

**CFR 47 FCC PART 15 SUBPART E  
ISED RSS-247 ISSUE 3**

**TEST REPORT**

*For*

**WIFI Module**

**FCC MODEL NUMBER: SI04B, SI04\* (\*: A ~ Z, or Blank)  
ISED MODEL NUMBER: SI04B**

**FCC ID: 2AFG6-SI04B  
IC: 22166-SI04B**

**REPORT NUMBER: 4790929065-6-RF-1**

**ISSUE DATE: October 13, 2023**

*Prepared for*

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## Revision History

Rev.	Issue Date	Revisions	Revised By
V0	August 10, 2023	Initial Issue	Fanny Huang
V1	August 16, 2023	Updated the address of applicant and manufacturer.	Fanny Huang
V2	October 13, 2023	Updated ISED RSS-247 to ISSUE 3 and updated antenna information	Fanny Huang

### Summary of Test Results

Test Item	Clause	Limit/Requirement	Result
ON TIME AND DUTY CYCLE	ANSI C63.10-2013, Clause 12.2	None; for reporting purposes only.	Pass
6dB AND 26dB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH	KDB 789033 D02 v02r01 Section C.1	FCC Part 15.407 (a)/(e), RSS-247 Issue 3, Clause 6.2.1.2 RSS-Gen Clause 6.6	Pass
CONDUCTED OUTPUT POWER	KDB 789033 D02 v02r01 Section E.3.a (Method PM)	FCC 15.407 (a) RSS-247 Clause 6.2	Pass
POWER SPECTRAL DENSITY	KDB 789033 D02 v02r01 Section F	FCC 15.407 (a) RSS-247 Clause 6.2	Pass
AC Power Line Conducted Emission	ANSI C63.10-2013, Clause 6.2.	FCC 15.207 RSS-GEN Clause 8.8	Pass
Radiated Emissions and Band Edge Measurement	KDB 789033 D02 v02r01 Section G.3, G.4, G.5, and G.6	FCC 15.407 (b) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	Pass
FREQUENCY STABILITY	ANSI C63.10-2013, Clause 6.8	FCC 15.407 (g)	Pass
Dynamic Frequency Selection (Slave)	KDB 905462 D03 Client Without DFS New Rules v01r02	FCC Part 15.407 (h), RSS-247 Issue 3 Clause 6.3	N/A
Dynamic Frequency Selection (Master)	KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02	FCC Part 15.407 (h), RSS-247 Issue 3 Clause 6.3	N/A
Antenna Requirement	N/A	FCC 47 CFR Part 15.203/ 15.407(a)(1) (2), RSS-Gen Issue 5, Clause 6.8	Pass

Note:

1. N/A: In this whole report not applicable.

\*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.

\*The measurement result for the sample received is <Pass> according to <CFR 47 FCC PART 15 SUBPART E><ISED RSS-247 ISSUE 3> when <Accuracy Method> decision rule is applied.

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## 1. ATTESTATION OF TEST RESULTS

### Applicant Information

Company Name: Guangzhou Shirui Electronics Co., Ltd.  
Address: 192 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District, Guangzhou, Guangdong, China

### Manufacturer Information

Company Name: Guangzhou Shirui Electronics Co., Ltd.  
Address: 192 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District, Guangzhou, Guangdong, China

### EUT Information

EUT Name: WIFI Module  
FCC&ISED Model: SI04B  
FCC Series Model: SI04\* (\*: A ~ Z, or Blank)  
Model difference: Refer to section 5.1  
Sample Received Date: July 13, 2023  
Sample Status: Normal  
Sample ID: 5161650  
Date of Tested: July 24, 2023 to October 13, 2023

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART E ISED RSS-247 ISSUE 3	Pass

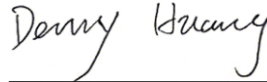
Prepared By:



Fanny Huang

Engineer Project Associate

Checked By:



Denny Huang

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Approved By:



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Operations Manager

## 2. TEST METHODOLOGY

All tests were performed in accordance with the standard CFR 47 FCC PART 15 SUBPART E ISSED RSS-247 ISSUE 3, ANSI C63.10-2013, CFR 47 FCC Part 2, KDB 789033 D02 v02r01, RSS-GEN Issue 5, KDB414788 D01 Radiated Test Site v01, KDB 662911 D01 Multiple Transmitter Output v02r01, KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02, KDB 905462 D03 UNII clients without radar detection New Rules v01r02, KDB 905462 D04 Operational Modes for DFS Testing New Rules v01, KDB 905462 D06 802 11 Channel Plans New Rules v02 and KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02.

## 3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p><b>A2LA (Certificate No.: 4102.01)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p><b>FCC (FCC Designation No.: CN1187)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p><b>ISED (Company No.: 21320)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p><b>VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793.</p> <p>Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B, the VCCI registration No. is C-20012 and T-20011</p>
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### Note1:

All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China.

### Note2:

The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

### Note3:

For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

### 4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 40 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
	5.37 dB (26 GHz ~ 40 GHz)
Duty Cycle	±0.028%
Emission Bandwidth and 99% Occupied Bandwidth	±0.0196%
Maximum Conducted Output Power	±0.766 dB
Maximum Power Spectral Density Level	±1.22 dB
Frequency Stability	±2.76%
Conducted Band-edge Compliance	±1.328 dB
Conducted Unwanted Emissions In Non-restricted Frequency Bands	±0.746 dB (9 kHz ~ 1 GHz)
	±1.328dB (1 GHz ~ 26 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	



## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

EUT Name	WIFI Module
FCC&ISED Model	SI04B
FCC Series Model	SI04* (*: A ~ Z, or Blank)
Model difference	SI04* (*: A ~ Z, or Blank) has the same technical construction including circuit diagram, PCB Layout, components, and component layout, all electrical construction, and mechanical construction with SI04B. The difference lies only in the model number and market. All these changes do not degrade the unwanted emissions of the certified product.

Frequency Range:	5180 MHz to 5240 MHz (U-NII-1) 5745 MHz to 5825 MHz (U-NII-3)
DFS Operational mode:	Master
Type of Modulation:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)
Radio Technology:	IEEE802.11a/n-HT20/n-HT40/ac-VHT20/ac-VHT40/ac-VHT80
Normal Test Voltage:	DC 12 V

Note: SI04B has two wireless modules, one is called module SKI.WB8821CU.1 and the other one called module SKI.W7613E.1, this report is for SKI.W7613E.1.

## 5.2. CHANNEL LIST

UNII-1 (For Bandwidth=20MHz)		UNII-1 (For Bandwidth=40MHz)		UNII-1 (For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

UNII-3 (For Bandwidth=20MHz)		UNII-3 (For Bandwidth=40MHz)		UNII-3 (For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

## 5.3. MAXIMUM EIRP

### UNII-1 BAND(FCC&ISED)

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)	Max Average EIRP (dBm)
a	5180 ~ 5240 5745 ~ 5825	8.98	15.60
n HT20		12.69	19.31
n HT40		13.09	19.71
ac VHT80		16.12	22.74

#### 5.4. TEST CHANNEL CONFIGURATION

UNII-1 Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11n HT20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11n HT40	CH 38(Low Channel), CH 46(High Channel)	5190 MHz, 5230 MHz
802.11ac VHT80	CH 42(Low Channel)	5210 MHz

UNII-3 Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11n HT20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11n HT40	CH 151(Low Channel), CH 159(High Channel)	5755MHz, 5795MHz
802.11ac VHT80	CH 155(Low Channel)	5775 MHz

## 5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter	
Test Software	QA Tool

Mode	Freq(MHz)	Tx power level	
		ANT1	ANT2
802.11a	5180	1F	1C
	5200	1F	1C
	5240	1F	1E
	5745	14	14
	5785	14	14
	5825	17	13
802.11n 20M	5180	14	14
	5200	14	14
	5240	14	14
	5745	18	18
	5785	18	18
	5825	19	19
802.11n 40M	5190	19	19
	5230	19	19
	5755	19	19
	5795	1B	1B
802.11ac 80M	5210	20	20
	5775	20	20

## 5.6. WORSE CASE CONFIGURATIONS

The EUT was tested in the following configuration(s):

Controlled in test mode using a software application on the EUT supplied by customer. The application was used to enable a continuous transmission and to select the mode, test channels, bandwidth, data rates as required.

Test channels referring to section 5.4.

Maximum power setting referring to section 5.5.

Worst case Data Rates declared by the customer:

802.11a 20 mode: 6 Mbps

802.11n HT20 mode: MCS0

802.11n HT40 mode: MCS0

802.11ac VHT20 mode: MCS0

802.11ac VHT40 mode: MCS0

802.11ac VHT80 mode: MCS0

802.11a only support SISO mode.

802.11n HT20/HT40/ac VHT20/VHT40/VHT80 support SISO and MIMO mode.

802.11a SISO mode, Antenna 1 and Antenna 2 has the same power setting, so for Duty Cycle and Frequency Stability, only Antenna 1 worst case test data were recorded in the report.

802.11n/ac SISO mode and MIMO mode have the same power setting, so only the worst case power mode(MIMO) will be record in the report.

802.11ac VHT20 and VHT40 mode are different from 802.11nHT20 and HT40 only in control messages, so for these 4 modes, only 802.11n HT20 and 802.11n HT40 worst case power modes radiated emission test data are recorded in the report .

The EUT has 2 separate antennas which correspond to 2 separate antenna ports. Core 1 and Core 2 correspond to antenna 1 and antenna 2 respectively.

The measured additional path loss was included in any path loss calculations for all RF cable used during tested.

Conducted output power, power spectral density tests separately on each port with all supported SISO & MIMO port combinations.

Radiated emissions tests were performed with the MIMO modes. These were found to be the worst modulation scheme with regards to emissions after preliminary investigations and, as this mode emits the highest conducted output power level, it was deemed to be the worst case.

## 5.7. DESCRIPTION OF AVAILABLE ANTENNAS

Configuration 1:

Antenna No.	Frequency Band	Antenna Type	Max Antenna Gain (dBi)
1	5150-5850	PCB antenna	6.62
2	5150-5850	PCB antenna	5.45

Configuration 2:

Antenna No.	Frequency Band	Antenna Type	Max Antenna Gain (dBi)
1	5150-5850	PCB antenna	6.62
2	5150-5850	PCB antenna	4.95

Note: 2 Configurations have the same antenna type, only the worst data for Configuration 1 were recorded in the report.

The EUT support Cyclic Shift Diversity(CDD) mode.

MIMO output power port and MIMO PSD port summing were performed in accordance with KDB 662911 D01. For the CDD results the Directional Gain was calculated in accordance with the following method.

For output power measurements:

Directional gain=  $G_{ANT} + \text{Array Gain} = 6.62 \text{ dBi}$

$G_{ANT}$  : equal to the gain of the antenna having the highest gain

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$

For power spectral density (PSD) measurements:

Directional gain=  $G_{ANT} + \text{Array Gain} = 9.63 \text{ dBi}$

Array Gain =  $10 \log(N_{ANT}/N_{SS}) \text{ dB}$ .

$N_{ANT}$  : number of transmit antennas

$N_{SS}$  : number of spatial streams, The worst case directional gain will occur when  $N_{SS} = 1$

IEE Std. 802.11	Transmit and Receive Mode	Description
802.11a	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11n HT20	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11n HT40	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11ac VHT20	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11ac VHT40	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11ac VHT80	<input checked="" type="checkbox"/> 2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.

## 5.8. SUPPORT UNITS FOR SYSTEM TEST

### SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Main Board	seewo	MT61A	/
2	SWITCH MODE POWER SUPPLY	MASS POWER	S120-1A190631M2	Input: AC 100-240V, 50/60Hz, 2.0A Output: DC 19.0V, 6.31A, 120.0W Max
3	Keyboard	/	/	/
4	Mouse	/	/	/
5	Monitor	DELL	S2316Hc	/

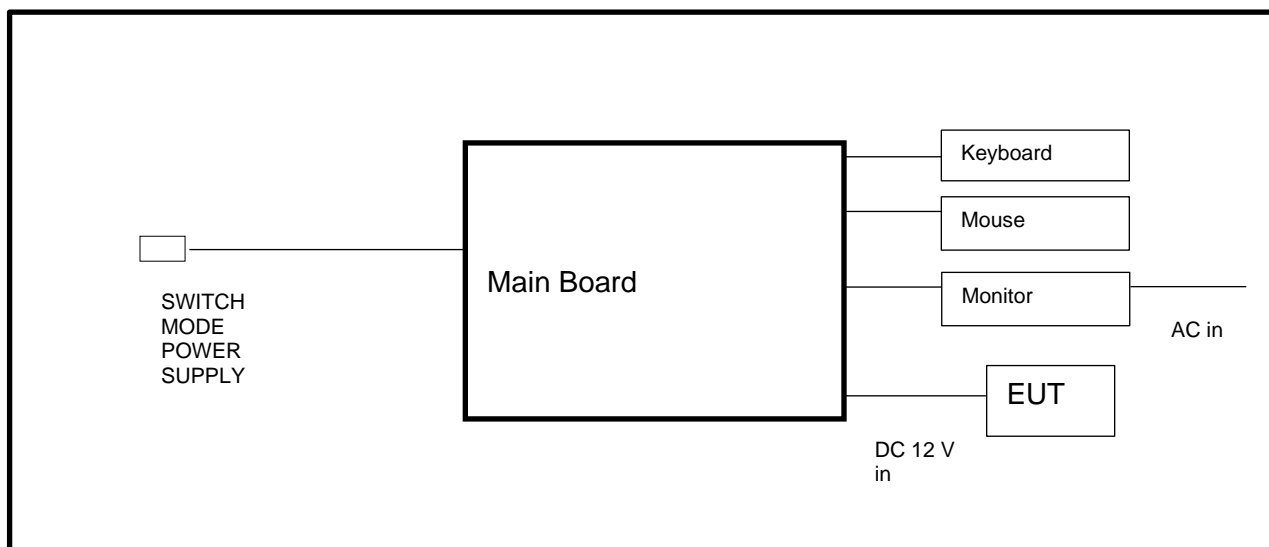
### I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
/	/	/	/	/	/

### ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/

### SETUP DIAGRAM FOR TESTS



## 6. MEASURING EQUIPMENT AND SOFTWARE USED

R&S TS 8997 Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Power sensor, Power Meter	R&S	OSP120	100921	Mar.31,2023	Mar.30,2024
Vector Signal Generator	R&S	SMBV100A	261637	Oct.17, 2022	Oct.16, 2023
Signal Generator	R&S	SMB100A	178553	Oct.17, 2022	Oct.16, 2023
Signal Analyzer	R&S	FSV40	101118	Oct.17, 2022	Oct.16, 2023
Software					
Description	Manufacturer		Name	Version	
For R&S TS 8997 Test System	Rohde & Schwarz		EMC 32	10.60.10	
Tonsend RF Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Wideband Radio Communication Tester	R&S	CMW500	155523	Oct.17, 2022	Oct.16, 2023
Wireless Connectivity Tester	R&S	CMW270	1201.0002N75-102	Sep.28, 2022	Sep.27, 2023
PXA Signal Analyzer	Keysight	N9030A	MY55410512	Oct.17, 2022	Oct.16, 2023
MXG Vector Signal Generator	Keysight	N5182B	MY56200284	Oct.17, 2022	Oct.16, 2023
MXG Vector Signal Generator	Keysight	N5172B	MY56200301	Oct.17, 2022	Oct.16, 2023
DC power supply	Keysight	E3642A	MY55159130	Oct.17, 2022	Oct.16, 2023
Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Oct.17, 2022	Oct.16, 2023
Attenuator	Aglient	8495B	2814a12853	Oct.18, 2022	Oct.17, 2023
RF Control Unit	Tonscend	JS0806-2	23B80620666	April 18,2023	April 17,2024
Software					
Description	Manufacturer	Name		Version	
Tonsend SRD Test System	Tonsend	JS1120-3 RF Test System		V3.2.22	



Conducted Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Oct.17, 2022	Oct.16, 2023
Two-Line V-Network	R&S	ENV216	101983	Oct.17, 2022	Oct.16, 2023
Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Oct.17, 2022	Oct.16, 2023
Software					
Description			Manufacturer	Name	Version
Test Software for Conducted Emissions			Farad	EZ-EMC	Ver. UL-3A1

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct.17, 2022	Oct.16, 2023
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024
Preamplifier	HP	8447D	2944A09099	Oct.17, 2022	Oct.16, 2023
EMI Measurement Receiver	R&S	ESR26	101377	Oct.17, 2022	Oct.16, 2023
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Oct.17, 2022	Oct.16, 2023
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-2	TRS-307-00003	Oct.17, 2022	Oct.16, 2023
Preamplifier	TDK	PA-02-3	TRS-308-00002	Oct.17, 2022	Oct.16, 2023
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.13, 2024
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Oct.17, 2022	Oct.16, 2023
Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01202035	Oct.17, 2022	Oct.16, 2023
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Dec.01,2022	Nov.30,2023
Highpass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	Dec.01,2022	Nov.30,2023
Band Reject Filter	Wainwright	WRCJV12-5695-5725-5850-5880-40SS	4	Dec.01,2022	Nov.30,2023
Band Reject Filter	Wainwright	WRCJV20-5120-5150-	2	Dec.01,2022	Nov.30,2023

		5350-5380-60SS			
Band Reject Filter	Wainwright	WRCJV20-5440-5470-5725-5755-60SS	1	Dec.01,2022	Nov.30,2023
Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Dec.01,2022	Nov.30,2023
Band Reject Filter	Wainwright	WRCD5-1879-1879.85-1880.15-1881-40SS	1	Dec.01,2022	Nov.30,2023
Notch Filter	Wainwright	WHJ10-882-980-7000-40SS	1	Dec.01,2022	Nov.30,2023
<b>Software</b>					
<b>Description</b>			<b>Manufacturer</b>	<b>Name</b>	<b>Version</b>
Test Software for Radiated Emissions			Farad	EZ-EMC	Ver. UL-3A1

<b>Other Instrument</b>					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Temperature humidity probe	OMEGA	ITHX-SD-5	18470007	Oct.22, 2022	Oct.21, 2023
Barometer	Yiyi	Baro	N/A	Oct.24, 2022	Oct.23, 2023
Attenuator	Agilent	8495B	2814a12853	Oct.18, 2022	Oct.17, 2023

## 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

#### LIMITS

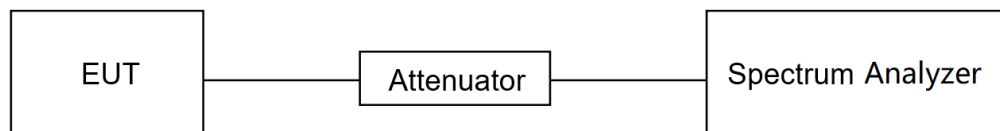
None; for reporting purposes only.

#### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.B.

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set  $RBW \geq EBW$  if possible; otherwise, set RBW to the largest available value. Set  $VBW \geq RBW$ . Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are  $> 50/T$ , where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if  $T \leq 16.7$  microseconds.)

#### TEST SETUP



#### TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 12 V

#### TEST DATE / ENGINEER

Test Date	July 25, 2023	Test By	Walker Yuan
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#### TEST RESULTS

Please refer to section "Test Data" - Appendix E

## 7.2. 6DB AND 26DB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH

### LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247 ISSUE 3		
Test Item	Limit	Frequency Range (MHz)
26 dB Emission Bandwidth	For reporting purposes only.	5150 ~ 5250
26 dB Emission Bandwidth	For reporting purposes only.	5250 ~ 5350
26 dB Emission Bandwidth	For reporting purposes only.	5470 ~ 5725 (For FCC) 5470 ~ 5600 (For ISED) 5650 ~ 5725 (For ISED)
6 dB Emission Bandwidth	The minimum 6 dB emission bandwidth shall be 500 kHz.	5725 ~ 5850
99 % Occupied Bandwidth	For reporting purposes only.	5150 ~ 5825 (For ISED)

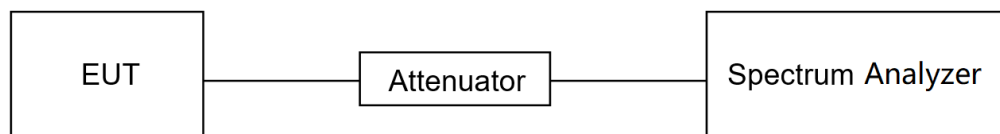
### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.C1. for 26 dB Emission Bandwidth; section II.C2. for 6 dB Emission Bandwidth; section II.D. for 99 % Occupied Bandwidth.

Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Emission Bandwidth: RBW=100 kHz For 26 dB Emission bandwidth: approximately 1 % of the EBW. For 99 % Occupied Bandwidth: approximately 1 % ~ 5 % of the OBW.
VBW	For 6 dB Bandwidth: $\geq 3 \times \text{RBW}$ For 26 dB Bandwidth: $> 3 \times \text{RBW}$ For 99 % Bandwidth: $> 3 \times \text{RBW}$
Trace	Max hold
Sweep	Auto couple

- Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.
- Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6/26 dB relative to the maximum level measured in the fundamental emission.

**TEST SETUP****TEST ENVIRONMENT**

Temperature	25°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 12 V

**TEST DATE / ENGINEER**

Test Date	July 25, 2023	Test By	Walker Yuan
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**TEST RESULTS**

Please refer to section "Test Data" - Appendix A1&A2&A3

### 7.3. CONDUCTED OUTPUT POWER

#### LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	<input type="checkbox"/> Outdoor Access Point: 1 W (30 dBm) <input type="checkbox"/> Indoor Access Point: 1 W (30 dBm) <input type="checkbox"/> Fixed Point-To-Point Access Points: 1 W (30 dBm) <input checked="" type="checkbox"/> Client Devices: 250 mW (24 dBm)	5150 ~ 5250
	Shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850

ISED RSS-247 ISSUE 3		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power or e.i.r.p.	The maximum e.i.r.p. shall not exceed 200 mW (23 dBm) or $10 + 10 \log_{10} B$ , dBm, whichever power is less. B is the 99 % emission bandwidth in megahertz.	5150 ~ 5250
	a. The maximum conducted output power shall not exceed 250 mW (24 dBm) or $11 + 10 \log_{10} B$ dBm, whichever is less.  b. The maximum e.i.r.p. shall not exceed 1.0 W (30 dBm) or $17 + 10 \log_{10} B$ dBm, whichever is less. B is the 99 % emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.	5250 ~ 5350 5470 ~ 5600 5650 ~ 5725
	Shall not exceed 1 Watt (30 dBm). The e.i.r.p. shall not exceed 4 W	5725 ~ 5850

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi.

If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

#### Method PM (Measurement using an RF average power meter):

(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:

- The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
- At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.

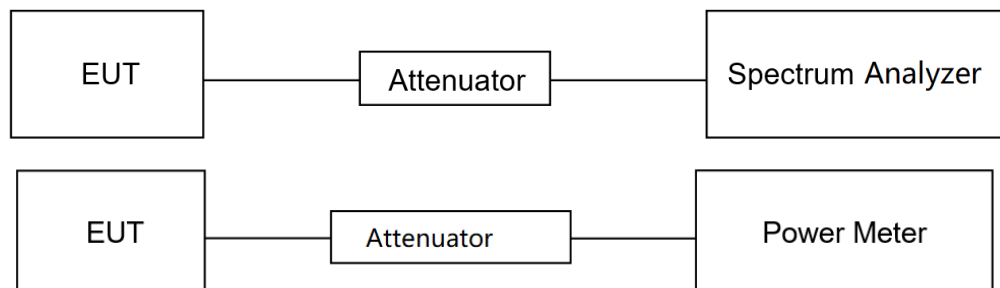
c. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

(ii) If the transmitter does not transmit continuously, measure the duty cycle,  $x$ , of the transmitter output signal as described in II.B.

(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

(iv) Adjust the measurement in dBm by adding  $10 \log (1/x)$  where  $x$  is the duty cycle (e.g.,  $10 \log (1/0.25)$  if the duty cycle is 25 %).

#### **TEST SETUP**



**TEST ENVIRONMENT**

Temperature	25°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 12 V

**TEST DATE / ENGINEER**

Test Date	July 25, 2023	Test By	Walker Yuan
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**TEST RESULTS**

Please refer to section "Test Data" - Appendix B



## 7.4. POWER SPECTRAL DENSITY

### LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	<input type="checkbox"/> Outdoor Access Point: 17 dBm/MHz <input checked="" type="checkbox"/> Indoor Access Point: 17 dBm/MHz <input type="checkbox"/> Fixed Point-To-Point Access Points: 17 dBm/MHz <input type="checkbox"/> Client Devices: 11 dBm/MHz	5150 ~ 5250
	11 dBm/MHz	5250 ~ 5350 5470 ~ 5725
	30 dBm/500kHz	5725 ~ 5850

ISED RSS-247 ISSUE 3		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.	5150 ~ 5250
	The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.	5250 ~ 5350 5470 ~ 5600 5650 ~ 5725
	30 dBm / 500 kHz	5725 ~ 5850

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi.  
If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.F.

Connect the EUT to the spectrum analyser and use the following settings:

For U-NII-1, U-NII-2A and U-NII-2C band:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1 MHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

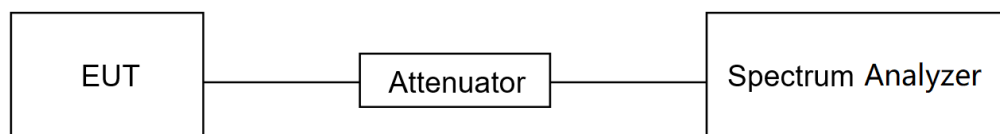
For U-NII-3:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow trace to fully stabilize and Use the peak search function on the instrument to find the peak of the spectrum and record its value.

Add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

### **TEST SETUP**



### **TEST ENVIRONMENT**

Temperature	25°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 12 V

### **TEST DATE / ENGINEER**

Test Date	July 25, 2023	Test By	Walker Yuan
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### **TEST RESULTS**

Please refer to section "Test Data" - Appendix C

## 7.5. FREQUENCY STABILITY

### LIMITS

The frequency of the carrier signal shall be maintained within band of operation.

### TEST PROCEDURE

1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between 0 °C ~ 40 °C (declared by customer).
2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Connect the EUT to the spectrum analyser and use the following settings:

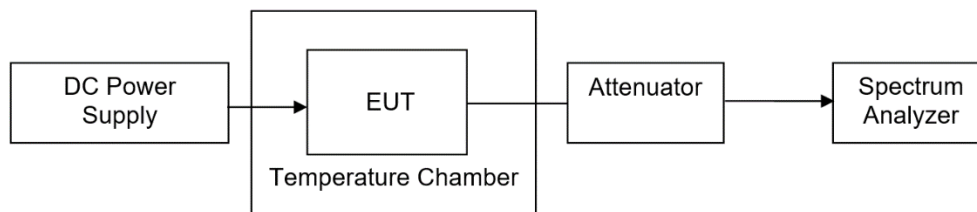
Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	10 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

4. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup, and at 2 minutes, 5minutes, and 10 minutes after the EUT is energized.
5. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

### TEST ENVIRONMENT

	Normal Test Conditions	Extreme Test Conditions
Relative Humidity	20 % - 75 %	/
Atmospheric Pressure	100 kPa ~102 kPa	/
Temperature	T <sub>N</sub> (Normal Temperature): 25.1 °C	T <sub>L</sub> (Low Temperature): 0 °C
		T <sub>H</sub> (High Temperature): 40 °C
Supply Voltage	V <sub>N</sub> (Normal Voltage): DC 12 V	V <sub>L</sub> (Low Voltage): AC 102 V
		V <sub>H</sub> (High Voltage): AC 138 V

### TEST SETUP



### TEST ENVIRONMENT

Temperature	25°C	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 12 V

### TEST DATE / ENGINEER

Test Date	July 25, 2023	Test By	Walker Yuan
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### TEST RESULTS

Please refer to section "Test Data" - Appendix D

## 8. RADIATED TEST RESULTS

### LIMITS

Refer to CFR 47 FCC §15.205, §15.209 and §15.407 (b).

Refer to ISED RSS-GEN Clause 8.9, Clause 8.10 and ISED RSS-247 6.2.

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz ~ 1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

FCC Emissions radiated outside of the specified frequency bands below 30 MHz		
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30

ISED General field strength limits at frequencies below 30 MHz

Table 6 – General field strength limits at frequencies below 30 MHz		
Frequency	Magnetic field strength (H-Field) (μA/m)	Measurement distance (m)
9 - 490 kHz <sup>Note 1</sup>	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

**Note 1:** The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

ISED Restricted bands refer to ISED RSS-GEN Clause 8.10

Table 7 – Restricted frequency bands <sup>Note 1</sup>		
MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5480	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138		

**Note 1:** Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

FCC Restricted bands of operation refer to FCC §15.205 (a):

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	( <sup>2</sup> )
13.36-13.41			

Note: <sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup>Above 38.6c

Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b) and ISSED RSS-247 6.2.

#### LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)

Frequency Range (MHz)	EIRP Limit	Field Strength Limit (dBuV/m) at 3 m
5150~5250 MHz	PK: -27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz		
5470~5725 MHz		
5725~5850 MHz	PK: -27 (dBm/MHz) *1 PK: 10 (dBm/MHz) *2 PK: 15.6 (dBm/MHz) *3 PK: 27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK: 105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK: 122.2 (dBμV/m) *4
Note: *1 beyond 75 MHz or more above of the band edge. *2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.		

## TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyser

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field 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 site based on KDB 414788.

8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of  $377\Omega$ . For example, the measurement frequency X KHz resulted in a level of Y dBuV/m, which is equivalent to  $Y-51.5 = Z$  dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.



Below 1 GHz and above 30 MHz

The setting of the spectrum analyser

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

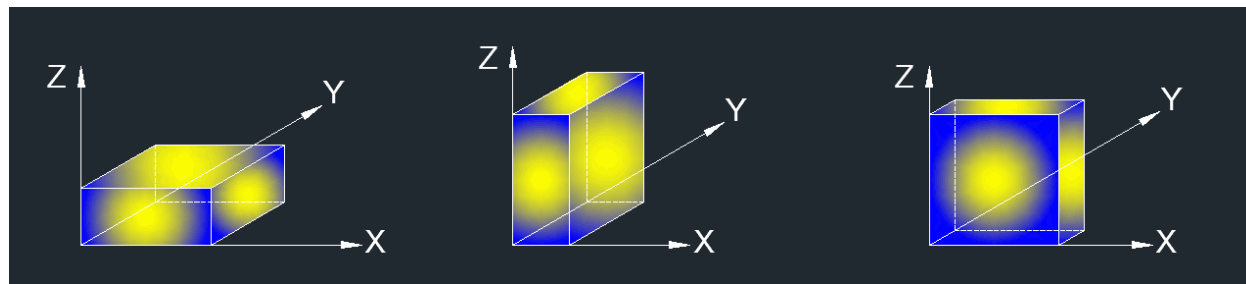
Above 1 GHz

The setting of the spectrum analyser

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.G.3 ~ II.G.6.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 1.5 m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

For Band edge:

Note:

1. Measurement = Reading Level + Correct Factor.
2. If the Peak values are less than the Average limit of 54 dBuV/m, the Average result is deemed to comply with Average limit.
3. Peak: Peak detector.
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
7. Horizontal and Vertical have been tested, only the worst data was recorded in the report.
8. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious emission 1GHz-7GHz:

Note:

1. Measurement = Reading Level + Correct Factor.
2. If the Peak values are less than the Average limit of 54 dBuV/m, the Average result is deemed to comply with Average limit.
3. Peak: Peak detector.
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.
9. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious emission 7GHz-18GHz:

Note:

1. Measurement = Reading Level + Correct Factor.
2. If the Peak values are less than the Average limit of 54 dBuV/m, the Average result is deemed to comply with Average limit.
3. Peak: Peak detector.
4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.
9. All modes, channels and antennas have been tested, only the worst data was recorded in the report.
10. \*-indicates frequency is out of the restricted bands and the limit is -27dBm/MHz (68.2dBuV/m).

For Radiate Spurious emission 9kHz-30MHz:

Note:

1. Measurement = Reading Level + Correct Factor  
(dBuA/m= dBuV/m- 20Log10[120π] = dBuV/m- 51.5).
2. If the Peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious emission 18GHz-26GHz:

Note:

1. Measurement = Reading Level + Correct Factor.
2. If the Peak values are less than the Average limit of 54 dBuV/m, the Average result is deemed to comply with Average limit.
3. Peak: Peak detector.
4. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious emission 26GHz-40GHz:

Note:

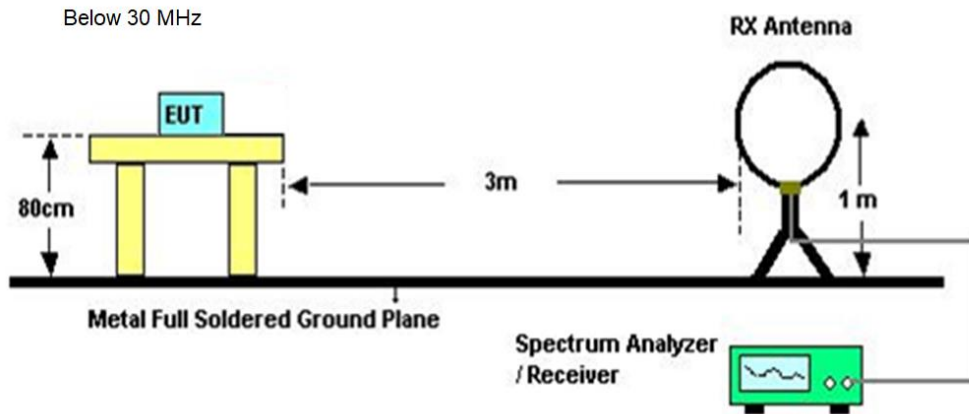
1. Measurement = Reading Level + Correct Factor.
2. If the Peak values are less than the Average limit of 54 dBuV/m, the Average result is deemed to comply with Average limit.
3. Peak: Peak detector.
4. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious emission 30MHz-1GHz:

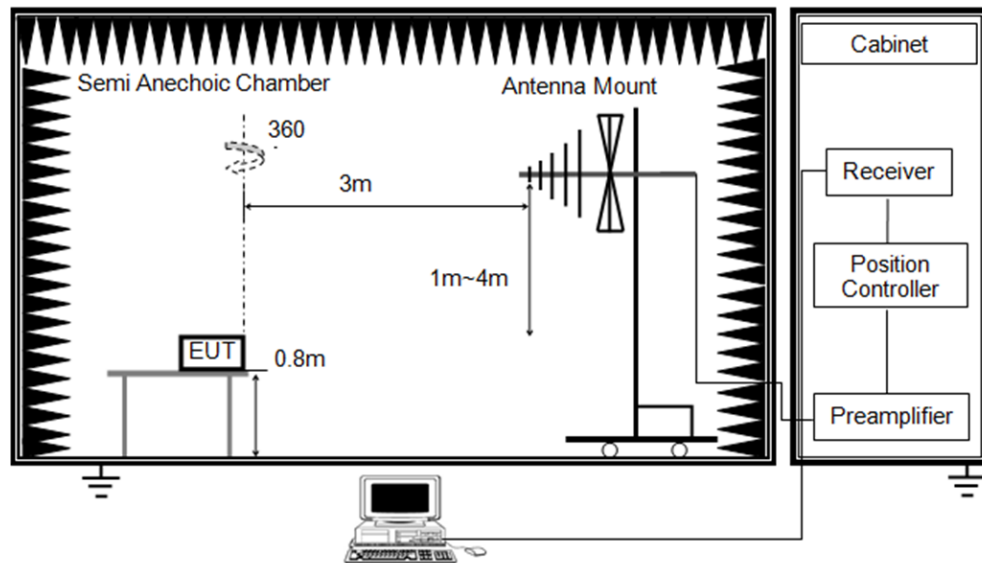
Note:

1. Result Level = Read Level + Correct Factor.
2. If the Peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.
4. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

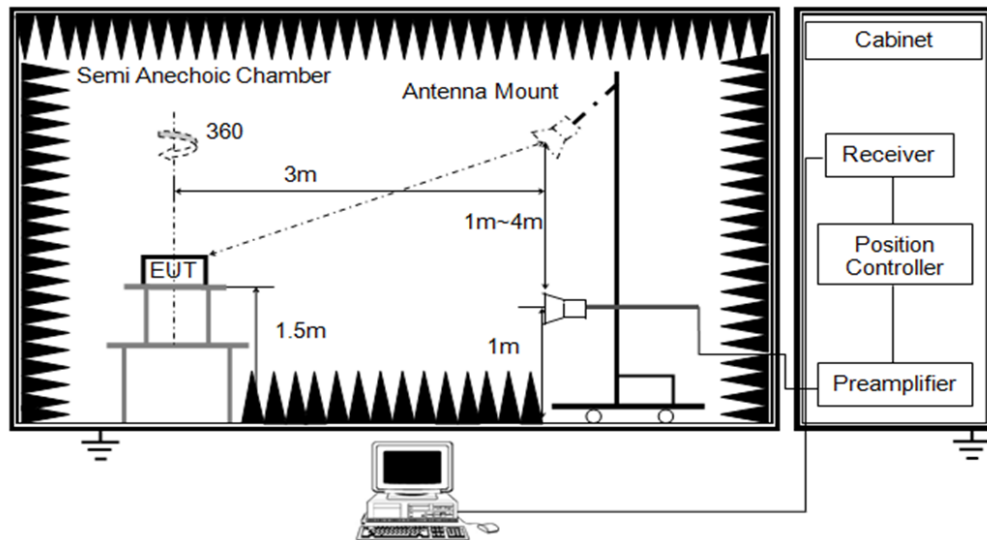
## TEST SETUP



Below 1 GHz and above 30 MHz



Above 1 GHz



**TEST ENVIRONMENT**

Temperature	25.3°C	Relative Humidity	61%
Atmosphere Pressure	101kPa	Test Voltage	DC 12 V

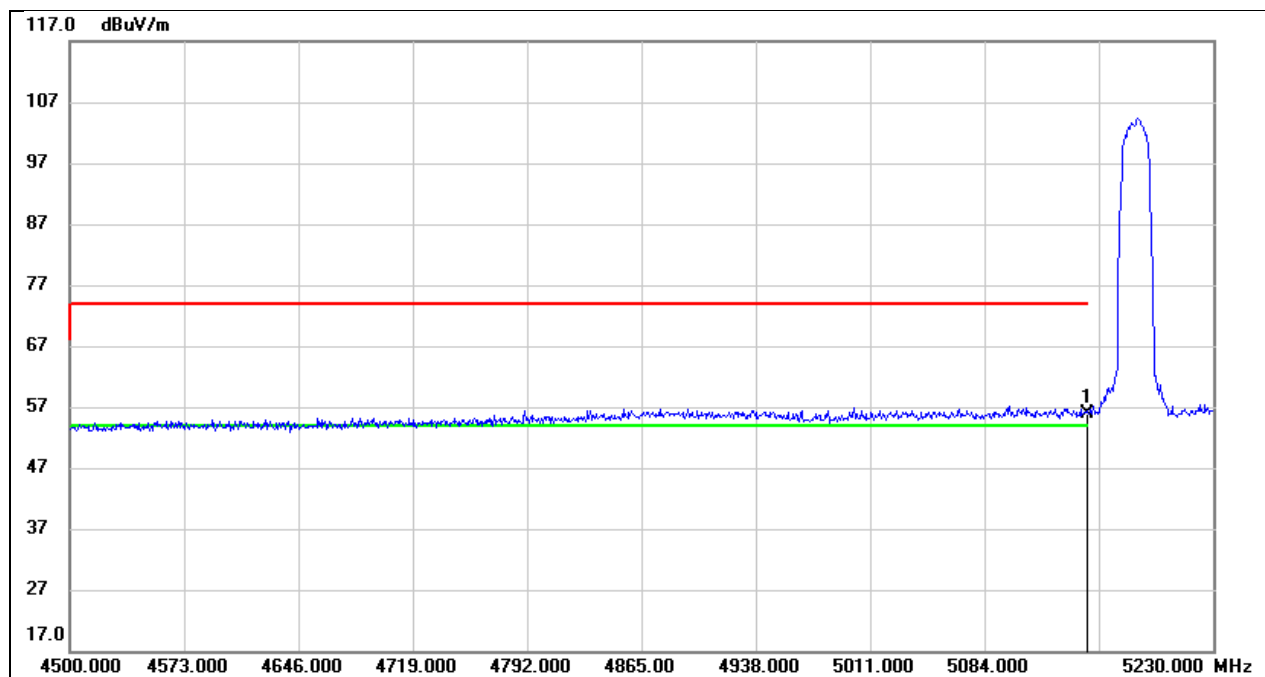
**TEST DATE / ENGINEER**

Test Date	August 1, 2023	Test By	Rex Huang
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**TEST RESULTS**

