



Compliance Certification Services (Kunshan) Inc.

CCSEM-TRF-001 Rev. 02 Sep 01, 2023

Report No.: KSCR241100232201

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TEST REPORT

Application No.: KSCR2411002322AT
FCC ID: 2AL8S-0235C9KR
Applicant: ZHEJIANG UNIVIEW TECHNOLOGIES CO., LTD
Address of Applicant: No. 369, Xietong Road, Xixing Sub-district, Binjiang District, Hangzhou City, China (zhejiang) Pilot Free Trade Zone
Manufacturer: ZHEJIANG UNIVIEW TECHNOLOGIES CO., LTD
Address of Manufacturer: No. 369, Xietong Road, Xixing Sub-district, Binjiang District, Hangzhou City, China (zhejiang) Pilot Free Trade Zone
Factory: ZHEJIANG UNIVIEW SYSTEMS TECHNOLOGY CO., LTD
Address of Factory: No.1277 SOUTH QINGFENG SOUTH ROAD,TONGXIANG CITY,JIAXING CITY
Equipment Under Test (EUT):
EUT Name: Network Video Recorder
Model No.: NVR301-08S4-LW,NVR301-xxxxxxx-yyyLWyyy-zzz (where x,y,z may be blank, one letter or more combination letters from '0-9, A-Z and a-z'; '-' is option) ♣
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2024-11-15
Date of Test: 2024-11-20 to 2024-12-05
Date of Issue: 2024-12-06

Test Result:

Pass*

* In the configuration tested, the EUT complied with the standards specified above.

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Revision Record			
Version	Description	Date	Remark
00	Original	2024-12-06	/

Authorized for issue by:			
Tested By		Maker Qi	
		Maker Qi /Project Engineer	
Approved By		Terry Hou	
		Terry Hou /Reviewer	

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2013) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Conducted Average Output Power		ANSI C63.10 (2013) Section 11.9.2	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth		ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Power Spectrum Density		ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement		ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions		ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass

Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the Identical in electrical and electronic characters. Only the model NVR301-08S4-LW was tested since their differences were the model number and appearance.

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4 General Information

4.1 Details of E.U.T.

Power supply:	For AC100~240V; DC 12V
Operation Frequency:	802.11b/g/n(HT20)/ax(HE20):2412MHz to 2462MHz; 802.11n(HT40)/ax(HE40):2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK), 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK), 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024-QAM)
Number of Channels:	802.11b/g/n(HT20)/ax(HE20):11;802.11n(HT40)/ax(HE40):7
Channel Spacing:	5MHz
Antenna Type:	Dipole Antenna
Antenna Gain:	5.03dBi (Provided by the manufacturer)

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	LENOVO	K27	EB24537645
Adapter	/	SW-0799	/

4.3 Power level setting using in test

Channel	802.11b	802.11g	802.11n(HT20)	802.11ax(HE20)
	Ant 1	Ant 1	Ant 1	Ant 1
1	14	15	15	15
6	13	15	15	15
11	12	15	16	16
Channel	802.11n(HT40)	802.11ax(HE40)		
	Ant 1	Ant 1		
3	15	15		
6	15	15		
9	15	15		

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4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
8	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
10	Temperature Test	1°C
11	Humidity Test	3%
12	Supply Voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.5 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).
3. Sample source: sent by customer.

4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC**

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

- **ISED**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

- **VCCI**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

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5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
Conducted Emission at Mains Terminals						
1	EMI Test Receive	R&S	ESCI	KS301101	01/15/2024	01/14/2025
2	LISN	R&S	ENV216	KS301197	01/15/2024	01/14/2025
3	LISN	Schwarzbeck	NNLK 8129	KS301091	01/15/2024	01/14/2025
4	Pulse Limiter	R&S	ESH3-Z2	KUS1902E001	01/15/2024	01/14/2025
5	CE test Cable	Thermax	/	CZ301102	01/15/2024	01/14/2025
6	Test Software	ESE	E3_V 6.111221a	/	N.C.R	N.C.R
RF Conducted Test						
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	08/01/2024	07/31/2025
2	Spectrum Analyzer	Keysight	N9020A	KUS2001M001-2	08/01/2024	07/31/2025
3	Spectrum Analyzer	Keysight	N9030B	KSEM021-1	01/15/2024	01/14/2025
4	Signal Generator	R&S	SMBV100B	KSEM032	03/19/2024	03/18/2025
5	Signal Generator	R&S	SMW200A	KSEM020-1	08/02/2024	08/01/2025
6	Signal Generator	Agilent	N5182A	KUS2001M001-1	08/01/2024	07/31/2025
7	Signal Generator	Agilent	E8257C	KS301066	08/06/2024	08/05/2025
8	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/01/2024	07/31/2025
9	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	03/19/2024	03/18/2025
10	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	08/12/2024	08/11/2025
11	Switcher	TST	FY562	KUS2001M001-4	01/15/2024	01/14/2025
12	Conducted Test Cable	Thermax	RF01-RF04	CZ301111-CZ301120	01/15/2024	01/14/2025
13	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	08/26/2024	08/25/2025
14	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	03/19/2024	03/18/2025
15	Software	BST	TST-PASS	/	NCR	NCR
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/06/2024	08/05/2025
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	03/19/2024	03/18/2025
4	Loop Antenna	COM-POWER	AL-130R	KUS1806E001	03/18/2023	03/17/2025
5	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E005	06/29/2023	06/28/2025
6	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E006	03/19/2024	03/18/2025
7	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	03/23/2024	08/22/2026
8	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	KS301186	04/07/2023	04/06/2025
9	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	01/07/2024	01/06/2026
10	Amplifier(30MHz~18GHz)	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-1	01/15/2024	01/14/2025
11	Amplifier(18~40GHz)	PANSHAN TECHNOLOGY	LNA180400G40	KSEM038	08/12/2024	08/11/2025
12	RE Test Cable	REBES MICROWAVE	/	CZ301097	08/12/2024	08/11/2025
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	03/21/2024	03/20/2025
14	Software	Faratronic	EZ_EMV-3A1	/	NCR	NCR
15	Software	ESE	E3_V 6.111221a	/	NCR	NCR

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

6.1.2 Conclusion

Standard Requirement:

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, 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.

15.247(b) (4) requirement:

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.

EUT Antenna:

The antenna is Dipole Antenna on the main PCB and no consideration of replacement. The best case gain of the antenna is 5.03dBi.

Antenna location: Refer to internal photo.

7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency.		
Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz		

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

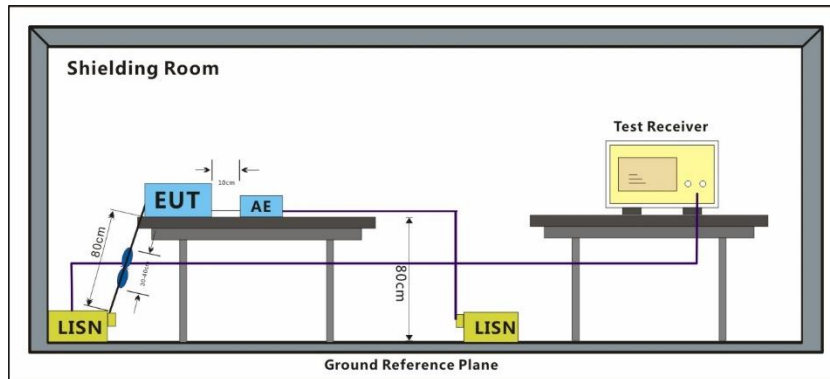
Humidity: 51 % RH

Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE40). Only the data of worst case is recorded in the report.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: Level=Read Level+ Cable Loss+ LISN Factor

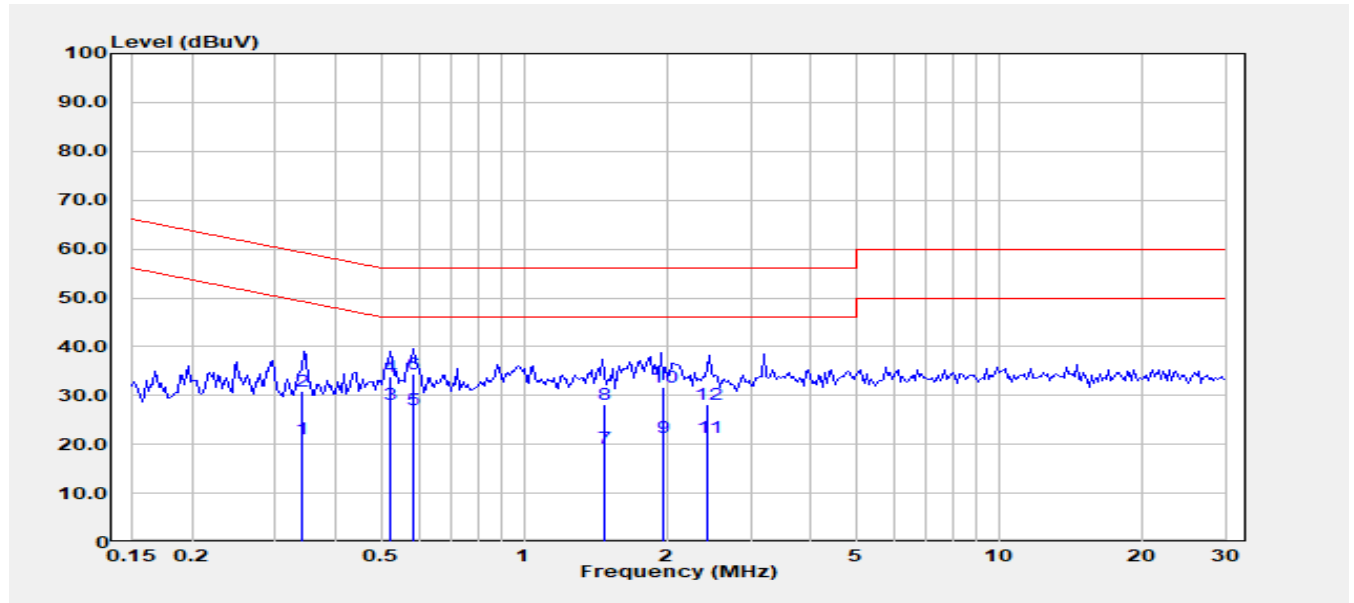
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Test Mode: 00; Line: Live line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3419	1.07	20.07	21.14	49.16	-28.02	Average
2	0.3419	10.95	20.07	31.02	59.16	-28.14	QP
3	0.5236	8.10	19.99	28.09	46.00	-17.91	Average
4	0.5236	14.01	19.99	34.00	56.00	-22.00	QP
5	0.5873	7.26	19.90	27.16	46.00	-18.84	Average
6	0.5873	14.60	19.90	34.50	56.00	-21.50	QP
7	1.4780	-0.80	19.97	19.17	46.00	-26.83	Average
8	1.4780	8.08	19.97	28.05	56.00	-27.95	QP
9	1.9640	1.28	20.06	21.34	46.00	-24.66	Average
10	1.9640	11.64	20.06	31.70	56.00	-24.30	QP
11	2.4440	1.47	19.97	21.44	46.00	-24.56	Average
12	2.4440	8.09	19.97	28.06	56.00	-27.94	QP

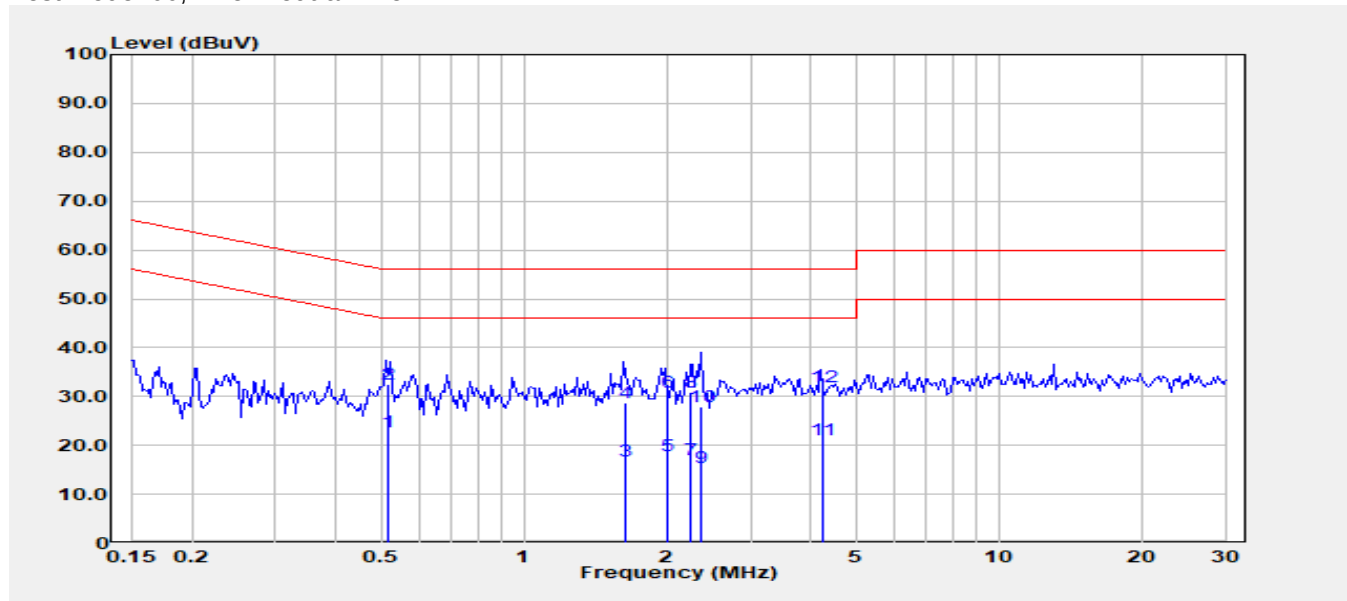
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Test Mode: 00; Line: Neutral Line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.5174	2.86	19.92	22.78	46.00	-23.22	Average
2	0.5174	12.48	19.92	32.40	56.00	-23.60	QP
3	1.6350	-3.13	19.89	16.76	46.00	-29.24	Average
4	1.6350	8.71	19.89	28.60	56.00	-27.40	QP
5	2.0020	-2.09	19.89	17.80	46.00	-28.20	Average
6	2.0020	11.13	19.89	31.02	56.00	-24.98	QP
7	2.2390	-2.95	19.91	16.96	46.00	-29.04	Average
8	2.2390	10.97	19.91	30.88	56.00	-25.12	QP
9	2.3670	-4.42	19.92	15.50	46.00	-30.50	Average
10	2.3670	8.07	19.92	27.99	56.00	-28.01	QP
11	4.2540	1.10	19.90	21.00	46.00	-25.00	Average
12	4.2540	12.00	19.90	31.90	56.00	-24.10	QP

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7.2 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.10.5

Limit:

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
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 20.5 °C

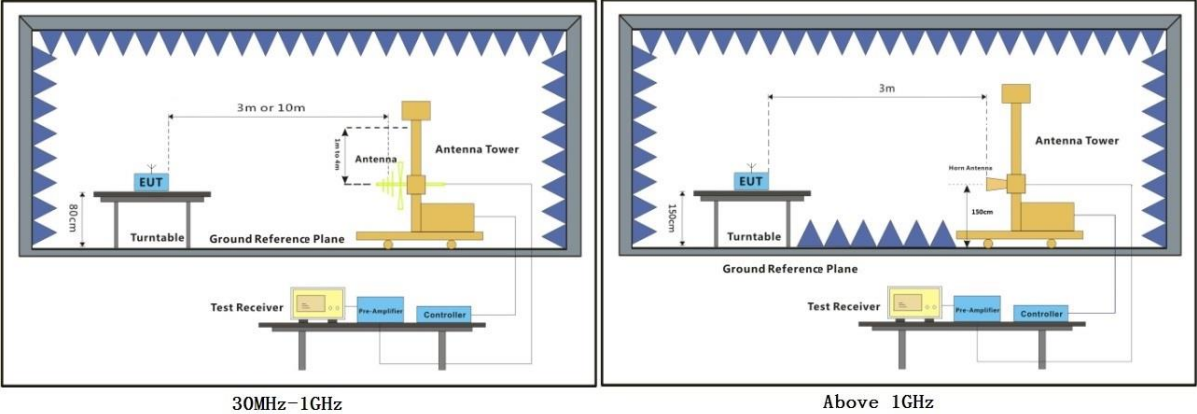
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE40). Only the data of worst case is recorded in the report.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Remark 3: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.

Remark 4: For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.

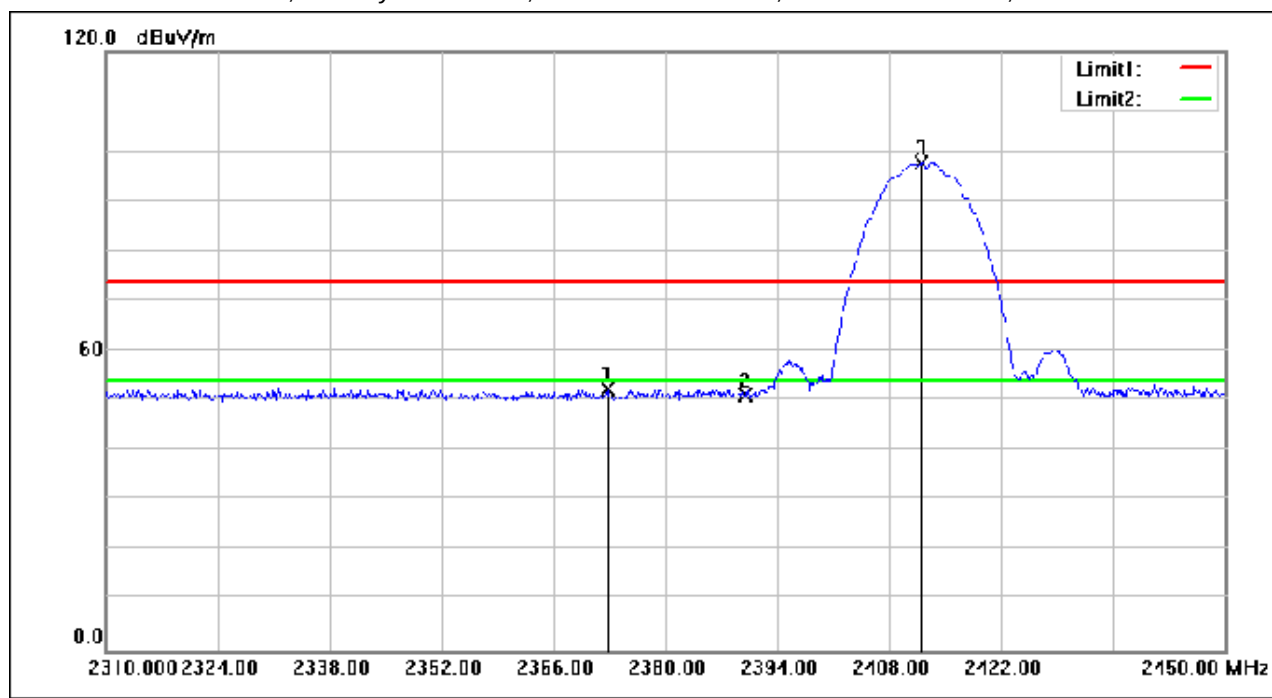
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2372.720	77.25	-24.79	52.46	74.00	-21.54	peak
2	2390.000	75.90	-24.71	51.19	74.00	-22.81	peak
3	2412.060	122.24	-24.60	97.64	74.00	23.64	peak

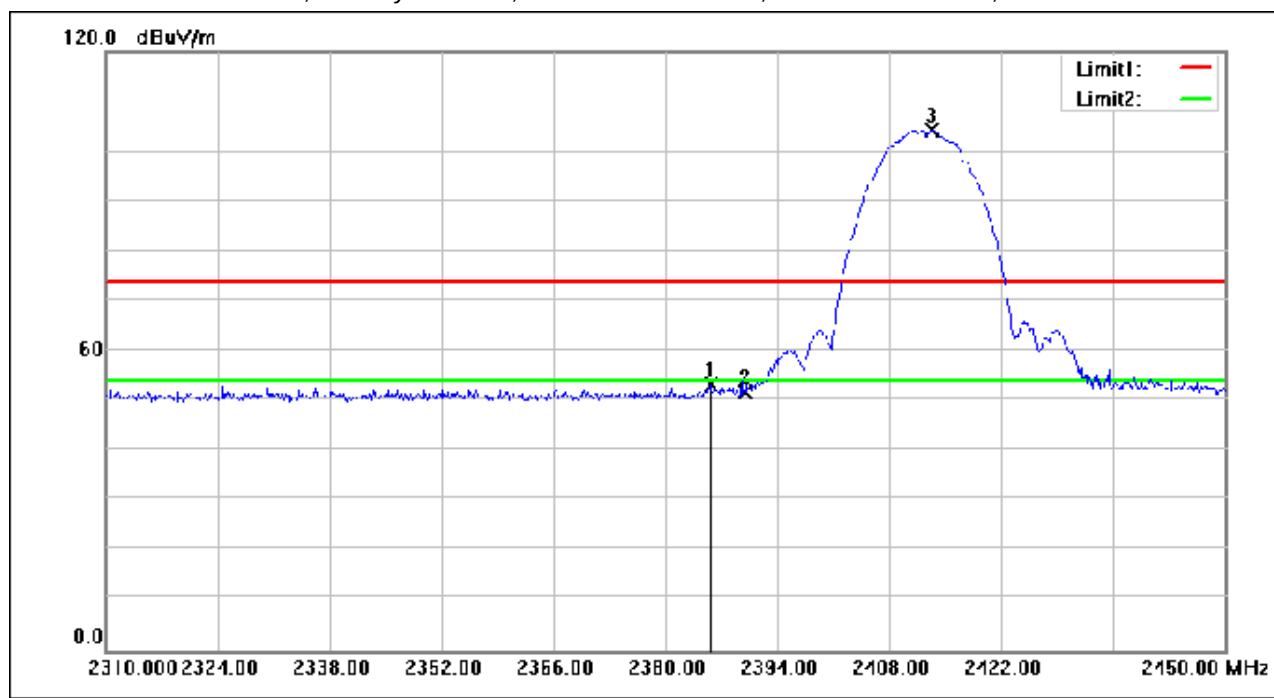
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2385.600	78.04	-24.73	53.31	74.00	-20.69	peak
2	2390.000	76.43	-24.71	51.72	74.00	-22.28	peak
3	2413.320	128.98	-24.60	104.38	74.00	30.38	peak

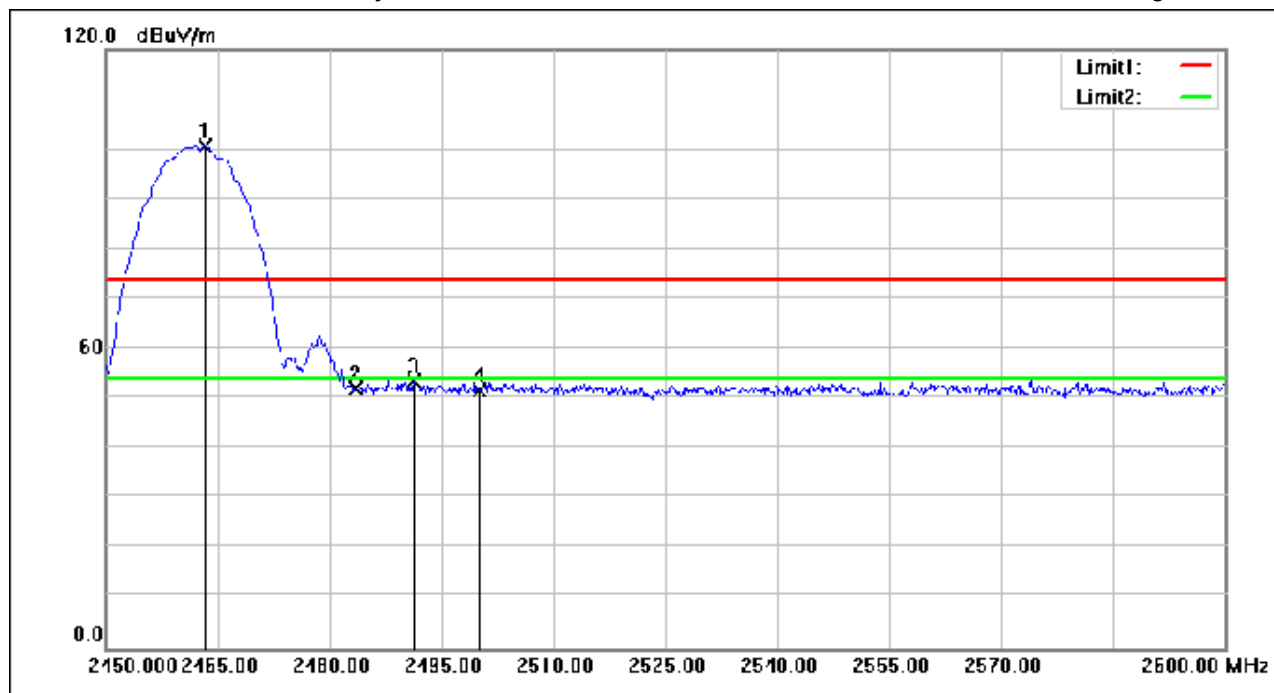
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2463.200	125.08	-24.37	100.71	74.00	26.71	peak
2	2483.500	76.43	-24.27	52.16	74.00	-21.84	peak
3	2491.250	77.67	-24.24	53.43	74.00	-20.57	peak
4	2500.000	75.92	-24.19	51.73	74.00	-22.27	peak

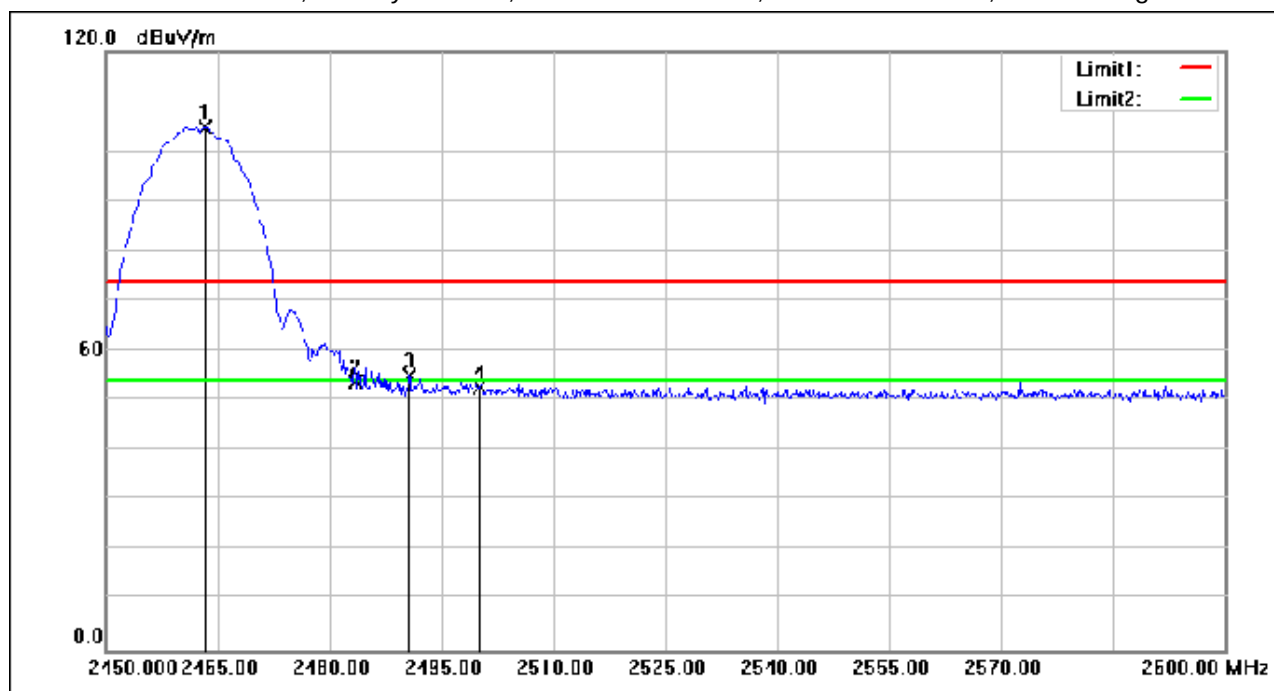
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2463.200	129.27	-24.37	104.90	74.00	30.90	peak
2	2483.500	77.98	-24.27	53.71	74.00	-20.29	peak
3	2490.650	79.34	-24.24	55.10	74.00	-18.90	peak
4	2500.000	76.70	-24.19	52.51	74.00	-21.49	peak

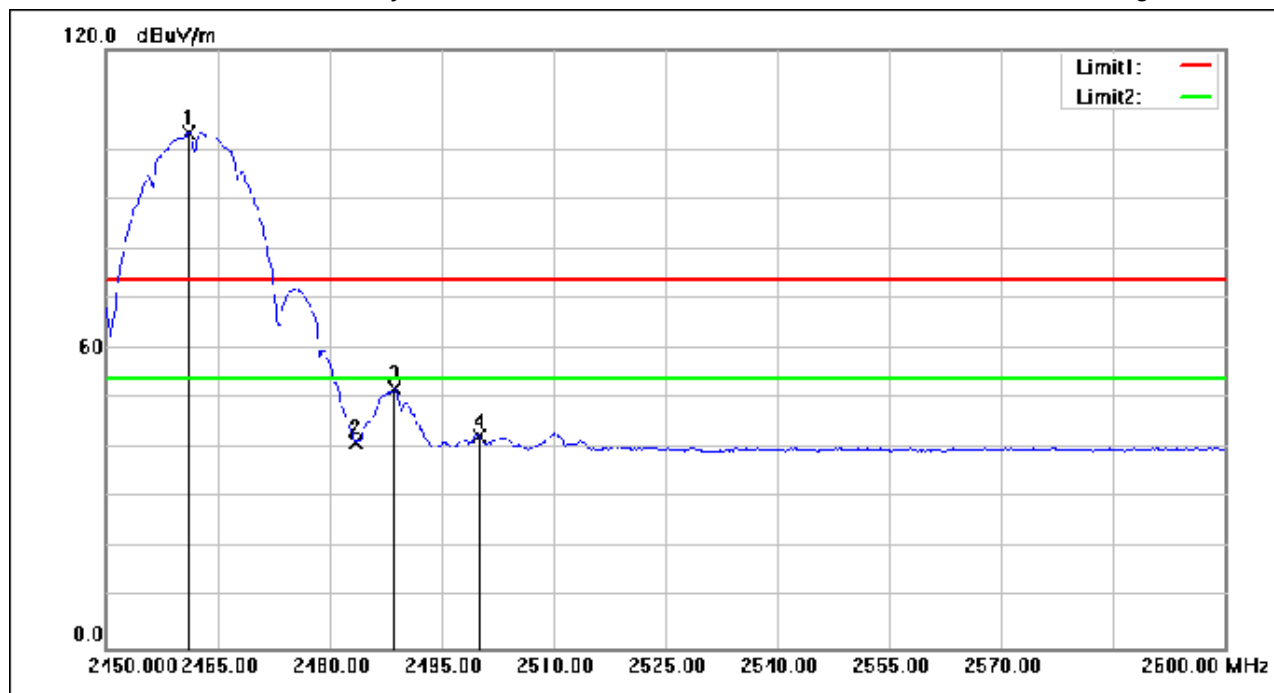
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2461.100	127.88	-24.38	103.50	54.00	49.50	AVG
2	2483.500	65.50	-24.27	41.23	54.00	-12.77	AVG
3	2488.700	76.21	-24.25	51.96	54.00	-2.04	AVG
4	2500.000	66.64	-24.19	42.45	54.00	-11.55	AVG

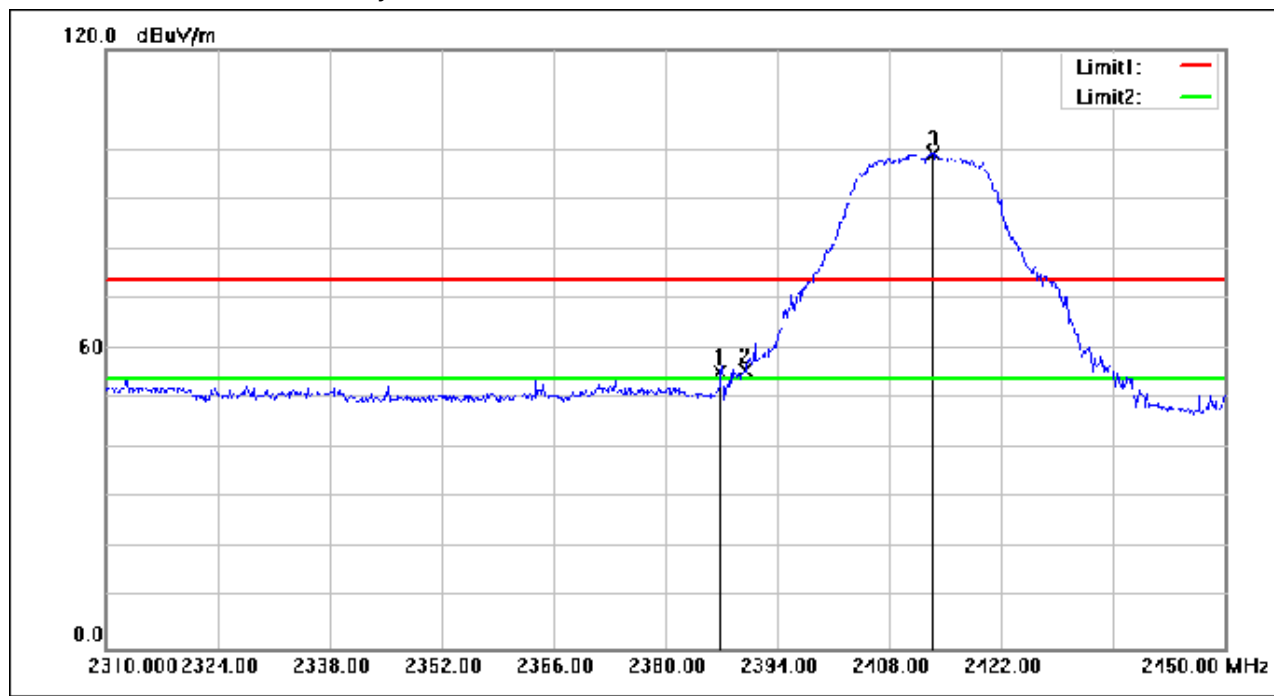
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2386.860	80.10	-24.72	55.38	74.00	-18.62	peak
2	2390.000	80.35	-24.71	55.64	74.00	-18.36	peak
3	2413.460	123.85	-24.60	99.25	74.00	25.25	peak

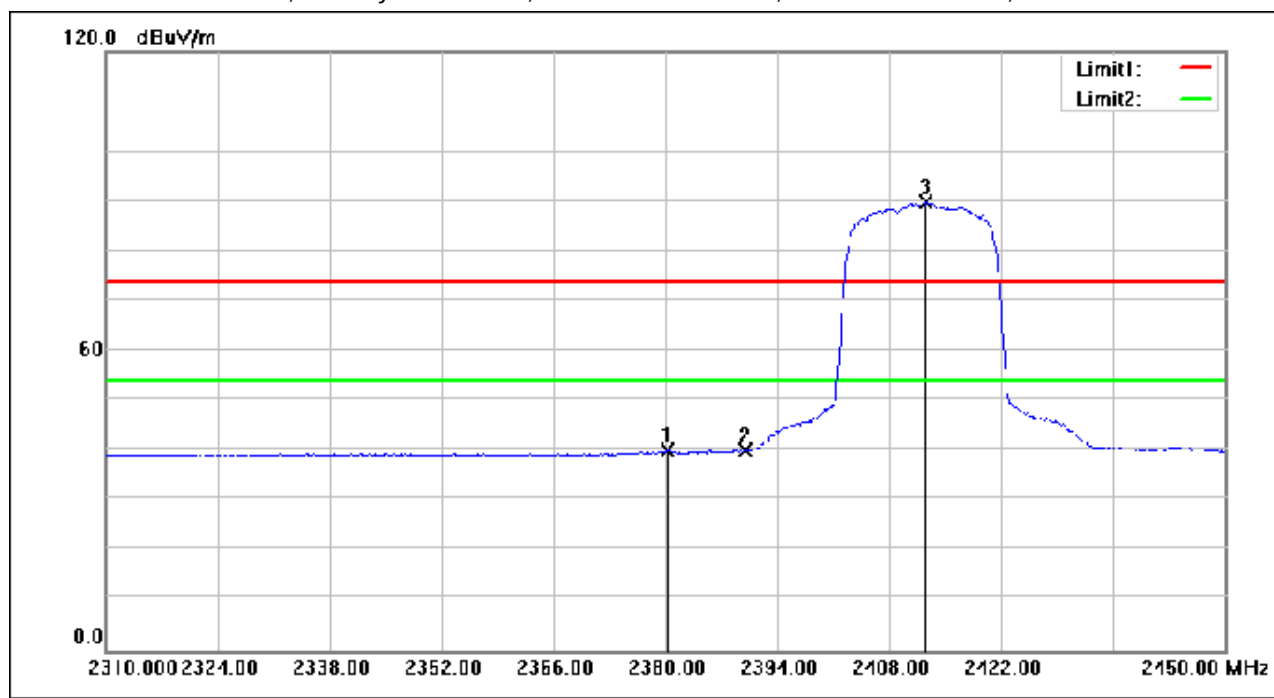
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2380.280	64.78	-24.75	40.03	54.00	-13.97	AVG
2	2390.000	64.75	-24.71	40.04	54.00	-13.96	AVG
3	2412.620	114.37	-24.60	89.77	54.00	35.77	AVG

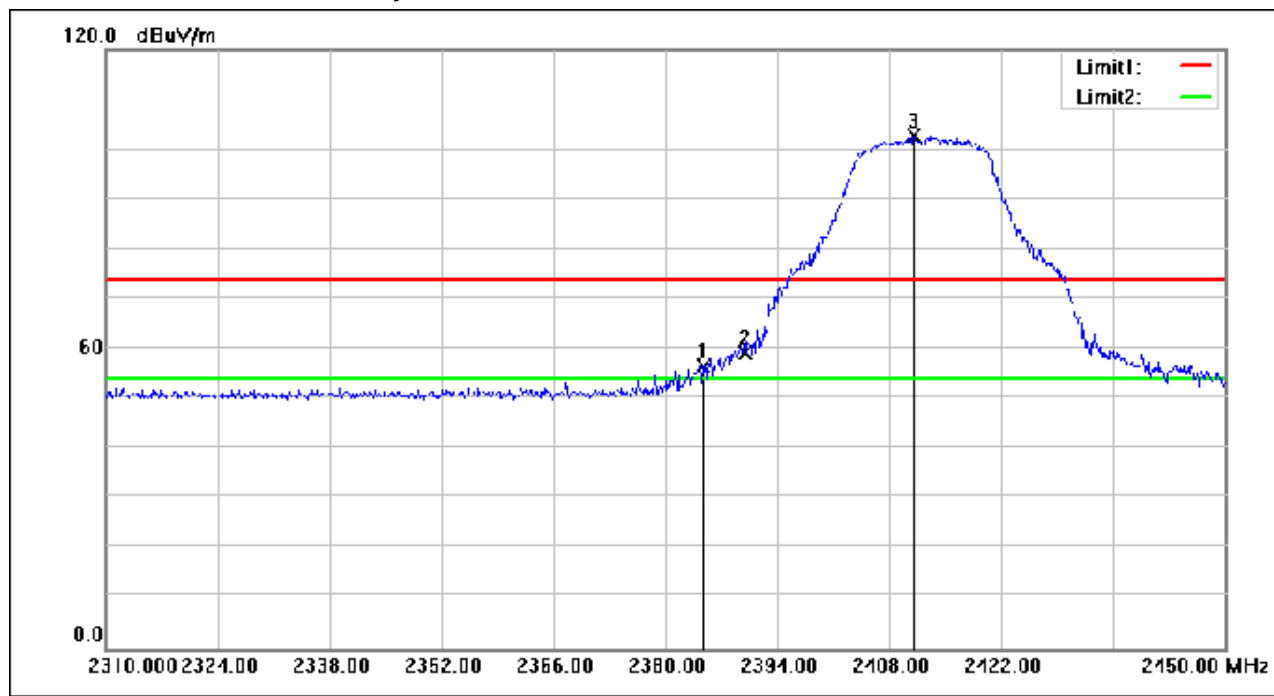
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2384.760	81.33	-24.73	56.60	74.00	-17.40	peak
2	2390.000	84.05	-24.71	59.34	74.00	-14.66	peak
3	2411.080	127.29	-24.60	102.69	74.00	28.69	peak

