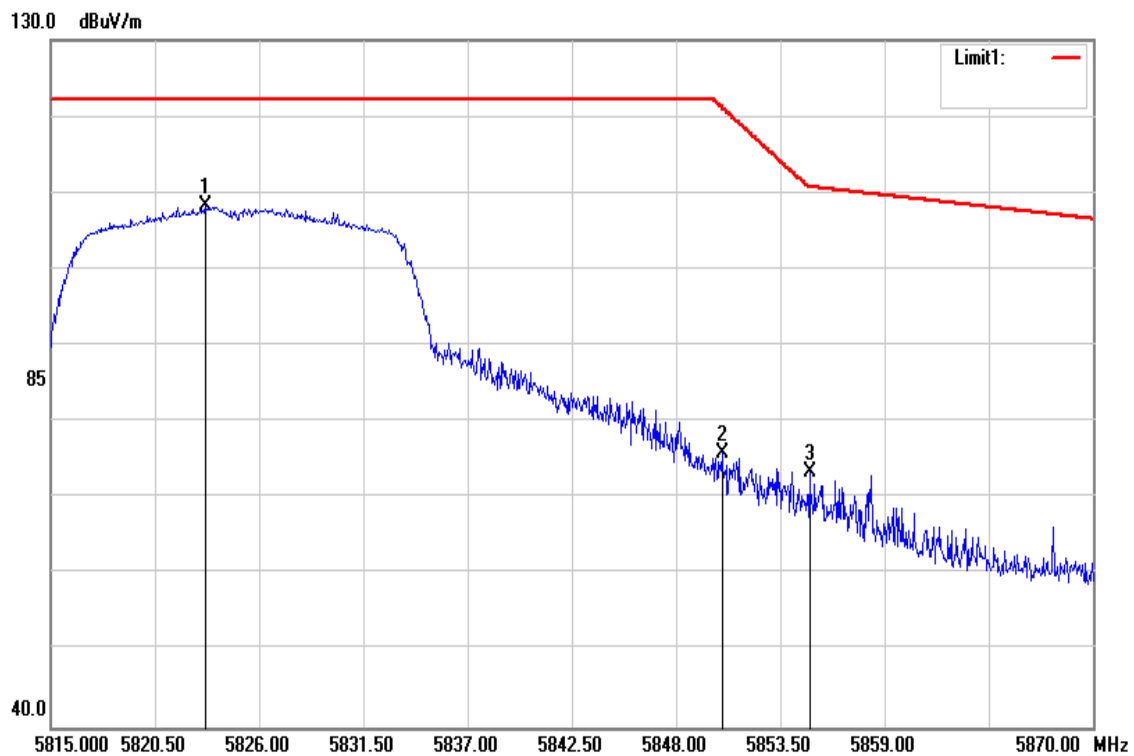
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.860	70.21	6.75	76.96	110.76	-33.80	peak
5723.710	76.33	6.75	83.08	119.26	-36.18	peak
5748.070	102.93	6.87	109.80	-	-	peak

Test Mode	IEEE 802.11n HT20 / 5745 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 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
5720.140	49.46	6.75	56.21	111.12	-54.91	AVG
5724.970	58.00	6.77	64.77	122.13	-57.36	AVG
5746.180	92.61	6.86	99.47	-	-	AVG

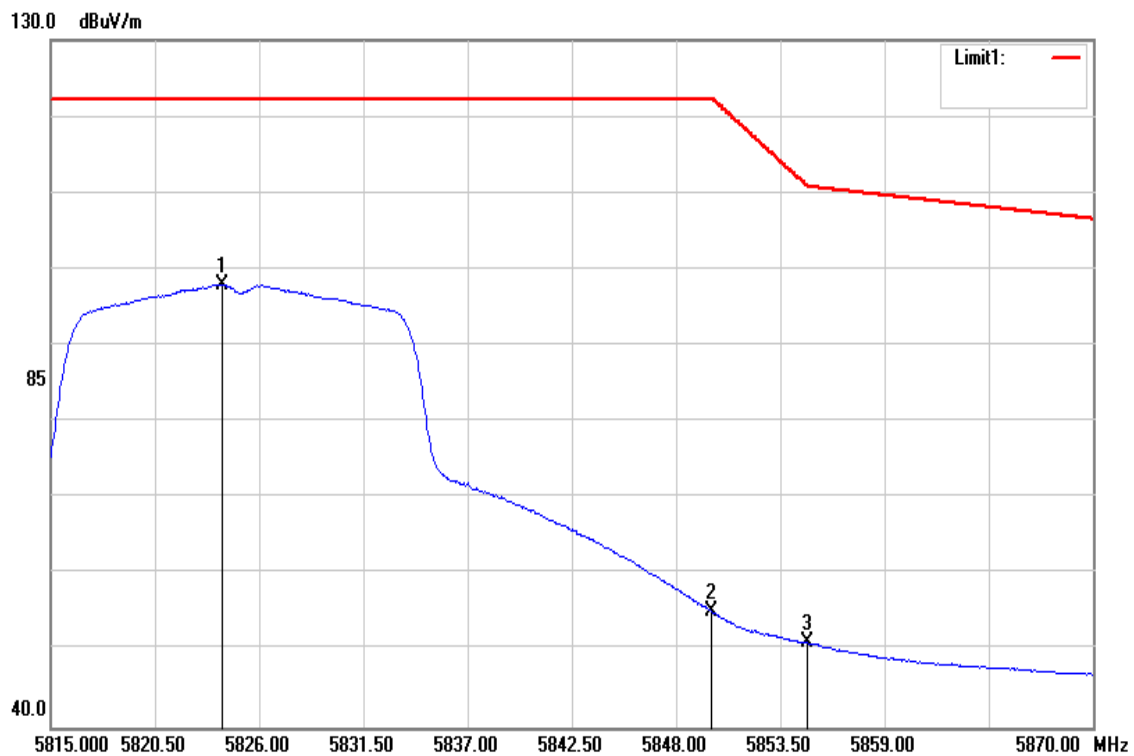
Test Mode	IEEE 802.11n HT20 / 5825 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5823.140	101.04	7.14	108.18	-	-	peak
5850.420	68.62	7.16	75.78	121.24	-45.46	peak
5855.040	66.17	7.16	73.33	110.79	-37.46	peak

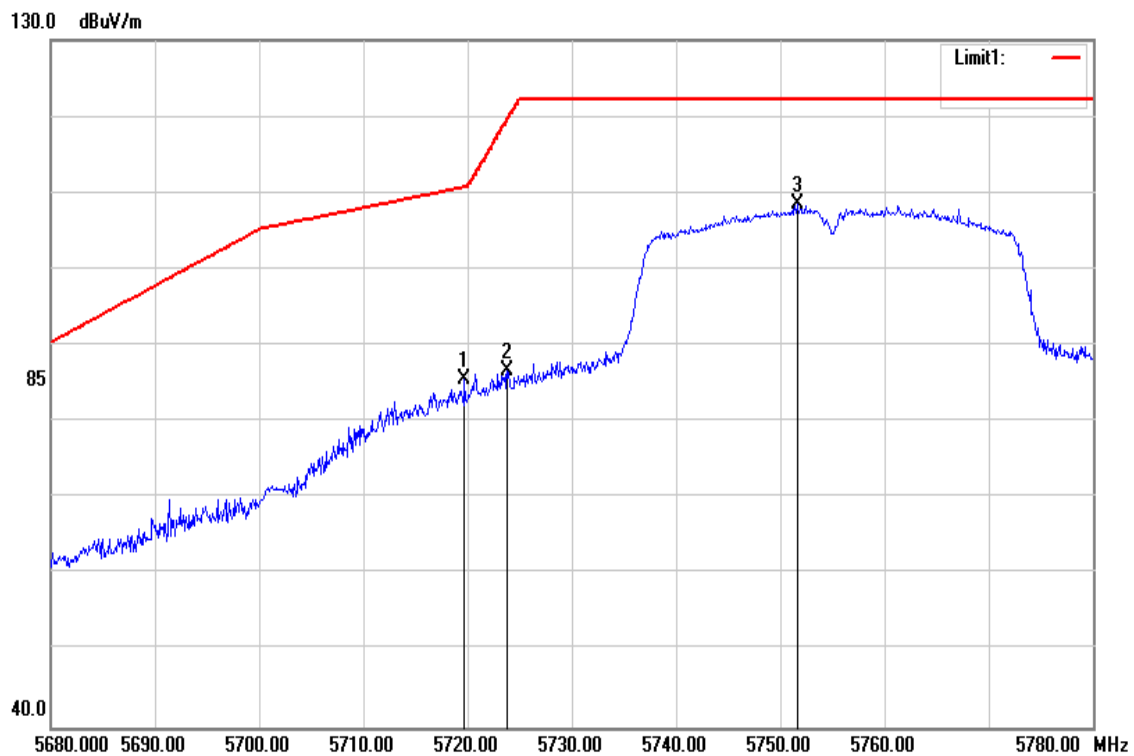


Test Mode	IEEE 802.11n HT20 / 5825 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



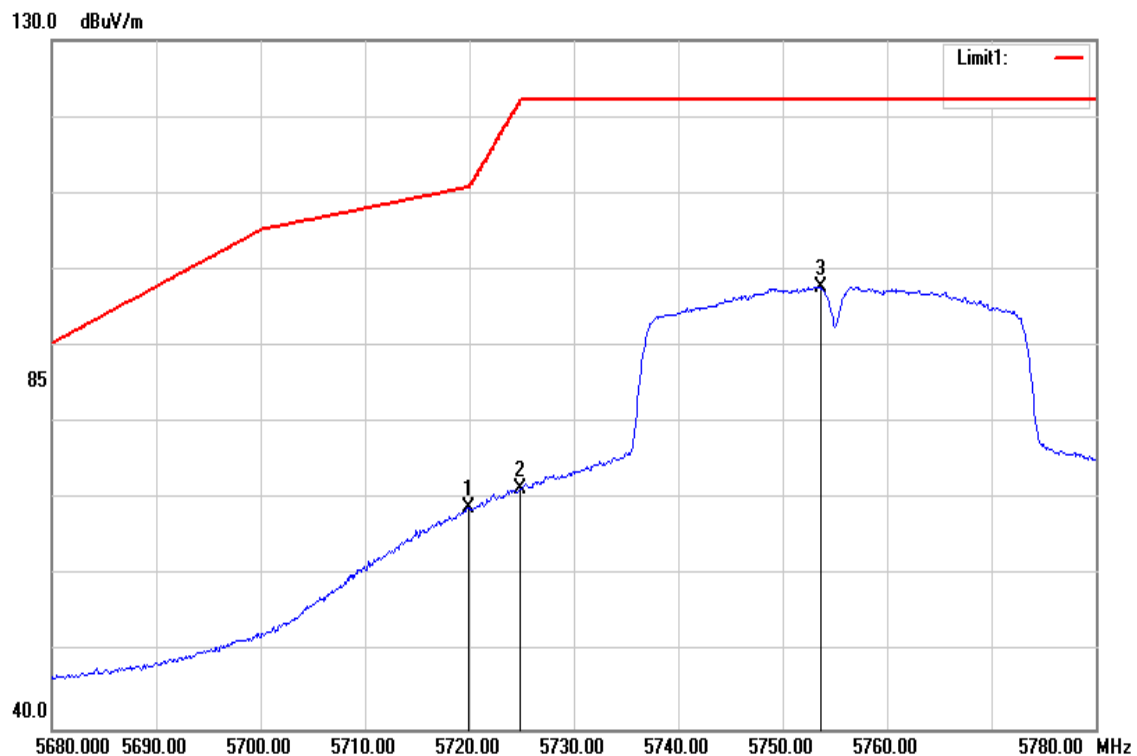
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5824.075	90.89	7.14	98.03	-	-	AVG
5849.870	47.93	7.16	55.09	122.20	-67.11	AVG
5854.930	43.89	7.16	51.05	110.96	-59.91	AVG

Test Mode	IEEE 802.11n HT40/ 5755 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



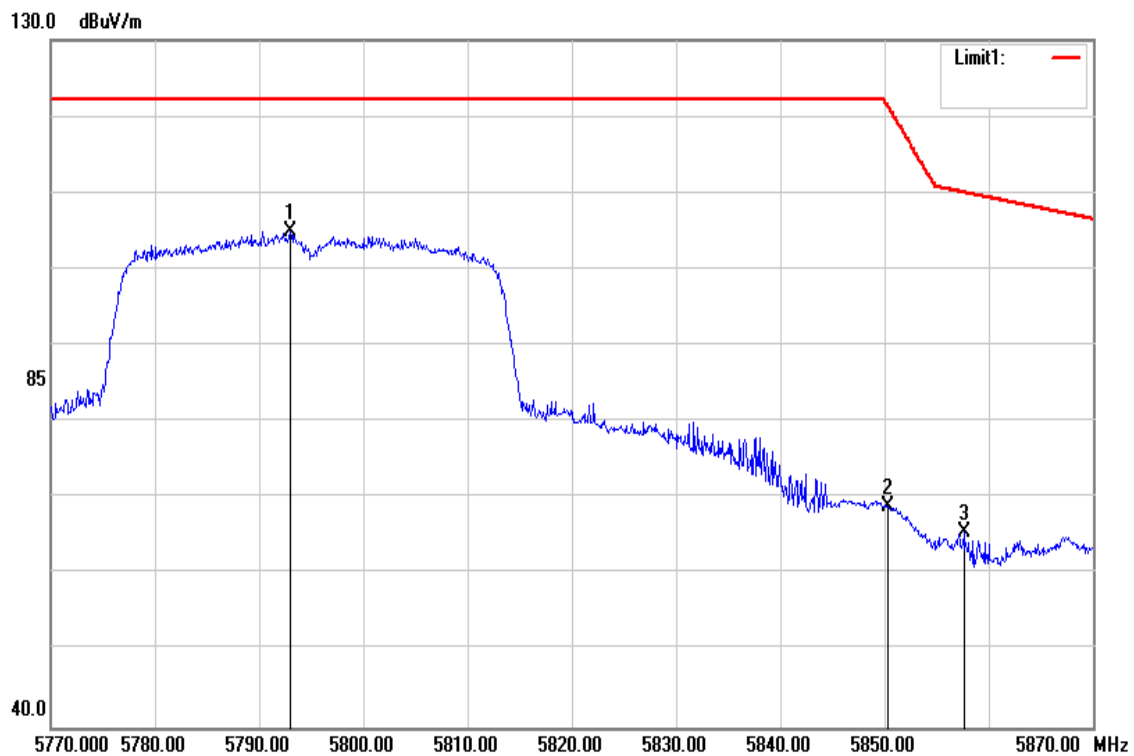
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.700	78.72	6.75	85.47	110.72	-25.25	peak
5723.800	80.01	6.76	86.77	119.46	-32.69	peak
5751.600	101.53	6.90	108.43	-	-	peak

