CFR 47 FCC PART 15 SUBPART E

TEST REPORT

For

Smart Home Camera

MODEL NUMBER: CS-H6, CS-H6 (4WF,4mm), CS-H6-R100-1J4WF

REPORT NUMBER: 4790559314-RF-6

ISSUE DATE: September 27, 2022

FCC ID:2APV2-CSH61J4

Prepared for

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Prepared by

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The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products.

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	09/27/2022	Initial Issue	

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Summary of Test Results

Test Item	Clause	Limit/Requirement	Result
6dB/26dB Emission Bandwidth	KDB 789033 D02 v02r01 Section C.1	FCC Part 15.407 (a)/(e)	Pass
Conducted Output Power	KDB 789033 D02 v02r01 Section E.3.a (Method PM)	FCC 15.407 (a)	Pass
Power Spectral Density	KDB 789033 D02 v02r01 Section F	FCC 15.407 (a)	Pass
AC Power Line Conducted Emission	ANSI C63.10-2013, Clause 6.2.	FCC 15.207	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	Pass
Frequency Stability	ANSI C63.10-2013, Clause 6.8.	FCC 15.407 (g)	Pass
Antenna Requirement	/	FCC Part 15.203/15.247 (c)	Pass

*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 > when <Accuracy Method> decision rule is applied.

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Hangzhou Ezviz Software Co., Ltd.
Address:	Room 302,Unit B,Building 2,399 Danfeng Road,Binjiang District,Hangzhou,Zhejiang

Manufacturer Information

Company Name:	Hangzhou Ezviz Software Co., Ltd.
Address:	Room 302,Unit B,Building 2,399 Danfeng Road,Binjiang District,Hangzhou,Zhejiang

EUT Information

EUT Name:	Smart Home Camera
Model:	CS-H6, CS-H6 (4WF,4mm), CS-H6-R100-1J4WF
Model Difference:	All the same except for the model name.
Brand:	EZVIZ
Sample Received Date:	September 9, 2022
Sample Status:	Normal
Sample ID:	5321647
Date of Tested:	September 12, 2022 ~ September 26, 2022

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART E	PASS

Prepared By:

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2. TEST METHODOLOGY

All tests were performed in accordance with the standard CFR 47 FCC PART 15 SUBPART E ISED RSS-247 ISSUE 2, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, KDB 662911 D01 Multiple Transmitter Output v02r01, CFR 47 FCC Part 2, CFR 47 FCC Part 15, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** 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 **ISED (Company No.: 21320)** 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. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** 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. 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

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.

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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 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Smart Home Camera
Model	CS-H6, CS-H6 (4WF,4mm), CS-H6-R100-1J4WF
Model Difference	All the same except for the model name.
Radio Technology	WLAN (IEEE 802.11a/n HT20/n HT40)
Operation Frequency	5 150 MHz to 5 250 MHz 5 725 MHz to 5 850 MHz
Modulation	IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK)
Ratings	DC 5 V, 2 A

5.2. CHANNEL LIST

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

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

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5.3. MAXIMUM OUTPUT POWER

UNII-1 BAND

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)	Max Average EIRP (dBm)
a	5150 ~ 5250	13.59	16.98
n HT20		13.31	16.70
n HT40		7.73	11.12

UNII-3 BAND

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)
a	5725 ~ 5850	13.67
n HT20		13.83
n HT40		15.33

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

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

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5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter	
Test Software	adb

Mode	Rate	Channel	Soft set value
			ANT1
11a	6M	36	10
		40	20
		48	10
11n HT20	MCS0	36	10
		40	10
		48	10
11n HT40	MCS0	38	53
		46	53

Mode	Rate	Channel	Soft set value
			ANT1
11a	6M	149	0
		157	0
		165	0
11n HT20	MCS0	149	0
		157	0
		165	0
11n HT40	MCS0	151	0
		159	0

5.6. WORST-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:

IEEE 802.11a / SISO – BPSK / 6 Mbps
IEEE 802.11n HT20 / SISO – BPSK / MCS0
IEEE 802.11n HT40 / SISO – BPSK / MCS0

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

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5.7. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna No.	Frequency (MHz)	Antenna Type	Maximum Antenna Gain (dBi)
1	5150MHz-5250MHz	PIFA	3.39

IEE Std. 802.11	Transmit and Receive Mode	Description
802.11a	☒1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
802.11a	☒1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
802.11a	☒1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.

Note: The value of the antenna gain was declared by customer

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5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	Lenovo	XIAOXIN 5000	/

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	/	/	3	/

ACCESSORIES

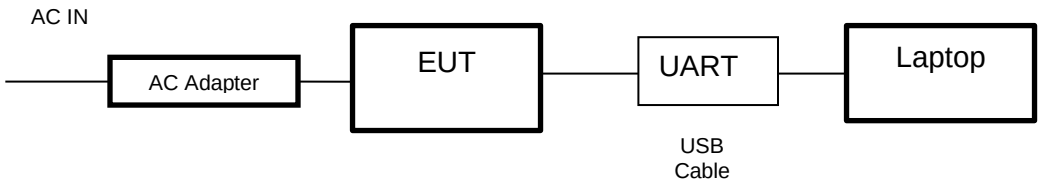
Item	Accessory	Brand Name	Model Name	Description
1	Adapter	/	DYS05200CQ-E	Input: AC 100-240 V, 50/60 Hz Output: DC 5 V, 2 A, 10 W

Note: The cable is provided by customer.

TEST SETUP

The EUT can work in engineering mode with a software through a Laptop.

SETUP DIAGRAM FOR TESTS



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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	Apr.02,2022	Apr.01,2023
Vector Signal Generator	R&S	SMBV100A	261637	Oct.30, 2021	Oct.29, 2022
Signal Generator	R&S	SMB100A	178553	Oct.30, 2021	Oct.29, 2022
Signal Analyzer	R&S	FSV40	101118	Oct.30, 2021	Oct.29, 2022

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.30, 2021	Oct.29, 2022
Wireless Connectivity Tester	R&S	CMW270	1201.0002N75-102	Sep.29, 2021	Sep.28, 2022
PXA Signal Analyzer	Keysight	N9030A	MY55410512	Oct.30, 2021	Oct.29, 2022
MXG Vector Signal Generator	Keysight	N5182B	MY56200284	Oct.30, 2021	Oct.29, 2022
MXG Vector Signal Generator	Keysight	N5172B	MY56200301	Oct.30, 2021	Oct.29, 2022
DC power supply	Keysight	E3642A	MY55159130	Oct.30, 2021	Oct.29, 2022
Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Nov.20,2020	Nov.19,2022

Software			
Description	Manufacturer	Name	Version
Tonsend SRD Test System	Tonsend	JS1120-3 RF Test System	2.6.77.0518

Conducted Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Oct.30, 2021	Oct.29, 2022
Two-Line V-Network	R&S	ENV216	101983	Oct.30, 2021	Oct.29, 2022

Software			
Description	Manufacturer	Name	Version
Test Software for Conducted Emissions	Farad	EZ-EMC	Ver. UL-3A1

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Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct.30, 2021	Oct.29, 2022
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024
Preamplifier	HP	8447D	2944A09099	Oct.30, 2021	Oct.29, 2022
EMI Measurement Receiver	R&S	ESR26	101377	Oct.30, 2021	Oct.29, 2022
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Oct.30, 2021	Oct.29, 2022
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-2	TRS-307-00003	Oct.31, 2021	Oct.30, 2022
Preamplifier	TDK	PA-02-3	TRS-308-00002	Oct.31, 2021	Oct.30, 2022
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.13, 2024
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Oct.31, 2021	Oct.30, 2022
Highpass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	Oct.31, 2021	Oct.30, 2022
Band Reject Filter	Wainwright	WRCJV12-5695-5725-5850-5880-40SS	4	Oct.31, 2021	Oct.30, 2022
Software					
Description			Manufacturer	Name	Version
Test Software for Radiated Emissions			Farad	EZ-EMC	Ver. UL-3A1

Other Instrument					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
Dual Channel Power Meter	Keysight	N1912A	MY55416024	Oct.30, 2021	Oct.29, 2022
Power Sensor	Keysight	USB Wideband Power Sensor	MY5100022	Oct.30, 2021	Oct.29, 2022

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7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

LIMITS

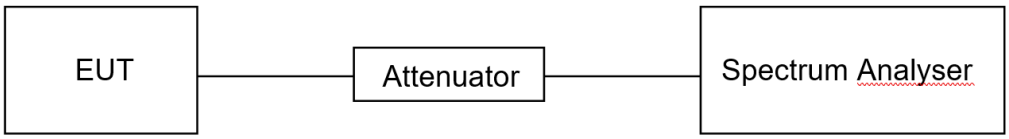
None; for reporting purposes only.

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 ≥ EBW if possible; otherwise, set RBW to the largest available value. Set VBW ≥ 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 ≤ 16.7 microseconds.)

TEST SETUP



TEST ENVIRONMENT

Temperature	24.6 °C	Relative Humidity	58%
Atmosphere Pressure	101 kPa	Test Voltage	5 V

TEST RESULTS

Please refer to section "Test Data" - Appendix B

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

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
26 dB Emission Bandwidth	For reporting purposes only.	5150 ~ 5250
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: ≥ 3*RBW For 26 dB Bandwidth: >3*RBW For 99 % Bandwidth: >3*RBW
Trace	Max hold
Sweep	Auto couple

a) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.
b) 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.

Calculation for 99 % Bandwidth of UNII-2C and UNII-3 Straddle Channel:

For Example: Fundamental Frequency: 5720 MHz

99 % OBW: 21.00 MHz

Turning Frequency: 5725 MHz

99 % Bandwidth of UNII-2C Band Portion = (5725-(5720-(21.00/2)) = 15.50 MHz

99 % Bandwidth of UNII-3 Band Portion = (5720+(21.00/2)-5725) = 5.50 MHz

Calculation for 26 dB Bandwidth of UNII-2C Straddle Channel:

For Example: Fundamental frequency: 5720 MHz

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26 dB BW: 20.00 MHz

FL: 5710.16 MHz

FH: 5730.16 MHz

Turning Frequency: 5725 MHz

26 dB Bandwidth of UNII-2C Band Portion = 5725-5710.16=14.84 MHz

Calculation for 6dB Bandwidth of UNII-3 Straddle Channel:

For Example: Fundamental frequency: 5720 MHz

6 dB BW: 16.44 MHz

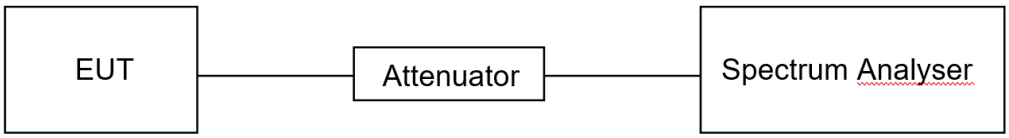
FL: 5711.76 MHz

FH: 5728.2 MHz

Turning Frequency: 5725 MHz

6 dB Bandwidth of UNII-3 band Portion = 5728.2-5725=3.2 MHz

TEST SETUP



TEST ENVIRONMENT

Temperature	24.6 °C	Relative Humidity	58%
Atmosphere Pressure	101 kPa	Test Voltage	5 V

TEST RESULTS

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

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7.3. CONDUCTED OUTPUT POWER

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	☐ Outdoor Access Point: 1 W (30 dBm) ☐ Indoor Access Point: 1 W (30 dBm) ☐ Fixed Point-To-Point Access Points: 1 W (30 dBm) ☒ Client Devices: 250 mW (24 dBm)	5150 ~ 5250
	Shall not exceed 1 Watt (30 dBm).	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 SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep):
(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
(ii) Set RBW = 1 MHz.
(iii) Set VBW ≥ 3 MHz.
(iv) Number of points in sweep ≥ 2 × span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
(v) Sweep time = auto.
(vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
(vii) If transmit duty cycle < 98 %, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”
(viii) Trace average at least 100 traces in power averaging (rms) mode.
(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

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

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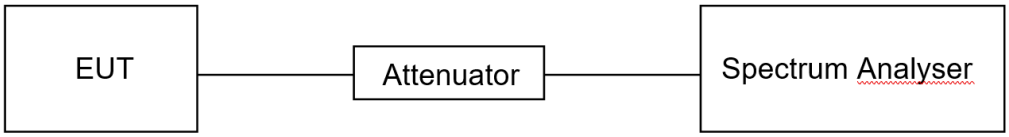
c. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in II.B.
(iii) Measure the average power 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	24.6 °C	Relative Humidity	58%
Atmosphere Pressure	101 kPa	Test Voltage	5 V

TEST RESULTS

Please refer to section "Test Data" - Appendix C

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7.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	☐ Outdoor Access Point: 17 dBm/MHz ☐ Indoor Access Point: 17 dBm/MHz ☐ Fixed Point-To-Point Access Points: 17 dBm/MHz ☒ Client Devices: 11 dBm/MHz	5150 ~ 5250
	30 dBm/500kHz	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	≥3 × 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	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

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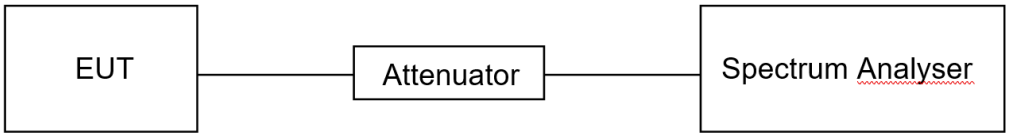
Allow trace to fully stabilize and Use the peak search function on the instrument to find the peak of the spectrum and record its value.
Add 10 log (1/x), where x is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.6 °C	Relative Humidity	58%
Atmosphere Pressure	101 kPa	Test Voltage	5 V

TEST RESULTS

Please refer to section "Test Data" - Appendix D

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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 -30 °C ~ 60 °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	≥3 × 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_N (Normal Temperature): 24.6 °C	T_L (Low Temperature): -30 °C
		T_H (High Temperature): 60 °C
Supply Voltage	V_N (Normal Voltage): DC 5 V	V_L (Low Voltage): DC 4.25 V
		V_H (High Voltage): DC 5.75 V

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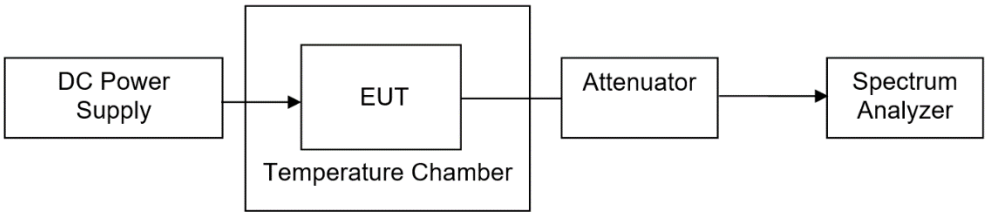
TEST SETUP



TEST RESULTS

Please refer to section "Test Data" - Appendix E

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8. RADIATED TEST RESULTS

LIMITS

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

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

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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
[1]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	([2])
13.36-13.41			

Note: [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6c

Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b) and ISED 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)
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.		

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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 377Ω. 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.

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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.

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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 7.6.ON TIME AND DUTY CYCLE.

Note: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

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For Restricted Bandedge:
Note:
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV 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. Both 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 (9 kHz ~ 30 MHz):
Note:
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV 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 (30 MHz ~ 1 GHz):
Note:
1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious Emission (1 GHz ~ 7 GHz):
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV 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.

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For Radiate Spurious Emission (7 GHz ~ 18 GHz):
Note:
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV 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.

For Radiate Spurious emission (18 GHz ~ 26 GHz):
Note:
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV 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 (26 GHz ~ 40 GHz):
Note:
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

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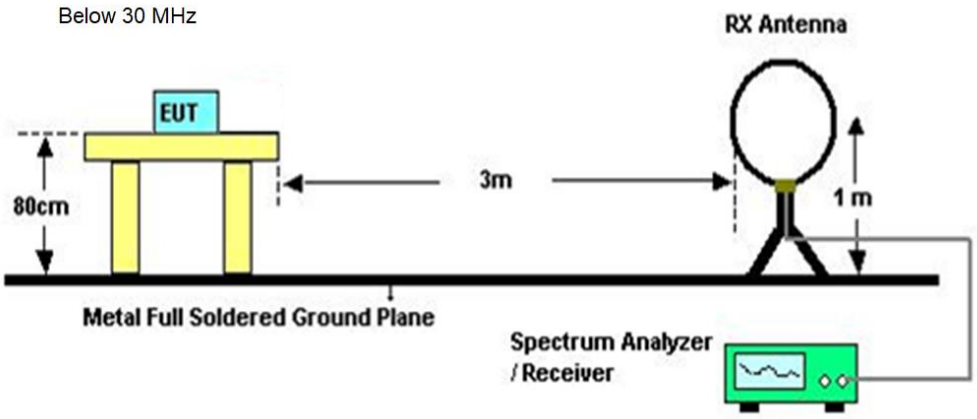
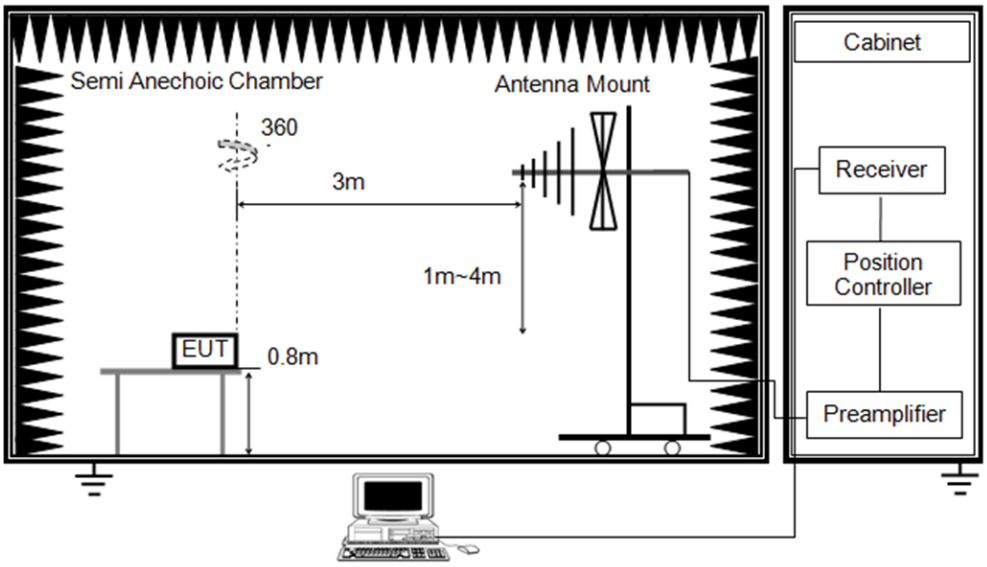
TEST SETUP

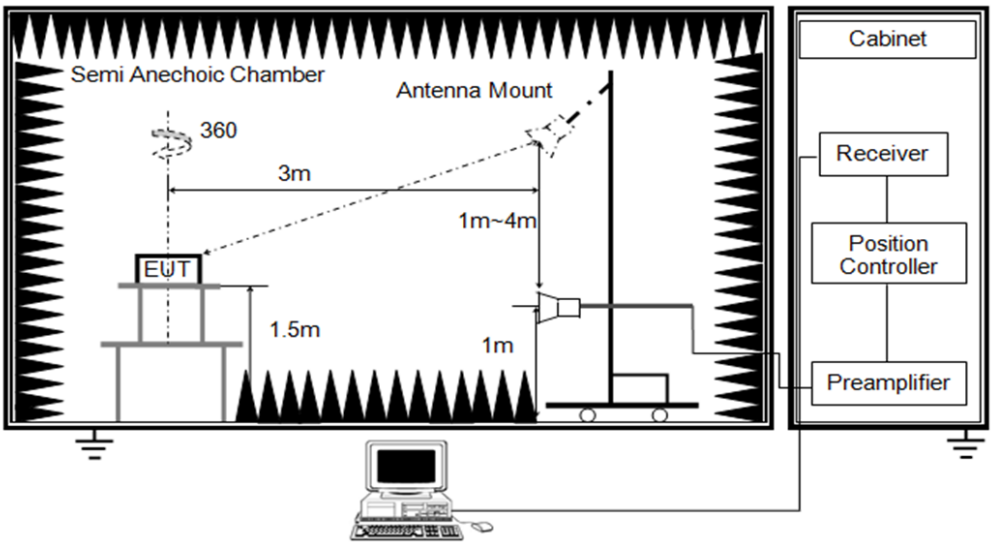
Below 30 MHz



Below 1 GHz and above 30 MHz



Above 1 GHz



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TEST ENVIRONMENT

Temperature	25.1 °C	Relative Humidity	58%
Atmosphere Pressure	101kPa	Test Voltage	DC 5 V

TEST RESULTS

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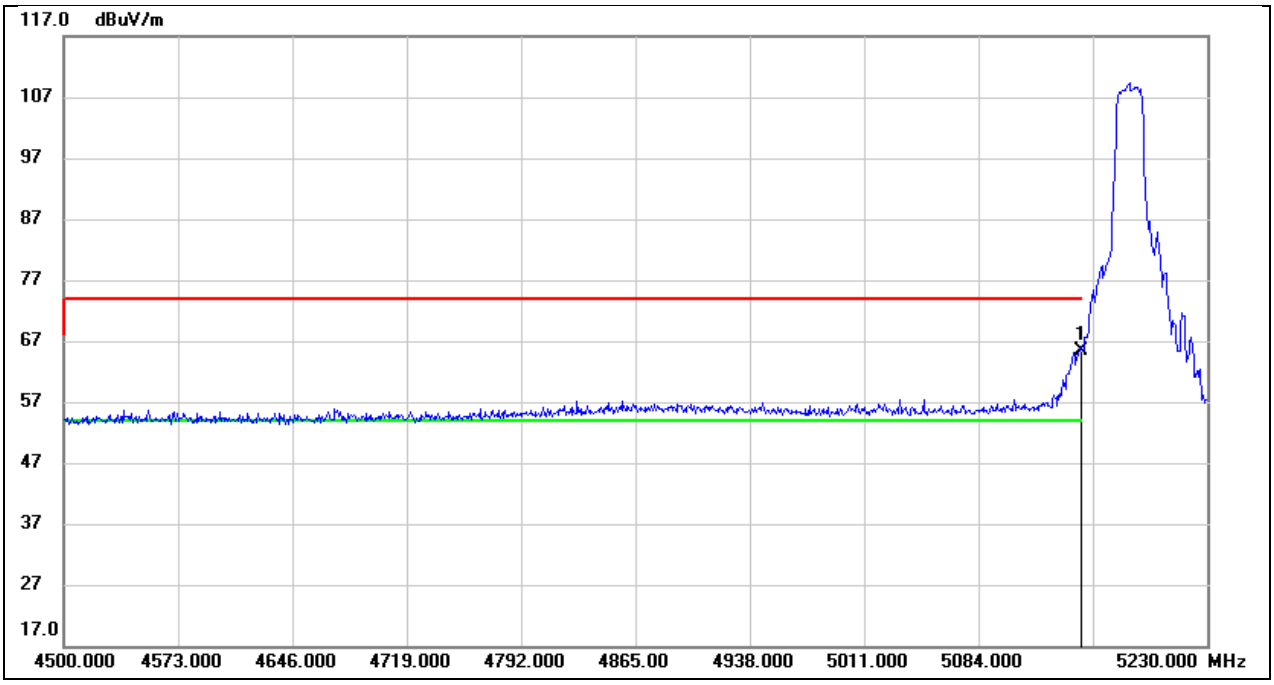
8.1. RESTRICTED BANDEDGE

Test Mode:	802.11a 20 Peak	Channel:	5180 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	25.18	40.27	65.45	74.00	-8.55	peak

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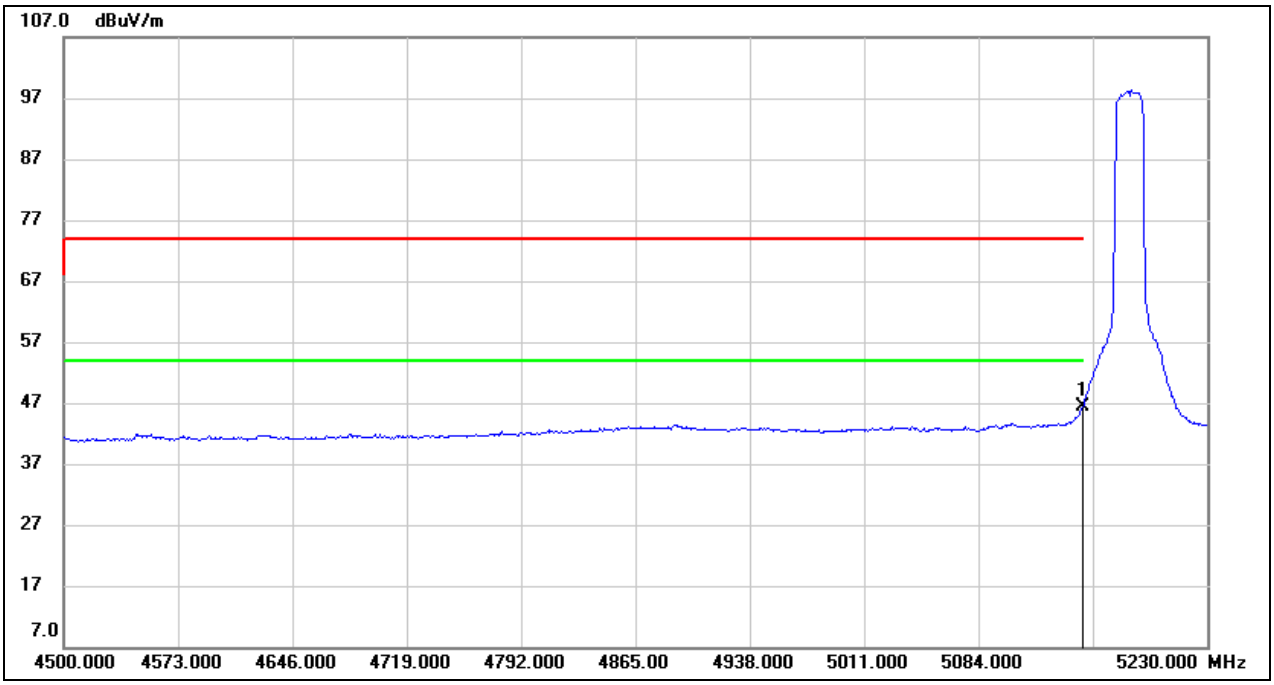
Test Mode:	802.11a 20 Average	Channel:	5180 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	6.07	40.27	46.34	54.00	-7.66	AVG

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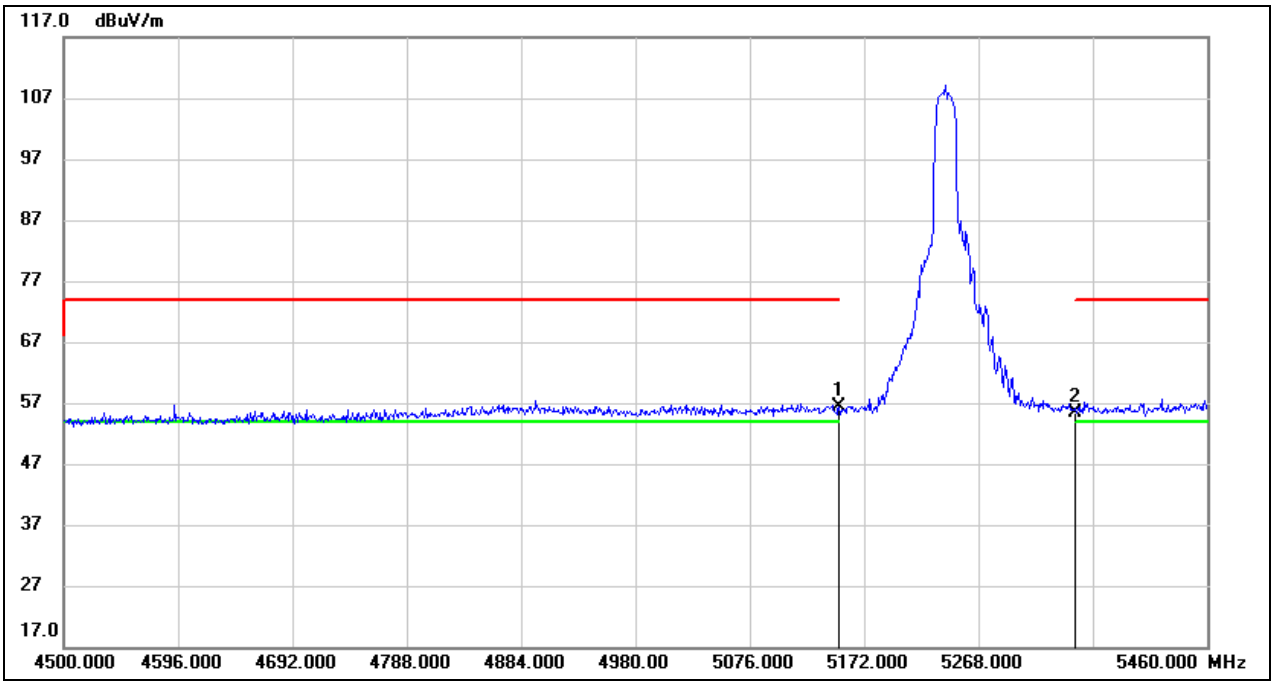
Test Mode:	802.11a 20 Peak	Channel:	5240 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	16.08	40.27	56.35	74.00	-17.65	peak
2	5350.000	14.82	40.49	55.31	74.00	-18.69	peak

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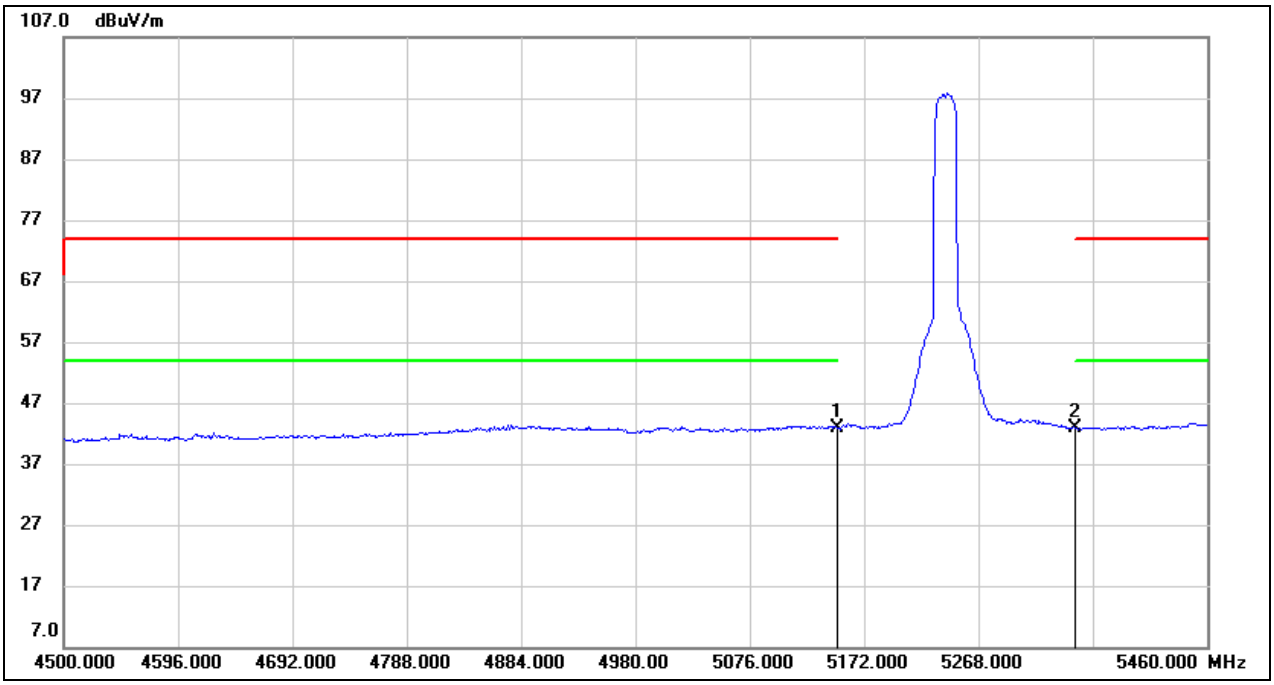
Test Mode:	802.11a 20 Average	Channel:	5240 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	2.49	40.27	42.76	54.00	-11.24	AVG
2	5350.000	2.32	40.49	42.81	54.00	-11.19	AVG

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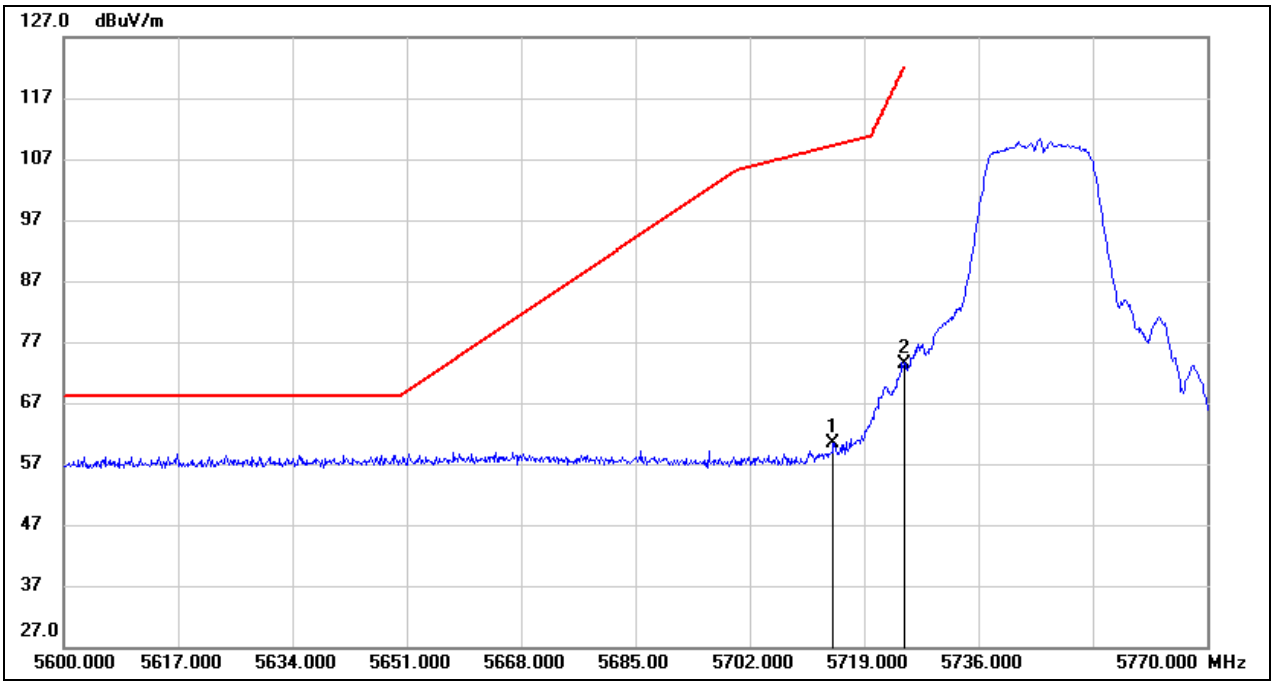
Test Mode:	802.11a 20 Peak	Channel:	5745 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5714.410	19.19	41.23	60.42	109.24	-48.82	peak
2	5725.000	32.17	41.27	73.44	122.20	-48.76	peak