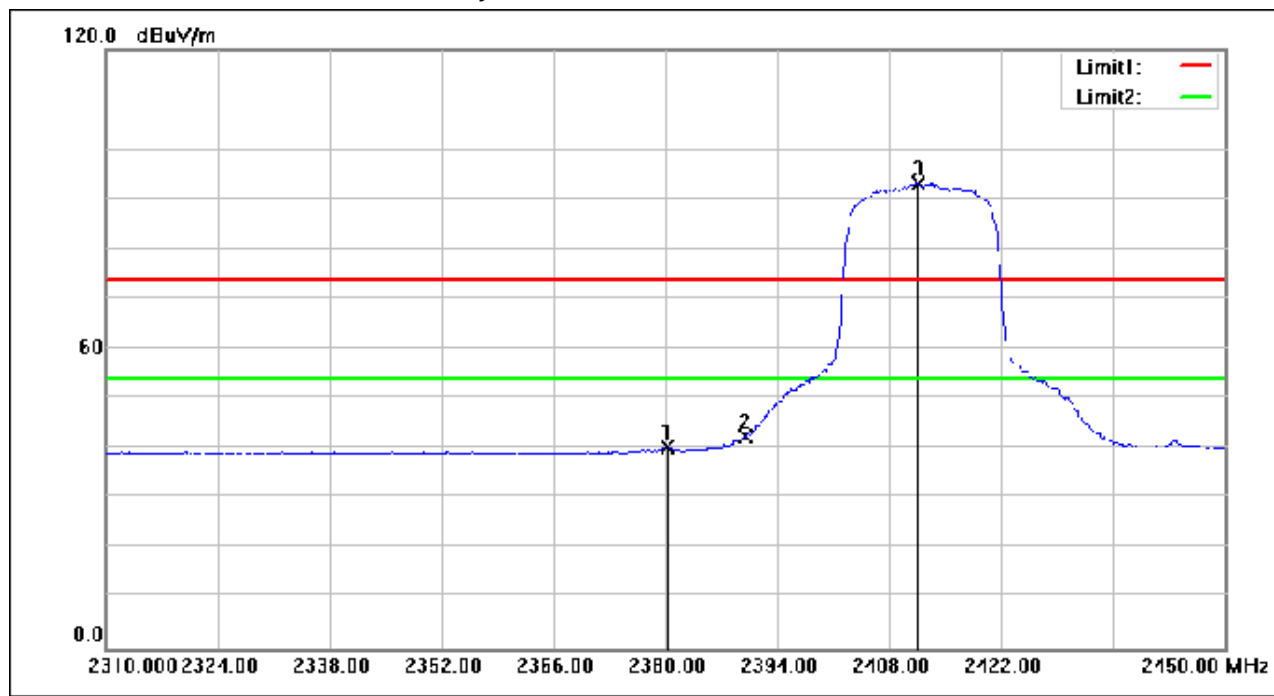
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2380.280	65.25	-24.75	40.50	54.00	-13.50	AVG
2	2390.000	67.17	-24.71	42.46	54.00	-11.54	AVG
3	2411.640	117.81	-24.60	93.21	54.00	39.21	AVG

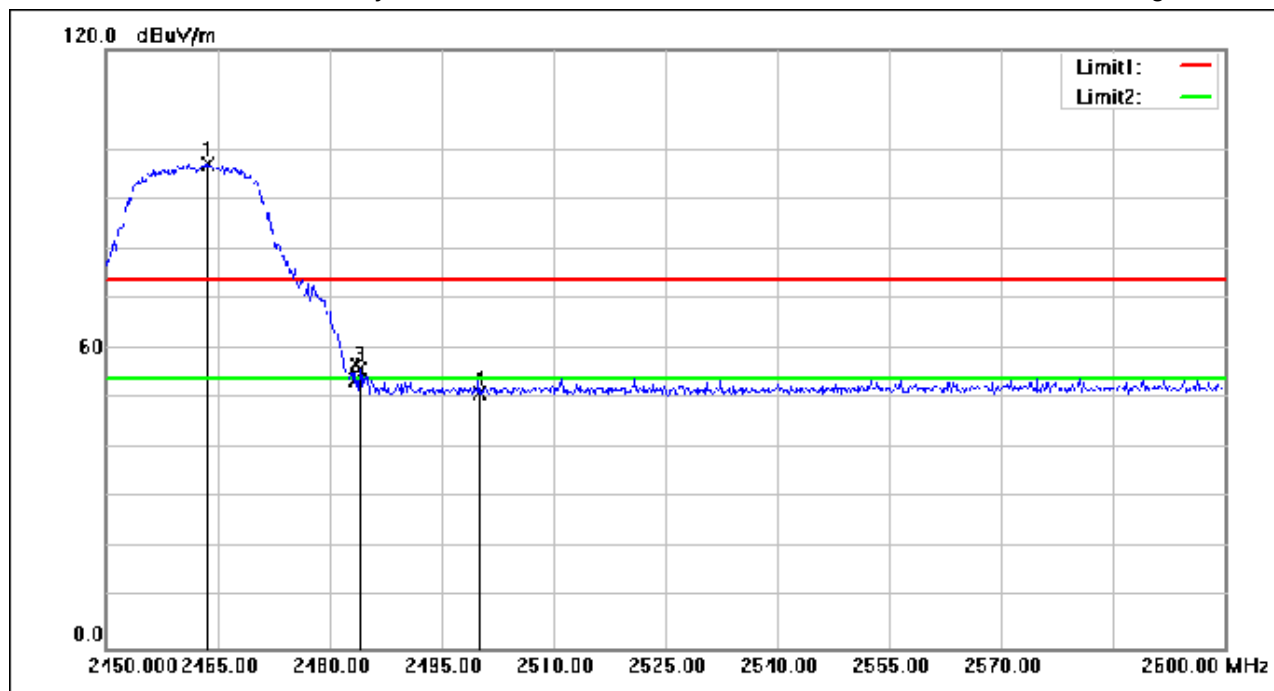
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2463.650	121.52	-24.37	97.15	74.00	23.15	peak
2	2483.500	78.00	-24.27	53.73	74.00	-20.27	peak
3	2484.050	80.31	-24.26	56.05	74.00	-17.95	peak
4	2500.000	75.48	-24.19	51.29	74.00	-22.71	peak

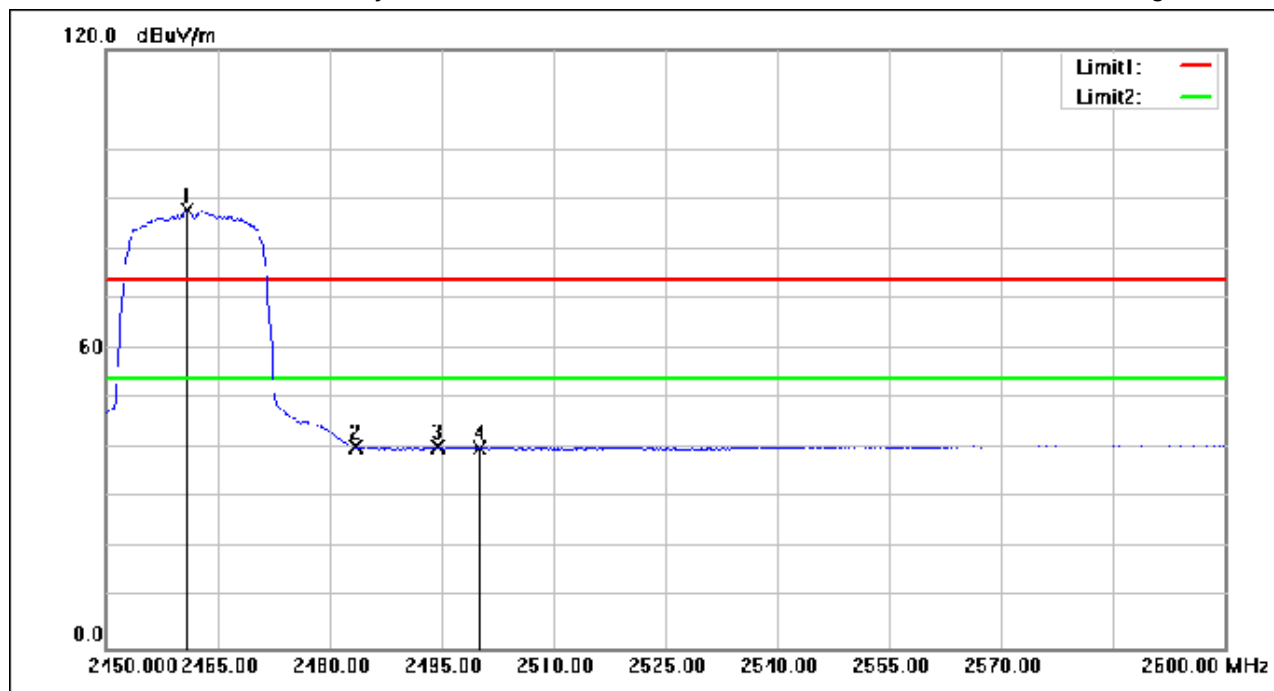
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2460.800	112.05	-24.38	87.67	54.00	33.67	AVG
2	2483.500	64.56	-24.27	40.29	54.00	-13.71	AVG
3	2494.400	64.56	-24.21	40.35	54.00	-13.65	AVG
4	2500.000	64.17	-24.19	39.98	54.00	-14.02	AVG

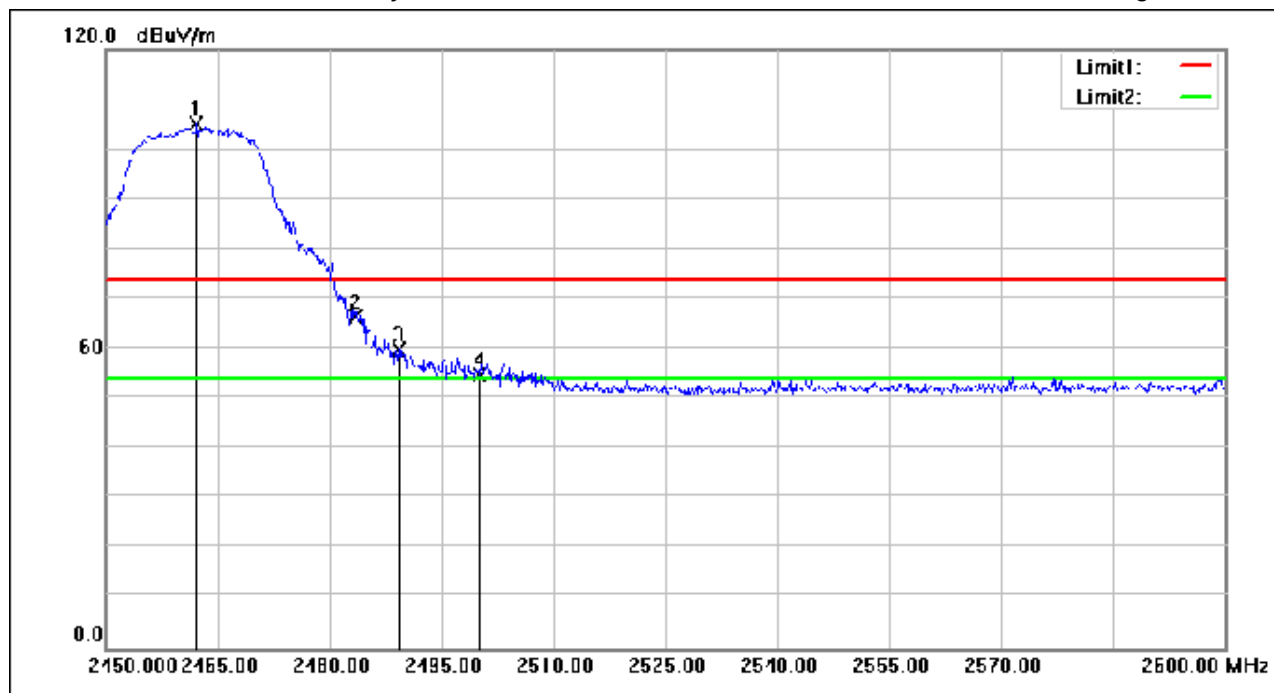
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.150	129.41	-24.37	105.04	74.00	31.04	peak
2	2483.500	90.78	-24.27	66.51	74.00	-7.49	peak
3	2489.300	84.09	-24.24	59.85	74.00	-14.15	peak
4	2500.000	78.89	-24.19	54.70	74.00	-19.30	peak

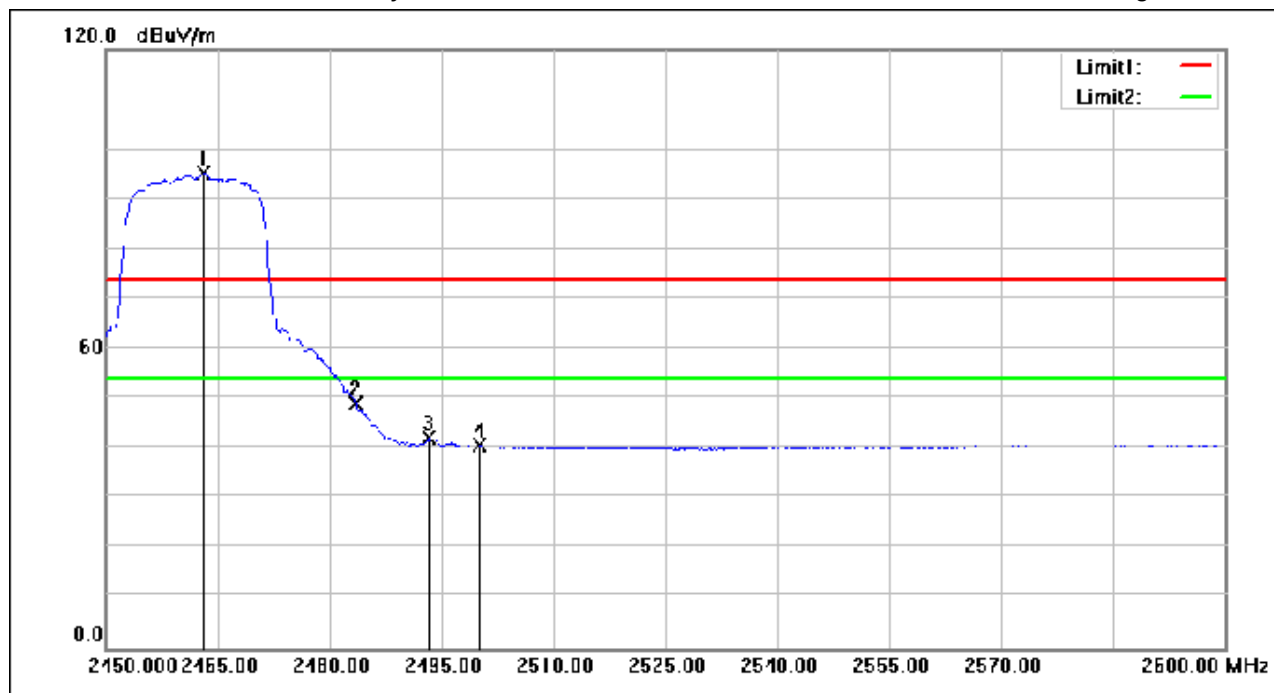
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2463.050	119.62	-24.37	95.25	54.00	41.25	AVG
2	2483.500	73.34	-24.27	49.07	54.00	-4.93	AVG
3	2493.350	66.37	-24.22	42.15	54.00	-11.85	AVG
4	2500.000	64.87	-24.19	40.68	54.00	-13.32	AVG

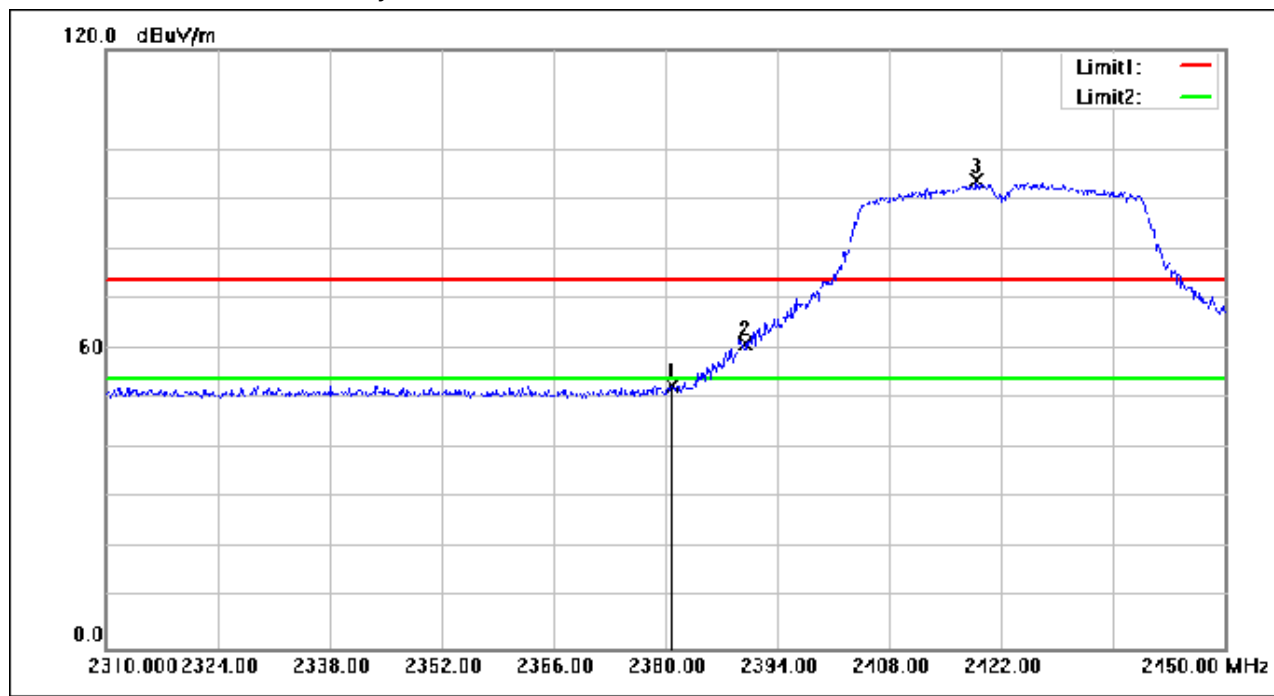
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2380.840	77.37	-24.75	52.62	74.00	-21.38	peak
2	2390.000	85.80	-24.71	61.09	74.00	-12.91	peak
3	2418.920	118.31	-24.57	93.74	74.00	19.74	peak

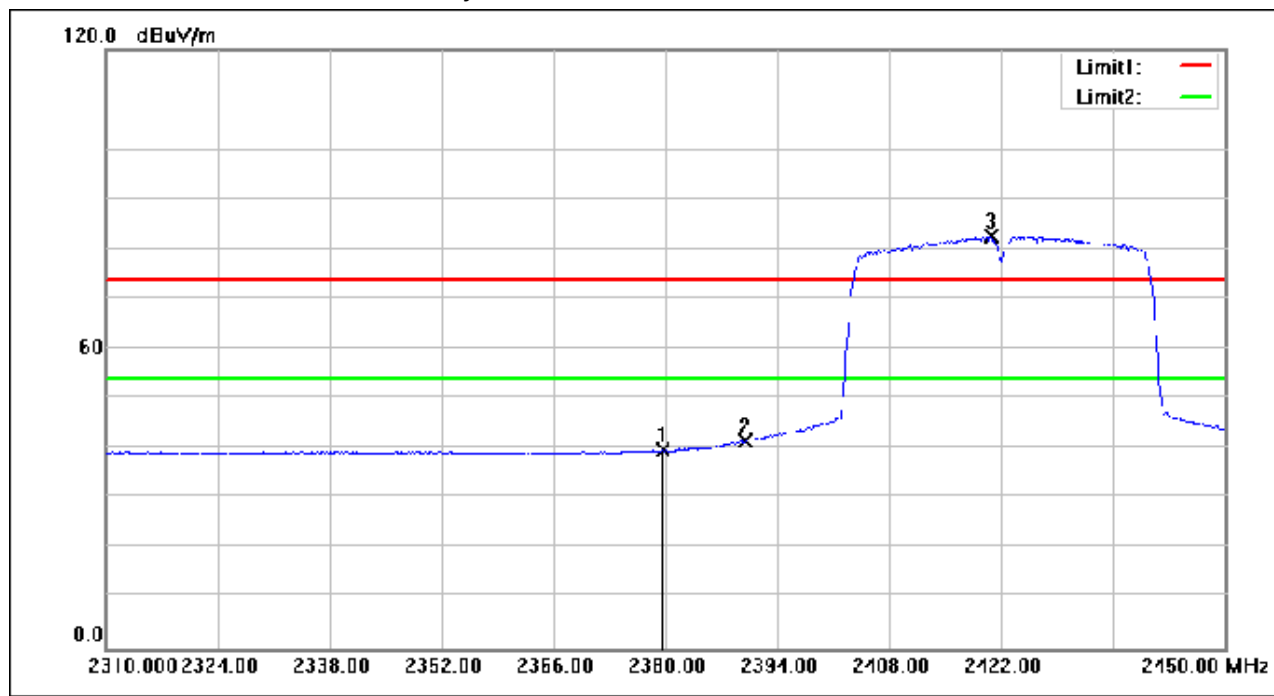
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2379.720	64.47	-24.75	39.72	54.00	-14.28	AVG
2	2390.000	66.35	-24.71	41.64	54.00	-12.36	AVG
3	2420.740	107.17	-24.57	82.60	54.00	28.60	AVG

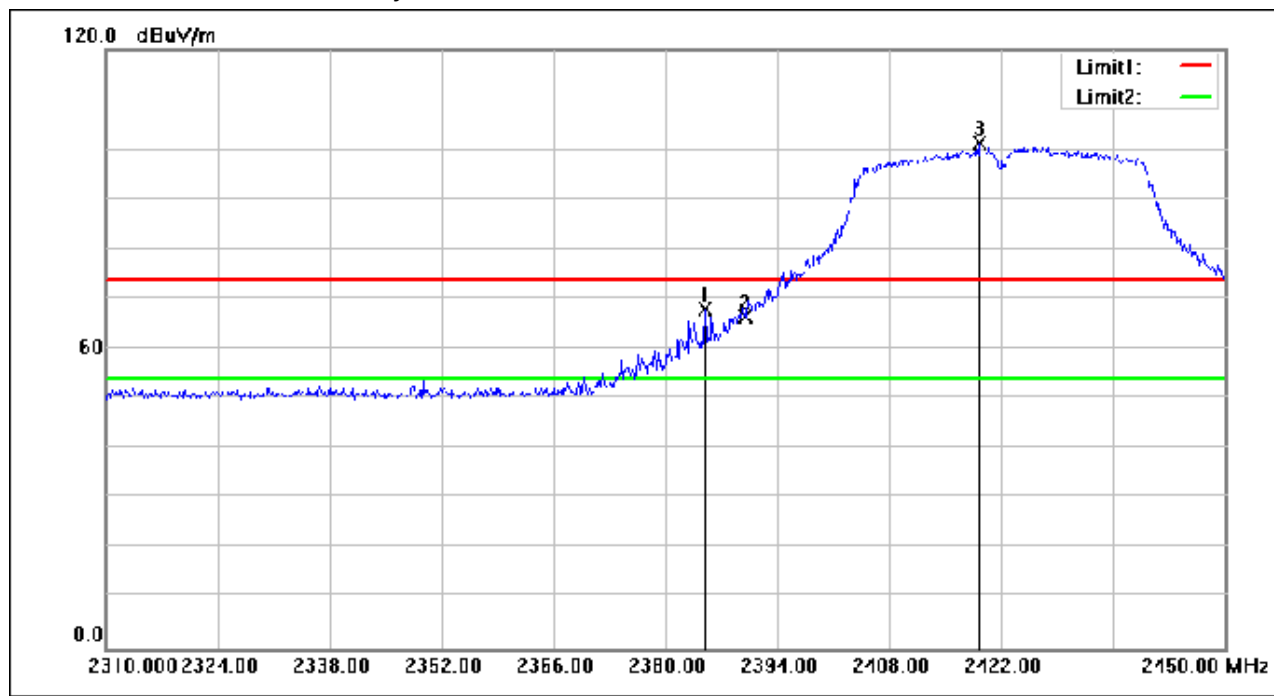
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2384.900	92.56	-24.73	67.83	74.00	-6.17	peak
2	2390.000	91.23	-24.71	66.52	74.00	-7.48	peak
3	2419.200	125.92	-24.57	101.35	74.00	27.35	peak

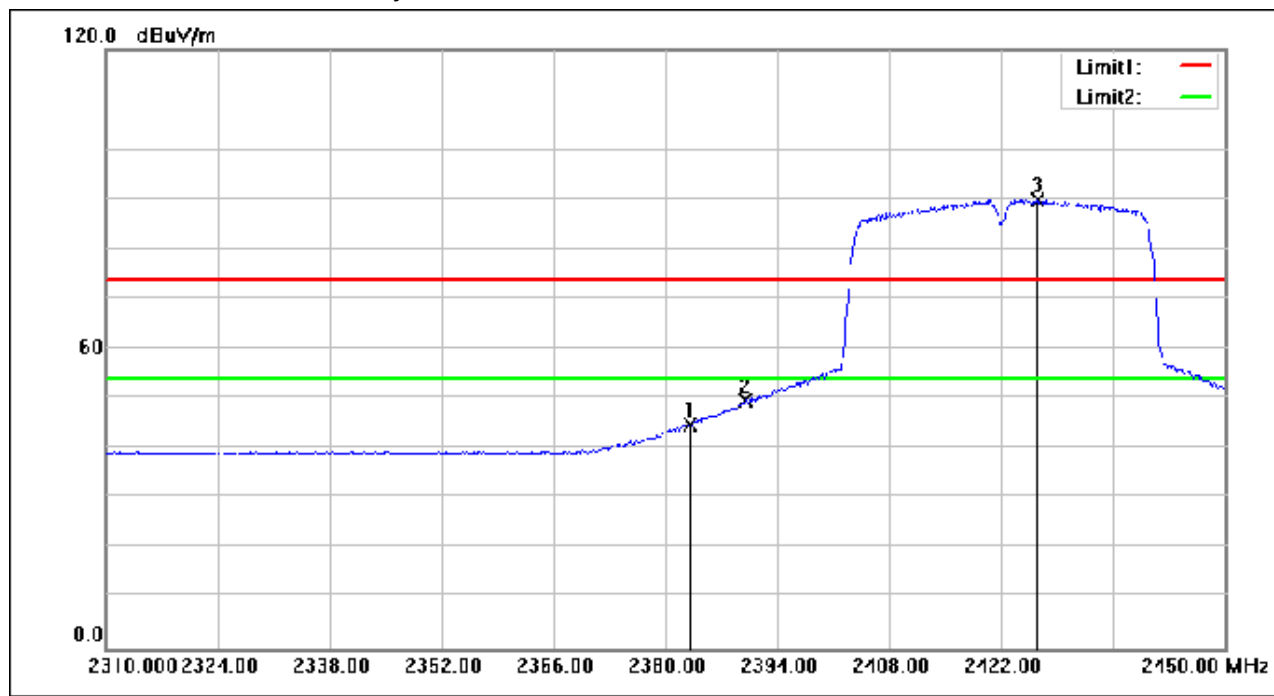
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2383.080	69.72	-24.74	44.98	54.00	-9.02	AVG
2	2390.000	74.36	-24.71	49.65	54.00	-4.35	AVG
3	2426.620	114.53	-24.53	90.00	54.00	36.00	AVG

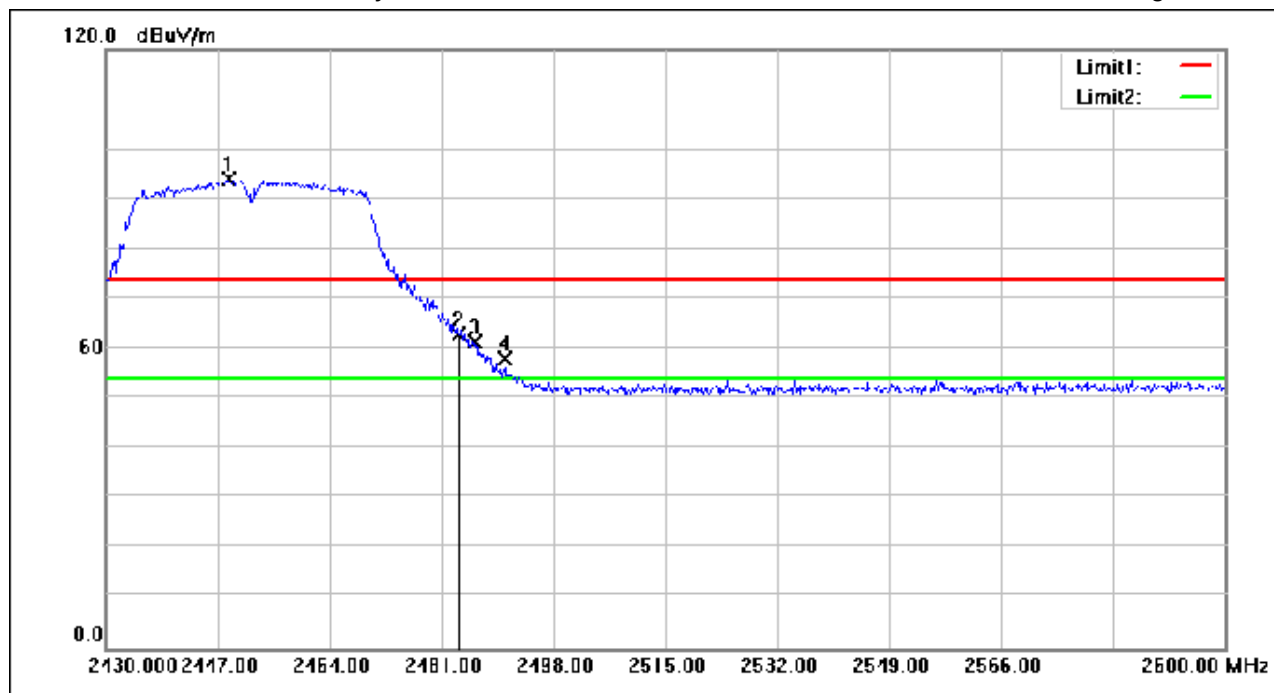
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2448.700	118.57	-24.43	94.14	74.00	20.14	peak
2	2483.500	87.23	-24.27	62.96	74.00	-11.04	peak
3	2486.100	85.55	-24.26	61.29	74.00	-12.71	peak
4	2490.690	82.17	-24.24	57.93	74.00	-16.07	peak

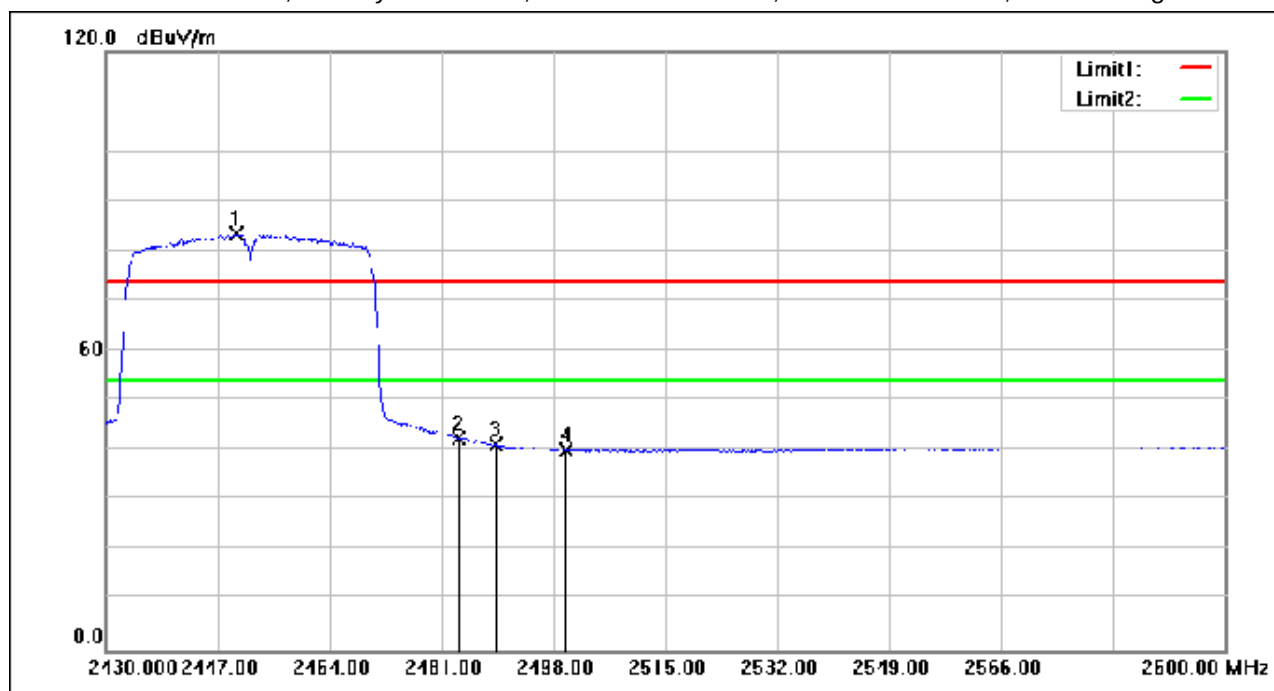
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2449.720	107.90	-24.43	83.47	54.00	29.47	AVG
2	2483.500	66.72	-24.27	42.45	54.00	-11.55	AVG
3	2489.160	65.52	-24.24	41.28	54.00	-12.72	AVG
4	2500.000	64.34	-24.19	40.15	54.00	-13.85	AVG

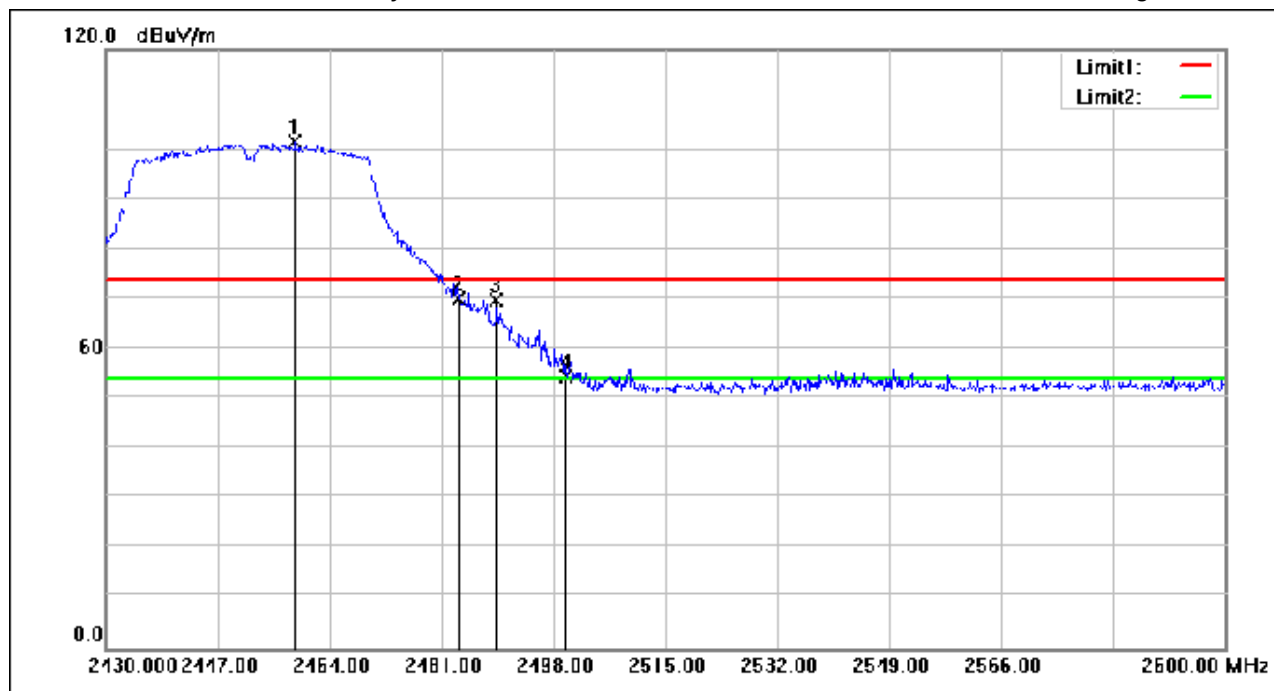
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2458.730	125.88	-24.38	101.50	74.00	27.50	peak
2	2483.500	94.44	-24.27	70.17	74.00	-3.83	peak
3	2489.330	94.04	-24.24	69.80	74.00	-4.20	peak
4	2500.000	78.71	-24.19	54.52	74.00	-19.48	peak

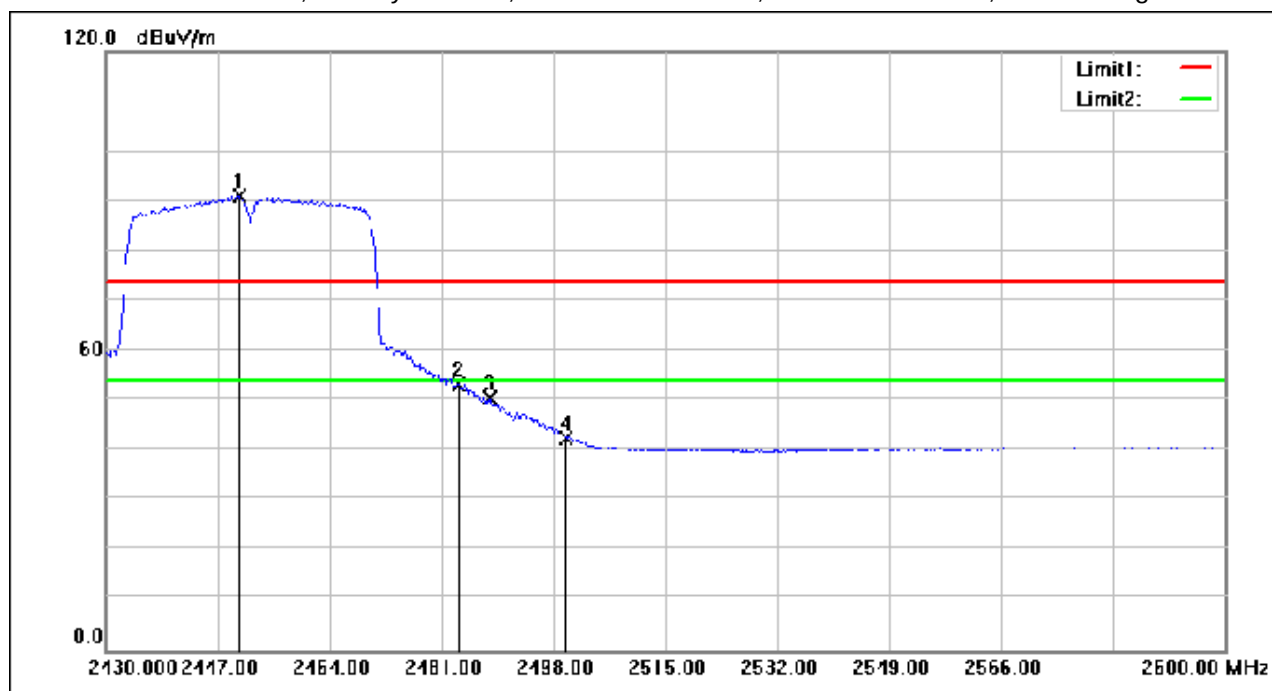
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2450.230	115.50	-24.42	91.08	54.00	37.08	AVG
2	2483.500	77.51	-24.27	53.24	54.00	-0.76	AVG
3	2488.310	74.67	-24.25	50.42	54.00	-3.58	AVG
4	2500.000	66.64	-24.19	42.45	54.00	-11.55	AVG

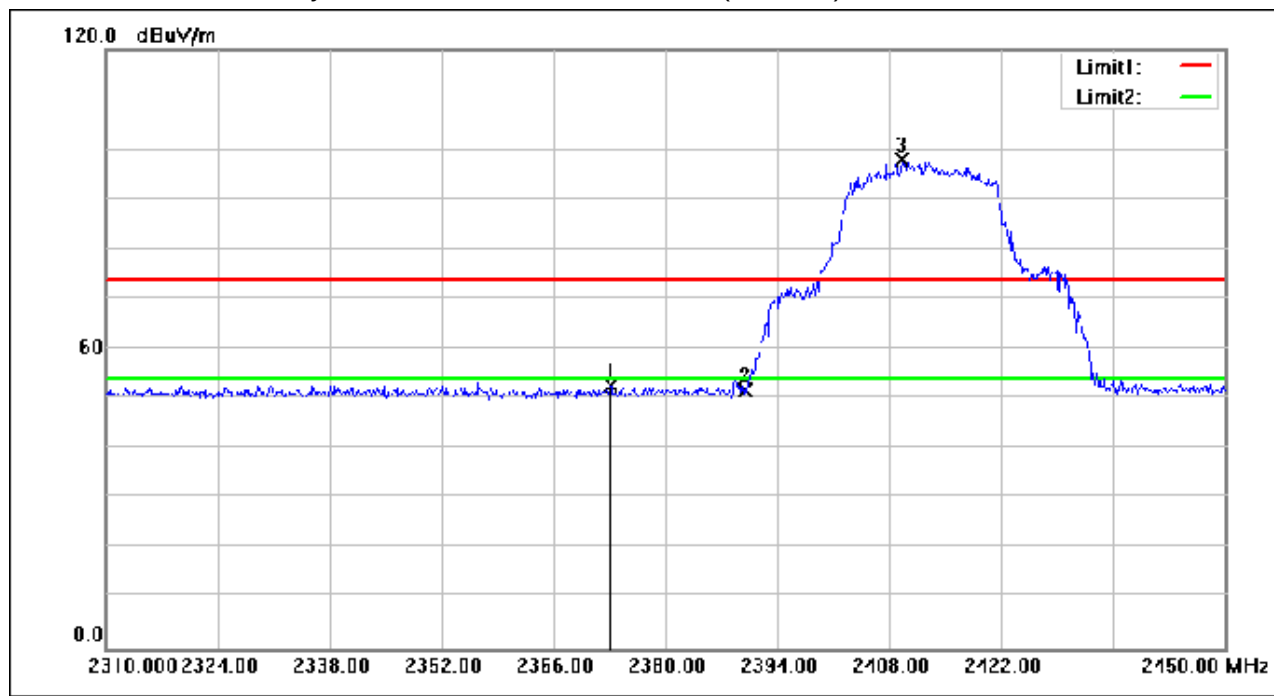
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Test Mode: 00; Polarity: Horizontal; Modulation: 802.11ax(Full RU0); Bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2373.140	77.53	-24.79	52.74	74.00	-21.26	peak
2	2390.000	76.52	-24.71	51.81	74.00	-22.19	peak
3	2409.540	122.60	-24.61	97.99	74.00	23.99	peak