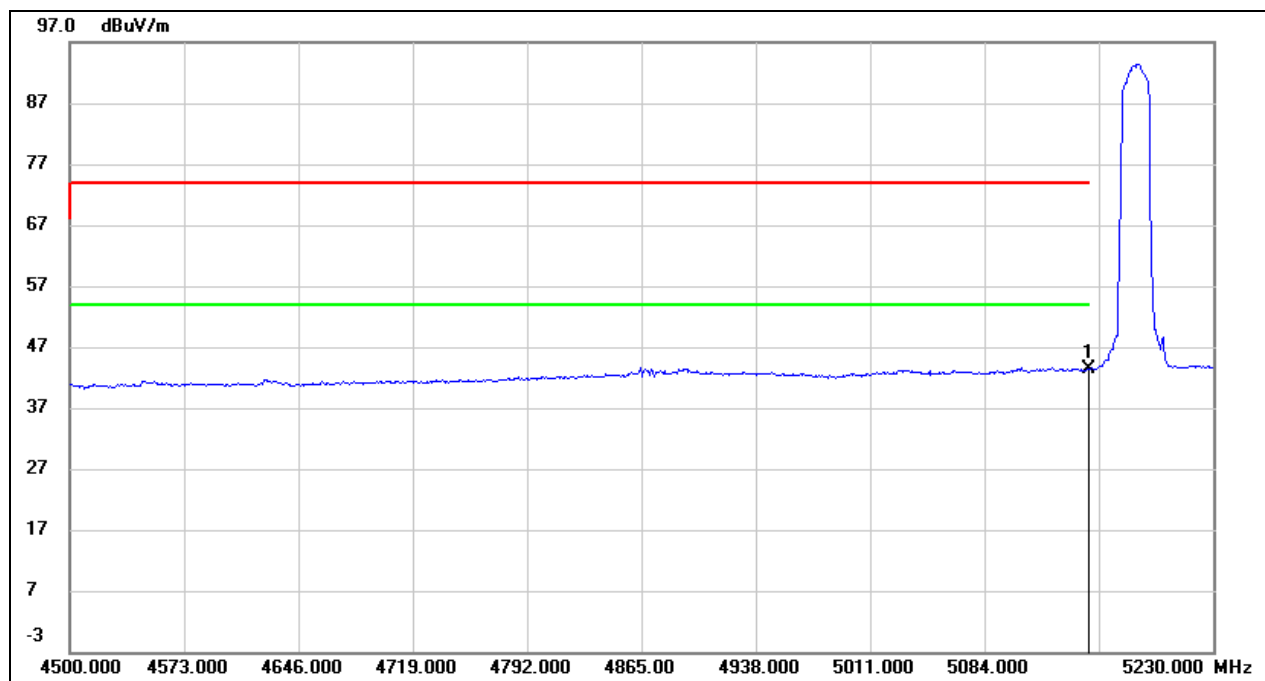
## 8.1. RESTRICTED BANDEDGE

Test Mode:	802.11a 20 PK	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	15.65	40.27	55.92	74.00	-18.08	peak

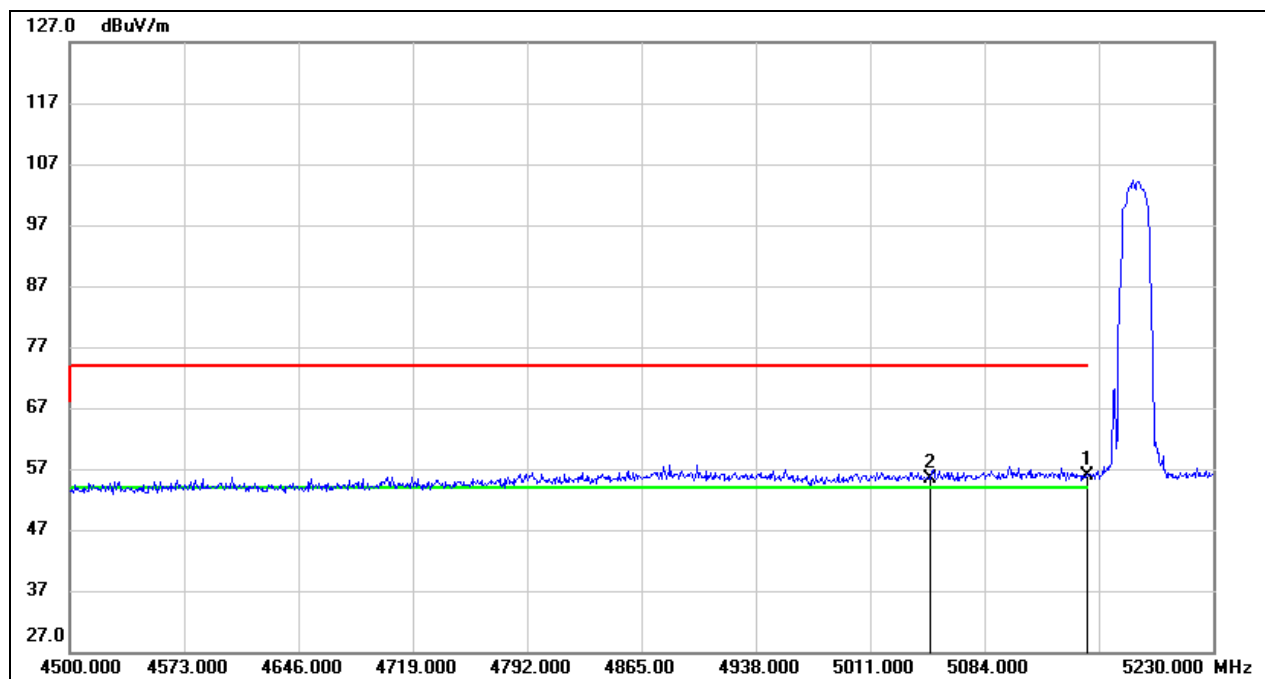
Test Mode:	802.11a 20 AV	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	3.02	40.27	43.29	54.00	-10.71	AVG

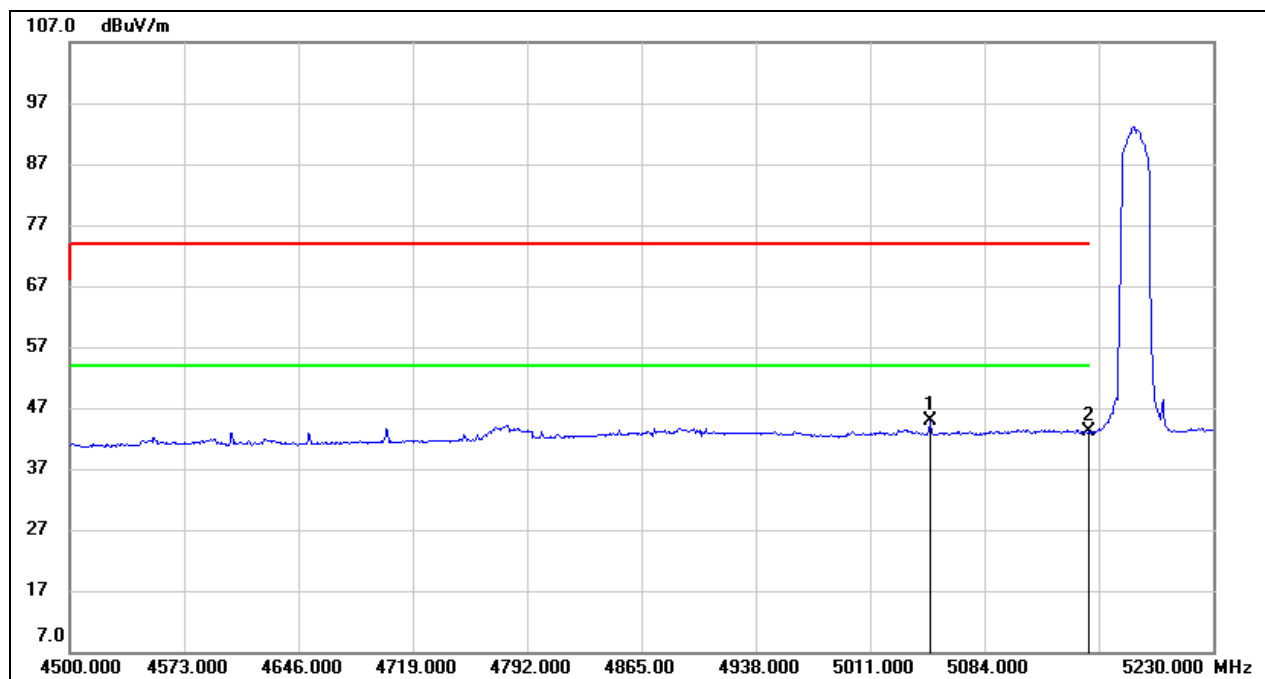


Test Mode:	802.11a 20 PK	Frequency(MHz):	5180
Polarity:	Vertical	Test Voltage:	DC 12 V



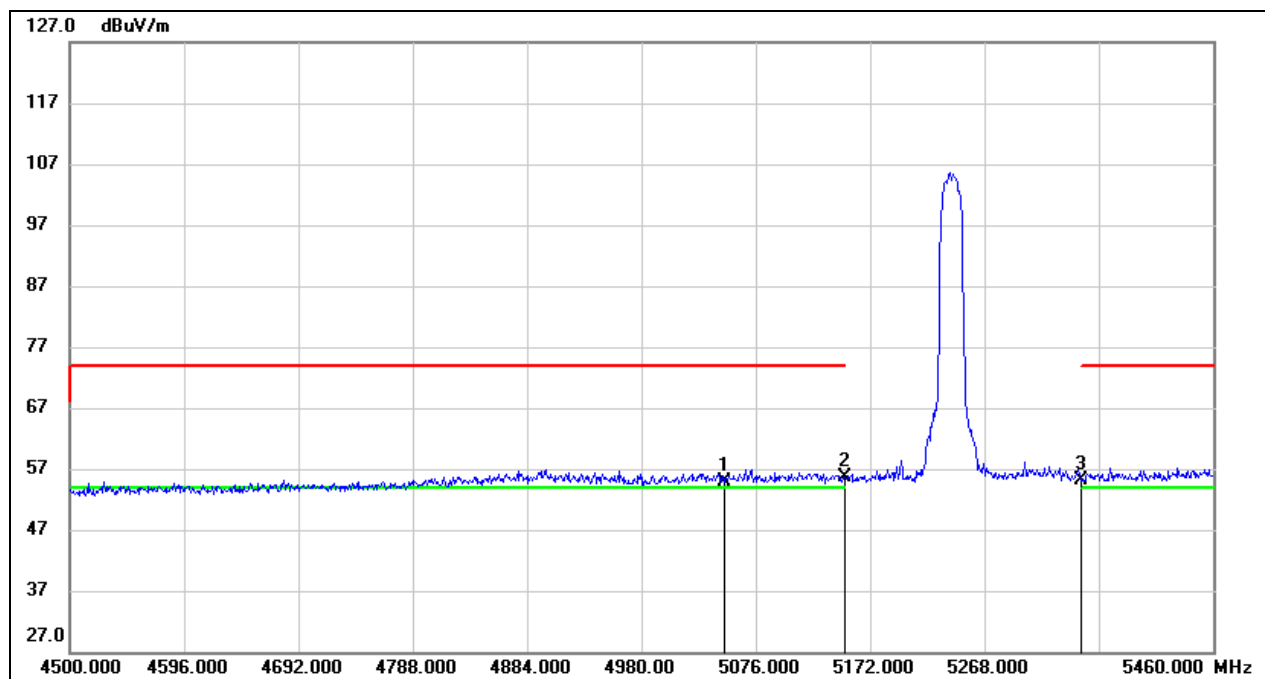
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	15.52	40.27	55.79	74.00	-18.21	peak
2	5048.960	15.09	40.17	55.26	74.00	-18.74	peak

Test Mode:	802.11a 20 AV	Frequency(MHz):	5180
Polarity:	Vertical	Test Voltage:	DC 12 V



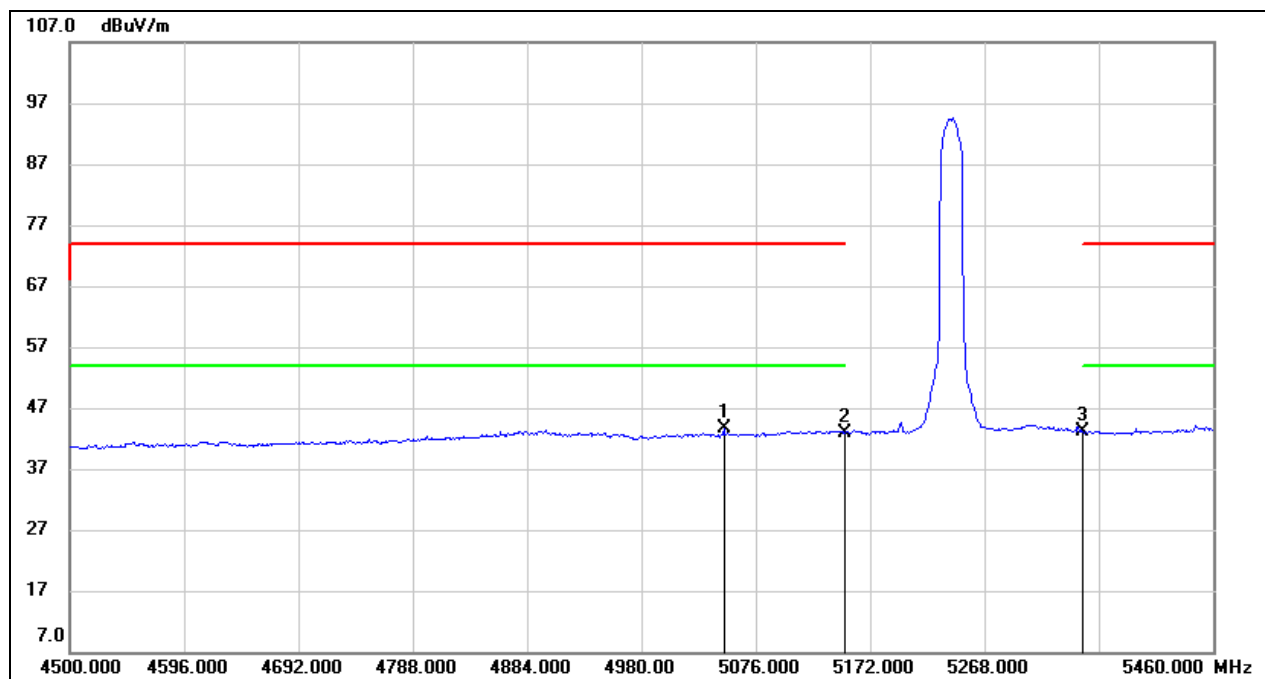
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5048.960	4.74	40.17	44.91	54.00	-9.09	AVG
2	5150.000	2.77	40.27	43.04	54.00	-10.96	AVG

Test Mode:	802.11a 20 PK	Frequency(MHz):	5240
Polarity:	Horizontal	Test Voltage:	DC 12 V



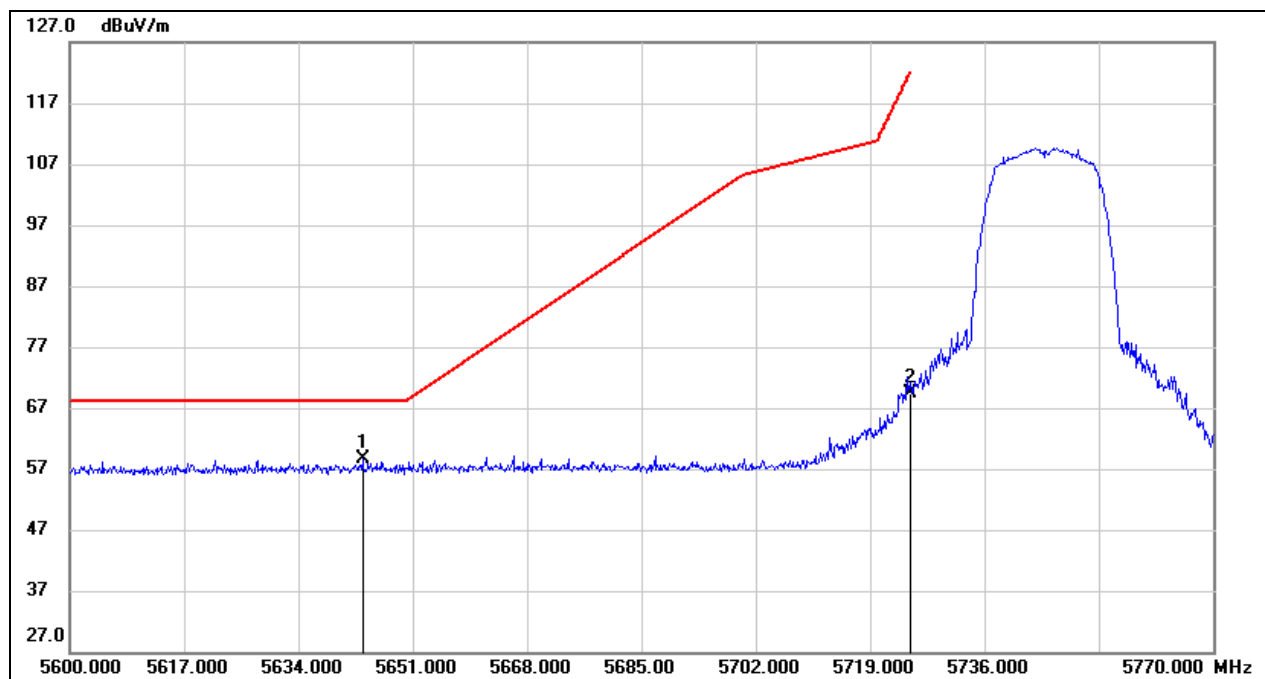
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5049.120	14.74	40.17	54.91	74.00	-19.09	peak
2	5150.000	15.27	40.27	55.54	74.00	-18.46	peak
3	5350.000	14.55	40.49	55.04	74.00	-18.96	peak

Test Mode:	802.11a 20 AV	Frequency(MHz):	5240
Polarity:	Horizontal	Test Voltage:	DC 12 V



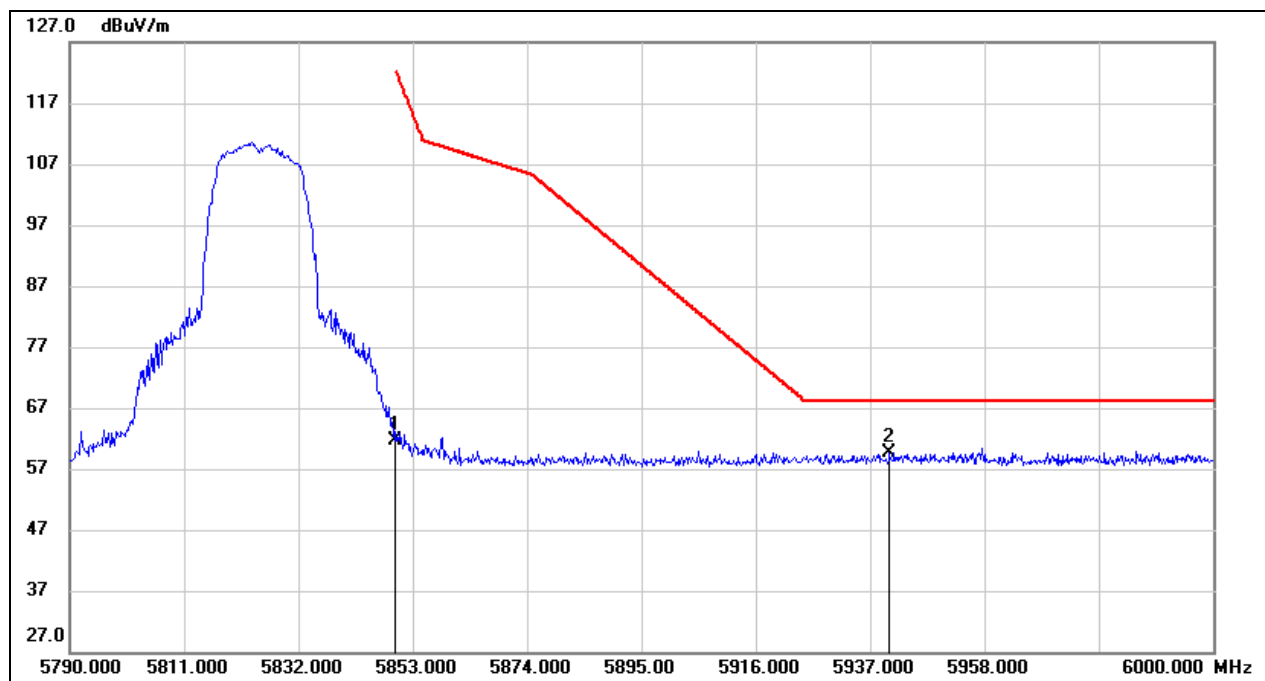
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5049.120	3.35	40.17	43.52	54.00	-10.48	AVG
2	5150.000	2.72	40.27	42.99	54.00	-11.01	AVG
3	5350.000	2.66	40.49	43.15	54.00	-10.85	AVG

Test Mode:	802.11a 20 PK	Frequency(MHz):	5745
Polarity:	Horizontal	Test Voltage:	DC 12 V



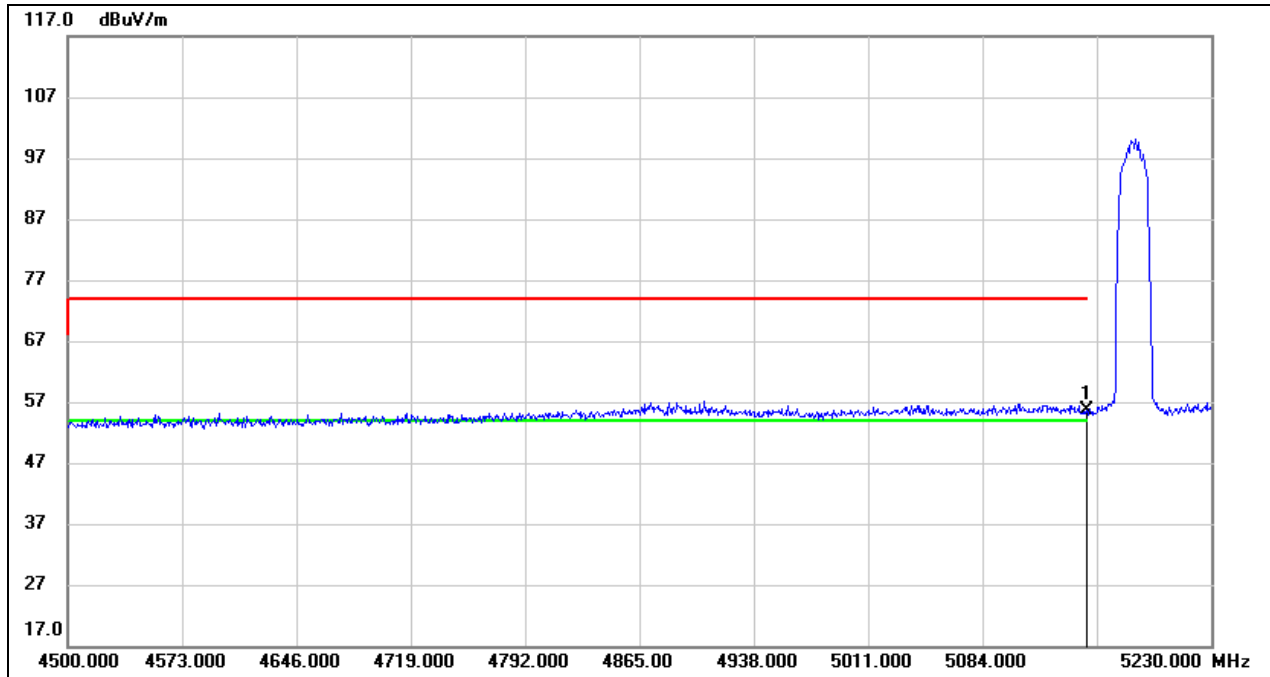
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5643.520	17.51	41.04	58.55	68.20	-9.65	peak
2	5725.000	28.14	41.27	69.41	122.20	-52.79	peak

Test Mode:	802.11a 20 PK	Frequency(MHz):	5825
Polarity:	Horizontal	Test Voltage:	DC 12 V



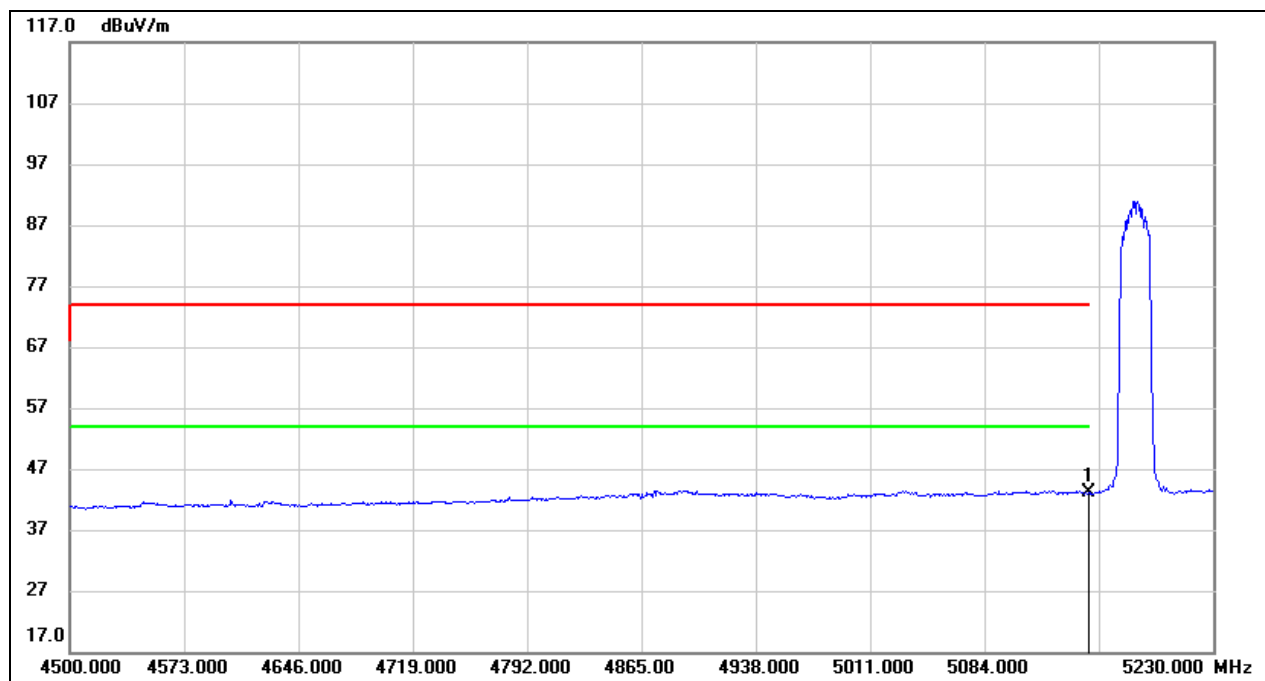
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	20.04	41.60	61.64	122.20	-60.56	peak
2	5940.570	17.86	41.84	59.70	68.20	-8.50	peak

Test Mode:	802.11n HT20 PK	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	15.37	40.27	55.64	74.00	-18.36	peak

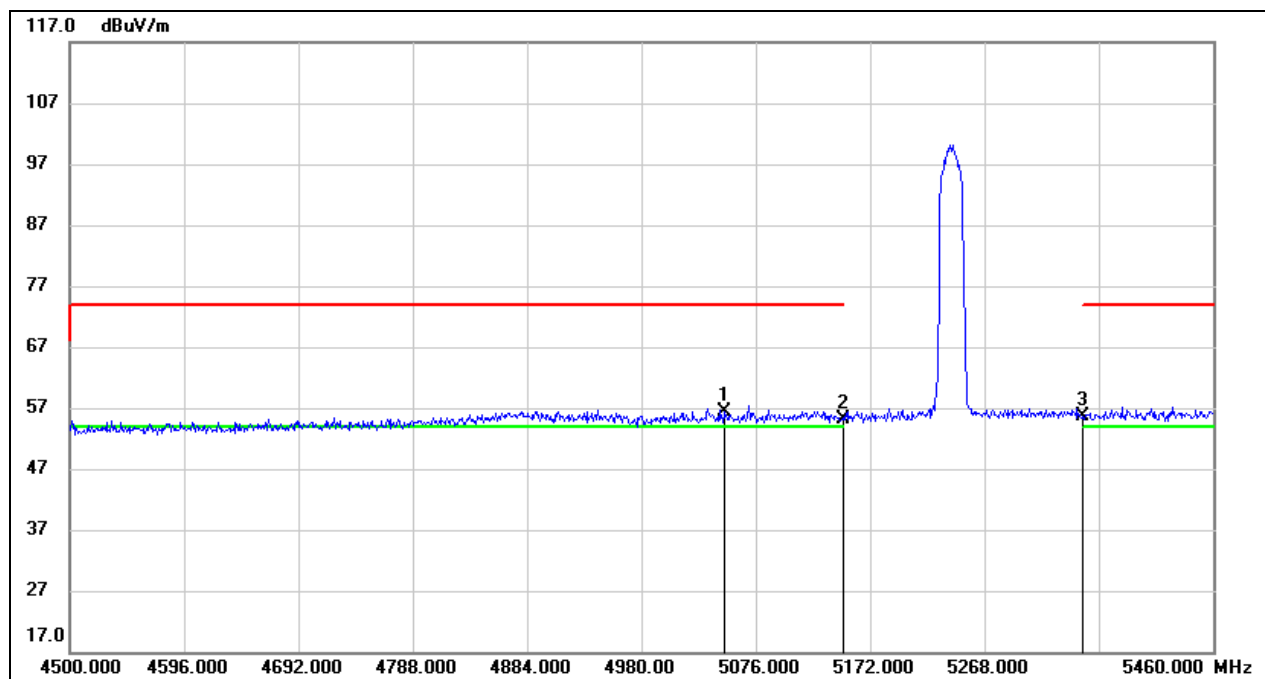
Test Mode:	802.11n HT20 AV	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	2.85	40.27	43.12	54.00	-10.88	AVG

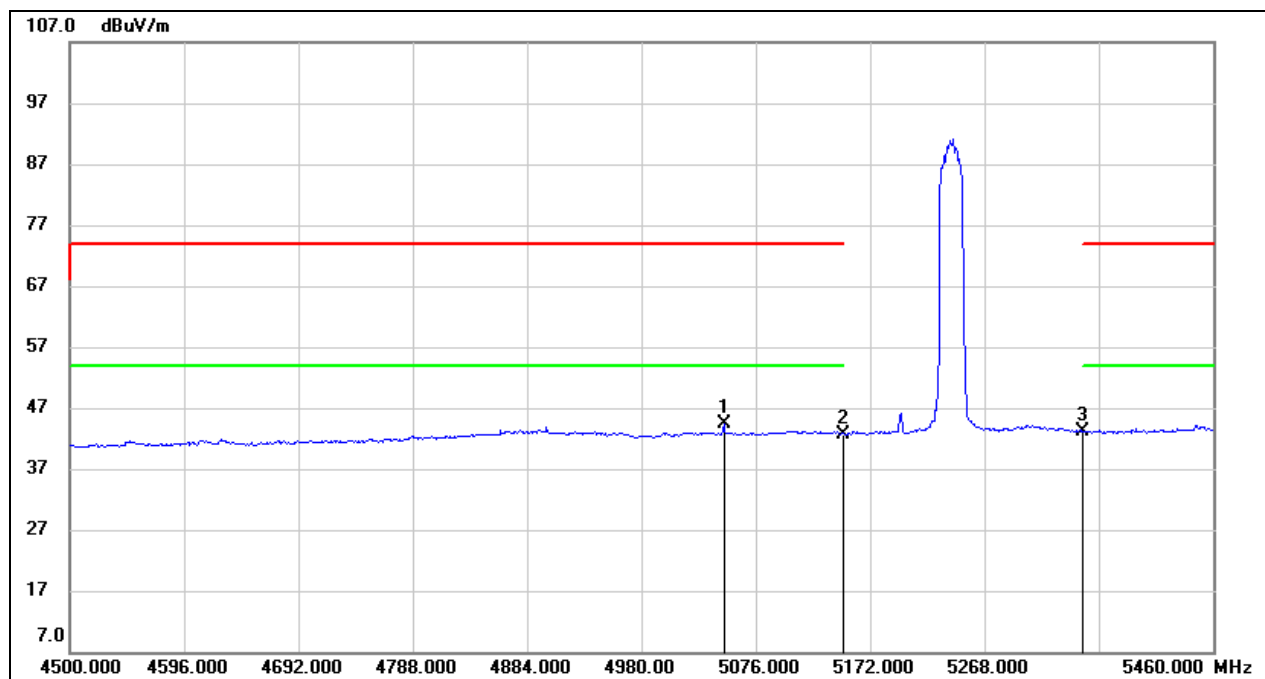


Test Mode:	802.11n HT20 PK	Frequency(MHz):	5240
Polarity:	Horizontal	Test Voltage:	DC 12 V



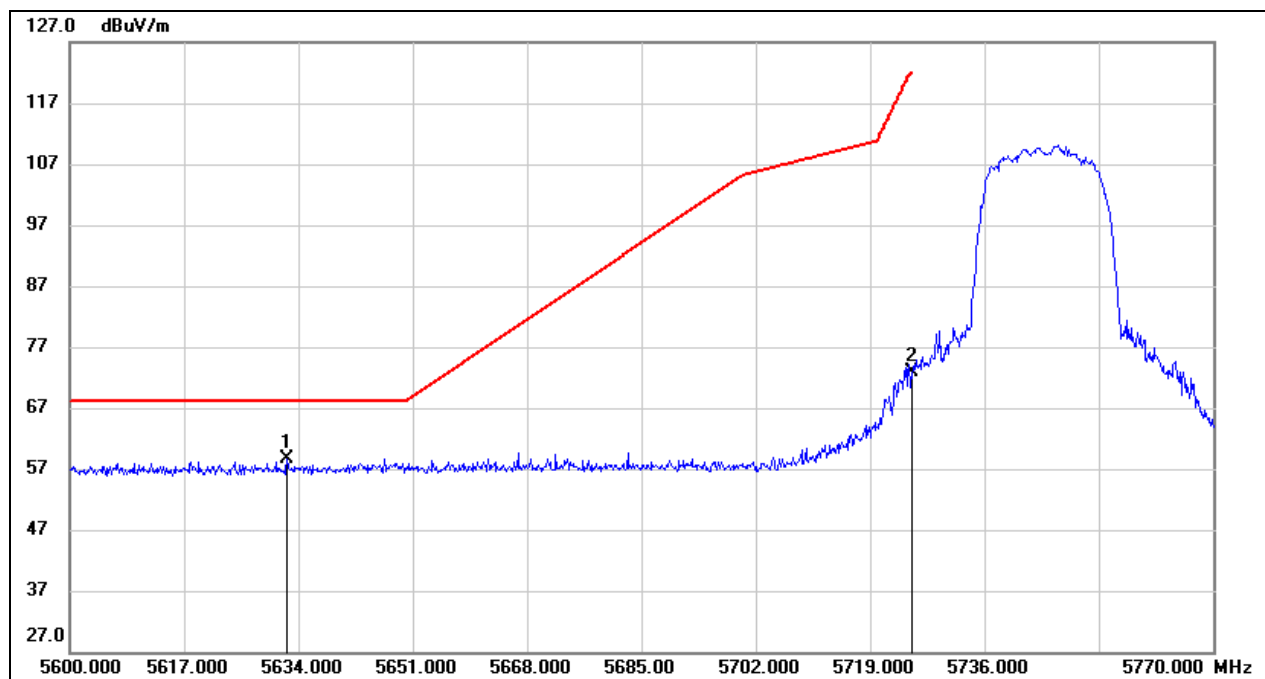
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5049.120	16.09	40.17	56.26	74.00	-17.74	peak
2	5150.000	14.82	40.27	55.09	74.00	-18.91	peak
3	5350.000	15.09	40.49	55.58	74.00	-18.42	peak

Test Mode:	802.11n HT20 AV	Frequency(MHz):	5240
Polarity:	Horizontal	Test Voltage:	DC 12 V



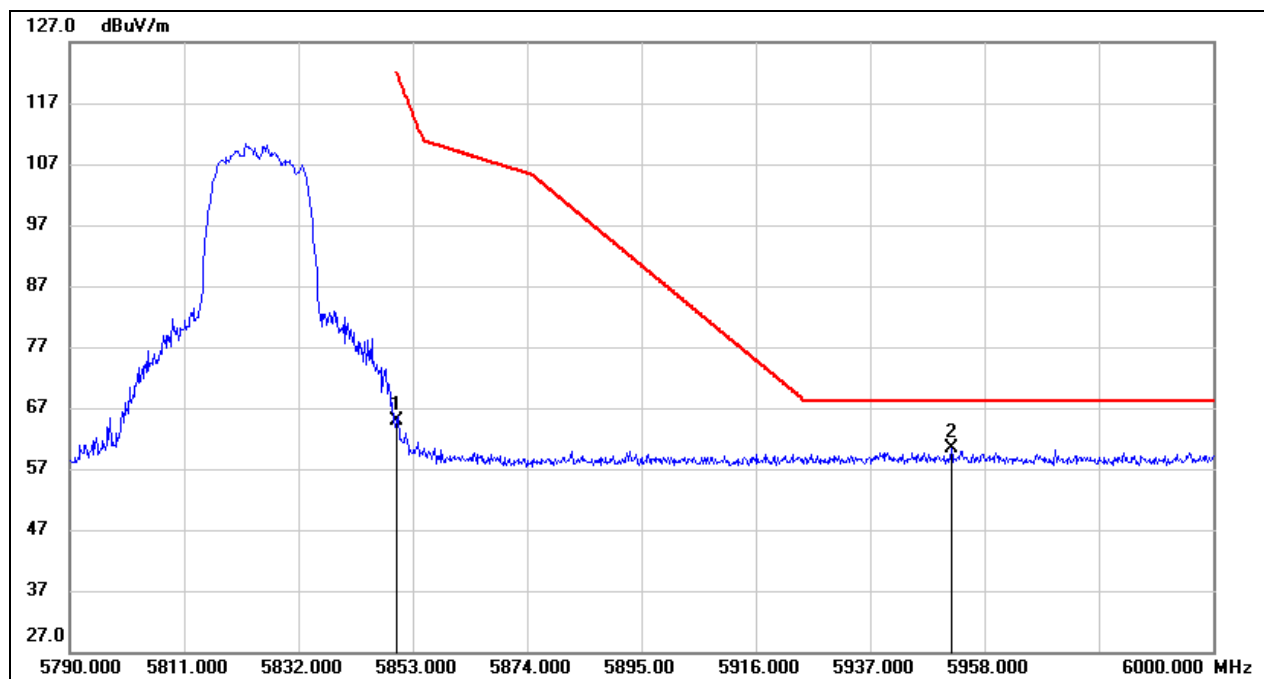
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5049.120	4.12	40.17	44.29	54.00	-9.71	AVG
2	5150.000	2.35	40.27	42.62	54.00	-11.38	AVG
3	5350.000	2.61	40.49	43.10	54.00	-10.90	AVG

Test Mode:	802.11n HT20 PK	Frequency(MHz):	5745
Polarity:	Horizontal	Test Voltage:	DC 12 V



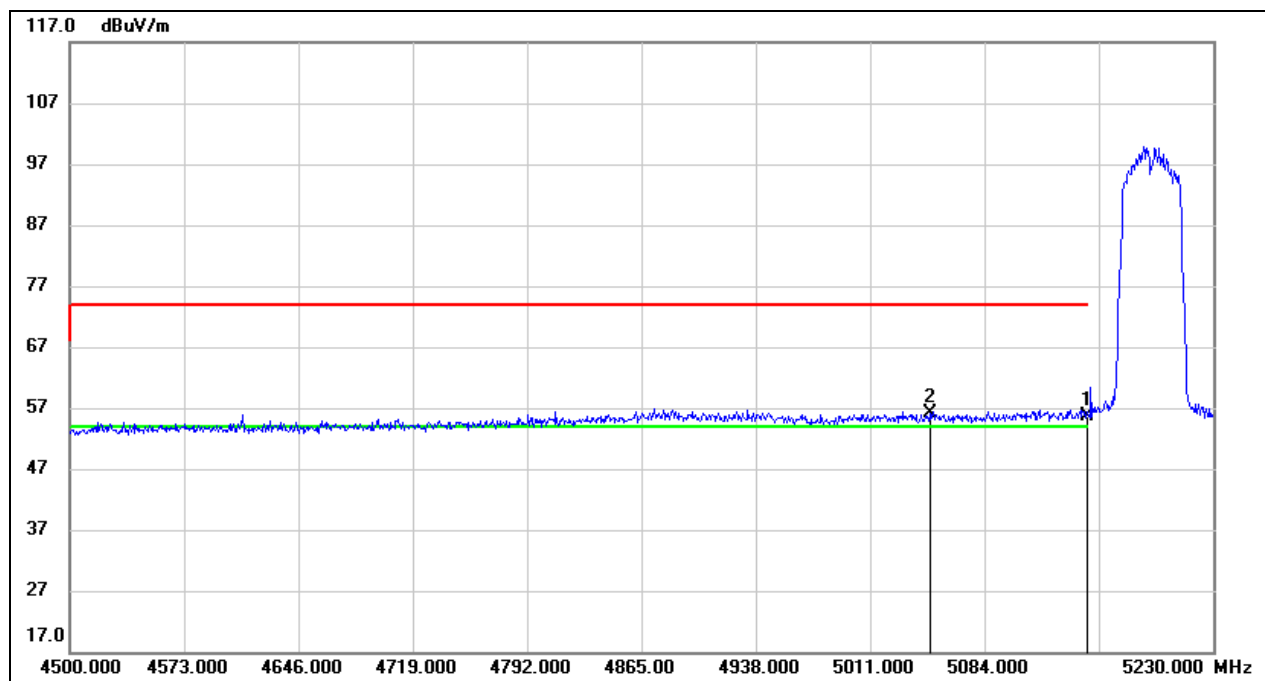
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5632.300	17.53	41.01	58.54	68.20	-9.66	peak
2	5725.000	31.60	41.27	72.87	122.20	-49.33	peak

Test Mode:	802.11n HT20 PK	Frequency(MHz):	5825
Polarity:	Horizontal	Test Voltage:	DC 12 V