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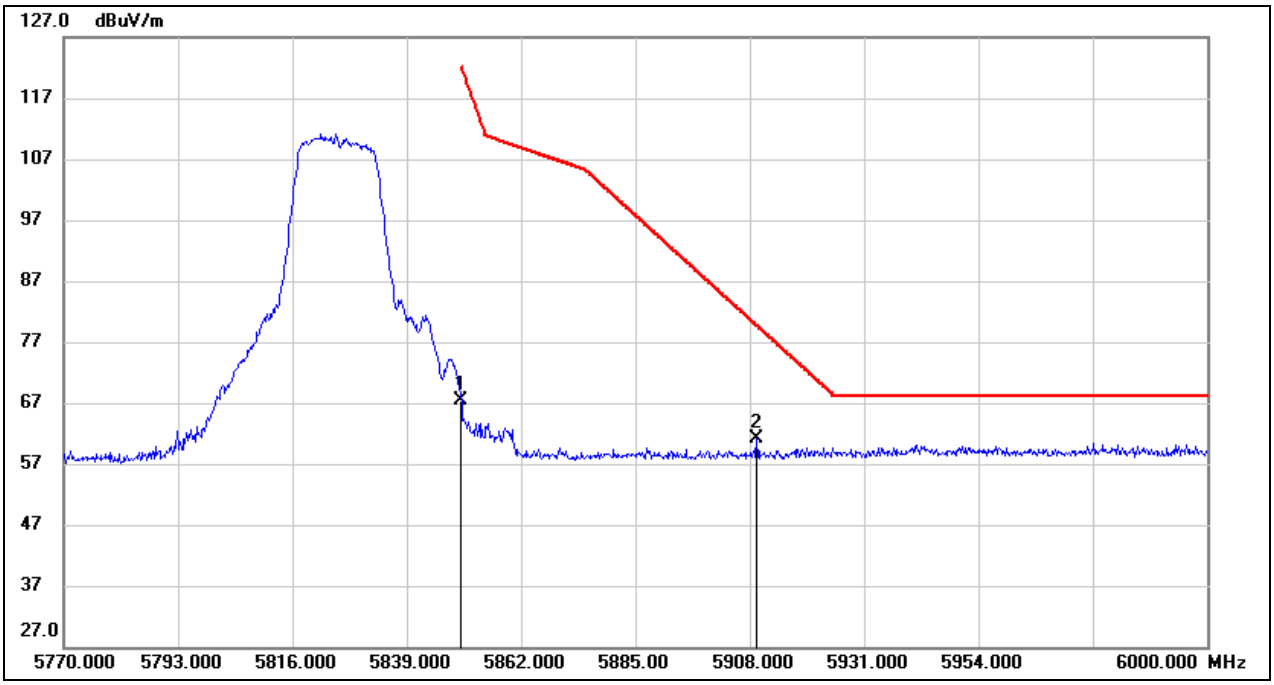
Test Mode:	802.11a 20 Peak	Channel:	5825 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	25.78	41.60	67.38	122.20	-54.82	peak
2	5909.380	19.33	41.76	61.09	79.73	-18.64	peak

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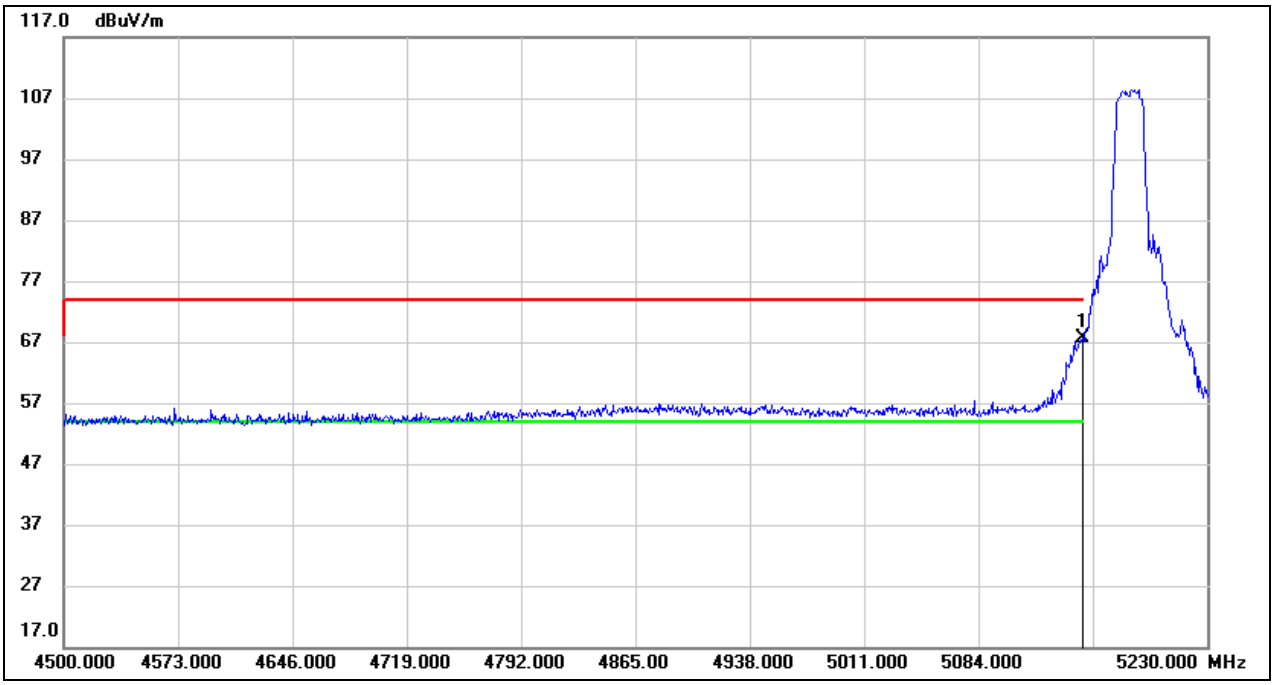
Test Mode:	802.11n HT20 Peak	Channel:	5180 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	27.32	40.27	67.59	74.00	-6.41	peak

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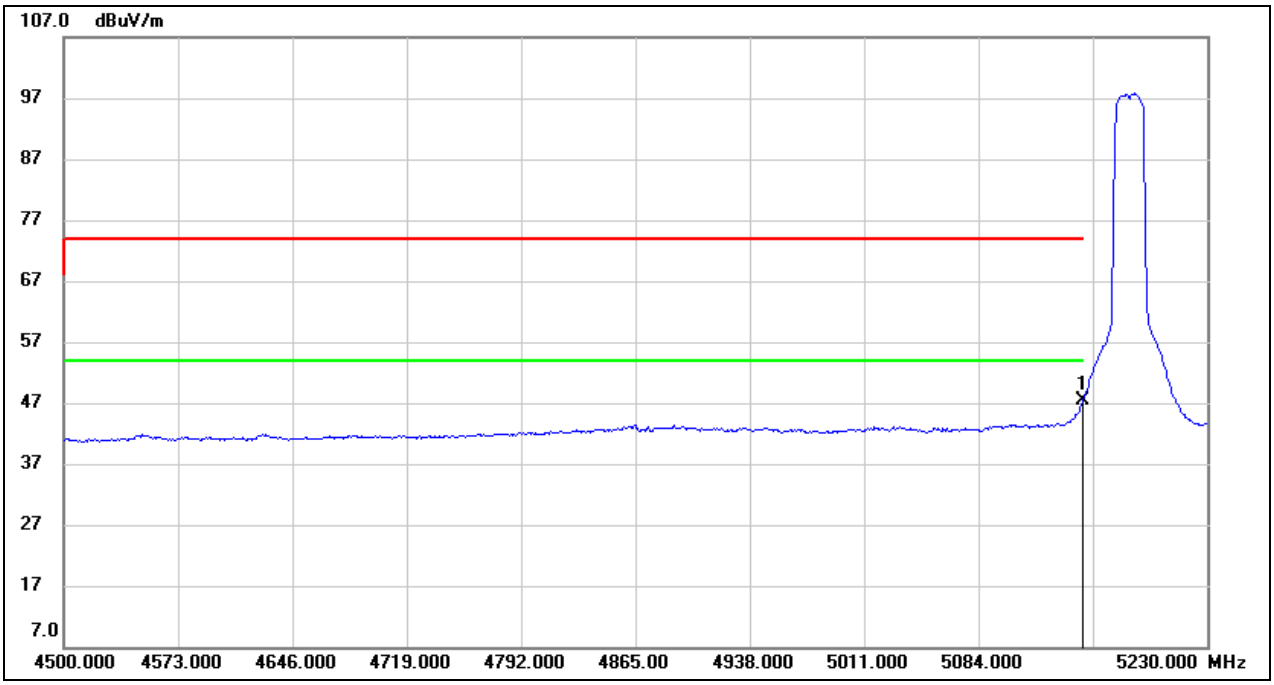
Test Mode:	802.11n HT20 Average	Channel:	5180 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	7.23	40.27	47.50	54.00	-6.50	AVG

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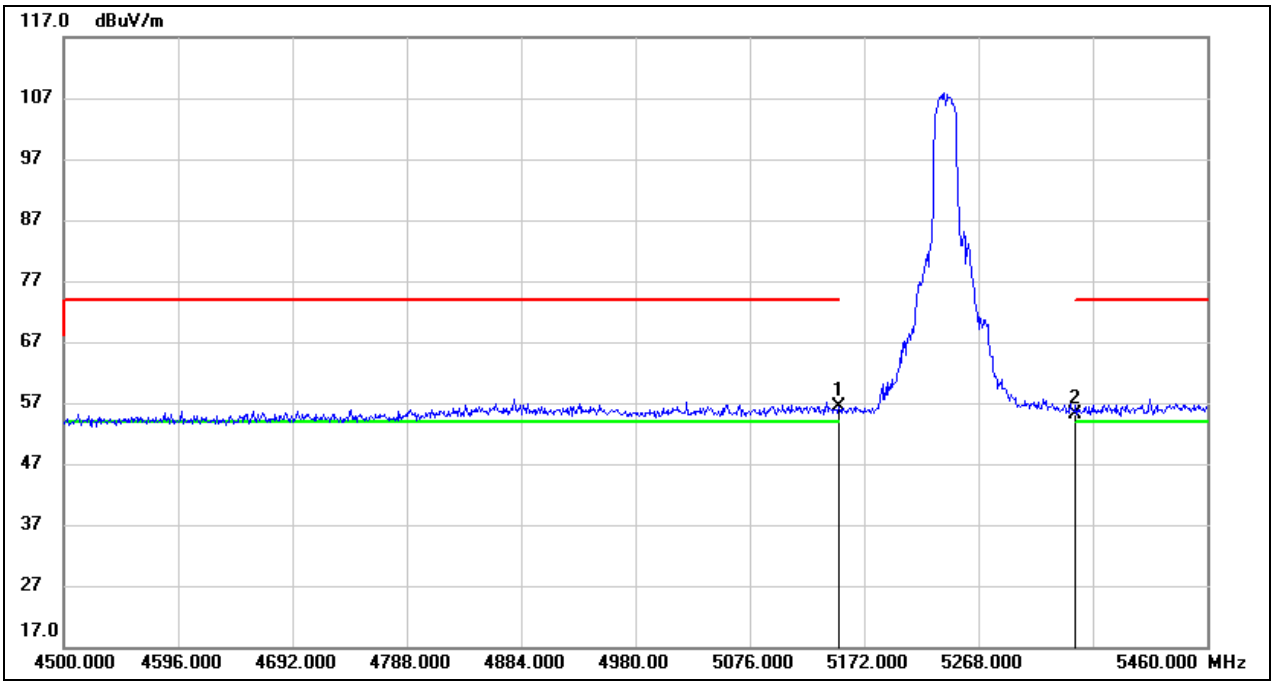
Test Mode:	802.11n HT20 Peak	Channel:	5240 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	16.09	40.27	56.36	74.00	-17.64	peak
2	5350.000	14.70	40.49	55.19	74.00	-18.81	peak

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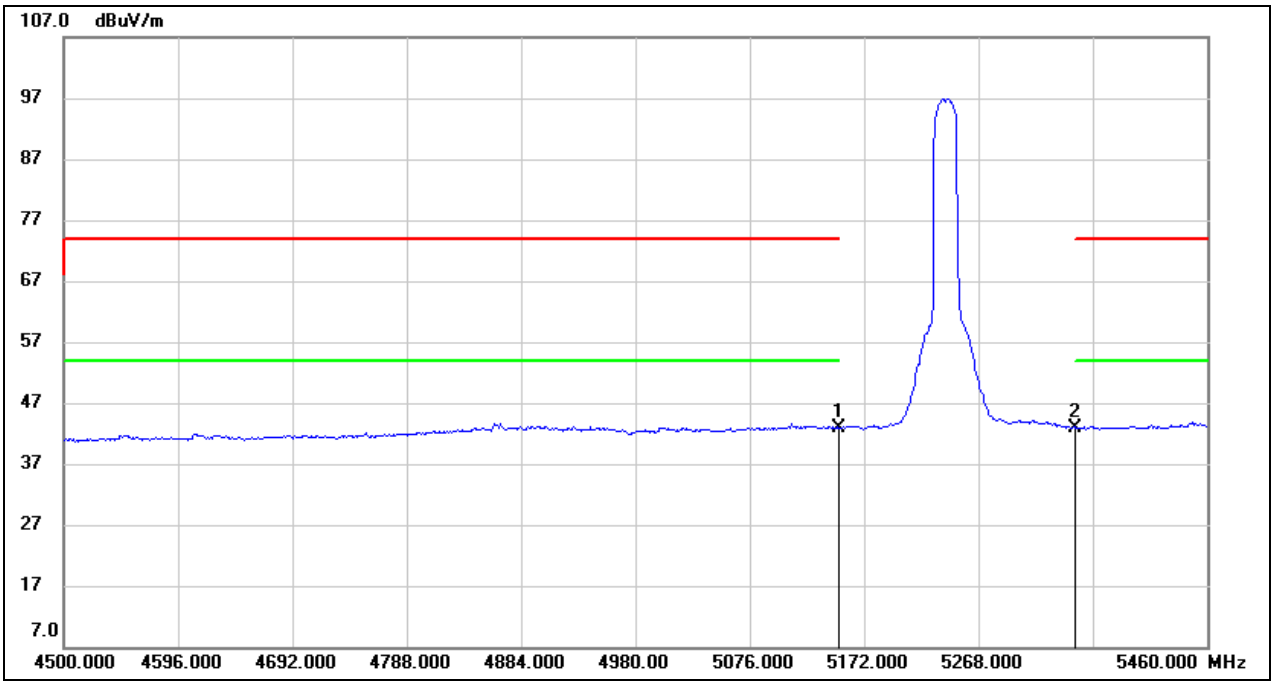
Test Mode:	802.11n HT20 Average	Channel:	5240 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	2.72	40.27	42.99	54.00	-11.01	AVG
2	5350.000	2.40	40.49	42.89	54.00	-11.11	AVG

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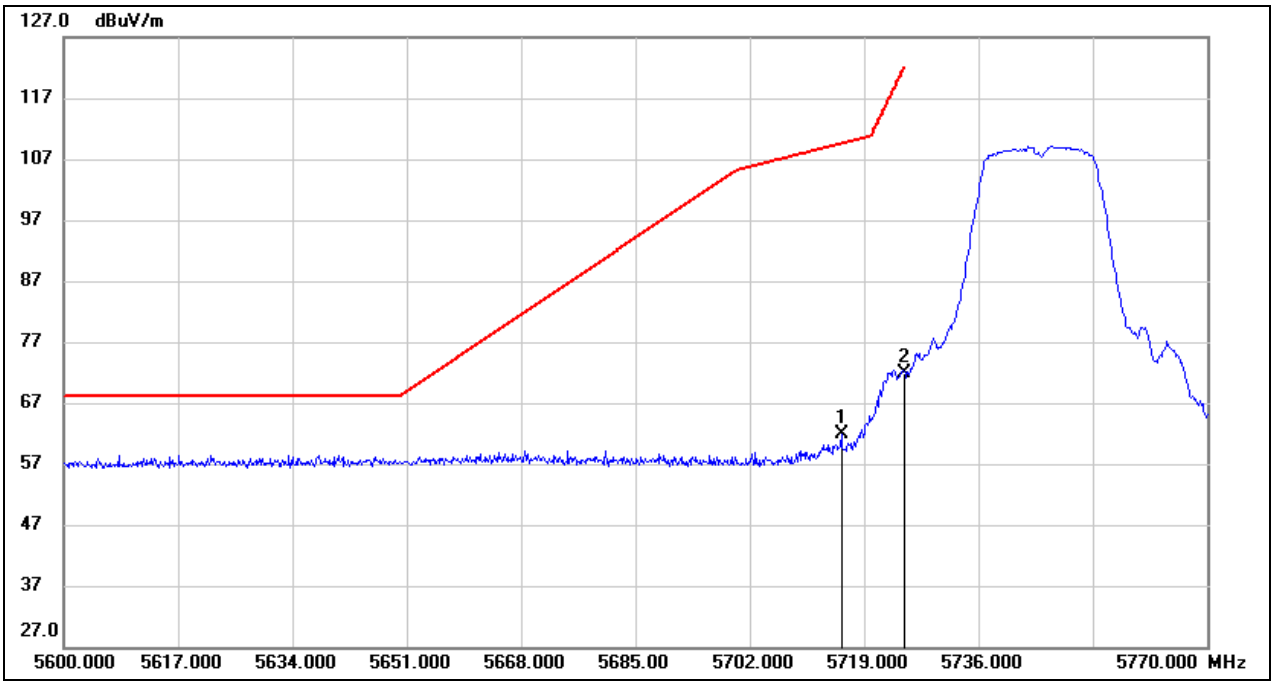
Test Mode:	802.11n HT20 Peak	Channel:	5745 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5715.600	20.57	41.24	61.81	109.57	-47.76	peak
2	5725.000	30.51	41.27	71.78	122.20	-50.42	peak

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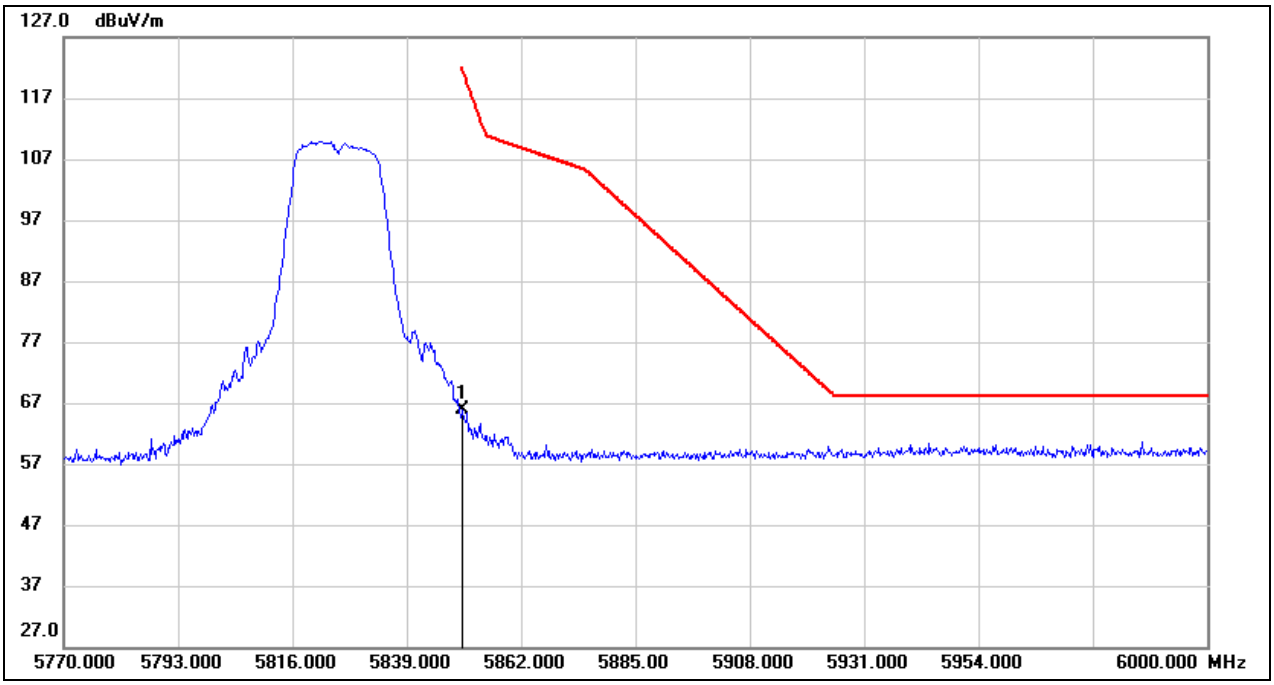
Test Mode:	802.11n HT20 Peak	Channel:	5825 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	24.34	41.60	65.94	122.20	-56.26	peak

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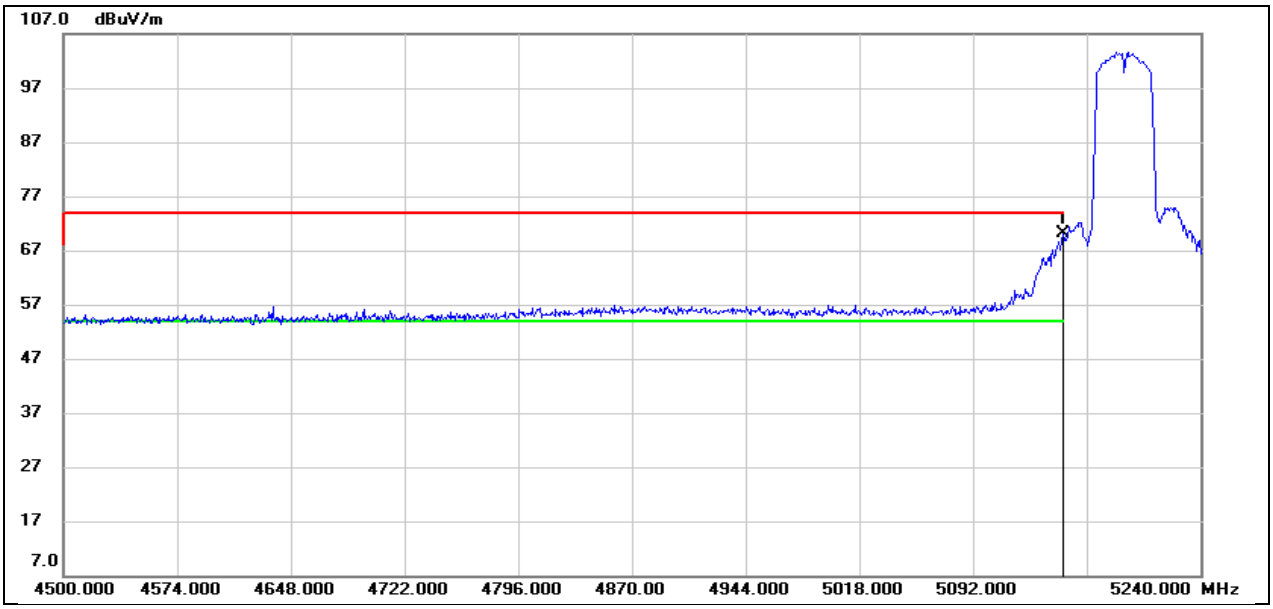
Test Mode:	802.11n HT40 Peak	Channel:	5190 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	29.97	40.27	70.24	74.00	-3.76	peak

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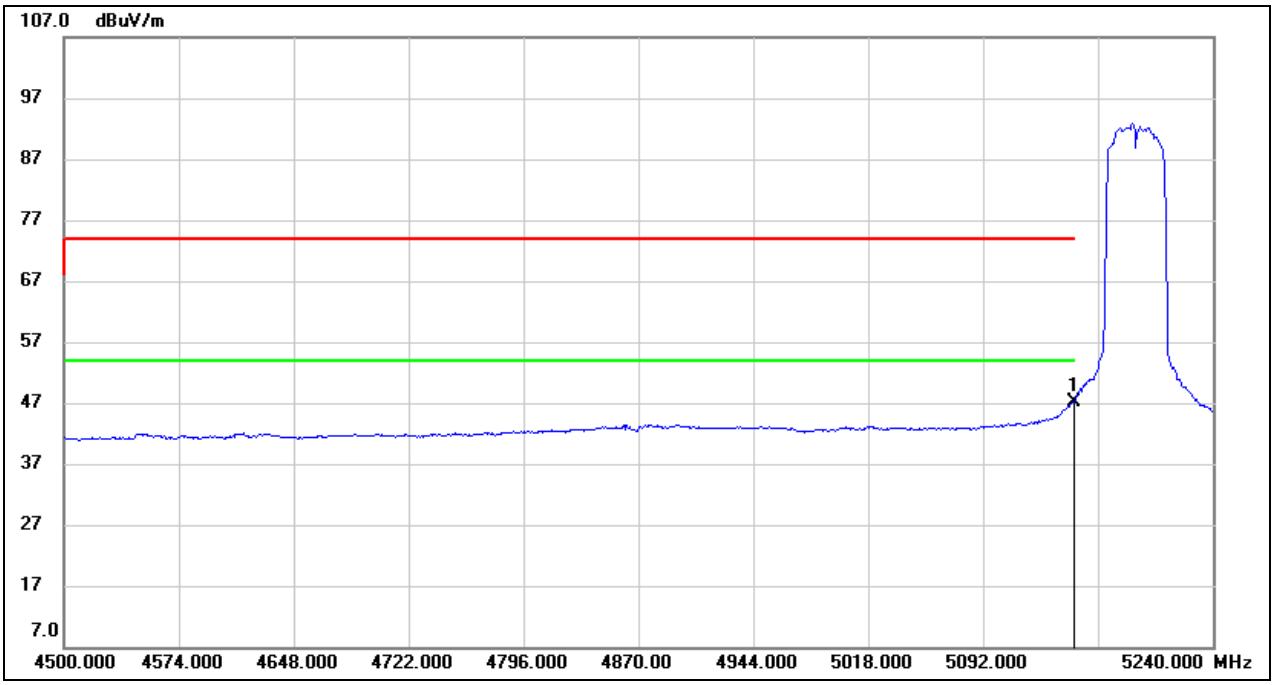
Test Mode:	802.11n HT40 Average	Channel:	5190 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	6.84	40.27	47.11	54.00	-6.89	AVG

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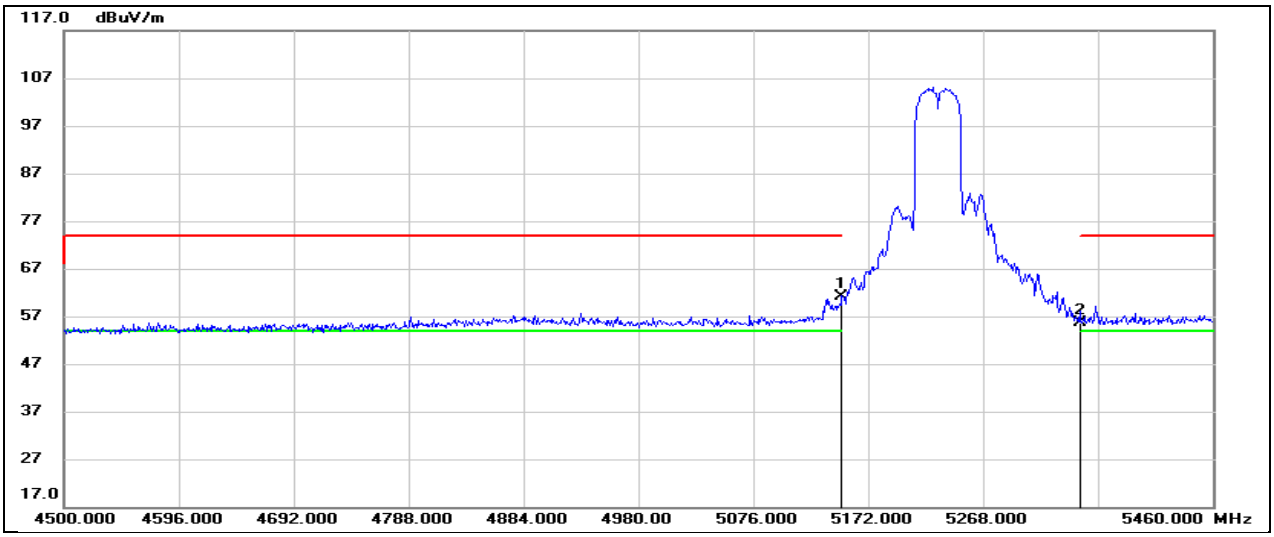
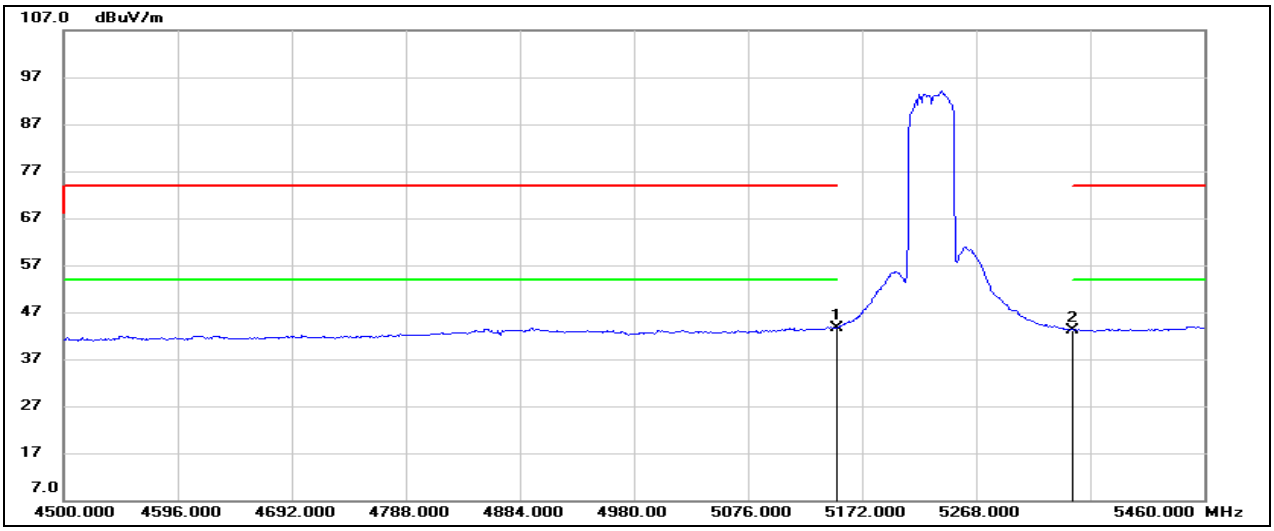
Test Mode:	802.11n HT40 Peak	Channel:	5230 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	20.77	40.27	61.04	74.00	-12.96	peak
2	5350.000	15.26	40.49	55.75	74.00	-18.25	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Test Mode:	802.11n HT40 Average	Channel:	5230 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	3.45	40.27	43.72	54.00	-10.28	AVG
2	5350.000	2.66	40.49	43.15	54.00	-10.85	AVG

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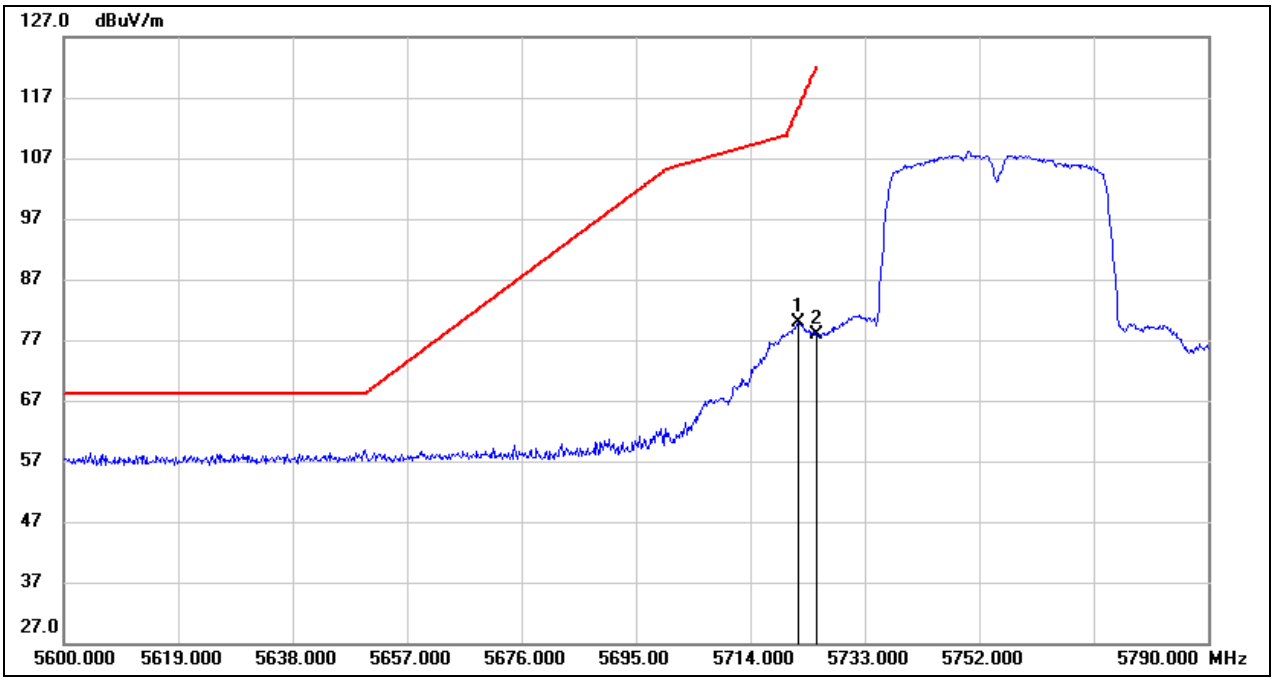
Test Mode:	802.11n HT40 Peak	Channel:	5755 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5721.980	38.62	41.25	79.87	115.32	-35.45	peak
2	5725.000	36.69	41.27	77.96	122.20	-44.24	peak