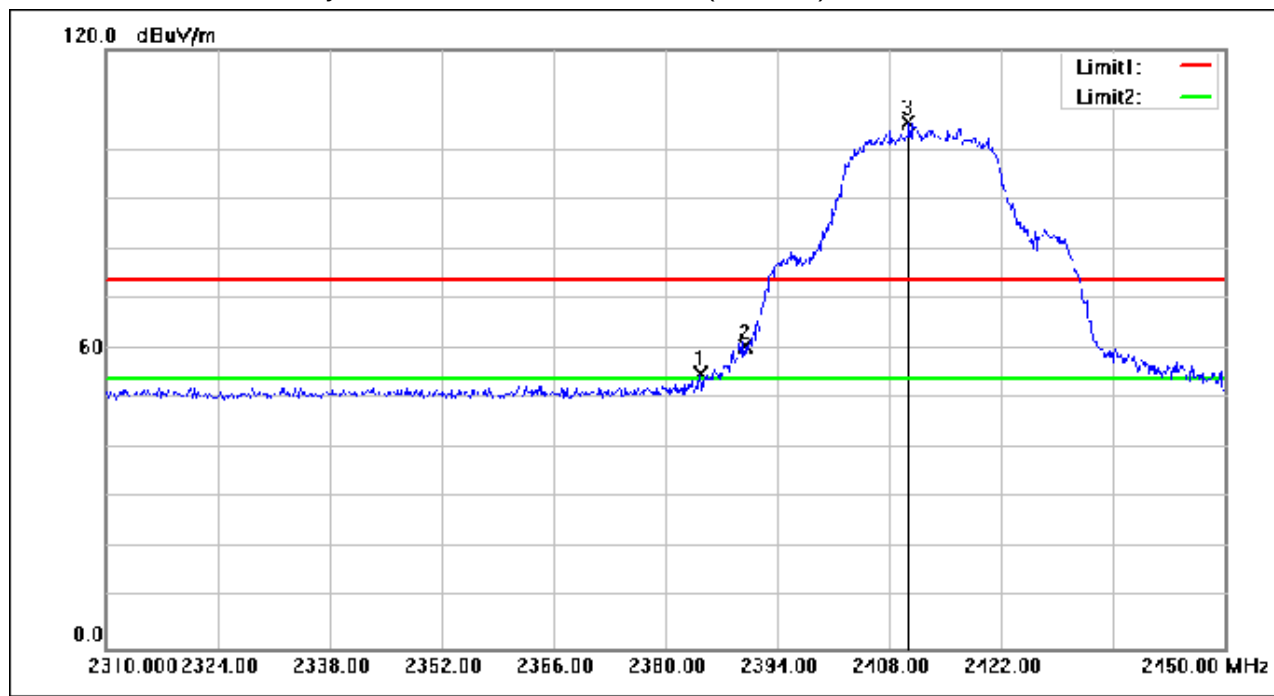
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Test Mode: 00; Polarity: Vertical; Modulation: 802.11ax(Full RU0); Bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2384.340	79.81	-24.73	55.08	74.00	-18.92	peak
2	2390.000	85.08	-24.71	60.37	74.00	-13.63	peak
3	2410.380	130.00	-24.61	105.39	74.00	31.39	peak

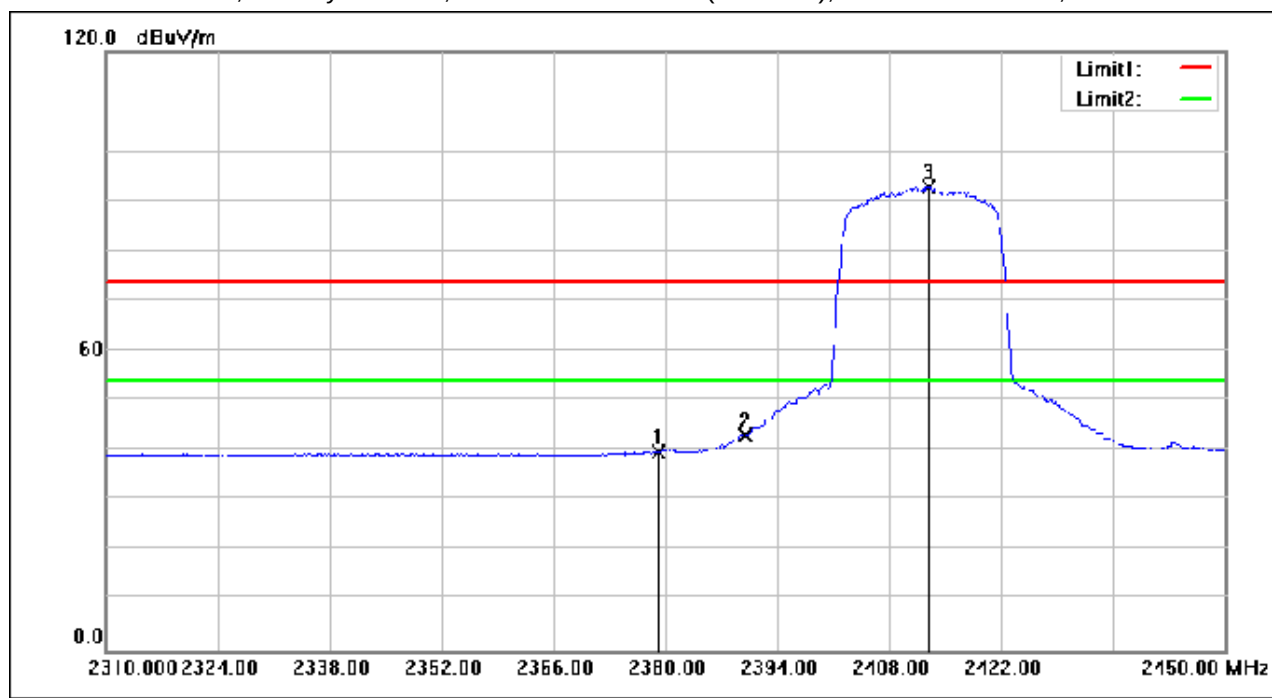
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Test Mode: 00; Polarity: Vertical; Modulation: 802.11ax(Full RU0); Bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2379.160	64.57	-24.75	39.82	54.00	-14.18	AVG
2	2390.000	67.89	-24.71	43.18	54.00	-10.82	AVG
3	2412.900	117.54	-24.60	92.94	54.00	38.94	AVG

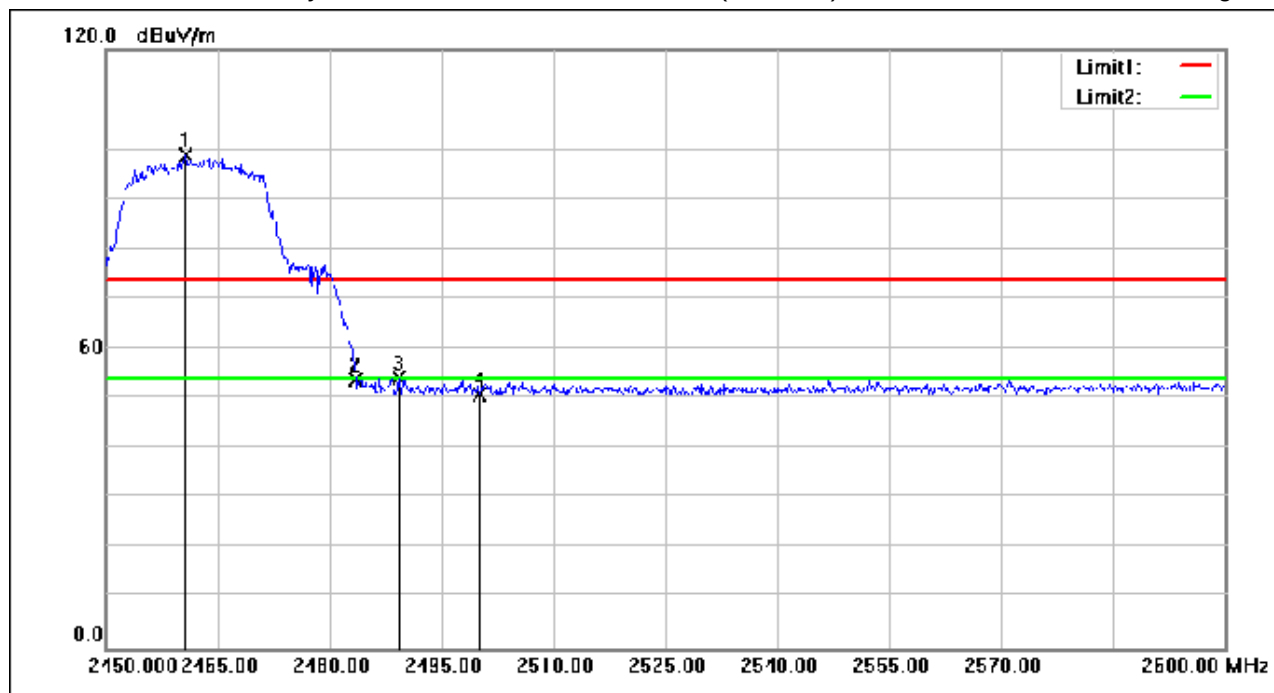
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2460.650	123.21	-24.38	98.83	74.00	24.83	peak
2	2483.500	78.11	-24.27	53.84	74.00	-20.16	peak
3	2489.300	78.34	-24.24	54.10	74.00	-19.90	peak
4	2500.000	75.19	-24.19	51.00	74.00	-23.00	peak

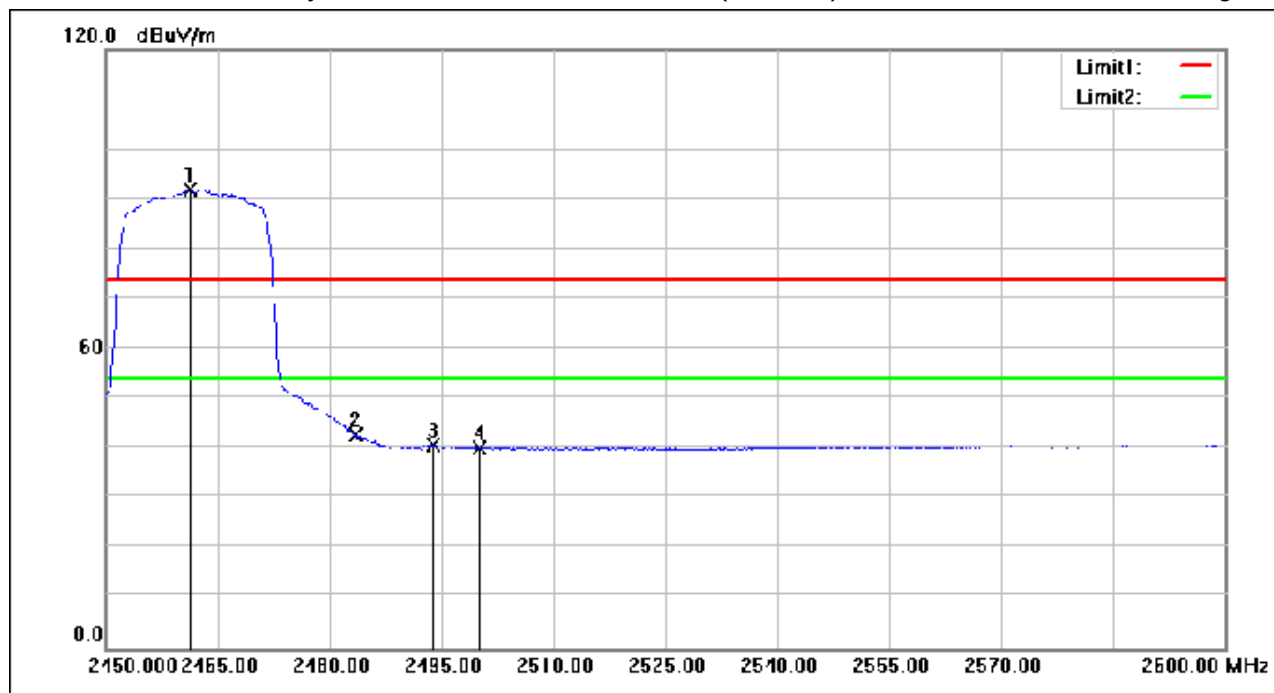
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2461.250	116.36	-24.37	91.99	54.00	37.99	AVG
2	2483.500	67.00	-24.27	42.73	54.00	-11.27	AVG
3	2493.800	64.94	-24.22	40.72	54.00	-13.28	AVG
4	2500.000	64.24	-24.19	40.05	54.00	-13.95	AVG

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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.450	130.16	-24.37	105.79	74.00	31.79	peak
2	2483.500	93.60	-24.27	69.33	74.00	-4.67	peak
3	2488.250	87.61	-24.25	63.36	74.00	-10.64	peak
4	2500.000	77.71	-24.19	53.52	74.00	-20.48	peak

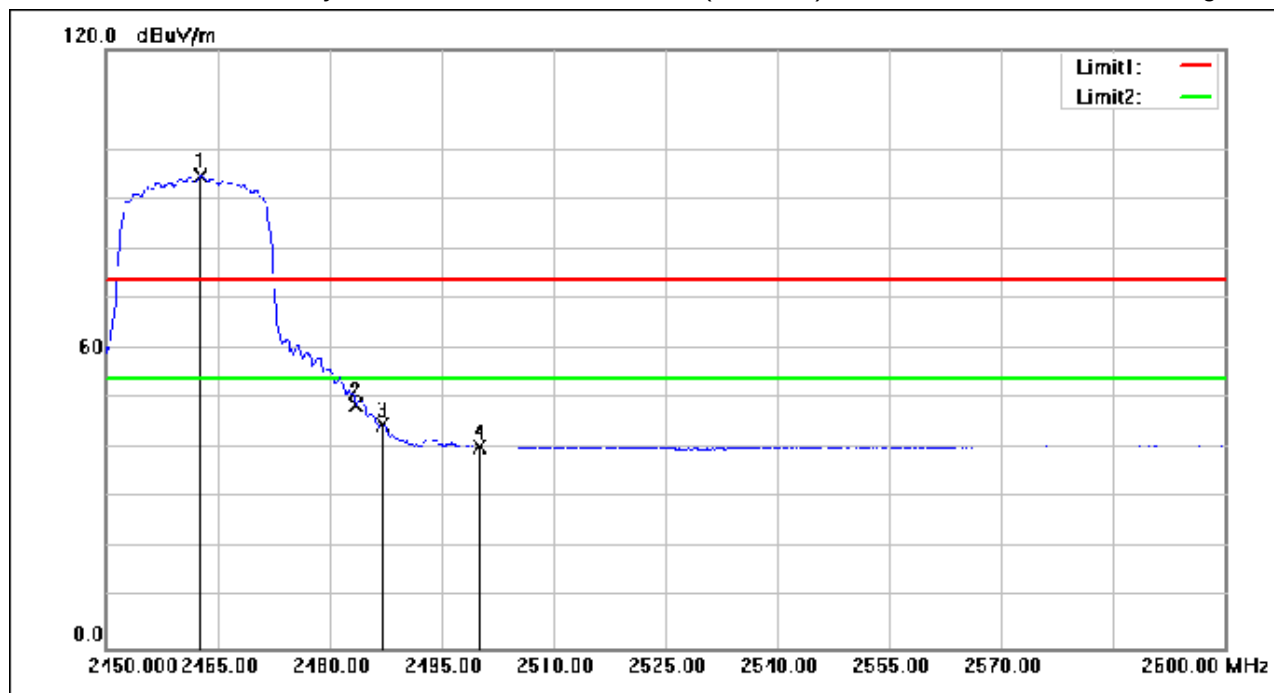
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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.750	119.09	-24.37	94.72	54.00	40.72	AVG
2	2483.500	73.16	-24.27	48.89	54.00	-5.11	AVG
3	2487.050	69.12	-24.25	44.87	54.00	-9.13	AVG
4	2500.000	64.53	-24.19	40.34	54.00	-13.66	AVG

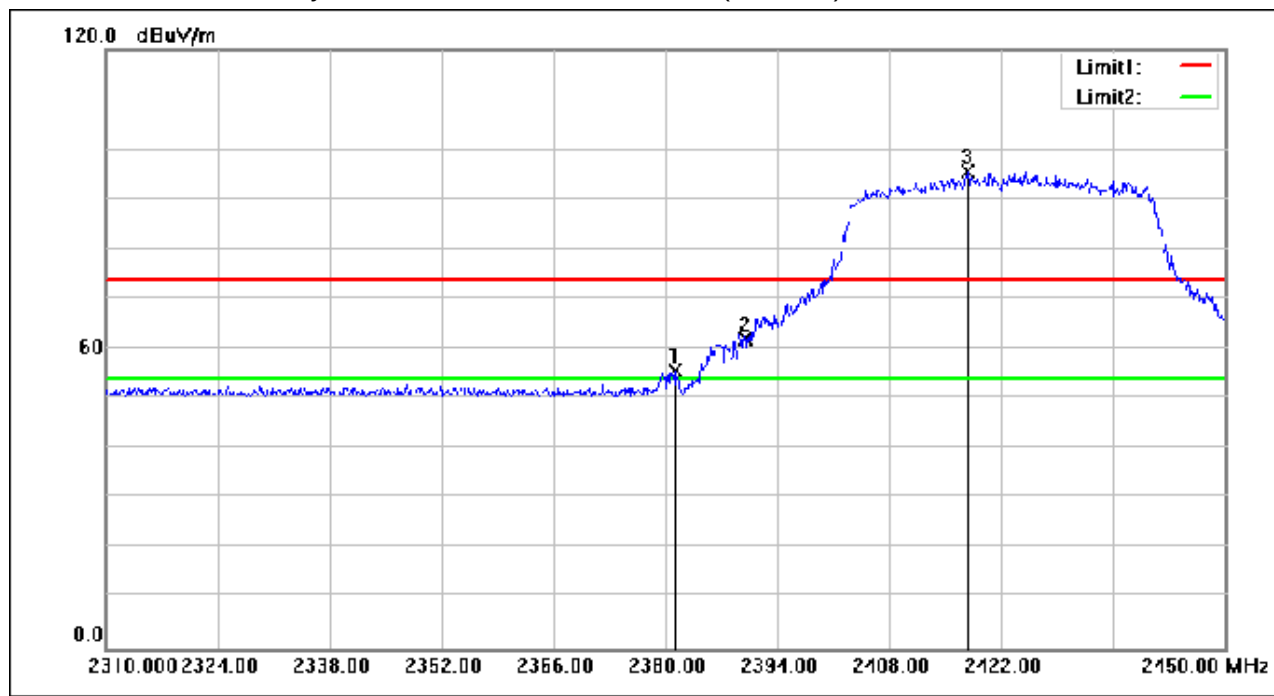
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No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2381.120	80.53	-24.74	55.79	74.00	-18.21	peak
2	2390.000	86.56	-24.71	61.85	74.00	-12.15	peak
3	2417.800	120.15	-24.58	95.57	74.00	21.57	peak

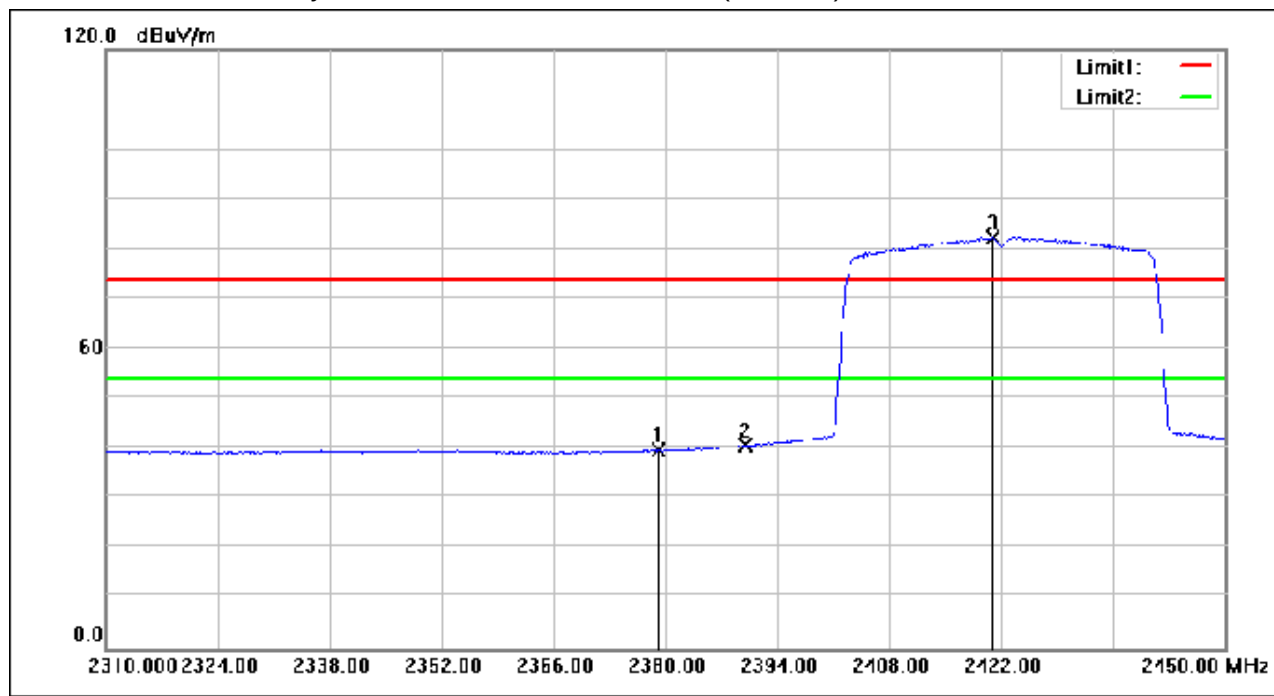
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Test Mode: 00; Polarity: Horizontal; Modulation: 802.11ax(Full RU0); Bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2379.160	64.56	-24.75	39.81	54.00	-14.19	AVG
2	2390.000	65.43	-24.71	40.72	54.00	-13.28	AVG
3	2421.020	106.97	-24.57	82.40	54.00	28.40	AVG

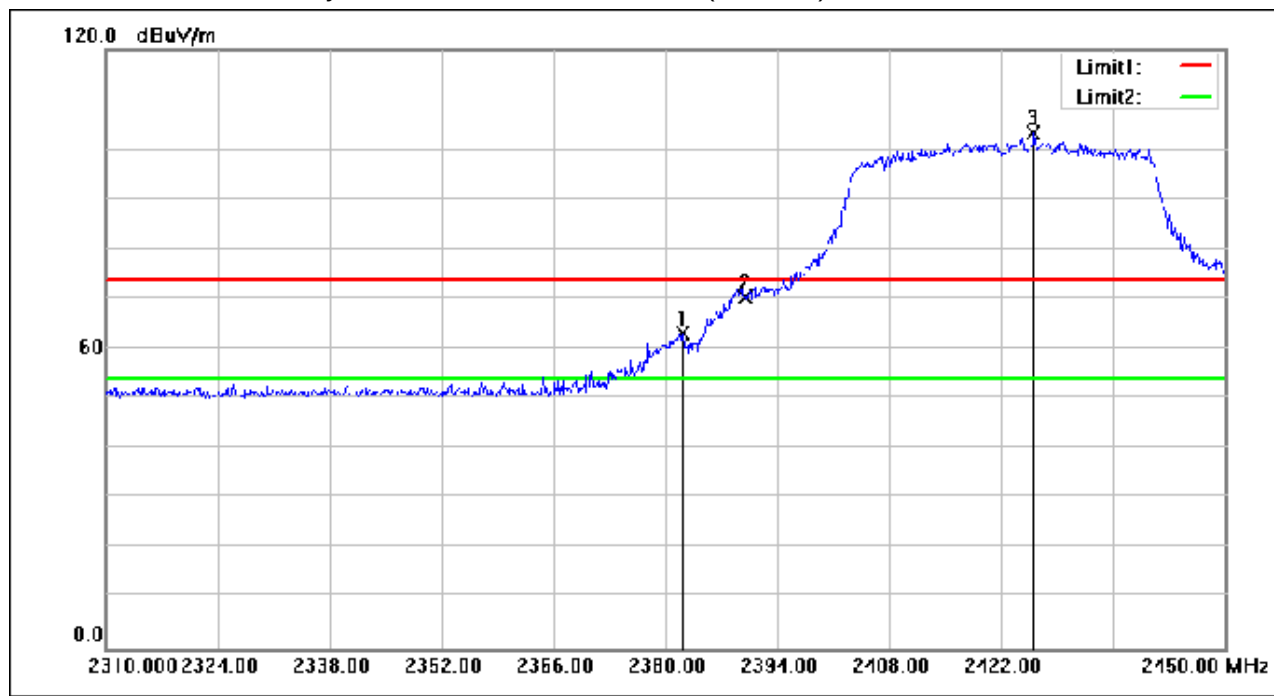
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Test Mode: 00; Polarity: Vertical; Modulation: 802.11ax(Full RU0); Bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2382.100	87.76	-24.74	63.02	74.00	-10.98	peak
2	2390.000	95.21	-24.71	70.50	74.00	-3.50	peak
3	2426.060	127.91	-24.53	103.38	74.00	29.38	peak

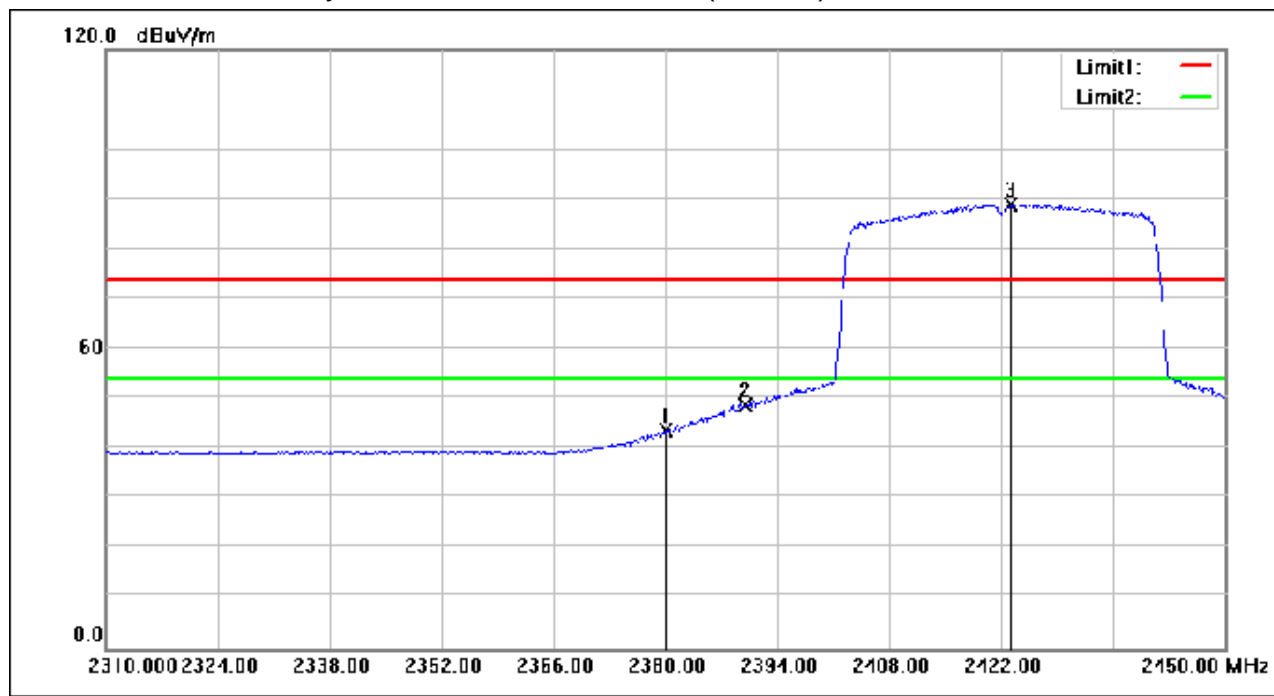
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Test Mode: 00; Polarity: Vertical; Modulation: 802.11ax(Full RU0); Bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2380.140	68.35	-24.75	43.60	54.00	-10.40	AVG
2	2390.000	73.34	-24.71	48.63	54.00	-5.37	AVG
3	2423.260	113.62	-24.55	89.07	54.00	35.07	AVG

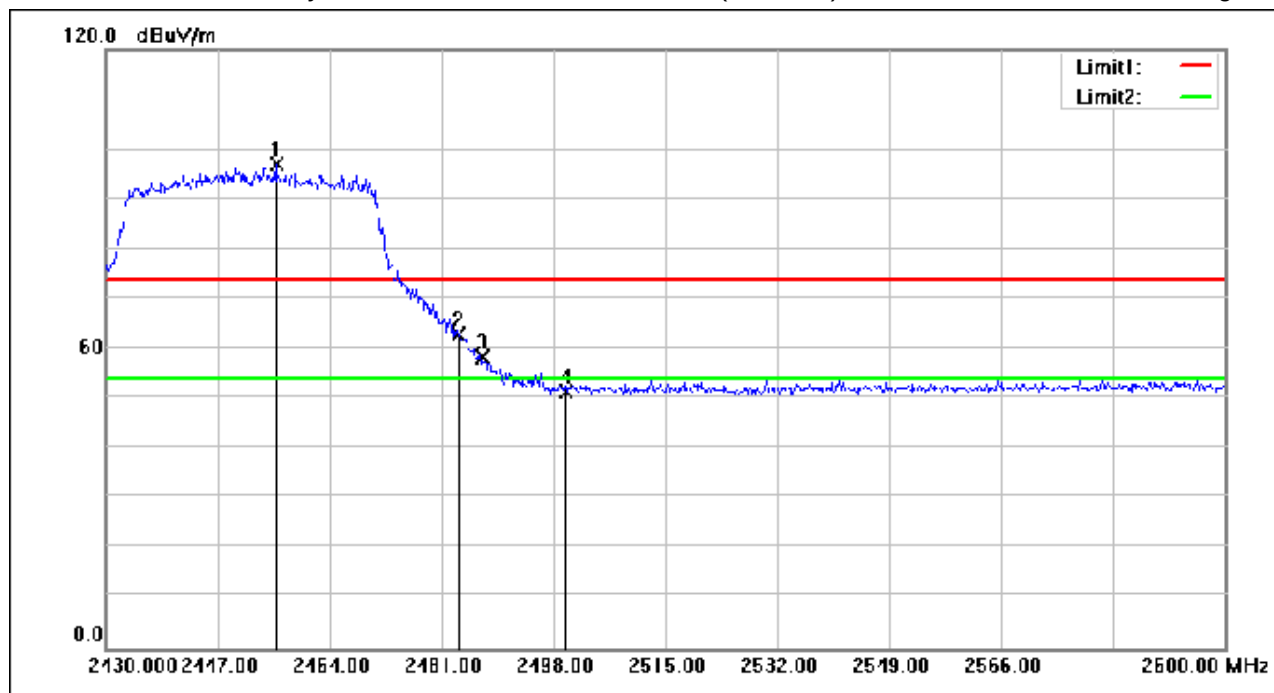
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2455.840	121.48	-24.40	97.08	74.00	23.08	peak
2	2483.500	87.25	-24.27	62.98	74.00	-11.02	peak
3	2487.290	82.45	-24.25	58.20	74.00	-15.80	peak
4	2500.000	75.58	-24.19	51.39	74.00	-22.61	peak

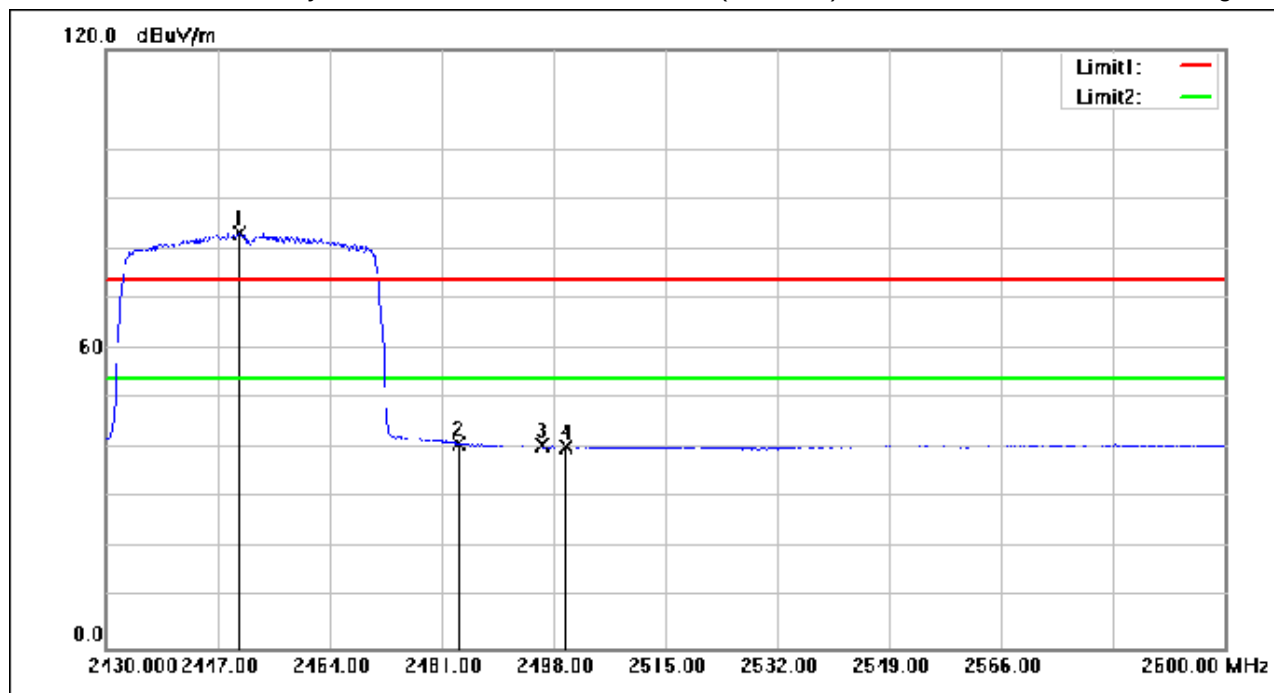
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2450.230	107.64	-24.42	83.22	54.00	29.22	AVG
2	2483.500	65.36	-24.27	41.09	54.00	-12.91	AVG
3	2496.300	64.73	-24.21	40.52	54.00	-13.48	AVG
4	2500.000	64.41	-24.19	40.22	54.00	-13.78	AVG

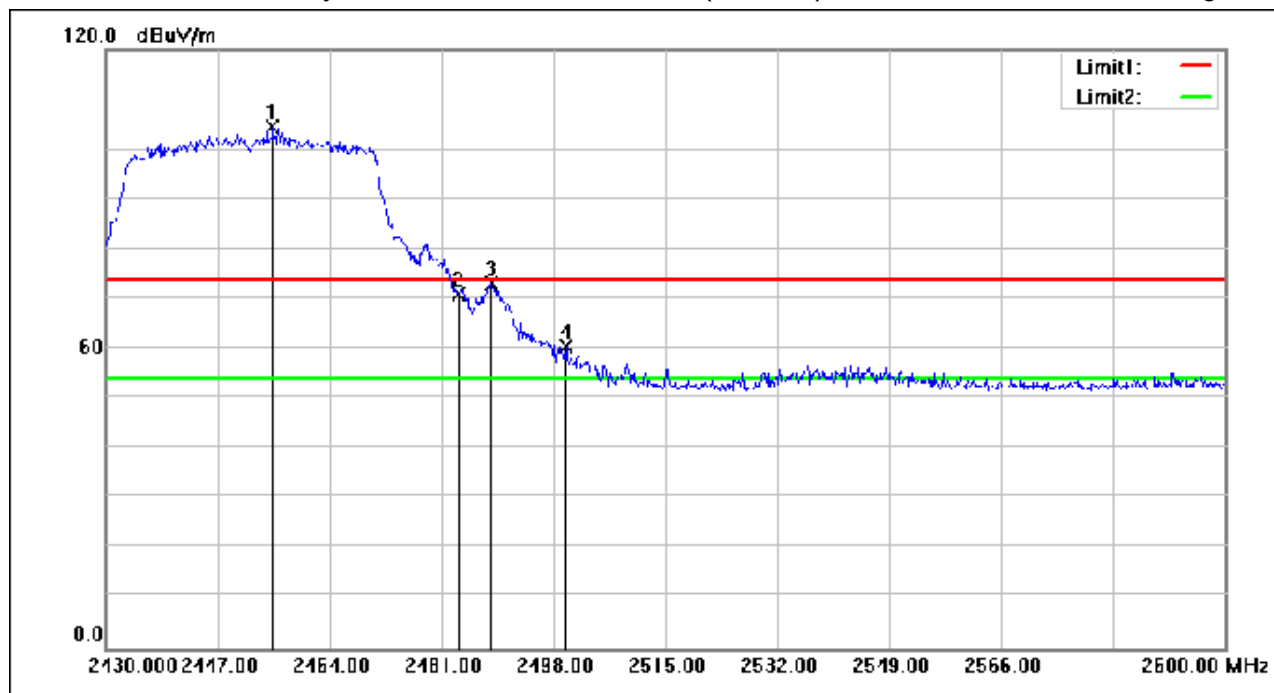
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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2455.330	128.85	-24.40	104.45	74.00	30.45	peak
2	2483.500	95.16	-24.27	70.89	74.00	-3.11	peak
3	2488.480	97.16	-24.25	72.91	74.00	-1.09	peak
4	2500.000	84.63	-24.19	60.44	74.00	-13.56	peak

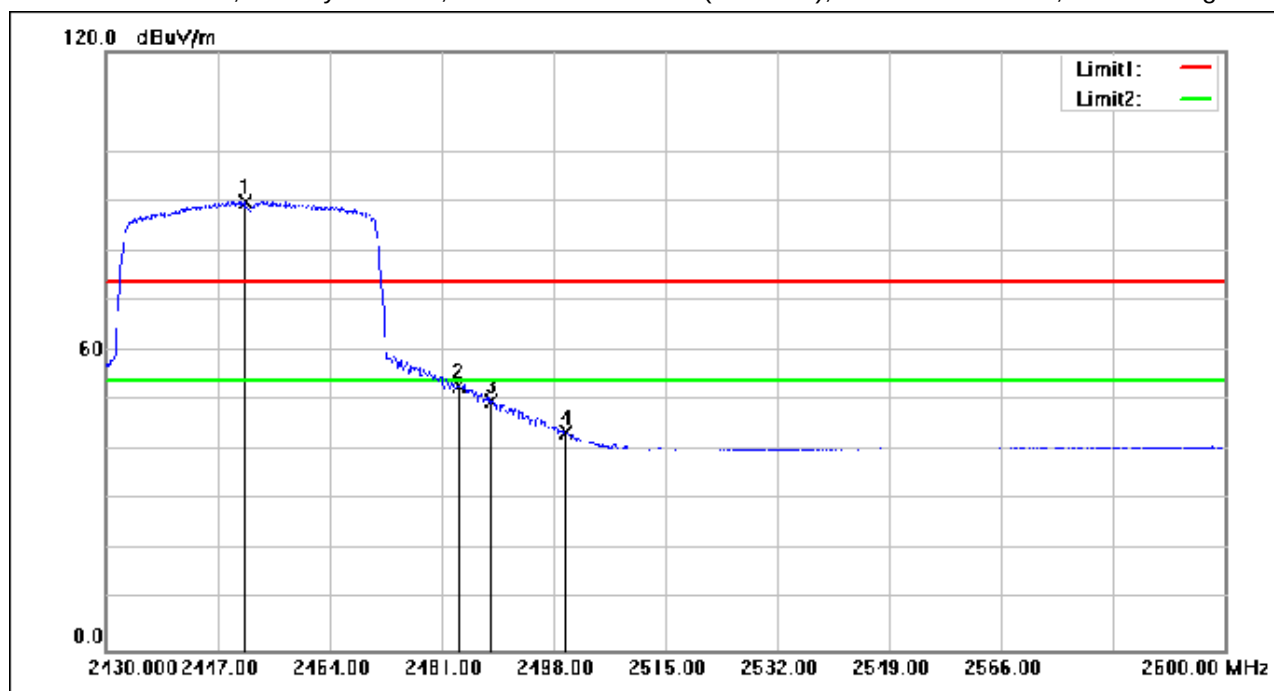
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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2451.080	114.38	-24.42	89.96	54.00	35.96	AVG
2	2483.500	77.26	-24.27	52.99	54.00	-1.01	AVG
3	2488.650	74.34	-24.25	50.09	54.00	-3.91	AVG
4	2500.000	67.97	-24.19	43.78	54.00	-10.22	AVG

7.3 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4,6.5

Limit:

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
30-88	100	3
88-216	150	3
216-960	200	3
960-1000	500	3

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 20.5 °C

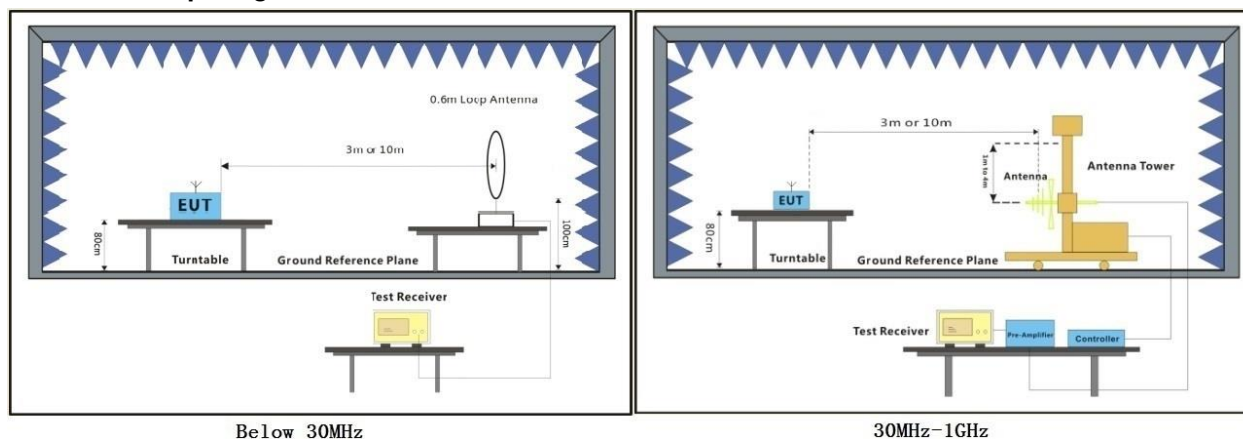
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE40). Only the data of worst case is recorded in the report.