Test Mode	IEEE 802.11n HT40/ 5755 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



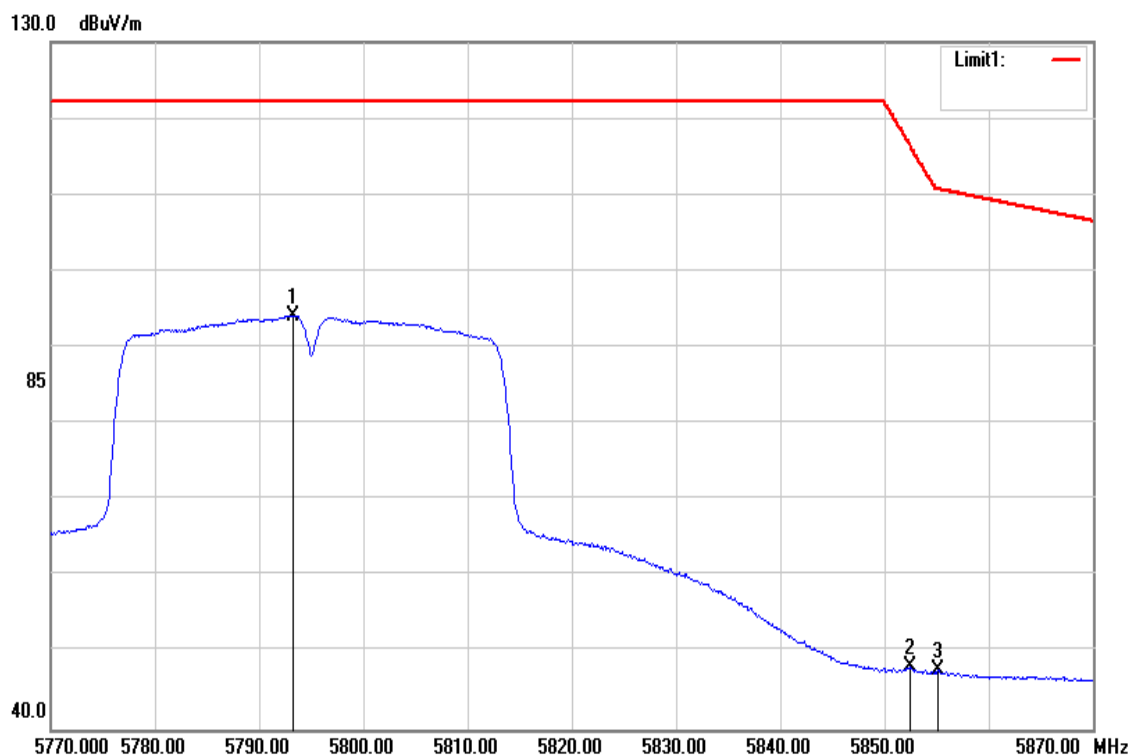
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5719.900	62.26	6.75	69.01	110.77	-41.76	AVG
5724.800	64.62	6.77	71.39	121.74	-50.35	AVG
5753.600	90.90	6.90	97.80	-	-	AVG

Test Mode	IEEE 802.11n HT40/ 5795 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 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
5793.000	97.87	7.08	104.95	-	-	peak
5850.300	61.79	7.16	68.95	121.52	-52.57	peak
5857.600	58.39	7.16	65.55	110.07	-44.52	peak

Test Mode	IEEE 802.11n HT40/ 5795 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		

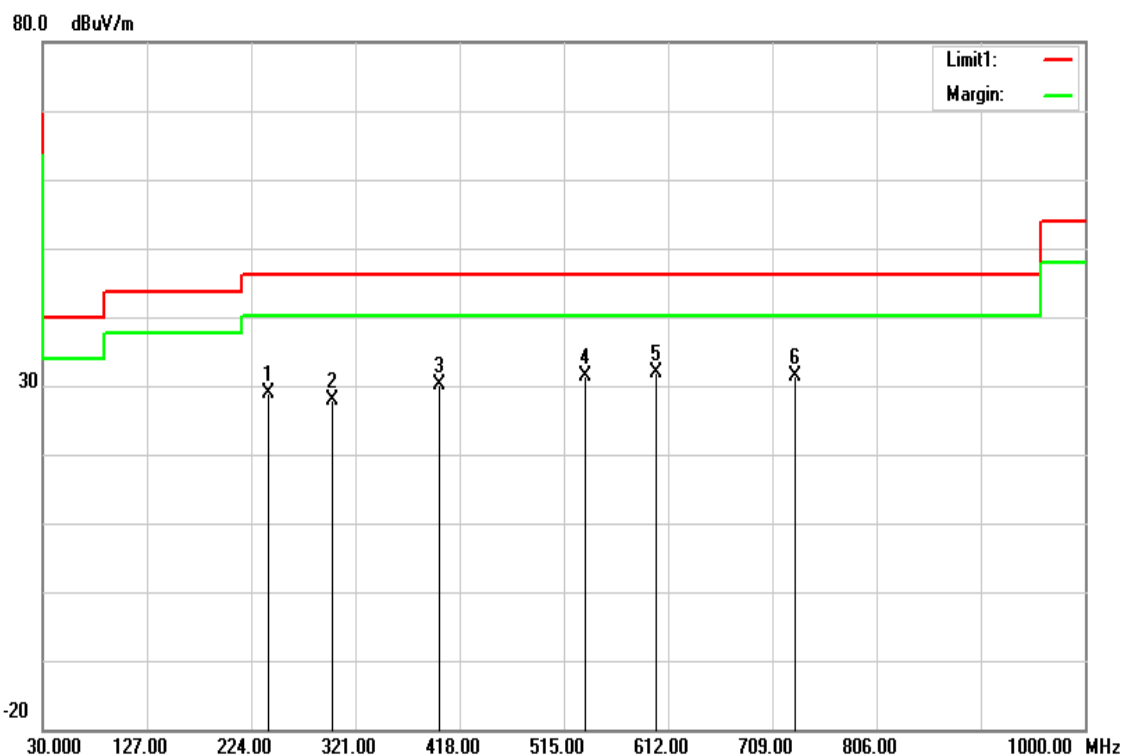


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5793.300	87.11	7.08	94.19	-	-	AVG
5852.400	41.01	7.15	48.16	116.73	-68.57	AVG
5855.100	40.65	7.16	47.81	110.77	-62.96	AVG

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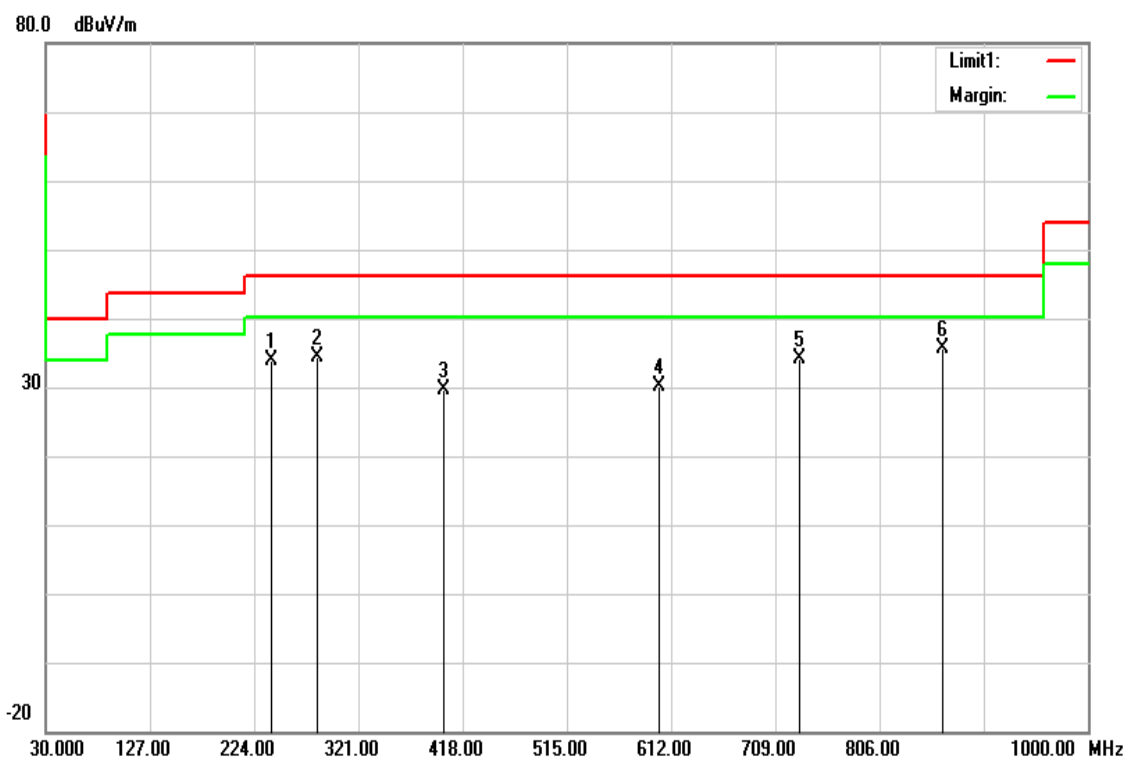
### Below 1G Test Data

Test Mode	IEEE 802.11n HT40/ 5230 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	30MHz-1GHz	Test Date	September 13, 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
239.5200	38.54	-9.67	28.87	46.02	-17.15	peak
299.6600	35.30	-7.51	27.79	46.02	-18.23	peak
399.5700	35.06	-4.81	30.25	46.02	-15.77	peak
534.4000	33.01	-1.67	31.34	46.02	-14.68	peak
600.3600	32.68	-0.79	31.89	46.02	-14.13	peak
730.3400	29.63	1.82	31.45	46.02	-14.57	peak

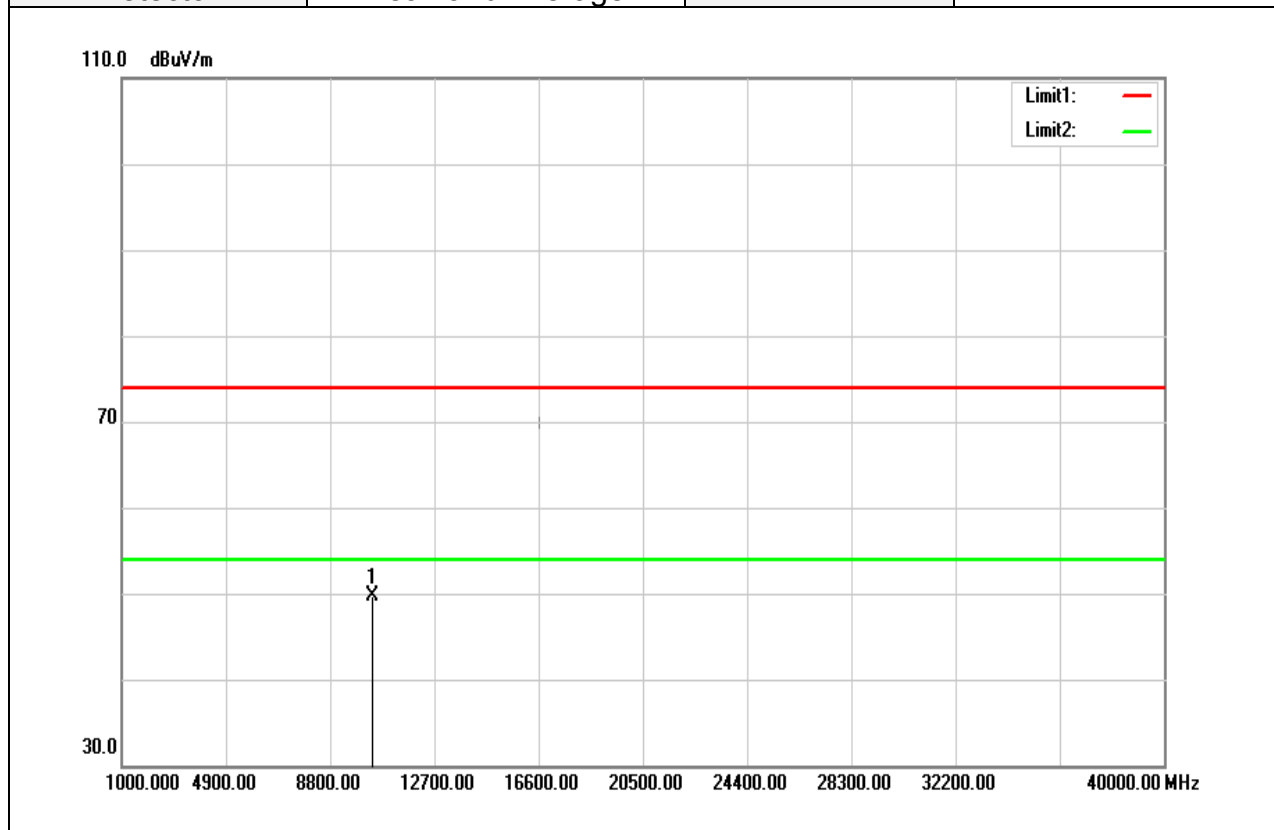
Test Mode	IEEE 802.11n HT40/ 5230 MHz	Temp/Hum	22.3(°C)/ 41%RH
Test Item	30MHz-1GHz	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Quasi-peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
239.5200	43.65	-9.67	33.98	46.02	-12.04	peak
282.2000	42.11	-7.72	34.39	46.02	-11.63	peak
400.5400	34.39	-4.78	29.61	46.02	-16.41	peak
600.3600	31.02	-0.79	30.23	46.02	-15.79	peak
731.3100	32.22	1.84	34.06	46.02	-11.96	peak
865.1700	31.66	3.99	35.65	46.02	-10.37	peak

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**Above 1G Test Data for UNII-1**

Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		



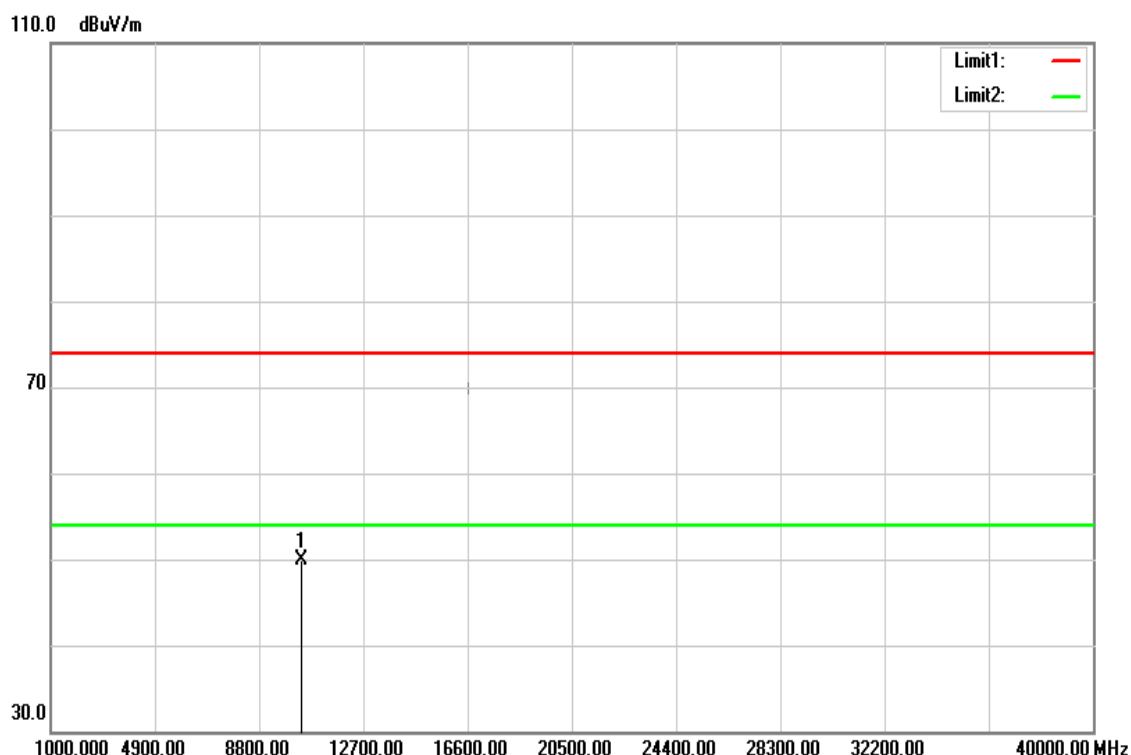
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	34.87	14.75	49.62	74.00	-24.38	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

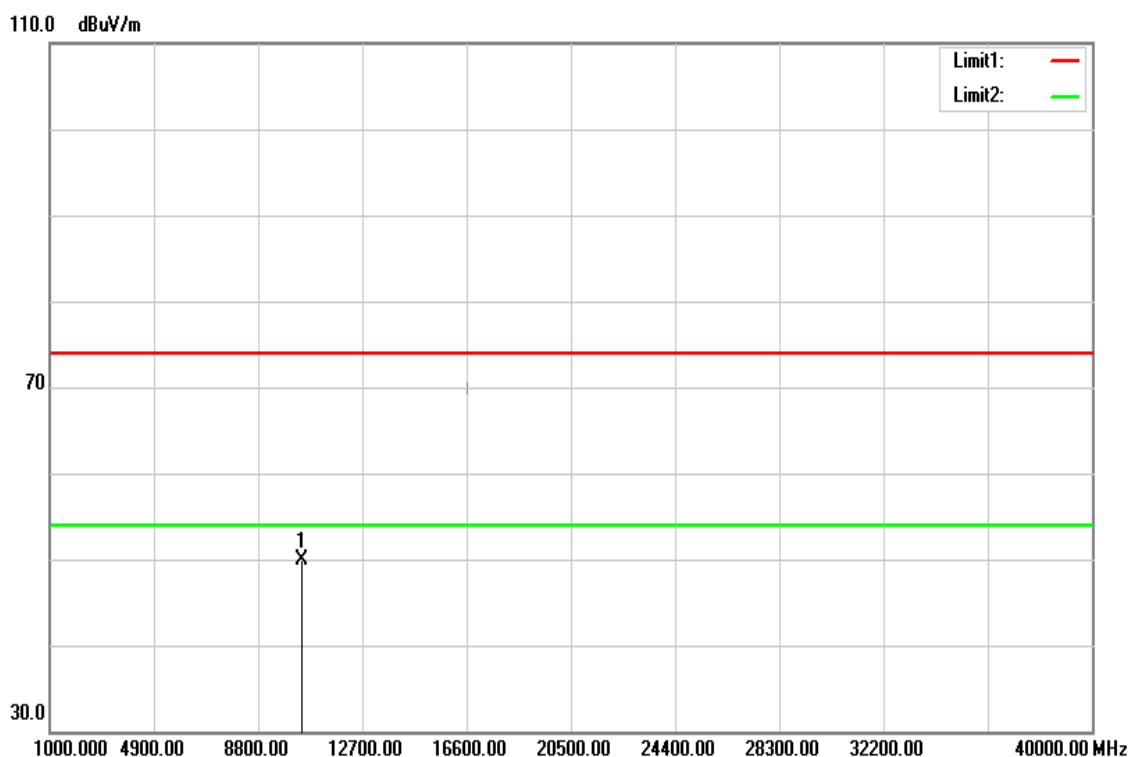


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	35.08	14.75	49.83	74.00	-24.17	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Horizontal	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

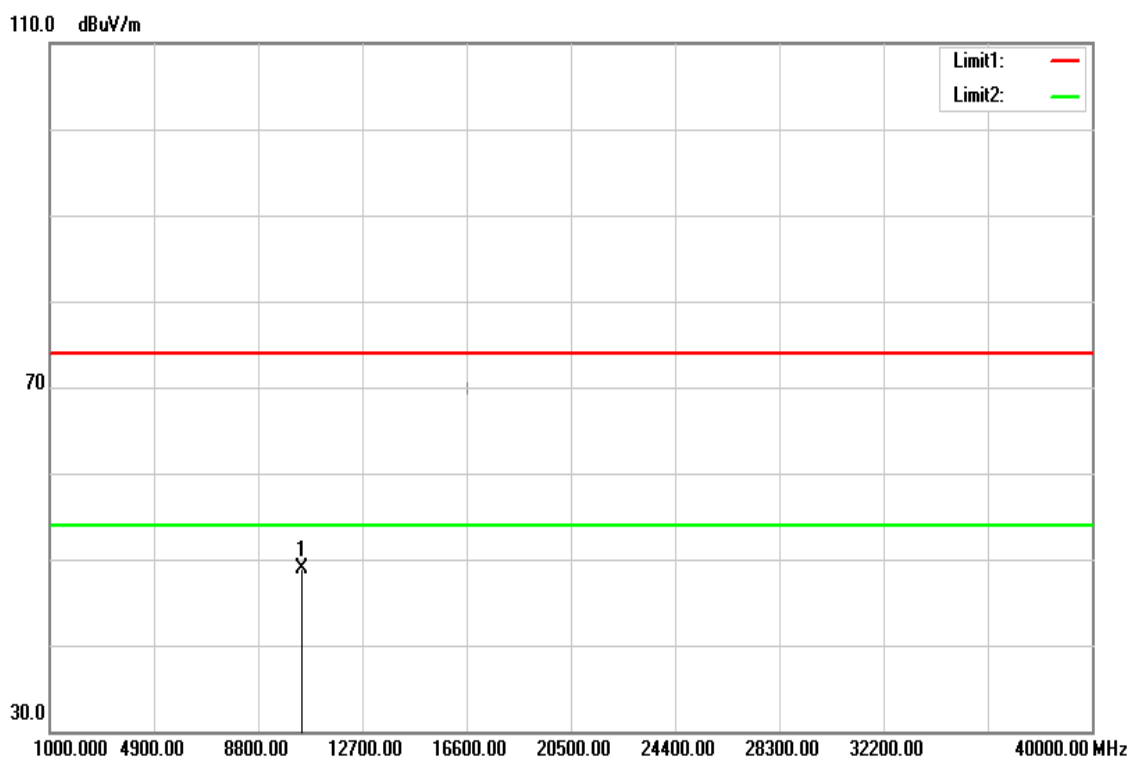


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	35.00	15.00	50.00	74.00	-24.00	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

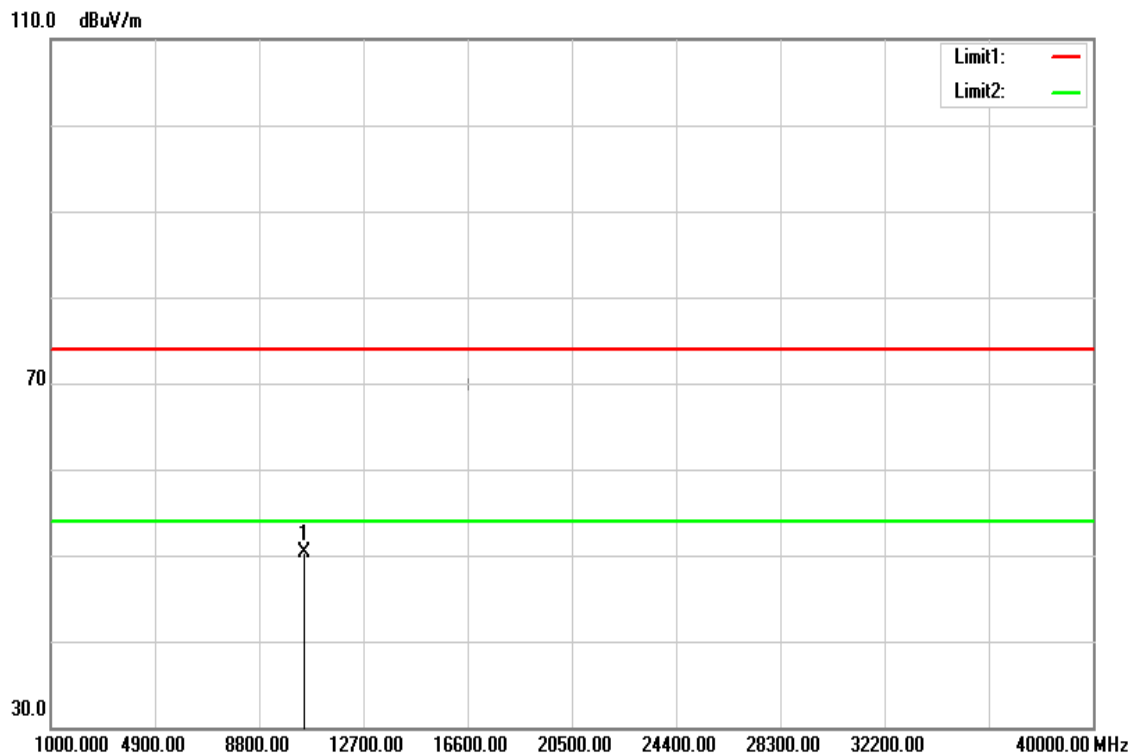


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	33.86	15.00	48.86	74.00	-25.14	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

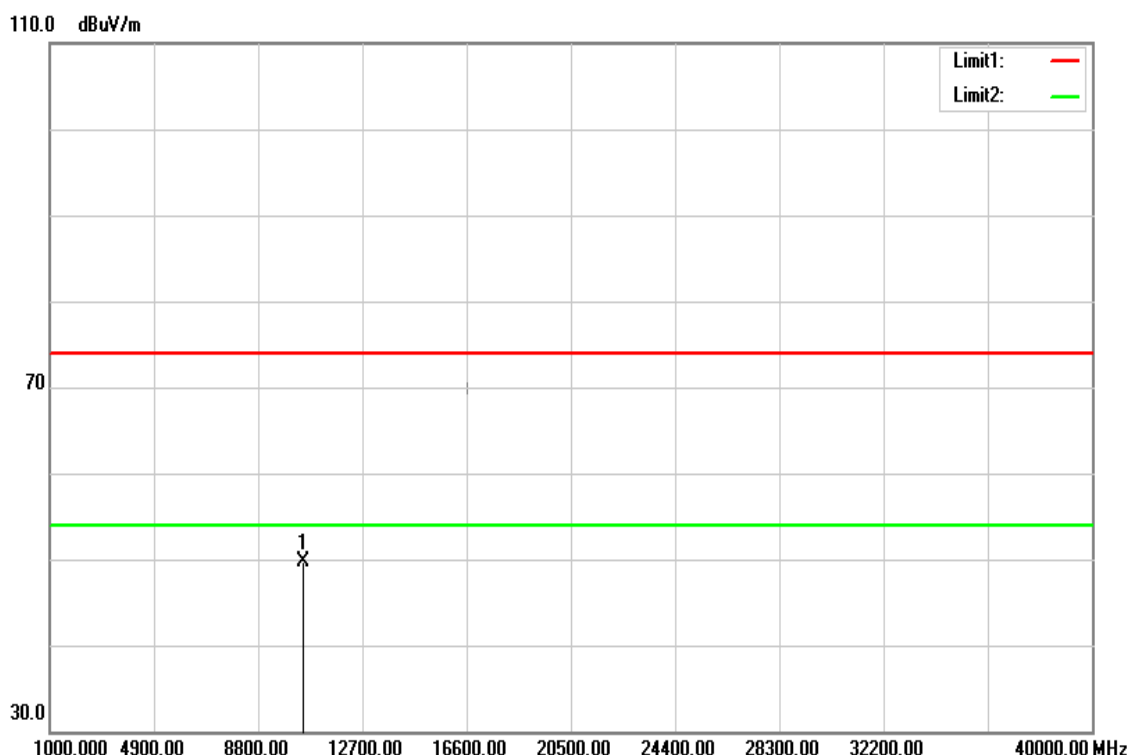


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	35.15	15.06	50.21	74.00	-23.79	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