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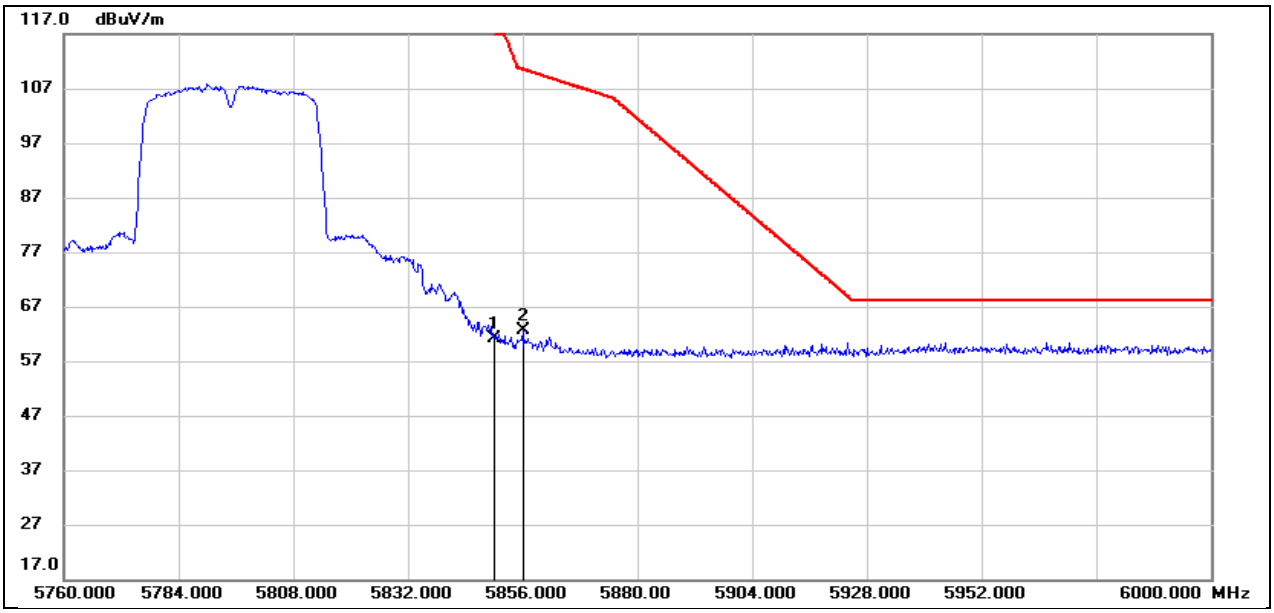
Test Mode:	802.11n HT40 Peak	Channel:	5795 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	19.44	41.60	61.04	122.20	-61.16	peak
2	5856.000	21.05	41.62	62.67	110.52	-47.85	peak

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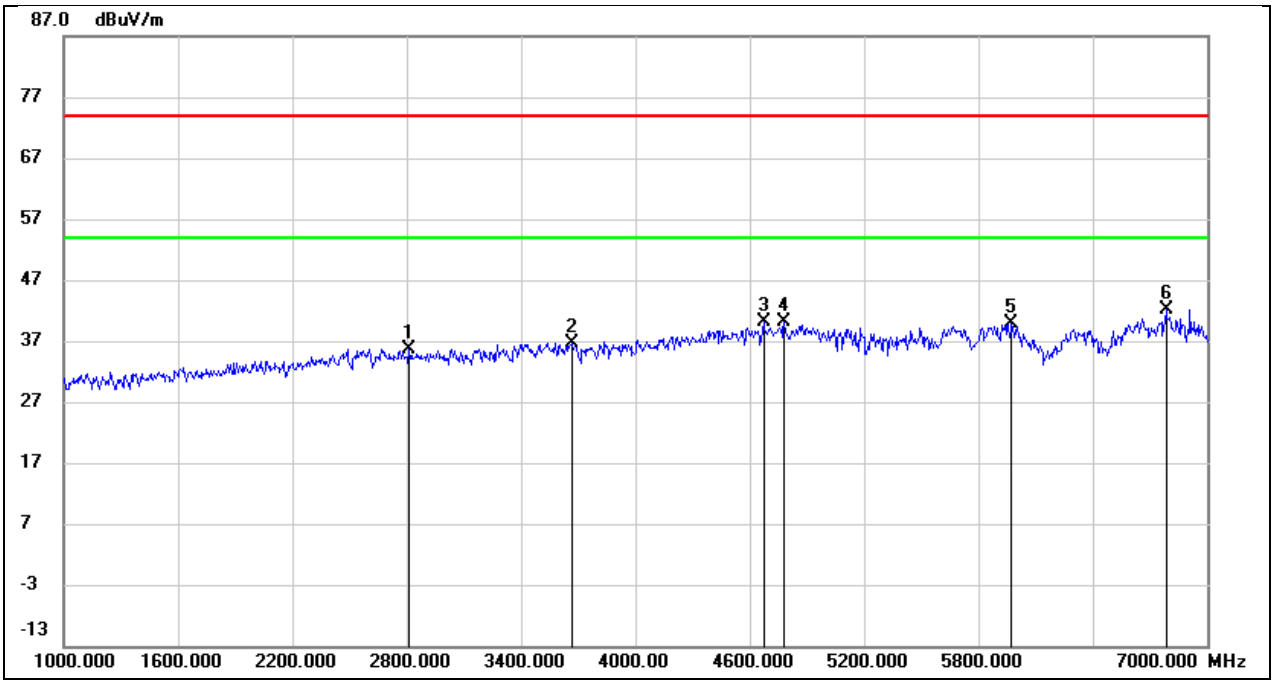
8.2. SPURIOUS EMISSIONS (1 GHZ ~ 7 GHZ)

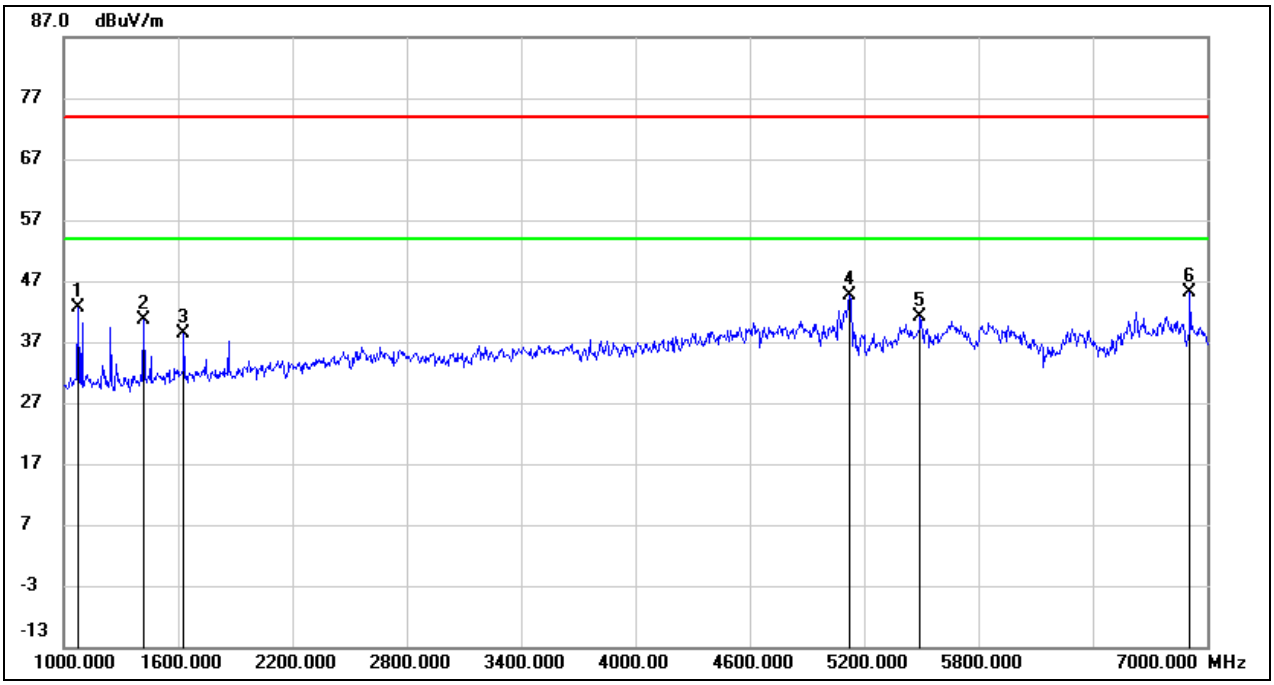
Test Mode:	802.11n HT40	Channel:	5190 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2812.000	43.17	-7.55	35.62	74.00	-38.38	peak
2	3664.000	42.07	-5.40	36.67	74.00	-37.33	peak
3	4672.000	41.50	-1.46	40.04	74.00	-33.96	peak
4	4780.000	41.06	-1.02	40.04	74.00	-33.96	peak
5	5974.000	38.13	1.77	39.90	74.00	-34.10	peak
6	6784.000	37.10	5.13	42.23	74.00	-31.77	peak

This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

Test Mode:	802.11n HT40	Channel:	5190 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1072.000	57.32	-14.70	42.62	74.00	-31.38	peak
2	1420.000	53.67	-13.08	40.59	74.00	-33.41	peak
3	1630.000	50.61	-12.28	38.33	74.00	-35.67	peak
4	5122.000	44.58	-0.02	44.56	74.00	-29.44	peak
5	5494.000	40.78	0.42	41.20	74.00	-32.80	peak
6	6910.000	39.47	5.76	45.23	74.00	-28.77	peak

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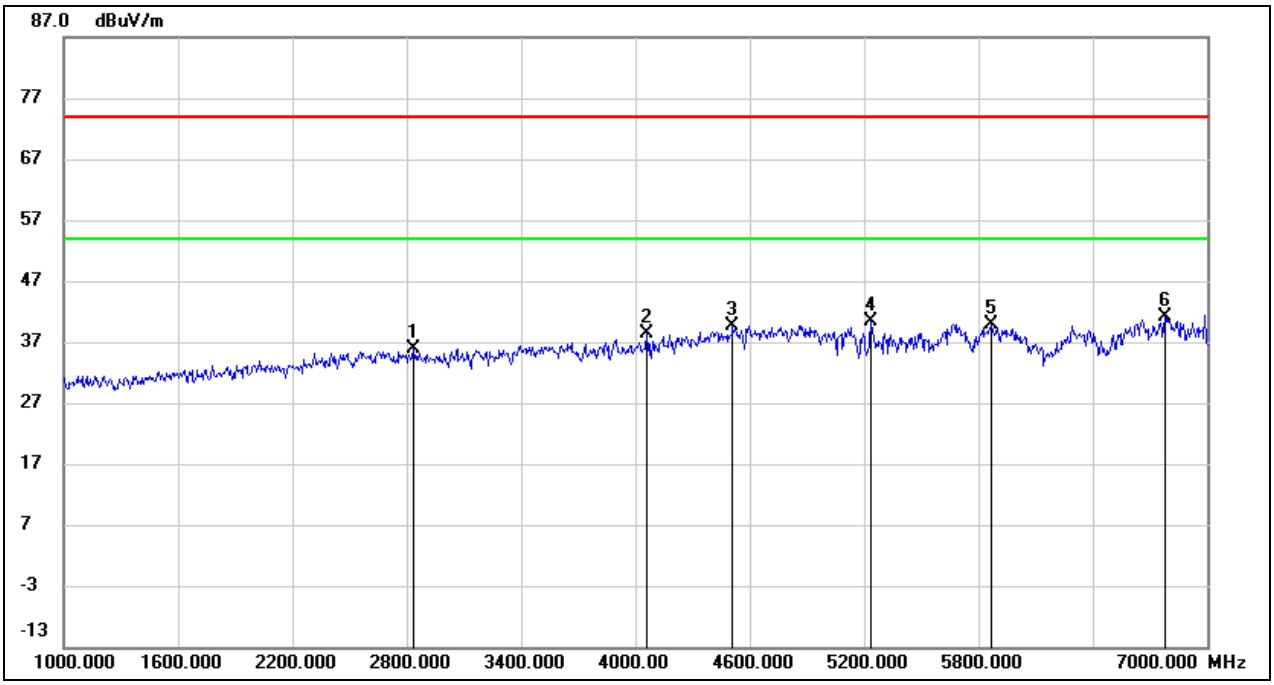
Test Mode:	802.11n HT40	Channel:	5230 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2836.000	43.28	-7.48	35.80	74.00	-38.20	peak
2	4060.000	42.49	-4.20	38.29	74.00	-35.71	peak
3	4510.000	41.85	-2.10	39.75	74.00	-34.25	peak
4	5236.000	40.39	0.11	40.50	74.00	-33.50	peak
5	5866.000	38.35	1.47	39.82	74.00	-34.18	peak
6	6778.000	36.13	5.10	41.23	74.00	-32.77	peak

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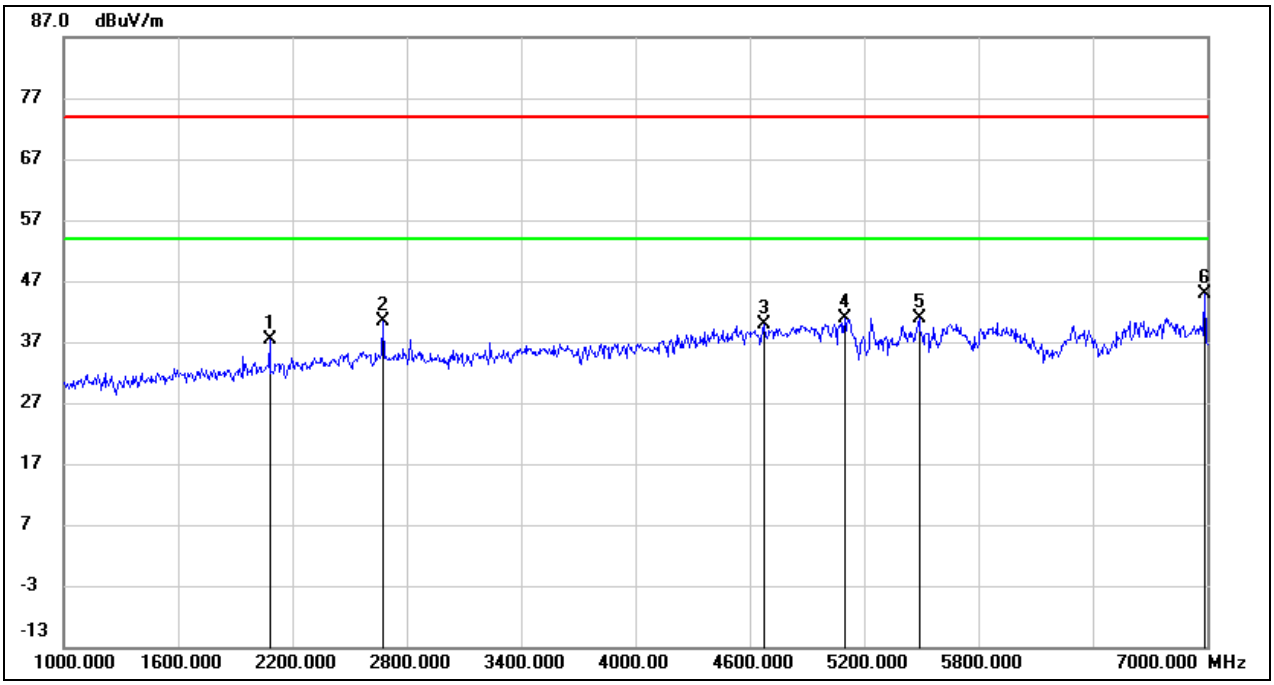
Test Mode:	802.11n HT40	Channel:	5230 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2080.000	48.11	-10.64	37.47	74.00	-36.53	peak
2	2674.000	48.34	-7.97	40.37	74.00	-33.63	peak
3	4672.000	41.22	-1.46	39.76	74.00	-34.24	peak
4	5098.000	40.83	-0.03	40.80	74.00	-33.20	peak
5	5488.000	40.54	0.41	40.95	74.00	-33.05	peak
6	6988.000	38.81	6.14	44.95	74.00	-29.05	peak

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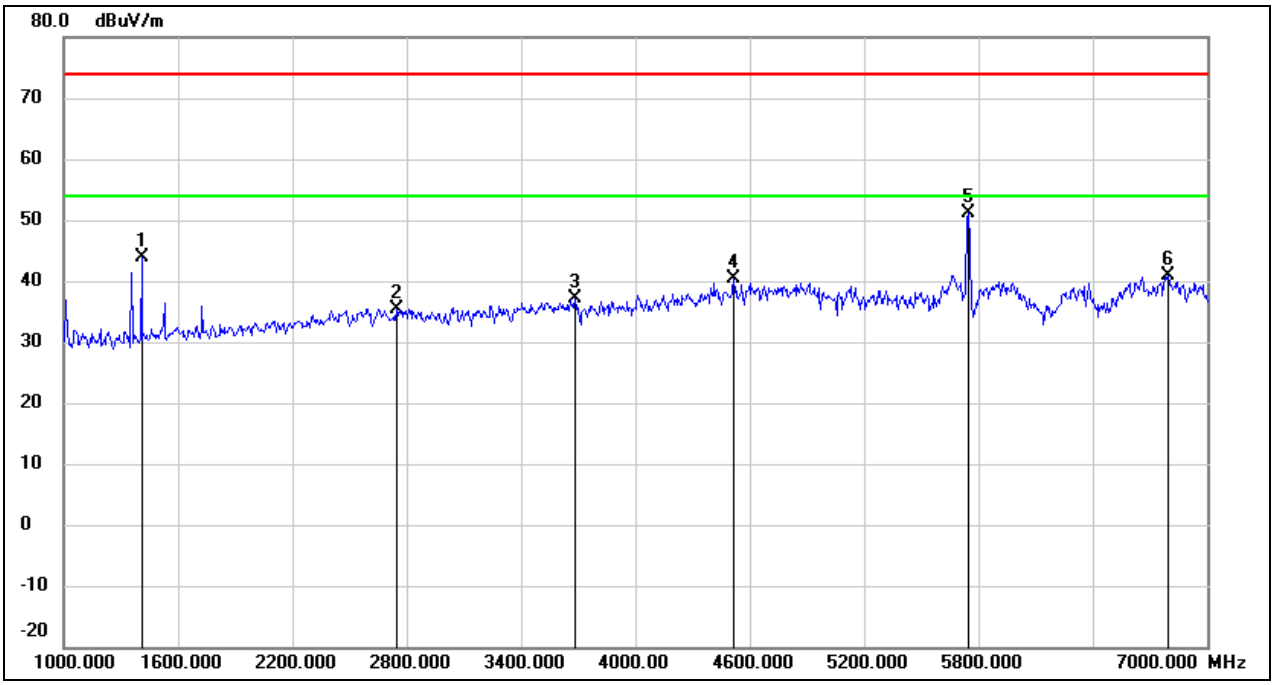
Test Mode:	802.11n HT40	Channel:	5755 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1408.000	56.95	-13.13	43.82	74.00	-30.18	peak
2	2746.000	43.22	-7.75	35.47	74.00	-38.53	peak
3	3682.000	42.59	-5.36	37.23	74.00	-36.77	peak
4	4516.000	42.51	-2.08	40.43	74.00	-33.57	peak
5	5746.000	50.02	1.12	51.14	74.00	-22.86	peak
6	6796.000	35.65	5.19	40.84	74.00	-33.16	peak

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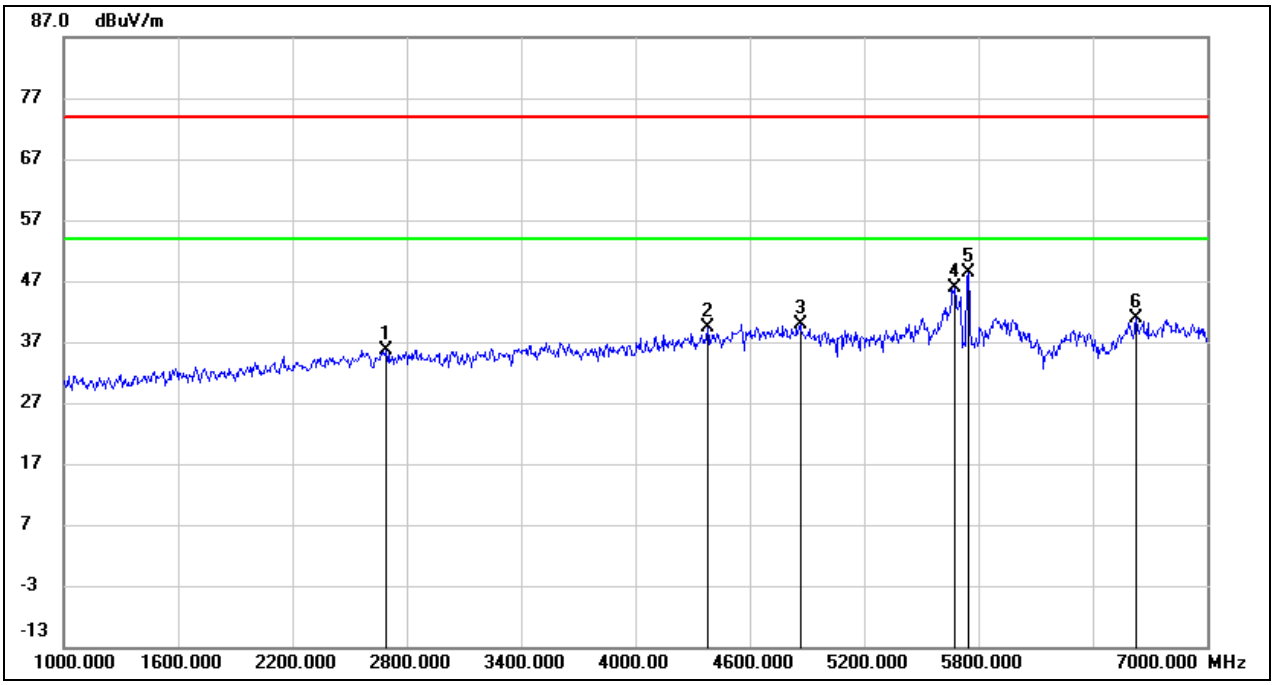
Test Mode:	802.11n HT40	Channel:	5755 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2692.000	43.60	-7.91	35.69	74.00	-38.31	peak
2	4378.000	42.03	-2.71	39.32	74.00	-34.68	peak
3	4864.000	40.63	-0.70	39.93	74.00	-34.07	peak
4	5674.000	45.03	0.92	45.95	74.00	-28.05	peak
5	5746.000	47.20	1.12	48.32	74.00	-25.68	peak
6	6628.000	36.51	4.36	40.87	74.00	-33.13	peak

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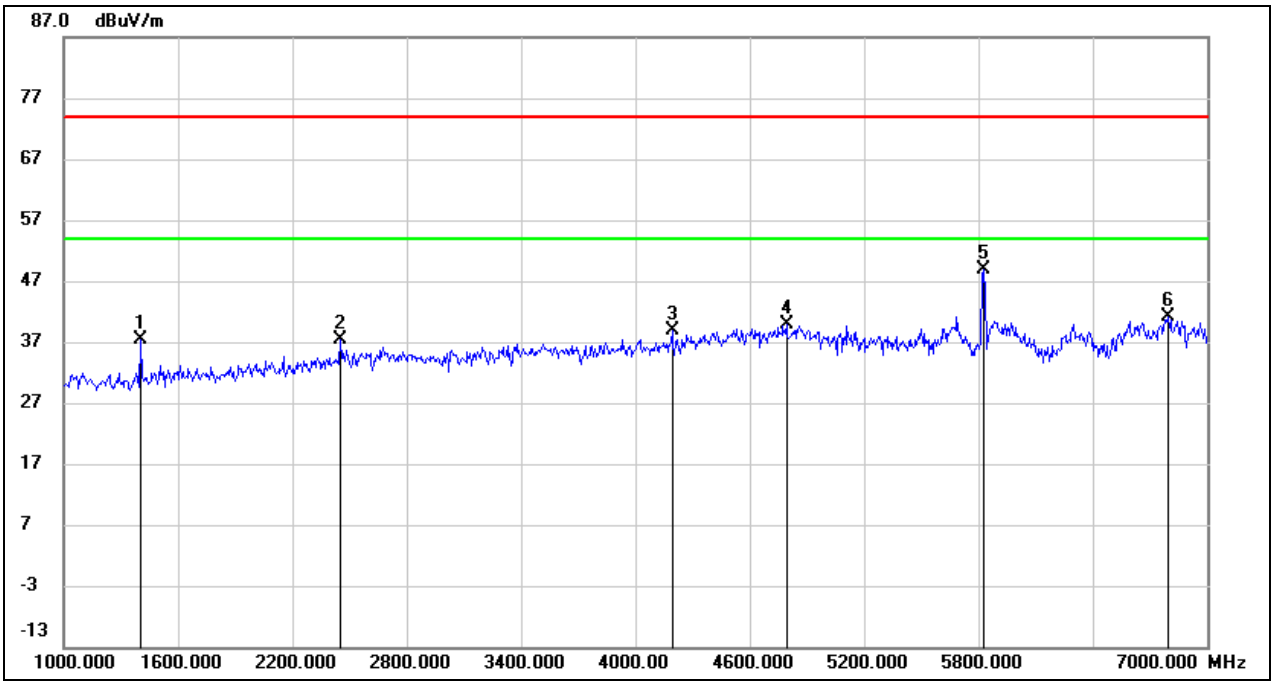
Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1402.000	50.51	-13.16	37.35	74.00	-36.65	peak
2	2452.000	46.16	-8.73	37.43	74.00	-36.57	peak
3	4192.000	42.42	-3.59	38.83	74.00	-35.17	peak
4	4792.000	40.90	-0.98	39.92	74.00	-34.08	peak
5	5830.000	47.43	1.36	48.79	74.00	-25.21	peak
6	6796.000	35.97	5.19	41.16	74.00	-32.84	peak

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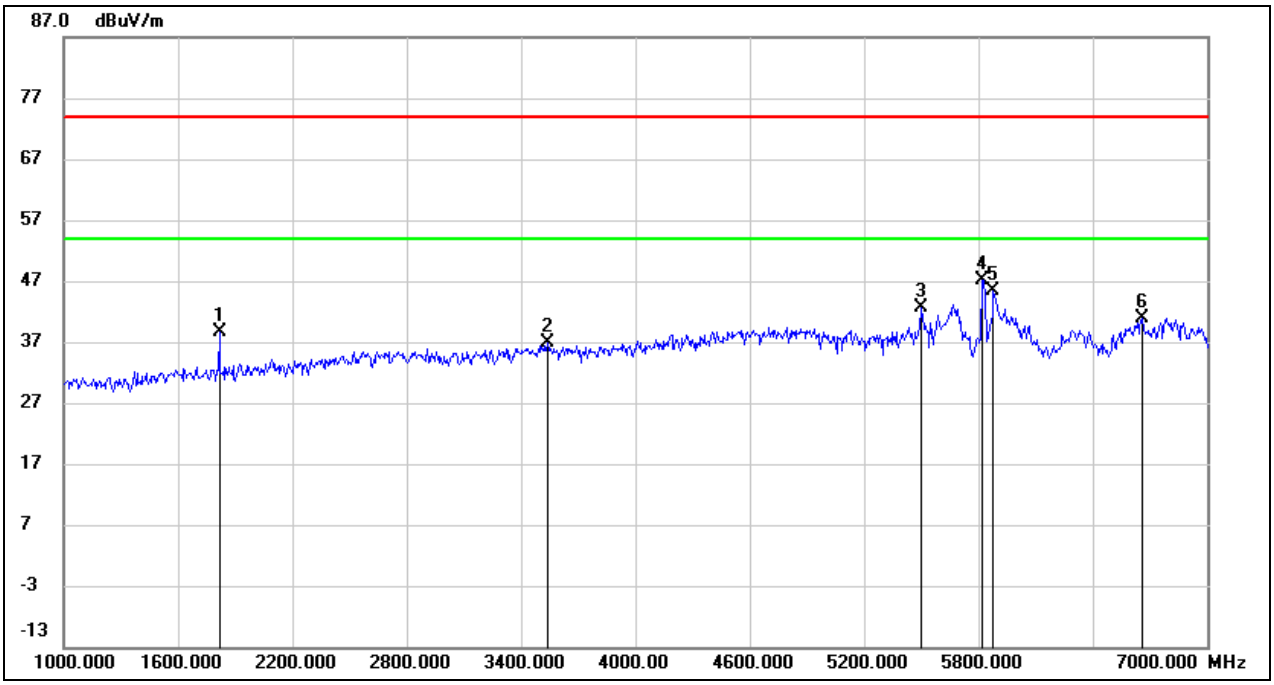
Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1816.000	50.29	-11.67	38.62	74.00	-35.38	peak
2	3538.000	42.63	-5.74	36.89	74.00	-37.11	peak
3	5500.000	42.20	0.42	42.62	74.00	-31.38	peak
4	5818.000	45.73	1.33	47.06	74.00	-26.94	peak
5	5878.000	43.78	1.51	45.29	74.00	-28.71	peak
6	6658.000	36.33	4.49	40.82	74.00	-33.18	peak

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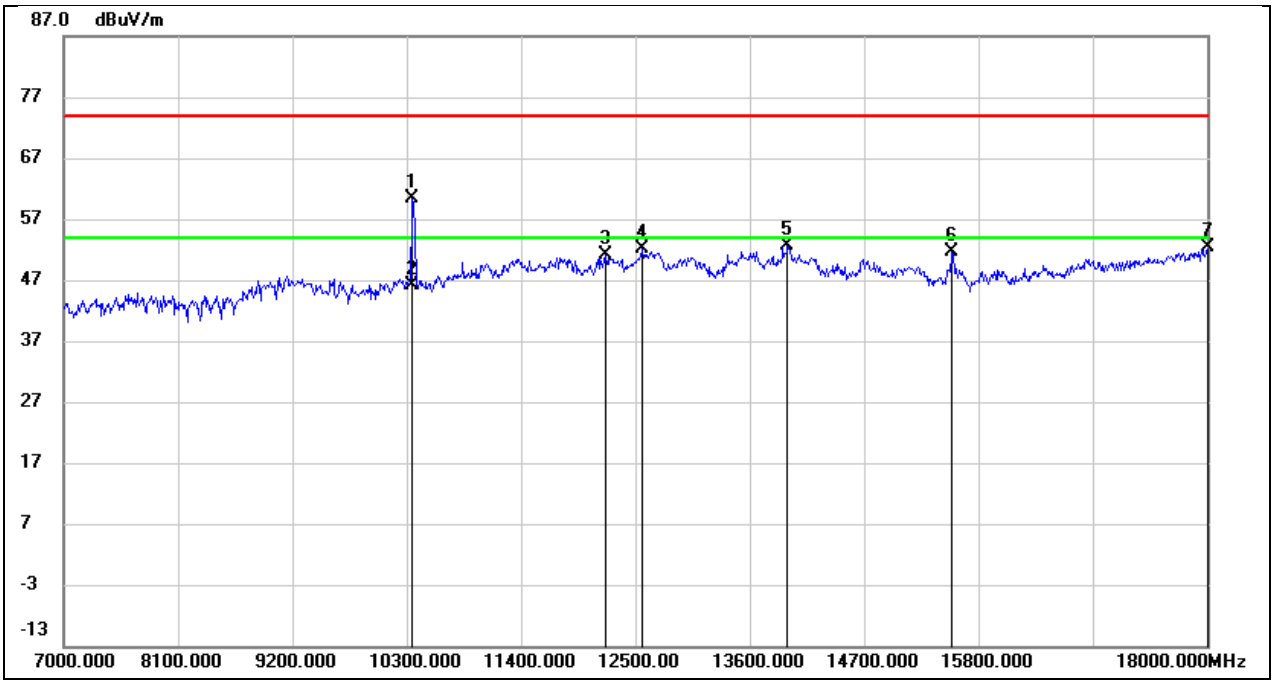
8.3. SPURIOUS EMISSIONS (7 GHZ ~ 18 GHZ)

Test Mode:	802.11a 20	Channel:	5180 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10355.000	47.75	12.52	60.27	74.00	-13.73	peak
2	10355.000	33.68	12.52	46.20	54.00	-7.80	AVG
3	12214.000	33.33	17.76	51.09	74.00	-22.91	peak
4	12566.000	34.17	17.91	52.08	74.00	-21.92	peak
5	13963.000	30.75	21.78	52.53	74.00	-21.47	peak
6	15547.000	35.00	16.73	51.73	74.00	-22.27	peak
7	18000.000	26.20	26.12	52.32	74.00	-21.68	peak