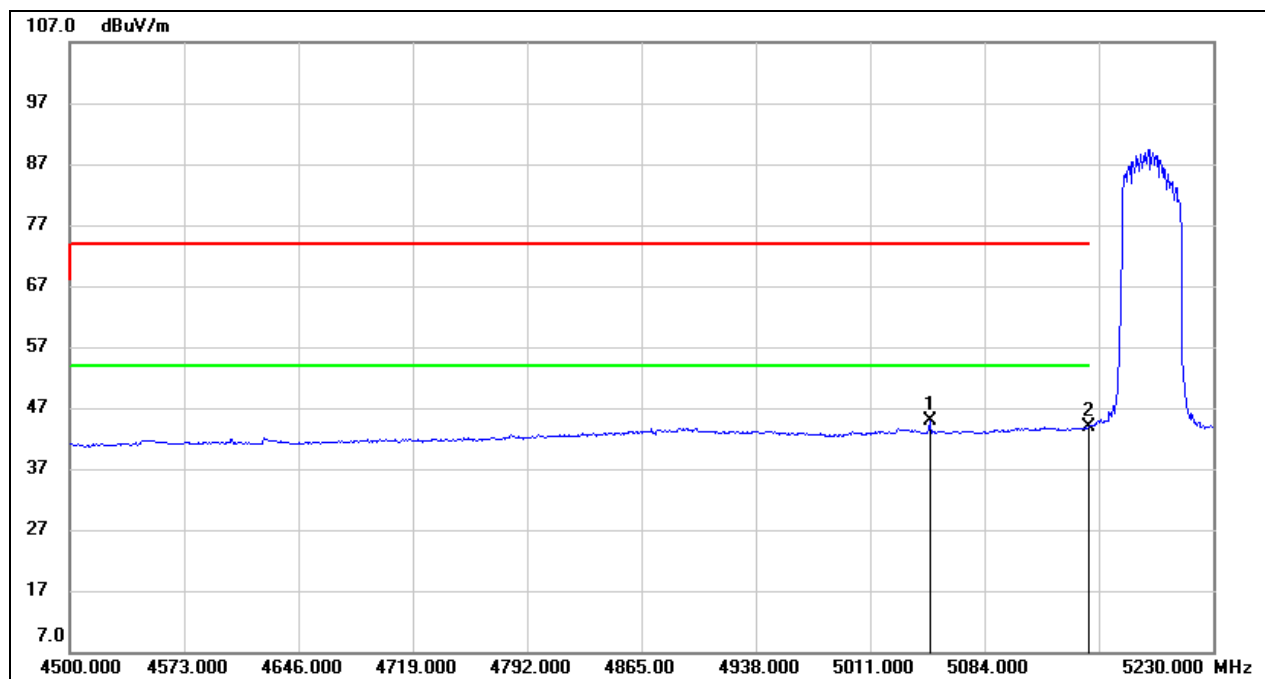
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	23.31	41.60	64.91	122.20	-57.29	peak
2	5951.910	18.40	41.87	60.27	68.20	-7.93	peak

Test Mode:	802.11n HT40 PK	Frequency(MHz):	5190
Polarity:	Horizontal	Test Voltage:	DC 12 V



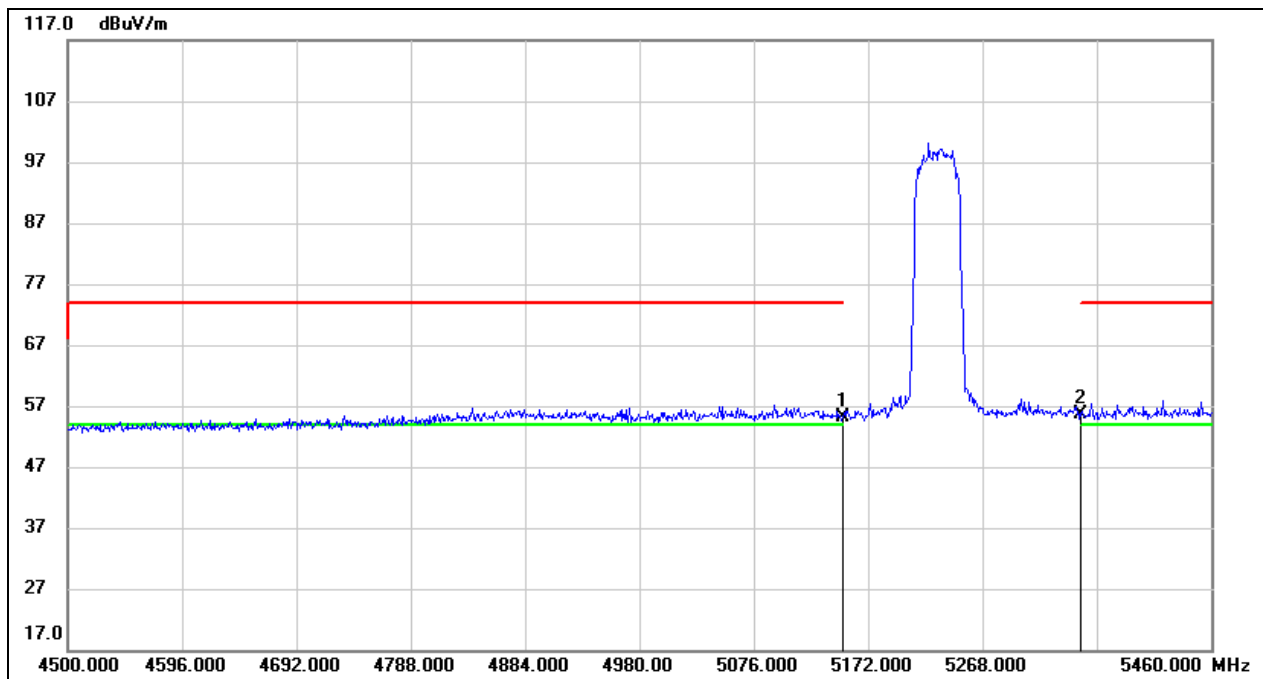
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	15.35	40.27	55.62	74.00	-18.38	peak
2	5048.960	16.00	40.17	56.17	74.00	-17.83	peak

Test Mode:	802.11n HT40 AV	Frequency(MHz):	5190
Polarity:	Horizontal	Test Voltage:	DC 12 V



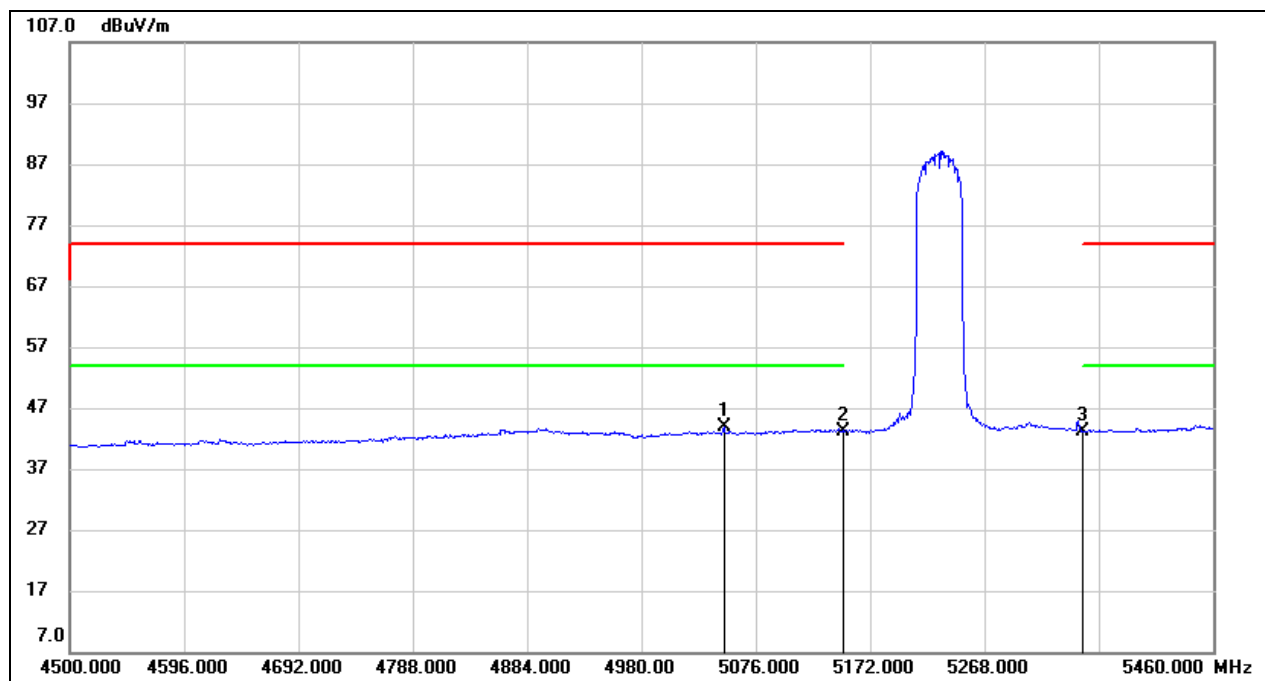
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5048.960	4.64	40.17	44.81	54.00	-9.19	AVG
2	5150.000	3.55	40.27	43.82	54.00	-10.18	AVG

Test Mode:	802.11n HT40 PK	Frequency(MHz):	5230
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	14.90	40.27	55.17	74.00	-18.83	peak
2	5350.000	15.14	40.49	55.63	74.00	-18.37	peak

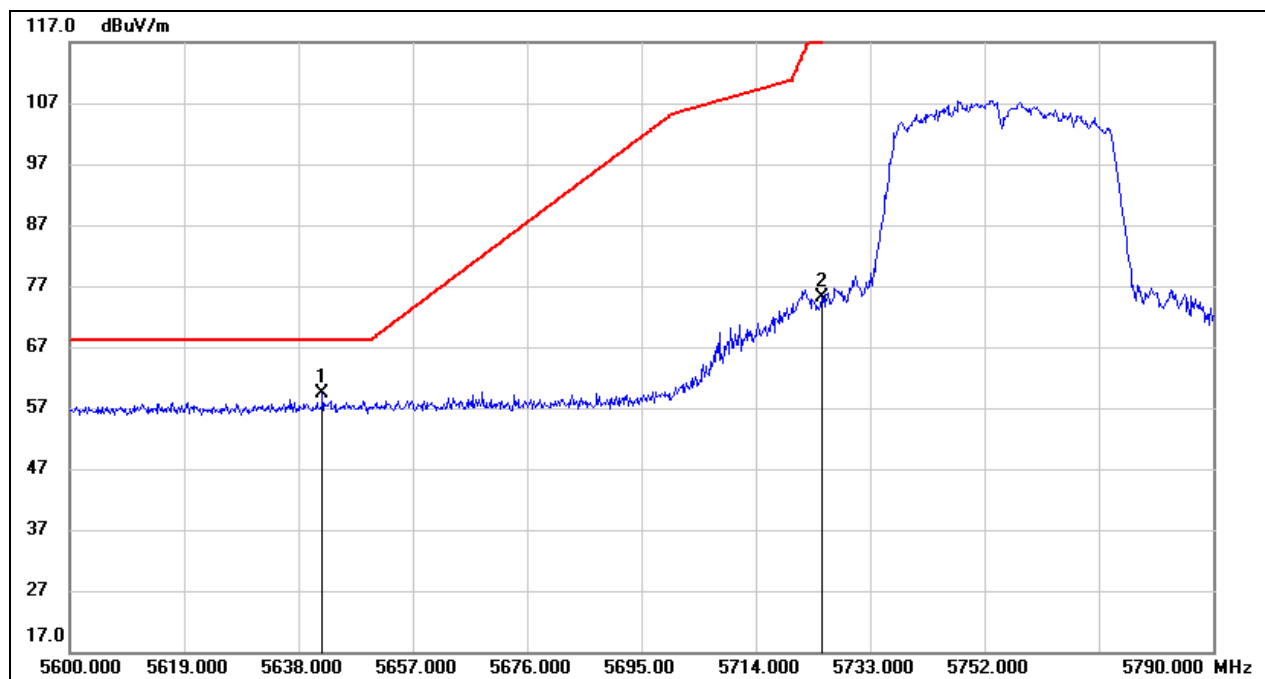
Test Mode:	802.11n HT40 AV	Frequency(MHz):	5230
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5049.120	3.82	40.17	43.99	54.00	-10.01	AVG
2	5150.000	2.88	40.27	43.15	54.00	-10.85	AVG
3	5350.000	2.73	40.49	43.22	54.00	-10.78	AVG

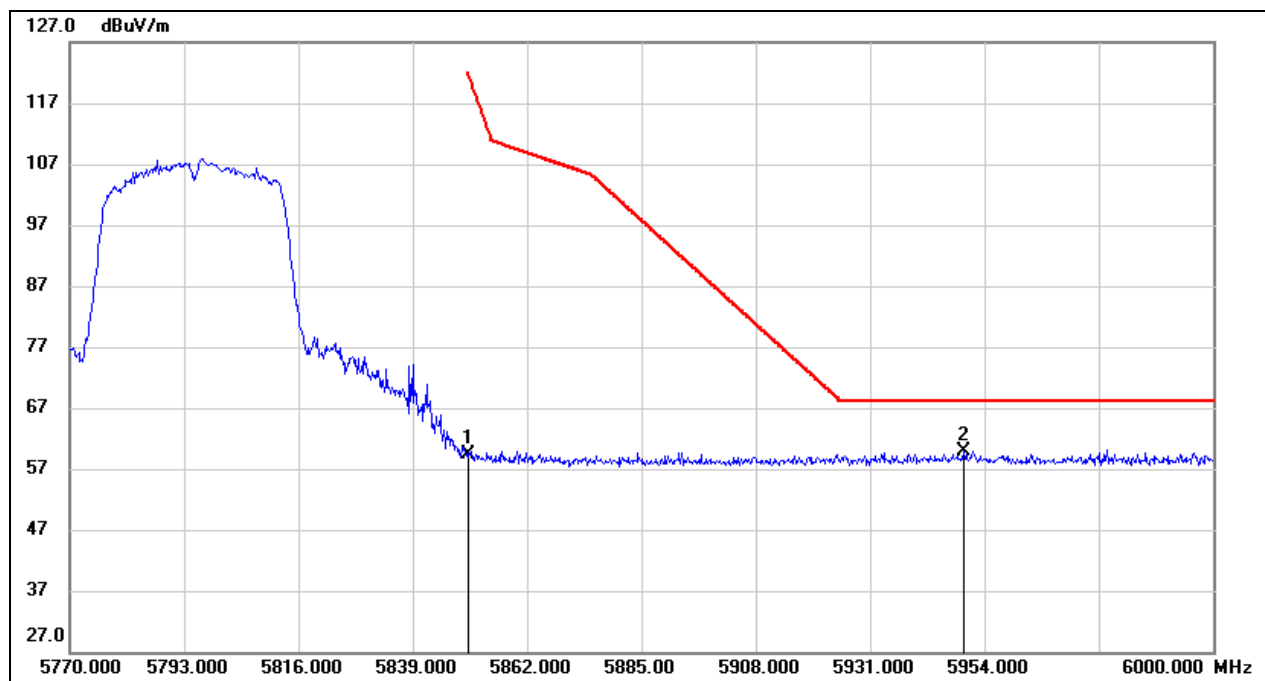


Test Mode:	802.11n HT40 PK	Frequency(MHz):	5755
Polarity:	Horizontal	Test Voltage:	DC 12 V



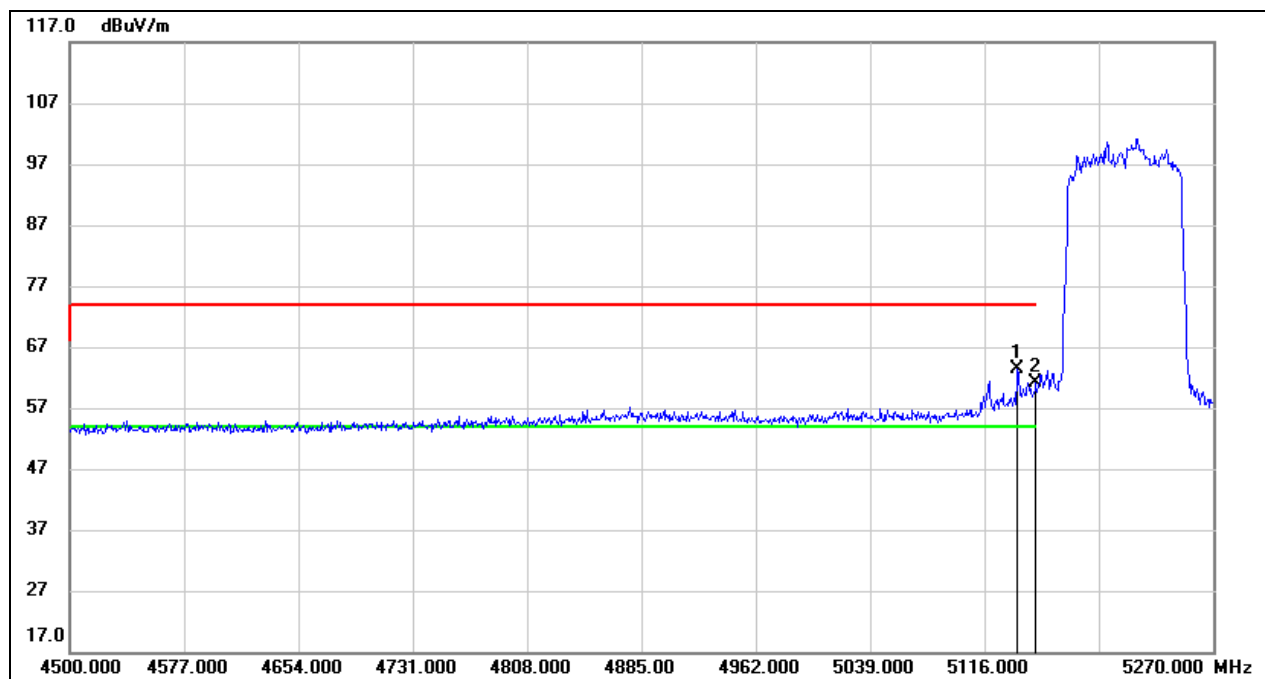
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5641.990	18.26	41.04	59.30	68.20	-8.90	peak
2	5725.000	33.75	41.27	75.02	122.20	-47.18	peak

Test Mode:	802.11n HT40 PK	Frequency(MHz):	5795
Polarity:	Horizontal	Test Voltage:	DC 12 V



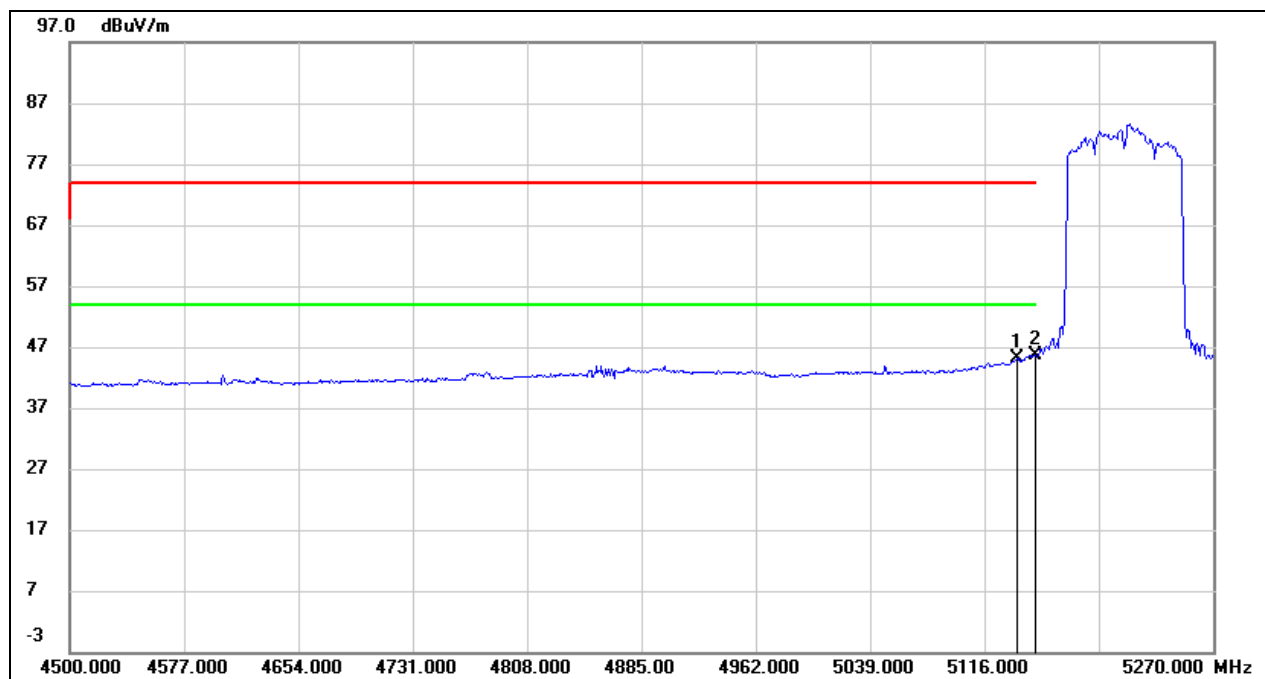
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	17.88	41.60	59.48	122.20	-62.72	peak
2	5949.860	17.98	41.87	59.85	68.20	-8.35	peak

Test Mode:	802.11ac VHT80 PK	Frequency(MHz):	5210
Polarity:	Horizontal	Test Voltage:	DC 12 V



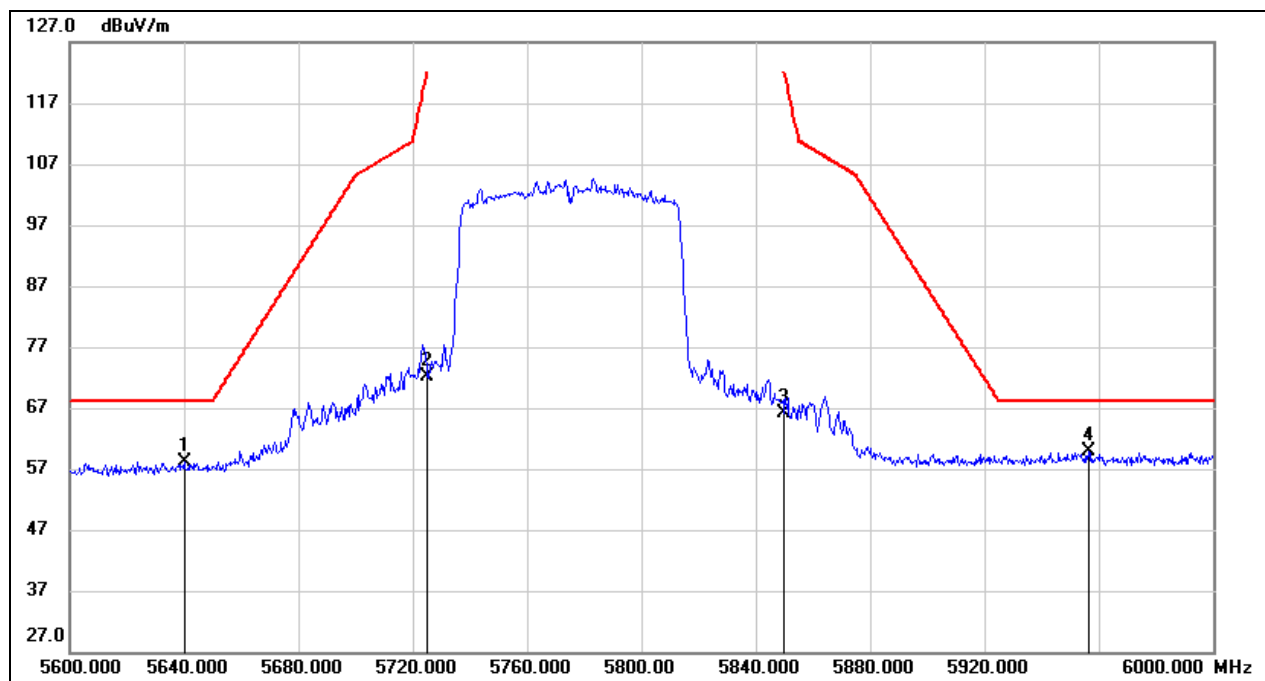
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5138.330	23.18	40.27	63.45	74.00	-10.55	peak
2	5150.000	20.88	40.27	61.15	74.00	-12.85	peak

Test Mode:	802.11ac VHT80 AV	Frequency(MHz):	5210
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5138.330	4.92	40.27	45.19	54.00	-8.81	AVG
2	5150.000	5.39	40.27	45.66	54.00	-8.34	AVG

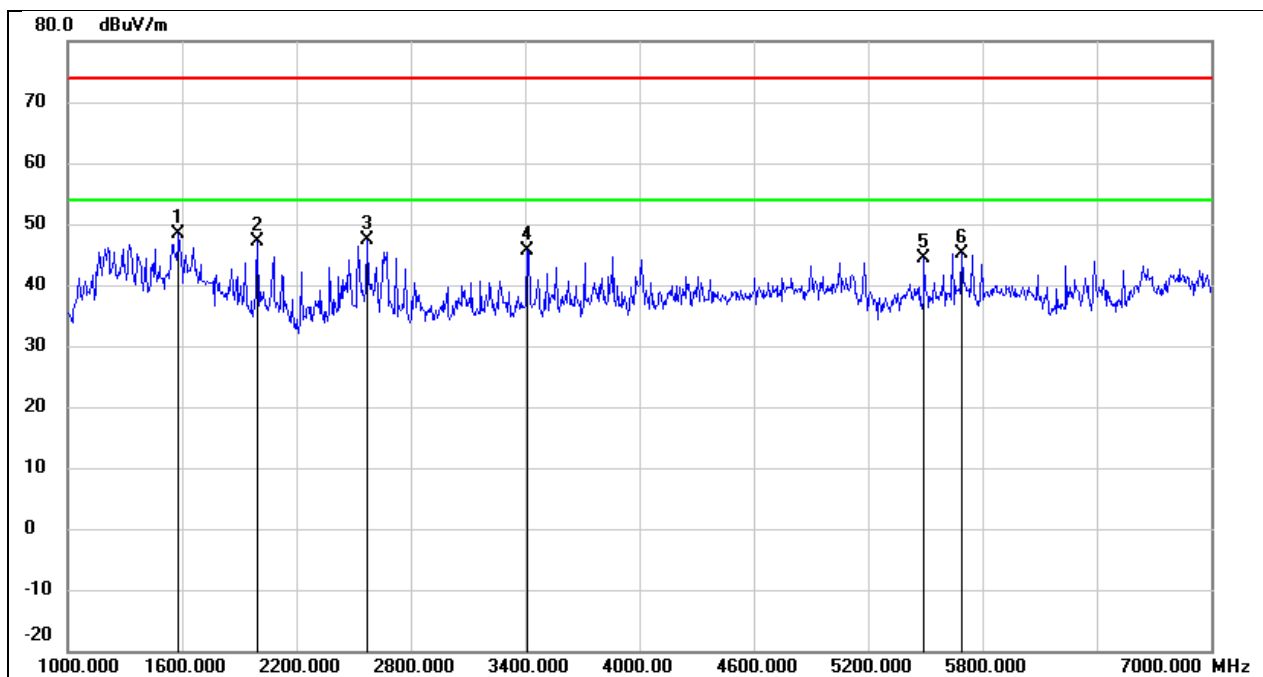
Test Mode:	802.11ac VHT80 PK	Frequency(MHz):	5775
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5640.000	17.08	41.04	58.12	68.20	-10.08	peak
2	5725.000	30.98	41.27	72.25	122.20	-49.95	peak
3	5850.000	24.59	41.60	66.19	122.20	-56.01	peak
4	5956.400	18.01	41.89	59.90	68.20	-8.30	peak

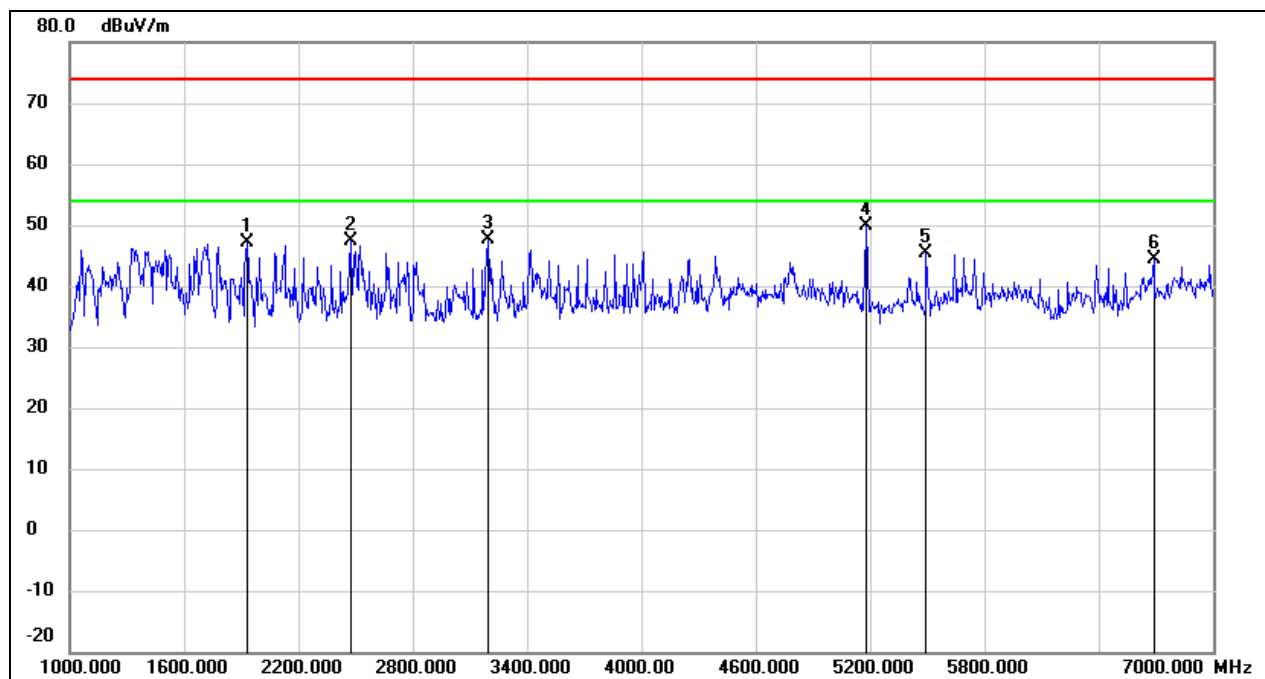
## 8.2. SPURIOUS EMISSIONS(1 GHZ~7 GHZ)

Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



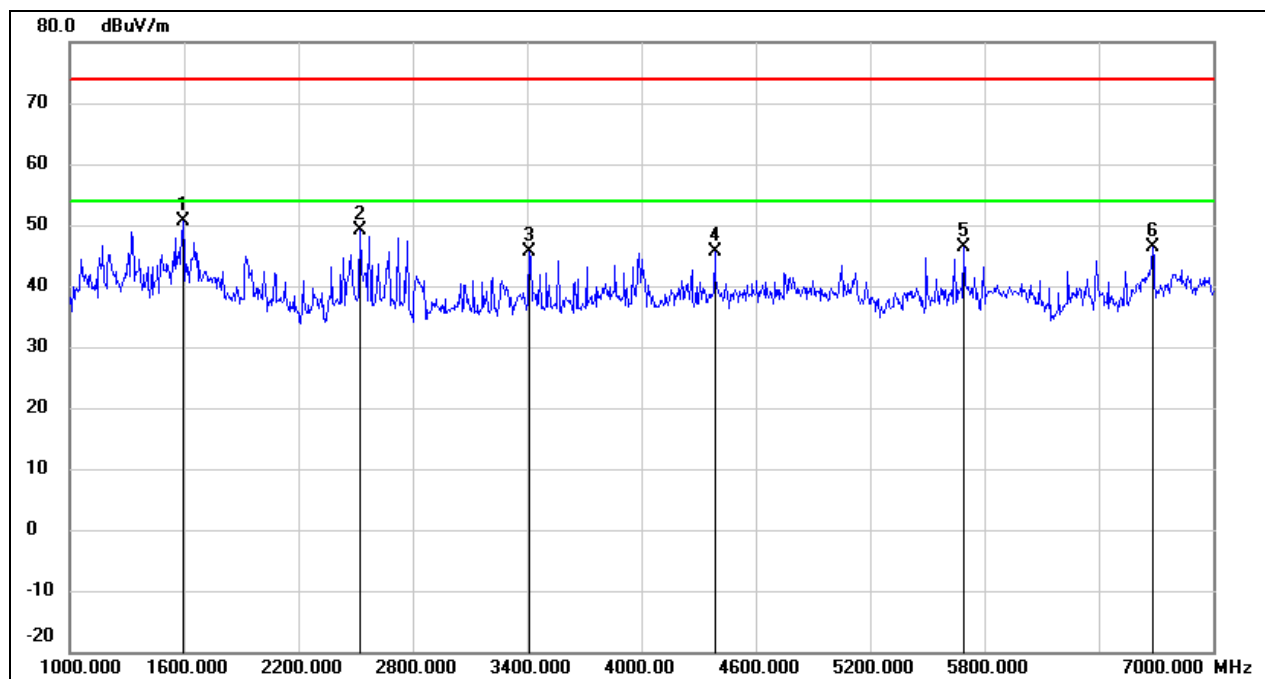
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1582.000	60.81	-12.44	48.37	74.00	-25.63	peak
2	1996.000	58.10	-11.07	47.03	74.00	-26.97	peak
3	2572.000	55.60	-8.27	47.33	74.00	-26.67	peak
4	3412.000	51.68	-6.05	45.63	74.00	-28.37	peak
5	5494.000	44.06	0.42	44.48	74.00	-29.52	peak
6	5692.000	44.23	0.97	45.20	74.00	-28.80	peak

Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1930.000	58.40	-11.29	47.11	74.00	-26.89	peak
2	2476.000	55.96	-8.61	47.35	74.00	-26.65	peak
3	3196.000	54.13	-6.54	47.59	74.00	-26.41	peak
4	5180.000	49.71	0.06	49.77	/	/	fundamental
5	5494.000	44.93	0.42	45.35	74.00	-28.65	peak
6	6688.000	39.73	4.65	44.38	74.00	-29.62	peak

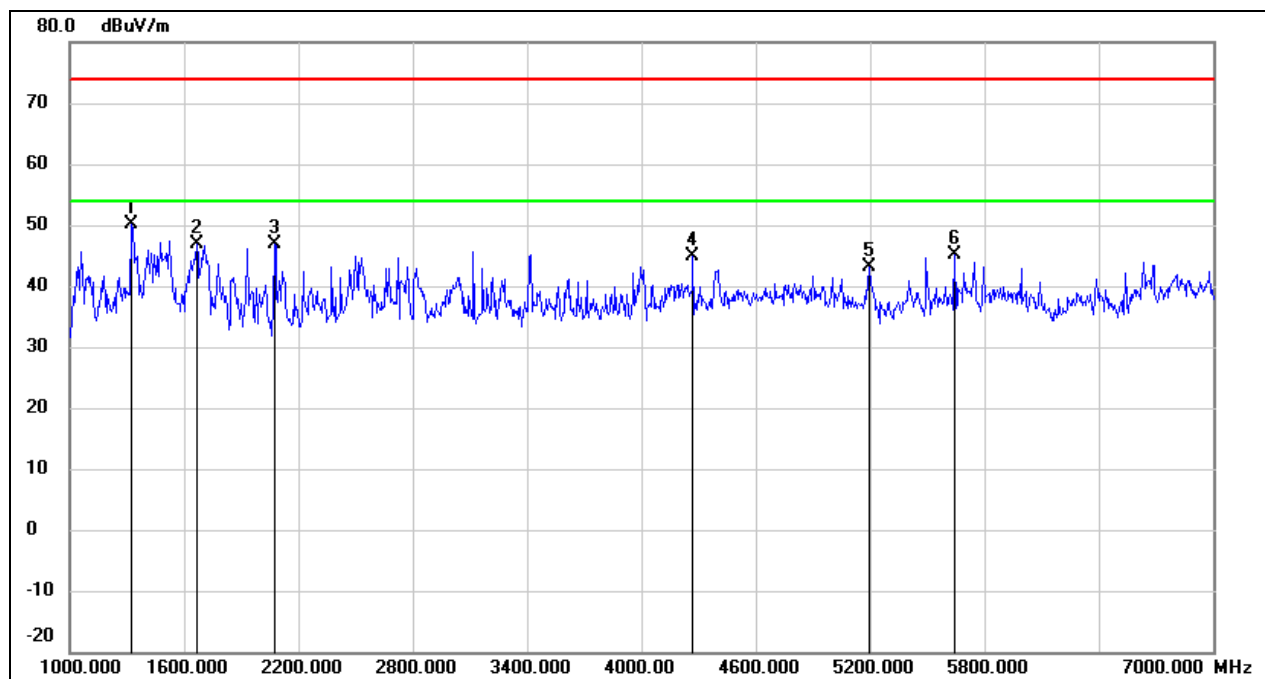
Test Mode:	802.11a 20	Frequency(MHz):	5200
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1594.000	63.05	-12.40	50.65	74.00	-23.35	peak
2	2524.000	57.61	-8.42	49.19	74.00	-24.81	peak
3	3412.000	51.72	-6.05	45.67	74.00	-28.33	peak
4	4384.000	48.26	-2.68	45.58	74.00	-28.42	peak
5	5692.000	45.44	0.97	46.41	74.00	-27.59	peak
6	6682.000	41.85	4.63	46.48	74.00	-27.52	peak

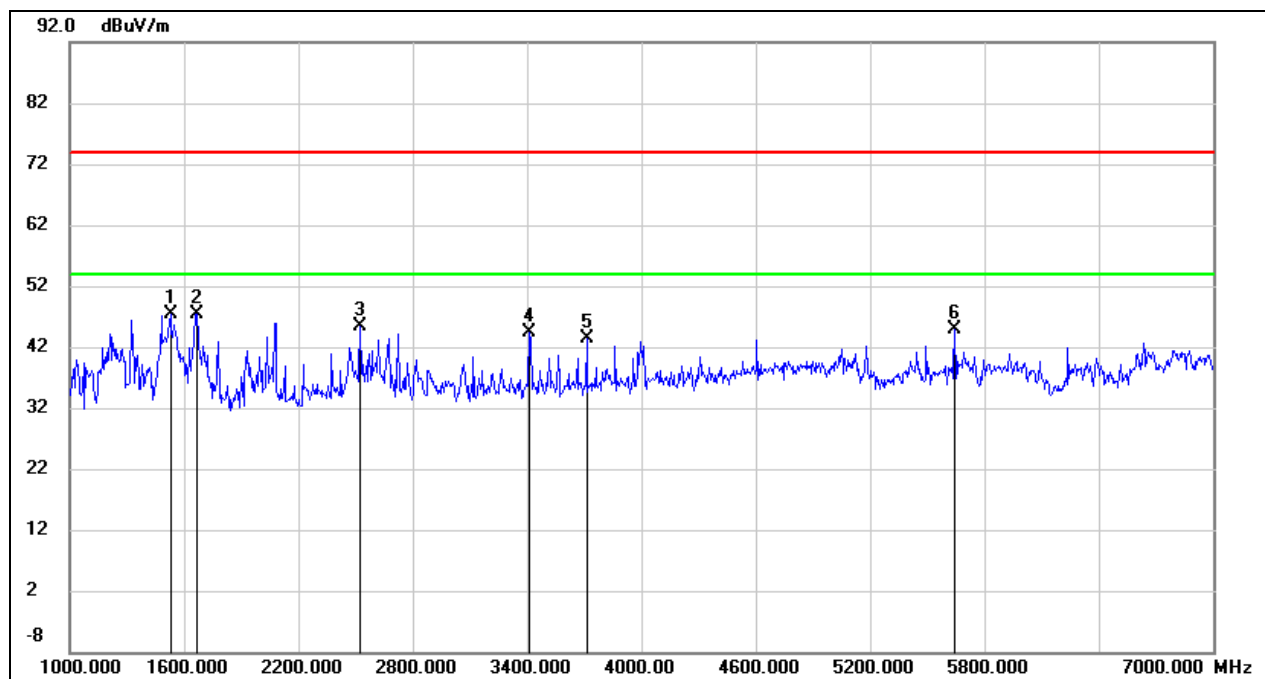


Test Mode:	802.11a 20	Frequency(MHz):	5200
Polarity:	Vertical	Test Voltage:	DC 12 V