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamplifier Factor}$
2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

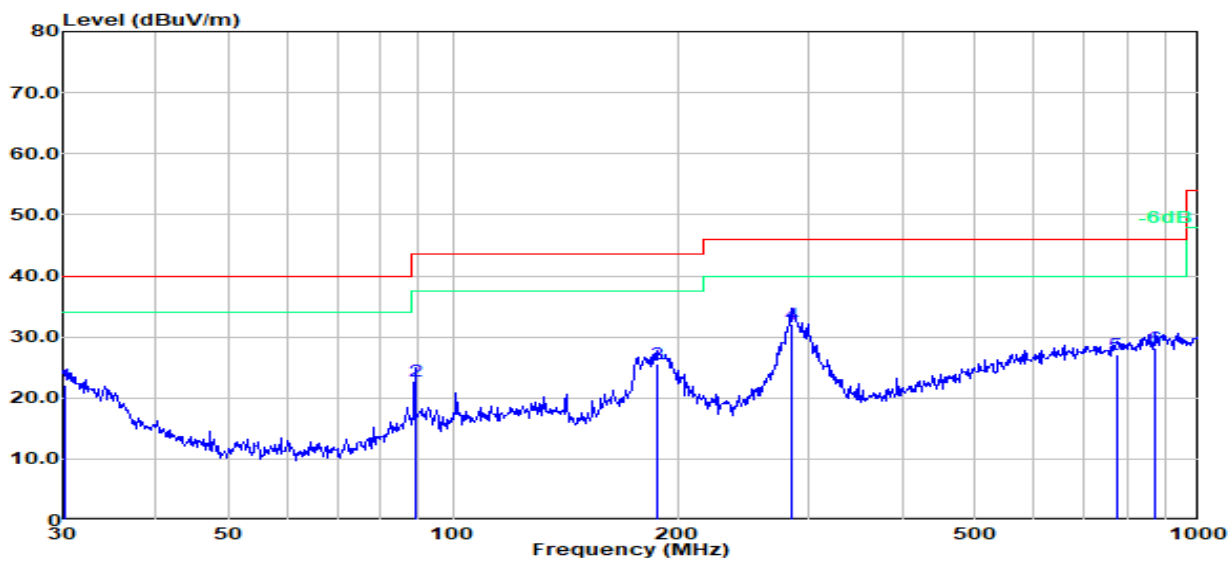
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Test Mode: 00; Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	30.2111	2.95	19.25	22.20	40.00	-17.80	100	6	QP
2	88.9639	11.15	11.59	22.74	43.50	-20.76	100	359	QP
3	188.4125	13.48	12.13	25.61	43.50	-17.89	100	74	QP
4	284.9767	16.42	15.64	32.06	46.00	-13.94	100	84	QP
5	774.1584	2.95	24.24	27.19	46.00	-18.81	200	349	QP
6	875.2469	3.01	25.26	28.27	46.00	-17.73	100	74	QP

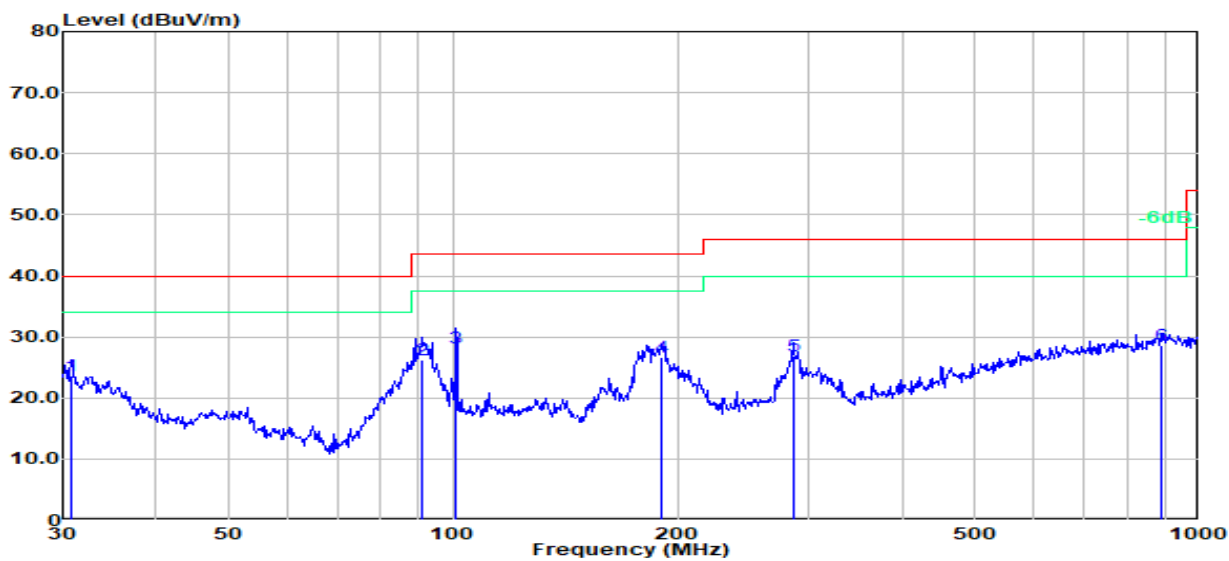
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Test Mode: 00; Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	30.7455	4.75	18.83	23.58	40.00	-16.42	100	64	QP
2	91.1746	14.19	12.13	26.32	43.50	-17.18	200	243	QP
3	100.9340	15.40	12.77	28.17	43.50	-15.33	100	34	QP
4	189.7385	14.77	11.81	26.58	43.50	-16.92	100	224	QP
5	285.9778	11.37	15.59	26.96	46.00	-19.04	100	329	QP
6	887.6099	3.02	25.49	28.51	46.00	-17.49	100	360	QP

7.4 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.6

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 20.5 °C

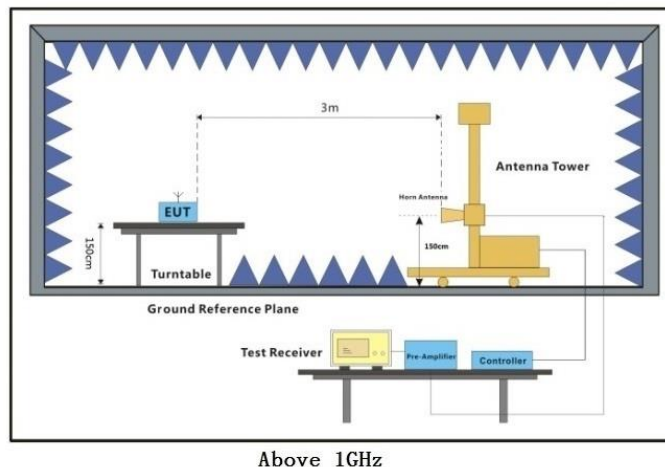
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE40). Only the data of worst case is recorded in the report.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamplifier Factor
2. Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
- 4: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.
- 5:For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle<98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.

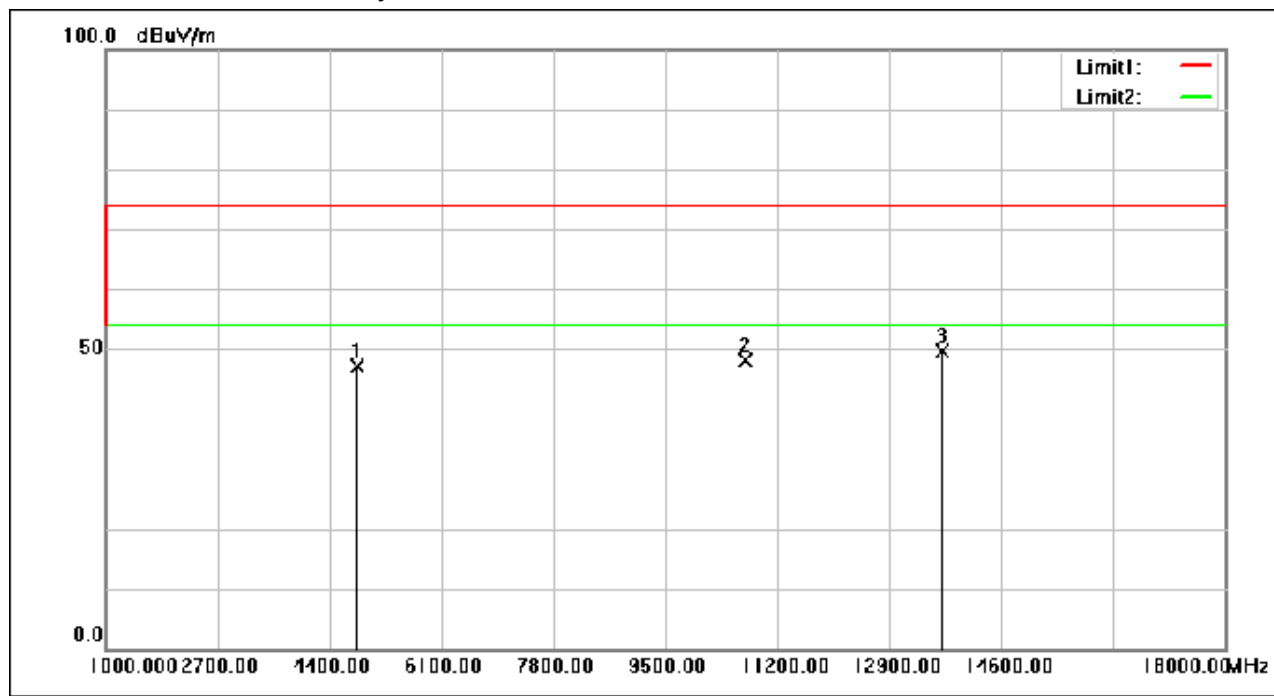
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4824.300	65.72	-18.54	47.18	74.00	-26.82	peak
2	10703.428	55.14	-6.92	48.22	74.00	-25.78	peak
3	13712.997	56.07	-6.38	49.69	74.00	-24.31	peak

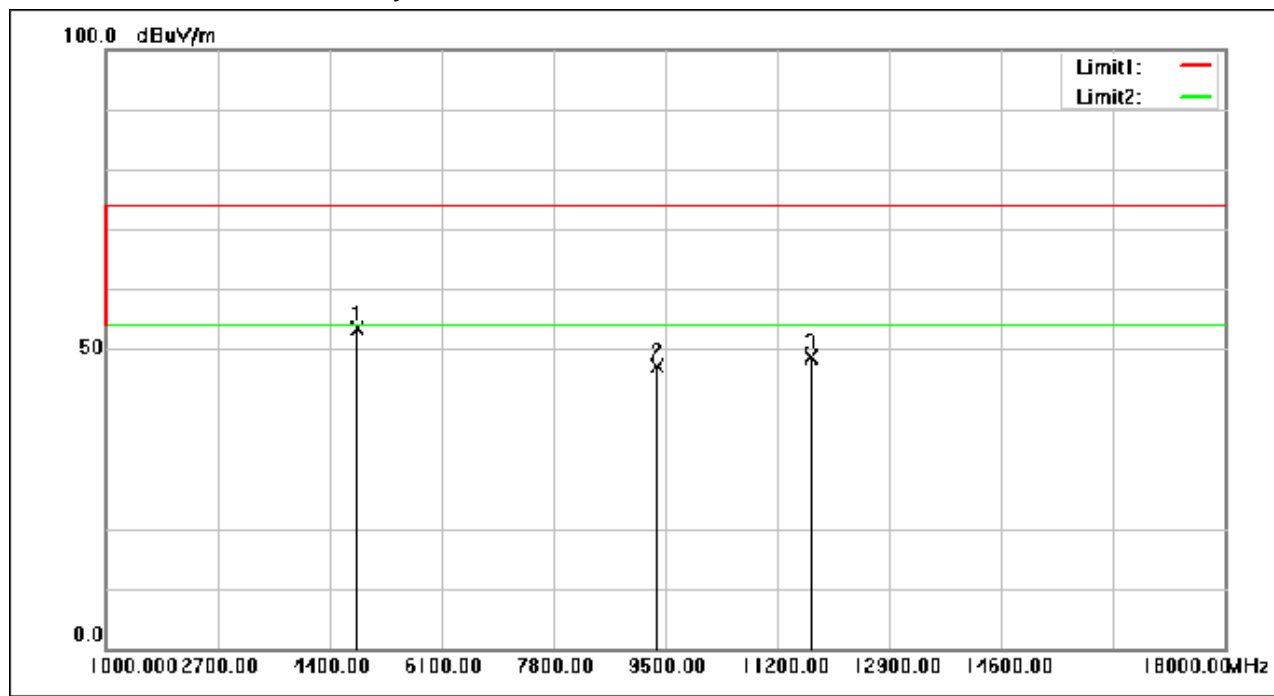
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4824.300	71.97	-18.54	53.43	74.00	-20.57	peak
2	9375.324	55.28	-8.19	47.09	74.00	-26.91	peak
3	11716.841	54.69	-6.18	48.51	74.00	-25.49	peak

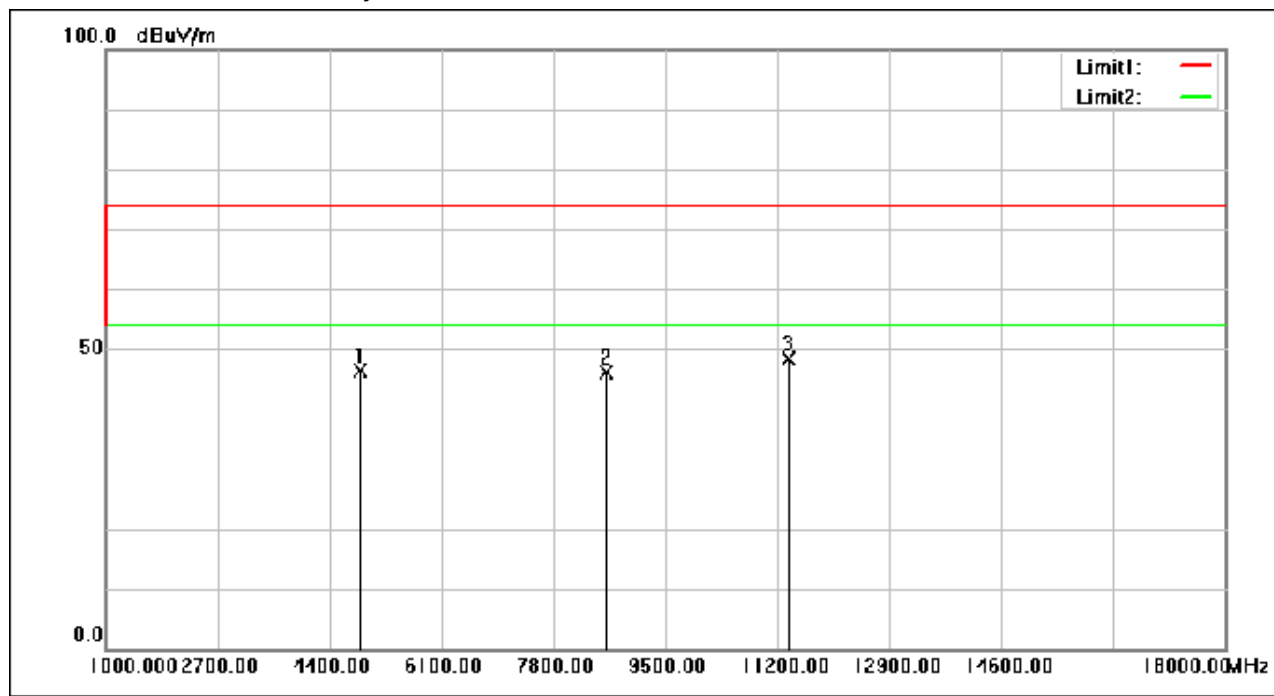
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4873.637	64.87	-18.52	46.35	74.00	-27.65	peak
2	8597.929	55.66	-9.59	46.07	74.00	-27.93	peak
3	11368.813	54.76	-6.46	48.30	74.00	-25.70	peak

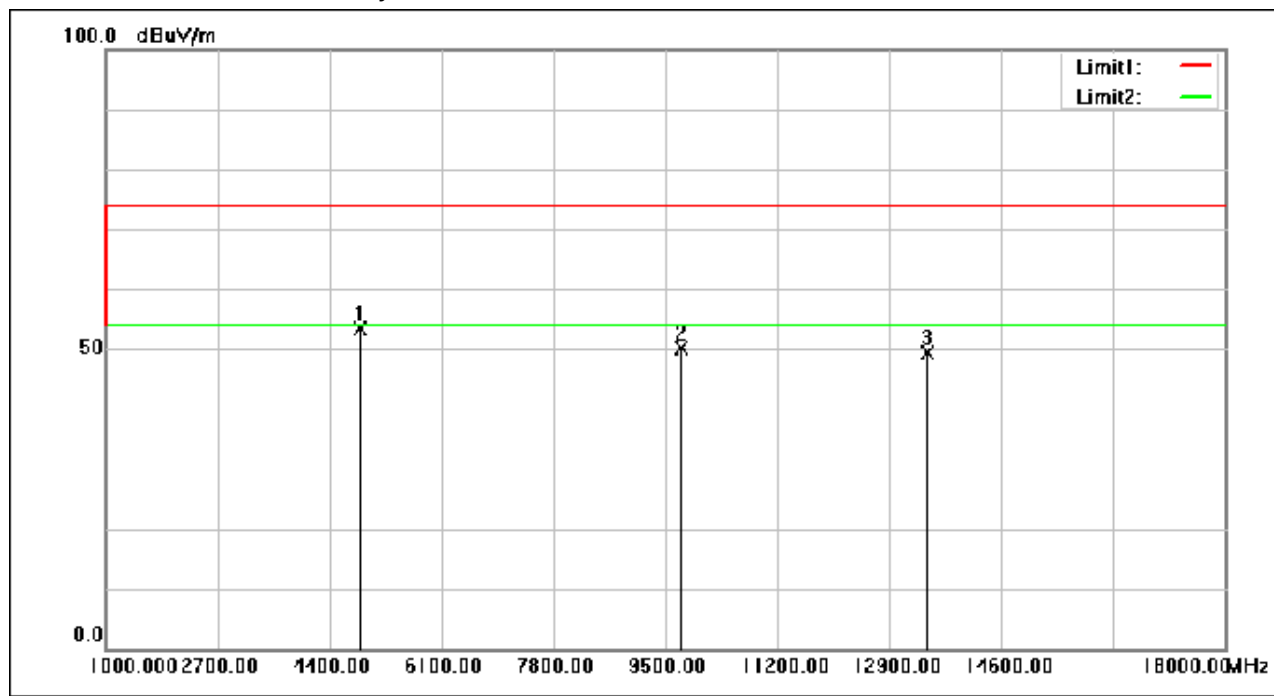
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4873.637	71.93	-18.52	53.41	74.00	-20.59	peak
2	9748.686	57.64	-7.48	50.16	74.00	-23.84	peak
3	13484.979	55.76	-6.34	49.42	74.00	-24.58	peak

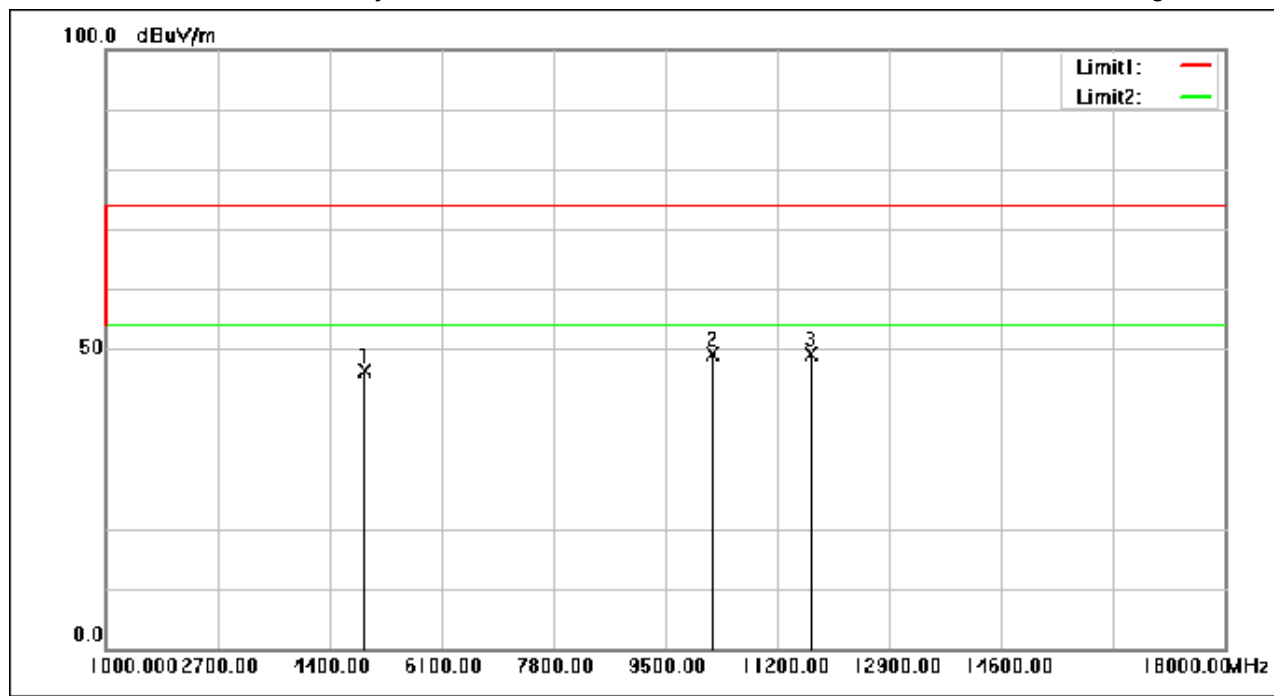
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4924.308	64.87	-18.49	46.38	74.00	-27.62	peak
2	10218.056	56.34	-7.20	49.14	74.00	-24.86	peak
3	11710.173	55.35	-6.19	49.16	74.00	-24.84	peak

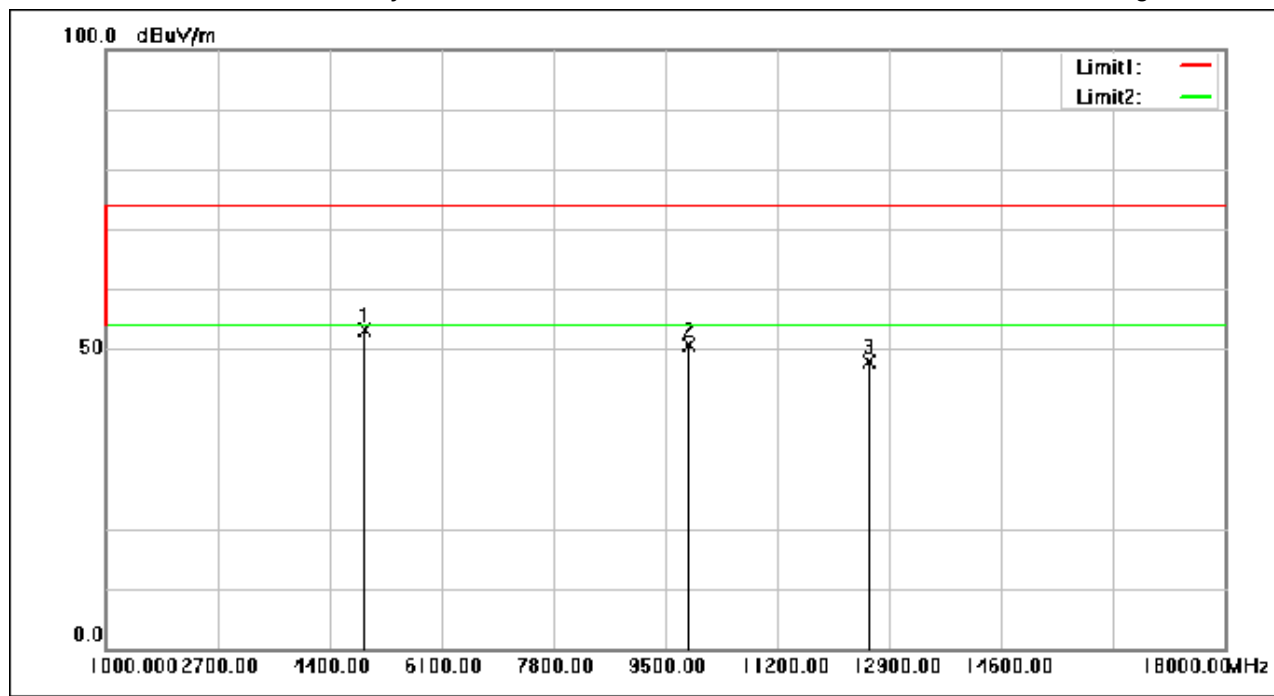
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4924.308	71.62	-18.49	53.13	74.00	-20.87	peak
2	9848.694	58.00	-7.29	50.71	74.00	-23.29	peak
3	12607.577	54.07	-6.16	47.91	74.00	-26.09	peak

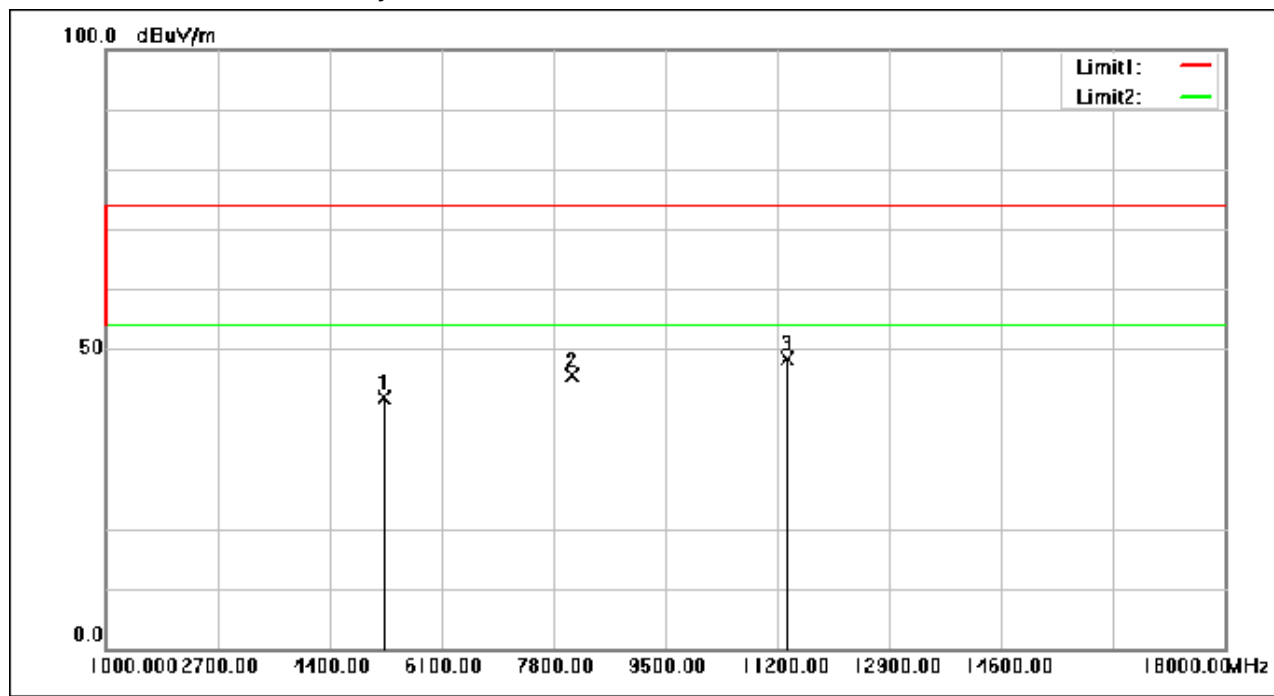
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5234.999	60.02	-18.08	41.94	74.00	-32.06	peak
2	8092.556	56.13	-10.43	45.70	74.00	-28.30	peak
3	11350.145	54.84	-6.48	48.36	74.00	-25.64	peak

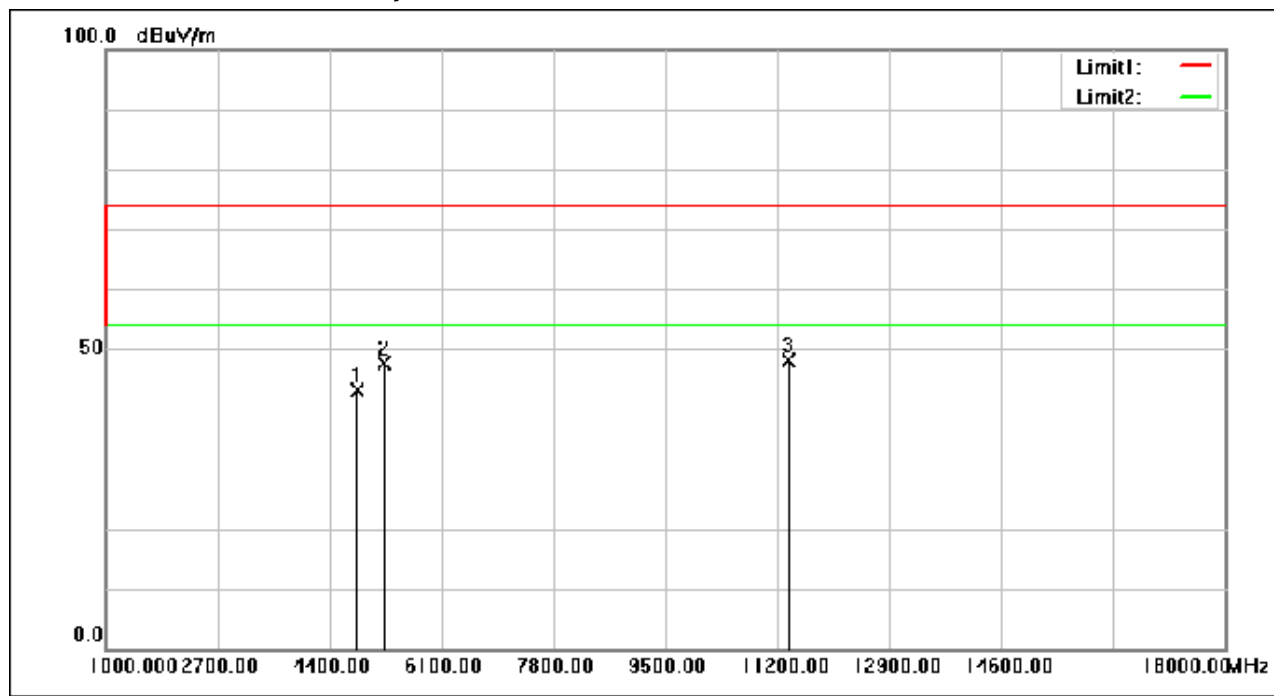
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4822.967	61.58	-18.55	43.03	74.00	-30.97	peak
2	5234.999	65.71	-18.08	47.63	74.00	-26.37	peak
3	11380.814	54.70	-6.46	48.24	74.00	-25.76	peak

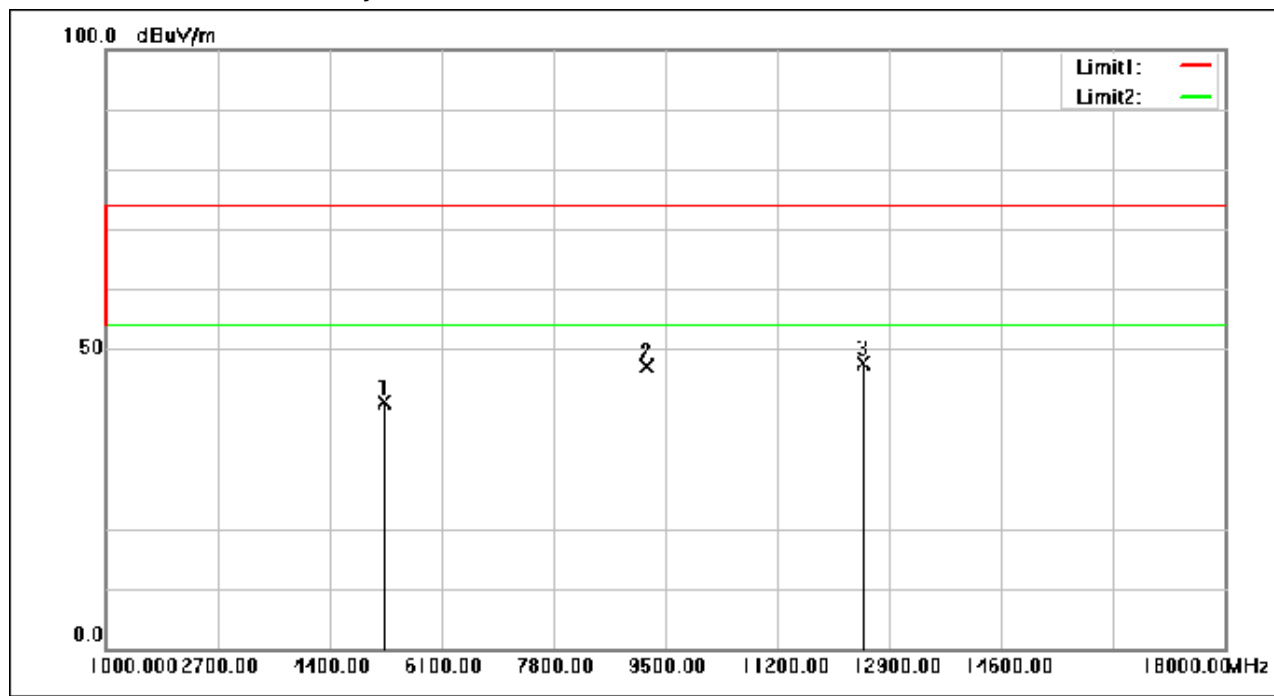
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5234.999	59.21	-18.08	41.13	74.00	-32.87	peak
2	9219.311	55.57	-8.48	47.09	74.00	-26.91	peak
3	12496.902	53.72	-6.12	47.60	74.00	-26.40	peak

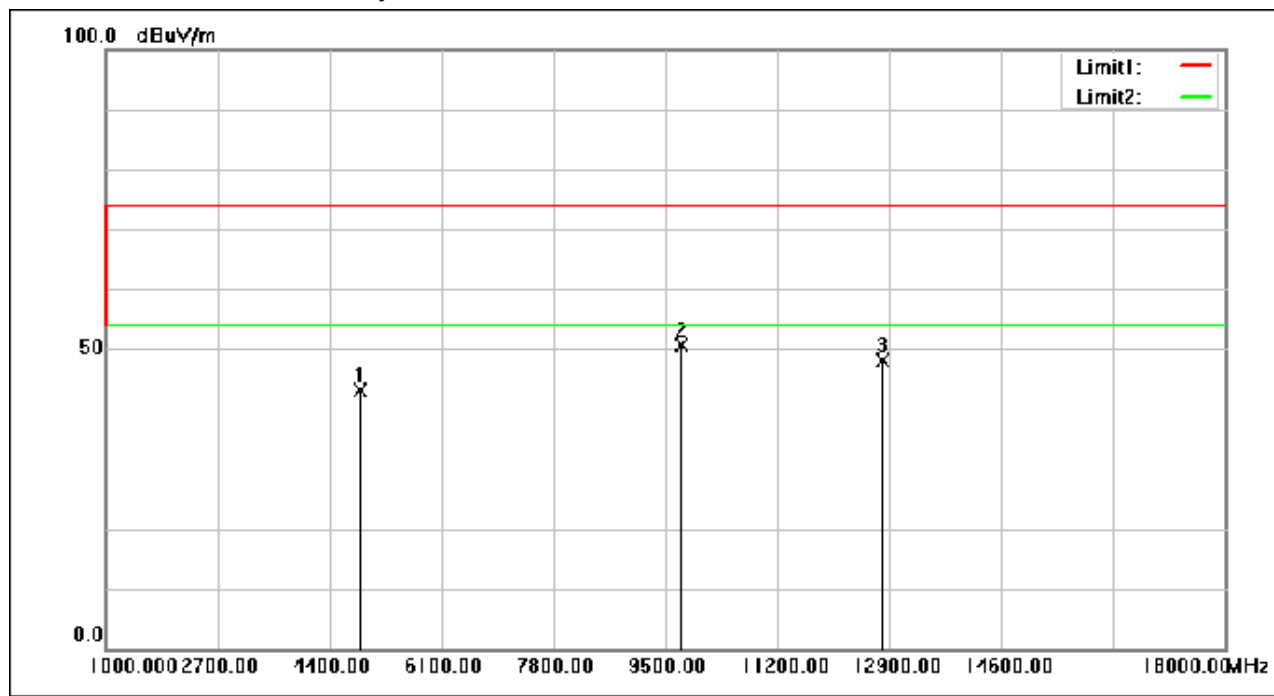
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.971	61.70	-18.51	43.19	74.00	-30.81	peak
2	9748.686	58.17	-7.48	50.69	74.00	-23.31	peak
3	12791.591	54.33	-6.25	48.08	74.00	-25.92	peak

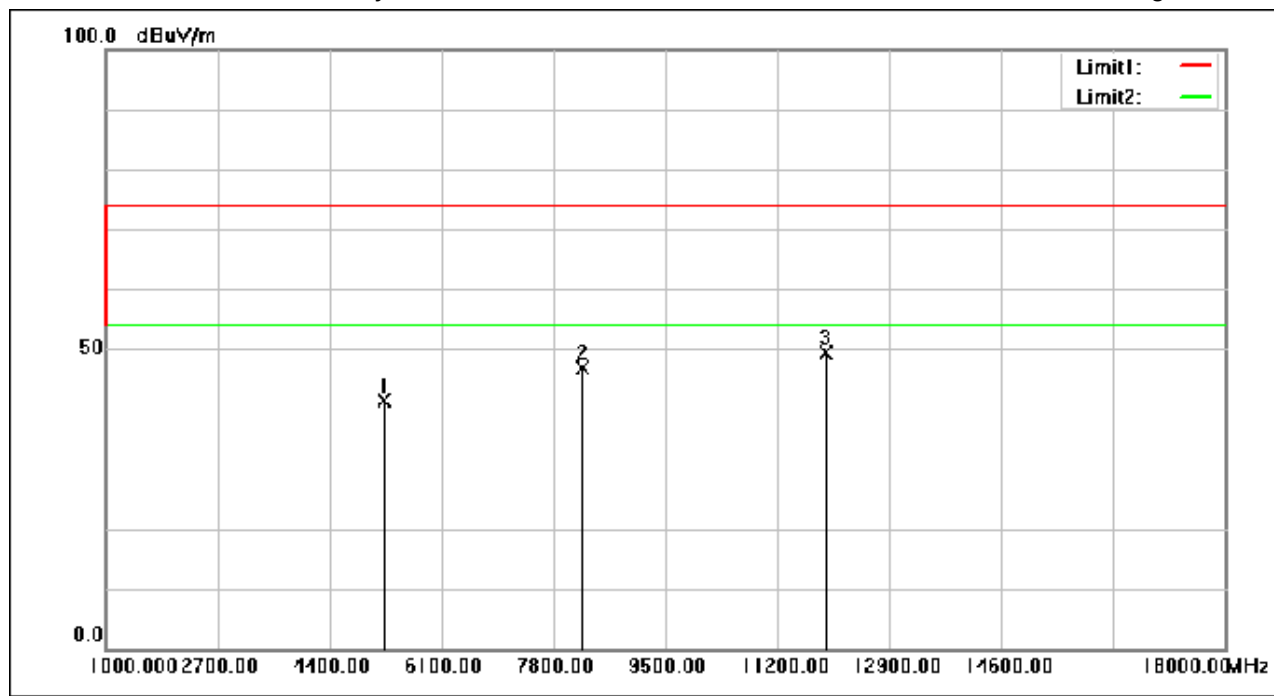
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5234.999	59.36	-18.08	41.28	74.00	-32.72	peak
2	8233.901	57.13	-10.19	46.94	74.00	-27.06	peak
3	11947.525	55.23	-5.97	49.26	74.00	-24.74	peak

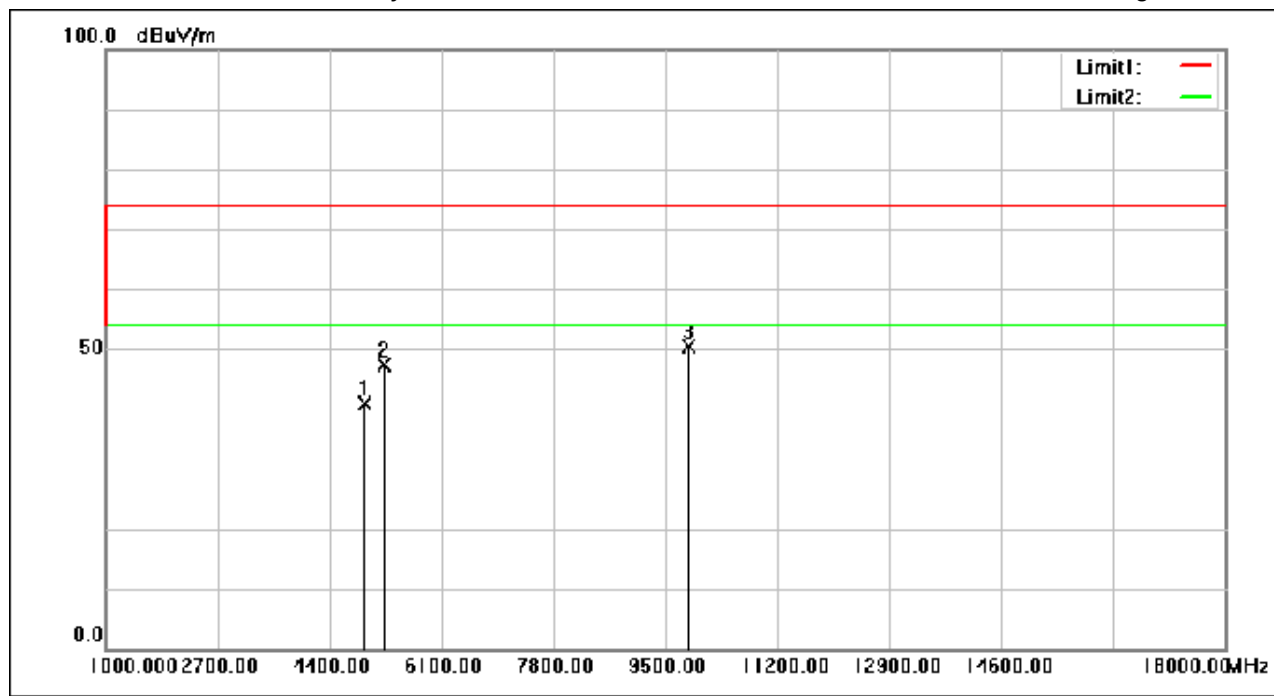
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4924.308	59.25	-18.49	40.76	74.00	-33.24	peak
2	5234.999	65.54	-18.08	47.46	74.00	-26.54	peak
3	9848.694	57.76	-7.29	50.47	74.00	-23.53	peak