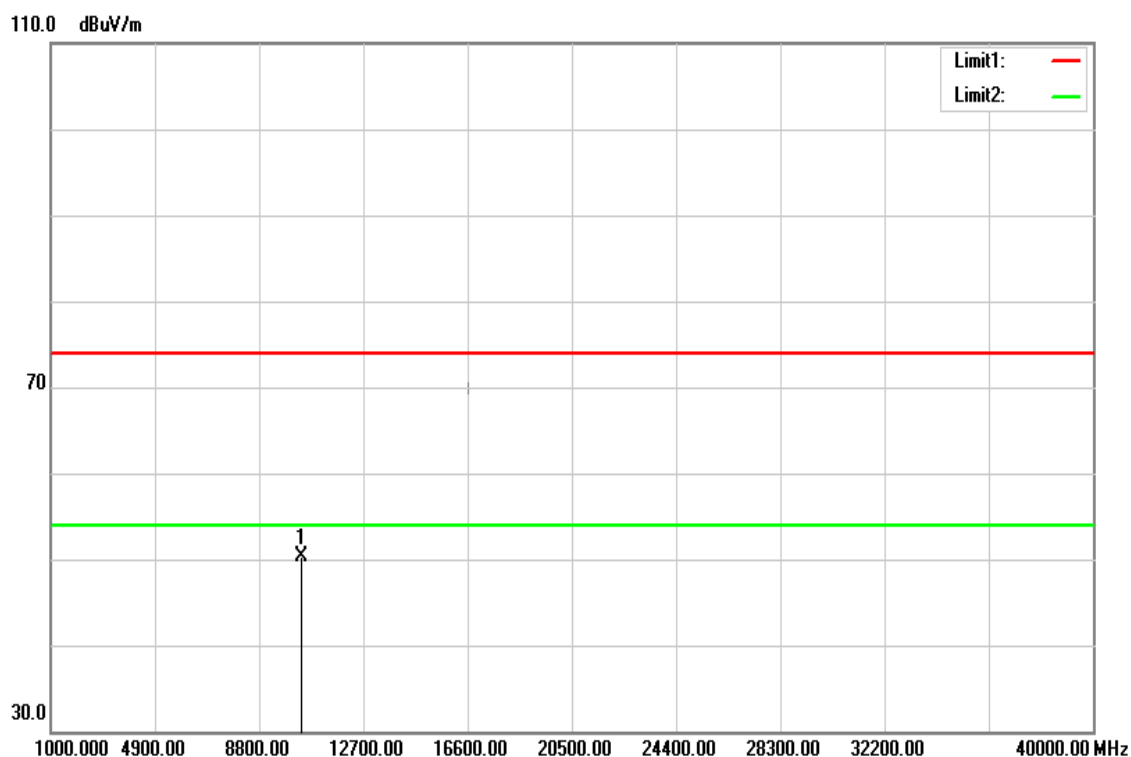


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	34.66	15.06	49.72	74.00	-24.28	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

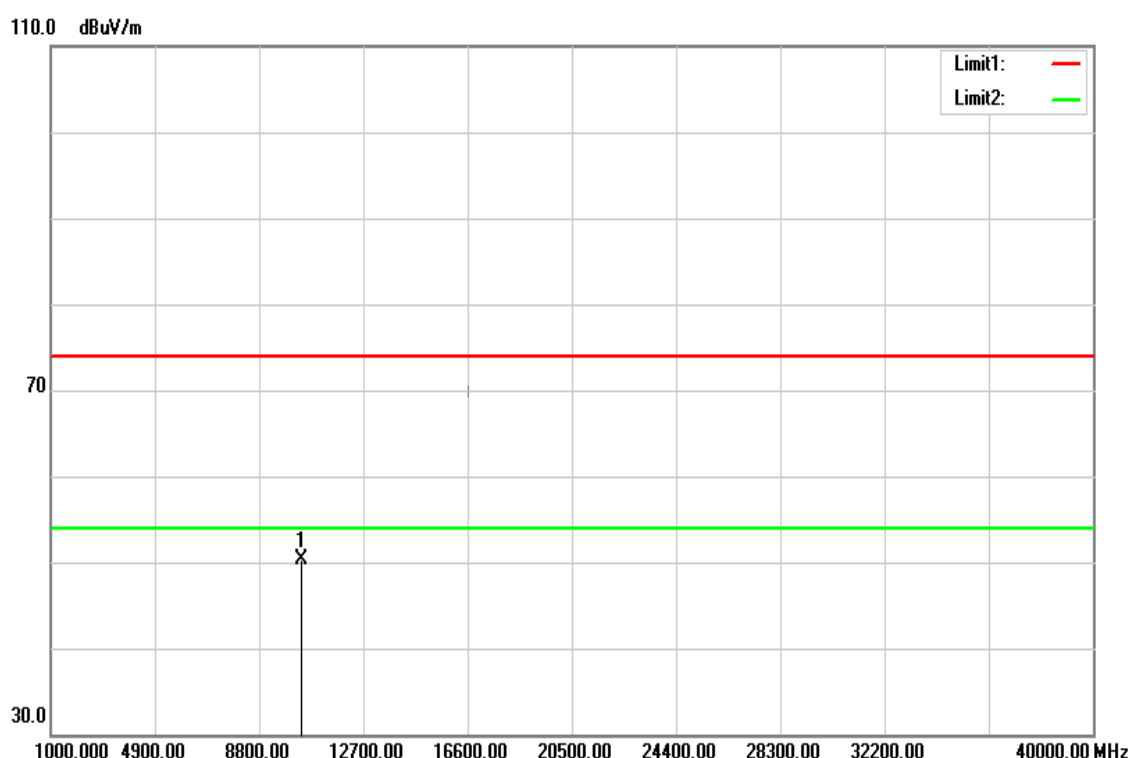


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	35.55	14.75	50.30	74.00	-23.70	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

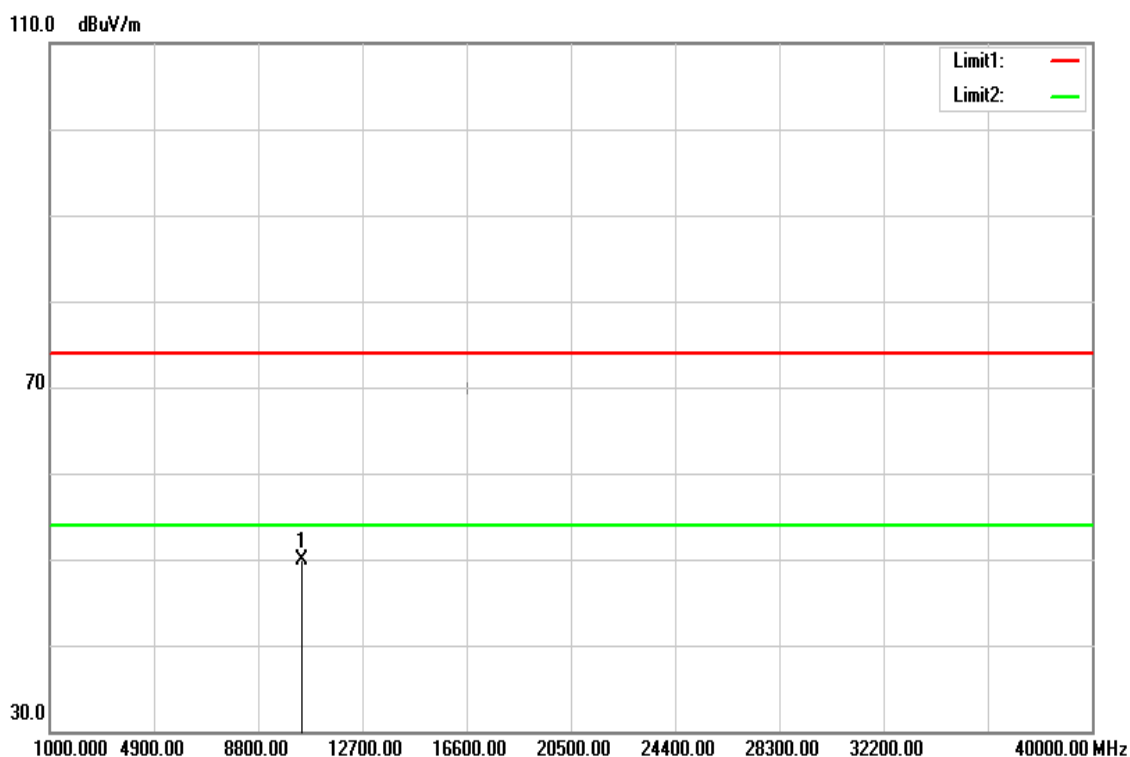


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	35.55	14.75	50.30	74.00	-23.70	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		



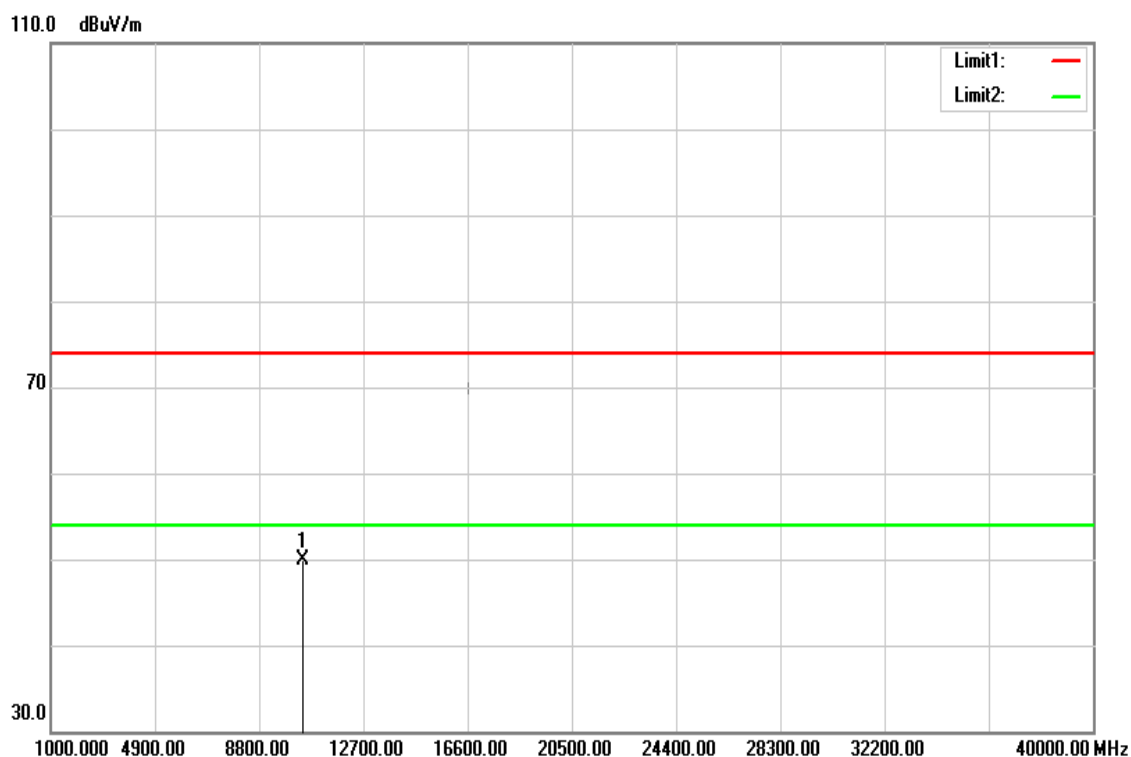
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	34.94	15.00	49.94	74.00	-24.06	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

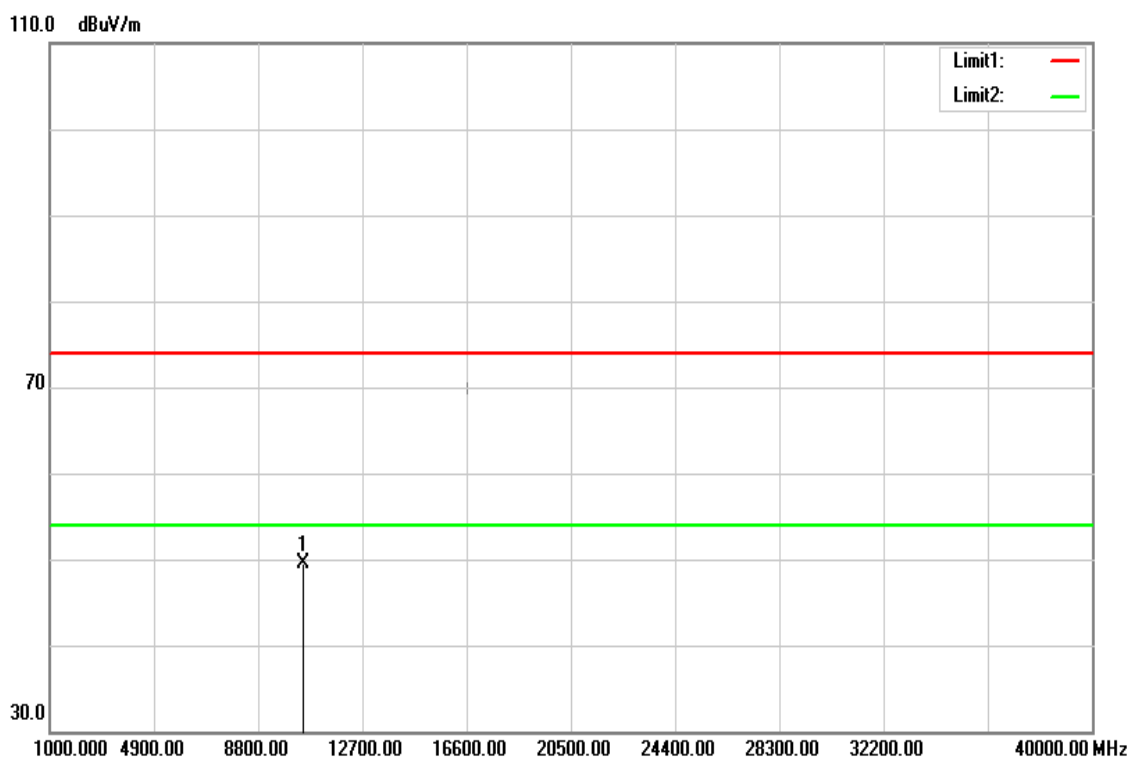


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.000	34.95	15.00	49.95	74.00	-24.05	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

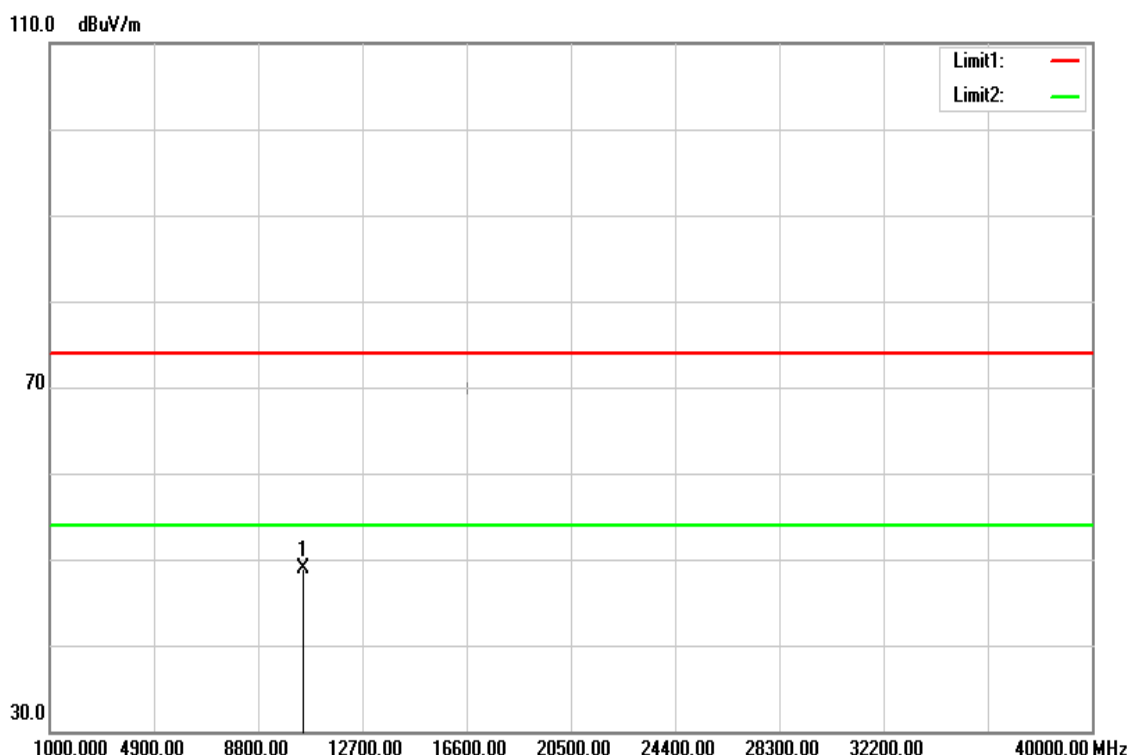


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	34.35	15.06	49.41	74.00	-24.59	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