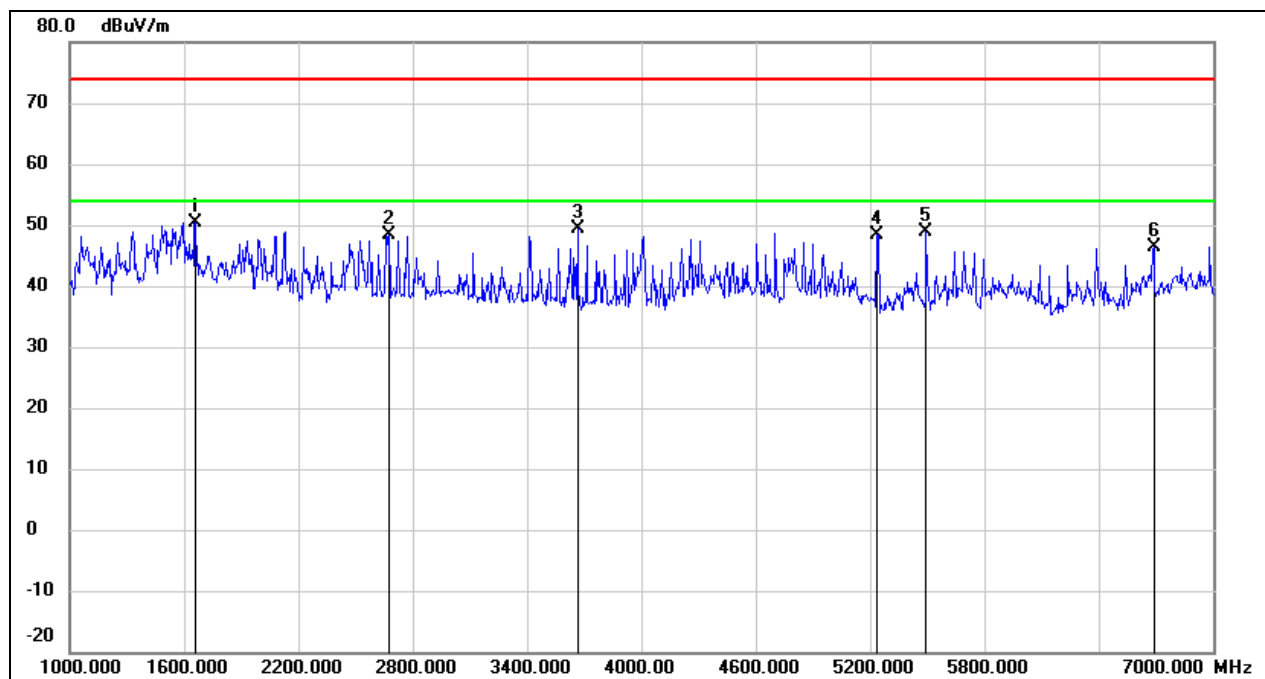
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1324.000	63.74	-13.53	50.21	74.00	-23.79	peak
2	1666.000	58.95	-12.16	46.79	74.00	-27.21	peak
3	2074.000	57.49	-10.68	46.81	74.00	-27.19	peak
4	4270.000	48.16	-3.22	44.94	74.00	-29.06	peak
5	5200.000	43.12	0.07	43.19	/	/	fundamental
6	5644.000	44.41	0.82	45.23	74.00	-28.77	peak

Test Mode:	802.11a 20	Frequency(MHz):	5240
Polarity:	Horizontal	Test Voltage:	DC 12 V



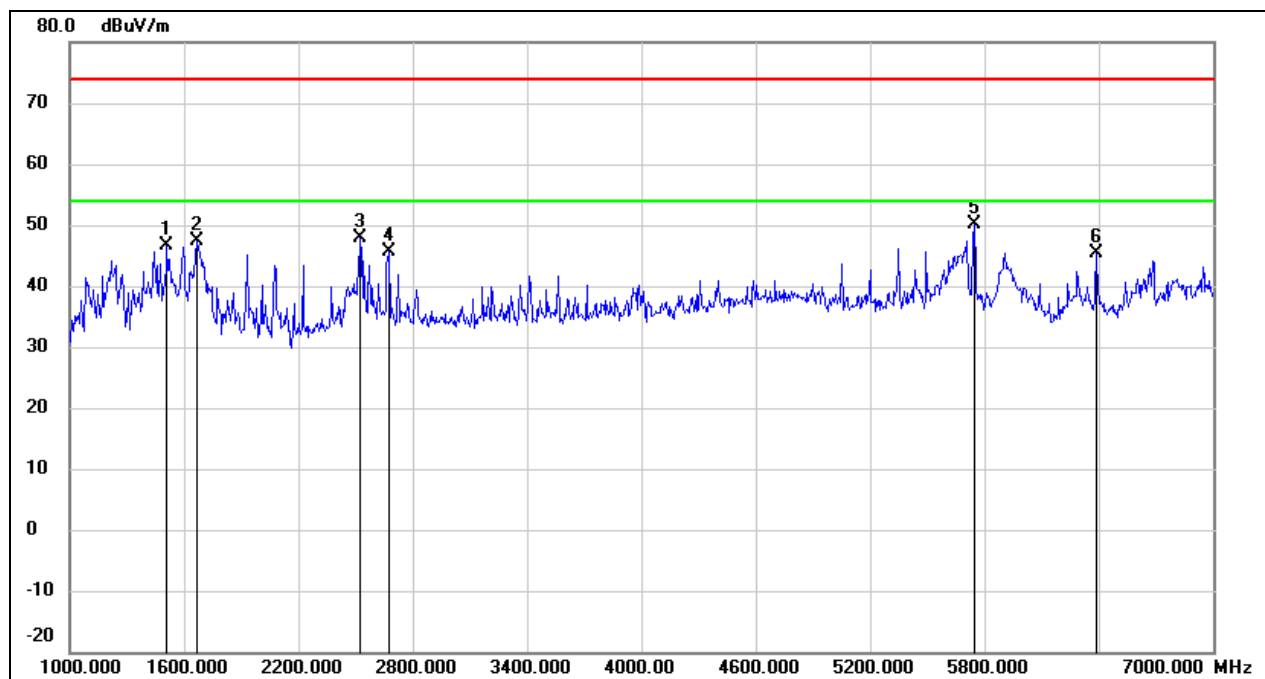
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1528.000	59.93	-12.61	47.32	74.00	-26.68	peak
2	1666.000	59.65	-12.16	47.49	74.00	-26.51	peak
3	2524.000	53.79	-8.42	45.37	74.00	-28.63	peak
4	3412.000	50.49	-6.05	44.44	74.00	-29.56	peak
5	3712.000	48.60	-5.27	43.33	74.00	-30.67	peak
6	5644.000	43.95	0.82	44.77	74.00	-29.23	peak

Test Mode:	802.11a 20	Frequency(MHz):	5240
Polarity:	Vertical	Test Voltage:	DC 12 V



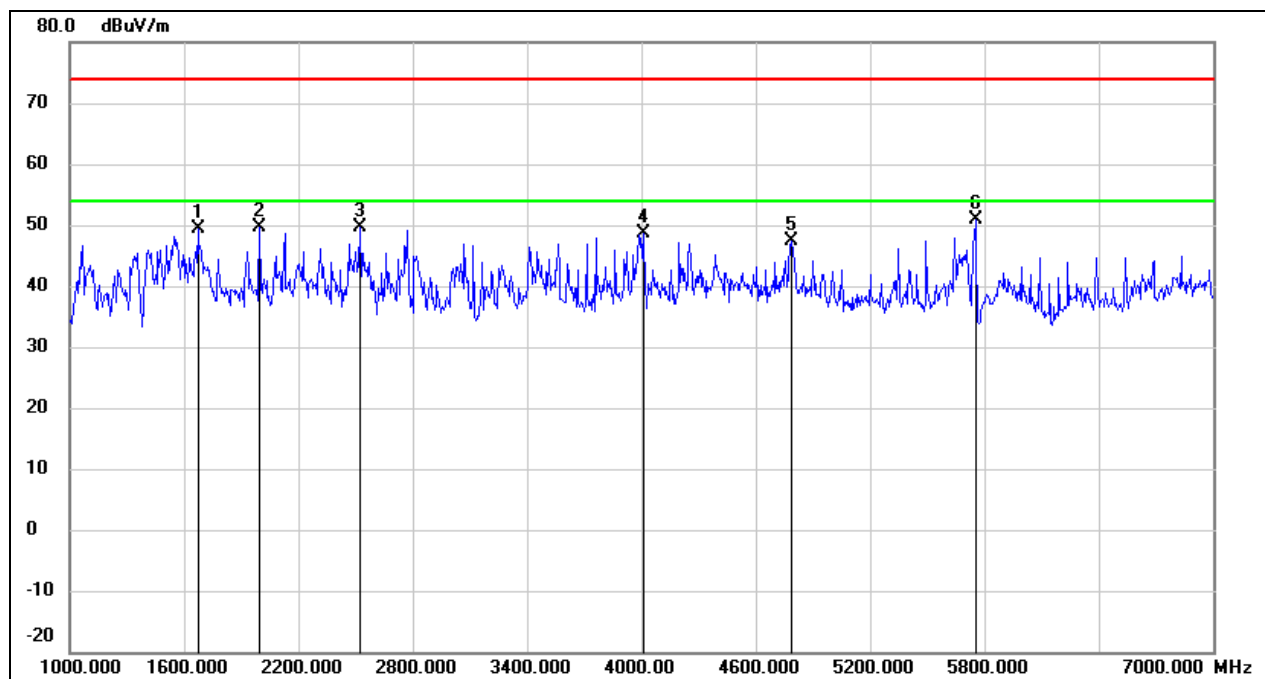
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1660.000	62.59	-12.19	50.40	74.00	-23.60	peak
2	2674.000	56.27	-7.97	48.30	74.00	-25.70	peak
3	3664.000	54.78	-5.40	49.38	74.00	-24.62	peak
4	5240.000	48.36	0.11	48.47	/	/	fundamental
5	5494.000	48.56	0.42	48.98	74.00	-25.02	peak
6	6688.000	41.72	4.65	46.37	74.00	-27.63	peak

Test Mode:	802.11a 20	Frequency(MHz):	5745
Polarity:	Horizontal	Test Voltage:	DC 12 V



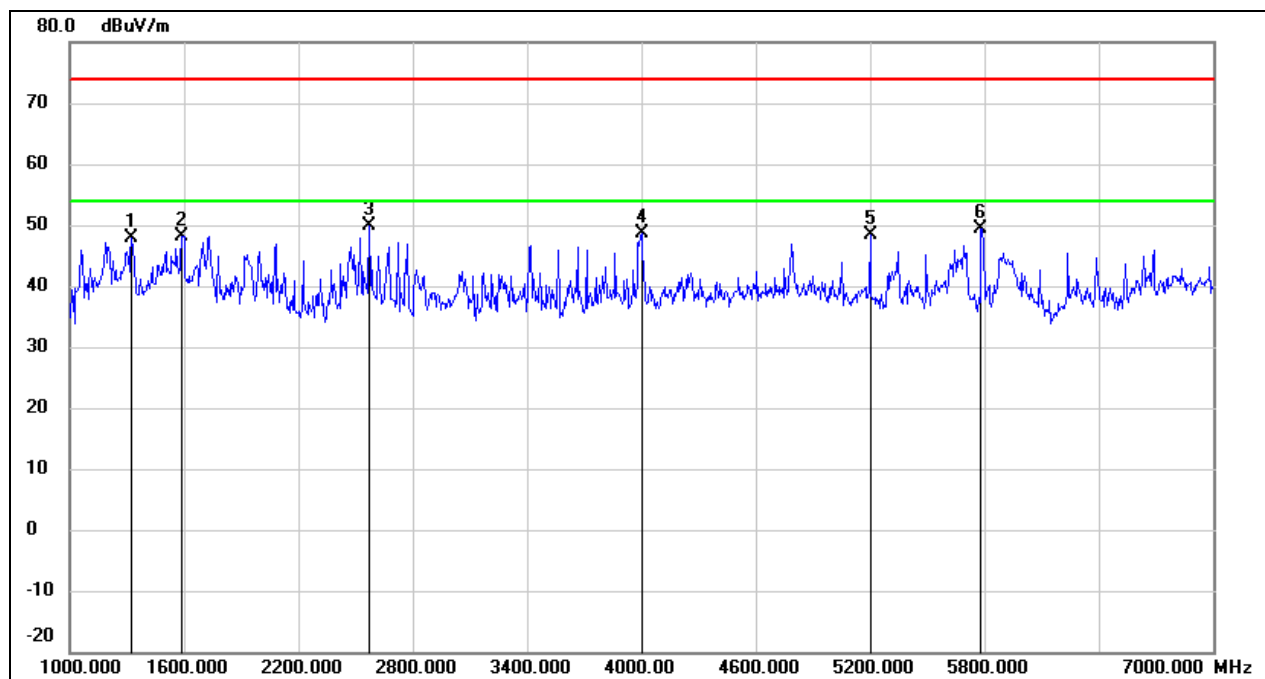
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1510.000	59.43	-12.68	46.75	74.00	-27.25	peak
2	1666.000	59.47	-12.16	47.31	74.00	-26.69	peak
3	2524.000	56.23	-8.42	47.81	74.00	-26.19	peak
4	2674.000	53.48	-7.97	45.51	74.00	-28.49	peak
5	5745.000	49.04	1.12	50.16	/	/	fundamental
6	6388.000	42.13	3.30	45.43	74.00	-28.57	peak

Test Mode:	802.11a 20	Frequency(MHz):	5745
Polarity:	Vertical	Test Voltage:	DC 12 V



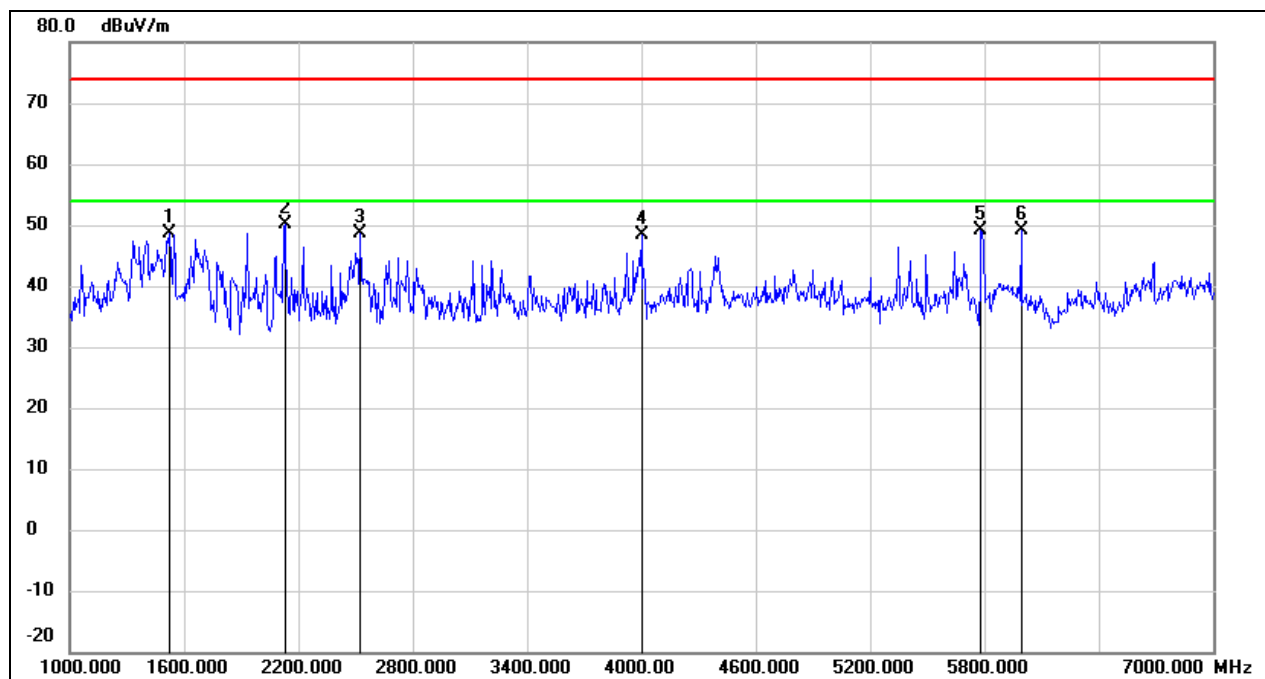
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1672.000	61.52	-12.15	49.37	74.00	-24.63	peak
2	1996.000	60.59	-11.07	49.52	74.00	-24.48	peak
3	2524.000	58.14	-8.42	49.72	74.00	-24.28	peak
4	4012.000	53.01	-4.43	48.58	74.00	-25.42	peak
5	4786.000	48.40	-1.00	47.40	74.00	-26.60	peak
6	5745.000	49.67	1.14	50.81	/	/	fundamental

Test Mode:	802.11a 20	Frequency(MHz):	5785
Polarity:	Horizontal	Test Voltage:	DC 12 V



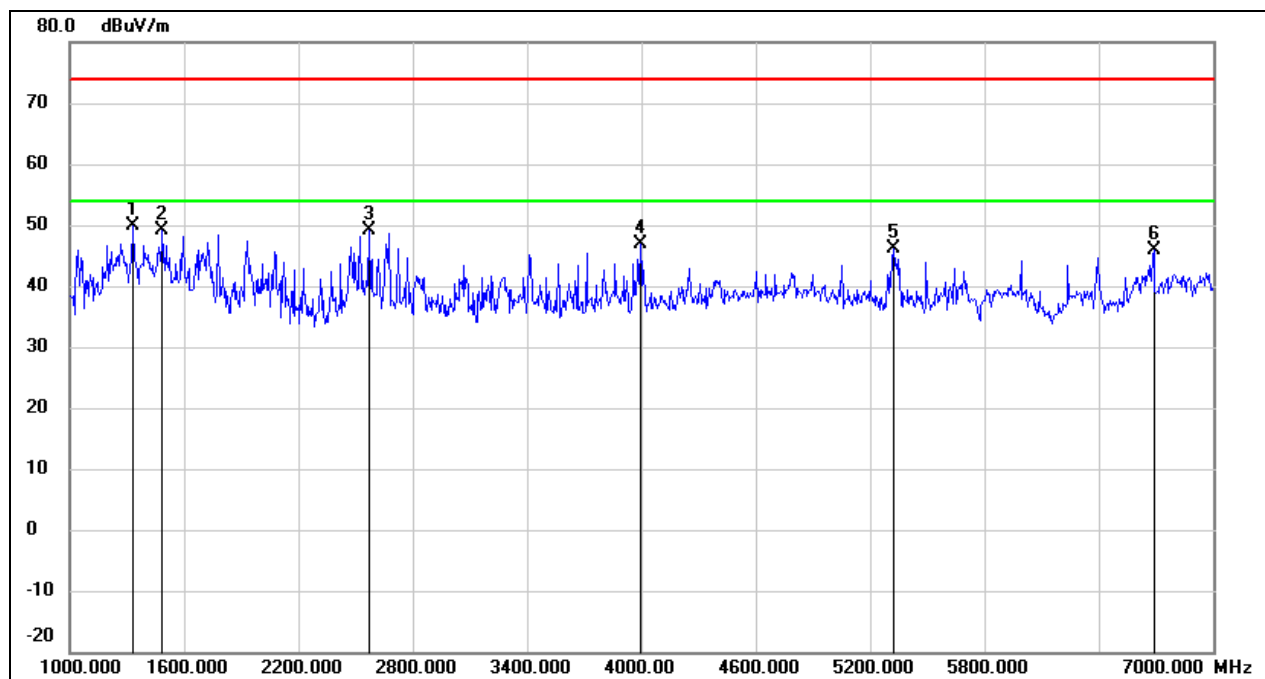
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1324.000	61.41	-13.53	47.88	74.00	-26.12	peak
2	1588.000	60.56	-12.42	48.14	74.00	-25.86	peak
3	2572.000	58.26	-8.27	49.99	74.00	-24.01	peak
4	4000.000	53.00	-4.48	48.52	74.00	-25.48	peak
5	5200.000	48.34	0.08	48.42	74.00	-25.58	peak
6	5785.000	48.25	1.23	49.48	/	/	fundamental

Test Mode:	802.11a 20	Frequency(MHz):	5785
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1522.000	61.33	-12.64	48.69	74.00	-25.31	peak
2	2128.000	60.43	-10.40	50.03	74.00	-23.97	peak
3	2524.000	56.97	-8.42	48.55	74.00	-25.45	peak
4	4000.000	52.83	-4.48	48.35	74.00	-25.65	peak
5	5785.000	47.87	1.23	49.10	/	/	fundamental
6	5992.000	47.34	1.83	49.17	74.00	-24.83	peak

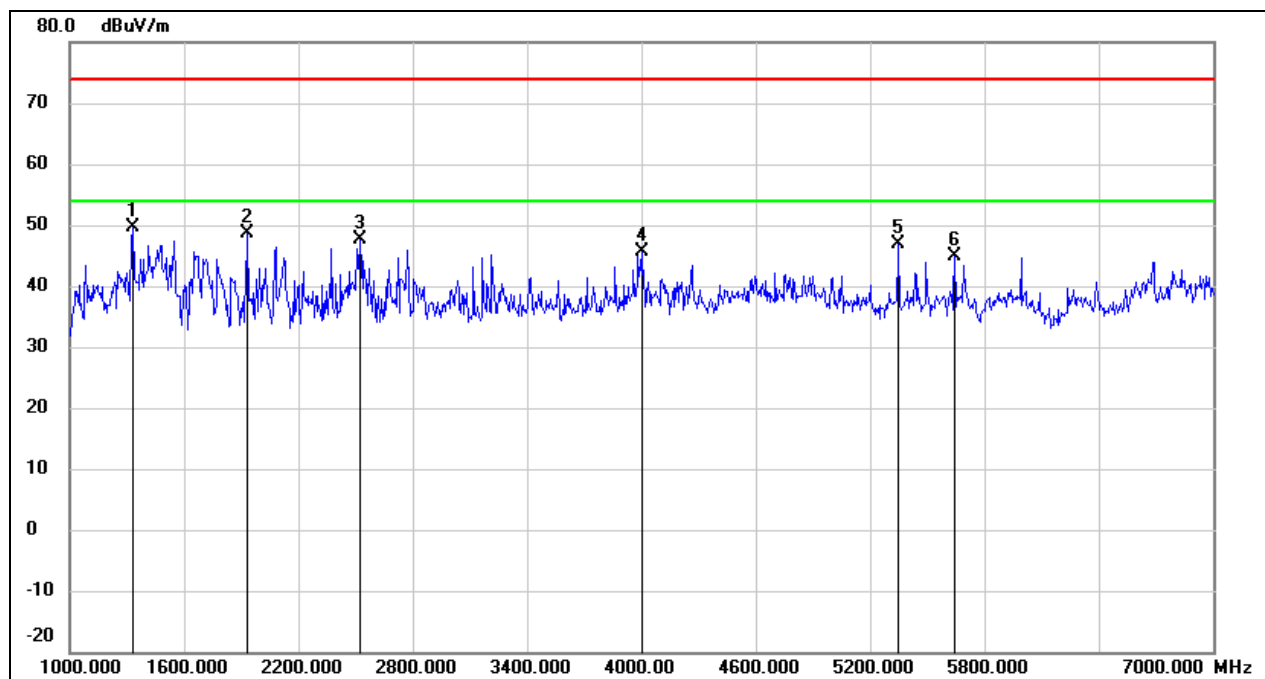
Test Mode:	802.11a 20	Frequency(MHz):	5825
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1330.000	63.35	-13.50	49.85	74.00	-24.15	peak
2	1486.000	61.89	-12.78	49.11	74.00	-24.89	peak
3	2572.000	57.47	-8.27	49.20	74.00	-24.80	peak
4	3994.000	51.49	-4.49	47.00	74.00	-27.00	peak
5	5326.000	45.89	0.22	46.11	74.00	-27.89	peak
6	6688.000	41.32	4.65	45.97	74.00	-28.03	peak



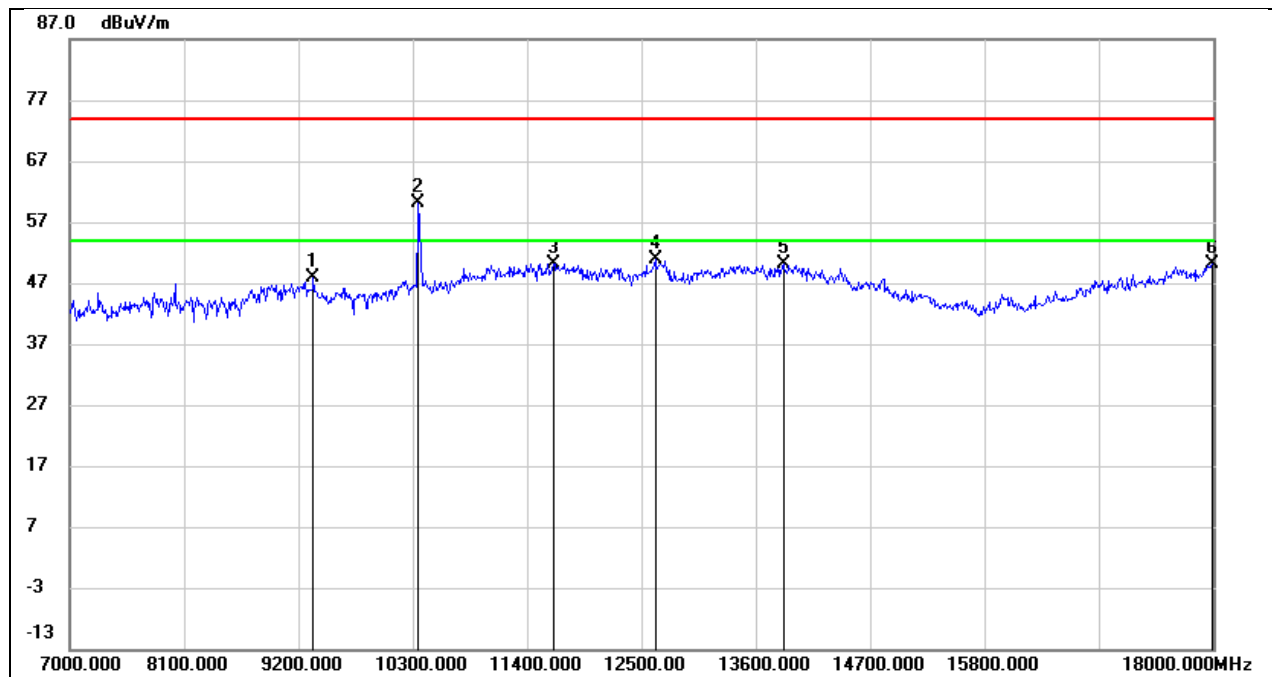
Test Mode:	802.11a 20	Frequency(MHz):	5825
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1330.000	63.09	-13.50	49.59	74.00	-24.41	peak
2	1930.000	59.98	-11.29	48.69	74.00	-25.31	peak
3	2524.000	56.08	-8.42	47.66	74.00	-26.34	peak
4	4000.000	50.10	-4.48	45.62	74.00	-28.38	peak
5	5350.000	46.51	0.25	46.76	74.00	-27.24	peak
6	5644.000	44.08	0.82	44.90	74.00	-29.10	peak

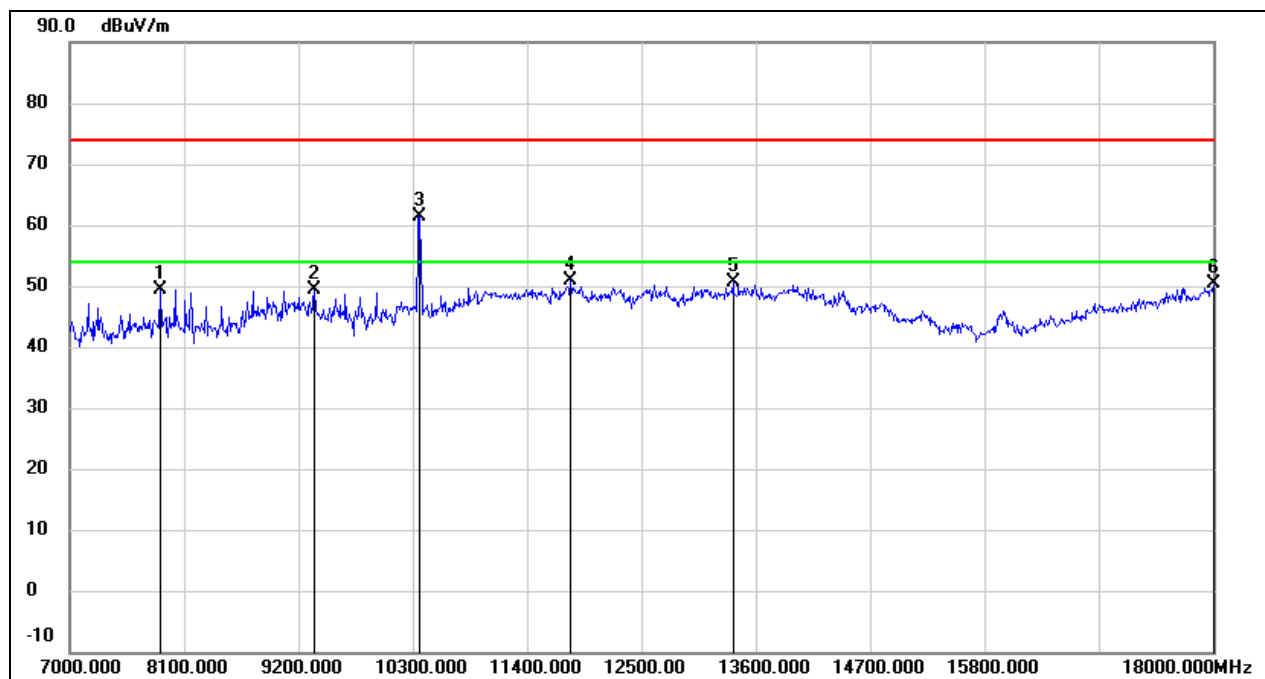
### 8.3. SPURIOUS EMISSIONS(7 GHZ~18 GHZ)

Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



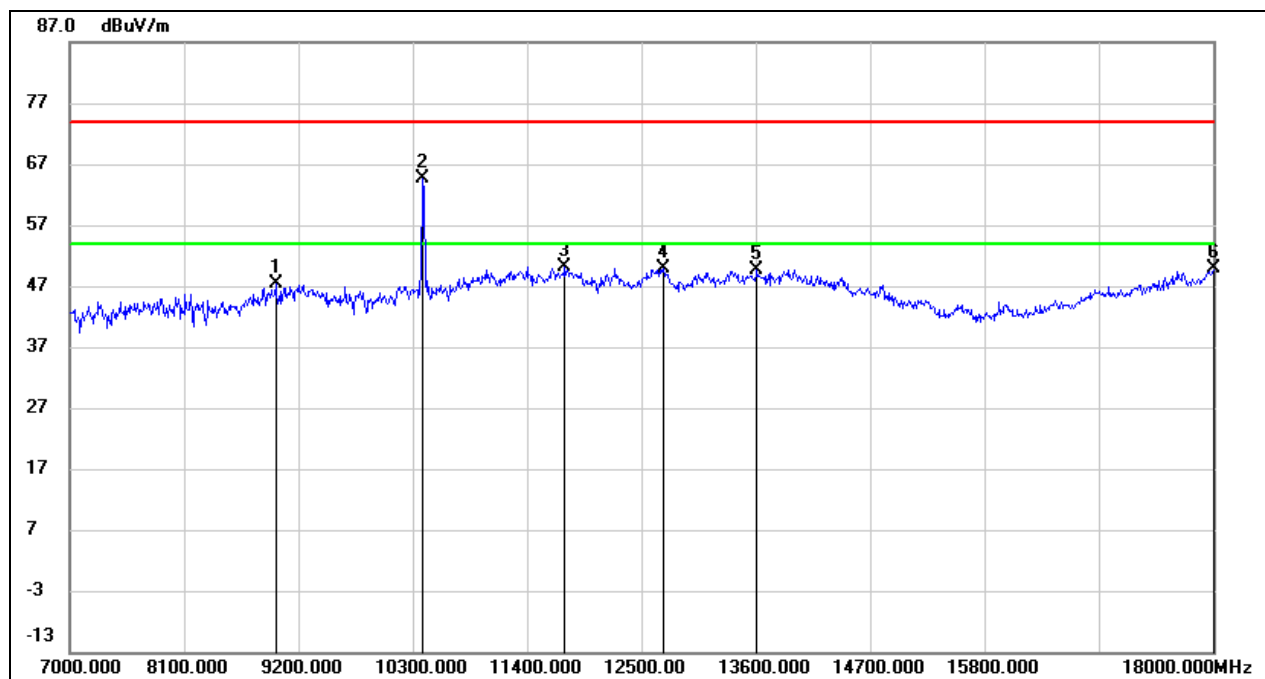
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9343.000	37.39	10.55	47.94	74.00	-26.06	peak
2*	10355.000	47.58	12.52	60.10	68.2	-8.10	peak
3	11653.000	33.19	17.05	50.24	74.00	-23.76	peak
4	12632.000	32.92	17.99	50.91	74.00	-23.09	peak
5	13864.000	28.53	21.53	50.06	74.00	-23.94	peak
6	17989.000	24.05	26.04	50.09	74.00	-23.91	peak

Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Vertical	Test Voltage:	DC 12 V



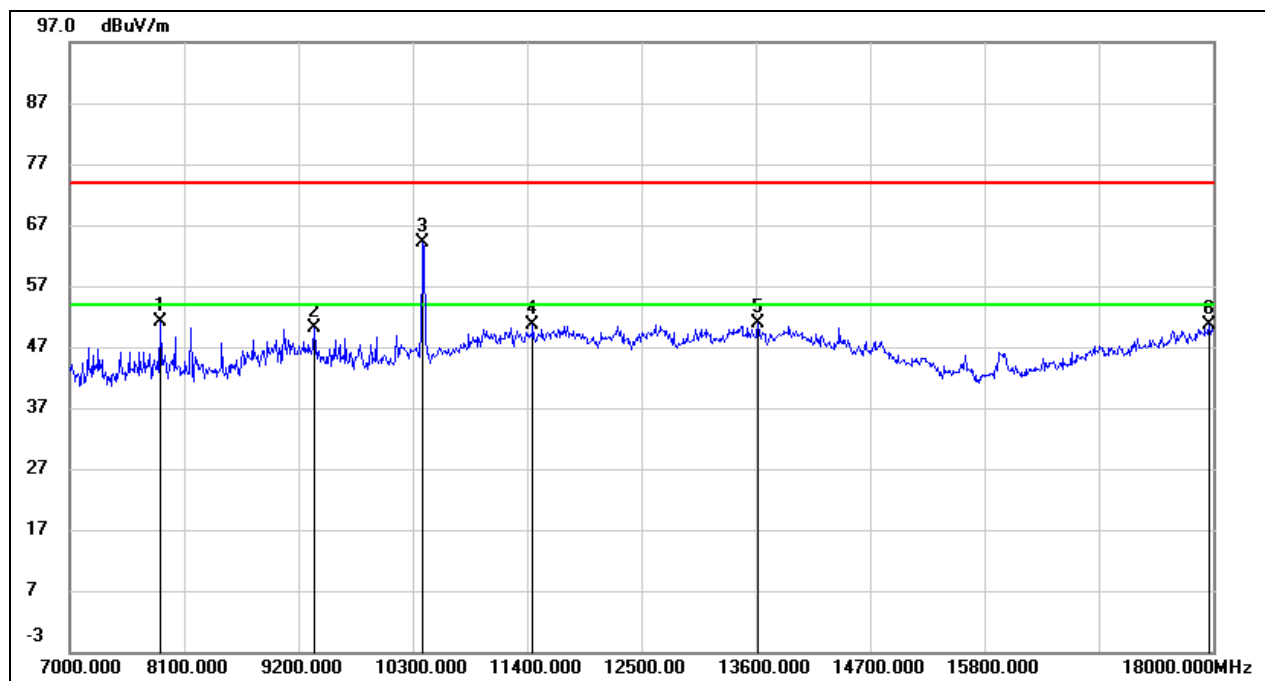
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7869.000	42.87	6.54	49.41	74.00	-24.59	peak
2	9354.000	38.90	10.56	49.46	74.00	-24.54	peak
3*	10366.000	48.95	12.54	61.49	68.20	-6.71	peak
4	11818.000	33.59	17.36	50.95	74.00	-23.05	peak
5	13380.000	30.55	20.12	50.67	74.00	-23.33	peak
6	18000.000	24.36	26.12	50.48	74.00	-23.52	peak

Test Mode:	802.11a 20	Frequency(MHz):	5200
Polarity:	Horizontal	Test Voltage:	DC 12 V



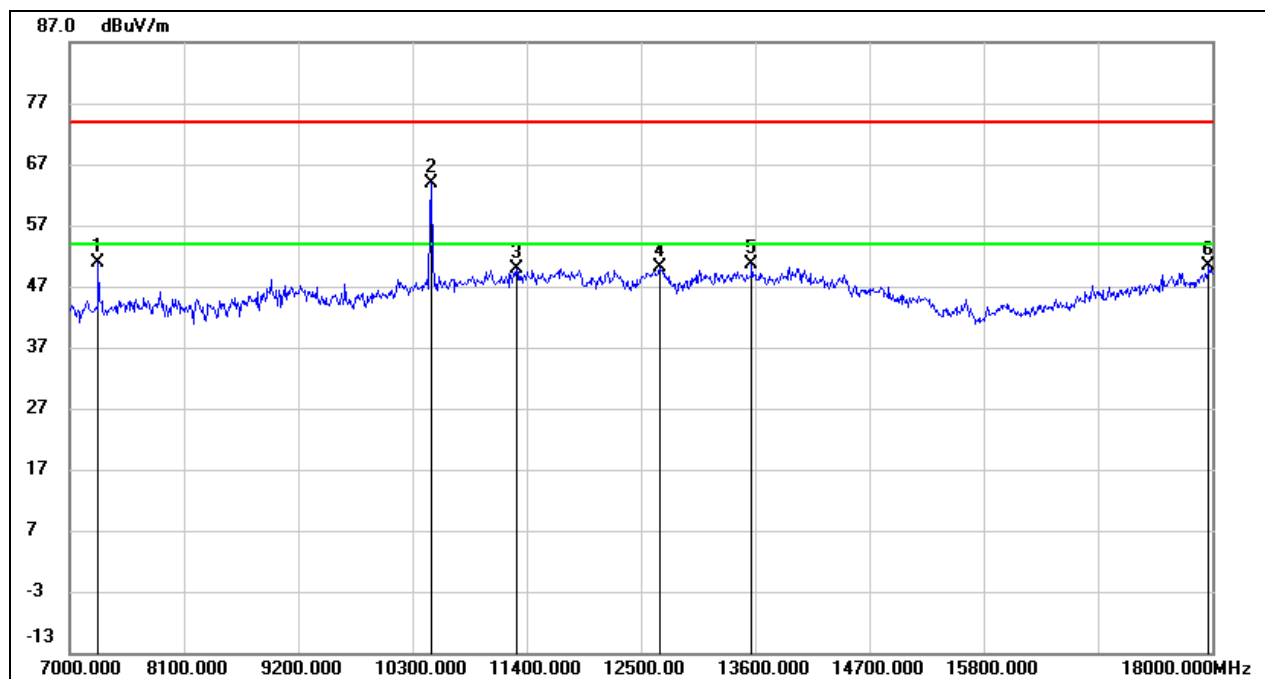
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8980.000	37.06	10.21	47.27	74.00	-26.73	peak
2*	10399.000	52.04	12.61	64.65	68.20	-3.55	peak
3	11763.000	32.85	17.26	50.11	74.00	-23.89	peak
4	12709.000	31.71	18.09	49.80	74.00	-24.20	peak
5	13611.000	28.68	20.92	49.60	74.00	-24.40	peak
6	18000.000	23.71	26.12	49.83	74.00	-24.17	peak

Test Mode:	802.11a 20	Frequency(MHz):	5200
Polarity:	Vertical	Test Voltage:	DC 12 V



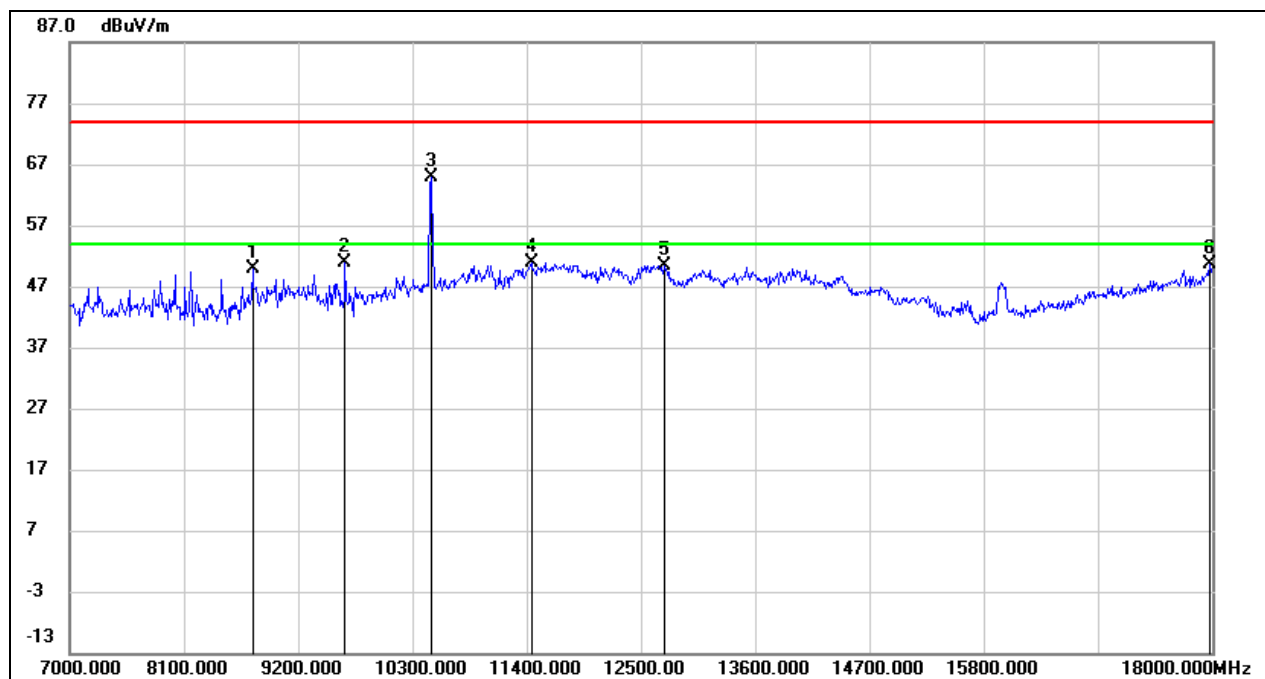
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7869.000	44.70	6.54	51.24	74.00	-22.76	peak
2	9354.000	39.50	10.56	50.06	74.00	-23.94	peak
3*	10399.000	51.46	12.61	64.07	68.20	-4.13	peak
4	11455.000	33.97	16.58	50.55	74.00	-23.45	peak
5	13622.000	29.82	20.95	50.77	74.00	-23.23	peak
6	17956.000	24.74	25.82	50.56	74.00	-23.44	peak