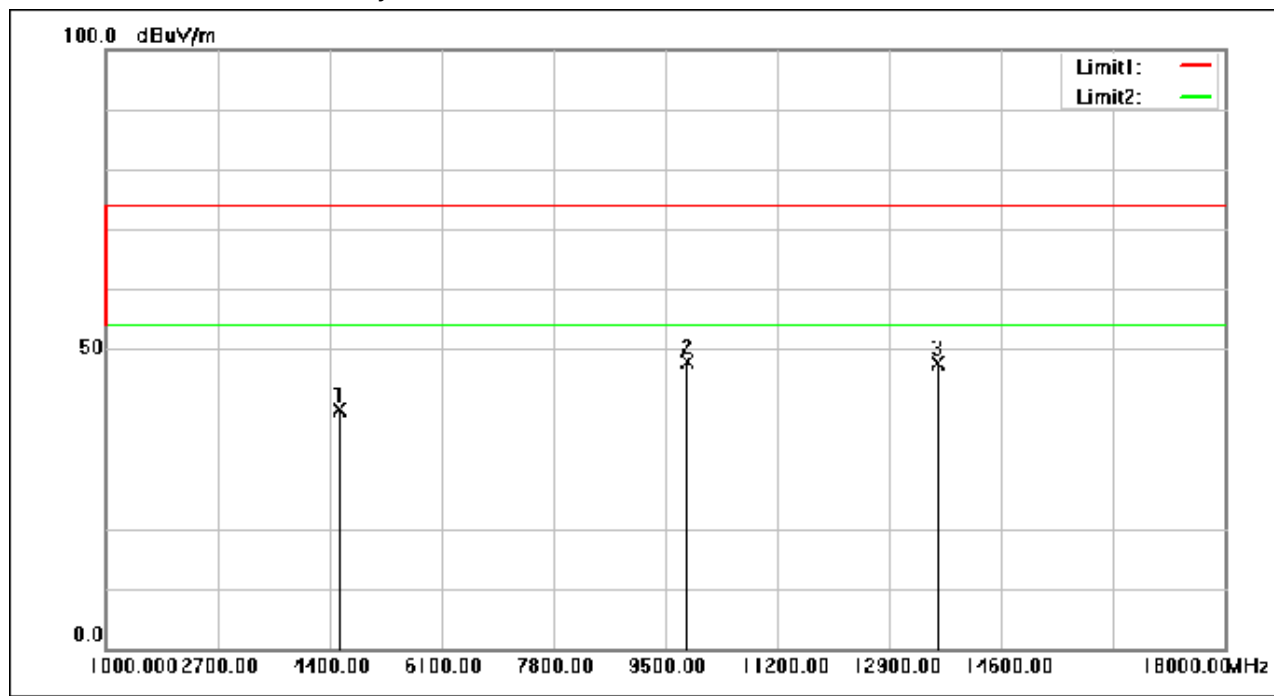
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4537.611	58.69	-18.85	39.84	74.00	-34.16	peak
2	9820.692	55.24	-7.35	47.89	74.00	-26.11	peak
3	13643.658	54.05	-6.36	47.69	74.00	-26.31	peak

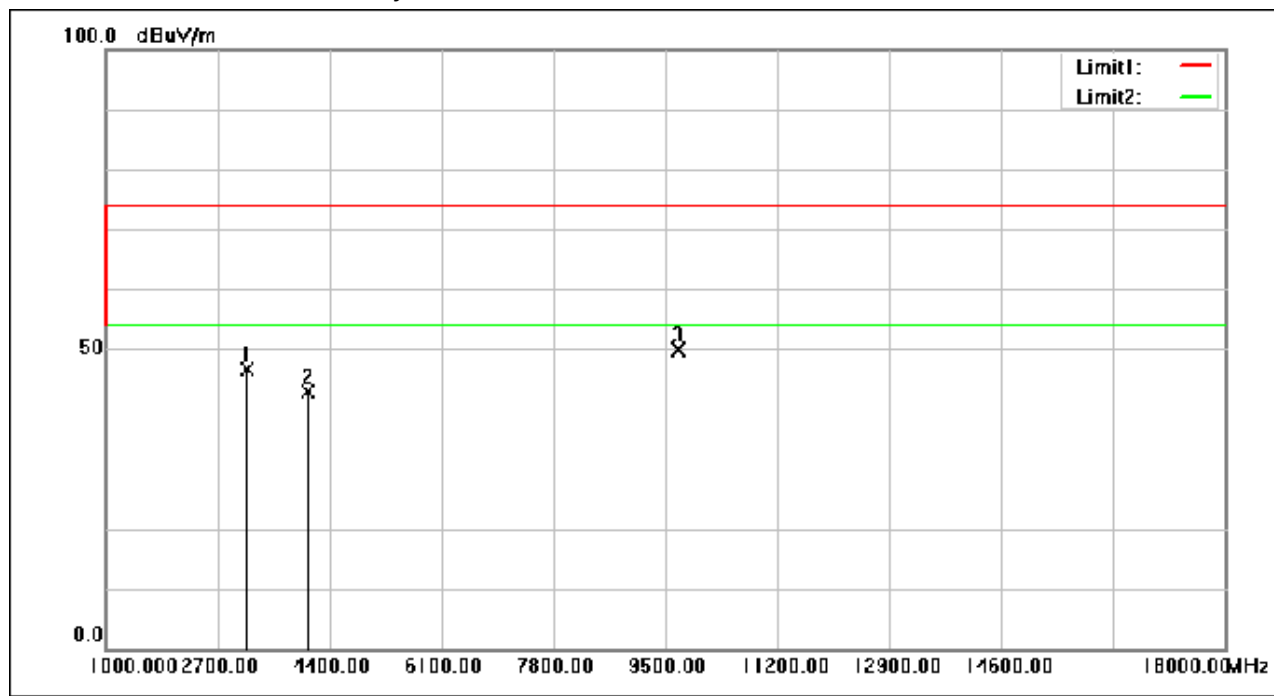
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3140.168	69.75	-23.22	46.53	74.00	-27.47	peak
2	4060.240	63.09	-20.12	42.97	74.00	-31.03	peak
3	9687.348	57.36	-7.60	49.76	74.00	-24.24	peak

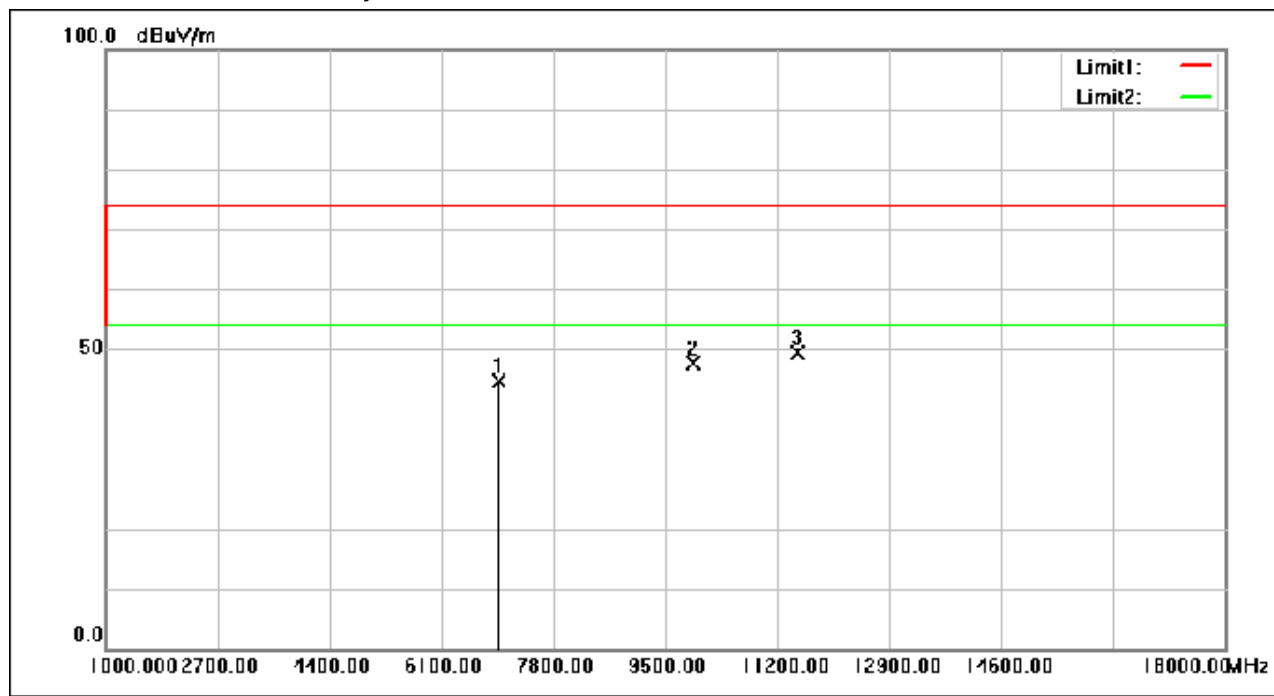
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	6976.469	56.17	-11.61	44.56	74.00	-29.44	peak
2	9931.367	55.02	-7.31	47.71	74.00	-26.29	peak
3	11512.825	55.74	-6.35	49.39	74.00	-24.61	peak

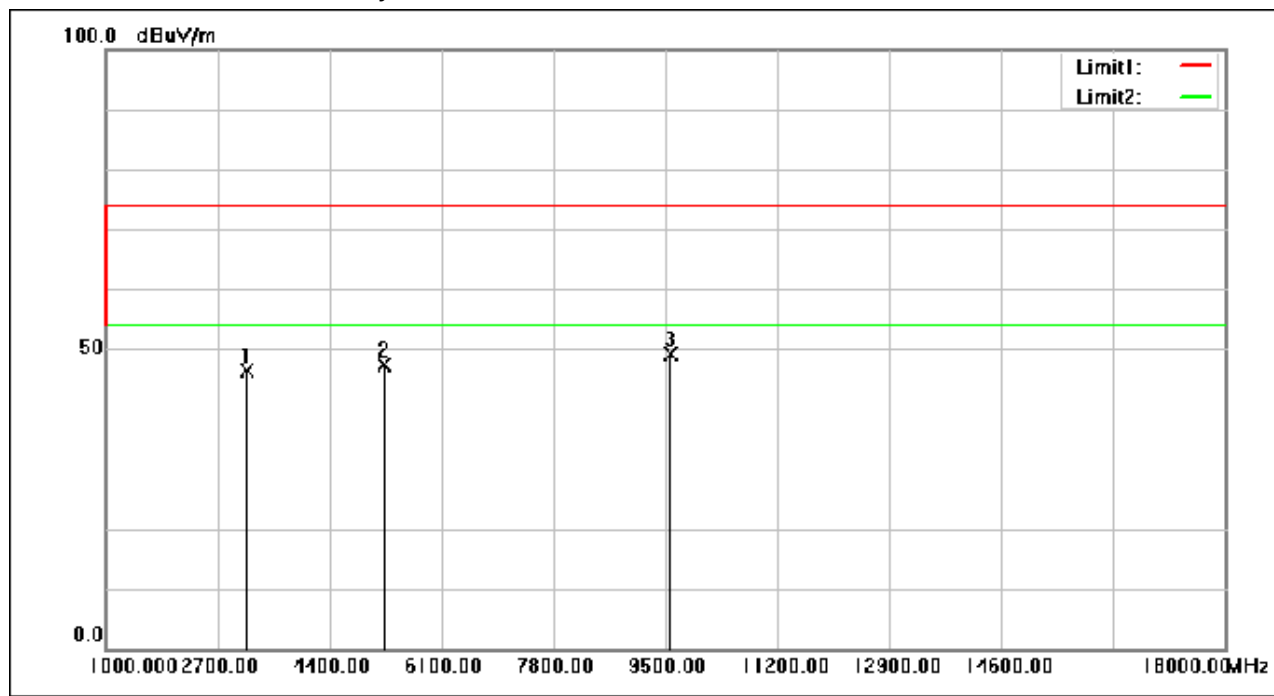
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3140.168	69.66	-23.22	46.44	74.00	-27.56	peak
2	5234.999	65.58	-18.08	47.50	74.00	-26.50	peak
3	9579.340	56.92	-7.81	49.11	74.00	-24.89	peak

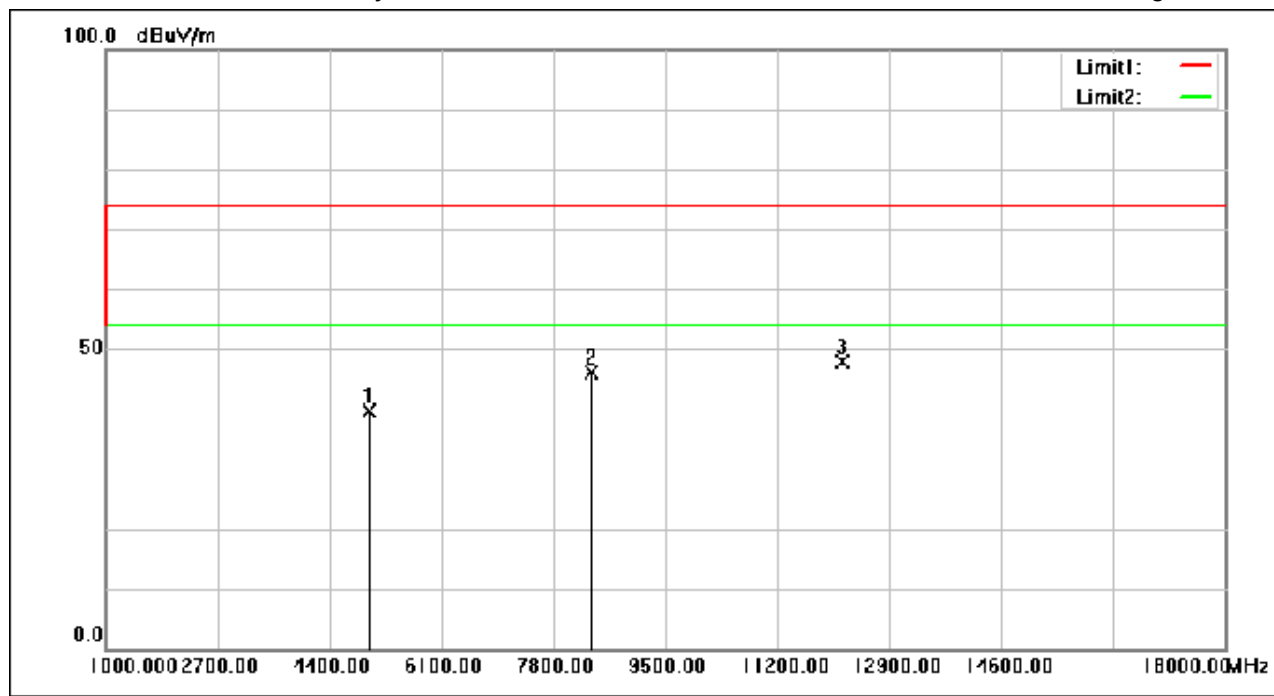
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5010.981	58.15	-18.42	39.73	74.00	-34.27	peak
2	8385.913	56.19	-9.94	46.25	74.00	-27.75	peak
3	12192.878	53.88	-5.97	47.91	74.00	-26.09	peak

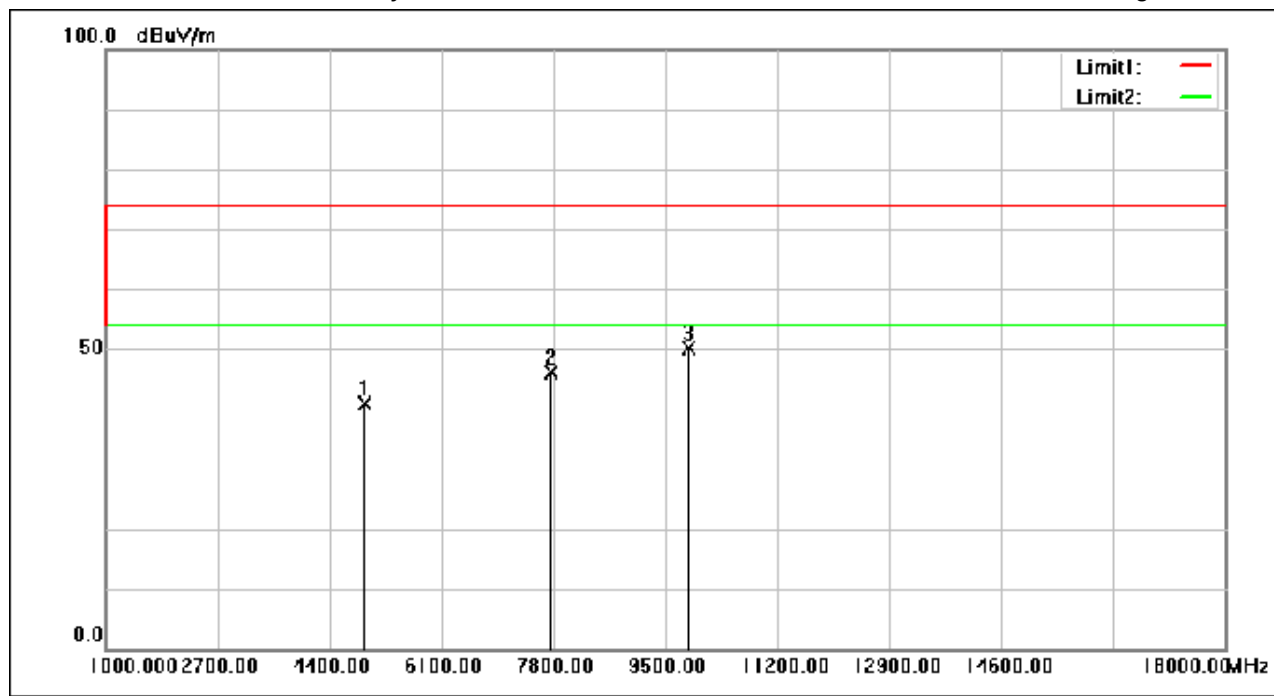
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4933.642	59.34	-18.48	40.86	74.00	-33.14	peak
2	7771.198	56.95	-10.90	46.05	74.00	-27.95	peak
3	9848.694	57.33	-7.29	50.04	74.00	-23.96	peak

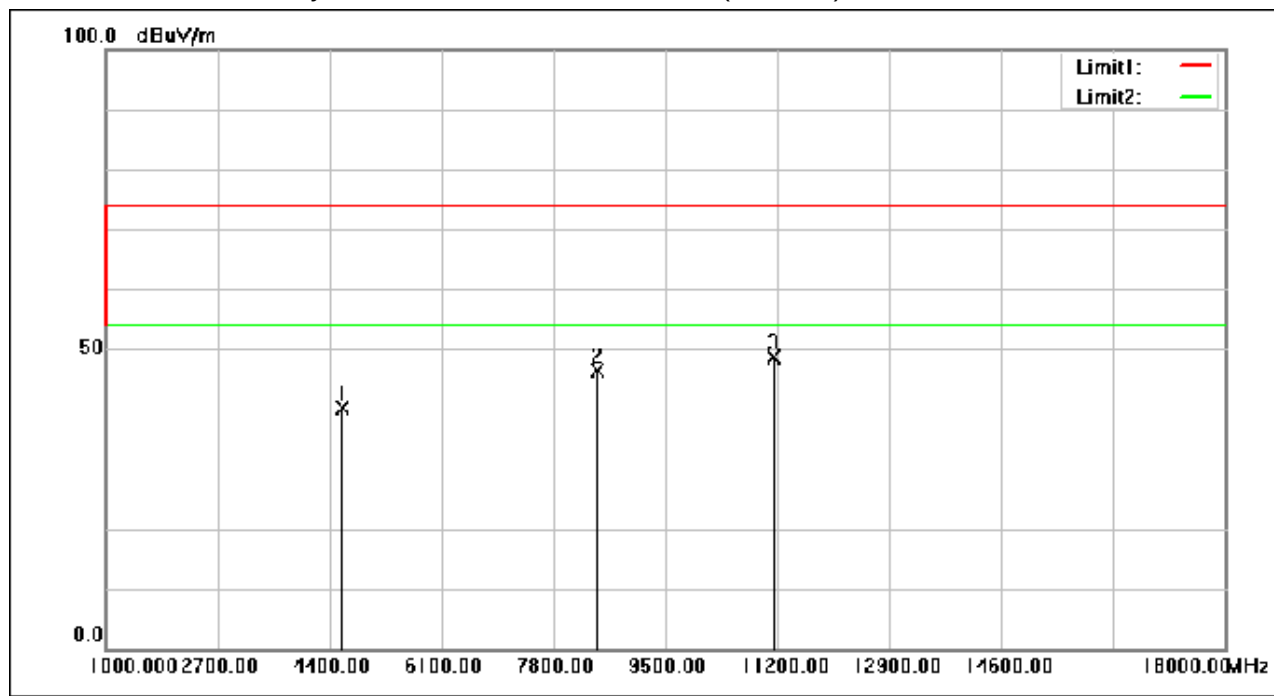
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Test Mode: 00; Polarity: Horizontal; Modulation: 802.11ax(Full RU0); Bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4600.282	58.91	-18.68	40.23	74.00	-33.77	peak
2	8467.252	56.23	-9.81	46.42	74.00	-27.58	peak
3	11136.795	55.38	-6.65	48.73	74.00	-25.27	peak

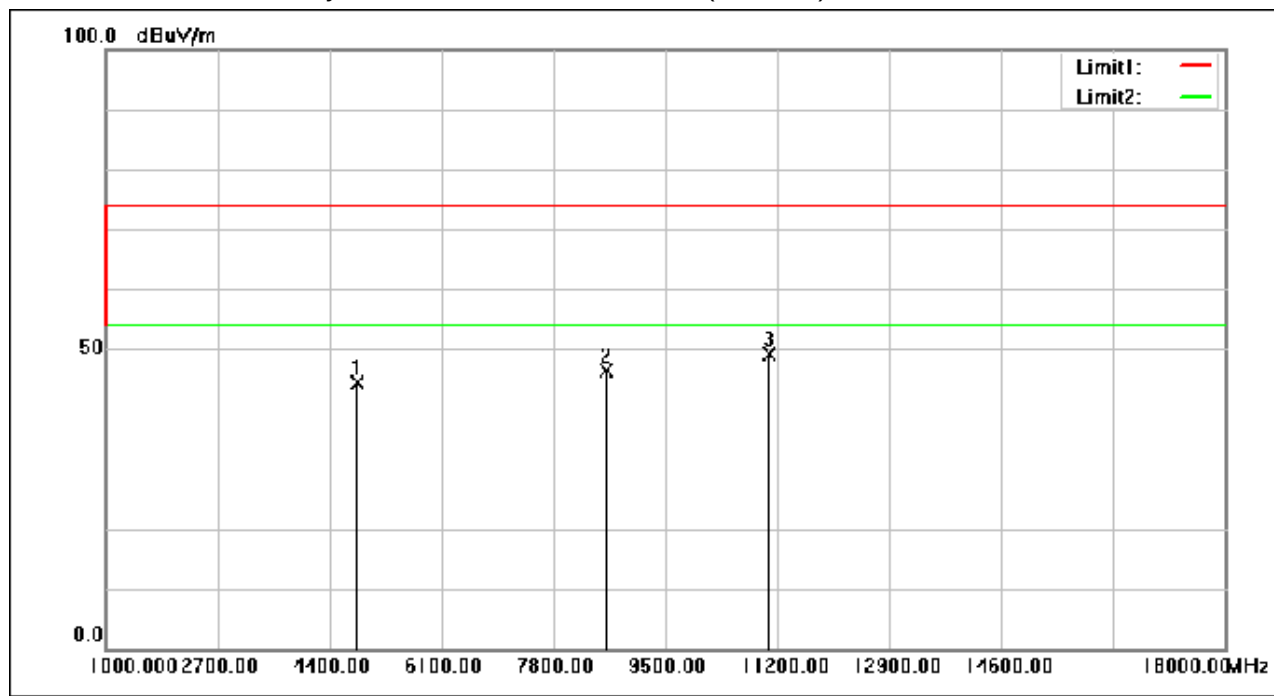
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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4829.634	62.86	-18.55	44.31	74.00	-29.69	peak
2	8599.263	56.07	-9.59	46.48	74.00	-27.52	peak
3	11074.123	55.81	-6.71	49.10	74.00	-24.90	peak

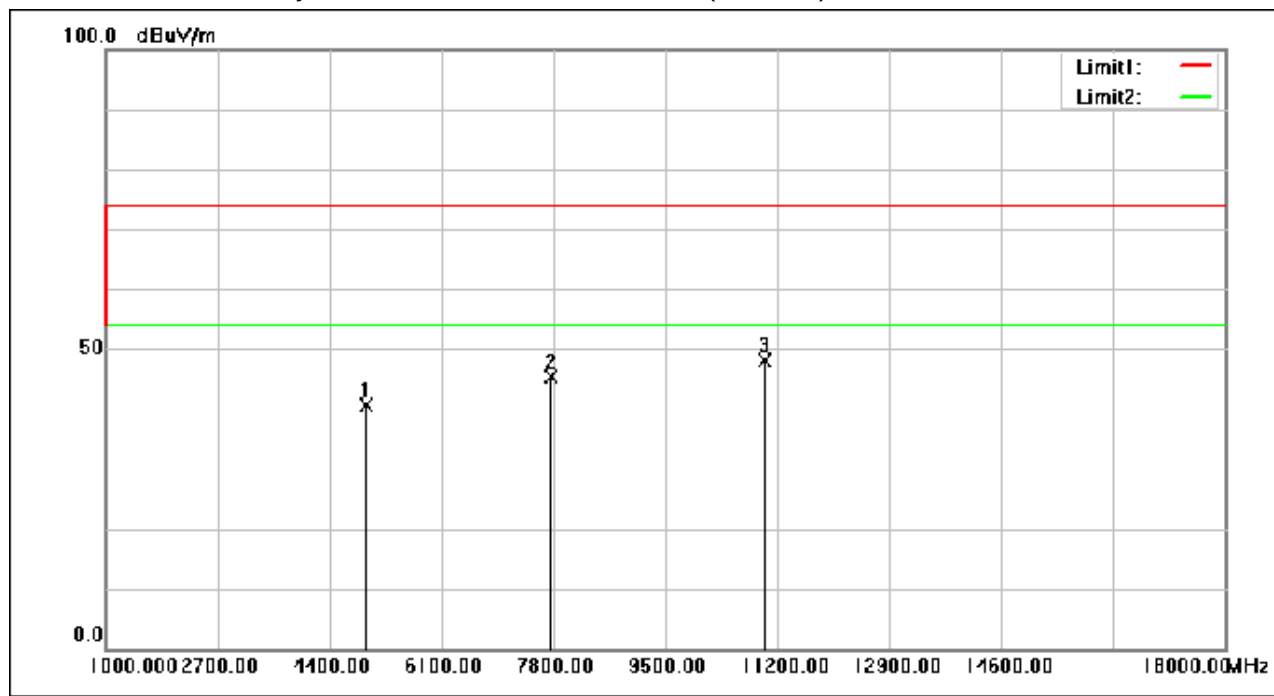
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4949.643	59.12	-18.47	40.65	74.00	-33.35	peak
2	7773.865	56.17	-10.89	45.28	74.00	-28.72	peak
3	11008.785	54.79	-6.75	48.04	74.00	-25.96	peak

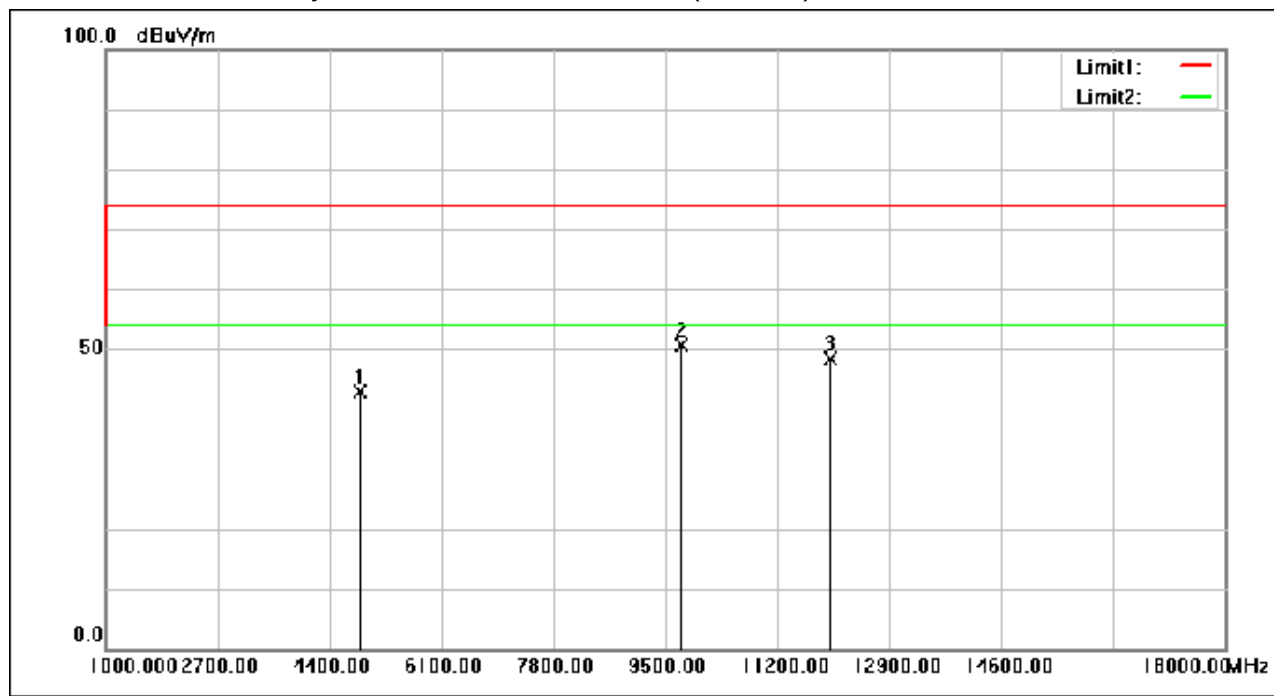
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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.971	61.50	-18.51	42.99	74.00	-31.01	peak
2	9748.686	58.11	-7.48	50.63	74.00	-23.37	peak
3	12006.197	54.30	-5.89	48.41	74.00	-25.59	peak

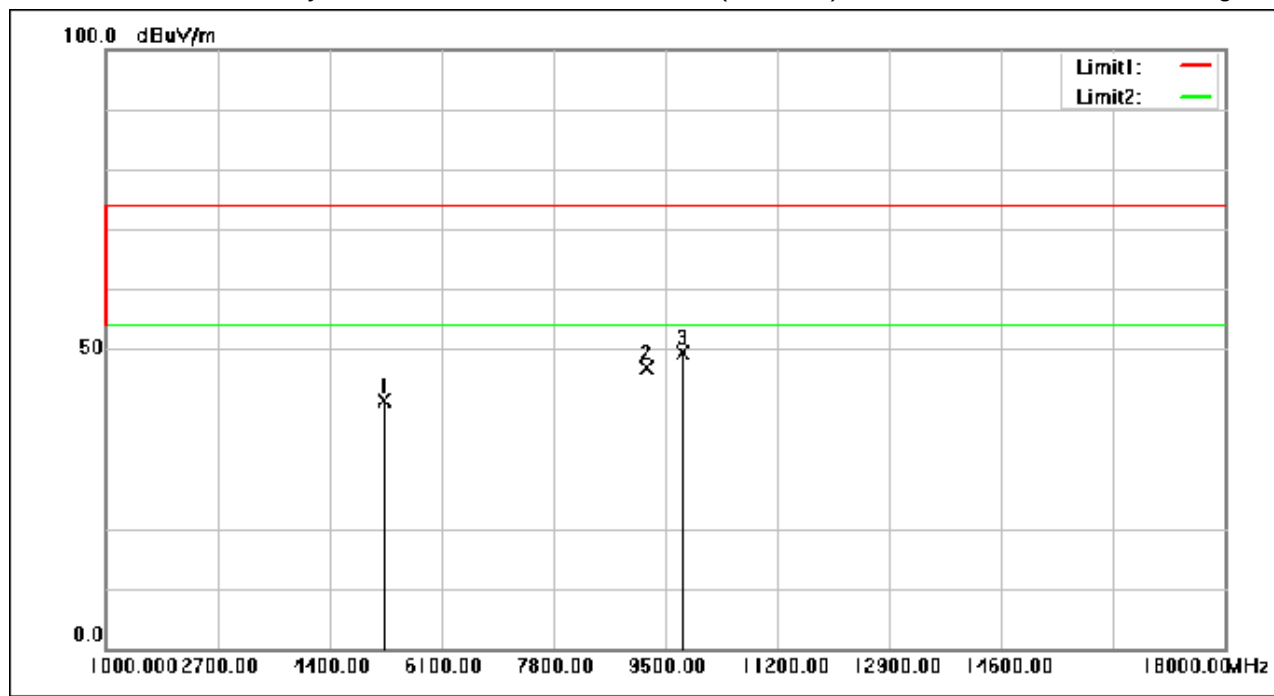
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5234.999	59.38	-18.08	41.30	74.00	-32.70	peak
2	9225.979	55.30	-8.47	46.83	74.00	-27.17	peak
3	9771.355	56.71	-7.44	49.27	74.00	-24.73	peak

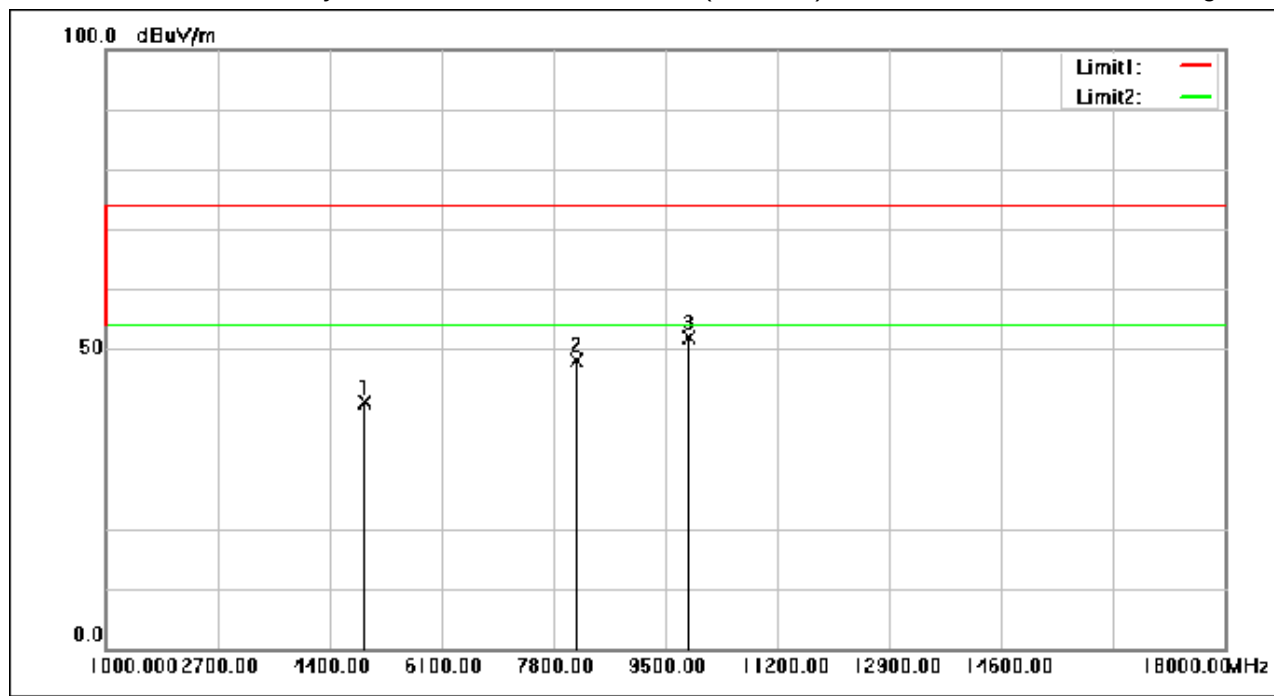
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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4922.974	59.55	-18.49	41.06	74.00	-32.94	peak
2	8147.227	58.40	-10.34	48.06	74.00	-25.94	peak
3	9847.361	59.25	-7.29	51.96	74.00	-22.04	peak

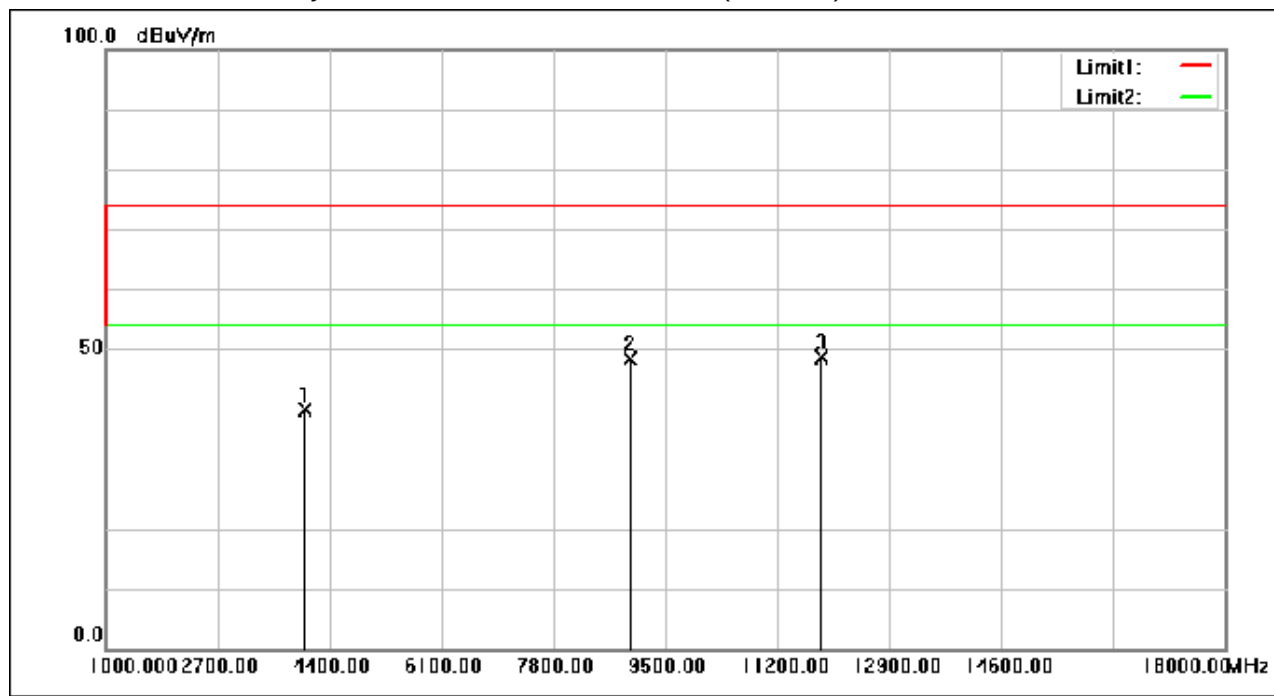
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Test Mode: 00; Polarity: Horizontal; Modulation: 802.11ax(Full RU0); Bandwidth: 40MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4033.571	60.12	-20.16	39.96	74.00	-34.04	peak
2	8967.292	57.28	-8.97	48.31	74.00	-25.69	peak
3	11863.519	54.69	-6.07	48.62	74.00	-25.38	peak

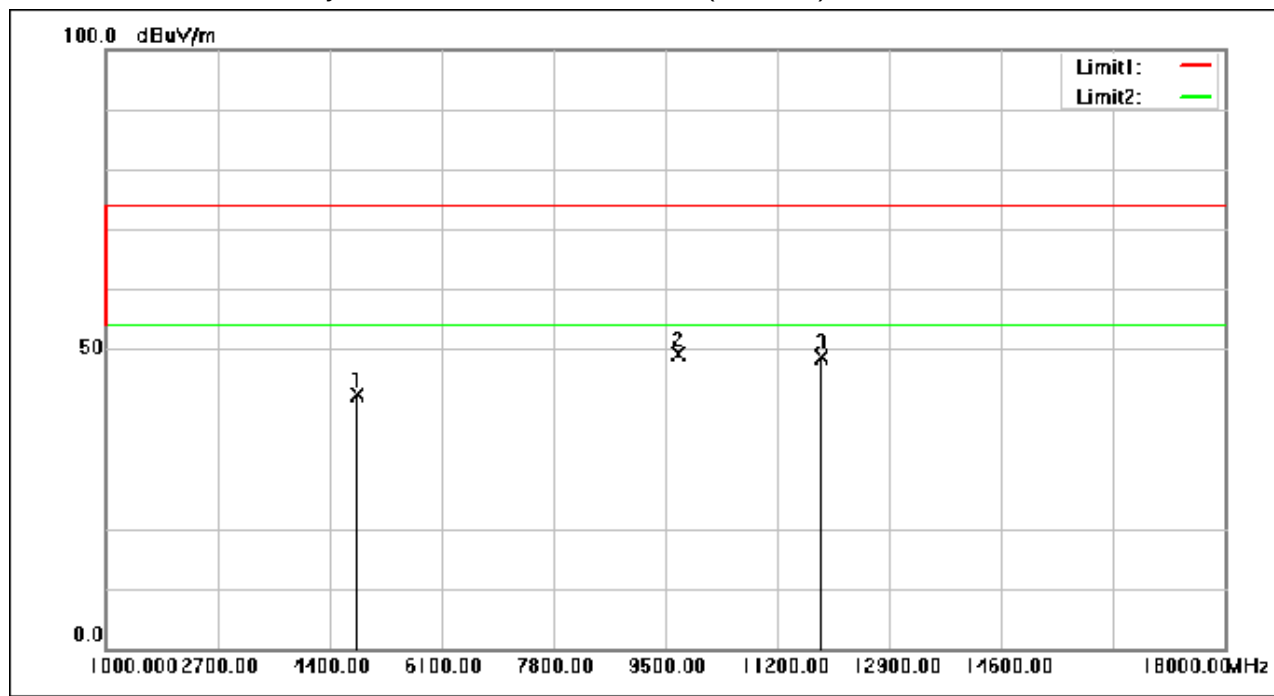
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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4840.301	60.87	-18.54	42.33	74.00	-31.67	peak
2	9688.681	56.81	-7.60	49.21	74.00	-24.79	peak
3	11868.852	54.57	-6.06	48.51	74.00	-25.49	peak