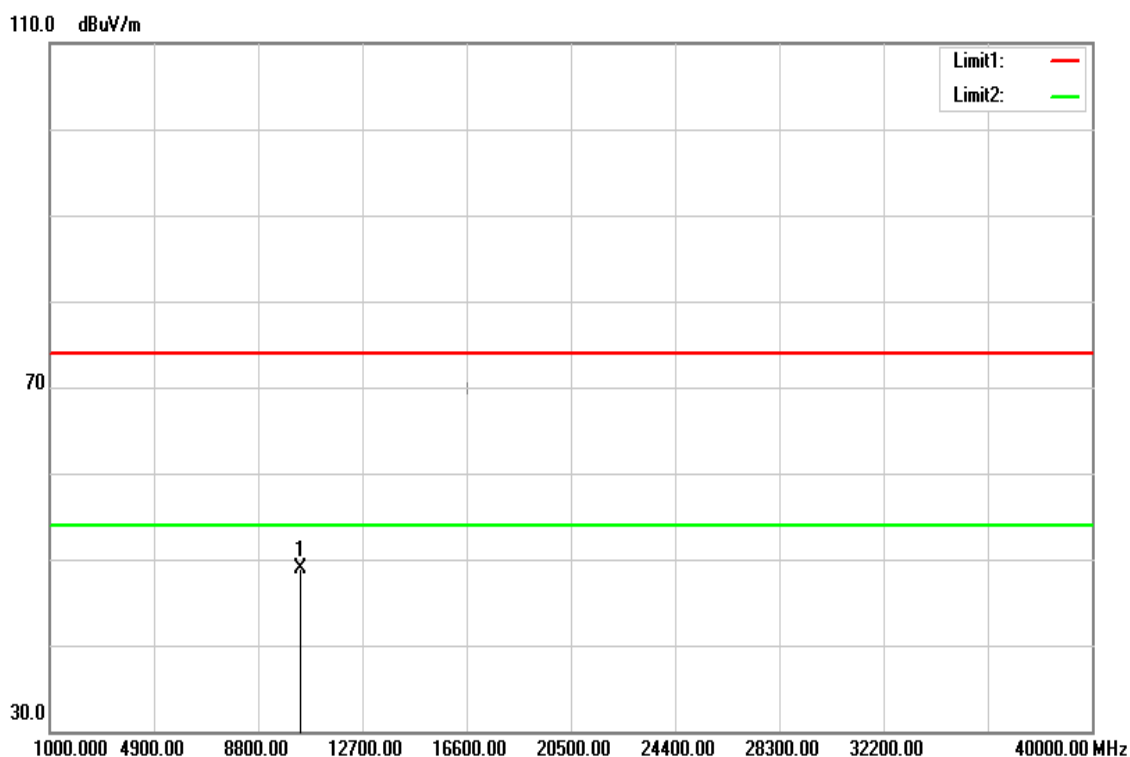


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.000	33.86	15.06	48.92	74.00	-25.08	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

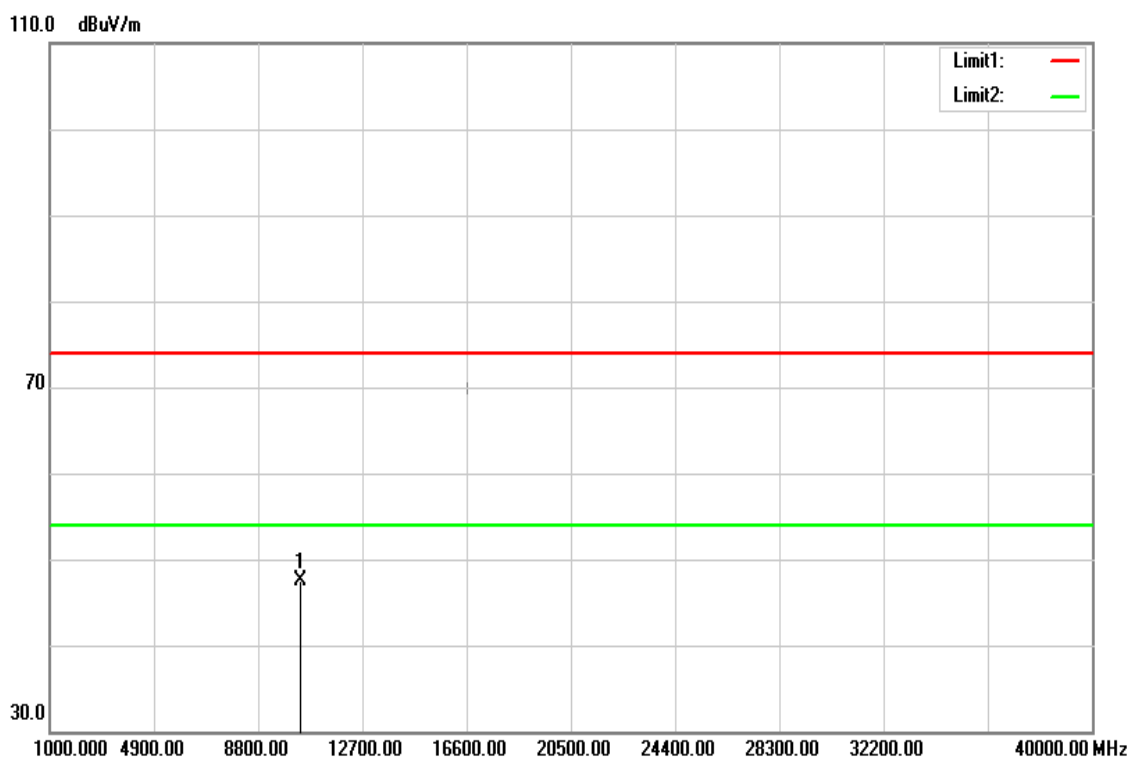


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	34.10	14.75	48.85	74.00	-25.15	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

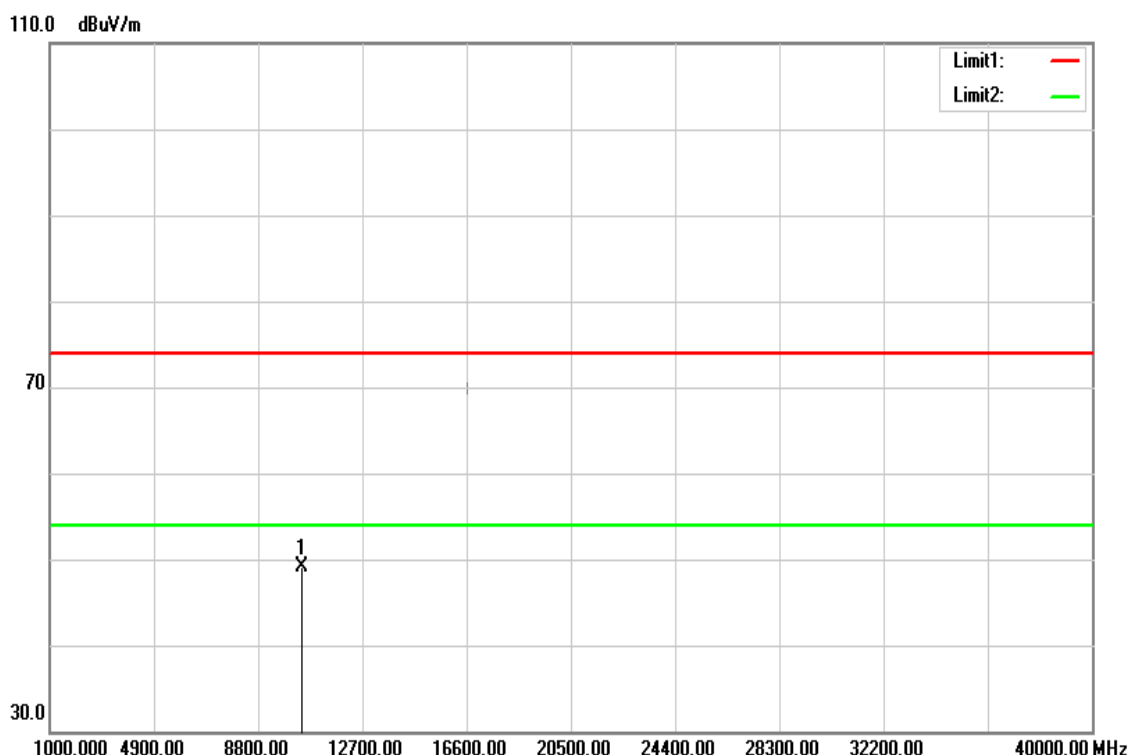


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.000	32.80	14.75	47.55	74.00	-26.45	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

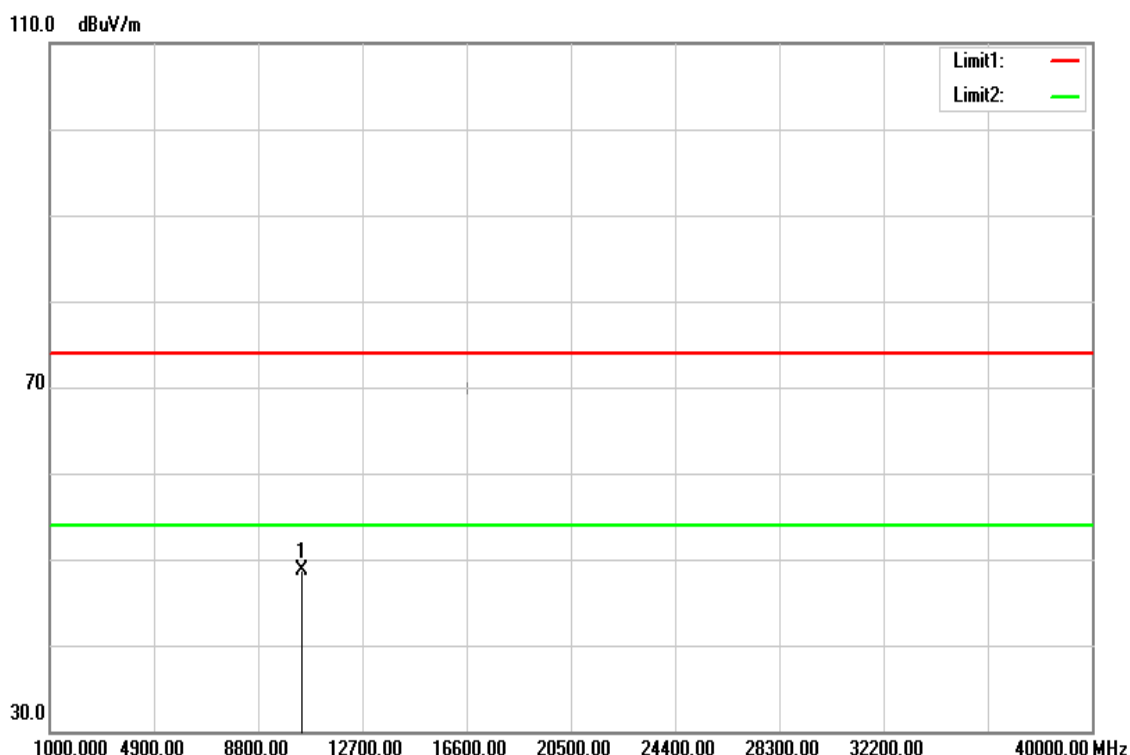


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.000	34.13	15.02	49.15	74.00	-24.85	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		



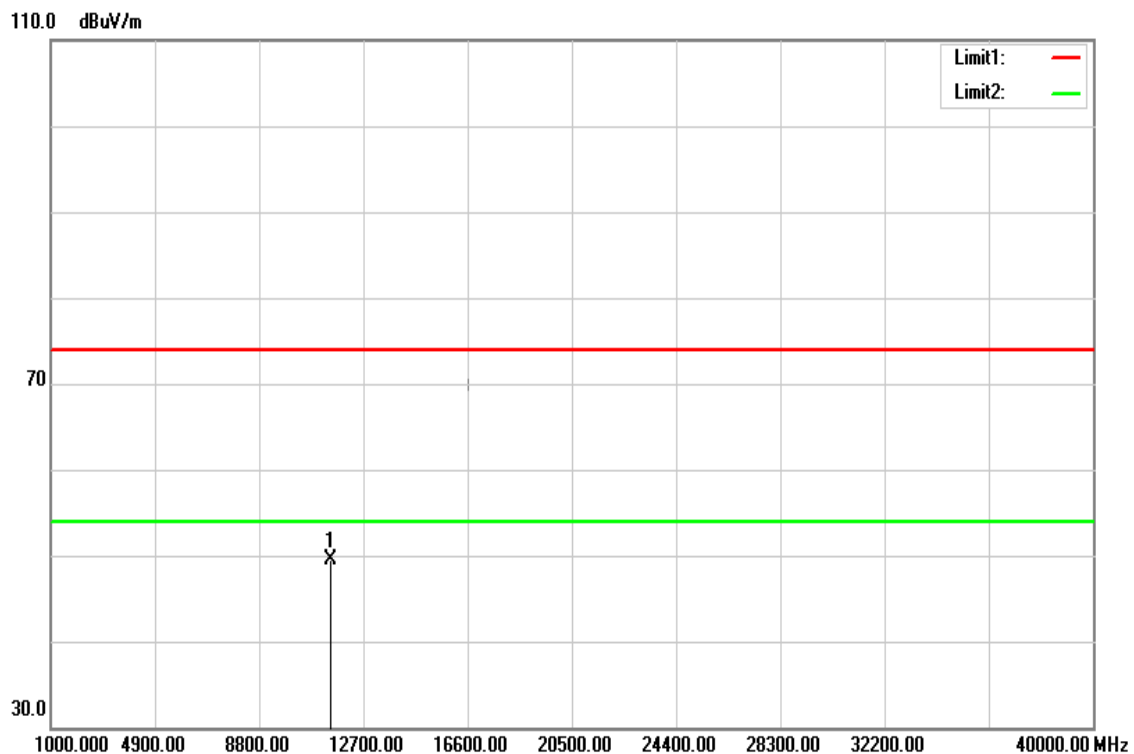
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.000	33.64	15.02	48.66	74.00	-25.34	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		