Test Mode:	802.11a 20	Frequency(MHz):	5240
Polarity:	Horizontal	Test Voltage:	DC 12 V



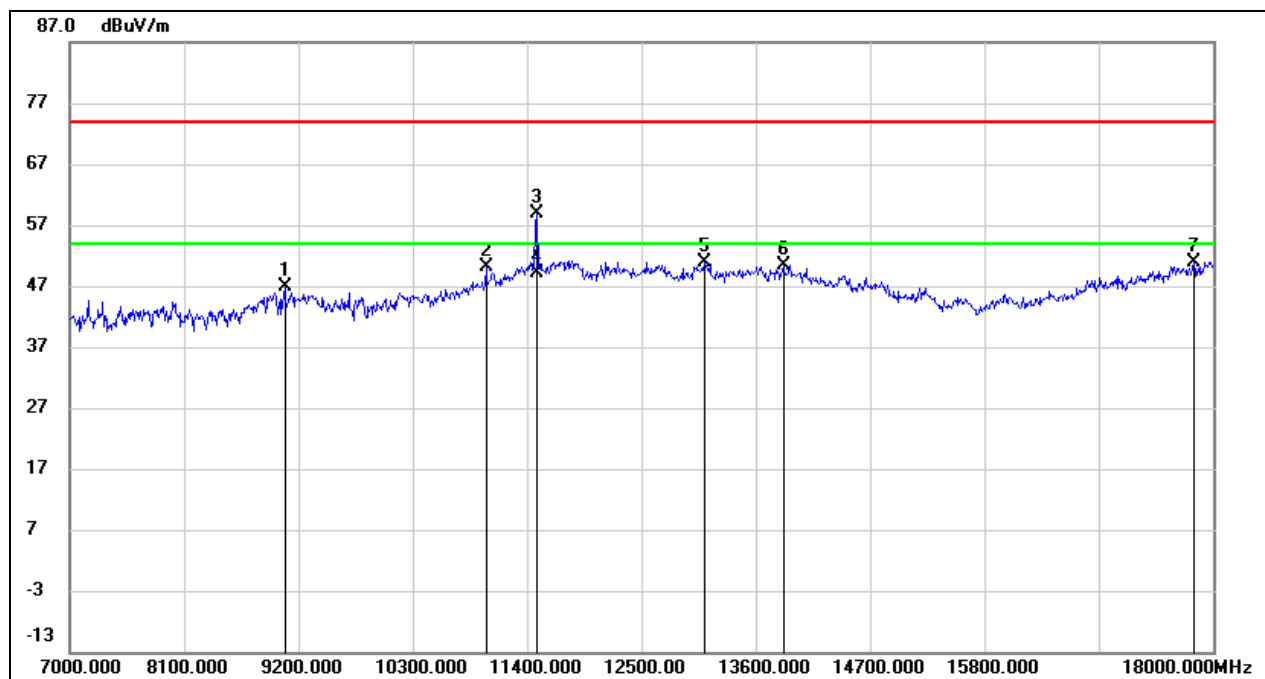
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7275.000	43.93	6.95	50.88	74.00	-23.12	peak
2*	10476.000	51.22	12.77	63.99	68.20	-4.21	peak
3	11301.000	34.01	15.95	49.96	74.00	-24.04	peak
4	12676.000	32.03	18.05	50.08	74.00	-23.92	peak
5	13567.000	29.90	20.80	50.70	74.00	-23.30	peak
6	17967.000	24.37	25.89	50.26	74.00	-23.74	peak

Test Mode:	802.11a 20	Frequency(MHz):	5240
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8760.000	41.29	8.69	49.98	74.00	-24.02	peak
2	9651.000	39.79	10.99	50.78	74.00	-23.22	peak
3*	10476.000	52.12	12.77	64.89	68.20	-3.31	peak
4	11444.000	34.38	16.53	50.91	74.00	-23.09	peak
5	12731.000	32.28	18.12	50.40	74.00	-23.60	peak
6	17978.000	24.57	25.97	50.54	74.00	-23.46	peak

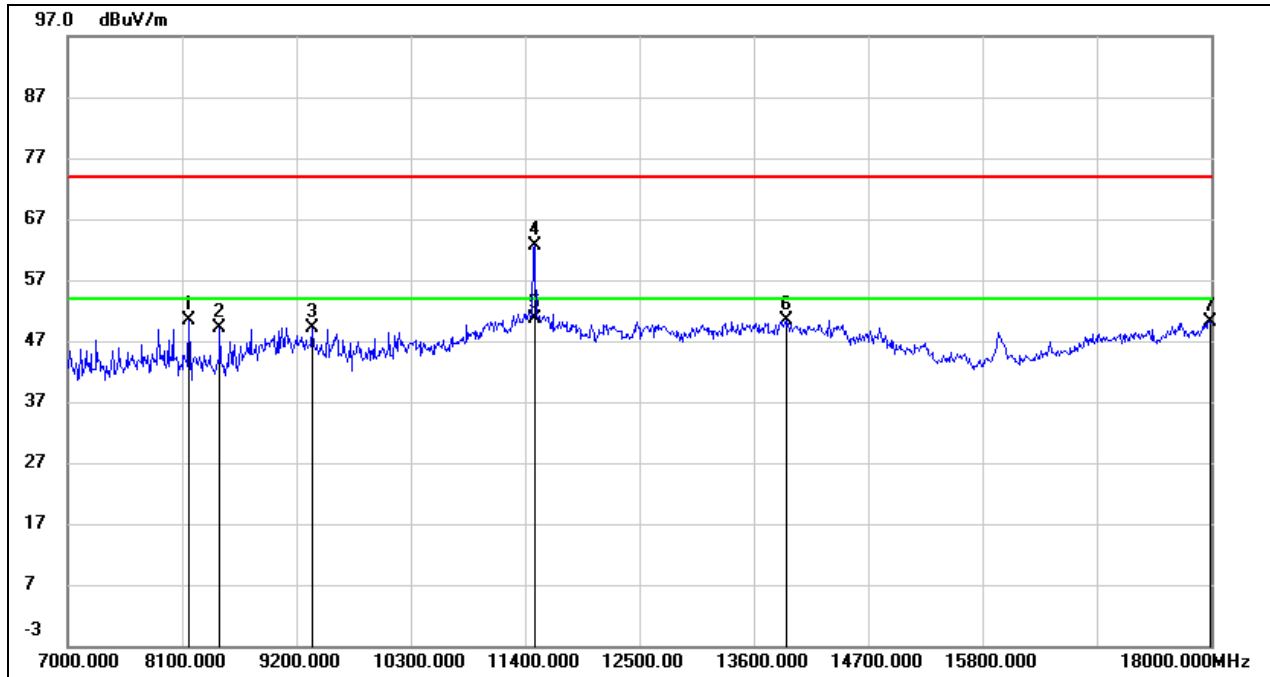
Test Mode:	802.11a 20	Frequency(MHz):	5745
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9068.000	36.40	10.39	46.79	74.00	-27.21	peak
2	11004.000	35.32	14.74	50.06	74.00	-23.94	peak
3	11488.000	42.26	16.72	58.98	74.00	-15.02	peak
4	11488.000	32.45	16.72	49.17	54.00	-4.83	AVG
5	13105.000	32.02	18.91	50.93	74.00	-23.07	peak
6	13864.000	28.89	21.53	50.42	74.00	-23.58	peak
7	17813.000	26.04	24.84	50.88	74.00	-23.12	peak

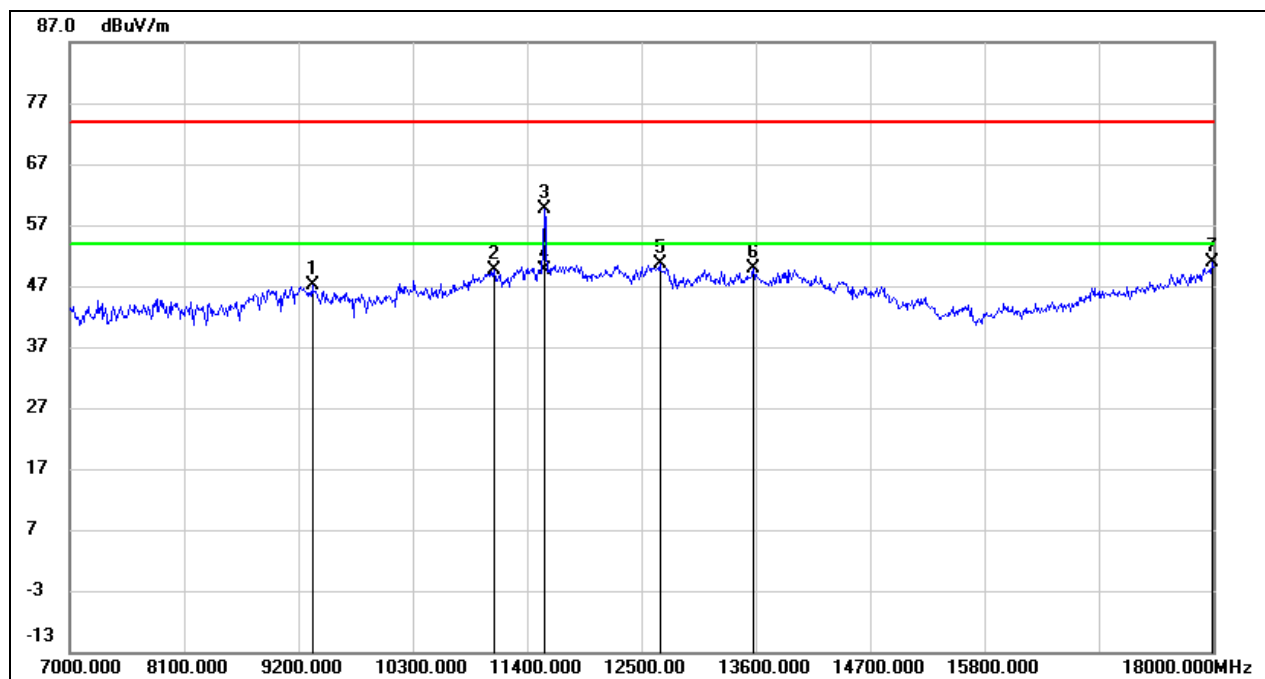


Test Mode:	802.11a 20	Frequency(MHz):	5745
Polarity:	Vertical	Test Voltage:	DC 12 V



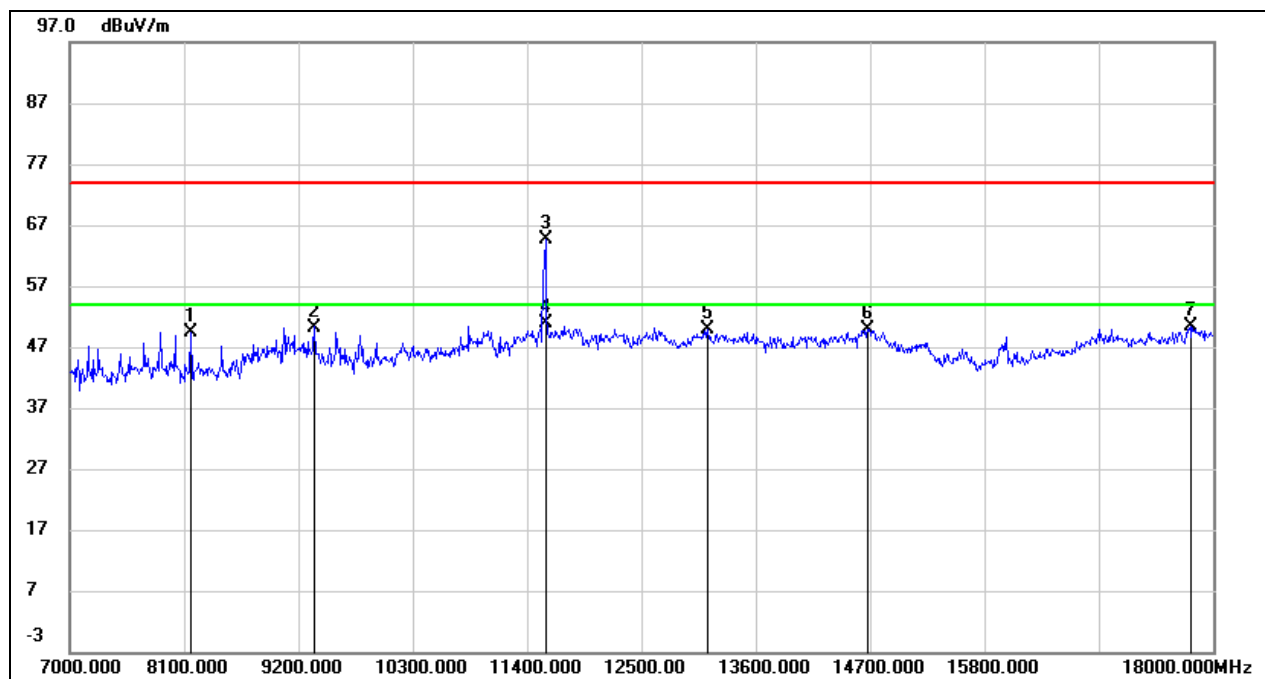
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8166.000	43.78	6.58	50.36	74.00	-23.64	peak
2	8463.000	42.33	6.85	49.18	74.00	-24.82	peak
3	9354.000	38.57	10.56	49.13	74.00	-24.87	peak
4	11488.000	45.82	16.72	62.54	74.00	-11.46	peak
5	11488.000	33.91	16.72	50.63	54.00	-3.37	AVG
6	13919.000	28.76	21.68	50.44	74.00	-23.56	peak
7	17989.000	24.11	26.04	50.15	74.00	-23.85	peak

Test Mode:	802.11a 20	Frequency(MHz):	5785
Polarity:	Horizontal	Test Voltage:	DC 12 V



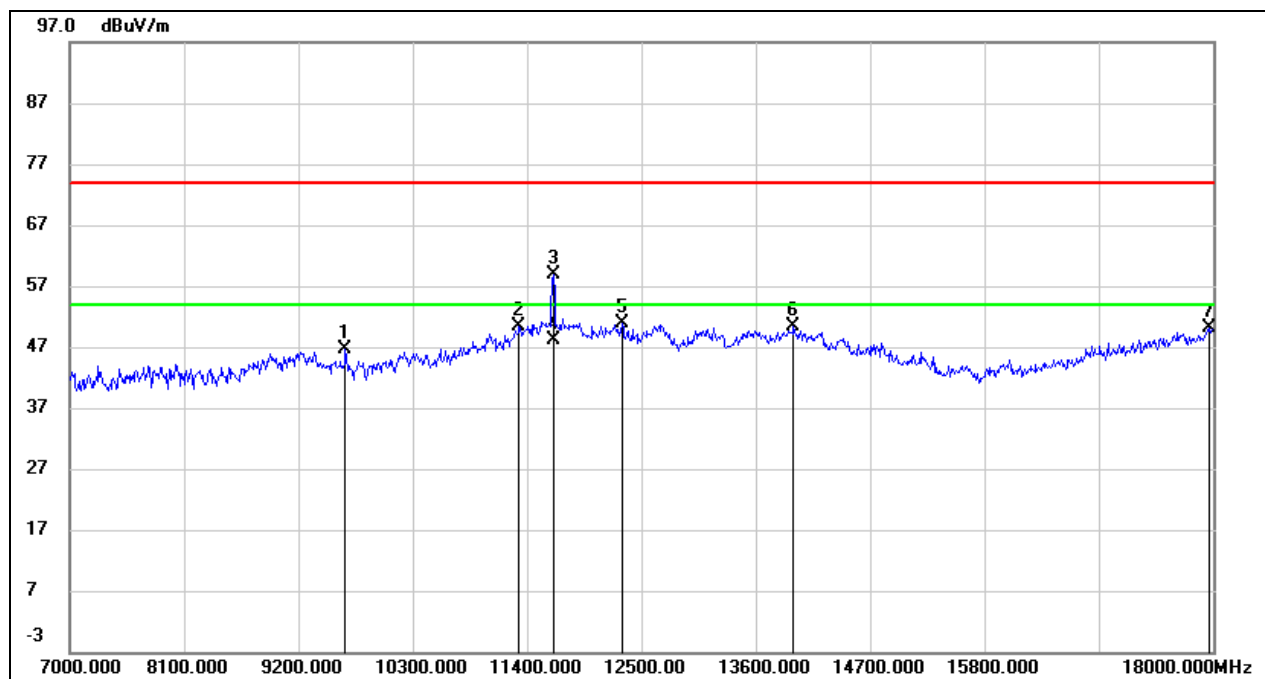
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9332.000	36.50	10.54	47.04	74.00	-26.96	peak
2	11081.000	34.62	15.05	49.67	74.00	-24.33	peak
3	11565.000	42.71	16.89	59.60	74.00	-14.40	peak
4	11565.000	32.77	16.89	49.66	54.00	-4.34	AVG
5	12676.000	32.47	18.05	50.52	74.00	-23.48	peak
6	13578.000	28.93	20.83	49.76	74.00	-24.24	peak
7	17989.000	24.72	26.04	50.76	74.00	-23.24	peak

Test Mode:	802.11a 20	Frequency(MHz):	5785
Polarity:	Vertical	Test Voltage:	DC 12 V



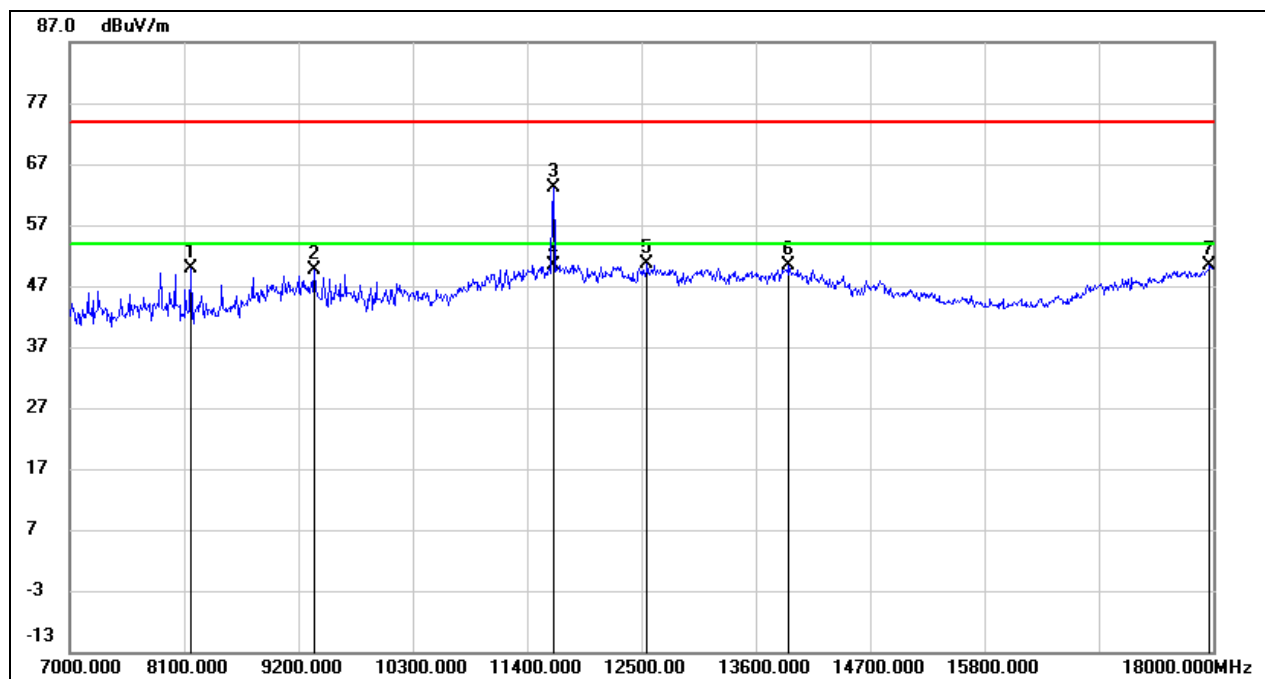
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8166.000	42.76	6.58	49.34	74.00	-24.66	peak
2	9354.000	39.69	10.56	50.25	74.00	-23.75	peak
3	11576.000	47.80	16.91	64.71	74.00	-9.29	peak
4	11576.000	33.85	16.91	50.76	54.00	-3.24	AVG
5	13138.000	30.92	19.05	49.97	74.00	-24.03	peak
6	14678.000	30.95	19.03	49.98	74.00	-24.02	peak
7	17780.000	25.75	24.61	50.36	74.00	-23.64	peak

Test Mode:	802.11a 20	Frequency(MHz):	5825
Polarity:	Horizontal	Test Voltage:	DC 12 V



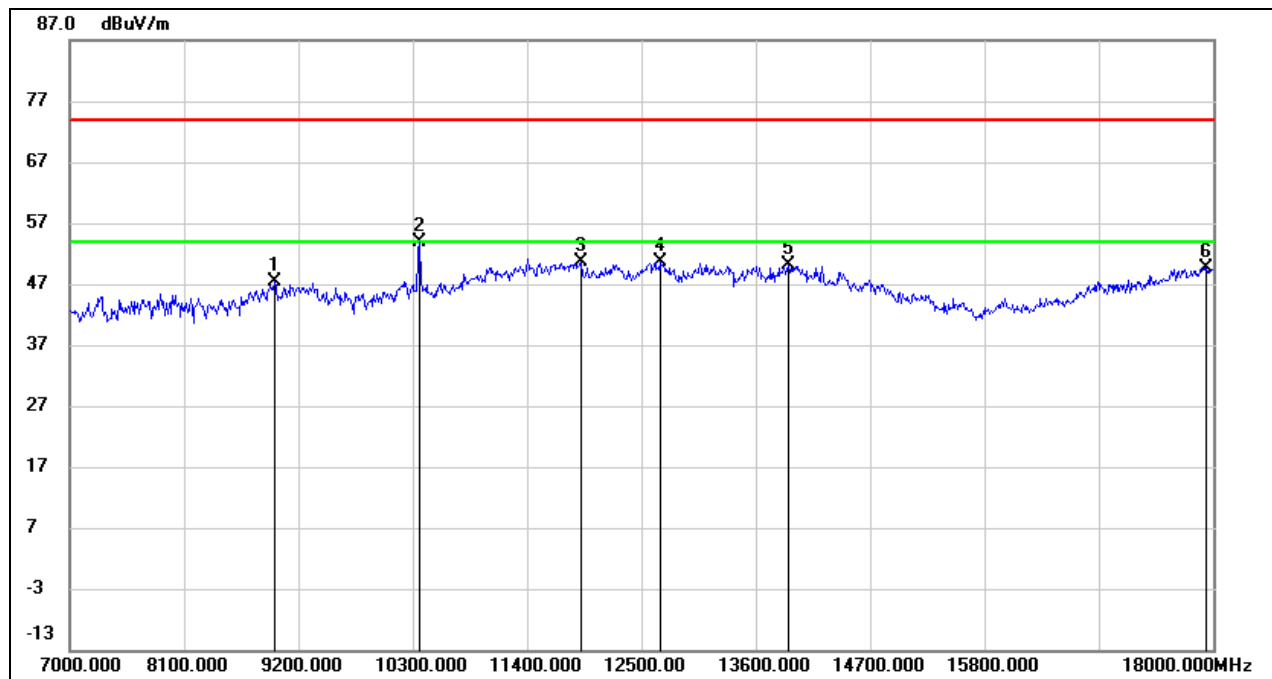
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9651.000	35.61	10.99	46.60	74.00	-27.40	peak
2	11323.000	34.34	16.05	50.39	74.00	-23.61	peak
3	11653.000	41.87	17.05	58.92	74.00	-15.08	peak
4	11653.000	31.15	17.05	48.20	54.00	-5.80	AVG
5	12313.000	33.13	17.78	50.91	74.00	-23.09	peak
6	13963.000	28.67	21.78	50.45	74.00	-23.55	peak
7	17967.000	24.33	25.89	50.22	74.00	-23.78	peak

Test Mode:	802.11a 20	Frequency(MHz):	5825
Polarity:	Vertical	Test Voltage:	DC 12 V



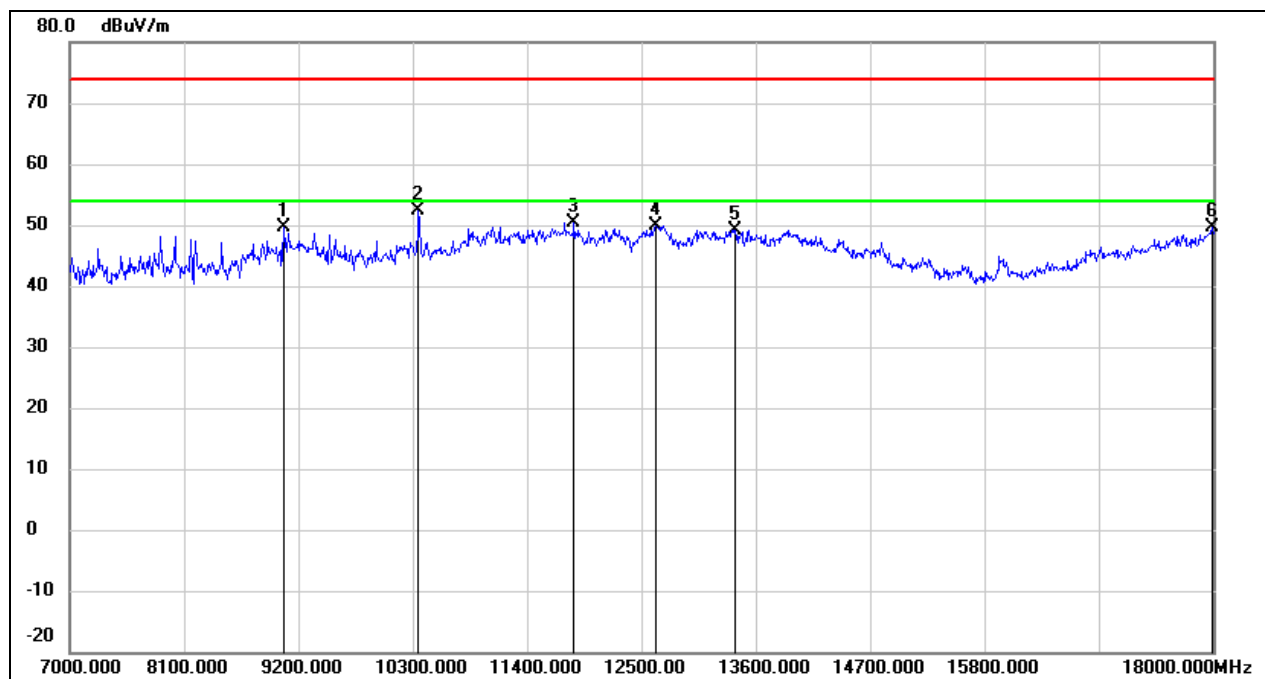
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8166.000	43.24	6.58	49.82	74.00	-24.18	peak
2	9354.000	39.12	10.56	49.68	74.00	-24.32	peak
3	11653.000	46.08	17.05	63.13	74.00	-10.87	peak
4	11653.000	33.21	17.05	50.26	54.00	-3.74	AVG
5	12555.000	32.69	17.90	50.59	74.00	-23.41	peak
6	13919.000	28.63	21.68	50.31	74.00	-23.69	peak
7	17967.000	24.49	25.89	50.38	74.00	-23.62	peak

Test Mode:	802.11n HT20	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



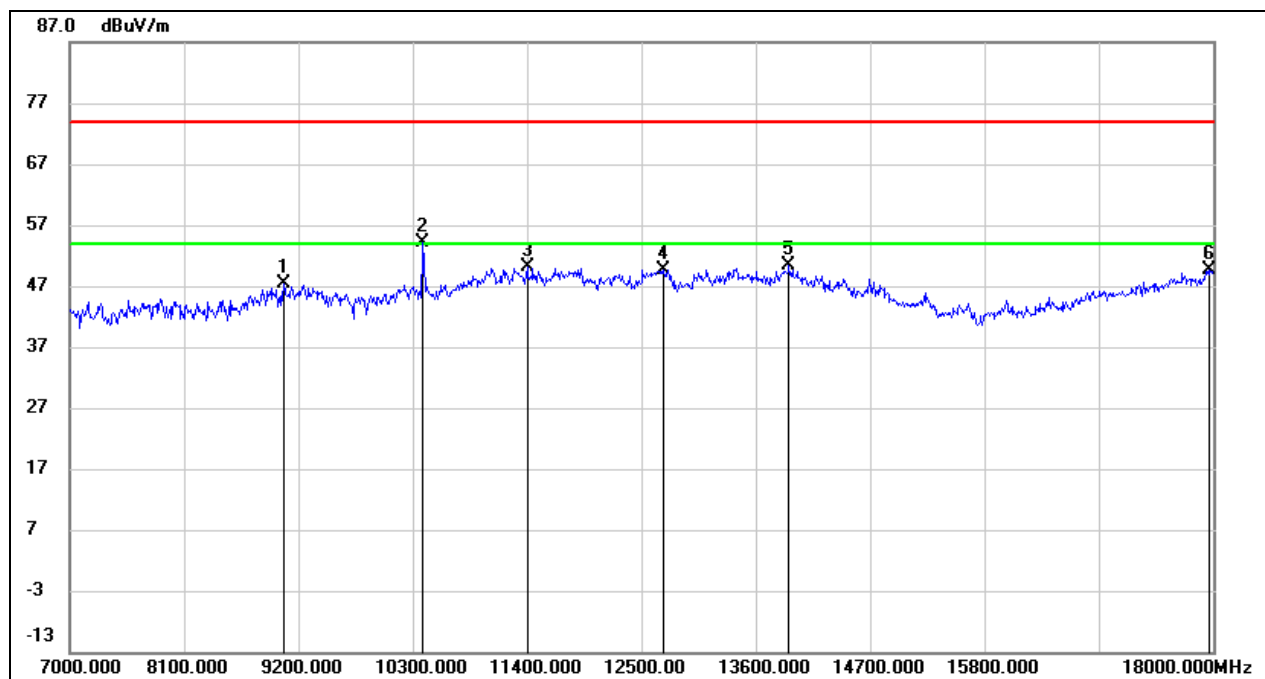
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8969.000	37.27	10.13	47.40	74.00	-26.60	peak
2*	10366.000	41.24	12.54	53.78	68.20	-14.42	peak
3	11917.000	33.08	17.54	50.62	74.00	-23.38	peak
4	12676.000	32.63	18.05	50.68	74.00	-23.32	peak
5	13919.000	28.35	21.68	50.03	74.00	-23.97	peak
6	17934.000	24.00	25.67	49.67	74.00	-24.33	peak

Test Mode:	802.11n HT20	Frequency(MHz):	5180
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9057.000	39.36	10.38	49.74	74.00	-24.26	peak
2*	10355.000	39.88	12.52	52.40	68.20	-15.80	peak
3	11851.000	32.97	17.43	50.40	74.00	-23.60	peak
4	12643.000	31.96	18.01	49.97	74.00	-24.03	peak
5	13402.000	28.97	20.20	49.17	74.00	-24.83	peak
6	17989.000	23.52	26.04	49.56	74.00	-24.44	peak

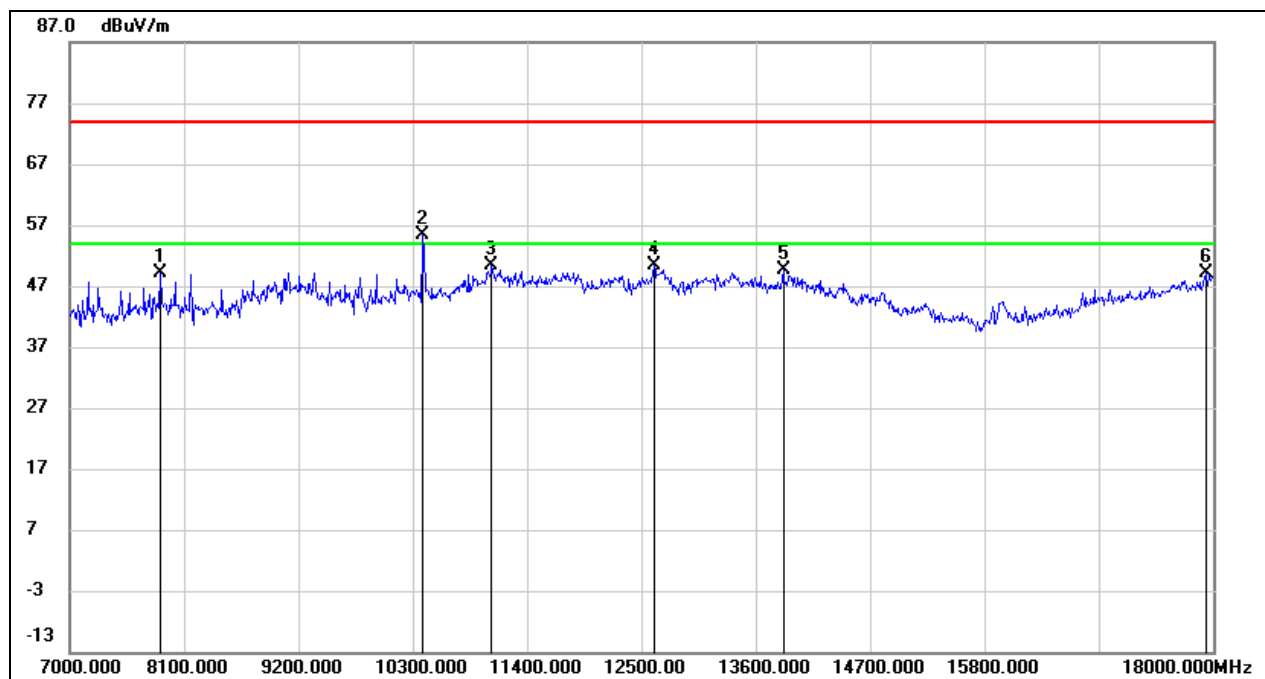
Test Mode:	802.11n HT20	Frequency(MHz):	5200
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9057.000	37.05	10.38	47.43	74.00	-26.57	peak
2*	10399.000	41.61	12.61	54.22	68.20	-13.98	peak
3	11400.000	33.87	16.36	50.23	74.00	-23.77	peak
4	12709.000	31.59	18.09	49.68	74.00	-24.32	peak
5	13919.000	28.69	21.68	50.37	74.00	-23.63	peak
6	17956.000	23.69	25.82	49.51	74.00	-24.49	peak

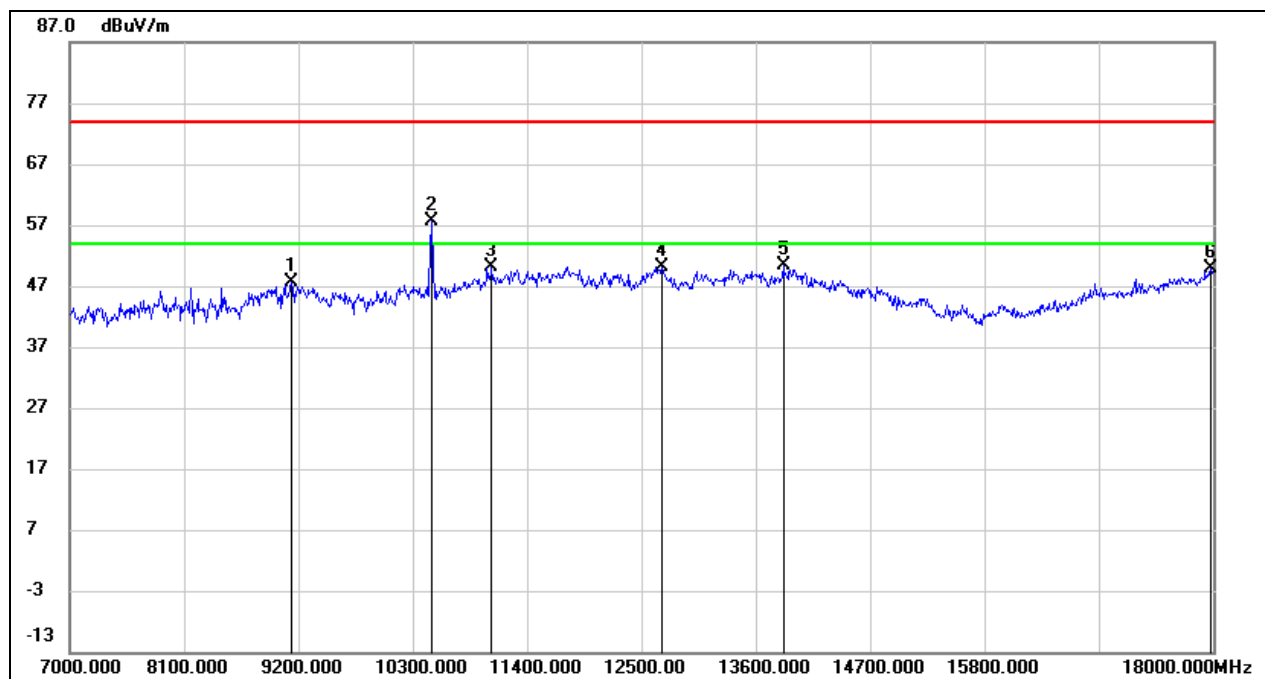


Test Mode:	802.11n HT20	Frequency(MHz):	5200
Polarity:	Vertical	Test Voltage:	DC 12 V



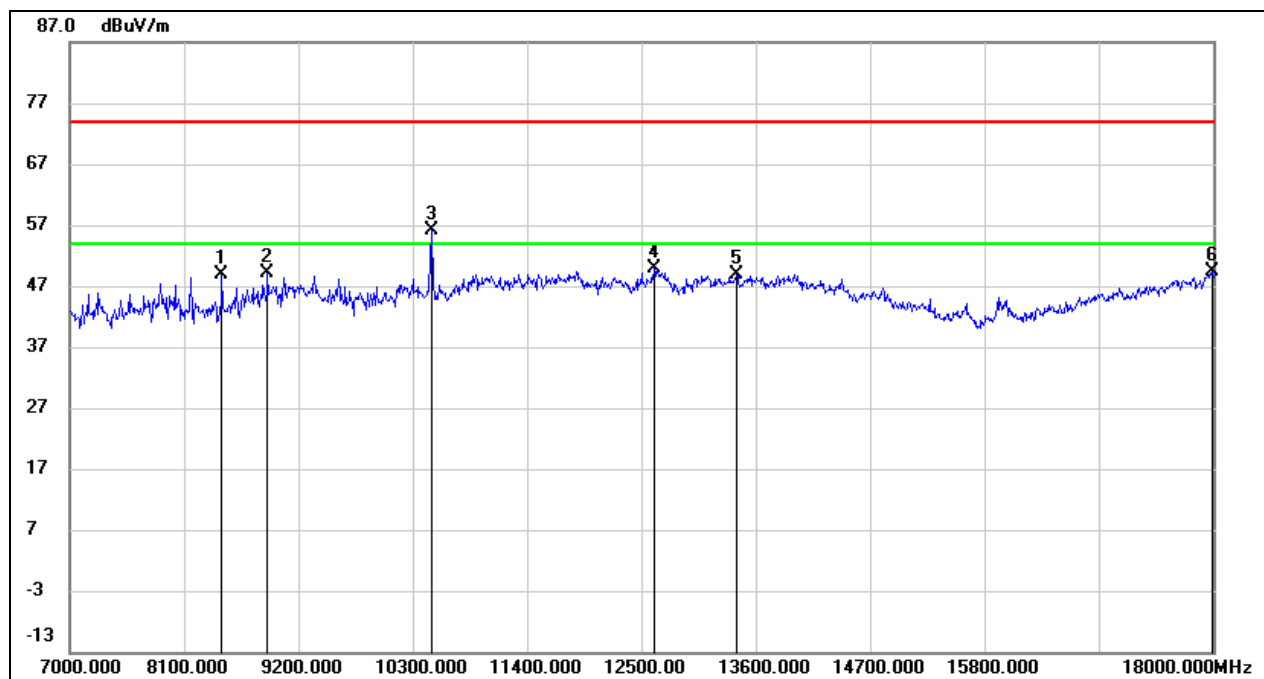
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7869.000	42.52	6.54	49.06	74.00	-24.94	peak
2*	10399.000	42.68	12.61	55.29	68.20	-12.91	peak
3	11059.000	35.41	14.96	50.37	74.00	-23.63	peak
4	12621.000	32.45	17.98	50.43	74.00	-23.57	peak
5	13864.000	28.00	21.53	49.53	74.00	-24.47	peak
6	17934.000	23.57	25.67	49.24	74.00	-24.76	peak

Test Mode:	802.11n HT20	Frequency(MHz):	5240
Polarity:	Horizontal	Test Voltage:	DC 12 V