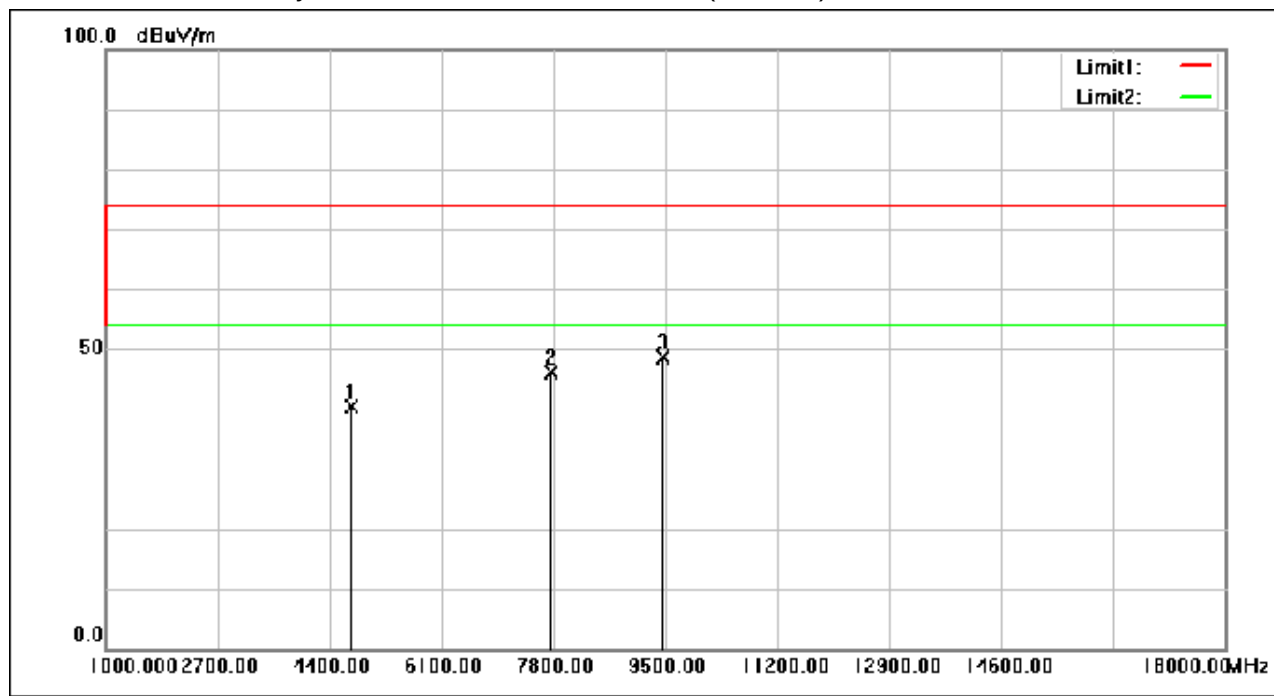
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4730.959	58.89	-18.61	40.28	74.00	-33.72	peak
2	7767.197	56.91	-10.90	46.01	74.00	-27.99	peak
3	9463.330	56.55	-8.03	48.52	74.00	-25.48	peak

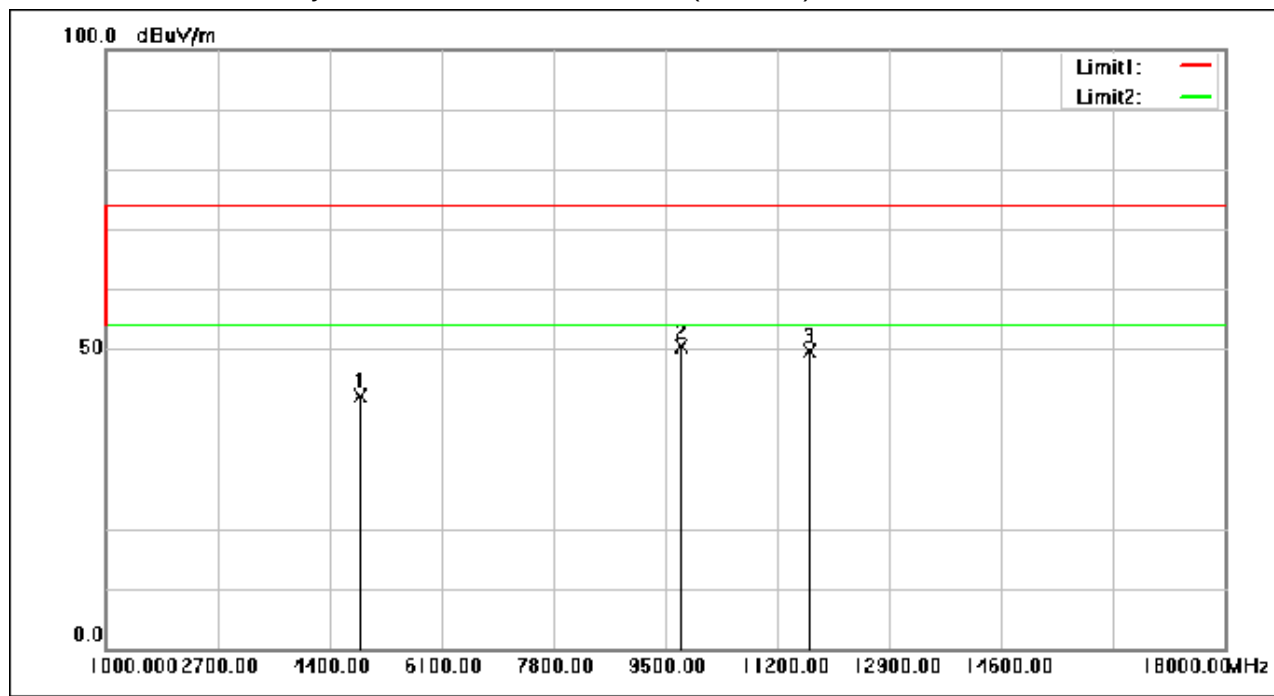
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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:middle



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4874.971	60.58	-18.51	42.07	74.00	-31.93	peak
2	9748.686	57.77	-7.48	50.29	74.00	-23.71	peak
3	11698.172	55.74	-6.20	49.54	74.00	-24.46	peak

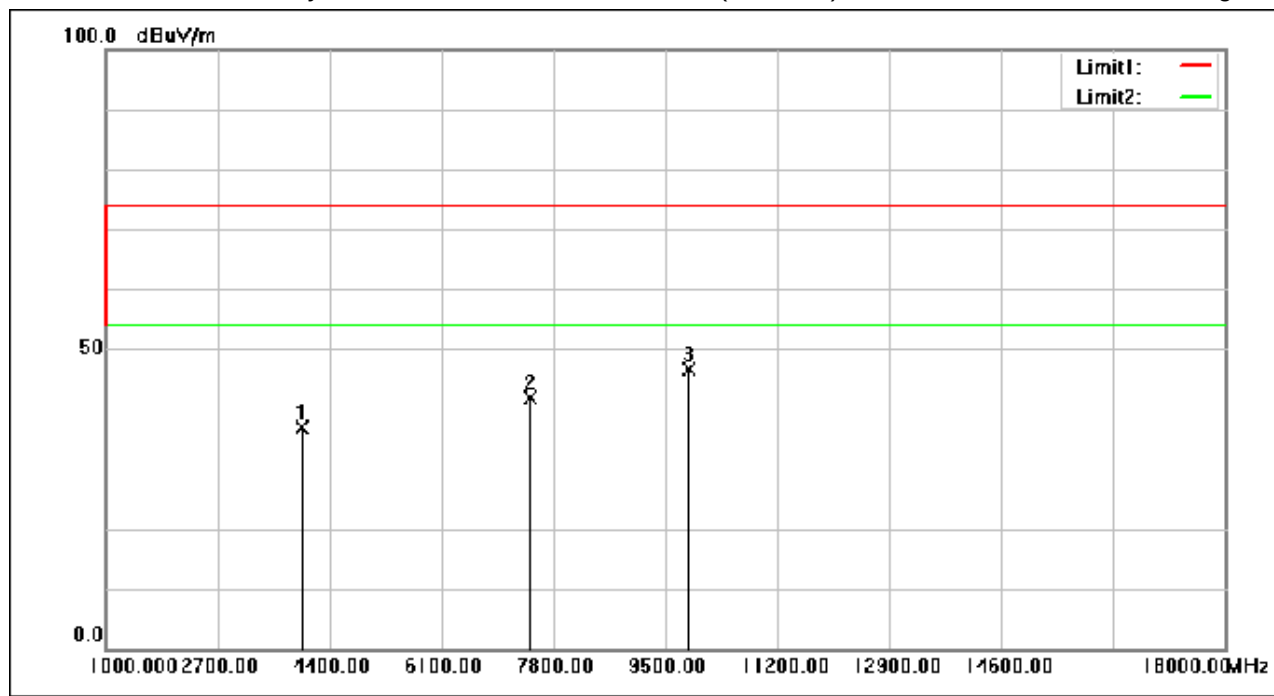
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3988.234	57.02	-20.25	36.77	74.00	-37.23	peak
2	7440.505	53.18	-11.34	41.84	74.00	-32.16	peak
3	9847.361	54.00	-7.29	46.71	74.00	-27.29	peak

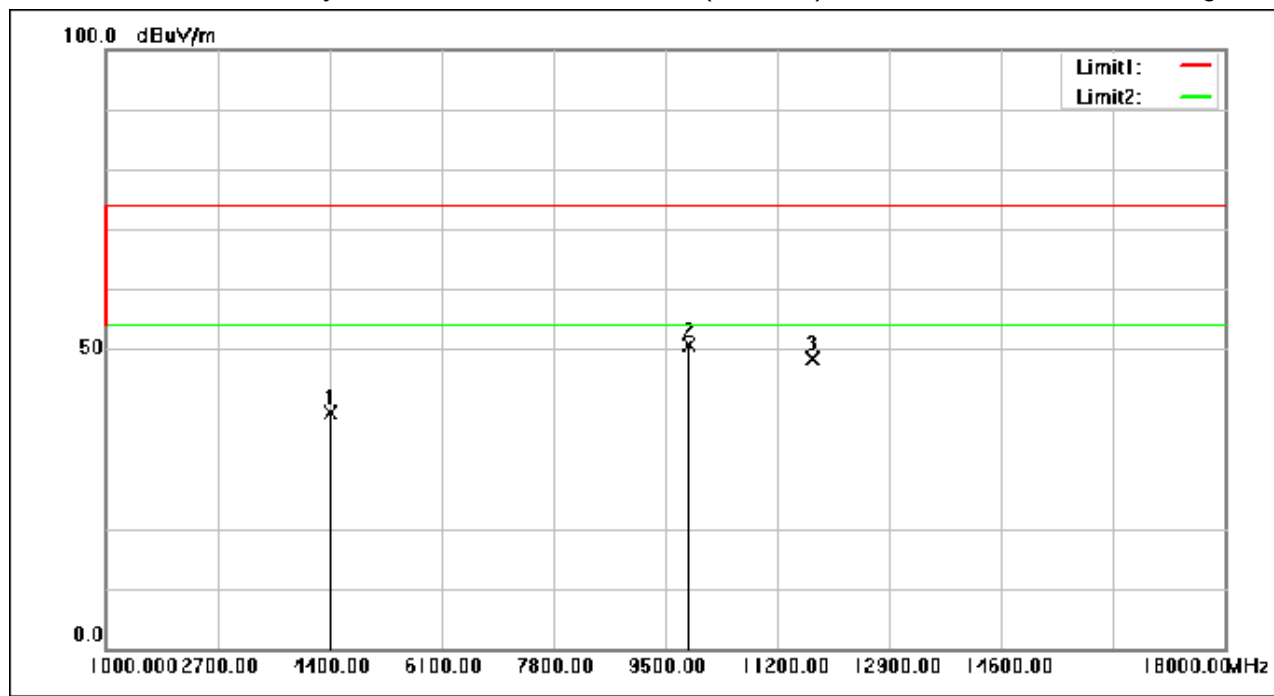
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Test Mode: 00; Polarity: Vertical; Modulation:802.11ax(Full RU0); Bandwidth:40MHz; Channel:High



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4400.267	58.59	-19.25	39.34	74.00	-34.66	peak
2	9848.694	57.87	-7.29	50.58	74.00	-23.42	peak
3	11728.841	54.48	-6.17	48.31	74.00	-25.69	peak

7.5 Conducted Average Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2013) Section 11.9.2

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 20.0 °C

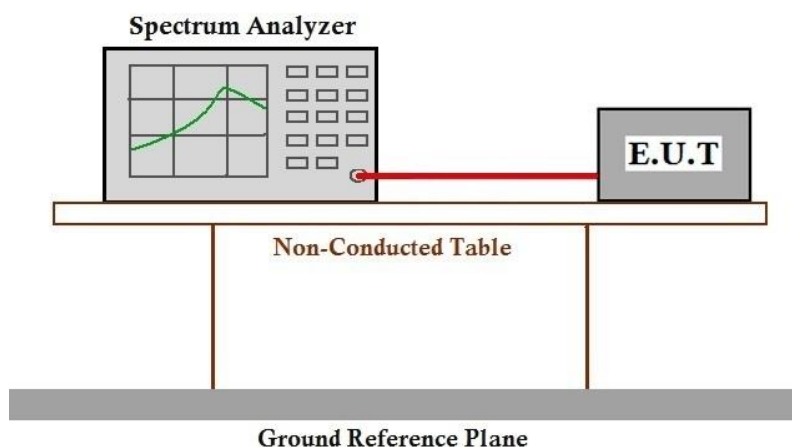
Humidity: 51 % RH

Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE40). Only the data of worst case is recorded in the report.

7.5.3 Test Setup Diagram





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7.5.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

Please Refer to Appendix for Details

7.6 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)

Test Method: ANSI C63.10 (2013) Section 11.8.1

Limit:

≥500 kHz

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 20.0 °C

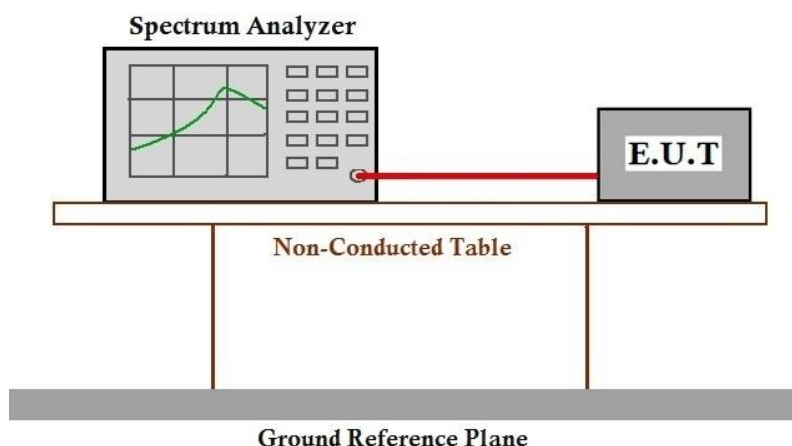
Humidity: 51.2 % RH

Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE40). Only the data of worst case is recorded in the report.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.7 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)

Test Method: ANSI C63.10 (2013) Section 11.10.2

Limit:

≤8dBm in any 3 kHz band during any time interval of continuous transmission

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 20.0 °C

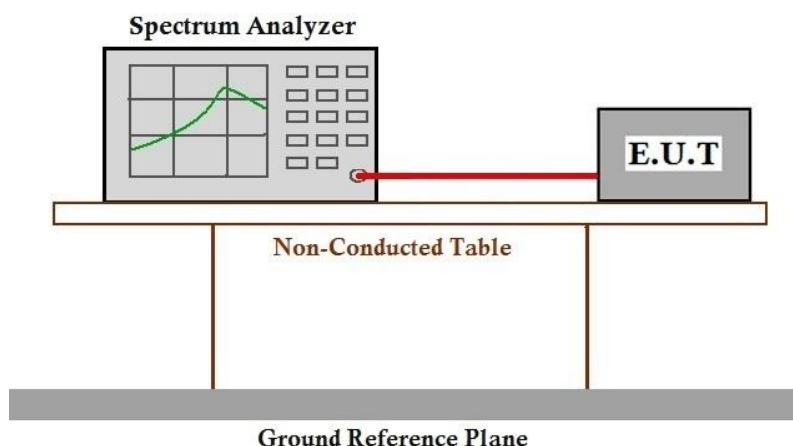
Humidity: 50.9 % RH

Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE40). Only the data of worst case is recorded in the report.

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.8 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)
Test Method: ANSI C63.10 (2013) Section 11.13.3.2

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.8.1 E.U.T. Operation

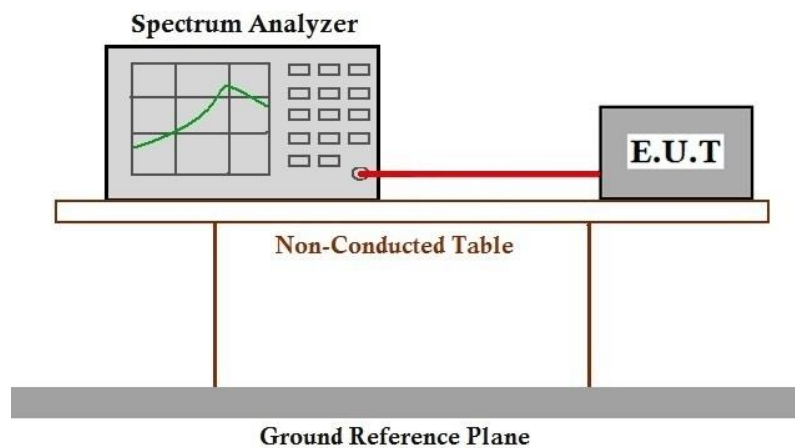
Operating Environment:

Temperature: 20.0 °C Humidity: 50.9 % RH Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE40). Only the data of worst case is recorded in the report.

7.8.3 Test Setup Diagram



7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.9 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 11.11

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 21 °C

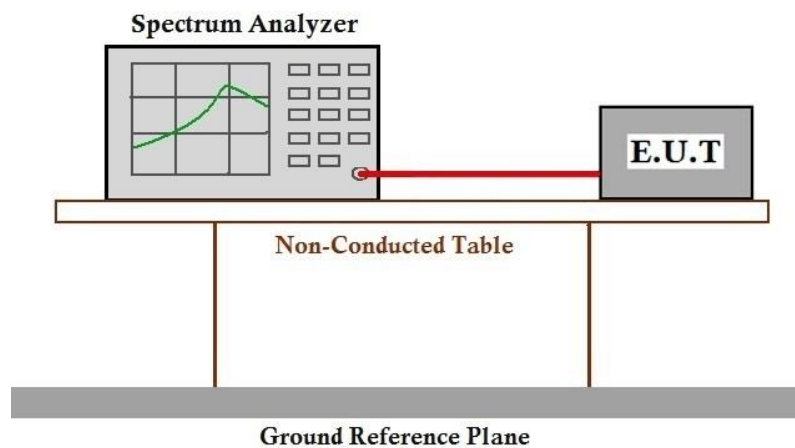
Humidity: 50.8 % RH

Atmospheric Pressure: 1010 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HE40). Only the data of worst case is recorded in the report.

7.9.3 Test Setup Diagram



7.9.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2411002322AT

9 EUT Constructional Details (EUT Photos)

Refer to Appendix_Photographs of EUT Constructional Details for KSCR2411002322AT

10 Appendix

1. Duty Cycle

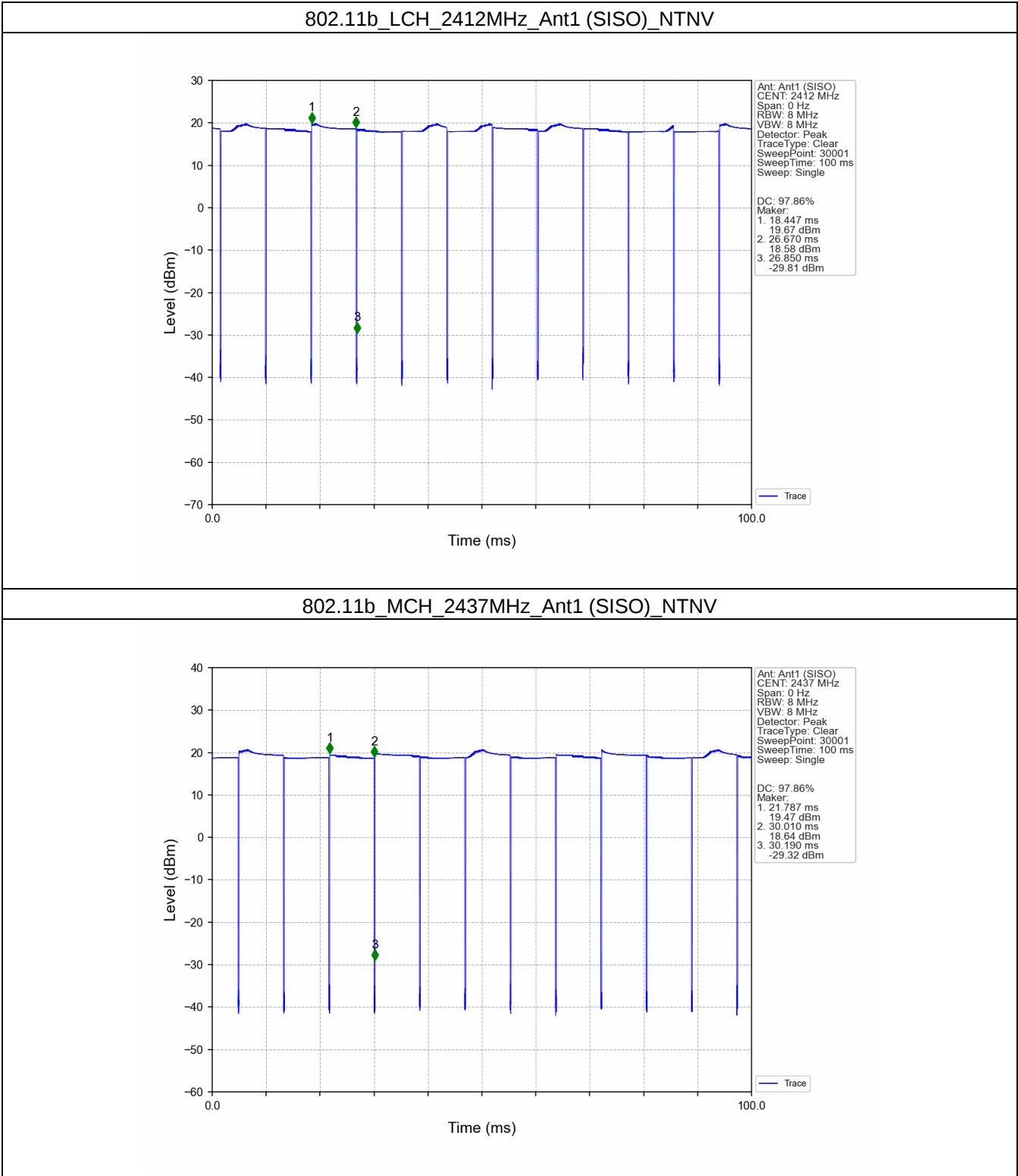
1.1 Test Result

1.1.1 Ant1

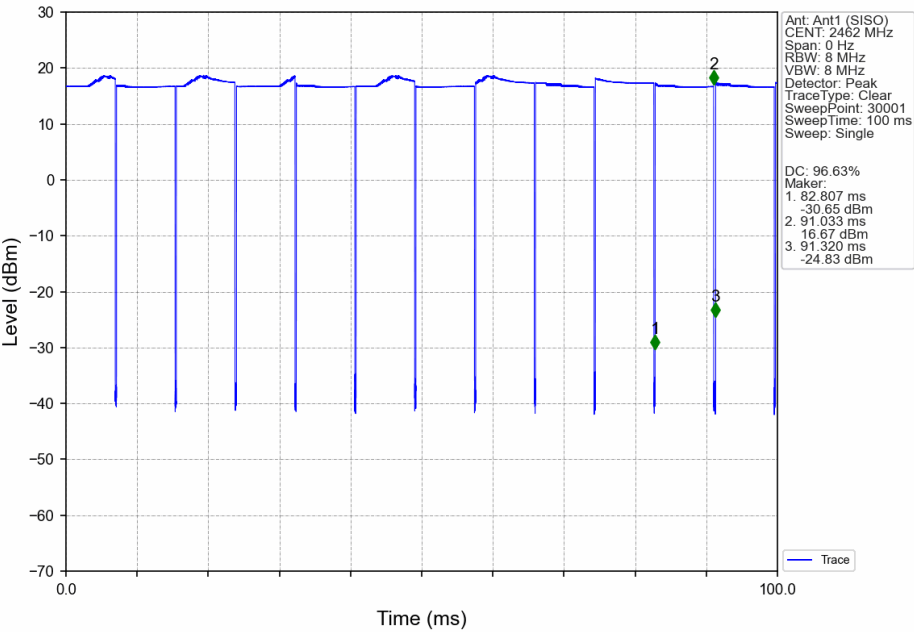
Ant1									
Mode	TX Type	Frequency (MHz)	RU	RU Pos	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	/	/	8.223	8.403	97.86	0.09	0.00
		2437	/	/	8.223	8.403	97.86	0.09	0.04
		2462	/	/	8.226	8.513	96.63	0.15	1.23
802.11g	SISO	2412	/	/	1.364	1.550	88.00	0.56	0.07
		2437	/	/	1.364	1.550	88.00	0.56	0.06
		2462	/	/	1.365	1.905	71.65	1.45	16.47
802.11n (HT20)	SISO	2412	/	/	1.276	1.462	87.28	0.59	0.03
		2437	/	/	1.277	2.417	52.83	2.77	34.52
		2462	/	/	1.276	1.462	87.28	0.59	0.03
802.11n (HT40)	SISO	2422	/	/	0.636	0.821	77.47	1.11	0.03
		2437	/	/	0.637	0.822	77.49	1.11	0.04
		2452	/	/	0.637	0.822	77.49	1.11	0.03
802.11ax (HE20)	SISO	2412	SU	/	0.997	1.850	53.89	2.68	30.48
		2437	SU	/	0.997	1.239	80.47	0.94	3.89
		2462	SU	/	0.997	1.182	84.35	0.74	0.06
802.11ax (HE40)	SISO	2422	SU	/	0.529	0.714	74.09	1.30	0.02
		2437	SU	/	0.529	0.714	74.09	1.30	0.03
		2452	SU	/	0.529	0.714	74.09	1.30	0.04

1.2 Test Graph

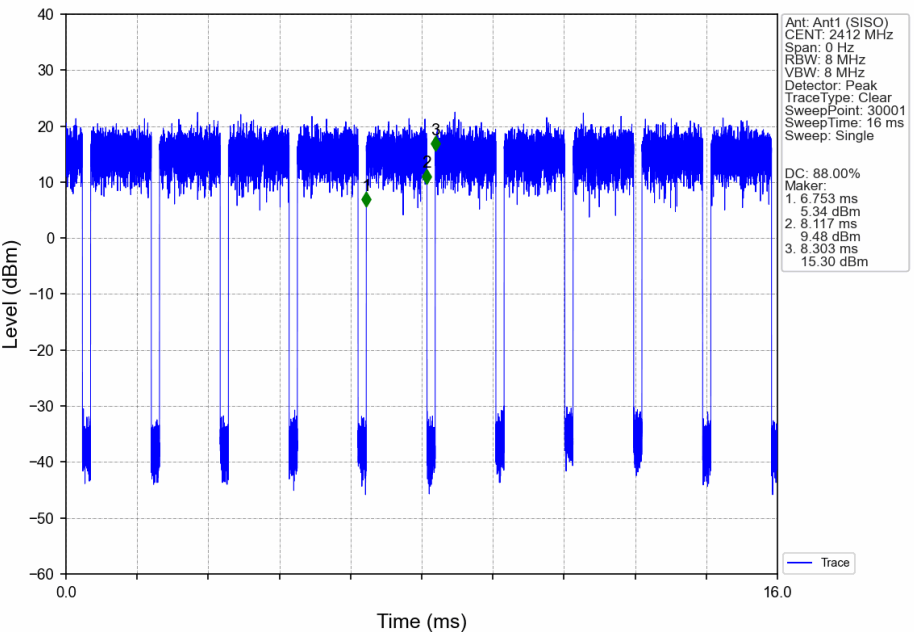
1.2.1 Ant1



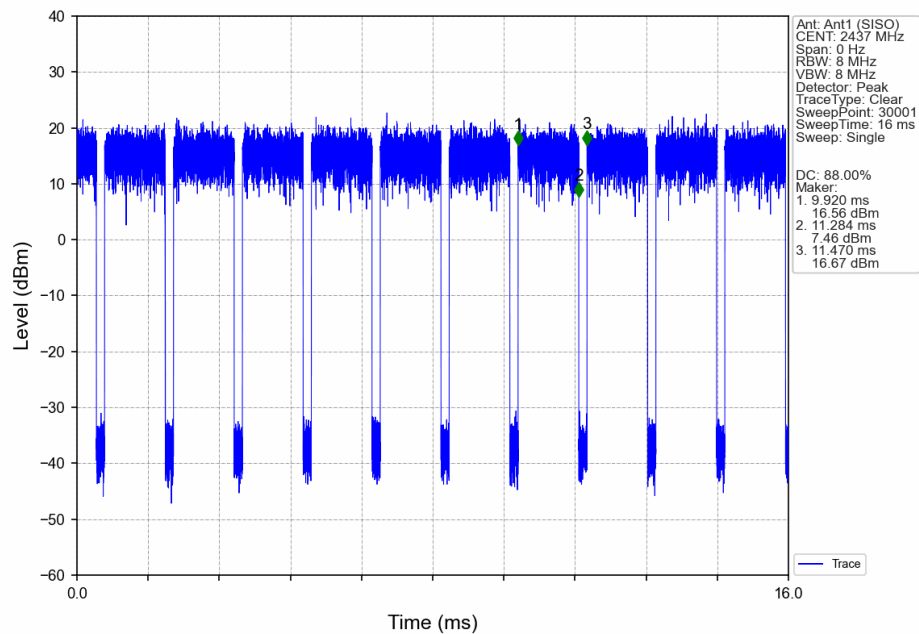
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



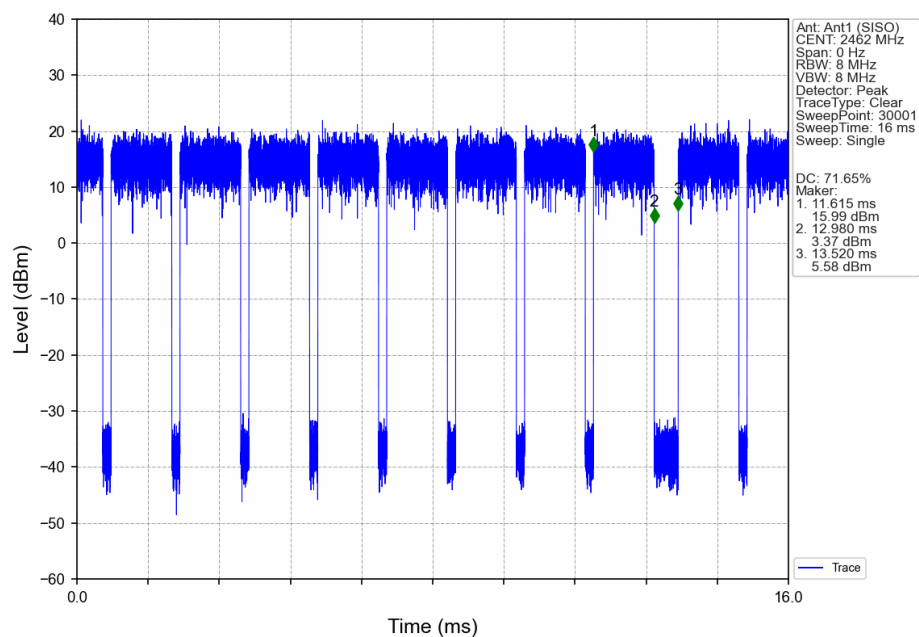
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



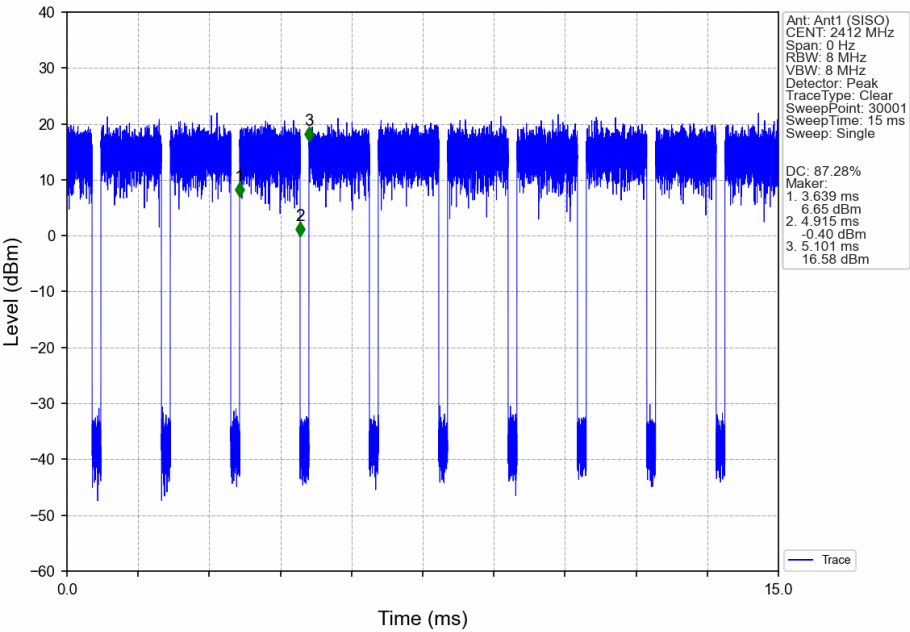
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



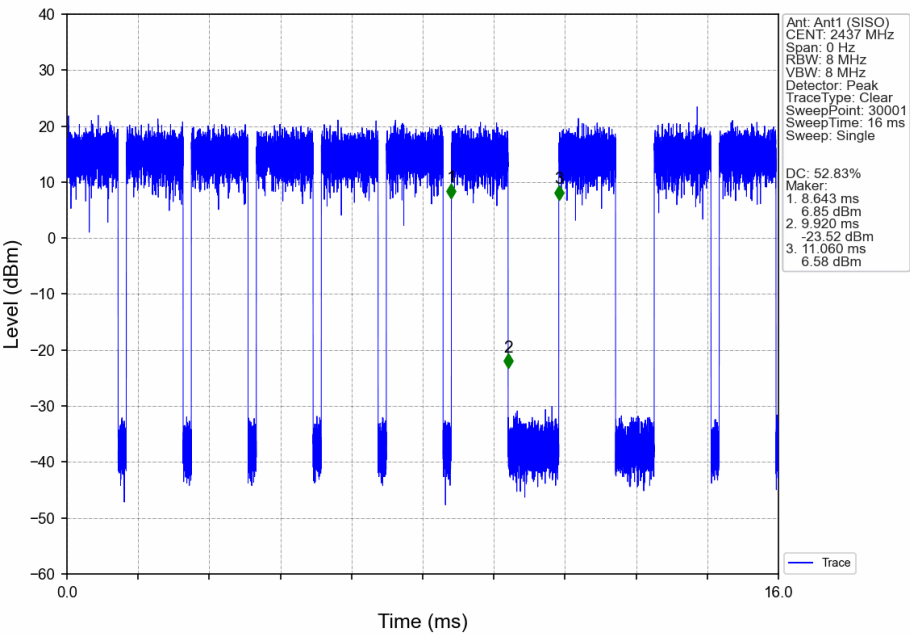
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



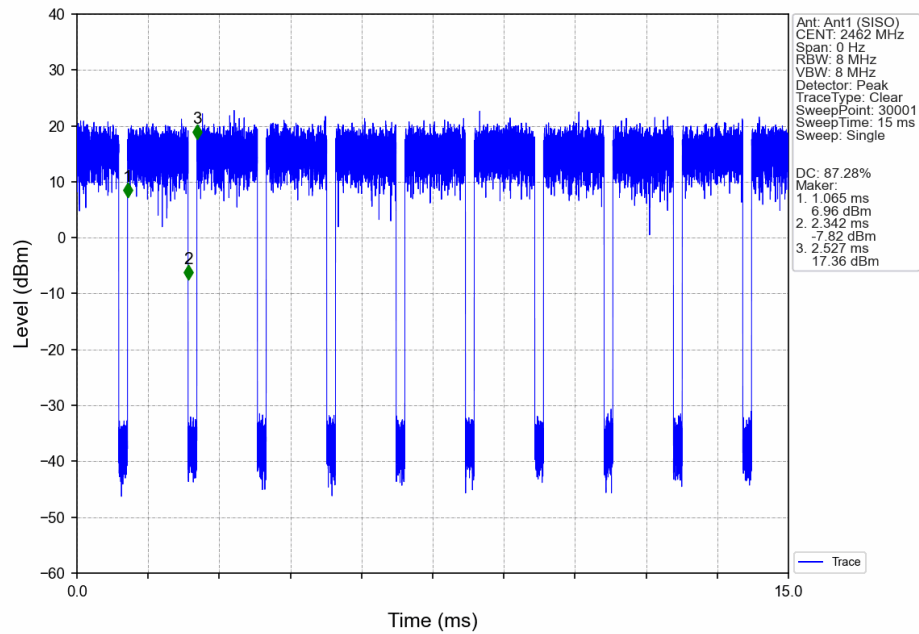
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



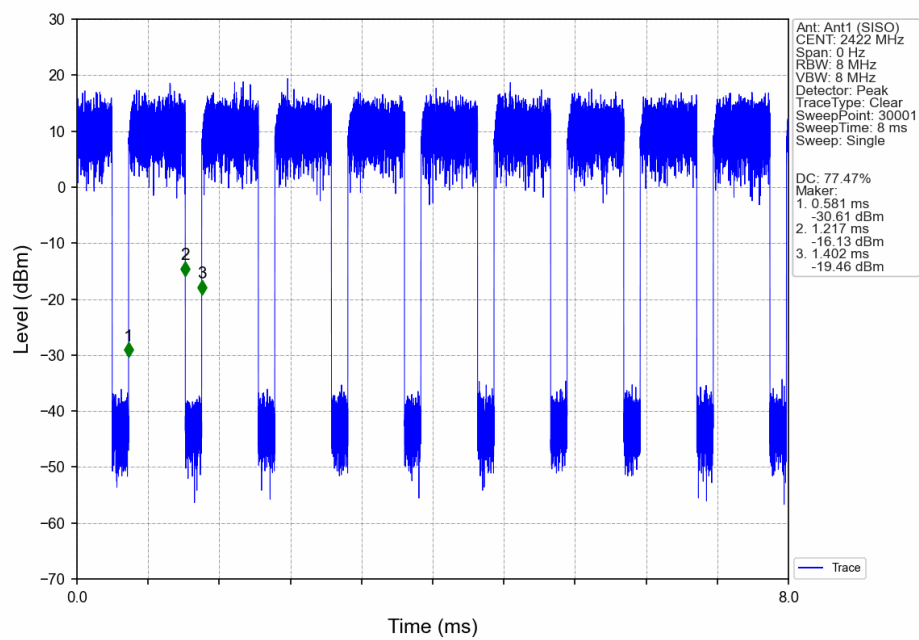
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



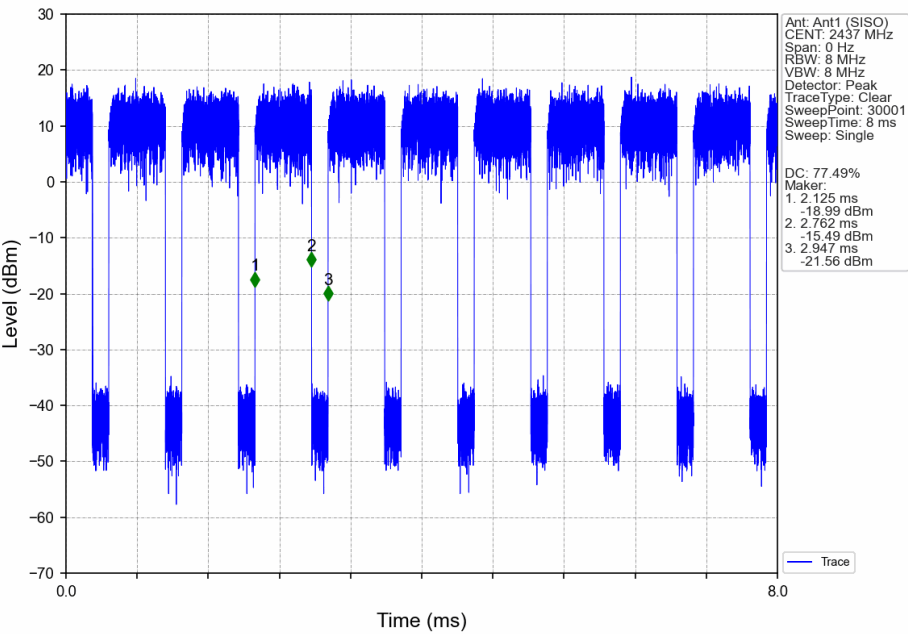
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