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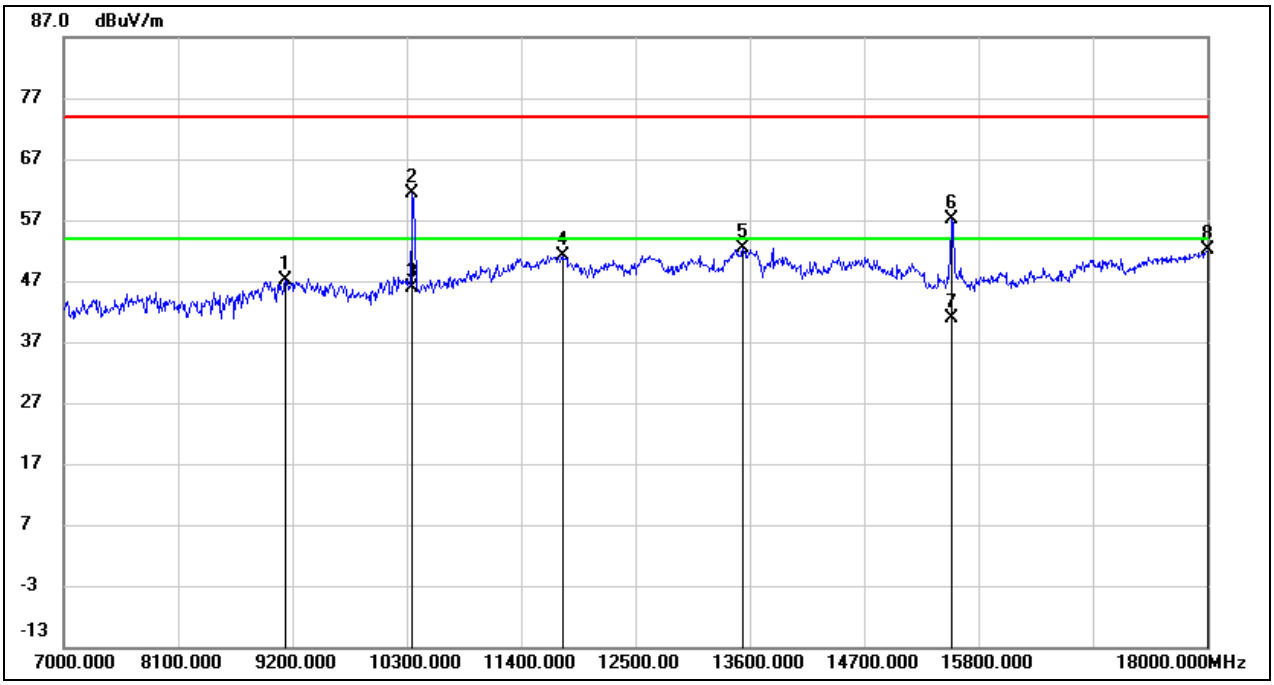
Test Mode:	802.11a 20	Channel:	5180 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9134.000	36.79	10.41	47.20	74.00	-26.80	peak
2	10355.000	48.75	12.52	61.27	74.00	-12.73	peak
3	10355.000	33.38	12.52	45.90	54.00	-8.10	AVG
4	11796.000	33.74	17.32	51.06	74.00	-22.94	peak
5	13534.000	31.73	20.73	52.46	74.00	-21.54	peak
6	15547.000	40.48	16.73	57.21	74.00	-16.79	peak
7	15547.000	24.19	16.73	40.92	54.00	-13.08	AVG
8	18000.000	26.03	26.12	52.15	74.00	-21.85	peak

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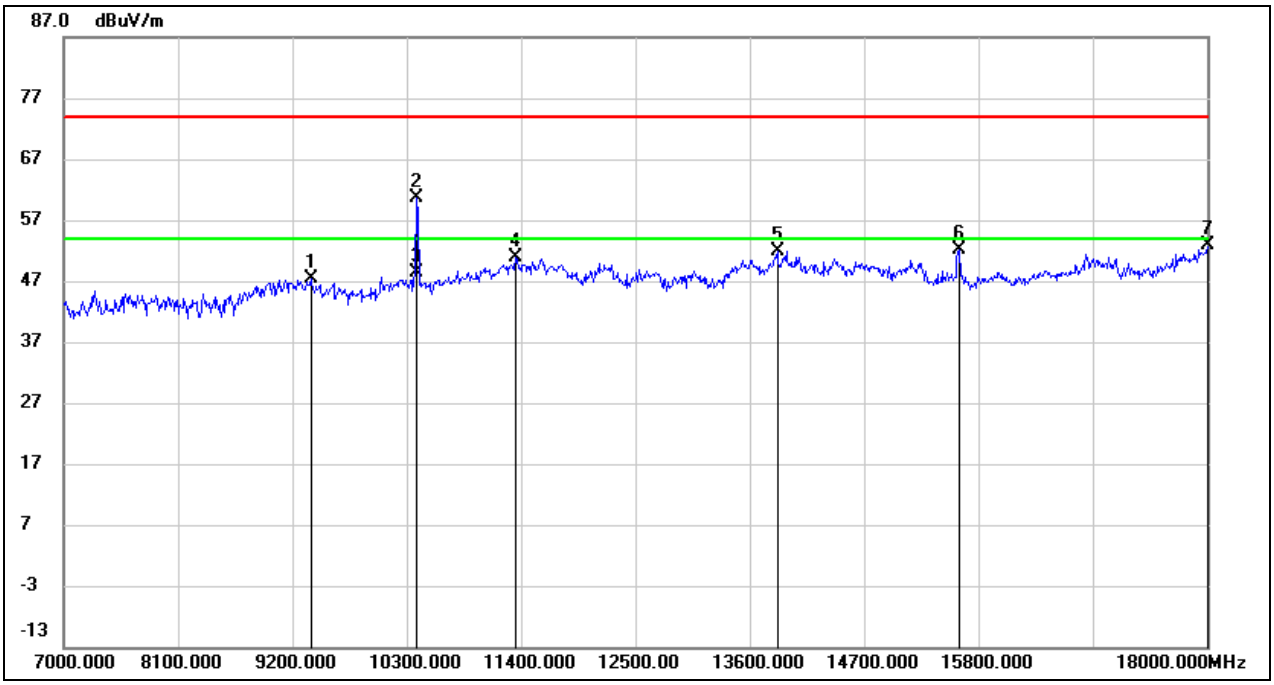
Test Mode:	802.11a 20	Channel:	5200 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9376.000	36.74	10.58	47.32	74.00	-26.68	peak
2	10399.000	48.14	12.61	60.75	74.00	-13.25	peak
3	10399.000	35.89	12.61	48.50	54.00	-5.50	AVG
4	11345.000	34.63	16.14	50.77	74.00	-23.23	peak
5	13864.000	30.35	21.53	51.88	74.00	-22.12	peak
6	15613.000	35.46	16.76	52.22	74.00	-21.78	peak
7	18000.000	26.79	26.12	52.91	74.00	-21.09	peak

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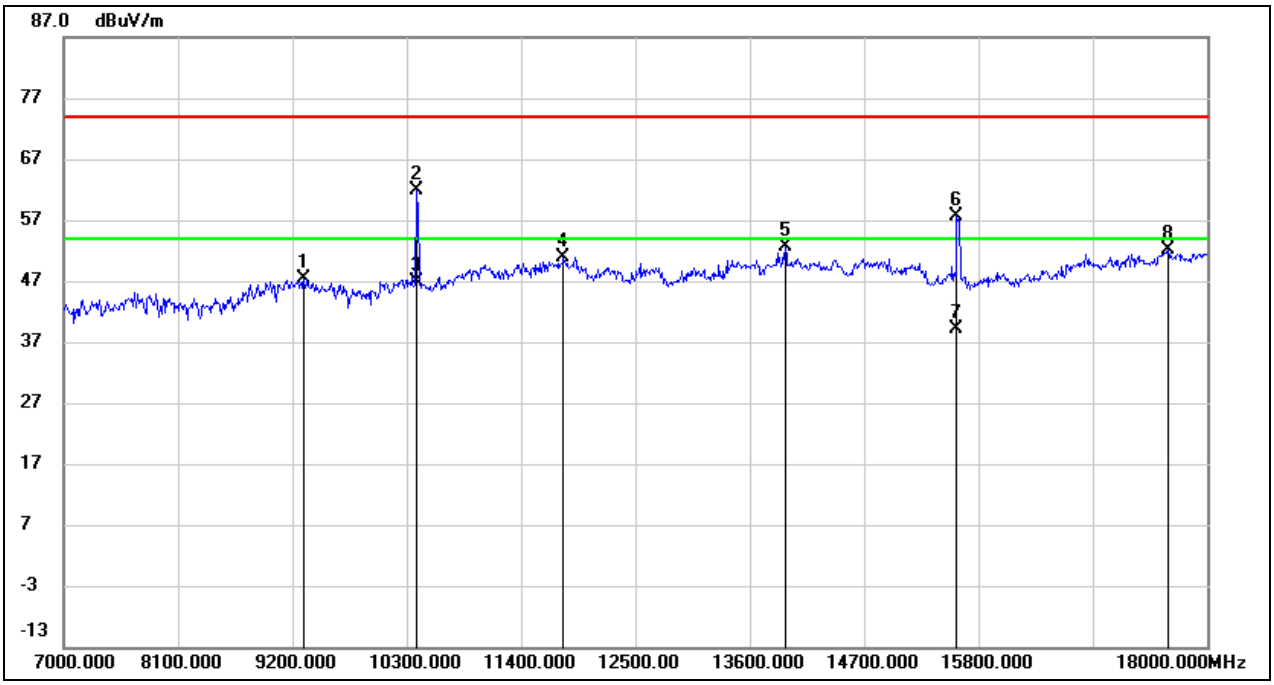
Test Mode:	802.11a 20	Channel:	5200 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9310.000	36.76	10.54	47.30	74.00	-26.70	peak
2	10388.000	49.41	12.59	62.00	74.00	-12.00	peak
3	10388.000	34.21	12.59	46.80	54.00	-7.20	AVG
4	11807.000	33.55	17.34	50.89	74.00	-23.11	peak
5	13941.000	30.99	21.73	52.72	74.00	-21.28	peak
6	15591.000	40.99	16.75	57.74	74.00	-16.26	peak
7	15591.000	22.35	16.75	39.10	54.00	-14.90	AVG
8	17626.000	28.53	23.57	52.10	74.00	-21.90	peak

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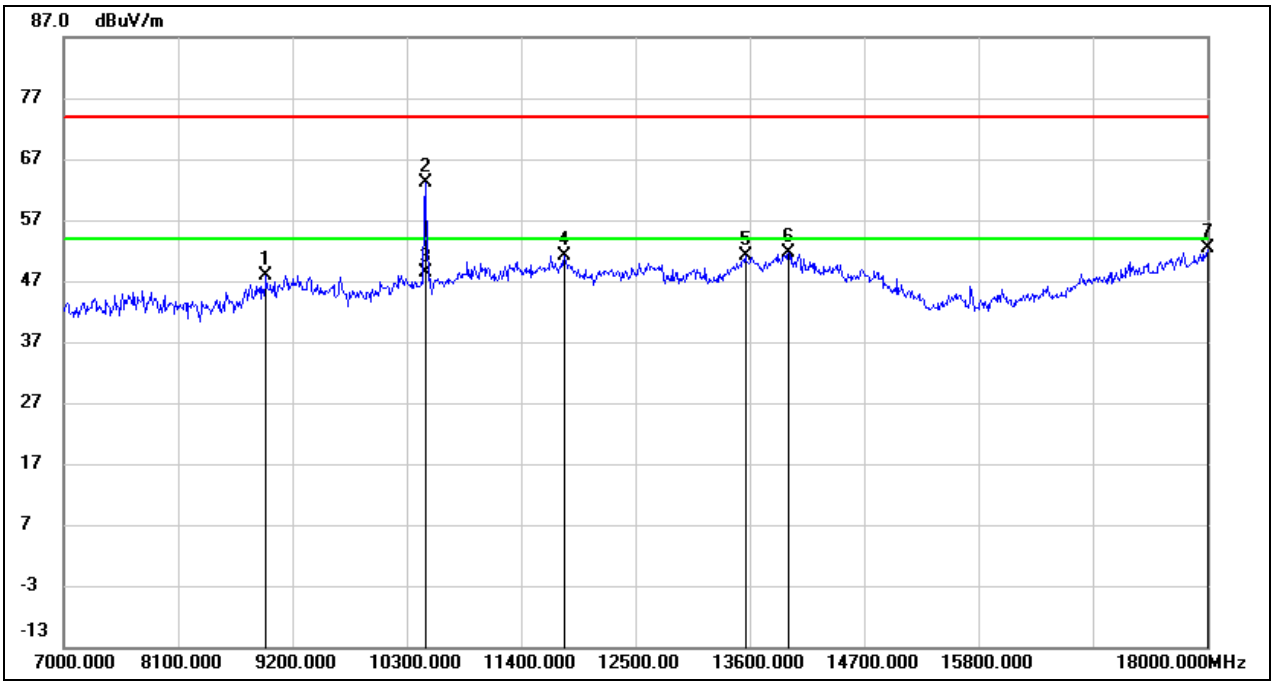
Test Mode:	802.11a 20	Channel:	5240 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8947.000	37.82	9.98	47.80	74.00	-26.20	peak
2	10476.000	50.46	12.77	63.23	74.00	-10.77	peak
3	10476.000	35.53	12.77	48.30	54.00	-5.70	AVG
4	11818.000	33.83	17.36	51.19	74.00	-22.81	peak
5	13556.000	30.38	20.78	51.16	74.00	-22.84	peak
6	13974.000	29.85	21.82	51.67	74.00	-22.33	peak
7	18000.000	26.15	26.12	52.27	74.00	-21.73	peak

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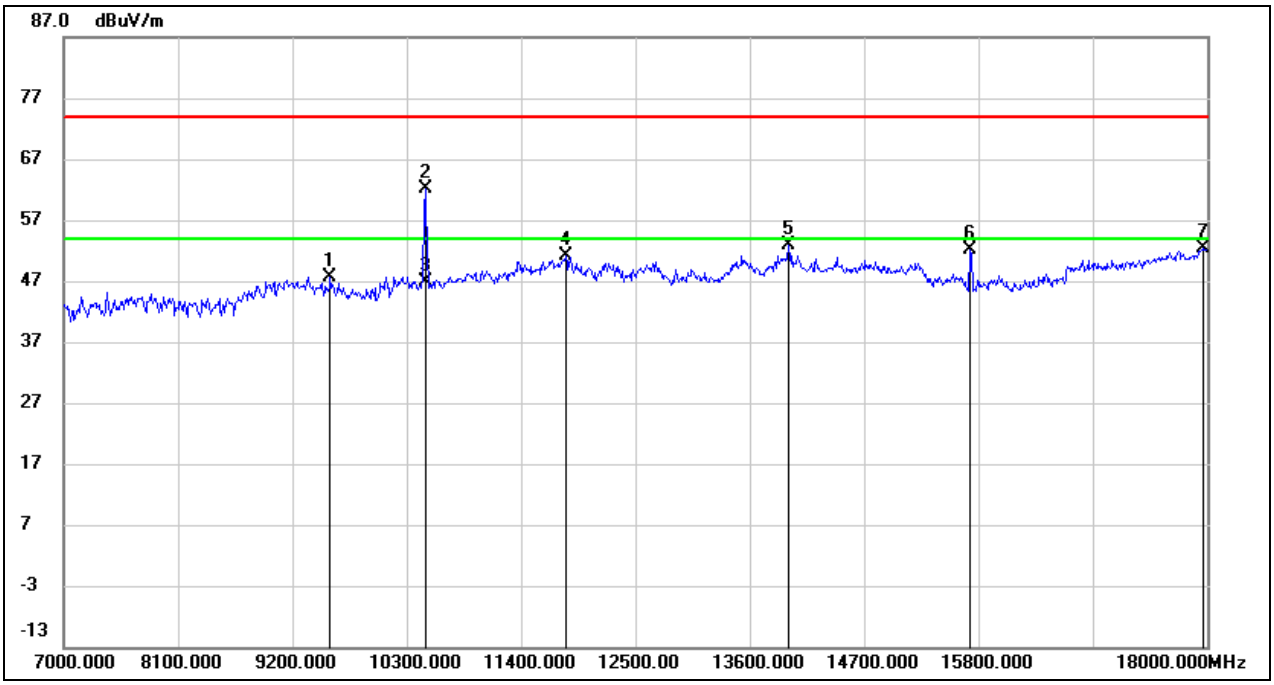
Test Mode:	802.11a 20	Channel:	5240 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9563.000	36.87	10.79	47.66	74.00	-26.34	peak
2	10476.000	49.29	12.77	62.06	74.00	-11.94	peak
3	10476.000	34.03	12.77	46.80	54.00	-7.20	AVG
4	11829.000	33.69	17.38	51.07	74.00	-22.93	peak
5	13974.000	31.17	21.82	52.99	74.00	-21.01	peak
6	15723.000	35.40	16.81	52.21	74.00	-21.79	peak
7	17967.000	26.41	25.89	52.30	74.00	-21.70	peak

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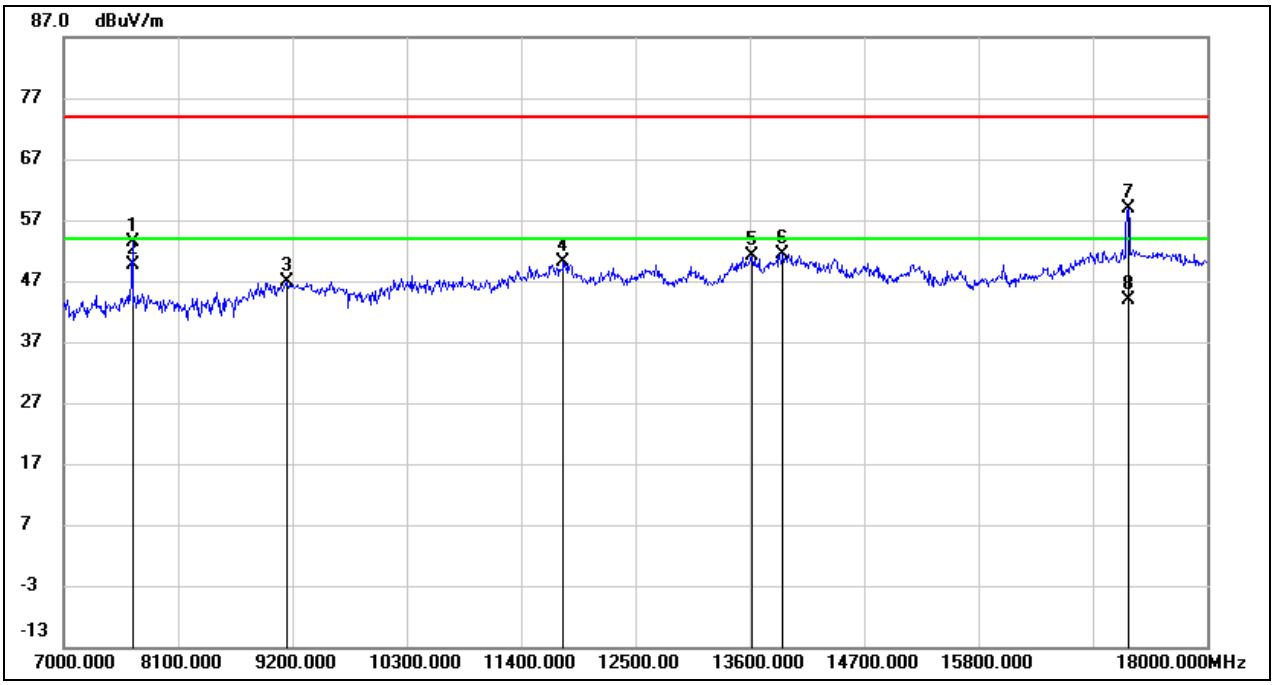
Test Mode:	802.11a 20	Channel:	5745 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7660.000	46.66	6.73	53.39	74.00	-20.61	peak
2	7660.000	42.93	6.73	49.66	54.00	-4.34	AVG
3	9145.000	36.39	10.43	46.82	74.00	-27.18	peak
4	11807.000	32.81	17.34	50.15	74.00	-23.85	peak
5	13622.000	30.26	20.95	51.21	74.00	-22.79	peak
6	13919.000	29.68	21.68	51.36	74.00	-22.64	peak
7	17241.000	37.16	21.62	58.78	74.00	-15.22	peak
8	17241.000	22.24	21.62	43.86	54.00	-10.14	AVG

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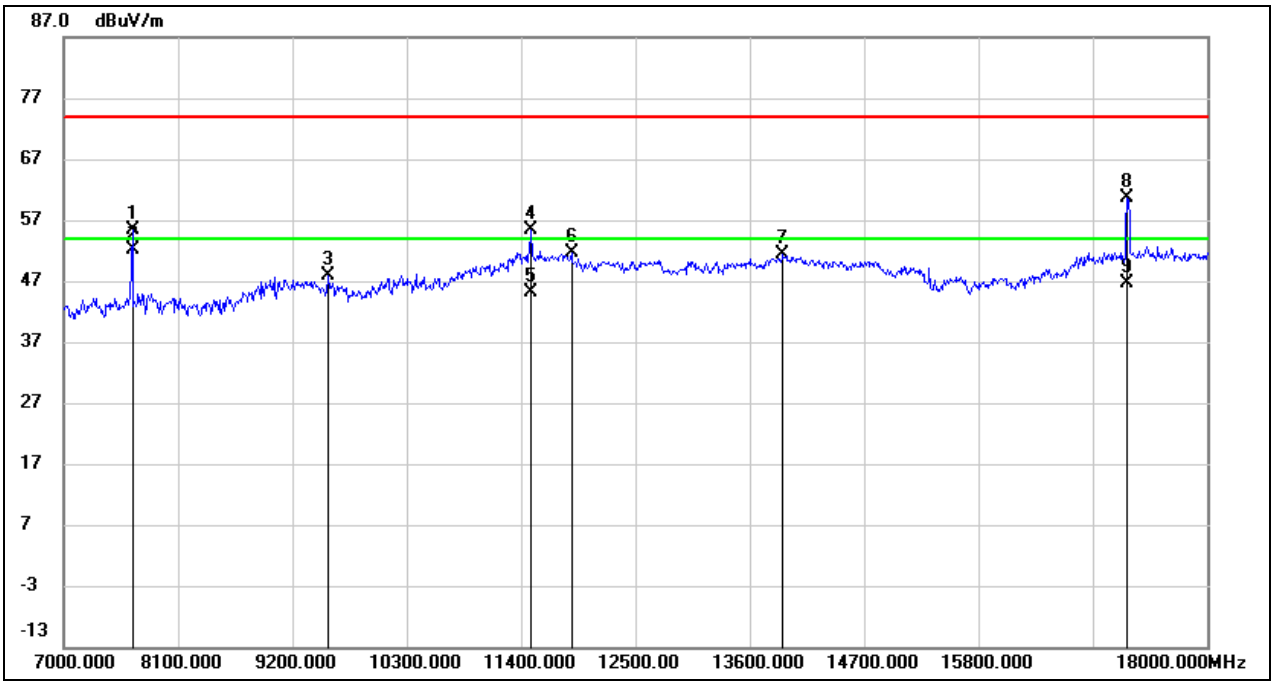
Test Mode:	802.11a 20	Channel:	5745 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7660.000	48.70	6.73	55.43	74.00	-18.57	peak
2	7660.000	45.37	6.73	52.10	54.00	-1.90	AVG
3	9541.000	37.10	10.74	47.84	74.00	-26.16	peak
4	11499.000	38.62	16.77	55.39	74.00	-18.61	peak
5	11499.000	28.43	16.77	45.20	54.00	-8.80	AVG
6	11884.000	34.15	17.48	51.63	74.00	-22.37	peak
7	13919.000	29.73	21.68	51.41	74.00	-22.59	peak
8	17230.000	39.04	21.57	60.61	74.00	-13.39	peak
9	17230.000	25.18	21.57	46.75	54.00	-7.25	AVG

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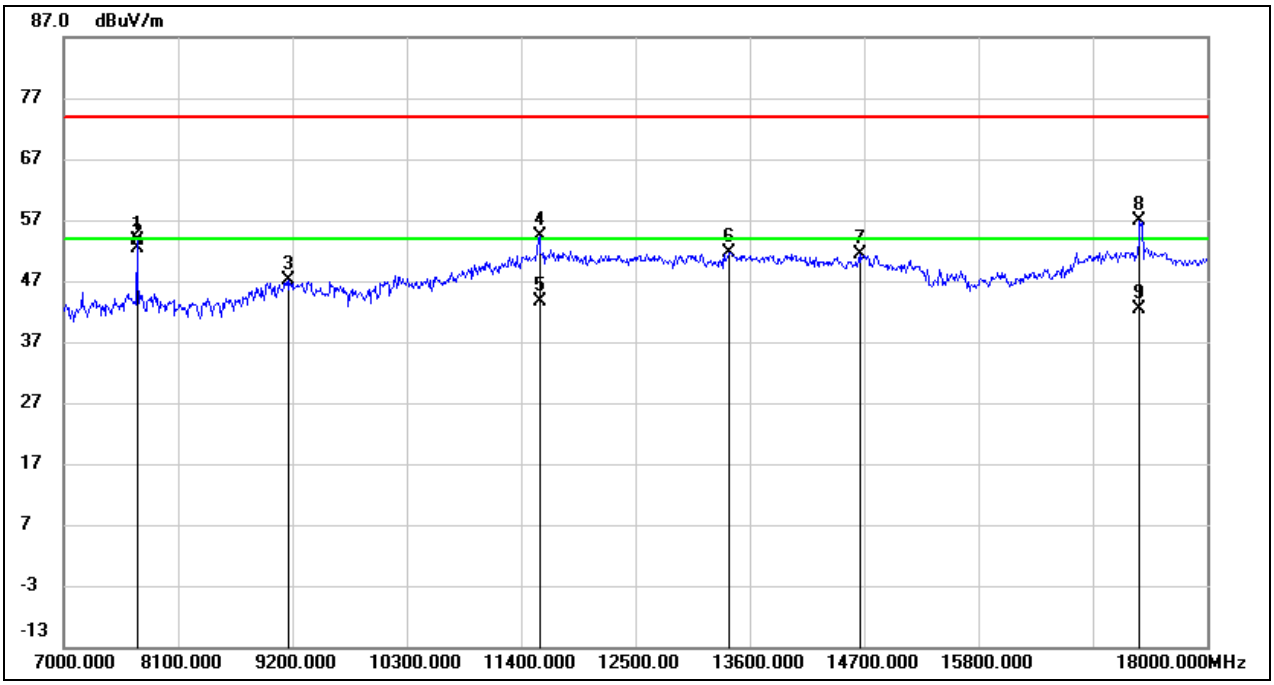
Test Mode:	802.11a 20	Channel:	5785 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7704.000	46.86	6.69	53.55	74.00	-20.45	peak
2	7704.000	45.81	6.69	52.50	54.00	-1.50	AVG
3	9167.000	36.57	10.45	47.02	74.00	-26.98	peak
4	11576.000	37.46	16.91	54.37	74.00	-19.63	peak
5	11576.000	26.69	16.91	43.60	54.00	-10.40	AVG
6	13402.000	31.46	20.20	51.66	74.00	-22.34	peak
7	14656.000	32.32	19.12	51.44	74.00	-22.56	peak
8	17351.000	34.83	22.07	56.90	74.00	-17.10	peak
9	17351.000	20.43	22.07	42.50	54.00	-11.50	AVG

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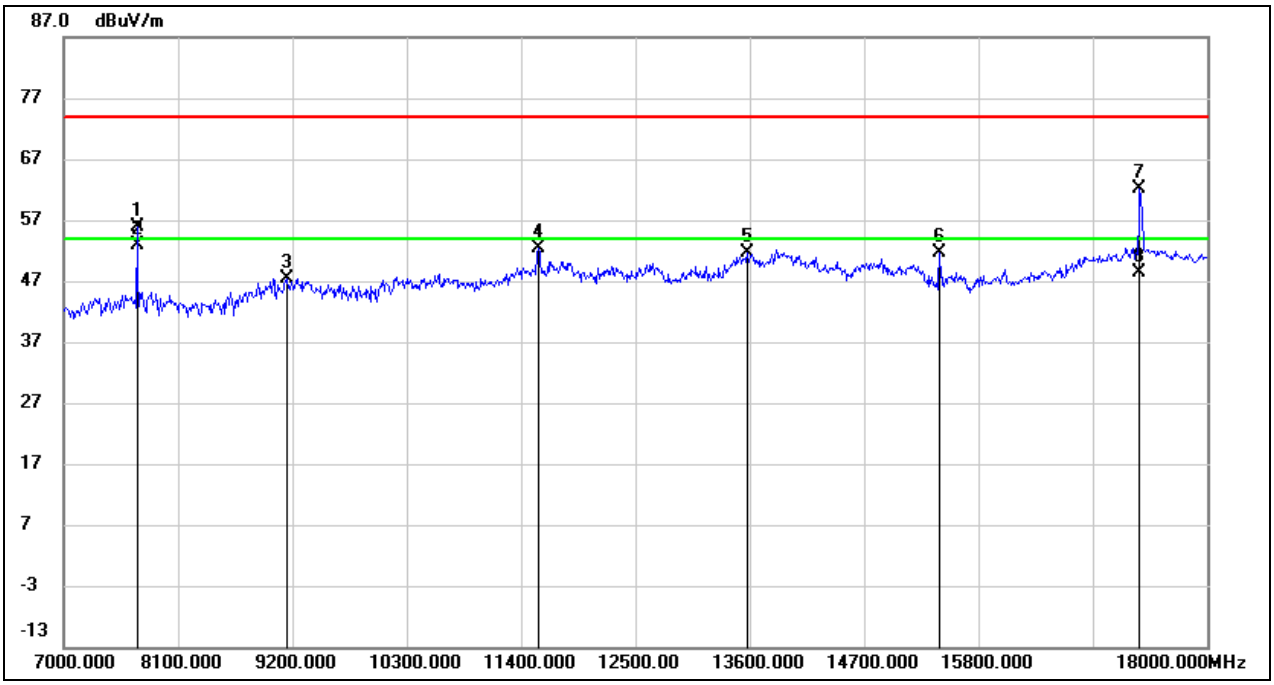
Test Mode:	802.11a 20	Channel:	5785 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7704.000	49.17	6.69	55.86	74.00	-18.14	peak
2	7704.000	46.11	6.69	52.80	54.00	-1.20	AVG
3	9145.000	37.02	10.43	47.45	74.00	-26.55	peak
4	11565.000	35.37	16.89	52.26	74.00	-21.74	peak
5	13578.000	30.80	20.83	51.63	74.00	-22.37	peak
6	15426.000	34.79	16.86	51.65	74.00	-22.35	peak
7	17351.000	40.08	22.07	62.15	74.00	-11.85	peak
8	17351.000	26.23	22.07	48.30	54.00	-5.70	AVG

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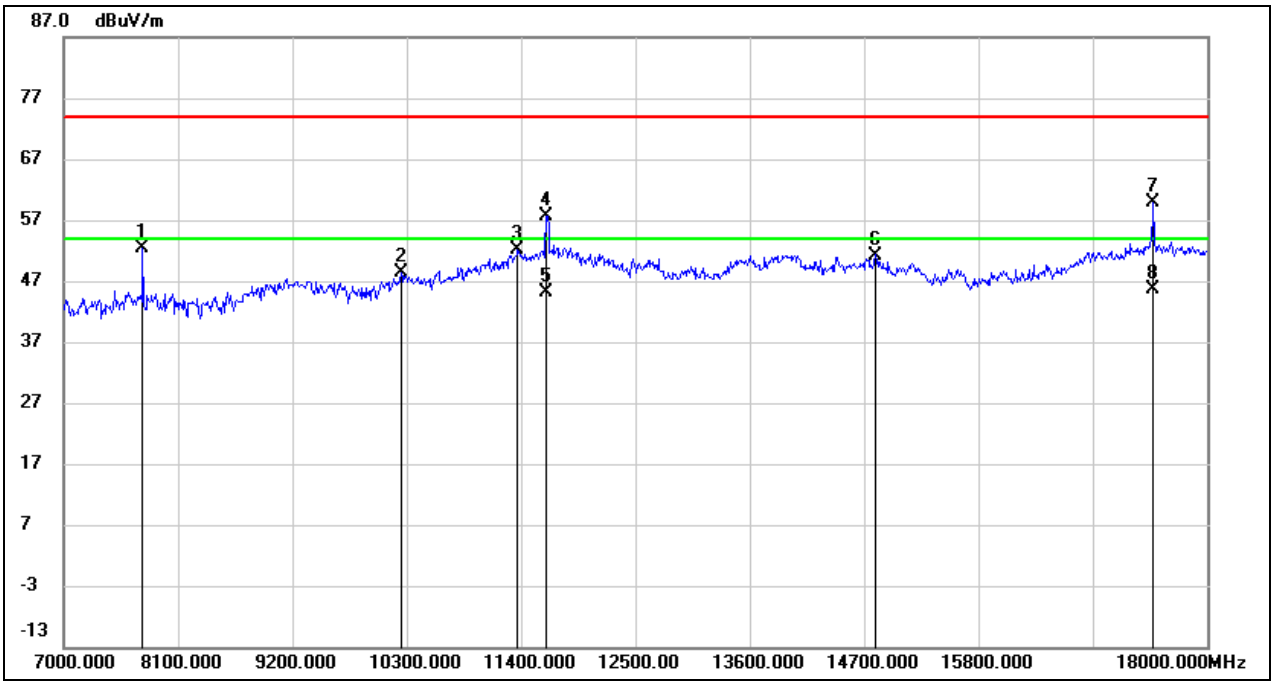
Test Mode:	802.11a 20	Channel:	5825 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	45.62	6.64	52.26	74.00	-21.74	peak
2	10245.000	35.99	12.28	48.27	74.00	-25.73	peak
3	11367.000	35.81	16.22	52.03	74.00	-21.97	peak
4	11642.000	40.53	17.03	57.56	74.00	-16.44	peak
5	11642.000	28.07	17.03	45.10	54.00	-8.90	AVG
6	14810.000	32.78	18.47	51.25	74.00	-22.75	peak
7	17483.000	37.15	22.62	59.77	74.00	-14.23	peak
8	17483.000	22.99	22.62	45.61	54.00	-8.39	AVG