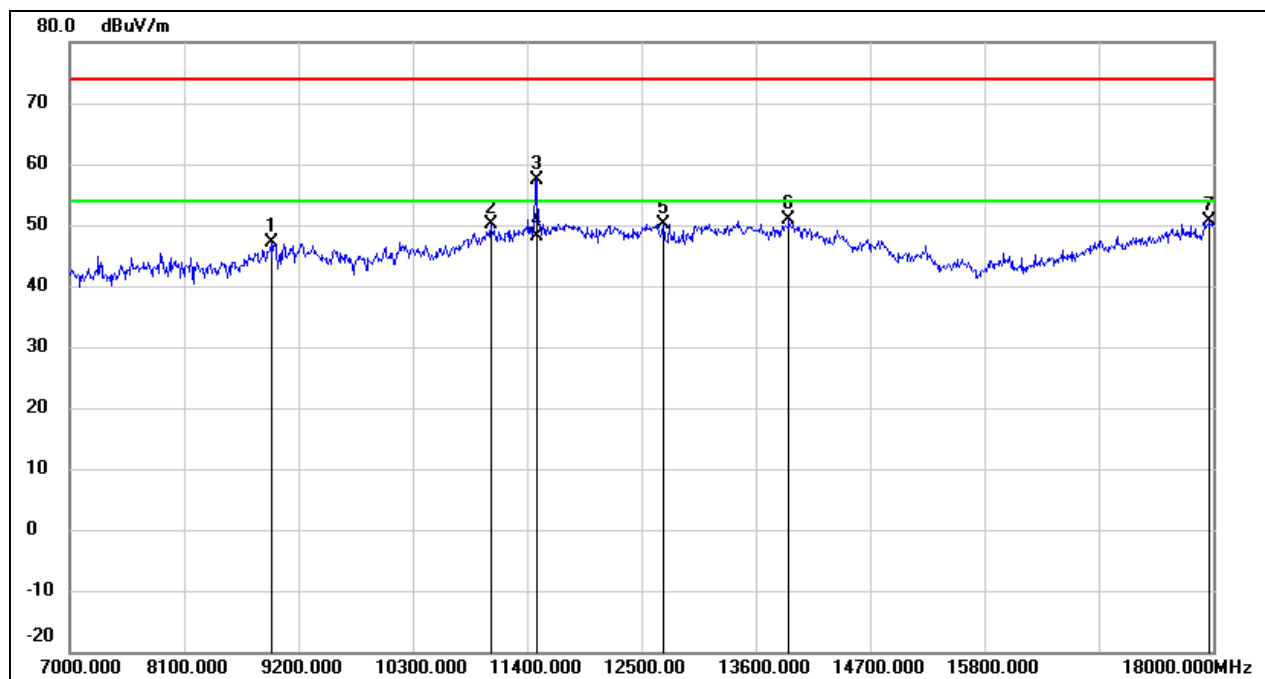
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9134.000	37.26	10.41	47.67	74.00	-26.33	peak
2*	10487.000	44.93	12.79	57.72	68.20	-10.48	peak
3	11059.000	35.20	14.96	50.16	74.00	-23.84	peak
4	12698.000	32.14	18.08	50.22	74.00	-23.78	peak
5	13864.000	28.76	21.53	50.29	74.00	-23.71	peak
6	17978.000	23.89	25.97	49.86	74.00	-24.14	peak

Test Mode:	802.11n HT20	Frequency(MHz):	5240
Polarity:	Vertical	Test Voltage:	DC 12 V



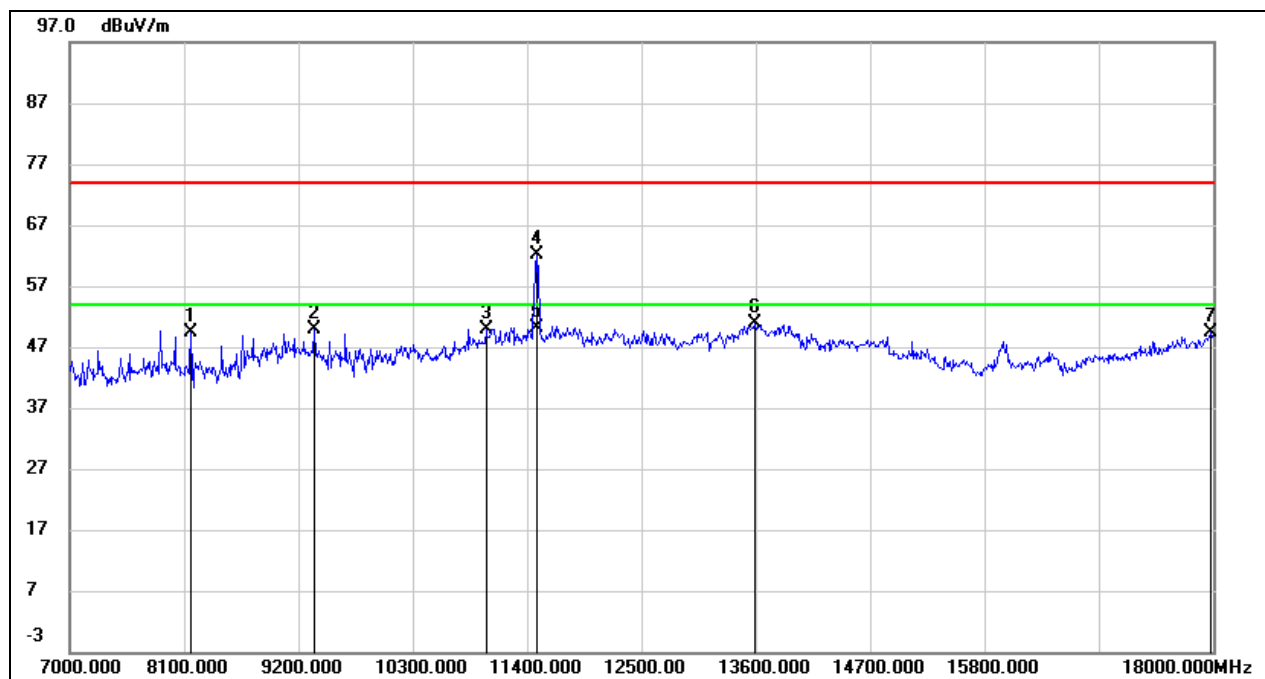
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8463.000	42.08	6.85	48.93	74.00	-25.07	peak
2	8903.000	39.58	9.66	49.24	74.00	-24.76	peak
3*	10476.000	43.44	12.77	56.21	68.20	-11.99	peak
4	12621.000	31.93	17.98	49.91	74.00	-24.09	peak
5	13413.000	28.52	20.26	48.78	74.00	-25.22	peak
6	17989.000	23.26	26.04	49.30	74.00	-24.70	peak

Test Mode:	802.11n HT20	Frequency(MHz):	5745
Polarity:	Horizontal	Test Voltage:	DC 12 V



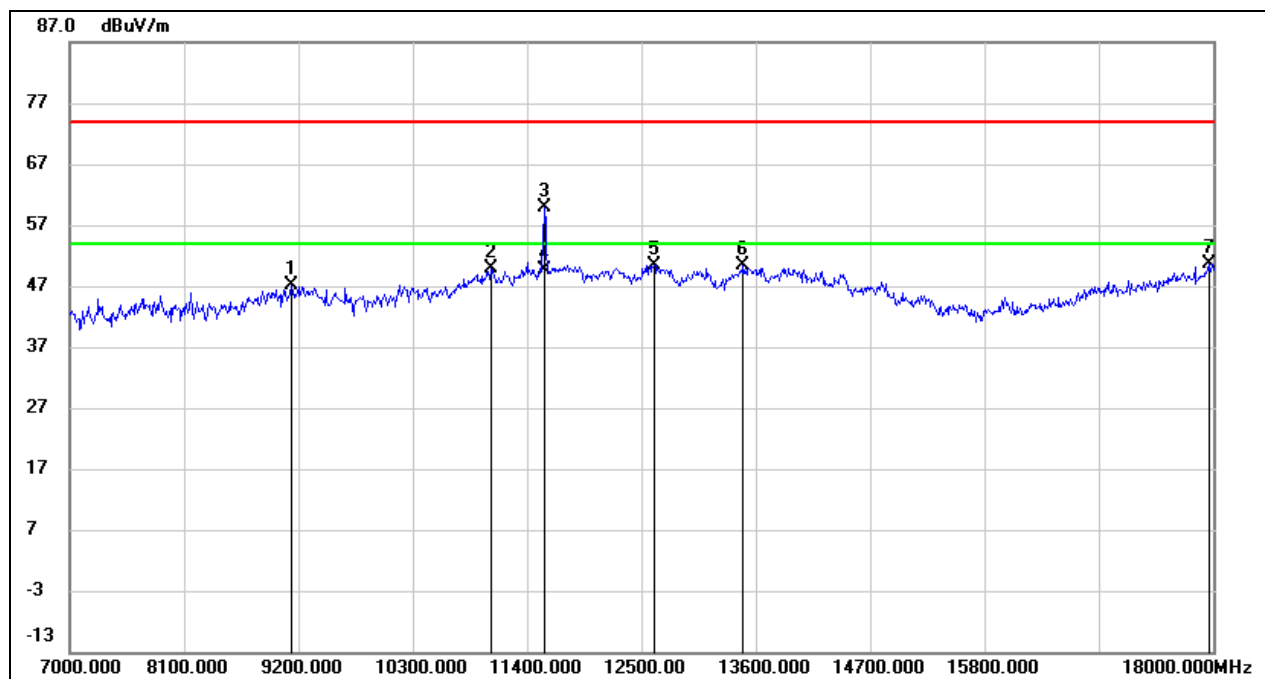
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8936.000	37.27	9.90	47.17	74.00	-26.83	peak
2	11048.000	35.27	14.91	50.18	74.00	-23.82	peak
3	11488.000	40.63	16.72	57.35	74.00	-16.65	peak
4	11488.000	31.41	16.72	48.13	54.00	-5.87	AVG
5	12709.000	32.12	18.09	50.21	74.00	-23.79	peak
6	13919.000	29.16	21.68	50.84	74.00	-23.16	peak
7	17967.000	24.80	25.89	50.69	74.00	-23.31	peak

Test Mode:	802.11n HT20	Frequency(MHz):	5745
Polarity:	Vertical	Test Voltage:	DC 12 V



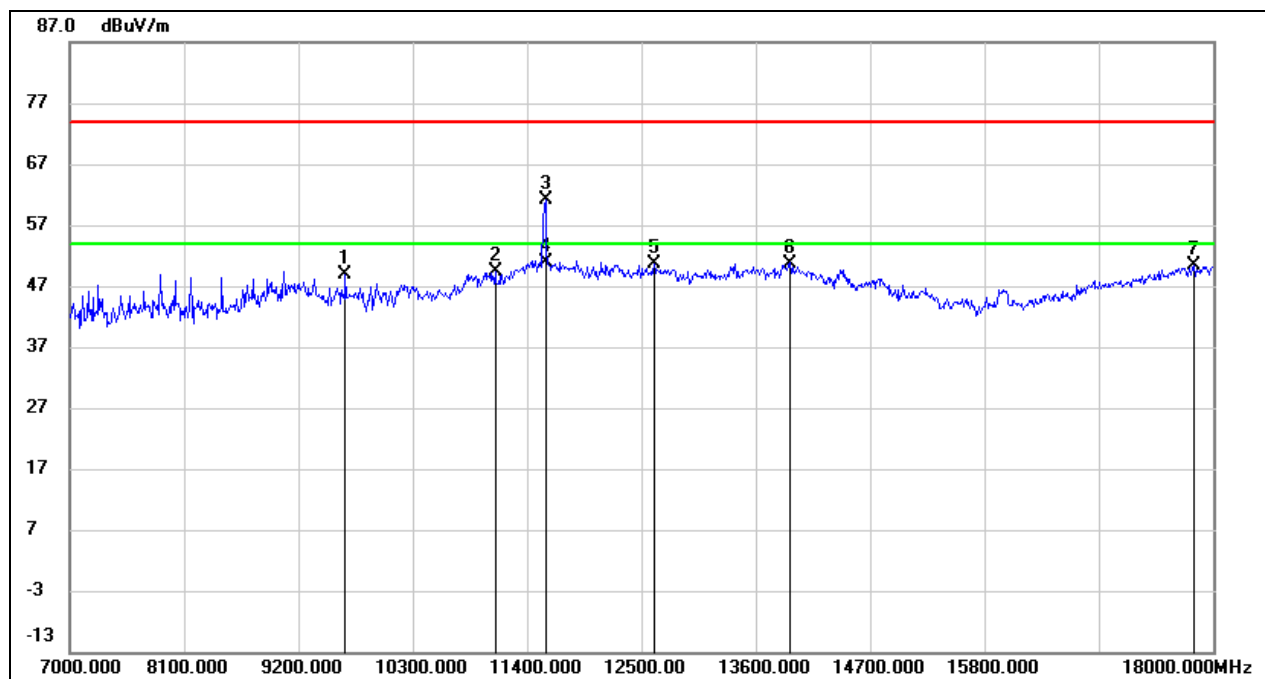
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8166.000	42.90	6.58	49.48	74.00	-24.52	peak
2	9354.000	39.43	10.56	49.99	74.00	-24.01	peak
3	11004.000	35.18	14.74	49.92	74.00	-24.08	peak
4	11488.000	45.51	16.72	62.23	74.00	-11.77	peak
5	11488.000	33.53	16.72	50.25	54.00	-3.75	AVG
6	13589.000	29.92	20.86	50.78	74.00	-23.22	peak
7	17978.000	23.37	25.97	49.34	74.00	-24.66	peak

Test Mode:	802.11n HT20	Frequency(MHz):	5785
Polarity:	Horizontal	Test Voltage:	DC 12 V



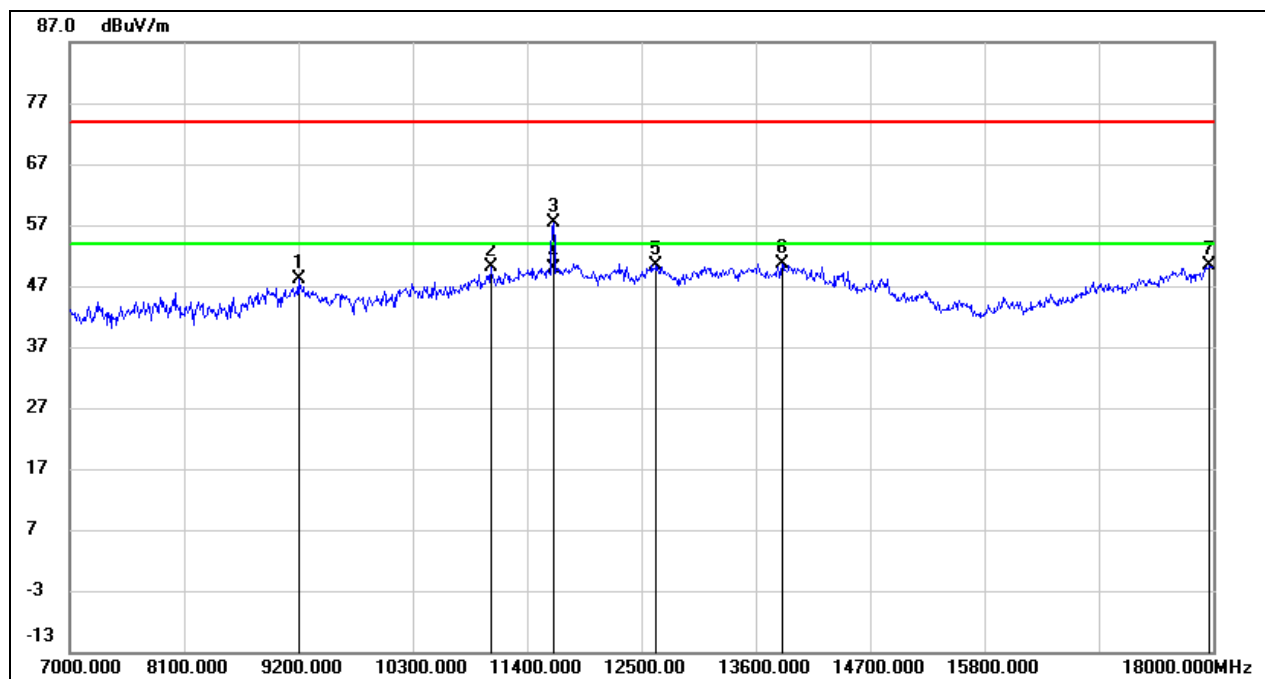
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9134.000	36.77	10.41	47.18	74.00	-26.82	peak
2	11048.000	35.02	14.91	49.93	74.00	-24.07	peak
3	11565.000	43.08	16.89	59.97	74.00	-14.03	peak
4	11565.000	32.62	16.89	49.51	54.00	-4.49	AVG
5	12621.000	32.44	17.98	50.42	74.00	-23.58	peak
6	13479.000	29.72	20.55	50.27	74.00	-23.73	peak
7	17956.000	24.80	25.82	50.62	74.00	-23.38	peak

Test Mode:	802.11n HT20	Frequency(MHz):	5785
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9651.000	37.86	10.99	48.85	74.00	-25.15	peak
2	11092.000	34.35	15.10	49.45	74.00	-24.55	peak
3	11576.000	44.15	16.91	61.06	74.00	-12.94	peak
4	11576.000	33.92	16.91	50.83	54.00	-3.17	AVG
5	12621.000	32.64	17.98	50.62	74.00	-23.38	peak
6	13930.000	29.04	21.71	50.75	74.00	-23.25	peak
7	17813.000	25.48	24.84	50.32	74.00	-23.68	peak

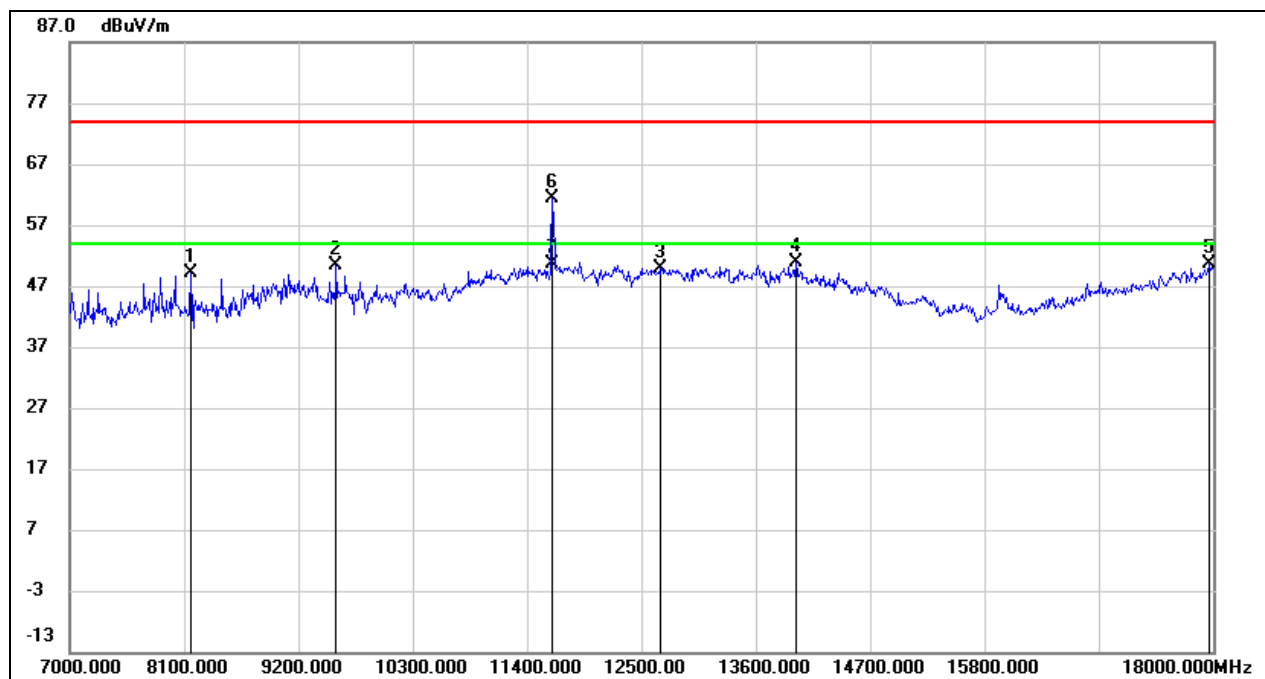
Test Mode:	802.11n HT20	Frequency(MHz):	5825
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9200.000	37.67	10.46	48.13	74.00	-25.87	peak
2	11048.000	35.18	14.91	50.09	74.00	-23.91	peak
3	11653.000	40.38	17.05	57.43	74.00	-16.57	peak
4	11653.000	32.82	17.05	49.87	54.00	-4.13	AVG
5	12643.000	32.48	18.01	50.49	74.00	-23.51	peak
6	13853.000	29.19	21.52	50.71	74.00	-23.29	peak
7	17967.000	24.52	25.89	50.41	74.00	-23.59	peak

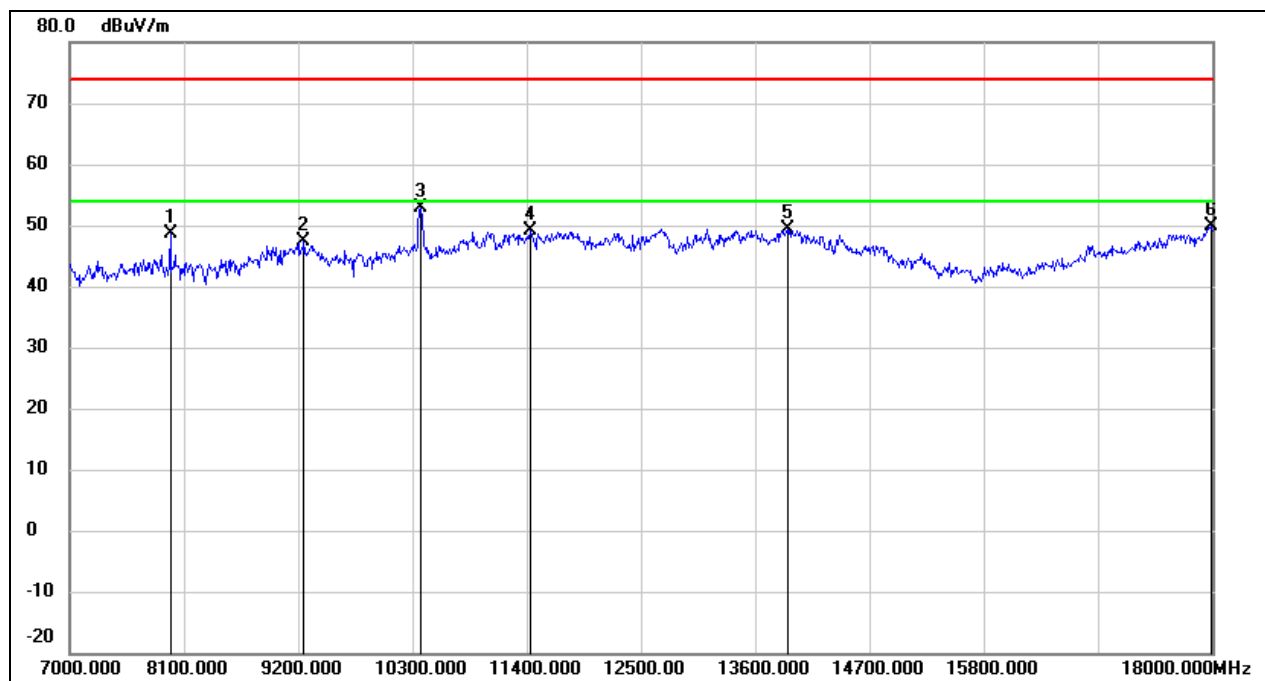


Test Mode:	802.11n HT20	Frequency(MHz):	5825
Polarity:	Vertical	Test Voltage:	DC 12 V



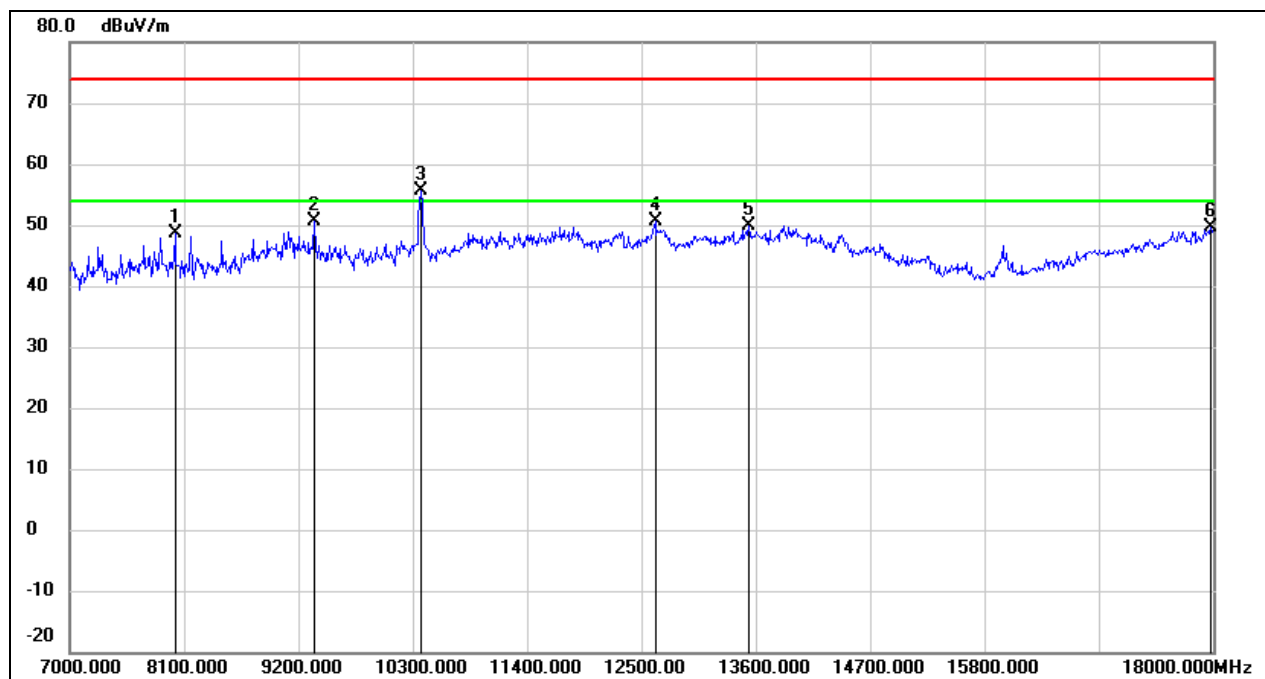
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8166.000	42.54	6.58	49.12	74.00	-24.88	peak
2	9563.000	39.69	10.79	50.48	74.00	-23.52	peak
3	12687.000	31.87	18.05	49.92	74.00	-24.08	peak
4	13985.000	28.93	21.85	50.78	74.00	-23.22	peak
5	17967.000	24.83	25.89	50.72	74.00	-23.28	peak
6	11642.000	44.36	17.03	61.39	74.00	-12.61	peak
7	11642.000	33.61	17.03	50.64	54.00	-3.36	AVG

Test Mode:	802.11n HT40	Frequency(MHz):	5190
Polarity:	Horizontal	Test Voltage:	DC 12 V



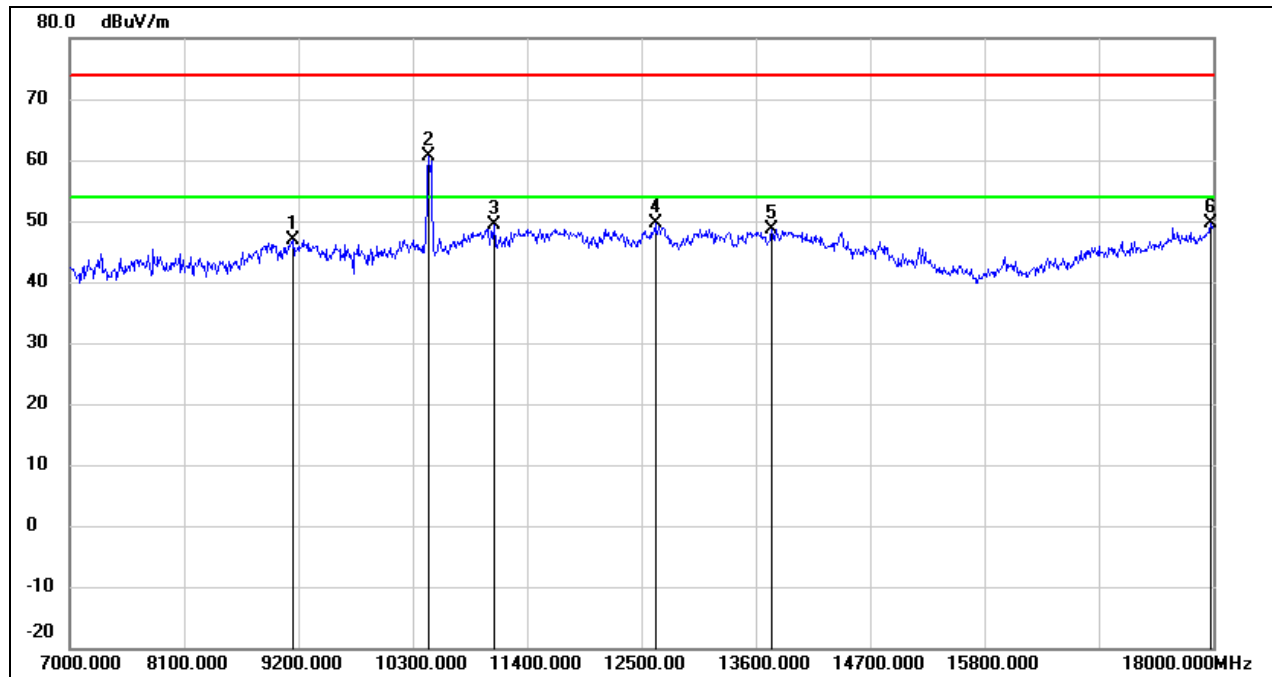
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7968.000	42.21	6.45	48.66	74.00	-25.34	peak
2	9255.000	36.85	10.50	47.35	74.00	-26.65	peak
3*	10377.000	40.36	12.56	52.92	68.20	-15.28	peak
4	11433.000	32.61	16.50	49.11	74.00	-24.89	peak
5	13919.000	27.62	21.68	49.30	74.00	-24.70	peak
6	17989.000	23.72	26.04	49.76	74.00	-24.24	peak

Test Mode:	802.11n HT40	Frequency(MHz):	5190
Polarity:	Vertical	Test Voltage:	DC 12 V



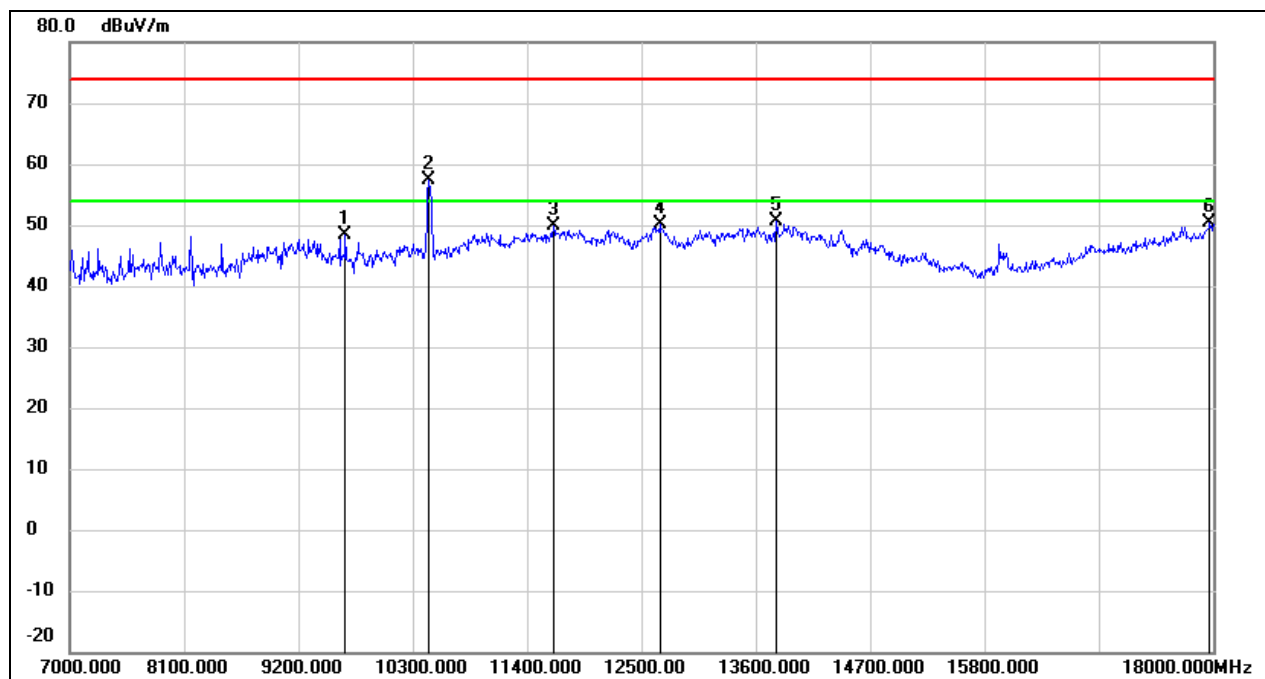
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8012.000	42.17	6.44	48.61	74.00	-25.39	peak
2	9354.000	39.98	10.56	50.54	74.00	-23.46	peak
3*	10377.000	43.15	12.56	55.71	68.20	-12.49	peak
4	12632.000	32.65	17.99	50.64	74.00	-23.36	peak
5	13534.000	29.14	20.73	49.87	74.00	-24.13	peak
6	17978.000	23.66	25.97	49.63	74.00	-24.37	peak

Test Mode:	802.11n HT40	Frequency(MHz):	5230
Polarity:	Horizontal	Test Voltage:	DC 12 V



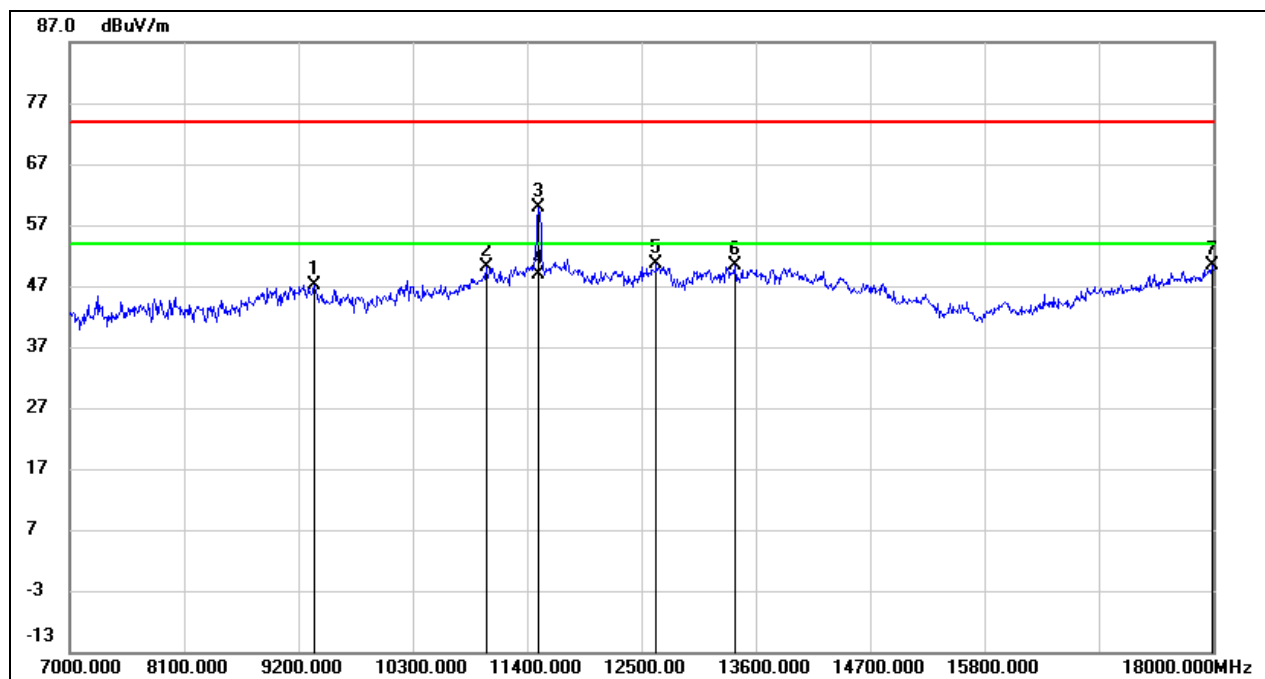
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9145.000	36.44	10.43	46.87	74.00	-27.13	peak
2*	10454.000	48.01	12.73	60.74	68.20	-7.46	peak
3	11081.000	34.23	15.05	49.28	74.00	-24.72	peak
4	12632.000	31.67	17.99	49.66	74.00	-24.34	peak
5	13754.000	27.47	21.27	48.74	74.00	-25.26	peak
6	17978.000	23.74	25.97	49.71	74.00	-24.29	peak

Test Mode:	802.11n HT40	Frequency(MHz):	5230
Polarity:	Vertical	Test Voltage:	DC 12 V



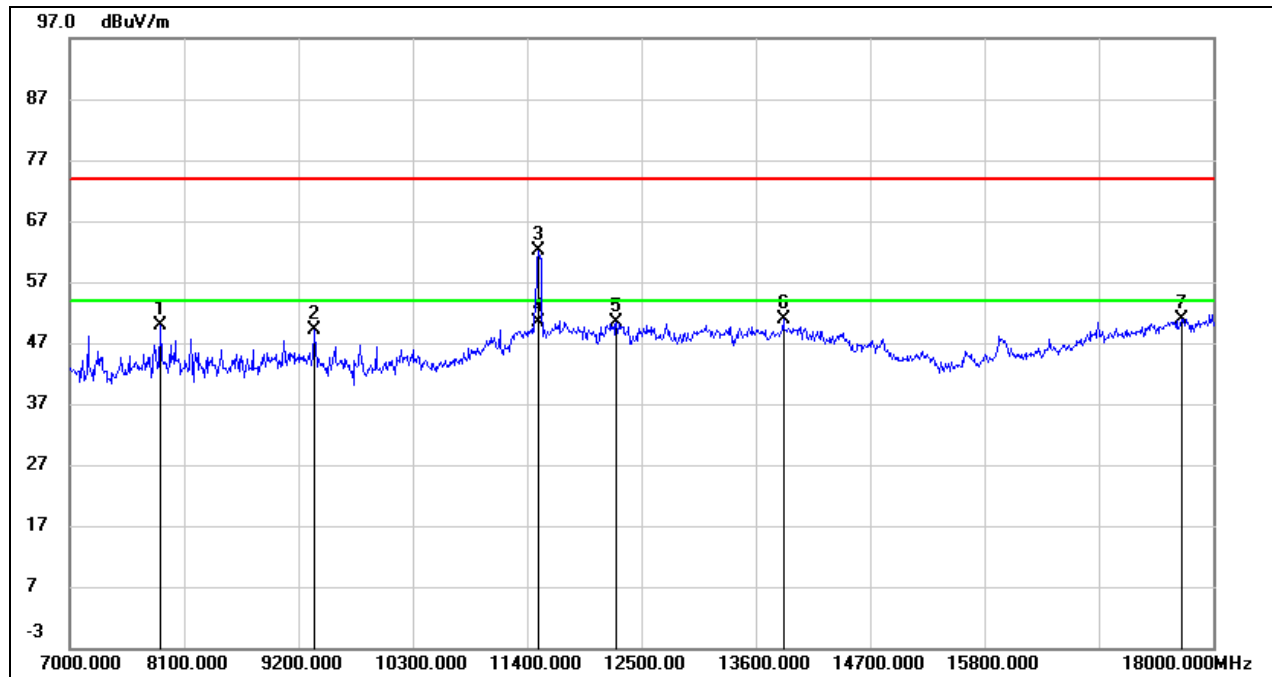
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9651.000	37.49	10.99	48.48	74.00	-25.52	peak
2*	10454.000	44.61	12.73	57.34	68.20	-10.68	peak
3	11653.000	32.79	17.05	49.84	74.00	-24.16	peak
4	12676.000	31.96	18.05	50.01	74.00	-23.99	peak
5	13798.000	29.36	21.38	50.74	74.00	-23.26	peak
6	17967.000	24.59	25.89	50.48	74.00	-23.52	peak

Test Mode:	802.11n HT40	Frequency(MHz):	5755
Polarity:	Horizontal	Test Voltage:	DC 12 V



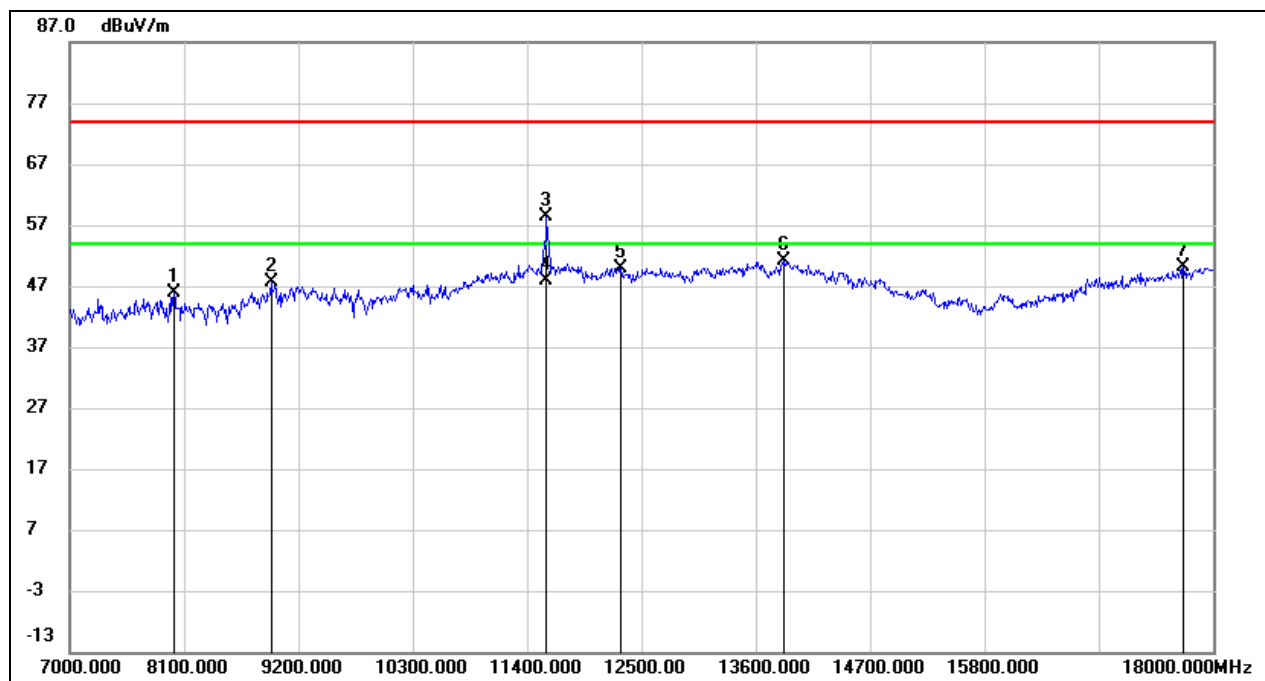
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9354.000	36.60	10.56	47.16	74.00	-26.84	peak
2	11004.000	35.36	14.74	50.10	74.00	-23.90	peak
3	11510.000	43.04	16.79	59.83	74.00	-14.17	peak
4	11510.000	32.00	16.79	48.79	54.00	-5.21	AVG
5	12643.000	32.61	18.01	50.62	74.00	-23.38	peak
6	13402.000	30.29	20.20	50.49	74.00	-23.51	peak
7	17989.000	24.25	26.04	50.29	74.00	-23.71	peak