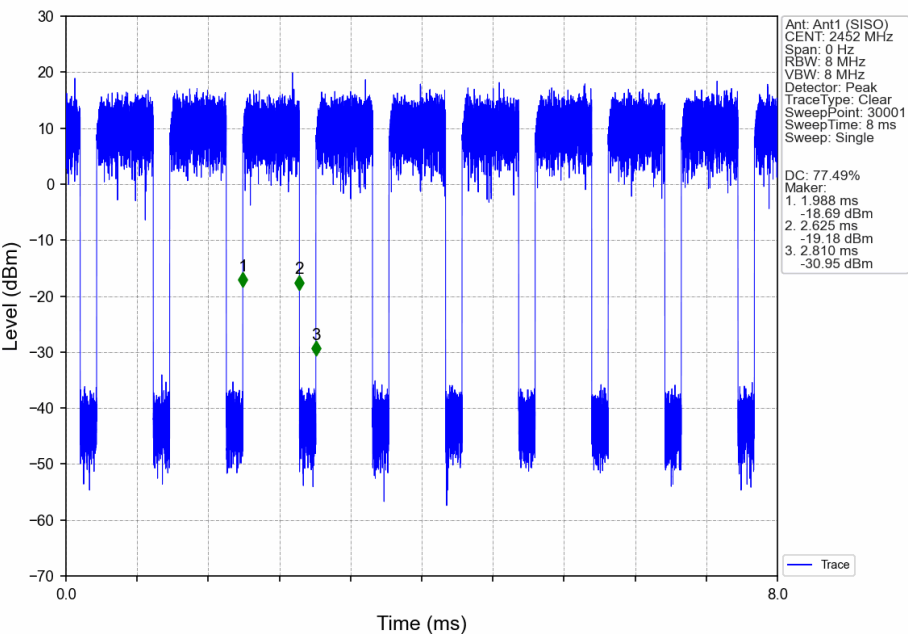
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



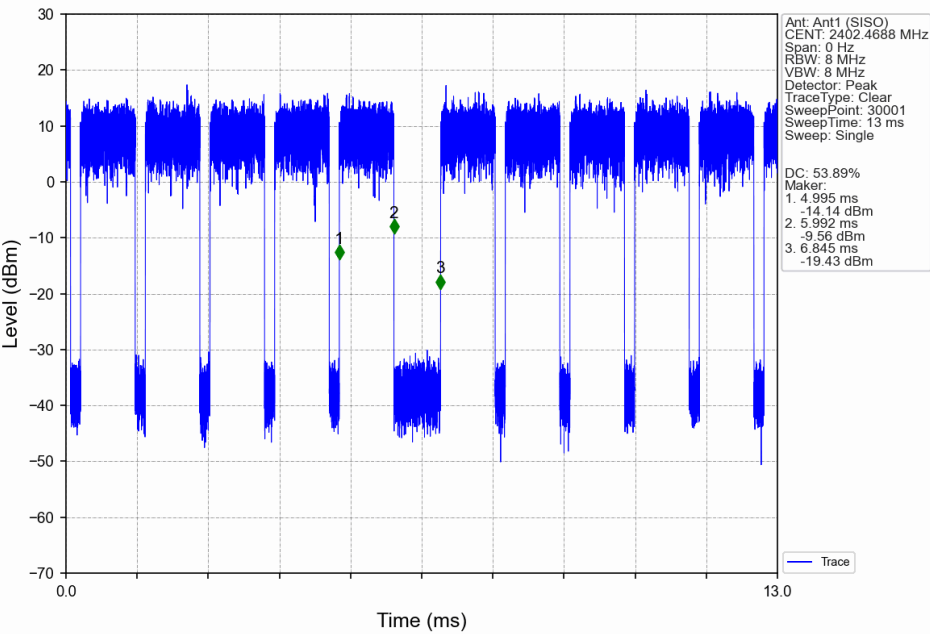
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



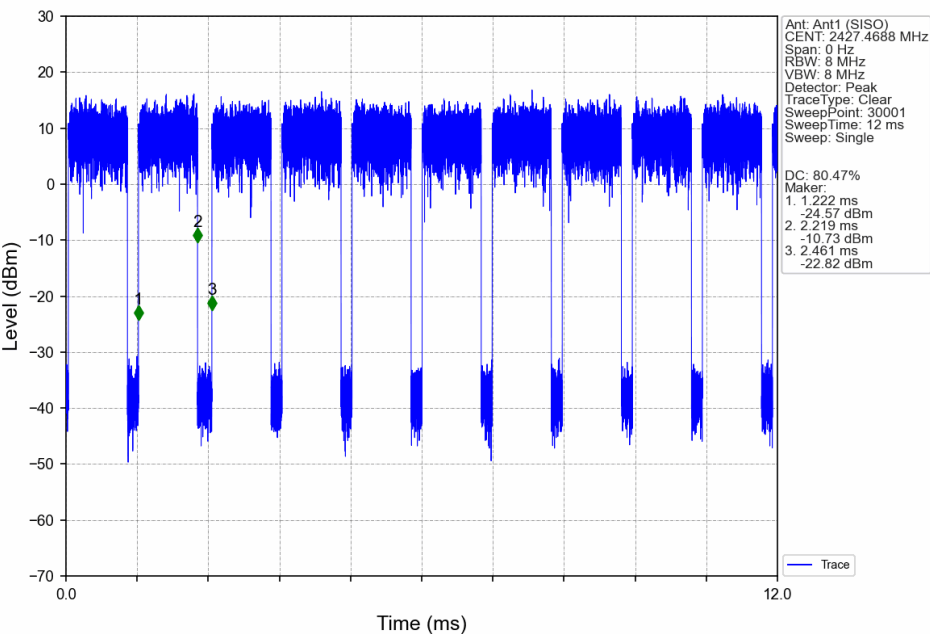
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



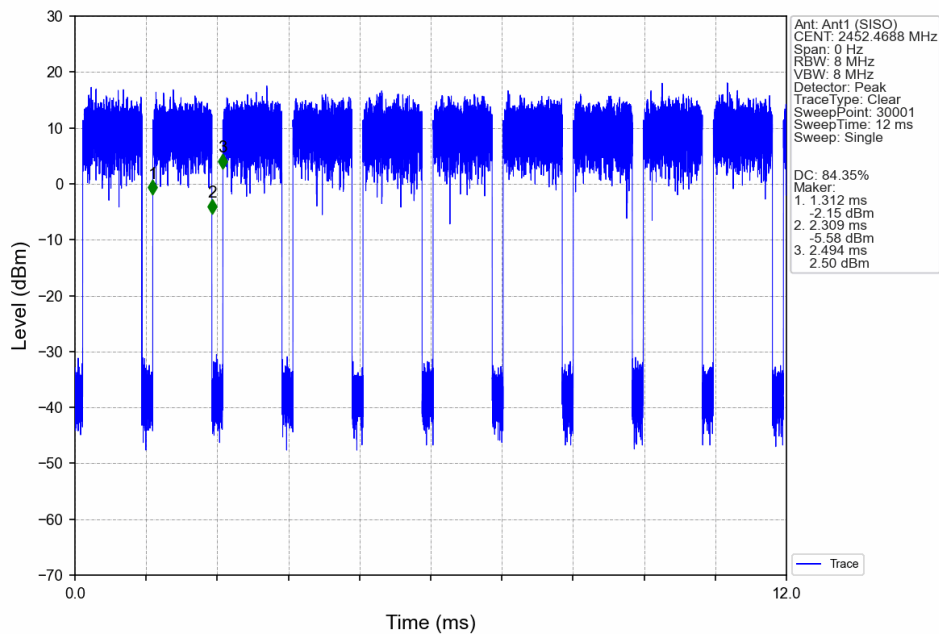
802.11ax(HE20)_LCH_2412MHz_SU / _Ant1 (SISO)_NTNV



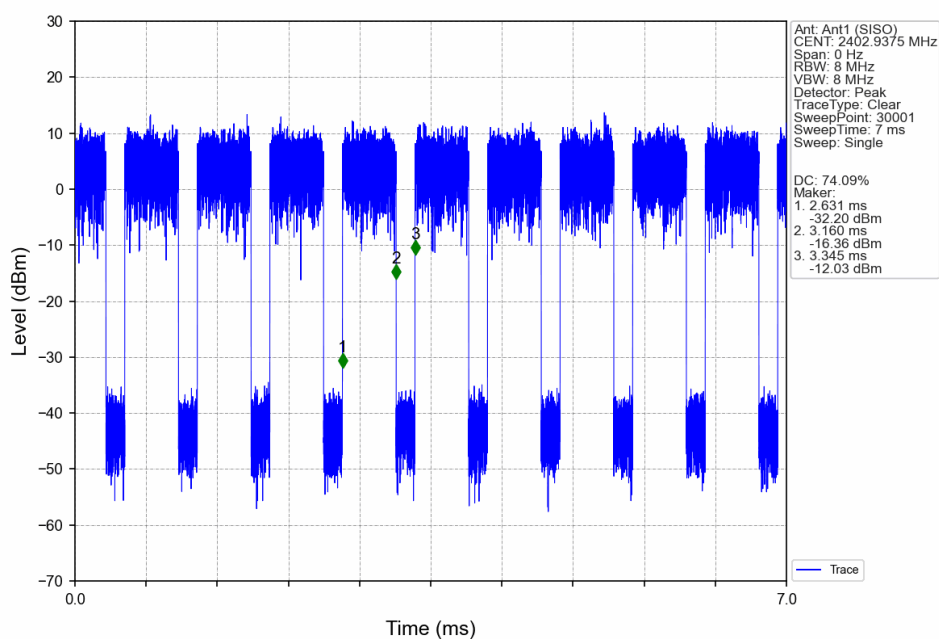
802.11ax(HE20)_MCH_2437MHz_SU / _Ant1 (SISO)_NTNV



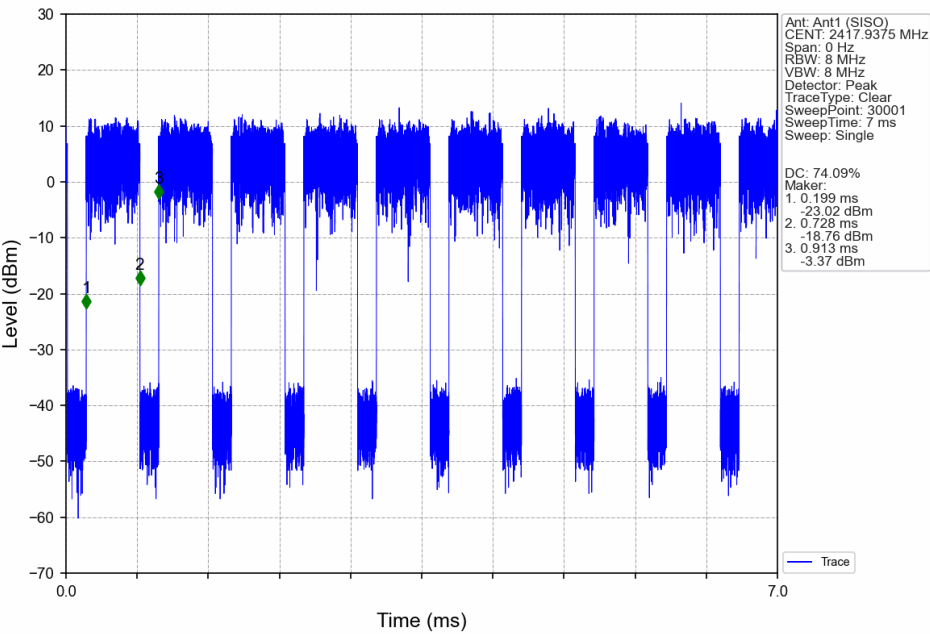
802.11ax(HE20)_HCH_2462MHz_SU / _Ant1 (SISO)_NTNV



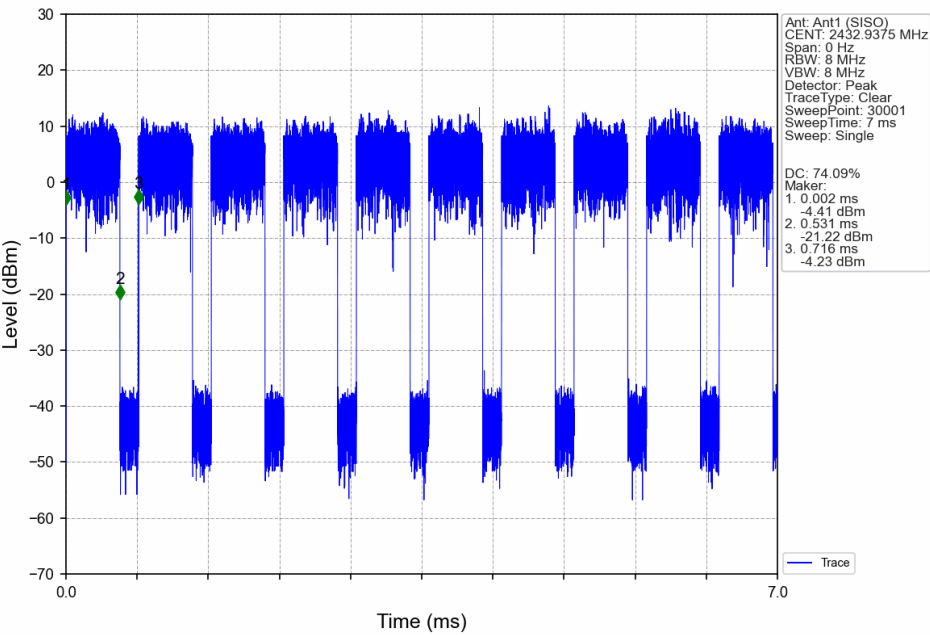
802.11ax(HE40)_LCH_2422MHz_SU / _Ant1 (SISO)_NTNV



802.11ax(HE40)_MCH_2437MHz_SU_/_Ant1 (SISO)_NTNV



802.11ax(HE40)_HCH_2452MHz_SU_/_Ant1 (SISO)_NTNV



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2. Bandwidth

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	99% Occupied Bandwidth (MHz)		Verdict
						Result	Limit	
802.11b	SISO	2412	/	/	1	14.343	/	Pass
		2437	/	/	1	14.300	/	Pass
		2462	/	/	1	14.381	/	Pass
802.11g	SISO	2412	/	/	1	21.811	/	Pass
		2437	/	/	1	21.691	/	Pass
		2462	/	/	1	19.669	/	Pass
802.11n (HT20)	SISO	2412	/	/	1	23.047	/	Pass
		2437	/	/	1	20.588	/	Pass
		2462	/	/	1	20.100	/	Pass
802.11n (HT40)	SISO	2422	/	/	1	39.912	/	Pass
		2437	/	/	1	39.717	/	Pass
		2452	/	/	1	39.891	/	Pass
802.11ax (HE20)	SISO	2412	SU	/	1	20.657	/	Pass
		2437	SU	/	1	20.004	/	Pass
		2462	SU	/	1	20.620	/	Pass
802.11ax (HE40)	SISO	2422	SU	/	1	39.398	/	Pass
		2437	SU	/	1	39.299	/	Pass
		2452	SU	/	1	39.357	/	Pass

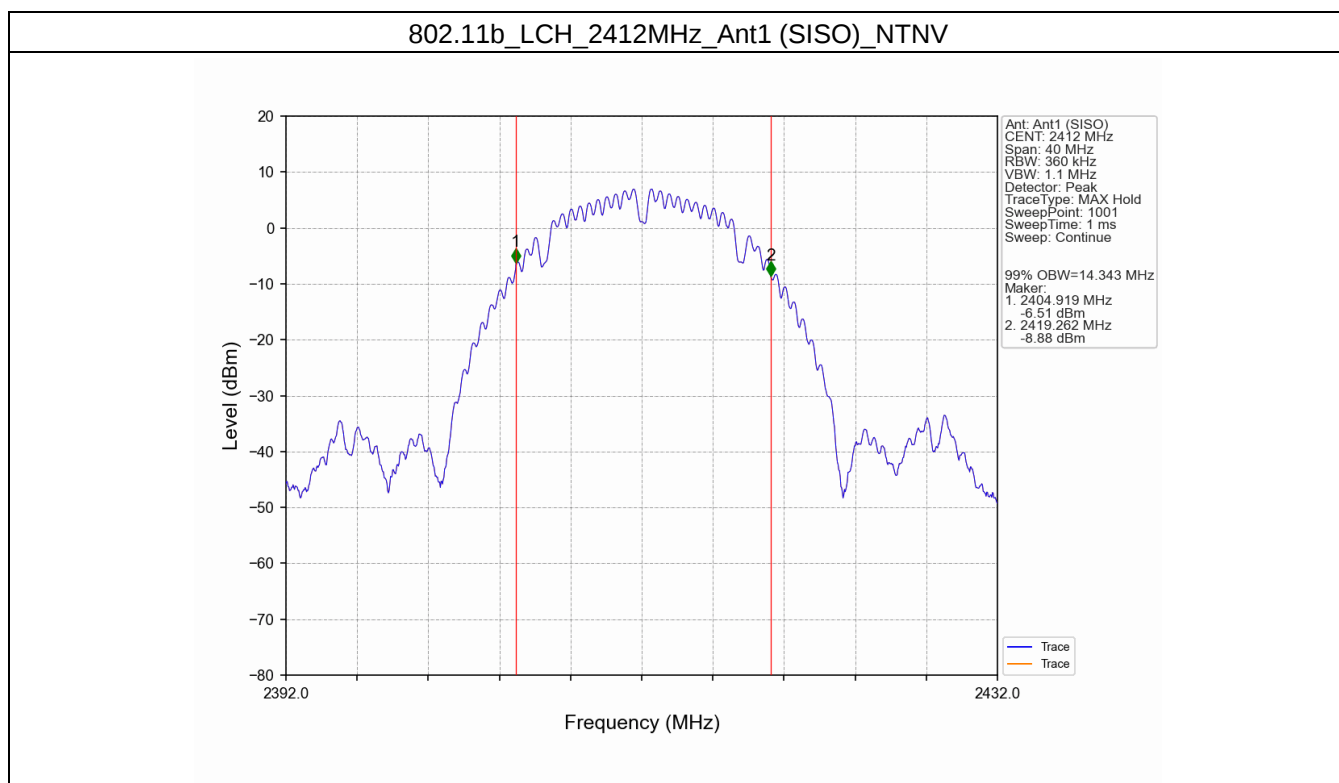
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	RU	RU Pos	ANT	6dB Bandwidth (MHz)		Verdict
						Result	Limit	
802.11b	SISO	2412	/	/	1	10.061	≥ 0.5	Pass
		2437	/	/	1	10.069	≥ 0.5	Pass
		2462	/	/	1	9.555	≥ 0.5	Pass
802.11g	SISO	2412	/	/	1	15.176	≥ 0.5	Pass
		2437	/	/	1	15.174	≥ 0.5	Pass
		2462	/	/	1	15.462	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	/	/	1	15.174	≥ 0.5	Pass
		2437	/	/	1	15.171	≥ 0.5	Pass
		2462	/	/	1	15.173	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	/	/	1	35.206	≥ 0.5	Pass
		2437	/	/	1	35.198	≥ 0.5	Pass
		2452	/	/	1	35.196	≥ 0.5	Pass

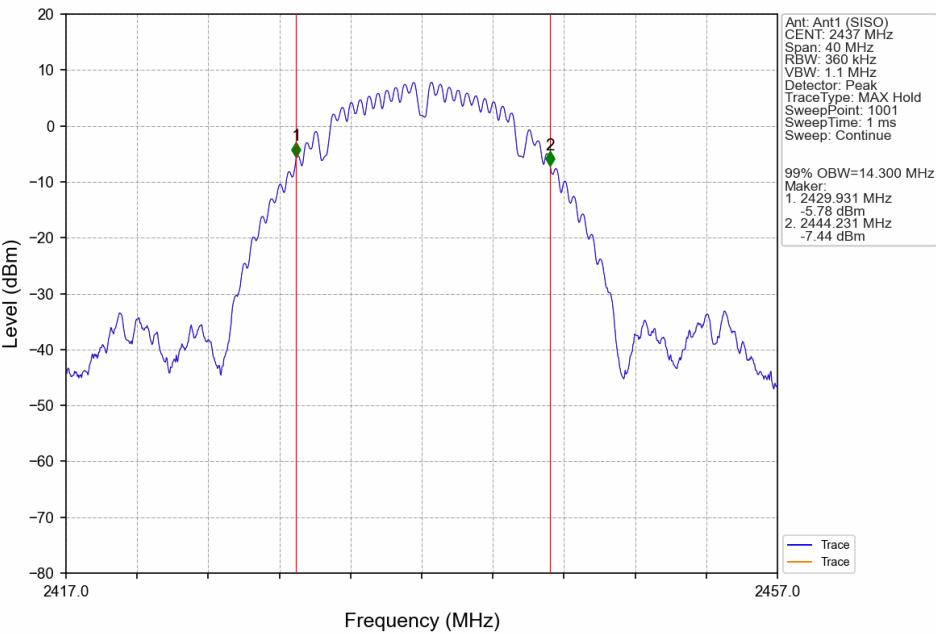
802.11ax (HE20)	SISO	2412	SU	/	1	16.609	≥ 0.5	Pass
		2437	SU	/	1	17.603	≥ 0.5	Pass
		2462	SU	/	1	18.425	≥ 0.5	Pass
802.11ax (HE40)	SISO	2422	SU	/	1	36.782	≥ 0.5	Pass
		2437	SU	/	1	36.913	≥ 0.5	Pass
		2452	SU	/	1	36.446	≥ 0.5	Pass

2.2 Test Graph

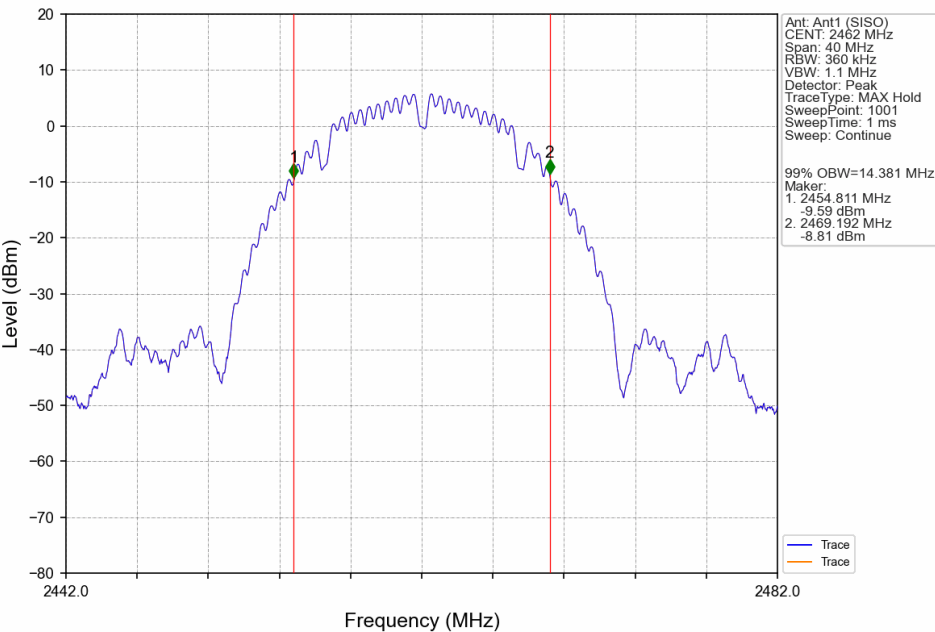
2.2.1 OBW



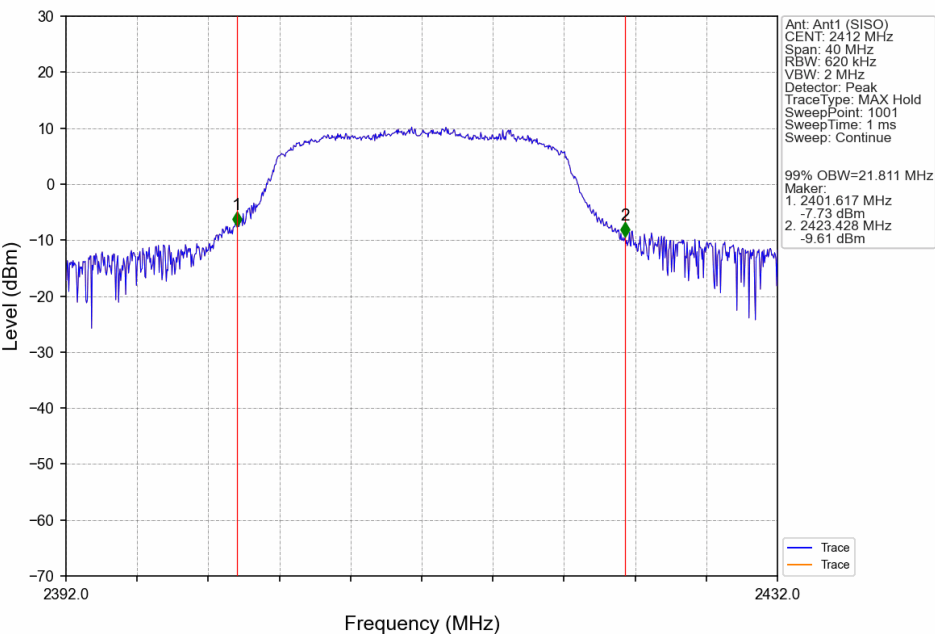
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



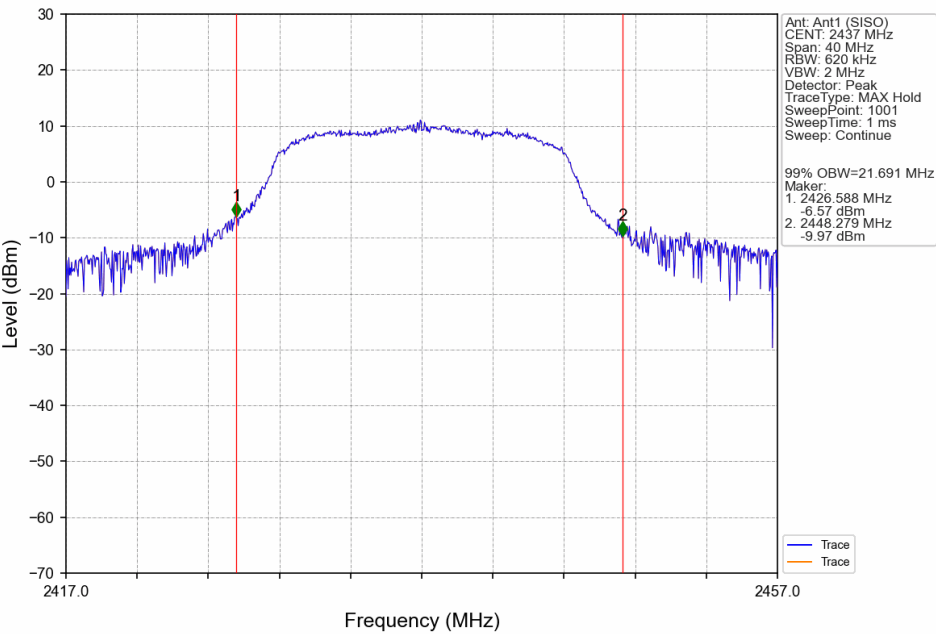
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



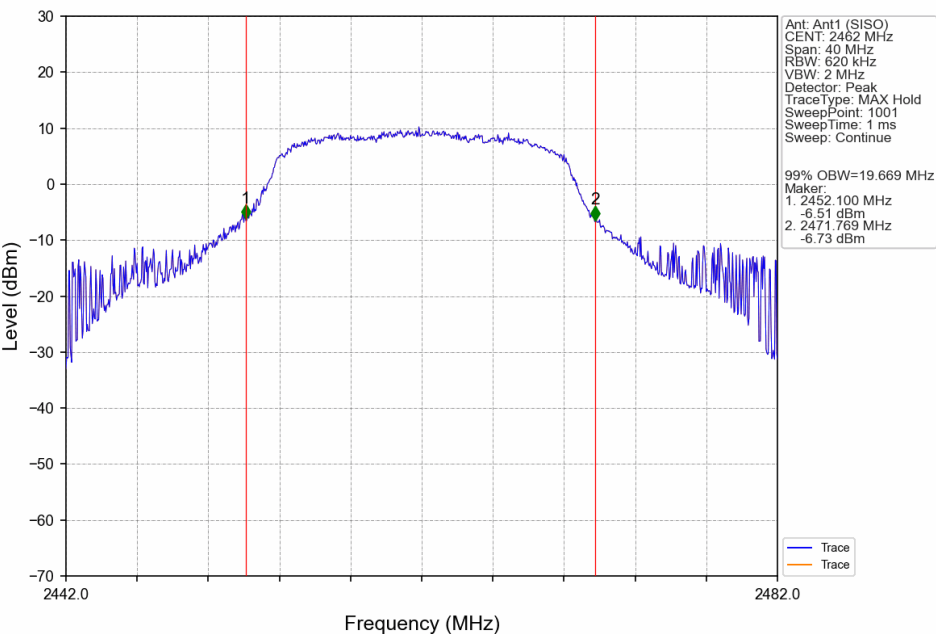
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



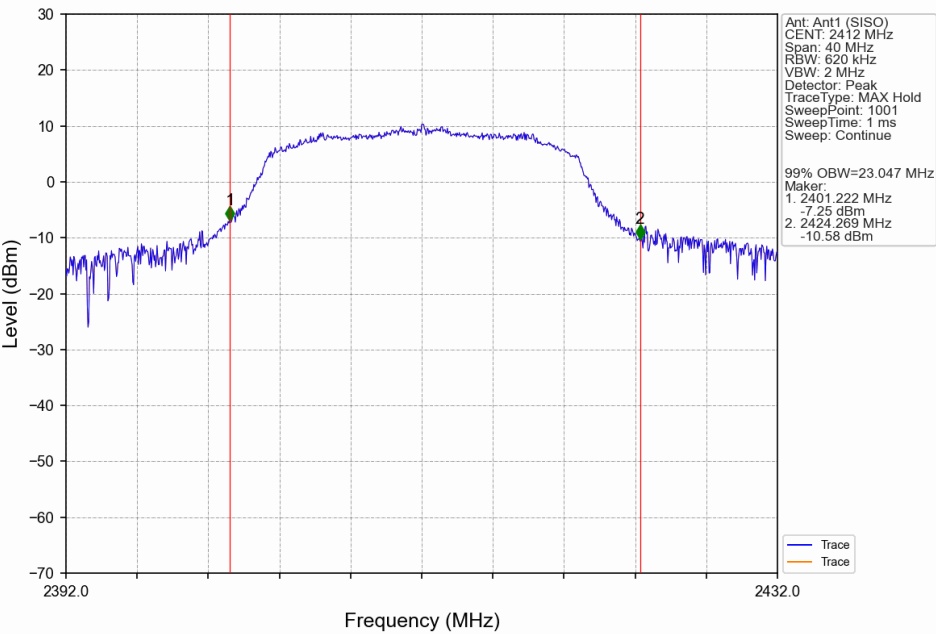
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



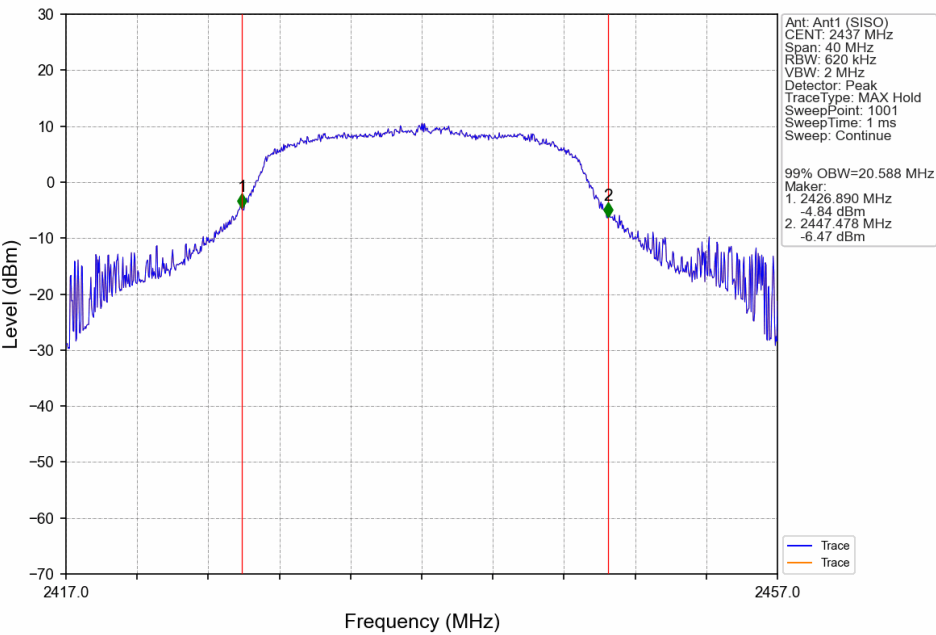
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



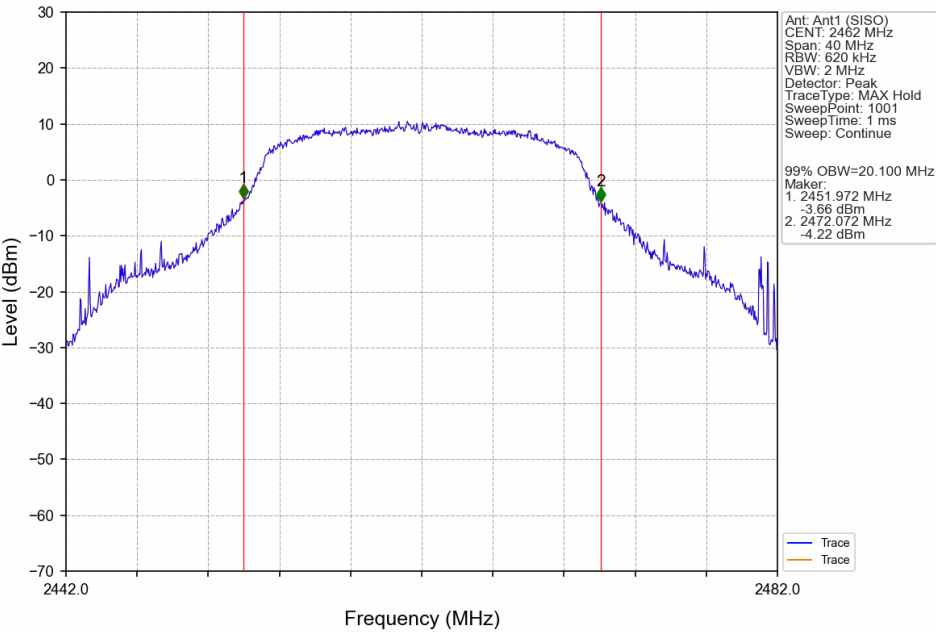
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



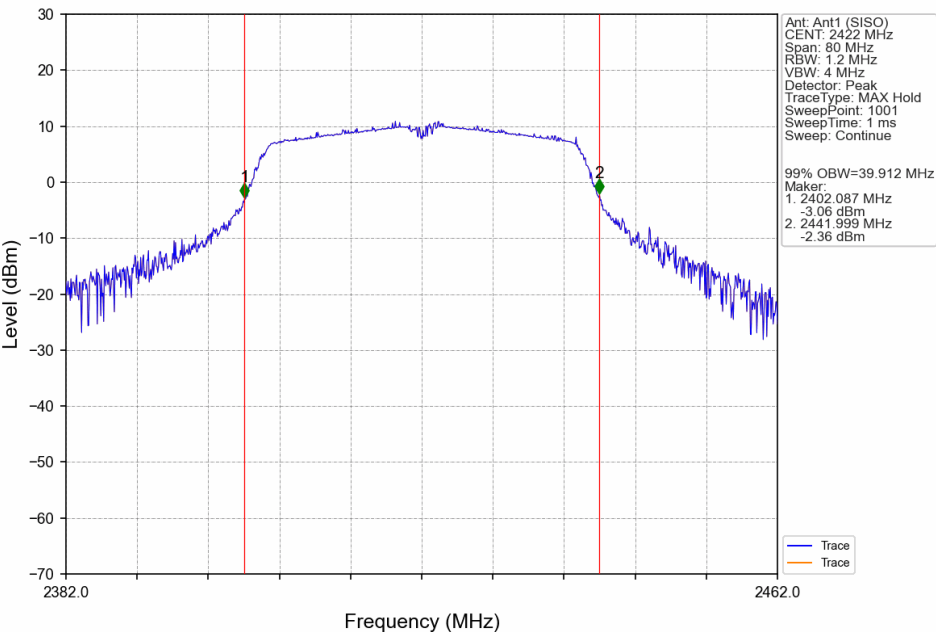
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



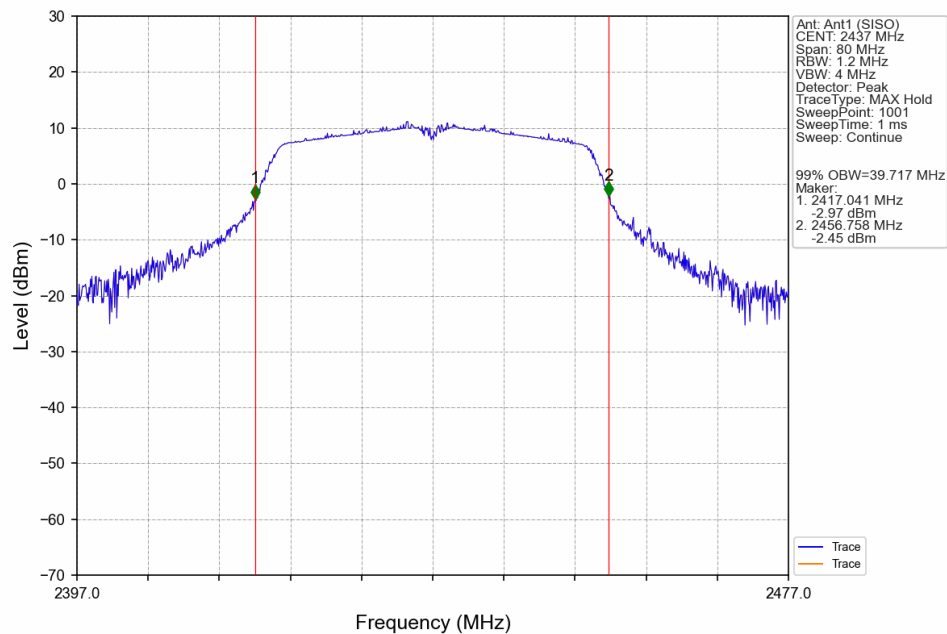
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



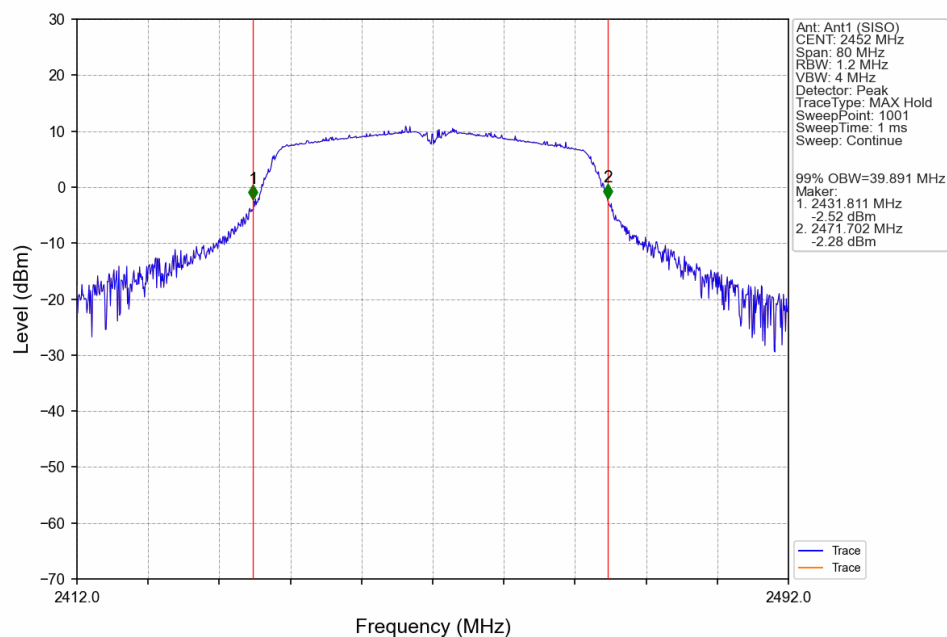
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



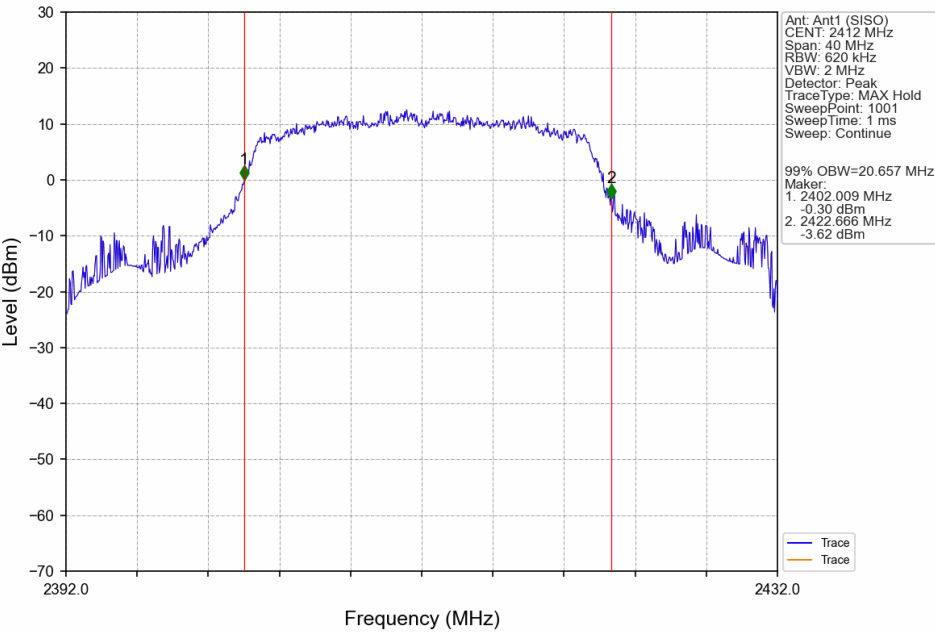
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