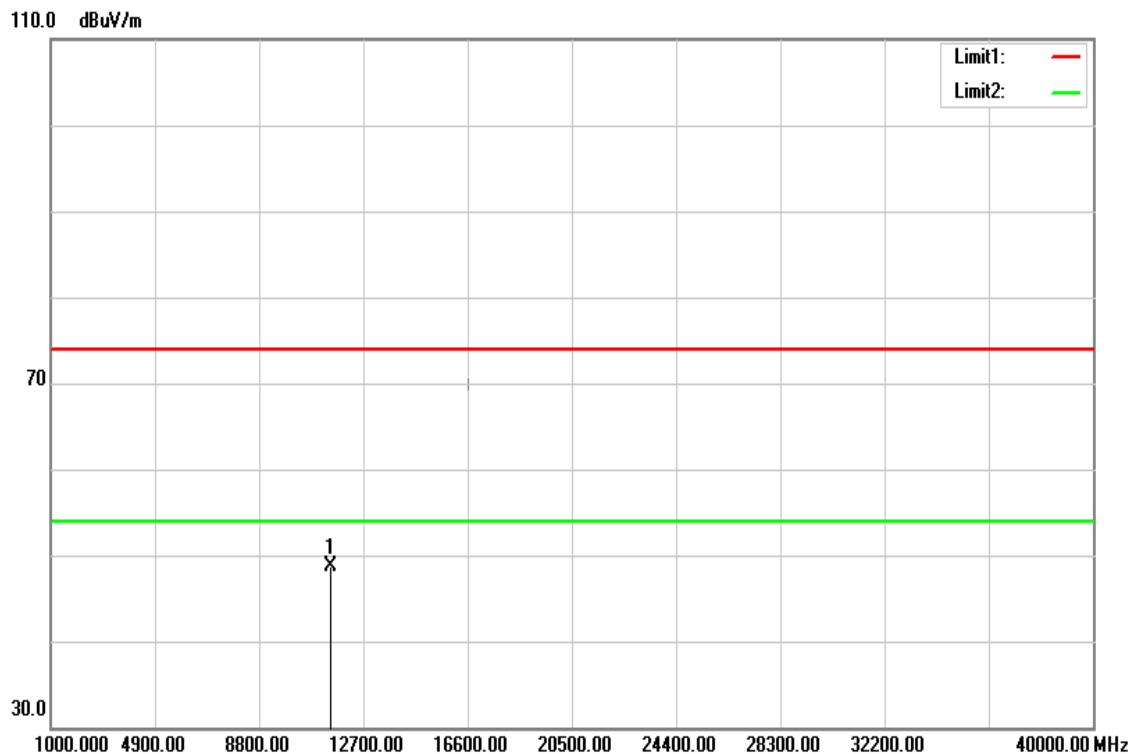
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	33.85	15.62	49.47	74.00	-24.53	peak
N/A						

#### Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

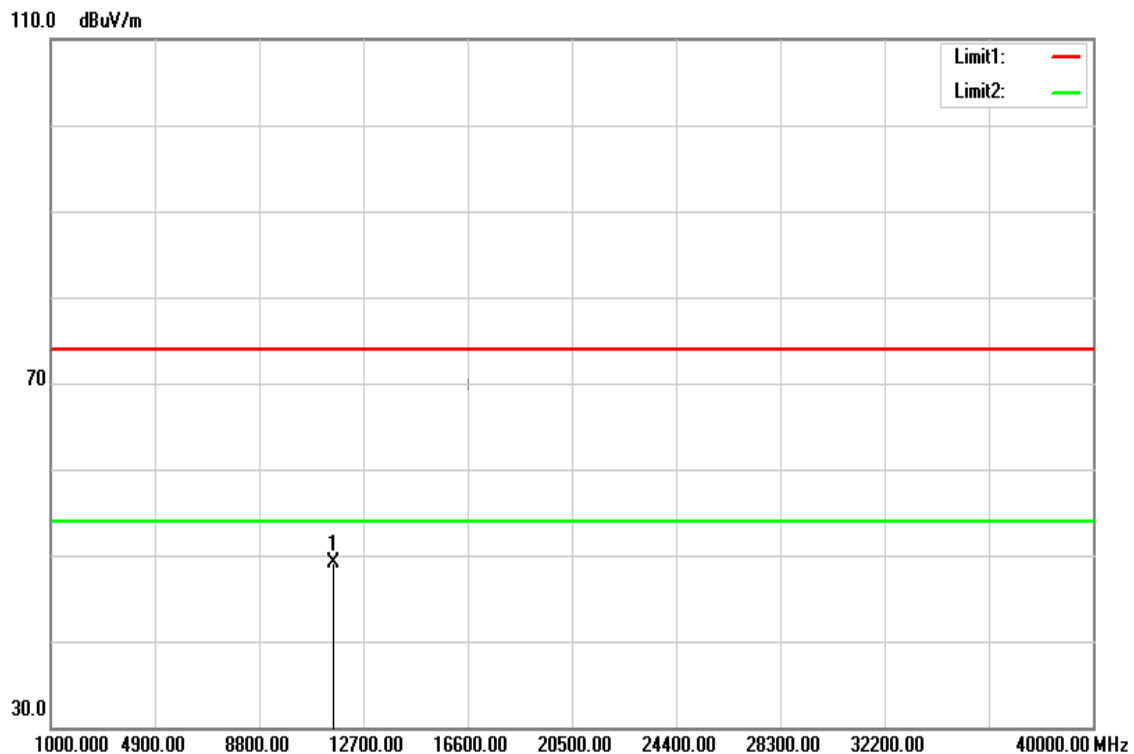


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	33.05	15.62	48.67	74.00	-25.33	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

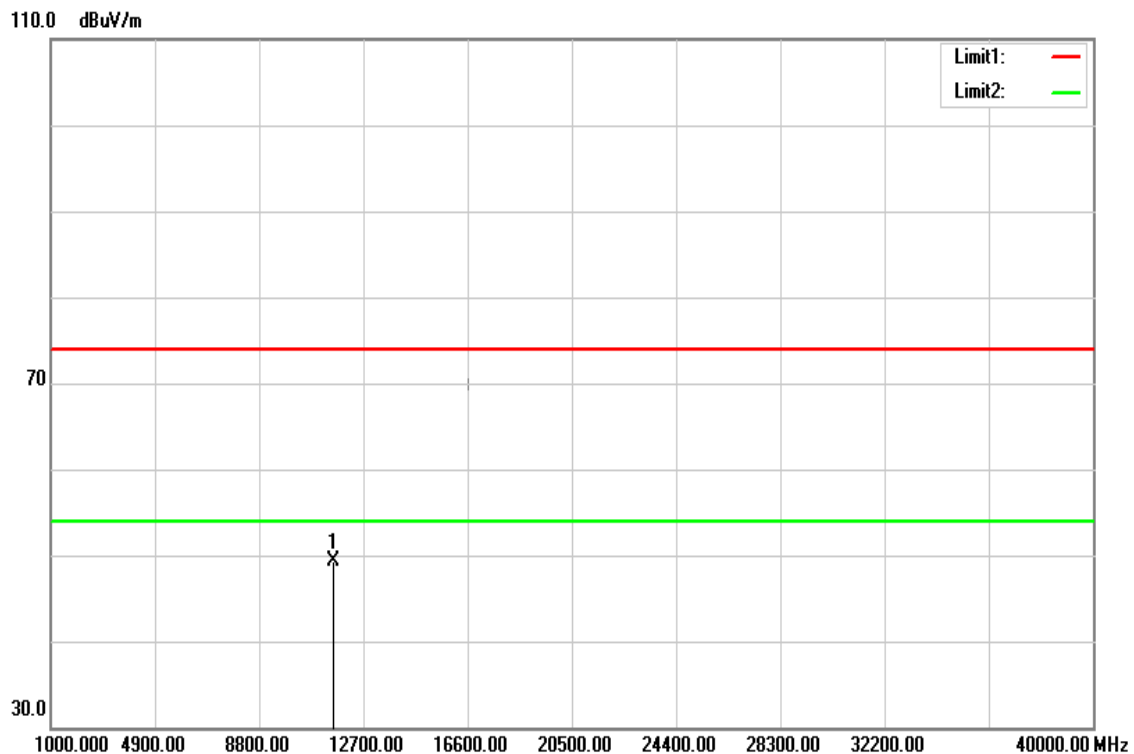


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	33.45	15.61	49.06	74.00	-24.94	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

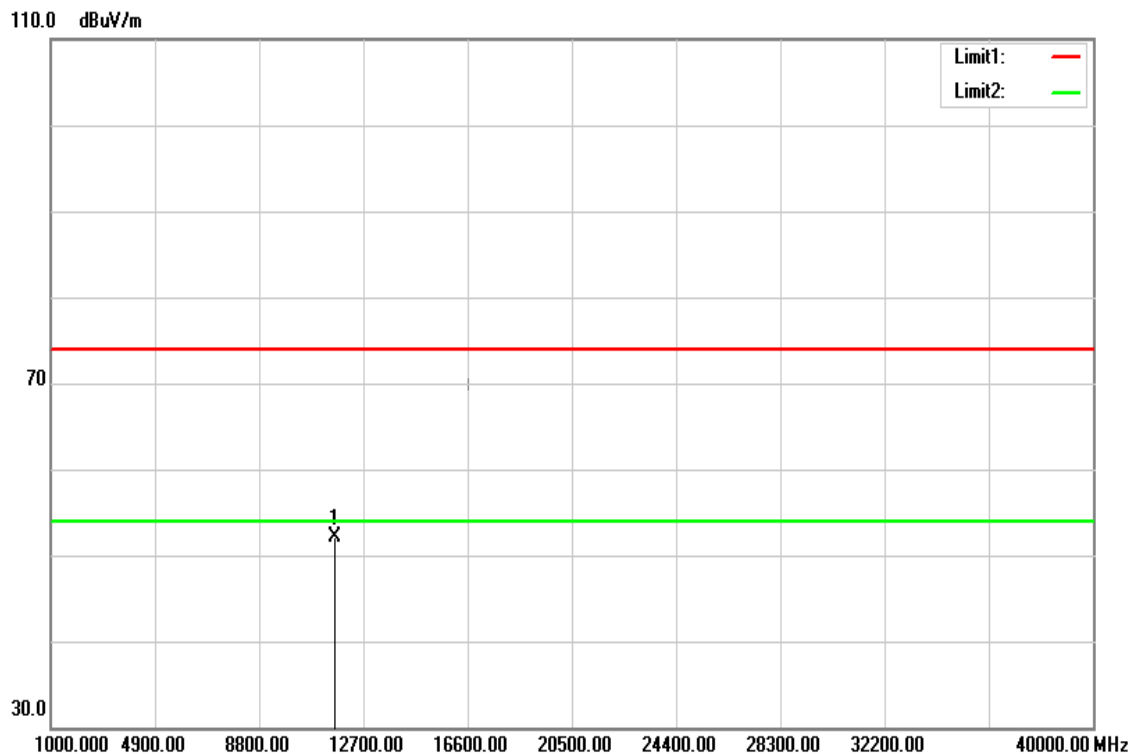


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	33.65	15.61	49.26	74.00	-24.74	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

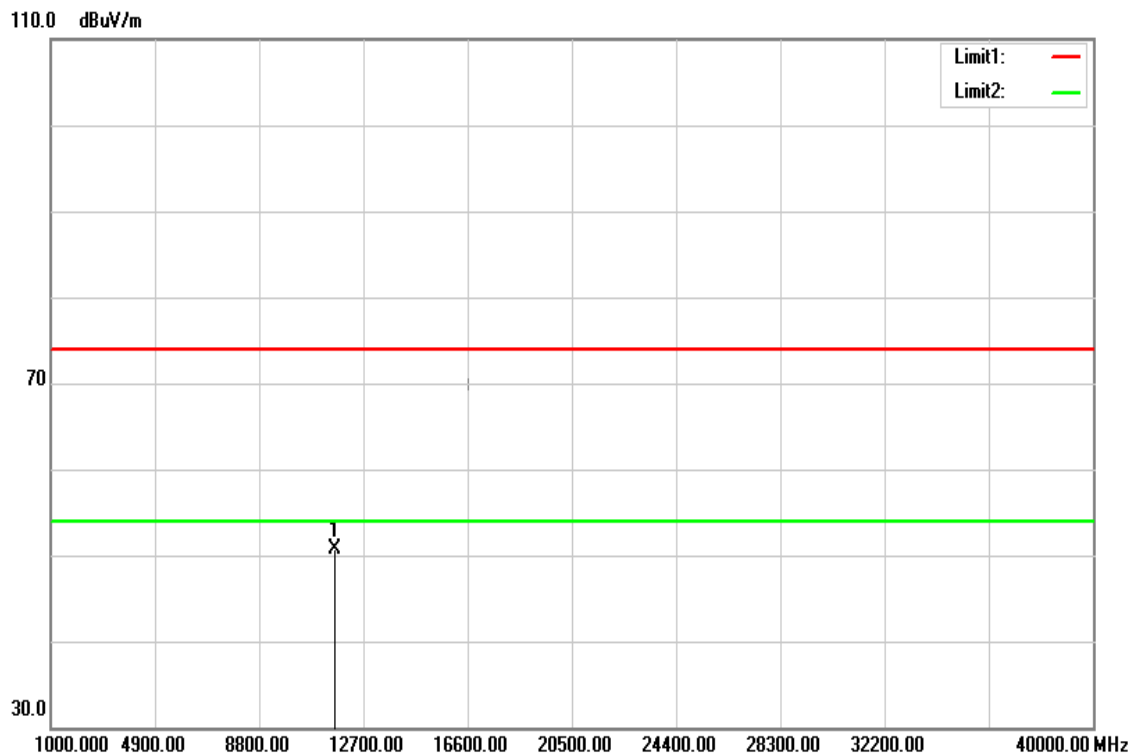


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	36.43	15.58	52.01	74.00	-21.99	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