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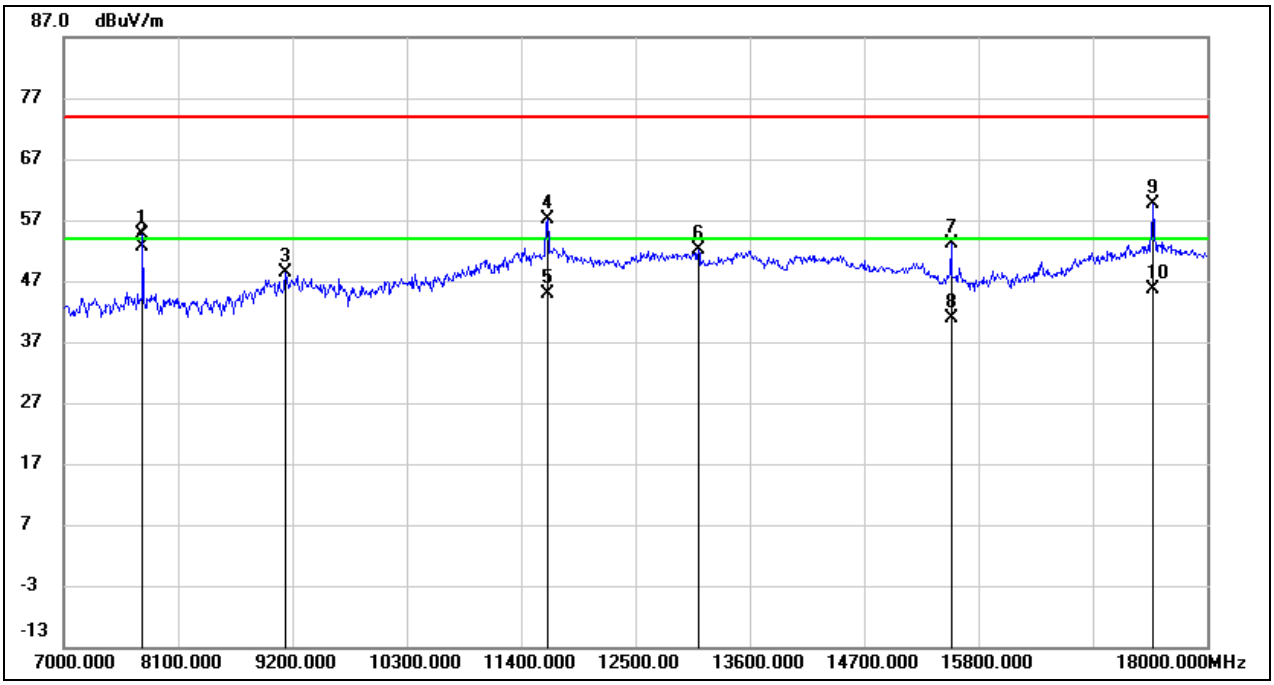
Test Mode:	802.11a 20	Channel:	5825 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	48.04	6.64	54.68	74.00	-19.32	peak
2	7759.000	45.99	6.64	52.63	54.00	-1.37	AVG
3	9134.000	37.89	10.41	48.30	74.00	-25.70	peak
4	11653.000	40.20	17.05	57.25	74.00	-16.75	peak
5	11653.000	27.81	17.05	44.86	54.00	-9.14	AVG
6	13105.000	33.17	18.91	52.08	74.00	-21.92	peak
7	15536.000	36.48	16.73	53.21	74.00	-20.79	peak
8	15536.000	24.09	16.73	40.82	54.00	-13.18	AVG
9	17483.000	36.97	22.62	59.59	74.00	-14.41	peak
10	17483.000	23.01	22.62	45.63	54.00	-8.37	AVG

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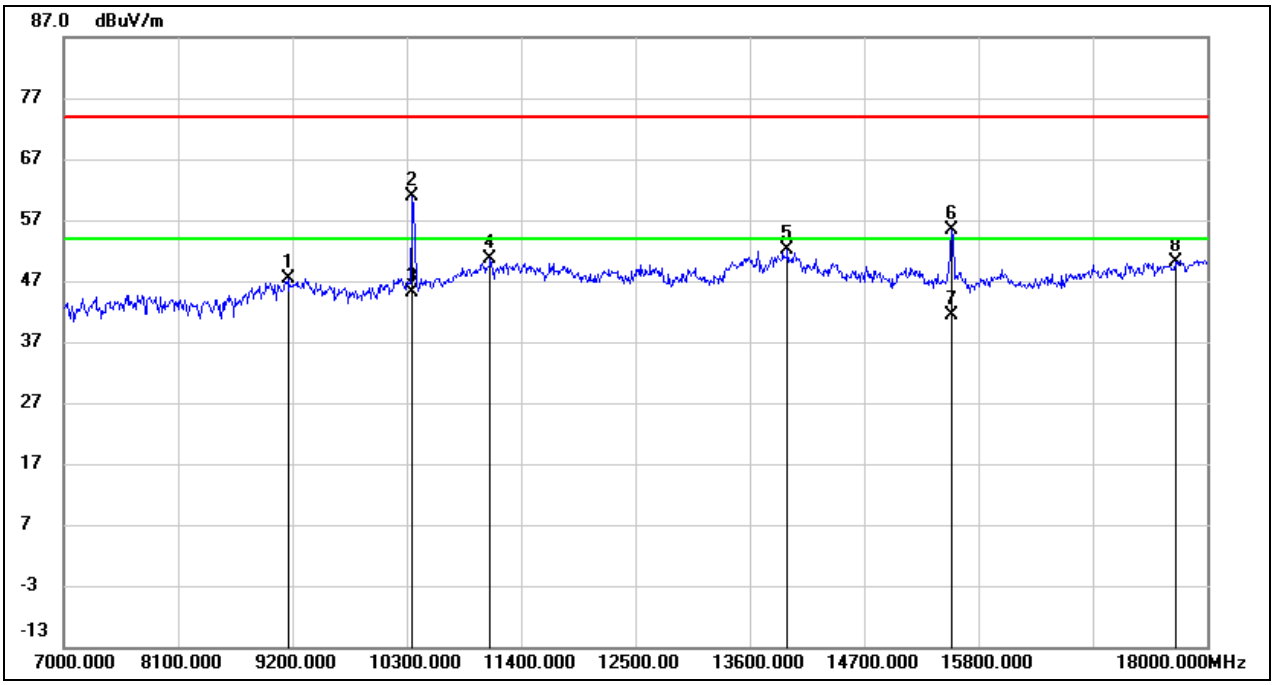
Test Mode:	802.11n HT20	Channel:	5180 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9156.000	36.89	10.44	47.33	74.00	-26.67	peak
2	10355.000	48.36	12.52	60.88	74.00	-13.12	peak
3	10355.000	32.58	12.52	45.10	54.00	-8.90	AVG
4	11103.000	35.38	15.15	50.53	74.00	-23.47	peak
5	13963.000	30.29	21.78	52.07	74.00	-21.93	peak
6	15536.000	38.74	16.73	55.47	74.00	-18.53	peak
7	15536.000	24.57	16.73	41.30	54.00	-12.70	AVG
8	17692.000	26.23	24.01	50.24	74.00	-23.76	peak

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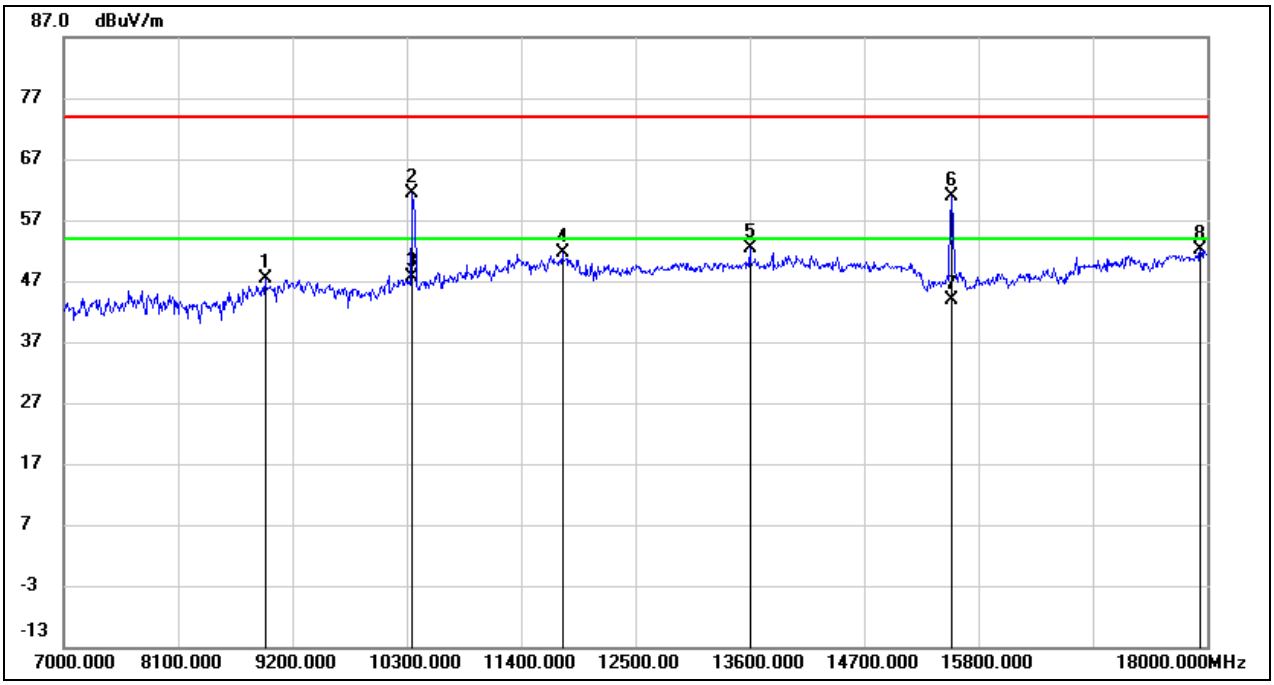
Test Mode:	802.11n HT20	Channel:	5180 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8936.000	37.46	9.90	47.36	74.00	-26.64	peak
2	10355.000	48.97	12.52	61.49	74.00	-12.51	peak
3	10355.000	35.18	12.52	47.70	54.00	-6.30	AVG
4	11796.000	34.25	17.32	51.57	74.00	-22.43	peak
5	13600.000	31.44	20.89	52.33	74.00	-21.67	peak
6	15547.000	44.25	16.73	60.98	74.00	-13.02	peak
7	15547.000	27.07	16.73	43.80	54.00	-10.20	AVG
8	17934.000	26.46	25.67	52.13	74.00	-21.87	peak

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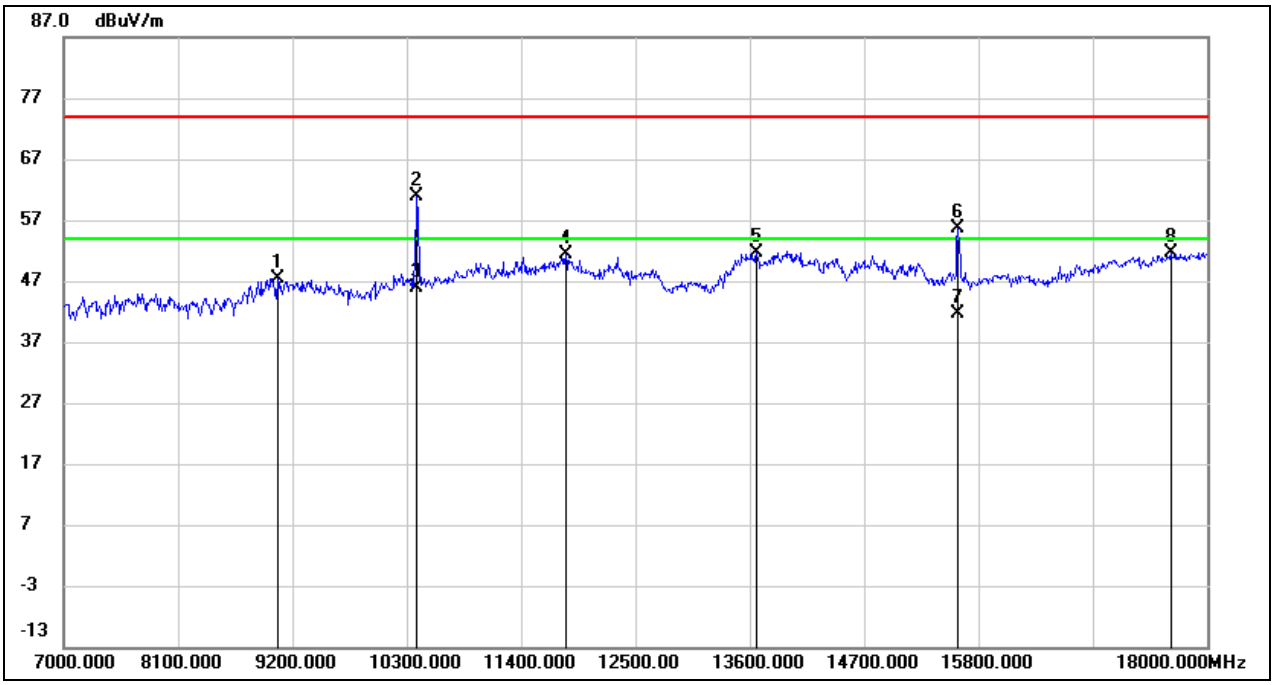
Test Mode:	802.11n HT20	Channel:	5200 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9057.000	37.00	10.38	47.38	74.00	-26.62	peak
2	10399.000	48.31	12.61	60.92	74.00	-13.08	peak
3	10399.000	33.21	12.61	45.82	54.00	-8.18	AVG
4	11829.000	33.90	17.38	51.28	74.00	-22.72	peak
5	13666.000	30.47	21.05	51.52	74.00	-22.48	peak
6	15602.000	38.94	16.75	55.69	74.00	-18.31	peak
7	15602.000	24.94	16.75	41.69	54.00	-12.31	AVG
8	17648.000	27.85	23.72	51.57	74.00	-22.43	peak

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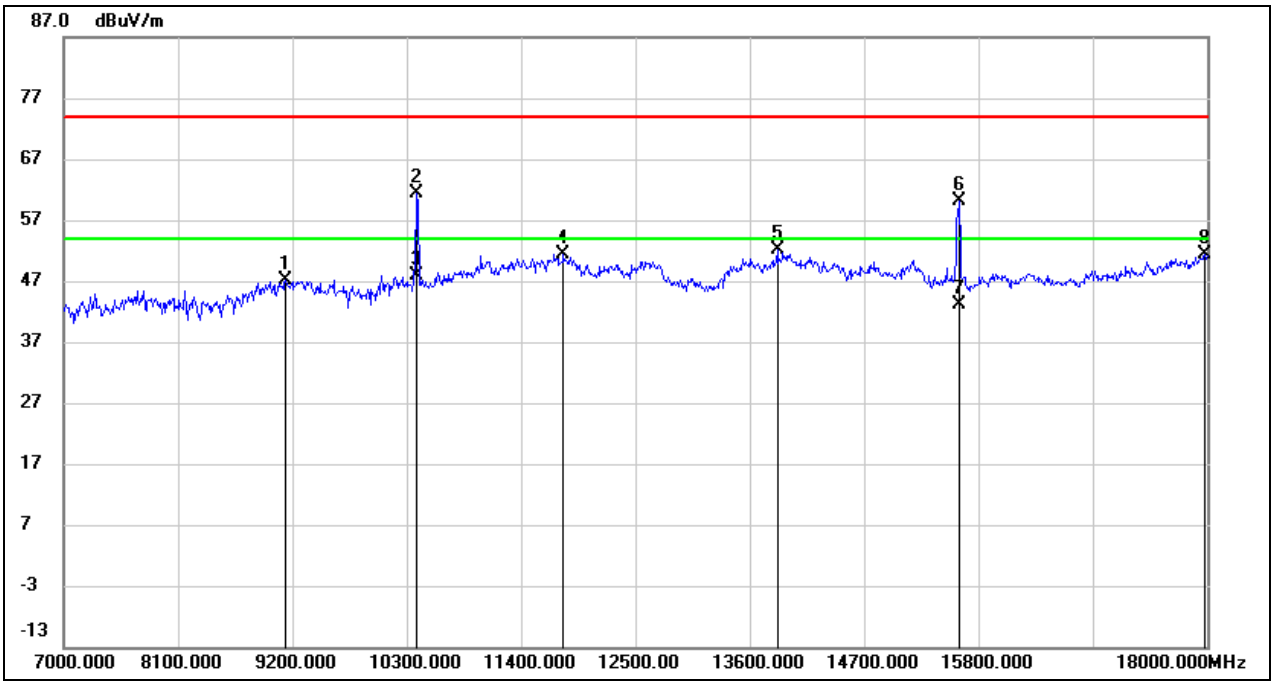
Test Mode:	802.11n HT20	Channel:	5200 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9134.000	36.61	10.41	47.02	74.00	-26.98	peak
2	10399.000	48.66	12.61	61.27	74.00	-12.73	peak
3	10399.000	35.29	12.61	47.90	54.00	-6.10	AVG
4	11807.000	34.08	17.34	51.42	74.00	-22.58	peak
5	13864.000	30.58	21.53	52.11	74.00	-21.89	peak
6	15613.000	43.34	16.76	60.10	74.00	-13.90	peak
7	15613.000	26.34	16.76	43.10	54.00	-10.90	AVG
8	17978.000	25.44	25.97	51.41	74.00	-22.59	peak

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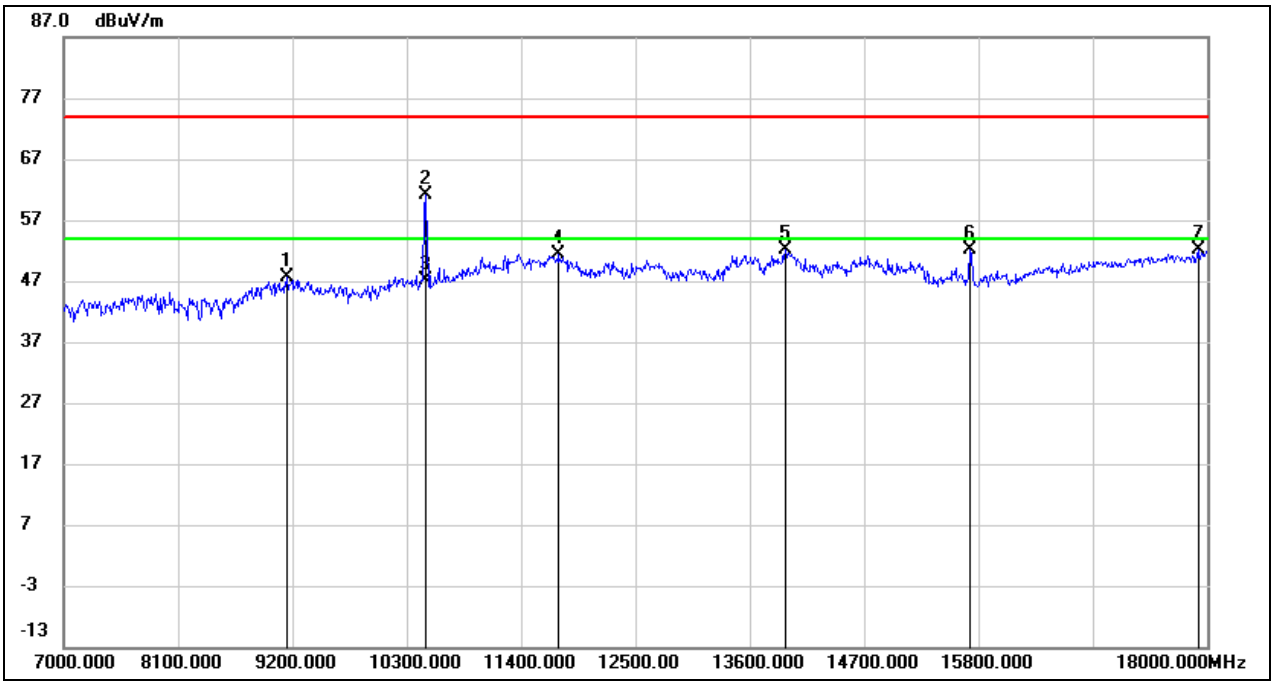
Test Mode:	802.11n HT20	Channel:	5240 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9145.000	37.23	10.43	47.66	74.00	-26.34	peak
2	10476.000	48.36	12.77	61.13	74.00	-12.87	peak
3	10476.000	34.33	12.77	47.10	54.00	-6.90	AVG
4	11763.000	34.01	17.26	51.27	74.00	-22.73	peak
5	13941.000	30.30	21.73	52.03	74.00	-21.97	peak
6	15712.000	35.25	16.80	52.05	74.00	-21.95	peak
7	17912.000	26.72	25.52	52.24	74.00	-21.76	peak

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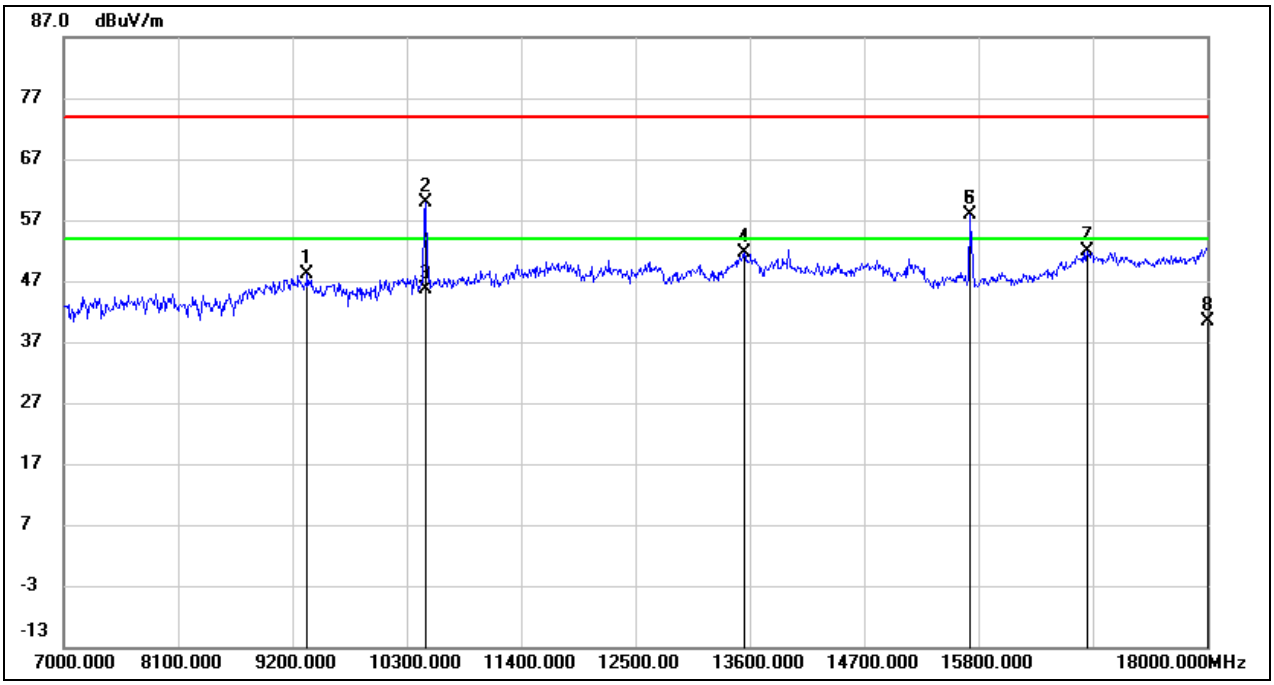
Test Mode:	802.11n HT20	Channel:	5240 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9343.000	37.62	10.55	48.17	74.00	-25.83	peak
2	10476.000	47.12	12.77	59.89	74.00	-14.11	peak
3	10476.000	32.90	12.77	45.67	54.00	-8.33	AVG
4	13545.000	30.96	20.74	51.70	74.00	-22.30	peak
5	15712.000	41.06	16.80	57.86	74.00	-16.14	peak
6	15712.000	41.06	16.80	57.86	74.00	-16.14	peak
7	16845.000	31.88	19.90	51.78	74.00	-22.22	peak
8	18000.000	14.14	26.12	40.26	54.00	-13.74	AVG

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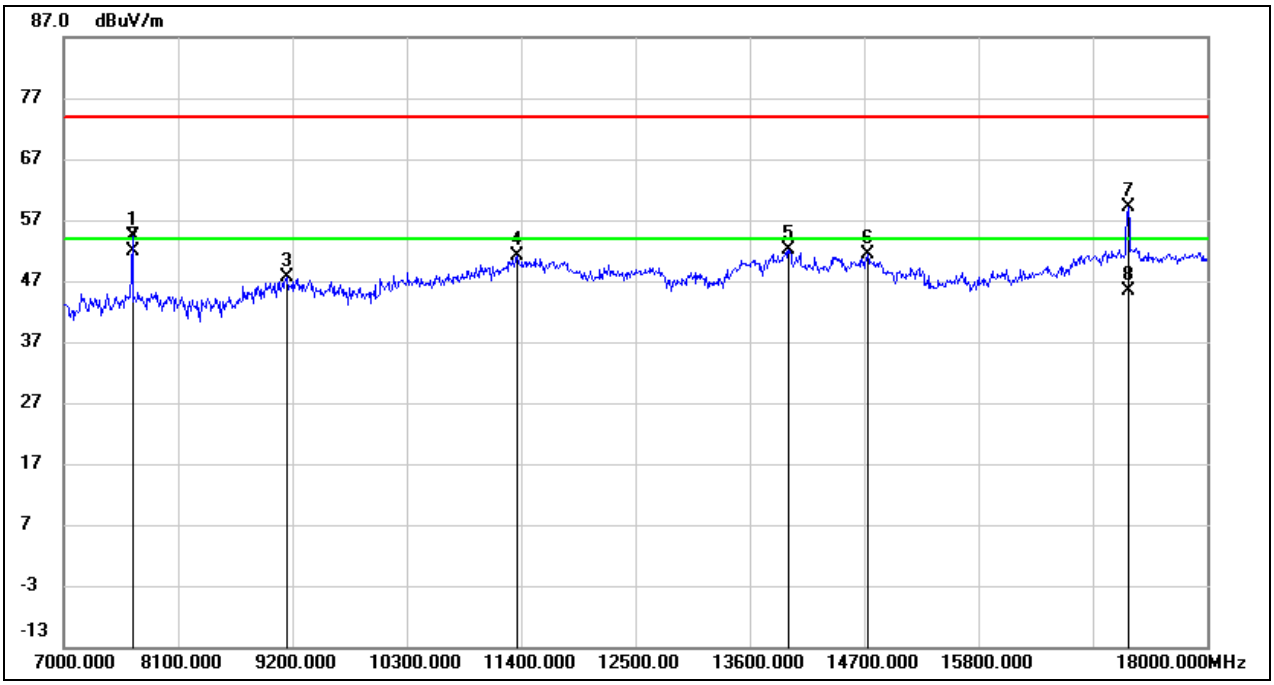
Test Mode:	802.11n HT20	Channel:	5745 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7660.000	47.71	6.73	54.44	74.00	-19.56	peak
2	7660.000	45.07	6.73	51.80	54.00	-2.20	AVG
3	9145.000	37.12	10.43	47.55	74.00	-26.45	peak
4	11356.000	34.96	16.19	51.15	74.00	-22.85	peak
5	13974.000	30.38	21.82	52.20	74.00	-21.80	peak
6	14733.000	32.53	18.79	51.32	74.00	-22.68	peak
7	17241.000	37.60	21.62	59.22	74.00	-14.78	peak
8	17241.000	23.71	21.62	45.33	54.00	-8.67	AVG

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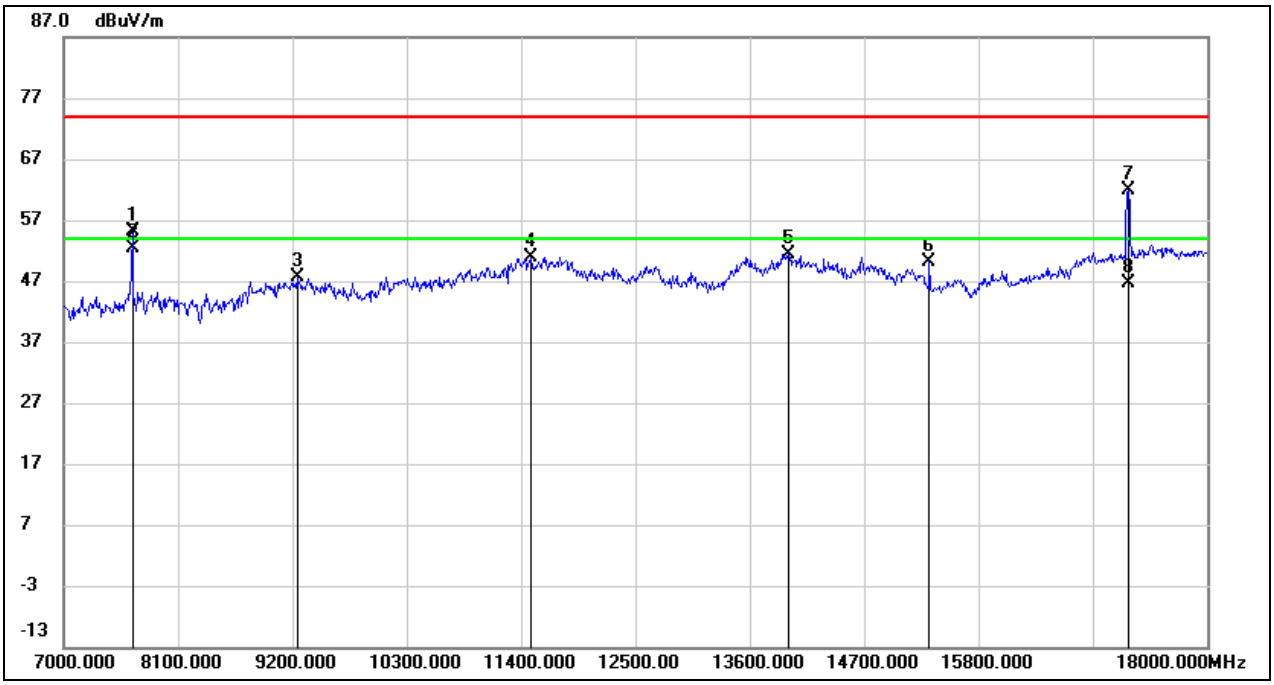
Test Mode:	802.11n HT20	Channel:	5745 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7660.000	48.36	6.73	55.09	74.00	-18.91	peak
2	7660.000	45.70	6.73	52.43	54.00	-1.57	AVG
3	9244.000	37.17	10.49	47.66	74.00	-26.34	peak
4	11499.000	34.11	16.77	50.88	74.00	-23.12	peak
5	13974.000	29.63	21.82	51.45	74.00	-22.55	peak
6	15327.000	33.20	17.05	50.25	74.00	-23.75	peak
7	17241.000	40.33	21.62	61.95	74.00	-12.05	peak
8	17241.000	24.89	21.62	46.51	54.00	-7.49	AVG

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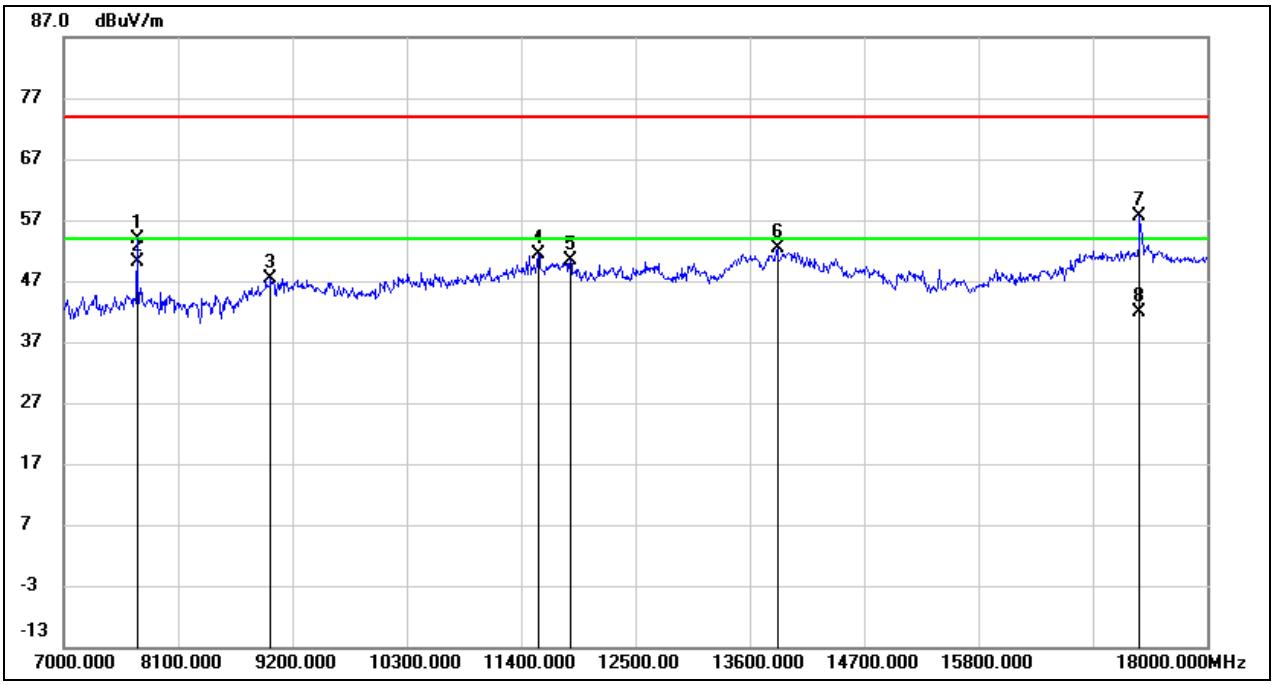
Test Mode:	802.11n HT20	Channel:	5785 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7704.000	47.23	6.69	53.92	74.00	-20.08	peak
2	7704.000	43.53	6.69	50.22	54.00	-3.78	AVG
3	8991.000	37.04	10.28	47.32	74.00	-26.68	peak
4	11565.000	34.56	16.89	51.45	74.00	-22.55	peak
5	11873.000	32.90	17.46	50.36	74.00	-23.64	peak
6	13864.000	30.89	21.53	52.42	74.00	-21.58	peak
7	17351.000	35.45	22.07	57.52	74.00	-16.48	peak
8	17351.000	19.74	22.07	41.81	54.00	-12.19	AVG