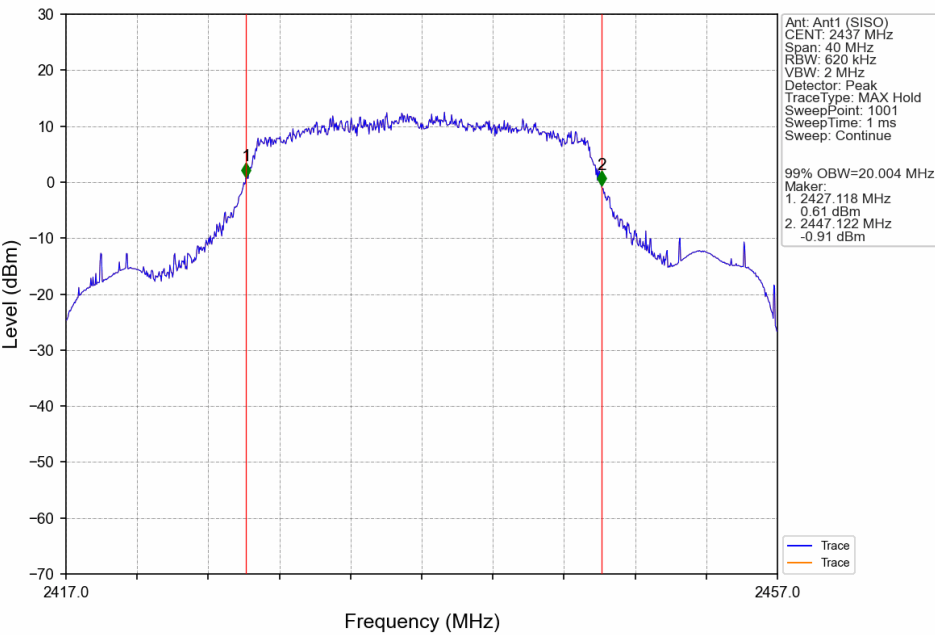
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



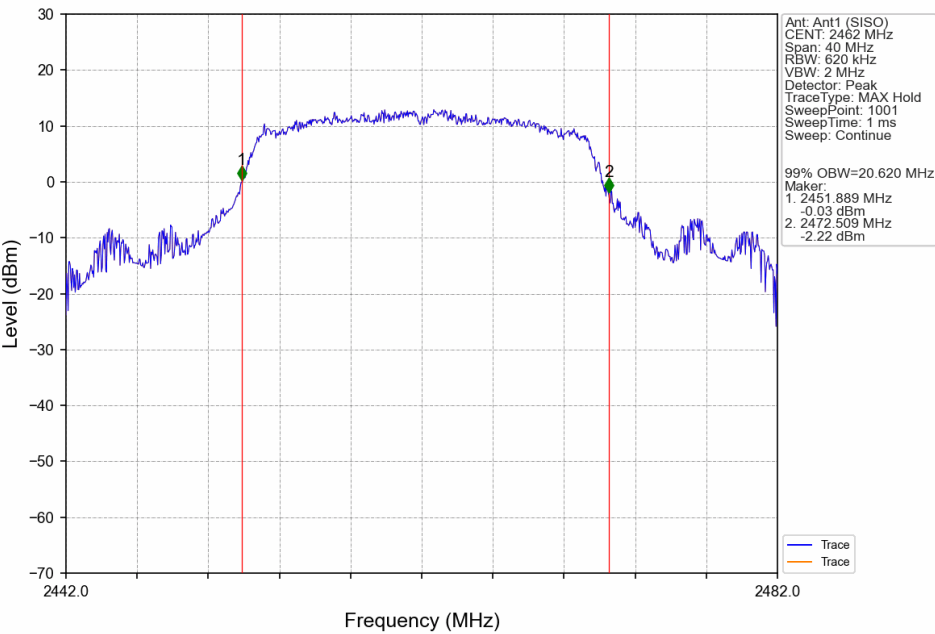
802.11ax(HE20)_LCH_2412MHz_SU_/_Ant1 (SISO)_NTNV



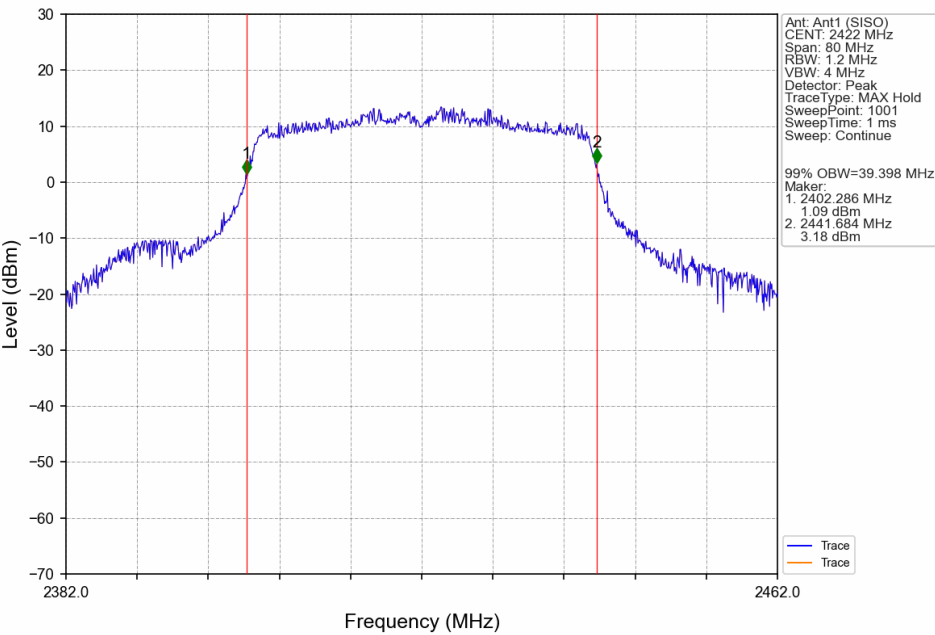
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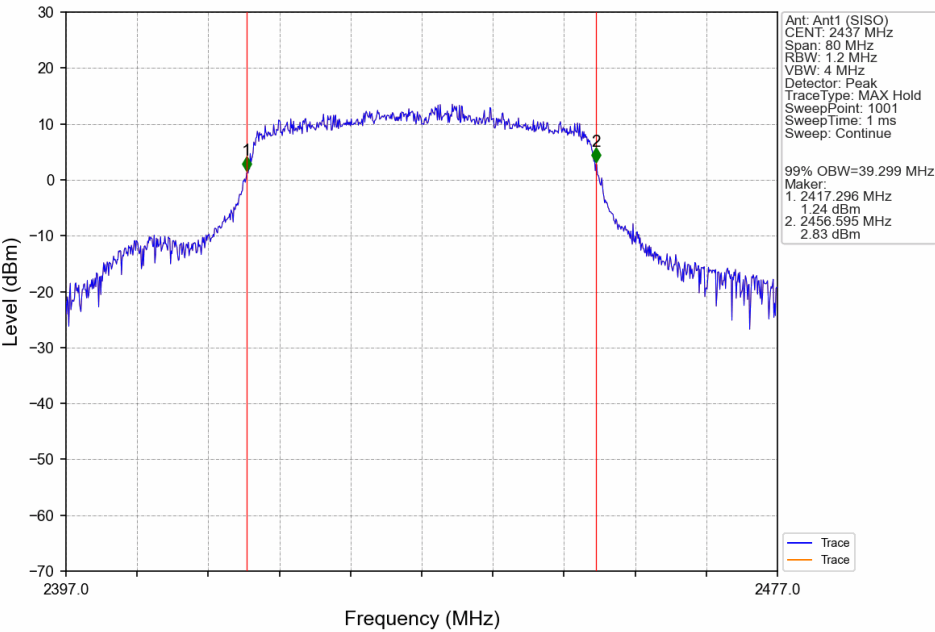
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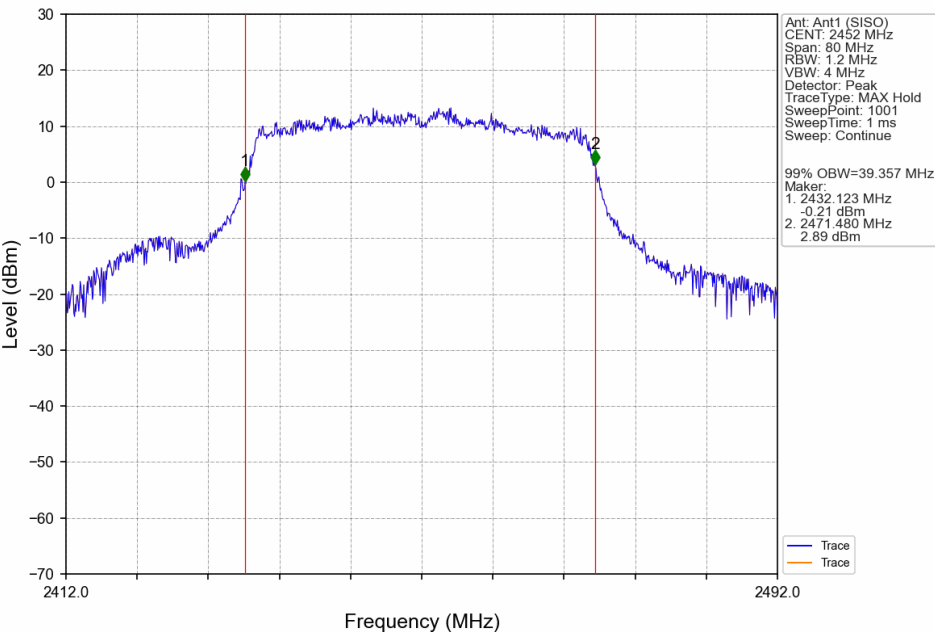
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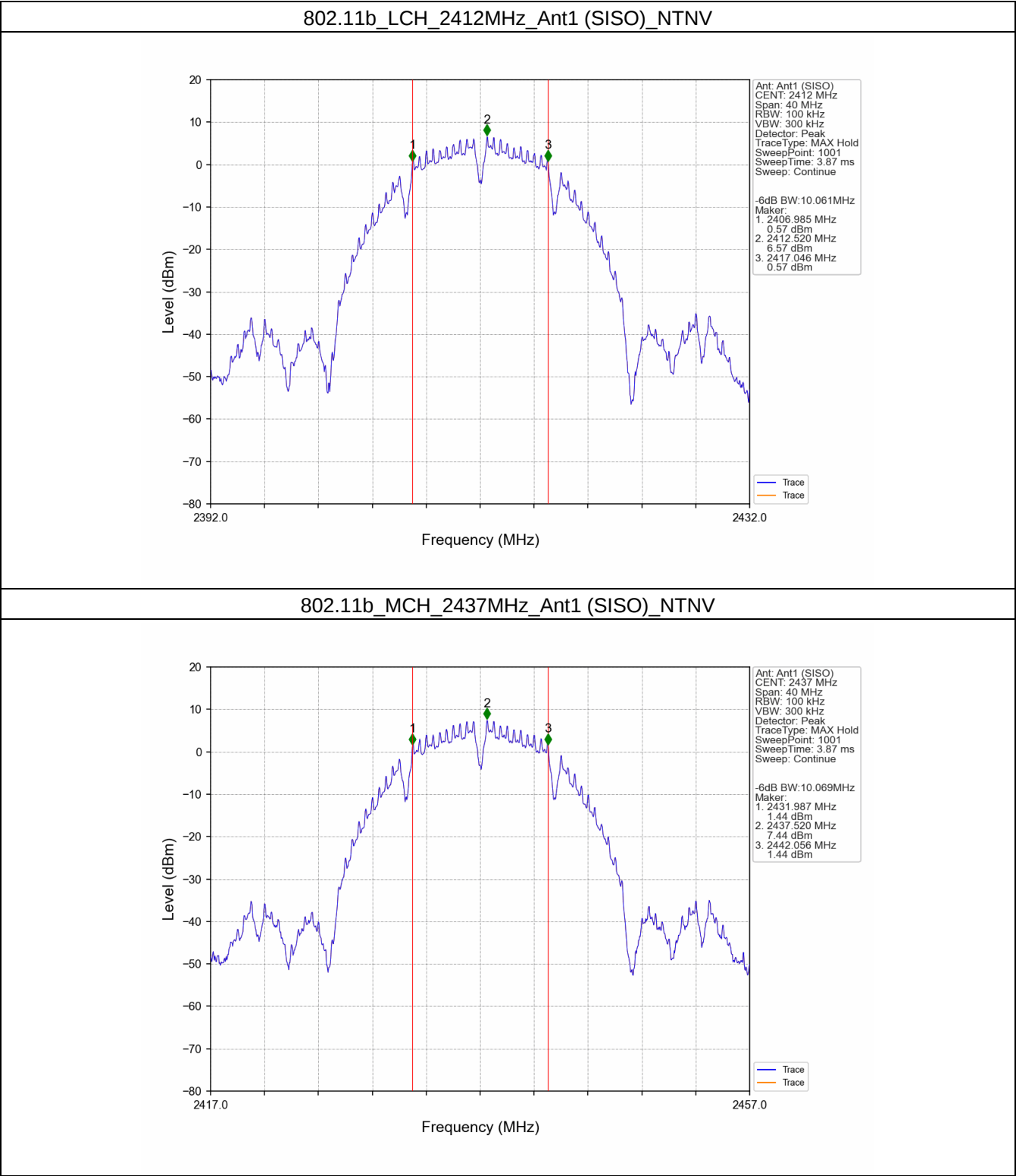
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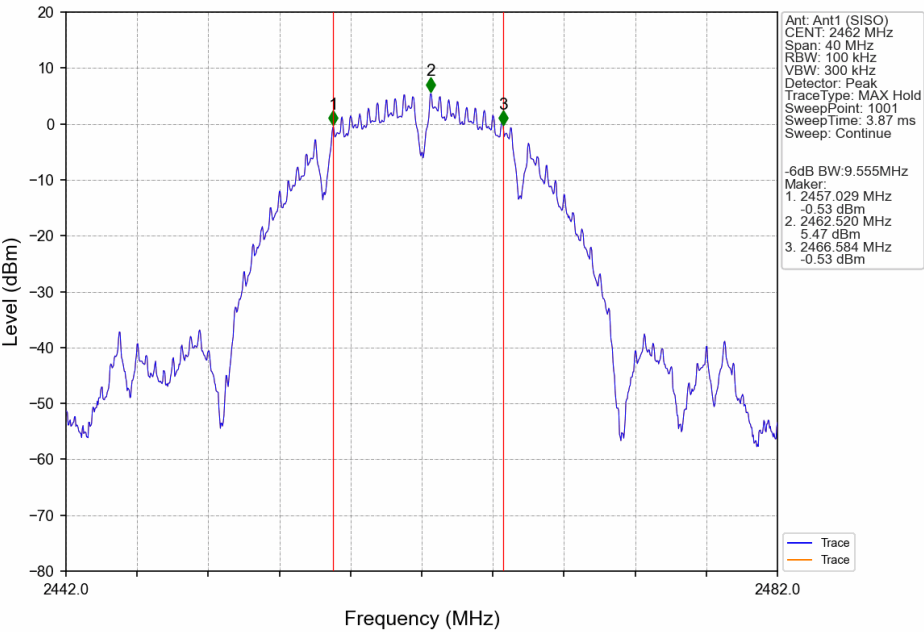
802.11ax(HE40)_HCH_2452MHz_SU_/_Ant1 (SISO)_NTNV



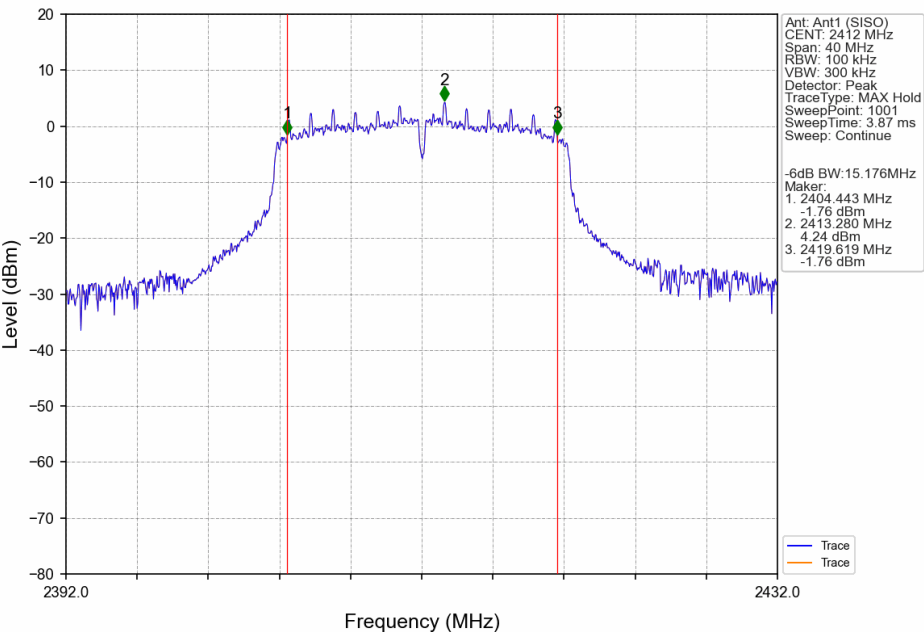
2.2.2 6dB BW



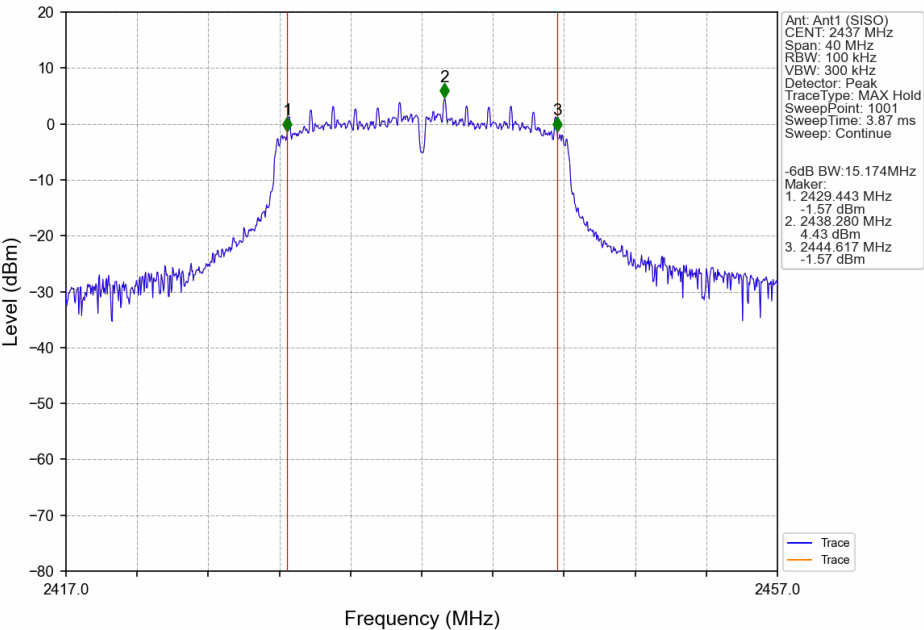
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



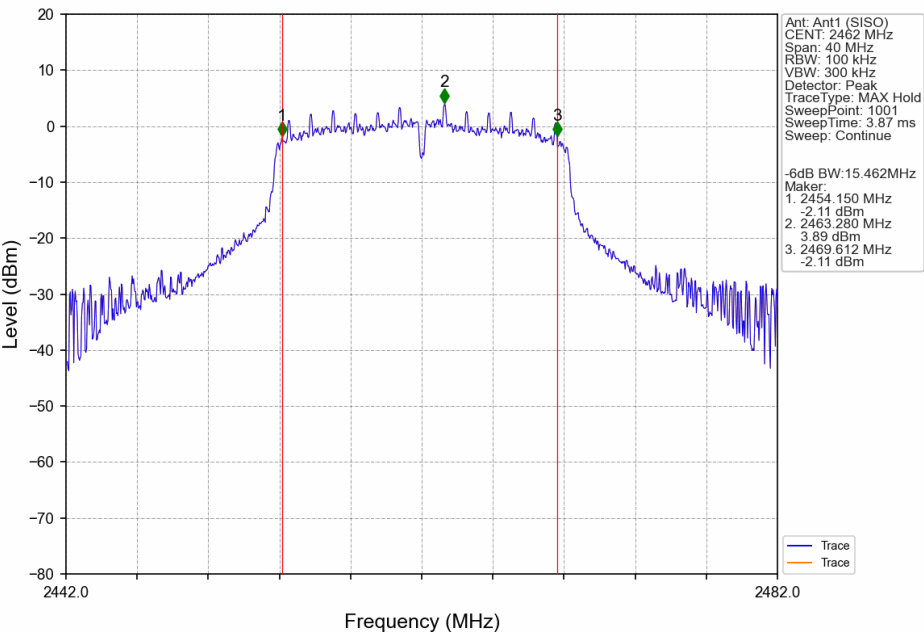
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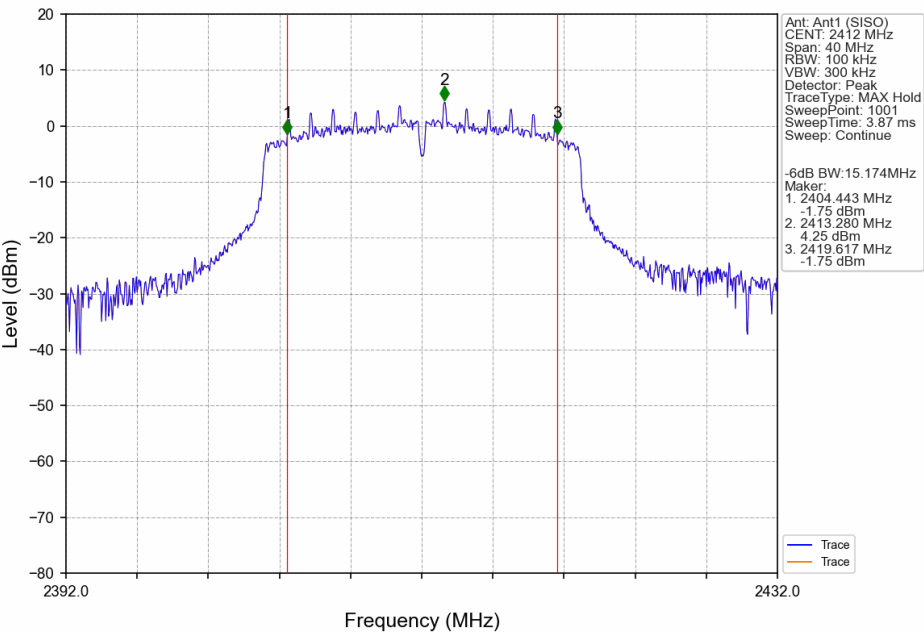
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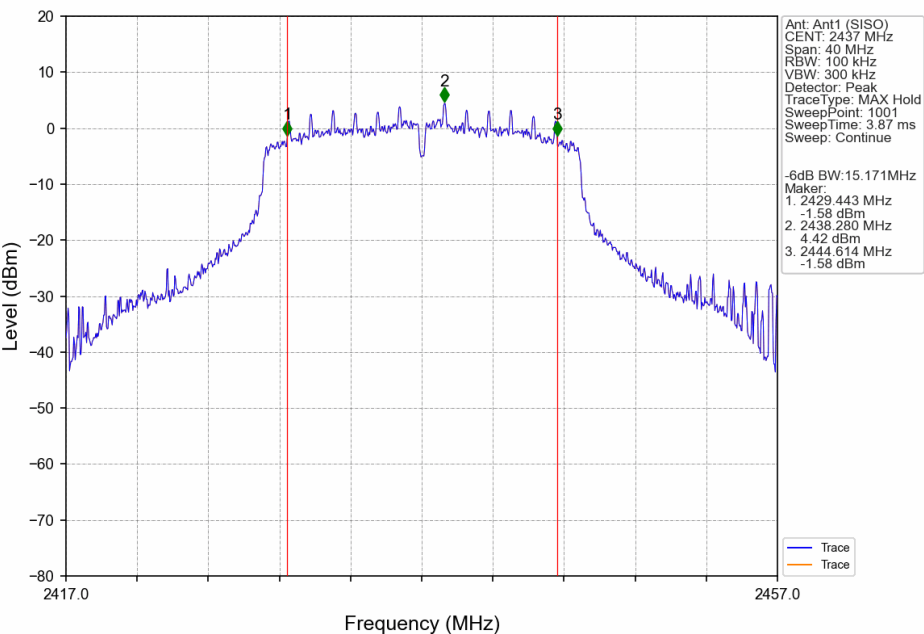
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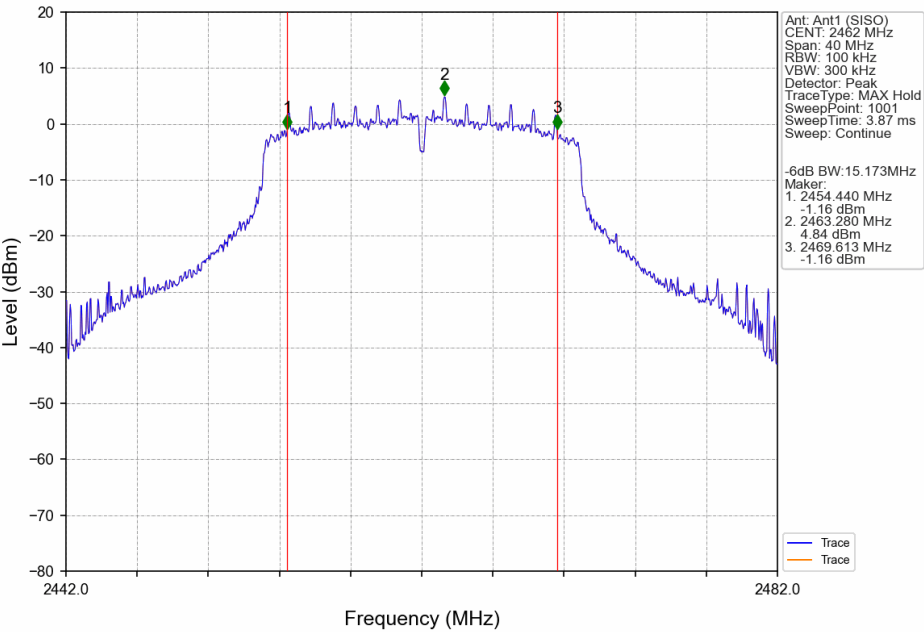
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



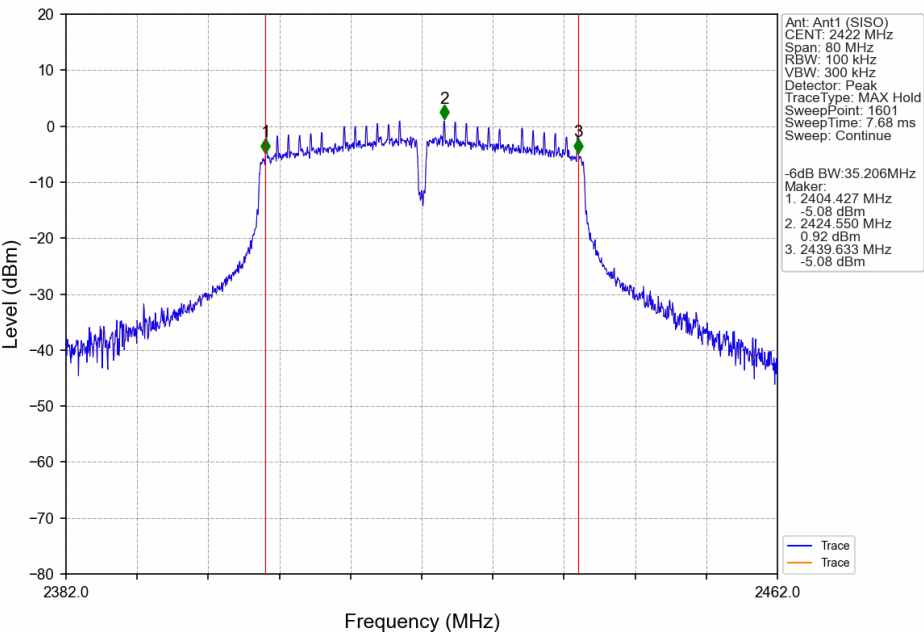
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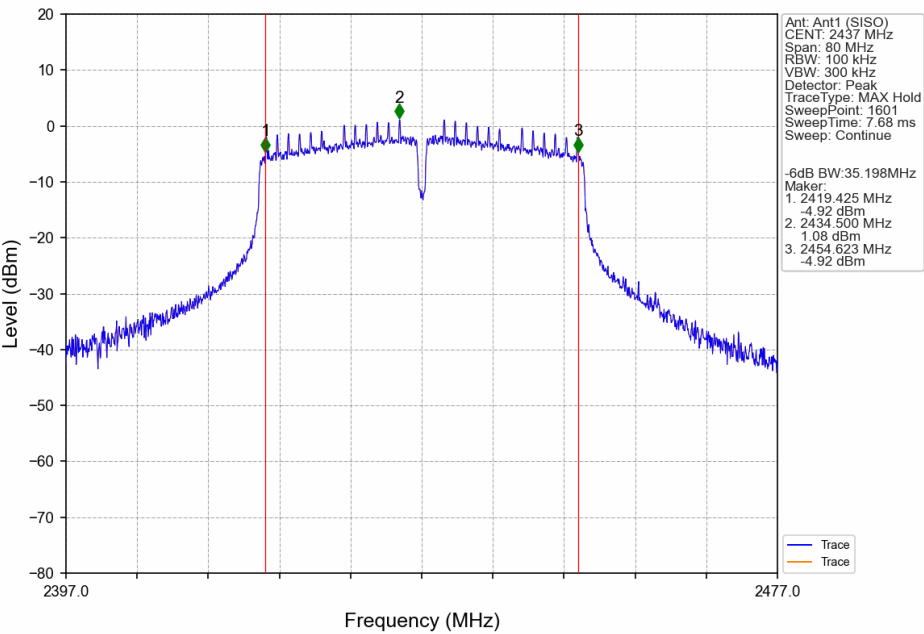
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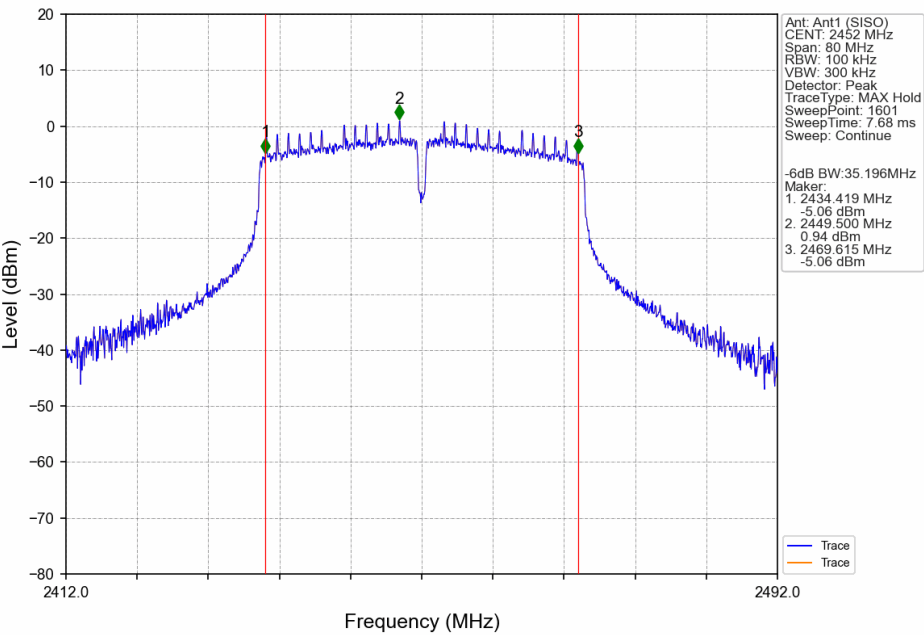
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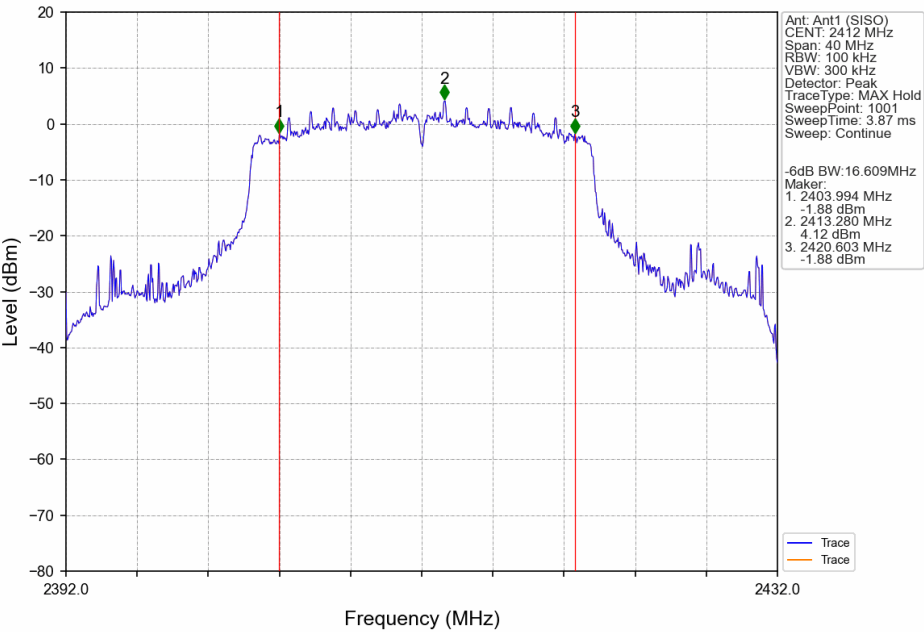
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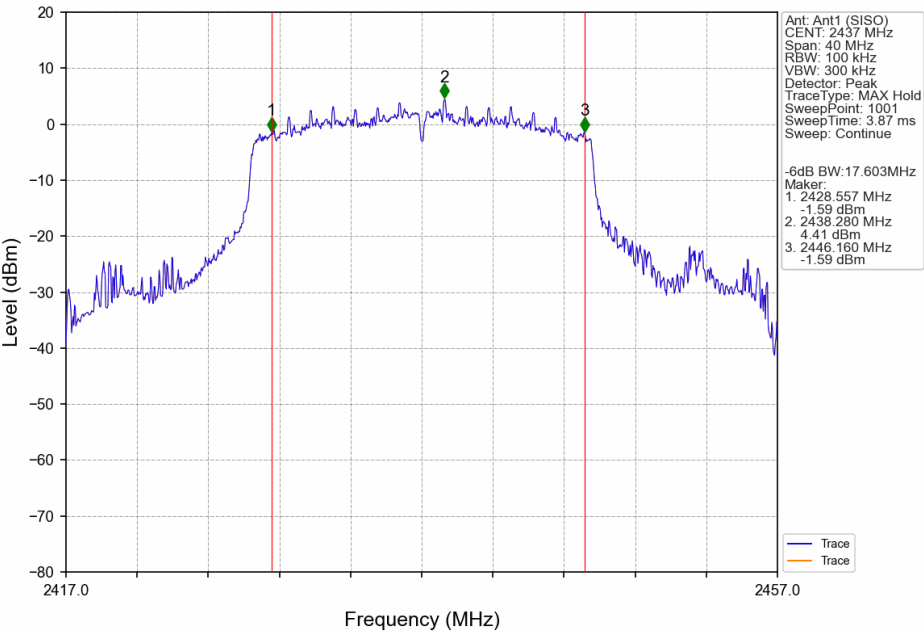
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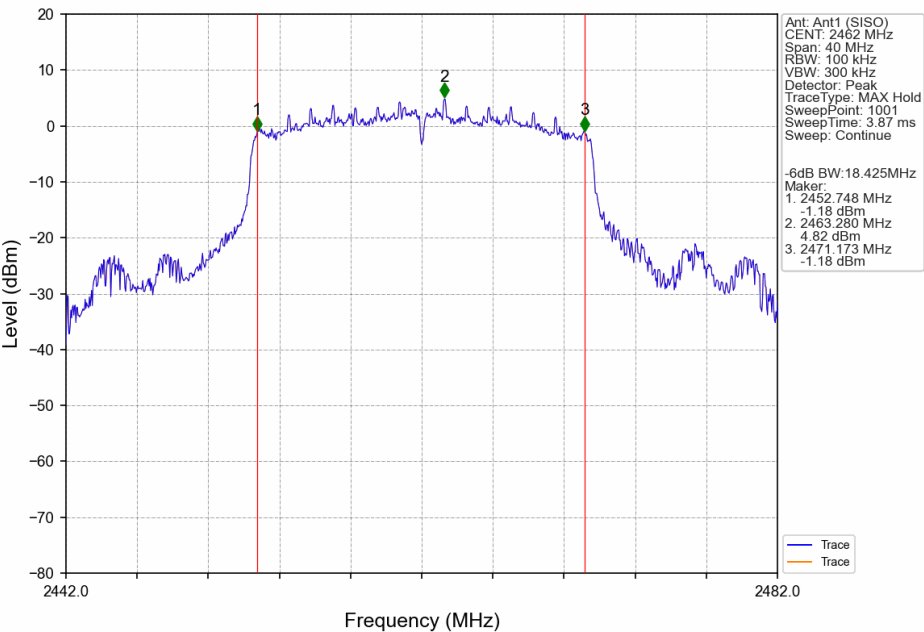
802.11ax(HE20)_LCH_2412MHz_SU_/_Ant1 (SISO)_NTNV



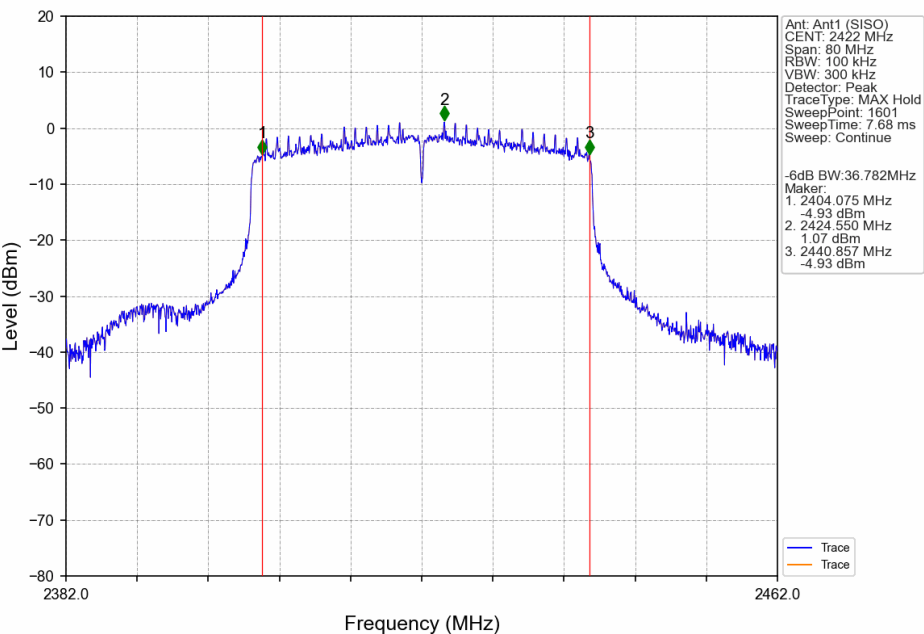
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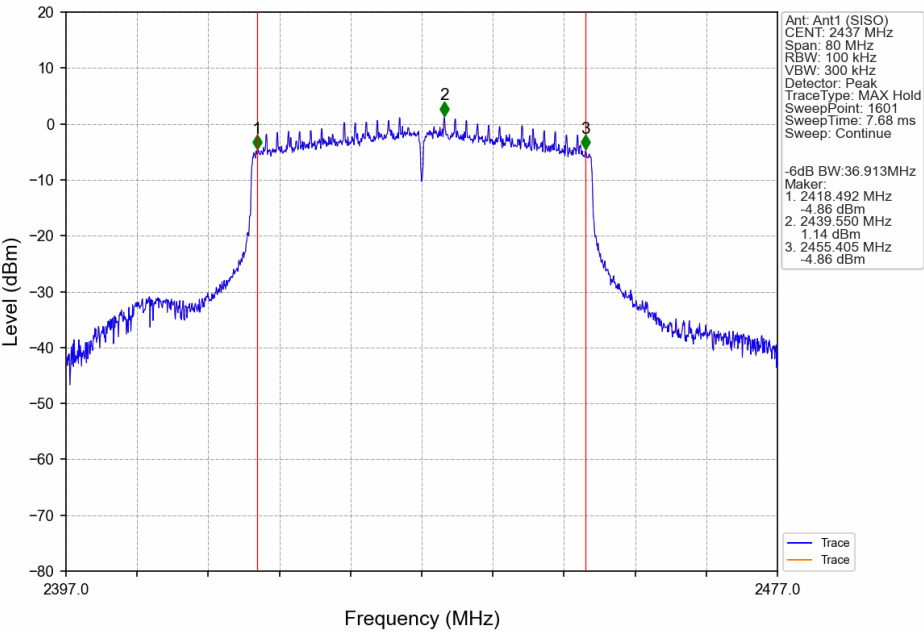
802.11ax(HE20)_HCH_2462MHz_SU_/_Ant1 (SISO)_NTNV



802.11ax(HE40)_LCH_2422MHz_SU_/_Ant1 (SISO)_NTNV



802.11ax(HE40)_MCH_2437MHz_SU_/_Ant1 (SISO)_NTNV



802.11ax(HE40)_HCH_2452MHz_SU_/_Ant1 (SISO)_NTNV