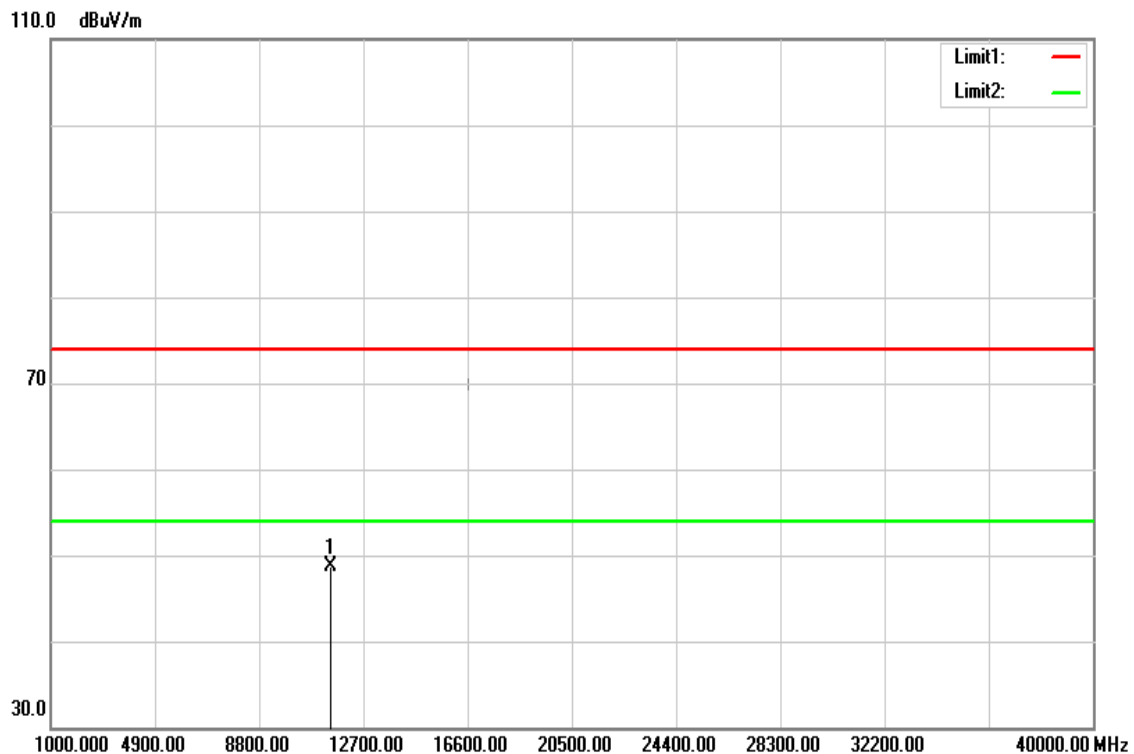


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	35.10	15.58	50.68	74.00	-23.32	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

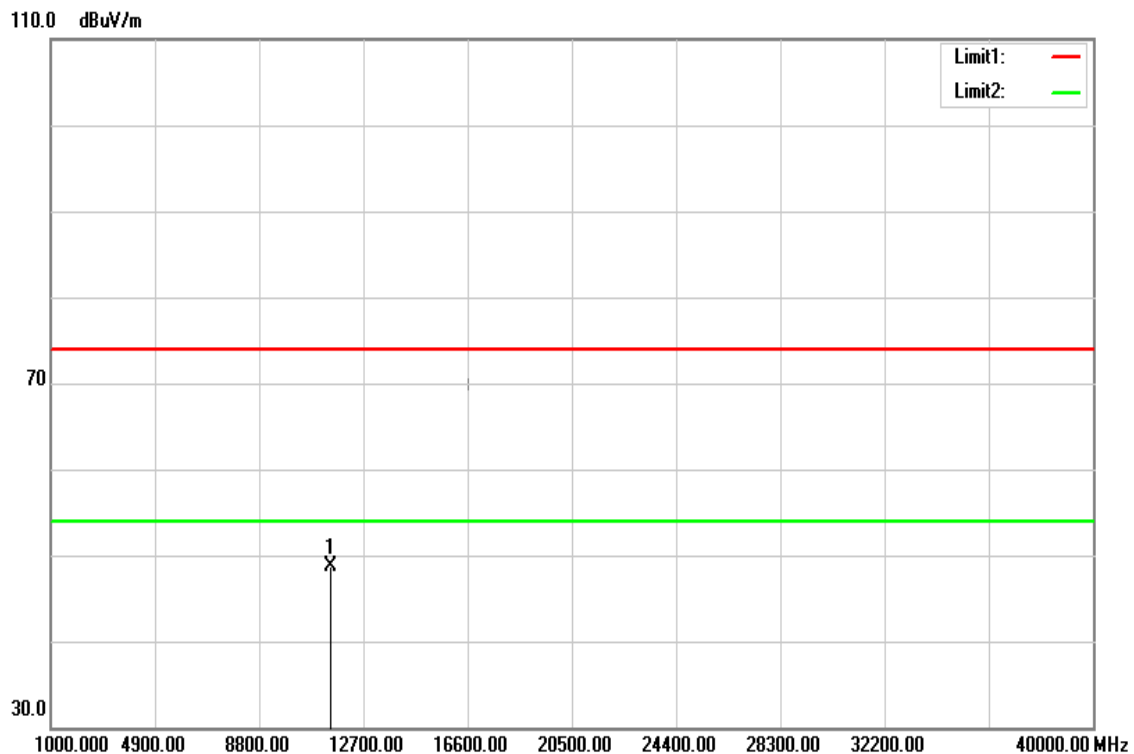


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	33.03	15.62	48.65	74.00	-25.35	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

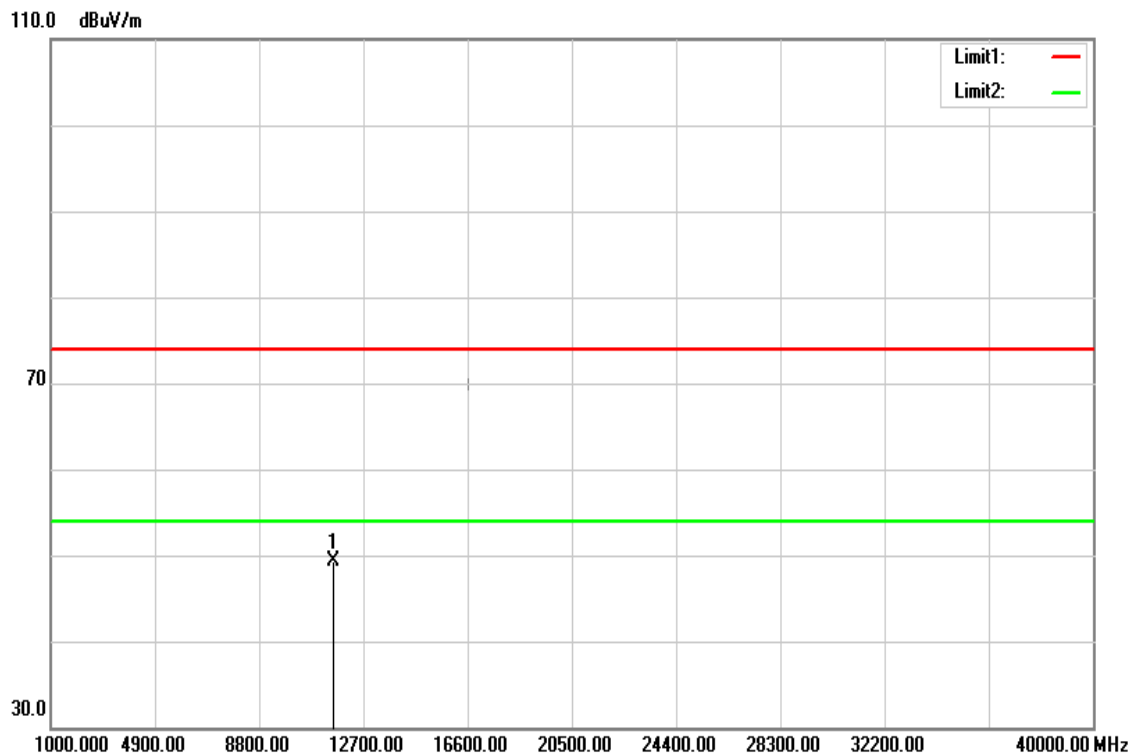


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.000	33.10	15.62	48.72	74.00	-25.28	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		



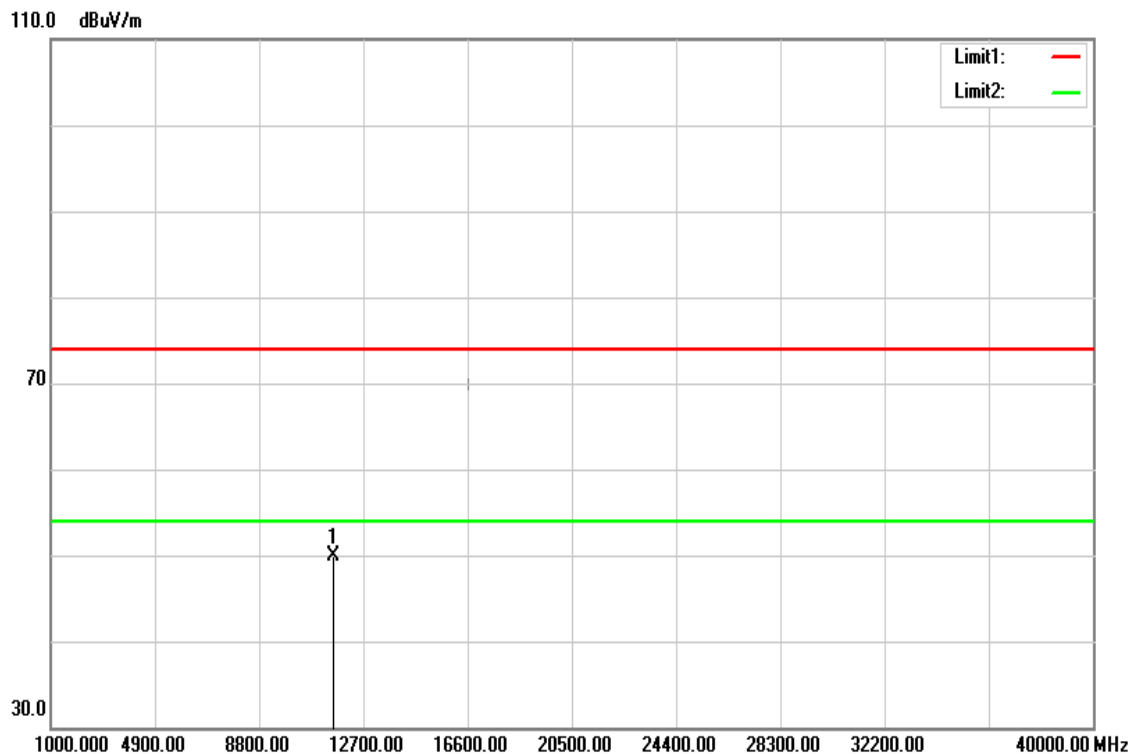
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	33.65	15.61	49.26	74.00	-24.74	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

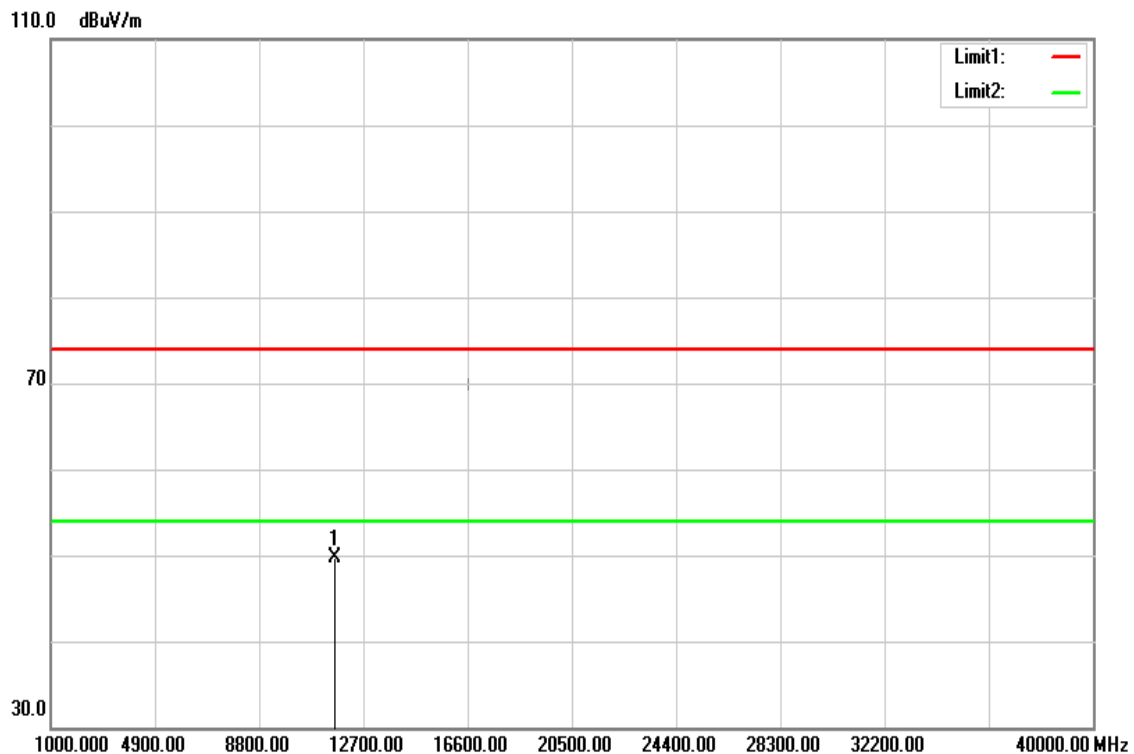


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.000	34.22	15.61	49.83	74.00	-24.17	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