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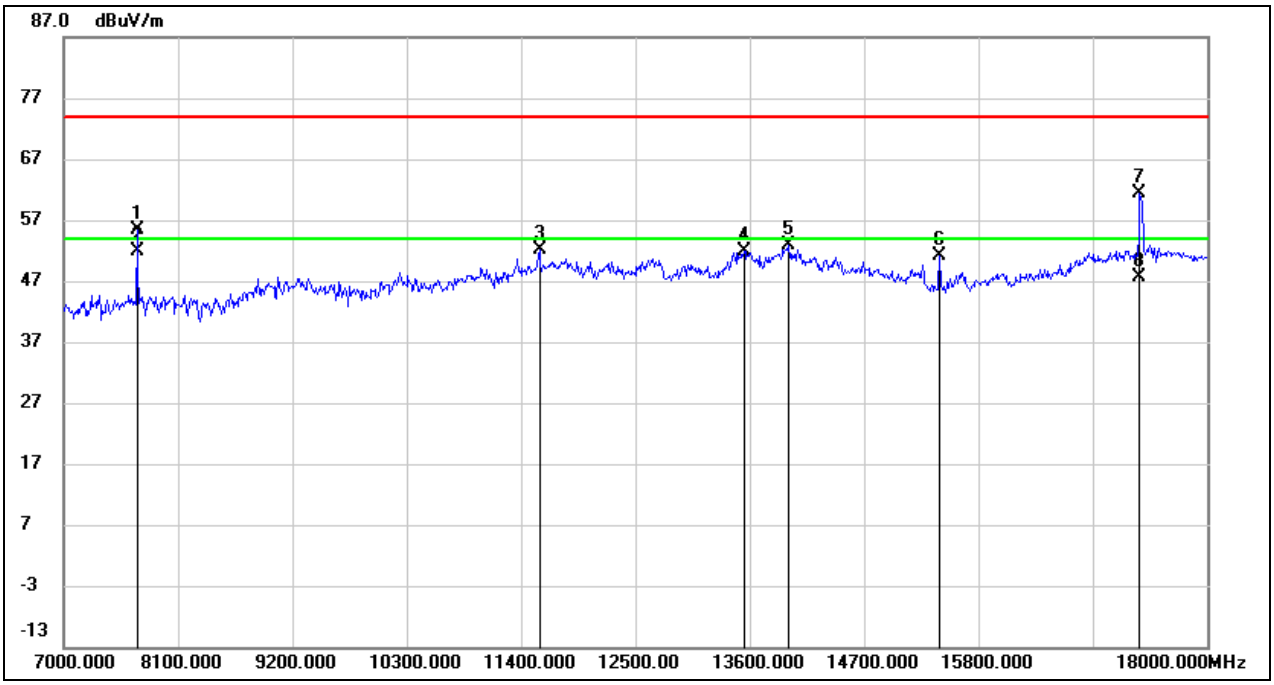
Test Mode:	802.11n HT20	Channel:	5785 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7704.000	48.70	6.69	55.39	74.00	-18.61	peak
2	7704.000	45.24	6.69	51.93	54.00	-2.07	AVG
3	11576.000	35.16	16.91	52.07	74.00	-21.93	peak
4	13545.000	31.19	20.74	51.93	74.00	-22.07	peak
5	13974.000	31.08	21.82	52.90	74.00	-21.10	peak
6	15426.000	34.25	16.86	51.11	74.00	-22.89	peak
7	17351.000	39.40	22.07	61.47	74.00	-12.53	peak
8	17351.000	25.46	22.07	47.53	54.00	-6.47	AVG

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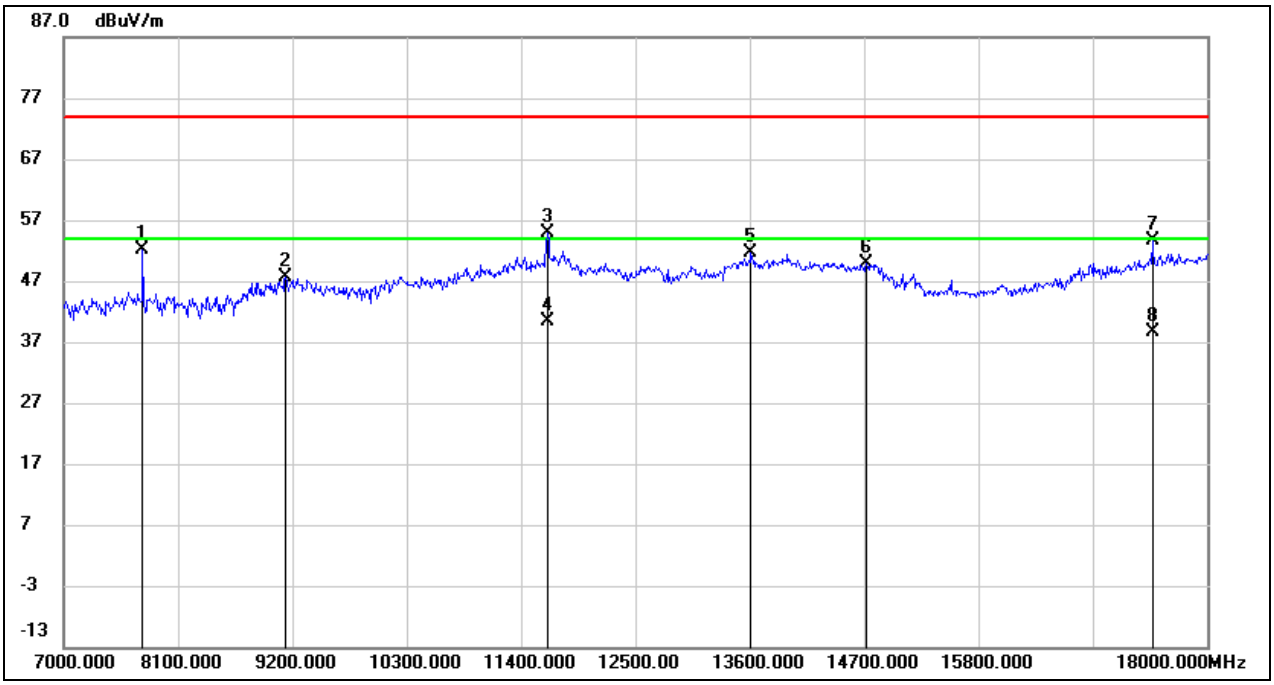
Test Mode:	802.11n HT20	Channel:	5825 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	45.58	6.64	52.22	74.00	-21.78	peak
2	9134.000	37.22	10.41	47.63	74.00	-26.37	peak
3	11653.000	37.71	17.05	54.76	74.00	-19.24	peak
4	11653.000	23.42	17.05	40.47	54.00	-13.53	AVG
5	13611.000	30.61	20.92	51.53	74.00	-22.47	peak
6	14722.000	30.96	18.84	49.80	74.00	-24.20	peak
7	17472.000	30.99	22.58	53.57	74.00	-20.43	peak
8	17472.000	15.97	22.58	38.55	54.00	-15.45	AVG

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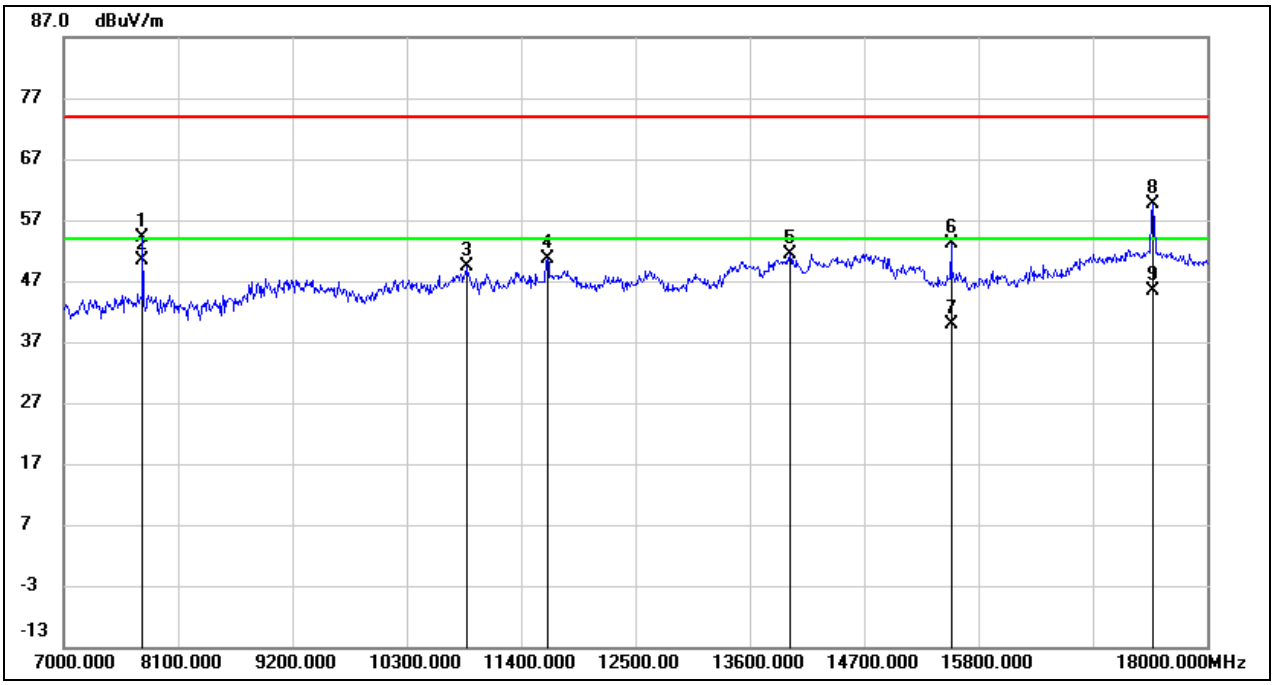
Test Mode:	802.11n HT20	Channel:	5825 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	47.57	6.64	54.21	74.00	-19.79	peak
2	7759.000	43.66	6.64	50.30	54.00	-3.70	AVG
3	10872.000	35.17	14.23	49.40	74.00	-24.60	peak
4	11653.000	33.59	17.05	50.64	74.00	-23.36	peak
5	13985.000	29.52	21.85	51.37	74.00	-22.63	peak
6	15536.000	36.37	16.73	53.10	74.00	-20.90	peak
7	15536.000	23.12	16.73	39.85	54.00	-14.15	AVG
8	17472.000	37.14	22.58	59.72	74.00	-14.28	peak
9	17472.000	22.70	22.58	45.28	54.00	-8.72	AVG

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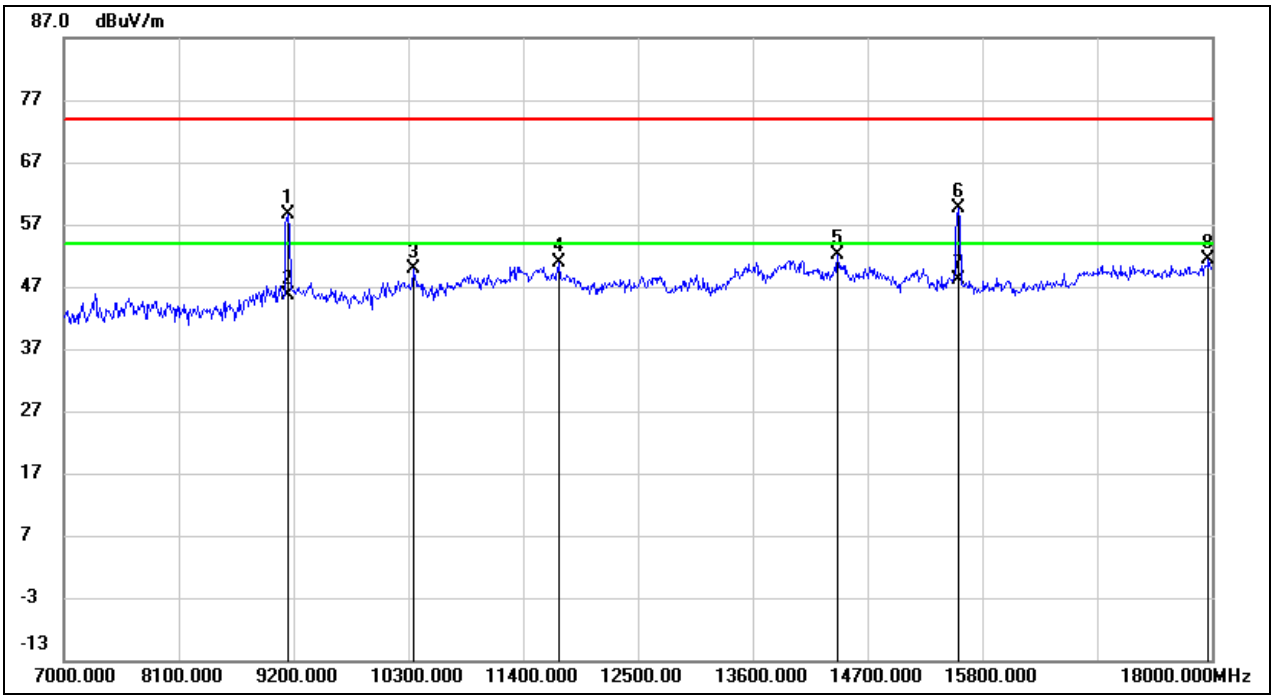
Test Mode:	802.11n HT40	Channel:	5190 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9145.000	48.29	10.43	58.72	74.00	-15.28	peak
2	9145.000	35.28	10.43	45.71	54.00	-8.29	AVG
3	10344.000	37.27	12.49	49.76	74.00	-24.24	peak
4	11741.000	33.68	17.22	50.90	74.00	-23.10	peak
5	14414.000	32.10	20.14	52.24	74.00	-21.76	peak
6	15569.000	42.92	16.74	59.66	74.00	-14.34	peak
7	15569.000	31.35	16.74	48.09	54.00	-5.91	AVG
8	17967.000	25.37	25.89	51.26	74.00	-22.74	peak

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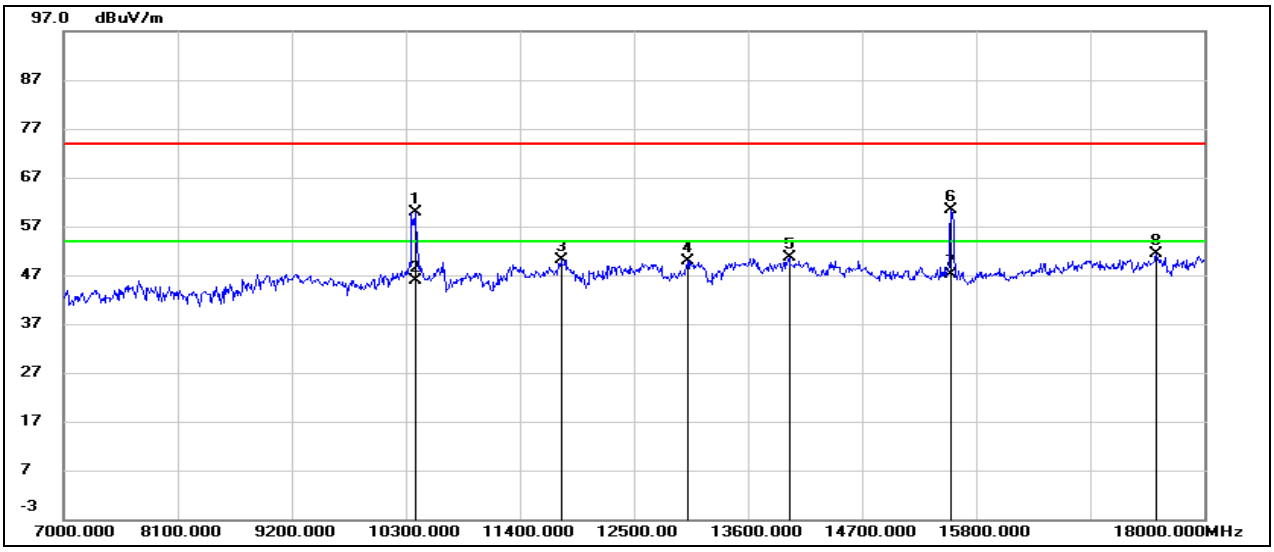
Test Mode:	802.11n HT40	Channel:	5190 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10388.000	47.17	12.59	59.76	74.00	-14.24	peak
2	10388.000	33.27	12.59	45.86	54.00	-8.14	AVG
3	11796.000	32.86	17.32	50.18	74.00	-23.82	peak
4	13017.000	31.36	18.53	49.89	74.00	-24.11	peak
5	13996.000	28.68	21.87	50.55	74.00	-23.45	peak
6	15558.000	43.52	16.74	60.26	74.00	-13.74	peak
7	15558.000	30.49	16.74	47.23	54.00	-6.77	AVG
8	17538.000	28.53	22.97	51.50	74.00	-22.50	peak

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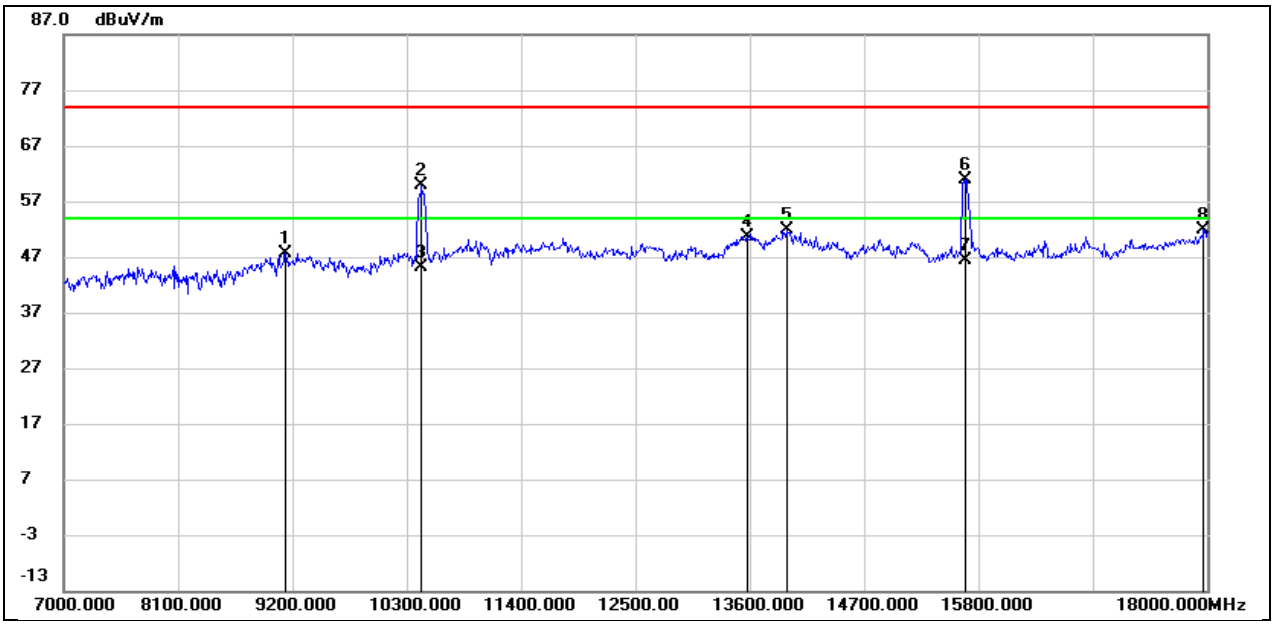
Test Mode:	802.11n HT40	Channel:	5230 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9134.000	37.29	10.41	47.70	74.00	-26.30	peak
2	10443.000	47.30	12.70	60.00	74.00	-14.00	peak
3	10443.000	32.43	12.70	45.13	54.00	-8.87	AVG
4	13578.000	29.77	20.83	50.60	74.00	-23.40	peak
5	13952.000	30.00	21.76	51.76	74.00	-22.24	peak
6	15679.000	44.18	16.79	60.97	74.00	-13.03	peak
7	15679.000	29.60	16.79	46.39	54.00	-7.61	AVG
8	17967.000	25.92	25.89	51.81	74.00	-22.19	peak

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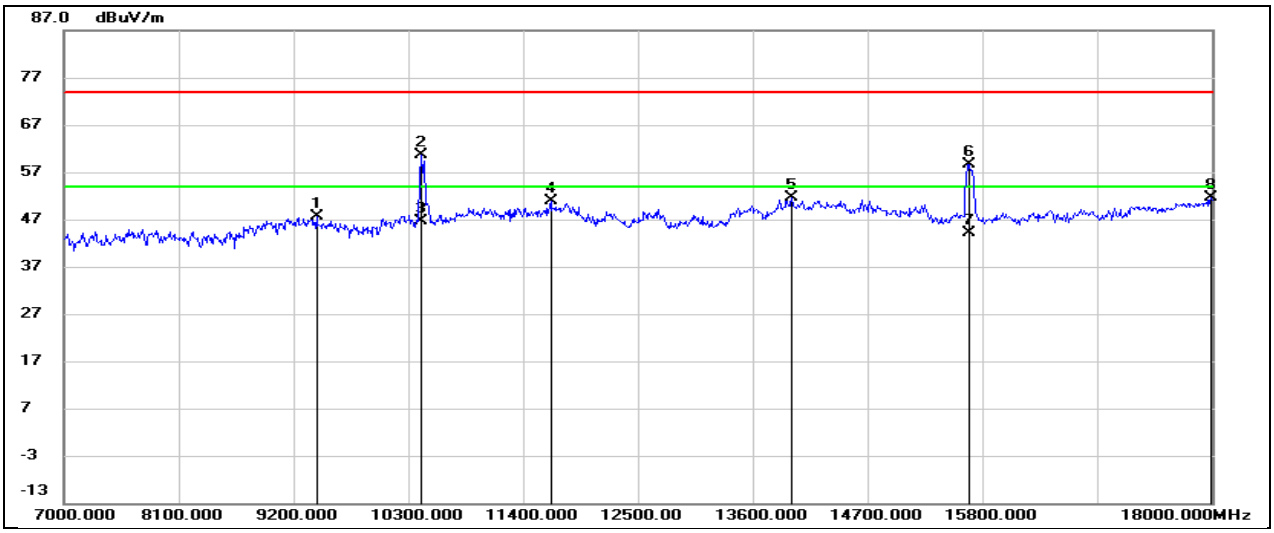
Test Mode:	802.11n HT40	Channel:	5230 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9420.000	37.12	10.60	47.72	74.00	-26.28	peak
2	10421.000	47.86	12.66	60.52	74.00	-13.48	peak
3	10421.000	33.85	12.66	46.51	54.00	-7.49	AVG
4	11664.000	33.70	17.08	50.78	74.00	-23.22	peak
5	13974.000	29.82	21.82	51.64	74.00	-22.36	peak
6	15668.000	41.90	16.78	58.68	74.00	-15.32	peak
7	15668.000	27.45	16.78	44.23	54.00	-9.77	AVG
8	17989.000	25.64	26.04	51.68	74.00	-22.32	peak

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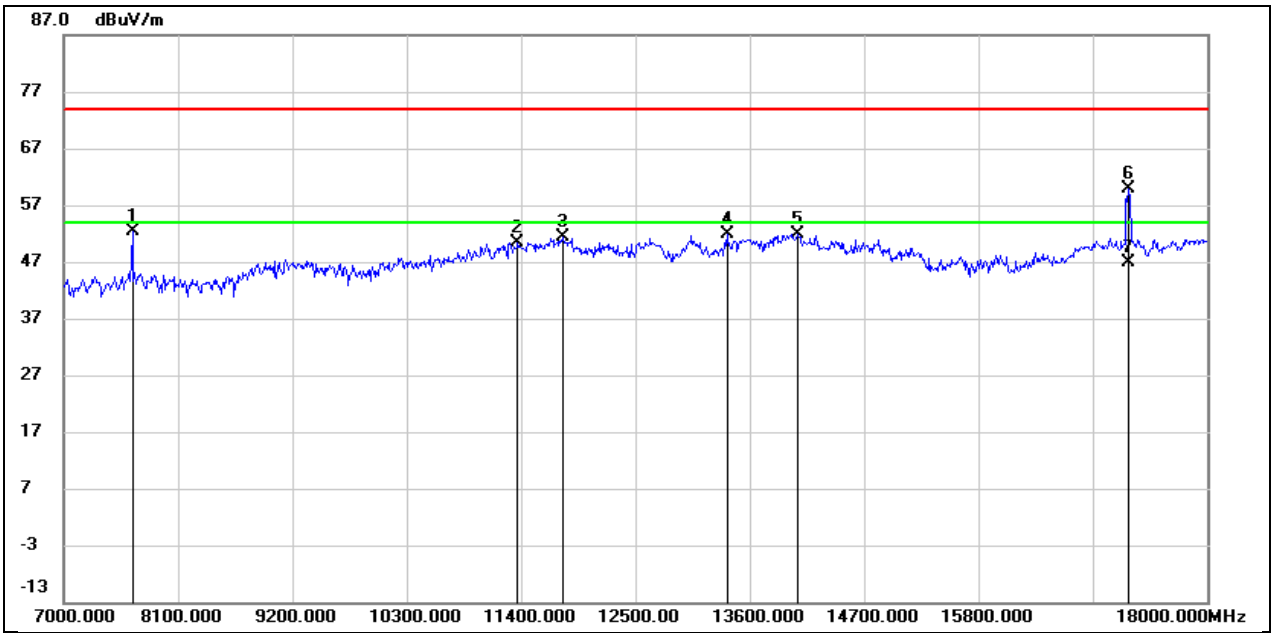
Test Mode:	802.11n HT40	Channel:	5755 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7660.000	45.68	6.73	52.41	74.00	-21.59	peak
2	11367.000	34.27	16.22	50.49	74.00	-23.51	peak
3	11796.000	33.98	17.32	51.30	74.00	-22.70	peak
4	13380.000	31.65	20.12	51.77	74.00	-22.23	peak
5	14062.000	30.33	21.62	51.95	74.00	-22.05	peak
6	17241.000	38.17	21.62	59.79	74.00	-14.21	peak
7	17241.000	25.20	21.62	46.82	54.00	-7.18	AVG

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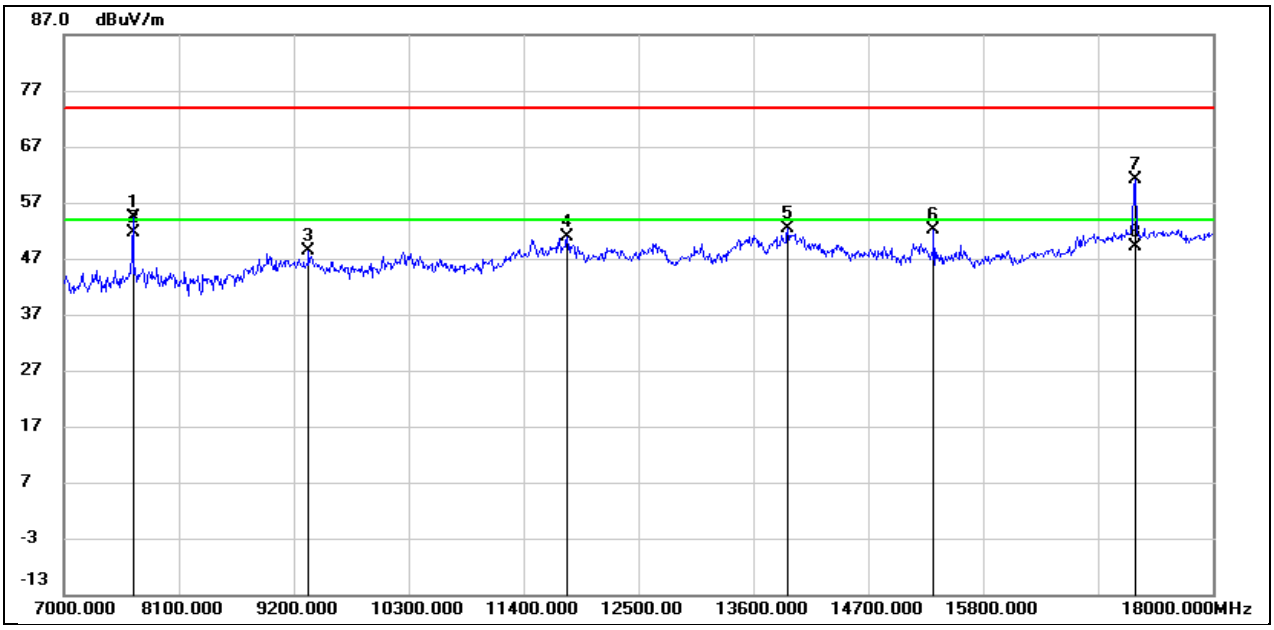
Test Mode:	802.11n HT40	Channel:	5755 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7660.000	47.64	6.73	54.37	74.00	-19.63	peak
2	7660.000	44.96	6.73	51.69	54.00	-2.31	AVG
3	9343.000	37.74	10.55	48.29	74.00	-25.71	peak
4	11818.000	33.42	17.36	50.78	74.00	-23.22	peak
5	13930.000	30.62	21.71	52.33	74.00	-21.67	peak
6	15327.000	35.04	17.05	52.09	74.00	-21.91	peak
7	17263.000	39.42	21.71	61.13	74.00	-12.87	peak
8	17263.000	27.39	21.71	49.10	54.00	-4.90	AVG

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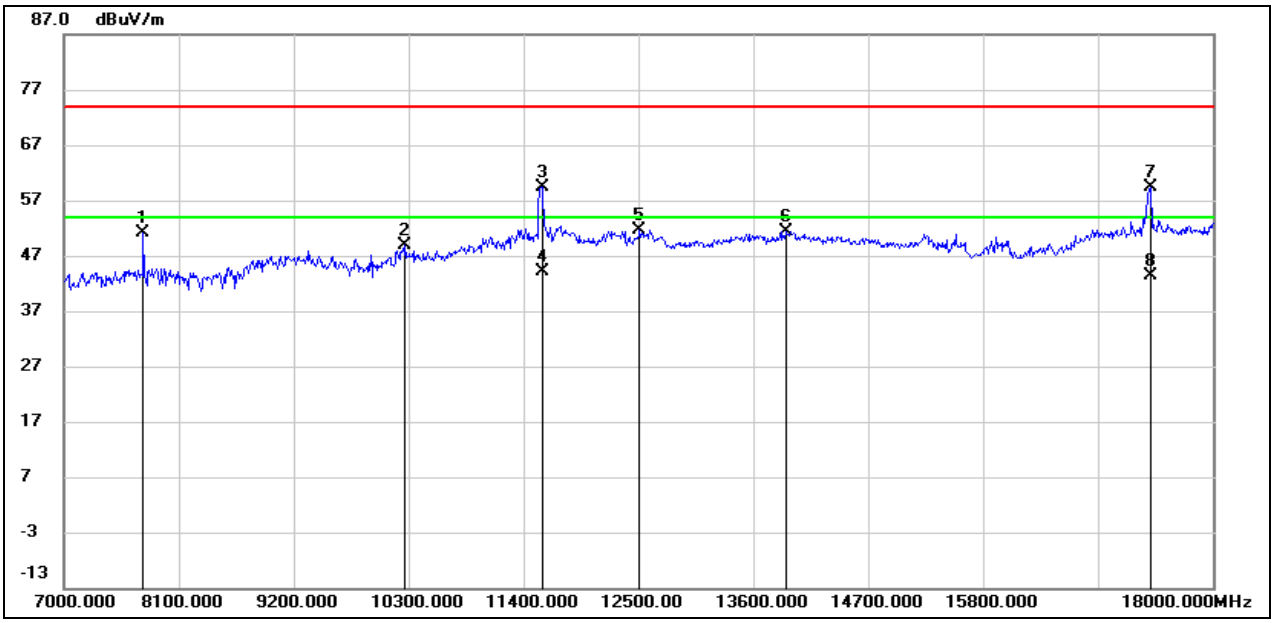
Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	44.50	6.64	51.14	74.00	-22.86	peak
2	10267.000	36.59	12.33	48.92	74.00	-25.08	peak
3	11576.000	42.54	16.91	59.45	74.00	-14.55	peak
4	11576.000	27.29	16.91	44.20	54.00	-9.80	AVG
5	12511.000	33.82	17.84	51.66	74.00	-22.34	peak
6	13919.000	29.70	21.68	51.38	74.00	-22.62	peak
7	17406.000	37.04	22.31	59.35	74.00	-14.65	peak
8	17406.000	20.97	22.31	43.28	54.00	-10.72	AVG

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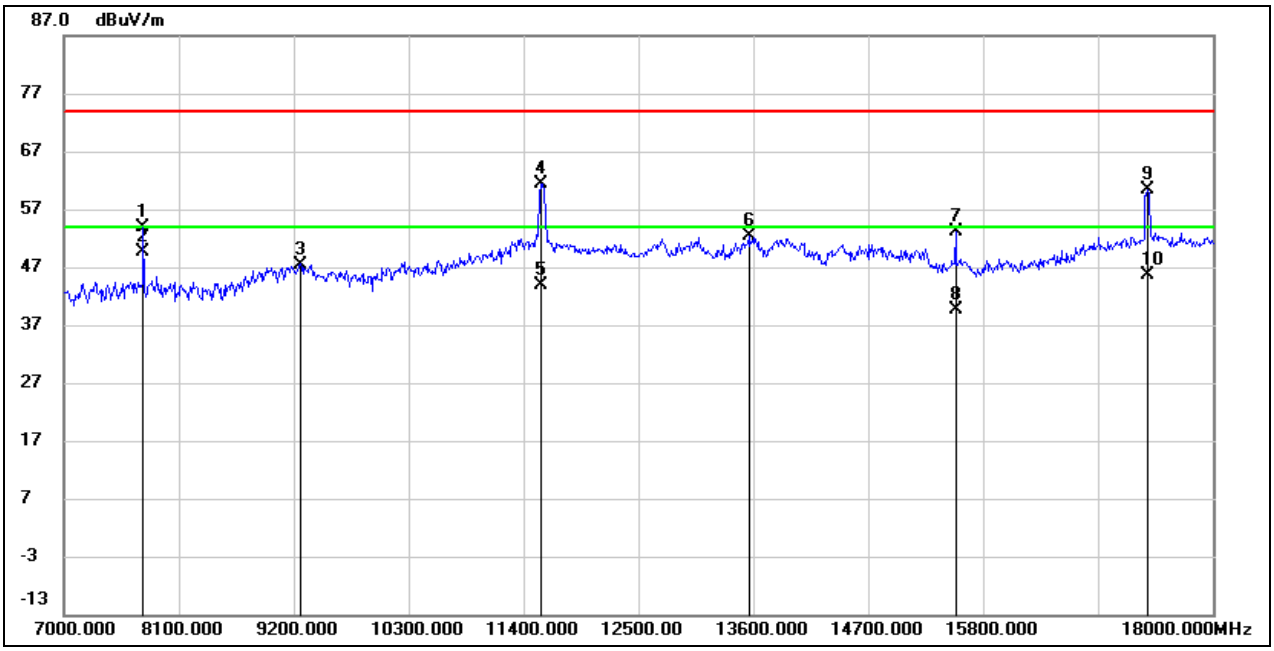
Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7759.000	47.20	6.64	53.84	74.00	-20.16	peak
2	7759.000	43.02	6.64	49.66	54.00	-4.34	AVG
3	9266.000	36.99	10.51	47.50	74.00	-26.50	peak
4	11565.000	44.46	16.89	61.35	74.00	-12.65	peak
5	11565.000	26.99	16.89	43.88	54.00	-10.12	AVG
6	13556.000	31.62	20.78	52.40	74.00	-21.60	peak
7	15536.000	36.42	16.73	53.15	74.00	-20.85	peak
8	15536.000	22.85	16.73	39.58	54.00	-14.42	AVG
9	17373.000	38.18	22.16	60.34	74.00	-13.66	peak
10	17373.000	23.44	22.16	45.60	54.00	-8.40	AVG