Test Mode:	802.11n HT40	Frequency(MHz):	5755
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7869.000	43.36	6.54	49.90	74.00	-24.10	peak
2	9354.000	38.68	10.56	49.24	74.00	-24.76	peak
3	11510.000	45.30	16.79	62.09	74.00	-11.91	peak
4	11510.000	33.64	16.79	50.43	54.00	-3.57	AVG
5	12258.000	32.61	17.77	50.38	74.00	-23.62	peak
6	13864.000	29.39	21.53	50.92	74.00	-23.08	peak
7	17692.000	26.85	24.01	50.86	74.00	-23.14	peak

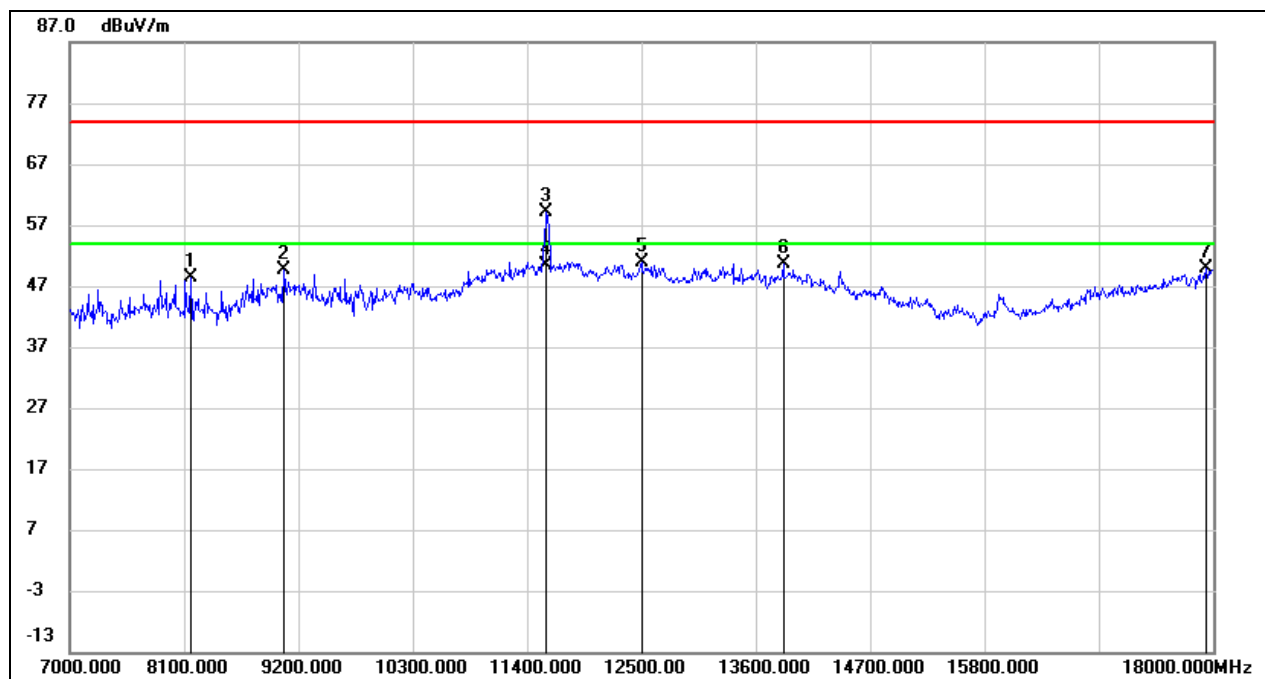
Test Mode:	802.11n HT40	Frequency(MHz):	5795
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8001.000	39.35	6.43	45.78	74.00	-28.22	peak
2	8936.000	37.65	9.90	47.55	74.00	-26.45	peak
3	11587.000	41.49	16.93	58.42	74.00	-15.58	peak
4	11587.000	30.96	16.93	47.89	54.00	-6.11	AVG
5	12302.000	32.20	17.78	49.98	74.00	-24.02	peak
6	13875.000	29.52	21.57	51.09	74.00	-22.91	peak
7	17714.000	25.87	24.16	50.03	74.00	-23.97	peak

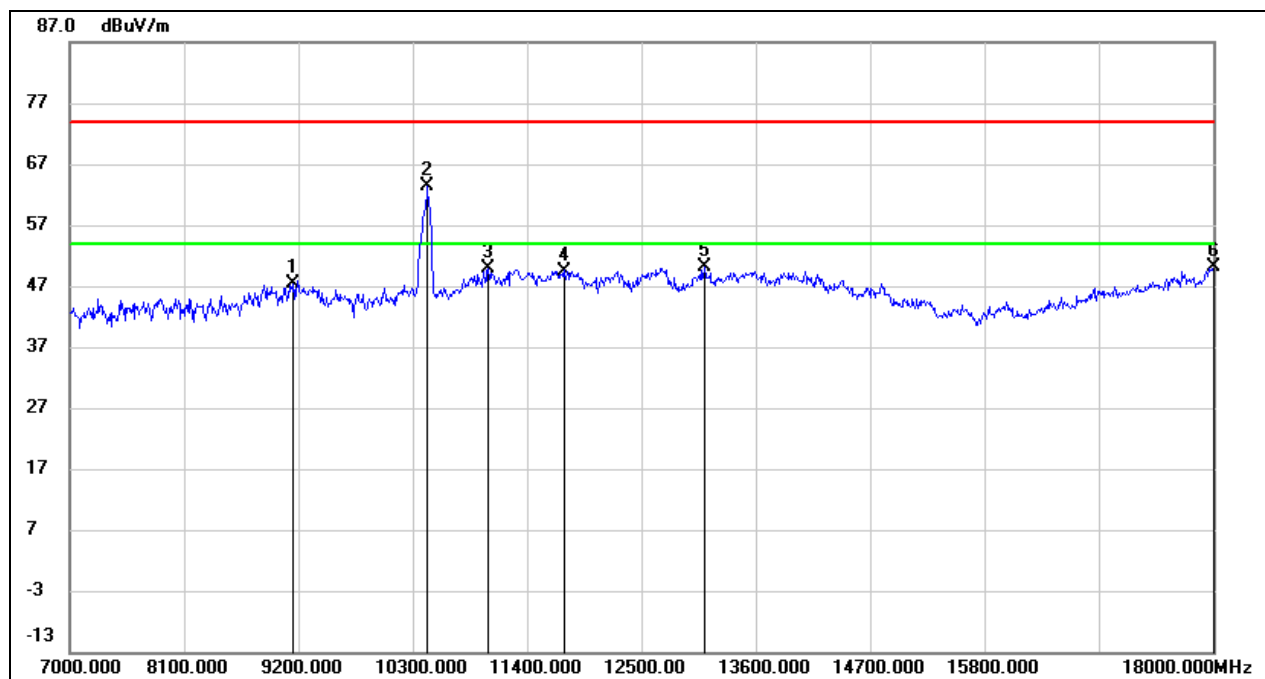


Test Mode:	802.11n HT40	Frequency(MHz):	5795
Polarity:	Vertical	Test Voltage:	DC 12 V



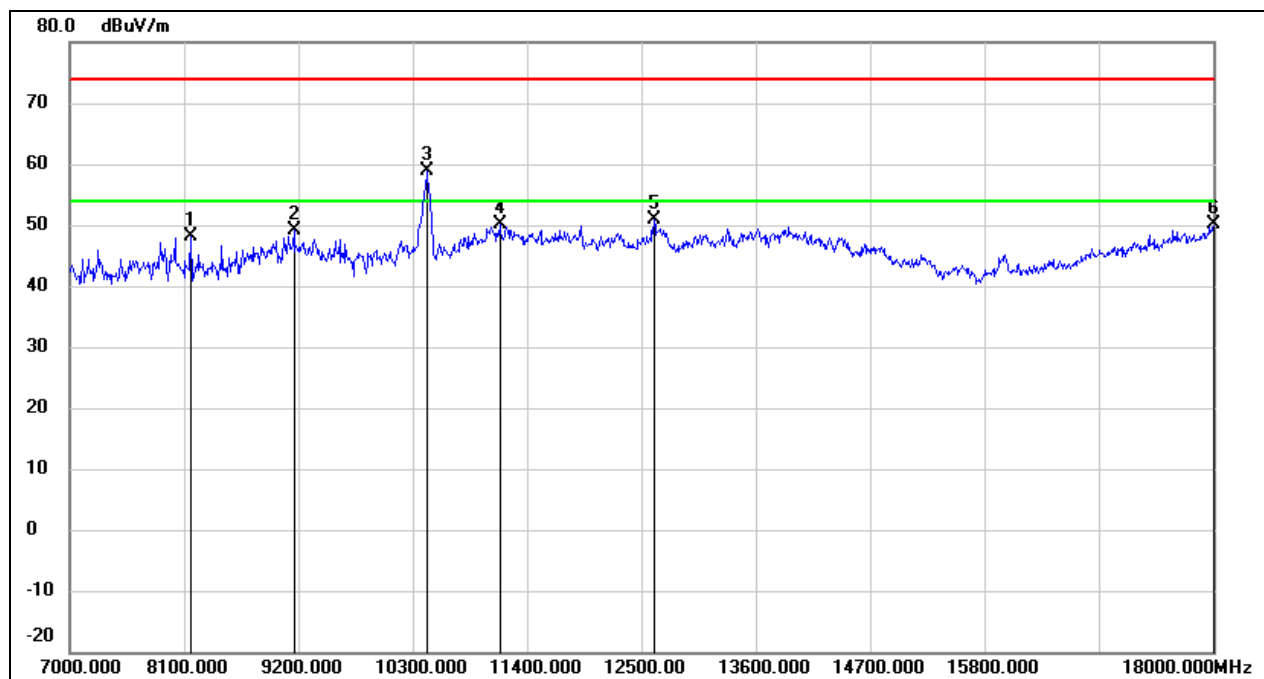
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8166.000	41.82	6.58	48.40	74.00	-25.60	peak
2	9057.000	39.17	10.38	49.55	74.00	-24.45	peak
3	11587.000	42.31	16.93	59.24	74.00	-14.76	peak
4	11587.000	33.38	16.93	50.31	54.00	-3.69	AVG
5	12500.000	32.99	17.83	50.82	74.00	-23.18	peak
6	13864.000	29.19	21.53	50.72	74.00	-23.28	peak
7	17934.000	24.31	25.67	49.98	74.00	-24.02	peak

Test Mode:	802.11ac VHT80	Frequency(MHz):	5210
Polarity:	Horizontal	Test Voltage:	DC 12 V



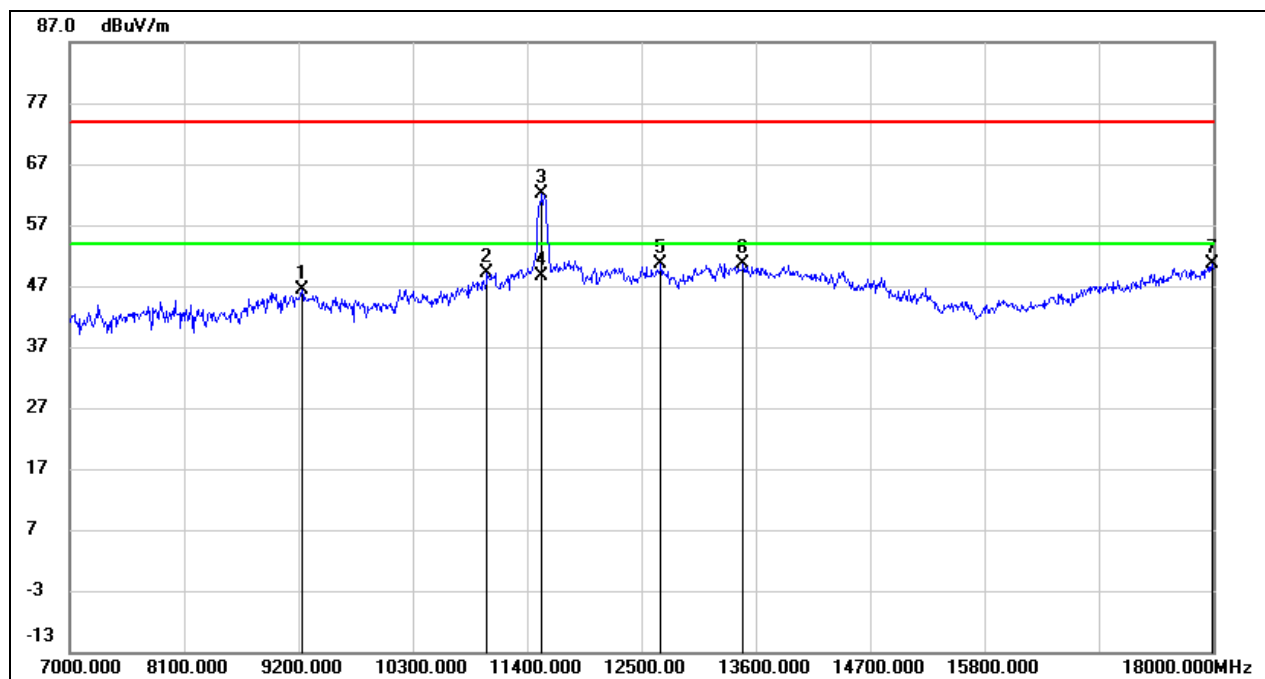
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9145.000	36.86	10.43	47.29	74.00	-26.71	peak
2*	10443.000	50.72	12.70	63.42	68.20	-4.78	peak
3	11026.000	34.96	14.82	49.78	74.00	-24.22	peak
4	11752.000	32.26	17.24	49.50	74.00	-24.50	peak
5	13105.000	31.10	18.91	50.01	74.00	-23.99	peak
6	18000.000	24.06	26.12	50.18	74.00	-23.82	peak

Test Mode:	802.11ac VHT80	Frequency(MHz):	5210
Polarity:	Vertical	Test Voltage:	DC 12 V



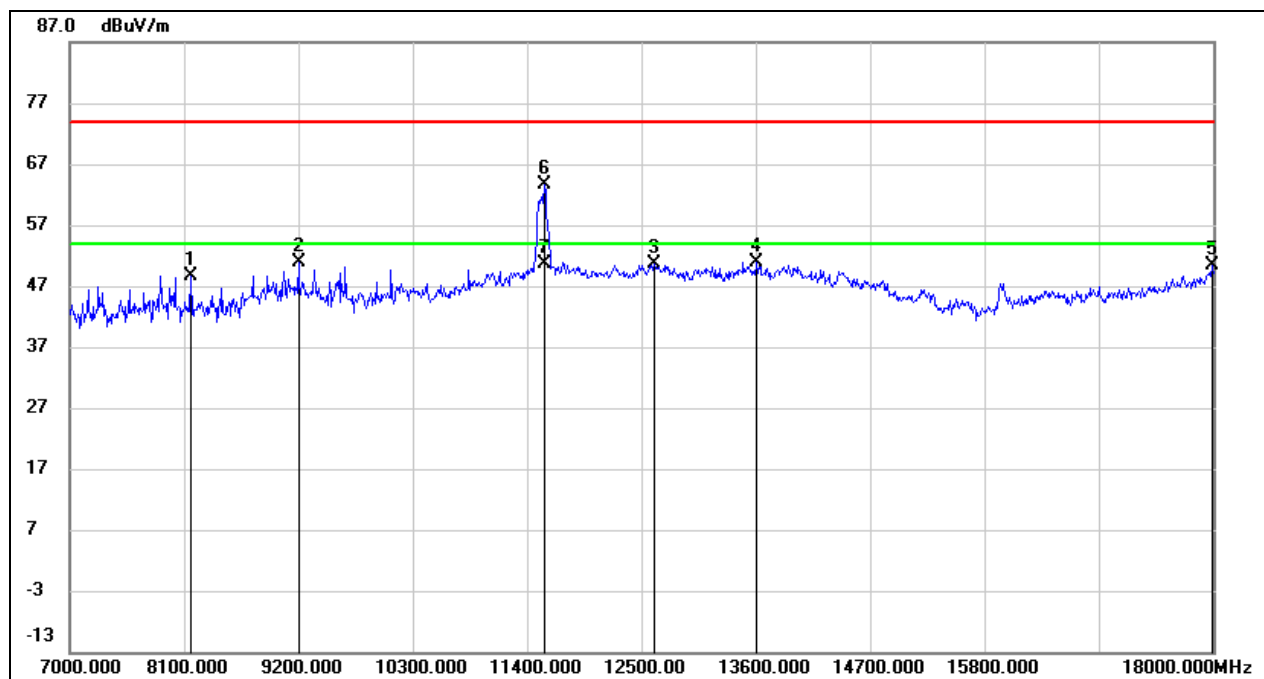
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8166.000	41.51	6.58	48.09	74.00	-25.91	peak
2	9156.000	38.67	10.44	49.11	74.00	-24.89	peak
3*	10432.000	46.20	12.67	58.87	68.20	-9.33	peak
4	11136.000	34.77	15.27	50.04	74.00	-23.96	peak
5	12621.000	32.90	17.98	50.88	74.00	-23.12	peak
6	18000.000	23.90	26.12	50.02	74.00	-23.98	peak

Test Mode:	802.11ac VHT80	Frequency(MHz):	5775
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9233.000	35.79	10.48	46.27	74.00	-27.73	peak
2	11015.000	34.37	14.79	49.16	74.00	-24.84	peak
3	11543.000	45.18	16.84	62.02	74.00	-11.98	peak
4	11543.000	31.79	16.84	48.63	54.00	-5.37	AVG
5	12687.000	32.50	18.05	50.55	74.00	-23.45	peak
6	13479.000	30.01	20.55	50.56	74.00	-23.44	peak
7	17989.000	24.70	26.04	50.74	74.00	-23.26	peak

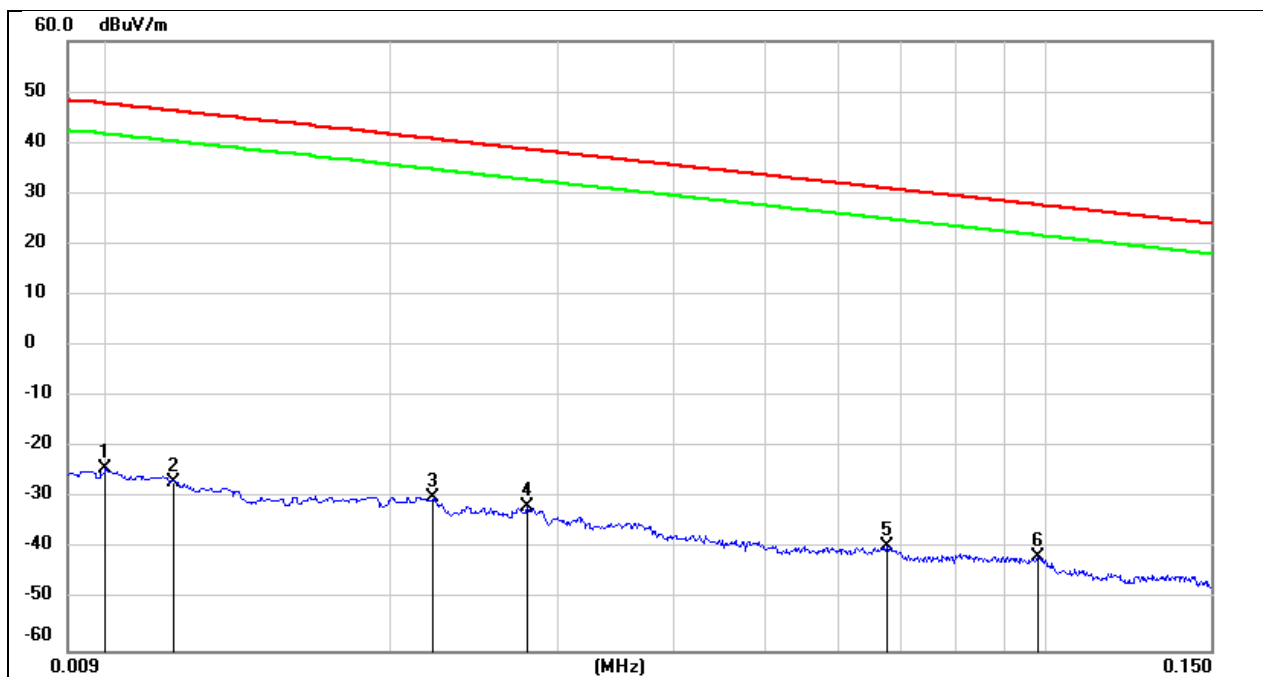
Test Mode:	802.11ac VHT80	Frequency(MHz):	5775
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8166.000	42.17	6.58	48.75	74.00	-25.25	peak
2	9200.000	40.45	10.46	50.91	74.00	-23.09	peak
3	12621.000	32.72	17.98	50.70	74.00	-23.30	peak
4	13611.000	29.89	20.92	50.81	74.00	-23.19	peak
5	17989.000	24.25	26.04	50.29	74.00	-23.71	peak
6	11565.000	46.70	16.89	63.59	74.00	-10.41	peak
7	11565.000	33.64	16.89	50.53	54.00	-3.47	AVG

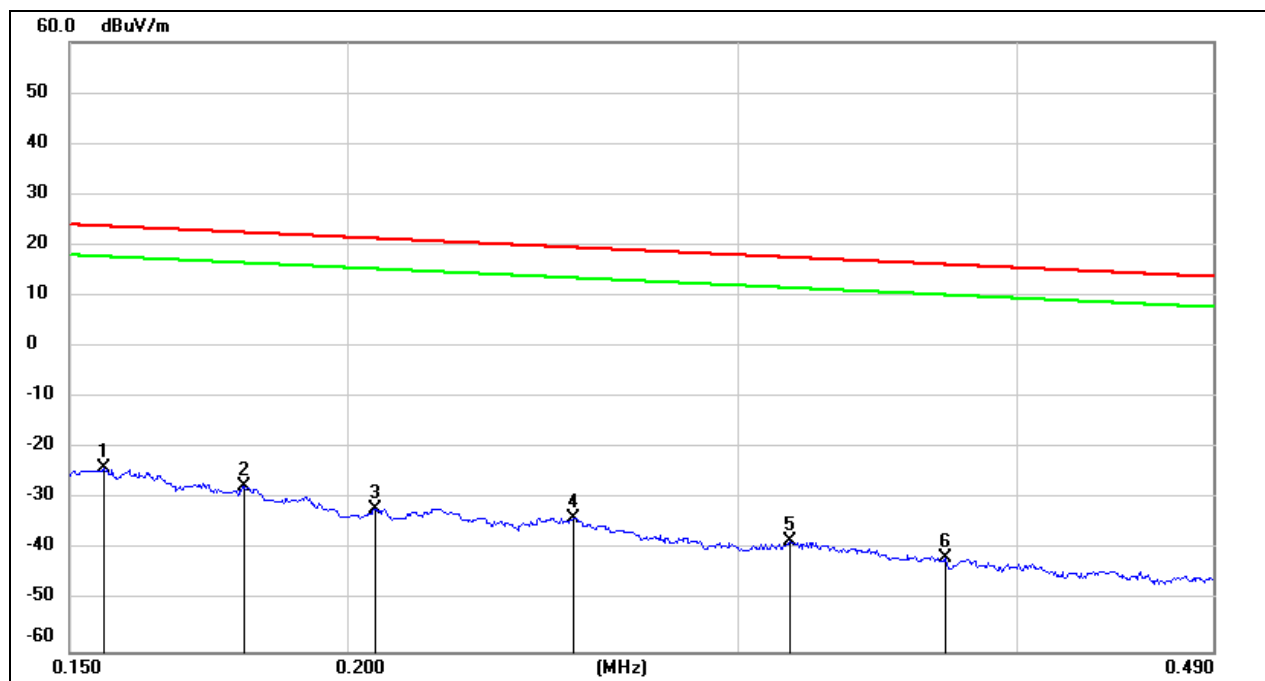
## 8.4. SPURIOUS EMISSIONS(9 KHZ~30 MHZ)

Test Mode:	802.11a20	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



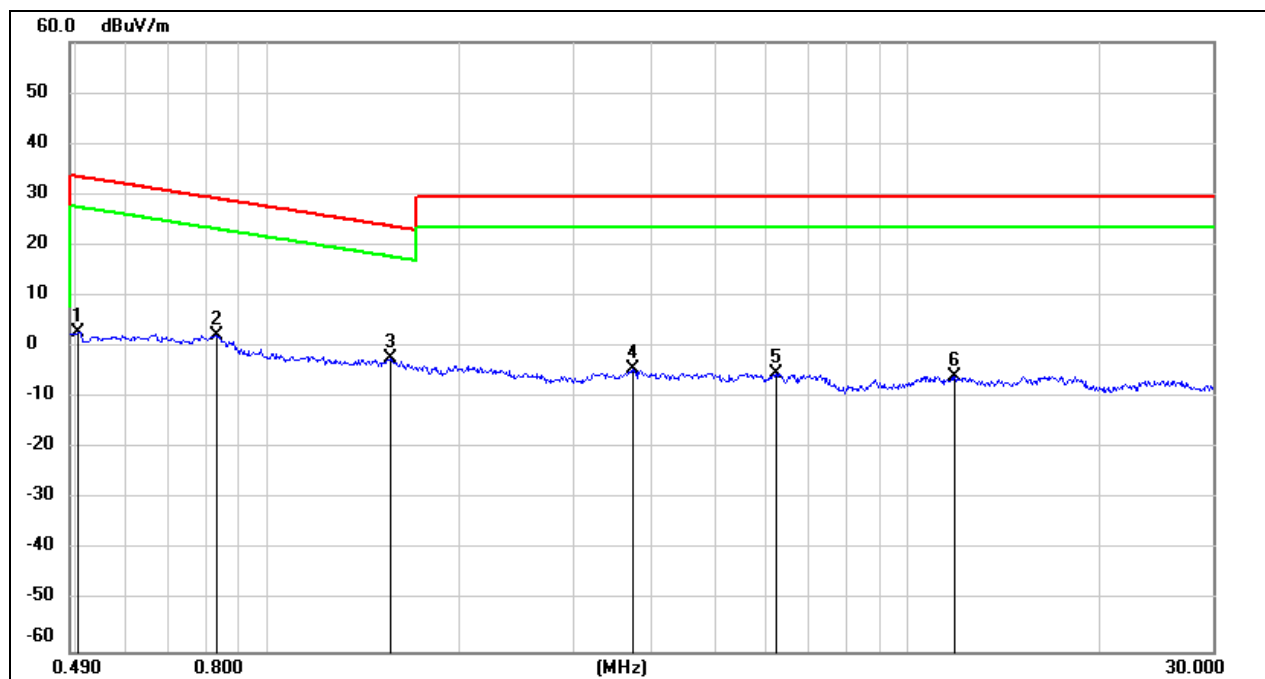
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.0100	77.22	-101.40	-24.18	47.60	-75.68	-3.90	-71.78	peak
2	0.0117	74.48	-101.39	-26.91	46.24	-78.41	-5.26	-73.15	peak
3	0.0221	71.63	-101.35	-29.72	40.71	-81.22	-10.79	-70.43	peak
4	0.0279	69.67	-101.38	-31.71	38.69	-83.21	-12.81	-70.40	peak
5	0.0675	62.14	-101.56	-39.42	31.02	-90.92	-20.48	-70.44	peak
6	0.0981	60.27	-101.78	-41.51	27.77	-93.01	-23.73	-69.28	peak

Test Mode:	802.11a20	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.1554	77.77	-101.65	-23.88	23.77	-75.38	-27.73	-47.65	peak
2	0.1800	74.15	-101.68	-27.53	22.50	-79.03	-29.00	-50.03	peak
3	0.2058	69.76	-101.73	-31.97	21.33	-83.47	-30.17	-53.30	peak
4	0.2530	68.14	-101.80	-33.66	19.54	-85.16	-31.96	-53.20	peak
5	0.3163	63.70	-101.87	-38.17	17.60	-89.67	-33.90	-55.77	peak
6	0.3714	60.28	-101.93	-41.65	16.20	-93.15	-35.30	-57.85	peak

Test Mode:	802.11a20	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V

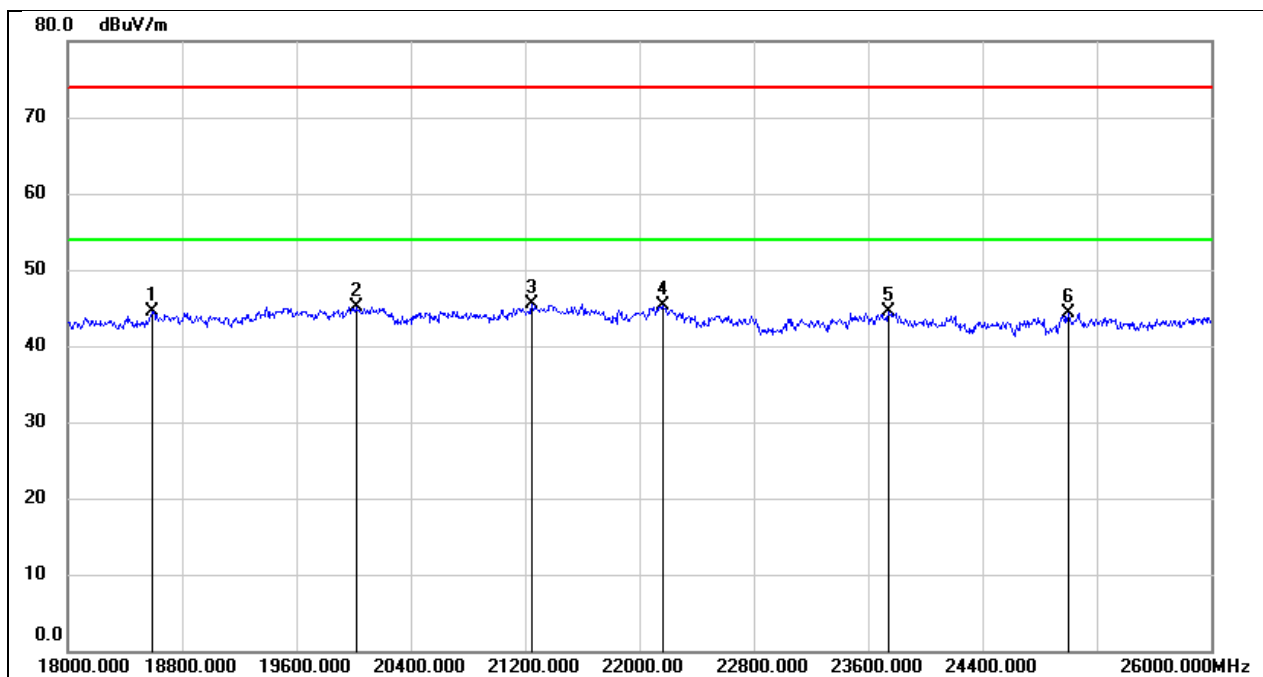


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.5039	64.93	-62.07	2.86	33.56	-48.64	-17.94	-30.70	peak
2	0.8296	64.44	-62.17	2.27	29.23	-49.23	-22.27	-26.96	peak
3	1.5564	59.68	-62.02	-2.34	23.76	-53.84	-27.74	-26.10	peak
4	3.7100	57.20	-61.41	-4.21	29.54	-55.71	-21.96	-33.75	peak
5	6.2445	56.13	-61.32	-5.19	29.54	-56.69	-21.96	-34.73	peak
6	11.8513	55.06	-60.88	-5.82	29.54	-57.32	-21.96	-35.36	peak



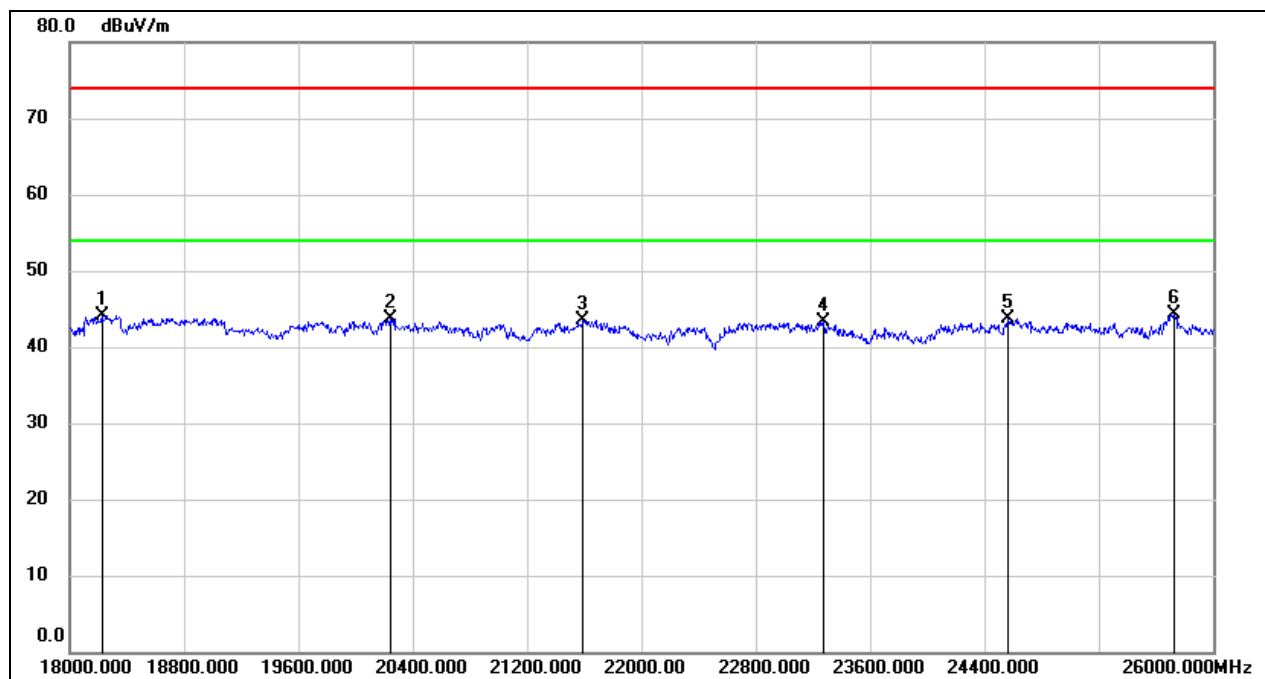
## 8.5. SPURIOUS EMISSIONS(18 GHZ~26 GHZ)

Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18592.000	49.75	-5.31	44.44	74.00	-29.56	peak
2	20016.000	50.56	-5.47	45.09	74.00	-28.91	peak
3	21248.000	50.29	-4.77	45.52	74.00	-28.48	peak
4	22160.000	49.58	-4.31	45.27	74.00	-28.73	peak
5	23744.000	47.65	-3.20	44.45	74.00	-29.55	peak
6	25000.000	46.36	-2.10	44.26	74.00	-29.74	peak

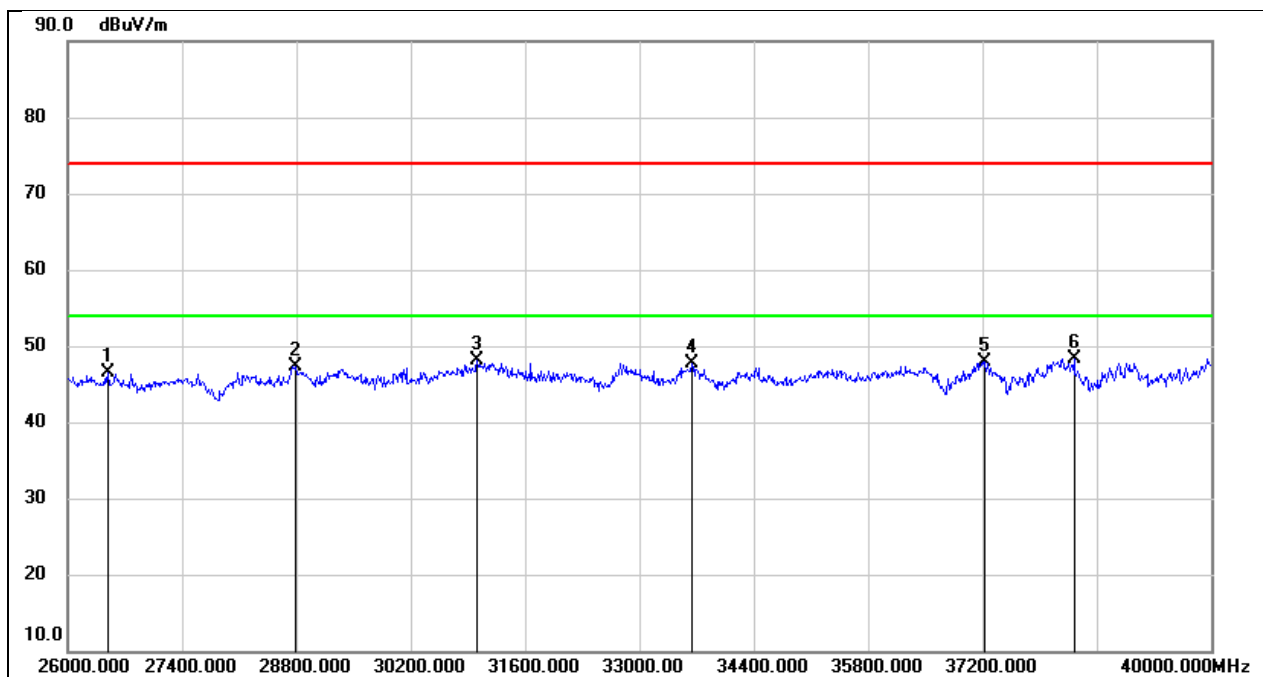
Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18224.000	49.58	-5.53	44.05	74.00	-29.95	peak
2	20240.000	49.32	-5.61	43.71	74.00	-30.29	peak
3	21592.000	48.14	-4.55	43.59	74.00	-30.41	peak
4	23272.000	46.68	-3.35	43.33	74.00	-30.67	peak
5	24568.000	46.10	-2.33	43.77	74.00	-30.23	peak
6	25728.000	45.11	-0.72	44.39	74.00	-29.61	peak

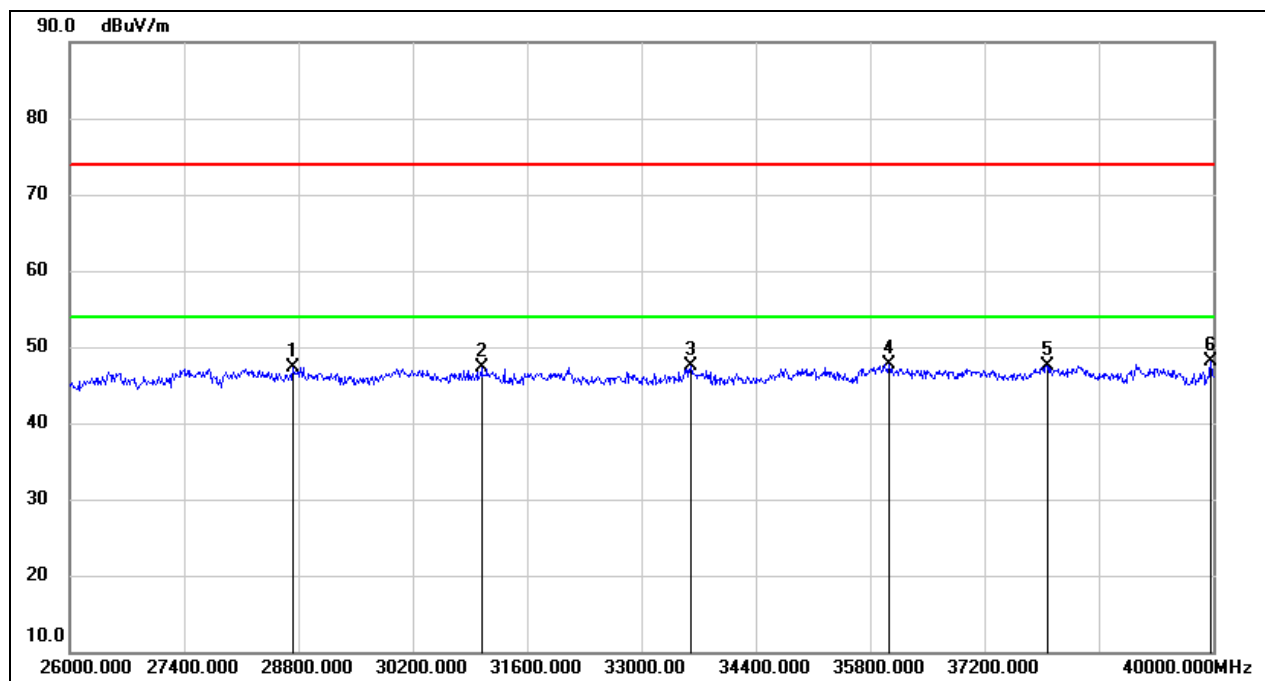
## 8.6. SPURIOUS EMISSIONS(26 GHZ~40 GHZ)

Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26490.000	51.29	-4.74	46.55	74.00	-27.45	peak
2	28786.000	47.99	-0.64	47.35	74.00	-26.65	peak
3	31012.000	48.83	-0.71	48.12	74.00	-25.88	peak
4	33644.000	47.31	0.42	47.73	74.00	-26.27	peak
5	37228.000	44.73	3.14	47.87	74.00	-26.13	peak
6	38320.000	44.56	3.77	48.33	74.00	-25.67	peak

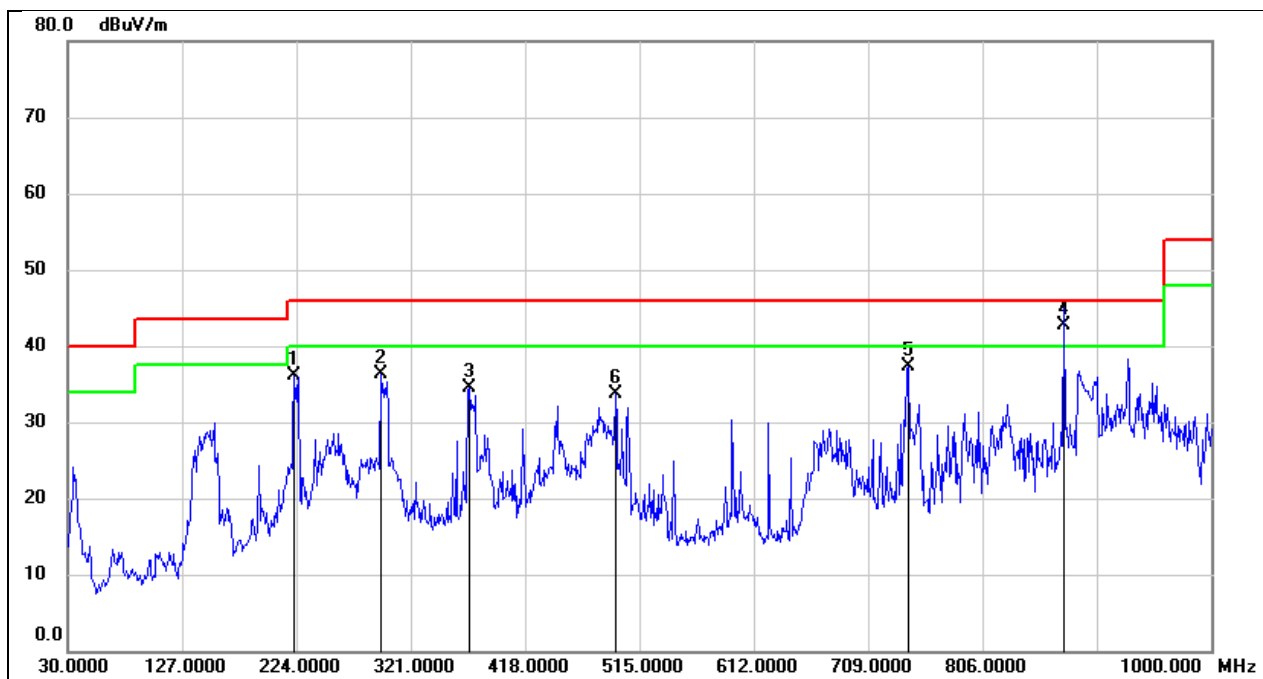
Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	28730.000	48.01	-0.69	47.32	74.00	-26.68	peak
2	31040.000	47.95	-0.72	47.23	74.00	-26.77	peak
3	33602.000	47.01	0.46	47.47	74.00	-26.53	peak
4	36038.000	43.86	3.92	47.78	74.00	-26.22	peak
5	37970.000	44.28	3.31	47.59	74.00	-26.41	peak
6	39972.000	42.95	5.13	48.08	74.00	-25.92	peak

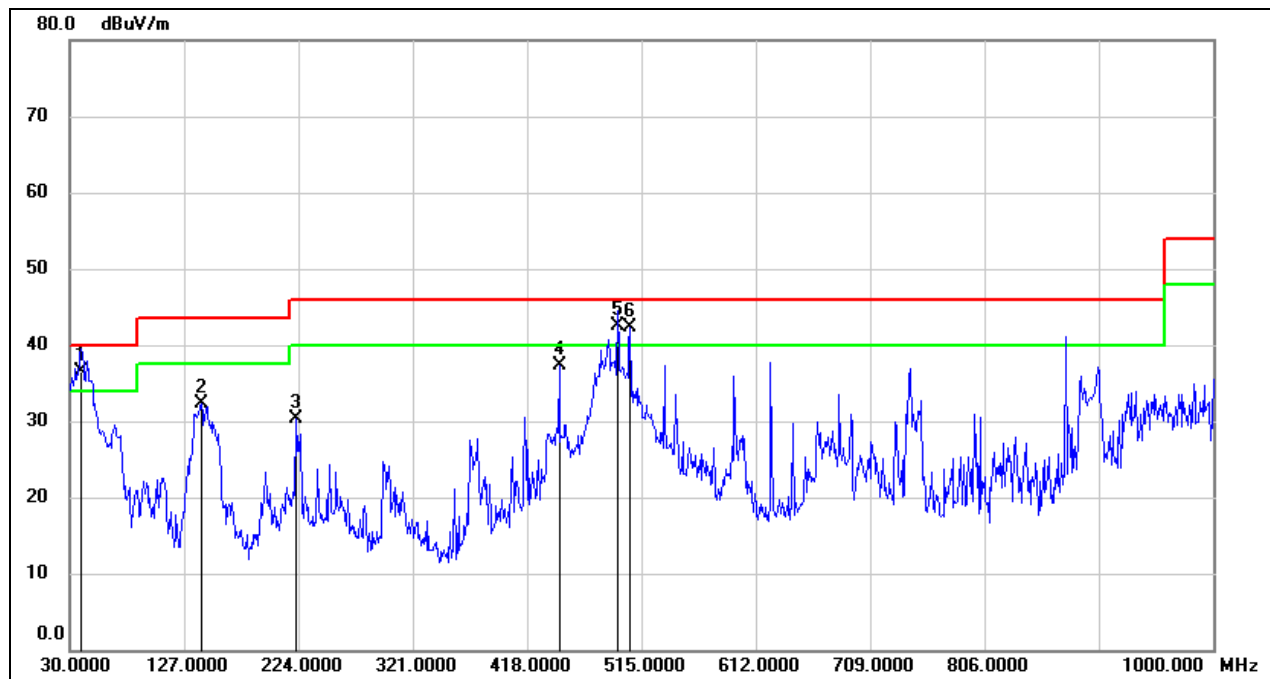
## 8.7. SPURIOUS EMISSIONS(30 MHZ~1 GHZ)

Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Horizontal	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	222.0600	53.63	-17.59	36.04	46.00	-9.96	QP
2	295.7800	51.80	-15.54	36.26	46.00	-9.74	QP
3	370.4700	47.44	-12.98	34.46	46.00	-11.54	QP
4	874.8700	48.12	-5.44	42.68	46.00	-3.32	QP
5	742.9500	44.43	-7.17	37.26	46.00	-8.74	QP
6	494.6300	44.57	-10.81	33.76	46.00	-12.24	QP

Test Mode:	802.11a 20	Frequency(MHz):	5180
Polarity:	Vertical	Test Voltage:	DC 12 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	39.7000	56.30	-19.84	36.46	40.00	-3.54	QP
2	141.5500	51.02	-18.78	32.24	43.50	-11.26	QP
3	222.0600	47.93	-17.59	30.34	46.00	-15.66	QP
4	445.1600	49.23	-11.91	37.32	46.00	-8.68	QP
5	494.6300	53.37	-10.81	42.56	46.00	-3.44	QP
6	505.3000	52.91	-10.64	42.27	46.00	-3.73	QP

## 9. AC POWER LINE CONDUCTED EMISSION

### LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

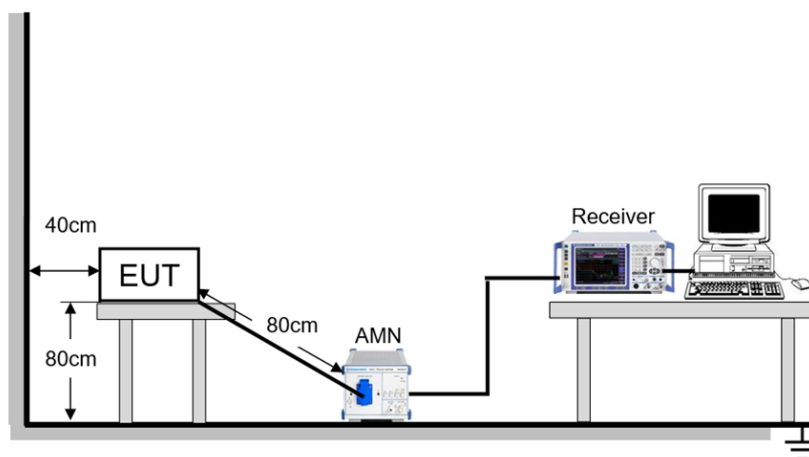
### TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

### TEST SETUP



**TEST ENVIRONMENT**

Temperature	25.2°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120 V, 60 H z

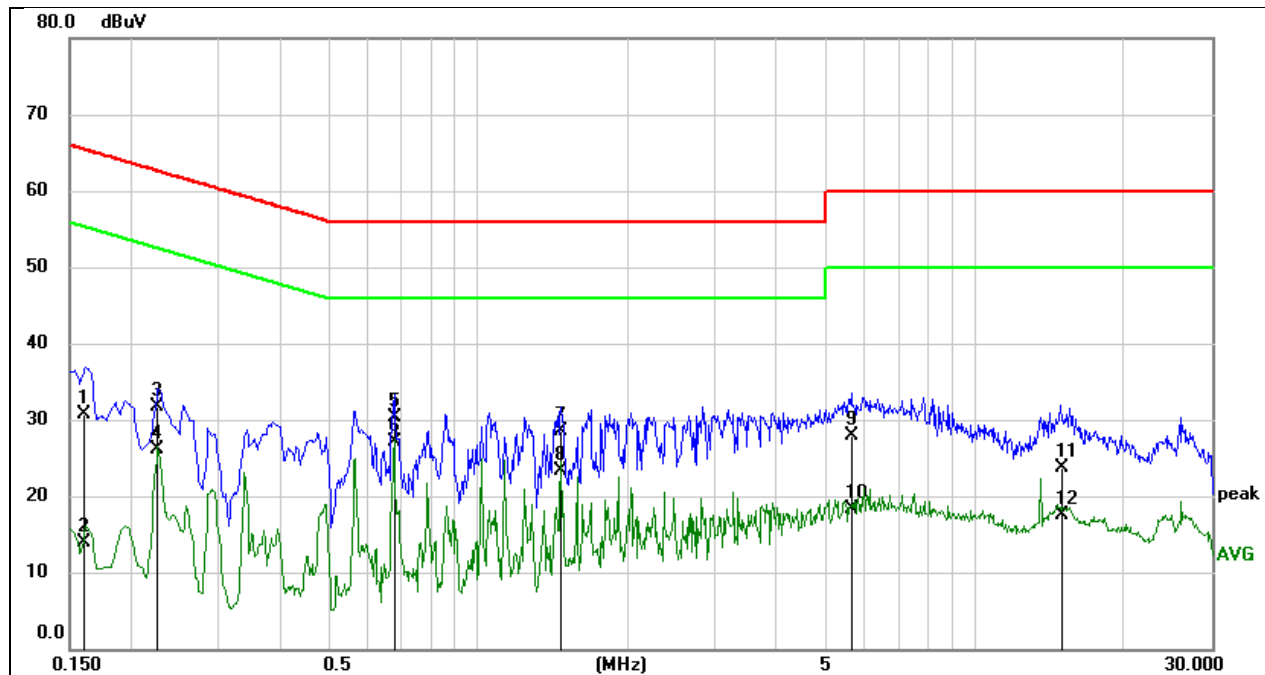
**TEST DATE / ENGINEER**

Test Date	August 1, 2023	Test By	Wite Chen
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## TEST RESULTS

Test Mode:	802.11a 20	Frequency(MHz):	5180
Line:	Line	Test Voltage:	AC 120 V, 60 H z



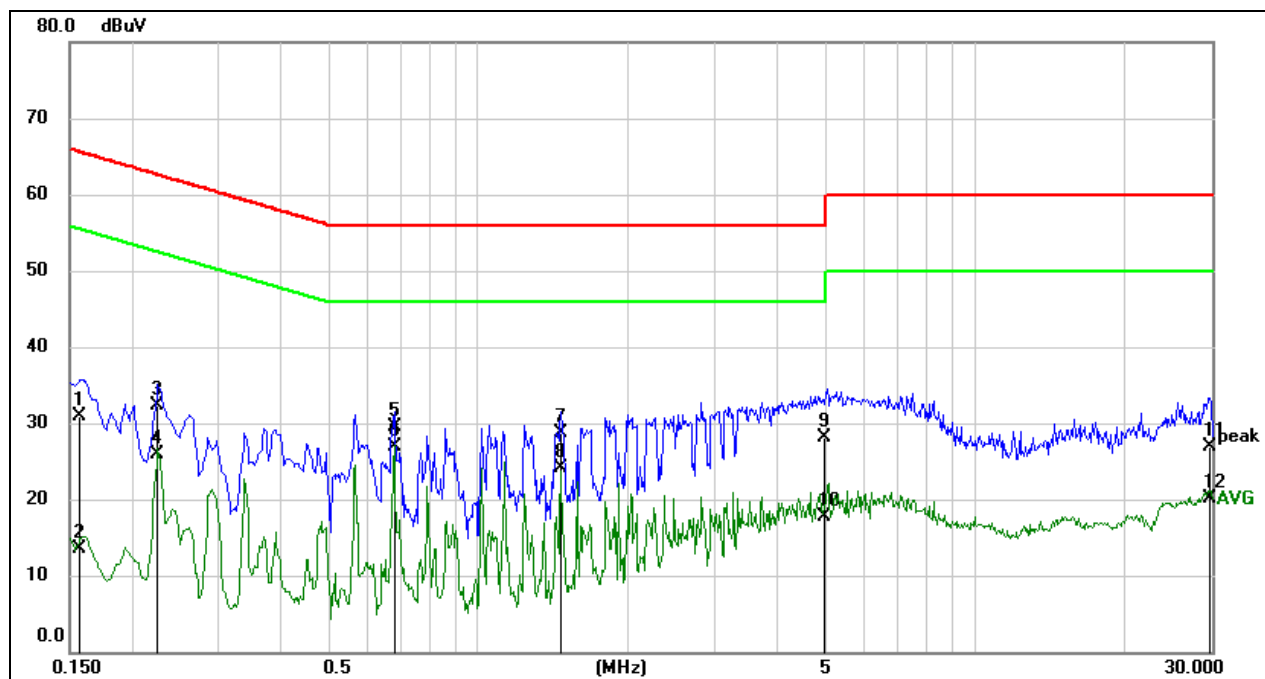
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1600	21.02	9.59	30.61	65.46	-34.85	QP
2	0.1600	4.28	9.59	13.87	55.46	-41.59	AVG
3	0.2256	22.13	9.59	31.72	62.61	-30.89	QP
4	0.2256	16.60	9.59	26.19	52.61	-26.42	AVG
5	0.6782	20.76	9.60	30.36	56.00	-25.64	QP
6	0.6782	17.56	9.60	27.16	46.00	-18.84	AVG
7	1.4694	18.95	9.62	28.57	56.00	-27.43	QP
8	1.4694	13.63	9.62	23.25	46.00	-22.75	AVG
9	5.6297	18.23	9.73	27.96	60.00	-32.04	QP
10	5.6297	8.48	9.73	18.21	50.00	-31.79	AVG
11	14.9559	13.88	9.76	23.64	60.00	-36.36	QP
12	14.9559	7.81	9.76	17.57	50.00	-32.43	AVG

Note:

1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

Test Mode:	802.11a 20	Frequency(MHz):	5180
Line:	Neutral	Test Voltage:	AC 120 V, 60 H z



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1561	21.35	9.50	30.85	65.67	-34.82	QP
2	0.1561	4.00	9.50	13.50	55.67	-42.17	AVG
3	0.2264	22.81	9.58	32.39	62.58	-30.19	QP
4	0.2264	16.33	9.58	25.91	52.58	-26.67	AVG
5	0.6769	19.91	9.50	29.41	56.00	-26.59	QP
6	0.6769	17.43	9.50	26.93	46.00	-19.07	AVG
7	1.4675	19.23	9.57	28.80	56.00	-27.20	QP
8	1.4675	14.47	9.57	24.04	46.00	-21.96	AVG
9	4.9899	18.51	9.62	28.13	56.00	-27.87	QP
10	4.9899	7.99	9.62	17.61	46.00	-28.39	AVG
11	29.7199	17.19	9.69	26.88	60.00	-33.12	QP
12	29.7199	10.37	9.69	20.06	50.00	-29.94	AVG

Note:

1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

## 10. ANTENNA REQUIREMENT

### REQUIREMENT

Please refer to FCC part 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC part 15.407(a)

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

### DESCRIPTION

Pass

## 11. TEST DATA

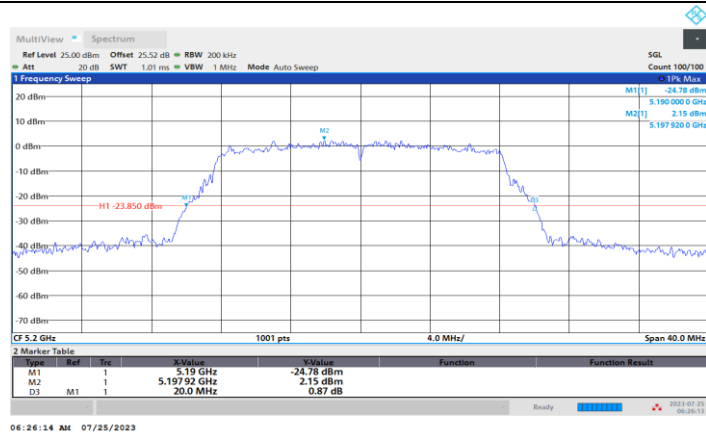
### 11.1. APPENDIX A1: EMISSION BANDWIDTH

#### 11.1.1. Test Result

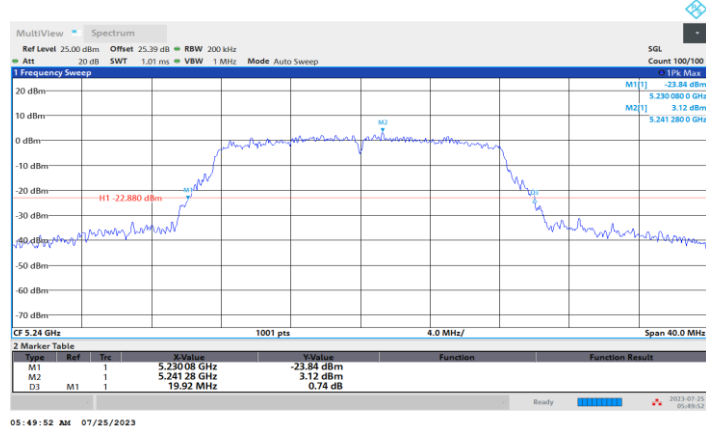
Test Mode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Verdict
11A	Ant1	5180	19.80	5170.04	5189.84	PASS
	Ant2	5180	19.56	5170.20	5189.76	PASS
	Ant1	5200	19.68	5190.20	5209.88	PASS
	Ant2	5200	20.00	5190.00	5210.00	PASS
	Ant1	5240	19.92	5230.08	5250.00	PASS
	Ant2	5240	20.12	5229.92	5250.04	PASS
	Ant1	5745	19.88	5735.12	5755.00	PASS
	Ant2	5745	20.00	5735.12	5755.12	PASS
	Ant1	5785	19.88	5775.04	5794.92	PASS
	Ant2	5785	20.04	5774.92	5794.96	PASS
	Ant1	5825	19.92	5815.12	5835.04	PASS
	Ant2	5825	20.80	5814.76	5835.56	PASS
11N20MIMO	Ant1	5180	20.12	5169.76	5189.88	PASS
	Ant2	5180	19.96	5170.04	5190.00	PASS
	Ant1	5200	20.00	5189.96	5209.96	PASS
	Ant2	5200	19.88	5190.04	5209.92	PASS
	Ant1	5240	20.08	5229.92	5250.00	PASS
	Ant2	5240	19.64	5230.20	5249.84	PASS
	Ant1	5745	20.16	5734.76	5754.92	PASS
	Ant2	5745	20.16	5735.12	5755.28	PASS
	Ant1	5785	20.08	5774.96	5795.04	PASS
	Ant2	5785	20.28	5774.80	5795.08	PASS
	Ant1	5825	19.92	5814.96	5834.88	PASS
	Ant2	5825	20.16	5814.96	5835.12	PASS
11N40MIMO	Ant1	5190	40.72	5169.60	5210.32	PASS
	Ant2	5190	40.72	5169.60	5210.32	PASS
	Ant1	5230	40.96	5209.28	5250.24	PASS
	Ant2	5230	40.24	5209.76	5250.00	PASS
	Ant1	5755	41.36	5734.44	5775.80	PASS
	Ant2	5755	40.64	5734.76	5775.40	PASS
	Ant1	5795	41.04	5774.20	5815.24	PASS
	Ant2	5795	41.28	5774.52	5815.80	PASS
11AC80MIMO	Ant1	5210	81.28	5169.68	5250.96	PASS
	Ant2	5210	80.80	5169.68	5250.48	PASS
	Ant1	5775	81.76	5734.20	5815.96	PASS
	Ant2	5775	81.12	5734.20	5815.32	PASS

## 11.1.2. Test Graphs

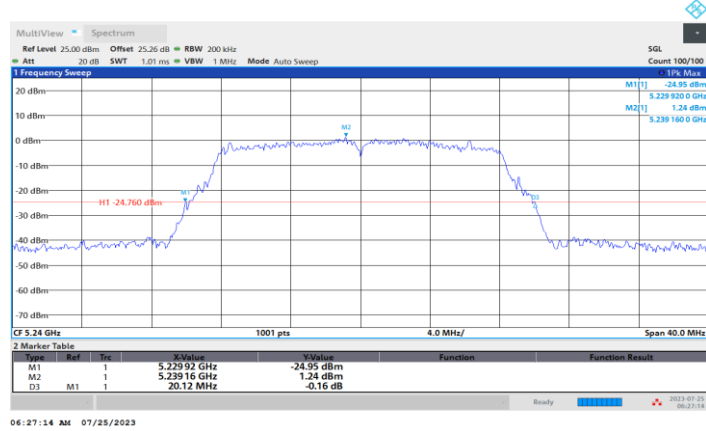




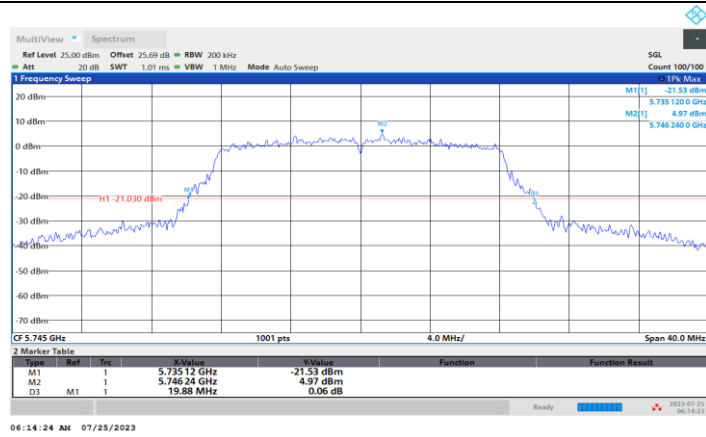
11A\_Ant2\_5200



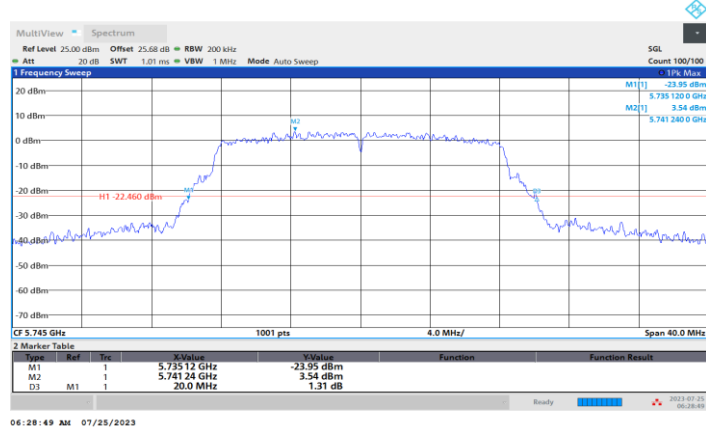
11A\_Ant1\_5240



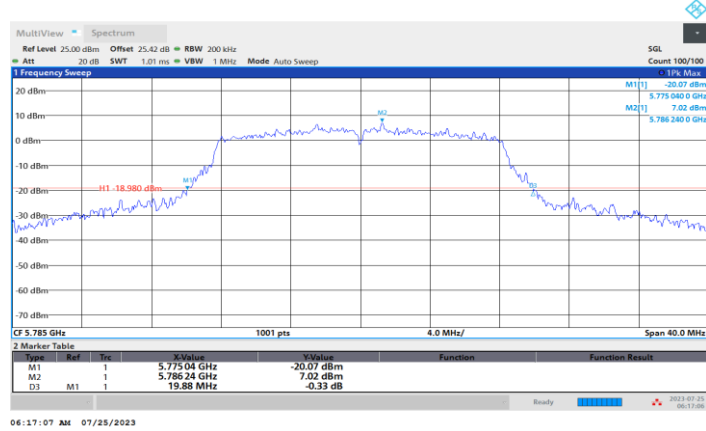
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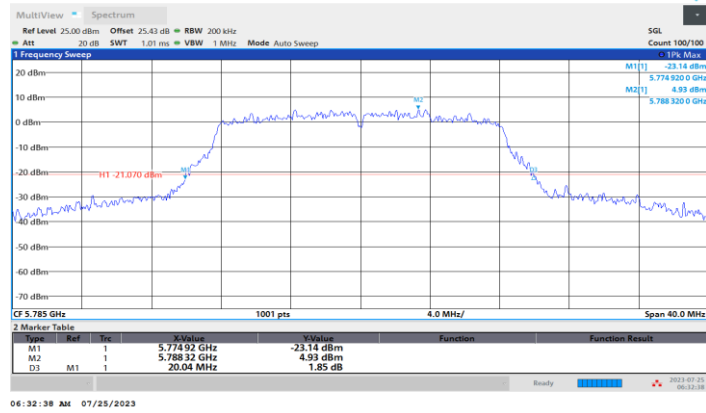
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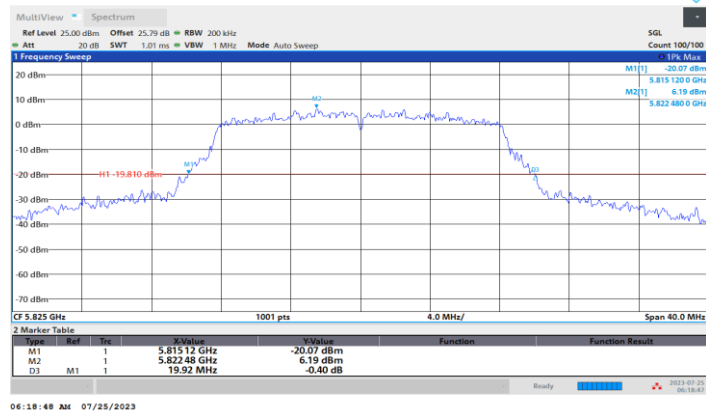
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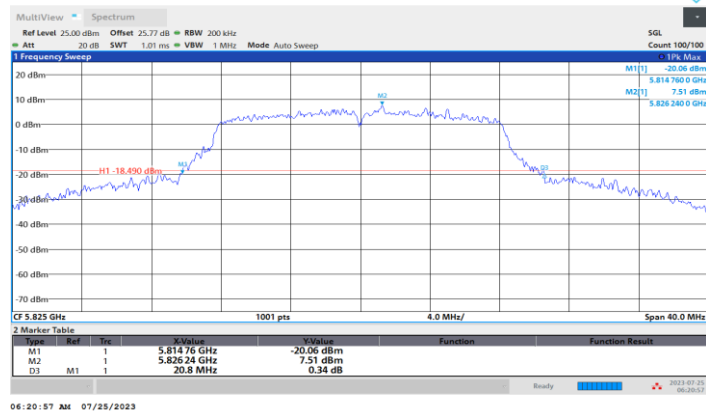
11A\_Ant1\_5785



11A\_Ant2\_5785

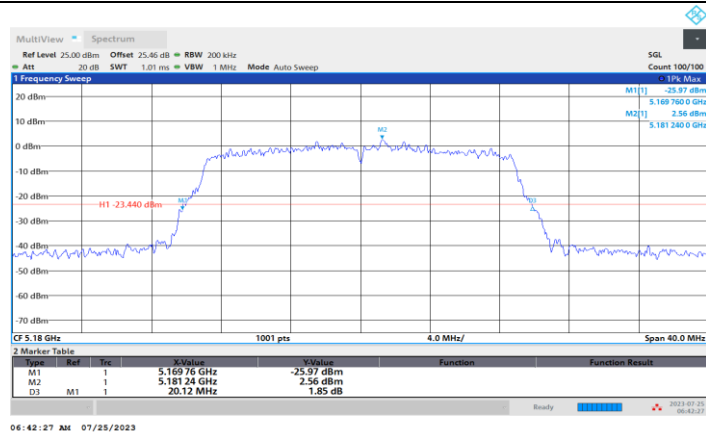


11A\_Ant1\_5825

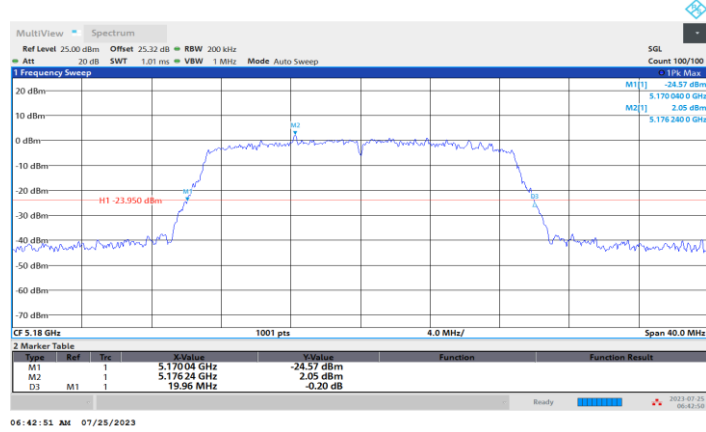


11A\_Ant2\_5825

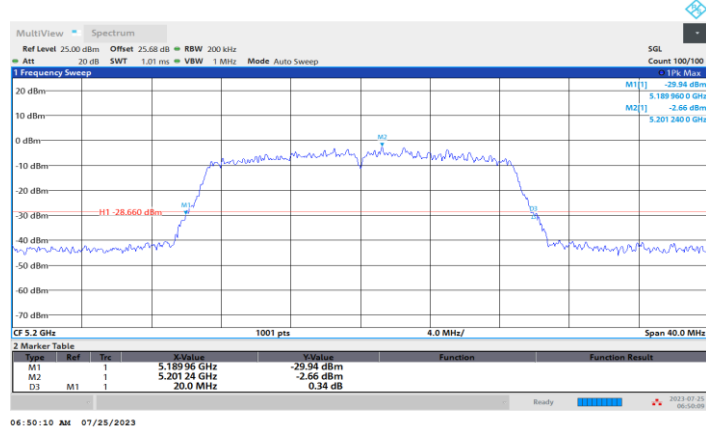




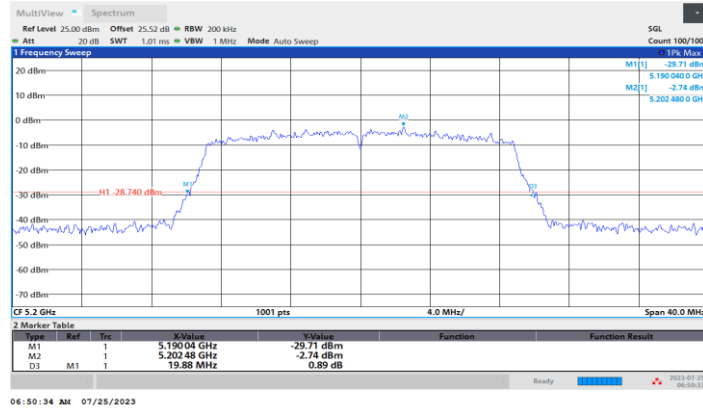
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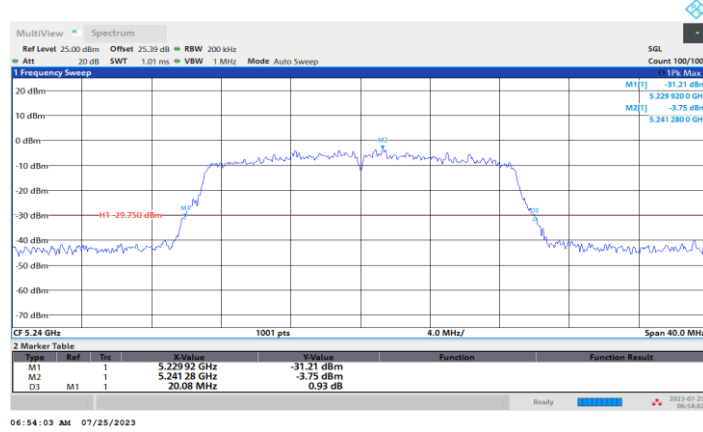
11N20MIMO\_Ant2\_5180



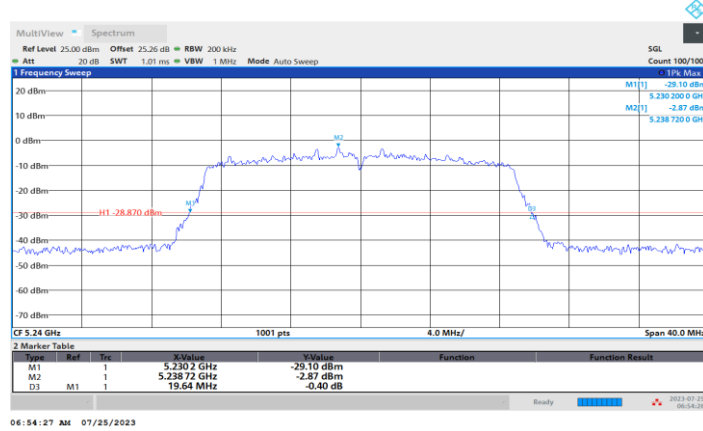
11N20MIMO\_Ant1\_5200



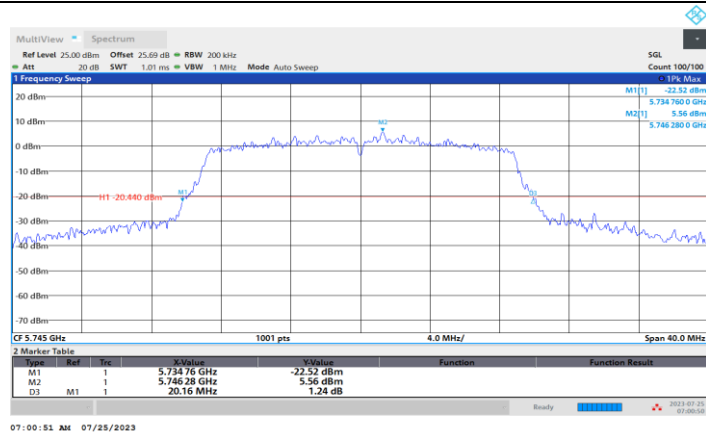
11N20MIMO\_Ant2\_5200



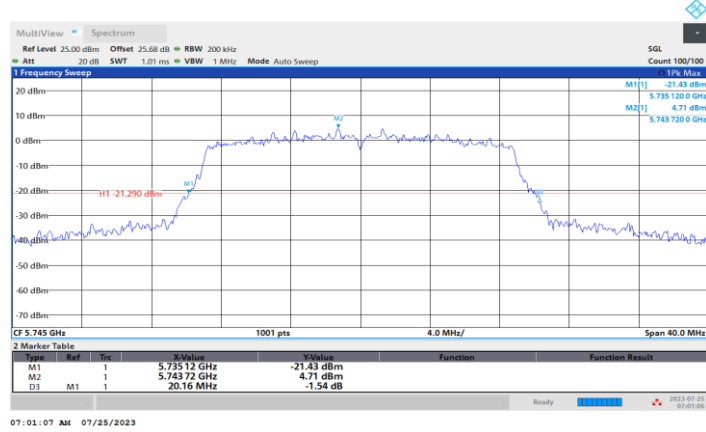
11N20MIMO\_Ant1\_5240



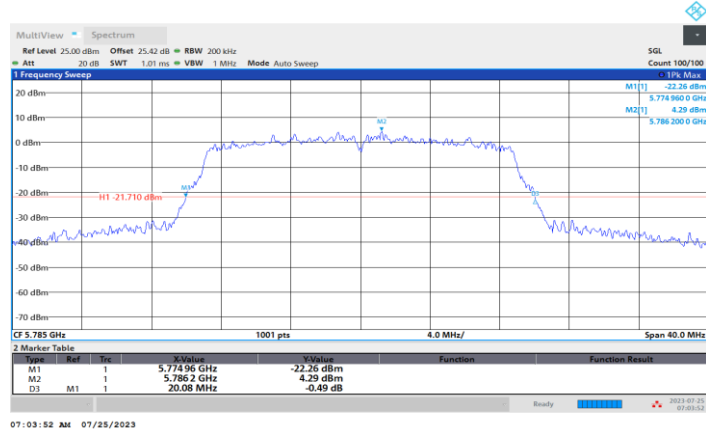
11N20MIMO\_Ant2\_5240



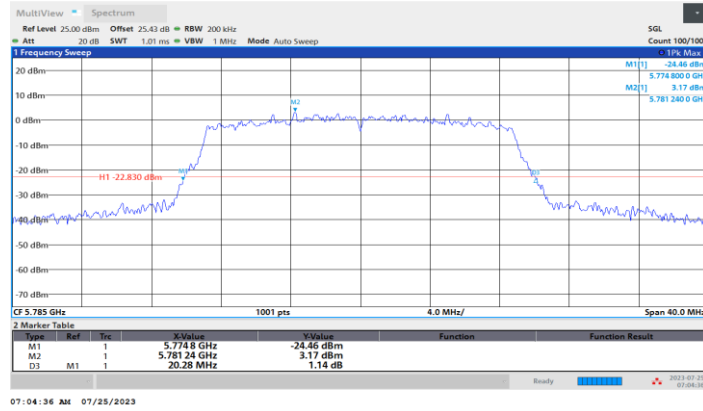
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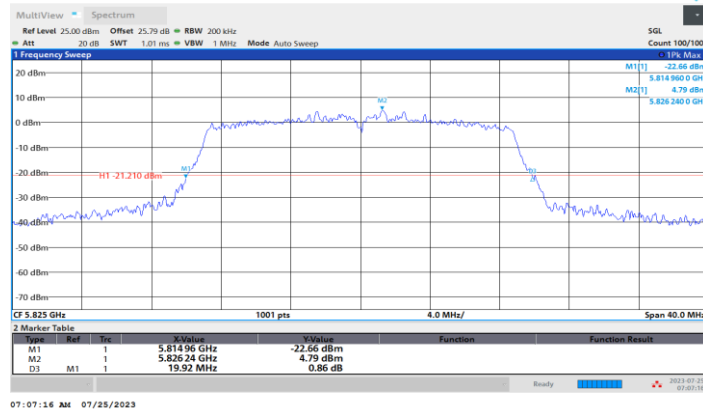
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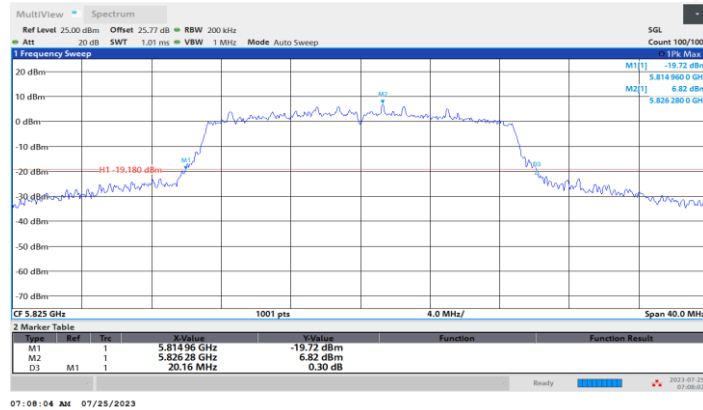
11N20MIMO\_Ant1\_5785



11N20MIMO\_Ant2\_5785



11N20MIMO\_Ant1\_5825



11N20MIMO\_Ant2\_5825