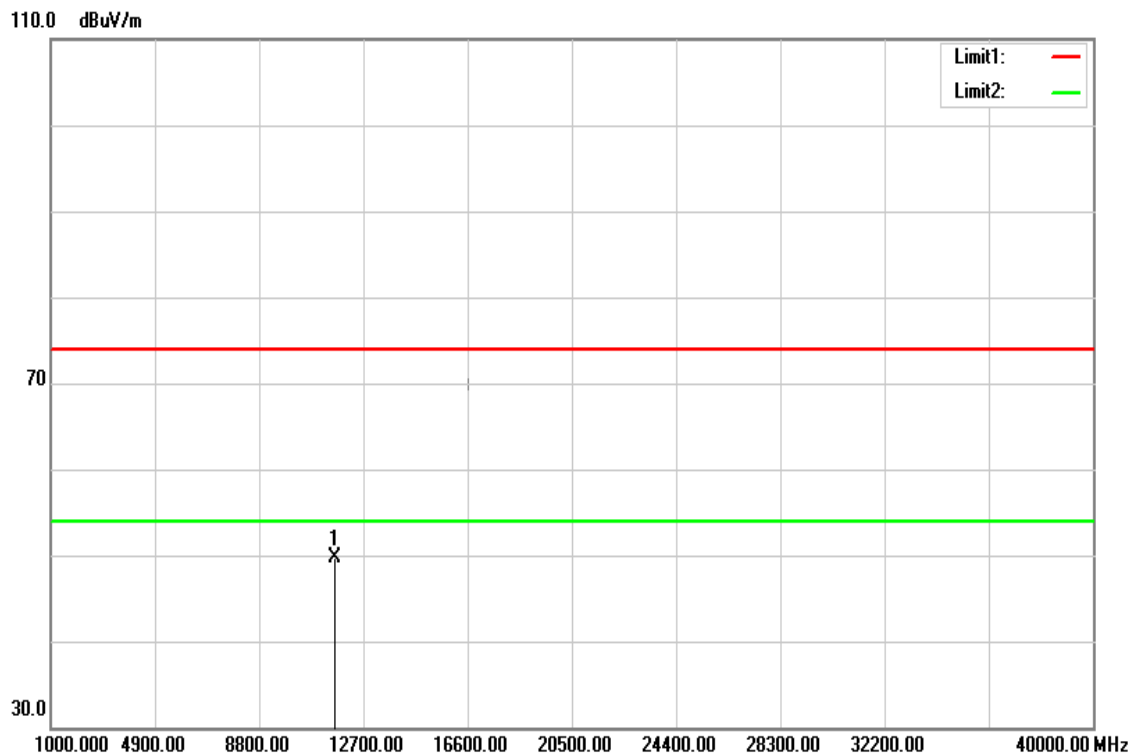


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	34.04	15.58	49.62	74.00	-24.38	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

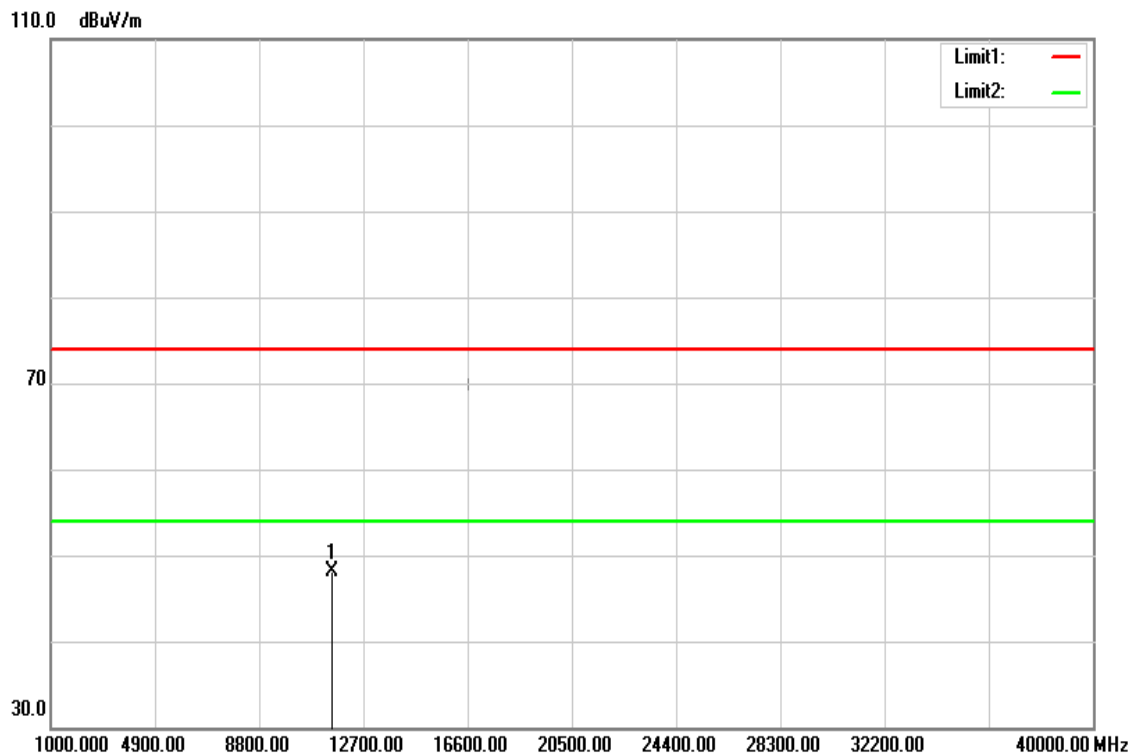


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.000	34.14	15.58	49.72	74.00	-24.28	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

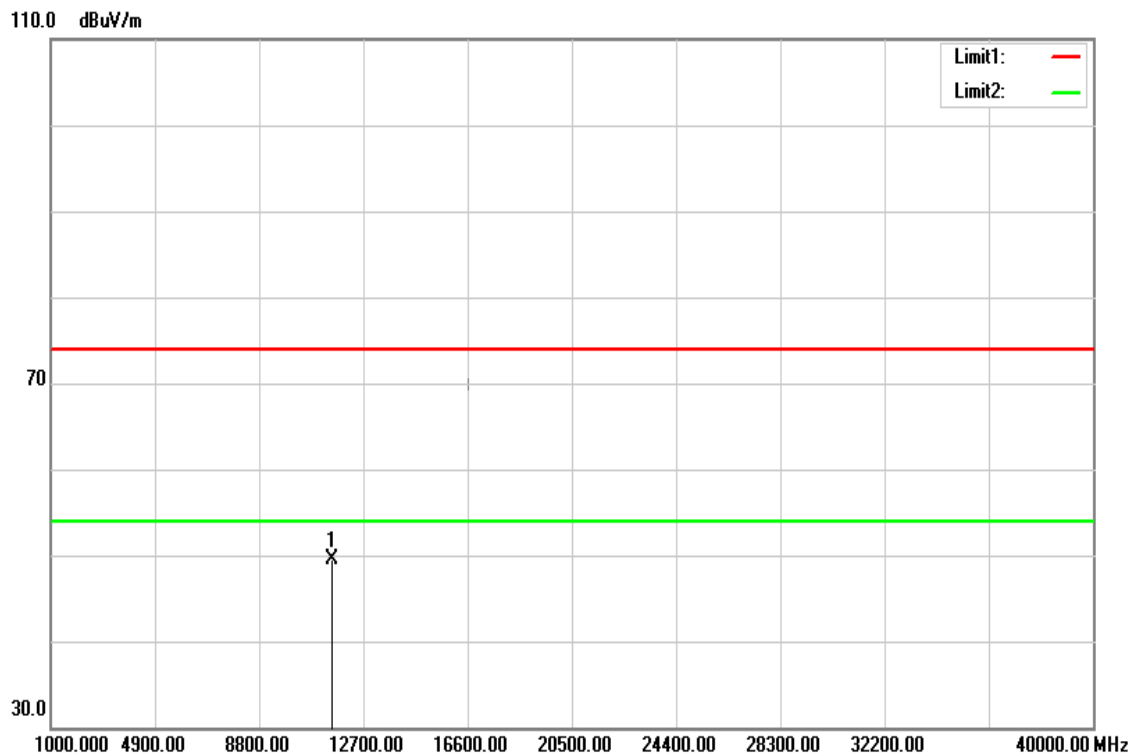


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.000	32.50	15.62	48.12	74.00	-25.88	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

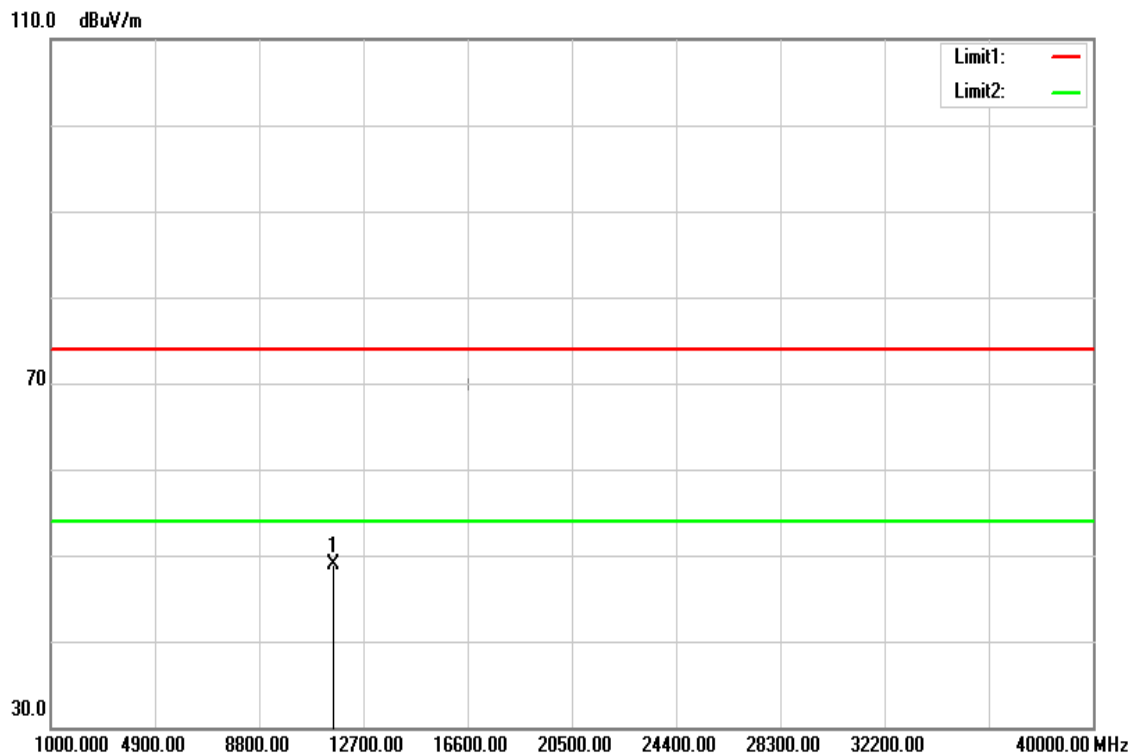


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.000	33.83	15.62	49.45	74.00	-24.55	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

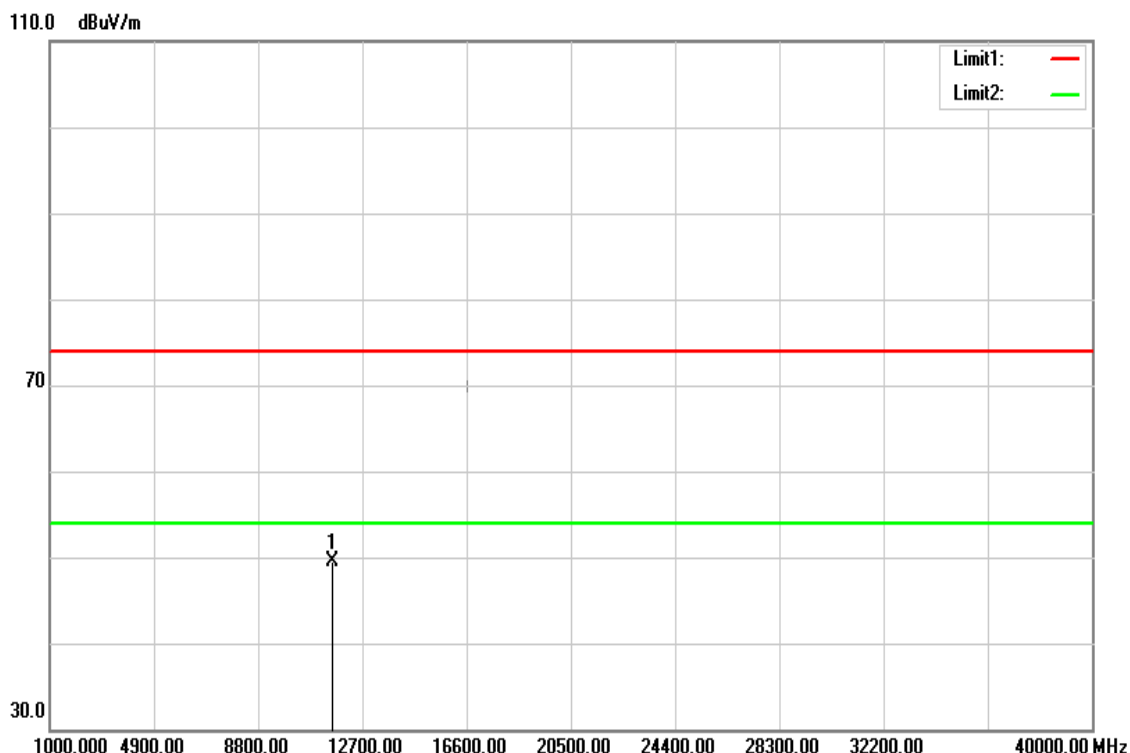


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11590.000	33.21	15.61	48.82	74.00	-25.18	peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	22.3(°C)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 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	33.82	15.61	49.43	74.00	-24.57	peak
N/A						

**Remark:**

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

## 4.6 FREQUENCY STABILITY

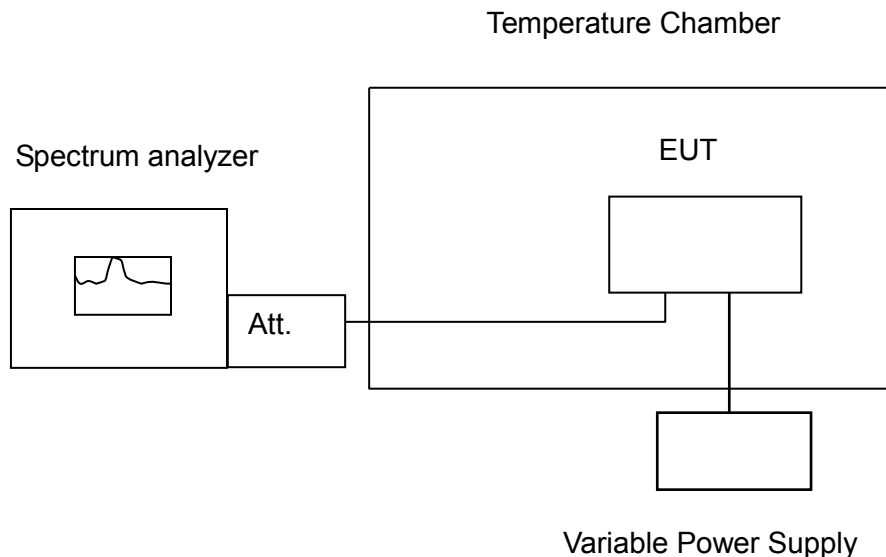
### 4.6.1 Test Limit

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







Report No.: T180614D03-RP3

#### 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	
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. (°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	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



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Temp. (°C)	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. (°C)	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--