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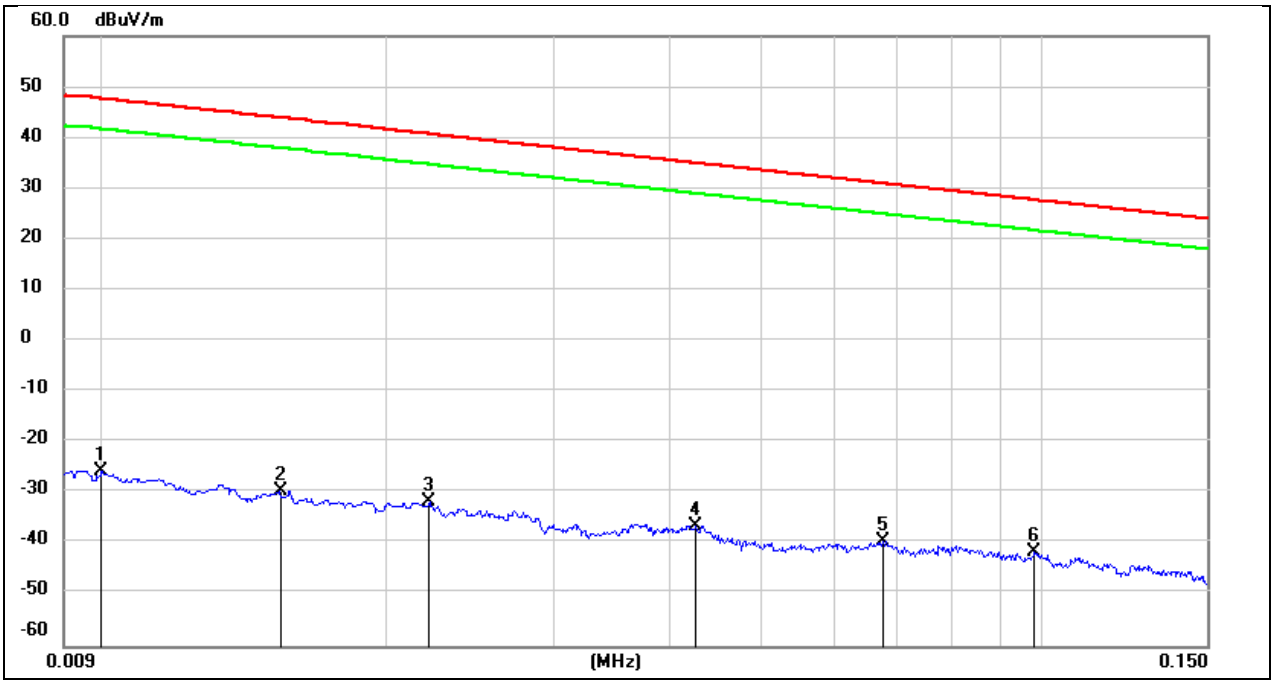
8.4. SPURIOUS EMISSIONS (9 KHZ ~ 30 MHZ)

Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Loop Antenna Face On To The EUT	Test Voltage	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0100	75.72	-101.40	-25.68	47.60	-73.28	peak
2	0.0154	71.94	-101.37	-29.43	43.85	-73.28	peak
3	0.0221	69.63	-101.35	-31.72	40.71	-72.43	peak
4	0.0427	65.14	-101.45	-36.31	34.99	-71.30	peak
5	0.0675	62.14	-101.56	-39.42	31.02	-70.44	peak
6	0.0981	60.27	-101.78	-41.51	27.77	-69.28	peak

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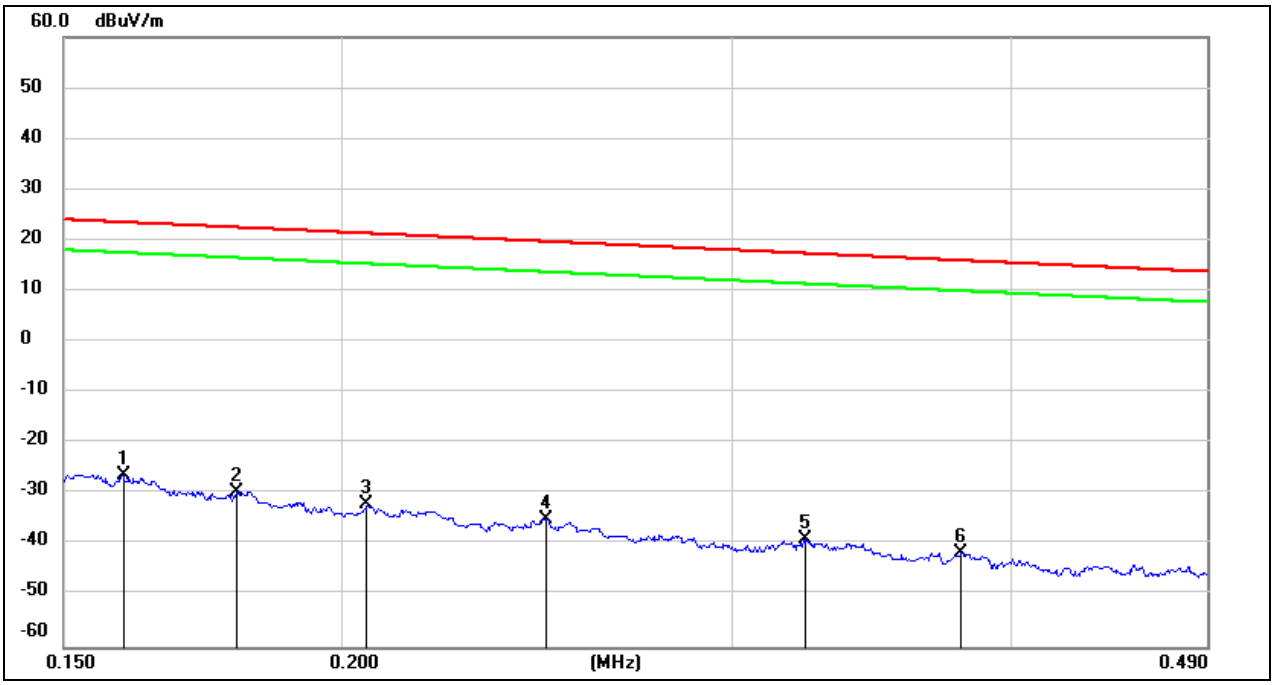
Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Loop Antenna Face On To The EUT	Test Voltage	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1595	75.36	-101.65	-26.29	23.55	-49.84	peak
2	0.1794	72.27	-101.68	-29.41	22.53	-51.94	peak
3	0.2053	69.79	-101.73	-31.94	21.35	-53.29	peak
4	0.2472	66.95	-101.80	-34.85	19.74	-54.59	peak
5	0.3234	62.98	-101.88	-38.90	17.41	-56.31	peak
6	0.3800	60.52	-101.94	-41.42	16.01	-57.43	peak

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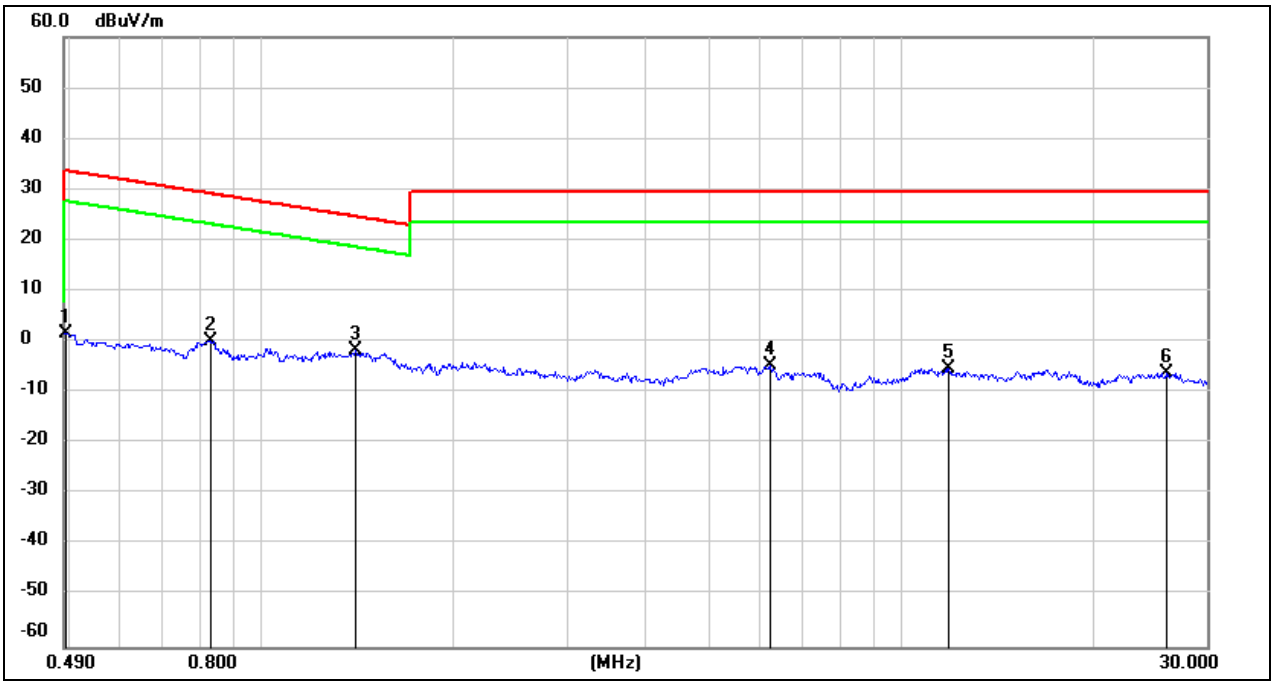
Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Loop Antenna Face On To The EUT	Test Voltage	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.4939	63.64	-62.06	1.58	33.73	-32.15	peak
2	0.8296	62.44	-62.17	0.27	29.23	-28.96	peak
3	1.4048	60.40	-62.09	-1.69	24.65	-26.34	peak
4	6.2445	56.63	-61.32	-4.69	29.54	-34.23	peak
5	11.8513	55.56	-60.88	-5.32	29.54	-34.86	peak
6	25.8978	54.26	-60.36	-6.10	29.54	-35.64	peak

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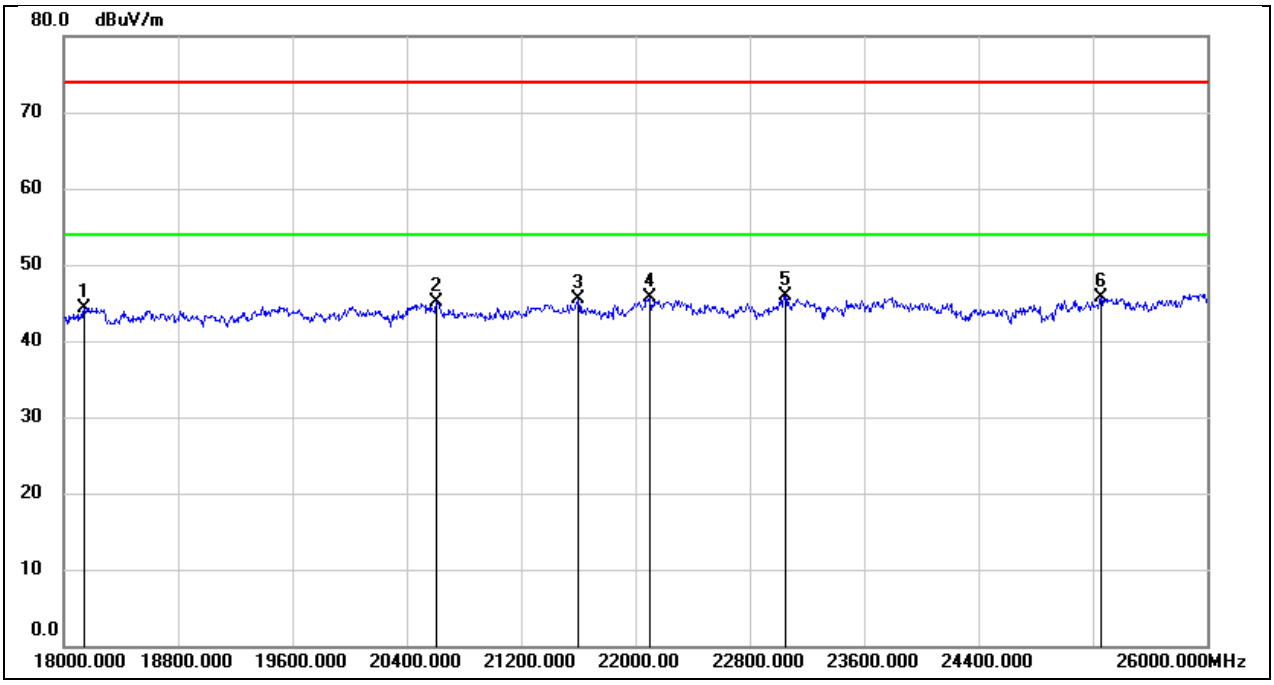
8.5. SPURIOUS EMISSIONS (18 GHZ ~ 26 GHZ)

Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Horizontal	Test Voltage	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18144.000	49.77	-5.48	44.29	74.00	-29.71	peak
2	20608.000	50.26	-5.25	45.01	74.00	-28.99	peak
3	21600.000	50.02	-4.54	45.48	74.00	-28.52	peak
4	22096.000	50.04	-4.38	45.66	74.00	-28.34	peak
5	23048.000	49.43	-3.43	46.00	74.00	-28.00	peak
6	25256.000	47.29	-1.67	45.62	74.00	-28.38	peak

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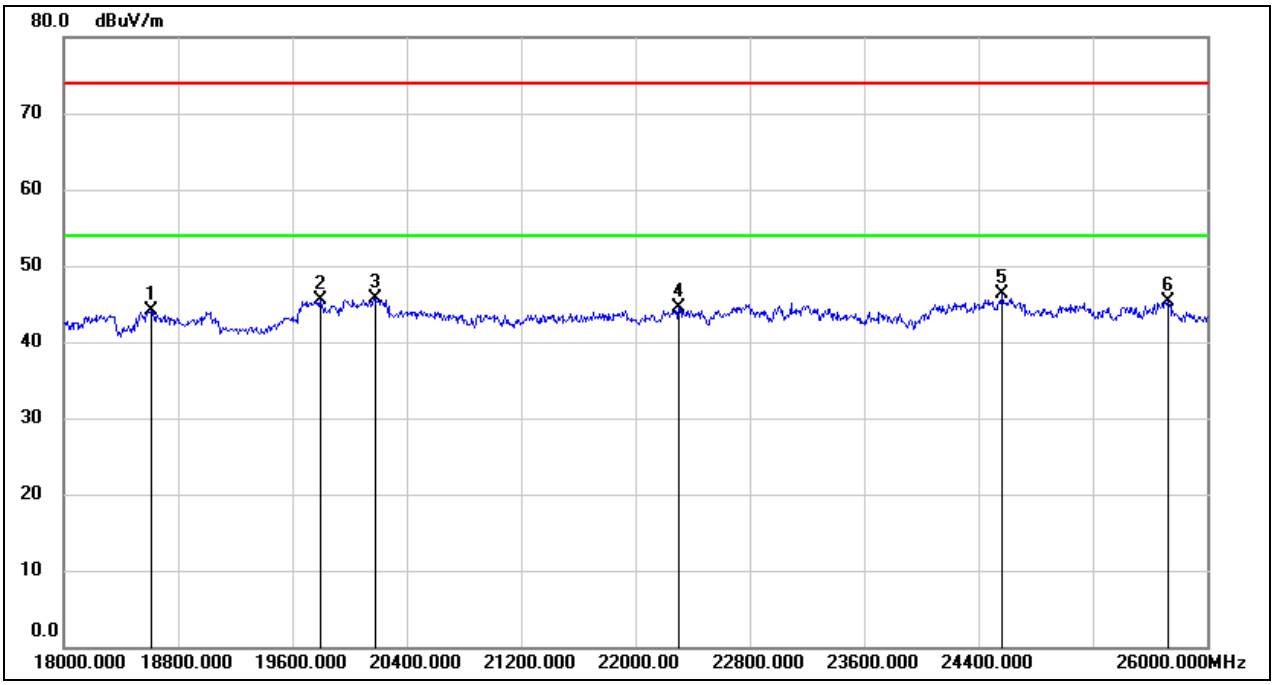
Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Vertical	Test Voltage	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18616.000	49.39	-5.34	44.05	74.00	-29.95	peak
2	19792.000	50.70	-5.29	45.41	74.00	-28.59	peak
3	20176.000	51.21	-5.56	45.65	74.00	-28.35	peak
4	22304.000	48.56	-4.15	44.41	74.00	-29.59	peak
5	24568.000	48.60	-2.33	46.27	74.00	-27.73	peak
6	25728.000	46.11	-0.72	45.39	74.00	-28.61	peak

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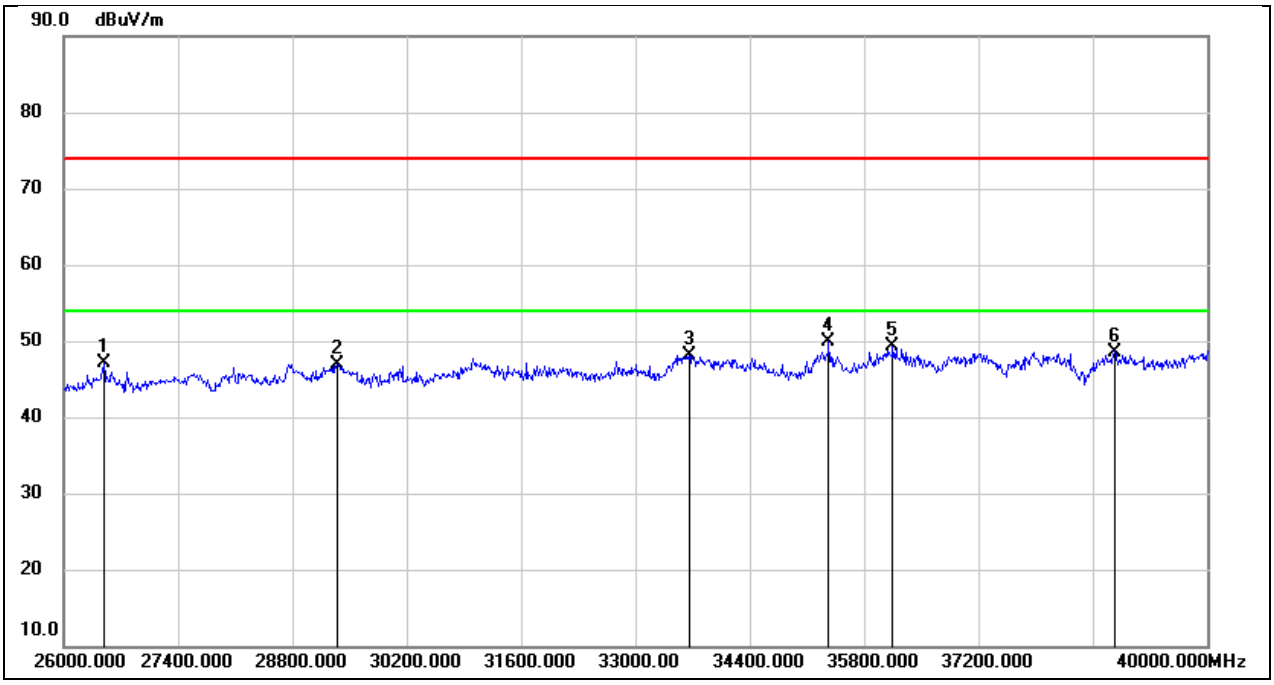
8.6. SPURIOUS EMISSIONS (26 GHZ ~ 40 GHZ)

Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Horizontal	Test Voltage	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26490.000	51.79	-4.74	47.05	74.00	-26.95	peak
2	29346.000	47.88	-0.91	46.97	74.00	-27.03	peak
3	33658.000	47.78	0.41	48.19	74.00	-25.81	peak
4	35366.000	47.40	2.59	49.99	74.00	-24.01	peak
5	36150.000	45.69	3.57	49.26	74.00	-24.74	peak
6	38866.000	44.38	4.22	48.60	74.00	-25.40	peak

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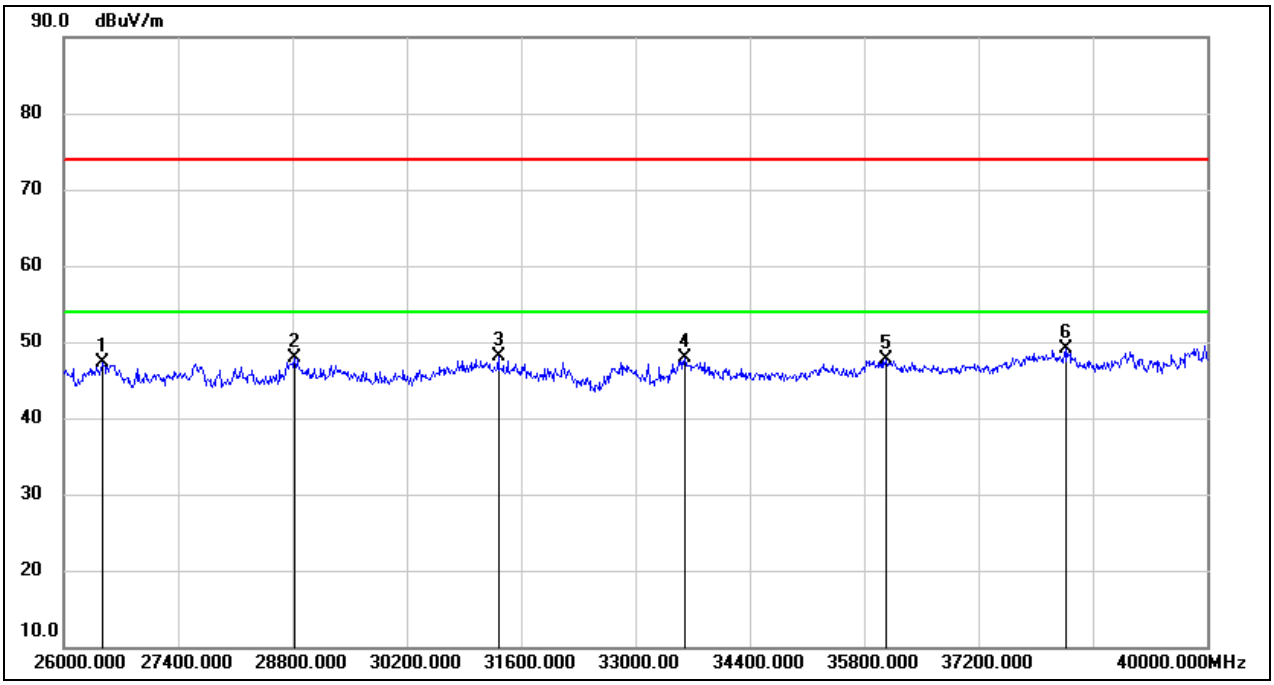
Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Vertical	Test Voltage	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26476.000	52.03	-4.78	47.25	74.00	-26.75	peak
2	28828.000	48.63	-0.79	47.84	74.00	-26.16	peak
3	31320.000	49.11	-0.93	48.18	74.00	-25.82	peak
4	33602.000	47.51	0.46	47.97	74.00	-26.03	peak
5	36066.000	43.85	3.83	47.68	74.00	-26.32	peak
6	38278.000	45.32	3.82	49.14	74.00	-24.86	peak

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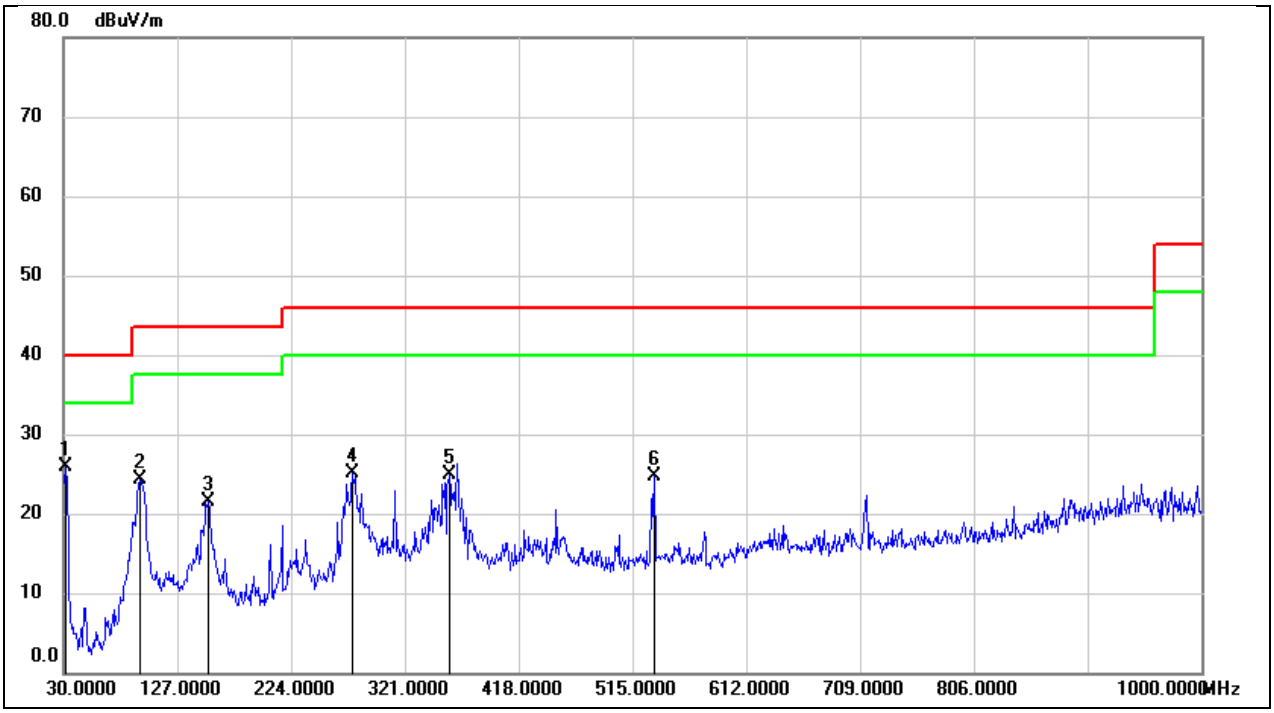
8.7. SPURIOUS EMISSIONS (30 MHZ ~ 1 GHZ)

Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Horizontal	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	31.9400	45.03	-19.13	25.90	40.00	-14.10	QP
2	94.9900	45.74	-21.52	24.22	43.50	-19.28	QP
3	153.1900	39.55	-18.10	21.45	43.50	-22.05	QP
4	276.3800	42.20	-17.06	25.14	46.00	-20.86	QP
5	358.8299	39.13	-14.13	25.00	46.00	-21.00	QP
6	533.4300	35.38	-10.70	24.68	46.00	-21.32	QP

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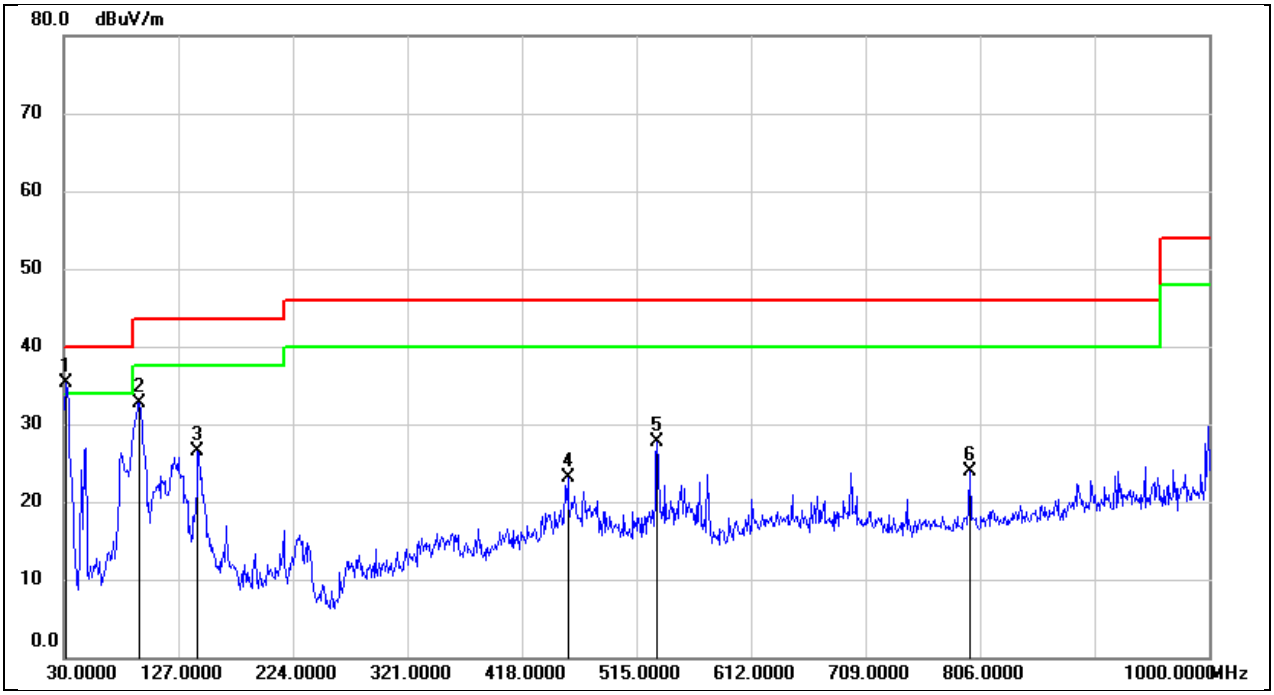
Test Mode:	802.11n HT40	Channel:	5795 MHz
Polarity:	Vertical	Test Voltage:	DC 5 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	31.9400	54.37	-19.13	35.24	40.00	-4.76	QP
2	94.0199	54.24	-21.60	32.64	43.50	-10.86	QP
3	143.4900	45.23	-18.66	26.57	43.50	-16.93	QP
4	456.8000	35.27	-12.24	23.03	46.00	-22.97	QP
5	532.4600	38.52	-10.73	27.79	46.00	-18.21	QP
6	797.2700	31.22	-7.35	23.87	46.00	-22.13	QP

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9. AC POWER LINE CONDUCTED EMISSION

LIMITS

Please refer to CFR 47 FCC §15.207 (a)

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

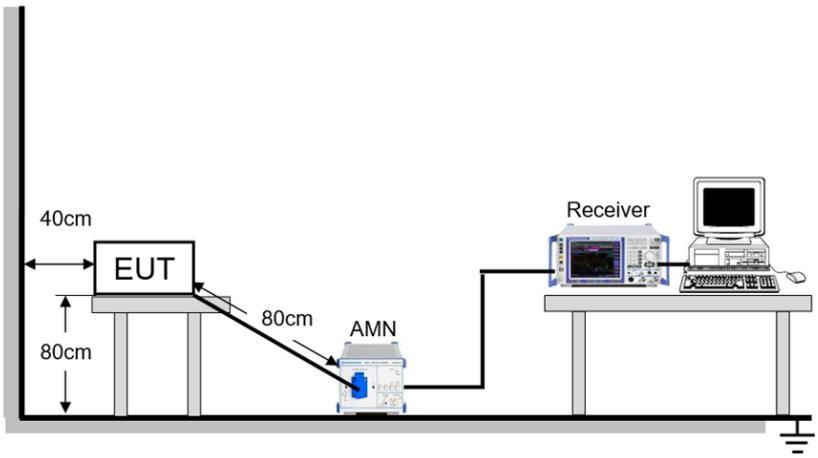
TEST PROCEDURE

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	23.6℃	Relative Humidity	54%
Atmosphere Pressure	101kPa	Test Voltage	AC 120 V/ 60 Hz

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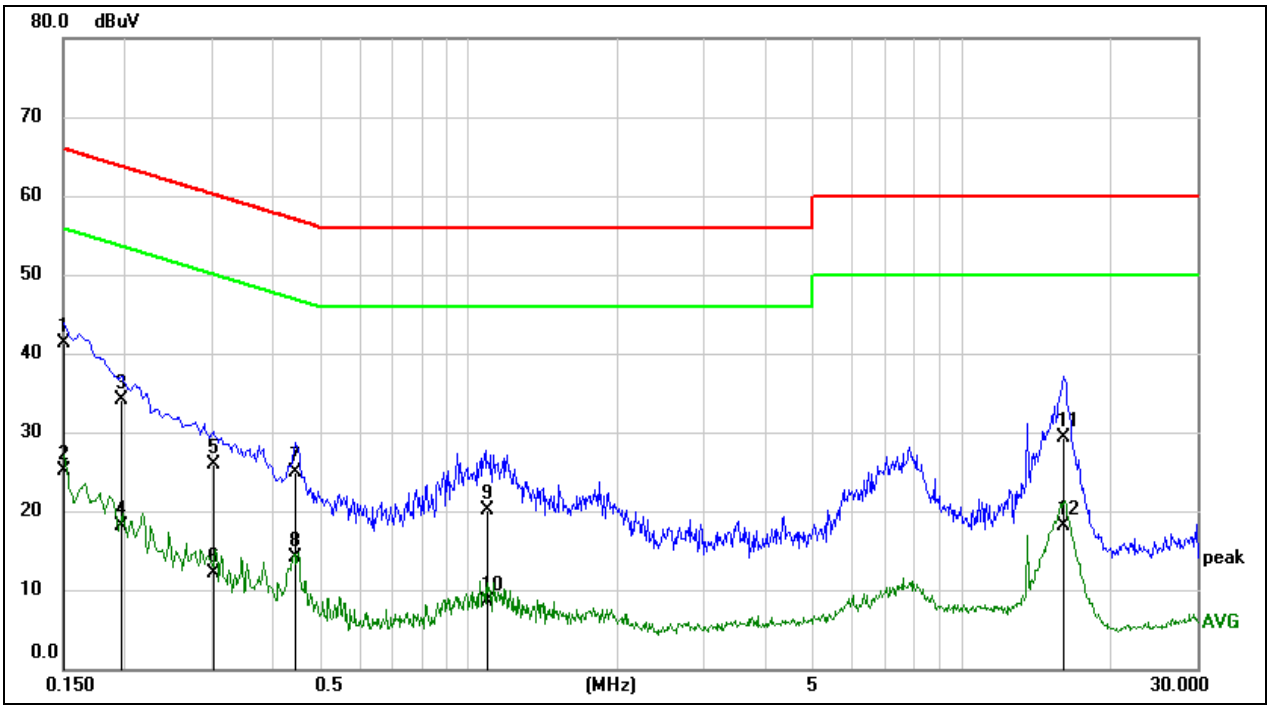
TEST RESULTS

Test Mode:	802.11n HT40	Line:	Line
Channel:	5795 MHz	Test Voltage:	AC 120 V/60 Hz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1503	31.64	9.59	41.23	65.98	-24.75	QP
2	0.1503	15.56	9.59	25.15	55.98	-30.83	AVG
3	0.1965	24.54	9.59	34.13	63.76	-29.63	QP
4	0.1965	8.56	9.59	18.15	53.76	-35.61	AVG
5	0.3008	16.40	9.49	25.89	60.22	-34.33	QP
6	0.3008	2.58	9.49	12.07	50.22	-38.15	AVG
7	0.4432	15.54	9.36	24.90	57.00	-32.10	QP
8	0.4432	4.75	9.36	14.11	47.00	-32.89	AVG
9	1.0871	10.56	9.61	20.17	56.00	-35.83	QP
10	1.0871	-1.03	9.61	8.58	46.00	-37.42	AVG
11	16.1545	19.50	9.73	29.23	60.00	-30.77	QP
12	16.1545	8.43	9.73	18.16	50.00	-31.84	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.

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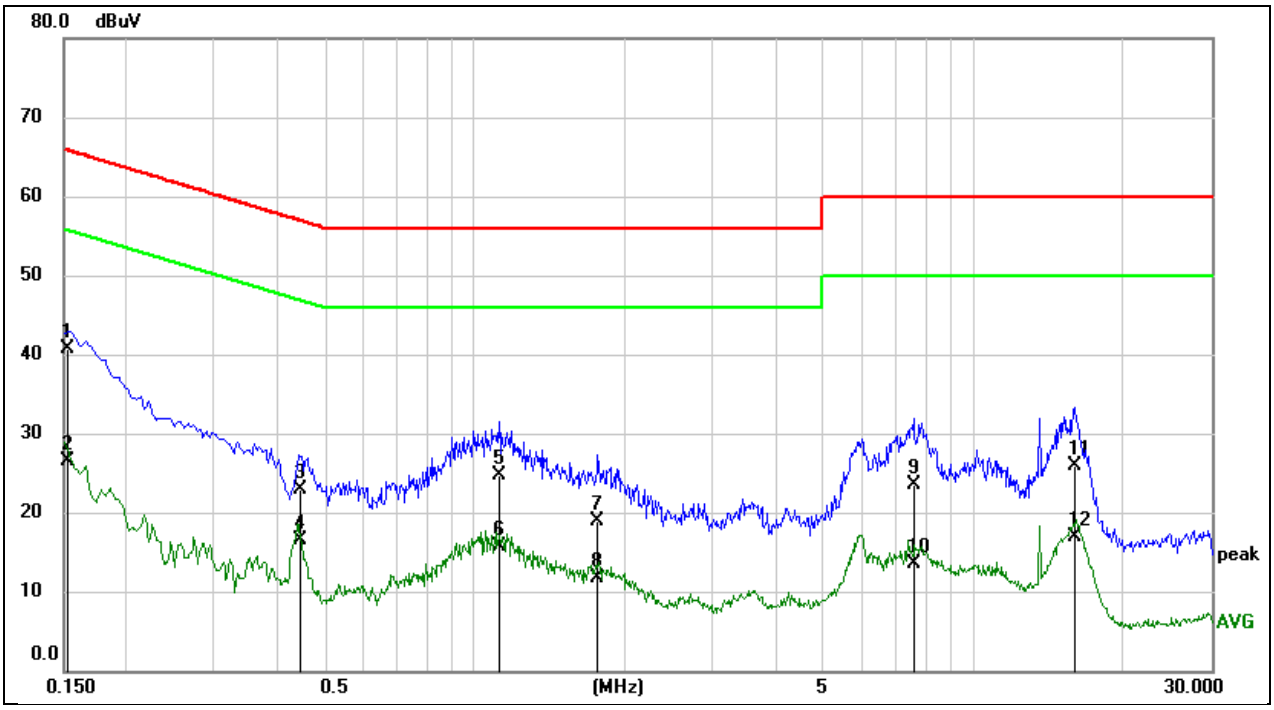
Test Mode:	802.11n HT40	Line:	Neutral
Channel:	5795 MHz	Test Voltage:	AC 120 V/60 Hz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1518	31.06	9.59	40.65	65.90	-25.25	QP
2	0.1518	16.90	9.59	26.49	55.90	-29.41	AVG
3	0.4476	13.55	9.35	22.90	56.92	-34.02	QP
4	0.4476	7.08	9.35	16.43	46.92	-30.49	AVG
5	1.1240	15.07	9.61	24.68	56.00	-31.32	QP
6	1.1240	6.13	9.61	15.74	46.00	-30.26	AVG
7	1.7520	9.36	9.62	18.98	56.00	-37.02	QP
8	1.7520	2.02	9.62	11.64	46.00	-34.36	AVG
9	7.6165	13.96	9.64	23.60	60.00	-36.40	QP
10	7.6165	3.86	9.64	13.50	50.00	-36.50	AVG
11	16.0224	16.16	9.73	25.89	60.00	-34.11	QP
12	16.0224	7.26	9.73	16.99	50.00	-33.01	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.

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10. ANTENNA REQUIREMENT

APPLICABLE REQUIREMENTS

Please refer to FCC §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 §15.247(b)(4)
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS

Complies

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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	19.72	5170.20	5189.92	PASS
11A	Ant1	5200	19.92	5190.04	5209.96	PASS
11A	Ant1	5240	19.88	5230.16	5250.04	PASS
11A	Ant1	5745	19.80	5735.08	5754.88	PASS
11A	Ant1	5785	20.36	5775.20	5795.56	PASS
11A	Ant1	5825	19.48	5815.16	5834.64	PASS
11N20SISO	Ant1	5180	21.08	5169.40	5190.48	PASS
11N20SISO	Ant1	5200	20.08	5189.88	5209.96	PASS
11N20SISO	Ant1	5240	20.40	5229.92	5250.32	PASS
11N20SISO	Ant1	5745	20.52	5734.72	5755.24	PASS
11N20SISO	Ant1	5785	20.32	5774.88	5795.20	PASS
11N20SISO	Ant1	5825	20.84	5814.60	5835.44	PASS
11N40SISO	Ant1	5190	38.88	5170.56	5209.44	PASS
11N40SISO	Ant1	5230	38.88	5210.72	5249.60	PASS
11N40SISO	Ant1	5755	38.88	5735.56	5774.44	PASS
11N40SISO	Ant1	5795	38.96	5775.64	5814.60	PASS

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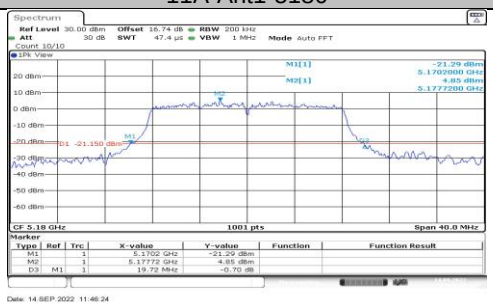
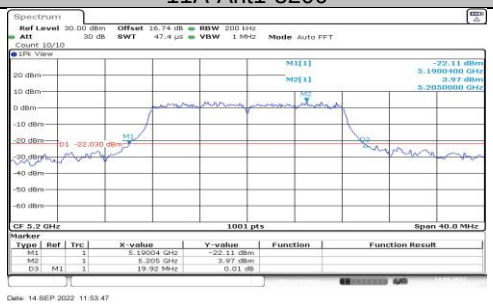
11.1.2. Test Graphs

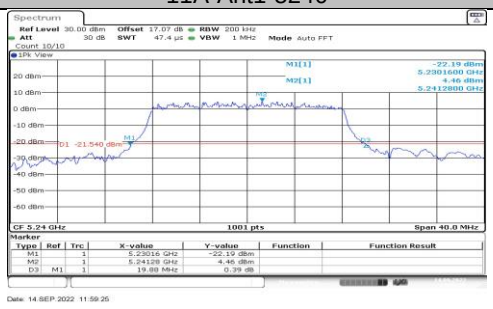
11A-Ant1-5180



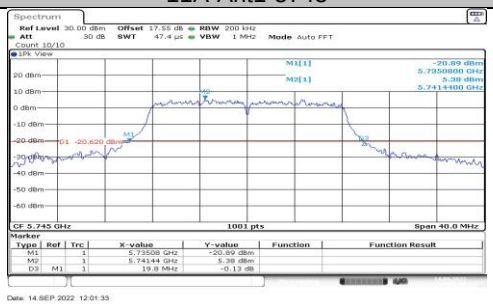
11A-Ant1-5200



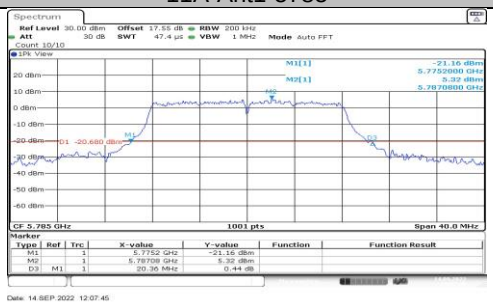
11A-Ant1-5240



11A-Ant1-5745



11A-Ant1-5785



11A-Ant1-5825

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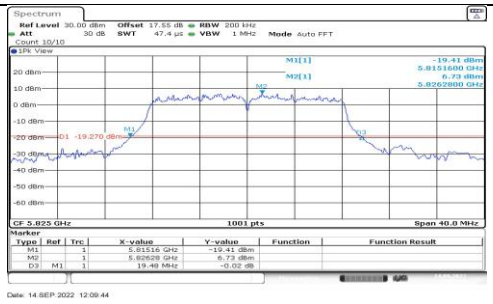
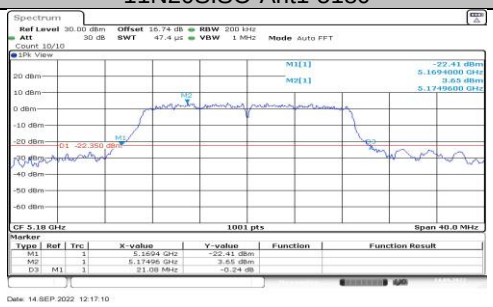
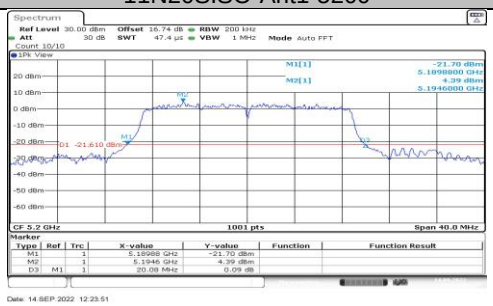


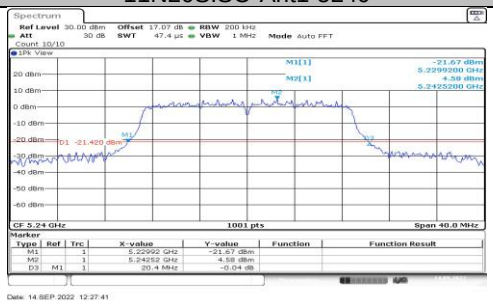
11N20SISO-Ant1-5180



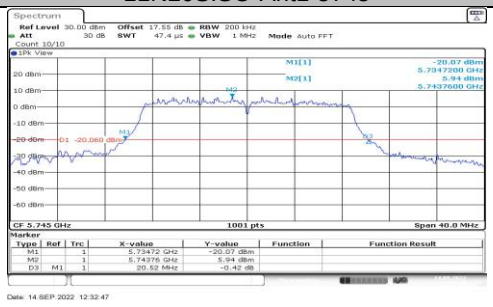
11N20SISO-Ant1-5200



11N20SISO-Ant1-5240



11N20SISO-Ant1-5745



11N20SISO-Ant1-5785

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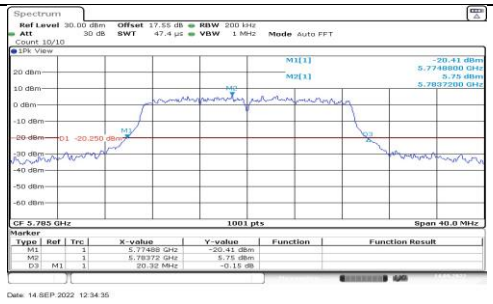
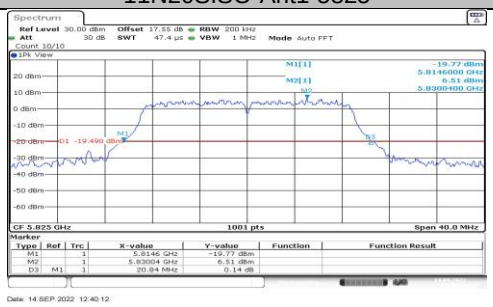
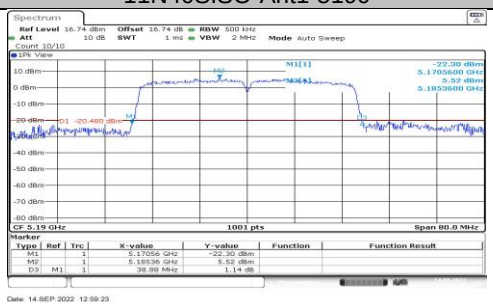


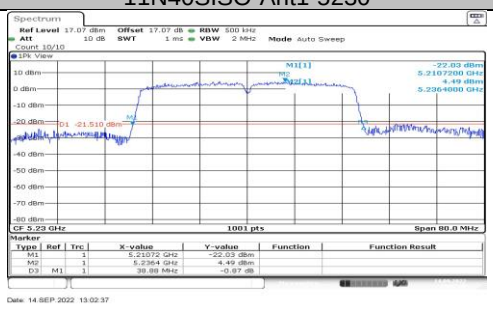
11N20SISO-Ant1-5825



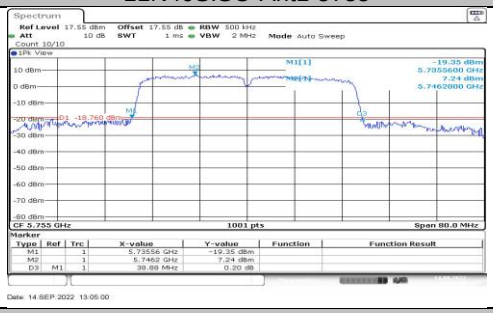
11N40SISO-Ant1-5190



11N40SISO-Ant1-5230



11N40SISO-Ant1-5755



11N40SISO-Ant1-5795

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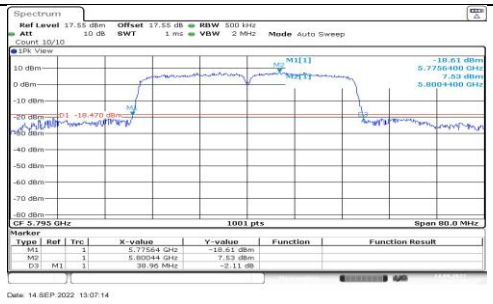

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11.2. APPENDIX A2: OCCUPIED CHANNEL BANDWIDTH

11.2.1. Test Result

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
11A	Ant1	5180	17.183	5171.4885	5188.6713	PASS
11A	Ant1	5200	17.303	5191.4486	5208.7512	PASS
11A	Ant1	5240	17.223	5231.5285	5248.7512	PASS
11A	Ant1	5745	17.063	5736.4885	5753.5514	PASS
11A	Ant1	5785	17.063	5776.5285	5793.5914	PASS
11A	Ant1	5825	16.983	5816.5684	5833.5514	PASS
11N20SISO	Ant1	5180	18.182	5170.9291	5189.1109	PASS
11N20SISO	Ant1	5200	18.342	5190.8891	5209.2308	PASS
11N20SISO	Ant1	5240	18.382	5230.9291	5249.3107	PASS
11N20SISO	Ant1	5745	18.222	5735.8891	5754.1109	PASS
11N20SISO	Ant1	5785	18.222	5775.9690	5794.1908	PASS
11N20SISO	Ant1	5825	18.182	5815.9690	5834.1508	PASS
11N40SISO	Ant1	5190	36.044	5172.0180	5208.0619	PASS
11N40SISO	Ant1	5230	36.204	5212.0979	5248.3017	PASS
11N40SISO	Ant1	5755	36.204	5736.8581	5773.0619	PASS
11N40SISO	Ant1	5795	36.044	5777.0180	5813.0619	PASS

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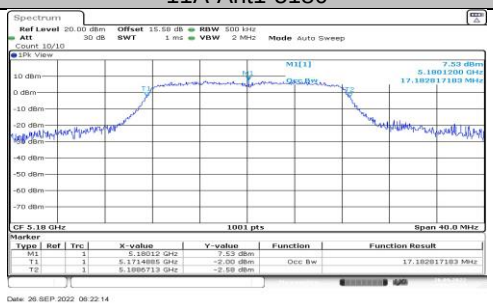
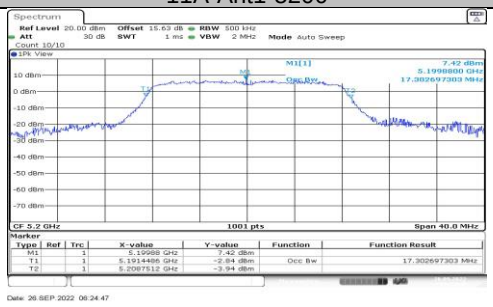
11.2.2. Test Graphs

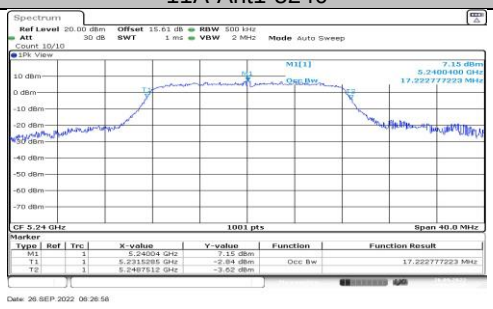
11A-Ant1-5180



11A-Ant1-5200

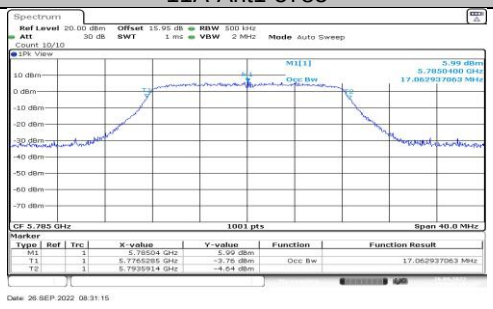


11A-Ant1-5240



11A-Ant1-5745

11A-Ant1-5785



11A-Ant1-5825

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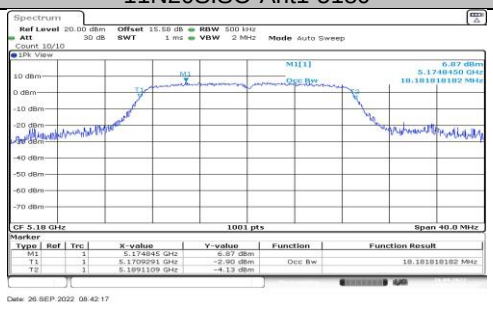
11N20SISO-Ant1-5180



11N20SISO-Ant1-5200

11N20SISO-Ant1-5240

11N20SISO-Ant1-5745

11N20SISO-Ant1-5785

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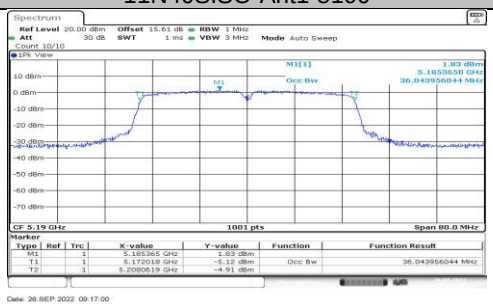
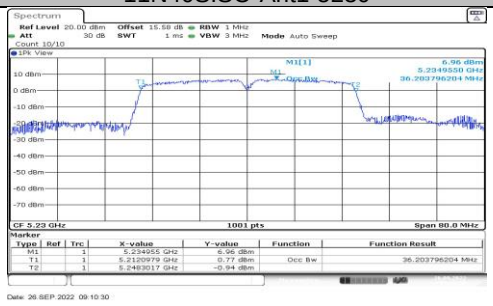
11N20SISO-Ant1-5825

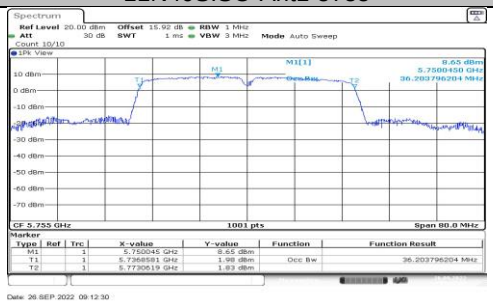
11N40SISO-Ant1-5190



11N40SISO-Ant1-5230



11N40SISO-Ant1-5755



11N40SISO-Ant1-5795

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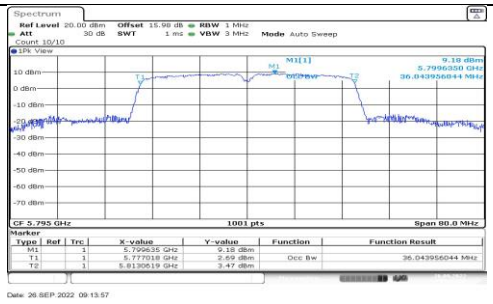

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11.3. APPENDIX A3: MIN EMISSION BANDWIDTH

11.3.1. Test Result

Test Mode	Antenna	Frequency [MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	15.72	5736.88	5752.60	0.5	PASS
11A	Ant1	5785	16.28	5776.88	5793.16	0.5	PASS
11A	Ant1	5825	16.28	5816.88	5833.16	0.5	PASS
11N20SISO	Ant1	5745	16.92	5736.24	5753.16	0.5	PASS
11N20SISO	Ant1	5785	16.92	5776.60	5793.52	0.5	PASS
11N20SISO	Ant1	5825	16.88	5816.64	5833.52	0.5	PASS
11N40SISO	Ant1	5755	35.44	5737.16	5772.60	0.5	PASS
11N40SISO	Ant1	5795	35.04	5777.56	5812.60	0.5	PASS

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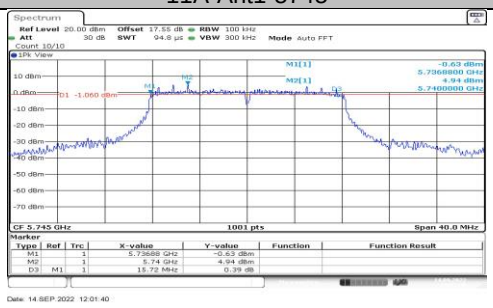
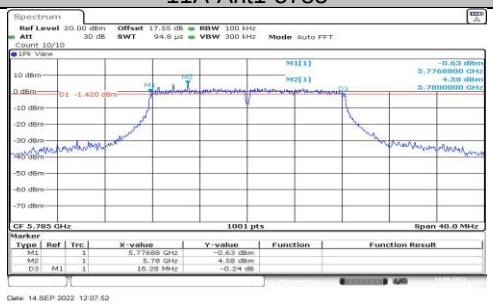
11.3.2. Test Graphs

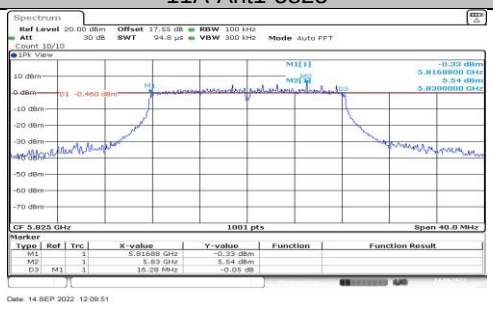
11A-Ant1-5745



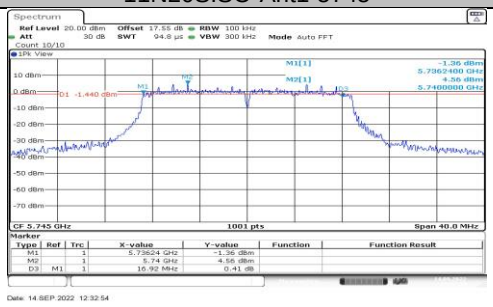
11A-Ant1-5785



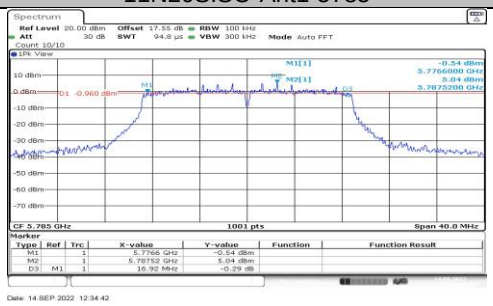
11A-Ant1-5825



11N20SISO-Ant1-5745



11N20SISO-Ant1-5785



11N20SISO-Ant1-5825

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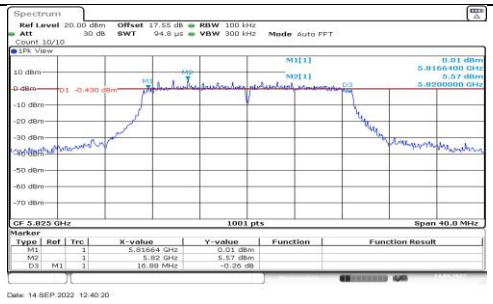
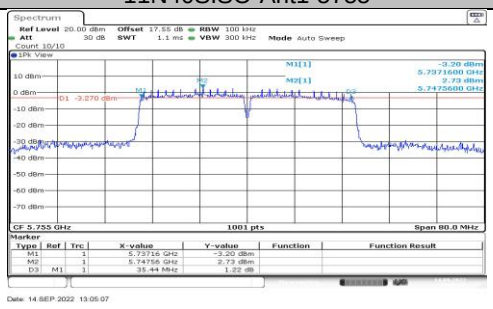
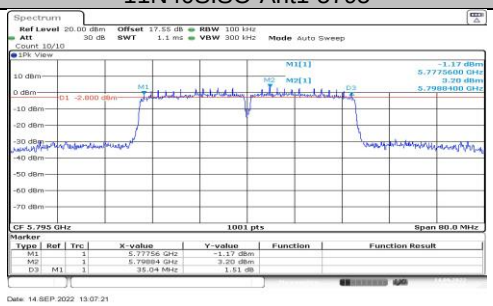


11N40SISO-Ant1-5755



11N40SISO-Ant1-5795



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11.4. APPENDIX B: DUTY CYCLE

11.4.1. Test Result

Test Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
11A	2.01	2.51	0.8008	80.08	0.96	0.50	1
11N20SISO	1.87	2.36	0.7924	79.24	1.01	0.53	1
11N40SISO	0.92	1.42	0.6479	64.79	1.89	1.09	1.5

Note:
Duty Cycle Correction Factor=10log (1/x).
Where: x is Duty Cycle (Linear)
Where: T is On Time
If that calculated VBW is not available on the analyzer then the next higher value should be used.

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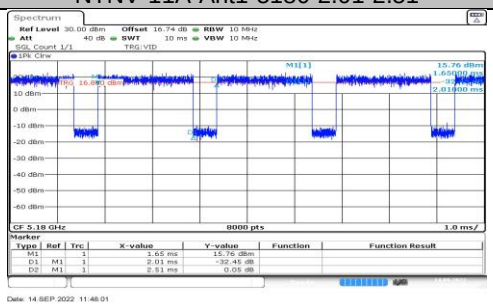
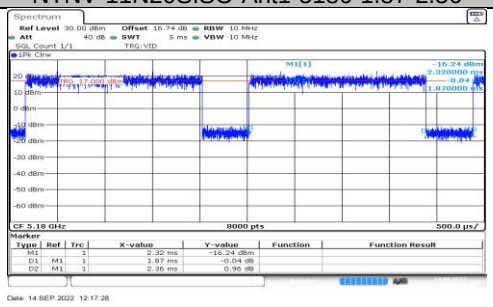
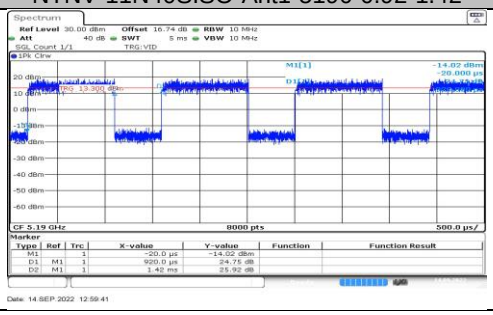
11.4.2. Test Graphs

NTNV-11A-Ant1-5180-2.01-2.51

NTNV-11N20SISO-Ant1-5180-1.87-2.36

NTNV-11N40SISO-Ant1-5190-0.92-1.42


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11.5. APPENDIX C: MAXIMUM AVERAGE CONDUCTED OUTPUT POWER

Test Mode	Antenna	Frequency [MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	13.59	≤23.98	PASS
11A	Ant1	5200	13.39	≤23.98	PASS
11A	Ant1	5240	12.98	≤23.98	PASS
11A	Ant1	5745	12.74	≤30.00	PASS
11A	Ant1	5785	11.96	≤30.00	PASS
11A	Ant1	5825	13.67	≤30.00	PASS
11N20SISO	Ant1	5180	13.31	≤23.98	PASS
11N20SISO	Ant1	5200	13.05	≤23.98	PASS
11N20SISO	Ant1	5240	12.70	≤23.98	PASS
11N20SISO	Ant1	5745	12.80	≤30.00	PASS
11N20SISO	Ant1	5785	13.31	≤30.00	PASS
11N20SISO	Ant1	5825	13.83	≤30.00	PASS
11N40SISO	Ant1	5190	7.51	≤23.98	PASS
11N40SISO	Ant1	5230	7.73	≤23.98	PASS
11N40SISO	Ant1	5755	14.69	≤30.00	PASS
11N40SISO	Ant1	5795	15.33	≤30.00	PASS

Note: 1. Conducted Power=Meas. Level+ Correction Factor
2. The Duty Cycle Factor (refer to section 7.1) had already compensated to the test data.

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11.6. APPENDIX D: MAXIMUM POWER SPECTRAL DENSITY

11.6.1. Test Result

Test Mode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	2.56	≤11.00	PASS
11A	Ant1	5200	2.13	≤11.00	PASS
11A	Ant1	5240	1.79	≤11.00	PASS
11A	Ant1	5745	-1.28	≤30.00	PASS
11A	Ant1	5785	-1.88	≤30.00	PASS
11A	Ant1	5825	-0.42	≤30.00	PASS
11N20SISO	Ant1	5180	1.98	≤11.00	PASS
11N20SISO	Ant1	5200	1.75	≤11.00	PASS
11N20SISO	Ant1	5240	1.26	≤11.00	PASS
11N20SISO	Ant1	5745	-1.43	≤30.00	PASS
11N20SISO	Ant1	5785	-0.84	≤30.00	PASS
11N20SISO	Ant1	5825	-0.18	≤30.00	PASS
11N40SISO	Ant1	5190	-6.43	≤11.00	PASS
11N40SISO	Ant1	5230	-1.15	≤11.00	PASS
11N40SISO	Ant1	5755	-2.26	≤30.00	PASS
11N40SISO	Ant1	5795	-1.89	≤30.00	PASS

Note: 1. The Result and Limit Unit is dBm/500 kHz in the band 5.725 ~ 5.85 GHz.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.

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11.6.2. Test Graphs

11A-Ant1-5180

11A-Ant1-5200

11A-Ant1-5240

11A-Ant1-5745

11A-Ant1-5785

11A-Ant1-5825

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11N20SISO-Ant1-5180

11N20SISO-Ant1-5200

11N20SISO-Ant1-5240

11N20SISO-Ant1-5745

11N20SISO-Ant1-5785

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11N20SISO-Ant1-5825

11N40SISO-Ant1-5190

11N40SISO-Ant1-5230

11N40SISO-Ant1-5755

11N40SISO-Ant1-5795

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11.7. APPENDIX E: FREQUENCY STABILITY

Frequency Error vs. Voltage									
802.11a:5200MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
TN	VL	5199.9912	-1.69	5199.9997	-0.06	5199.9884	-2.24	5200.0049	0.93
TN	VN	5200.0146	2.81	5200.0091	1.75	5199.9959	-0.79	5199.9926	-1.42
TN	VH	5200.0047	0.91	5199.9767	-4.48	5199.9901	-1.90	5200.0190	3.66

Frequency Error vs. Temperature									
802.11a: 5200 MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
60	VN	5200.0134	2.58	5200.0160	3.07	5200.0202	3.88	5200.0215	4.14
40	VN	5199.9936	-1.23	5200.0112	2.15	5200.0100	1.91	5199.9934	-1.27
20	VN	5199.9869	-2.51	5200.0020	0.38	5200.0215	4.14	5199.9904	-1.85
0	VN	5199.9953	-0.90	5199.9973	-0.52	5200.0035	0.67	5200.0080	1.53
-20	VN	5199.9925	-1.44	5200.0192	3.70	5200.0214	4.12	5200.0024	0.46
-30	VN	5200.0213	4.09	5200.0061	1.17	5199.9867	-2.56	5199.9820	-3.45

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Frequency Error vs. Voltage									
802.11a: 5825 MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
TN	VL	5824.9870	-2.24	5825.0097	1.66	5825.0082	1.42	5825.0141	2.42
TN	VN	5825.0014	0.25	5824.9788	-3.64	5825.0099	1.69	5825.0250	4.29
TN	VH	5825.0023	0.40	5825.0130	2.23	5825.0204	3.50	5824.9901	-1.70

Frequency Error vs. Temperature									
802.11a:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
60	VN	5824.9901	-1.70	5824.9974	-0.45	5824.9988	-0.21	5824.9882	-2.03
40	VN	5825.0220	3.78	5824.9957	-0.75	5824.9904	-1.65	5825.0025	0.43
20	VN	5824.9998	-0.04	5824.9970	-0.51	5824.9908	-1.58	5825.0231	3.96
0	VN	5825.0246	4.22	5824.9804	-3.37	5825.0250	4.29	5825.0153	2.62
-20	VN	5824.9859	-2.42	5824.9913	-1.50	5824.9827	-2.97	5824.9867	-2.29
-30		5825.0084	1.44	5825.0115	1.98	5825.0213	3.66	5825.0087	1.50

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

END OF REPORT

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